

**PUBLIC SCHOOL FUND INVESTMENT BOARD**

**MEETING AGENDA, AUGUST 14, 2023**

**VIDEO CONFERENCE VIA ZOOM LINK:**

<https://us02web.zoom.us/j/83276055784?pwd=Ny9FNdrODhUNytSRnZ4LzZ2aTNLdz09>

Meeting ID: 832 7605 5784

Passcode: 1thY5G

One tap mobile

+17193594580,,83276055784#,,,,\*781164# US

+12532158782,,83276055784#,,,,\*781164# US

**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 May 15, 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: Portfolio Administrator                             | Rothaus 12:15 (10 min)      |
|       | a. Current year end October 25, 2023; total contract end 2026                 |                             |
| VI.   | Board Member Terms Update   | S. Zimbelman 12:25 (5 min)  |
|       | a. Peter Calamari – End of 3rd Term 8/31/2024                                 |                             |
|       | b. Christine Scanlan – End of 2nd Term 8/31/2024                              |                             |
|       | c. Wendy Dominguez – End of 2nd Term 11/30/2024                               |                             |
|       | d. Jerome DeHerrera – End of 2nd Term 11/30/2024                              |                             |
| VII.  | Market Update (Qtr. 2 – Ending June 30, 2023)                                 | Callan 12:30 (10 min)       |
| VIII. | Performance Report (FY Qtr. 4 – Ending June 30, 2023)                         | Callan 12:40 (15 min)       |
| IX.   | Cash deployment Update  | Callan 12:55 (5 min)        |
| X.    | Review Annual Report Submitted to State Agencies                              | S. Zimbelman 1:00 (5 min)   |
| XI.   | Review of unrealized gains/losses   | S. Zimbelman 1:05 (5 min)   |
| XII.  | Fund Manager Presentation: Treasury Portfolio                                 | M. More 1:10 (20 min)       |
|       | a. Colorado Department of the Treasury, Maruti More, Chief Investment Officer |                             |

- |       |   |                             |
|-------|---|-----------------------------|
| XIII. | Presentation: PSPF Community Investment Project | M. Wickersham 1:30 (20 min) |
| XIV.  | Other Business                                  | 1:50 (5 min)                |
| XV.   | Public Comment                                  | 1:55 (5 min)                |
| XVI.  | Board Adjournment                               | 2:00                        |

Future Meeting Dates:

November 13, 2023          Noon



Public School Fund Investment Board Meeting  
Meeting Minutes May 15, 2023  
Held Via Zoom

**Board Members in Attendance:**

Dave Young  
Peter Calamari - Excused  
Wendy Dominguez  
Christine Scanlan  
Jerome DeHerrera

**12:01 – 12:03 PM Welcome, Roll Call**

**12:03 – 12:05 PM Meeting minutes from the February 27 2023 Board Meeting**

Mr. DeHerrera made a motion to approve the February 27, 2023 meeting minutes.  
Ms. Scanlan seconded the motion. The motion passed at 12:05 pm.

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

**12:05 – 12:18 PM Short Duration and Core Bond Portfolio RFP Update**

Ms. Sarah Zimbelman (Portfolio Administrator) presented proposed schedules for the upcoming Short Duration Portfolio Manager and Core Bond Portfolio Manager RFPs. The Board's current contract with Janus, the current short duration bond portfolio manager expires in October 2023. Mr. Deherrera volunteered to be the board representative on the short duration RFP evaluation team.

Ms. Zimbelman provided information regarding a question raised at the February board meeting as to whether external managers of the Public School Fund are subject to the same restrictions on investments that govern the Treasury's investment of state moneys. The short answer is no, investment managers of the PSF, both external and within Treasury, are subject to fewer restrictions than Treasury when it invests state money more generally. The legislature has given more latitude, for investments made at the direction of the Public School Fund Investment Board. In addition to authorizing the same types of investment-grade securities that Treasury pursues for state money generally, the Board is also allowed to invest in other financial assets as specified in the Board's investment policy. The Board, at its discretion, can change its guidelines for each manager within the Board's investment policy statement (IPS), as long as they do not violate state statute. Ms. Janet Becker-Wold, from Callan Investment Advisors, noted that while the Fund as a whole has more latitude, each portfolio and

therefore portfolio manager has a specific role within the larger Fund and therefore each should have different guidelines for their respective role.

Ms. Dominguez asked Ms. Becker-Wold and Mr. Browning (Callan) if they had any recommendations on changing guidelines for the Treasury Bond Portfolio. Ms. Becker-Wold stated that at this point the guidelines for the Treasury Bond Portfolio are well suited for that portfolio's role within the Fund, but that when the Board hires another Core Bond Portfolio Manager they could consider giving that manager more latitude in the investment guidelines to invest in some more below investment-grade bonds for example, based upon their specific expertise and role within the Fund. Ms. Dominguez volunteered to be the board representative on the short duration RFP evaluation team.

#### **12:18 – 12:22 PM Vote on 1 year extension: MacKay Shields**

Ms. Becker-Wold presented a summary of Mackay Shields's performance for the Board's consideration. Callan's recommended that the Board extend MacKay Shields's contract for another year. Ms. Dominguez made a motion to extend the MacKay Shields contract for one year. Mr. DeHerrera seconded the motion.

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

The motion passed at 12:22.

#### **12:22 – 12:30 PM Annual IPS Review**

Mr. Browning (Callan) went through IPS updates and recommended that each portfolio manager review their guidelines to ensure they remain in alignment and no modifications need to be considered. Next steps are to review the IPS with each portfolio manager along with Grant Sullivan from the Attorney General's office and provide a final revised copy for the Board's approval.

#### **12:30 – 12:40 PM Market Update (Quarter 1 – Ending Mar. 31, 2023)**

Presentation by Ms. Janet Becker-Wold (Callan)

#### **12:40 – 12:45 PM Performance Report (FY Qtr. 3 – Ending March 31, 2022)**

Presentation by Mr. Alex Browning (Callan)

#### **12:45 – 12:50 PM Asset Allocation Update & Rebalancing Recommendation**

Presentation by Mr. Alex Browning (Callan)

#### **12:50 – 1:02 PM Review of Unrealized Gains/Losses**

Presentation by Ms. Sarah Zimbelman (Portfolio Administrator)

#### **1:02 – 1:18 PM OML Education and Review of Communication and Open Records Act**

Presentation and training on Colorado Open Meetings Law and Open Records Act by Ms. Kerry Colburn, Assistant Attorney General

#### **1:18 – 1:40 PM Fund Manager Presentation: Janus Henderson**

Presentation Greg Wilensky - Head of U.S. Fixed Income and Michael Keough – Portfolio Manager

### **1:40 – 2:02 PM Other Business**

- Mr. Eric Rothaus (Deputy Treasurer) reported to the Board that Senate Bill 220 re-allocated \$10M of funds that would have come to the PSPF as part of the 4<sup>th</sup> quarter Land Board distribution to BEST school construction projects.
- Mr. Eric Rothaus also reported that the HB 1146 report was completed and distributed to the Board after the May Board meeting. Unfortunately, the legislature was not able to address the issues identified in the report in the last session due to the overwhelming number of issues with which it was dealing. The legislature will have the opportunity to address the report in the next session.

### **1:18 – 1:59 PM Public comments**

- Written Comments
  - There were no written comments.
- Verbal Comments
  - Ms. Mary Wickersham, from Social Impact Solutions, Mr. Tony Lewis from Donnell-Kay Foundation, Mr. Santhosh Ramdoss and Ms. Jill Hawley from Gary Community Ventures addressed the Board regarding the HB 1146 Working Group, of which Ms. Wickersham was a participant, specifically regarding the discussions from the working group around ways for the PSPF to increase its impact, using the corpus of the fund to benefit Colorado kids directly. Ms. Wickersham discussed a project group that has started out of these discussions: the project has two-key funders, the Donnell-Kay Foundation and Gary Community Ventures. The group has begun to address some of the needs identified by the working group's recommendation to consider impact investment opportunities including: importance of a mission statement related to impact in addition to return, the development of an impact related investment strategy, the identification of measurable impact goals, the consideration of risk balance, etc. Ms. Wickersham and the rest of the project group would like to return at the Board's August meeting to present more concrete details around options and ideas as the Board considers the working group's recommendations.

**The meeting was adjourned at 2:00 pm.**

### **Next Meeting**

- August 14, 2023 at Noon

<b>2.1 Schedule of Activities</b>	<b>Original</b>		<b>Proposed Update</b>
<b>Activity</b>	<b>Date</b>	<b>Time (MST)</b>	
<b>1. RFP published on VSS System</b>	<b>06/12/2023</b>	<b>N/A</b>	<b>No Change</b>
<b>2. Prospective Proposer's Inquiry Deadline No inquiries accepted after this date</b>	<b>06/19/2023</b>	<b>4:00 PM</b>	<b>No Change</b>
<b>3. Response to written inquiries on Vendor Self Serve (VSS) (ESTIMATED*)</b>	<b>06/28/2023</b>	<b>N/A</b>	<b>No Change</b>
<b>4. Proposal Submission Deadline</b>	<b>07/14/2023</b>	<b>4:00 PM</b>	<b>No Change</b>
<b>5. Evaluation of Written Proposals (ESTIMATED*)</b>	<b>July 15 to August 18, 2023</b>		<b>Aug. 21 to Sept. 22, 2023 Eval Team Meeting Sept. 25</b>
<b>6. Reference calls and letters of clarification questions (ESTIMATED - If applicable per Investment Board's evaluation)</b>	<b>July 15 to August 18, 2023</b>		<b>Aug. 21 to Sept. 22, 2023 Eval Team Meeting Sept. 25</b>
<b>7. Proposer Interviews (ESTIMATED – If applicable per Investment Board's evaluation)</b>	<b>July 15 to August 18, 2023</b>		<b>Aug. 21 to Sept. 22, 2023 Eval Team Meeting Sept. 25</b>
<b>9. Finalist Presentations/Proposal Selection (ESTIMATED)</b>	<b>August 28, 2023</b>		<b>Week of October 9th</b>
<b>11. Desired initial Performance Period</b>	<b>10/12/2023 - 10/11/2024</b>		<b>No Change - 2 month extension with Janus until 12/11/2023</b>

# Callan

August 2023



**Colorado Public School Fund  
Investment Board**

Second Quarter 2023

---

**Janet Becker-Wold, CFA**  
Senior Vice President

**Alexander Browning**  
Senior Vice President

Callan

---

**Economic and Market Update**

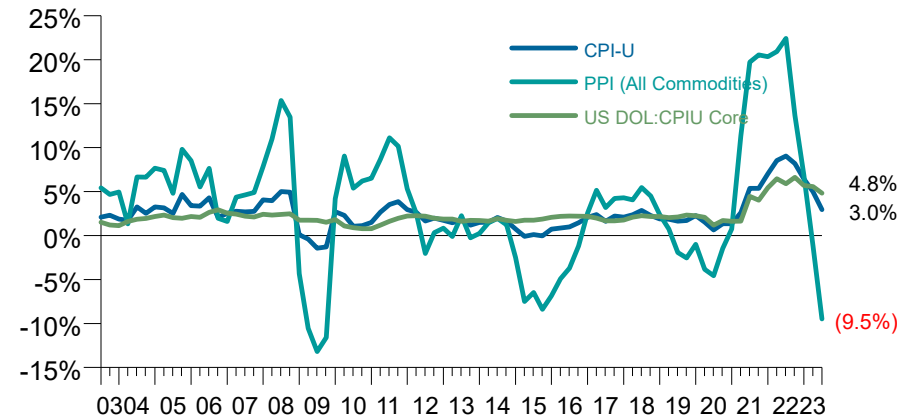


# U.S. Economy—Summary

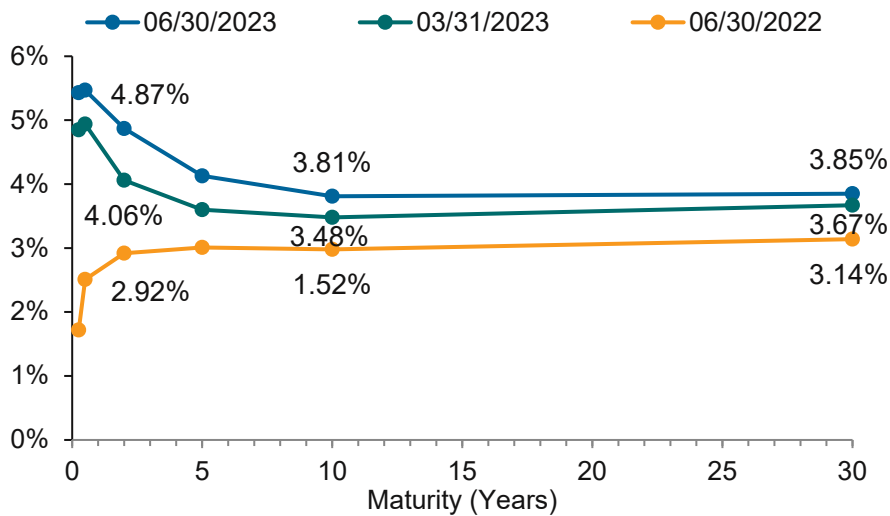
## Second Quarter 2023

- U.S. economy grew 2.4% in Q2, ahead of the 2.0% growth seen in at the end of the first quarter.
- Headline inflation softened to 3% year-over-year through June, down from 5% at the end of March.
- The Federal Reserve hiked interest rates by 25 bps at their May meeting before pausing in June. The Fed resumed their hiking at the end of July (target range 5.25-5.50%).
- Unemployment increased slightly to 3.5% in the second quarter.

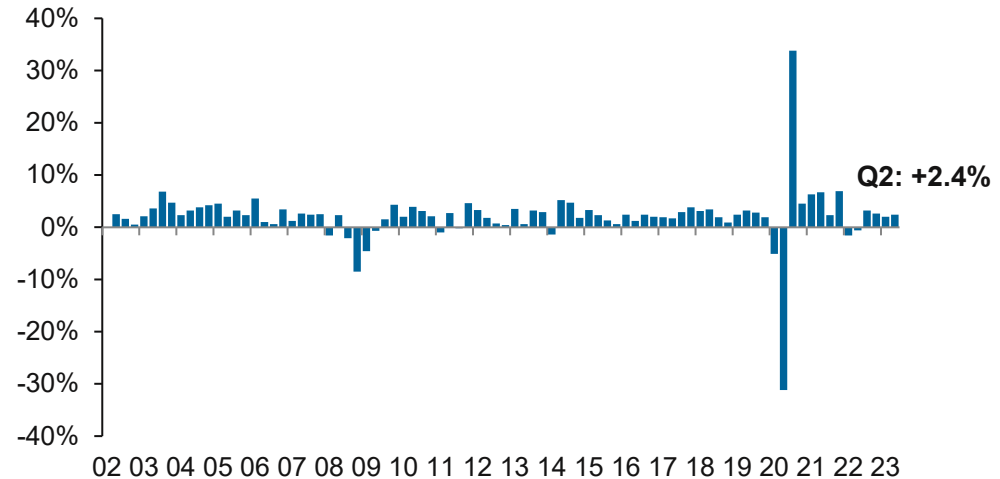
### Inflation Year-Over-Year



### U.S. Treasury Yield Curves



### Quarterly Real GDP Growth

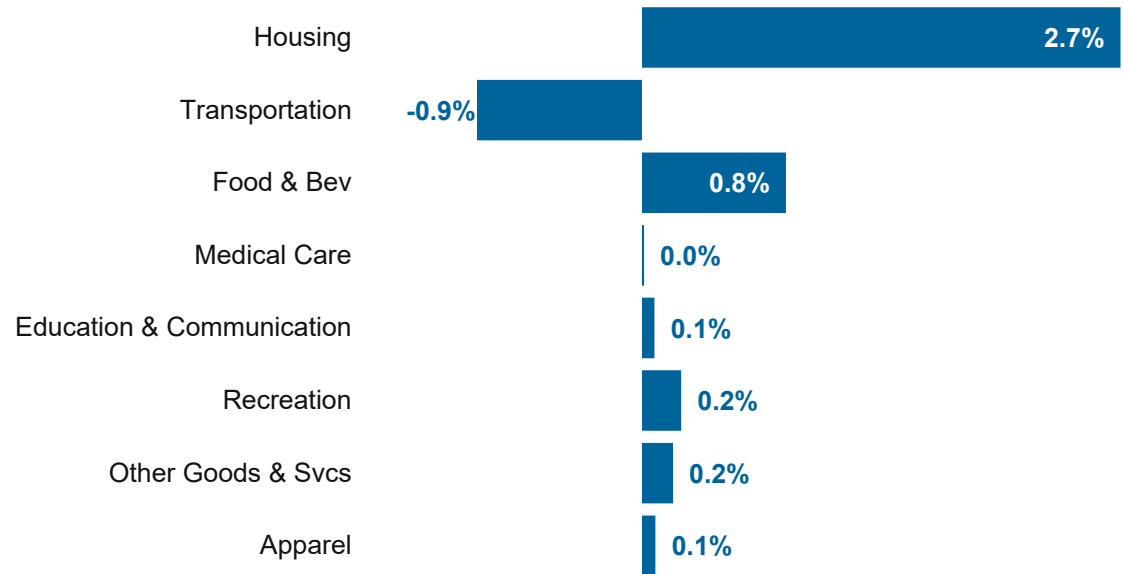


Sources: Bloomberg, Bureau of Labor Statistics, Callan. GDP reflective of 2Q23 Estimate.

# 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 June 2023 Year-Over-Year Inflation



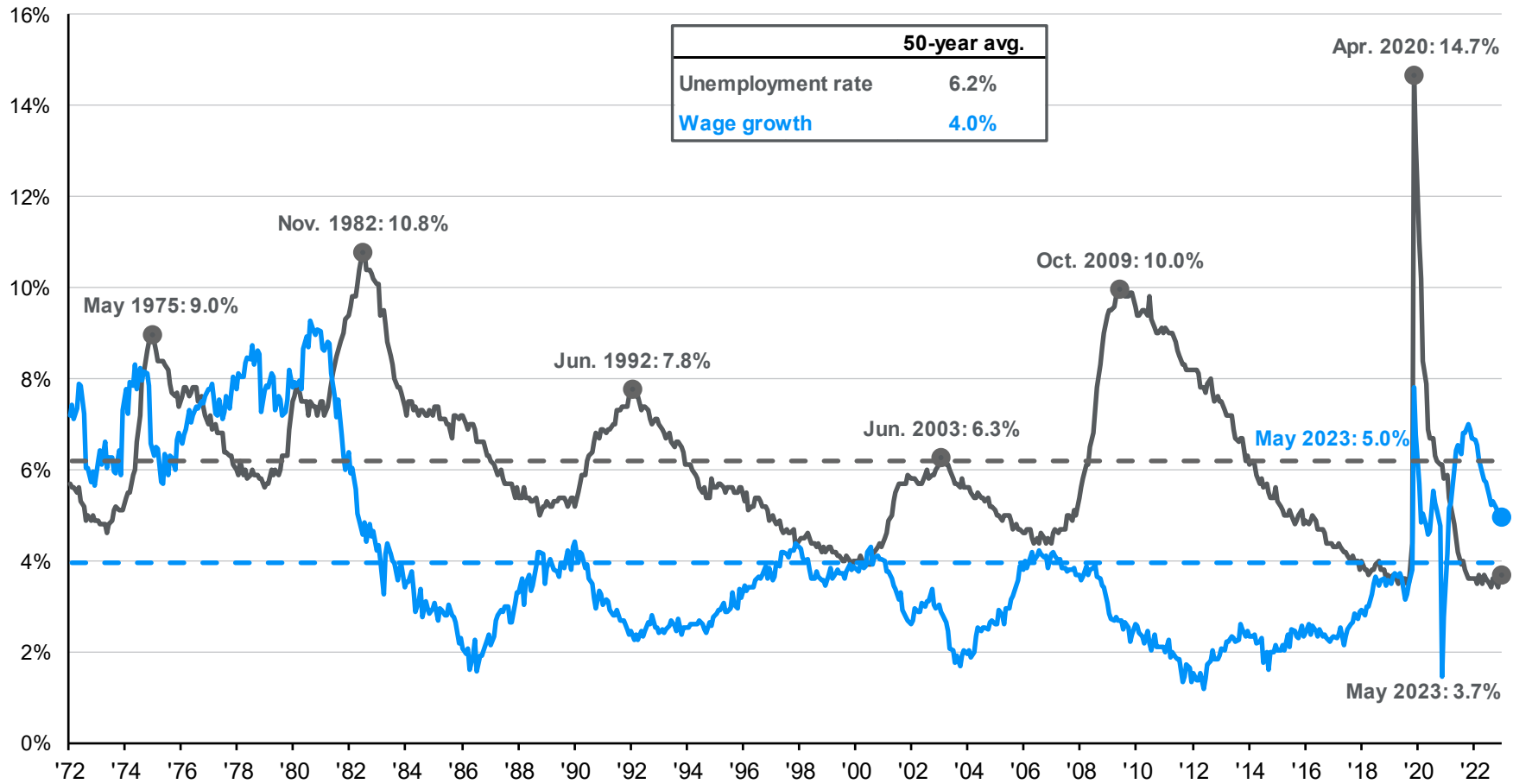
Primary Category	Primary Category Weight	Year-over-Year Change											
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
All Items	100.0%	8.5%	8.3%	8.2%	7.7%	7.1%	6.5%	6.4%	6.0%	5.0%	4.9%	4.0%	3.0%
Housing	42.4%	7.4%	7.8%	8.0%	7.9%	7.8%	8.1%	8.2%	8.2%	7.8%	7.5%	6.8%	6.3%
Transportation	18.2%	16.4%	13.4%	12.6%	11.2%	7.8%	3.9%	3.8%	2.6%	-1.0%	0.2%	-2.0%	-5.1%
Food & Bev	14.3%	10.5%	10.9%	10.8%	10.6%	10.3%	10.1%	9.9%	9.2%	8.3%	7.5%	6.6%	5.7%
Medical Care	8.5%	4.8%	5.4%	6.0%	5.0%	4.2%	4.0%	3.1%	2.3%	1.5%	1.1%	0.7%	0.1%
Education & Communication	6.4%	0.5%	0.5%	0.2%	0.0%	0.7%	0.7%	1.0%	1.0%	1.4%	1.6%	1.5%	1.1%
Recreation	5.1%	4.4%	4.1%	4.1%	4.1%	4.7%	5.1%	4.8%	5.0%	4.8%	5.0%	4.5%	4.3%
Other Goods & Svcs	2.7%	6.3%	6.6%	6.9%	6.5%	7.0%	6.4%	6.2%	6.1%	6.1%	6.6%	6.7%	6.3%
Apparel	2.5%	5.1%	5.1%	5.5%	4.1%	3.6%	2.9%	3.1%	3.3%	3.3%	3.6%	3.5%	3.1%

Source: U.S. Bureau of Labor Statistics

# Unemployment and Wages

## Civilian unemployment rate and year-over-year wage growth

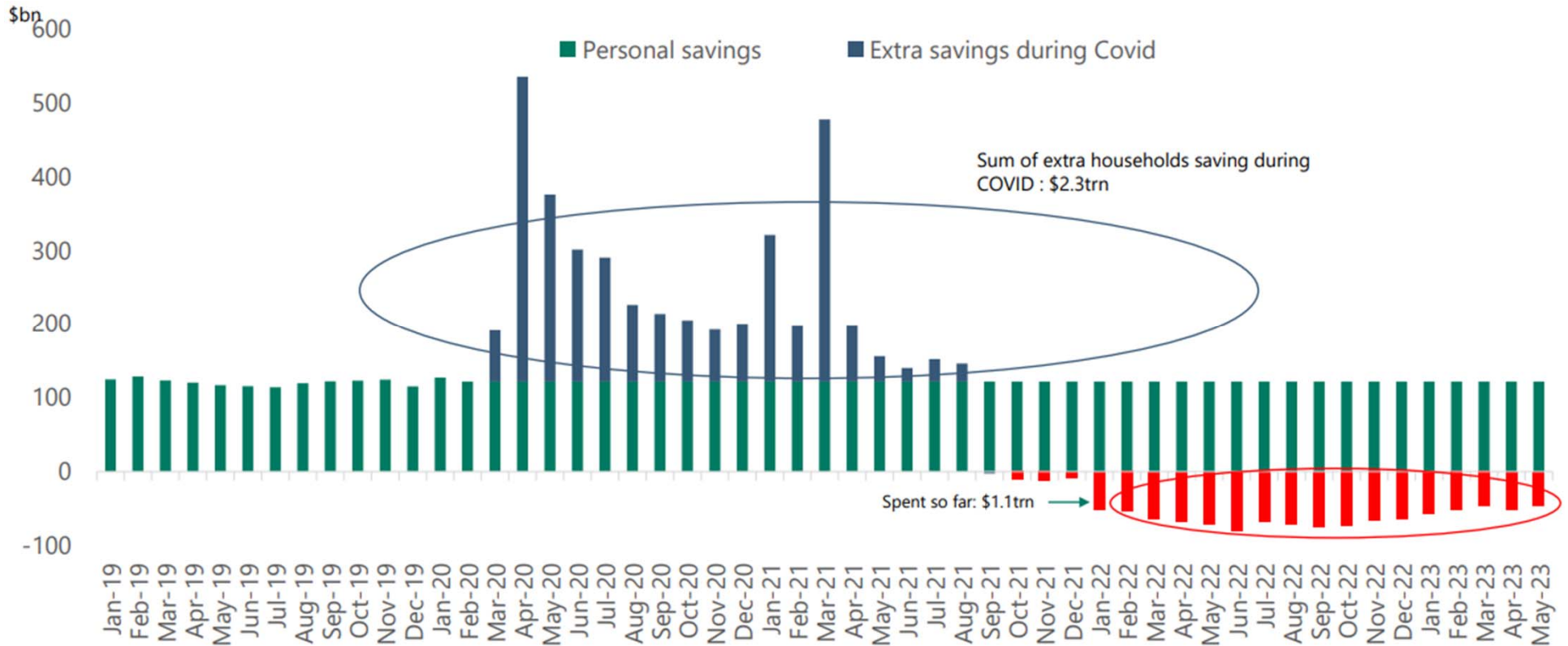
Private production and non-supervisory workers, seasonally adjusted, percent



- Wage growth remains above long-term averages.
- Unemployment continues to be sticky, supporting wage growth and inflation in the overall market.

Source: JP Morgan Asset Management (2Q23 Guide to the Markets), BLS, FactSet. As of June 30, 2023

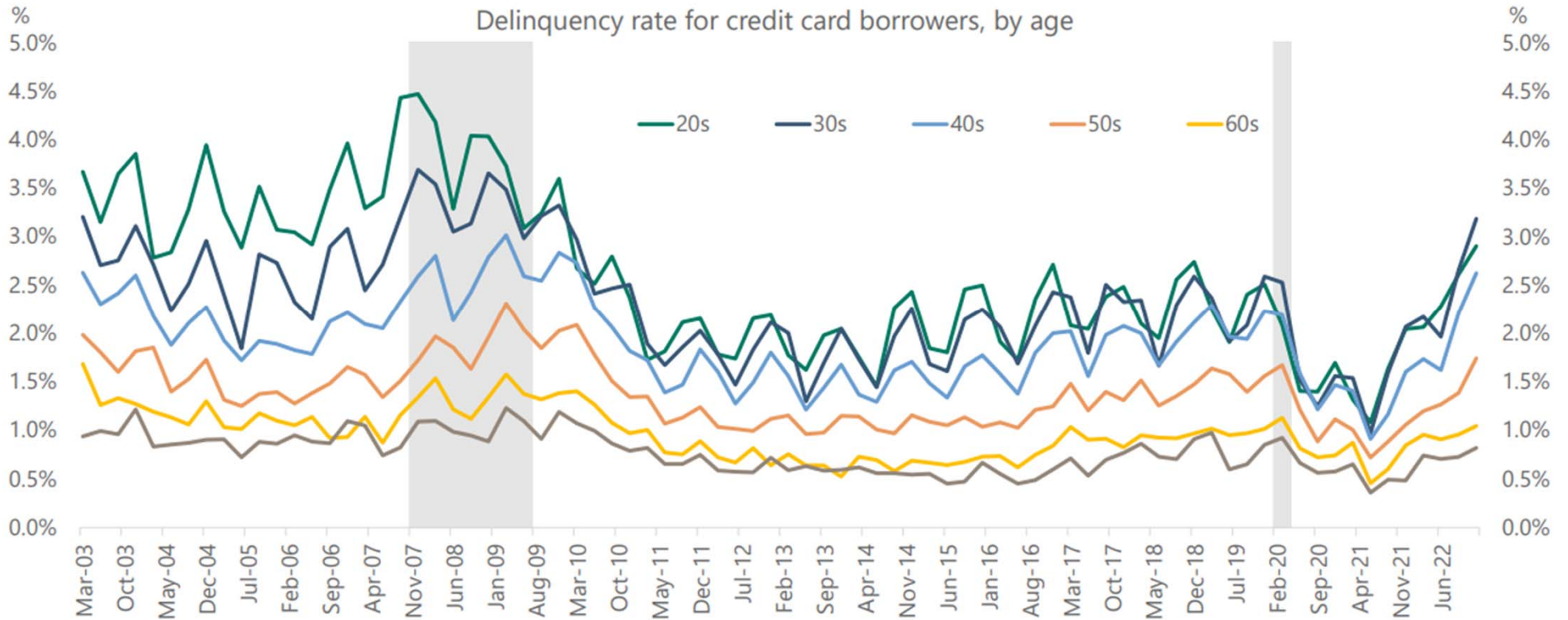
# Household Burning Through Excess Savings



► Personal savings remain relatively strong, at the same time, households have been running through their excess savings.

Source: Bloomberg, Apollo

# Credit Card Delinquency Rates



► Credit card delinquency rates are trending higher, reflecting the diminishing excess savings in American households.

Source: NY Fed Consumer Credit Panel/Equifax, Apollo

# Equity Markets Surged and Fixed Income Fell in Q2

## Narrow markets drove large cap US stocks in the second quarter.

- ▶ The “Magnificent Seven” were the main contributors in the second quarter, and growth dominated value to finish the first half of the year.

## Fixed income fell as rates rose in Q2.

- ▶ Bloomberg Aggregate: -0.8% for the quarter

## After a bumpy first quarter, equities rebounded in the second quarter across the board.

- ▶ S&P 500: +8.7% for the quarter
- ▶ Russell 2000: +5.2% for the quarter

## Inflation eased to 3.0%, and one additional rate hike from the Fed came in Q2.

- ▶ Target rate is now 5.25-5.50%

### Returns for Periods ended 6/30/23

	Quarter	Year to				
		Date	1 Year	5 Years	10 Years	25 Years
<b>U.S. Equity</b>						
Russell 3000	8.39	16.17	18.95	11.39	12.34	7.72
S&P 500	8.74	16.89	19.59	12.31	12.86	7.61
Russell 2000	5.21	8.09	12.31	4.21	8.26	7.26
<b>Global ex-U.S. Equity</b>						
MSCI World ex USA	3.03	11.29	17.41	4.58	5.40	4.49
MSCI Emerging Markets	0.90	4.89	1.75	0.93	2.95	--
MSCI ACWI ex USA Small Cap	2.05	6.84	10.93	2.62	5.75	6.73
<b>Fixed Income</b>						
Bloomberg Aggregate	-0.84	2.09	-0.94	0.77	1.52	3.90
90-day T-Bill	1.17	2.25	3.59	1.55	0.98	1.89
Bloomberg Long Gov/Credit	-1.29	4.39	-2.56	0.66	2.86	5.33
Bloomberg Global Agg ex-US	-2.16	0.83	-1.83	-2.65	-0.90	2.62
<b>Real Estate</b>						
NCREIF Property	-1.81	-3.59	-6.44	5.94	7.84	8.53
FTSE Nareit Equity	2.62	5.37	-0.13	4.55	6.42	8.32
<b>Alternatives</b>						
CS Hedge Fund Index*	--	--	--	--	--	--
Cambridge Private Equity*	--	--	--	--	--	--
Bloomberg Commodity	-2.56	-7.79	-9.61	4.73	-0.99	2.04
Gold Spot Price	-2.86	5.65	6.76	8.99	4.66	7.76
<b>Inflation - CPI-U</b>	1.08	2.80	2.97	3.90	2.71	2.54

Sources: Bloomberg, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

Callan

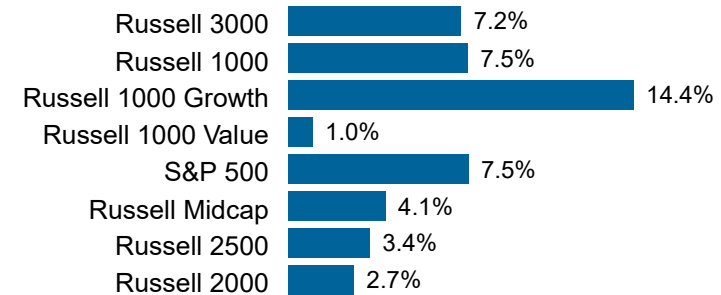
---

**Public Markets**

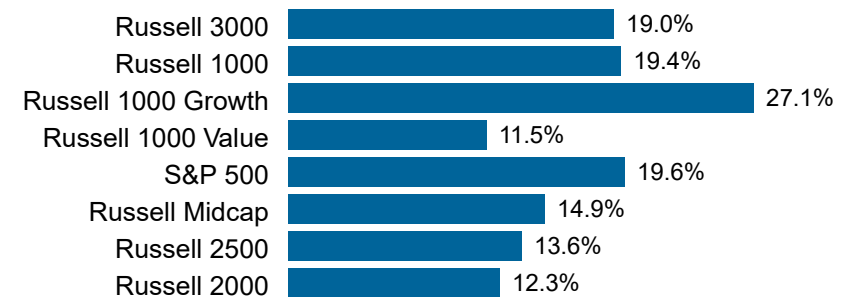
# U.S. Equity Performance: 2Q23

- ▶ S&P 500 posted a second straight quarter of positive performance; large cap growth led all styles, advancing 12.8%.
- ▶ All U.S. equity indices produced positive returns; small value and low volatility trailed other segments.
- ▶ Within the S&P 500, the Technology and Consumer Discretionary sectors were the strongest performers, while Utilities and Energy posted negative returns.
- ▶ Small cap continues to trade at a meaningful discount to its historical valuations; large cap (particularly growth) continues to trade at a premium.
  - On average, small cap companies have a higher exposure to variable debt than large cap counterparts.

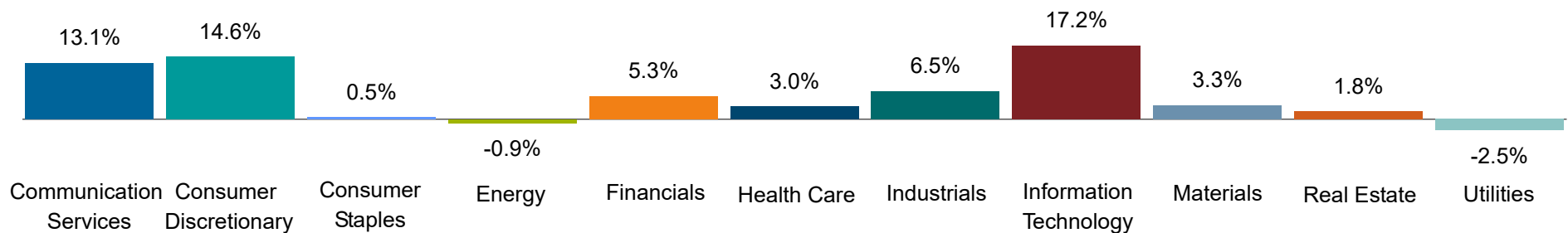
## U.S. Equity Returns: Quarter Ended 3/31/23



## U.S. Equity Returns: One Year Ended 6/30/23



## Industry Sector Quarterly Performance (S&P 500) as of 6/30/23



Sources: FTSE Russell, S&P Dow Jones Indices

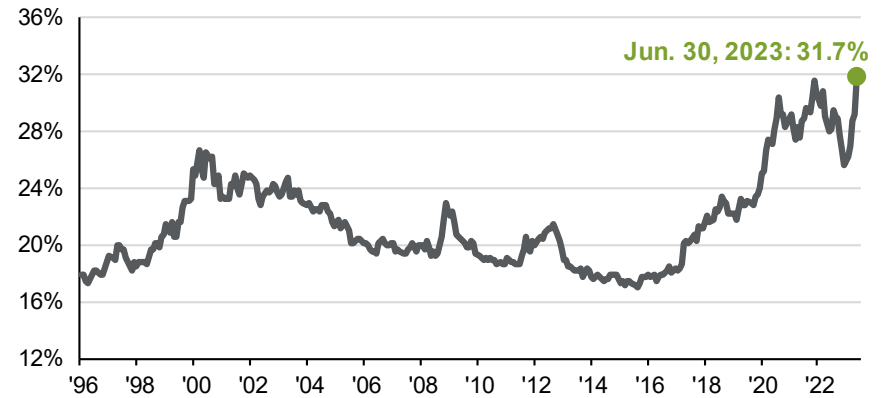


# S&P 500 Index Concentration

**P/E ratio of the top 10 and remaining stocks in the S&P 500**  
Next 12 months, 1996 - present



**Weight of the top 10 stocks in the S&P 500**  
% of market capitalization of the S&P 500



- ▶ S&P 500 performance has been dominated by mega-cap growth stocks through the first half of the year.
  - 10 stocks account for 80% of the return
- ▶ Valuations of the top 10 stocks in the S&P 500 are roughly 45% greater than the historical average, and 65% greater than the remaining stocks in the index.
- ▶ The top 10 stocks in the S&P 500 now constitute ~32% of market cap, as of June 30.
- ▶ The year-to-date difference between the cap (16.9%) and equal weighted (7.0%) S&P 500 is roughly 10%.

Source: FactSet, S&P, JP Morgan Asset Management (2Q23 Guide to the Markets)

# U.S. Fixed Income Performance: 2Q23

**Bloomberg Aggregate down as rates rose, risk appetite and solid economic news spurred returns for spread sectors and lower quality**

- IG Corporate excess return: +131 bps
- AA excess returns: +84 bps
- BBB excess returns: +157 bps

**U.S. Treasury yield curve inversion steepened to 106 bps from 58 bps on 3/31**

- 2- year UST: 4.87%; 10-year UST: 3.81%

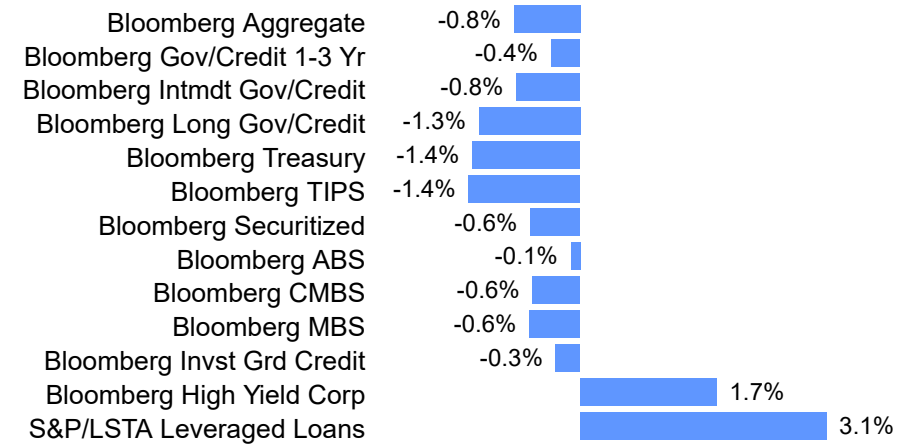
**Fed Funds target raised to 5.00% - 5.25%**

- Paused at June meeting but increased 25 bps in July to 5.25% - 5.5% (July 26)

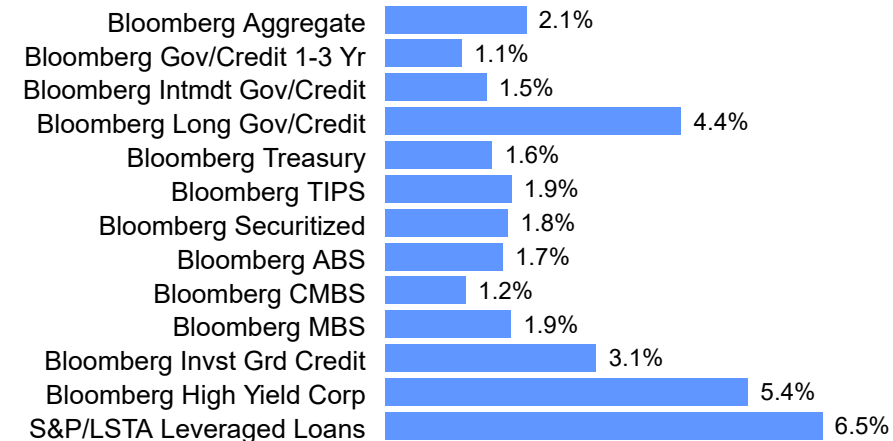
**Valuations fair**

- Credit spreads have not widened materially and are close to historical averages
- Demand has remained robust with muted issuance

## U.S. Fixed Income Returns: Quarter Ended 6/30/23



## U.S. Fixed Income Returns: Six Months Ended 6/30/23



Sources: Bloomberg, S&P Dow Jones Indices

---

## Recent Activity and Plan Performance

# Quarterly Total Fund Highlights

As of June 30, 2023

**CO PSPF ended the quarter with \$1.4 billion in assets, up \$47 million from Q1 2023 after income, distributions and net new investments.**

- Investment gains were \$22.5 million while cash inflows were \$24.8 million during the quarter

**The Total Fund gained 1.7% for the quarter and 5.7% for the fiscal year. Ahead of the benchmark in both periods.**

**The Total Equity Composite gained 6.1% and 16.3% for the quarter and fiscal year, respectively.**

- U.S. Equity outperformed International Equity for the quarter with returns of 8.4% and 2.7%, respectively. For the fiscal year, U.S. equity was up 18.8% while International Equity gained 12.3%.

**The Fixed Income Composite beat its benchmark by 20 basis points with a return of -0.6%. For the fiscal year, the portfolio return was flat but still ahead of the benchmark by 71 basis points.**

- The Market Duration bond portfolio led its benchmark by 4 basis points with a return of -0.8% in the quarter. For the fiscal year, the portfolio was down 0.5%.
- The JanusHenderson Short Duration bond portfolio beat its benchmark by 117 basis points with a return of 0.8%. The portfolio gained 2.9% for the year.

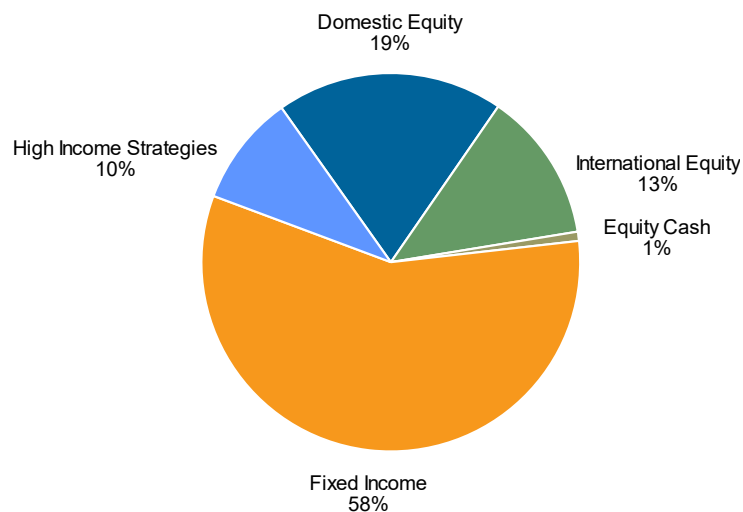
**The High Income Strategies Composite trailed its benchmark for the quarter by 34 basis points with a return of 1.4%. For the fiscal year, the Composite surged 8.2%, 25 basis points ahead of the benchmark.**

- The MacKay Shields' high yield bond portfolio rose 1.2% and 9.2% for the quarter and fiscal year, respectively.
- The Principal Spectrum preferred securities portfolio returned 2.2% and 2.3% for the quarter and fiscal year, respectively. Ahead of its benchmark in both periods.

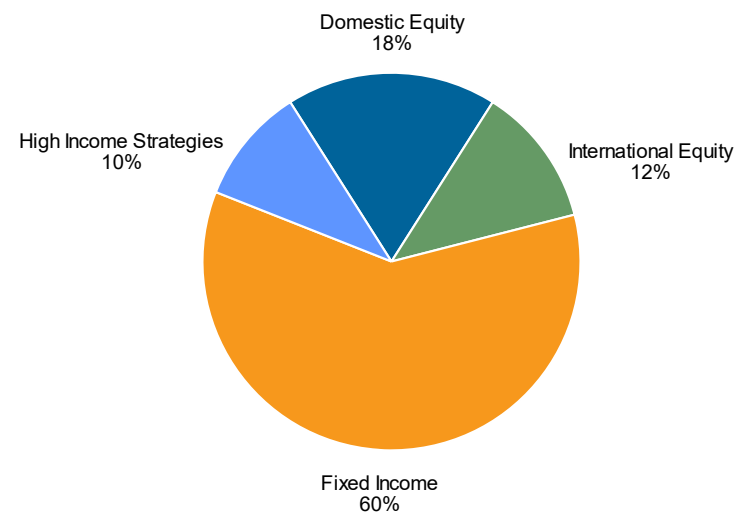
# Total Fund Asset Allocation

June 30, 2023

Actual Asset Allocation



Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	267,374	19.4%	18.0%	1.4%	19,435
International Equity	176,302	12.8%	12.0%	0.8%	11,010
Equity Cash	10,780	0.8%	0.0%	0.8%	10,780
Fixed Income	792,059	57.5%	60.0%	(2.5%)	(34,404)
High Income Strategies	130,922	9.5%	10.0%	(0.5%)	(6,821)
Total	1,377,437	100.0%	100.0%		

# Asset Distribution

	June 30, 2023		Net New Inv.	Inv. Return	March 31, 2023	
	Market Value	Weight			Market Value	Weight
<b>Total Equity (1)</b>	<b>\$444,103,304</b>	<b>32.24%</b>	<b>\$5,554,373</b>	<b>\$25,430,351</b>	<b>\$413,118,580</b>	<b>31.06%</b>
<b>Domestic Equity</b>	<b>\$267,373,825</b>	<b>19.41%</b>	<b>\$(465,937)</b>	<b>\$20,861,377</b>	<b>\$246,978,385</b>	<b>18.57%</b>
iShares S&P 1500 ETF	267,373,825	19.41%	(465,937)	20,861,377	246,978,385	18.57%
<b>International Equity</b>	<b>\$176,302,240</b>	<b>12.80%</b>	<b>\$7,127,499</b>	<b>\$4,565,339</b>	<b>\$164,609,403</b>	<b>12.37%</b>
iShares MSCI Emerging ETF	47,895,241	3.48%	2,550,617	950,652	44,393,972	3.34%
iShares MSCI Canada ETF	17,305,914	1.26%	384,045	563,663	16,358,206	1.23%
iShares Core MSCI EAFE ETF	111,101,085	8.07%	4,192,837	3,051,024	103,857,224	7.81%
Equity Cash	427,238	0.03%	(1,107,189)	3,635	1,530,792	0.12%
<b>Total Fixed Income</b>	<b>\$792,058,512</b>	<b>57.50%</b>	<b>\$11,360,086</b>	<b>\$(4,706,962)</b>	<b>\$785,405,387</b>	<b>59.04%</b>
<b>Market Duration</b>	<b>\$686,713,214</b>	<b>49.85%</b>	<b>\$12,023,440</b>	<b>\$(5,544,538)</b>	<b>\$680,234,311</b>	<b>51.14%</b>
Colorado Treasurer's Portfolio	686,713,214	49.85%	12,023,440	(5,544,538)	680,234,311	51.14%
<b>Short Duration</b>	<b>\$105,345,298</b>	<b>7.65%</b>	<b>\$(663,354)</b>	<b>\$837,576</b>	<b>\$105,171,076</b>	<b>7.91%</b>
Janus Henderson (2)	105,345,298	7.65%	(663,354)	837,576	105,171,076	7.91%
<b>High Income Strategies</b>	<b>\$130,922,229</b>	<b>9.50%</b>	<b>\$(1,883,062)</b>	<b>\$1,723,790</b>	<b>\$131,081,501</b>	<b>9.85%</b>
<b>High Yield Fixed Income</b>	<b>\$112,220,383</b>	<b>8.15%</b>	<b>\$(1,646,875)</b>	<b>\$1,355,930</b>	<b>\$112,511,327</b>	<b>8.46%</b>
Mackay Shield US High Yield (3)	112,220,383	8.15%	(1,646,875)	1,355,930	112,511,327	8.46%
<b>Preferred Securities</b>	<b>\$18,701,846</b>	<b>1.36%</b>	<b>\$(236,187)</b>	<b>\$367,859</b>	<b>\$18,570,174</b>	<b>1.40%</b>
Principal Preferred Securities (3)	18,701,846	1.36%	(236,187)	367,859	18,570,174	1.40%
<b>Cash Available For Investing</b>	<b>\$10,353,204</b>	<b>0.75%</b>	<b>\$9,723,219</b>	<b>\$32,466</b>	<b>\$597,519</b>	<b>0.04%</b>
<b>Total Fund</b>	<b>\$1,377,437,249</b>	<b>100.0%</b>	<b>\$24,754,617</b>	<b>\$22,479,645</b>	<b>\$1,330,202,987</b>	<b>100.0%</b>

The Fund ended the quarter at \$1.4 billion, an increase of \$47 million from the first quarter. There were net new investments of \$24.8 million and \$22.5 million in investment gains.

