

PUBLIC SCHOOL FUND INVESTMENT BOARD
MEETING AGENDA, NOVEMBER 15, 2021

VIDEO CONFERENCE VIA ZOOM LINK:

<https://us02web.zoom.us/j/82792847379?pwd=b25lK3pvNTFsQ2V3S1lSOGovSTI3UT09>

Meeting ID: 827 9284 7379

Passcode: 5n9QuH

One tap mobile

+12532158782,,82792847379#,,, *155033# US

+13462487799,,82792847379#,,, *155033# 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 August 16, 2021 | D. Young 12:03 |
| IV. | Public School Permanent Fund Financial Report FY 2020-2021 | E. Rothaus 12:05 (5 min) |
| V. | Introduction of new Portfolio Administrator | S. Zimbelman 12:10 (5 min) |
| VI. | Conflict of Interest Policy Acknowledgement & Disclosure | S. Zimbelman 12:15 (10 min) |
| VII. | RFP Process Kickoff – Investment Consultant
a. Callan contract end date – June 30, 2022 | S. Zimbelman 12:25 (5 min) |
| VIII. | Market Update (Quarter 3 – Ending Sept. 30, 2021) | Callan 12:30 (15 min) |
| IX. | Performance Report (Fiscal Year Quarter 1 – Ending 9/30/21) | Callan 12:45 (15 min) |
| X. | Rebalancing Report | S. Zimbelman 1:00 (5 min) |
| XI. | Review 2022 Board Meeting Calendar | S. Zimbelman 1:05 (5 min) |
| XII. | Fund Manager Presentation: MacKay Shields | MacKay Shields 1:10
(20 minutes) |
| XIII. | Fund Manager Presentation: Spectrum Preferred Securities Fund | Steve Solmonson 1:30
(20 minutes) |

XIV.	Other Business	1:50 (5 min)
------	----------------	--------------

XV.	Public Comment	1:55 (5 min)
-----	----------------	--------------

XVI.	Board Adjournment	2:00
------	-------------------	------

Future Meeting Dates:

February 21, 2022	Noon
-------------------	------

May 16, 2022	Noon
--------------	------



Public School Fund Investment Board Meeting
Meeting Minutes August 16, 2021
Held Via Zoom

Board Members in

Attendance:

Dave Young
Peter Calamari
Jerome DeHerrera
Wendy Dominguez
Christine Scanlan

12:01 – 12:02 PM Welcome, roll call

12:02 – 12:03 PM Meeting minutes from the May 17, 2021 Board Meeting

Mr. DeHerrera made a motion to approve the May 17, 2021 Meeting minutes. Ms. Scanlan seconded the motion. The motion passed at 12:03 pm.

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

*Mr. Calamari joined at 12:05 pm

12:03 – 12:14 PM Votes on Contract Extensions

The contract with Janus Henderson expires on October 11, 2021 and the contract with Parametric expires on November 1, 2021. Grant Sullivan, Assistant Attorney General, reviewed the fees for both companies. Ms. Dominguez asked the representatives of Callan whether they believe the fees charged by both are reasonable. Callan replied in the affirmative and reminded the Board that Callan negotiated these fees on behalf of the Board when each company was retained. There was a brief discussion on fees included in the reports and if they could be added. Callan explained that it would be difficult to add the fees into the report but could add a fee summary page.

Ms. Dominguez made a motion to extend the contracts for Parametric and Janus Henderson. Mr. Calamari seconded the motion. The motion passed at 12:13 pm.

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

12:14 – 12:19 PM Update on the Portfolio Administrator

The Treasurer's office has received applicants and will start going through the interview process. Bill Ryan, Callan representatives, and Treasury's Controller have volunteered to sit on the interviews.

12:19 – 12:47 PM Market Update Quarter 2 – Performance Report.

Presentation by Janet Becker-Wold from Callan. This is a consolidated report of the Market update and the Performance Report.

12:47 – 1:02 PM Rebalancing Report

Presentation by Alex Browning from Callan. There was a discussion on whether there is room to increase the equity portfolio allocation. Callan identified volatility concerns in the current market that led to a determination that the current allocation is appropriate for the current time.

1:02 – 1:06 PM Update on Mackay Shields

Callan provided an update on MacKay Shields, the high yield manager. Their head of credit researchers left, and they are breaking up their global fixed income team into two teams. Callan is not overly concerned, but will continue to monitor.

1:06 – 1:30 PM Fund Manager Presentation Colorado Department of Treasury

Presentation by Maruti More, CIO at the Colorado Department of Treasury.

1:30 – 2:02 PM Colorado Education Funding

Presentation by Craig Harper from the Colorado Joint Budget Committee Staff.

Next Meeting

- November 15, 2021 at Noon

1:32 – 1:34 Public comments

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

The meeting was adjourned at 2:03 pm.

STATE OF 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, 2021

RE: Public School Fund Investment Board Financial Report FY 2020-2021

Enclosed please find the Public School Permanent Fund Financial Report for FY 2020-2021. 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.

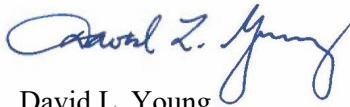
The PSFIB was created in 2016 under § 22-41-102.5, C.R.S. The public purpose for the creation of the PSFIB is to facilitate reasonable growth in the Public School Permanent Fund (the Permanent Fund) through lawful investments authorized under §§ 24-36-109, 111.5, 112, 113, and 22-41-104, C.R.S., and other lawful financial assets as specified in the PSFIB's investment policy.

The Colorado State Constitution, Article IX, § 3 states that the Permanent Fund shall forever remain intact and inviolate. 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 Permanent Fund, either principal or interest and income, can be transferred to any other fund, or used or appropriated.

During FY 2020-2021, the Permanent Fund generated over \$30.3 million in distributable net income. The total market value of the Permanent Fund grew to \$1.33 billion as of June 30, 2021. As required by § 22-41-102, \$21 million was distributed to the state public school fund and \$9.3 million to the public school capital construction assistance fund. In addition, pursuant to HB20-1418, codified at §§ 36-1-116, (1)(a)(II)(C) and (1)(c)(III), C.R.S., the General Assembly made a one-time transfer of \$51,801,308 to the State Public School Fund.

Respectfully submitted on behalf of the Public School Permanent Fund Investment Board.

Sincerely,



David L. Young
State Treasurer

CO PUBLIC SCHOOL PERMANENT FUND
FINANCIAL REPORT FOR FISCAL YEAR ENDED JUNE 30, 2021

Fund Activity	FY End June 30, 2021	FY End June 30, 2020	FY End June 30, 2019
Beginning Fund Value (Cash + Investments)	1,260,932,051	1,148,213,997	1,033,797,715
Transfers to PSPF:			
State Land Board Rents, Royalties, & NSE Funds	515,169	61,534,527	65,778,936
Marijuana Excise Tax Allocation	-	-	5,849,826
Escheats Fund	109,211	158,354	83,706
Realized Gains / (Losses)	7,300,693	8,891,469	256,256
Change in Unrealized Market Gain / (Loss)	64,810,291	42,133,704	42,447,558
Ending Fund Value	1,333,667,415	1,260,932,051	1,148,213,997

Income / Expense Summary	FY End June 30, 2021	FY End June 30, 2020	FY End June 30, 2019
Total Portfolio Earned Income	31,757,543	31,463,648	29,792,092
Total Expenses	(861,651)	(561,082)	(428,146)
Change in Income Receivable	(585,940)	(507,951)	(194,801)
Net Income Available for Distribution	30,309,952	30,394,615	29,169,145

Distribution and Transfer of State Funds by Statute	FY End June 30, 2021	FY End June 30, 2020	FY End June 30, 2019
Distribution of Funds Received from DNR:			
Forest Funds Paid & Payable to Counties	49,050	34,916	41,247
Net SLB Revenues & NSE Funds Transferred to PSPF Corpus	515,169	61,534,527	65,778,937
SLB Revenues Transferred to BEST	57,724,771	69,093,610	74,237,625
SLB Revenues Transferred to the Public School Fund	51,181,308	-	-
Total Funds Received from DNR	109,470,298	130,663,053	140,057,809
Distribution to CDE:			
SLB Revenues Transferred to BEST	57,724,771	69,093,610	74,237,625
SLB Revenues Transferred to the Public School Fund	51,181,308	-	-
PSPF Income Distribution to BEST	9,309,952	9,394,615	8,169,145
PSPF Income Distribution to the Public School Fund	21,000,000	21,000,000	21,000,000
Total Transfers to CDE	139,216,031	99,488,225	103,406,770

Asset Allocation at June 30, 2021	Market Value	Cost	Unrealized Gain / (Loss)
Total Fixed Income	916,216,815	881,580,529	34,636,286
Total Equity	364,406,743	270,593,098	93,813,645
Cash & Cash Equivalents	58,474,816	58,474,816	-
Total Fund Value	1,339,098,374	1,210,648,443	128,449,931

Portfolio Administrator Introduction

Sarah Zimbelman



EDUCATION

University of Denver

Masters of Business Administration (Accounting)

Colorado State University

Bachelor of Science in Business Administration (Finance)

CERTIFICATIONS

Certified Public Accountant

Active license in the State of Colorado

EXPERIENCE

LOCKHEED MARTIN

- 8 years doing corporate finance and accounting, including financial reporting and analysis, budgeting, and proposal work
- Graduate of the Finance Leadership Development Program

HENKLEMAN AND ASSOCIATES (Part-time)

- Provided full cycle accounting services to non-profit organizations in the Denver Metro Area

SFC ENERGY PARTNERS -Private Equity Fund (Part-time)

- Provided full cycle accounting including AP, intercompany billings, monthly reconciliations, state and local tax filings, budget tracking and variance analysis, quarterly and annual financial statement preparation

PINNACLE REAL ESTATE ADVISORS – Commercial Real Estate (Part-time)

- Oversight of all accounting activities with responsibility for budgets, cash flow forecasting, payroll, accounts receivable and payable, and monthly financial statement preparation

DESTINATION PET - Private Equity Backed Vet and Pet Care Company (Part-time)

- Lead the integration of a new P2P platform for the entire business

PERSONAL

- Born and raised in Colorado
- 2 kids, both girls, (2nd Grade & Kindergarten)
- Work as a 1st grade aide on Tuesdays and Thursdays
- Lover of all things outdoors (except for snow): hiking, biking, running
- Lover of all dogs and proud owner of a 75lb Goldendoodle

Conflict of Interest

Purpose:

The Public School Fund Investment Board (“Board”) is governed by Statute (Title 24, article 18 "Standards of Conduct") with regards to conflict of interest. This policy is intended to define conflict of interest for Board members and its staff.

Principles

Each Board member shares the responsibility for maintaining the beneficiaries’ trust. This responsibility for fairness and integrity must be fulfilled through individual compliance with the spirit as well as the letter of the law governing state agencies and by careful and thoughtful adherence to a strict code of ethical behavior. The standards set out in this section are guiding principles, which must be used along with one’s good judgment.

Conflicts of interest arise when a Board member takes part in Board decisions in which the Board member may be unable to remain impartial, maintain objectivity or fulfill the Board member’s duty of loyalty in choosing between the interests of the Board’s beneficiaries and the Board member’s personal interests. In some cases, it may be a simple conflict of loyalties. In others, the person concerned (or a relative or partner etc.) has a financial interest in the decision. Overall, each Board member must act with honesty, fairness and integrity in all aspects of business and personal conduct with full disclosure - erring on the side of caution - in any situations that are, or may become, conflicts of interest.

Board members are expected to play active roles in their communities. Combined with friendships, family involvement and business relationships, potential conflicts of interest or the appearance of such conflicts will inevitably arise from time to time. The Board will address potential conflicts in an open and appropriate manner that includes full disclosure, abstention from participation, and proper recording in the Board’s records.

Guidelines

With these principles in mind, the Board has adopted the following guidelines with respect to staff and Board members:

- Board members and staff shall not knowingly take any action, make any statement, take advantage of a vendor relationship or otherwise influence the conduct of the Board’s affairs in such a way as to confer a financial benefit upon him/her or a member of his/her family or business interest.

- Board members shall not perform an official act that may have a direct economic benefit on a business or other entity in which the Board member has a direct or substantial financial interest.
- In the event that there comes before the Board a matter for consideration or decision that raises a conflict of interest for any Board member, the Board member shall disclose the conflict of interest as soon as he/she becomes aware of it and shall abstain from further participation and voting on the matter. Such disclosure and abstention shall be recorded in the meeting minutes and the presence of the Board member with a conflict of interest shall not be counted toward a quorum with respect to that matter.
- In the event that a Board member is in doubt regarding a potential conflict of interest, the Board member shall seek consultation from the Board chair and the Assistant Attorney General representing the Board before engaging in discussion and/or voting.
- Board members and staff shall annually disclose that they have adhered to the Board's conflict of interest policies, including full disclosure of their dealings with the Board or its vendors (other than compensation and reimbursement of approved expenses).

November 2021



Colorado Public School Permanent Fund

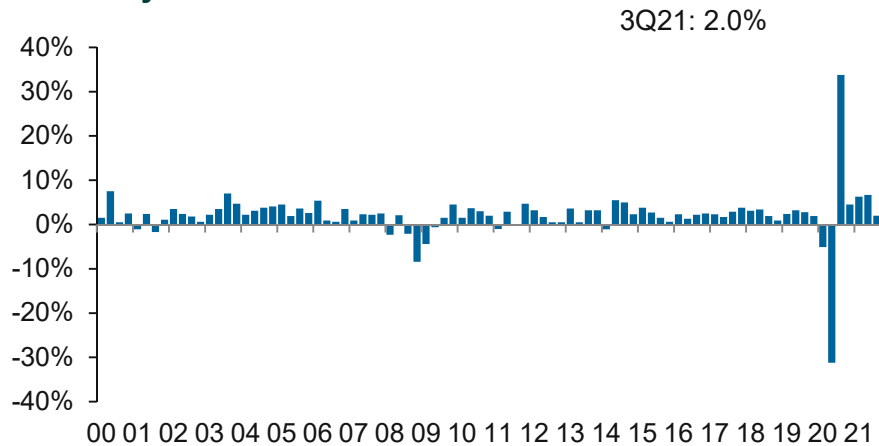
Third Quarter 2021
Performance Review

Janet Becker-Wold, CFA
Senior Vice President & Manager

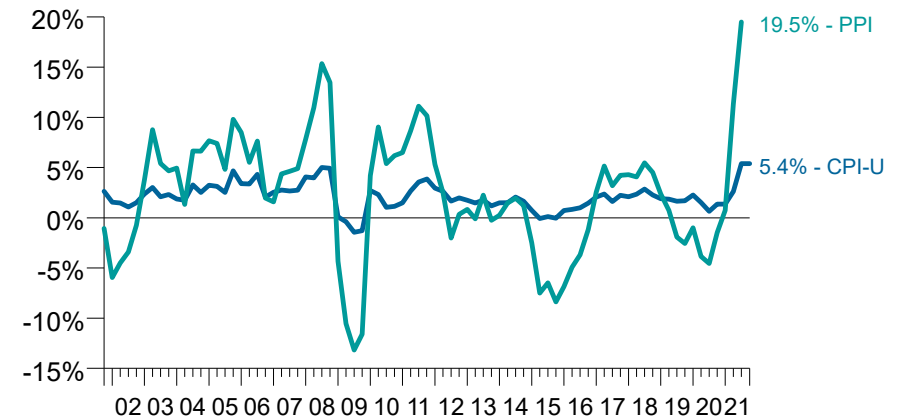
Alex Browning
Senior Vice President

U.S. Economy—Summary

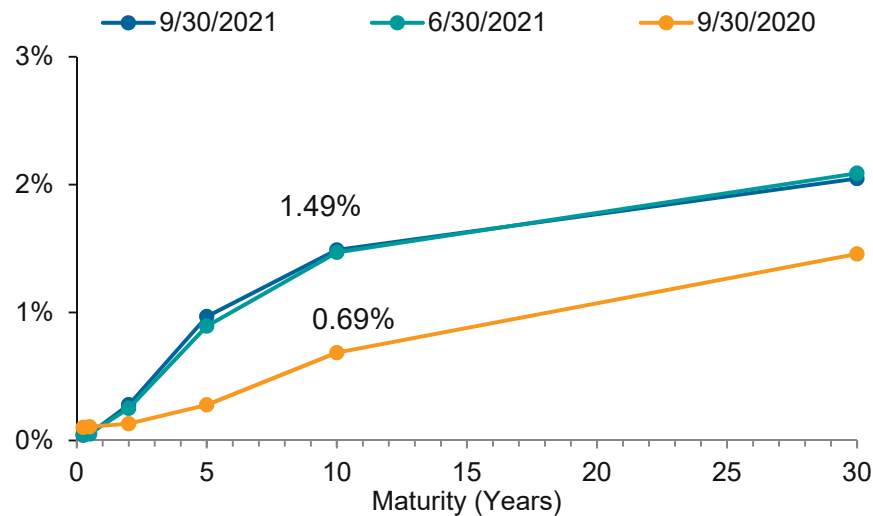
Quarterly Real GDP Growth



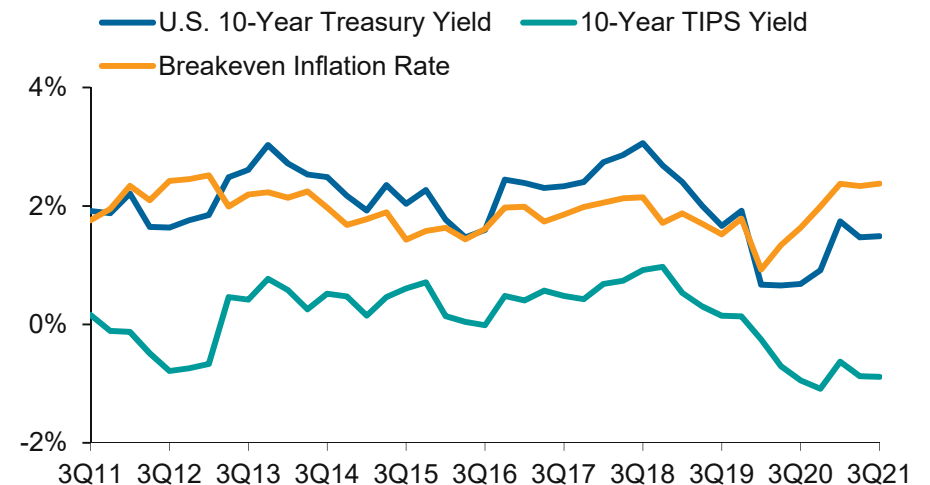
Inflation Year-Over-Year



U.S. Treasury Yield Curves



Historical 10-Year Yields



Sources: Bloomberg, Bureau of Labor Statistics, Callan.

Contributors to Recent Inflation: Primary Categories

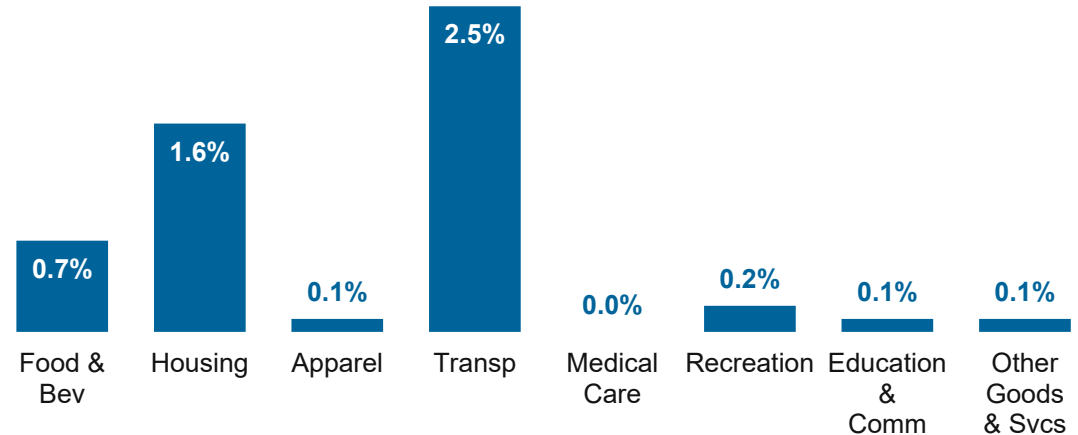
Transportation, including new and used cars, parts, and gasoline, has seen a spike in inflation with year-over-year prints that are more than three times higher than any other category.

- With a meaningful 15% weight in the index, transportation makes a significant contribution to headline CPI.

Housing and food and beverage have also seen big inflation increases.

- While inflation within these categories has been far lower than transportation, their large index weights make them meaningful contributors to overall inflation.

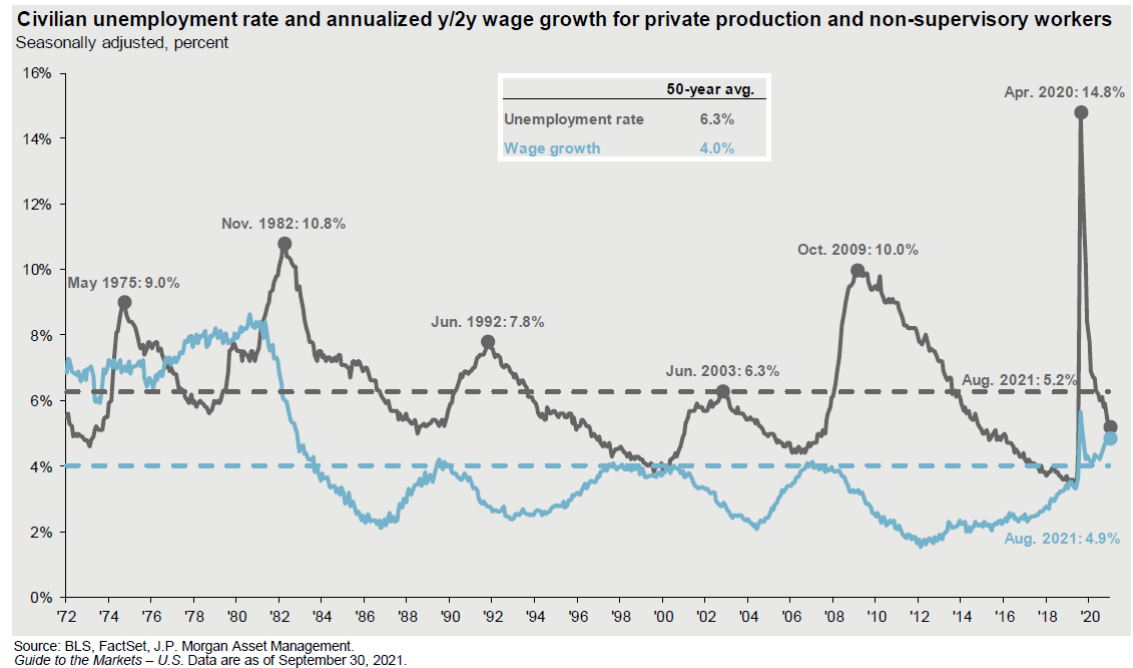
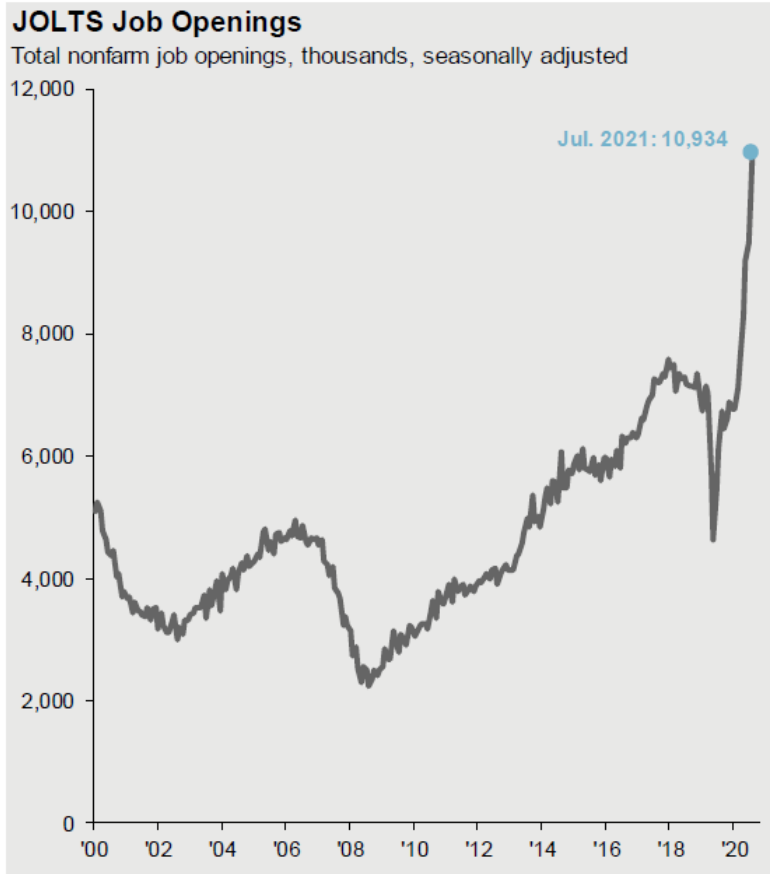
Contribution to September 2021 YoY Inflation



Primary Category	Primary Category Weight	Year-over-Year Change								
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Items	100.0%	1.4%	1.7%	2.6%	4.2%	4.9%	5.3%	5.3%	5.2%	5.4%
Food & Bev	15.2%	3.7%	3.5%	3.4%	2.3%	2.1%	2.4%	3.4%	3.7%	4.5%
Housing	42.4%	1.8%	1.8%	2.1%	2.6%	2.9%	3.1%	3.3%	3.5%	3.9%
Apparel	2.7%	-2.6%	-3.6%	-2.5%	1.9%	5.6%	4.9%	4.2%	4.2%	3.4%
Transportation	15.2%	-1.4%	0.6%	5.9%	14.8%	19.7%	21.2%	19.1%	17.6%	16.5%
Medical Care	8.9%	1.9%	2.0%	1.8%	1.5%	0.9%	0.4%	0.3%	0.4%	0.4%
Recreation	5.8%	0.1%	0.8%	1.1%	2.1%	1.6%	2.4%	3.5%	3.4%	3.5%
Education & Communication	6.8%	1.7%	1.7%	1.5%	1.7%	1.9%	2.1%	1.1%	1.2%	1.7%
Other Goods & Svcs	3.2%	2.1%	2.1%	2.4%	2.7%	2.7%	2.5%	2.9%	3.5%	3.4%

Source: U.S. Bureau of Labor Statistics

Employment and Wage Inflation



	50-yr. avg.	Jul. 2021	Aug. 2021
Headline CPI	3.9%	5.3%	5.2%
Core CPI	3.8%	4.2%	4.0%
Food CPI	3.9%	3.4%	3.7%
Energy CPI	4.5%	23.6%	24.9%
Headline PCE deflator	3.4%	4.2%	4.3%
Core PCE deflator	3.3%	3.6%	3.6%

- Job openings at all time high, labor force participation falling
- The Great Resignation, quits in August 2.6% of labor force
- Impact of labor-job mismatch is higher wage growth, Employment Cost Index up 4.2% in 3Q (yoy), fastest since 1990

Callan Periodic Table of Investment Returns

Cumulative Returns Ending September 30, 2021						Monthly Returns		
Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	July 2021	August 2021	Sept 2021
Real Estate 6.41%	Small Cap Equity 47.68%	Large Cap Equity 15.99%	Large Cap Equity 16.90%	Large Cap Equity 14.01%	Large Cap Equity 16.63%	Large Cap Equity 2.38%	Large Cap Equity 3.04%	Real Estate 2.09%
High Yield 0.89%	Large Cap Equity 30.00%	Small Cap Equity 10.54%	Small Cap Equity 13.45%	Small Cap Equity 11.90%	Small Cap Equity 14.63%	Real Estate 2.09%	Emerging Market Equity 2.62%	High Yield -0.01%
Large Cap Equity 0.58%	Dev ex-U.S. Equity 26.50%	Emerging Market Equity 8.59%	Emerging Market Equity 9.23%	Real Estate 7.93%	Real Estate 8.92%	U.S. Fixed Income 1.12%	Small Cap Equity 2.24%	U.S. Fixed Income -0.87%
U.S. Fixed Income 0.05%	Emerging Market Equity 18.20%	Dev ex-U.S. Equity 7.87%	Dev ex-U.S. Equity 8.88%	High Yield 5.89%	Dev ex-U.S. Equity 7.88%	Dev ex-U.S. Equity 0.66%	Real Estate 2.09%	Dev ex-U.S. Equity -2.87%
Dev ex-U.S. Equity -0.66%	Real Estate 13.64%	High Yield 6.91%	Real Estate 6.56%	Dev ex-U.S. Equity 5.69%	High Yield 7.42%	High Yield 0.38%	Dev ex-U.S. Equity 1.60%	Small Cap Equity -2.95%
Small Cap Equity -4.36%	High Yield 11.28%	Real Estate 6.13%	High Yield 6.52%	Emerging Market Equity 5.62%	Emerging Market Equity 6.09%	Small Cap Equity -3.61%	High Yield 0.51%	Emerging Market Equity -3.97%
Emerging Market Equity -8.09%	U.S. Fixed Income -0.90%	U.S. Fixed Income 5.36%	U.S. Fixed Income 2.94%	U.S. Fixed Income 3.26%	U.S. Fixed Income 3.01%	Emerging Market Equity -6.73%	U.S. Fixed Income -0.19%	Large Cap Equity -4.65%

Sources: ● Bloomberg Barclays Aggregate ● Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US
 ● NCREIF ODCE Val Wtd ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2000 ● S&P 500

U.S. Equity Large Cap Valuations

S&P 500 Index: Forward P/E ratio



Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since September 1996, and J.P. Morgan Asset Management for September 30, 2021. Current next 12-months consensus earnings estimates are \$214. Average P/E and standard deviations are calculated using 25 years of IBES history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Price-to-book ratio is the price divided by book value per share. Price-to-cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure. *P/CF is a 20-year average due to cash flow availability.

Guide to the Markets – U.S. Data are as of September 30, 2021.

- Valuations are 1.06 standard deviations above the 25-year average based on forecast earnings.
 - While still rich, many valuation measures down modestly from levels in 2Q
- Longer-term historical valuations are also elevated.
 - Shiller's cyclically adjusted price earnings (CAPE) ratio at 1.44 standard deviations above average
- Stock prices reflect anticipated rather than historical earnings, looking well beyond a one-year timeframe.

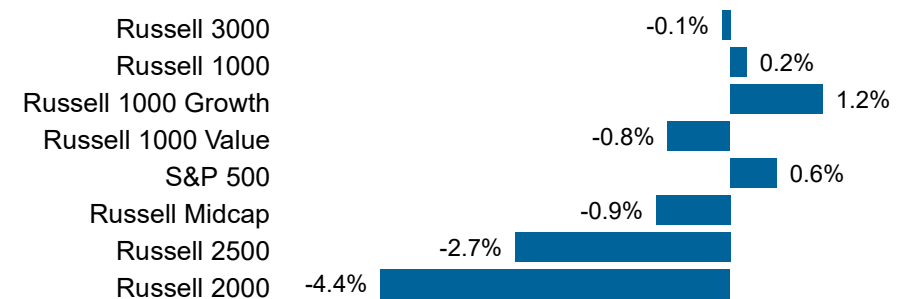
Sources: FactSet, FRB, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.

U.S. Equity Performance: 3Q21

Returns compress over mounting concerns

- S&P 500 rose a modest 0.6% in 3Q21, and smaller cap growth indices posted their first negative quarter since the March 2020 low.
- Slowing economic growth, supply chain disruptions, and inflationary pressure, as well as uncertainty around monetary policy, decreased investors' risk appetite.
- In general, high quality topped lower quality in large cap.
- Economically sensitive sectors such as Industrials (-4.2%) and Materials (-3.5%) lagged; Financials (+2.7%) benefited.
- Growth outperformed value in large cap, and value outperformed growth in small cap.
- YTD, small value outperformed small growth by a whopping 2,000 bps (RUS2V 22.9% vs. RUS2G 2.8%), a stark reversal from the prior year and a pattern seen during periods of robust economic growth.

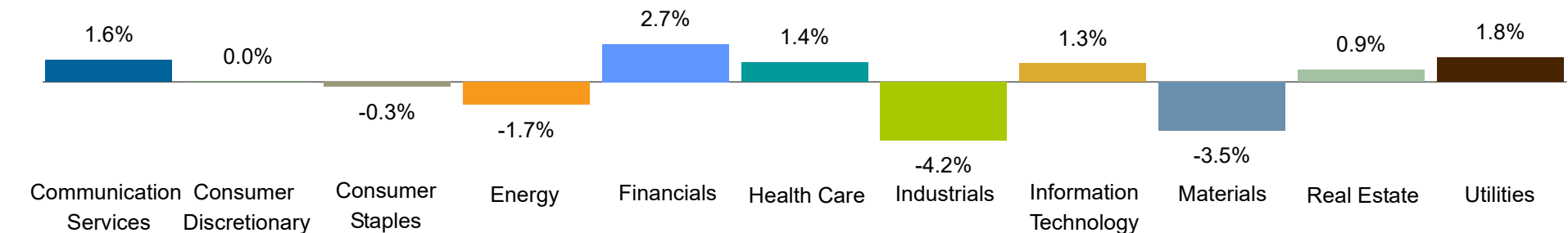
U.S. Equity: Quarterly Returns



U.S. Equity: One-Year Returns



Industry Sector Quarterly Performance (S&P 500)



Sources: FTSE Russell, S&P Dow Jones Indices

Global ex-U.S. Equity Performance: 3Q21

Fears of stagflation stoke market volatility

- Delta variant flare-ups and slowdown in China weighed on the global recovery.
- COVID-driven supply chain disruption continues to push inflation higher.
- Small cap outpaced large as global recovery concerns disproportionately punished large cap companies.
- Emerging markets struggled relative to developed markets as growth prospects were under pressure for China and Brazil.

Market pivots to cyclicals

- Energy crunch fueled the sector to the highest return in the quarter as demand outstripped supply.
- Financials outperformed; Real Estate and Utilities generally underperformed with higher interest rate expectations.

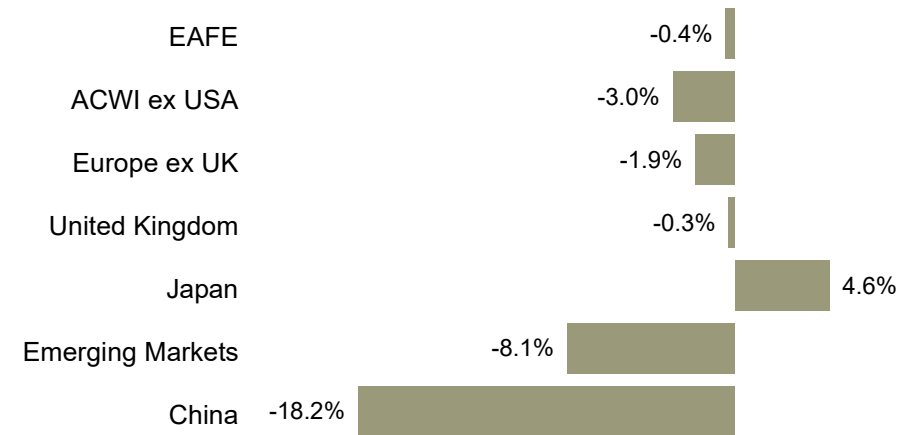
U.S. dollar vs. other currencies

- The U.S. dollar rose against other major currencies as the Fed signaled tapering is imminent, which notably detracted from global ex-U.S. results.

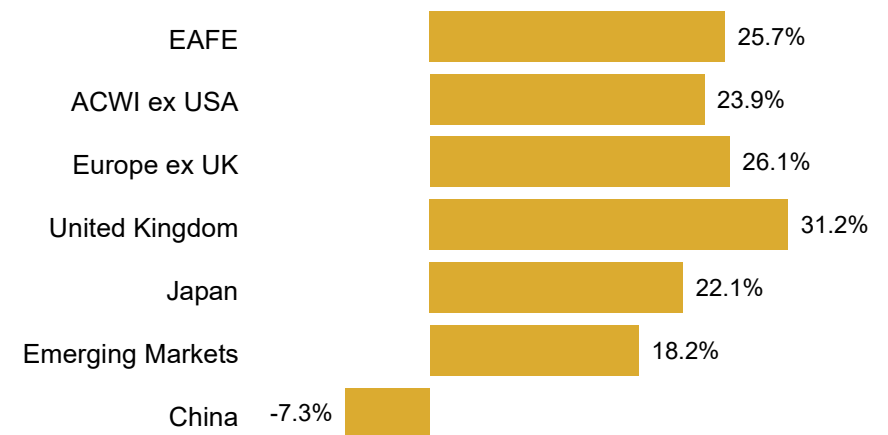
Growth vs. value

- Value outpaced growth in emerging markets due to the Energy rally, while both were relatively flat in developed markets.

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI

U.S. Fixed Income Performance: 3Q21

Treasury yields largely unchanged from 2Q21

- Yields ended a volatile quarter only slightly higher after the Fed signaled it may soon begin tapering its bond buying program.
- 2-year and 10-year Treasury yields rose 3 and 7 bps, respectively.
- TIPS outperformed nominal Treasuries, and 10-year breakeven spreads widened 5 bps to 2.37%.

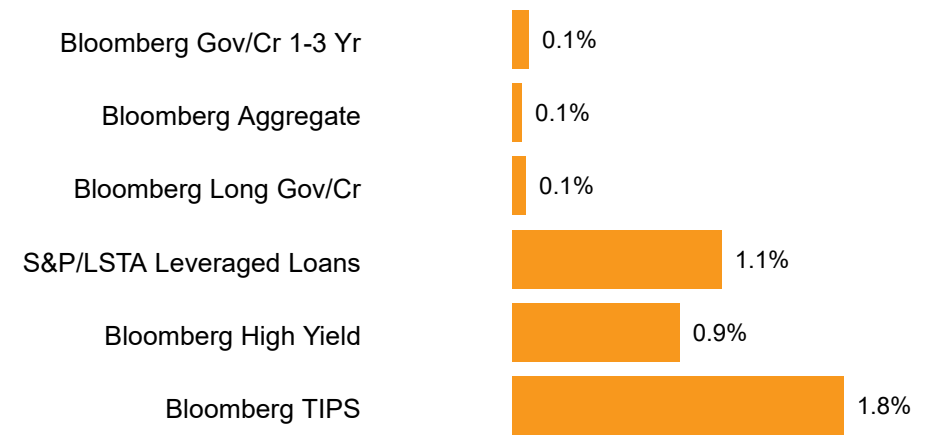
Bloomberg Aggregate flat as spreads widen

- Minor gains in Treasuries and agency MBS were offset by declines in government-related, CMBS, and corporates.
- IG corporates trailed Treasuries by 15 bps (duration-adjusted) as spreads widened within long bonds.

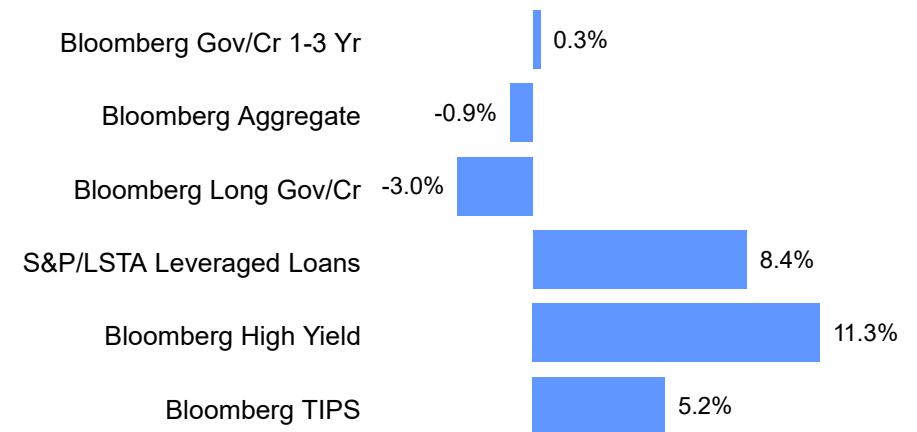
High yield and leveraged loans continue rally

- Leveraged loans (+1.1%) outperformed high yield, driven by favorable supply/demand dynamics.
- High yield issuers' default rate declined to 0.9% in September, the lowest since March 2014.