- (1) Funded in December 2017.
- (2) Funded in November 2018.
- (3) Funded in July 2020.
- (4) Funded in July 2020.

# Manager & Composite Cumulative Returns

As of June 30, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Total Equity</b>	<b>6.12%</b>	<b>16.33%</b>	<b>11.49%</b>	<b>8.31%</b>	-
60% Russell 3000/40% ACWI ex US	6.01%	16.57%	11.26%	8.25%	9.32%
<b>Domestic Equity</b>	<b>8.38%</b>	<b>18.83%</b>	<b>13.85%</b>	<b>11.31%</b>	-
Russell 3000 Index	8.39%	18.95%	13.89%	11.39%	12.34%
<b>International Equity</b>	<b>2.74%</b>	<b>12.28%</b>	<b>7.82%</b>	<b>3.76%</b>	-
MSCI ACWI ex US	2.44%	12.72%	7.22%	3.52%	4.75%
<b>Total Fixed Income</b>	<b>(0.59%)</b>	<b>(0.04%)</b>	<b>(3.46%)</b>	<b>1.00%</b>	<b>1.73%</b>
Total Fixed Income Benchmark (1)	(0.79%)	(0.75%)	(3.59%)	0.85%	1.30%
<b>Market Duration</b>	<b>(0.80%)</b>	<b>(0.53%)</b>	<b>(3.99%)</b>	<b>0.83%</b>	<b>1.64%</b>
Colorado Treasurer's Portfolio (2)	(0.80%)	(0.53%)	(3.99%)	0.83%	1.64%
PSPF Custom Benchmark (3)	(0.84%)	(0.94%)	(3.96%)	0.77%	1.26%
<b>Short Duration</b>	<b>0.80%</b>	<b>2.92%</b>	<b>0.25%</b>	-	-
Janus Henderson Short Duration	0.80%	2.92%	0.25%	-	-
Blmbg Gov/Cred 1-3 Yr	(0.37%)	0.52%	(0.88%)	1.13%	0.99%
85% 1-3YR G/C; 15% 1-3YR BB (4)	(0.12%)	1.49%	(0.25%)	1.53%	1.43%
<b>High Income Strategies</b>	<b>1.35%</b>	<b>8.18%</b>	-	-	-
High Income Strategies Benchmark (5)	1.69%	7.93%	2.68%	3.19%	-
<b>High Yield Fixed Income</b>	<b>1.21%</b>	<b>9.23%</b>	-	-	-
Mackay Shield US High Yield	1.21%	9.23%	-	-	-
Blmbg High Yield	1.75%	9.06%	3.13%	3.36%	4.43%
<b>Preferred Securities</b>	<b>2.19%</b>	<b>2.29%</b>	-	-	-
Principal Preferred Securities	2.19%	2.29%	-	-	-
ICE BofA US All Cap Secs	1.34%	1.66%	0.05%	2.18%	-
<b>Total Fund w/o CAI (6)</b>	<b>1.69%</b>	<b>5.66%</b>	<b>0.39%</b>	<b>3.04%</b>	<b>2.76%</b>
Total Fund Benchmark (6)	1.50%	5.18%	0.12%	3.08%	2.46%

Performance footnotes are detailed on page 21.

# Manager & Composite Fiscal Year Returns

As of June 30, 2023

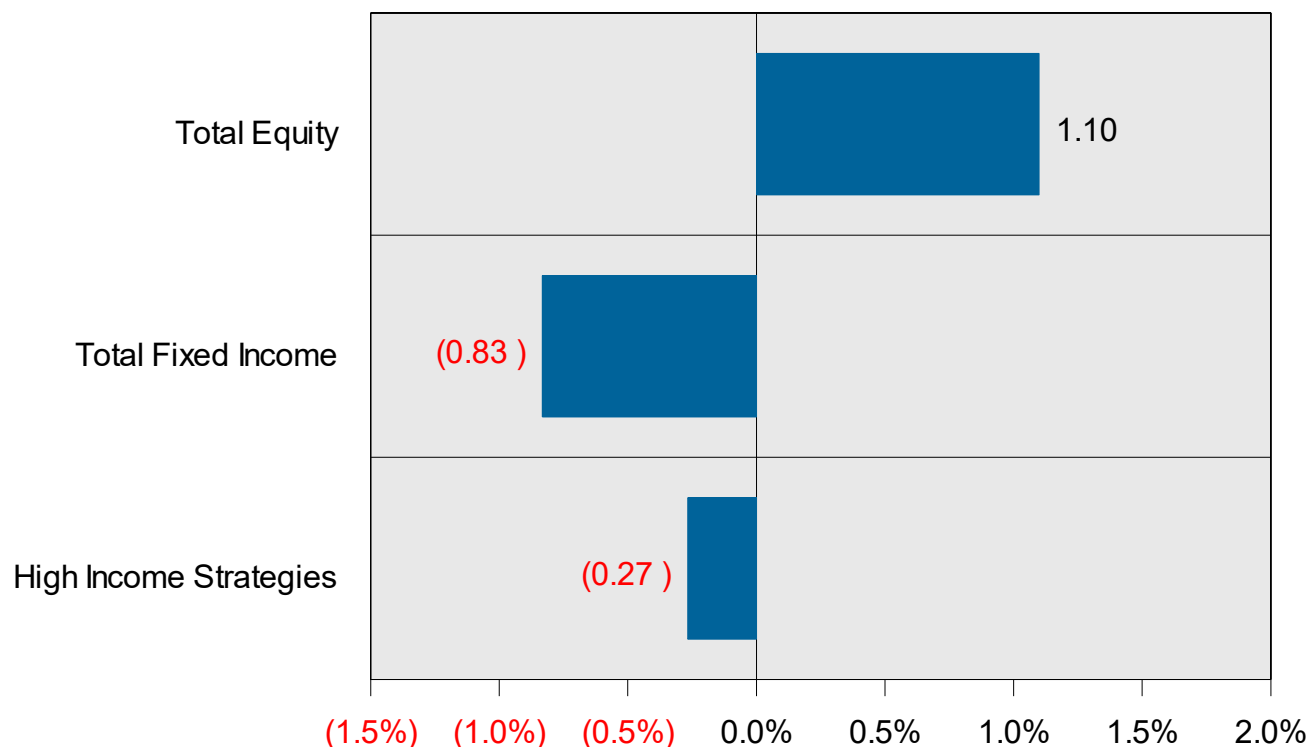
	FY 2023	FY 2022	FY 2021	FY 2020	FY 2019
<b>Total Equity</b>	<b>16.33%</b>	<b>(15.85%)</b>	<b>41.59%</b>	<b>1.82%</b>	<b>5.64%</b>
60% Russell 3000/40% ACWI ex US	16.57%	(16.06%)	40.77%	1.90%	5.92%
<b>Domestic Equity</b>	<b>18.83%</b>	<b>(13.95%)</b>	<b>44.30%</b>	<b>6.40%</b>	<b>8.85%</b>
Russell 3000 Index	18.95%	(13.87%)	44.16%	6.53%	8.98%
<b>International Equity</b>	<b>12.28%</b>	<b>(18.97%)</b>	<b>37.78%</b>	<b>(4.71%)</b>	<b>0.67%</b>
MSCI ACWI ex US	12.72%	(19.42%)	35.72%	(4.80%)	1.29%
<b>Total Fixed Income</b>	<b>(0.04%)</b>	<b>(9.76%)</b>	<b>(0.27%)</b>	<b>8.79%</b>	<b>7.38%</b>
Total Fixed Income Benchmark (1)	(0.75%)	(9.46%)	(0.26%)	8.28%	7.52%
<b>Market Duration</b>	<b>(0.53%)</b>	<b>(10.55%)</b>	<b>(0.55%)</b>	<b>9.26%</b>	<b>7.77%</b>
Colorado Treasurer's Portfolio (2)	(0.53%)	(10.55%)	(0.55%)	9.26%	7.77%
PSPF Custom Benchmark (3)	(0.94%)	(10.29%)	(0.33%)	8.74%	7.87%
<b>Short Duration</b>	<b>2.92%</b>	<b>(4.33%)</b>	<b>2.33%</b>	<b>4.41%</b>	-
Janus Henderson Short Duration	2.92%	(4.33%)	2.33%	4.41%	-
Blmbg Gov/Cred 1-3 Yr	0.52%	(3.56%)	0.44%	4.20%	4.27%
85% 1-3YR G/C; 15% 1-3YR BB (4)	1.49%	(3.83%)	1.70%	3.94%	4.59%
<b>High Income Strategies</b>	<b>8.18%</b>	<b>(9.38%)</b>	-	-	-
High Income Strategies Benchmark (5)	7.93%	(12.89%)	15.13%	0.46%	7.58%
<b>High Yield Fixed Income</b>	<b>9.23%</b>	<b>(9.09%)</b>	-	-	-
Mackay Shield US High Yield	9.23%	(9.09%)	-	-	-
Blmbg High Yield	9.06%	(12.81%)	15.37%	0.03%	7.48%
<b>Preferred Securities</b>	<b>2.29%</b>	<b>(11.11%)</b>	-	-	-
Principal Preferred Securities	2.29%	(11.11%)	-	-	-
ICE BofA US All Cap Secs	1.66%	(13.33%)	13.67%	2.86%	8.12%
<b>Total Fund w/o CAI (6)</b>	<b>5.66%</b>	<b>(11.58%)</b>	<b>8.30%</b>	<b>7.37%</b>	<b>6.94%</b>
Total Fund Benchmark (6)	5.18%	(11.64%)	7.98%	7.87%	7.49%



# One-Quarter Performance Attribution

June 30, 2023

## Asset Class Under or Overweighting



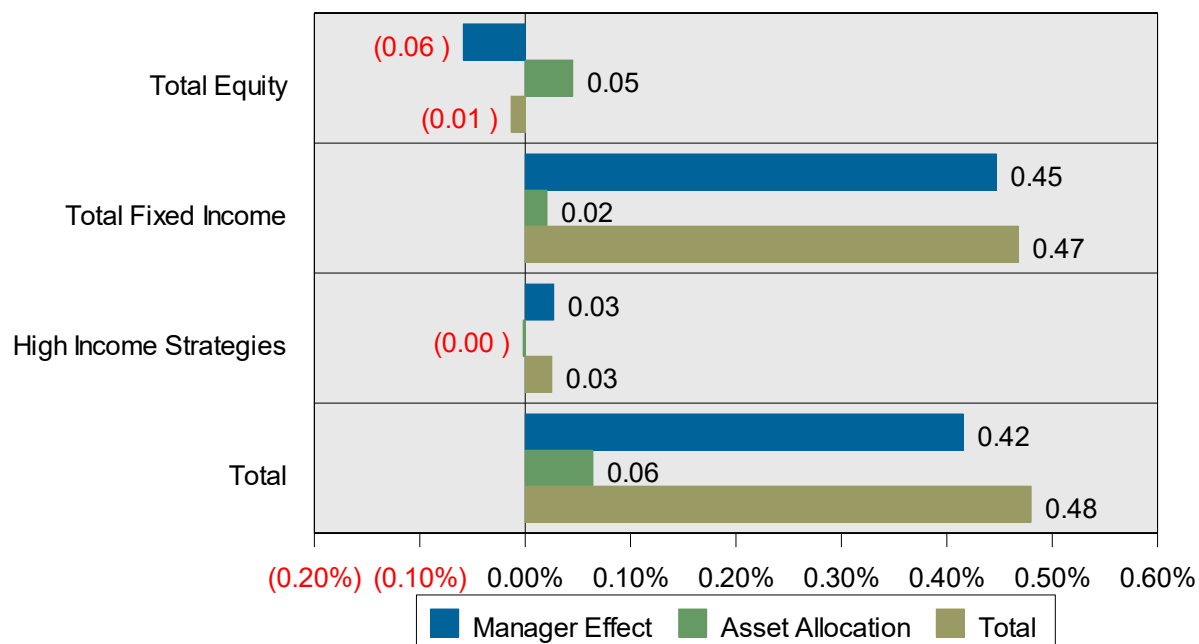
### Relative Attribution Effects for Quarter ended June 30, 2023

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	31%	30%	6.12%	6.01%	0.03%	0.05%	0.08%
Total Fixed Income	59%	60%	(0.59%)	(0.79%)	0.11%	0.02%	0.13%
High Income Strategies	10%	10%	1.35%	1.69%	(0.03%)	(0.00%)	(0.03%)
<b>Total</b>			<b>1.69%</b>	<b>1.50%</b>	<b>+ 0.12%</b>	<b>+ 0.07%</b>	<b>0.19%</b>

# One Year Performance Attribution

As of June 30, 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%	16.33%	16.57%	(0.06%)	0.05%	(0.01%)
Total Fixed Income	60%	60%	(0.04%)	(0.75%)	0.45%	0.02%	0.47%
High Income Strategies	10%	10%	8.18%	7.93%	0.03%	(0.00%)	0.03%
<b>Total</b>			<b>5.66%</b>	<b>5.18%</b>	<b>+ 0.42%</b>	<b>+ 0.06%</b>	<b>0.48%</b>

## Rebalancing Recommendation: \$26 million in Cash Available For Investing

Asset values as of July 31, 2023

	7/31 Balance	%	Target	Difference	New Allocation	New Total	New %	IPS Ranges
<b>Treasury Bond Port</b>	\$ 679,542,235	49.4%	52.5%	-3.1%	\$ 10,000,000	\$ 689,542,235	49.2%	45%-60%
<b>Equity - Parametric</b>	\$ 460,574,720	33.5%	30.0%	3.5%	\$ 15,500,000	\$ 476,074,720	34.0%	24%-36%
<b>Short Duration - Janus</b>	\$ 104,455,938	7.6%	7.5%	0.1%	\$ -	\$ 104,455,938	7.5%	5%-10%
<b>Preferred Sec - Spectrum</b>	\$ 19,031,102	1.4%	1.5%	-0.1%	\$ -	\$ 19,031,102	1.4%	0%-3%
<b>High Yield - Mackay</b>	\$ 111,602,892	8.1%	8.5%	-0.4%	\$ -	\$ 111,602,892	8.0%	4.5%-12.5%
<b>Grand Total</b>	\$ 1,375,206,887	100.0%	100.0%	0.0%	\$ 25,500,000	\$ 1,400,706,887	100.0%	

Cash available	\$ 26,000,000
Cash available -\$500,000	\$ 25,500,000

- All asset classes are within rebalancing ranges as of July 31, 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 Update**

# Published Research Highlights from 2Q23

## 2023 Private Credit Fees and Terms Study



## The Critical Underlying Technology Behind Digital Assets: A Primer for Institutional Investors



## Understanding the DNA of the U.S. Life Sciences Sector



## Research Café: ESG Interview Series Session



## Recent Blog Posts

**Biodiversity: A Relatively New Theme for ESG-focused Investors**

Kristin Bradbury

**How Your Public DB Plan's Returns Compare**

Public DB Plan Focus Group

**How to Improve DC Plans with DEI**

Jana Steele

## 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.

– September 26–28, 2023 – Virtual Session via Zoom

– November 1–2, 2023 – Atlanta, Georgia

Please visit our website at [callan.com/events-education](https://callan.com/events-education) as we add dates to our 2023 calendar!

## Mark Your Calendar

### 2023 Regional Workshops

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:

### The End of the Low-Yield Environment

August 9, 2023 – 9:30am (PT)

## Callan Updates

### Firm updates by the numbers, as of 6/30/23

Total Associates: ~200

#### Ownership

- 100% employees
- ~70% 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

#### Headquarters Office Move

- In August, Callan’s headquarters office will move to One Bush Street in San Francisco

#### Milestones

- Celebrating our 50<sup>th</sup> anniversary

**“Callan’s reputation for providing exceptional, thoughtful guidance to clients for the past 50 years initially drew me to the organization...it’s clear that quality people and a cohesive culture are essential to this enduring success. I’m excited about the opportunity to work in this collaborative environment to deliver the best outcomes for clients.”**

— Tony Lissuzzo, SVP, on joining Callan’s Chicago Fund Sponsor Consulting this May





# Diversity, Equity & Belonging (DEB)

Building a diverse workforce, pursuing equitable outcomes, and creating a sense of belonging

## Five-Year Strategic Plan: Key Areas



### DEB Leadership:

Greg Allen, Executive Sponsor and Lauren Mathias, Champion

### DEB Council:

Annie Boschetti, Citlali Cuevas, Laura Dawson, Mike Joecken, Lindsay Jones, Paola Juarez, Erik Partida, Juan Pablo Piz, Avery Robinson, Jeff Salyer, Álvaro Vega, Nicole Wubbena

**Recent client DEB projects:** Investment manager Callan DEI Score trends, investment manager team and employee demographics review versus peers, diverse-owned manager searches, incorporating diversity in an IPS, and review of DEI in DC plans.

### Accomplishments

- ▶ Inclusive culture education for all
- ▶ Engagement surveys
- ▶ Inclusive interviewing and resume review guides
- ▶ Equitable policies for promotion and partnership
- ▶ Enhanced pay equity and supplier diversity policies
- ▶ Pronoun education
- ▶ DEB Awareness Calendar



### Near-Term Future Plans

- ▶ Ongoing education
- ▶ Employee Resource Groups (ERGs)
- ▶ Aligning onboarding with belonging best practices
- ▶ Mentorship program
- ▶ Callan DEB Progress Report



## Important Disclosures

---

Information contained in this document may include confidential, trade secret and/or proprietary information of Callan and the client. It is incumbent upon the user to maintain such information in strict confidence. Neither this document nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose.

The content of this document is particular to the client and should not be relied upon by any other individual or entity. There can be no assurance that the performance of any account or investment will be comparable to the performance information presented in this document.

Certain information herein has been compiled by Callan from a variety of sources believed to be reliable but for which Callan has not necessarily verified for accuracy or completeness. Information contained herein may not be current. Callan has no obligation to bring current the information contained herein.

This content of this document may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. The opinions expressed herein may change based upon changes in economic, market, financial and political conditions and other factors. Callan has no obligation to bring current the opinions expressed herein.

The statements made herein may include forward-looking statement regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties. Actual results may vary, perhaps materially, from the future results projected in this document. Undue reliance should not be placed on forward-looking statements.

Callan disclaims any responsibility for reviewing the risks of individual securities or the compliance/non-compliance of individual security holdings with a client's investment policy guidelines.

This document should not be construed as legal or tax advice on any matter. You should consult with legal and tax advisers before applying any of this information to your particular situation.

Reference to, or inclusion in this document of, any product, service or entity should not necessarily be construed as recommendation, approval, or endorsement or such product, service or entity by Callan.

This document is provided in connection with Callan's consulting services and should not be viewed as an advertisement of Callan, or of the strategies or products discussed or referenced herein.

The issues considered and risks highlighted herein are not comprehensive and other risks may exist that the user of this document may deem material regarding the enclosed information.

Any decision you make on the basis of this document is sole responsibility of the client, as the intended recipient, and it is incumbent upon you to make an independent determination of the suitability and consequences of such a decision.

Callan undertakes no obligation to update the information contained herein except as specifically requested by the client.

Past performance is no guarantee of future results.

June 30, 2023

**CO Public School Permanent Fund**



**Investment Measurement Service  
Quarterly Review**

---

## Table of Contents

### June 30, 2023

---

<b>Capital Markets Research</b>	<b>1</b>
<b>Actual vs. Target Asset Allocation</b>	<b>6</b>
<b>Equity</b>	
Total Equity	16
Domestic Equity	18
International Equity	22
<b>Fixed Income</b>	
Total Fixed Income	27
<b>Market Duration</b>	
Colorado Treasurer's Portfolio	32
<b>Short Duration</b>	
Janus Henderson Short Duration	37
<b>High Income Strategies</b>	
High Income Strategies	43
<b>High Yield Fixed Income</b>	
Mackay Shield US High Yield	46
<b>Preferred Securities</b>	
Principal Preferred Securities	51
<b>Research &amp; Education</b>	<b>56</b>
<b>Disclosures</b>	<b>58</b>



**U.S. EQUITY**

**Large cap growth stocks lead broad indices higher**

- The S&P 500 posted a second straight quarter of positive performance, gaining 8.7%; large cap growth led all styles, advancing 12.8%.
- All U.S. equity indices produced positive returns; small value and low volatility produced the lowest 2Q returns.
- Nine of the 11 S&P Index sectors produced a positive 2Q23 return.
- Similar to 1Q23, small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal of trend from 2022.
- Financials (-1.1%) detracted from returns for the Russell 2000 (+5.2%) while Health Care was the only small cap sector to produce double-digit returns (+11.2%).

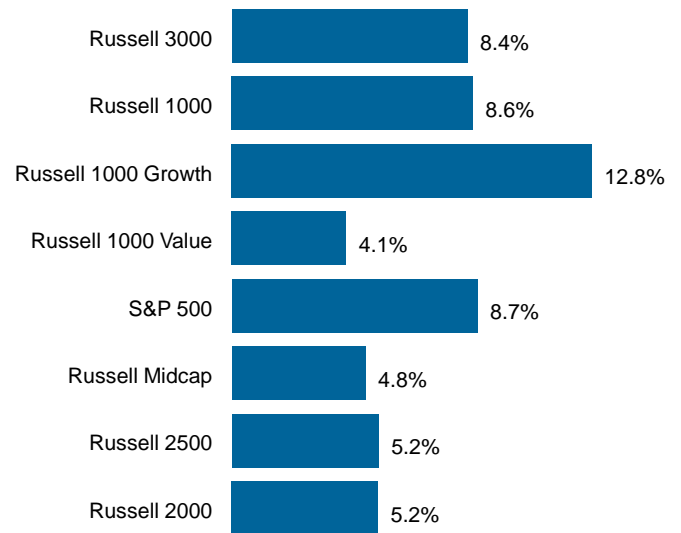
**Index concentration is a significant 2Q theme**

- 10 stocks within the S&P 500 Index contributed 80% of the 16.9% return YTD through 6/30; average appreciation is 82%, and these stocks had an average forward price/earnings ratio of 36x.
- 2Q return for the S&P 500 Index was 8.7%; the equal weight S&P 500 Index returned 4%.
- The YTD return difference is nearly 10 percentage points; if this gap holds through year-end, it would be the largest since 1998.

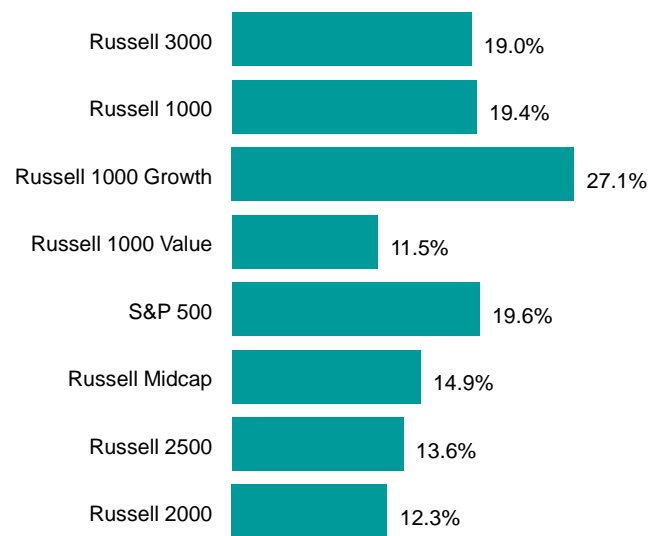
**Small cap valuations point to potential opportunity**

- Small cap continues to trade at a meaningful discount to its historical valuations; large cap (particularly growth) continues to trade at a premium to its historical valuations.
- Favorable developments in the inflation data could give the small cap market a boost in performance.
- One recent issue that caused this relative valuation gap is debt; on average, small cap companies have a higher exposure to variable rate debt than large cap counterparts.

**U.S. Equity: Quarterly Returns**

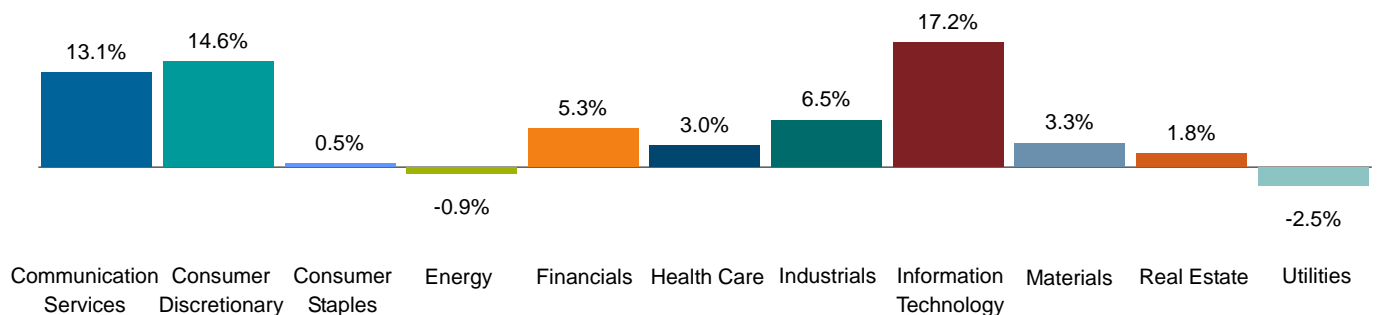


**U.S. Equity: One-Year Returns**



Sources: FTSE Russell, S&P Dow Jones Indices

**S&P Sector Returns, Quarter Ended 6/30/23**



Source: S&P Dow Jones Indices

**GLOBAL EQUITY**

2Q23 continued global and global ex-U.S. equity markets' positive performance from the prior quarter.

**Technology stocks lead markets higher**

- 2Q23 saw global markets led higher by mega cap technology stocks, in part due to increased optimism around artificial intelligence advancements.
- Market expectations of a recession decreased as inflation showed signs of abating while the Fed kept rates unchanged in June.
- Japan outperformed other regions in local currency as valuations continued to be attractive alongside the Bank of Japan's easy monetary policy.

**Developed vs. emerging markets**

- Developed markets outperformed emerging markets as China weighed on EM indices.

**Growth vs. value**

- Mega cap technology companies, which are primarily U.S.-based, led markets higher and resulted in large dispersions between U.S. growth and value indices. However, outside of the U.S., growth and value index returns were relatively balanced.

**Japan's turn**

- Valuation below historical levels
- Economic recovery; in 1Q Japan transitioned out of a recession as GDP grew 2.7%.
- Next 12 months consensus earnings estimates show Japan outpacing China, EM, and Europe, and only trailing the U.S.

**India vs. China**

**Economics**

- Chinese geopolitical tensions have, in part, driven outside investment elsewhere compared to India, with Prime Minister Modi's visit to the U.S. highlighting its place in the world economy.
- China's New Espionage Law (effective July 2023) likely contributing to less foreign investment; \$20 billion ended 1Q23 versus \$100 billion ended 1Q22.

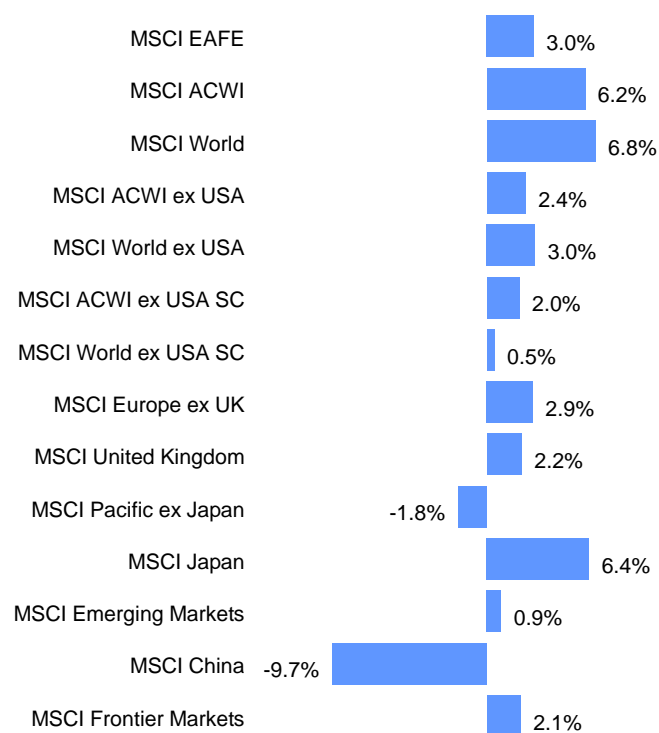
**Asset flows**

- India's equity market has more than doubled since 2010.

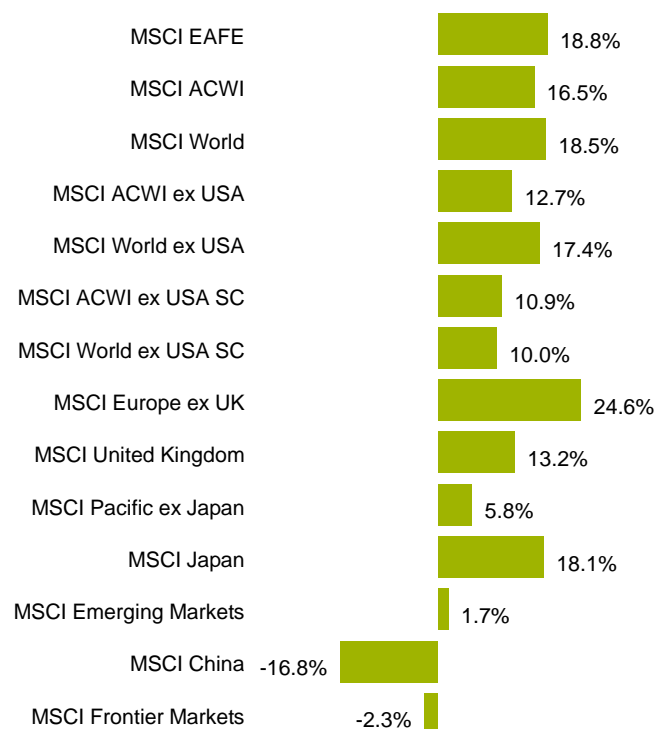
**Growth**

- India surpassing China with % of population in the middle class in 2030, and from 2023 to 2030 will contribute twice as much growth from this group than China in the Asia Pacific region.

**Global Equity: Quarterly Returns**



**Global Equity: One-Year Returns**



Source: MSCI

**U.S. FIXED INCOME**

**Bloomberg Aggregate down as rates rose**

Risk appetite and solid economic news spurred returns for spread sectors and lower quality.

- Corporate excess return: +131 bps
- Mortgage excess return: +76 bps
- High yield corporates excess return: +279 bps
- AA excess return: +84 bps
- BBB excess return: +157 bps

**Yield curve inversion steepened**

- 2- year U.S. Treasury: 4.87%; 10-year: 3.81%

**TIPS performed in line with nominal U.S. Treasuries**

- Five-year breakeven spreads narrowed to 2.18% from 2.40% on 3/31
- Fed and markets expect inflation to trend down over longer periods

**Fed Funds target raised to 5.00% - 5.25%**

- Paused at June meeting but suggested that further hikes are likely
- Median expectation from Fed: 5.6% for year-end 2023
- Market expectations are similar at 5.4%; up sharply from expectations for cuts at the end of 1Q.

**Valuations fair**

- Credit spreads have not widened materially and are close to historical averages.
- Demand has remained robust with muted issuance.

**MUNICIPAL BONDS**

Municipal bonds outperformed U.S. Treasuries in 2Q

- Bloomberg Municipal Bond Index: -0.1%; Bloomberg U.S. Treasury Index: -1.4%
- Lower quality munis outperformed (AAA: -0.4%; AA: -0.2%; A: +0.2%; BBB: +0.7%)

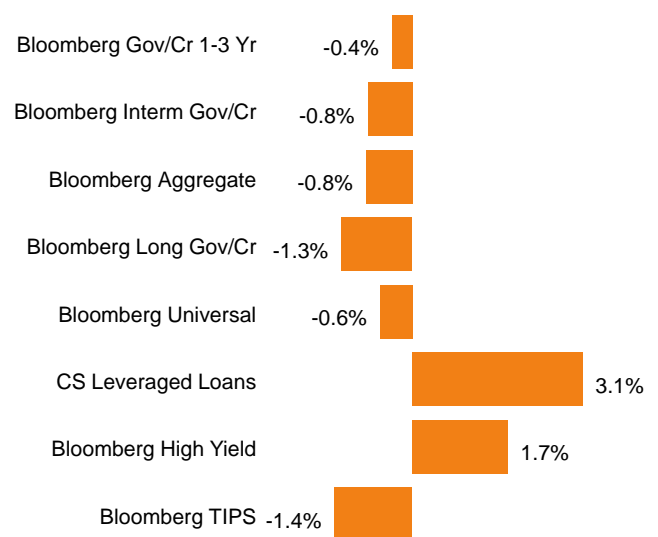
**Muni curve inverted; less so than U.S. Treasury curve**

- 2-year AAA Muni yield: 2.93%; 10-year AAA Muni yield: 2.56%

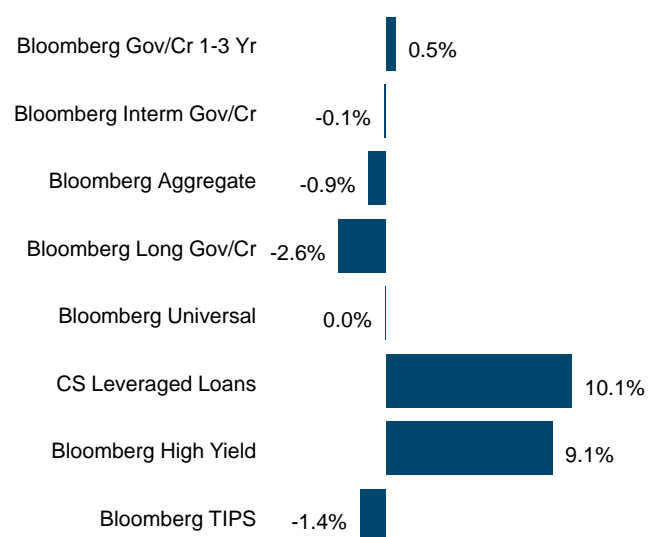
**Valuations relative to U.S. Treasuries remain rich**

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 67%; below 10-year median of 87%
- After-tax yield 5.95% (Bloomberg Municipal Bond Index)

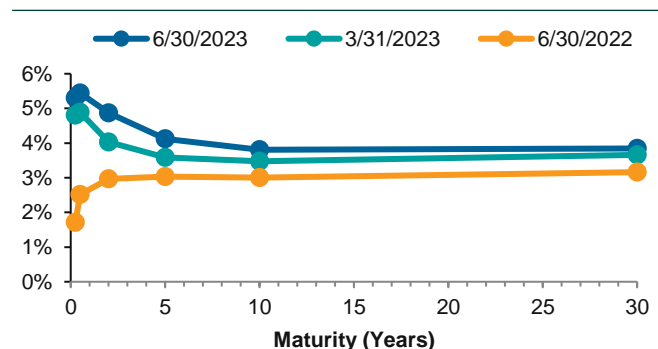
**U.S. Fixed Income: Quarterly Returns**



**U.S. Fixed Income: One-Year Returns**



**U.S. Treasury Yield Curves**



Sources: Bloomberg, Credit Suisse



**MUNICIPAL BONDS (continued)**

**Supply/demand**

- Outflows of roughly \$8 billion YTD, mostly from short-term bond funds (record was \$122 billion in 2022)
- Supply remained muted; YTD about 25% below 2022

**Fundamentals remain sound**

- “Rainy Day” fund balances and state tax revenues continued to be robust
- Upgrades continued to significantly outpace downgrades in 1Q

Source: Eaton Vance

**GLOBAL FIXED INCOME**

**Global Aggregate down unhedged but up hedged**

- Rates mixed; up in the U.S., Great Britain, and Australia and flat to slightly down across other developed markets
- Japan (-8%) worst performer on sharp yen depreciation
- Bank of England surprised markets with 50 bp increase to combat sticky inflation.

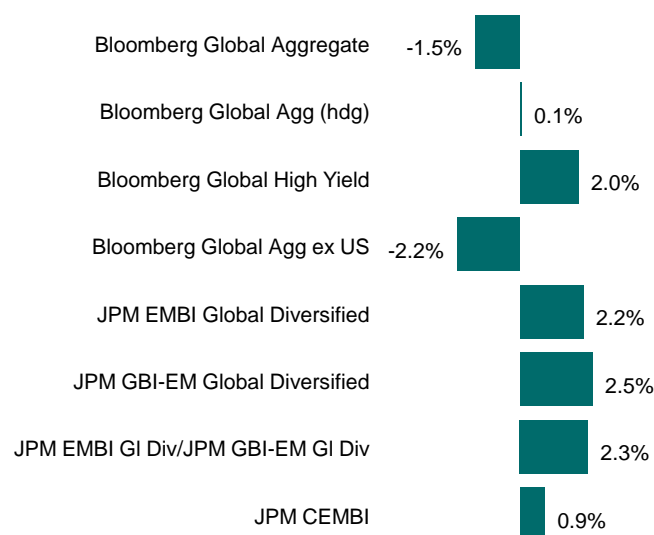
**U.S. dollar mixed**

- Euro: +0.4% vs dollar
- British pound: +2.8% vs dollar
- Canadian dollar: +2.3% vs dollar
- Japanese yen: -7.9% vs dollar
- Australian dollar: -0.6% vs dollar
- Chinese yuan: -5.4% vs dollar
- Mexican peso: +5.3% vs dollar
- Brazilian real: +5.1% vs dollar

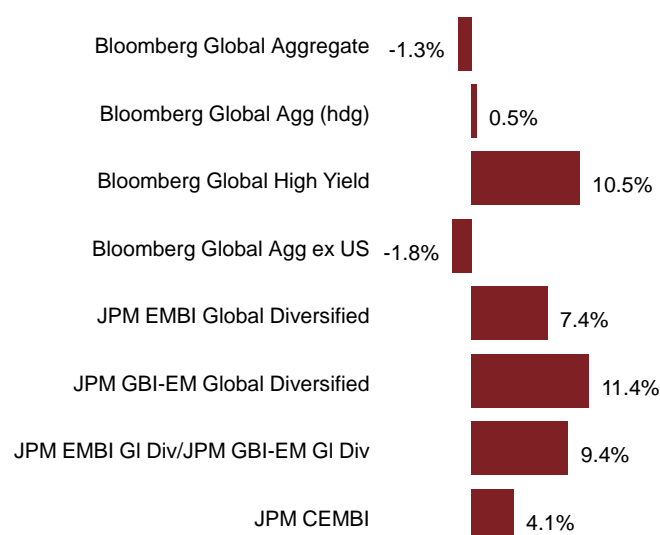
**Emerging market debt delivered solid results**

- Growth differentials have improved as inflation has peaked in many markets

**Global Fixed Income: Quarterly Returns**

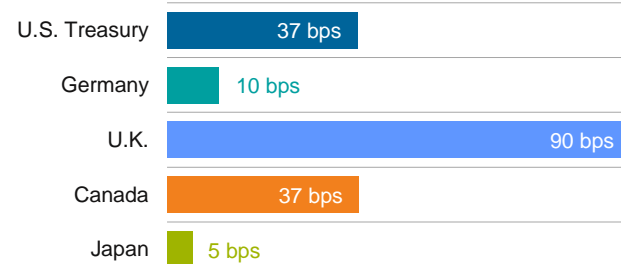


**Global Fixed Income: One-Year Returns**



**Change in 10-Year Global Government Bond Yields**

**1Q23 to 2Q23**

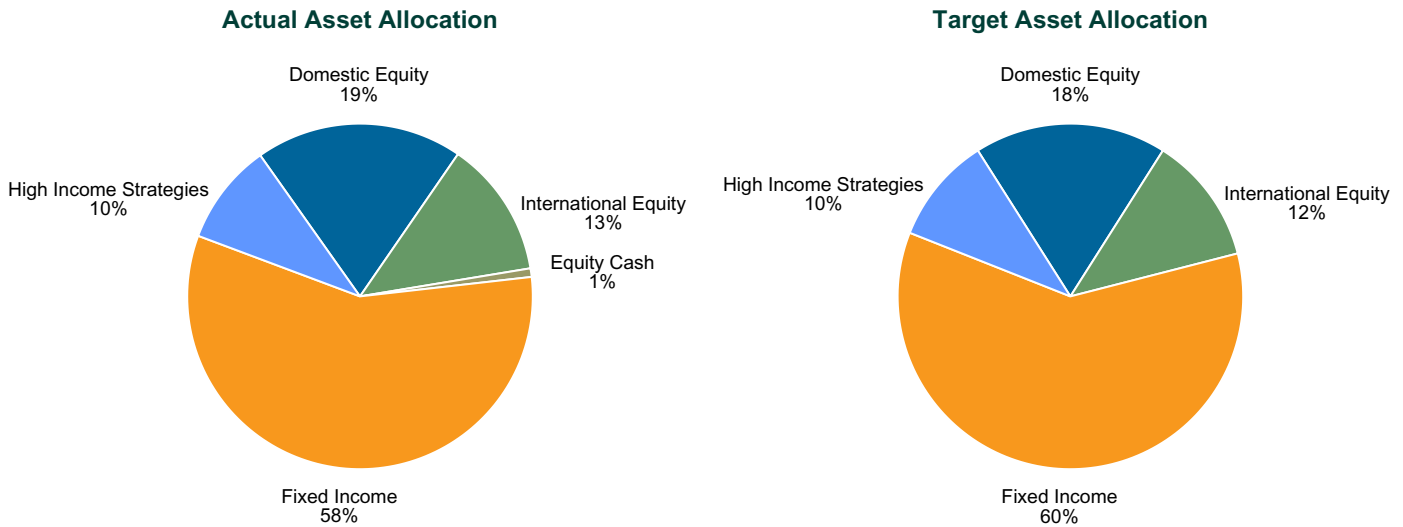


Sources: Bloomberg, JP Morgan

Actual vs. Target  
Asset Allocation

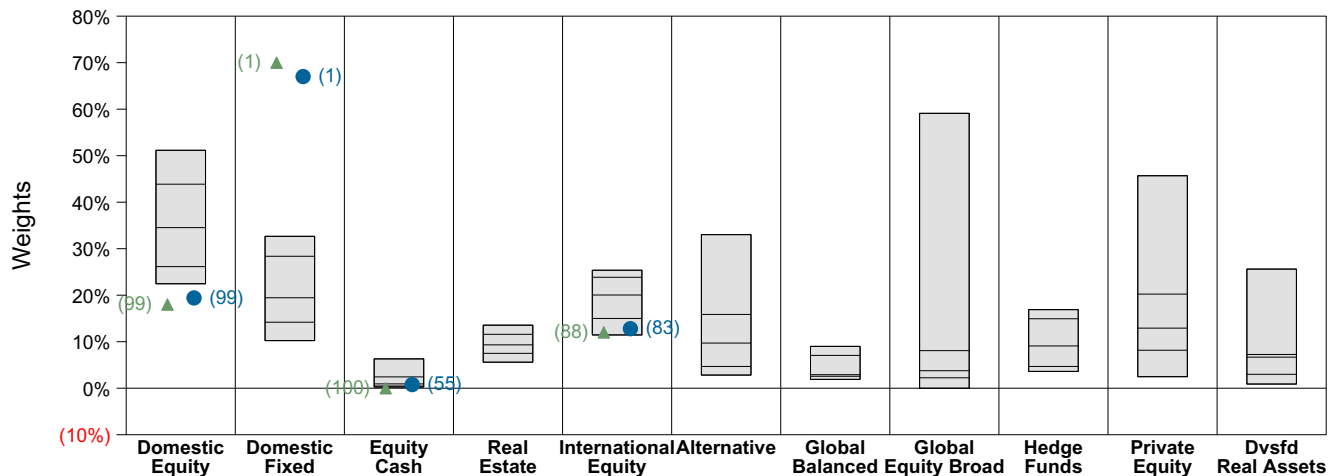
## Actual vs Target Asset Allocation As of June 30, 2023

The top left chart shows the Fund's asset allocation as of June 30, 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	267,374	19.4%	18.0%	1.4%	19,435
International Equity	176,302	12.8%	12.0%	0.8%	11,010
Equity Cash	10,780	0.8%	0.0%	0.8%	10,780
Fixed Income	792,059	57.5%	60.0%	(2.5%)	(34,404)
High Income Strategies	130,922	9.5%	10.0%	(0.5%)	(6,821)
Total	1,377,437	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	Dvsfd Real Assets
10th Percentile	51.16	32.66	6.31	13.56	25.36	33.02	8.99	59.11	16.90	45.69	25.61
25th Percentile	43.87	28.37	2.43	11.59	23.85	15.87	7.05	8.08	14.93	20.24	7.26
Median	34.53	19.45	0.93	9.33	20.04	9.71	2.91	3.76	9.09	12.92	6.68
75th Percentile	26.15	14.19	0.48	7.50	15.00	4.68	2.57	2.24	4.68	8.16	2.99
90th Percentile	22.46	10.24	0.26	5.59	11.45	2.82	1.90	0.00	3.61	2.48	0.89
<b>Fund</b> ●	19.41	67.01	0.78	-	12.80	-	-	-	-	-	-
<b>Target</b> ▲	18.00	70.00	0.00	-	12.00	-	-	-	-	-	-
% Group Invested	97.78%	95.56%	80.00%	48.89%	95.56%	64.44%	13.33%	15.56%	37.78%	46.67%	28.89%

\* 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 June 30, 2023, with the distribution as of March 31, 2023. 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

	June 30, 2023		Net New Inv.	Inv. Return	March 31, 2023	
	Market Value	Weight			Market Value	Weight
<b>Total Equity (1)</b>	<b>\$444,103,304</b>	<b>32.24%</b>	<b>\$5,554,373</b>	<b>\$25,430,351</b>	<b>\$413,118,580</b>	<b>31.06%</b>
<b>Domestic Equity</b>	<b>\$267,373,825</b>	<b>19.41%</b>	<b>\$(465,937)</b>	<b>\$20,861,377</b>	<b>\$246,978,385</b>	<b>18.57%</b>
iShares S&P 1500 ETF	267,373,825	19.41%	(465,937)	20,861,377	246,978,385	18.57%
<b>International Equity</b>	<b>\$176,302,240</b>	<b>12.80%</b>	<b>\$7,127,499</b>	<b>\$4,565,339</b>	<b>\$164,609,403</b>	<b>12.37%</b>
iShares MSCI Emerging ETF	47,895,241	3.48%	2,550,617	950,652	44,393,972	3.34%
iShares MSCI Canada ETF	17,305,914	1.26%	384,045	563,663	16,358,206	1.23%
iShares Core MSCI EAFE ETF	111,101,085	8.07%	4,192,837	3,051,024	103,857,224	7.81%
Equity Cash	427,238	0.03%	(1,107,189)	3,635	1,530,792	0.12%
<b>Total Fixed Income</b>	<b>\$792,058,512</b>	<b>57.50%</b>	<b>\$11,360,086</b>	<b>\$(4,706,962)</b>	<b>\$785,405,387</b>	<b>59.04%</b>
<b>Market Duration</b>	<b>\$686,713,214</b>	<b>49.85%</b>	<b>\$12,023,440</b>	<b>\$(5,544,538)</b>	<b>\$680,234,311</b>	<b>51.14%</b>
Colorado Treasurer's Portfolio	686,713,214	49.85%	12,023,440	(5,544,538)	680,234,311	51.14%
<b>Short Duration</b>	<b>\$105,345,298</b>	<b>7.65%</b>	<b>\$(663,354)</b>	<b>\$837,576</b>	<b>\$105,171,076</b>	<b>7.91%</b>
Janus Henderson (2)	105,345,298	7.65%	(663,354)	837,576	105,171,076	7.91%
<b>High Income Strategies</b>	<b>\$130,922,229</b>	<b>9.50%</b>	<b>\$(1,883,062)</b>	<b>\$1,723,790</b>	<b>\$131,081,501</b>	<b>9.85%</b>
<b>High Yield Fixed Income</b>	<b>\$112,220,383</b>	<b>8.15%</b>	<b>\$(1,646,875)</b>	<b>\$1,355,930</b>	<b>\$112,511,327</b>	<b>8.46%</b>
Mackay Shield US High Yield (3)	112,220,383	8.15%	(1,646,875)	1,355,930	112,511,327	8.46%
<b>Preferred Securities</b>	<b>\$18,701,846</b>	<b>1.36%</b>	<b>\$(236,187)</b>	<b>\$367,859</b>	<b>\$18,570,174</b>	<b>1.40%</b>
Principal Preferred Securities (3)	18,701,846	1.36%	(236,187)	367,859	18,570,174	1.40%
<b>Cash Available For Investing</b>	<b>\$10,353,204</b>	<b>0.75%</b>	<b>\$9,723,219</b>	<b>\$32,466</b>	<b>\$597,519</b>	<b>0.04%</b>
<b>Total Fund</b>	<b>\$1,377,437,249</b>	<b>100.0%</b>	<b>\$24,754,617</b>	<b>\$22,479,645</b>	<b>\$1,330,202,987</b>	<b>100.0%</b>

(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 June 30, 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 June 30, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Total Equity</b>	<b>6.12%</b>	<b>16.33%</b>	<b>11.49%</b>	<b>8.31%</b>	-
60% Russell 3000/40% ACWI ex US	6.01%	16.57%	11.26%	8.25%	9.32%
<b>Domestic Equity</b>	<b>8.38%</b>	<b>18.83%</b>	<b>13.85%</b>	<b>11.31%</b>	-
Russell 3000 Index	8.39%	18.95%	13.89%	11.39%	12.34%
<b>International Equity</b>	<b>2.74%</b>	<b>12.28%</b>	<b>7.82%</b>	<b>3.76%</b>	-
MSCI ACWI ex US	2.44%	12.72%	7.22%	3.52%	4.75%
<b>Total Fixed Income</b>	<b>(0.59%)</b>	<b>(0.04%)</b>	<b>(3.46%)</b>	<b>1.00%</b>	<b>1.73%</b>
Total Fixed Income Benchmark (1)	(0.79%)	(0.75%)	(3.59%)	0.85%	1.30%
<b>Market Duration</b>	<b>(0.80%)</b>	<b>(0.53%)</b>	<b>(3.99%)</b>	<b>0.83%</b>	<b>1.64%</b>
Colorado Treasurer's Portfolio (2)	(0.80%)	(0.53%)	(3.99%)	0.83%	1.64%
PSPF Custom Benchmark (3)	(0.84%)	(0.94%)	(3.96%)	0.77%	1.26%
<b>Short Duration</b>	<b>0.80%</b>	<b>2.92%</b>	<b>0.25%</b>	-	-
Janus Henderson Short Duration	0.80%	2.92%	0.25%	-	-
Blmbg Gov/Cred 1-3 Yr	(0.37%)	0.52%	(0.88%)	1.13%	0.99%
85% 1-3YR G/C; 15% 1-3YR BB (4)	(0.12%)	1.49%	(0.25%)	1.53%	1.43%
<b>High Income Strategies</b>	<b>1.35%</b>	<b>8.18%</b>	-	-	-
High Income Strategies Benchmark (5)	1.69%	7.93%	2.68%	3.19%	-
<b>High Yield Fixed Income</b>	<b>1.21%</b>	<b>9.23%</b>	-	-	-
Mackay Shield US High Yield	1.21%	9.23%	-	-	-
Blmbg High Yield	1.75%	9.06%	3.13%	3.36%	4.43%
<b>Preferred Securities</b>	<b>2.19%</b>	<b>2.29%</b>	-	-	-
Principal Preferred Securities	2.19%	2.29%	-	-	-
ICE BofA US All Cap Secs	1.34%	1.66%	0.05%	2.18%	-
<b>Total Fund w/o CAI (6)</b>	<b>1.69%</b>	<b>5.66%</b>	<b>0.39%</b>	<b>3.04%</b>	<b>2.76%</b>
Total Fund Benchmark (6)	1.50%	5.18%	0.12%	3.08%	2.46%

(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.

	FY 2023	FY 2022	FY 2021	FY 2020	FY 2019
<b>Total Equity</b>	<b>16.33%</b>	<b>(15.85%)</b>	<b>41.59%</b>	<b>1.82%</b>	<b>5.64%</b>
60% Russell 3000/40% ACWI ex US	16.57%	(16.06%)	40.77%	1.90%	5.92%
<b>Domestic Equity</b>	<b>18.83%</b>	<b>(13.95%)</b>	<b>44.30%</b>	<b>6.40%</b>	<b>8.85%</b>
Russell 3000 Index	18.95%	(13.87%)	44.16%	6.53%	8.98%
<b>International Equity</b>	<b>12.28%</b>	<b>(18.97%)</b>	<b>37.78%</b>	<b>(4.71%)</b>	<b>0.67%</b>
MSCI ACWI ex US	12.72%	(19.42%)	35.72%	(4.80%)	1.29%
<b>Total Fixed Income</b>	<b>(0.04%)</b>	<b>(9.76%)</b>	<b>(0.27%)</b>	<b>8.79%</b>	<b>7.38%</b>
Total Fixed Income Benchmark (1)	(0.75%)	(9.46%)	(0.26%)	8.28%	7.52%
<b>Market Duration</b>	<b>(0.53%)</b>	<b>(10.55%)</b>	<b>(0.55%)</b>	<b>9.26%</b>	<b>7.77%</b>
Colorado Treasurer's Portfolio (2)	(0.53%)	(10.55%)	(0.55%)	9.26%	7.77%
PSPF Custom Benchmark (3)	(0.94%)	(10.29%)	(0.33%)	8.74%	7.87%
<b>Short Duration</b>	<b>2.92%</b>	<b>(4.33%)</b>	<b>2.33%</b>	<b>4.41%</b>	<b>-</b>
Janus Henderson Short Duration	2.92%	(4.33%)	2.33%	4.41%	-
Blmbg Gov/Cred 1-3 Yr	0.52%	(3.56%)	0.44%	4.20%	4.27%
85% 1-3YR G/C; 15% 1-3YR BB (4)	1.49%	(3.83%)	1.70%	3.94%	4.59%
<b>High Income Strategies</b>	<b>8.18%</b>	<b>(9.38%)</b>	<b>-</b>	<b>-</b>	<b>-</b>
High Income Strategies Benchmark (5)	7.93%	(12.89%)	15.13%	0.46%	7.58%
<b>High Yield Fixed Income</b>	<b>9.23%</b>	<b>(9.09%)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Mackay Shield US High Yield	9.23%	(9.09%)	-	-	-
Blmbg High Yield	9.06%	(12.81%)	15.37%	0.03%	7.48%
<b>Preferred Securities</b>	<b>2.29%</b>	<b>(11.11%)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Principal Preferred Securities	2.29%	(11.11%)	-	-	-
ICE BofA US All Cap Secs	1.66%	(13.33%)	13.67%	2.86%	8.12%
<b>Total Fund w/o CAI (6)</b>	<b>5.66%</b>	<b>(11.58%)</b>	<b>8.30%</b>	<b>7.37%</b>	<b>6.94%</b>
Total Fund Benchmark (6)	5.18%	(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%

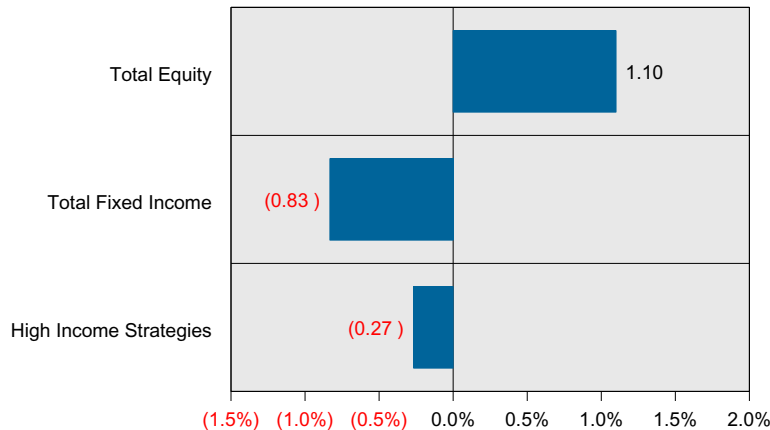
July 1st, 2021 - September 30, 2021		
US Equity	Russell 3000 Index	16.35%
International Equity	MSCI ACWI ex US	10.90%
Market Duration	Bloomberg Barclays Aggregate	57.00%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	7.50%
High Yield	Bloomberg Barclays US High Yield	7.00%
Preferred Securities	ICE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

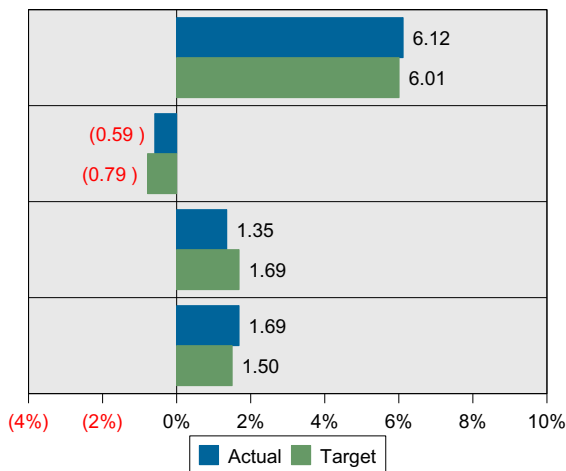
## Quarterly Total Fund Relative Attribution - June 30, 2023

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.

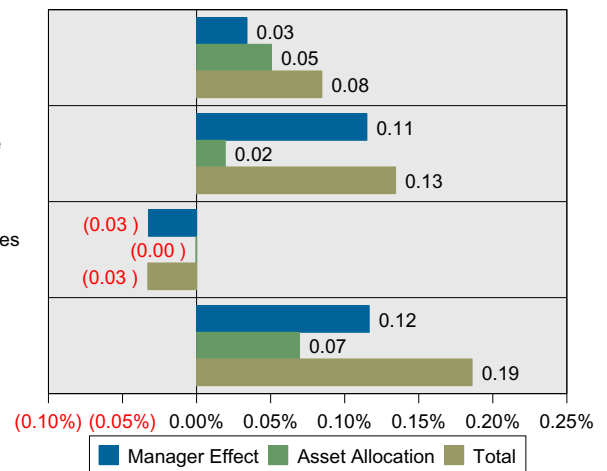
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2023

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	31%	30%	6.12%	6.01%	0.03%	0.05%	0.08%
Total Fixed Income	59%	60%	(0.59)%	(0.79)%	0.11%	0.02%	0.13%
High Income Strategies	10%	10%	1.35%	1.69%	(0.03)%	(0.00)%	(0.03)%
<b>Total</b>			<b>1.69%</b>	<b>1.50%</b>	<b>+ 0.12%</b>	<b>+ 0.07%</b>	<b>0.19%</b>

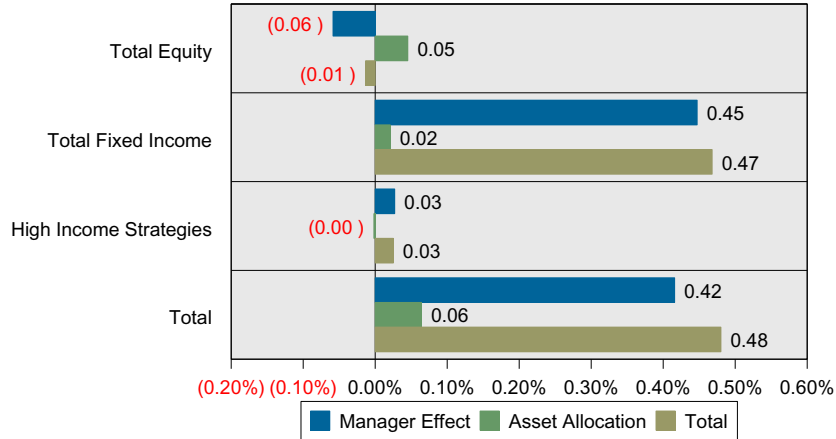
\* Current Quarter Target = 52.5% Blmbg:Aggregate, 18.0% Russell 3000 Index, 12.0% MSCI ACWI xUS, 8.5% Blmbg HY Corp, 7.5% Blmbg Gov/Cred 1-3 Yr and 1.5% ICE All US Cap Secs.



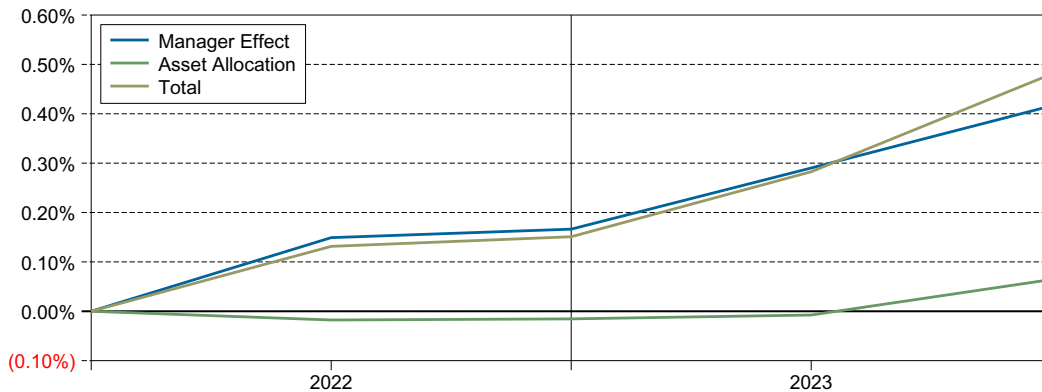
## Cumulative Total Fund Relative Attribution - June 30, 2023

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

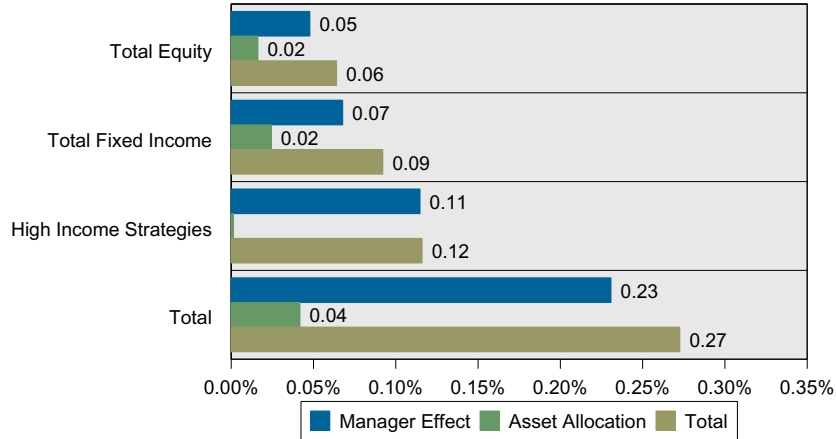
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	30%	30%	16.33%	16.57%	(0.06%)	0.05%	(0.01%)
Total Fixed Income	60%	60%	(0.04%)	(0.75%)	0.45%	0.02%	0.47%
High Income Strategies	10%	10%	8.18%	7.93%	0.03%	(0.00%)	0.03%
<b>Total</b>			<b>5.66%</b>	<b>5.18%</b>	<b>+ 0.42%</b>	<b>+ 0.06%</b>	<b>0.48%</b>

\* 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.

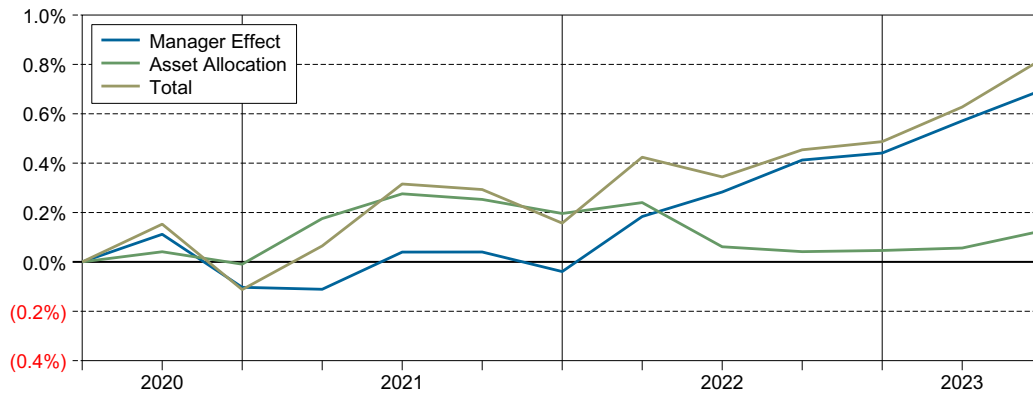
## Cumulative Total Fund Relative Attribution - June 30, 2023

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	27%	27%	11.49%	11.26%	0.05%	0.02%	0.06%
Total Fixed Income	65%	65%	(3.46%)	(3.59%)	0.07%	0.02%	0.09%
High Income Strategies	8%	8%	2.18%	1.25%	0.11%	0.00%	0.12%
<b>Total</b>					<b>0.39%</b>	<b>0.12%</b>	<b>0.27%</b>

\* 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

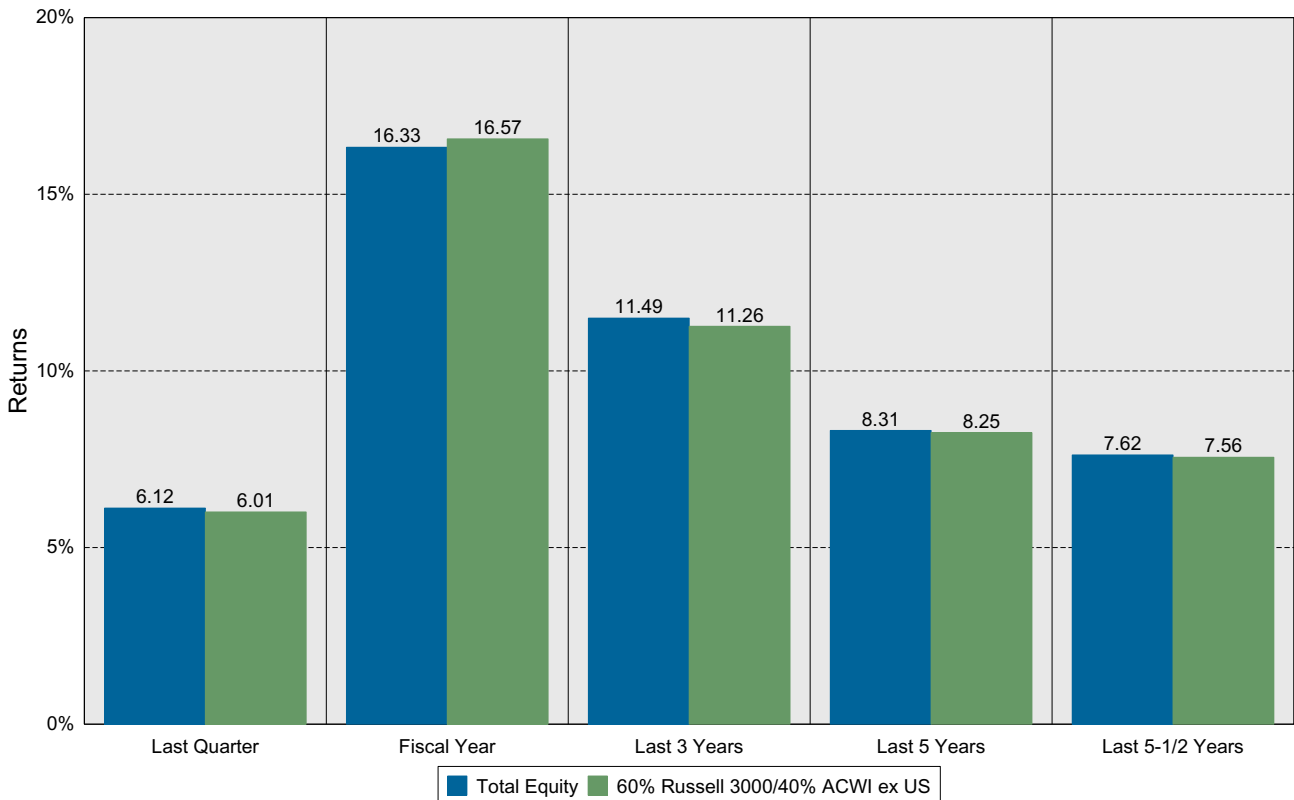
## Period Ended June 30, 2023

### Inception Date

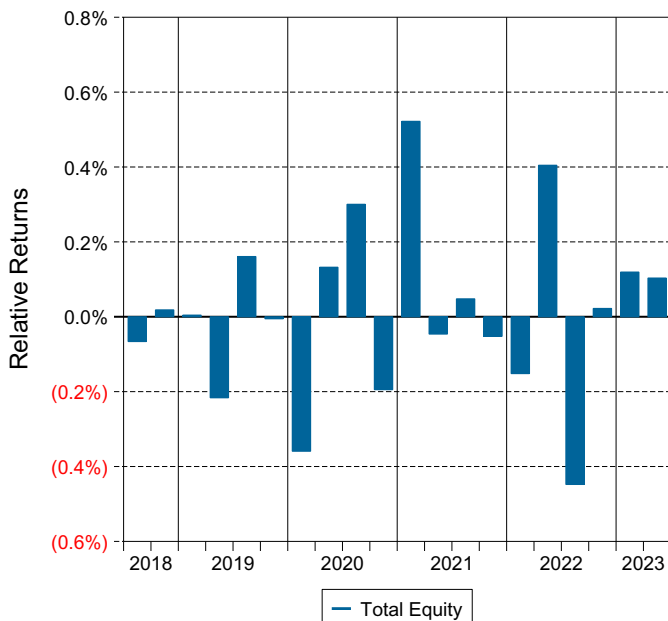
Parametric was funded December 12th, 2017.

### Quarterly Summary and Highlights

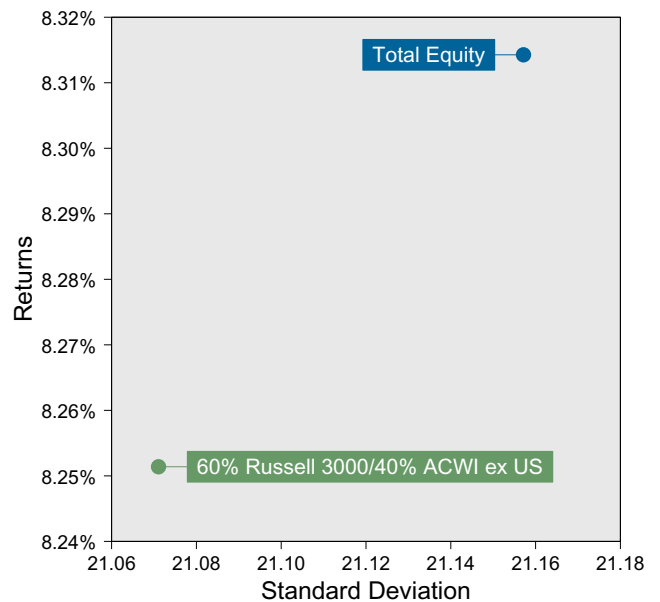
- Total Equity's portfolio outperformed the 60% Russell 3000/40% ACWI ex US by 0.11% for the quarter and underperformed the 60% Russell 3000/40% ACWI ex US for the year by 0.24%.



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



**Annualized Five Year Risk vs Return**

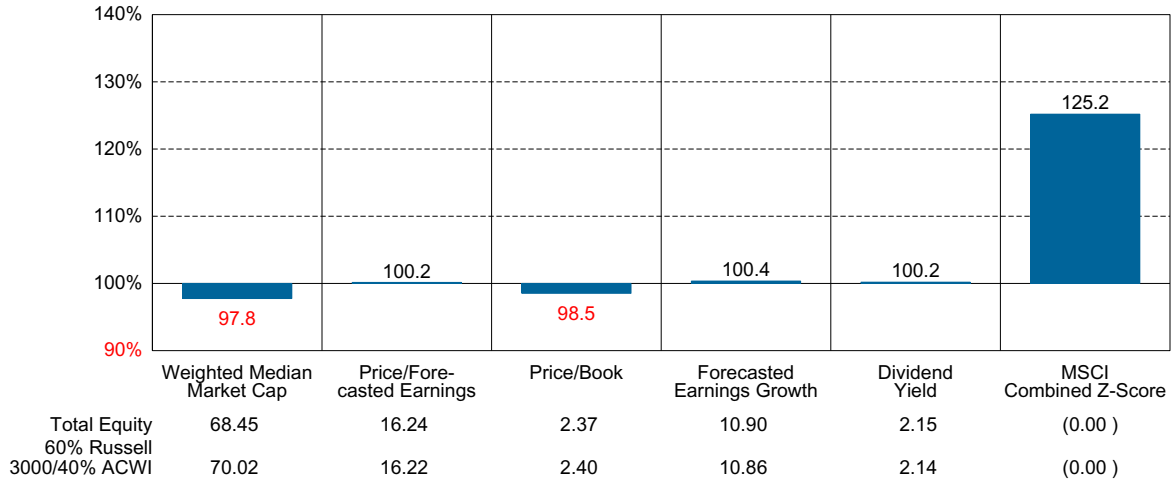


# Total Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

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

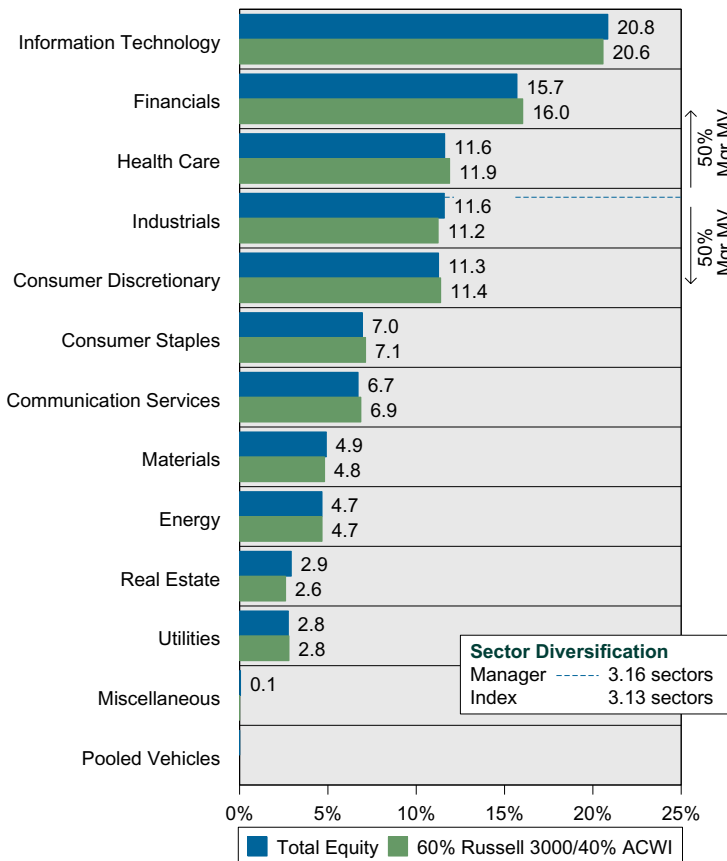
### Portfolio Characteristics Relative to 60% Russell 3000/40% ACWI as of June 30, 2023



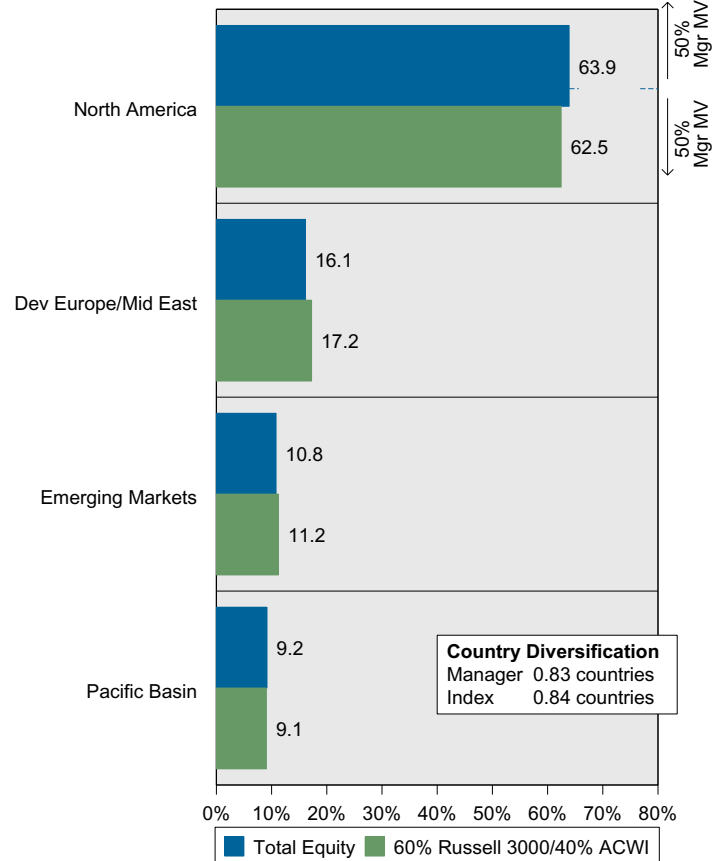
## Sector Weights

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 June 30, 2023



### Regional Allocation June 30, 2023



# Domestic Equity Period Ended June 30, 2023

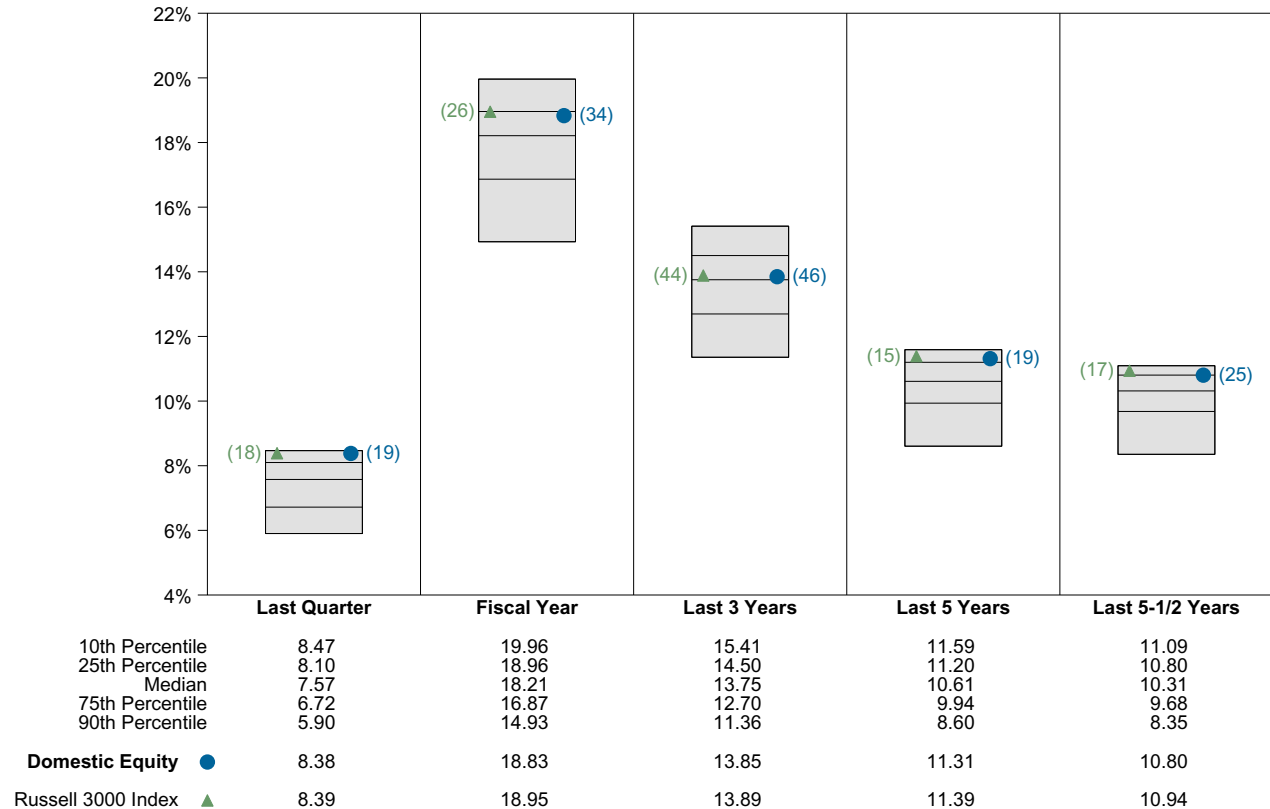
## Inception Date

Parametric was funded December 12th, 2017.

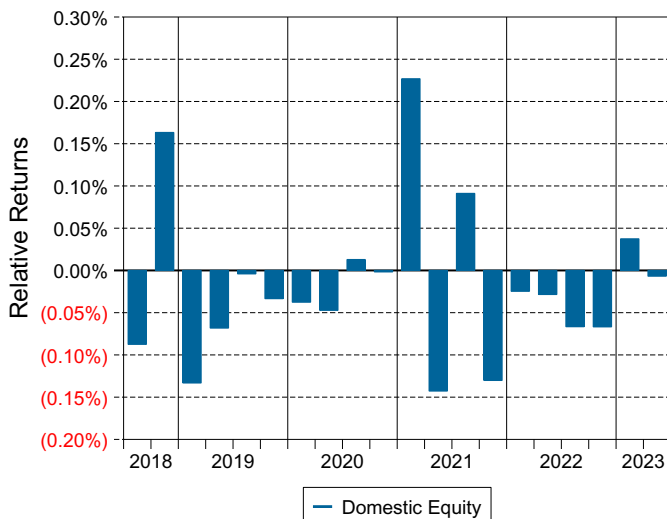
## Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 8.38% return for the quarter placing it in the 19 percentile of the EF- Domestic Equity group for the quarter and in the 34 percentile for the last year.
- Domestic Equity's portfolio underperformed the Russell 3000 Index by 0.01% for the quarter and underperformed the Russell 3000 Index for the year by 0.12%.

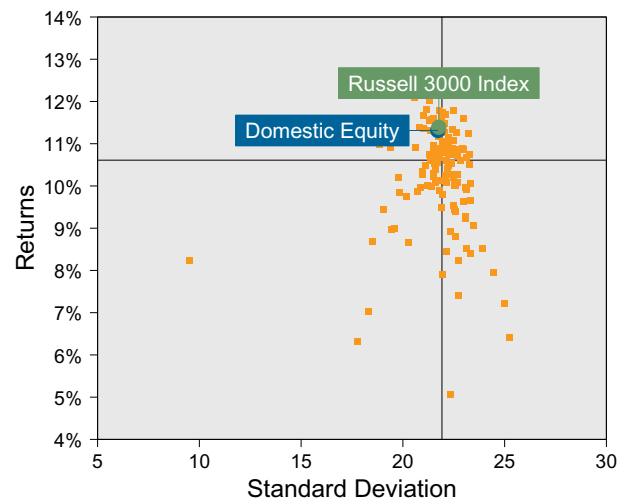
## Performance vs EF- Domestic Equity (Gross)



## Relative Return vs Russell 3000 Index



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

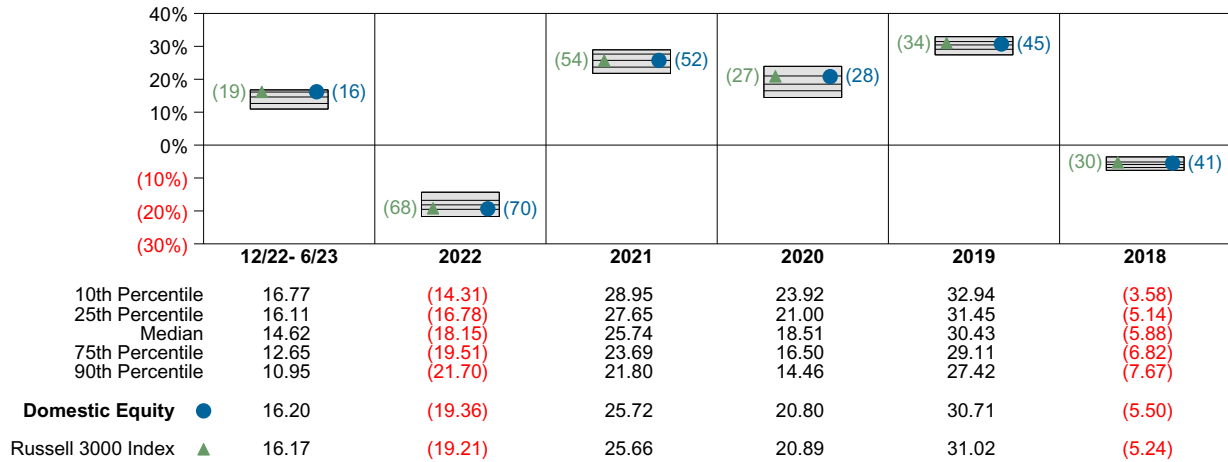


# Domestic Equity Return Analysis Summary

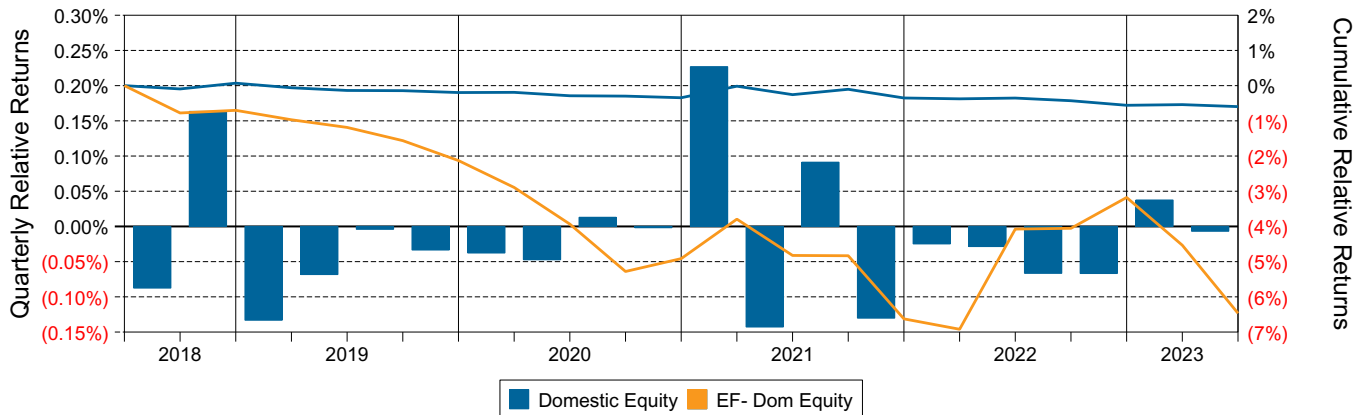
## Return Analysis

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.

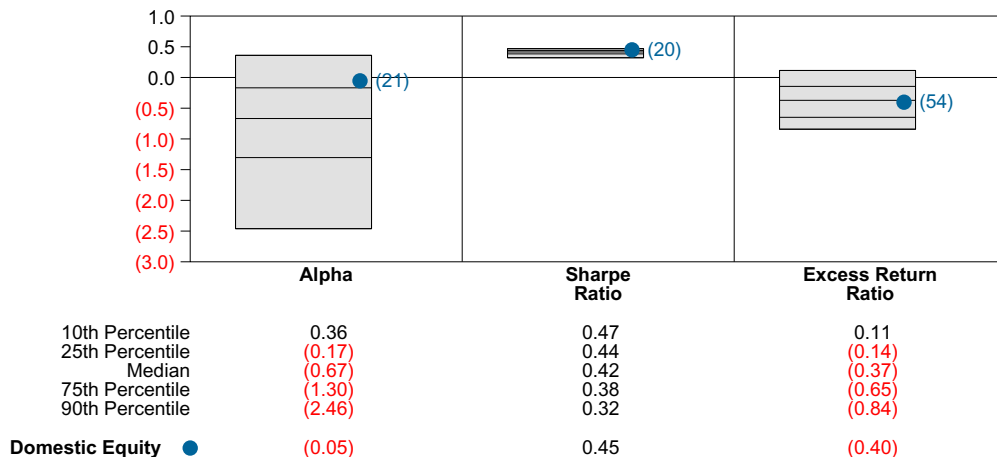
### Performance vs EF- Domestic Equity (Gross)



### 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 June 30, 2023

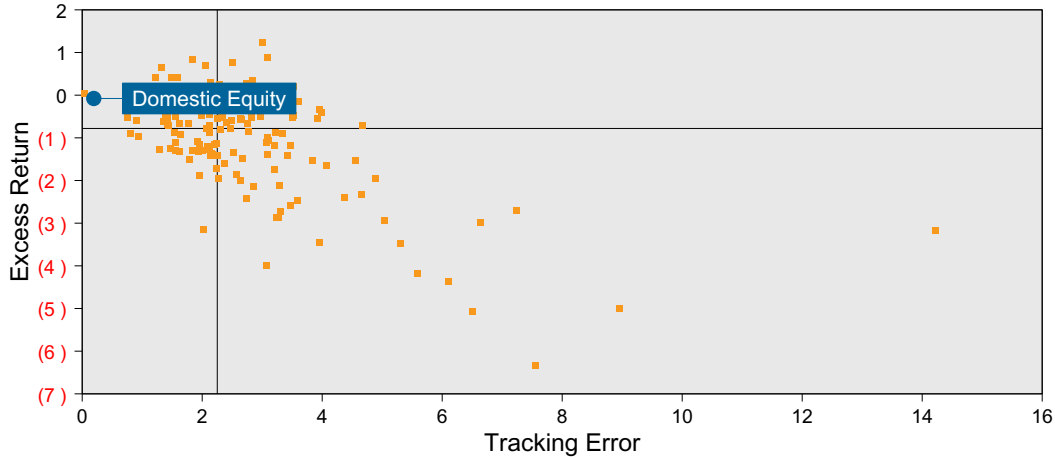


# Domestic Equity Risk Analysis Summary

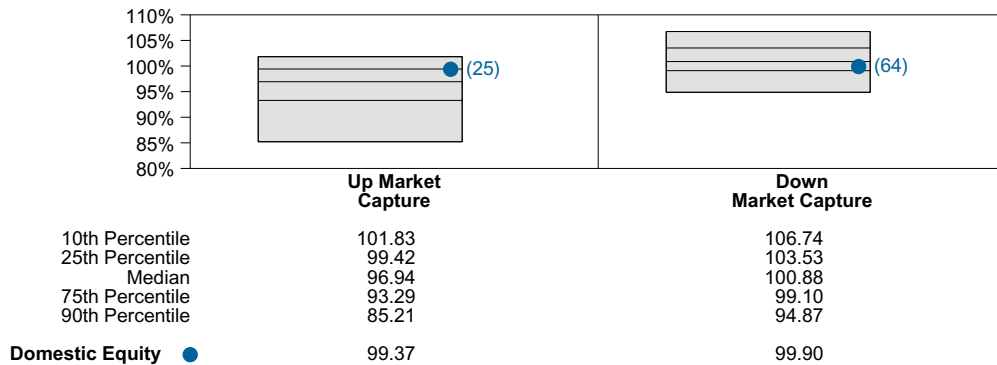
## Risk Analysis

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.