U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



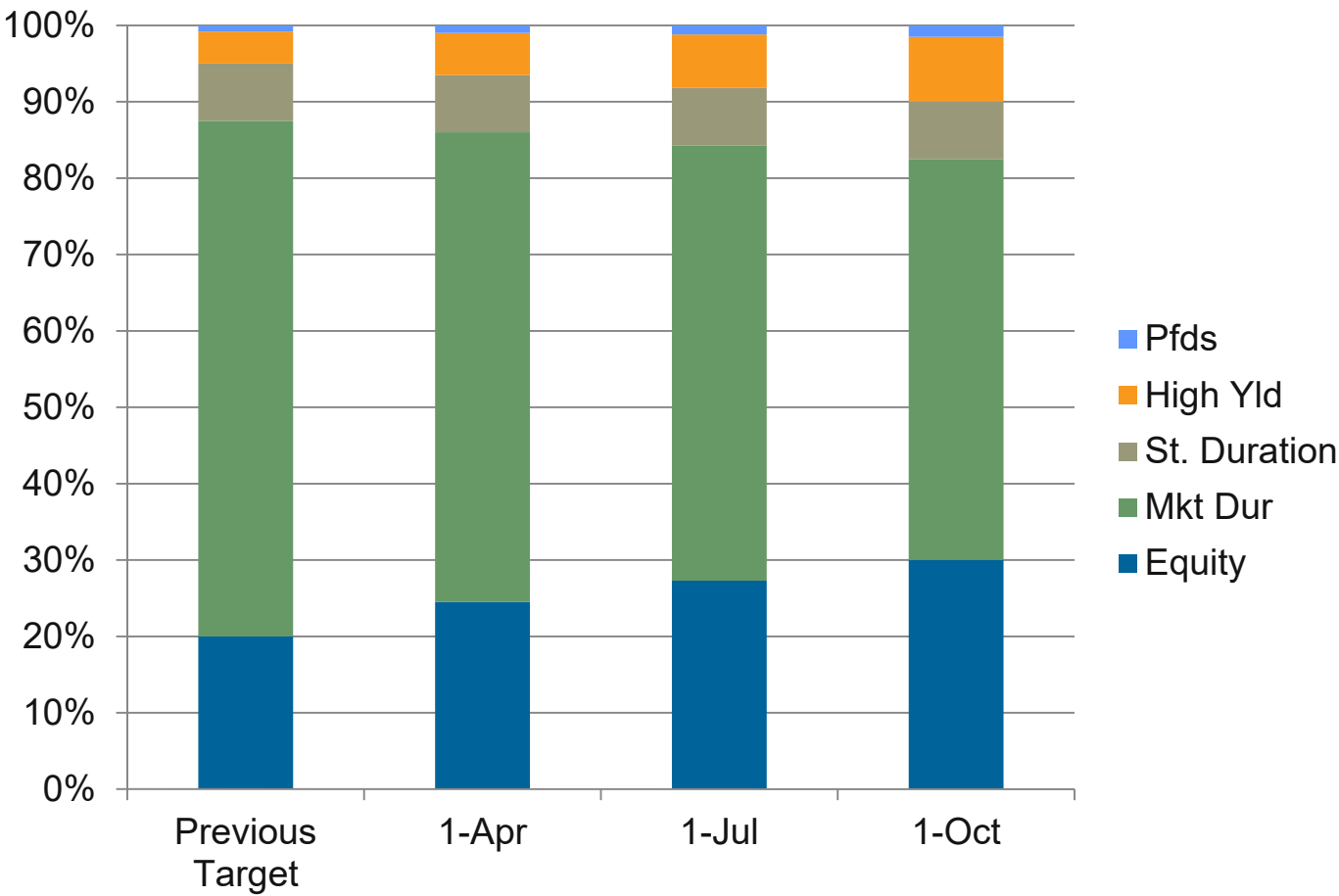
Source: Bloomberg

Recent Activity and Plan Performance

Recent Activity

- On February 22, 2021, the Board approved a new asset allocation, increasing equity and high income strategies funded from the Treasury Market Duration Portfolio.
 - US Equity from 12% to 18% (+6%)
 - Global ex US Equity from 8% to 12% (+4%)
 - Core US Fixed Income reduced from 67.5% to 52.5% (-15%)
 - High Yield Fixed Income from 5% to 10% (+5%)
- The migration of assets took place in four tranches – March, May, July and September.
- Two transfers took place in the third quarter:
 - July 14, \$35.42 M went from Market Duration bonds to Parametric; Janus Henderson; and McKay.
 - September 14; \$30.30 M went from Market Duration bonds to Parametric; Janus Henderson; McKay and Spectrum Preferreds .
- The full migration of assets to the new asset allocation was completed on September 14, 2021
- A new Target benchmark went into effect on July 1: 57.0% Bloomberg Aggregate; 7.5% Bloomberg Gov/Credit 1-3 year; 7% Bloomberg HY; 1.2% ICE BofA US All Cap Securities; 16.4% Russell 3000 Index; 10.9% ACWI ex-US .
- Final Target benchmark effective October 1, 2021.
 - 52.5% Bloomberg Aggregate; 7.5% Bloomberg Gov/Credit 1-3 year; 8.5% Bloomberg HY; 1.5% ICE BofA US All Cap Securities; 18.0% Russell 3000 Index; 12.0% ACWI ex-US.

Asset Allocation Transition - 2021



Quarterly Total Fund Highlights

As of September 30, 2021

CO PSPF ended the quarter with \$1.32 billion in assets, down \$10.6 million from the fiscal year end.

- Investment losses were \$3.6 million while cash outflows were \$7.1 million over the quarter

The Total Fund fell 0.26% (-2 bps to Target) for the quarter and rose 5.7% (+13 bps to Target) for the trailing year.

The Total Equity Composite slid 1.2% and gained 29.1% for the quarter and year, respectively.

- Domestic Equity returned 0% for the quarter but rose 32.1% for the year.
- International equity lagged the U.S. with a loss of 3.1% and gain of 24.7% for the quarter and year, respectively.

The Fixed Income Composite lagged its benchmark by 6 basis points with a return of 0%. For the year, the Composite fell 0.9%.

- The Market Duration bond portfolio underperformed its benchmark by 8 basis points with a return of -0.03%. For the year, the portfolio was down 1.2%.
- The Janus Short Duration bond portfolio outperformed its benchmark by 9 basis points with a return of 0.2%. The portfolio rose 1.6% for the year.

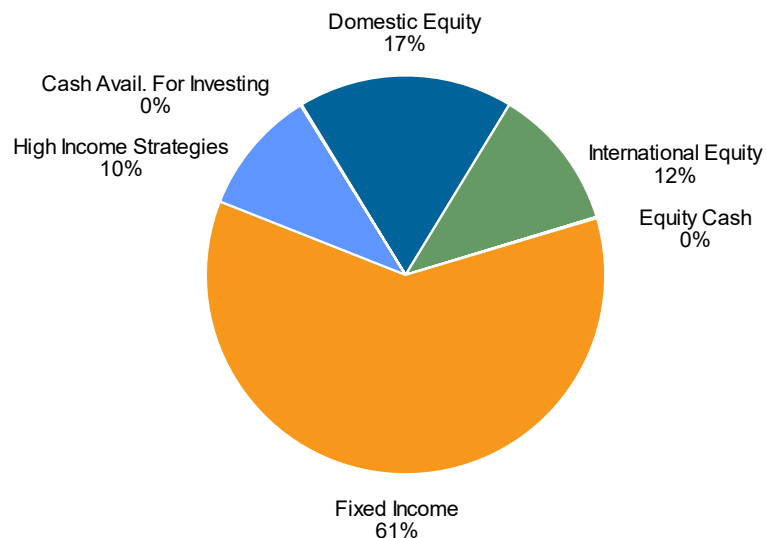
The High Income Strategies Composite outperformed its benchmark for the quarter by 26 basis points with a return of 1.1%. For the trailing year, the Composite is up 9.6%.

- The MacKay Shields' high yield bond portfolio gained 1.1% and 9.7% for the quarter and year, respectively.
- The Principal Spectrum preferred securities portfolio rose 1.1% and 9.0% for the quarter and year, respectively.

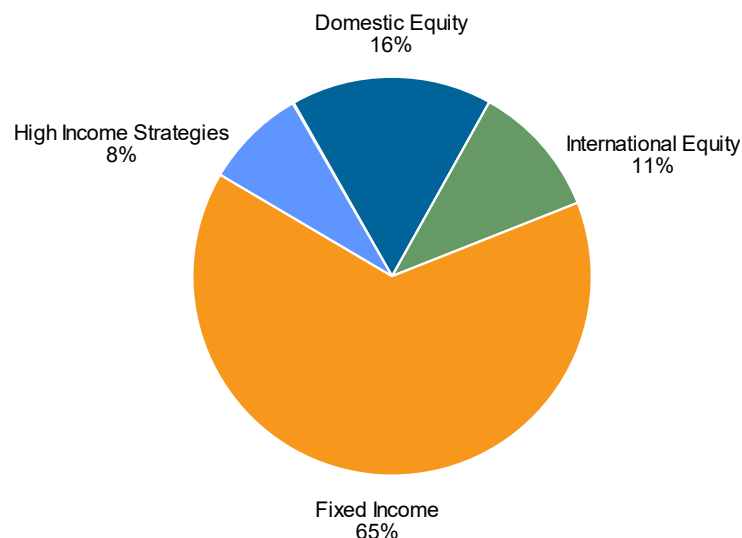
Total Fund Asset Allocation

September 30, 2021

Actual Asset Allocation



Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	231,708	17.5%	16.4%	1.1%	15,185
International Equity	153,508	11.6%	10.9%	0.7%	9,160
Equity Cash	1,122	0.1%	0.0%	0.1%	1,122
Fixed Income	802,082	60.6%	64.5%	(3.9%)	(52,091)
High Income Strategies	134,900	10.2%	8.2%	1.9%	25,646
Cash Avail. For Investing	979	0.1%	0.0%	0.1%	979
Total	1,324,299	100.0%	100.0%		

***Note:** The final 2 tranches were funded in the third quarter. The interim fund target changed on July 1 to: Domestic equity 16.4%, Int'l Equity 10.9%, Fixed Income 64.5%, and High Income Strategies 8.2%.

Asset Distribution

	September 30, 2021				June 30, 2021	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Total Equity	\$386,337,801	29.17%	\$26,649,971	\$(5,099,371)	\$364,787,201	27.33%
Domestic Equity	\$231,707,815	17.50%	\$10,496,684	\$(213,430)	\$221,424,562	16.59%
iShares S&P 1500 ETF (1)	231,707,815	17.50%	10,496,684	(213,430)	221,424,562	16.59%
International Equity	\$153,508,106	11.59%	\$15,411,897	\$(4,885,972)	\$142,982,180	10.71%
iShares MSCI Emerging ETF (1)	44,615,114	3.37%	4,455,417	(3,660,135)	43,819,832	3.28%
iShares MSCI Canada ETF (1)	13,513,001	1.02%	1,918,337	(336,320)	11,930,984	0.89%
iShares Core MSCI EAFE ETF (1)	95,379,991	7.20%	9,038,143	(889,516)	87,231,364	6.53%
Equity Cash	1,121,879	0.08%	741,390	30	380,459	0.03%
Total Fixed Income	\$802,081,925	60.57%	\$(67,971,328)	\$355,462	\$869,697,791	65.15%
Market Duration	\$701,283,053	52.96%	\$(71,570,435)	\$143,146	\$772,710,342	57.88%
Colorado Treasurer's Portfolio	701,283,053	52.96%	(71,570,435)	143,146	772,710,342	57.88%
Short Duration	\$100,798,872	7.61%	\$3,599,107	\$212,317	\$96,987,448	7.27%
Janus Henderson Short Duration (2)	100,798,872	7.61%	3,599,107	212,317	96,987,448	7.27%
High Income Strategies	\$134,900,215	10.19%	\$33,975,652	\$1,180,348	\$99,744,215	7.47%
High Yield Fixed Income	\$114,798,893	8.67%	\$28,656,225	\$1,051,944	\$85,090,724	6.37%
Mackay Shield US High Yield (3)	114,798,893	8.67%	28,656,225	1,051,944	85,090,724	6.37%
Preferred Securities	\$20,101,323	1.52%	\$5,319,427	\$128,404	\$14,653,492	1.10%
Principal Preferred Securities (3)	20,101,323	1.52%	5,319,427	128,404	14,653,492	1.10%
Cash Available For Investing	\$979,111	0.07%	\$271,242	\$1,443	\$706,426	0.05%
Total Fund	\$1,324,299,052	100.0%	\$(7,074,464)	\$(3,562,118)	\$1,334,935,633	100.0%

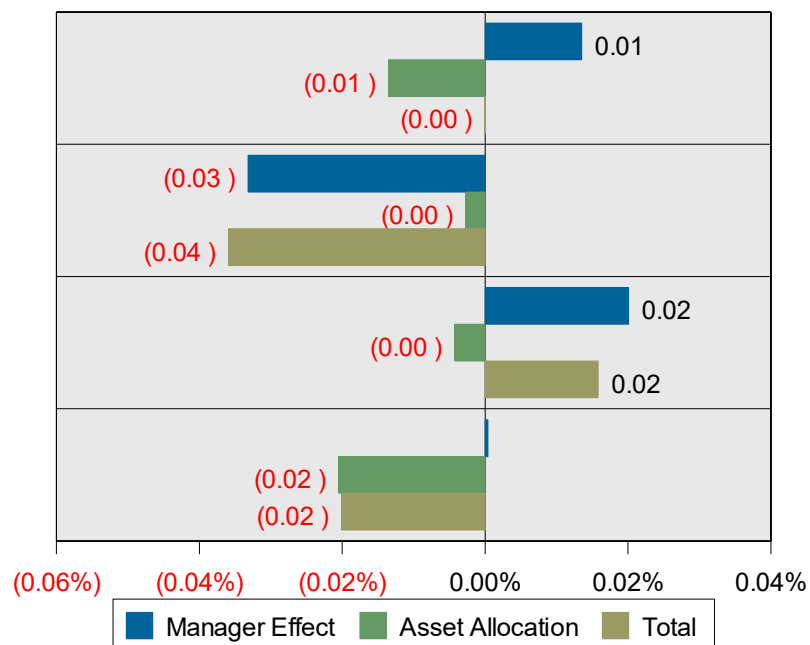
The Fund ended the quarter at \$1.32 Billion, down \$10.6 million from June 30.

There was \$7.1 million in outflows and \$3.6 million in investment losses.

One-Quarter Performance Attribution

As of September 30, 2021

Relative Attribution by Asset Class



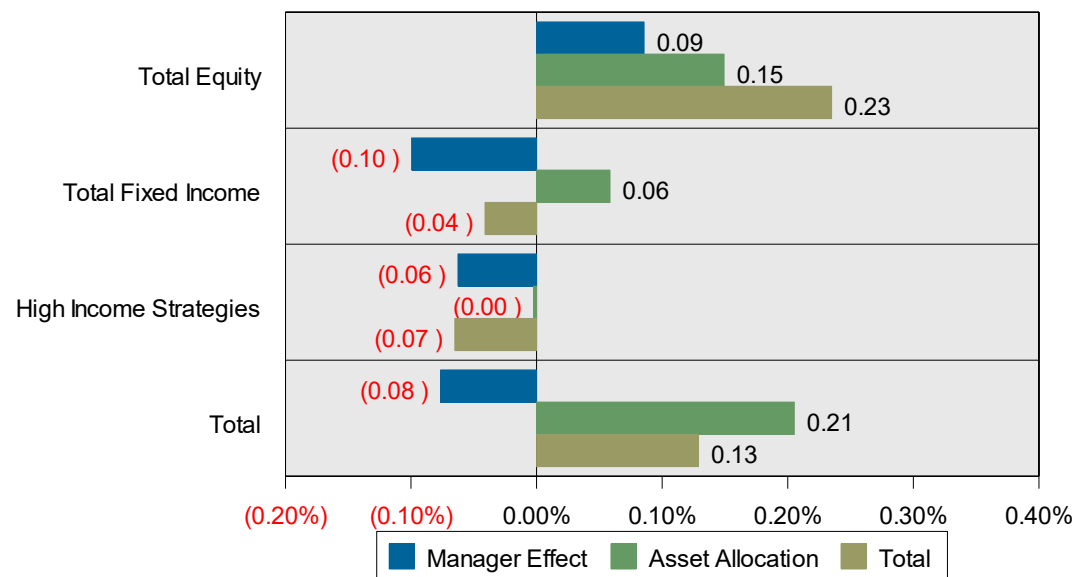
Relative Attribution Effects for Quarter ended September 30, 2021

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	29%	27%	(1.21%)	(1.26%)	0.01%	(0.01%)	(0.00%)
Total Fixed Income	64%	65%	0.00%	0.06%	(0.03%)	(0.00%)	(0.04%)
High Income Strategies	8%	8%	1.10%	0.84%	0.02%	(0.00%)	0.02%
Total			(0.26%)	(0.24%)	+ 0.00%	+ (0.02%)	(0.02%)

Fiscal Year Performance Attribution

As of September 30, 2021

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	24%	23%	29.09%	28.67%	0.09%	0.15%	0.23%
Total Fixed Income	70%	71%	(0.90%)	(0.78%)	(0.10%)	0.06%	(0.04%)
High Income Strategies	6%	6%	9.59%	10.91%	(0.06%)	(0.00%)	(0.07%)
Total			5.67%	= 5.54%	+ (0.08%)	+ 0.21%	0.13%

Manager & Composite Cumulative Returns

As of September 30, 2021

	Last Quarter	Year to Date	Last Year	Last 5 Years	Last 10 Years
Total Equity	(1.21%)	11.88%	29.09%	-	-
60% Russell 3000/40% ACWI ex US	(1.26%)	11.30%	28.67%	13.68%	12.95%
Domestic Equity	(0.01%)	15.19%	32.10%	-	-
Russell 3000 Index	(0.10%)	14.99%	31.88%	16.85%	16.60%
International Equity	(3.08%)	7.08%	24.73%	-	-
MSCI ACWI ex US	(2.99%)	5.90%	23.92%	8.94%	7.48%
Total Fixed Income	0.00%	(1.38%)	(0.90%)	3.01%	2.96%
Total Fixed Income Benchmark (1)	0.06%	(1.40%)	(0.78%)	2.98%	2.59%
Market Duration	(0.03%)	(1.62%)	(1.19%)	3.11%	3.01%
Colorado Treasurer's Portfolio (2)	(0.03%)	(1.62%)	(1.19%)	3.11%	3.01%
PSPF Custom Benchmark (3)	0.05%	(1.55%)	(0.90%)	3.12%	2.66%
Short Duration	0.22%	0.65%	1.64%	-	-
Janus Henderson Short Duration	0.22%	0.65%	1.64%	-	-
Blmbg Gov/Cred 1-3 Yr	0.09%	0.09%	0.30%	1.89%	1.47%
85% 1-3YR G/C; 15% 1-3YR BB (4)	0.13%	0.48%	1.20%	2.30%	2.07%
High Income Strategies	1.10%	4.54%	9.59%	-	-
High Income Strategies Benchmark (5)	0.84%	4.38%	10.93%	6.49%	-
High Yield Fixed Income	1.11%	4.60%	9.69%	-	-
Mackay Shield US High Yield	1.11%	4.60%	9.69%	-	-
Blmbg High Yield	0.89%	4.53%	11.28%	6.52%	7.42%
Preferred Securities	1.05%	4.20%	9.03%	-	-
Principal Preferred Securities	1.05%	4.20%	9.03%	-	-
ICE BofA US All Cap Secs	0.61%	3.44%	8.84%	6.27%	-
Total Fund w/o CAI (6)	(0.26%)	1.96%	5.67%	4.32%	3.61%
Total Fund Benchmark (6)	(0.24%)	1.58%	5.54%	4.57%	3.37%

Manager & Composite Fiscal Year Returns

	6/2021- 9/2021	FY 2021	FY 2020	FY 2019	FY 2018
Total Equity	(1.21%)	41.59%	1.82%	5.64%	-
60% Russell 3000/40% ACWI ex US	(1.26%)	40.77%	1.90%	5.92%	11.78%
Domestic Equity	(0.01%)	44.30%	6.40%	8.85%	-
Russell 3000 Index	(0.10%)	44.16%	6.53%	8.98%	14.78%
International Equity	(3.08%)	37.78%	(4.71%)	0.67%	-
MSCI ACWI ex US	(2.99%)	35.72%	(4.80%)	1.29%	7.28%
Total Fixed Income	0.00%	(0.27%)	8.79%	7.38%	(0.39%)
Total Fixed Income Benchmark (1)	0.06%	(0.26%)	8.28%	7.52%	(0.40%)
Market Duration	(0.03%)	(0.55%)	9.26%	7.77%	(0.39%)
Colorado Treasurer's Portfolio (2)	(0.03%)	(0.55%)	9.26%	7.77%	(0.39%)
PSPF Custom Benchmark (3)	0.05%	(0.33%)	8.74%	7.87%	(0.40%)
Short Duration	0.22%	2.33%	4.41%	-	-
Janus Henderson Short Duration	0.22%	2.33%	4.41%	-	-
Blmbg Gov/Cred 1-3 Yr	0.09%	0.44%	4.20%	4.27%	0.21%
85% 1-3YR G/C; 15% 1-3YR BB (4)	0.13%	1.70%	3.94%	4.59%	0.44%
High Income Strategies	1.10%	-	-	-	-
High Income Strategies Benchmark (5)	0.84%	15.13%	0.46%	7.58%	2.39%
High Yield Fixed Income	1.11%	-	-	-	-
Mackay Shield US High Yield	1.11%	-	-	-	-
Blmbg High Yield	0.89%	15.37%	0.03%	7.48%	2.62%
Preferred Securities	1.05%	-	-	-	-
Principal Preferred Securities	1.05%	-	-	-	-
ICE BofA US All Cap Secs	0.61%	13.67%	2.86%	8.12%	1.14%
Total Fund w/o CAI (6)	(0.26%)	8.30%	7.37%	6.94%	(0.36%)
Total Fund Benchmark (6)	(0.24%)	7.98%	7.87%	7.49%	0.01%

Performance Footnotes

(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 16.4% Russell 3000, 10.9% MSCI ACWI ex US, 57.0% Bloomberg U.S. Aggregate, 7.5% Bloomberg Gov/Credit 1-3 Yrs, 7.0% Bloomberg US High Yield and 1.3% ICE BofA U.S. All Capital Securities Index. See pg. 5 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.

Callan Update

Published Research Highlights from 3Q21

Comparing Actuarial and Consultant Rates of Return



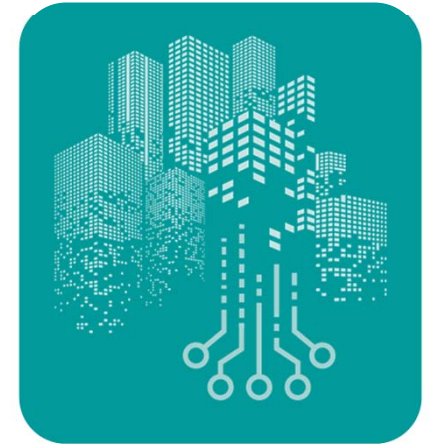
The Role of Target Date Funds in Retirement



Infrastructure and Real Estate Debt in Portfolios



Research Café: Property Technology



Recent Blog Posts

GPs Take 'Credit' for Higher IRRs

Jonathan Farr

Seeking Yield in All the Right Places

Nathan Wong

PCE vs. CPI: What's the Difference?

Fanglue Zhou

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Markets Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Callan Institute Events

Upcoming conferences, workshops, and webinars

Callan College

Intro to Investments - Learn the Fundamentals

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

Join our next LIVE session in Chicago (1.5-day session):

December 1-2, 2021

Introductory Workshop for DC Plan Fiduciaries

This one-day workshop centers on the fundamentals of administering a defined contribution (DC) plan. Designed primarily for ERISA fiduciaries and supporting staff members, attendees will gain a better understanding of the key responsibilities of an ERISA fiduciary and best practices for executing those responsibilities.

Join our LIVE session in San Francisco:

March 23, 2022

Mark Your Calendar

2022 National Conference

April 25-27, 2022, in San Francisco

Palace Hotel

2 New Montgomery St, San Francisco, CA 94105

Watch your email for further details and an invitation.

Webinars

Research Café: DOL Cybersecurity Tips

Nov. 10, 2021 – 9:30am (PT)

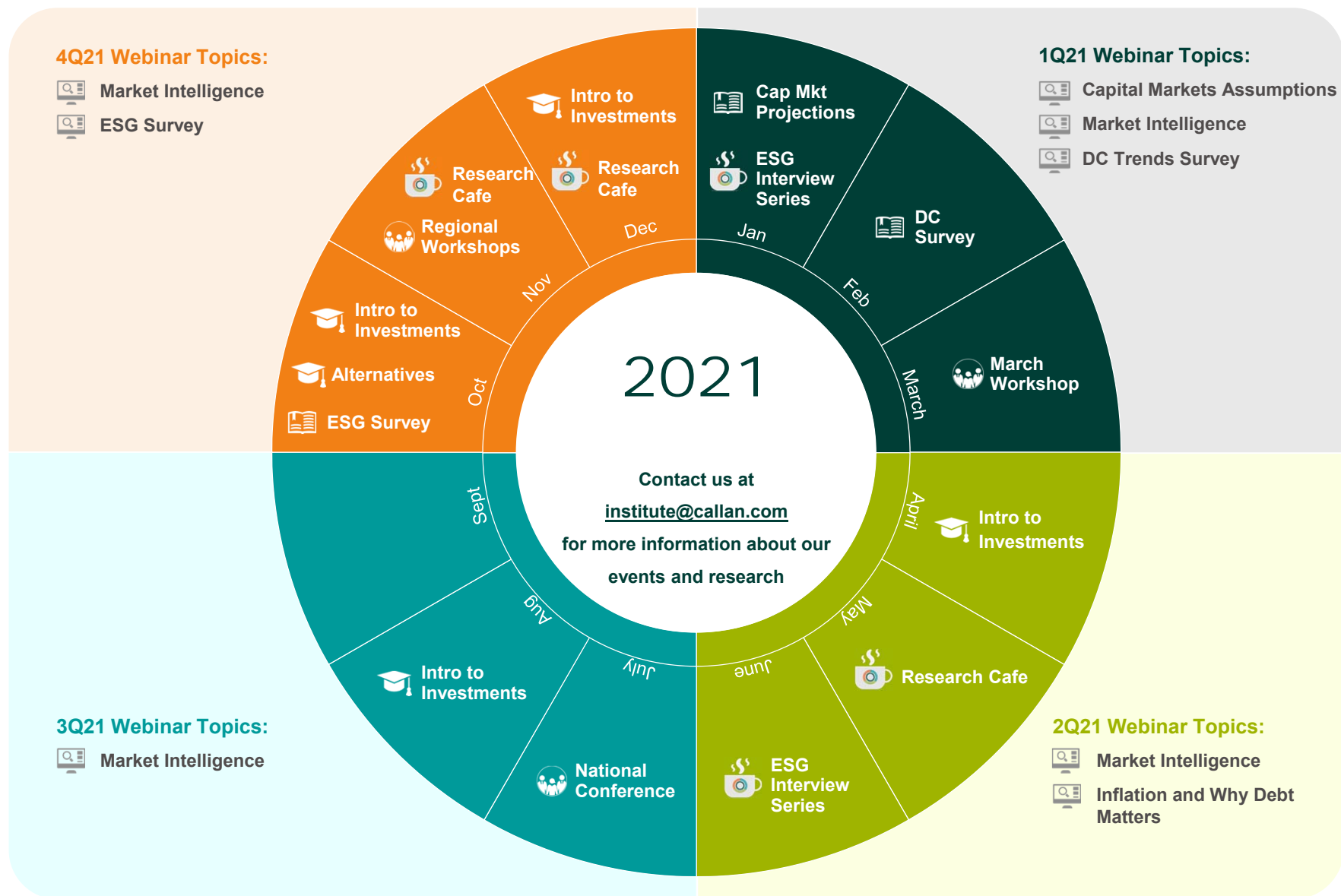
Research Café: Dissecting the Overlap Between Listed Real Assets Categories and Benchmarks

Dec. 8, 2021 – 9:30am (PT)

Market Intelligence

Jan. 22, 2022 – 9:30am (PT)

Content Calendar – Callan Institute



Callan College



Conference/Workshop



Publication



Webinar



Research Cafe

Callan Updates

Firm updates by the numbers, as of September 30, 2021

Total Associates: ~200

Ownership

- 100% employees
- Broadly distributed across over 100 shareholders

Leadership Changes

- No changes to leadership this quarter

Total General and Fund Sponsor Consultants: more than 55

Total Specialty and Research Consultants: more than 60

Total CFA/CAIA/FRMs: more than 55

Total Fund Sponsor Clients: more than 400

AUA: more than \$3 trillion

September 30, 2021

CO Public School Permanent Fund

**Investment Measurement Service
Quarterly Review**

Information contained herein includes confidential, trade secret and proprietary information. Neither this Report nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose or disseminated to any other person without Callan's permission. Certain information herein has been compiled by Callan and is based on information provided by a variety of sources believed to be reliable for which Callan has not necessarily verified the accuracy or completeness of or updated. This content may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. This content is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation. Past performance is no guarantee of future results. For further information, please see the Appendix section in your investment measurement service quarterly review report for Important Information and Disclosures.

Table of Contents
CO Public School Permanent Fund
September 30, 2021

Actual vs.Target Asset Allocation	1
--	----------

Equity	
Total Equity	10
Domestic Equity	12
International Equity	16

Fixed Income	
Total Fixed Income	21

Market Duration	
Colorado Treasurer's Portfolio	26

Short Duration	
Janus Henderson Short Duration	31

High Income Strategies	
High Income Strategies	37

High Yield Fixed Income	
Mackay Shield US High Yield	40

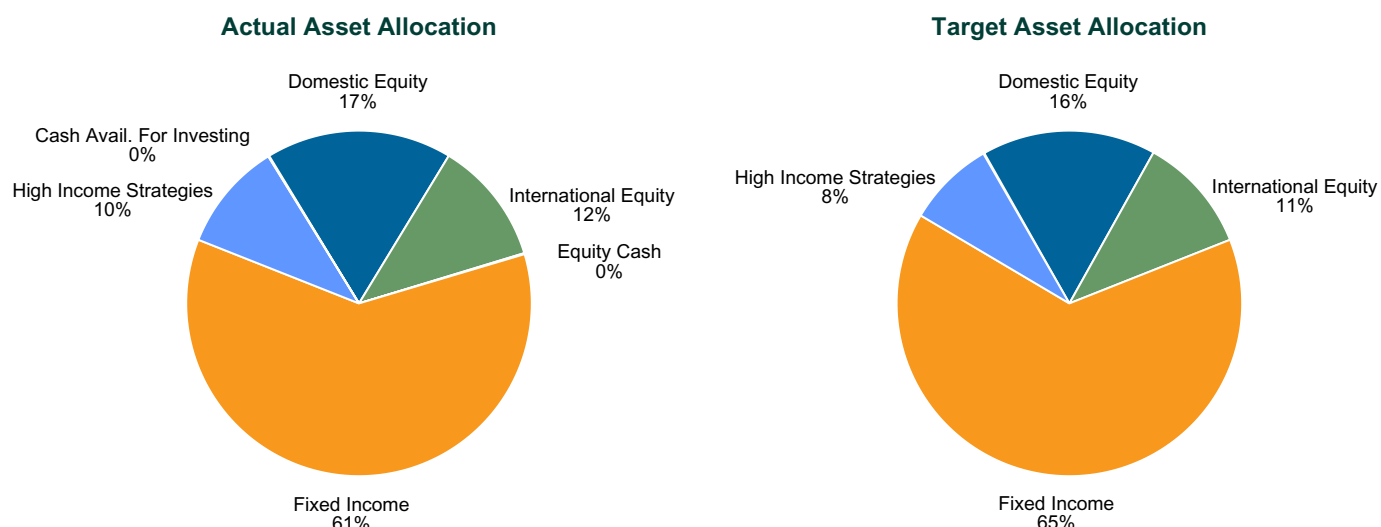
Preferred Securities	
Principal Preferred Securities	45

Research & Education	50
---------------------------------	-----------

Disclosures	53
--------------------	-----------

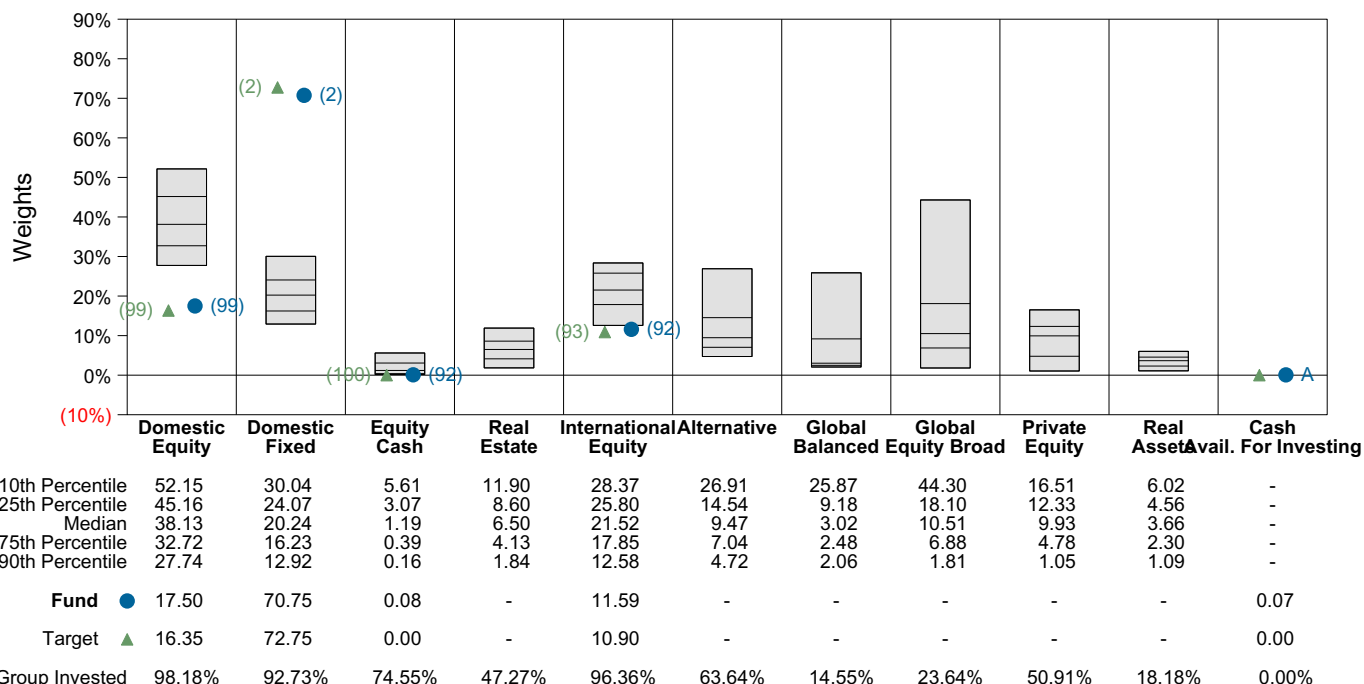
Actual vs Target Asset Allocation As of September 30, 2021

The top left chart shows the Fund's asset allocation as of September 30, 2021. 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	231,708	17.5%	16.4%	1.1%	15,185
International Equity	153,508	11.6%	10.9%	0.7%	9,160
Equity Cash	1,122	0.1%	0.0%	0.1%	1,122
Fixed Income	802,082	60.6%	64.5%	(3.9%)	(52,091)
High Income Strategies	134,900	10.2%	8.2%	1.9%	25,646
Cash Avail. For Investing	979	0.1%	0.0%	0.1%	979
Total	1,324,299	100.0%	100.0%		

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



* Current Quarter Target = 57.0% Blmbg Aggregate, 16.4% Russell 3000 Index, 10.9% MSCI ACWI ex US, 7.5% Blmbg Gov/Cred 1-3 Yr, 7.0% Blmbg HY Corp and 1.2% 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 September 30, 2021, with the distribution as of June 30, 2021. 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

	September 30, 2021				June 30, 2021	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Total Equity	\$386,337,801	29.17%	\$26,649,971	\$(5,099,371)	\$364,787,201	27.33%
Domestic Equity	\$231,707,815	17.50%	\$10,496,684	\$(213,430)	\$221,424,562	16.59%
iShares S&P 1500 ETF (1)	231,707,815	17.50%	10,496,684	(213,430)	221,424,562	16.59%
International Equity	\$153,508,106	11.59%	\$15,411,897	\$(4,885,972)	\$142,982,180	10.71%
iShares MSCI Emerging ETF (1)	44,615,114	3.37%	4,455,417	(3,660,135)	43,819,832	3.28%
iShares MSCI Canada ETF (1)	13,513,001	1.02%	1,918,337	(336,320)	11,930,984	0.89%
iShares Core MSCI EAFE ETF (1)	95,379,991	7.20%	9,038,143	(889,516)	87,231,364	6.53%
Equity Cash	1,121,879	0.08%	741,390	30	380,459	0.03%
Total Fixed Income	\$802,081,925	60.57%	\$(67,971,328)	\$355,462	\$869,697,791	65.15%
Market Duration	\$701,283,053	52.96%	\$(71,570,435)	\$143,146	\$772,710,342	57.88%
Colorado Treasurer's Portfolio	701,283,053	52.96%	(71,570,435)	143,146	772,710,342	57.88%
Short Duration	\$100,798,872	7.61%	\$3,599,107	\$212,317	\$96,987,448	7.27%
Janus Henderson Short Duration (2)	100,798,872	7.61%	3,599,107	212,317	96,987,448	7.27%
High Income Strategies	\$134,900,215	10.19%	\$33,975,652	\$1,180,348	\$99,744,215	7.47%
High Yield Fixed Income	\$114,798,893	8.67%	\$28,656,225	\$1,051,944	\$85,090,724	6.37%
Mackay Shield US High Yield (3)	114,798,893	8.67%	28,656,225	1,051,944	85,090,724	6.37%
Preferred Securities	\$20,101,323	1.52%	\$5,319,427	\$128,404	\$14,653,492	1.10%
Principal Preferred Securities (3)	20,101,323	1.52%	5,319,427	128,404	14,653,492	1.10%
Cash Available For Investing	\$979,111	0.07%	\$271,242	\$1,443	\$706,426	0.05%
Total Fund	\$1,324,299,052	100.0%	\$(7,074,464)	\$(3,562,118)	\$1,334,935,633	100.0%

(1) Funded in December 2017.

(2) Funded in November 2018.

(3) Funded in July 2020.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended September 30, 2021. 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 September 30, 2021

	Last Quarter	Year to Date	Last Year	Last 5 Years	Last 10 Years
Total Equity	(1.21%)	11.88%	29.09%	-	-
60% Russell 3000/40% ACWI ex US	(1.26%)	11.30%	28.67%	13.68%	12.95%
Domestic Equity	(0.01%)	15.19%	32.10%	-	-
Russell 3000 Index	(0.10%)	14.99%	31.88%	16.85%	16.60%
International Equity	(3.08%)	7.08%	24.73%	-	-
MSCI ACWI ex US	(2.99%)	5.90%	23.92%	8.94%	7.48%
Total Fixed Income	0.00%	(1.38%)	(0.90%)	3.01%	2.96%
Total Fixed Income Benchmark (1)	0.06%	(1.40%)	(0.78%)	2.98%	2.59%
Market Duration	(0.03%)	(1.62%)	(1.19%)	3.11%	3.01%
Colorado Treasurer's Portfolio (2)	(0.03%)	(1.62%)	(1.19%)	3.11%	3.01%
PSPF Custom Benchmark (3)	0.05%	(1.55%)	(0.90%)	3.12%	2.66%
Short Duration	0.22%	0.65%	1.64%	-	-
Janus Henderson Short Duration	0.22%	0.65%	1.64%	-	-
Blmbg Gov/Cred 1-3 Yr	0.09%	0.09%	0.30%	1.89%	1.47%
85% 1-3YR G/C; 15% 1-3YR BB (4)	0.13%	0.48%	1.20%	2.30%	2.07%
High Income Strategies	1.10%	4.54%	9.59%	-	-
High Income Strategies Benchmark (5)	0.84%	4.38%	10.93%	6.49%	-
High Yield Fixed Income	1.11%	4.60%	9.69%	-	-
Mackay Shield US High Yield	1.11%	4.60%	9.69%	-	-
Blmbg High Yield	0.89%	4.53%	11.28%	6.52%	7.42%
Preferred Securities	1.05%	4.20%	9.03%	-	-
Principal Preferred Securities	1.05%	4.20%	9.03%	-	-
ICE BofA US All Cap Secs	0.61%	3.44%	8.84%	6.27%	-
Total Fund w/o CAI (6)	(0.26%)	1.96%	5.67%	4.32%	3.61%
Total Fund Benchmark (6)	(0.24%)	1.58%	5.54%	4.57%	3.37%

(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 16.4% Russell 3000, 10.9% MSCI ACWI ex US, 57.0% Bloomberg U.S. Aggregate, 7.5% Bloomberg Gov/Credit 1-3 Yrs, 7.0% Bloomberg US High Yield and 1.3% ICE BofA U.S. All Capital Securities Index. See pg. 5 for full benchmark history. The Total Fund return calculations do not include Cash Available for Investing.