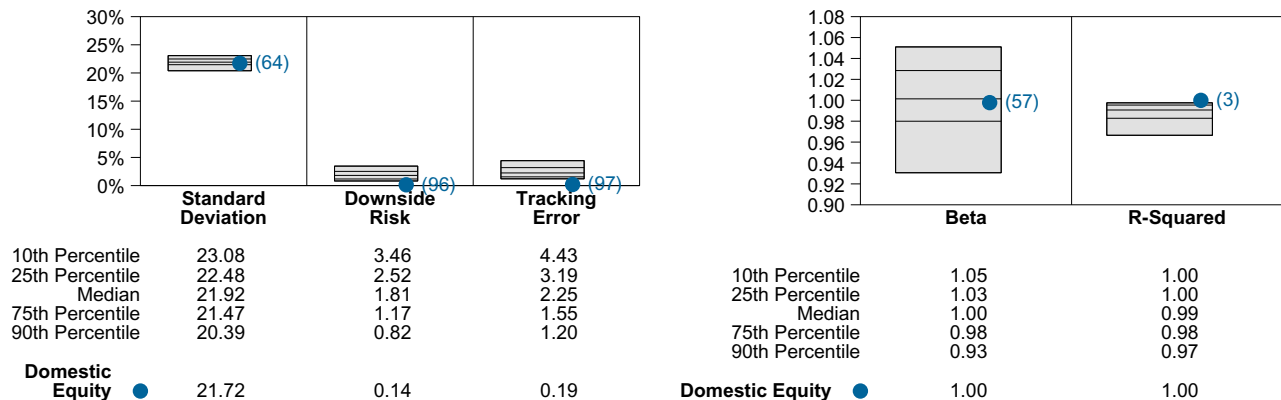
### Risk Analysis vs EF- Domestic Equity (Gross) Five Years Ended June 30, 2023



### Market Capture vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Five Years Ended June 30, 2023



### Risk Statistics Rankings vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Five Years Ended June 30, 2023



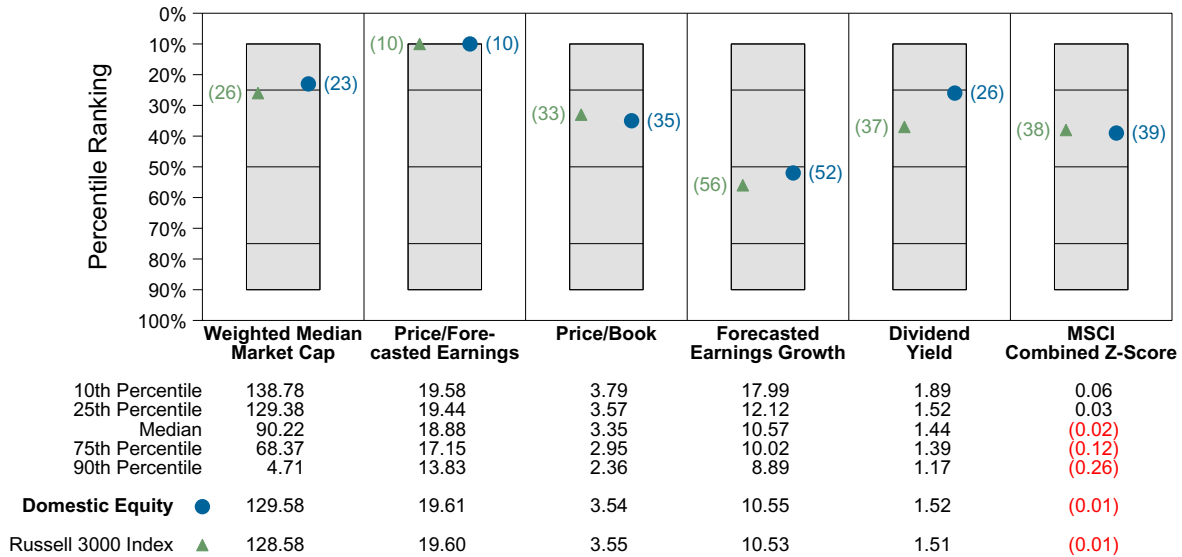


# Domestic Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

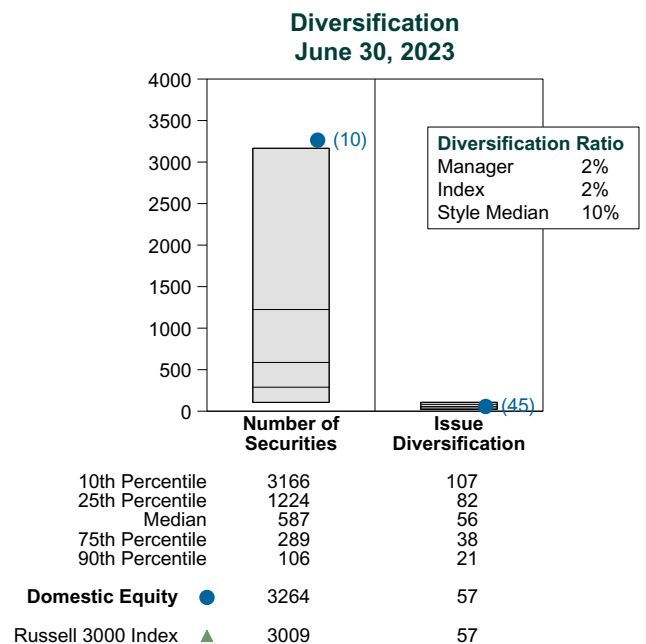
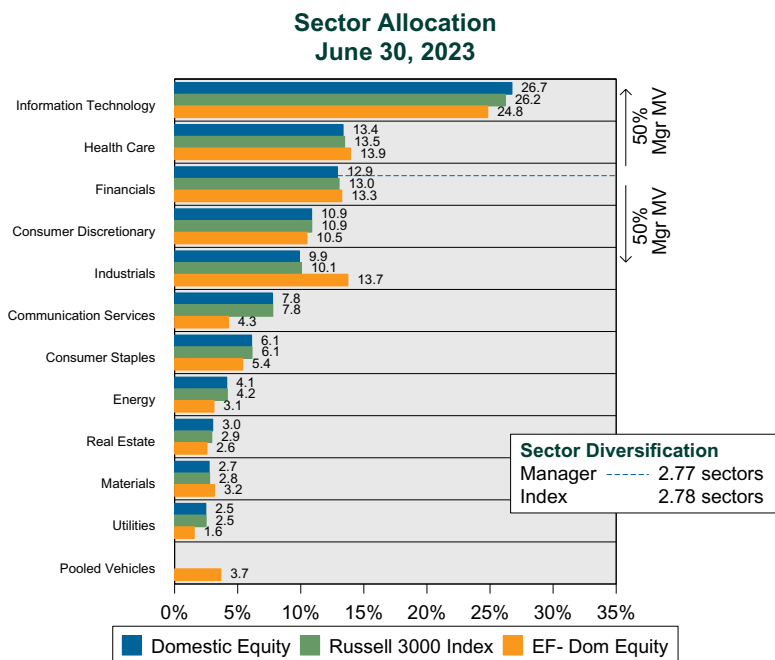
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against EF- Domestic Equity as of June 30, 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 June 30, 2023

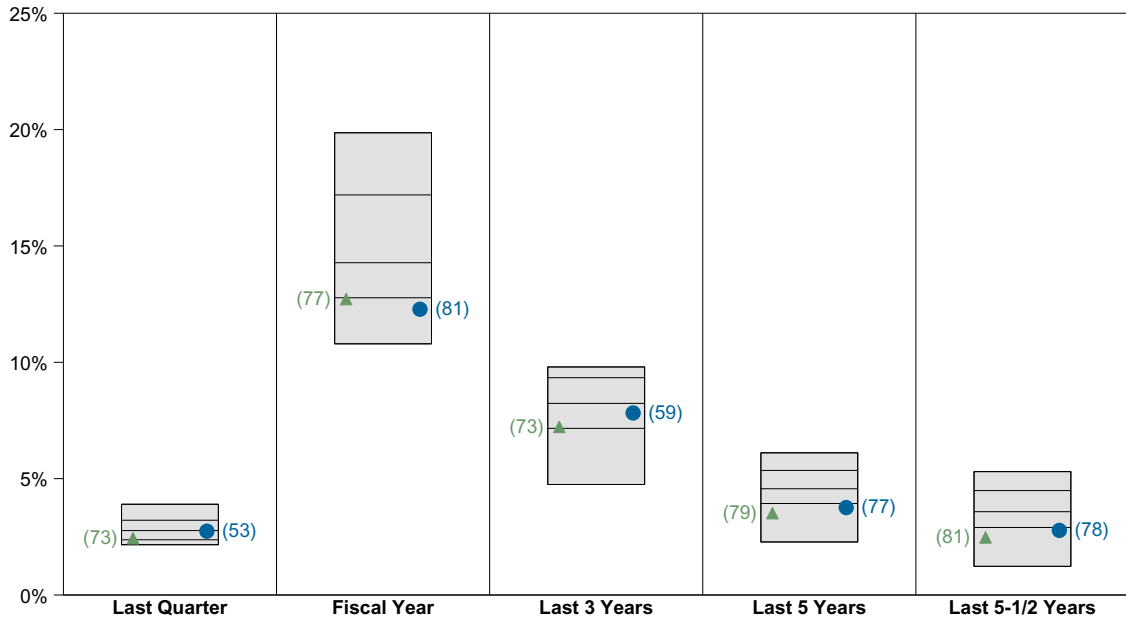
### Inception Date

Parametric was funded December 12th, 2017.

### Quarterly Summary and Highlights

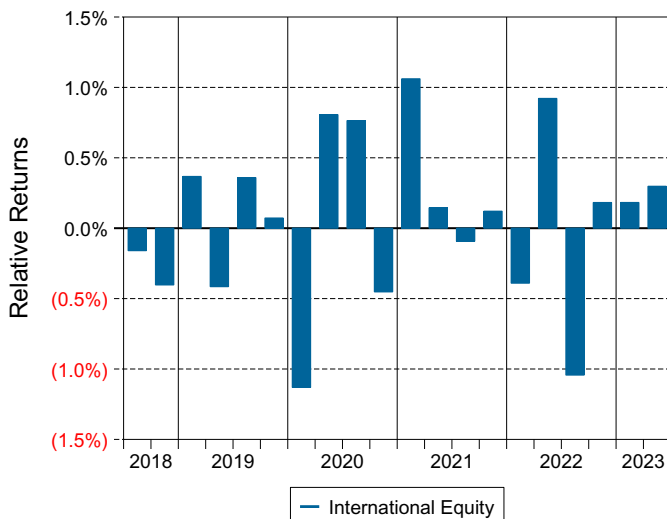
- International Equity's portfolio posted a 2.74% return for the quarter placing it in the 53 percentile of the EF-International Equity group for the quarter and in the 81 percentile for the last year.
- International Equity's portfolio outperformed the MSCI ACWI ex US by 0.30% for the quarter and underperformed the MSCI ACWI ex US for the year by 0.44%.

### Performance vs EF- International Equity (Gross)

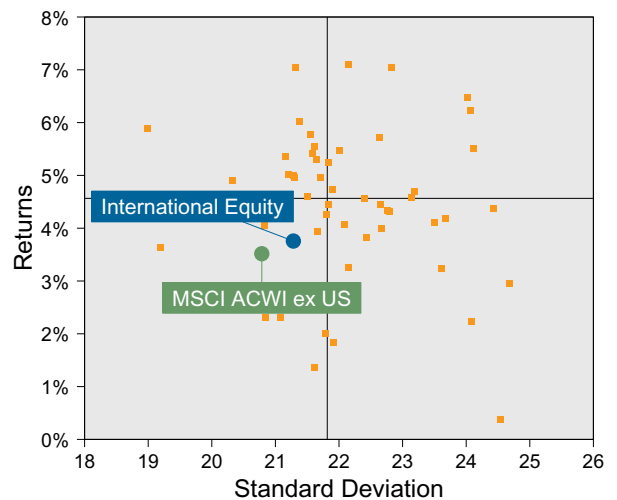


10th Percentile	3.90	19.86	9.80	6.11	5.30
25th Percentile	3.21	17.19	9.34	5.35	4.49
Median	2.77	14.28	8.24	4.57	3.58
75th Percentile	2.37	12.77	7.16	3.93	2.90
90th Percentile	2.16	10.79	4.75	2.28	1.23
<b>International Equity</b>	<b>2.74</b>	<b>12.28</b>	<b>7.82</b>	<b>3.76</b>	<b>2.78</b>
<b>MSCI ACWI ex US</b>	<b>2.44</b>	<b>12.72</b>	<b>7.22</b>	<b>3.52</b>	<b>2.47</b>

### Relative Return vs MSCI ACWI ex US



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

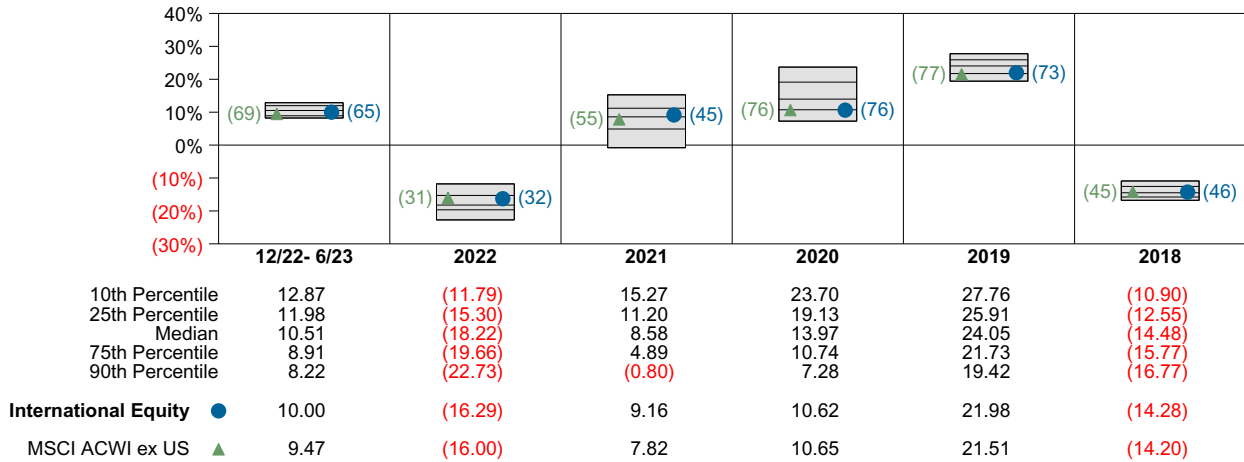


# International Equity Return Analysis Summary

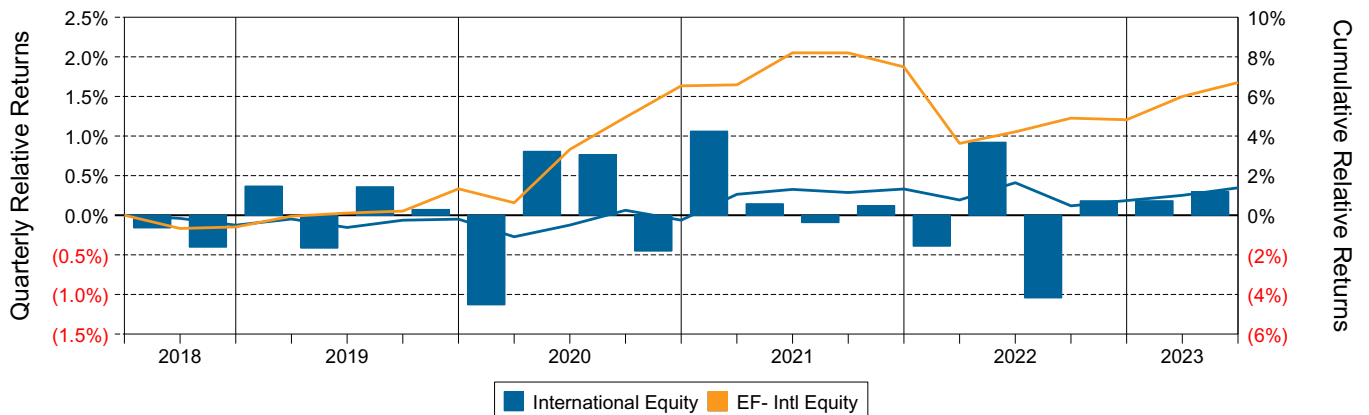
## Return Analysis

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.

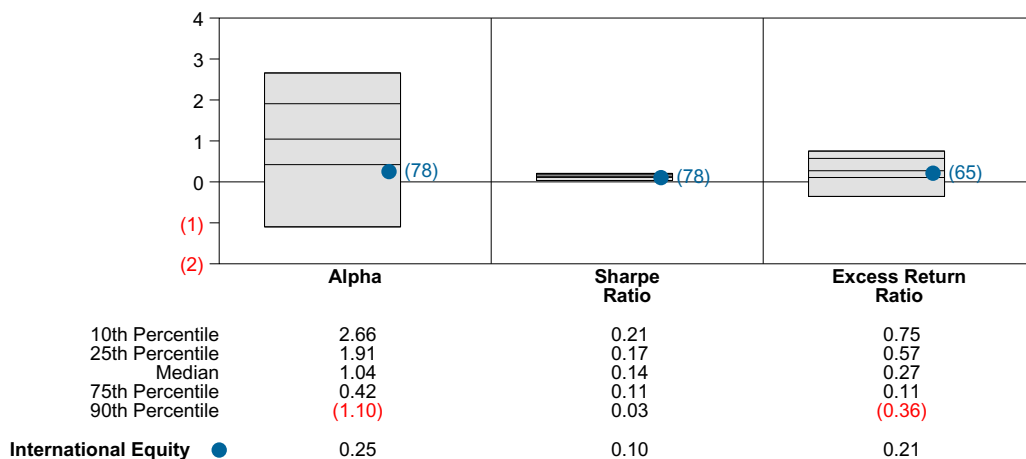
### Performance vs EF- International Equity (Gross)



### 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 June 30, 2023

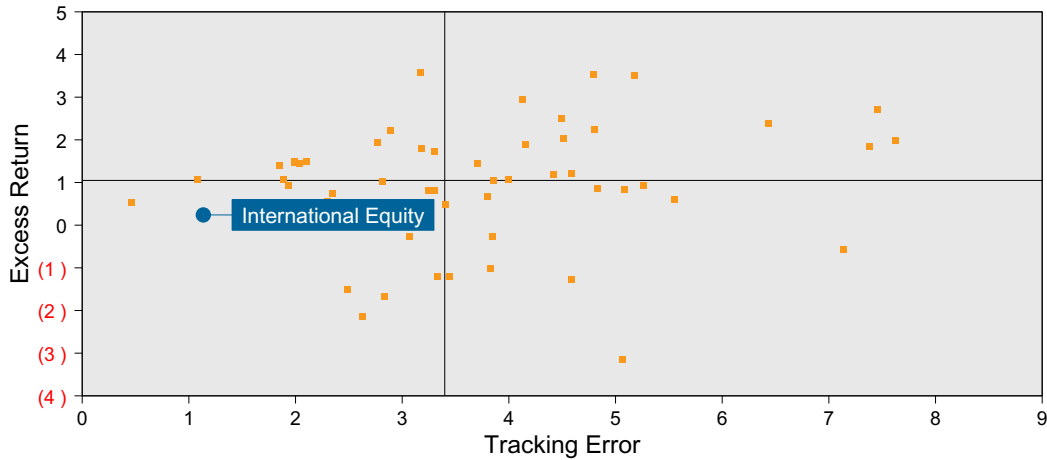


# International Equity Risk Analysis Summary

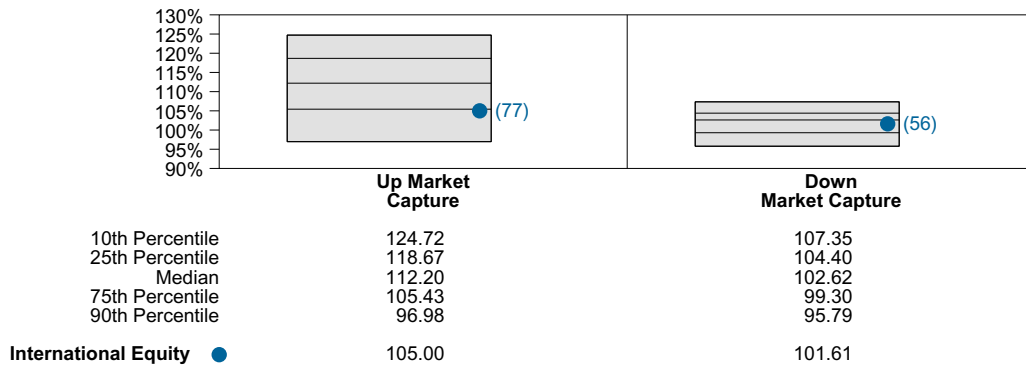
## Risk Analysis

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.

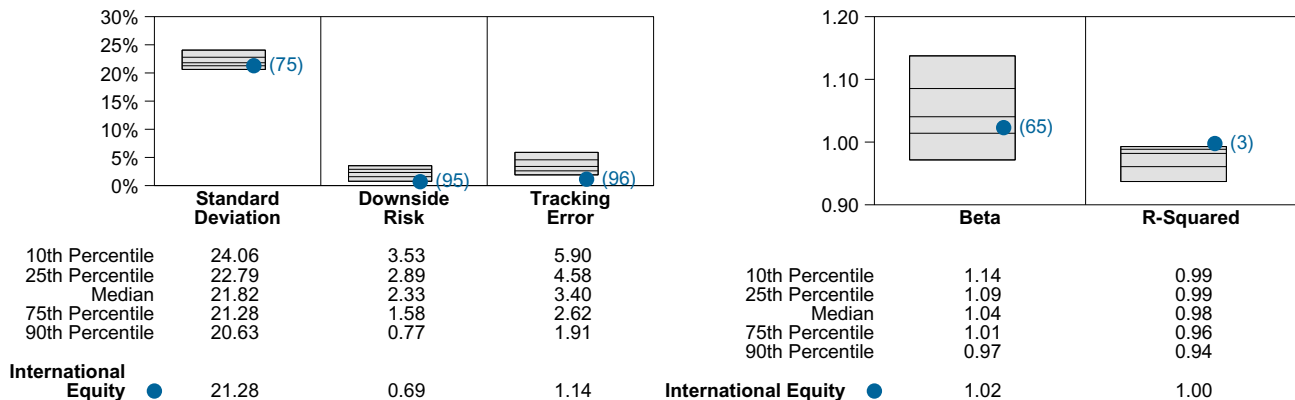
### Risk Analysis vs EF- International Equity (Gross) Five Years Ended June 30, 2023



### Market Capture vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Five Years Ended June 30, 2023



### Risk Statistics Rankings vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Five Years Ended June 30, 2023



# International Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

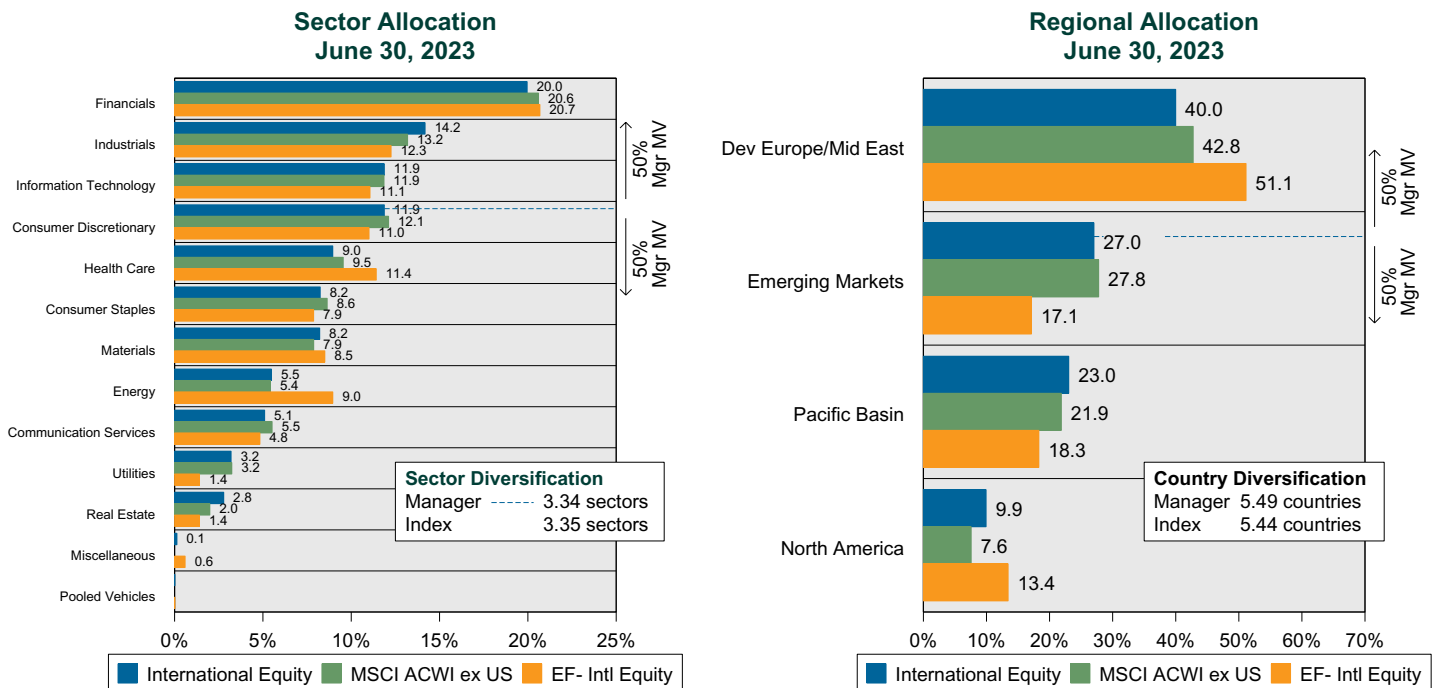
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against EF- International Equity as of June 30, 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 June 30, 2023

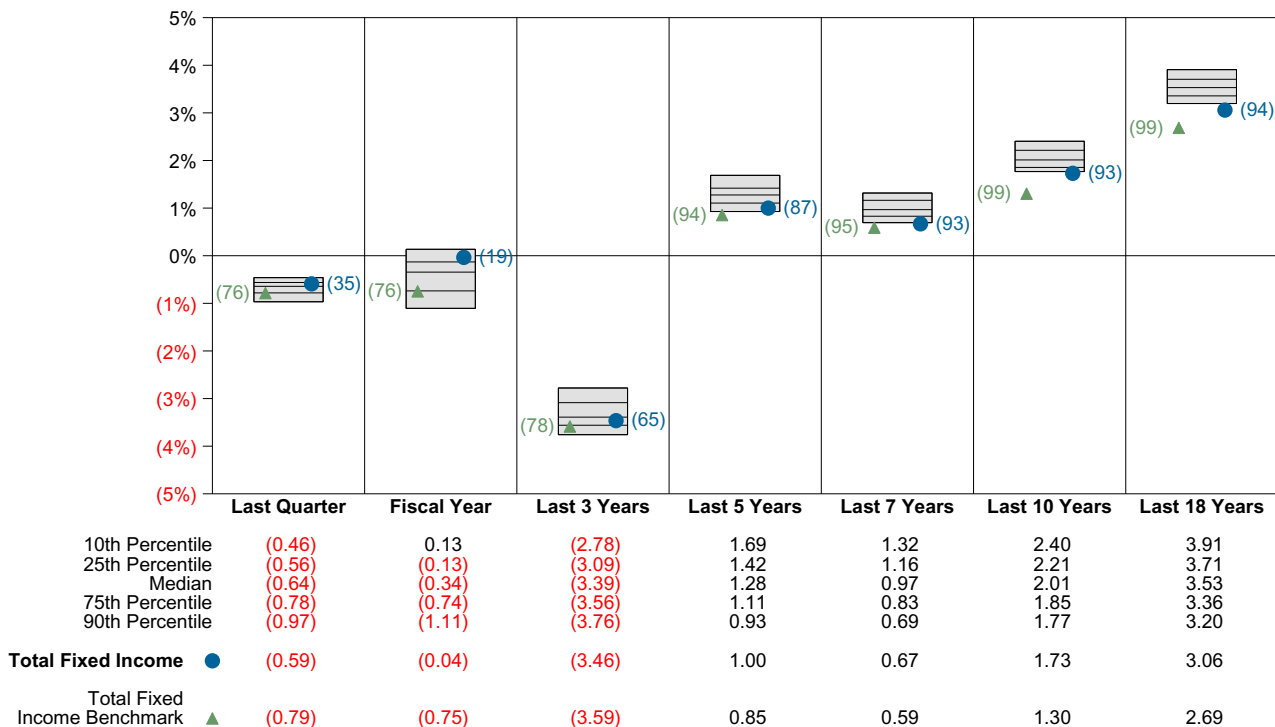
### Benchmark Definition

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.

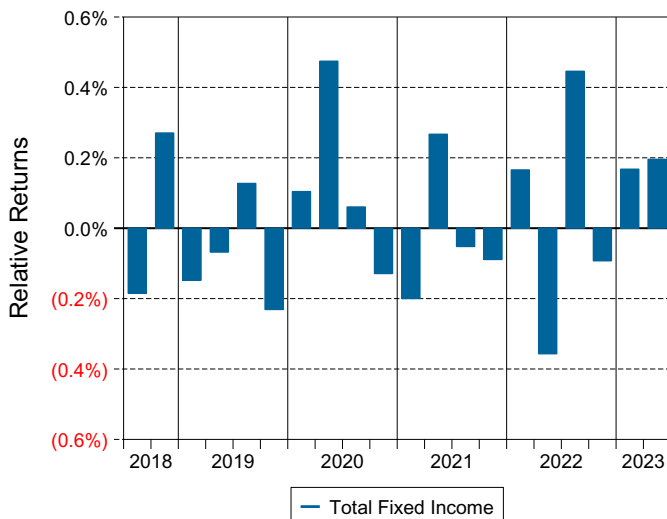
### Quarterly Summary and Highlights

- Total Fixed Income's portfolio posted a (0.59)% return for the quarter placing it in the 35 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 19 percentile for the last year.
- Total Fixed Income's portfolio outperformed the Total Fixed Income Benchmark by 0.19% for the quarter and outperformed the Total Fixed Income Benchmark for the year by 0.71%.

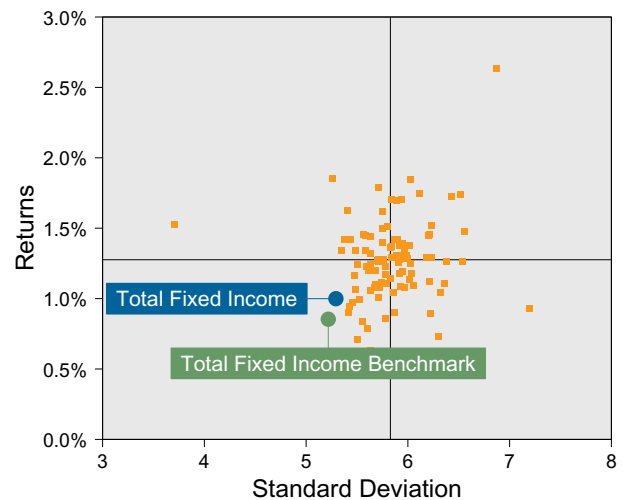
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Returns vs Total Fixed Income Benchmark



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

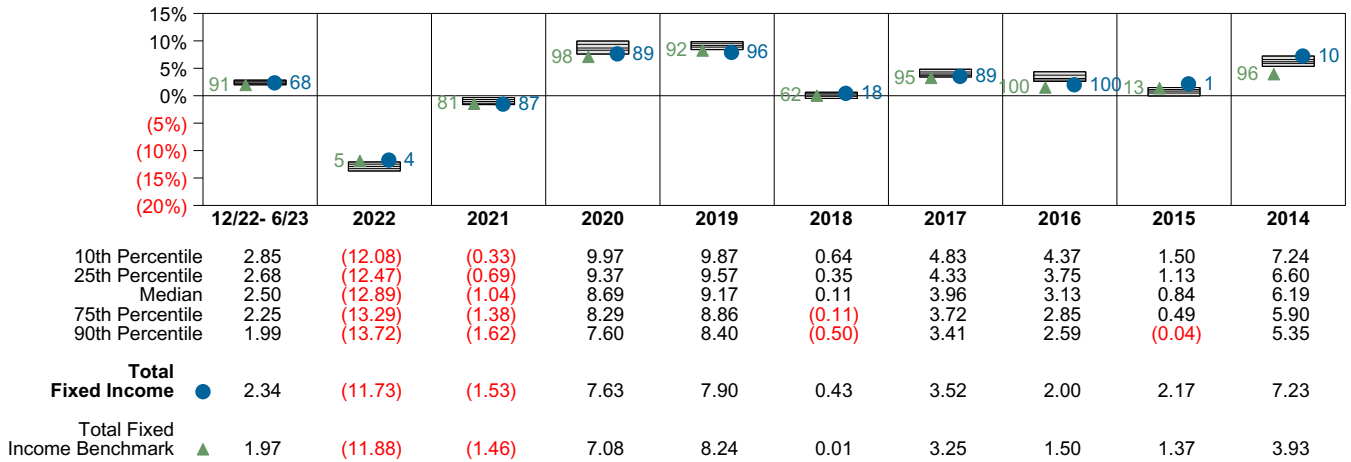


# Total Fixed Income Return Analysis Summary

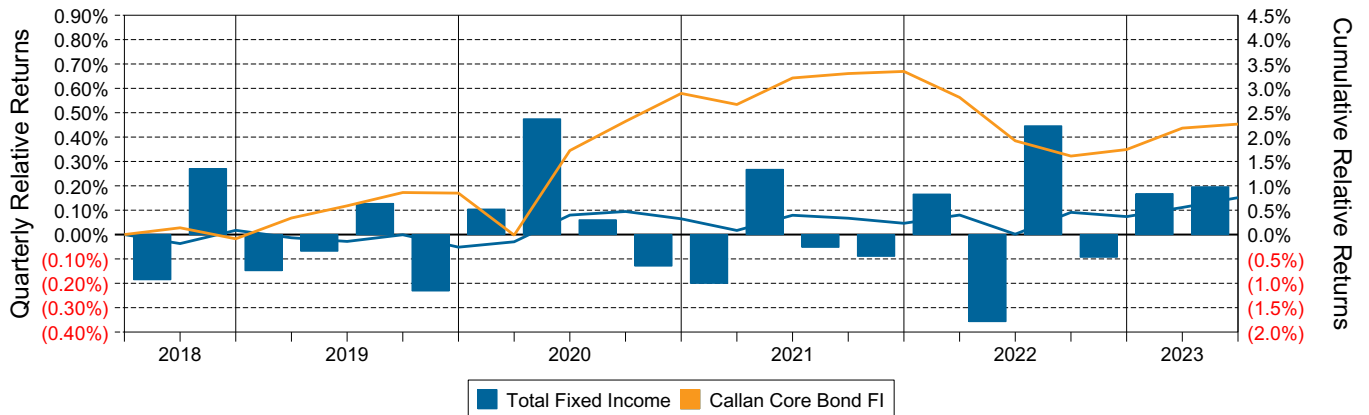
## Return Analysis

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.

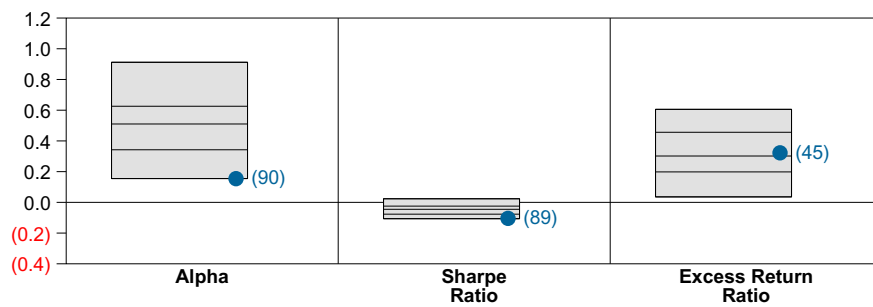
### Performance vs Callan Core Bond Fixed Income (Gross)



### 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 June 30, 2023



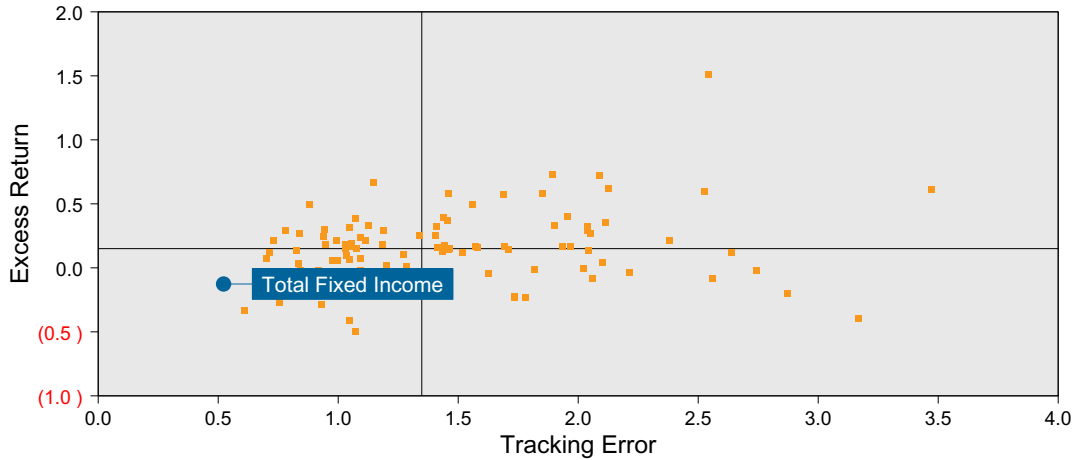


# Total Fixed Income Risk Analysis Summary

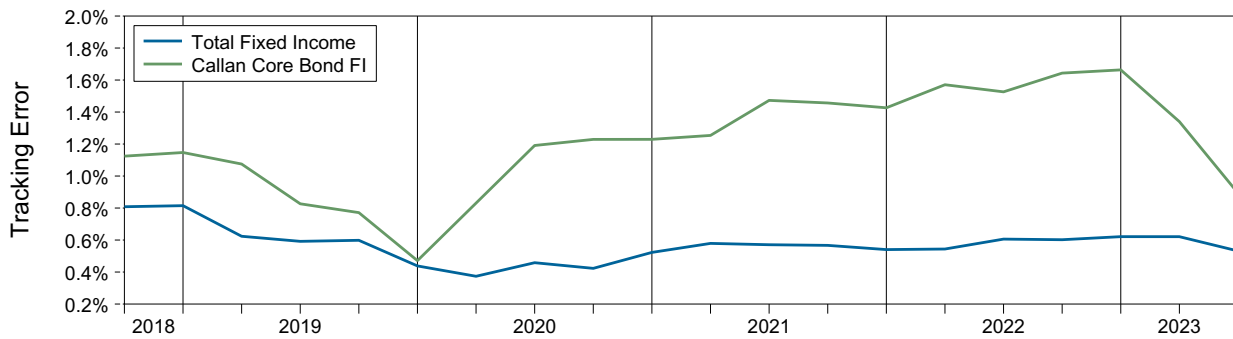
## Risk Analysis

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.

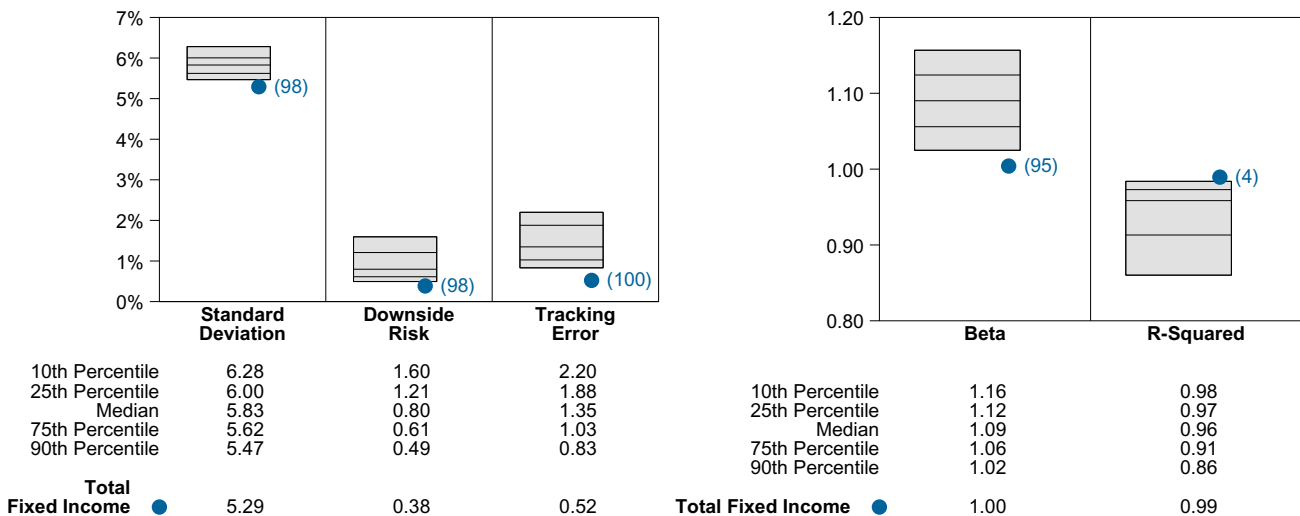
### Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023



### 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 June 30, 2023

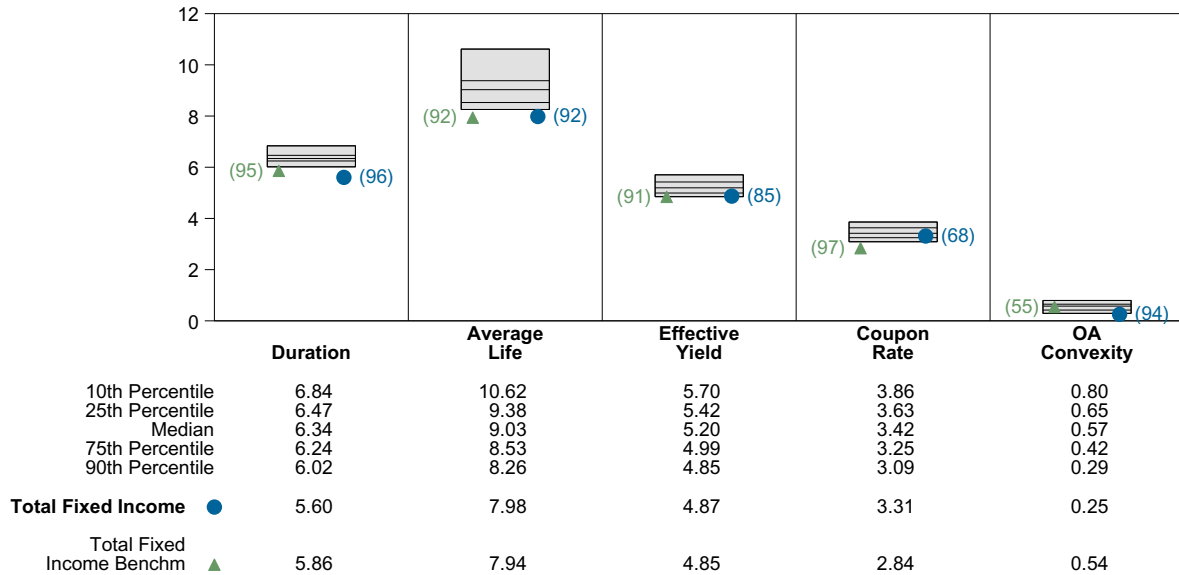


# Total Fixed Income Bond Characteristics Analysis Summary

## Portfolio Characteristics

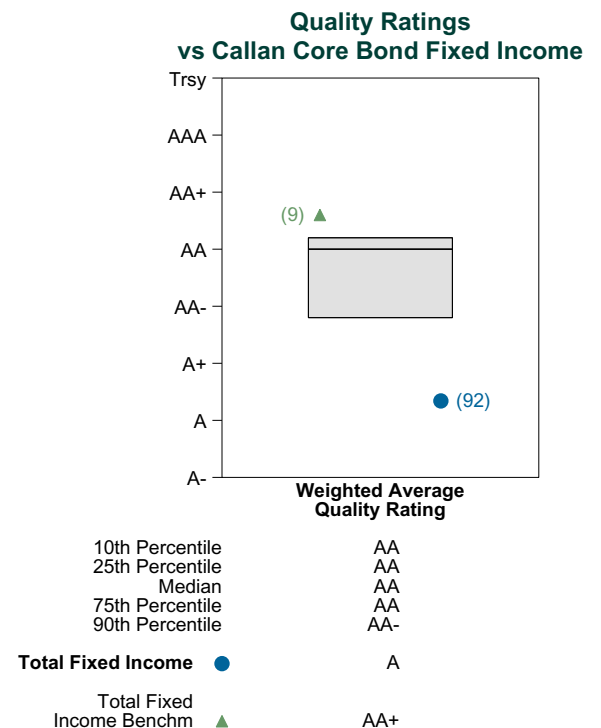
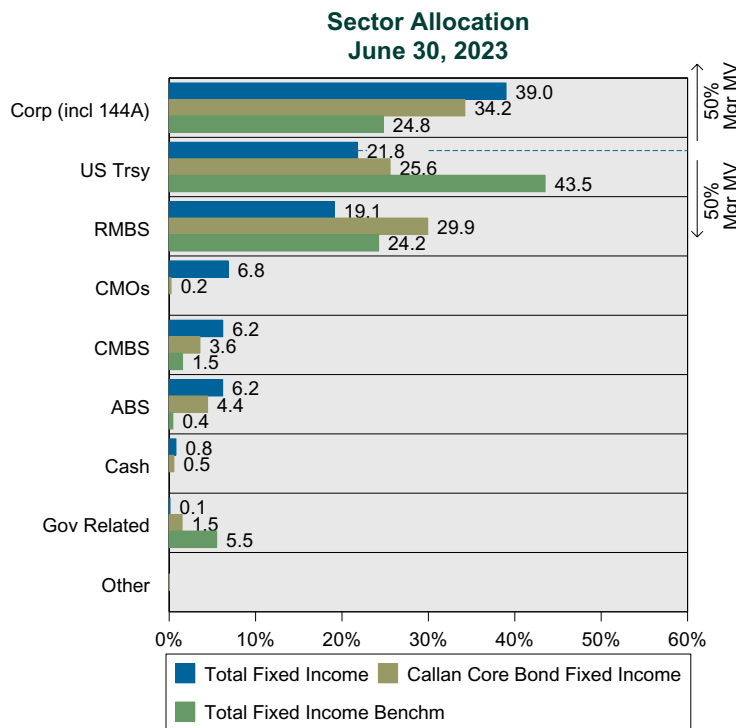
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of June 30, 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.

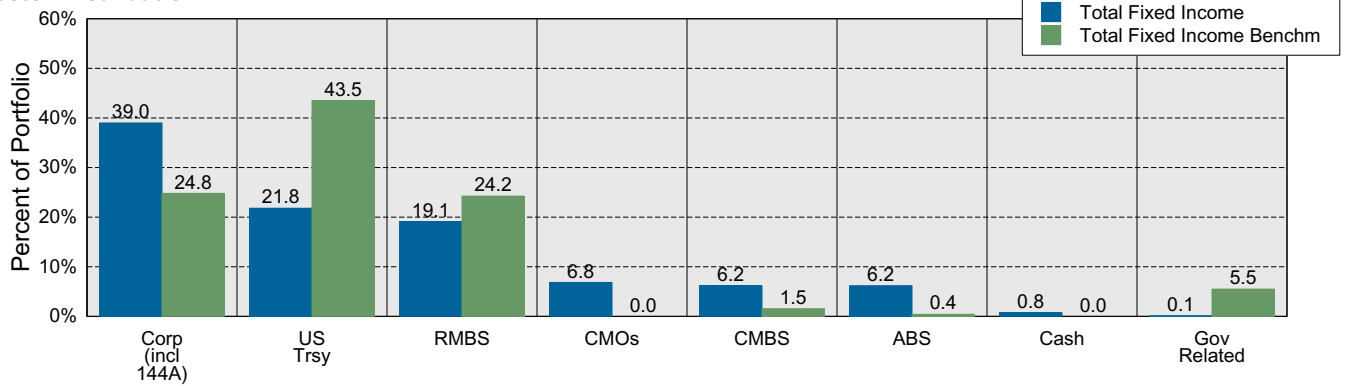


# Total Fixed Income Portfolio Characteristics Summary As of June 30, 2023

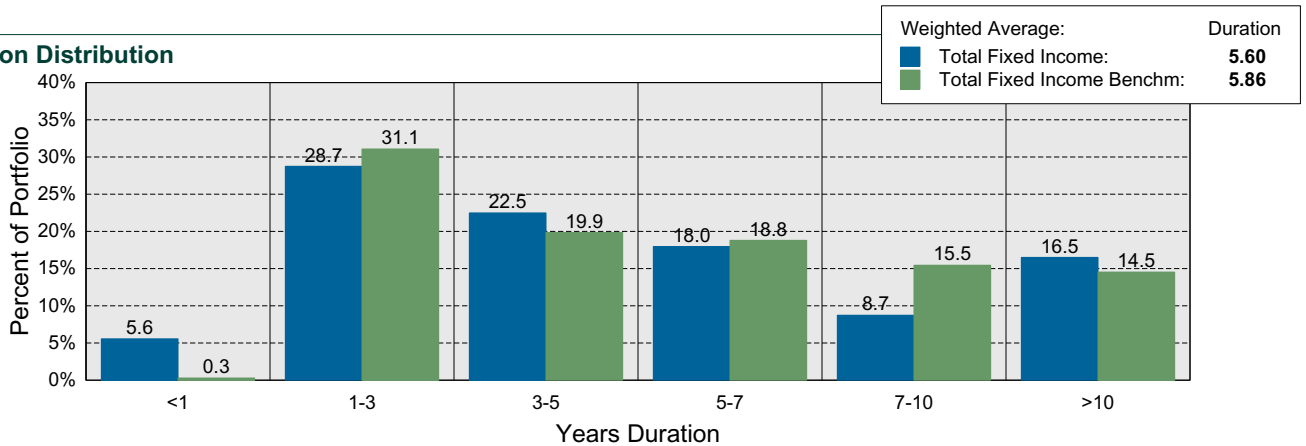
## Portfolio Structure Comparison

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.

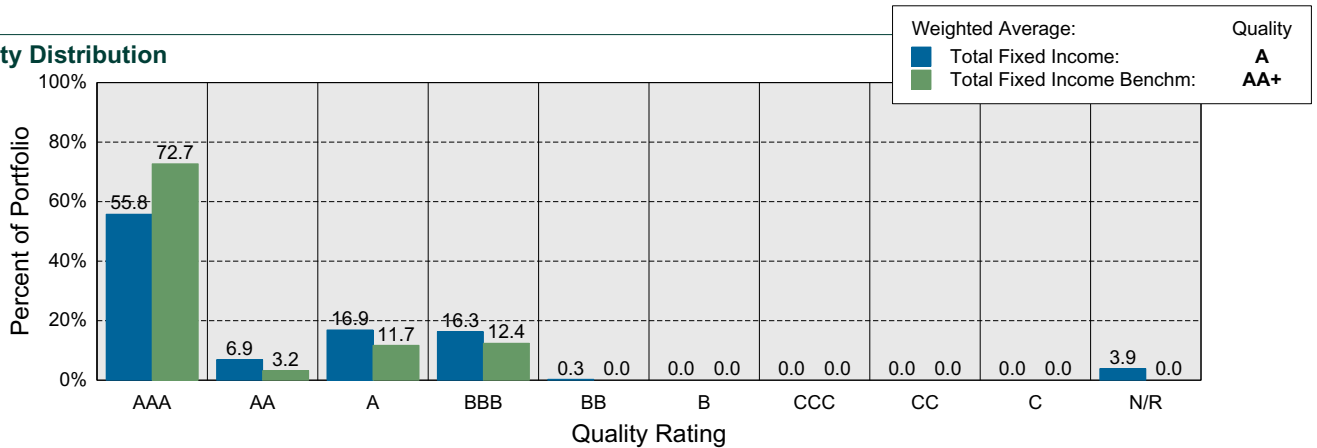
### Sector Distribution



### Duration Distribution



### Quality Distribution



# Colorado Treasurer's Portfolio

## Period Ended June 30, 2023

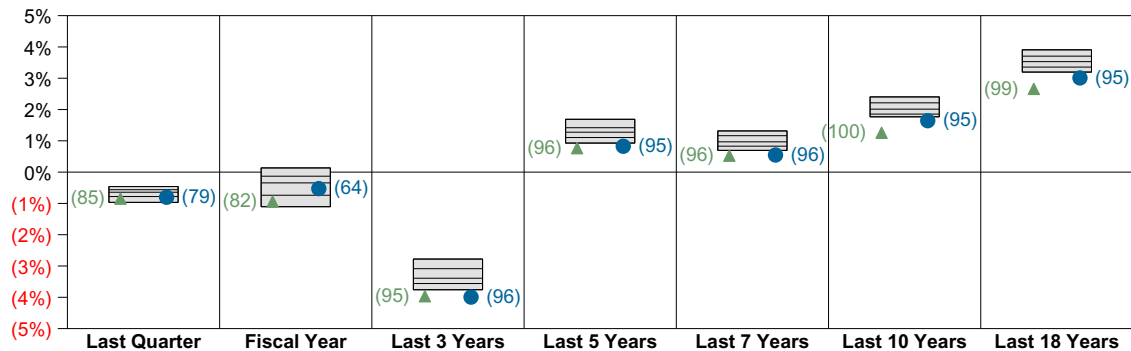
### Investment Philosophy

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

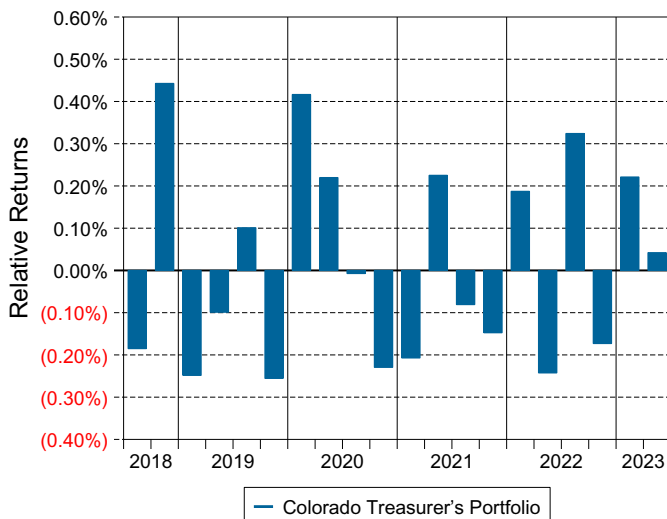
- Colorado Treasurer's Portfolio's portfolio posted a (0.80)% return for the quarter placing it in the 79 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 64 percentile for the last year.
- Colorado Treasurer's Portfolio's portfolio outperformed the PSPF Bond Custom Benchmark by 0.04% for the quarter and outperformed the PSPF Bond Custom Benchmark for the year by 0.41%.

### Performance vs Callan Core Bond Fixed Income (Gross)

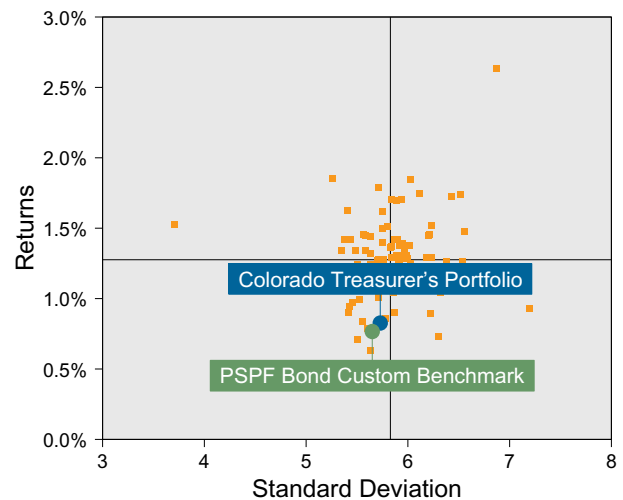


	Last Quarter	Fiscal Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 18 Years
10th Percentile	(0.46)	0.13	(2.78)	1.69	1.32	2.40	3.91
25th Percentile	(0.56)	(0.13)	(3.09)	1.42	1.16	2.21	3.71
Median	(0.64)	(0.34)	(3.39)	1.28	0.97	2.01	3.53
75th Percentile	(0.78)	(0.74)	(3.56)	1.11	0.83	1.85	3.36
90th Percentile	(0.97)	(1.11)	(3.76)	0.93	0.69	1.77	3.20
<b>Colorado Treasurer's Portfolio</b>	<b>(0.80)</b>	<b>(0.53)</b>	<b>(3.99)</b>	<b>0.83</b>	<b>0.55</b>	<b>1.64</b>	<b>3.01</b>
<b>PSPF Bond Custom Benchmark</b>	<b>(0.84)</b>	<b>(0.94)</b>	<b>(3.96)</b>	<b>0.77</b>	<b>0.53</b>	<b>1.26</b>	<b>2.66</b>

### Relative Returns vs PSPF Bond Custom Benchmark



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

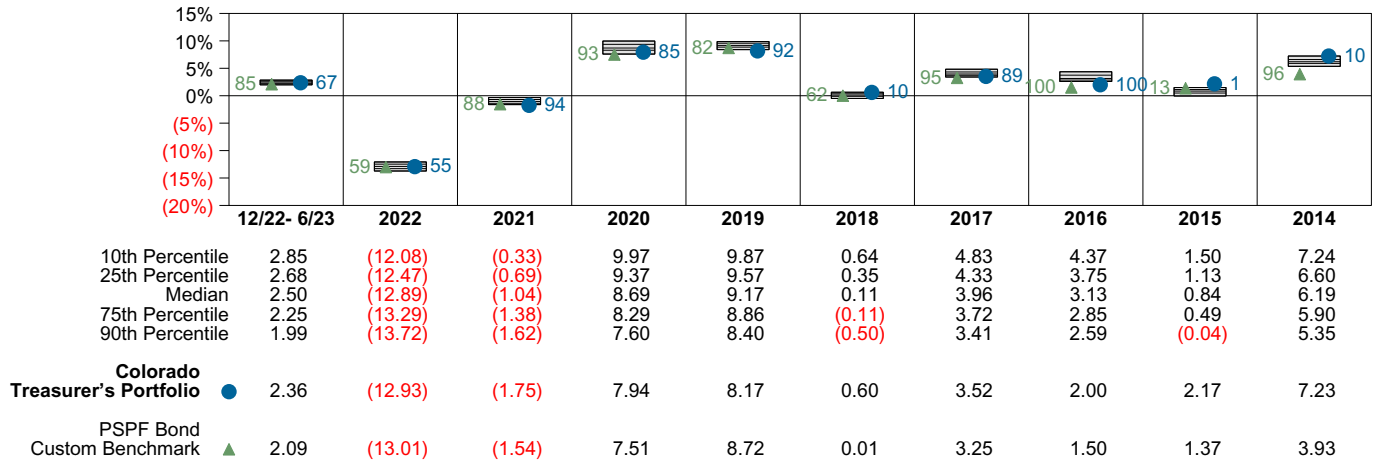


# Colorado Treasurer's Portfolio Return Analysis Summary

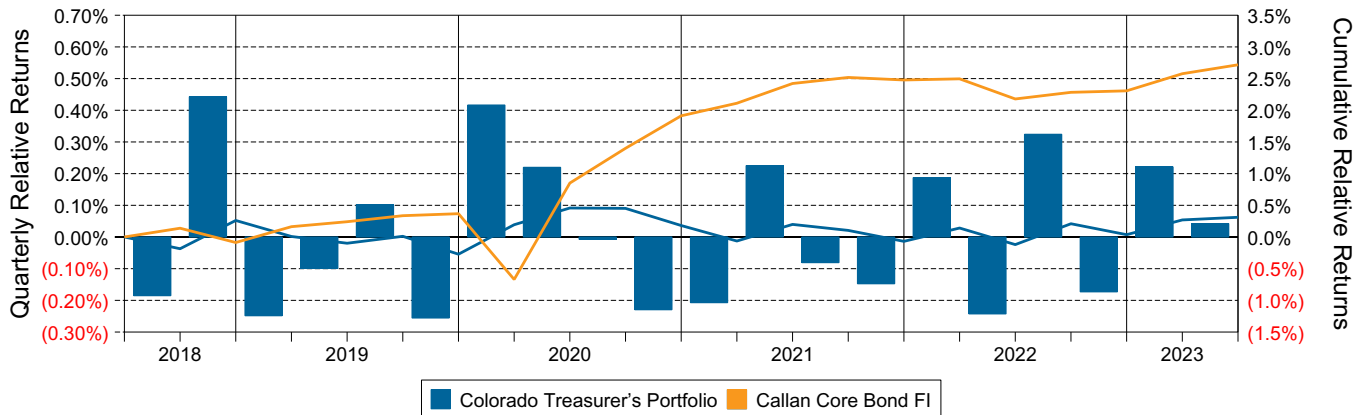
## Return Analysis

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.

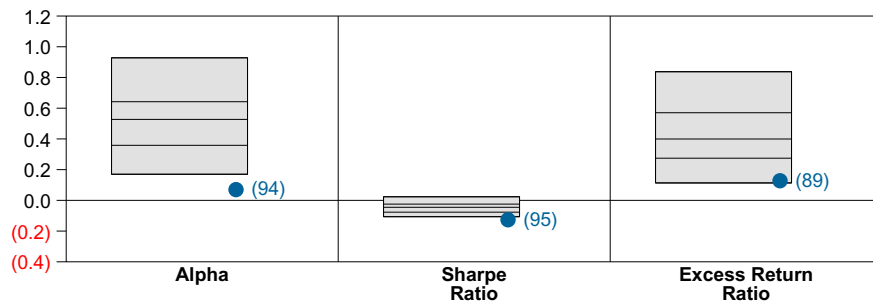
### Performance vs Callan Core Bond Fixed Income (Gross)



### 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 June 30, 2023



10th Percentile	0.93	0.02	0.84
25th Percentile	0.64	(0.02)	0.57
Median	0.53	(0.05)	0.40
75th Percentile	0.36	(0.08)	0.27
90th Percentile	0.17	(0.11)	0.11

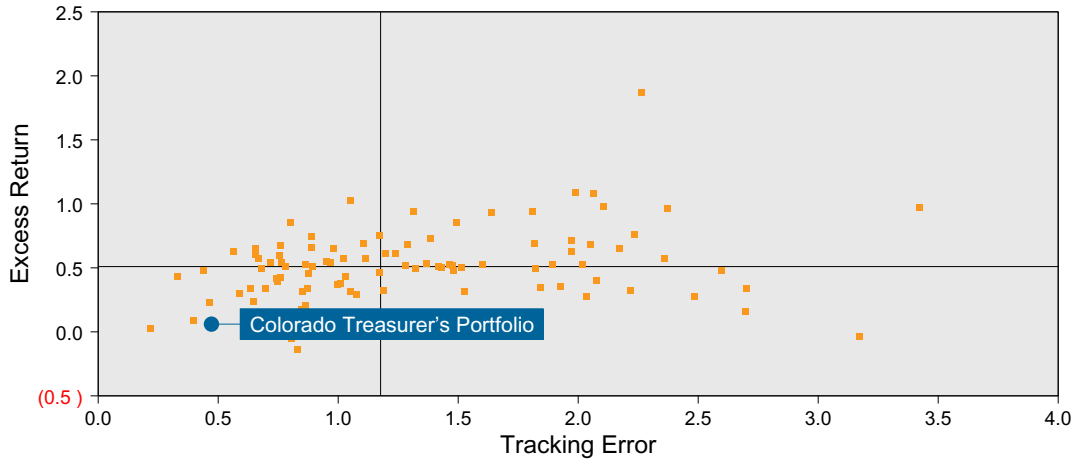
Colorado Treasurer's Portfolio ● 0.07 (0.13) 0.13

# Colorado Treasurer's Portfolio Risk Analysis Summary

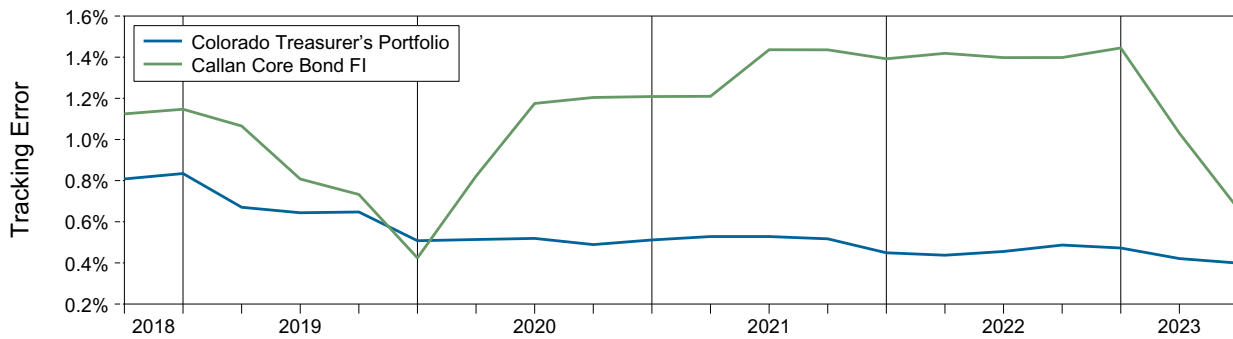
## Risk Analysis

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.

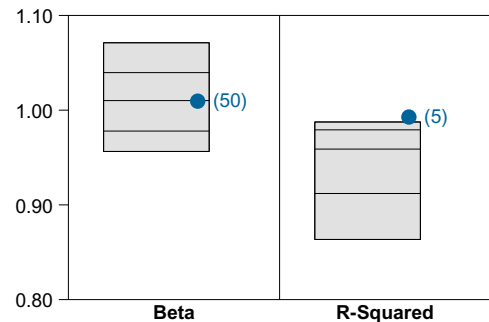
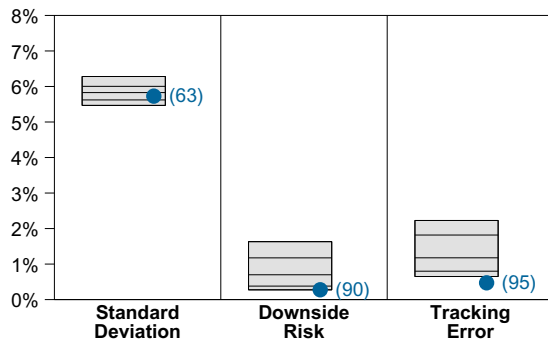
### Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023



### 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 June 30, 2023



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

6.28  
6.00  
5.83  
5.62  
5.47

1.63  
1.17  
0.70  
0.38  
0.27

2.23  
1.82  
1.18  
0.80  
0.65

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

1.07  
1.04  
1.01  
0.98  
0.96

0.99  
0.98  
0.96  
0.91  
0.86

Colorado Treasurer's Portfolio ●

5.73

0.28

0.47

Colorado Treasurer's Portfolio ●

1.01

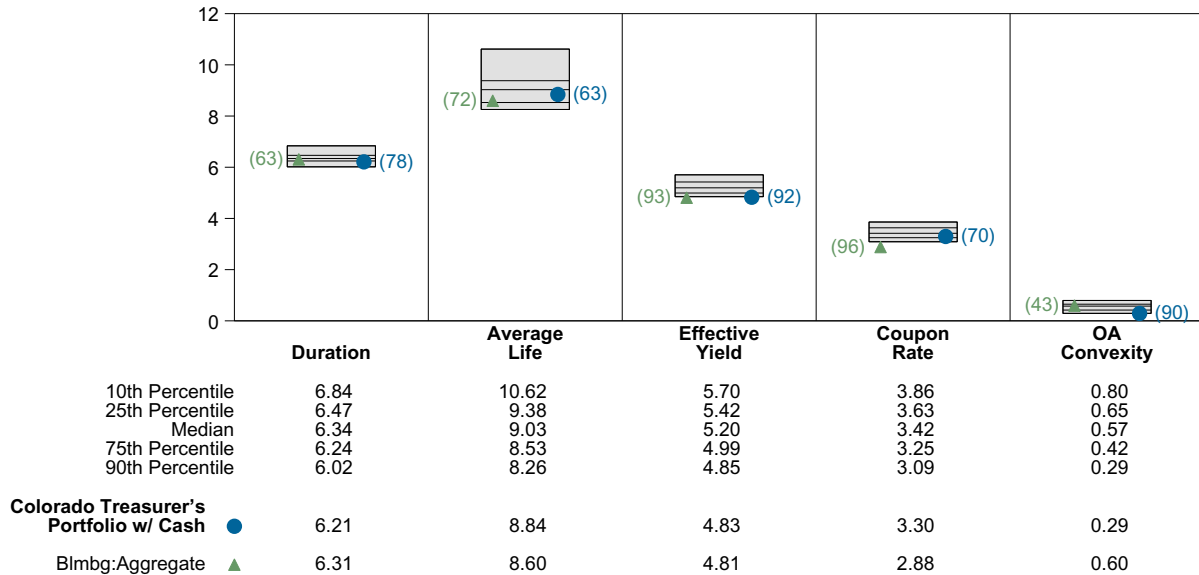
0.99

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

## Portfolio Characteristics

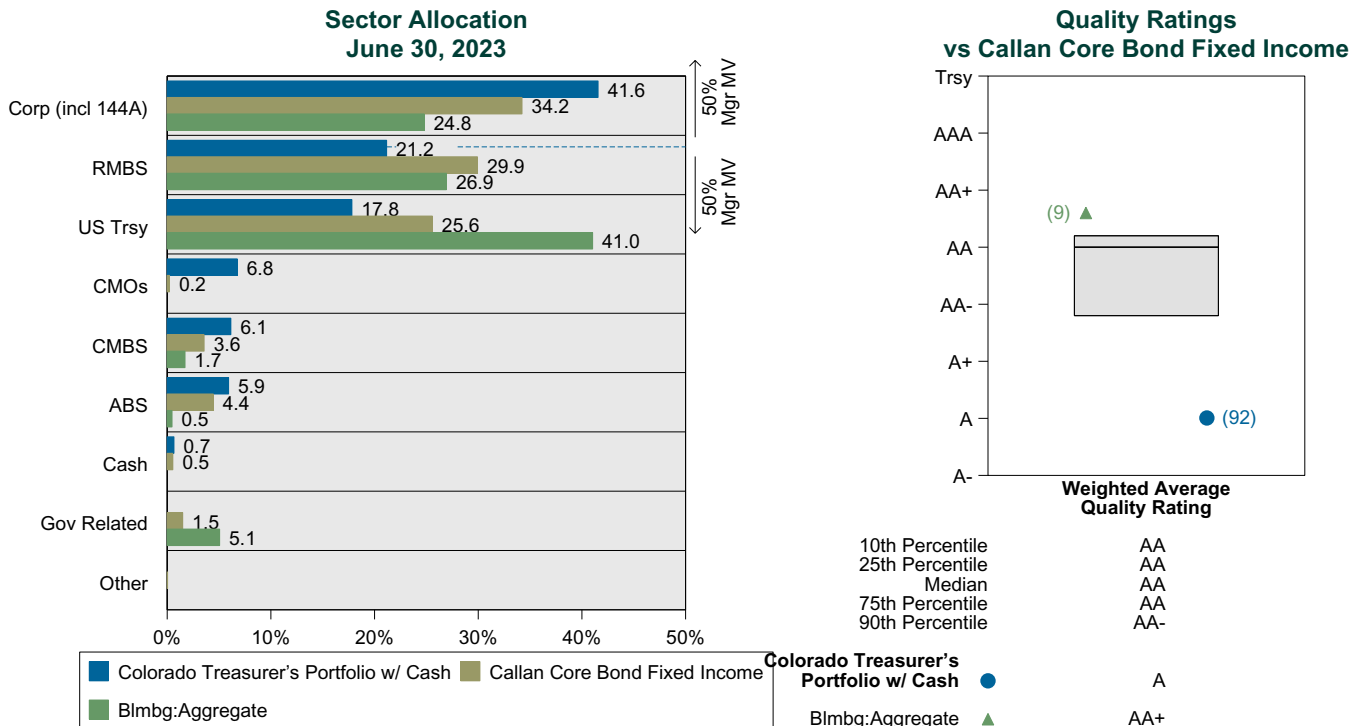
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

## Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of June 30, 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.

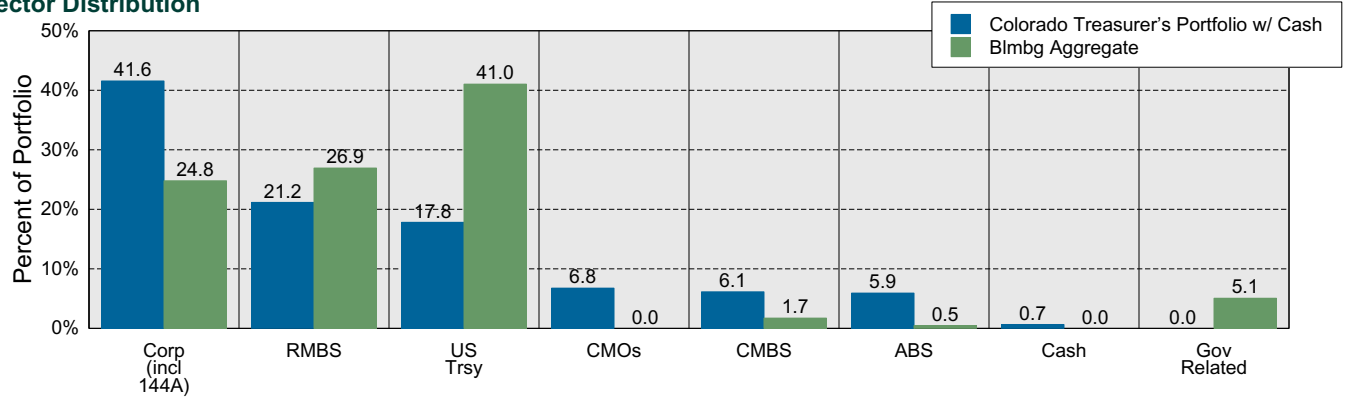


# Colorado Treasurer's Portfolio w/ Cash Portfolio Characteristics Summary As of June 30, 2023

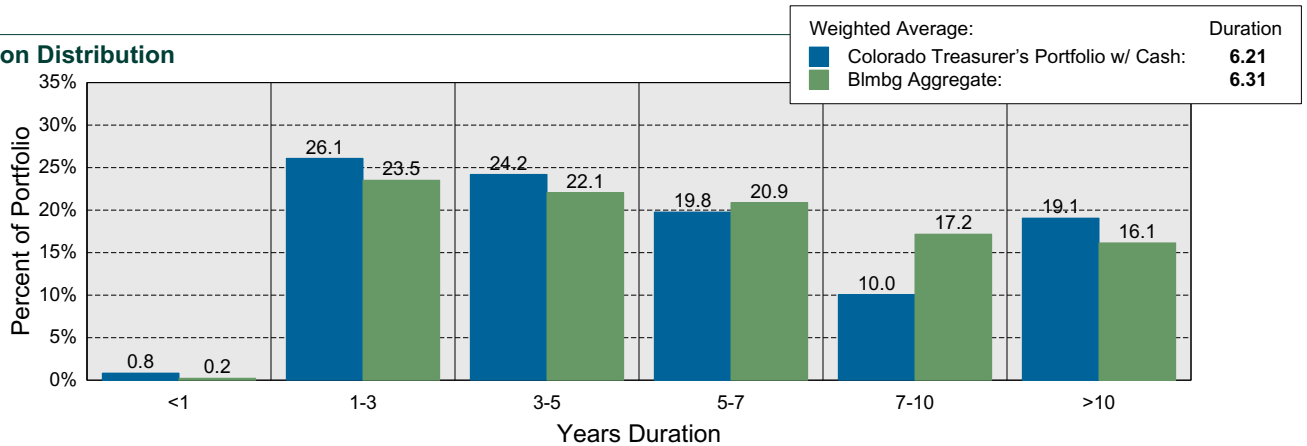
## Portfolio Structure Comparison

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.

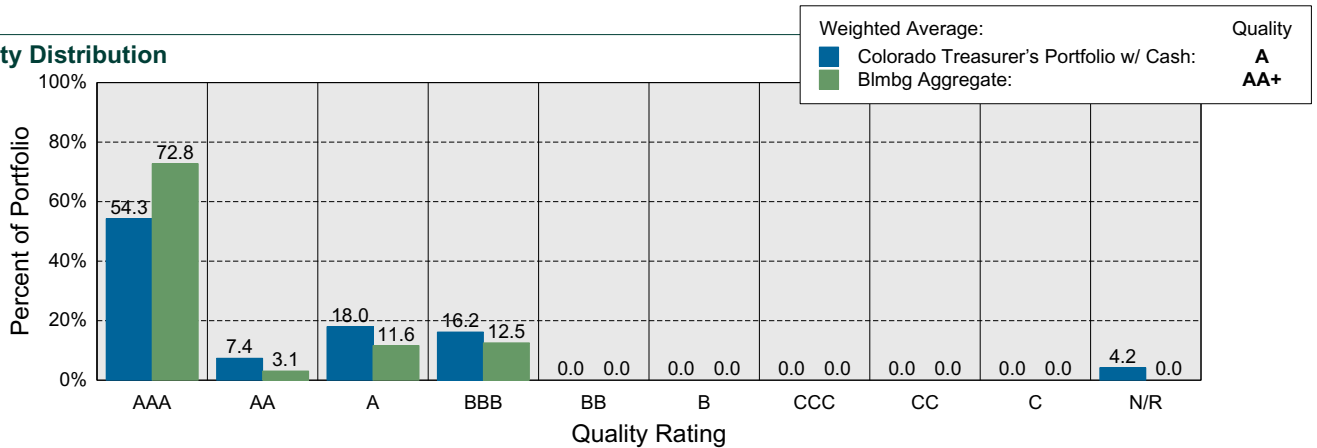
### Sector Distribution



### Duration Distribution



### Quality Distribution





# Janus Henderson Short Duration Period Ended June 30, 2023

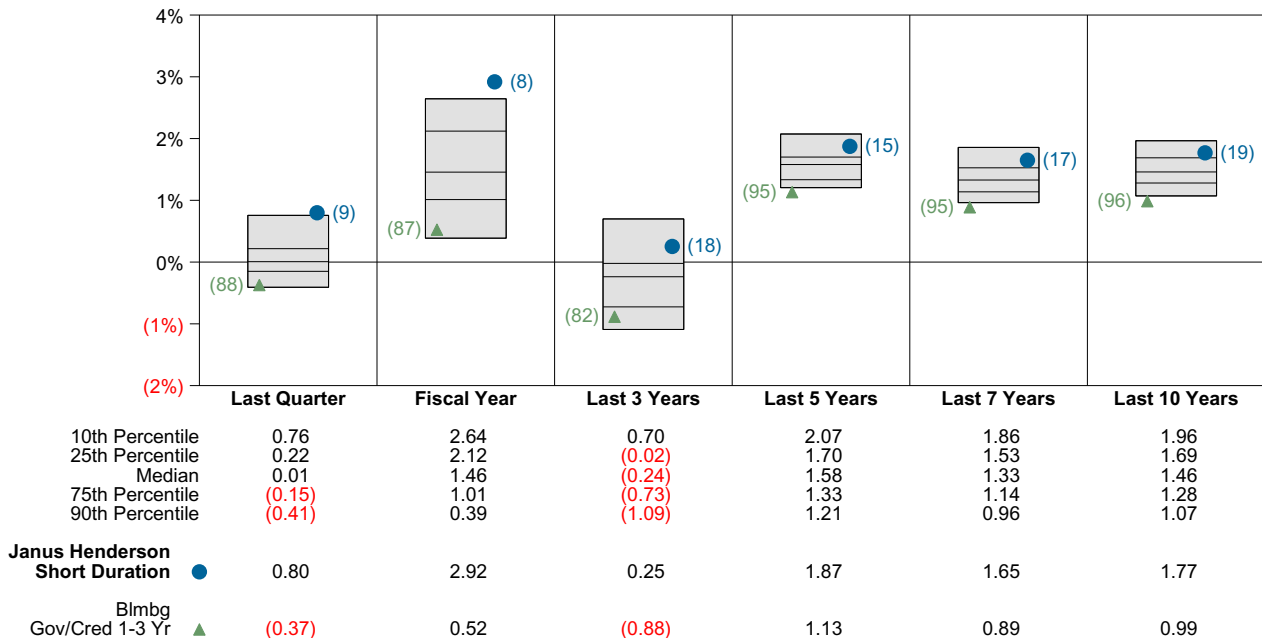
## Investment Philosophy

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.

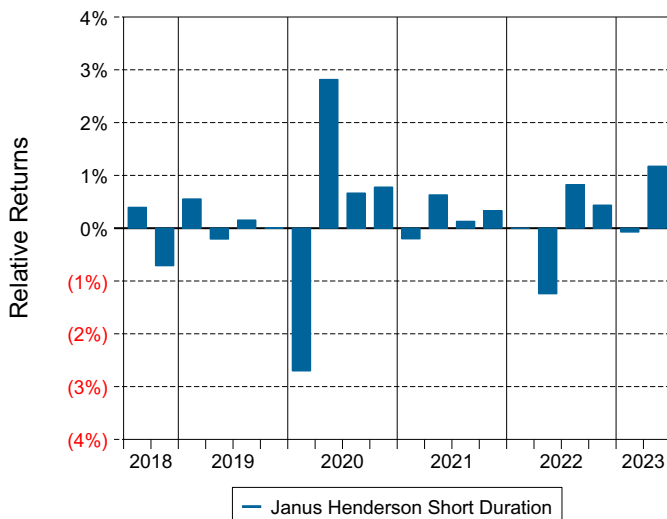
## Quarterly Summary and Highlights

- Janus Henderson Short Duration's portfolio posted a 0.80% return for the quarter placing it in the 9 percentile of the Callan Short Term Fixed Income group for the quarter and in the 8 percentile for the last year.
- Janus Henderson Short Duration's portfolio outperformed the Blmbg Gov/Cred 1-3 Yr by 1.17% for the quarter and outperformed the Blmbg Gov/Cred 1-3 Yr for the year by 2.39%.

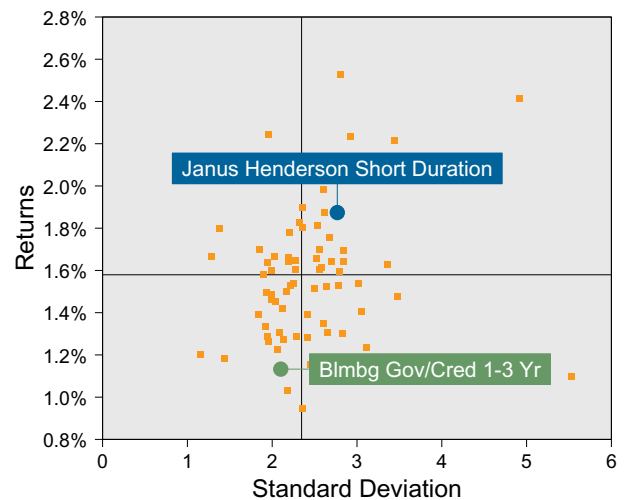
## Performance vs Callan Short Term Fixed Income (Gross)



## Relative Return vs Blmbg Gov/Cred 1-3 Yr



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

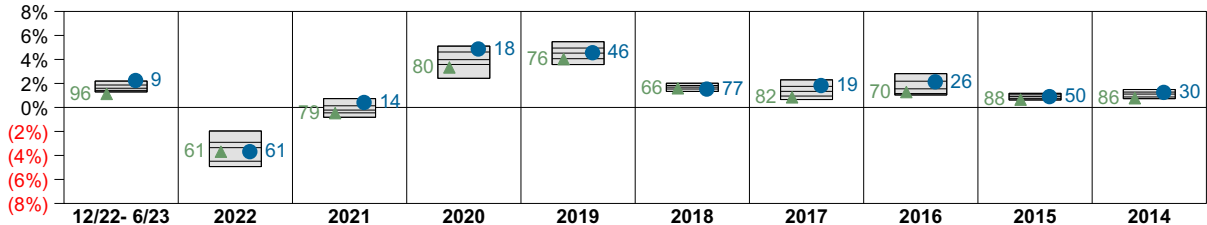


# Janus Henderson Short Duration Return Analysis Summary

## 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.

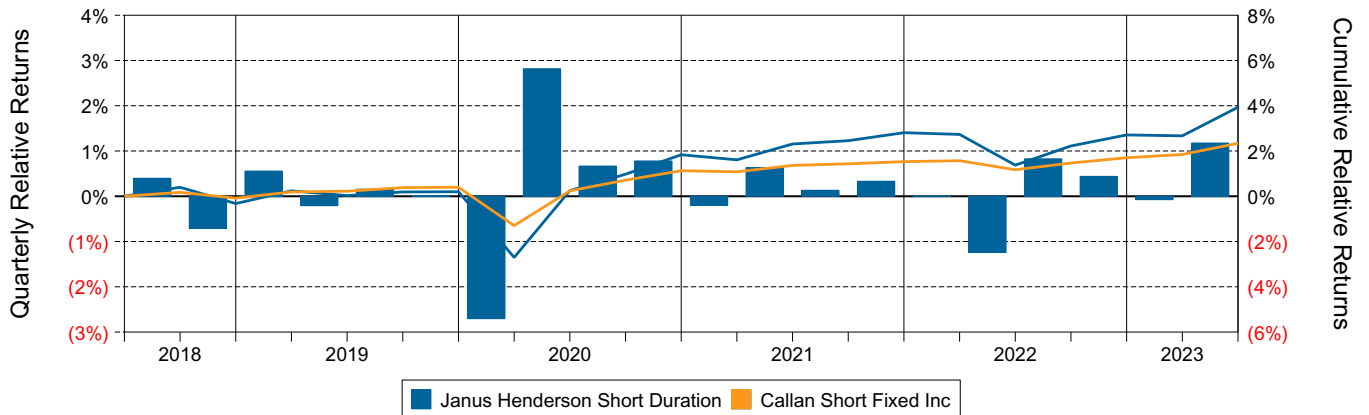
### Performance vs Callan Short Term Fixed Income (Gross)



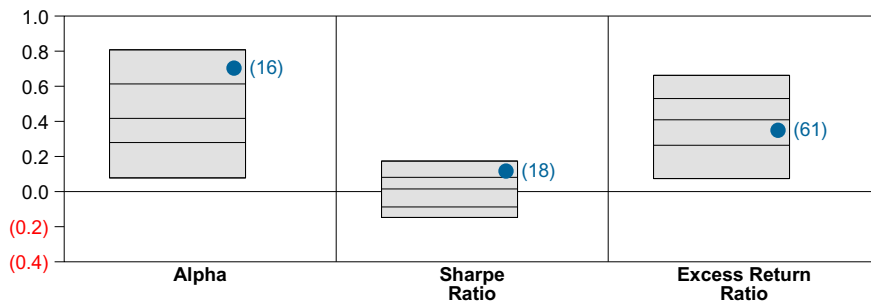
	12/22- 6/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	2.20	(1.96)	0.74	5.11	5.48	2.02	2.30	2.81	1.18	1.50
25th Percentile	1.87	(2.91)	0.14	4.62	4.95	1.83	1.76	2.19	1.05	1.28
Median	1.60	(3.35)	(0.22)	3.98	4.53	1.69	1.34	1.55	0.90	1.11
75th Percentile	1.42	(4.48)	(0.45)	3.58	4.06	1.54	0.95	1.16	0.76	0.87
90th Percentile	1.29	(4.93)	(0.82)	2.43	3.57	1.33	0.66	1.04	0.62	0.73

<b>Janus Henderson Short Duration</b>	●	2.25	(3.68)	0.41	4.87	4.56	1.53	1.82	2.13	0.90	1.25
Blmbg Gov/Cred 1-3 Yr	▲	1.13	(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 June 30, 2023



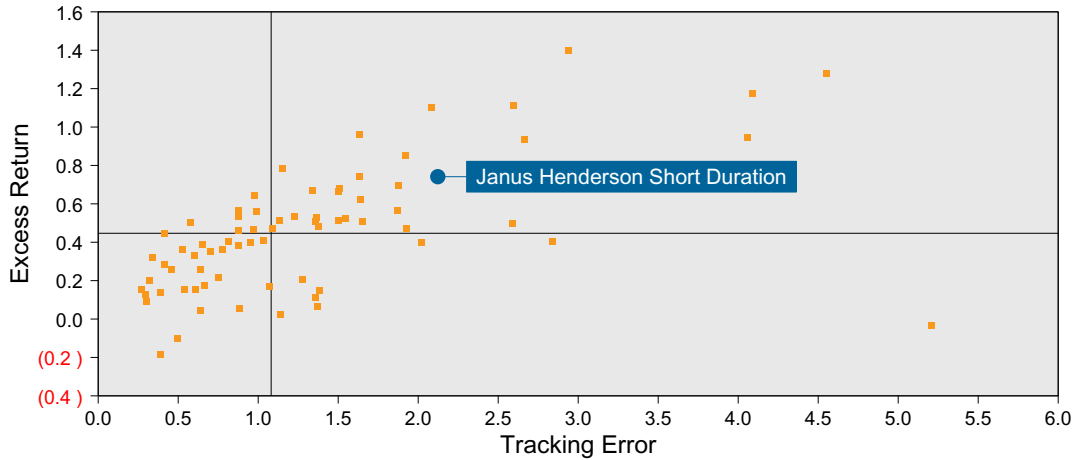
10th Percentile	0.81	0.17	0.66	
25th Percentile	0.61	0.08	0.53	
Median	0.42	0.02	0.41	
75th Percentile	0.28	(0.09)	0.26	
90th Percentile	0.08	(0.15)	0.07	
<b>Janus Henderson Short Duration</b>	●	0.70	0.12	0.35

# Janus Henderson Short Duration Risk Analysis Summary

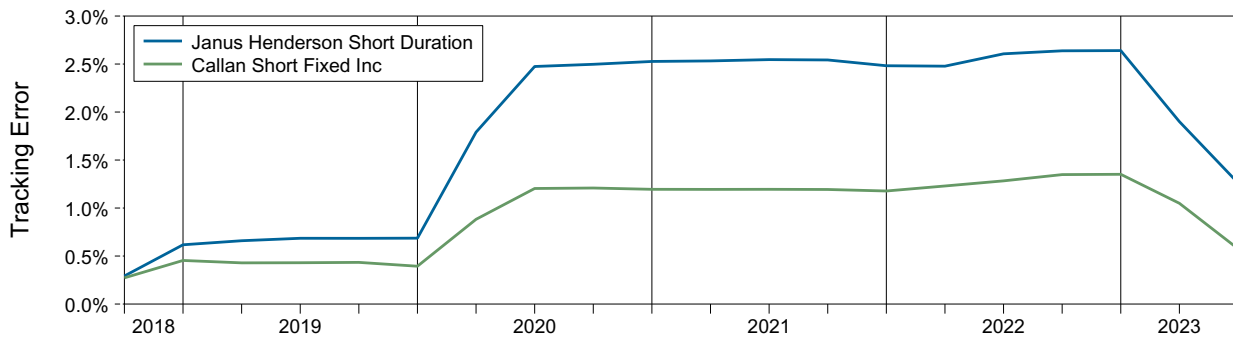
## Risk Analysis

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.

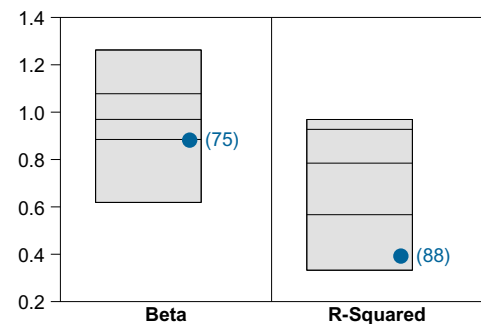
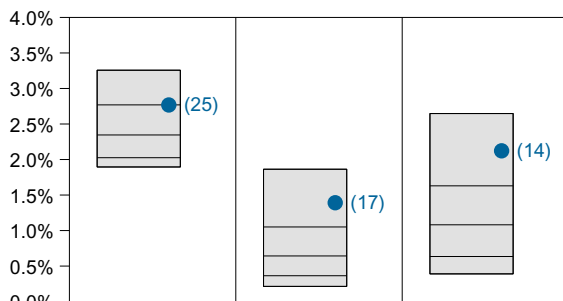
### Risk Analysis vs Callan Short Term Fixed Income (Gross) Five Years Ended June 30, 2023



### 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 June 30, 2023



	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	3.26	1.86	2.65	1.26	0.97
25th Percentile	2.77	1.05	1.63	1.08	0.93
Median	2.35	0.64	1.08	0.97	0.78
75th Percentile	2.03	0.36	0.63	0.88	0.57
90th Percentile	1.90	0.21	0.39	0.62	0.33

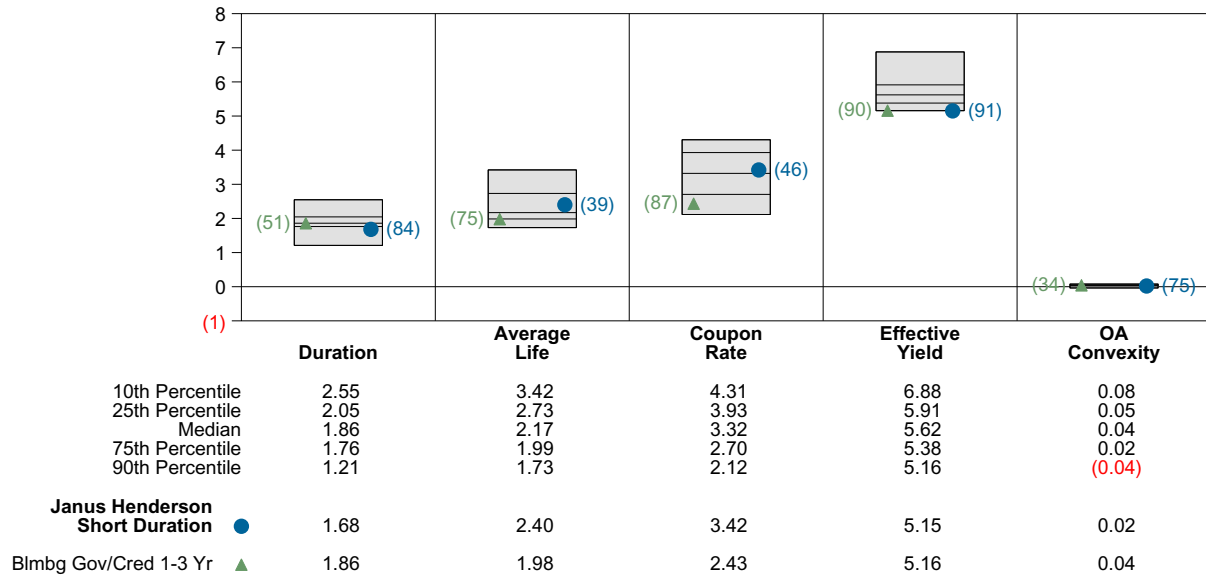
Janus Henderson Short Duration ● 2.77 1.39 2.12 Janus Henderson Short Duration ● 0.88 0.39

# Janus Henderson Short Duration Bond Characteristics Analysis Summary

## Portfolio Characteristics

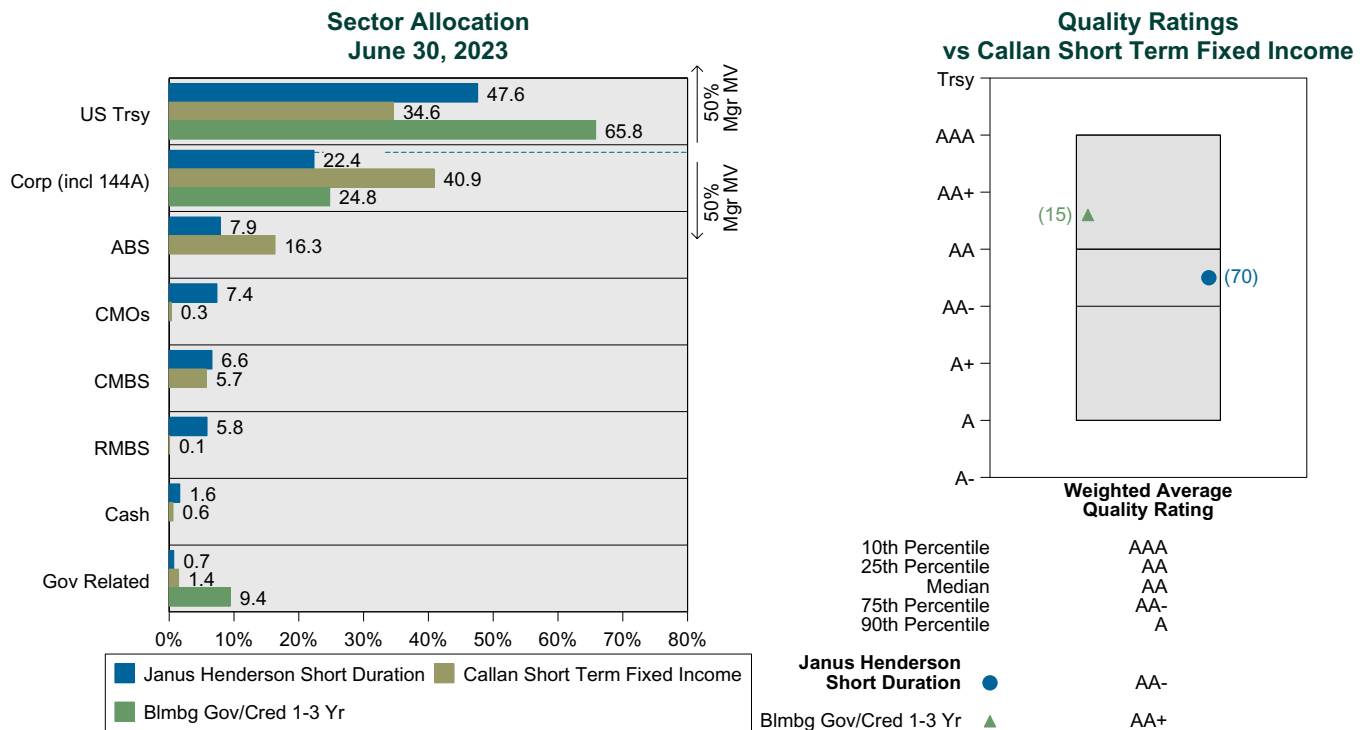
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

## Fixed Income Portfolio Characteristics Rankings Against Callan Short Term Fixed Income as of June 30, 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.