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

Investment Manager Returns

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

	6/2021- 9/2021	FY 2021	FY 2020	FY 2019	FY 2018
Total Equity	(1.21%)	41.59%	1.82%	5.64%	-
60% Russell 3000/40% ACWI ex US	(1.26%)	40.77%	1.90%	5.92%	11.78%
Domestic Equity	(0.01%)	44.30%	6.40%	8.85%	-
Russell 3000 Index	(0.10%)	44.16%	6.53%	8.98%	14.78%
International Equity	(3.08%)	37.78%	(4.71%)	0.67%	-
MSCI ACWI ex US	(2.99%)	35.72%	(4.80%)	1.29%	7.28%
Total Fixed Income	0.00%	(0.27%)	8.79%	7.38%	(0.39%)
Total Fixed Income Benchmark (1)	0.06%	(0.26%)	8.28%	7.52%	(0.40%)
Market Duration	(0.03%)	(0.55%)	9.26%	7.77%	(0.39%)
Colorado Treasurer's Portfolio (2)	(0.03%)	(0.55%)	9.26%	7.77%	(0.39%)
PSPF Custom Benchmark (3)	0.05%	(0.33%)	8.74%	7.87%	(0.40%)
Short Duration	0.22%	2.33%	4.41%	-	-
Janus Henderson Short Duration	0.22%	2.33%	4.41%	-	-
Blmbg Gov/Cred 1-3 Yr	0.09%	0.44%	4.20%	4.27%	0.21%
85% 1-3YR G/C; 15% 1-3YR BB (4)	0.13%	1.70%	3.94%	4.59%	0.44%
High Income Strategies	1.10%	-	-	-	-
High Income Strategies Benchmark (5)	0.84%	15.13%	0.46%	7.58%	2.39%
High Yield Fixed Income	1.11%	-	-	-	-
Mackay Shield US High Yield	1.11%	-	-	-	-
Blmbg High Yield	0.89%	15.37%	0.03%	7.48%	2.62%
Preferred Securities	1.05%	-	-	-	-
Principal Preferred Securities	1.05%	-	-	-	-
ICE BofA US All Cap Secs	0.61%	13.67%	2.86%	8.12%	1.14%
Total Fund w/o CAI (6)	(0.26%)	8.30%	7.37%	6.94%	(0.36%)
Total Fund Benchmark (6)	(0.24%)	7.98%	7.87%	7.49%	0.01%

(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.

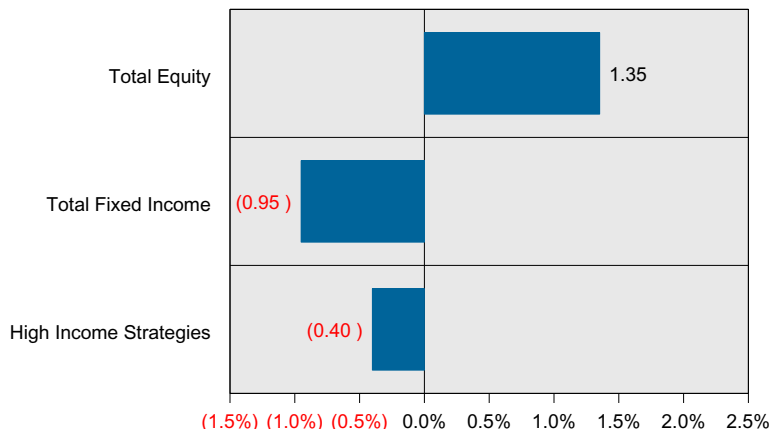
(6) Current quarter's Total Fund Benchmark consists of 16.4% Russell 3000, 10.9% MSCI ACWI ex US, 57.0% Bloomberg U.S. Aggregate, 7.5% Bloomberg Gov/Credit 1-3 Yrs, 7.0% Bloomberg US High Yield and 1.3% ICE BofA U.S. All Capital Securities Index. See pg. 5 for full benchmark history. The Total Fund return calculations do not include Cash Available for Investing.

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

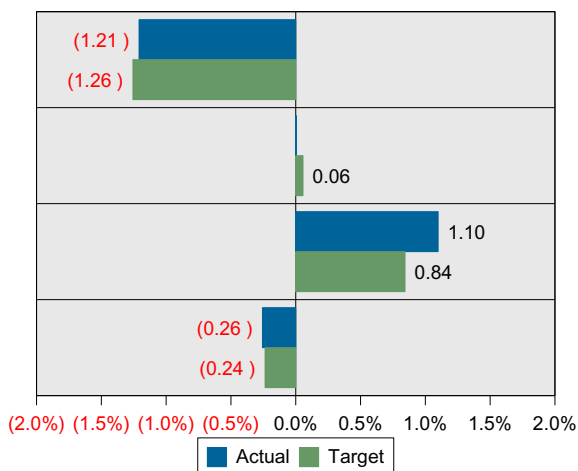
Quarterly Total Fund Relative Attribution - September 30, 2021

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.

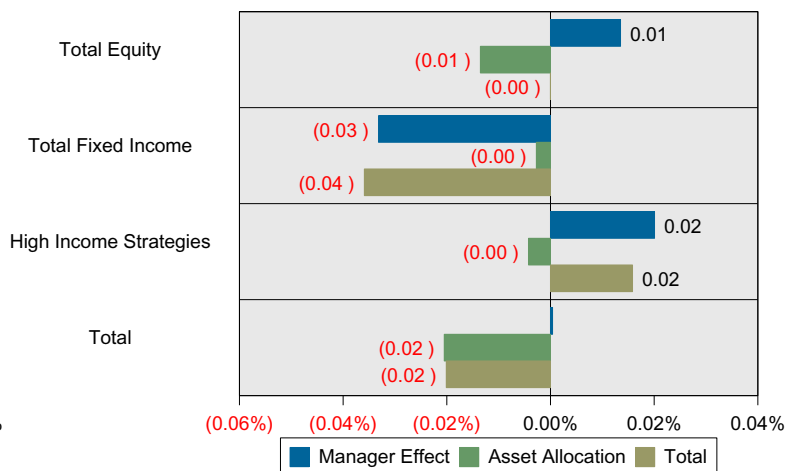
Asset Class Under or Overweighting



Actual vs Target Returns



Relative Attribution by Asset Class



Relative Attribution Effects for Quarter ended September 30, 2021

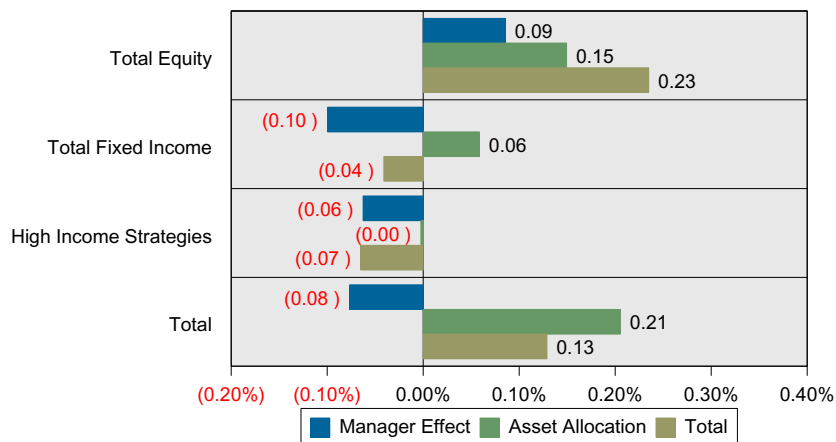
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	29%	27%	(1.21%)	(1.26%)	0.01%	(0.01%)	(0.00%)
Total Fixed Income	64%	65%	0.00%	0.06%	(0.03%)	(0.00%)	(0.04%)
High Income Strategies	8%	8%	1.10%	0.84%	0.02%	(0.00%)	0.02%
Total			(0.26%)		(0.24%)	0.00%	(0.02%)

* Current Quarter Target = 57.0% Blmbg Aggregate, 16.4% Russell 3000 Index, 10.9% MSCI ACWI ex US, 7.5% Blmbg Gov/Cred 1-3 Yr, 7.0% Blmbg HY Corp and 1.2% ICE All US Cap Secs.

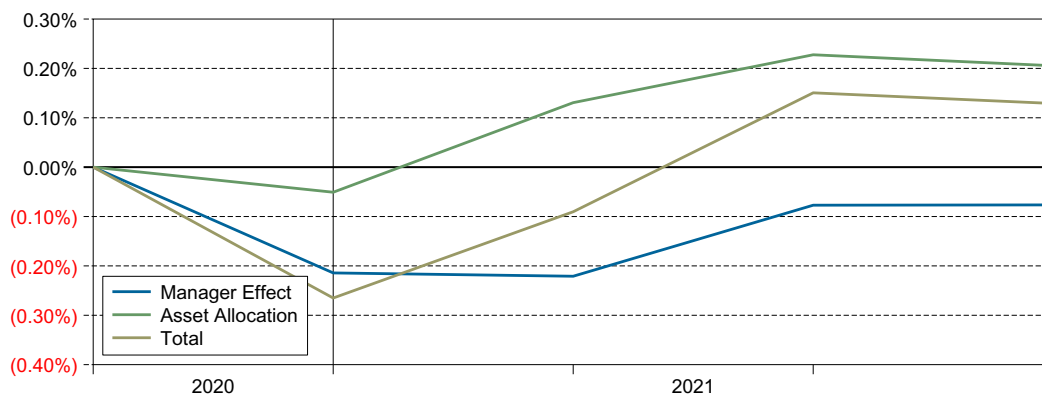
Cumulative Total Fund Relative Attribution - September 30, 2021

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

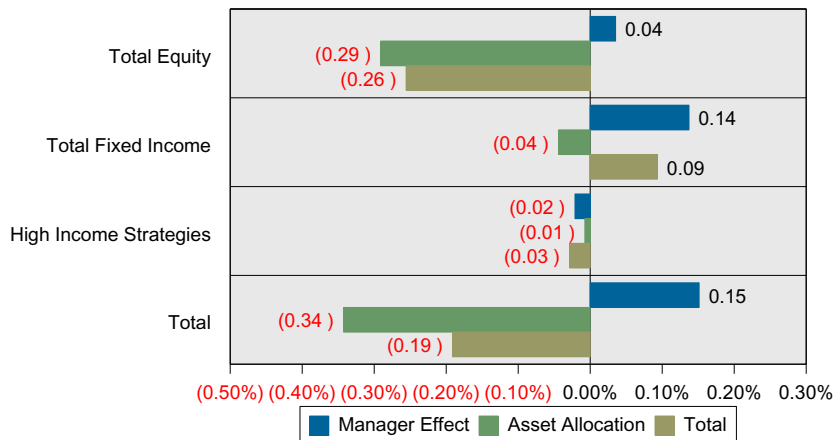
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	24%	23%	29.09%	28.67%	0.09%	0.15%	0.23%
Total Fixed Income	70%	71%	(0.90%)	(0.78%)	(0.10%)	0.06%	(0.04%)
High Income Strategies	6%	6%	9.59%	10.91%	(0.06%)	(0.00%)	(0.07%)
Total			5.67%	5.54%	(0.08%)	0.21%	0.13%

* Current Quarter Target = 57.0% Blmbg Aggregate, 16.4% Russell 3000 Index, 10.9% MSCI ACWI ex US, 7.5% Blmbg Gov/Cred 1-3 Yr, 7.0% Blmbg HY Corp and 1.2% ICE All US Cap Secs.

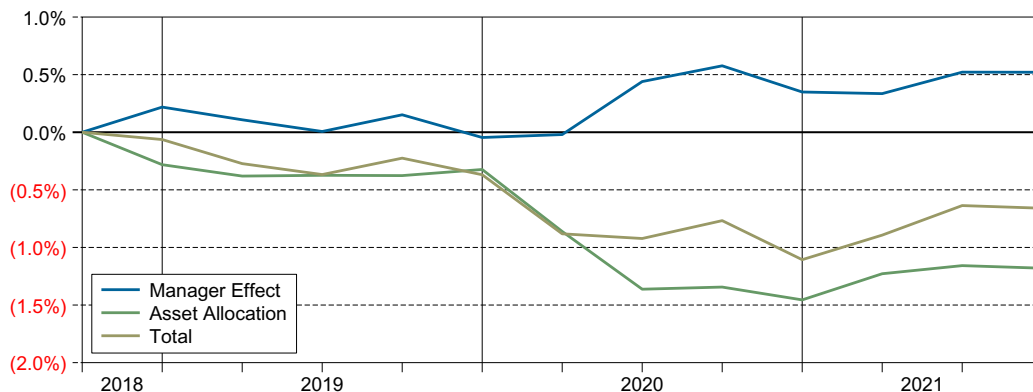
Cumulative Total Fund Relative Attribution - September 30, 2021

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	22%	21%	12.92%	12.79%	0.04%	(0.29%)	(0.26%)
Total Fixed Income	76%	77%	5.29%	5.12%	0.14%	(0.04%)	0.09%
High Income Strategies	2%	2%	-	-	(0.02%)	(0.01%)	(0.03%)
Total			7.17%	= 7.36%	+ 0.15%	+ (0.34%)	(0.19%)

* Current Quarter Target = 57.0% Blmbg Aggregate, 16.4% Russell 3000 Index, 10.9% MSCI ACWI ex US, 7.5% Blmbg Gov/Cred 1-3 Yr, 7.0% Blmbg HY Corp and 1.2% ICE All US Cap Secs.

Total Equity

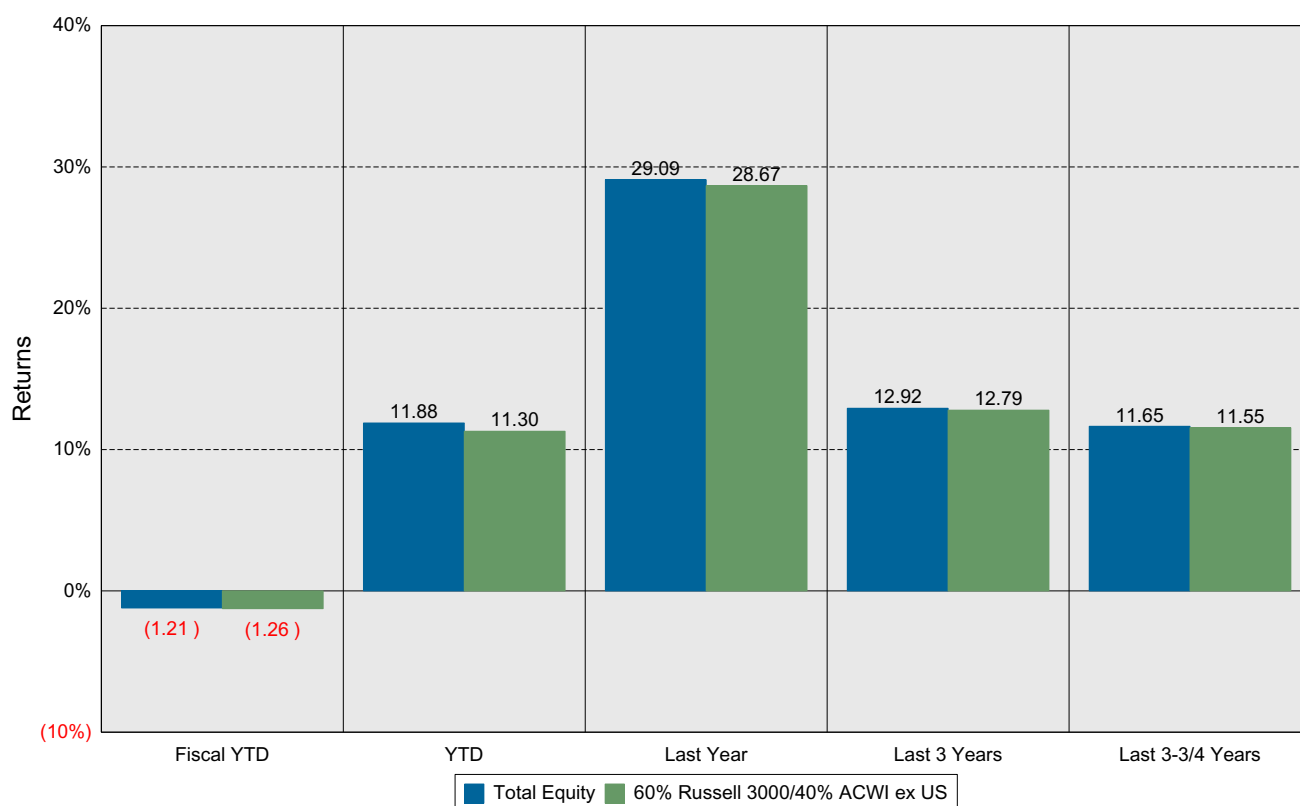
Period Ended September 30, 2021

Inception Date

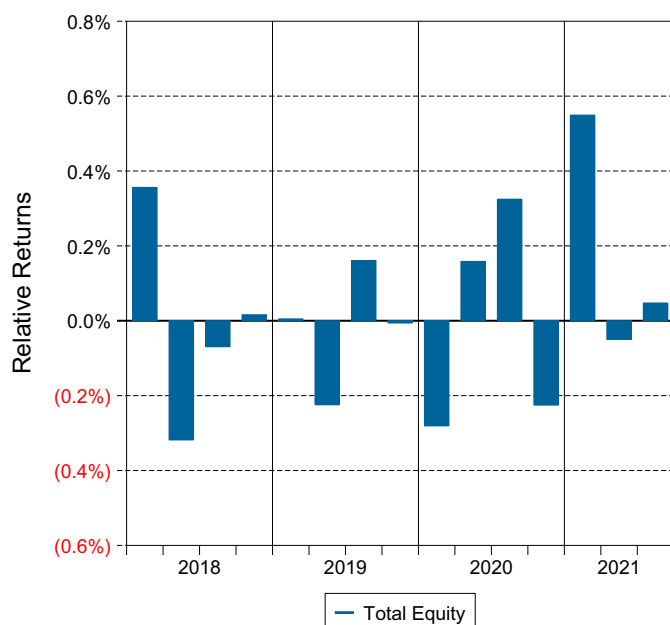
Parametric was funded December 12th, 2017.

Quarterly Summary and Highlights

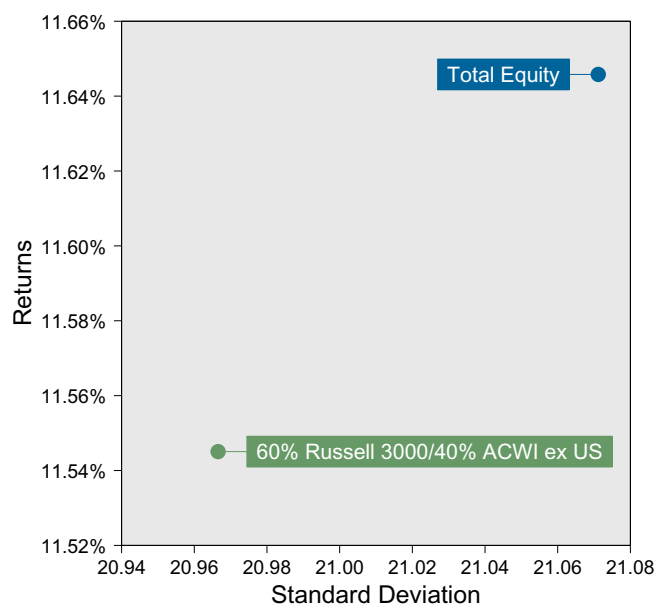
- Total Equity's portfolio outperformed the 60% Russell 3000/40% ACWI ex US by 0.05% for the quarter and outperformed the 60% Russell 3000/40% ACWI ex US for the year by 0.42%.



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



Annualized Three and Three-Quarter Year Risk vs Return

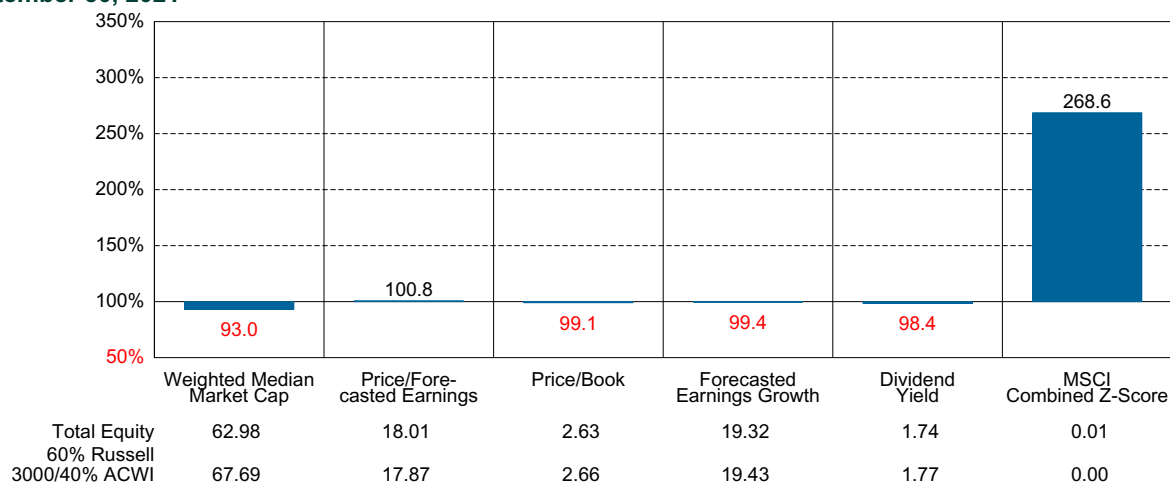


Total Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

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

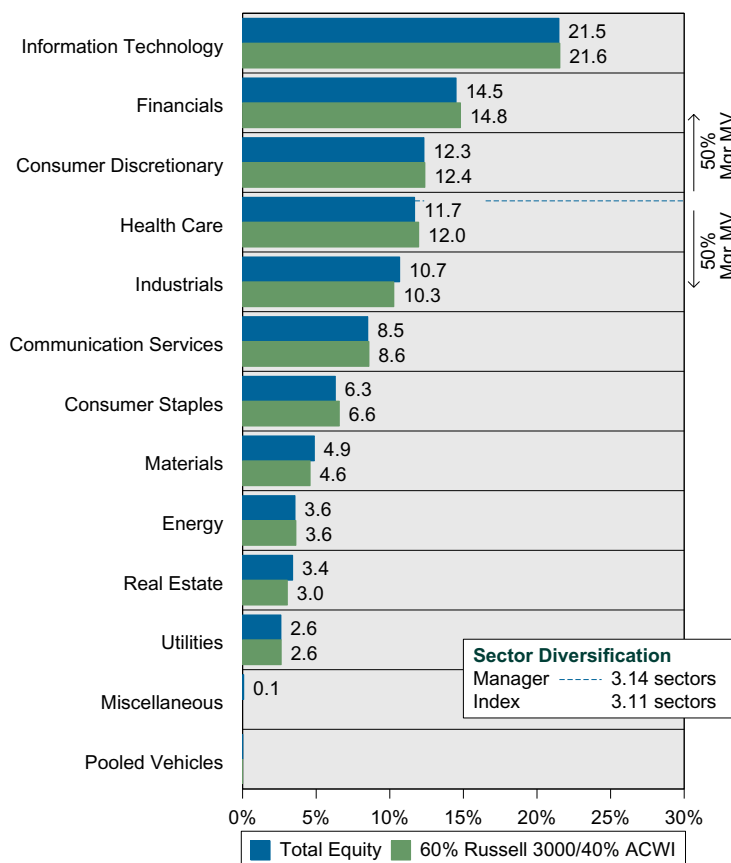
Portfolio Characteristics Relative to 60% Russell 3000/40% ACWI as of September 30, 2021



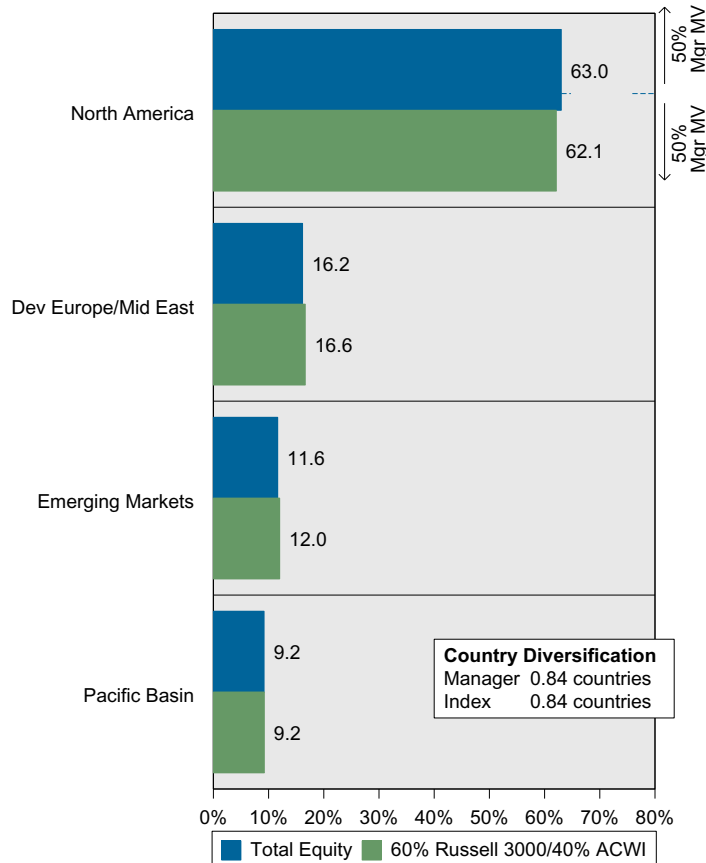
Sector Weights

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 September 30, 2021



Regional Allocation September 30, 2021



Domestic Equity Period Ended September 30, 2021

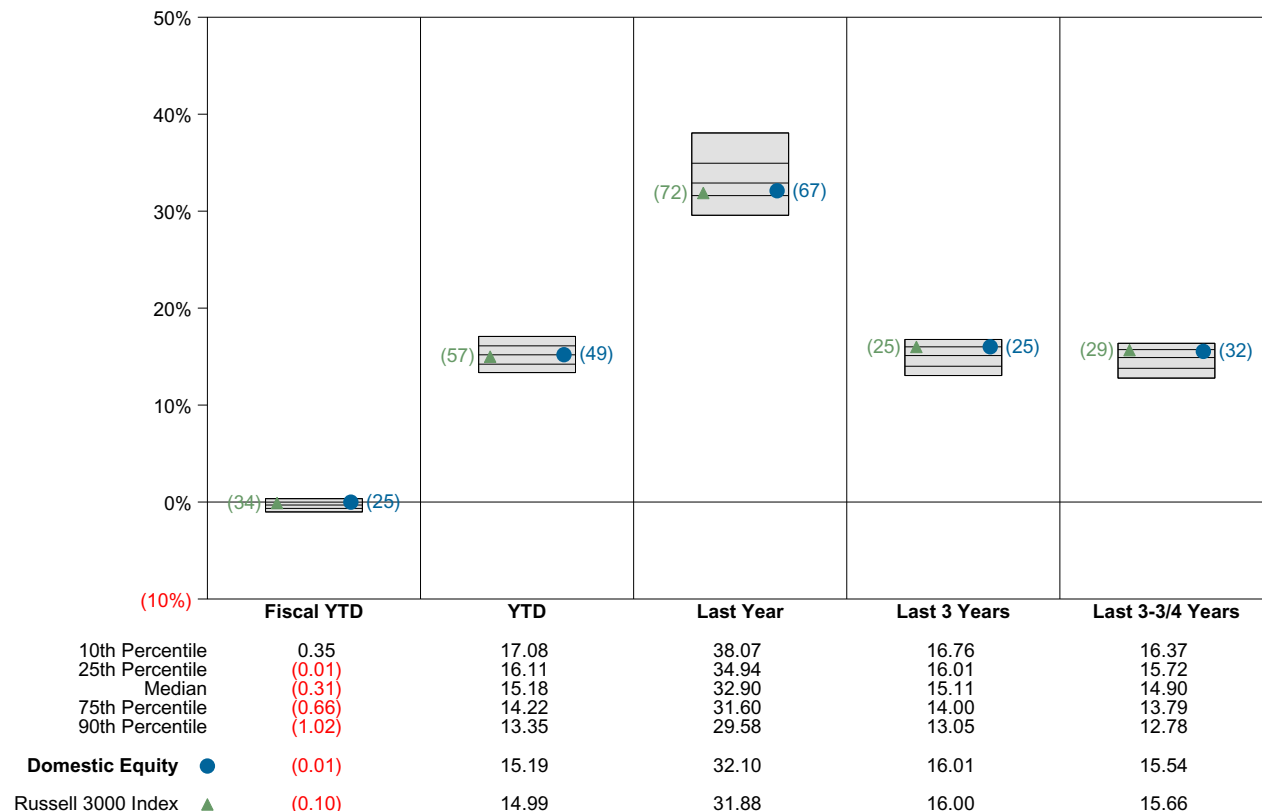
Inception Date

Parametric was funded December 12th, 2017.

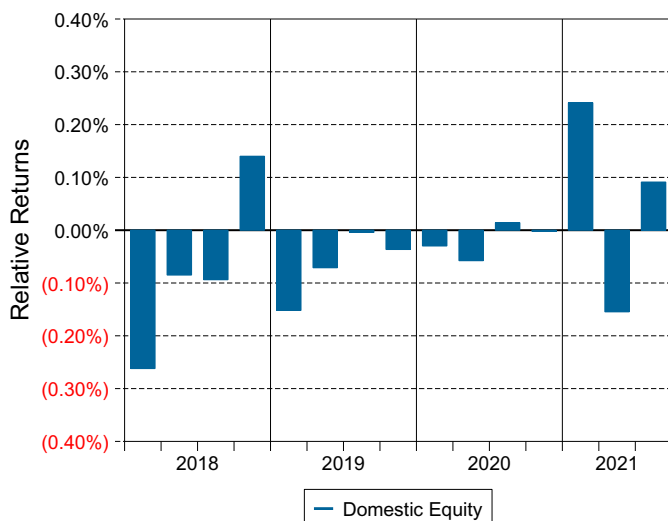
Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a (0.01)% return for the quarter placing it in the 25 percentile of the EF- Domestic Equity group for the quarter and in the 67 percentile for the last year.
- Domestic Equity's portfolio outperformed the Russell 3000 Index by 0.09% for the quarter and outperformed the Russell 3000 Index for the year by 0.23%.

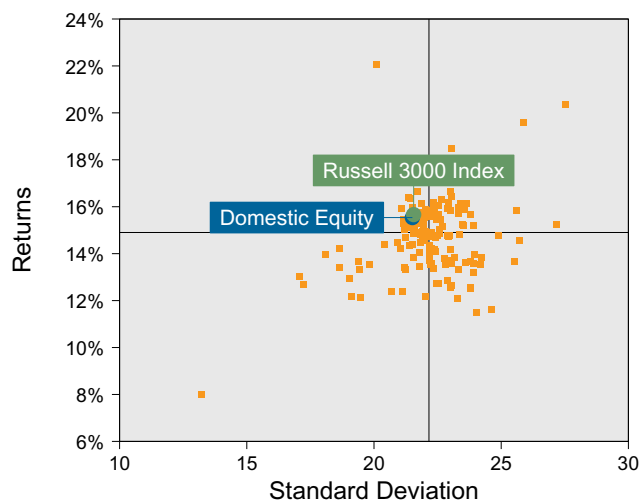
Performance vs EF- Domestic Equity (Gross)



Relative Return vs Russell 3000 Index



EF- Domestic Equity (Gross) Annualized Three and Three-Quarter Year Risk vs Return

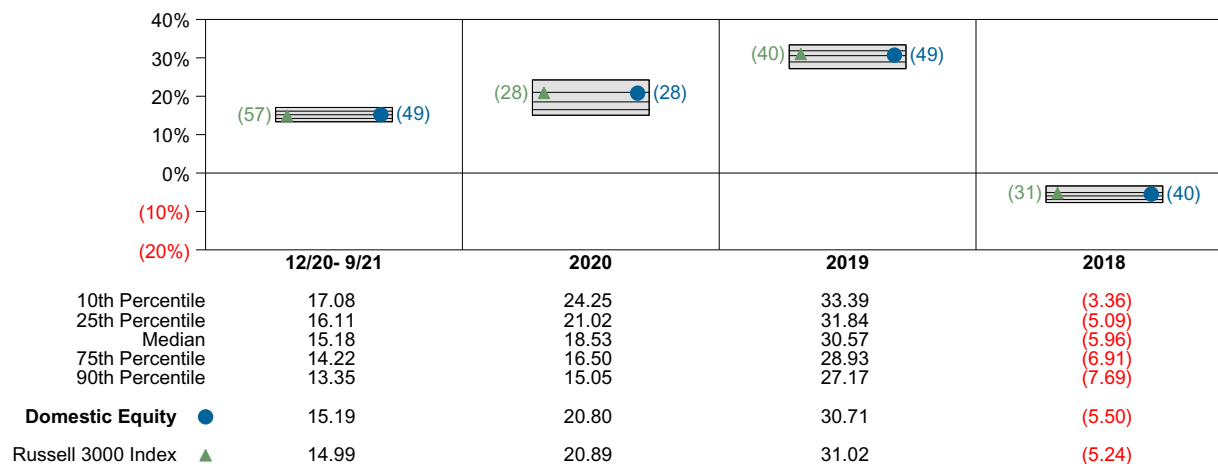


Domestic Equity Return Analysis Summary

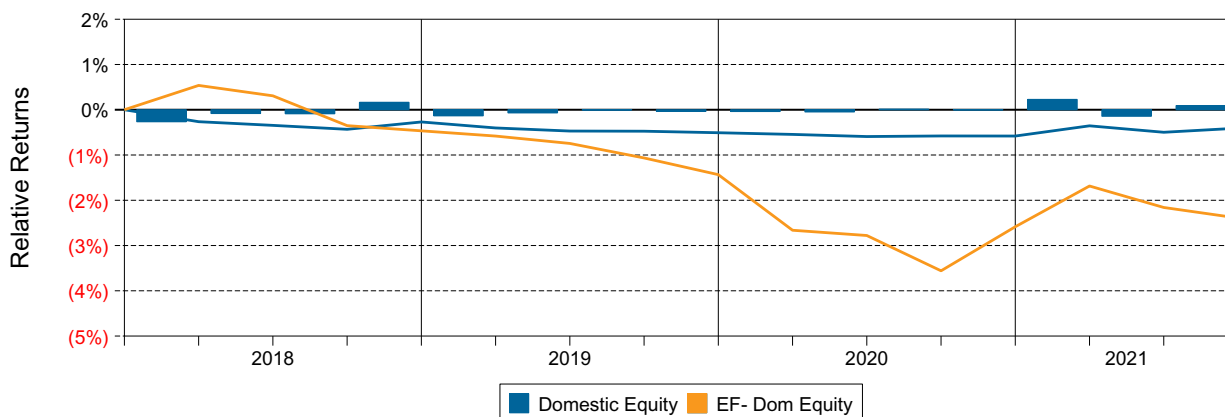
Return Analysis

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)



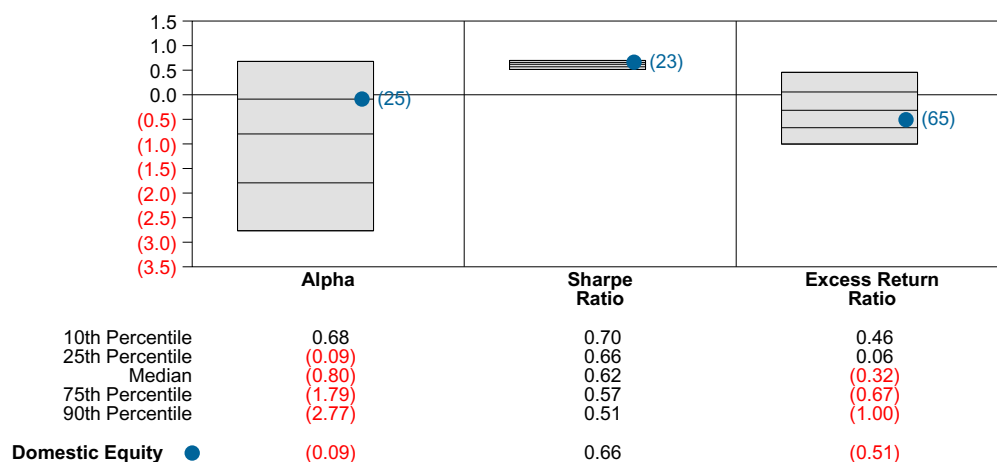
Cumulative and Quarterly Relative Return vs Russell 3000 Index



Risk Adjusted Return Measures vs Russell 3000 Index

Rankings Against EF- Domestic Equity (Gross)

Three and Three-Quarter Years Ended September 30, 2021

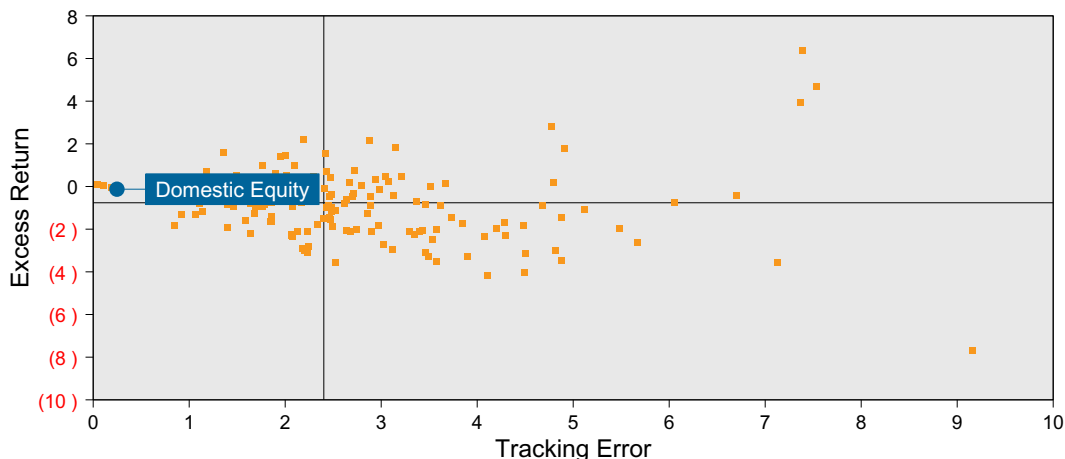


Domestic Equity Risk Analysis Summary

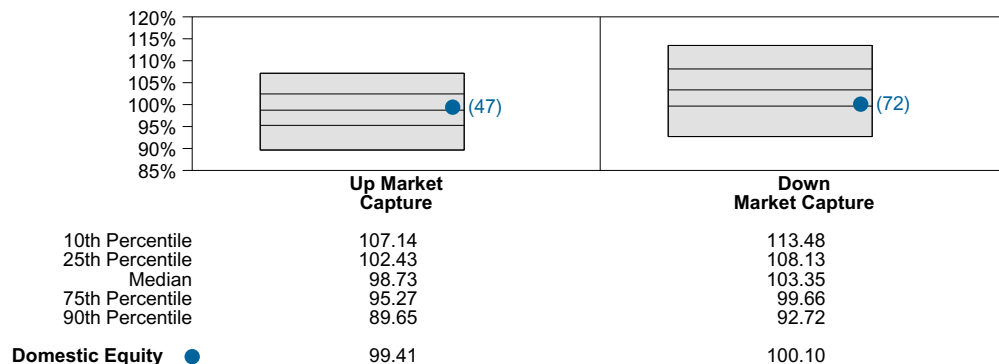
Risk Analysis

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.

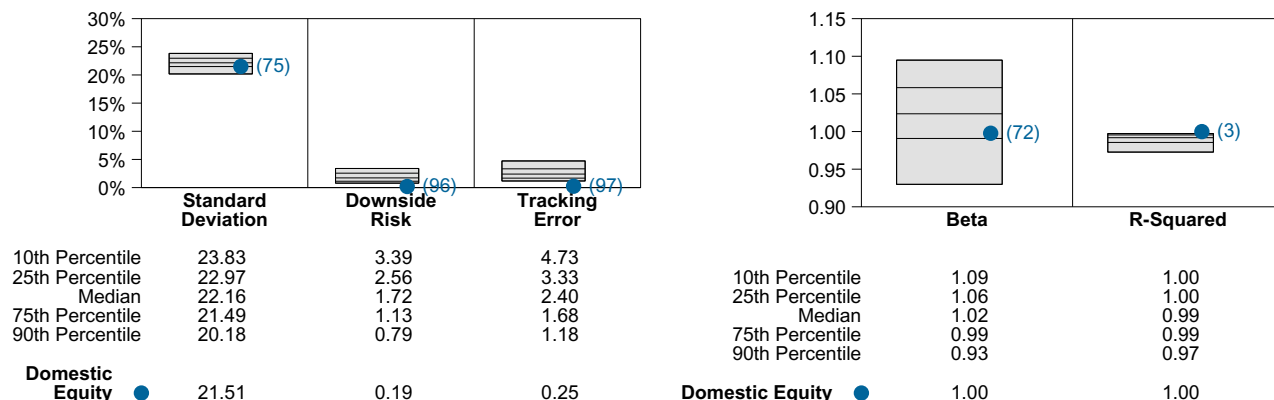
Risk Analysis vs EF- Domestic Equity (Gross) Three and Three-Quarter Years Ended September 30, 2021



Market Capture vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Three and Three-Quarter Years Ended September 30, 2021



Risk Statistics Rankings vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Three and Three-Quarter Years Ended September 30, 2021

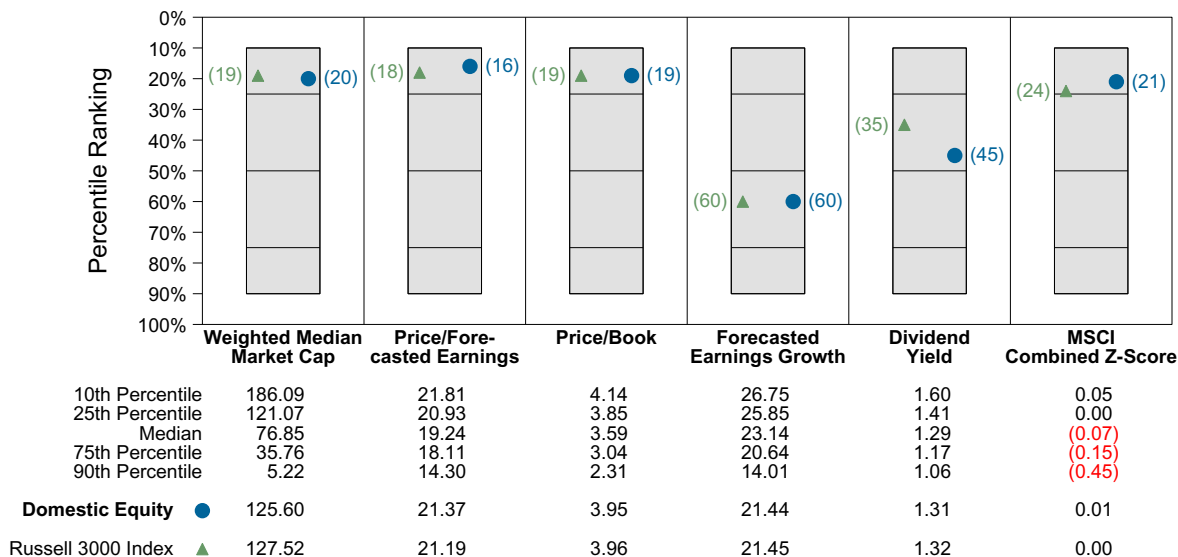


Domestic Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

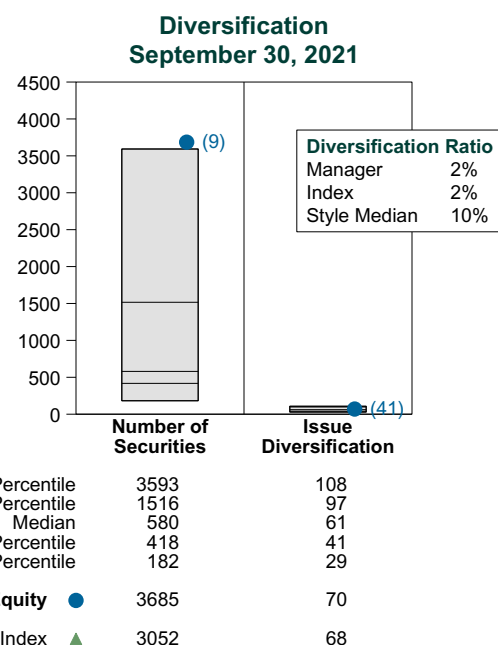
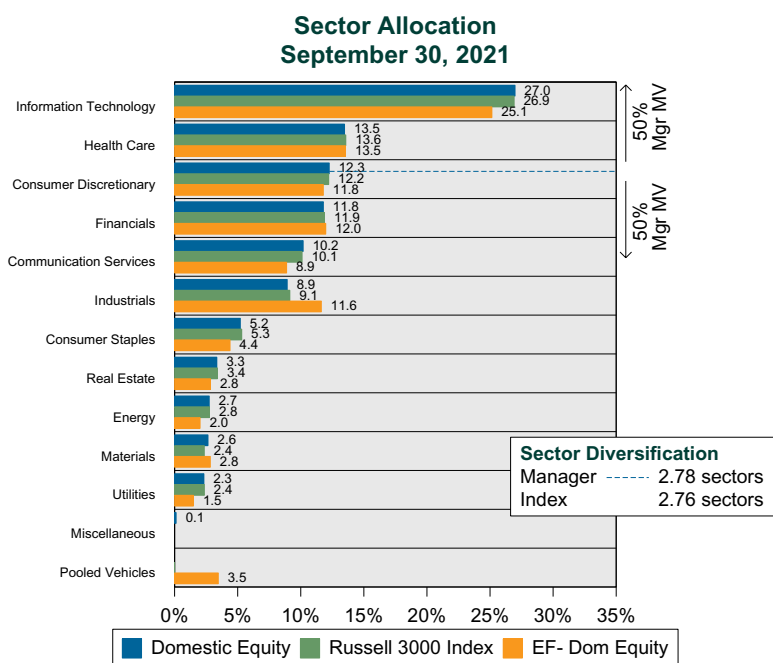
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against EF- Domestic Equity as of September 30, 2021



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 September 30, 2021

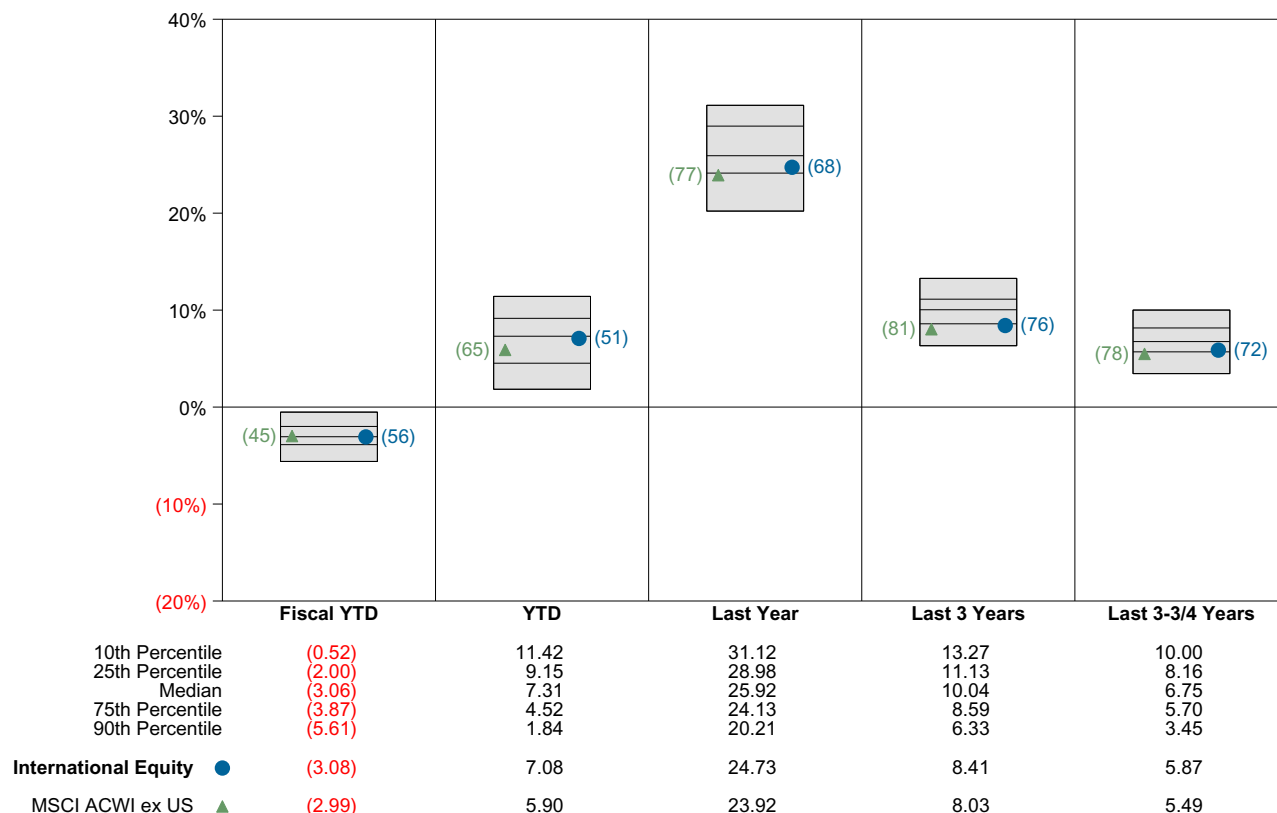
Inception Date

Parametric was funded December 12th, 2017.

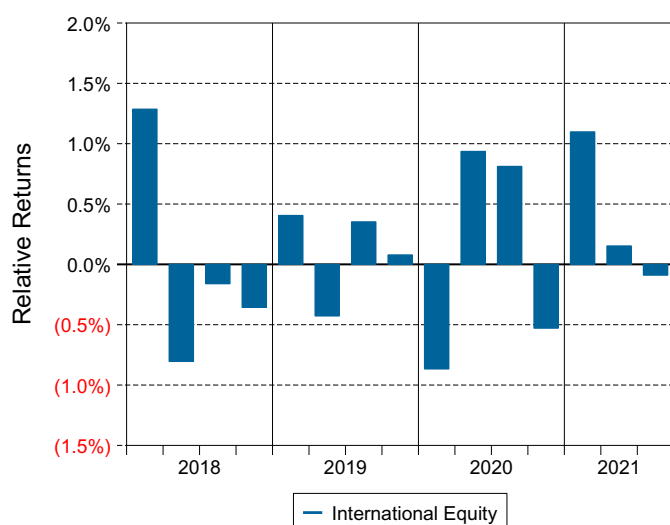
Quarterly Summary and Highlights

- International Equity's portfolio posted a (3.08)% return for the quarter placing it in the 56 percentile of the EF-International Equity group for the quarter and in the 68 percentile for the last year.
- International Equity's portfolio underperformed the MSCI ACWI ex US by 0.09% for the quarter and outperformed the MSCI ACWI ex US for the year by 0.81%.

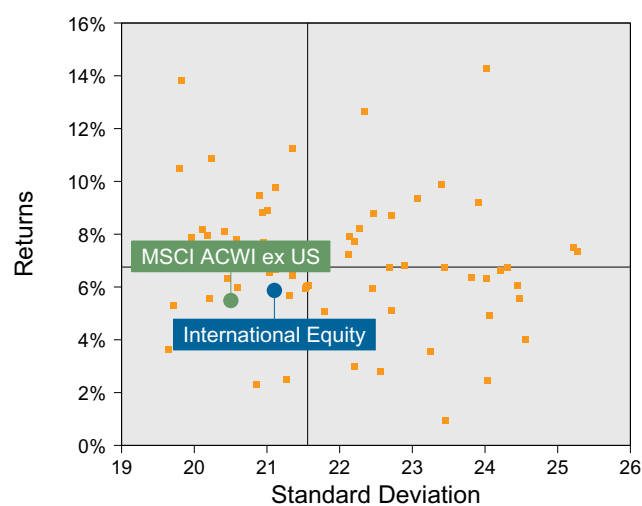
Performance vs EF- International Equity (Gross)



Relative Return vs MSCI ACWI ex US



EF- International Equity (Gross) Annualized Three and Three-Quarter Year Risk vs Return

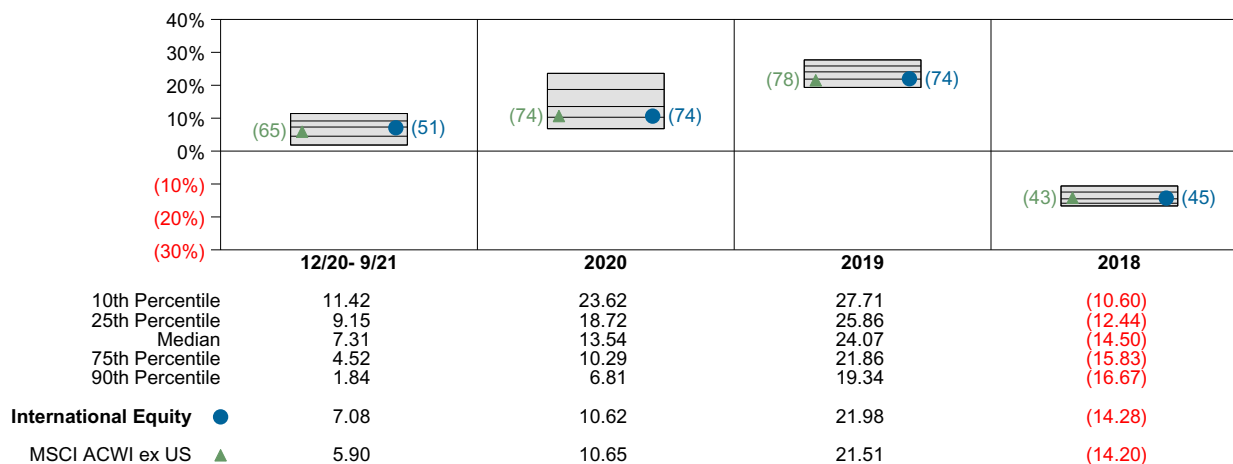


International Equity Return Analysis Summary

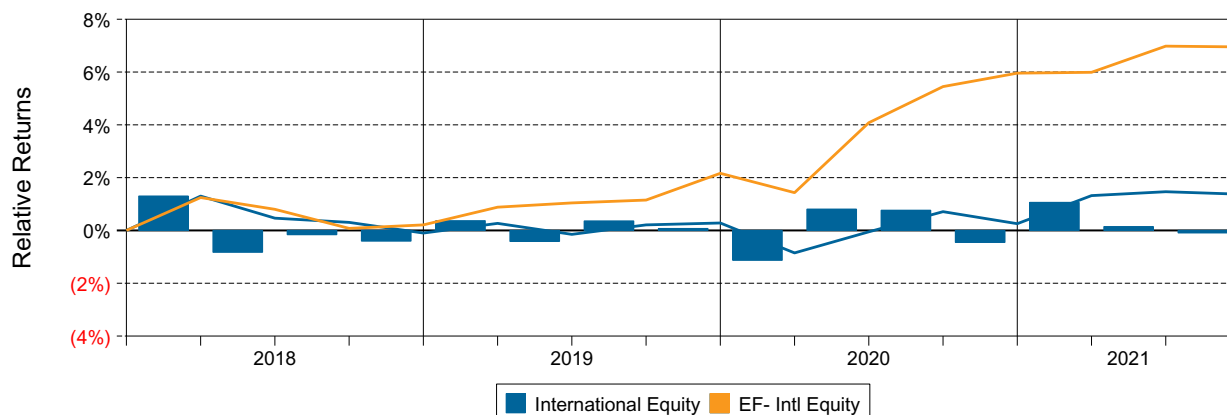
Return Analysis

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)



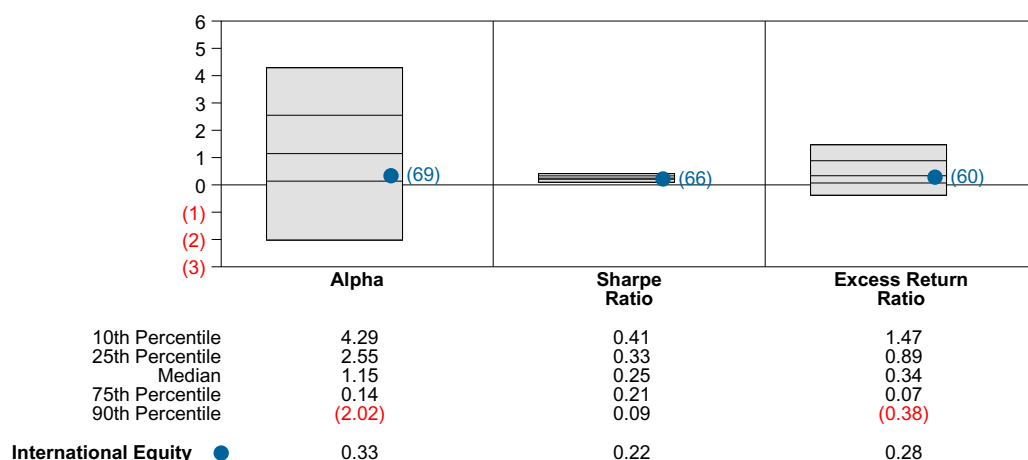
Cumulative and Quarterly Relative Return vs MSCI ACWI ex US



Risk Adjusted Return Measures vs MSCI ACWI ex US

Rankings Against EF- International Equity (Gross)

Three and Three-Quarter Years Ended September 30, 2021

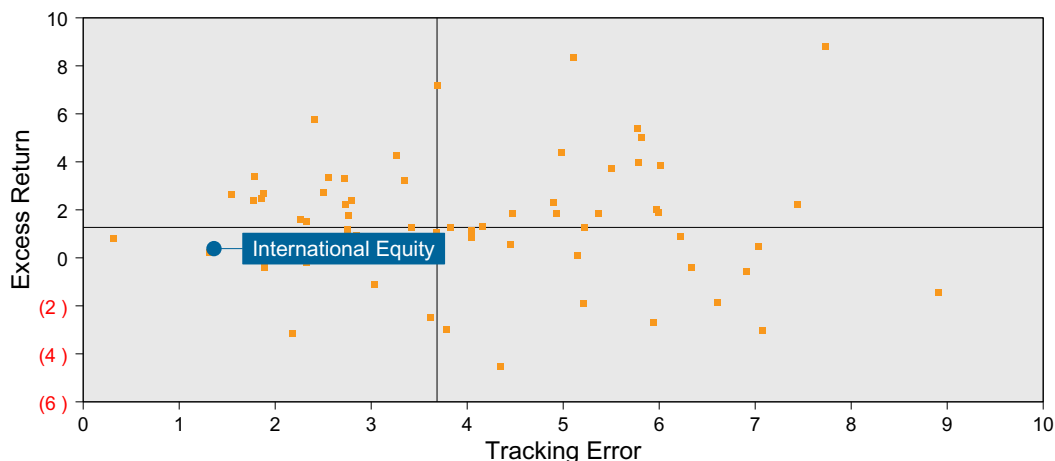


International Equity Risk Analysis Summary

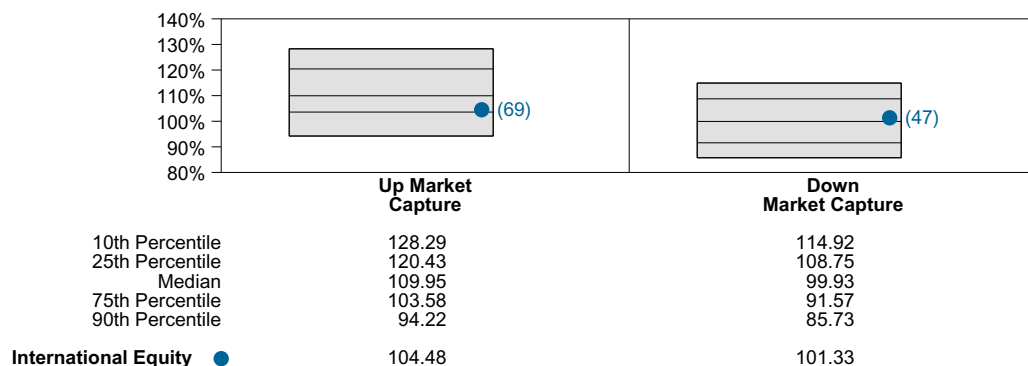
Risk Analysis

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.

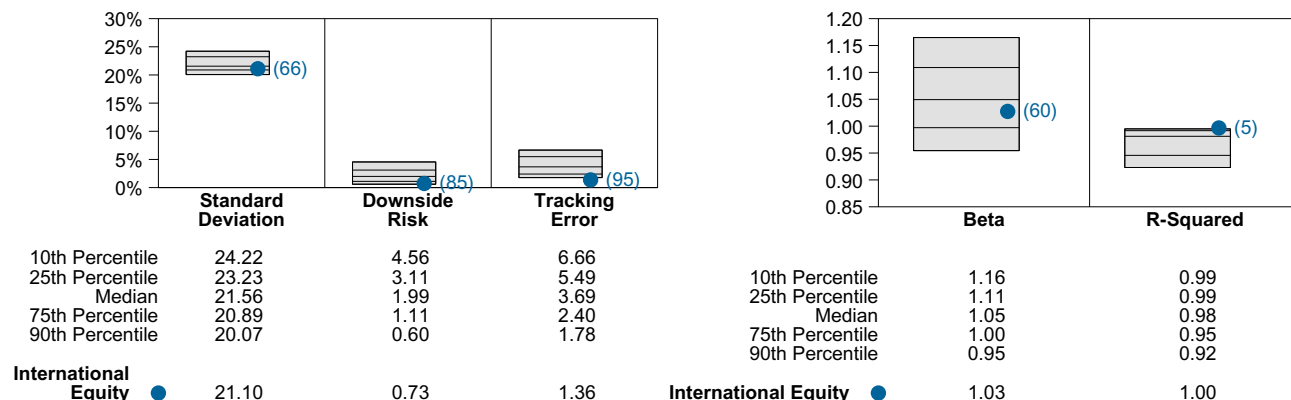
Risk Analysis vs EF- International Equity (Gross) Three and Three-Quarter Years Ended September 30, 2021



Market Capture vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Three and Three-Quarter Years Ended September 30, 2021



Risk Statistics Rankings vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Three and Three-Quarter Years Ended September 30, 2021

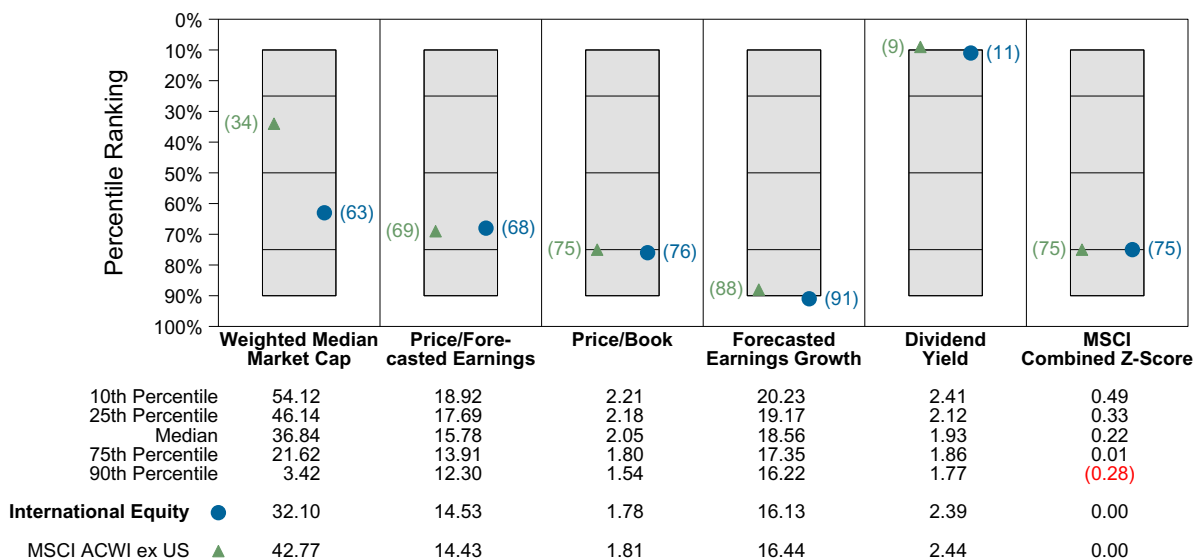


International Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

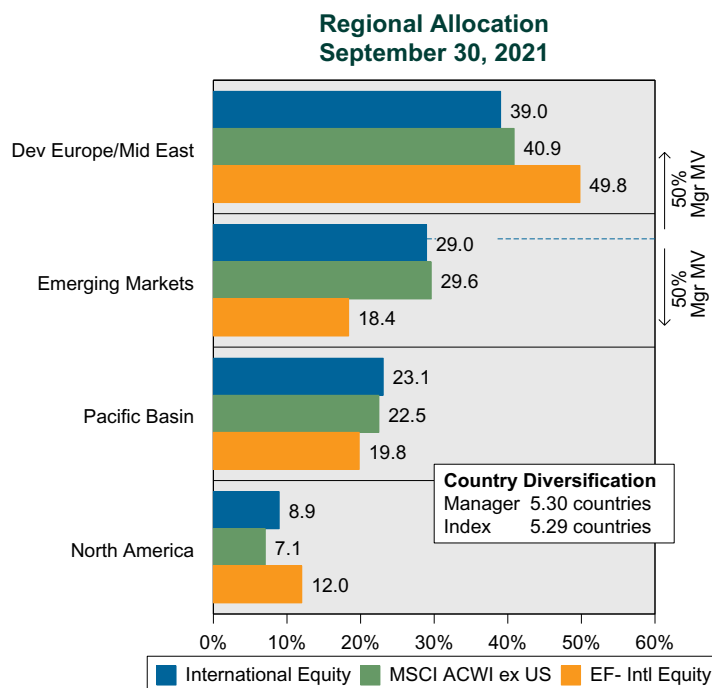
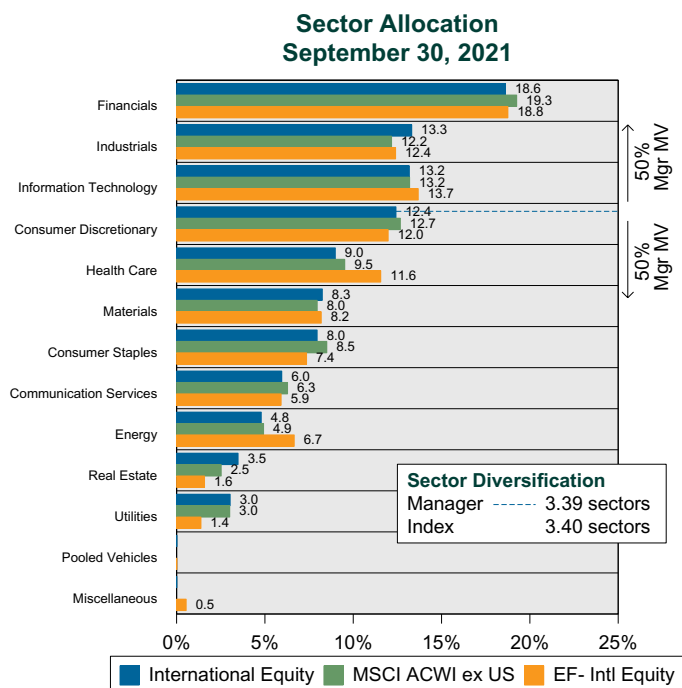
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against EF- International Equity as of September 30, 2021



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 September 30, 2021

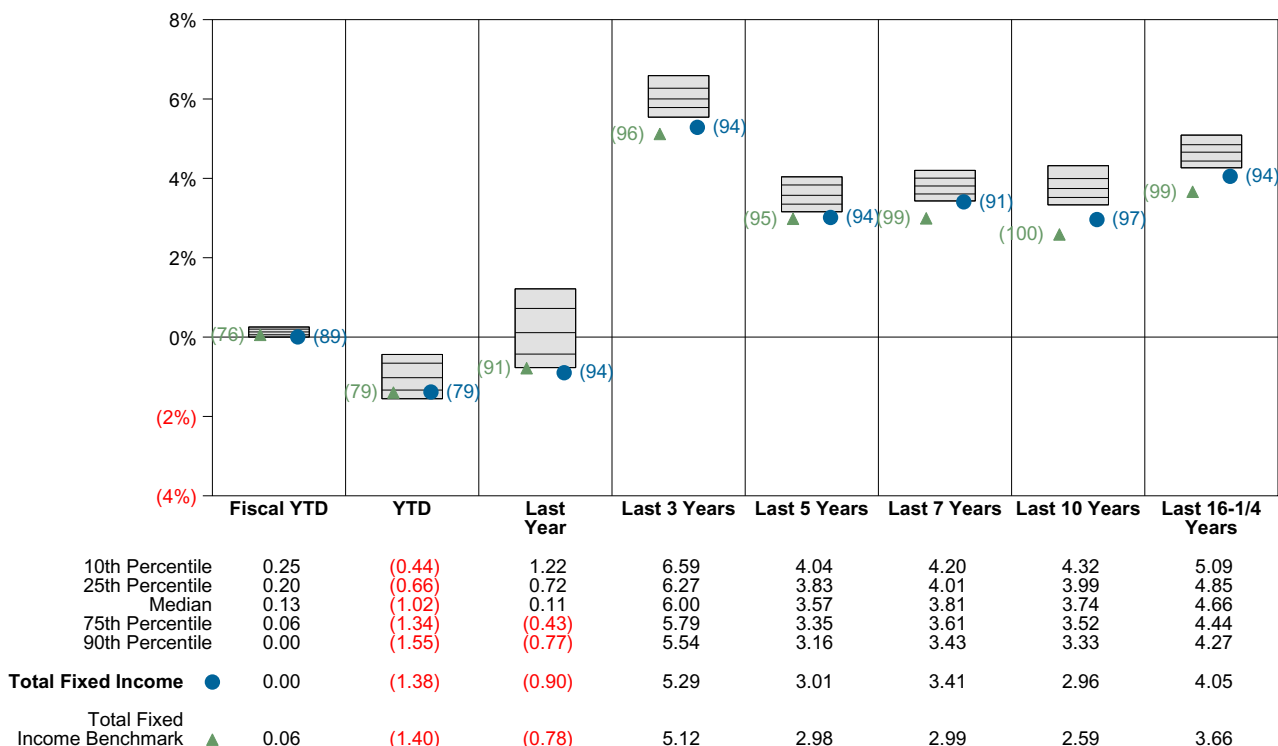
Benchmark Definition

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.

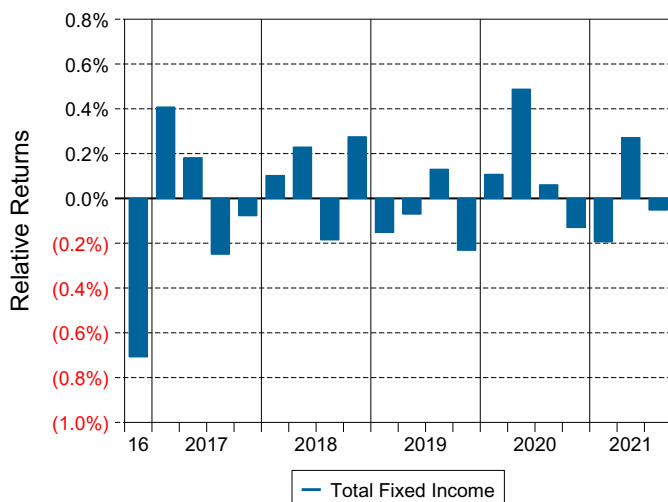
Quarterly Summary and Highlights

- Total Fixed Income's portfolio posted a 0.00% return for the quarter placing it in the 89 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 94 percentile for the last year.
- Total Fixed Income's portfolio underperformed the Total Fixed Income Benchmark by 0.05% for the quarter and underperformed the Total Fixed Income Benchmark for the year by 0.11%.

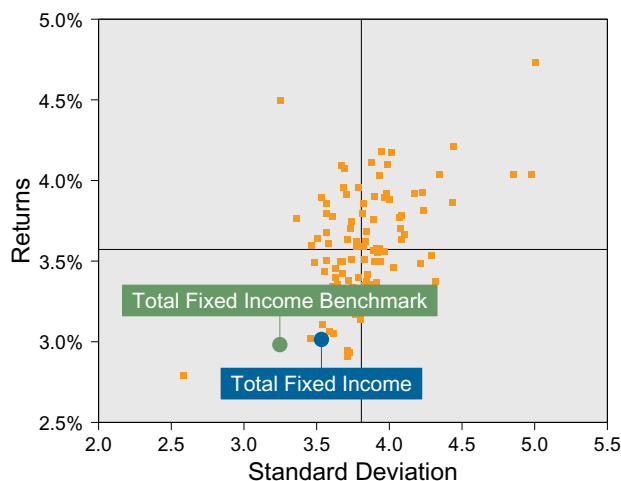
Performance vs Callan Core Bond Fixed Income (Gross)



Relative Returns vs Total Fixed Income Benchmark



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

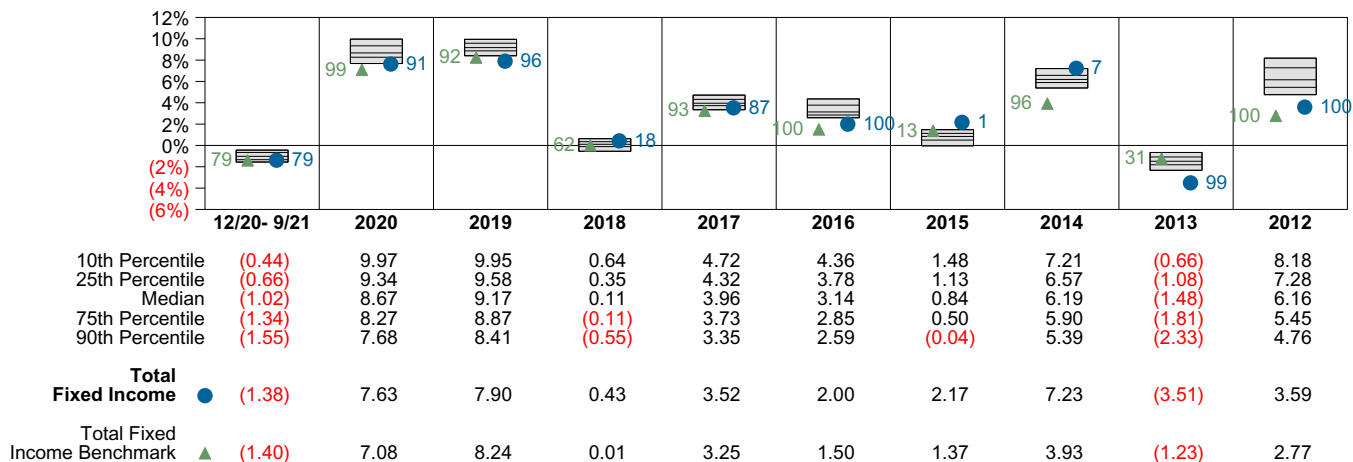


Total Fixed Income Return Analysis Summary

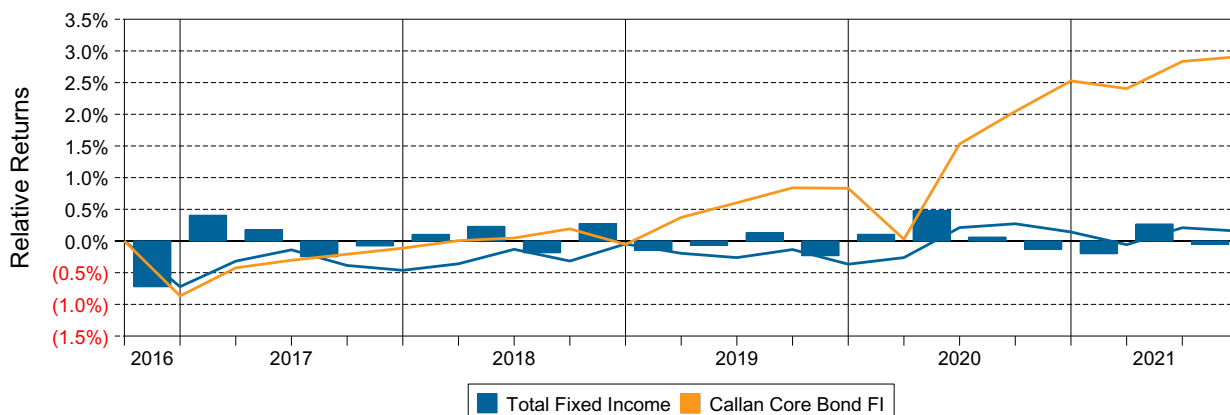
Return Analysis

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.

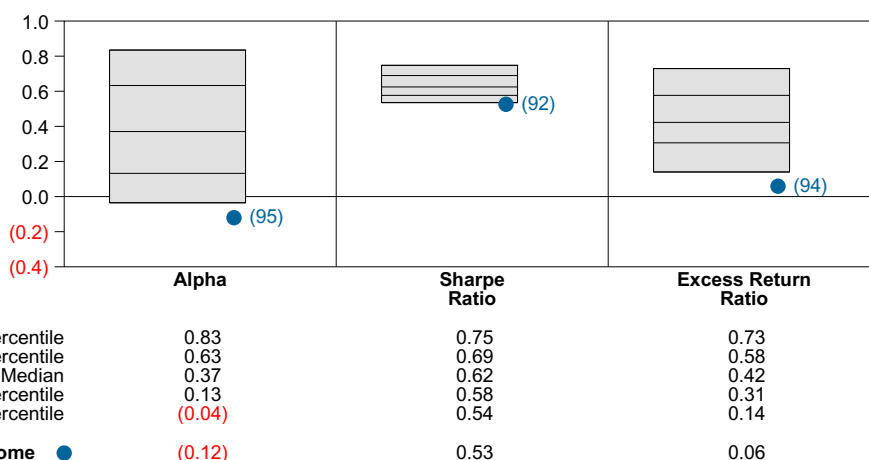
Performance vs Callan Core Bond Fixed Income (Gross)



Cumulative and Quarterly Relative Return 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 September 30, 2021

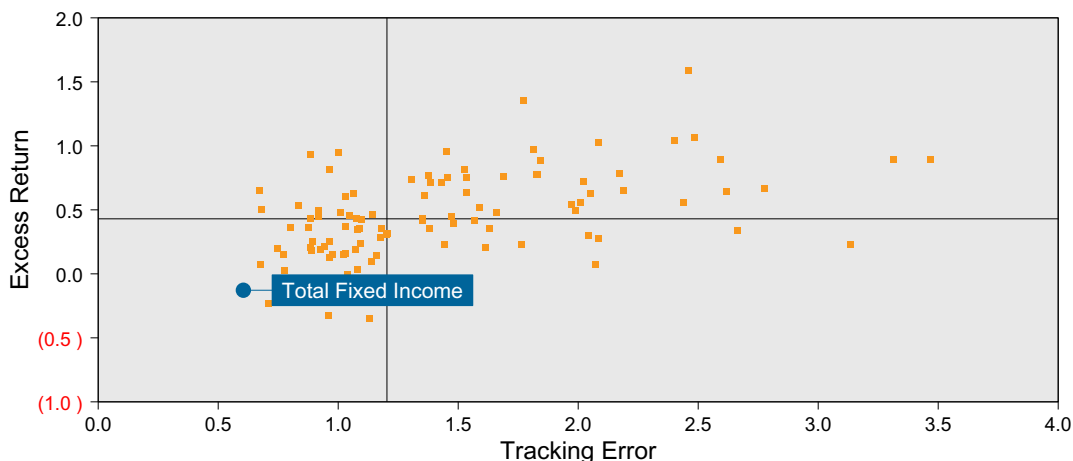


Total Fixed Income Risk Analysis Summary

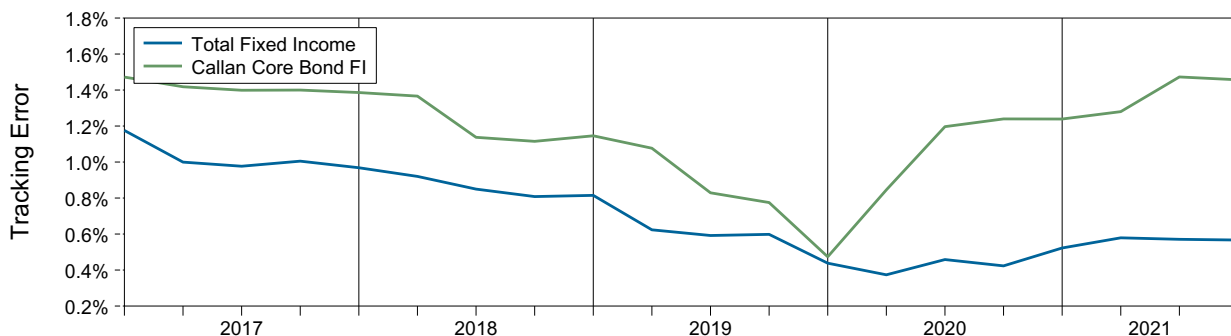
Risk Analysis

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.