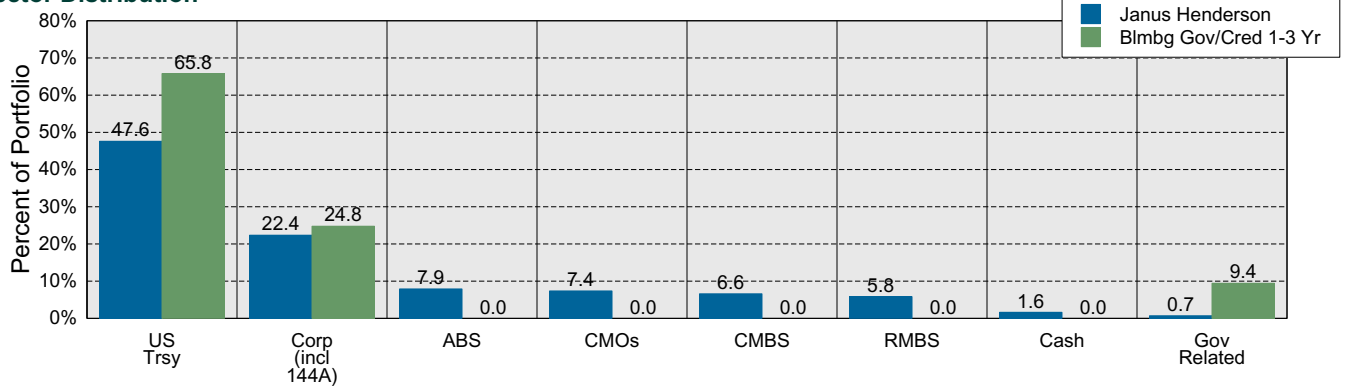


# Janus Henderson Portfolio Characteristics Summary As of June 30, 2023

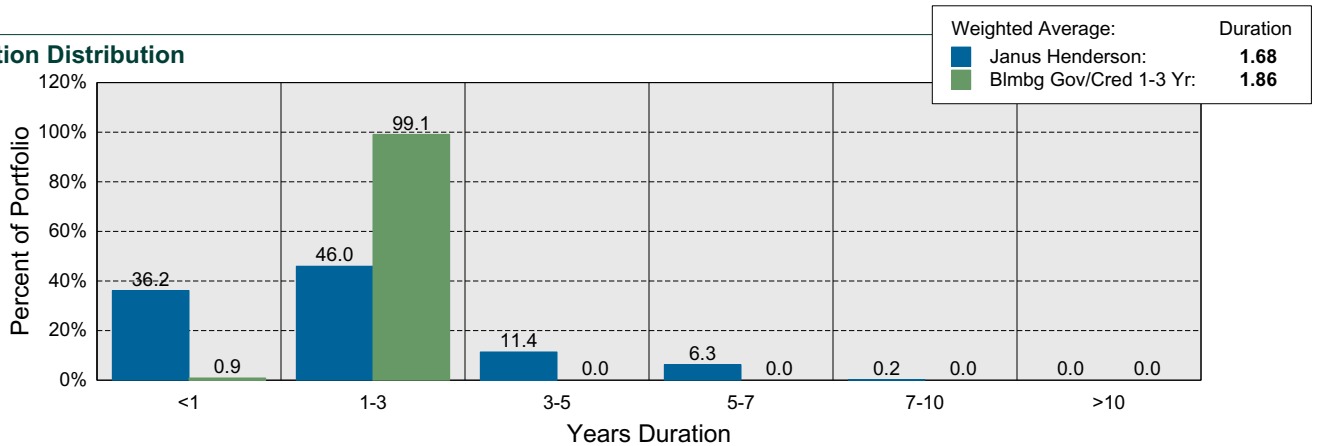
## Portfolio Structure Comparison

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.

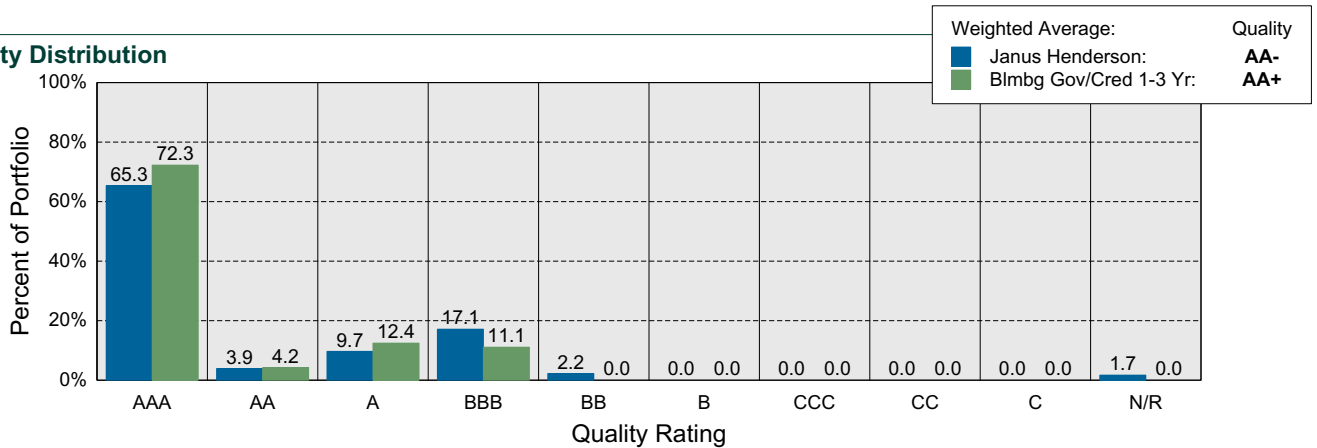
### Sector Distribution



### Duration Distribution



### Quality Distribution





# High Income Strategies Period Ended June 30, 2023

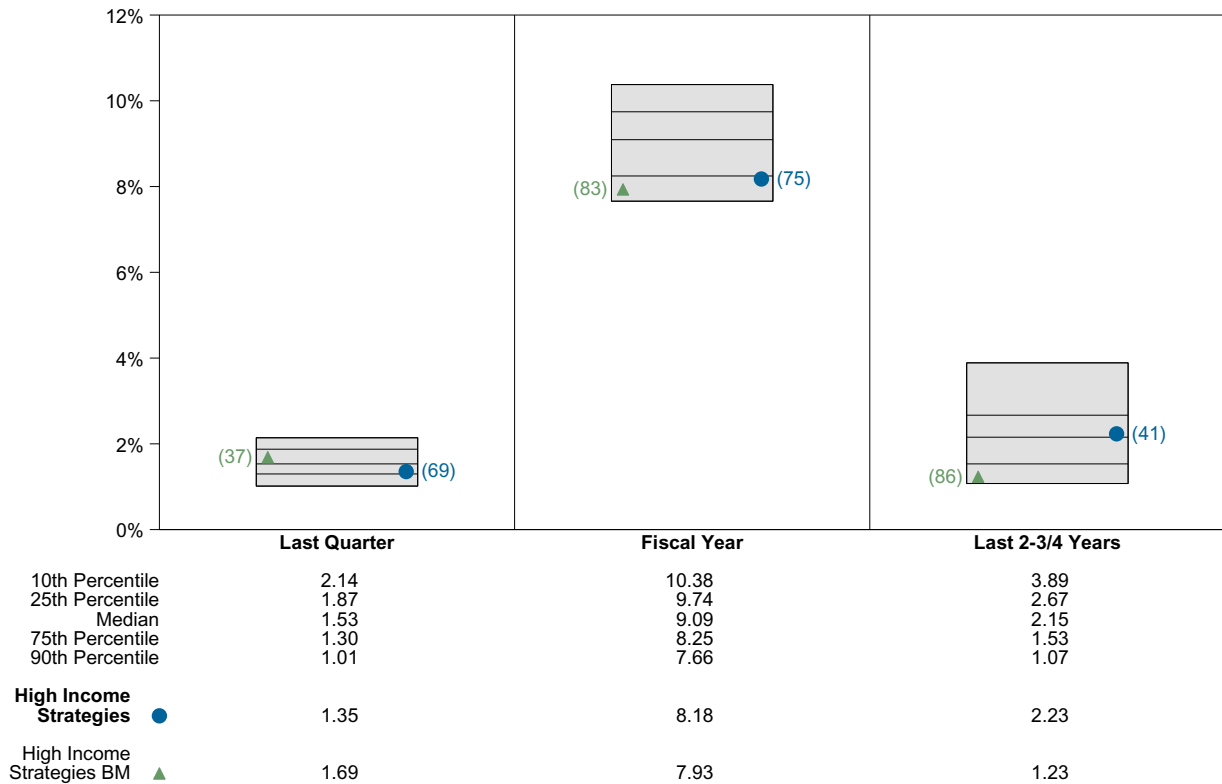
## Benchmark Definition

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

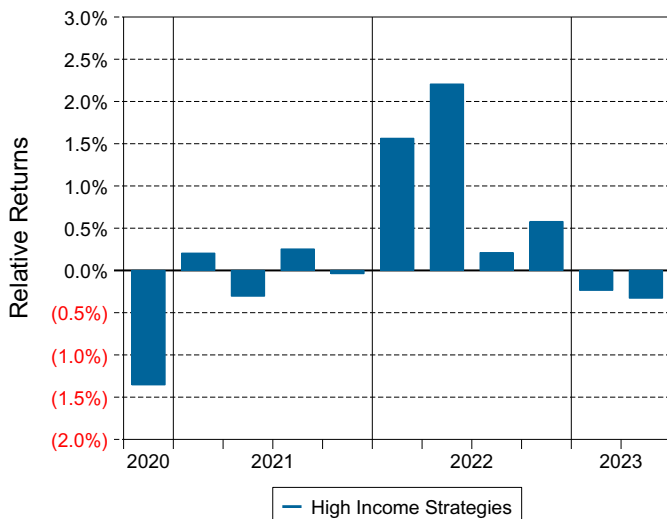
## Quarterly Summary and Highlights

- High Income Strategies's portfolio posted a 1.35% return for the quarter placing it in the 69 percentile of the Callan High Yield Fixed Income group for the quarter and in the 75 percentile for the last year.
- High Income Strategies's portfolio underperformed the High Income Strategies BM by 0.33% for the quarter and outperformed the High Income Strategies BM for the year by 0.24%.

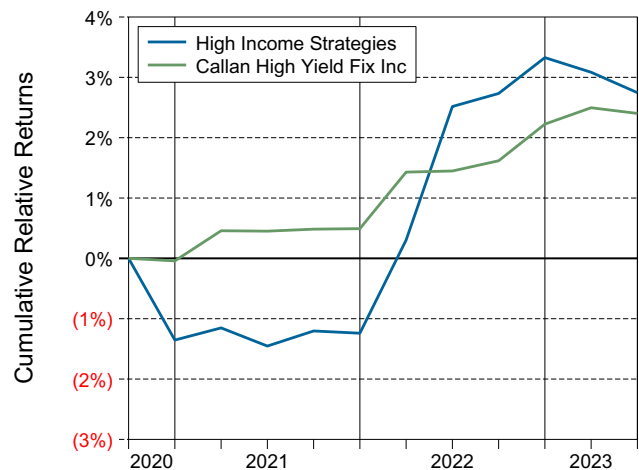
## Performance vs Callan High Yield Fixed Income (Gross)



## Relative Return vs High Income Strategies BM



## Cumulative Returns vs High Income Strategies BM

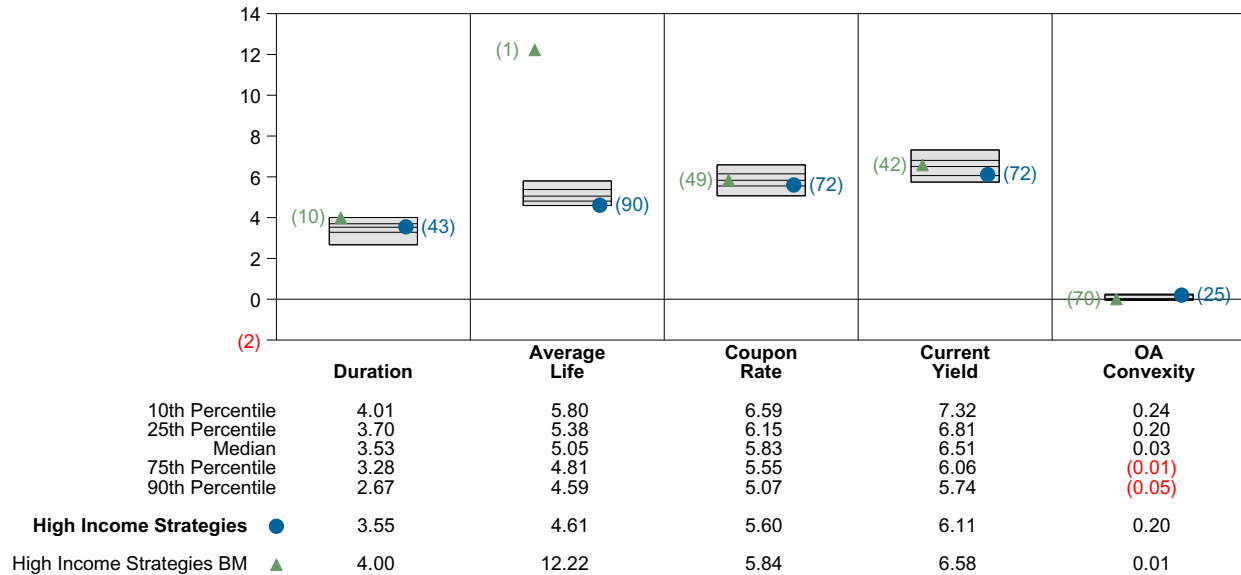


# High Income Strategies Bond Characteristics Analysis Summary

## Portfolio Characteristics

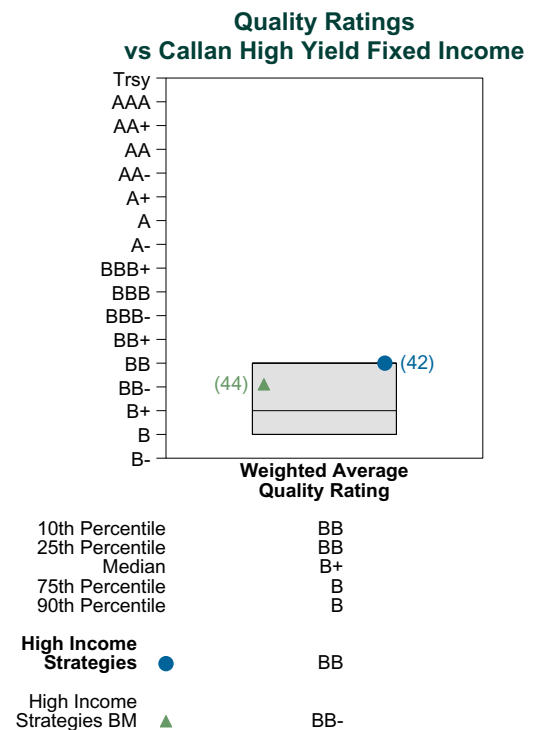
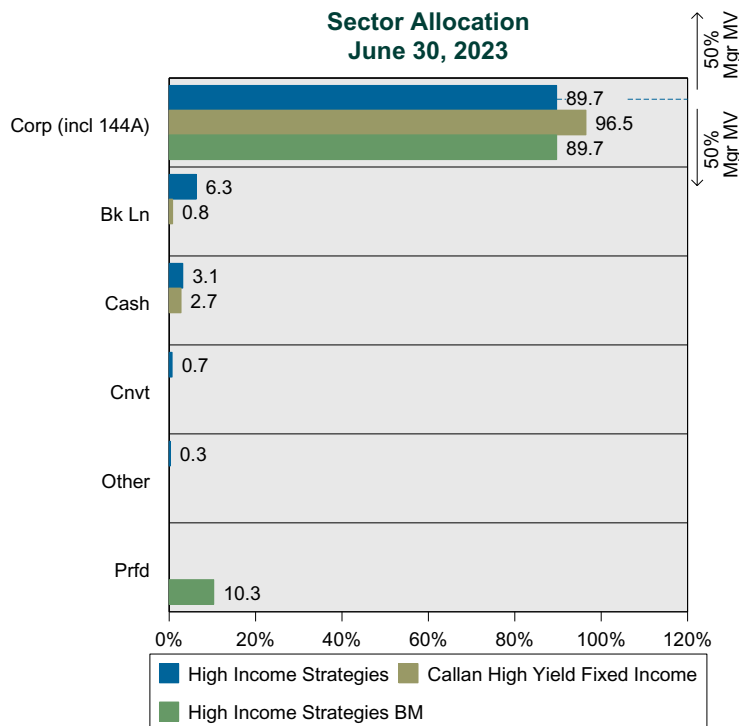
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

## Fixed Income Portfolio Characteristics Rankings Against Callan High Yield Fixed Income as of June 30, 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.



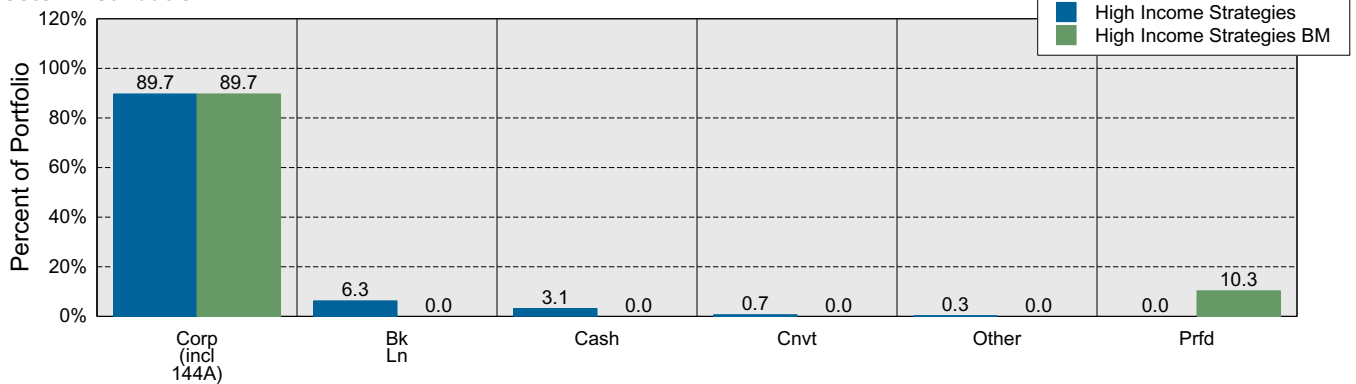


# High Income Strategies Portfolio Characteristics Summary As of June 30, 2023

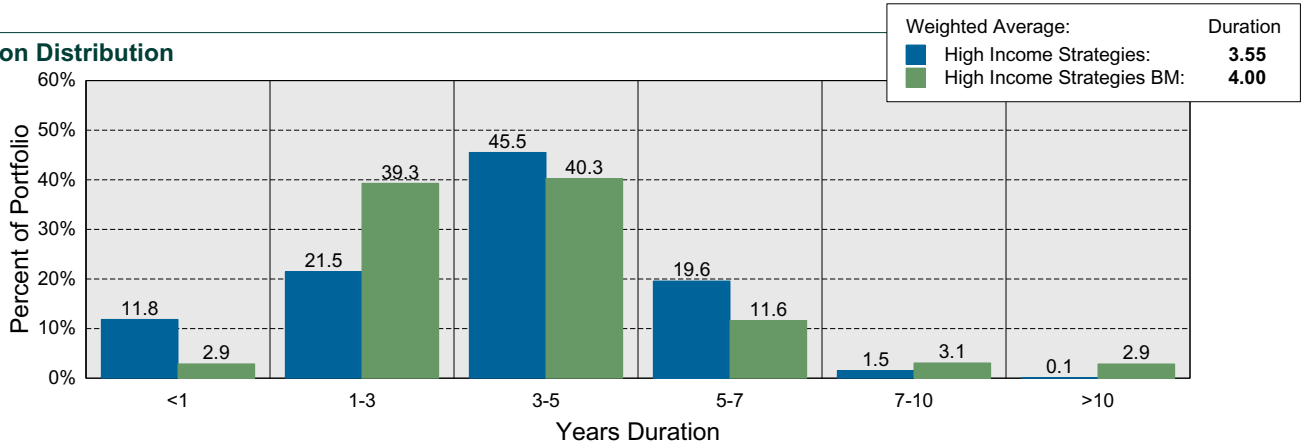
## Portfolio Structure Comparison

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.

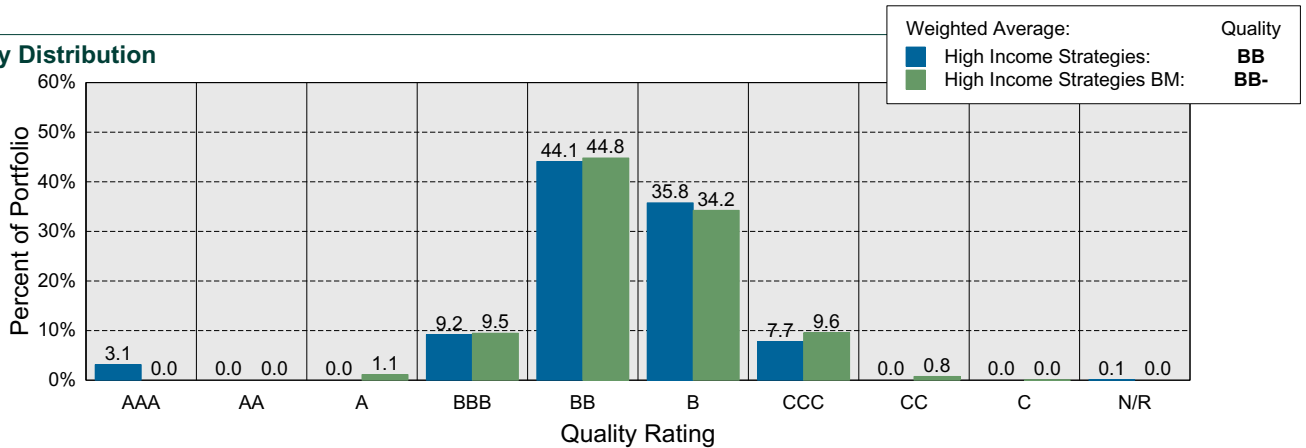
### Sector Distribution



### Duration Distribution



### Quality Distribution



# Mackay Shield US High Yield Period Ended June 30, 2023

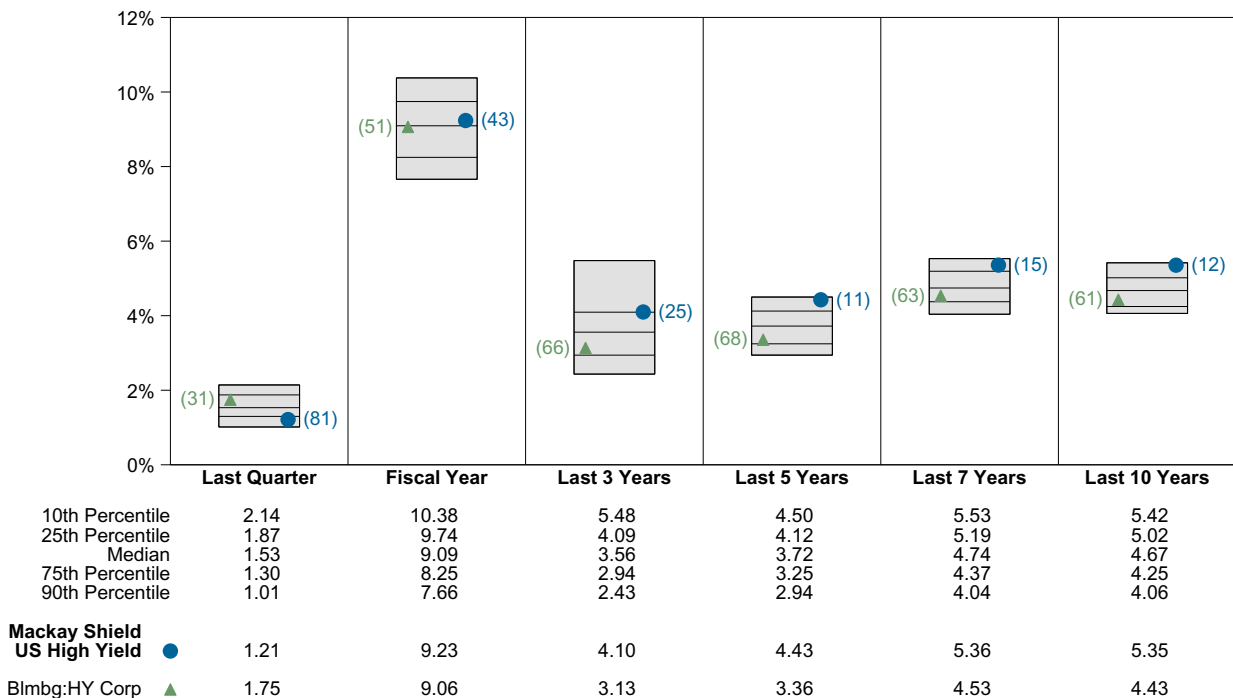
## Investment Philosophy

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.

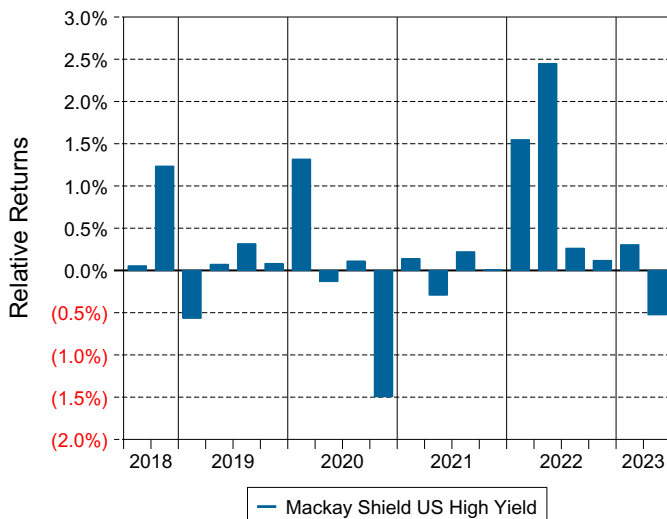
## Quarterly Summary and Highlights

- Mackay Shield US High Yield's portfolio posted a 1.21% return for the quarter placing it in the 81 percentile of the Callan High Yield Fixed Income group for the quarter and in the 43 percentile for the last year.
- Mackay Shield US High Yield's portfolio underperformed the Blmbg:HY Corp by 0.53% for the quarter and outperformed the Blmbg:HY Corp for the year by 0.17%.

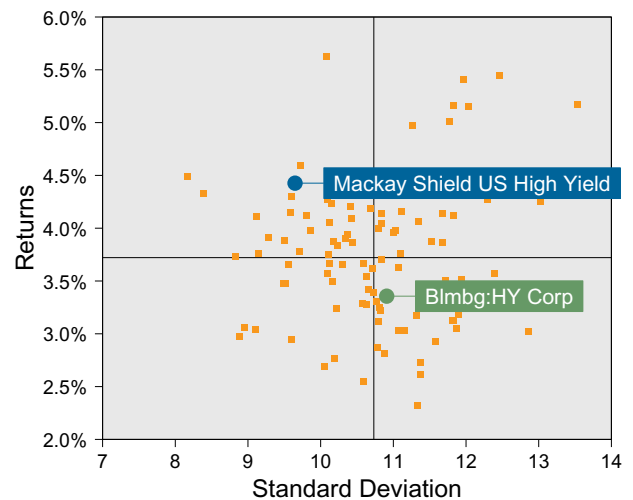
## Performance vs Callan High Yield Fixed Income (Gross)



## Relative Return vs Blmbg:HY Corp



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

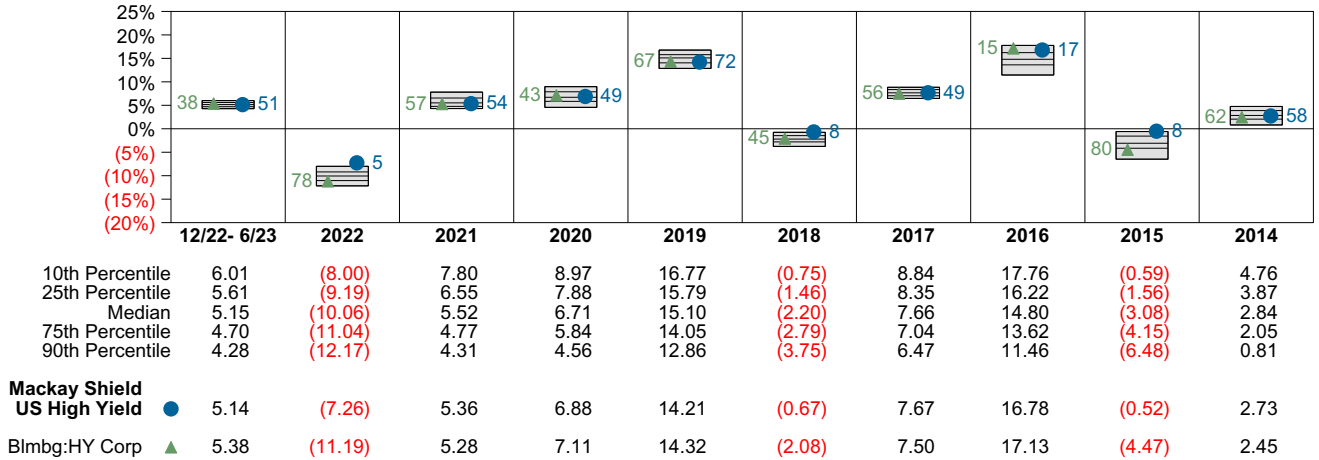


# Mackay Shield US High Yield Return Analysis Summary

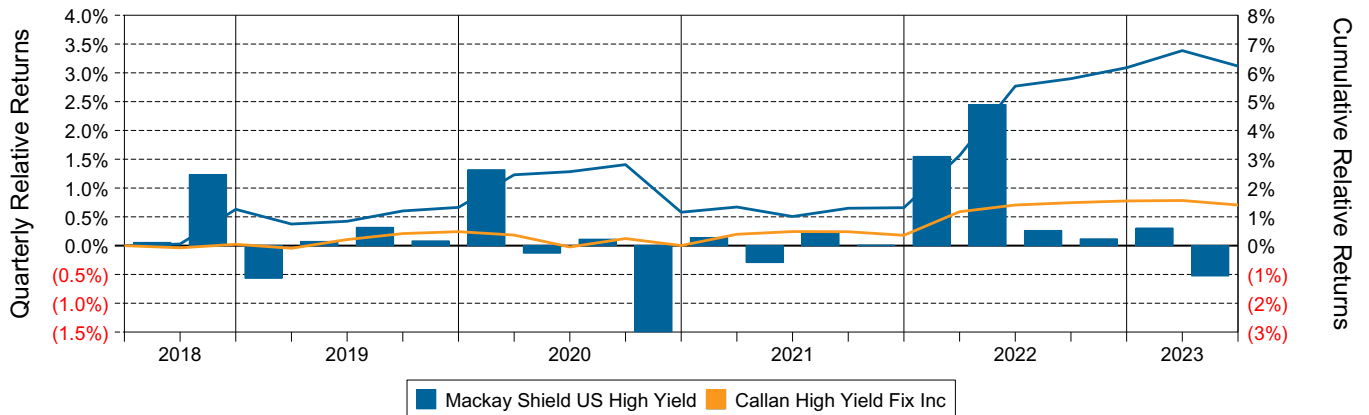
## Return Analysis

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.

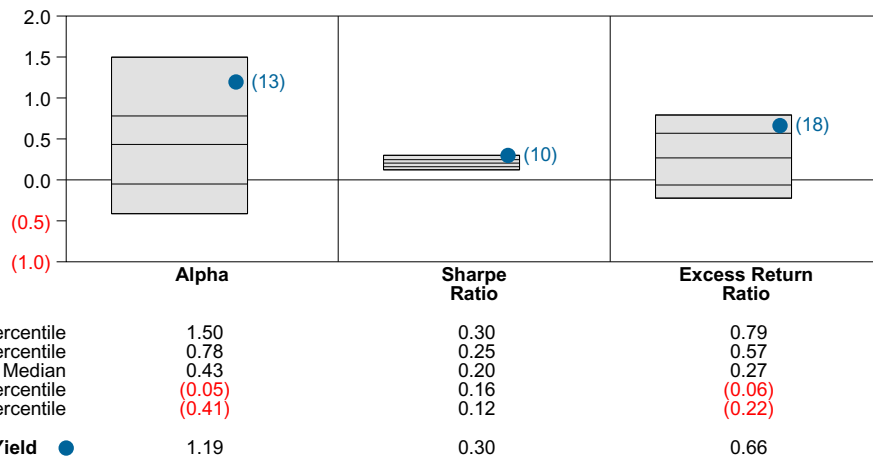
### Performance vs Callan High Yield Fixed Income (Gross)



### 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 June 30, 2023

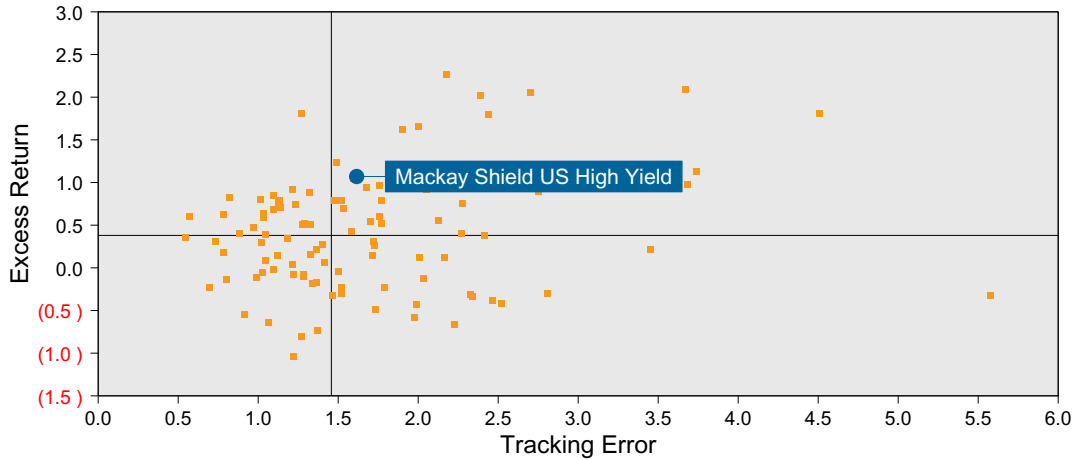


# Mackay Shield US High Yield Risk Analysis Summary

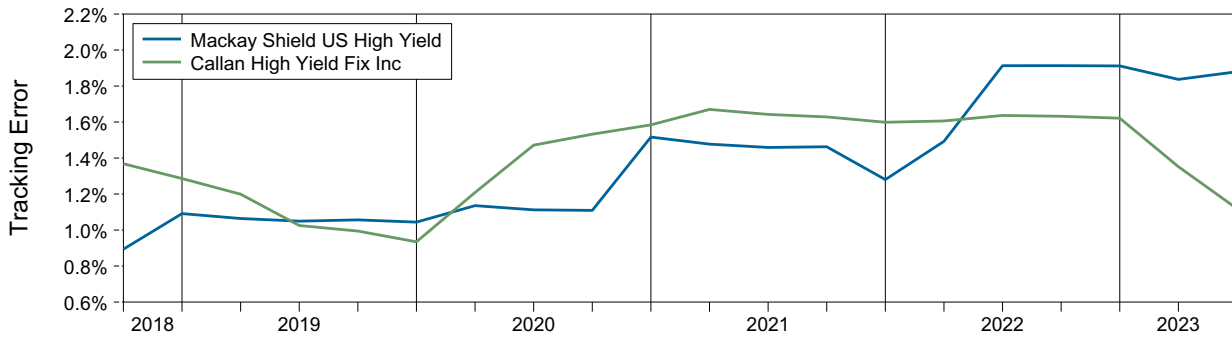
## Risk Analysis

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.

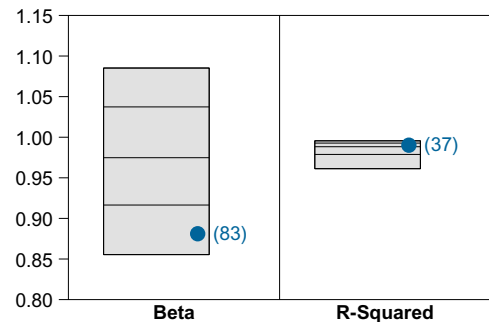
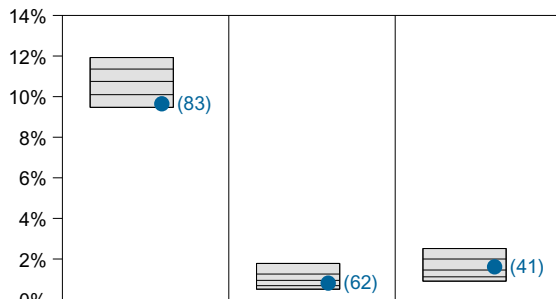
### Risk Analysis vs Callan High Yield Fixed Income (Gross) Five Years Ended June 30, 2023



### 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 June 30, 2023



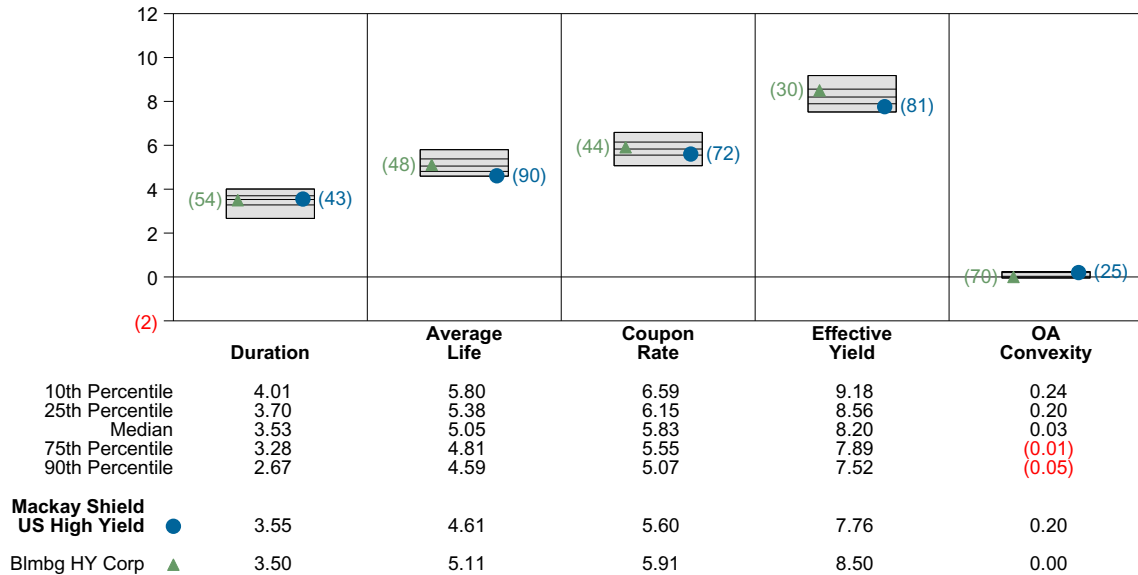
	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	11.93	1.78	2.52	1.09	1.00
25th Percentile	11.36	1.26	2.00	1.04	0.99
Median	10.75	0.95	1.46	0.97	0.99
75th Percentile	10.10	0.69	1.12	0.92	0.98
90th Percentile	9.47	0.51	0.91	0.86	0.96
<b>Mackay Shield US High Yield</b>	<b>9.65</b>	<b>0.81</b>	<b>1.62</b>	<b>0.88</b>	<b>0.99</b>

# Mackay Shield US High Yield Bond Characteristics Analysis Summary

## Portfolio Characteristics

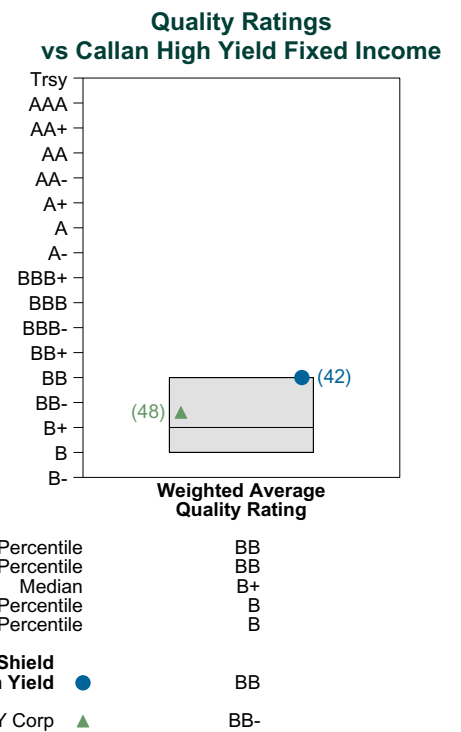
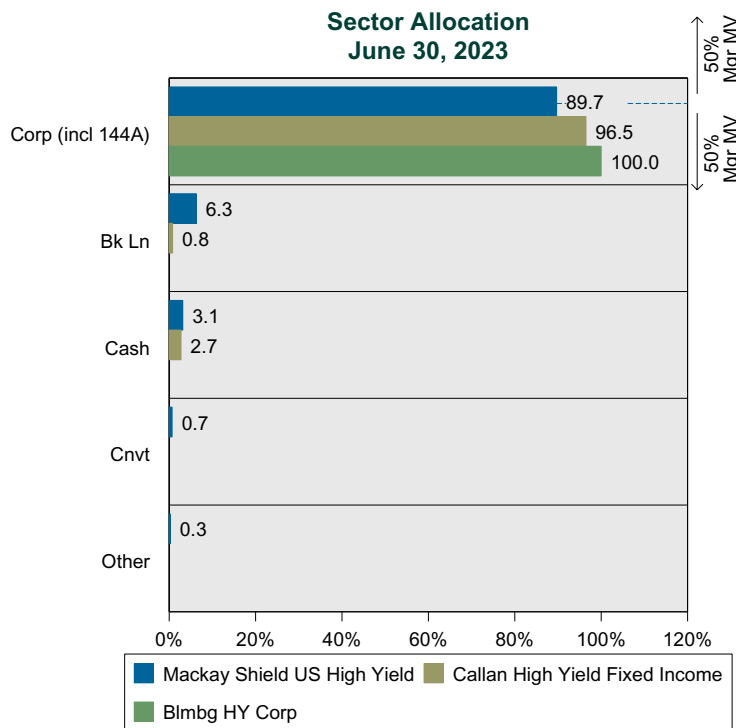
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

## Fixed Income Portfolio Characteristics Rankings Against Callan High Yield Fixed Income as of June 30, 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.

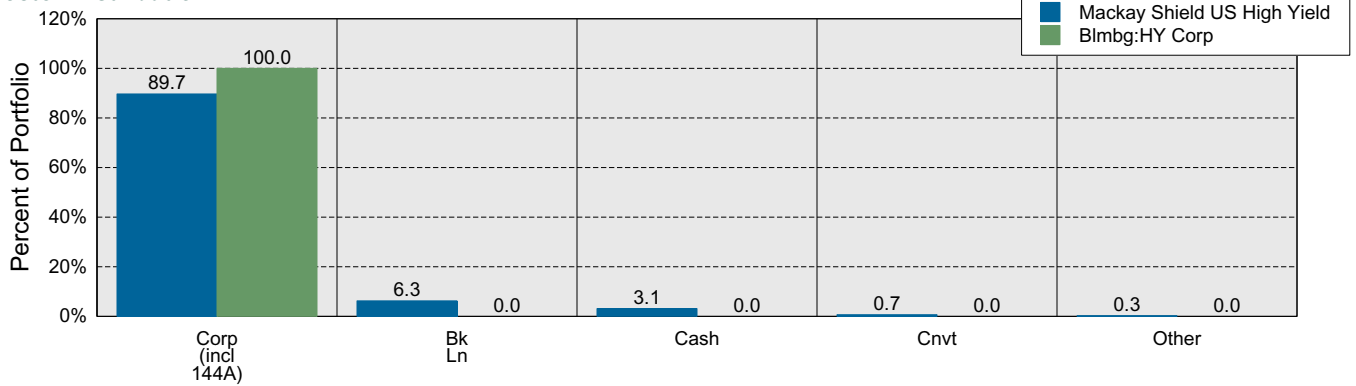


# Mackay Shield US High Yield Portfolio Characteristics Summary As of June 30, 2023

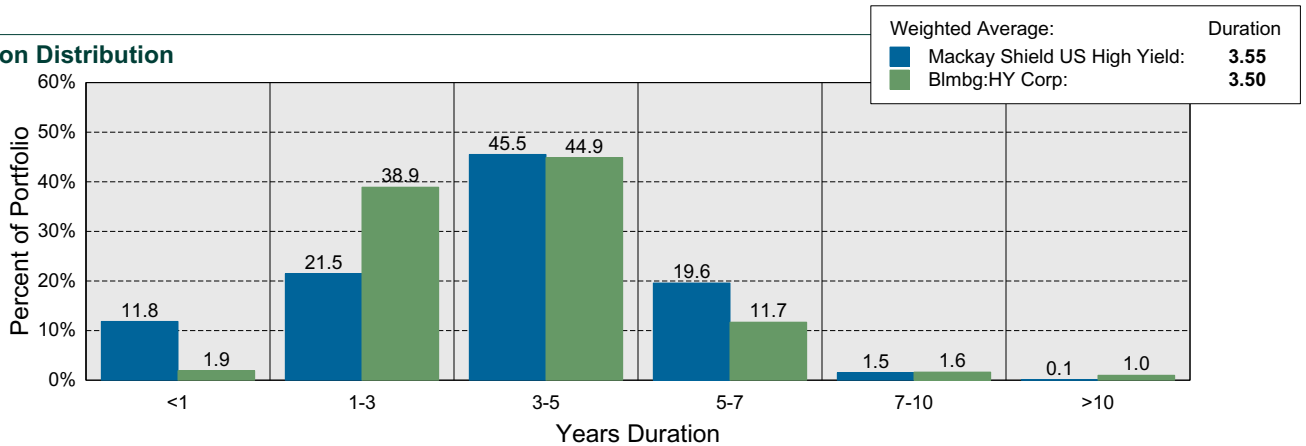
## Portfolio Structure Comparison

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.