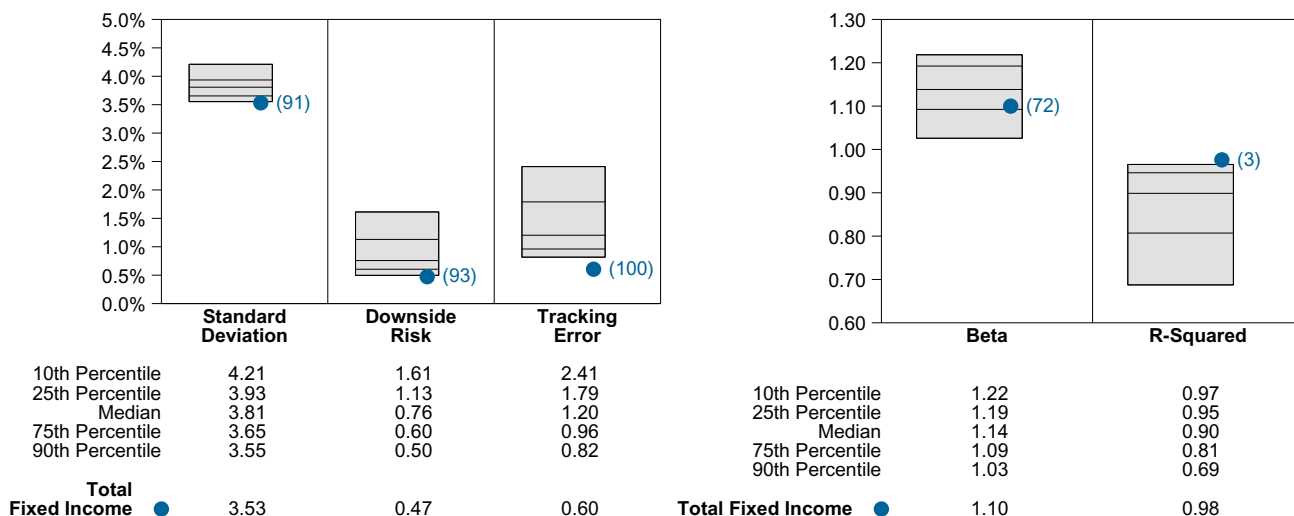
Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended September 30, 2021



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 September 30, 2021

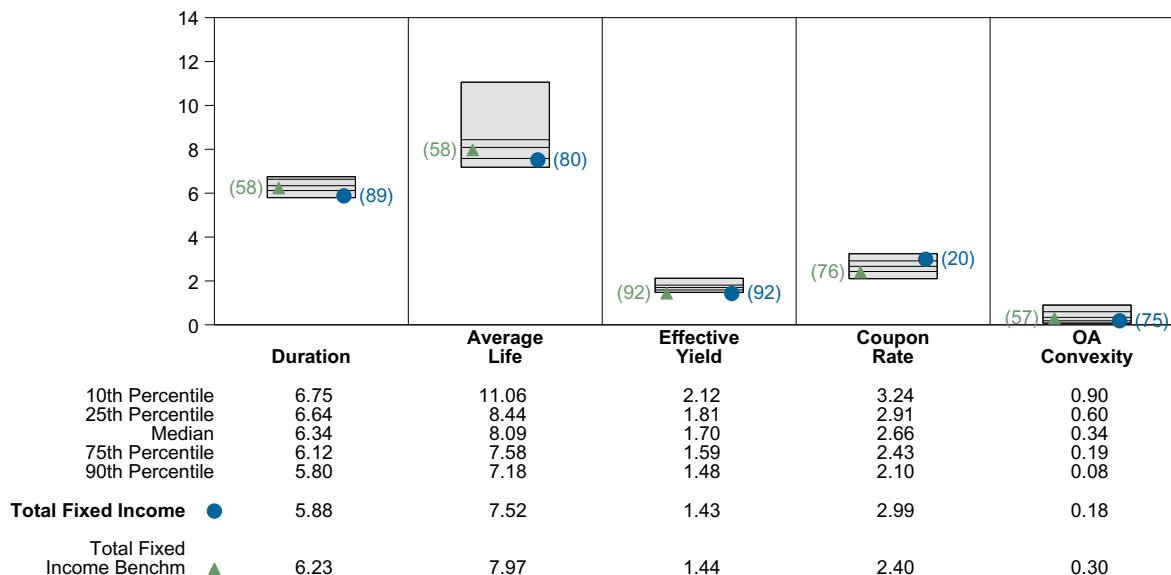


Total Fixed Income Bond Characteristics Analysis Summary

Portfolio Characteristics

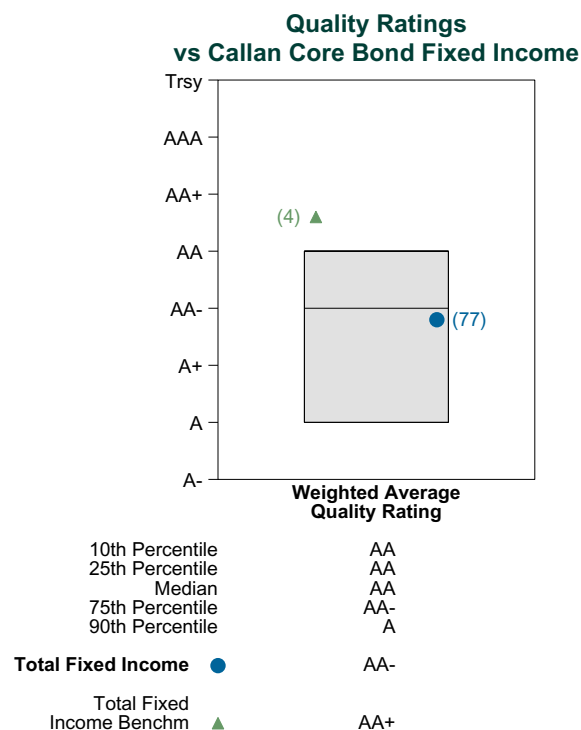
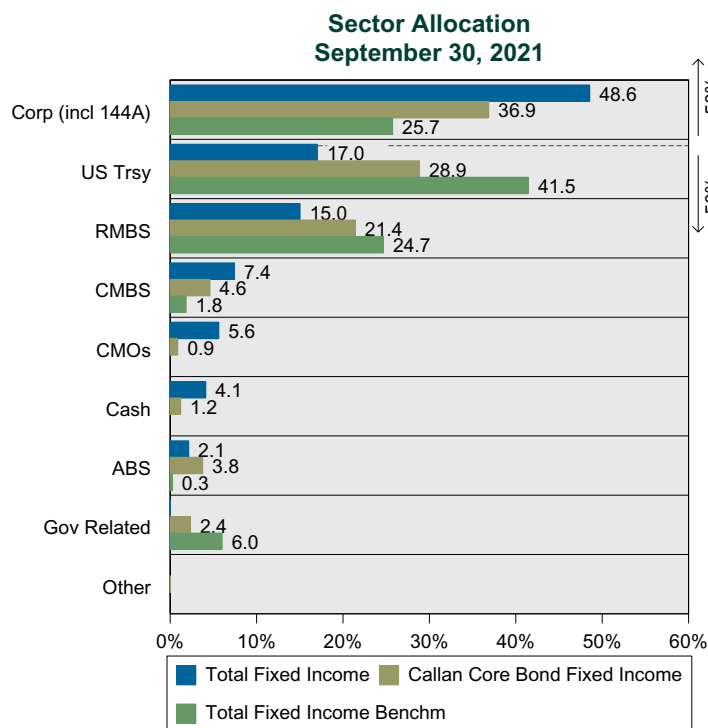
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of September 30, 2021



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.

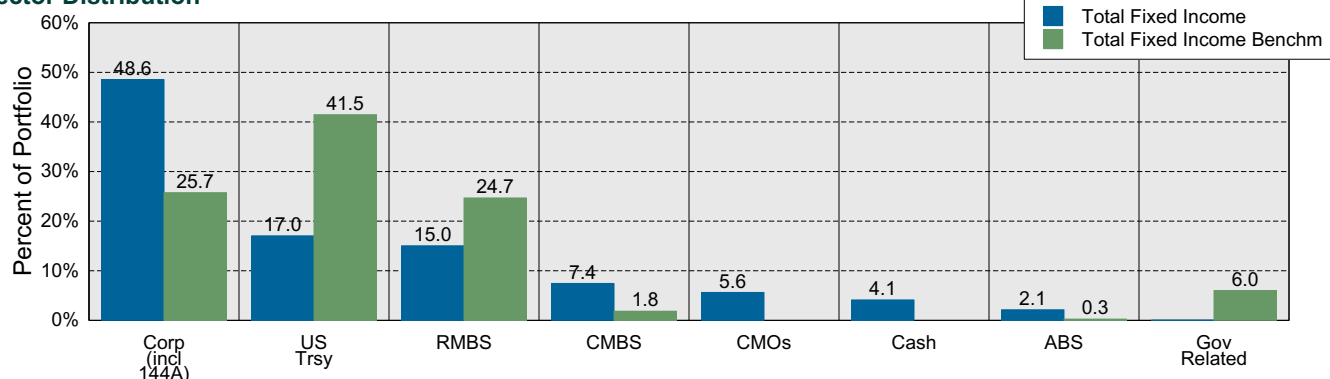


Total Fixed Income Portfolio Characteristics Summary As of September 30, 2021

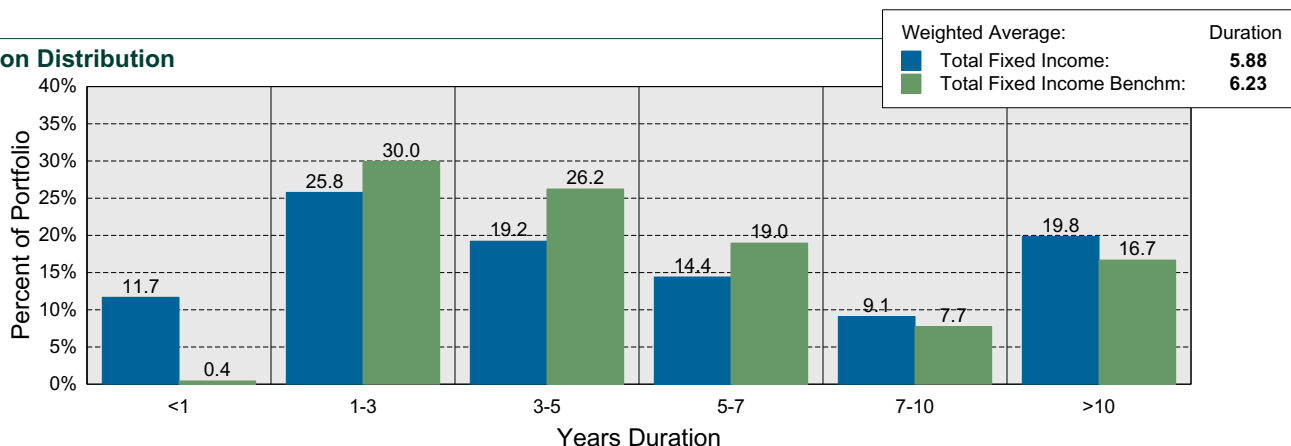
Portfolio Structure Comparison

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.

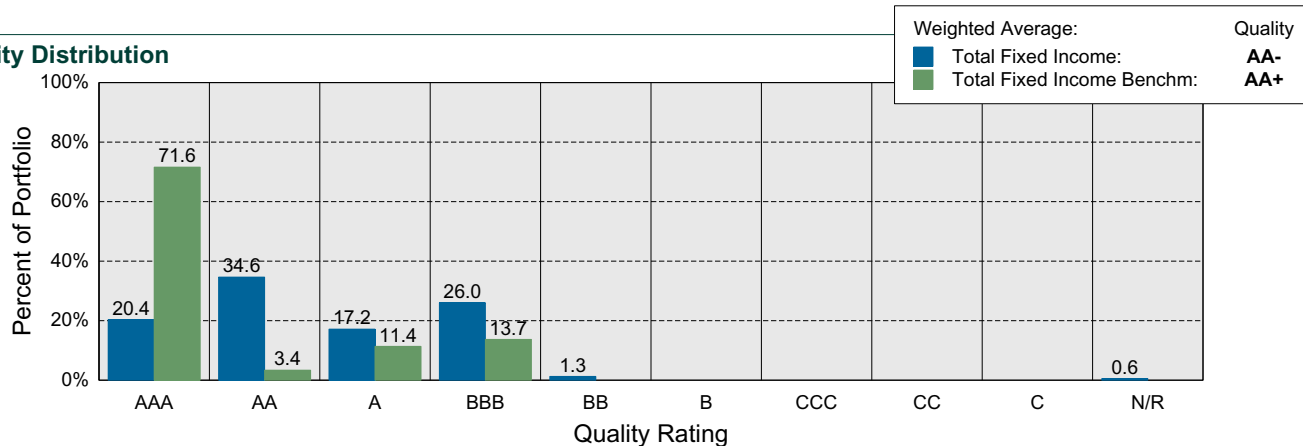
Sector Distribution



Duration Distribution



Quality Distribution



Colorado Treasurer's Portfolio Period Ended September 30, 2021

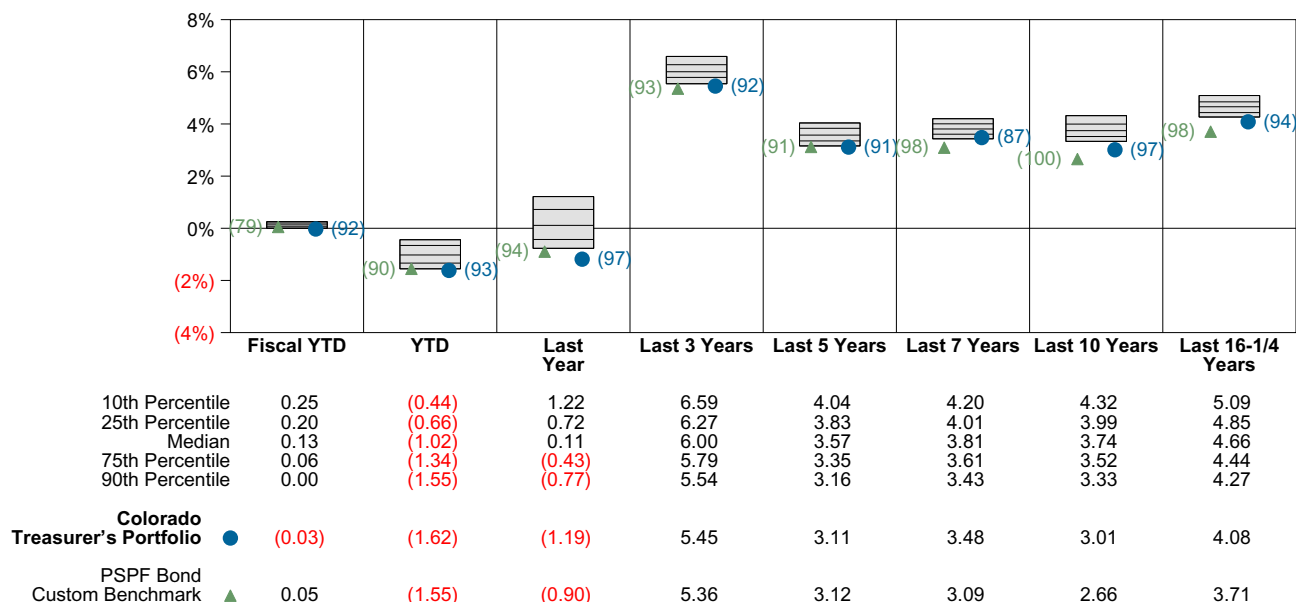
Investment Philosophy

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.

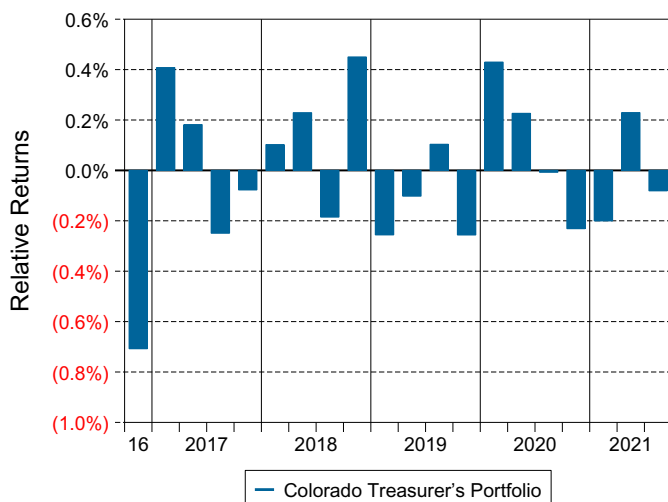
Quarterly Summary and Highlights

- Colorado Treasurer's Portfolio's portfolio posted a (0.03)% return for the quarter placing it in the 92 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 97 percentile for the last year.
- Colorado Treasurer's Portfolio's portfolio underperformed the PSPF Bond Custom Benchmark by 0.08% for the quarter and underperformed the PSPF Bond Custom Benchmark for the year by 0.29%.

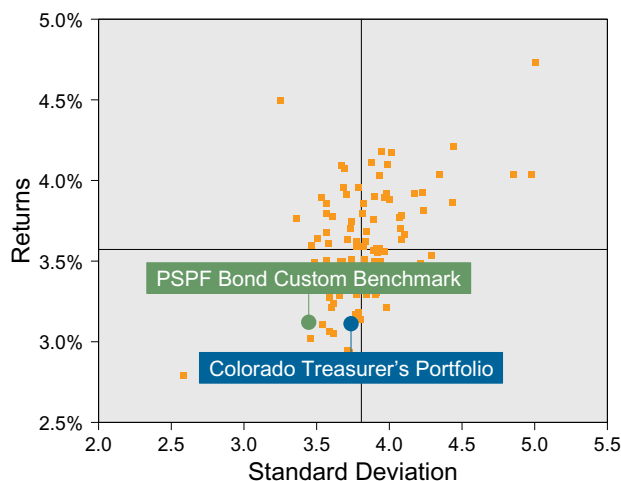
Performance vs Callan Core Bond Fixed Income (Gross)



Relative Returns vs PSPF Bond Custom Benchmark



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

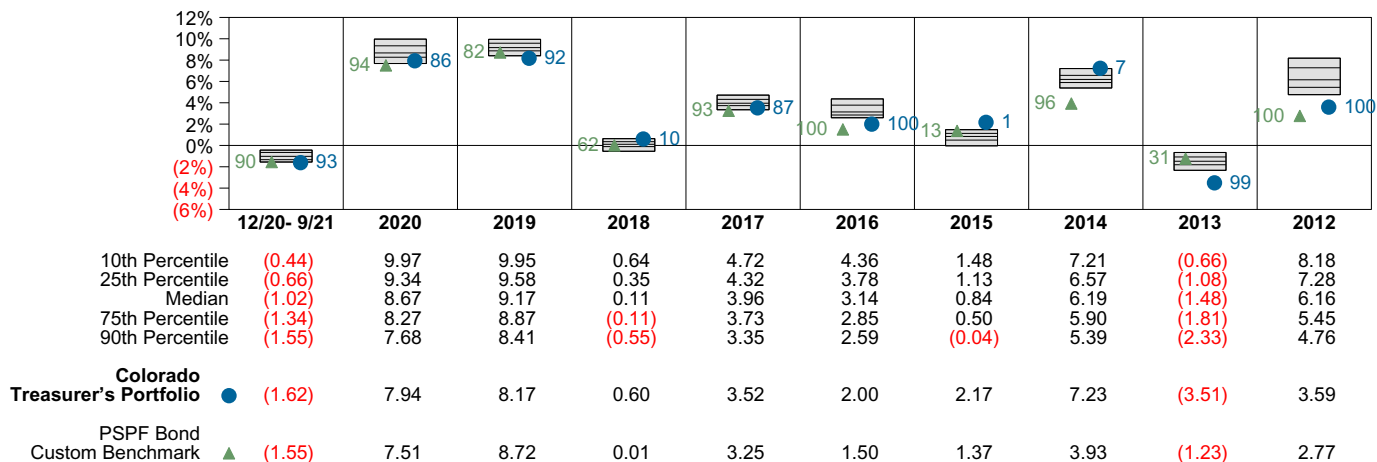


Colorado Treasurer's Portfolio Return Analysis Summary

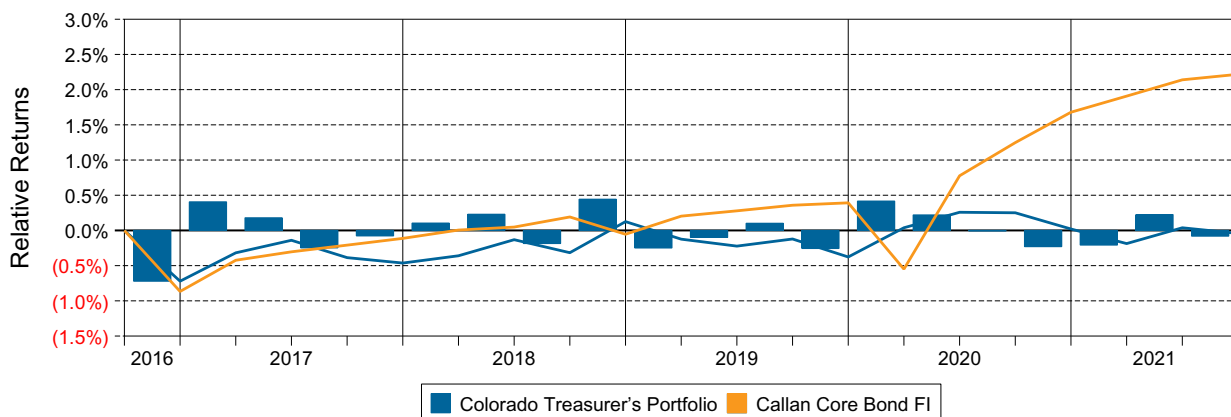
Return Analysis

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.

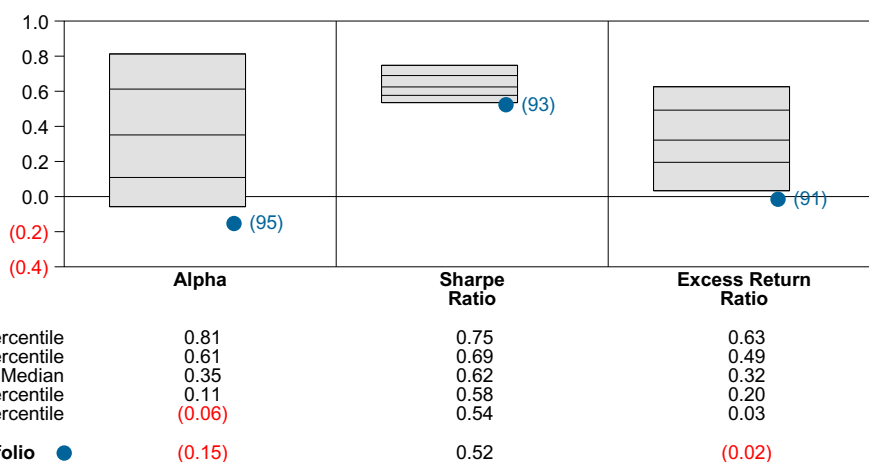
Performance vs Callan Core Bond Fixed Income (Gross)



Cumulative and Quarterly Relative Return 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 September 30, 2021

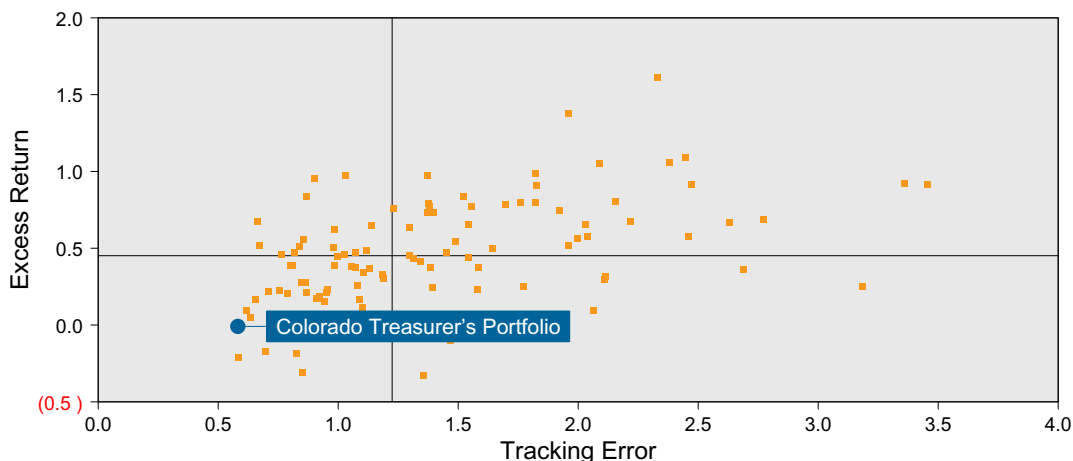


Colorado Treasurer's Portfolio Risk Analysis Summary

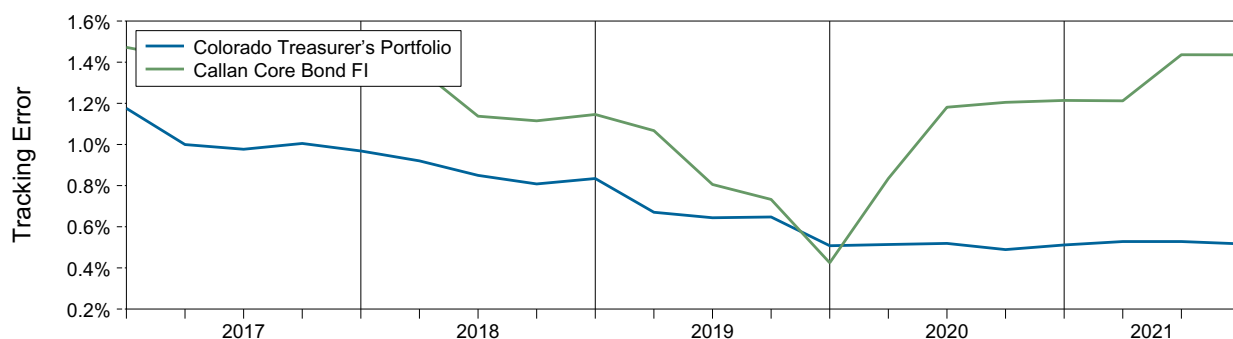
Risk Analysis

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.

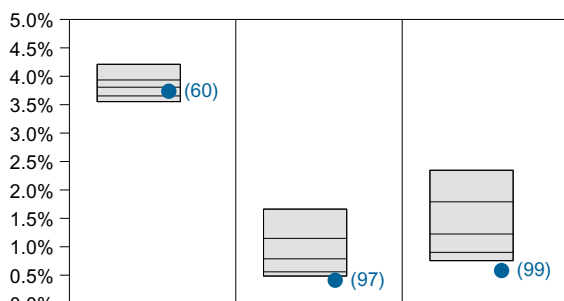
Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended September 30, 2021



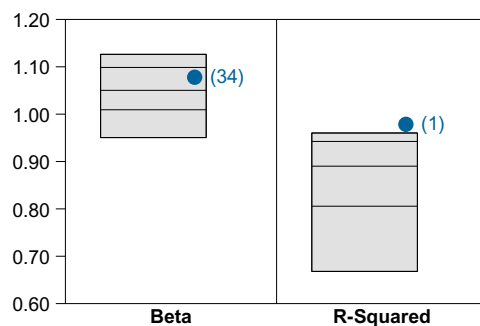
Rolling 12 Quarter Tracking Error vs PSPF Bond Custom Benchmark



Risk Statistics Rankings vs PSPF Bond Custom Benchmark Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended September 30, 2021



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	4.21	1.66	2.35
25th Percentile	3.93	1.15	1.79
Median	3.81	0.79	1.22
75th Percentile	3.65	0.56	0.90
90th Percentile	3.55	0.48	0.76



	Beta	R-Squared
10th Percentile	1.13	0.96
25th Percentile	1.10	0.94
Median	1.05	0.89
75th Percentile	1.01	0.81
90th Percentile	0.95	0.67

Colorado Treasurer's Portfolio ●

3.74

0.41

0.58

Colorado Treasurer's Portfolio ●

1.08

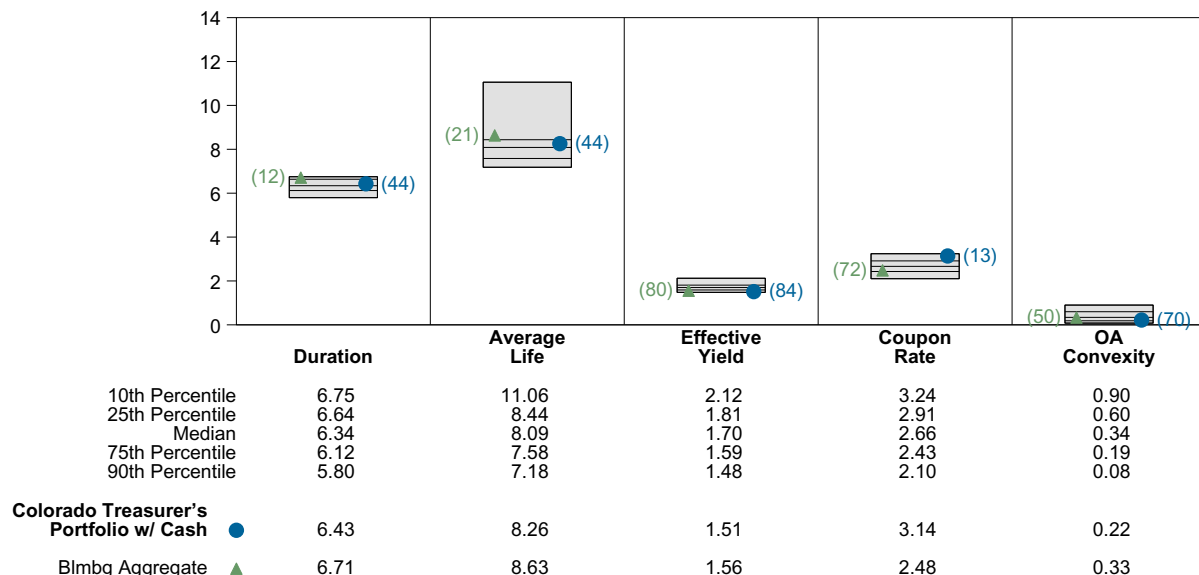
0.98

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

Portfolio Characteristics

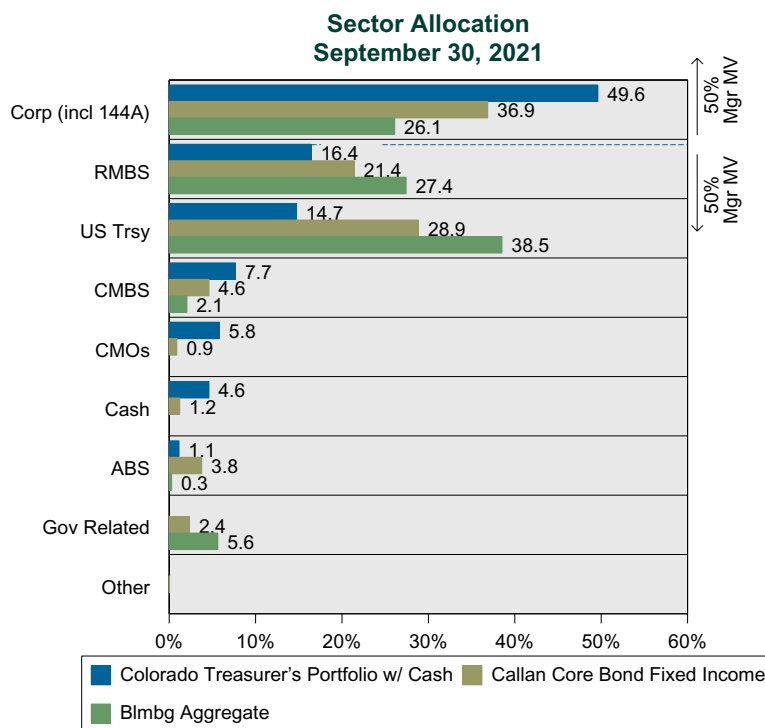
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of September 30, 2021

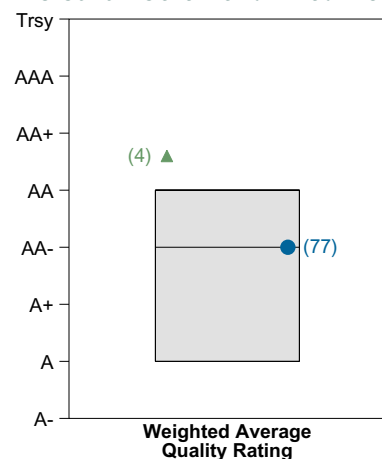


Sector Allocation and Quality Ratings

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.



Quality Ratings vs Callan Core Bond Fixed Income



10th Percentile	AA
25th Percentile	AA
Median	AA
75th Percentile	AA-
90th Percentile	A
Colorado Treasurer's Portfolio w/ Cash	AA-
Blmbg Aggregate	AA+

Colorado Treasurer's Portfolio w/ Cash

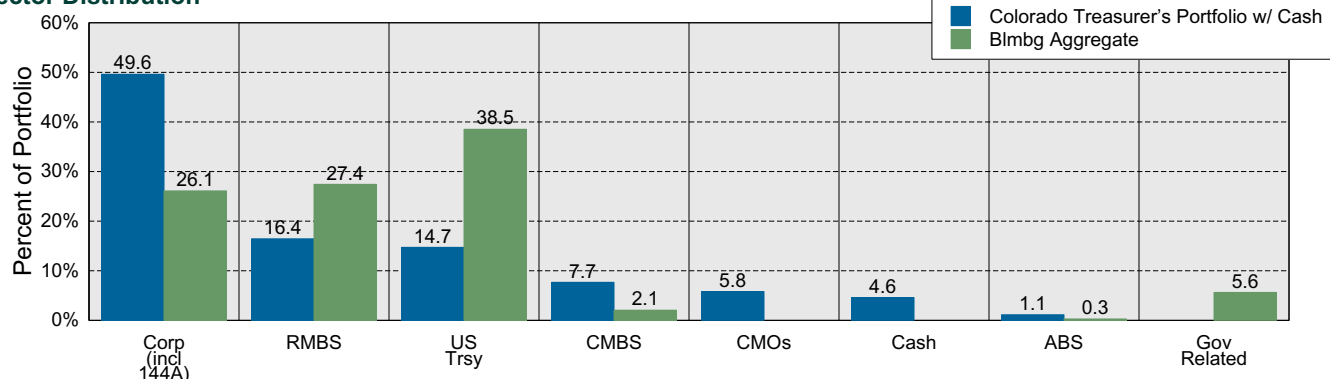
Portfolio Characteristics Summary

As of September 30, 2021

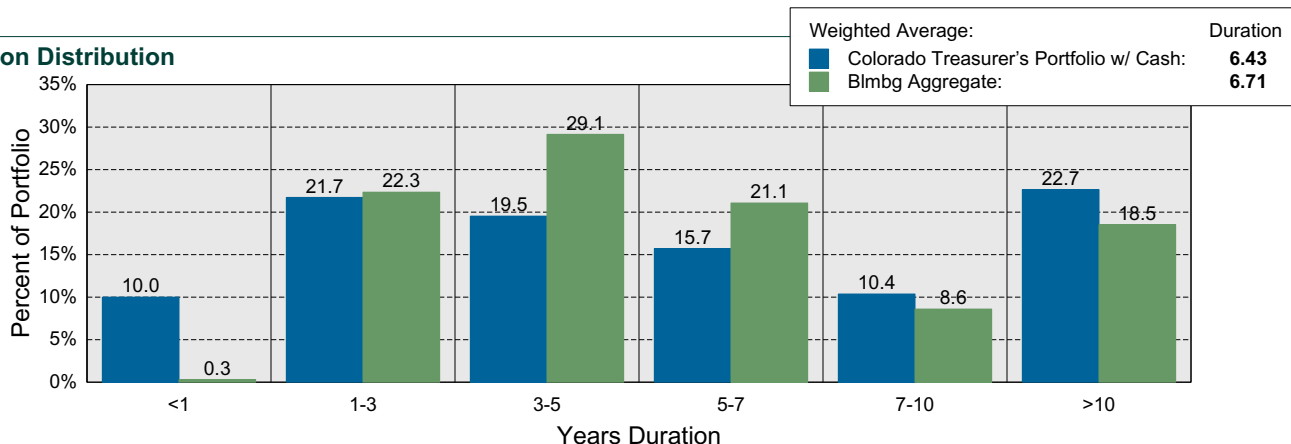
Portfolio Structure Comparison

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.

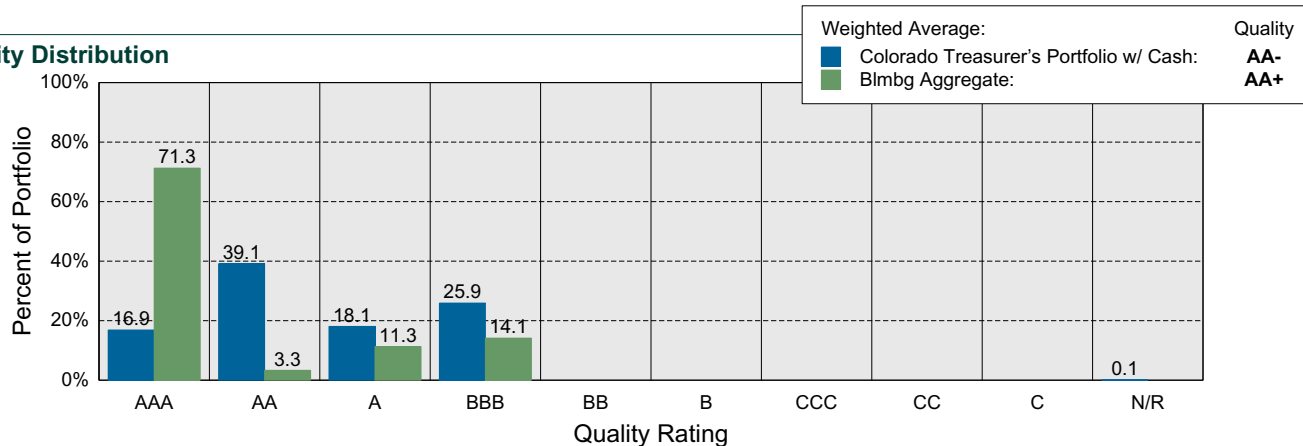
Sector Distribution



Duration Distribution



Quality Distribution



Janus Henderson Short Duration Period Ended September 30, 2021

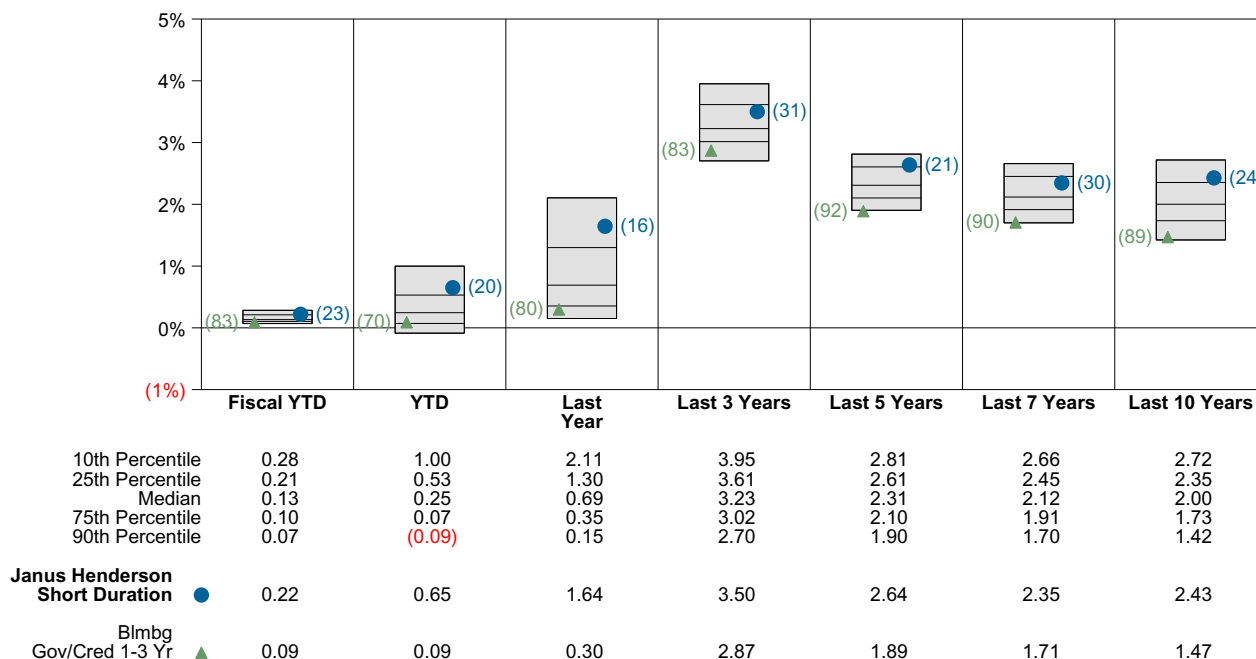
Investment Philosophy

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.