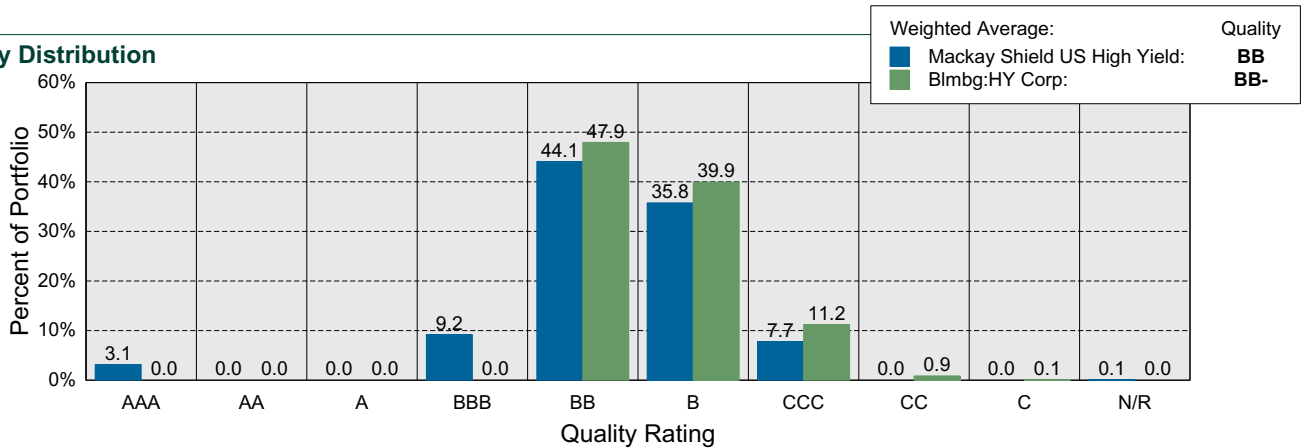
### Sector Distribution



### Duration Distribution



### Quality Distribution



# Principal Preferred Securities Period Ended June 30, 2023

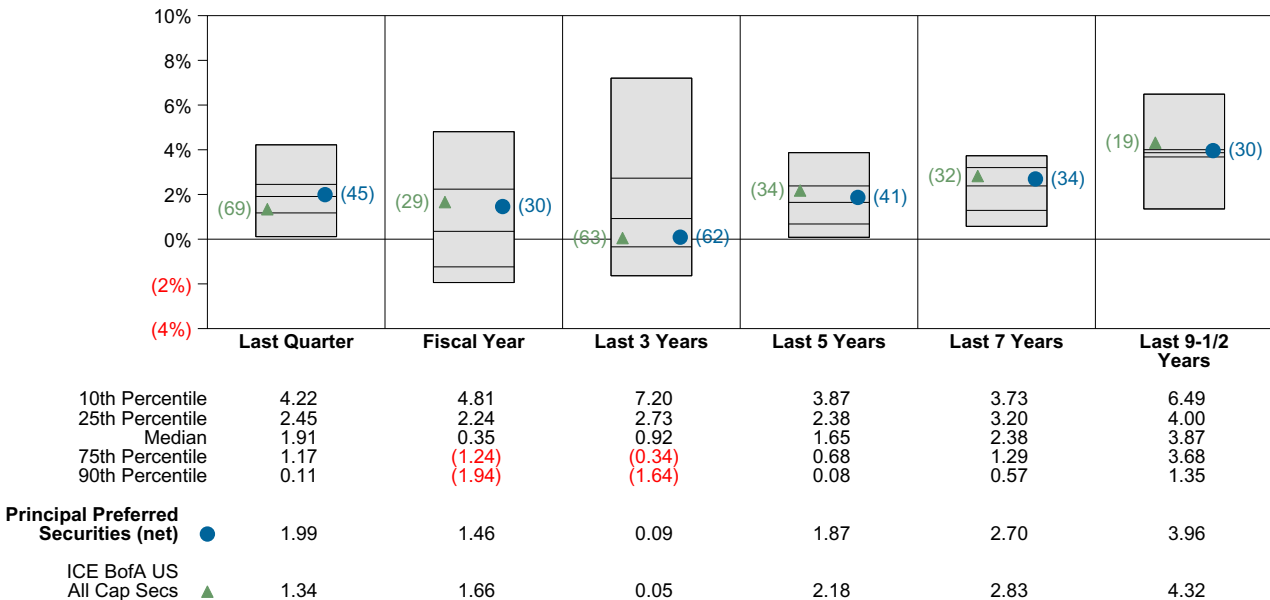
## Investment Philosophy

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.

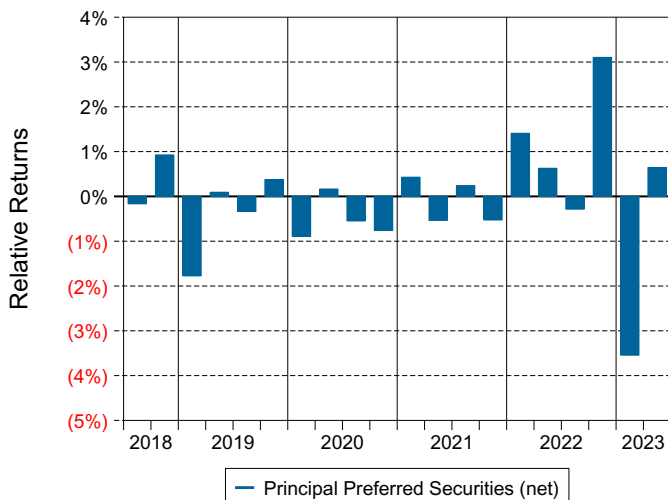
## Quarterly Summary and Highlights

- Principal Preferred Securities (net)'s portfolio posted a 1.99% return for the quarter placing it in the 45 percentile of the Morningstar Preferred Stock Funds group for the quarter and in the 30 percentile for the last year.
- Principal Preferred Securities (net)'s portfolio outperformed the ICE BofA US All Cap Secs by 0.65% for the quarter and underperformed the ICE BofA US All Cap Secs for the year by 0.20%.

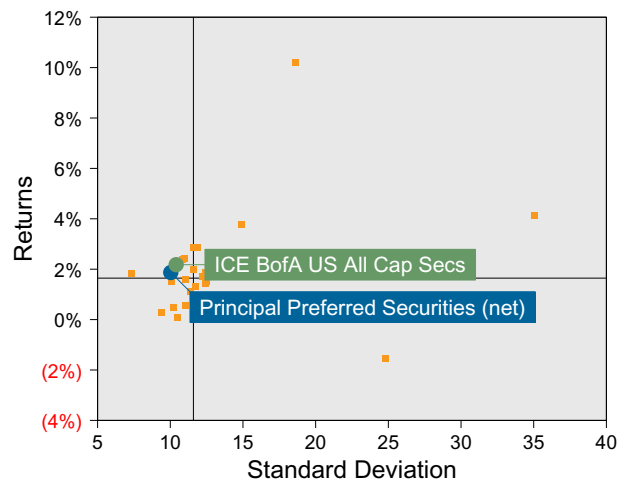
## Performance vs Morningstar Preferred Stock Funds (Net)



## Relative Return vs ICE BofA US All Cap Secs



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

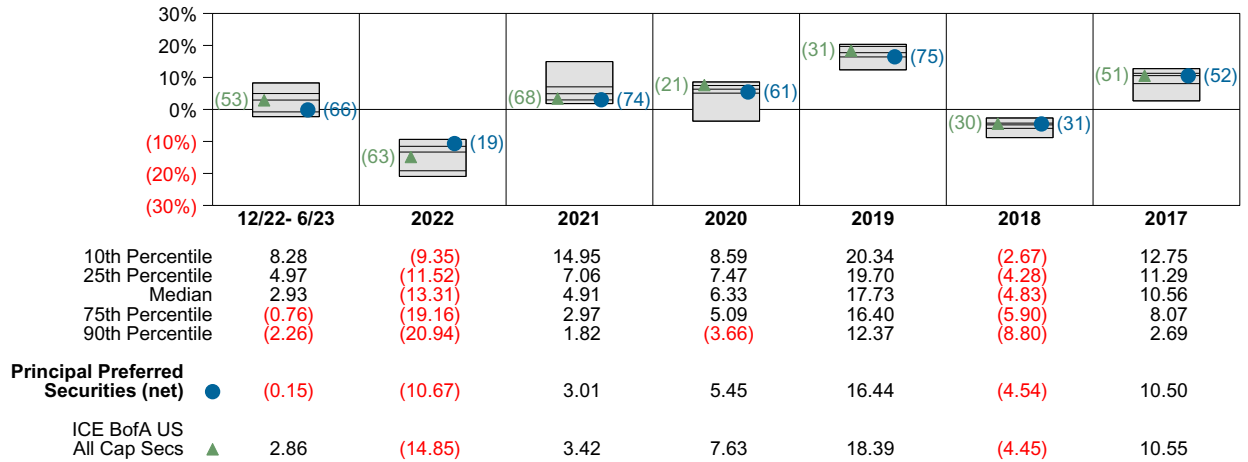


# Principal Preferred Securities Return Analysis Summary

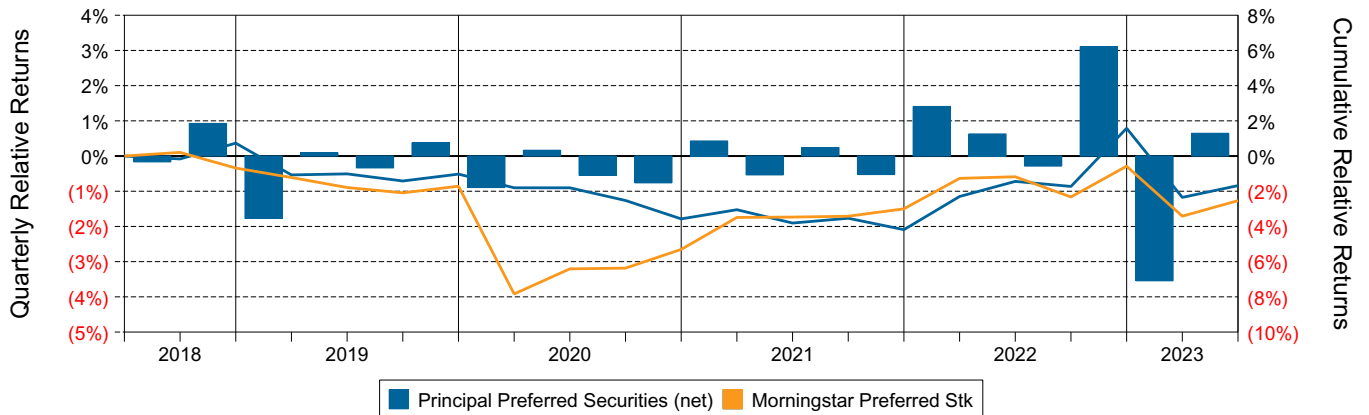
## Return Analysis

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.

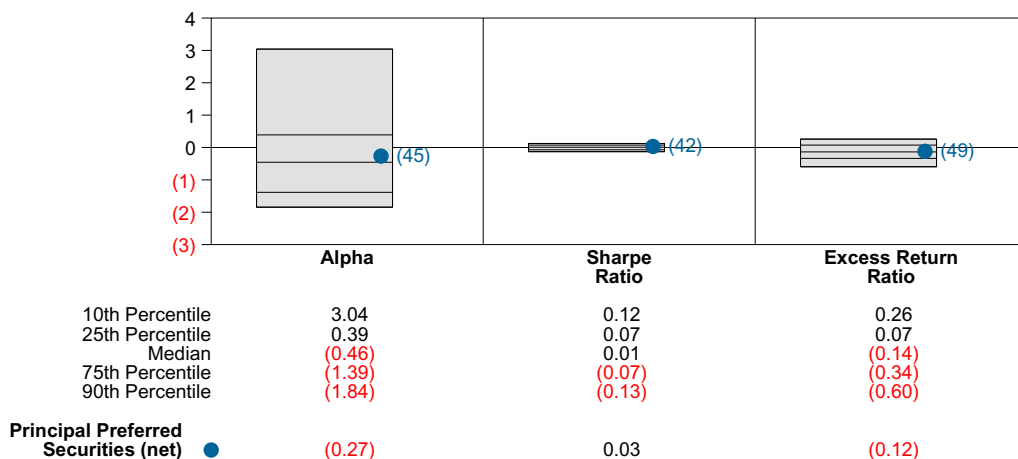
### Performance vs Morningstar Preferred Stock Funds (Net)



### 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 June 30, 2023





# Principal Preferred Securities Risk Analysis Summary

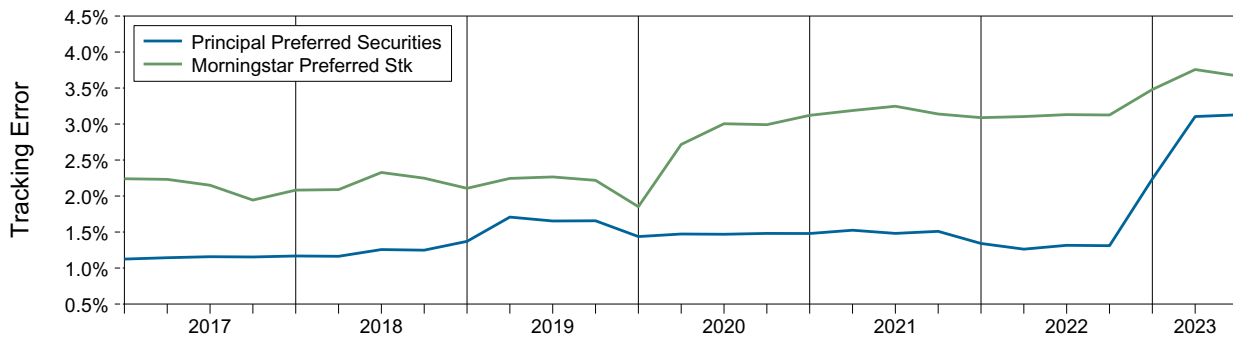
## Risk Analysis

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.

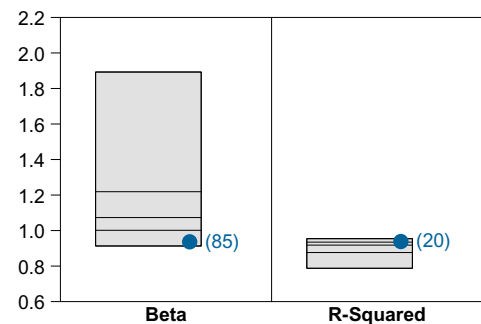
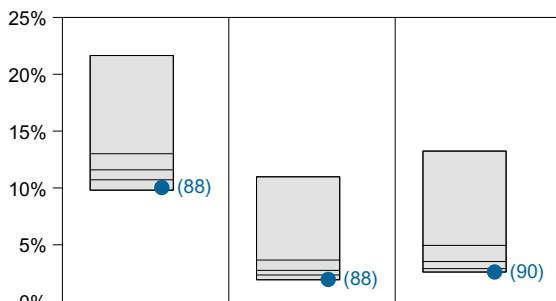
### Risk Analysis vs Morningstar Preferred Stock Funds (Net) Five Years Ended June 30, 2023



### 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 June 30, 2023



	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	21.65	10.98	13.24	1.89	0.95
25th Percentile	13.01	3.66	4.94	1.22	0.93
Median	11.59	2.75	3.52	1.07	0.92
75th Percentile	10.72	2.34	2.90	1.00	0.88
90th Percentile	9.80	1.92	2.60	0.91	0.79

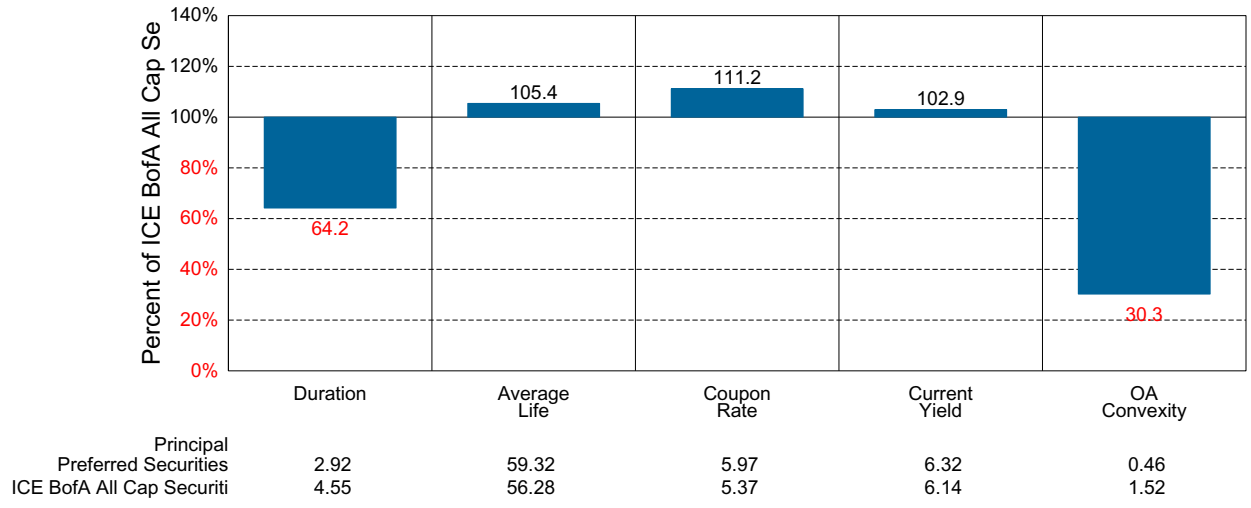
<b>Principal Preferred Securities</b>	● 10.03	1.95	2.60	● 0.94	0.94
---------------------------------------	---------	------	------	--------	------

# Principal Preferred Securities Bond Characteristics Analysis Summary

## Portfolio Characteristics

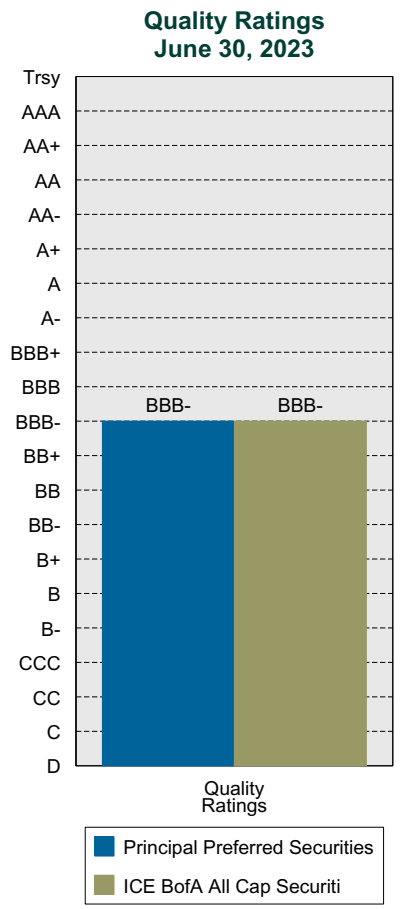
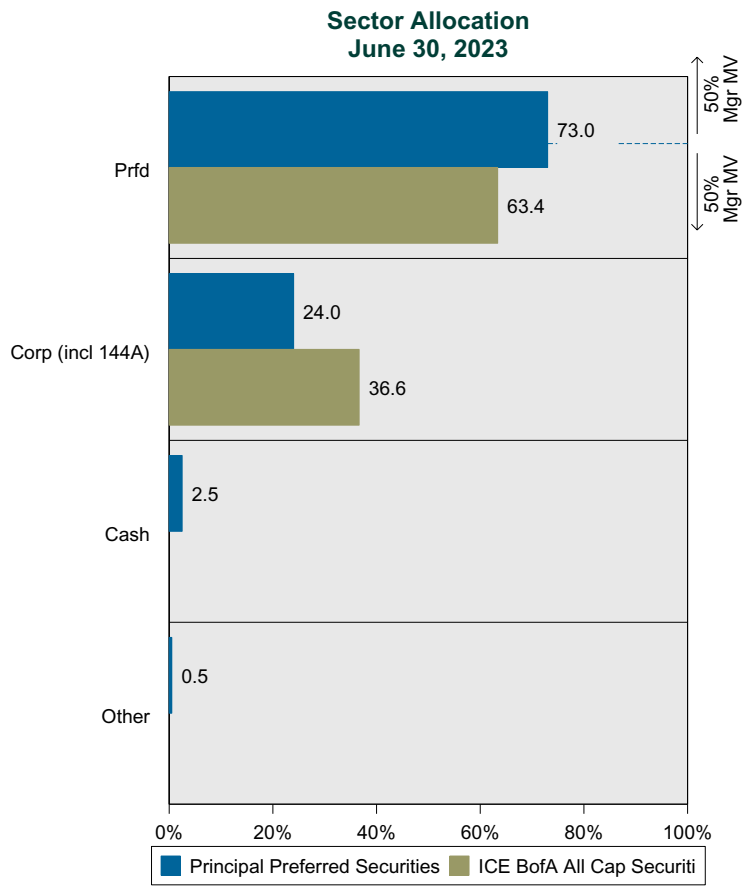
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

## Portfolio Characteristics Relative to ICE BofA All Cap Securiti as of June 30, 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.

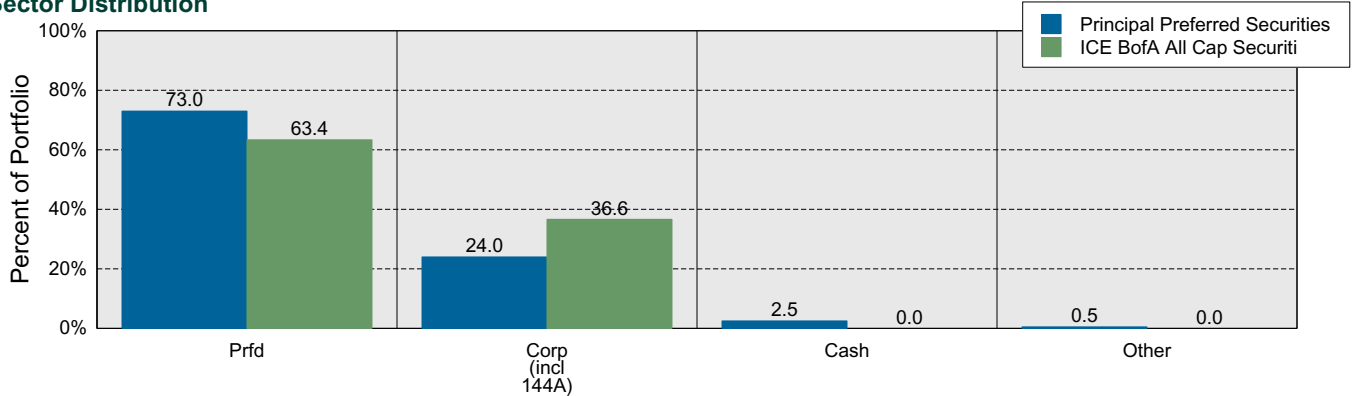


# Principal Preferred Securities Portfolio Characteristics Summary As of June 30, 2023

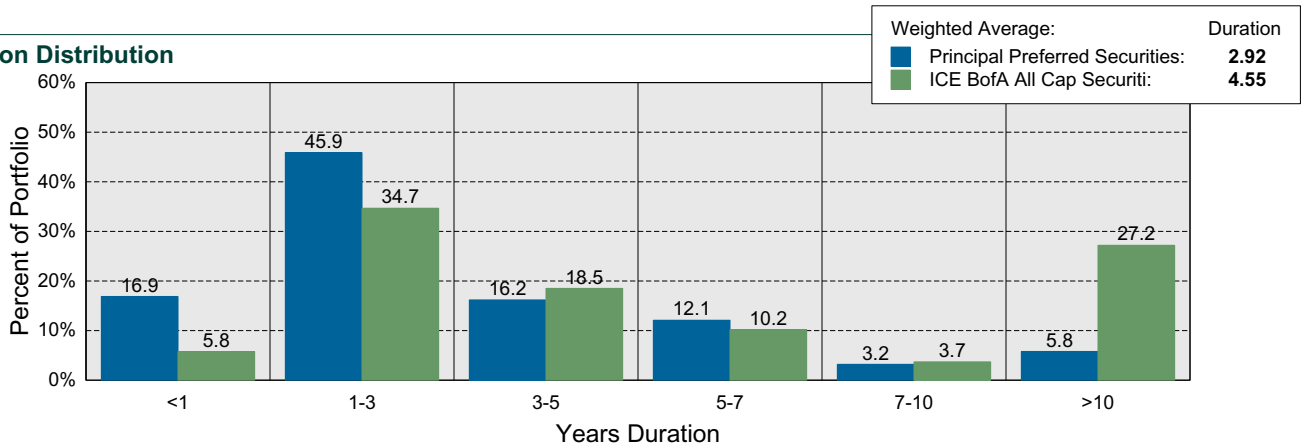
## Portfolio Structure Comparison

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.

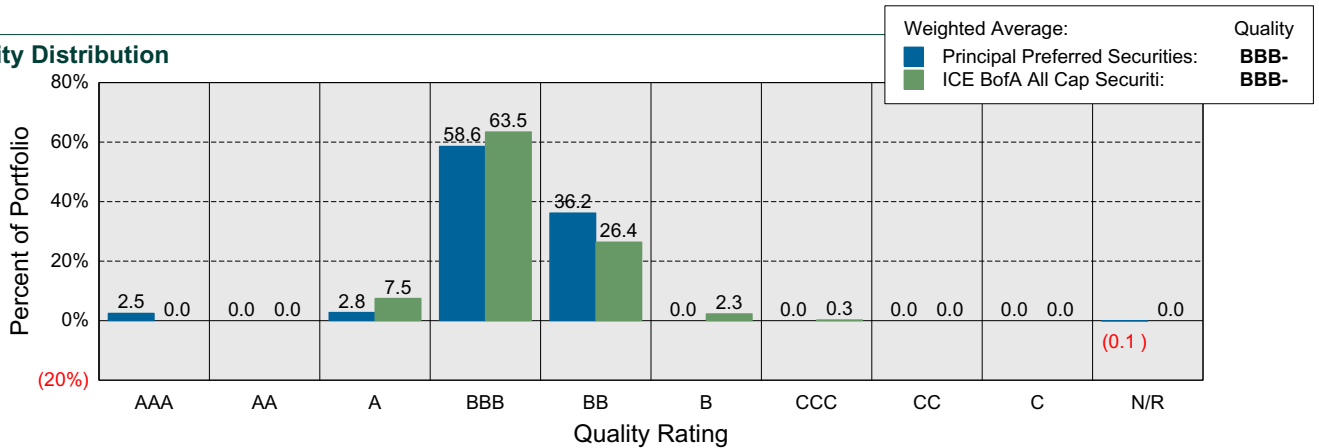
### Sector Distribution



### 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](http://www.callan.com/research-library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog. For more information contact Barb Gerraty at 415-274-3093 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan's Experts

**[2023 Private Credit Fees and Terms Study](#)** | Catherine Beard and Jared Ungar assess private credit partnerships in our first fees and terms study for this asset class.

**[2Q23 Real Assets Reporter: Life Sciences Investments](#)** | Christine Mays describes life sciences investments and the role they can play in institutional portfolios.

**[The Critical Underlying Technology Behind Digital Assets: A Primer for Institutional Investors](#)** | This paper provides background on key concepts around digital assets: blockchains and distributed ledgers; cryptography; validation protocols; smart contracts; and tokenization.

## Blog Highlights

**[Biodiversity: A Relatively New Theme for ESG-Focused Investors](#)** | Biodiversity investments include companies that support the sustainable use of natural resources and ecosystem services or technologies, or products or services that reduce biodiversity threats or restore natural habitats.

**[Higher Interest Rates Meet Lower Valuations: Implications for the CRE Industry](#)** | The commercial real estate (CRE) industry, already facing challenges with economic uncertainty, the shift to remote work, and recent layoffs by many major office tenants, now confronts higher interest rates and plummeting pricing.

**[How to Improve DC Plans with DEI](#)** | For defined contribution (DC) plan sponsors, understanding the diversity within the employee population supports inclusiveness and equality in access and opportunities.

## Webinar Replays

**[Research Cafe: ESG Interview Series](#)** | During this interview, Aaron Quach, Callan ESG team member, interviews Jan Mende, Callan real assets specialist and author of our white paper on energy transition. They will discuss the growing opportunities for investment within the energy transition space and how they can be incorporated into the portfolios of institutional investors.

## Quarterly Periodicals

**[Private Equity Update, 1Q23](#)** | A high-level summary of private equity activity in the quarter through all the investment stages

**[Active vs. Passive Charts, 1Q23](#)** | A comparison of active managers alongside relevant benchmarks over the long term

**[Market Pulse, 1Q23](#)** | 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, 1Q23](#)** | 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, 1Q23](#)** | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

**[Real Assets Update, 1Q23](#)** | A summary of market activity for real assets and private real estate during the quarter

**[Private Credit Update, 1Q23](#)** | 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](https://callan.com/events-education).

Please mark your calendar and look forward to upcoming invitations:

**Webinar: The End of the Low-Yield Environment**  
Aug 9, 2023 – Virtual

**2023 October Workshops**  
Oct. 24, 2023 – New York  
Oct. 26, 2023 – Chicago

**2024 National Conference**  
April 8-10, 2024 – San Francisco

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

Sept. 26-28 – Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities.

### Alternative Investments

Aug. 23-24 – Virtual

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In our "Callan College" on Alternatives, you will learn about the importance of allocations to alternatives, and how to consider integrating, evaluating, and monitoring them.

Our virtual sessions are held over two to three days with virtual modules of 2.5-3 hours, while in-person sessions run either a full day or one-and-a-half days. 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](https://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

Confidential – For Callan Client Use Only

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 Asset Management

AllianceBernstein

Allspring Global Investments, LLC

AlphaSimplex Group, LLC

Altrinsic Global Advisors, LC

American Capital Management, Inc.

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

### Manager Name

Atlanta Capital Management Co., LLC

AXA Investment Managers

Baillie Gifford International, LLC

Baird Advisors

Barings LLC

Baron Capital Management, Inc.

Barrow, Hanley, Mewhinney & Strauss, LLC

BentallGreenOak

Beutel, Goodman & Company Ltd.

Bissell Ballantyne LLC

BlackRock

Blackstone Group (The)

Blue Owl Capital, Inc.

BNY Mellon Asset Management

Boston Partners

Brandes Investment Partners, L.P.

Brandywine Global Investment Management, LLC

Brightwood Capital Advisors, LLC



**Manager Name**

Brookfield Asset Management Inc.

Brown Brothers Harriman &amp; Company

Capital Group

Cardinal Capital, LLC

CastleArk Management, LLC

CIBC Asset Management Inc.

ClearBridge Investments, LLC

Cohen &amp; 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 &amp; Zollo, Inc.

Diamond Hill Capital, Inc.

Dimensional Fund Advisors L.P.

Doubleline

DWS

EARNEST Partners, LLC

Epoch Investment Partners , Inc. \* (See new name)

Fayez Sarofim &amp; Company

Federated Hermes, Inc.

Fidelity Institutional Asset Management

Fiera Capital Corporation

First Eagle Investment Management, LLC

First Hawaiian Bank Wealth Management Division

First Sentier Investors

Fisher Investments

Franklin Templeton

Fred Alger Management, LLC

GAM (USA) Inc.

Glenmede Investment Management, LP

GlobeFlex Capital, L.P.

GoldenTree Asset Management, LP

Goldman Sachs

Golub Capital

Great Lakes Advisors, LLC

Guggenheim Investments

GW&amp;K Investment Management

Harbor Capital Advisors

**Manager Name**

Hardman Johnston Global Advisors LLC

Heitman LLC

Hotchkis &amp; Wiley Capital Management, LLC

Impax Asset Management LLC

Income Research + Management

Insight Investment

Intech Investment Management LLC

Intercontinental Real Estate Corporation

Invesco

J.P. Morgan

Janus

Jarislowsky Fraser Global Investment Management

Jennison Associates LLC

Jobs Peak Advisors

KeyCorp

Kohlberg Kravis Roberts &amp; Co. (KKR)

Lazard Asset Management

LGIM America

Lincoln National Corporation

Longview Partners

Loomis, Sayles &amp; Company, L.P.

Lord, Abbett &amp; 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 &amp; 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.

**Manager Name**

P/E Investments

Pacific Investment Management Company

Pacific Ridge Capital Partners, LLC

Pantheon Ventures

Parametric Portfolio Associates LLC

Partners Group (USA) Inc.

Pathway Capital Management, LP

PFM Asset Management LLC

PGIM

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

Robeco Institutional Asset Management, US Inc.

S&amp;P Dow Jones Indices

Sands Capital Management

Schroder Investment Management North America Inc.

Segall Bryant &amp; Hamill

**Manager Name**

Silvercrest Asset Management Group

SLC Management

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

Sprucegrove Investment Management Ltd

State Street Global Advisors

Strategic Global Advisors, LLC

\*TD Global Investment Solutions – TD Epoch

T. Rowe Price Associates, Inc.

The TCW Group, Inc.

Thompson, Siegel &amp; Walmsley LLC

Tri-Star Trust Bank

UBS Asset Management

VanEck

Vanguard Group, Inc. (The)

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

Walter Scott &amp; Partners Limited

WCM Investment Management

Wellington Management Company, LLP

Western Asset Management Company LLC

Westfield Capital Management Company, LP

William Blair &amp; Company LLC

Xponance, Inc.

## Important Disclosures

Information contained in this document may include confidential, trade secret and/or proprietary information of Callan and the client. It is incumbent upon the user to maintain such information in strict confidence. Neither this document nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose.

The content of this document is particular to the client and should not be relied upon by any other individual or entity. There can be no assurance that the performance of any account or investment will be comparable to the performance information presented in this document.

Certain information herein has been compiled by Callan from a variety of sources believed to be reliable but for which Callan has not necessarily verified for accuracy or completeness. Information contained herein may not be current. Callan has no obligation to bring current the information contained herein. This content of this document may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. The opinions expressed herein may change based upon changes in economic, market, financial and political conditions and other factors. Callan has no obligation to bring current the opinions expressed herein.

The statements made herein may include forward-looking statement regarding future results. The forward-looking statement herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties. Actual results may vary, perhaps materially, from the future result projected in this document. Undue reliance should not be placed on forward-looking statements.

Callan disclaims any responsibility for reviewing the risks of individual securities or the compliance/non-compliance of individual security holdings with a client's investment policy guidelines.

This document should not be construed as legal or tax advice on any matter. You should consult with legal and tax advisers before applying any of this information to your particular situation.

Reference to, or inclusion in this document of, any product, service or entity should not necessarily be construed as recommendation, approval, or endorsement or such product, service or entity by Callan. This document is provided in connection with Callan's consulting services and should not be viewed as an advertisement of Callan, or of the strategies or products discussed or referenced herein.

The issues considered and risks highlighted herein are not comprehensive and other risks may exist that the user of this document may deem material regarding the enclosed information. Any decision you make on the basis of this document is sole responsibility of the client, as the intended recipient, and it is incumbent upon you to make an independent determination of the suitability and consequences of such a decision.

Callan undertakes no obligation to update the information contained herein except as specifically requested by the client.

Past performance is no guarantee of future results.

# COLORADO DEPARTMENT OF THE TREASURY

**Dave Young**  
State Treasurer



**Eric Rothaus**  
Deputy Treasurer

**To:** Office of State Planning and Budgeting  
Joint Budget Committee  
Senate Committee on Education  
House Education Committee  
Senate Finance Committee  
House Finance Committee  
State Board of Land Commissioners

**From:** Public School Fund Investment Board

**Date:** November 1, 2023

**RE: Public School Permanent Fund Financial Report FY 2022-2023**

Enclosed please find the Public School Permanent Fund Financial Report for FY 2022-2023. Pursuant to § 22-41-107, C.R.S., on November 1 of each fiscal year the Public School Fund Investment Board (PSFIB) shall submit financial statements to the State Treasurer, the State Board of Land Commissioners, the Governor's Office of State Planning and Budgeting, the Joint Budget Committee, and the Education and Finance Committees of the Colorado Senate and House of Representatives.

The Public School Fund Investment Board was created in 2016 under § 22-41-102.5, C.R.S. The public purpose for the creation of the PSFIB is to facilitate reasonable growth in the Public School Permanent Fund through lawful investments authorized under § 24-36-109, C.R.S. (time deposits under 2 years), § 24-36-112, C.R.S. (deposits in savings and loan associations under three years), § 24-36-113, C.R.S. (fixed income securities denominated in United States dollars), § 24-36-111.5, C.R.S. (real property owned by a school district), § 22-41-104, C.R.S. (stock mutual funds, index funds, other instruments that are not a direct investment in a corporation, and bonds issued by school districts), and

Colorado State Capitol  
200 E Colfax, Suite 140  
Denver, CO 80203  
(303) 866-2441  
[treasurer.young@state.co.us](mailto:treasurer.young@state.co.us)

other lawful financial assets as specified in the PSFIB's Investment Policy.

The State Constitution, article IX, § 3, states that this fund shall forever remain inviolate and intact. Interest and income are expended in the maintenance of the schools of the State and distributed amongst the several counties and school districts of the State in accordance with § 22-41-102, C.R.S. and related statutory provisions. Except as otherwise provided by law, no part of the PSPF, either principal or interest and income, can be transferred to any other fund or used or appropriated.

During FY 2022-2023, the Public School Permanent Fund generated over \$38 million in distributable net income. As required by § 22-41-102, C.R.S., \$21 million was distributed to the state public school fund and \$17.5 million to the public school capital construction assistance fund. The total market value of the Public School Permanent Fund is \$1.37 billion as of June 30, 2023.

Respectfully submitted on behalf of the Public School Fund

Investment Board.

Sincerely,

David L. Young  
State Treasurer

**CO PUBLIC SCHOOL PERMANENT FUND**

**FINANCIAL REPORT FOR FISCAL YEAR ENDED JUNE 30, 2023**

Colorado State Capitol  
200 E Colfax, Suite 140  
Denver, CO 80203  
(303) 866-2441  
treasurer.young@state.co.us

**CO PUBLIC SCHOOL PERMANENT FUND  
FINANCIAL REPORT FOR FISCAL YEAR ENDED JUNE 30, 2023**

<b>Fund Activity</b>	<b>FY End June 30, 2023</b>	<b>FY End June 30, 2022</b>	<b>FY End June 30, 2021</b>
Beginning Fund Value (Cash + Investments)	1,242,693,044	1,333,667,415	1,260,932,051
Transfers to PSPF:			
State Land Board Rents, Royalties, & NSE Funds	117,116,674	96,430,154	515,169
Escheats Fund	160,753	84,983	109,211
Realized Gains / (Losses)	941,995	1,116,400	7,300,693
Change in Unrealized Market Gain / (Loss)	31,237,066	(188,605,908)	64,810,291
<b>Ending Fund Value</b>	<b>1,392,149,533</b>	<b>1,242,693,044</b>	<b>1,333,667,415</b>

<b>Income / Expense Summary</b>	<b>FY End June 30, 2023</b>	<b>FY End June 30, 2022</b>	<b>FY End June 30, 2021</b>
Total Portfolio Earned Income	41,333,528	33,891,255	31,757,543
Total Expenses	(1,172,492)	(1,121,294)	(861,651)
Change in Income Receivable	(1,122,896)	(49,701)	(585,940)
CRS 22-41-105 Recoveries	(254,587)	(1,418,227)	-
<b>Net Income Available for Distribution</b>	<b>38,783,552</b>	<b>31,302,033</b>	<b>30,309,952</b>

<b>Distribution and Transfer of State Funds by Statute</b>	<b>FY End June 30, 2023</b>	<b>FY End June 30, 2022</b>	<b>FY End June 30, 2021</b>
<b>Distribution of Funds Received from DNR:</b>			
Forest Funds Paid & Payable to Counties	46,405	43,352	49,050
Net SLB Revenues & NSE Funds Transferred to PSPF Corpus	117,116,674	96,430,154	515,169
SLB Revenues Transferred to BEST**	134,741,821	102,138,926	57,724,771
SLB Revenues Transferred to the Public School Fund*	-	-	51,181,308
<b>Total Funds Received from DNR</b>	<b>251,904,900</b>	<b>198,612,432</b>	<b>109,470,298</b>
<b>Distribution to CDE:</b>			
SLB Revenues Transferred to BEST	134,741,821	102,138,926	57,724,771
SLB Revenues Transferred to the Public School Fund*	-	-	51,181,308
PSPF Income Distribution to BEST**	17,783,552	10,302,033	9,309,952
PSPF Income Distribution to the Public School Fund	21,000,000	21,000,000	21,000,000
<b>Total Transfers to CDE</b>	<b>173,525,373</b>	<b>133,440,959</b>	<b>139,216,031</b>

\* HB 20-1418 [CRS 36-1-116 (1)(a)(II)(C)]For FY21, over 50% to State Public School Fund

\*\* Per SB23-220, BEST to receive add'l \$10M of royalties, reducing amt transferred to PSPF (FY23 only)

<b>Asset Allocation at June 30, 2023</b>	<b>Market Value</b>	<b>Cost</b>	<b>Unrealized Gain / (Loss)</b>
Total Fixed Income	903,518,499	1,001,251,643	(97,733,145)
Total Equity	443,676,065	374,889,827	68,786,239
Cash & Cash Equivalents	44,957,014	44,957,014	-
<b>Total Fund Value</b>	<b>1,392,151,578</b>	<b>1,421,098,484</b>	<b>(28,946,906)</b>

# Colorado Department of the Treasury



Public School Fund Investment (PSPF)  
Bond Portfolio Presentation to the PSPF Board  
August 14, 2023

Maruti D. Moré, CFA, Chief Investment Officer  
Elliott Bostrom, CFA, Corporate Research/Trading  
Robert Cummings, CFA, MBS/ABS Research/Trading, Compliance  
Angelic Rein, MBA, Investment Analyst, Operations/Trading Assistant



# Summary Section

**Compliance Review:** PSPF Bond Portfolio is in compliance with IPS Guidelines

**Performance:** The portfolio has outperformed the benchmark since inception in July 2005

**Portfolio Review:** The Portfolio was well positioned last year to benefit from yield curve inversion with overweights to Corporate and underweights to MBS and Treasury sectors

**Market Review:** From a year ago, Treasury yields have gone up by more than 300 bp in the short end and by 100 bp in the long end inverting the yield curve by more than 200 bp, Corporates spreads have narrowed by 30 bp and MBS spreads have widened by 27 bp

**Outlook:** Expect less yield curve inversion in 2023 with a steepener bias followed by economic slowdown/mild recession, wider credit spreads based on long term yield curve, business, and credit spread cycles, as the Fed is focused on keeping Fund Funds rate higher and longer to lower the core inflation rate to 2% from the current 4.1%

**Investment Strategy:** Maintain close to neutral portfolio duration, sector weights, and OAS spread advantage over the benchmark with relatively higher quality liquid bonds

**Portfolio Holdings/Transactions:** See slides 17-21





# Compliance Review

- The State Constitution, article IX, § 3, states that this fund shall forever remain inviolate and intact. The State, by appropriation, must supply all losses of principal if not offset by a gain on an exchange or sale pursuant to section 2-3-103 (5), C.R.S, or section 22-41-104 (2).
- Investment managers are granted discretionary authority to buy, sell, or exchange securities in the daily management of their individual portfolios. All investment managers will use reasonable efforts to ensure that realized losses are neutralized with realized gains within 18 months of the PSPF's June 30 fiscal year-end. The PSFIB will review the total portfolio realized and unrealized gain/loss position quarterly to identify opportunities where unrealized gains and losses across all investment advisors/managers may be matched to manage the total portfolio realized gain/loss position.

## PSPF Bond Portfolio is in Compliance with the IPS Investment Manager Guidelines

### Appendix I: Investment Manager Guidelines

#### A. Colorado State Treasury Managed Market Duration Portfolio

The primary investment opportunity set is securities eligible for inclusion in the Bloomberg U.S. Aggregate index. Exceptions to this rule are itemized below under Additional Investment Opportunities.

#### Duration:

The effective duration of the portfolio shall be normally within +/- 30% of the Bloomberg U.S. Aggregate Index.

#### Bloomberg Aggregate Index Rules

- Must have at least one year to final maturity regardless of call features.
- Must have at least \$300 million par amount outstanding. Asset-backed securities must have at least \$500 million deal size and \$25 million tranche size. For commercial mortgage-backed securities, the original transaction must have a minimum deal size of \$500 million, and a minimum tranche size of \$25 million; the current outstanding transaction size must be at least \$300 million to remain in the index.
- Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be investment-grade.
- Must be fixed rate, although it can carry a coupon that steps up or changes according to a predetermined schedule.
- Must be dollar-denominated and non-convertible.
- Must be publicly issued. However, 144A securities with Registration Rights and Reg-S issues are included.

#### Additional Investment Opportunities

- Investment grade Collateralized Mortgage Obligation (CMO) tranches
- The ability to hold securities with less than 1 year to final maturity to avoid unnecessary losses to the portfolio



# Performance

Effective Date	Account Name	Return Type	Market Value	% of Total	One Month	Three Months	Calendar Year to Date	One Year	Three Years	Five Years	Ten Years	Inception to Date (July 2005)
7/31/2023	STOF CO TREAS PUB SCH	Gross of Fees	684,111,230.19	3.39	(.07)	(1.46)	2.29	(3.13)	(4.50)	.84	1.65	2.99
7/31/2023	*BARCAP US AGGREGATE INDEX *	Gross of Fees			(.07)	(1.51)	2.02	(3.37)	(4.46)	.75	1.24	2.64
		Excess			(.00)	.05	.27	.24	(.04)	.10	.41	.35

Source: Principal Financial/Wells Fargo



# Total Return Performance: PSPF Bond Portfolio vs US AGG Index

CST - PSPF vs (LBUSTRUU) BI by Bloomberg Fi in USD Time Custoi 07/29/22 - 07/31/23

Version MAC Edit Model Attribution Model Returns-Based Local Alloc Excess of All Curve Return FX Alloc None

## Return Summary

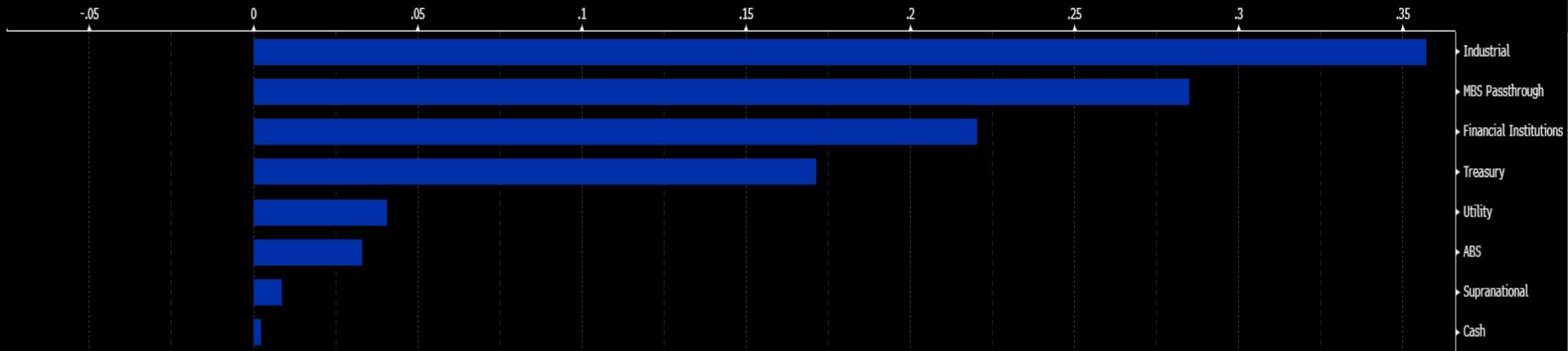
Portfolio Return	-3.07
Benchmark Return	-3.37
Active Return	0.30

## Active Return Attribution Summary

Curve Return	-0.04	Excess	0.34
Curve Change	0.00	Allocation	0.98
Curve Carry	-0.05	Selection	-0.64

## Excess Return Summary Graph

Allocation



# Portfolio Profile

as of 8/2/2023

Par Amount	748,753,825
Market Value	677,186,699
Unrealized Gain/Loss	(90,430,202)

Key Stats	PSPF	Benchmark	difference
# of Securities	165	13,371	
Coupon	3.34	2.99	0.35
Current Yield	3.95	3.29	0.66
Yield to Maturity	5.11	4.95	0.16
OAD	6.11	6.26	-0.16
OAS	61	49	12

Expected Cash Flow, NTM	Coupon Income	Principal Return	Total
	24,137,084	34,885,491	59,022,576

## Unrealized Gain/Loss by Major Sector

Corporate	(46,001,615)
Securitized	(26,130,641)
Local Authority	(1,952,129)
Treasury and Agencies	(16,345,817)

## Exposures

	Par	Market Value	% Wgt vs Bmrk
--	-----	--------------	---------------

<u>By Sector</u>			
Corporate	296,997,000	266,601,510	14.59
Securitized	286,636,273	262,090,756	9.75
Treasury	135,500,000	121,580,565	(23.23)
Government-Related	24,000,000	21,293,315	(1.93)
Cash	5,620,552	5,620,552	0.83

## By Credit Quality

AAA/AA+ & Cash	456,756,825	417,452,640	(12.75)
AA/AA-	46,000,000	41,109,367.83	4.12
A+/A	109,000,000	95,247,057.22	7.46
A-/BBB+	81,997,000	73,026,610.91	1.96
BBB/BBB-	55,000,000	50,351,023.61	(0.79)



# PSPF Bond Portfolio Duration Distribution Profile

## Underweight Treasury and MBS in 5/7 year Duration Buckets

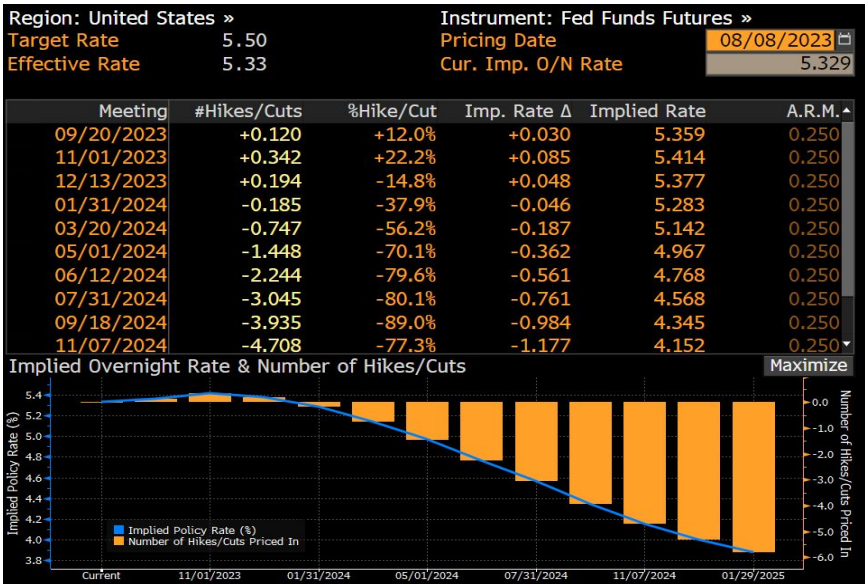
PSPF 08/02/23

sector	port	bmrk	CTD	6mo	1yr	2yr	3yr	5yr	7yr	10yr	20yr	30yr
	CTD	CTD	diff.	difference	difference	difference	difference	difference	difference	difference	difference	difference
ABS	0.12	0.01	0.10	-0.01	0.04	0.09	-0.01	0.00	0.00	0.00	0.00	0.00
Agency	0.03	0.06	-0.04	0.00	0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	0.00
Cash	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CMBS	0.36	0.08	0.28	0.00	0.00	0.04	-0.01	0.08	0.04	0.11	0.03	0.00
CMO	0.27	0.00	0.27	0.00	0.00	0.01	0.05	0.03	0.02	0.06	0.08	0.02
Financial Institutions	0.72	0.44	0.28	0.00	0.00	-0.02	0.10	0.11	0.06	0.05	-0.01	-0.01
Industrial	1.27	1.11	0.15	0.00	0.02	0.03	0.08	0.00	0.05	0.03	-0.04	0.00
Local Authority	0.08	0.07	0.01	0.00	0.00	0.00	0.00	0.00	-0.01	-0.02	0.00	0.04
MBS Passthrough	1.23	1.69	-0.46	0.00	-0.01	-0.01	-0.03	-0.05	-0.07	-0.14	-0.13	-0.02
Sovereign	0.04	0.09	-0.05	0.00	0.00	0.00	0.00	0.00	0.02	-0.02	-0.02	-0.03
Supranational	0.00	0.05	-0.05	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00
Treasury	1.74	2.49	-0.75	0.00	-0.03	-0.10	-0.14	-0.29	-0.29	-0.09	0.44	-0.24
Utility	0.27	0.18	0.08	0.00	0.00	0.01	-0.01	-0.01	0.00	0.00	0.04	0.04
<b>Grand Total</b>	<b>6.11</b>	<b>6.26</b>	<b>-0.16</b>	<b>-0.01</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>-0.15</b>	<b>-0.19</b>	<b>-0.03</b>	<b>0.38</b>	<b>-0.22</b>





# Market Review



- Treasuries sold off by more than 300 bp in the short end and by about 100 bp in the long end inverting the yield curve by 200 bp as the Fed tightened, keeping the 2/30 yield curve ratio at 122% . Inverted yield curve ratio over 100% foreshadows recession within 12 months based on historical average , the US Economy is due for a recession based on the historic first inversion cycle that began on 3/31/22
- The Federal Reserve has raised the Fed Funds rate 11 times since March 2022 from near zero to 5.25%-5.50% target range on 7/26/23

# Fed Raises Rates to 22-Year High, Leaves Door Open for More Hikes

## 7/26/23

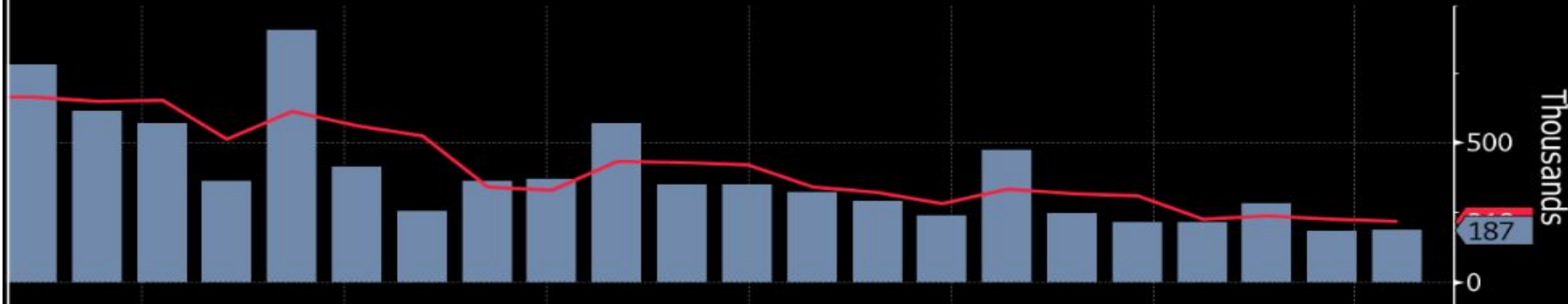
- The Federal Reserve raised interest rates to the highest level in 22 years and left the door open to additional increases as officials fine-tune their effort to further quell inflation.
- The quarter percentage-point hike, a unanimous decision, lifted the target range for the Fed's benchmark federal funds rate to 5.25% to 5.5%, the highest level since 2001. It marked the 11th increase since March 2022, when the rate was near zero.
- While June's consumer-price report showed inflation decelerating to 3% from last year's 9.1% peak, policymakers have expressed concern about so-called "core" inflation, excluding food and energy.
- Inflation as measured by the core PCE, the Fed's preferred gauge, remains at 4.1%, more than double the Committee's intended target.
- They have singled out service-sector inflation in particular as a category they believe remains elevated due to tight labor markets.
- In determining the extent of additional policy firming that may be appropriate to return inflation to 2% over time, the committee will take into account the cumulative tightening of monetary policy, the lags with which monetary policy affects economic activity and inflation, and economic and financial developments.



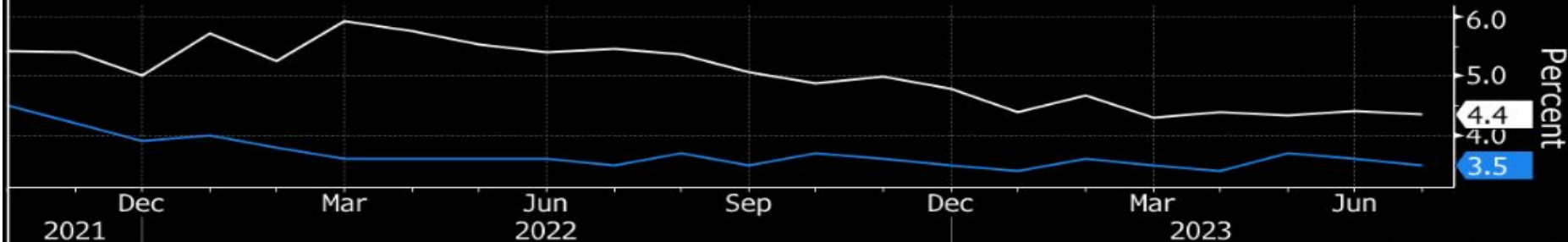
# US Job Growth Remained Steady in July

Average hourly earnings exceeded estimates, while unemployment rate declined

■ Change in non-farm payrolls (MoM) ■ SMAVG (3) (NFP TCH) 218



■ Change in average hourly earnings (YoY) ■ Unemployment rate



Source: Bureau of Labor Statistics

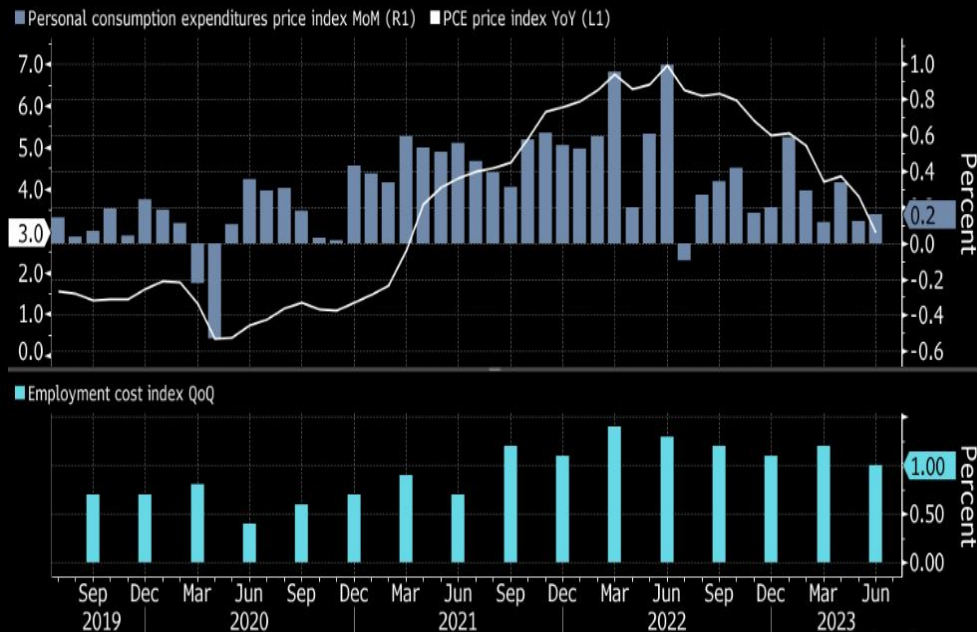
Bloomberg





# US Inflation, Wages Cool

Fed-favored metrics have both eased in recent months



Source: Commerce Department, Bureau of Labor Statistics

Bloomberg

# Inflation Expectations Remain Elevated After Fed Tightening

Market gauge suggests a shift from the 2% area of 2018



Source: Bloomberg

Bloomberg

As Fed Chair Jerome Powell noted Wednesday, *“Inflation has proved, repeatedly has proved stronger than we and other forecasters have expected.”* Additionally, he noted, *“The process of getting inflation back down to two percent has a long way to go.”*



# United States Downgraded to AA+ by Fitch, Outlook Stable

United States's long-term foreign currency debt rating was downgraded by Fitch to AA+ from AAA and Outlook to stable from watch negative

- **“The rating downgrade of the United States reflects the expected fiscal deterioration over the next three years, a high and growing general government debt burden, and the erosion of governance relative to ‘AA’ and ‘AAA’ rated peers over the last two decades that has manifested in repeated debt limit standoffs and last-minute resolutions,” Fitch said**
- **“Fitch forecasts a GG deficit of 6.6% of GDP in 2024 and a further widening to 6.9% of GDP in 2025”**
- **The yield curve is likely to steepen from here on based on growing fiscal deficits, the Fed’s unfinished tightening to reduce the core inflation to its 2% target**
- **It looks like economic hard landing is “deferred,” not avoided: strength in the labor market indicates need for further Fed policy action, increasing odds of – eventual – downturn**
- **Optimism is returning to corporate boardrooms as data continue to show a resilient economy that can support further growth. The Federal Reserve is no longer forecasting that its aggressive tightening will tip the economy into recession. And prognosticators at Wall Street’s biggest firms, from JPMorgan Chase & Co. to Bank of America Corp., have dialed back their dire warnings of a downturn.**
- **Private Economic forecasts collected by Bloomberg indicate real GDP to decline by 0.2% during 4Q23 and PCE Core inflation to fall to 2.4% by 4Q24.**

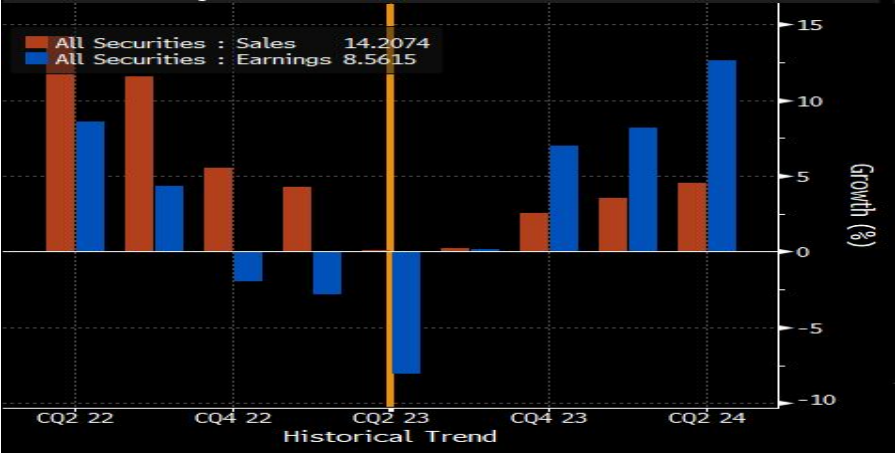


# Investment Strategy - Corporate Bond Spreads

Corporate Index OAS, LTM



S&P Expected Sales & Growth



- Spreads have narrowed overall
- Strong Sales and Earnings growth are expected
- Its uncertain if these trends are sustainable given weaker macro outlook



# Investment Strategy - Mortgages Became Cheaper

## Current Coupon MBS Spread vs. 'AAA' Corporate Spreads



- MBS widened 27 bps while 'AAA' rated Corporate bonds tightened around 40 bps



# Portfolio Holdings/Transactions

[Holdings \(17-19\)](#)

[Transactions \(20-21\)](#)



# Contacting Us

Name: Maruti D. Moré, CFA

Email: [maruti.more@state.co.us](mailto:maruti.more@state.co.us)

Phone: (303) 866-5651



[treasury.colorado.gov/](https://treasury.colorado.gov/)



[facebook.com/colotreasurer](https://facebook.com/colotreasurer)



[twitter.com/ColoTreasurer](https://twitter.com/ColoTreasurer)



[linkedin.com/company/colorado-department-of-the-treasury](https://linkedin.com/company/colorado-department-of-the-treasury)





# List of Holdings as of 8/2/2023

Sector	CUSIP	Security Description	Par Amt*	Mkt Val*	Book Val	Unrl G/L
ABS			52,250,000	50,487,205	52,245,932	-1,758,727
	02582JJT8	AMXCA 2022-2 A	5,000,000	4,838,250	4,999,234	-160,984
	02589BAA8	AMXCA 2022-1 A	10,000,000	9,507,100	9,999,848	-492,748
	05602RAD3	BMWOT 2022-A A3	4,000,000	3,900,160	3,999,874	-99,714
	06742LAV5	DROCK 2022-1 A	5,000,000	4,807,550	4,999,181	-191,631
	254683CS2	DCENT 2022-A2 A	10,000,000	9,663,900	9,999,381	-335,481
	362585AC5	GMCAR 2022-2 A3	5,000,000	4,854,100	4,999,356	-145,256
	38013JAD5	GMCAR 2023-1 A3	4,750,000	4,690,720	4,749,352	-58,632
	87166PAG6	SYNIT 2022-A1 A	3,500,000	3,376,975	3,499,773	-122,798
	89238FAD5	TAOT 2022-B A3	5,000,000	4,848,450	4,999,932	-151,482
Agency			14,000,000	13,456,880	14,016,625	-559,745
	3130A4CH3	FHLB 2 3/8 03/14/25	10,000,000	9,567,000	10,017,878	-450,878
	742651DP4	PEFCO 2.45 07/15/24	4,000,000	3,889,880	3,998,747	-108,867
CMBS			53,475,138	47,705,596	54,138,000	-6,432,404
	3136BLP79	FNA 2022-M4 A2	5,000,000	4,232,220	5,012,283	-780,063
	3137BLM28	FHMS K049 A2	5,741,000	5,503,552	5,819,815	-316,263
	3137FGZ75	FHMS K079 A2	10,000,000	9,627,400	10,722,209	-1,094,809
	3137FJXQ7	FHMS K733 A2	9,960,138	9,666,015	10,226,830	-560,815
	3137FNAE0	FHMS K095 A2	7,129,000	6,426,580	7,256,520	-829,940
	3137FQJZ7	FHMS K-1514 A2	5,025,000	4,138,339	4,312,223	-173,884
	3137FXQW1	FHMS K-1518 A2	3,120,000	2,248,241	3,158,581	-910,340
	3137H2NY6	FHMS K-1521 A2	4,000,000	2,941,240	4,040,921	-1,099,681
	3137H5DP9	FHMS K137 A2	3,500,000	2,922,010	3,588,619	-666,609
CMO			36,617,446	32,429,933	36,801,795	-4,371,862
	3136BG3V1	FNR 2021-65 BW	2,688,494	2,138,447	2,687,705	-549,258
	3137BCVX3	FHR 4375 VM	4,350,771	4,179,699	4,347,681	-167,982
	3137BDSA5	FHR 4385 EU	9,284,000	8,597,634	9,276,490	-678,856
	3137FRSW2	FHR 4957 W	8,057,653	6,854,806	8,442,165	-1,587,359
	38378TTN0	GNR 2013-91 PB	877,864	850,246	877,695	-27,448
	38379GAP2	GNR 2014-141 LT	983,600	940,804	982,673	-41,870
	38380UDY6	GNR 2017-180 VB	3,375,064	3,084,707	3,336,667	-251,960
	38383CL73	GNR 2021-175 LE	2,000,000	1,137,240	1,901,895	-764,655
	38383UC73	GNR 2022-177 DY	5,000,000	4,646,350	4,948,824	-302,474

Financial Institutions			115,000,000	104,089,130	119,665,831	-15,576,701
	015271AW9	ARE 2 05/18/32	3,000,000	2,267,310	2,992,748	-725,438
	06051GGL7	BAC 3.705 04/24/28	6,000,000	5,610,540	6,401,455	-790,915
	06051GKG3	BAC 1.843 02/04/25	10,000,000	9,790,300	10,000,000	-209,700
	06051GKJ7	BAC 2.551 02/04/28	10,000,000	9,021,000	10,000,000	-979,000
	09247XAN1	BLK 3.2 03/15/27	5,000,000	4,752,550	4,958,466	-205,916
	09256BAL1	BX 2 1/2 01/10/30	5,000,000	4,088,800	5,141,246	-1,052,446
	09261BAG5	BX 2 5/5 03/30/32	2,000,000	1,549,160	1,995,795	-446,635
	172967BU4	C 5 7/8 02/22/33	2,000,000	2,004,920	2,596,326	-501,406
	172967NF4	C 2.904 11/03/42	2,000,000	1,385,500	2,000,000	-614,500
	25389JAR7	DLR 3.7 08/15/27	5,000,000	4,659,150	5,429,695	-770,545
	25389JAU0	DLR 3.6 07/01/29	5,000,000	4,500,250	5,501,433	-1,001,183
	38141GFD1	GS 6 3/4 10/01/37	2,000,000	2,139,080	2,783,901	-644,821
	46647PAF3	JPM 3.54 05/01/28	6,000,000	5,593,860	6,365,673	-771,813
	46647PCU8	JPM 2.963 01/25/33	10,000,000	8,324,900	10,020,037	-1,695,137
	59022CAJ2	BAC 6.11 01/29/37	2,000,000	2,073,620	2,638,056	-564,436
	61744YAP3	MS 3.772 01/24/29	10,000,000	9,330,900	10,035,308	-704,408
	61761JZN2	MS 3.95 04/23/27	5,000,000	4,744,750	5,314,594	-569,844
	74340XBM2	PLD 2 1/4 04/15/30	4,000,000	3,368,640	3,982,420	-613,780
	91159HJB7	UNH 2.491 11/03/36	2,000,000	1,483,260	2,000,000	-516,740
	91324PCY6	UNH 3 3/8 04/15/27	5,000,000	4,743,350	4,976,203	-232,853
	91324PDU3	UNH 3.7 08/15/49	4,000,000	3,087,440	4,279,789	-1,192,349
	95040QAC8	WELL 4 1/4 04/01/26	5,000,000	4,839,350	5,141,666	-302,316
	95040QAD6	WELL 4 1/4 04/15/28	5,000,000	4,730,500	5,201,021	-470,521

(holdings continued)

Industrial	156,997,000	139,728,333	161,156,714	-21,428,381
00206RDJ8 T 4 1/2 03/09/48	5,000,000	3,977,950	5,706,283	-1,728,333
00206RGQ9 T 4 3 02/15/30	5,000,000	4,640,000	5,514,527	-874,527
00287YBV0 ABBV 2.95 11/21/26	5,000,000	4,666,650	5,098,813	-432,163
00724FAC5 ADBE 3 1/4 02/01/25	10,000,000	9,720,700	10,321,438	-600,738
023135CF1 AMZN 3.3 04/13/27	4,000,000	3,802,880	3,993,905	-191,025
031162CR9 AMGN 3.15 02/21/40	1,000,000	740,660	996,721	-256,061
031162CS7 AMGN 3 3/8 02/21/50	1,000,000	694,900	999,664	-304,764
035240AT7 ABIBB 4 1/2 06/01/50	1,000,000	887,070	1,218,804	-331,734
037833CX6 AAPL 3 06/20/27	5,000,000	4,721,900	4,995,599	-273,699
126408GU1 CSX 5 1/2 04/15/41	2,000,000	1,985,720	2,638,020	-652,300
149123CJ8 CAT 3 1/4 04/09/50	2,000,000	1,514,460	1,953,008	-438,548
166764CA6 CVX 3.078 05/11/50	2,000,000	1,425,500	1,892,112	-466,612
23331ABQ1 DHI 1.3 10/15/26	5,000,000	4,406,650	4,997,500	-590,850
260543CE1 DOW 5 1/4 11/15/41	1,000,000	936,270	1,298,168	-361,898
29157TAD8 EMORYU 2.143 09/01/30	5,000,000	4,159,400	5,111,275	-951,875
29250NBL8 ENBCN 2 1/2 02/14/25	2,000,000	1,907,960	1,999,320	-91,360
29379VBX0 EPD 2.8 01/31/30	1,500,000	1,302,510	1,499,238	-196,728
30231GAF9 XOM 2.709 03/06/25	10,000,000	9,620,800	9,953,396	-332,596
36962G3P7 GE 5 7/8 01/14/38	2,000,000	2,116,700	2,637,044	-520,344
37045XBQ8 GM 4 10/06/26	5,000,000	4,757,000	5,260,158	-503,158
37045XD52 GM 3.1 01/12/32	4,000,000	3,230,040	3,996,519	-766,479
406216BG5 HAL 3.8 11/15/25	4,009,000	3,873,255	4,156,558	-283,302
406216BJ9 HAL 4.85 11/15/35	2,000,000	1,866,420	2,317,200	-450,780
437076CK6 HD 2 3/4 09/15/51	4,000,000	2,581,360	3,132,833	-551,473
501044DN8 KR 3.95 01/15/50	2,000,000	1,556,340	2,020,297	-463,957
501044DP3 KR 2.2 05/01/30	2,000,000	1,644,160	1,997,123	-352,963
539830BH1 LMT 3.55 01/15/26	2,488,000	2,406,518	2,489,037	-82,519
539830BQ1 LMT 2.8 06/15/50	2,000,000	1,349,660	1,774,604	-424,944
539830BR9 LMT 3.9 06/15/32	5,000,000	4,616,800	4,996,141	-379,341
565849AE6 MRO 6.6 10/01/37	2,000,000	2,029,360	2,593,354	-563,994
565849AP1 MRO 4.4 07/15/27	5,000,000	4,781,500	5,330,903	-549,403
58013MFC3 MCD 4.45 03/01/47	5,000,000	4,350,550	5,072,410	-721,860
66989HAN8 NOVNVX 3.1 05/17/27	5,000,000	4,749,650	4,983,820	-234,170
69371RR73 PCAR 2.85 04/07/25	5,000,000	4,802,150	4,999,271	-197,121
742718FW4 PG 2.3 02/01/32	5,000,000	4,277,250	4,996,981	-719,731
822582BE1 RDSALN 4 1/8 05/11/35	5,000,000	4,577,950	5,254,603	-676,653
87612EBN5 TGT 2.95 01/15/52	2,000,000	1,339,800	1,841,067	-501,267
911312BM7 UPS 3.05 11/15/27	5,000,000	4,679,550	4,925,306	-245,756
913017BT5 RTX 4 1/2 06/01/42	1,000,000	876,090	1,228,632	-352,542
92343VFU3 VZ 2 7/8 11/20/50	5,000,000	3,084,200	4,988,168	-1,903,968
92826CAD4 V 3.15 12/14/25	5,000,000	4,789,050	4,977,184	-188,134
94106BAA9 WCNCN 2.6 02/01/30	5,000,000	4,281,000	4,999,710	-718,710

Local Authority	5,000,000	3,382,100	5,334,229	-1,952,129
913366KB5 CA UNVHGR 3.01 05/15/2050	5,000,000	3,382,100	5,334,229	-1,952,129
MBS Passthrough	145,187,302	131,501,322	145,068,970	-13,567,648
31283GJE8 FG G00261	525	525	525	-2
3128F4LD1 FG D64824	7,237	7,193	7,237	-45
3128FBVU6 FG D70627	2,083	2,121	2,083	38
31292GMF0 FG C00358	897	900	897	3
31292GMH6 FG C00360	520	519	520	0
31296W5X1 FG A20862	44,136	43,936	44,113	-177
31296WKH9 FG A20296	75,071	74,938	75,023	-85
31298QVK1 FG C54218	1,533	1,561	1,533	28
3132AC2W9 FR ZT0789	2,757,264	2,590,340	2,862,996	-272,657
3132DNGY3 FR SD1115	4,793,714	4,451,970	4,793,714	-341,744
3132DNYV9 FR SD1624	3,756,322	3,681,684	3,731,357	-49,673
3132DP4F2 FR SD2622	6,494,647	6,319,227	6,463,189	-143,962
31334WD81 FR QA0127	3,124,103	2,833,905	3,175,312	-341,407
31335GH01 FG C80239	511	511	511	0
31335H4Q3 FG C90831	6,517	6,384	6,517	-134
3133B3XC6 FR OD6075	7,440,123	6,194,200	7,320,983	-1,126,783
3133BH2A3 FR QE7969	4,575,573	4,344,415	4,542,127	-197,712
3133KGLL0 FR RA1231	3,278,748	2,859,921	3,302,384	-442,463
3133KJMD1 FR RA3056	4,159,909	3,615,085	4,311,906	-696,821
3133KN7E7 FR RA7193	4,660,345	4,185,362	4,621,288	-435,926
3133KQWT5 FR RA8758	4,818,876	4,767,459	4,817,400	-49,492
31380HBM8 FN 440244	3,670	3,733	3,670	62
31384CXX5 FN 520082	29,191	29,122	29,191	-69
31402CYK2 FN 725314	119,565	119,207	119,492	-285
3140FXK66 FN BF0294	4,326,559	3,924,449	4,420,621	-496,172
3140H6J91 FN BJ4787	4,643,587	4,171,473	4,914,250	-742,777
3140JXTD0 FN B03247	5,820,894	5,081,873	5,893,674	-811,801
3140L0SJ7 FN BR2320	8,093,633	6,482,191	8,339,660	-1,857,469
3140QB4R6 FN CA4431	2,022,236	1,832,550	2,050,933	-218,382
3140QCHG4 FN CA4730	4,735,097	3,965,786	4,716,087	-750,301
3140QHGH2 FN CA9199	3,681,483	3,081,917	3,786,417	-704,500
3140QKGG7 FN CB0198	4,003,167	3,470,065	4,191,354	-721,289
3140QN7A4 FN CB3588	2,809,016	2,551,907	2,709,924	-158,018
3140X4V94 FN FM1539	3,800,593	3,638,802	3,998,447	-359,645
3140X5FC2 FN FM1962	1,371,720	1,244,163	1,393,534	-149,371
3140X5FK4 FN FM1969	2,850,795	2,485,751	2,876,214	-390,464
3140XFLN9 FN FS0332	4,424,213	3,872,381	4,374,846	-502,465
3140XGGA1 FN FS1092	4,500,521	4,050,649	4,476,021	-425,372
3140XGLU1 FN FS1238	3,491,204	3,169,734	3,489,488	-319,754
3140XGXE4 FN FS1576	4,537,310	4,151,866	4,342,678	-190,813
3140XHYN1 FN FS2516	4,754,695	4,396,143	4,607,576	-211,433
3140XKNU0 FN FS4002	9,940,702	9,638,406	9,870,379	-231,973
3140XKNW9 FN FS4271	9,624,460	9,522,152	9,653,033	-130,881
3617XBFP7 G2 C16474	5,596,612	4,627,111	4,722,141	-95,030
36206PV74 GN 417426	6,068	6,086	6,069	18
36211EK56 GN 5017075	1,656	1,654	1,656	-2



(holdings continued)

☐ Sovereign		5,000,000	4,337,350	5,325,971	-988,621
	☐ 698299BK9 PANAMA 3.16 01/23/30	5,000,000	4,337,350	5,325,971	-988,621
☐ Treasury		135,500,000	120,207,395	136,102,334	-15,894,939
	☐ 912810QK7 T 3 7/8 08/15/40	2,000,000	1,910,400	2,561,968	-651,568
	☐ 912810QW1 T 3 05/15/42	3,000,000	2,475,120	2,899,978	-424,858
	☐ 912810QZ4 T 3 1/8 02/15/43	13,000,000	10,864,620	13,550,068	-2,685,448
	☐ 912810RH3 T 3 1/8 08/15/44	10,000,000	8,274,200	10,428,101	-2,153,901
	☐ 912810RJ9 T 3 11/15/44	10,000,000	8,084,800	10,346,950	-2,262,150
	☐ 912810RM2 T 3 05/15/45	3,000,000	2,417,340	3,321,389	-904,049
	☐ 912810SC3 T 3 1/8 05/15/48	5,000,000	4,089,050	4,769,312	-680,262
	☐ 912810SN9 T 1 1/4 05/15/50	3,000,000	1,582,140	1,684,994	-102,854
	☐ 912810TC2 T 2 11/15/41	5,000,000	3,511,550	4,917,385	-1,405,835
	☐ 912810TM0 T 4 11/15/42	10,000,000	9,546,900	10,005,286	-458,386
	☐ 912810TN8 T 3 5/8 02/15/53	9,000,000	8,166,060	9,049,558	-883,498
	☐ 912810TQ1 T 3 7/8 02/15/43	5,000,000	4,682,050	5,065,895	-383,845
	☐ 9128285J5 T 3 10/31/25	7,000,000	6,732,320	7,027,471	-295,151
	☐ 912828X88 T 2 3/8 05/15/27	17,500,000	16,267,475	17,582,720	-1,315,245
	☐ 91282CEN7 T 2 3/4 04/30/27	10,000,000	9,433,200	10,004,747	-571,547
	☐ 91282CEV9 T 3 1/4 06/30/29	3,000,000	2,846,370	3,027,496	-181,126
	☐ 91282CFG1 T 3 1/4 08/31/24	10,000,000	9,778,500	9,977,532	-199,032
	☐ 91282CGM7 T 3 1/2 02/15/33	10,000,000	9,545,300	9,881,482	-336,182
☐ Utility		25,000,000	20,530,060	28,429,105	-7,899,045
	☐ 30161MAS2 CEG 3 1/4 06/01/25	7,000,000	6,695,920	7,186,301	-490,381
	☐ 637432NY7 NRUC 2 3/4 04/15/32	5,000,000	4,125,500	4,984,356	-858,856
	☐ 665772CQ0 XEL 3.6 09/15/47	5,000,000	3,772,800	6,308,990	-2,536,190
	☐ 695114CT3 BRKHEC 4 1/8 01/15/49	8,000,000	5,935,840	9,949,457	-4,013,617
<b>Grand Total</b>		<b>744,026,886</b>	<b>667,855,305</b>	<b>758,285,507</b>	<b>-90,430,202</b>

\*excludes cash, market value based on custodian pricing

Transactions PSPF Bond Portfolio YTD 8/14/23													
Trade Date	Trade	Par Amount	Issuer	Coupon	Maturity Date	Asset Type	Price	Yield	Spread	Moody's	S&P	Fitch	Note
8/2/2022	Sell	-\$1,000,000.00	NOVARTIS CAPITAL CORP.	2.400	9/21/2022	CORP NOTES/MTN'S	99.95	2.74	10 bp OAS	A1	AA-	AA-	IPS Compliance , estimated loss \$380
8/2/2022	Sell	-\$9,518,391.35	FED HOME LN MTG CORP	3.320	2/25/2023	FED HOME LN MTG CORP	99.83	3.22	+35.3i, +32.3OAS			AAA	Selling under 1yr bonds for PSPF IPS compliance
8/19/2022	Sell	-\$5,000,000.00	AMAZON.COM, INC.	4.800	12/5/2034	CORP NOTES/MTN'S	107.55	3.99	+100.9n/+89oas	A1	AA	AA-	redce sprd rsk/consmr cycl ow swap Tsy to redce uw to 7/30yr key rates
8/19/2022	Buy	\$5,000,000.00	U.S. TREASURY	3.125	5/15/2048	U.S. TSY NOTE/BONDS	95.21	3.41	8 OAS	AAA	AA	AAA	Cover duration gap
8/19/2022	Buy	\$3,000,000.00	U.S. TREASURY	3.250	6/30/2029	U.S. TSY NOTE/BONDS	101.06	3.08	0.4 OAS	AAA	AA	AAA	Cover duration gap
8/29/2022	Buy	\$5,000,000.00	U.S. TREASURY	3.250	8/31/2024	U.S. TSY NOTE/BONDS	99.67	3.42		AAA	AA+	AAA	invest excess cash and capitalize on rising rates
8/30/2022	Buy	\$4,000,000.00	FED HOME LN MTG CORP	3.303	7/25/2024	FED HOME LN MTG CORP	99.08	3.75	+30j, +38OAS			AAA	improve yield by spending excess cash in a short duration bond
9/1/2022	Buy	\$5,000,000.00	U.S. TREASURY	3.250	8/31/2024	U.S. TSY NOTE/BONDS	99.50	3.51		AAA	AA+	AA	improve yield by spending excess cash in a short duration bond
9/1/2022	Buy	\$4,876,692.50	FED HOME LN MTG CORP	4.500	8/1/2052	FHLMC PC	99.21	4.63	+129i,+38.5oas	Aaa	AA+	AAA	Increase portfolio yield and increase allocation to MBS
9/28/2022	Buy	\$4,000,000.00	FED HOME LN MTG CORP	5.000	9/1/2052	FHLMC PC	99.28	5.12	+130i,+66.2oas	Aaa	AA+	AAA	Increase portfolio yield and increase allocation to MBS
10/4/2022	Buy	\$5,025,000.00	FED HOME LN MTG CORP	2.859	10/25/2034	FED HOME LN MTG CORP	84.79	4.52	+90N/+80OAS	Aaa	AA+	AAA	invest excess cash/increase duration
11/17/2022	Buy	\$5,000,000.00	ABBVIE INC	4.450	5/14/2046	CORP NOTES/MTN'S	86.15	5.51	+158.3n/+146oas	Baa1	BBB+		invest cash from rebalancing inflow
11/17/2022	Buy	\$5,000,000.00	PHILLIPS PETROLEUM	4.875	11/15/2044	CORP NOTES/MTN'S	91.88	5.52	+137.1n/+144oas	A3	BBB+		invest cash from rebalancing inflow
11/17/2022	Buy	\$3,912,000.00	CAPITAL ONE PRIME AUTO RECV	3.660	5/17/2027	ABS AUTOMOBILES	96.77	5.21	+56.3/N (Swaps),+83i,+92.5oas	Aaa	AAA		invest cash from rebalancing inflow
11/17/2022	Buy	\$5,000,000.00	Toyota Auto Owners Trst (TAOT)	3.760	4/15/2027	ABS AUTOMOBILES	97.09	5.21	+53.6/N (Swaps),+81i,+91oas		AAA	AAA	invest cash from rebalancing inflow
11/17/2022	Buy	\$3,429,000.00	NISSAN MOTOR/RECV/ACCEPT	4.450	11/15/2029	ABS AUTOMOBILES	97.79	5.19	+95.8/N (Swaps),+105i,+113oas	Aaa	AAA		invest cash from rebalancing inflow
11/18/2022	Buy	\$5,000,000.00	GOVT NATIONAL MTG ASSOC	5.000	10/20/2052	CMO PLAN AMORT CLASS	98.90	5.13	+116i,+79.4oas	Aaa	AA+	AAA	invest cash from rebalancing inflow
11/25/2022	Buy	\$10,000,000.00	U.S. TREASURY	4.000	11/15/2042	U.S. TSY NOTE/BONDS	100.05	4.00		AAA	AA+	AAA	Add 0.22 year duration to cover market risk
1/4/2023	Sell	-\$3,912,000.00	CAPITAL ONE PRIME AUTO RECV	3.660	5/17/2027	ABS AUTOMOBILES	97.66	4.84	+26.5/N (Swaps),+54i,+51.4oas	Aaa	AAA		Raise cash
1/4/2023	Sell	-\$5,000,000.00	Toyota Auto Owners Trst (TAOT)	3.760	4/15/2027	ABS AUTOMOBILES	97.95	4.85	+22.5/N (Swaps),+52i,+49.4oas		AAA	AAA	Raise cash
1/4/2023	Sell	-\$3,429,000.00	NISSAN MOTOR/RECV/ACCEPT	4.450	11/15/2029	ABS AUTOMOBILES	99.22	4.74	+61.9/N (Swaps),+68.5i,+64.4oas	Aaa	AAA		Raise cash
1/9/2023	Buy	\$4,750,000.00	GM CONSMR AUTO RECV TST	4.660	2/16/2028	ABS AUTOMOBILES	99.98	4.71	+44.9/N,+65i, +68.4oas	Aaa			Swap into new issue ABS for spread pickup
1/12/2023	Buy	\$4,872,203.90	FED NAT'L MTG ASSN	4.000	7/1/2052	FNMA PC	96.80	4.47	+103i,+42.3oas	Aaa	AA+	AAA	Increase underallocation to MBS
1/12/2023	Buy	\$4,700,156.65	FED NAT'L MTG ASSN	3.500	4/1/2052	FNMA PC	95.56	4.19	+70i,+43.6oas	Aaa	AA+	AAA	Increase underallocation to MBS
2/2/2023	Buy	\$2,901,085.92	FED NAT'L MTG ASSN	3.500	5/1/2032	FNMA PC	96.38	4.02	+64.2i, +27.6oas	Aaa	AA+	AAA	reduce underweight to MBS



Trade Date	Trade	Par Amount	Issuer	Coupon	Maturity Date	Asset Type	Price	Yield	Spread	Moody's	S&P	Fitch	Note
3/9/2023	Buy	\$5,000,000.00	FED HOME LN MTG CORP	5.500	3/1/2053	FHLMC PC	99.97	5.51	+152.5j, +68.7oas	Aaa	AA+	AAA	Increase underallocation to MBS
3/13/2023	Buy	\$5,000,000.00	U.S. TREASURY	3.875	2/15/2043	U.S. TSY NOTE/BONDS	101.34	3.78		Aaa	AA+	AAA	cover duration gap with benchmark Pick up 11 DC
3/14/2023	Buy	\$9,988,258.20	FED HOME LN MTG CORP	5.000	2/1/2053	FED NATL MTG ASSOC	99.28	5.12	+143i, +73.9oas	Aaa	AA+	AAA	Increase underallocation to MBS
3/16/2023	Buy	\$4,000,000.00	U.S. TREASURY	3.625	2/15/2053	U.S. TSY NOTE/BONDS	99.12	3.67		Aaa	AA+	AAA	increase duration to neutral with benchmark
4/5/2023	Sell	-\$5,000,000.00	PHILLIPS PETROLEUM	4.875	11/15/2044	CORP NOTES/MTN'S	94.91	5.27	106.2 bp (N)	A3	BBB+		Realise gain about 145,100 , DC-10
4/6/2023	Buy	\$5,000,000.00	U.S. TREASURY	3.625	2/15/2053	U.S. TSY NOTE/BONDS	101.70	3.53		AAA	AA+	AAA	Add 13 DC to get duration neutral
5/18/2023	Sell	-\$4,000,000.00	FED HOME LN MTG CORP	3.303	7/25/2024	AGENCY CMBS - FHMS	97.87	5.30	+34.9j/+25.9OAS	Aaa		AAA	Swap out of seas ACMBS, incr dur by buy longer MBS, incr yld
5/18/2023	Buy	\$10,000,000.00	U.S. TREASURY	3.500	2/15/2033	U.S. TSY NOTE/BONDS	98.79	3.65		Aaa	AA+	AAA	invest cash from qtr rebal, incr 10yr key rate duration
5/19/2023	Buy	\$9,731,362.50	FED NAT'L MTG ASSN	5.500	4/1/2053	FNMA PC	100.30	5.45	+175i, +95.9oas	Aaa	AA+	AAA	Incr alloc to MBS - curr underwt and improve portfolio yield
5/19/2023	Buy	\$5,618,719.62	GOVT NATIONAL MTG ASSN	2.500	2/20/2052	GNMA PASS THROUGH	84.38	4.81	+112.6j, +77.6oas	Aaa	AA+	AAA	Incr alloc to MBS - curr underwt, improve portfolio yield
7/19/2023	Sell	-\$5,000,000.00	ABBVIE INC	4.450	5/14/2046	CORP NOTES/MTN'S	89.10	5.28	+124.0n/+129oas	Baa1	BBB+		hold/sell credit, raise cash, red corp alloc, swap into MBS/Tsy
7/19/2023	Sell	-\$4,000,000.00	AMAZON.COM, INC.	3.000	4/13/2025	CORP NOTES/MTN'S	96.82	4.94	+17.9n/+8oas	A1	AA	AA-	hold/sell credit, raise cash, reduce corp alloc and swap into MBS/Tsy
7/19/2023	Buy	\$3,000,000.00	U.S. TREASURY	1.250	5/15/2050	U.S. TSY NOTE/BONDS	56.12	3.90		Aaa	AA+	AAA	add duration lost from corporate sells
7/19/2023	Buy	\$6,494,647.10	FED HOME LN MTG CORP	5.000	2/1/2053	FHLMC PC	99.52	5.07	+132.5j, +48.5oas	Aaa		AAA	Increase allocation to MBS and target duration/yield combo

# PSPF Community Investment Project

8/14/2023



# HB22-1146 Working Group Recommendation

#2: Impact Investing The legislature should consider allowing for opportunities to pursue impact investing related to the Land Board and permanent fund.

1. The Land Board and the Public School Fund Investment Board (PSFIB) should create mission statements that encourage investments to be made for the intergenerational benefit of the public education of school children;
2. The Land Board and the PSFIB should explore education impact investment opportunities within the State School Lands Trust and the Public School Fund.



# Working Group Discussion

“Investing the fund in ways that positively impact Coloradans dramatically amplifies the benefit the ‘Trust’ is providing. Instead of focusing on the 4% of the fund value that might be distributed each year, focusing instead on the 96% of the fund that is invested could be a game changer for Colorado kids.”

“A mission statement for the permanent fund’s investment strategy should include impact investment provisions that acknowledge the opportunity to help address major social issues impacting Colorado while also seeking financial returns. The treasurer and the [PSFIB] should build out an impact investment strategy in order to identify impact goals, performance goals, identify metrics to measure the impact of the fund's investments, risk management, etc.”

Changes to limitations on the overall investment portfolio of the permanent fund could be necessary in conjunction with a successful impact investment strategy in order to allow for future growth of the fund corpus and a balanced investment approach.

# PSPF Community Investment Project

- Project partners:
  - Gary Community Ventures
  - The Donnell-Kay Foundation
  - Social Impact Solutions
- Goal: Create materials and analysis that will help inform the PSFIB as they consider the Working Group's recommendation on impact investing
- Components:
  - Example mission statement
  - Example portfolio allocation
  - Example impact investing principals, strategies and risk management
  - Modelling
  - Strategy for implementation

# The Opportunity

Investing the PSPF in Colorado communities while still earning returns comparable to current investments, is a unique opportunity to significantly amplify benefit while still optimizing return.



# PSPF Community Investment Mission Statement

The mission of the Colorado Public School Permanent Fund (PSPF) is to support Colorado children. Strategically invested capital can achieve both social outcomes and robust financial returns. Therefore, the fund's intergenerational mission is served by investing a portion of its corpus in a way that advances clear, meaningful, and measurable outcomes through the investment portfolio. Investments should be aligned with the fund's mission and seek to advance the benefit of Colorado school children.

# Community Investment Principles\*

---

Return

---

Risk

---

Impact

---

Additionality

---

Leverage

---

Mission Alignment

---

Intersectionality

---

Scale

---

Geographic Equity

---

Transparency

---

\*The project began by engaging leading experts in Colorado in a series of more than a dozen meetings. These Investment Principles were the product of those meetings.

# Sample Allocation to the CO Children's Portfolio

The PSFIB will need time to develop expertise and capacity, so allocation to the Colorado Children's Portfolio should start slowly and be built from new revenues into the fund.

Depending on the success of the CPP, the total allocation could reach 30% in order to maximize the support provided by the PSPF to Colorado Children.

- Year 1-2: 5%
- Year 3: 10%
- Year 4: 15%
- Year 5: 20%
- Year 6: 25%
- Year 7: 30%



# Allocation to the CO Children's Portfolio



Allocation to CCP phased over 7 years at generally 5% increase per year



Slower pace in years 1-2 to allow for building expertise



Last year the PSPF received ~\$90M of revenue, 5% of current value is \$65M



Annual increases in the CCP will not impact current assets under management in the existing portfolios



Overall, the CCP allocation should reduce total equities by 15 percentage points (50% of the total annual target), and total fixed income by 15 percentage points (50% of the total annual target)



Overall, the return target for the CCP should be the 5-yr blended return of the balance of the PSPF assets

# Allocation within the CO Children's Portfolio



1/2 (50%) Market Rate

Risk-adjusted, market-rate returns (10%-15%)  
Fund-level investments  
Values aligned



1/3 (33.3) Mission-Driven

Lower risk  
Target return at inflation (or 5-year avg market duration fixed income portfolio return)—3%-5%  
Broadly mission related



1/6 (16.6%) Impact First

Catalytic  
High impact  
Mission exclusive  
Lower return (0%-2%)

# Strategies

## Market Rate

- Mission Colorado Fund I
- Investing alongside the State's VCA
- Ed tech
- Middle Income Housing Authority bonds (target market=high yield debt funds)
- Must have a CO presence
- Fund-level investments
- Scale
- Low transaction costs



# Strategies

## Mission-Driven

- BEST COPs
  - District/charter school bonds or COPs
  - Charter school CECFA bonds
  - Purchase CHFA mortgages
  - Invest in CDFIs
  - Most of the above options are low risk and have a solid secondary market
-

# Strategies

## Impact First

- Focus on teacher housing
  - Middle Income Housing Authority bonds
  - Teacher housing mortgage capital
  - Teacher housing DPA
- First loss capital and other credit enhancement options (guarantees, LOCs, etc.)
- Impact Bonds







# What's Next

- We hope to engage the PSFIB in discussions about implementing the working group recommendation
  - The August PSFIB meeting
  - Individually
- We plan to engage the Governor's office to gauge support/receive feedback
- We plan to engage the education organizations
- Modelling
  - Children's portfolio financial performance
  - Impact performance
- What else? We would like to be a free resource to the PSFIB and are happy to take on additional analysis, etc. that would be helpful to you.