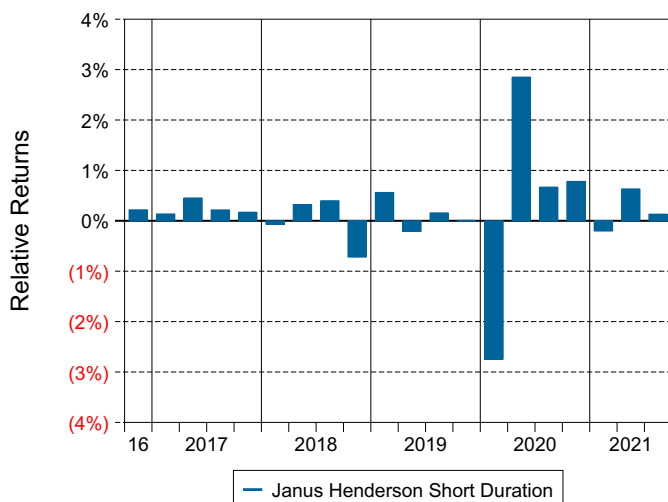
Quarterly Summary and Highlights

- Janus Henderson Short Duration's portfolio posted a 0.22% return for the quarter placing it in the 23 percentile of the Callan Short Term Fixed Income group for the quarter and in the 16 percentile for the last year.
- Janus Henderson Short Duration's portfolio outperformed the Blmbg Gov/Cred 1-3 Yr by 0.13% for the quarter and outperformed the Blmbg Gov/Cred 1-3 Yr for the year by 1.35%.

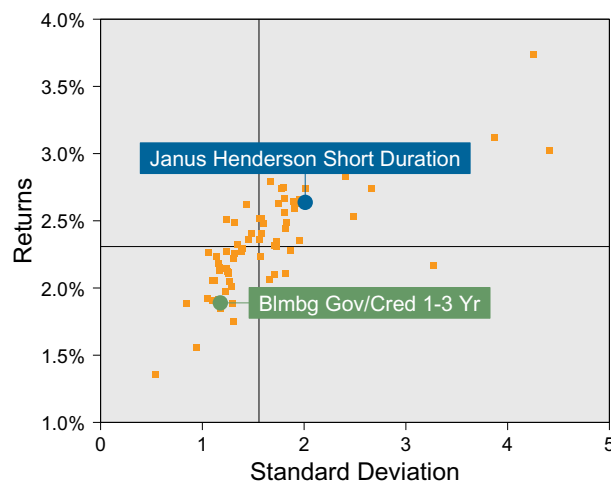
Performance vs Callan Short Term Fixed Income (Gross)



Relative Return vs Blmbg Gov/Cred 1-3 Yr



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

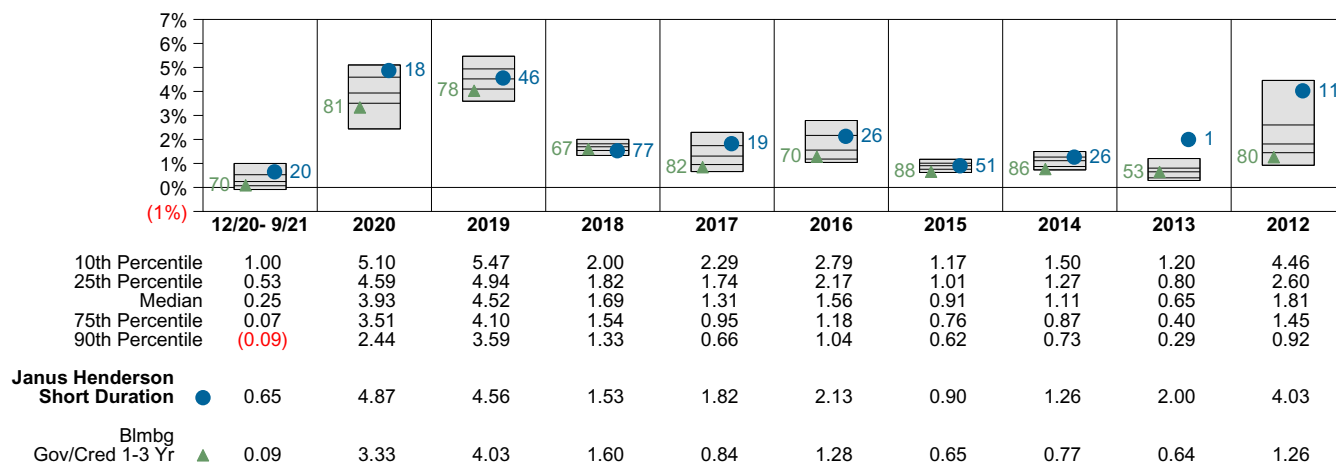


Janus Henderson Short Duration Return Analysis Summary

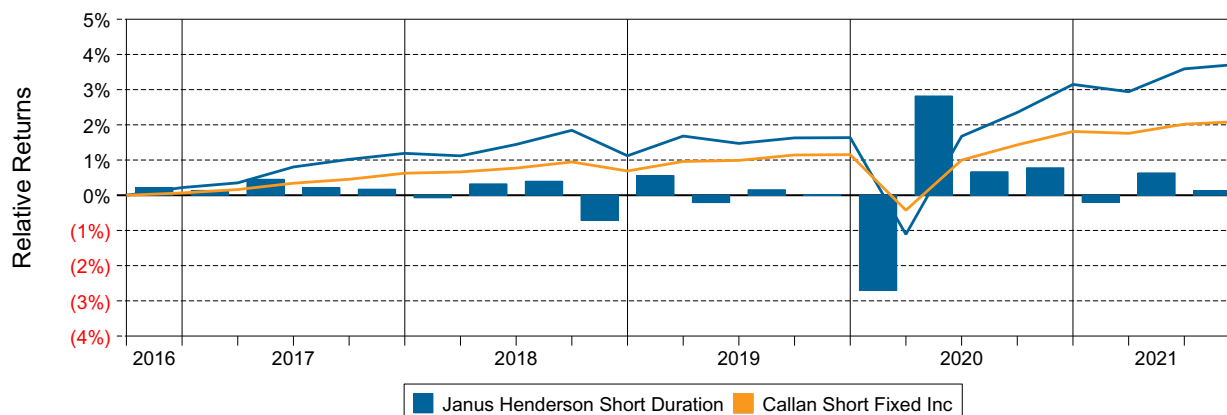
Return Analysis

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.

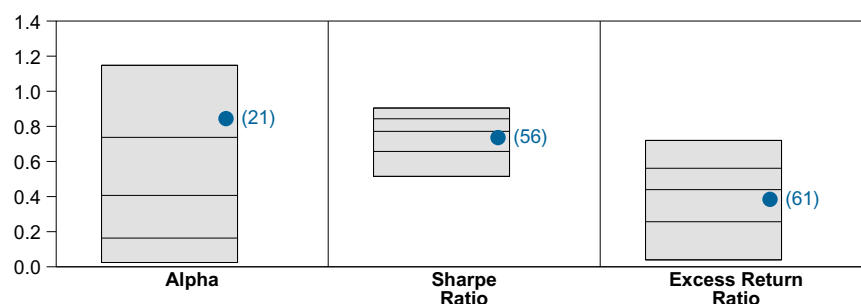
Performance vs Callan Short Term Fixed Income (Gross)



Cumulative and Quarterly Relative Return vs Bimbg Gov/Cred 1-3 Yr



Risk Adjusted Return Measures vs Bimbg Gov/Cred 1-3 Yr Rankings Against Callan Short Term Fixed Income (Gross) Five Years Ended September 30, 2021



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

1.15
0.74
0.41
0.16
0.02

0.90
0.84
0.77
0.66
0.52

0.72
0.56
0.44
0.26
0.04

Janus Henderson Short Duration

0.84

0.74

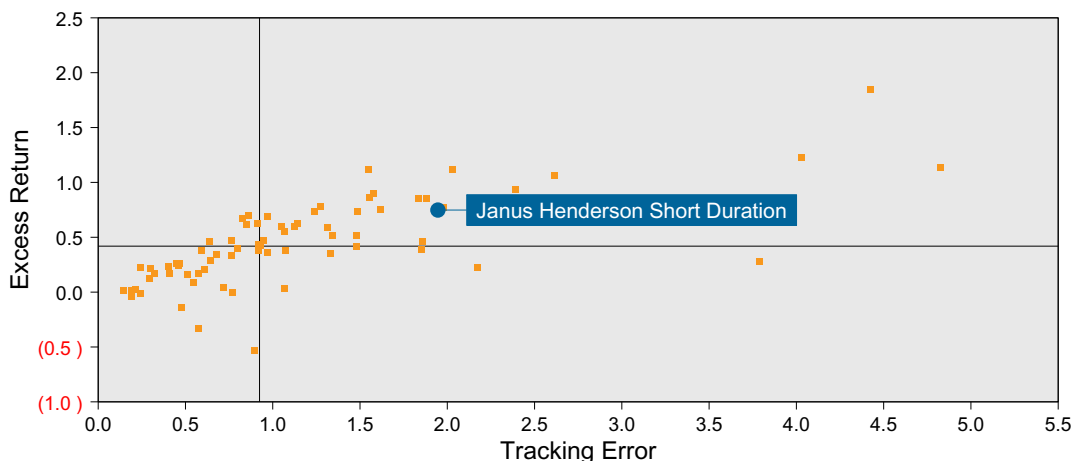
0.38

Janus Henderson Short Duration Risk Analysis Summary

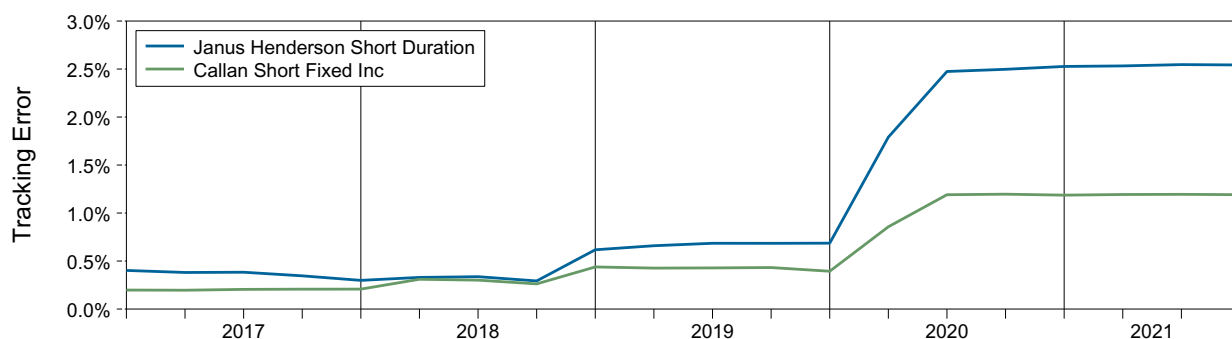
Risk Analysis

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.

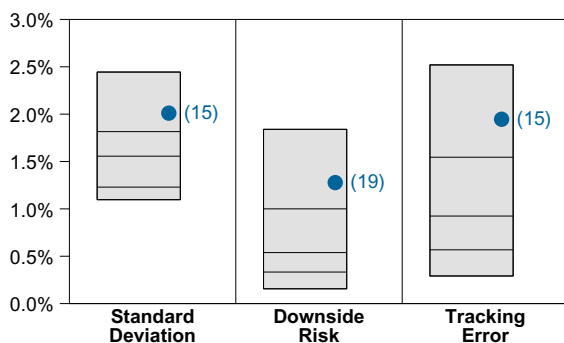
Risk Analysis vs Callan Short Term Fixed Income (Gross) Five Years Ended September 30, 2021



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



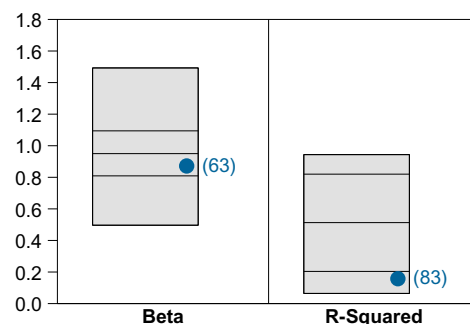
Risk Statistics Rankings vs Blmbg Gov/Cred 1-3 Yr Rankings Against Callan Short Term Fixed Income (Gross) Five Years Ended September 30, 2021



10th Percentile	2.44
25th Percentile	1.82
Median	1.56
75th Percentile	1.23
90th Percentile	1.10

10th Percentile	1.84
25th Percentile	1.00
Median	0.54
75th Percentile	0.33
90th Percentile	0.16

10th Percentile	2.52
25th Percentile	1.55
Median	0.92
75th Percentile	0.57
90th Percentile	0.29



10th Percentile	1.49
25th Percentile	1.09
Median	0.95
75th Percentile	0.81
90th Percentile	0.50

10th Percentile	0.94
25th Percentile	0.82
Median	0.51
75th Percentile	0.20
90th Percentile	0.06

Janus Henderson
Short Duration ●

2.01

1.28

1.95

Janus Henderson
Short Duration ●

0.87

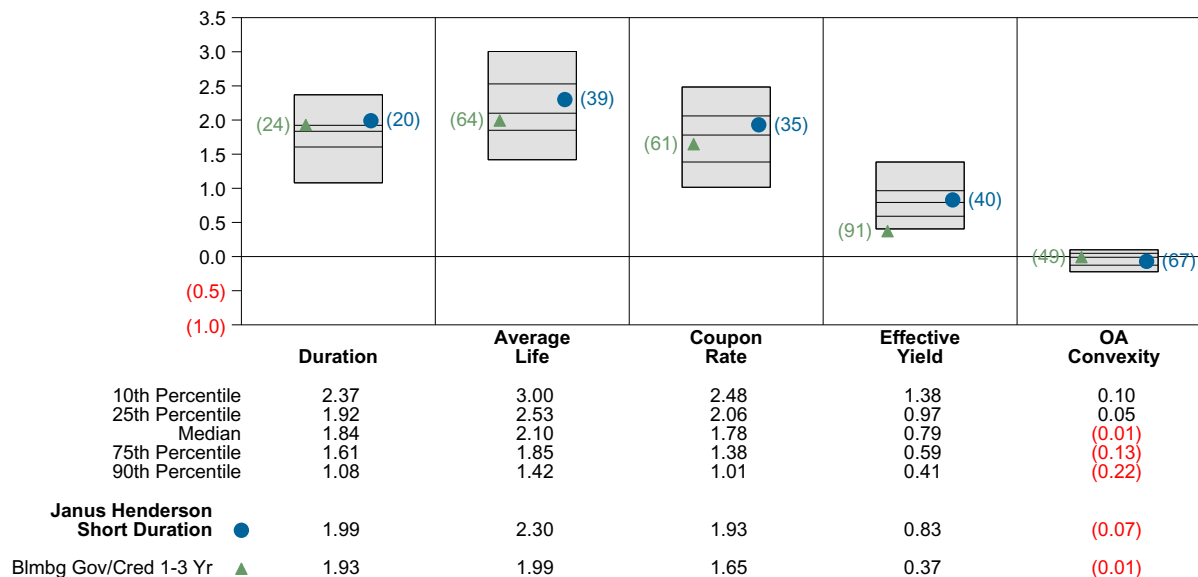
0.16

Janus Henderson Short Duration Bond Characteristics Analysis Summary

Portfolio Characteristics

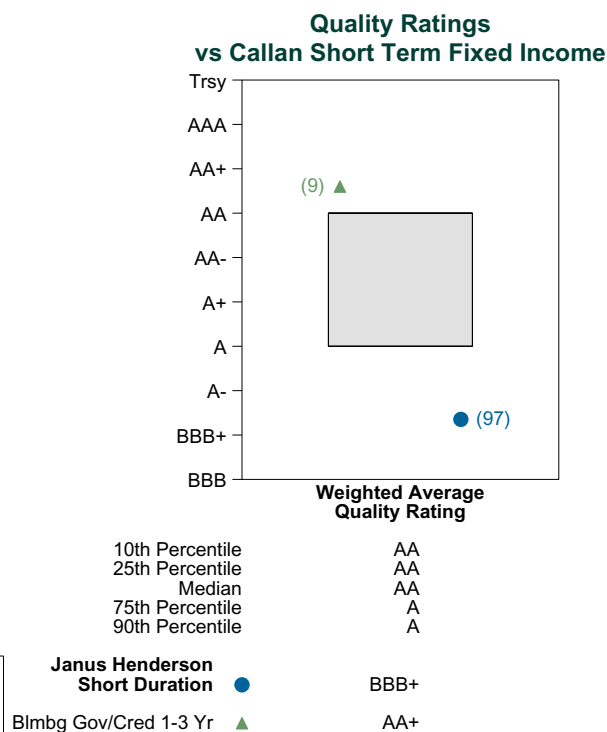
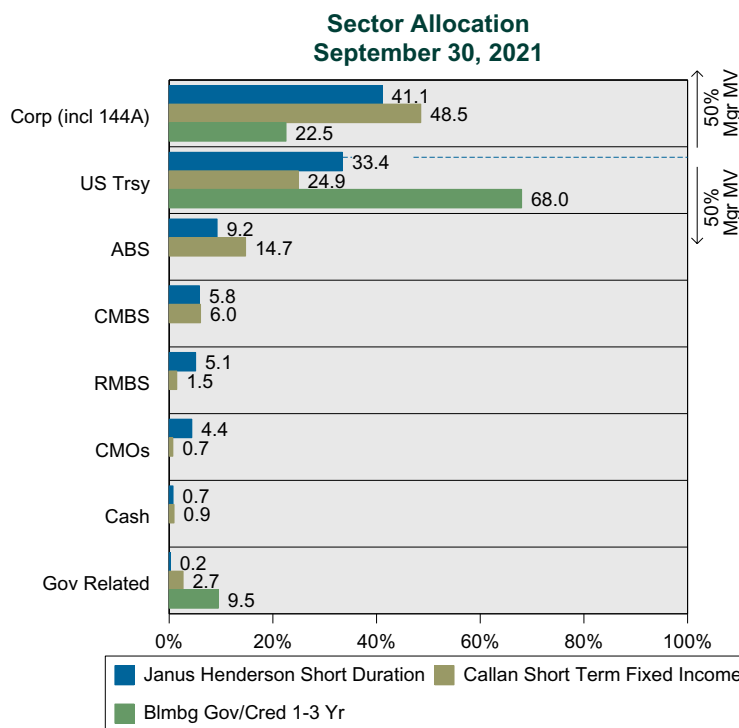
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

Fixed Income Portfolio Characteristics Rankings Against Callan Short Term Fixed Income as of September 30, 2021



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.

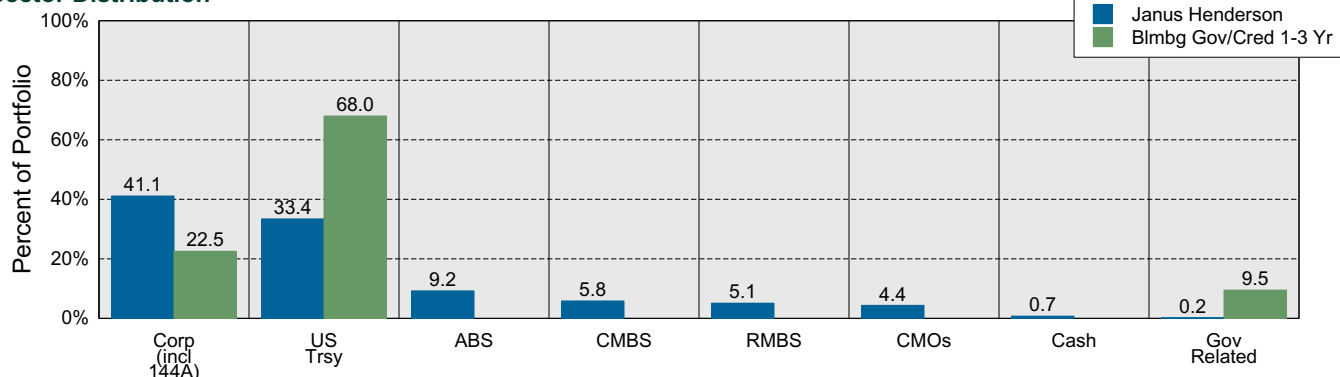


Janus Henderson Portfolio Characteristics Summary As of September 30, 2021

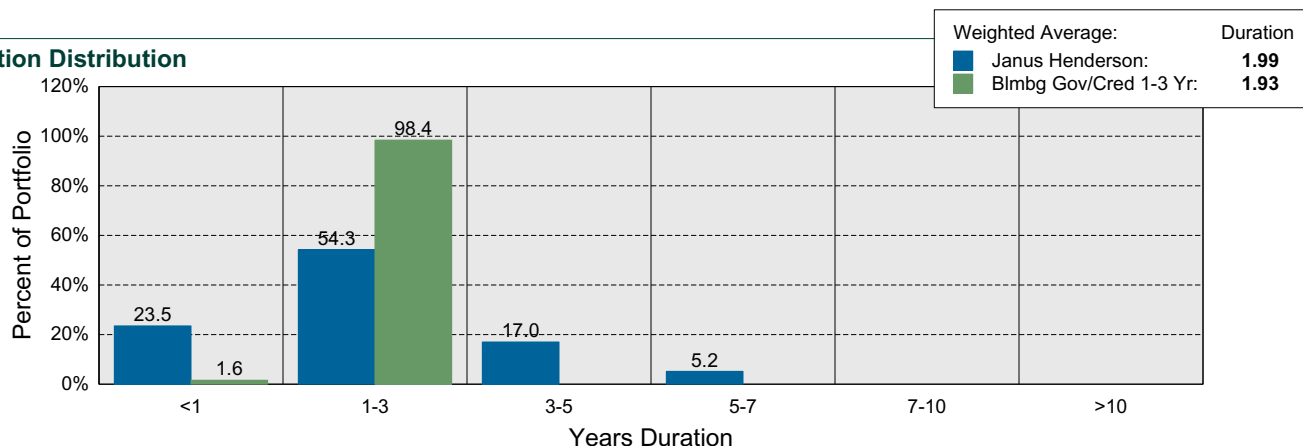
Portfolio Structure Comparison

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.

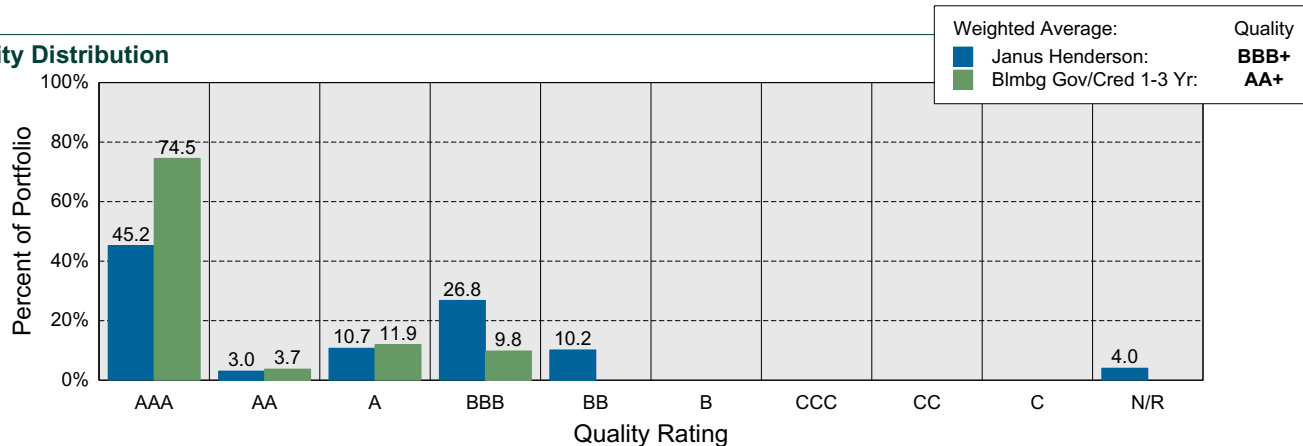
Sector Distribution



Duration Distribution



Quality Distribution



High Income Strategies Period Ended September 30, 2021

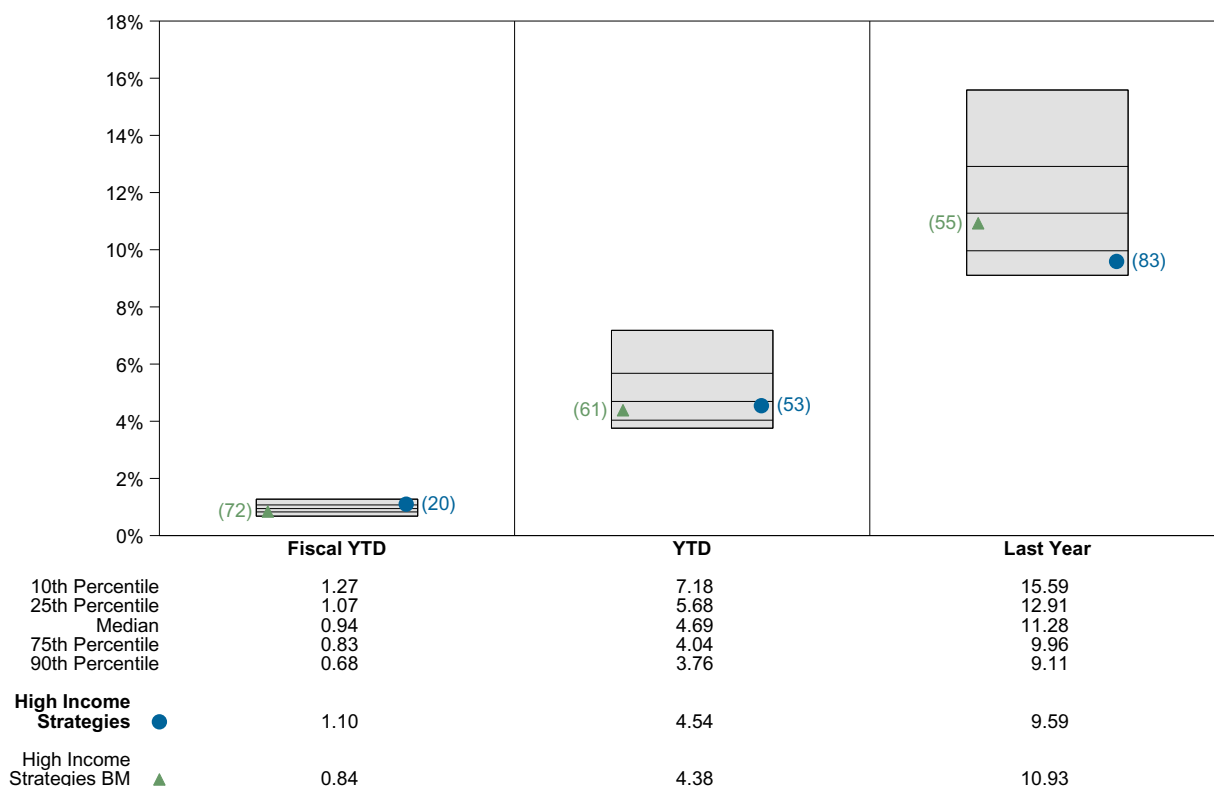
Benchmark Definition

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

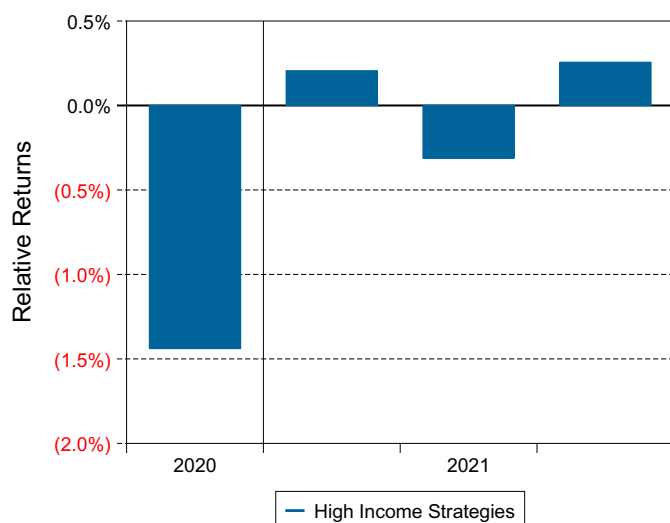
Quarterly Summary and Highlights

- High Income Strategies's portfolio posted a 1.10% return for the quarter placing it in the 20 percentile of the Callan High Yield Fixed Income group for the quarter and in the 83 percentile for the last year.
- High Income Strategies's portfolio outperformed the High Income Strategies BM by 0.26% for the quarter and underperformed the High Income Strategies BM for the year by 1.33%.

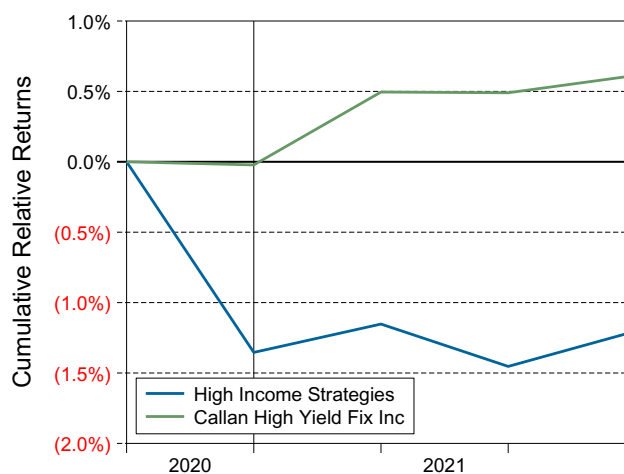
Performance vs Callan High Yield Fixed Income (Gross)



Relative Return vs High Income Strategies BM



Cumulative Returns vs High Income Strategies BM

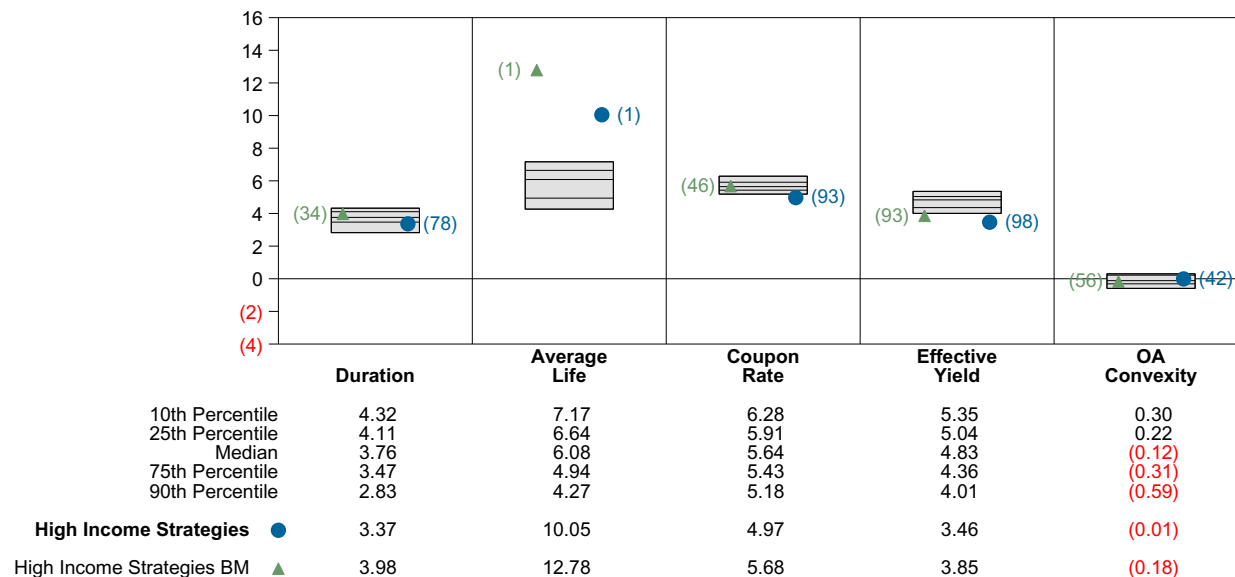


High Income Strategies Bond Characteristics Analysis Summary

Portfolio Characteristics

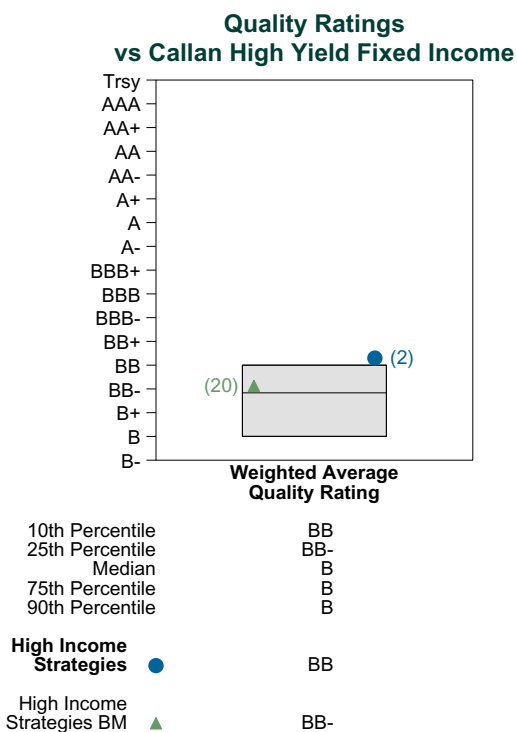
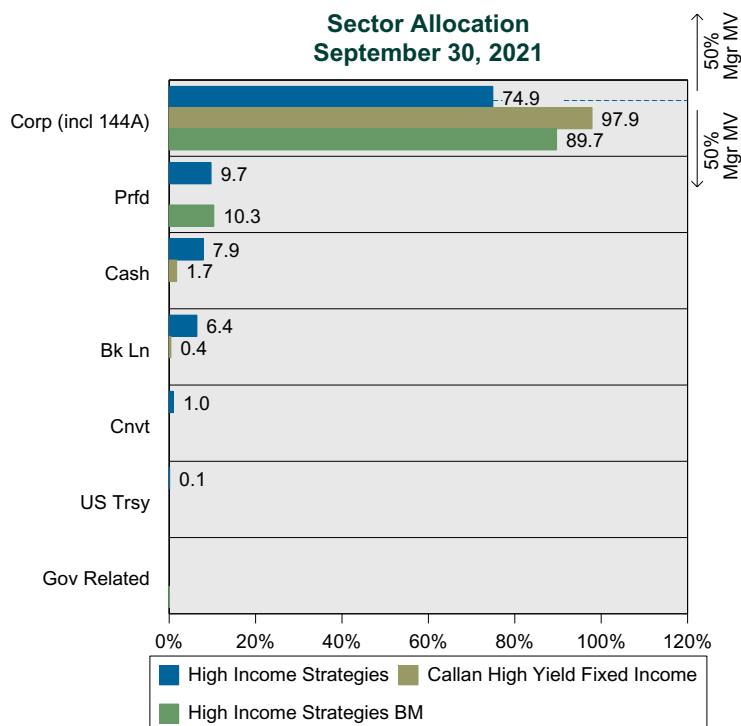
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

Fixed Income Portfolio Characteristics Rankings Against Callan High Yield Fixed Income as of September 30, 2021



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.

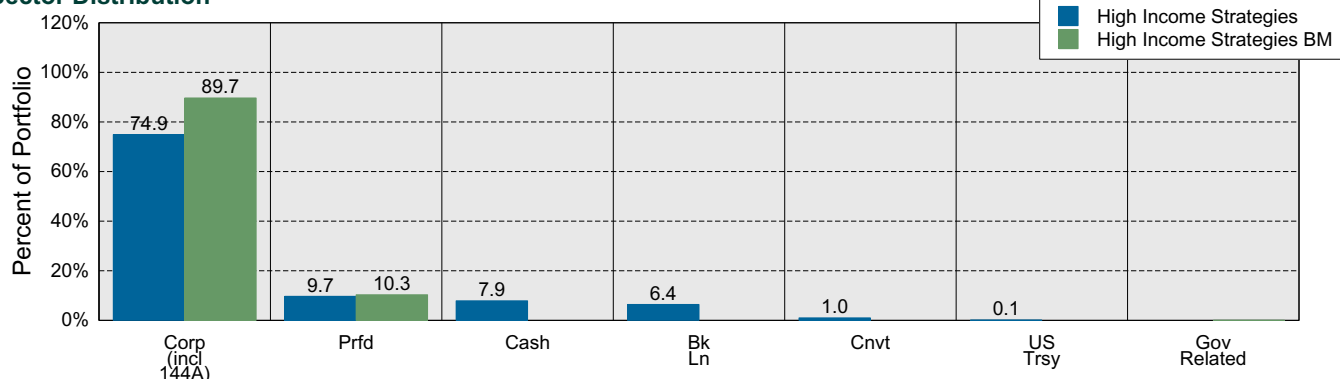


High Income Strategies Portfolio Characteristics Summary As of September 30, 2021

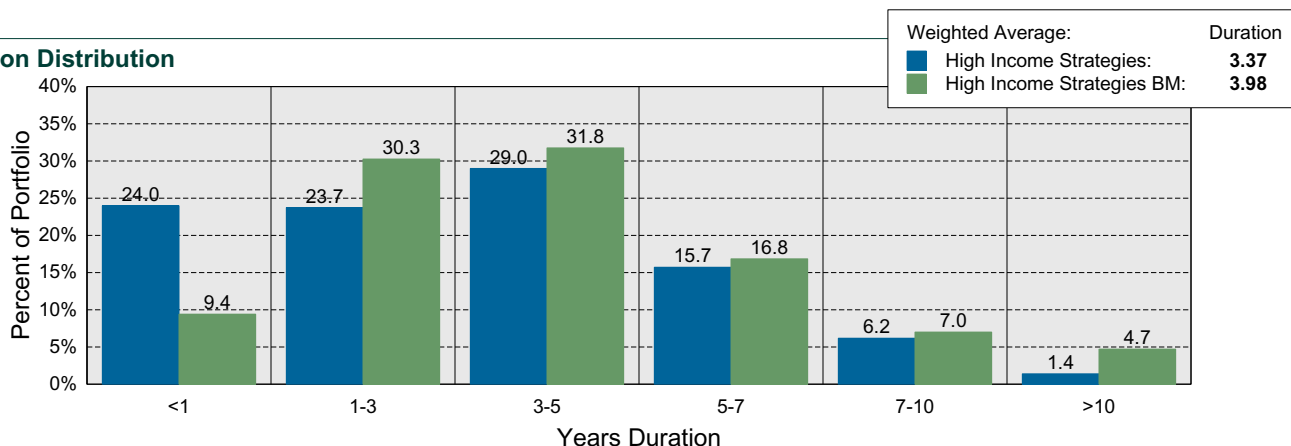
Portfolio Structure Comparison

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.

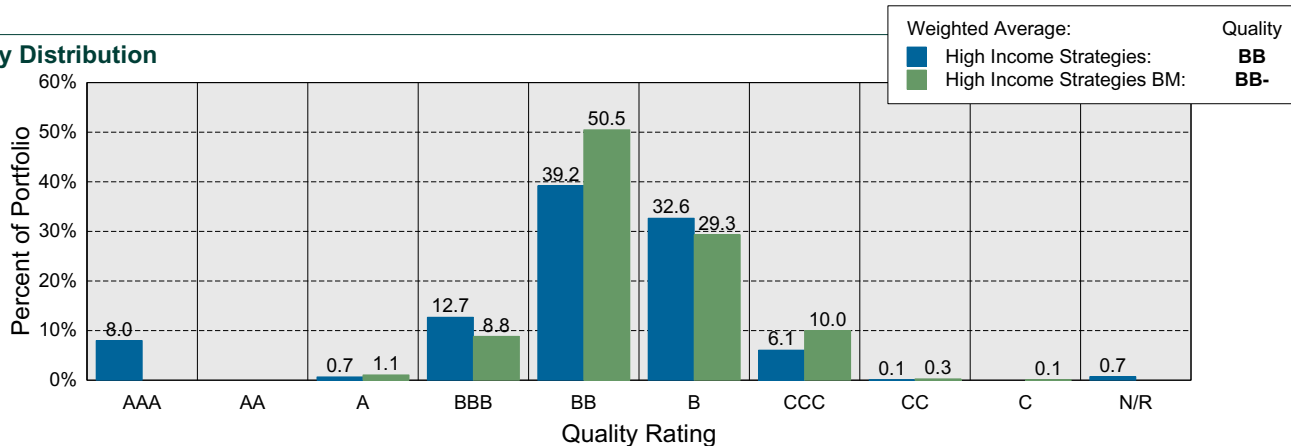
Sector Distribution



Duration Distribution



Quality Distribution



Mackay Shield US High Yield Period Ended September 30, 2021

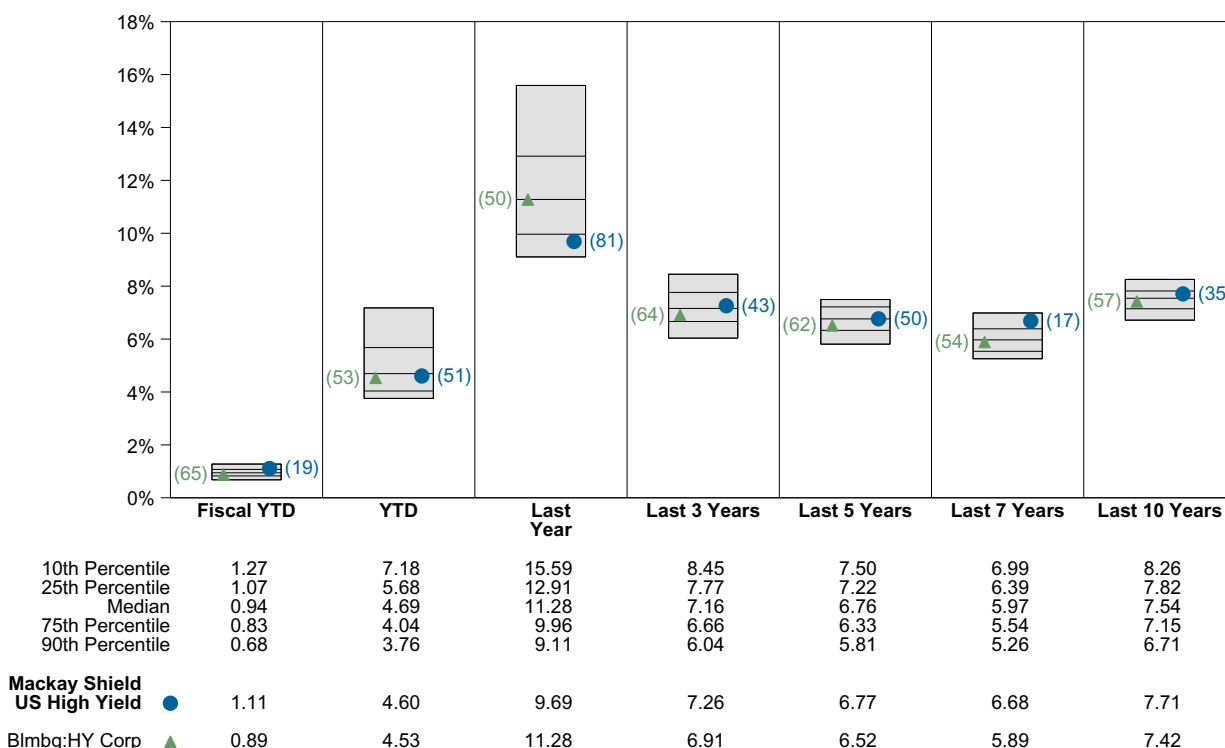
Investment Philosophy

Mackay Shields' High Yield Group's strategy is a bottom-up, value-oriented approach to investing in the high yield market. Their objective is to outperform the high yield market over the long term through superior credit selection, while mitigating downside risks. The key feature of their strategy is their bottom-up investment process. Mackay Shield US High Yield was funded July 24, 2020. Returns prior to inception reflect the manager's high yield composite returns.

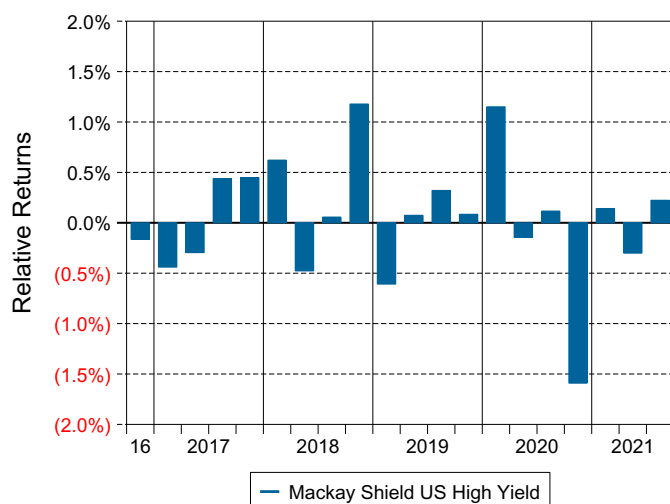
Quarterly Summary and Highlights

- Mackay Shield US High Yield's portfolio posted a 1.11% return for the quarter placing it in the 19 percentile of the Callan High Yield Fixed Income group for the quarter and in the 81 percentile for the last year.
- Mackay Shield US High Yield's portfolio outperformed the Blmbg:HY Corp by 0.22% for the quarter and underperformed the Blmbg:HY Corp for the year by 1.59%.

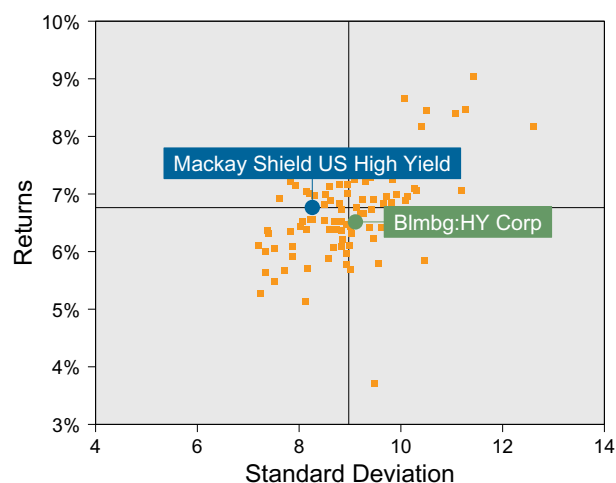
Performance vs Callan High Yield Fixed Income (Gross)



Relative Return vs Blmbg:HY Corp



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

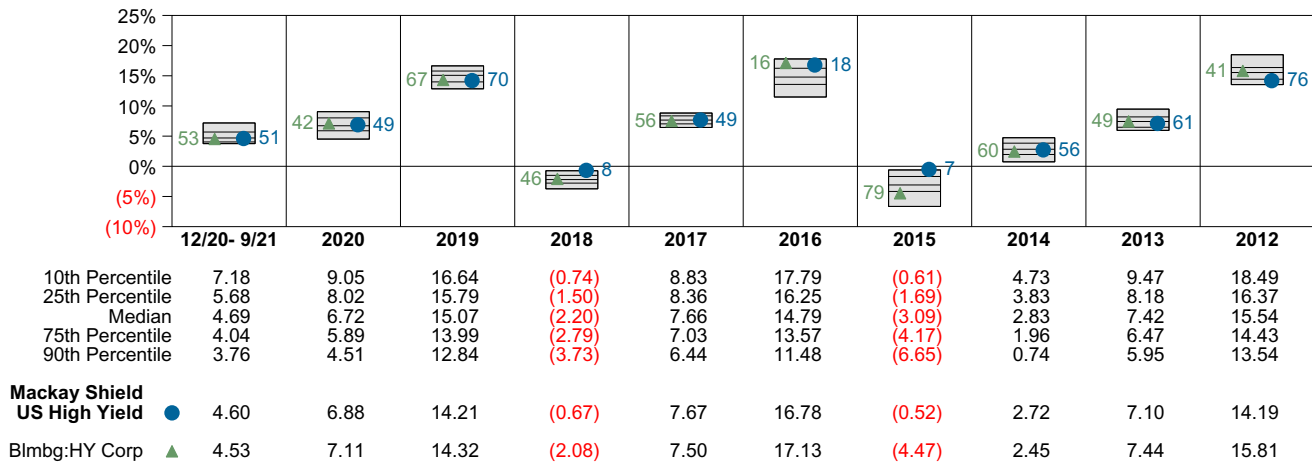


Mackay Shield US High Yield Return Analysis Summary

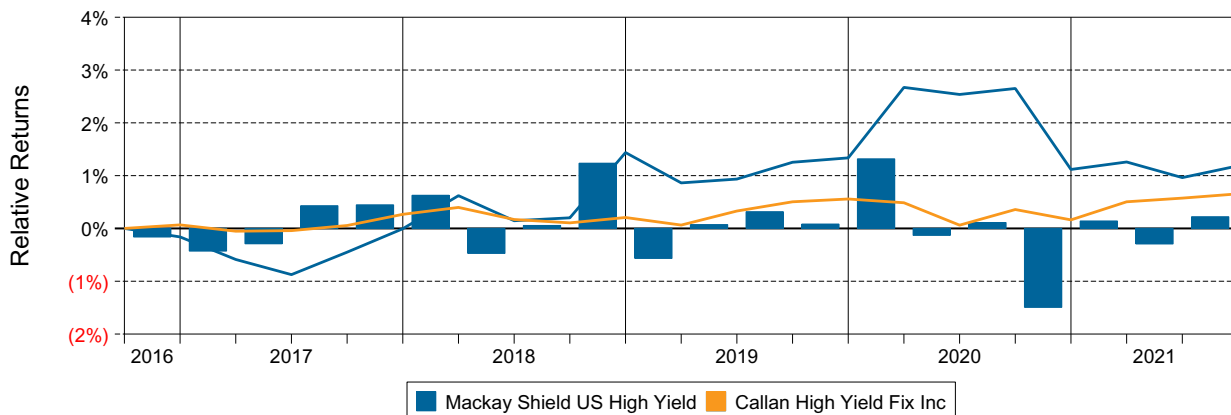
Return Analysis

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.

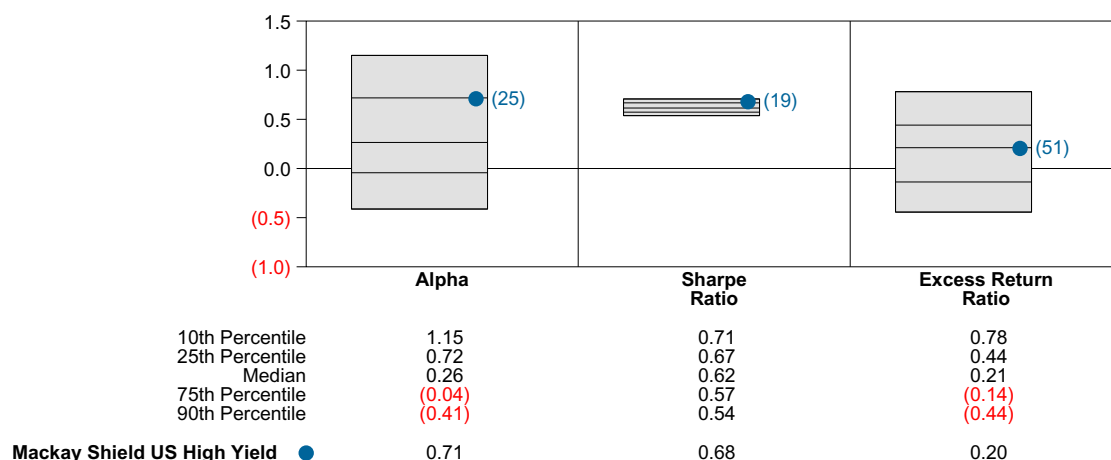
Performance vs Callan High Yield Fixed Income (Gross)



Cumulative and Quarterly Relative Return vs Bmbg:HY Corp



Risk Adjusted Return Measures vs Bmbg:HY Corp Rankings Against Callan High Yield Fixed Income (Gross) Five Years Ended September 30, 2021

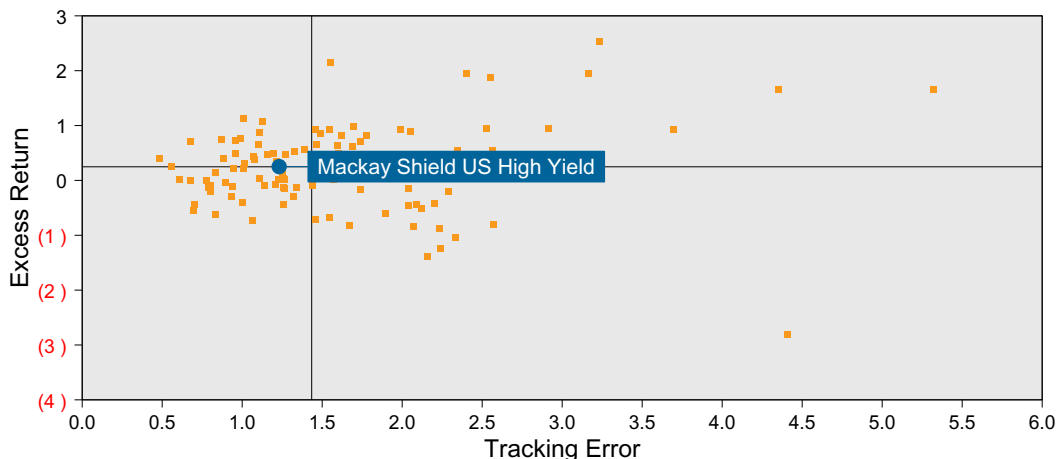


Mackay Shield US High Yield Risk Analysis Summary

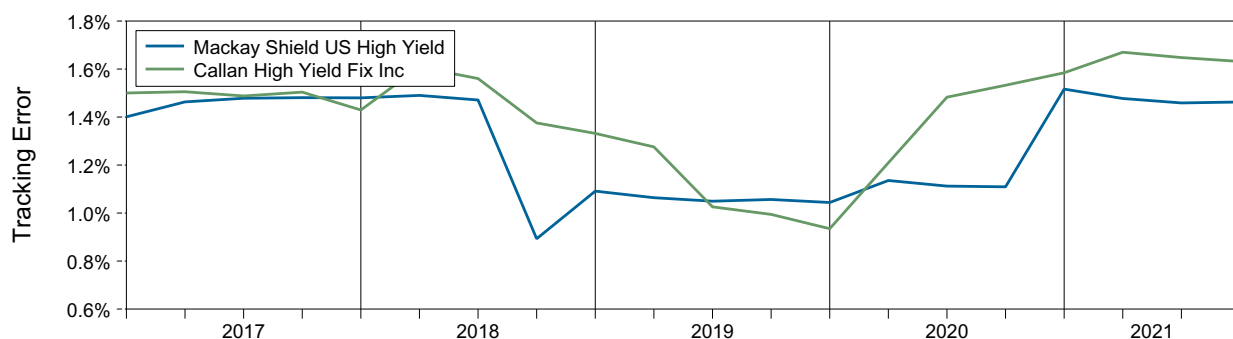
Risk Analysis

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.

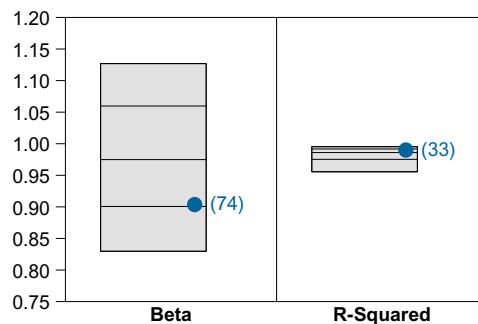
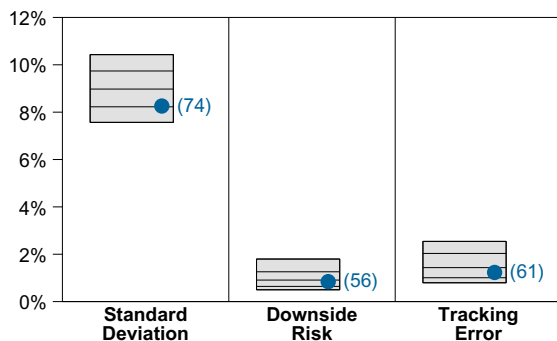
Risk Analysis vs Callan High Yield Fixed Income (Gross) Five Years Ended September 30, 2021



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 September 30, 2021



Mackay Shield
US High Yield ●

8.26

0.84

1.23

Mackay Shield
US High Yield ●

0.90

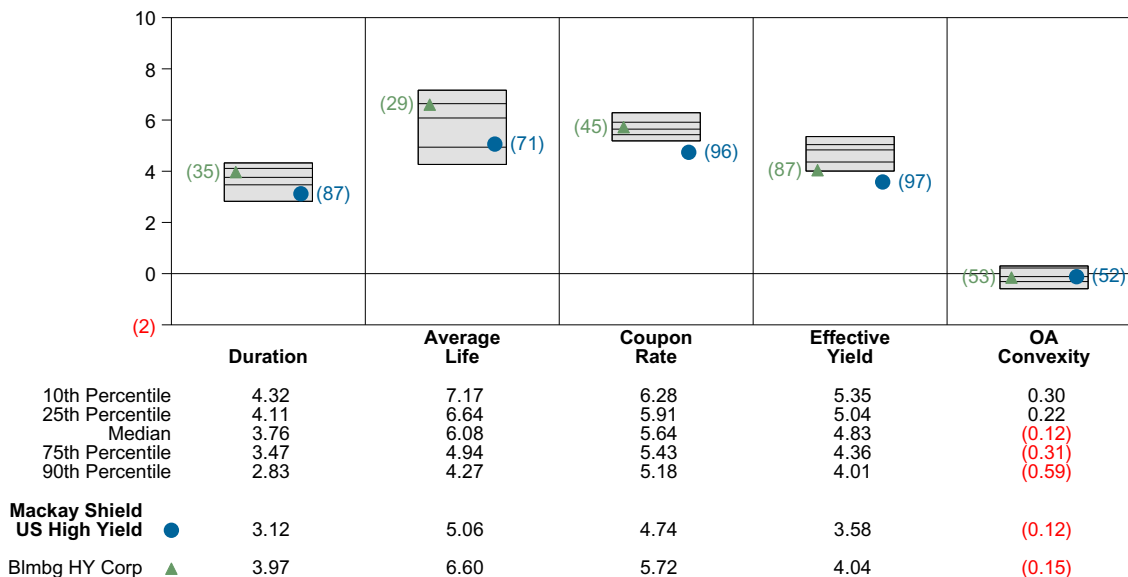
0.99

Mackay Shield US High Yield Bond Characteristics Analysis Summary

Portfolio Characteristics

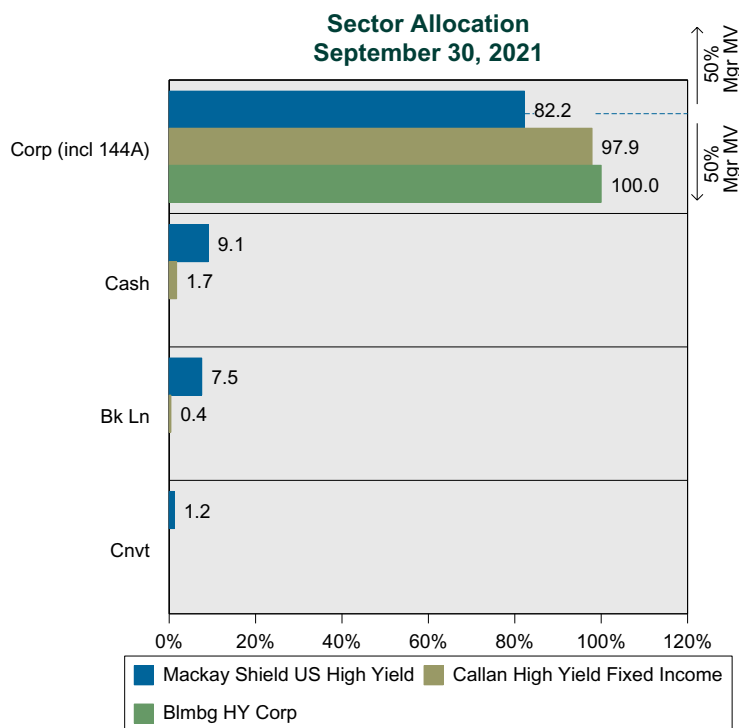
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

Fixed Income Portfolio Characteristics Rankings Against Callan High Yield Fixed Income as of September 30, 2021

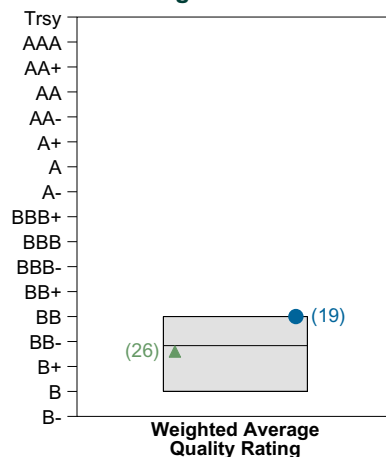


Sector Allocation and Quality Ratings

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.



Quality Ratings vs Callan High Yield Fixed Income



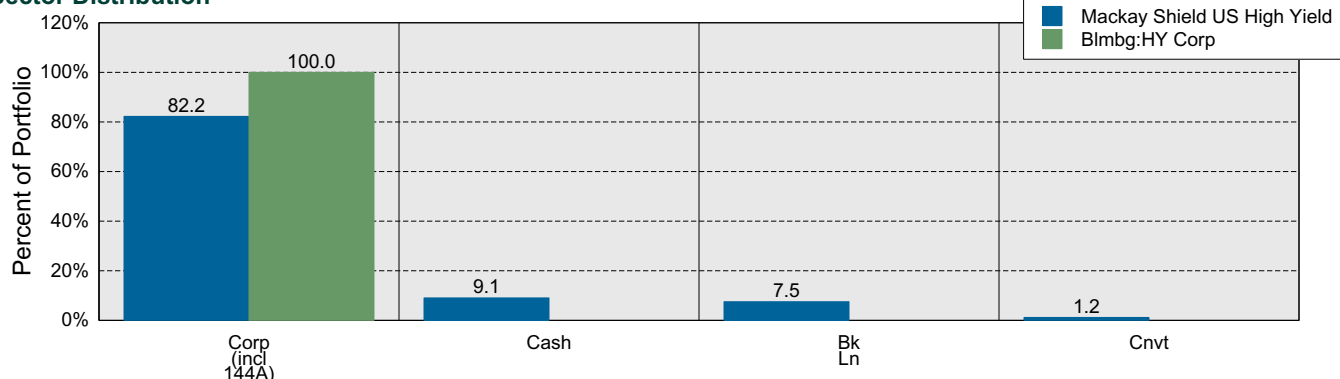
10th Percentile	BB
25th Percentile	BB-
Median	B
75th Percentile	B
90th Percentile	B
Mackay Shield US High Yield	BB
Blmbg HY Corp	BB-

Mackay Shield US High Yield Portfolio Characteristics Summary As of September 30, 2021

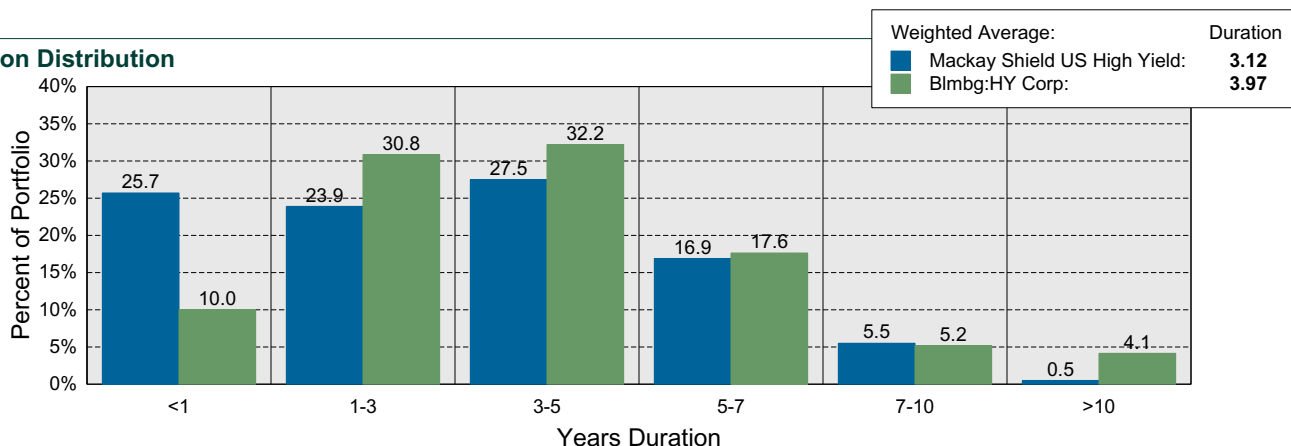
Portfolio Structure Comparison

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.

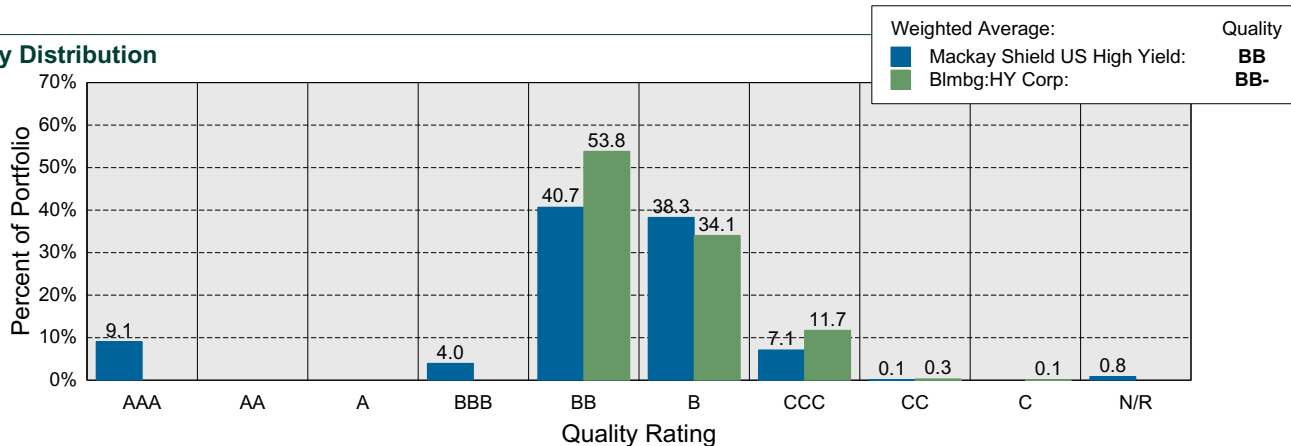
Sector Distribution



Duration Distribution



Quality Distribution



Principal Preferred Securities Period Ended September 30, 2021

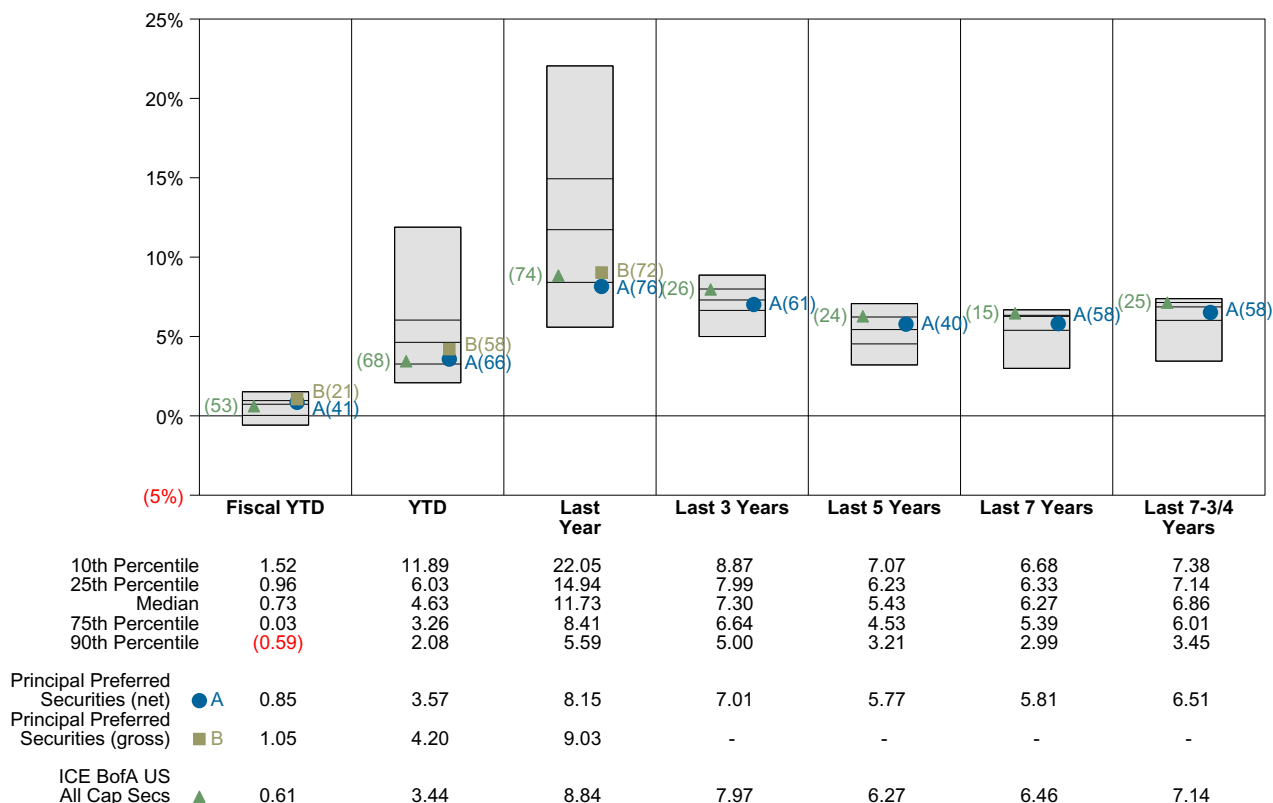
Investment Philosophy

Principal Preferred Securities was funded July 30, 2020. Returns prior to inception reflect the Principal Preferred Securities mutual fund historical returns.

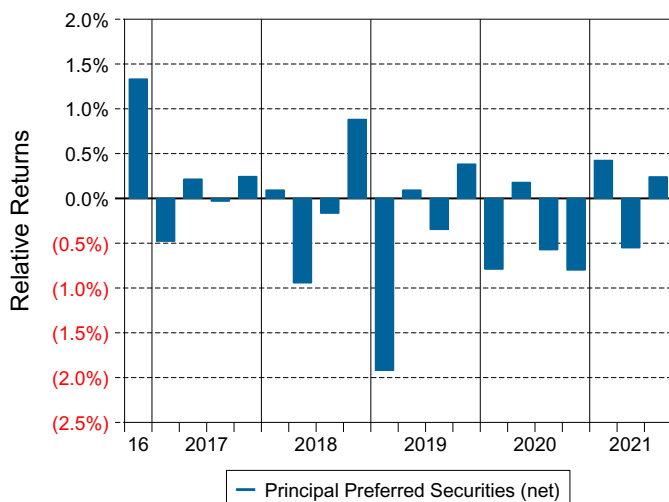
Quarterly Summary and Highlights

- Principal Preferred Securities (net)'s portfolio posted a 0.85% return for the quarter placing it in the 41 percentile of the Morningstar Preferred Stock Funds group for the quarter and in the 76 percentile for the last year.
- Principal Preferred Securities (net)'s portfolio outperformed the ICE BofA US All Cap Secs by 0.24% for the quarter and underperformed the ICE BofA US All Cap Secs for the year by 0.69%.

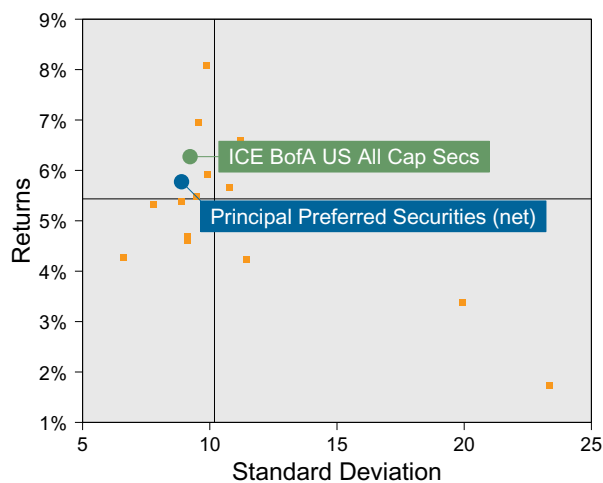
Performance vs Morningstar Preferred Stock Funds (Net)



Relative Return vs ICE BofA US All Cap Secs



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

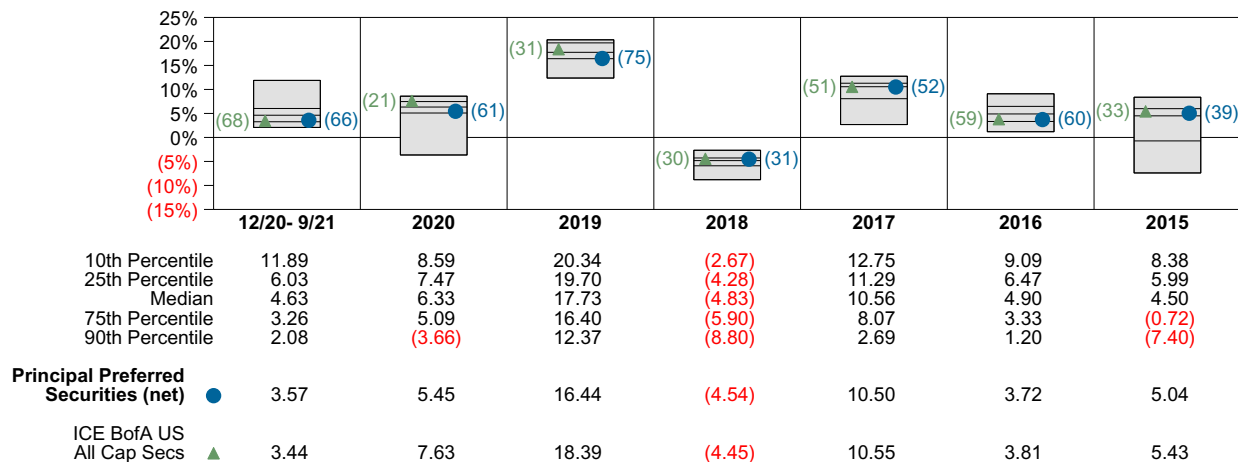


Principal Preferred Securities (net) Return Analysis Summary

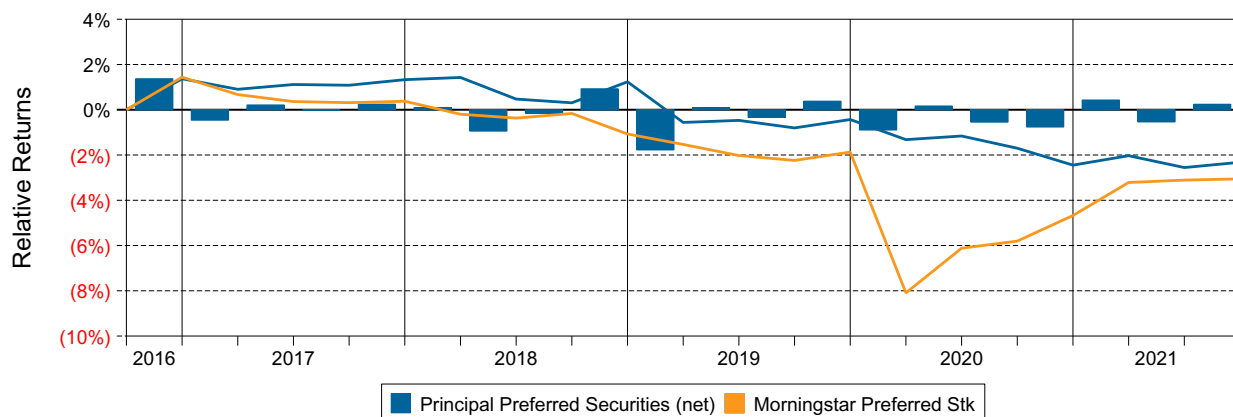
Return Analysis

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.

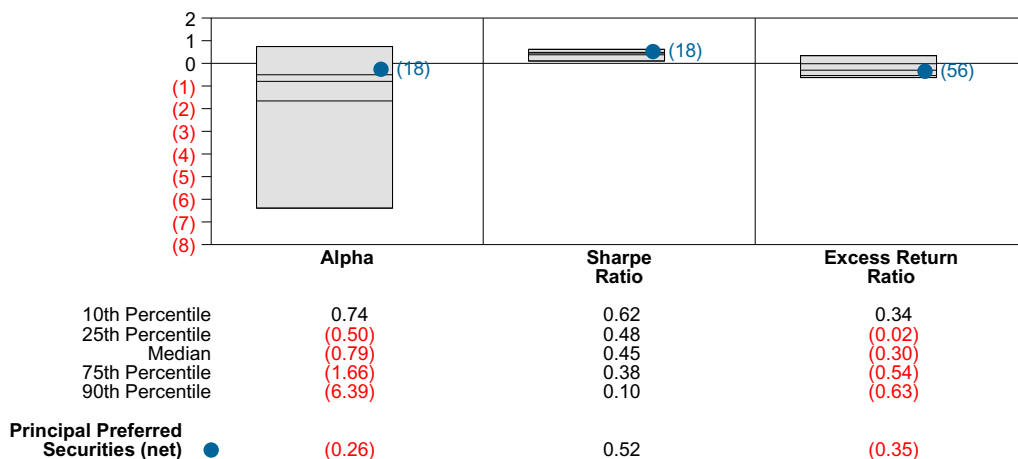
Performance vs Morningstar Preferred Stock Funds (Net)



Cumulative and Quarterly Relative Return 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 September 30, 2021

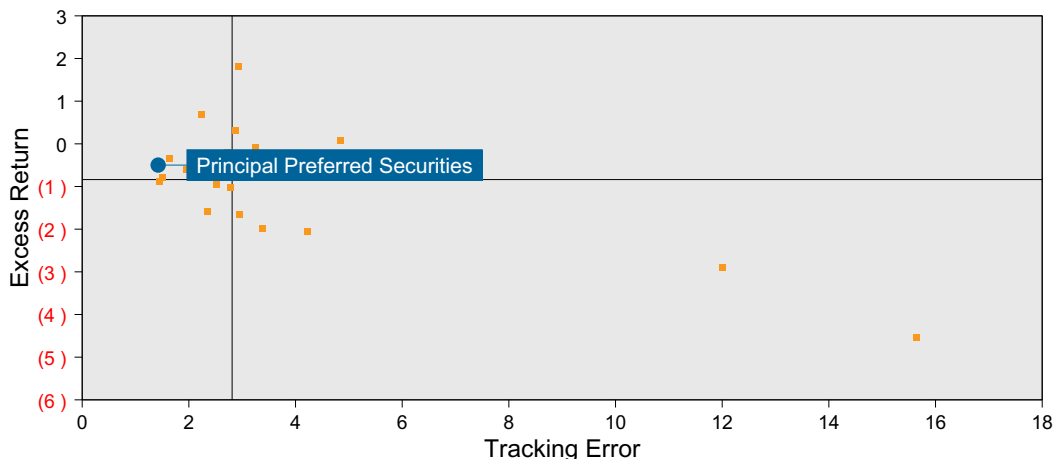


Principal Preferred Securities Risk Analysis Summary

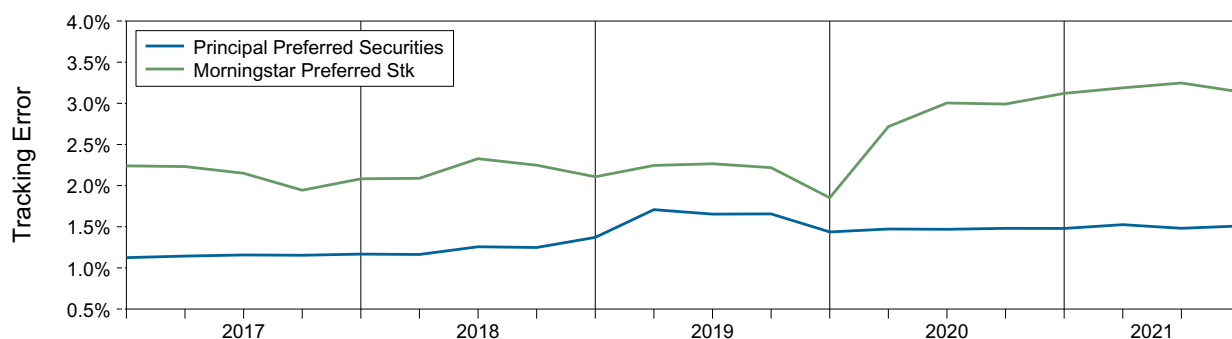
Risk Analysis

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.

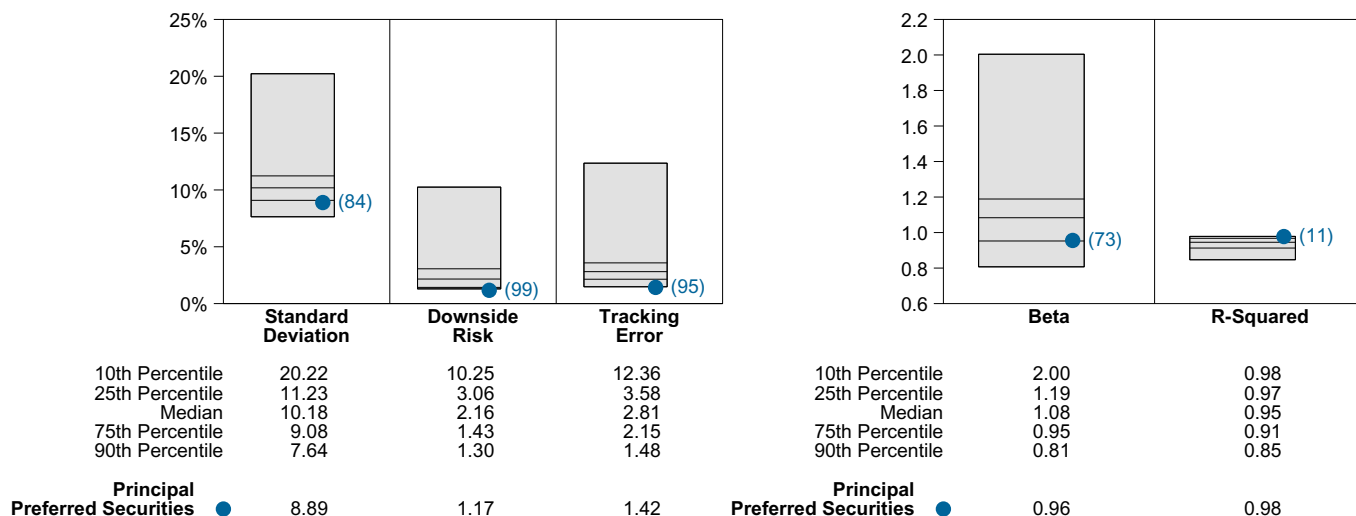
Risk Analysis vs Morningstar Preferred Stock Funds (Net) Five Years Ended September 30, 2021



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 September 30, 2021

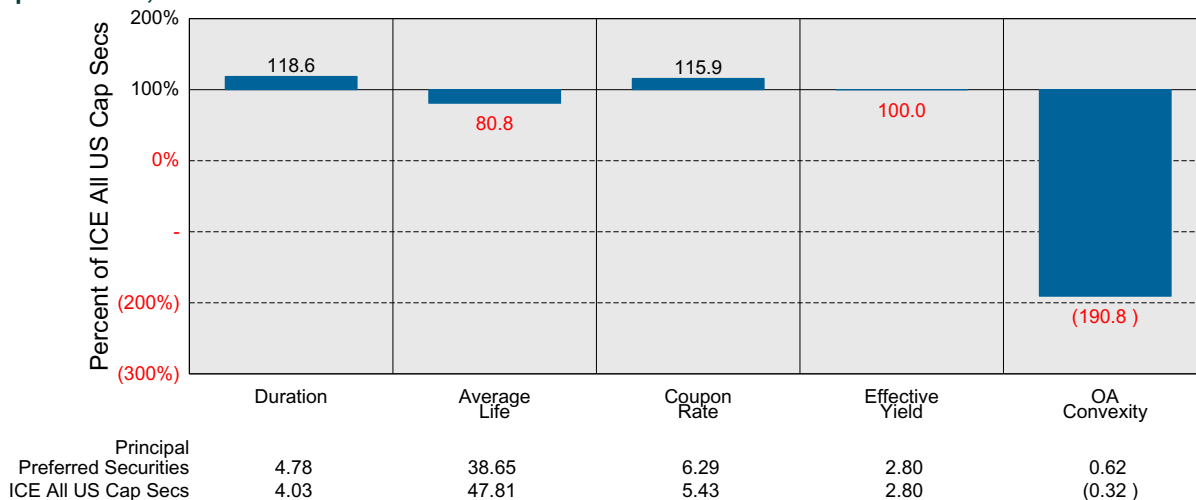


Principal Preferred Securities Bond Characteristics Analysis Summary

Portfolio Characteristics

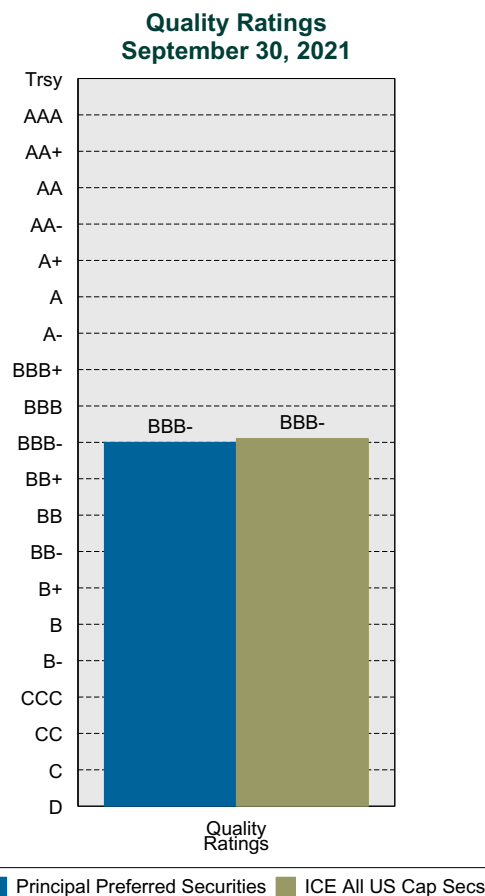
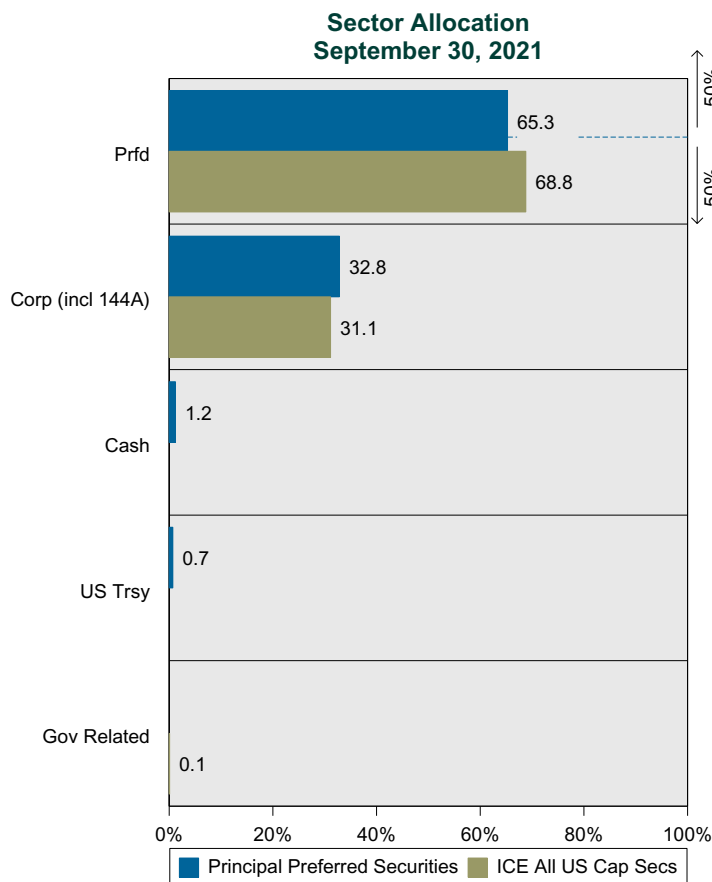
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio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

Portfolio Characteristics Relative to ICE All US Cap Secs as of September 30, 2021



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.

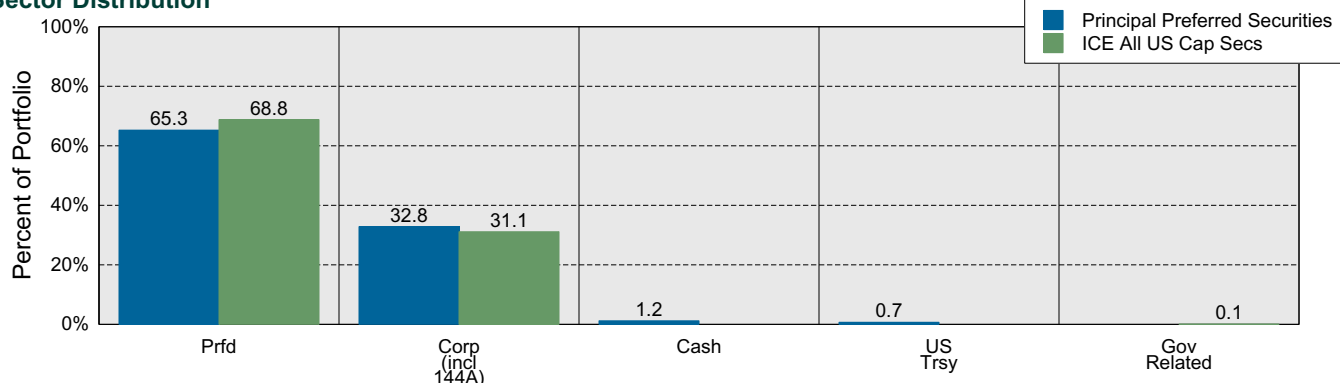


Principal Preferred Securities Portfolio Characteristics Summary As of September 30, 2021

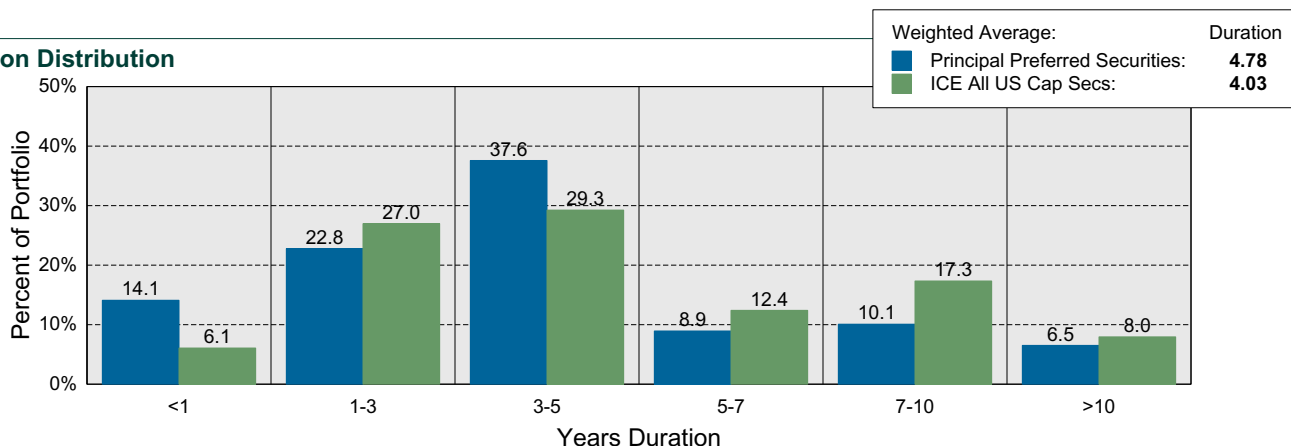
Portfolio Structure Comparison

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

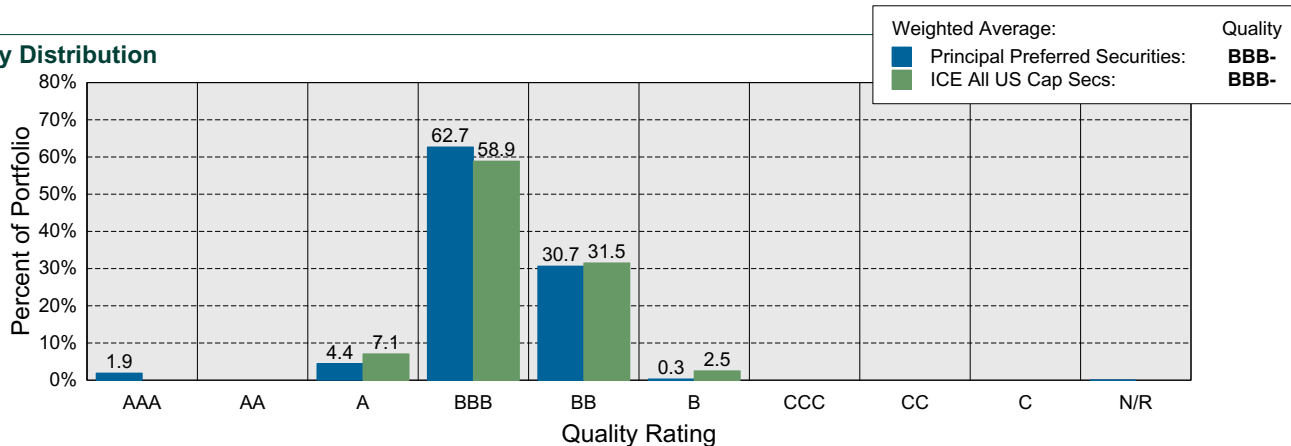
Sector Distribution



Duration Distribution



Quality Distribution



Quarterly Highlights

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

New Research from Callan's Experts

Comparing Actuarial vs. Consultant Rates of Return | In this paper, Callan's Brady O'Connell and John Pirone review the differences between actuarial discount rates and consultant return forecasts. They remind fiduciaries of the importance of these two assumptions, why the numbers vary in practice and use, and why setting asset-allocation strategy is not simply an act of making the consultant return expectation match the actuarial discount rate.

The Role of Real Estate and Infrastructure Debt in a Portfolio | As capital markets assumptions have declined, institutional investors are increasingly interested in real estate and infrastructure debt as they pursue return-seeking assets. In this article, Jan Mende and Munir Iman discuss key aspects of these options.

Now What? The Role of Target Date Funds in Retirement | Much of the attention on the rise of TDFs focused on their role during the "accumulation" phase, as participants build up assets during their career. Now that sponsors have successfully incorporated TDFs into their DC plans to help participants build up assets, the time is right to focus on the potential role of TDFs during retirement by examining the makeup and income-generating possibilities of the post-retirement glidepath.

Blog Highlights

GPs Take 'Credit' for Higher IRRs | Subscription credit facilities are used to finance activities that would otherwise be funded by capital calls from the limited partners in a private markets fund. These "sub lines" give the general partner the flexibility to call capital less frequently by combining multiple cash flows into a single capital call, and they also can delay initial capital calls until a large capital outlay is required. But investors should note that this increases the internal rate of return (IRR) as it shortens the effective investment period.

Seeking Yield in All the Right Places | One potential solution to help insurance investors meet their return goals without disproportionately adding risk is investment-grade private placements. This strategy presents opportunities to increase portfolio yields with higher spreads compared to other types of fixed income for similar levels of required capital.

PCE and CPI: What's the Difference? | The CPI is released by the Bureau of Labor Statistics and the PCE by the Bureau of Economic Analysis. While both measure inflation based on a basket of goods, they have subtle differences, including the sources of data, what they cover, and the formulas they use.

Quarterly Periodicals

Private Equity Trends, 2Q21 | A high-level summary of private equity activity in the quarter through all the investment stages

Active vs. Passive Charts, 2Q21 | A comparison of active managers alongside relevant benchmarks over the long term

Market Pulse Flipbook, 2Q21 | 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, 2Q21 | Analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes

Hedge Fund Quarterly, 2Q21 | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

Real Assets Reporter, 2Q21 | A summary of market activity for real assets and private real estate during the quarter

Events

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

Please mark your calendar and look forward to upcoming invitations:

Research Café: DOL Cybersecurity Tips
November 10, 2021 – 9:30 am (PST)

National Conference
April 25-27, 2022, in San Francisco

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

Education: By the Numbers

50+

Unique pieces of research the Institute generates each year

525

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

3,700

Total attendees of the "Callan College" since 1994

Education

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

Introduction to Investments
December 1-2, 2021 - Chicago

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

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

Introductory Workshop for DC Plan Fiduciaries
March 23, 2022 - San Francisco

This one-day workshop centers on the fundamentals of administering a defined contribution (DC) plan. Designed primarily for ERISA fiduciaries and supporting staff members, attendees will gain a better understanding of the key responsibilities of an ERISA fiduciary and best practices for executing those responsibilities. Additionally, we will cover the basics of capital markets theory and DC investment menu design principles; investment manager evaluation, selection, and monitoring; best practices for evaluating fees; the regulatory and legal landscape; and industry trends. This workshop is complimentary and open to institutional investor clients.

Additional information including dates and registration can be found at: callan.com/events/mar-dc-college/



"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

abrdn (Aberdeen Standard Investments)
Acadian Asset Management LLC
Adams Street Partners, LLC
AEGON USA Investment Management Inc.
AllianceBernstein
Allianz
American Century Investments
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Atlanta Capital Management Co., LLC
Aviva Investors
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Barings LLC
Baron Capital Management, Inc.

Manager Name

Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management LLC
Chartwell Investment Partners
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments North America

Manager Name

Credit Suisse Asset Management

Crescent Capital Group LP

Crosscreek Capital Group

D.E. Shaw Investment Management, LLC

DePrince, Race & Zollo, Inc.

Dimensional Fund Advisors LP

Doubleline

Duff & Phelps Investment Management Co.

DWS

EARNEST Partners, LLC

Eaton Vance Management

Epoch Investment Partners, Inc.

Fayez Sarofim & Company

Federated Hermes, Inc.

Fidelity Institutional Asset Management

Fiera Capital Corporation

First Hawaiian Bank Wealth Management Division

First Sentier Investors (formerly First State Investments)

Fisher Investments

Franklin Templeton

GAM (USA) Inc.

GCM Grosvenor

GlobeFlex Capital, L.P.

GoldenTree Asset Management, LP

Goldman Sachs

Guggenheim Investments

GW&K Investment Management

Harbor Capital Group Trust

Heitman LLC

Hotchkis & Wiley Capital Management, LLC

Income Research + Management, Inc.

Insight Investment

Intech Investment Management, LLC

Intercontinental Real Estate Corporation

Invesco

J.P. Morgan

Janus

Jennison Associates LLC

Jobs Peak Advisors

J O Hambro Capital Management Limited

Manager Name

KeyCorp

Lazard Asset Management

LGIM America (formerly Legal & General Inv Mgmt America)

Lincoln National Corporation

Longview Partners

Loomis, Sayles & Company, L.P.

Lord Abbett & Company

LSV Asset Management

MacKay Shields LLC

Macquarie Investment Management (MIM)

Manning & Napier Advisors, LLC

Manulife Investment Management

McKinley Capital Management, LLC

Mellon

MetLife Investment Management

MFS Investment Management

MidFirst Bank

Mondrian Investment Partners Limited

Montag & Caldwell, LLC

Morgan Stanley Investment Management

MUFG Union Bank, N.A.

Natixis Investment Managers

Neuberger Berman

Newton Investment Management

Ninety One North America, Inc. (formerly Investec Asset Mgmt.)

Northern Trust Asset Management

Nuveen

Pacific Investment Management Company

Parametric Portfolio Associates LLC

Partners Group (USA) Inc.

Pathway Capital Management

P/E Investments

Peregrine Capital Management, LLC

PFM Asset Management LLC

PGIM Fixed Income

PineBridge Investments

Polen Capital Management, LLC

Principal Global Investors

Putnam Investments, LLC

QMA LLC

Manager Name

RBC Global Asset Management

Regions Financial Corporation

Richard Bernstein Advisors LLC

Robeco Institutional Asset Management, US Inc.

Rothschild & Co. Asset Management US

S&P Dow Jones Indices

Schroder Investment Management North America Inc.

SLC Management

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

State Street Global Advisors

Stone Harbor Investment Partners L.P.

Strategic Global Advisors, LLC

T. Rowe Price Associates, Inc.

The TCW Group, Inc.

Thompson, Siegel & Walmsley LLC

Manager Name

Thornburg Investment Management, Inc.

Tri-Star Trust Bank

VanEck

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

WCM Investment Management

WEDGE Capital Management

Wellington Management Company LLP

Wells Fargo Asset Management

Western Asset Management Company LLC

Westfield Capital Management Company, LP

William Blair & Company LLC

2022 PLANNING - PUBLIC SCHOOL FUND INVESTMENT BOARD

February 21 Quarterly Meeting

Fund Manager presentation: Parametric
Asset Allocation modeling (total fund level)
Investment Consultant RFP Update

Q-4 Market Update
FY Q-2 Performance Report
YTD Financial Report & Forecast
Rebalancing / Review of unrealized gains/losses

May 16 Quarterly Meeting

Vote on Investment Consultant
Vote on 1 year extension: MacKay Shields (July 20; total contract end 2025)
Asset class structure review (at portfolio level)
Annual review of IPS
Fund Manager presentation: Janus Henderson

Q-1 Market Update
FY Q-3 Performance Report
YTD Financial Report & Forecast
Rebalancing / Review of unrealized gains/losses

August 15 Quarterly Meeting

Vote on 1 year extension: Janus Henderson (Oct. 11; total contract end 2023)
Vote on Parametric (Nov. 1; total contract end 2022 - May require RFP)
Vote on 1 year extension: Portfolio Administrator (Oct. 25; total contract end 2026)
Tentative: OMA education and review of Communication and Open Meetings Policy required every 3 years
Fund Manager presentation: Maruti More
Review fiscal year end report for submission to State agencies
Board Membership (terms end in August)

Q-2 Market Update
FY End Q-4 Performance Report
YTD Financial Report & Forecast
Rebalancing / Review of unrealized gains/losses

November 14 Quarterly Meeting

Fund Manager presentation: MacKay Shields
Review of Spectrum Preferred Securities Fund - Steve Solomon
Conflict of Interest Policy Acknowledgement & Disclosure
Education presentation by Callan

Q-3 Market Update
FY Q-1 Performance Report
YTD Financial Report & Forecast
Rebalancing / Review of unrealized gains/losses

Other Dates to be set:

New Board member orientation - progression of asset allocation; reporting; IPS
OMA education and review of Communication and Open Meetings Policy required every 3 years
Scheduled for August 2022 (next due Aug. 2025)

STATE OF COLORADO PUBLIC SCHOOL FUND

INVESTMENT REVIEW

NOVEMBER 15, 2021

Representing MacKay Shields

JOSEPH MAIETTA, CFA

Managing Director
High Yield Team

THERESE M. HERNANDEZ

Managing Director
Institutional Business Development

GABRIELA PEREZ, CFA

Director
Client Service Representative



*MACKAY SHIELDS RECEIVED A+, THE HIGHEST SCORE AVAILABLE, IN FOUR MODULES INCLUDING STRATEGY & GOVERNANCE, A MODULE THAT TRACKS EFFORTS MADE BROADLY ACROSS THE FIRM; LISTED EQUITY – INCORPORATION; FIXED INCOME – SSA (MUNICIPAL BONDS) AND FIXED INCOME – SECURITIZED. MACKAY SHIELDS SCORED A IN THREE MODULES INCLUDING LISTED EQUITY – ACTIVE OWNERSHIP; FIXED INCOME – CORPORATE FINANCIAL; FIXED INCOME – CORPORATE NON-FINANCIAL. THE ABOVE SCORE IS AN EXCERPT FROM MACKAY SHIELDS' 2020 ASSESSMENT REPORT FOR THE CALENDAR YEAR 2019. MACKAY SHIELDS HAS BEEN A PRI SIGNATORY SINCE 2016. PLEASE SEE THE FOLLOWING LINKS TO MACKAY SHIELDS' MOST RECENT [PRI TRANSPARENCY REPORT](#) AND DESCRIPTION OF [METHODOLOGY](#).



Independent boutique founded in 1938

Acquired by New York Life Insurance Company in 1984

Over 200 employees in New York, Princeton, Los Angeles, London and Dublin

\$164 billion in AUM¹

Signatory of UN Principles for Responsible Investment Initiative (PRI)

Separate and distinct investment groups within MacKay Shields



FIXED INCOME

EQUITY

Municipal Managers	High Yield	Global Fixed Income	Global Credit	Convertibles	Fundamental Equity
\$77 Bn AUM	\$32 Bn AUM	\$25 Bn AUM	\$17 Bn AUM	\$5 Bn AUM	\$2 Bn AUM

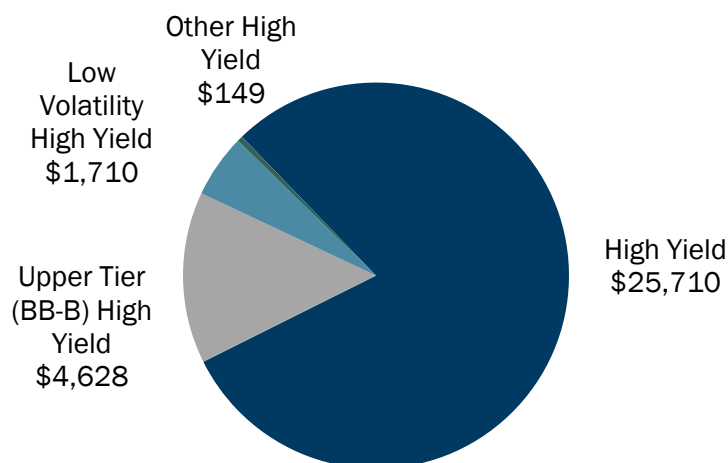
Due to rounding the sum of items may not equal stated totals.

1. AUM as of September 30, 2021, includes MacKay Shields LLC and its subsidiaries. Of the \$164 billion, passive equity AUM is \$6 billion and quantitative fixed income is \$107 million. Figures may be rounded.

MacKay Shields High Yield Team Overview

- Managing US high yield portfolios since 1991
- 61 accounts managed for clients across US, Canada, Europe, Middle East and Asia

High Yield Team \$32 billion AUM²



High Yield Composite (as of Sep. 30, 2021)	3 Years	5 Years	7 Years	10 Years
eVestment Percentile ¹	24 th	29 th	13 th	24 th

- Subadvisor to open-end US mutual funds
- MainStay MacKay High Yield Corporate Bond Fund Class I ★★★★★ Morningstar Overall Rating^{TM,3}
- MainStay MacKay Short Duration High Yield Fund³

This does not constitute an offer to sell or a solicitation of an offer to purchase shares in a fund. Mutual funds are offered by prospectus only through a registered broker/dealer.

1. Gross of fees, Source: eVestment Alliance; eVestment Universe: US High Yield Fixed Income. Run date: 10/26/2021. Provided as supplemental to the GIPS reports in the Appendix.

2. AUM and other data shown on this page is as of September 30, 2021. Due to rounding the sum of the items may not equal 100% or any expressed totals as applicable.

3. Morningstar ratings and rankings are published for both the MainStay MacKay High Yield Corporate Bond Fund and the MainStay MacKay Short Duration High Yield Fund. Morningstar does not have a separate universe for short duration high yield bond funds and includes the MainStay MacKay Short Duration High Yield Fund in the overall high yield bond fund universe. Please see disclosure pages in this presentation for important Morningstar disclosures. Morningstar star ratings are as of September 30, 2021

Our Approach to High Yield Investing

Focused

- Pure focus on US high yield market
- Bottom-up approach; lenders to companies we invest in
- Only credit selection matters — we do not index

Disciplined

- Consistent investment process since 1991
- Long-term outlook
- Constant attention to risk vs. reward and “downside protection”

Experienced

- Seasoned team of high yield credit experts
- Flat, non-bureaucratic “partnership” culture

Experienced Team and Ownership Culture

Investment Professional	Years of Experience	Years at Firm	Education & Investment Experience
Andrew Susser Lead Portfolio Manager	35	15	JD/MBA, UPenn Wharton Salomon Brothers, BofA Securities, GoldenTree
Maureen O'Callaghan Telecom, Cable/Broadcasters	34	2	MBA, Fordham University Stone Harbor Investment Partners
Nate Hudson, CFA Auto/Transport., Manufacturing, Services	30	13	BA, Yale University BofA Securities, Nomura (NCRAM)
Ryan Bailes, CFA Healthcare, Homebuilders, Utilities	26	6	BS, University of Kansas BofA Securities, Nomura (NCRAM)
Won Choi, CFA Metals/Mining, Div. Financials ESG Coordinator	25	19	BA, Yale University Fenway Partners, Salomon Smith Barney
Dohyun Cha, CFA Energy	24	16	BS, Boston College Credit Suisse; CIBC World Markets
John Pace, CFA Gaming, Building Products, Aero./Defense Chemicals, Paper, Div. Media	30	<1	MBA, University of Chicago Stone Harbor Investment Partners
Thomas Metcalf, CFA Retail, Consumer/Food, Technology	10	11	MS, University of Durham
May Wong, CFA Generalist	7	5	BA, Columbia University
Richard Lee, CFA Generalist	7	7	BS, Georgetown University
Riley Osborn Generalist	<1	<1	BA, University of Chicago
J. Alex Leites Trading	28	20	BS, New York University Lazard, Prudential
Scott Mallek Trading	25	19	BA, Fairfield University Salomon Smith Barney
Debbie Akua Boadu Trading	2	2	MS, Fairleigh Dickinson University
Joseph Maietta, CFA Client Portfolio Manager	13	7	MS, New York University/HKUST PIMCO, JPMorgan
Gabriela Perez, CFA Client Service Representative	6	6	MBA, Pace University

Culture

- Cohesive, disciplined
- Efficient, non-bureaucratic
- Compensation incentives based on long-term contribution to the team

Team

- 26 years average investment experience across senior investment professionals
- Senior members lead research responsibilities and have accountability for specific sectors
- Longstanding relationships with high yield market participants

As of September 30, 2021.

Margin-of-Safety Analysis Is Key to Our Credit Selection

High Yield Investment Process

HIGH YIELD UNIVERSE OF 1,000+ ISSUERS

Minimum Spread of 200bps Over Treasuries

MARGIN-OF-SAFETY ANALYSIS

Minimum of 1.5x Asset Coverage

Free Cash Flow Generation

BUSINESS JUDGEMENT

Focus on High Quality Strategic Businesses

Capital Structure & Covenant Analysis

Management Assessment

ESG Analysis

CATALYST FOR TOTAL RETURN

Credit Improvement

Positive Event Potential

Focus List

Default-Adjusted Spread Analysis

Client Objectives

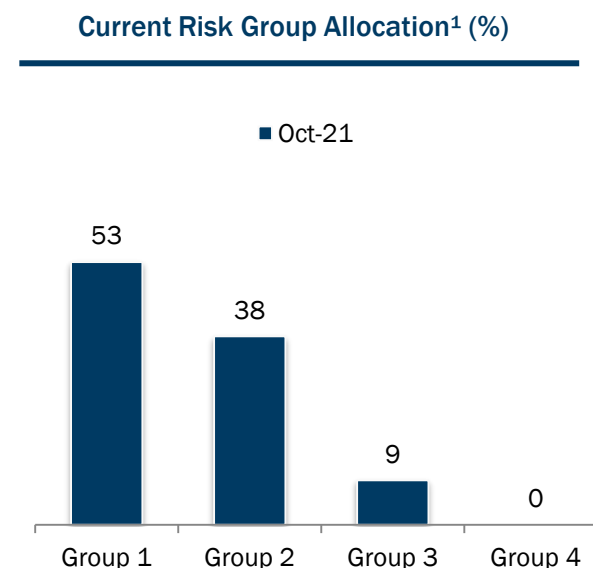
High Yield Portfolio

Portfolio Construction — Proper Compensation for Risk

Every security is categorized into a Risk Group based on strength of asset coverage and potential for default

Portfolio construction is determined by the default-adjusted spread and relative value between Risk Groups

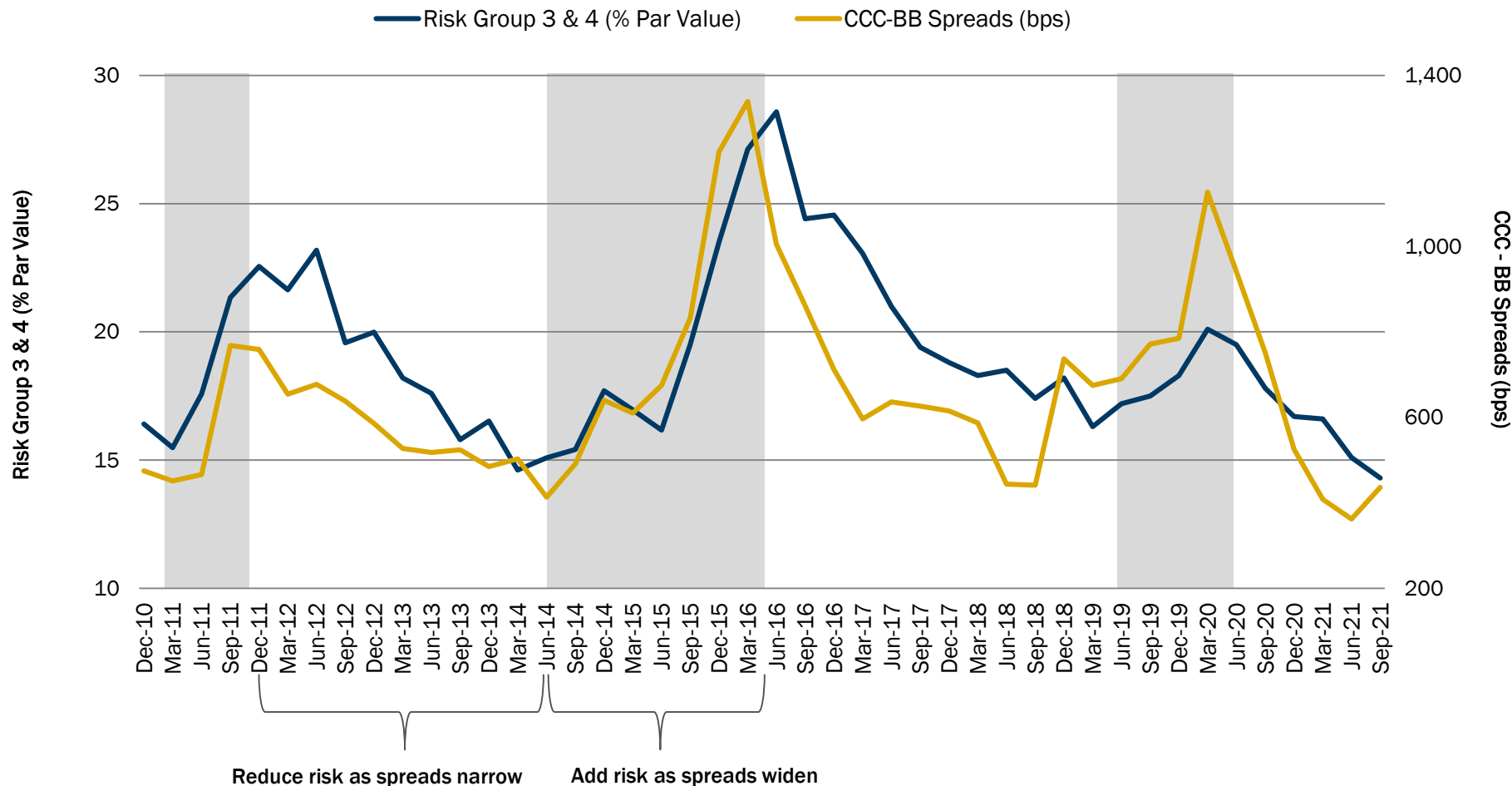
	Initial Spread		Default Adjustment		Required Minimum Spread
Group 1 – Highest Quality					
▪ Strongest credit profile	100 bps	+	100 bps	=	200 bps
▪ Lowest volatility			(1% Long Term Default Rate)		
Group 2 – Seasoned Issuers					
▪ Significant equity value	100 bps	+	200 bps	=	300 bps
▪ Strong credit statistics			(2% Long Term Default Rate)		
Group 3 – Risk Credits					
▪ Trading at discount	100 bps	+	400 bps	=	500 bps
▪ More research intensive			(4% Long Term Default Rate)		
Group 4 – Special Situations					
▪ Significant discount to asset value					



¹Represents a breakdown of holdings in the portfolio.

Disciplined through Market Environments

The strategy seeks to opportunistically increase (decrease) exposure to Risk Groups 3 & 4 when credit risk becomes more (less) attractive



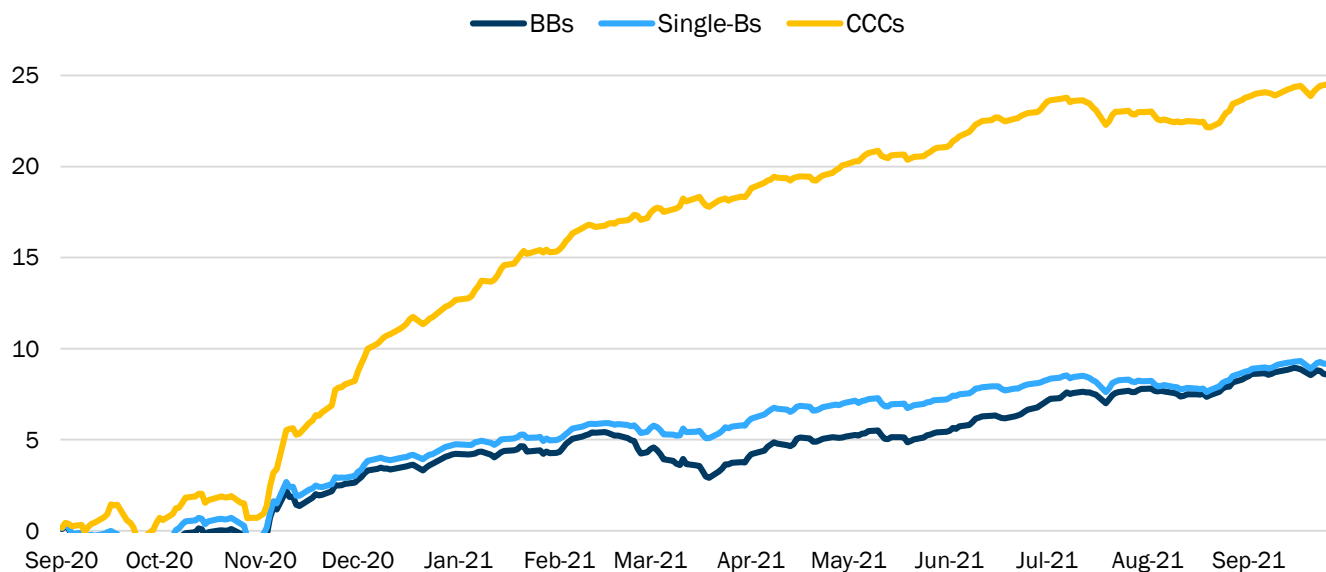
Represents a breakdown of the High Yield Strategy representative account. As of September 30, 2021

Source: ICE BofA High Yield BB Index, ICE BofA High Yield CCC & Lower Index.

Please refer to the end of the presentation for a definition of each Risk Group. Please see disclosures pages for the ICE BofA Credit Rating Disclosure.

Lower Quality and Distressed Names Have Significantly Outperformed

Performance by Credit Quality (%)



Total Return (%)	Sept-Dec '20	Q1	Q2	Q3	YTD 2021
BBs	4.2	(0.2)	2.9	1.1	3.8
Bs	4.8	1.2	2.1	0.7	4.0
CCCs	12.7	5.2	4.1	1.0	10.6
Distressed	25.5	17.9	10.2	1.5	31.8

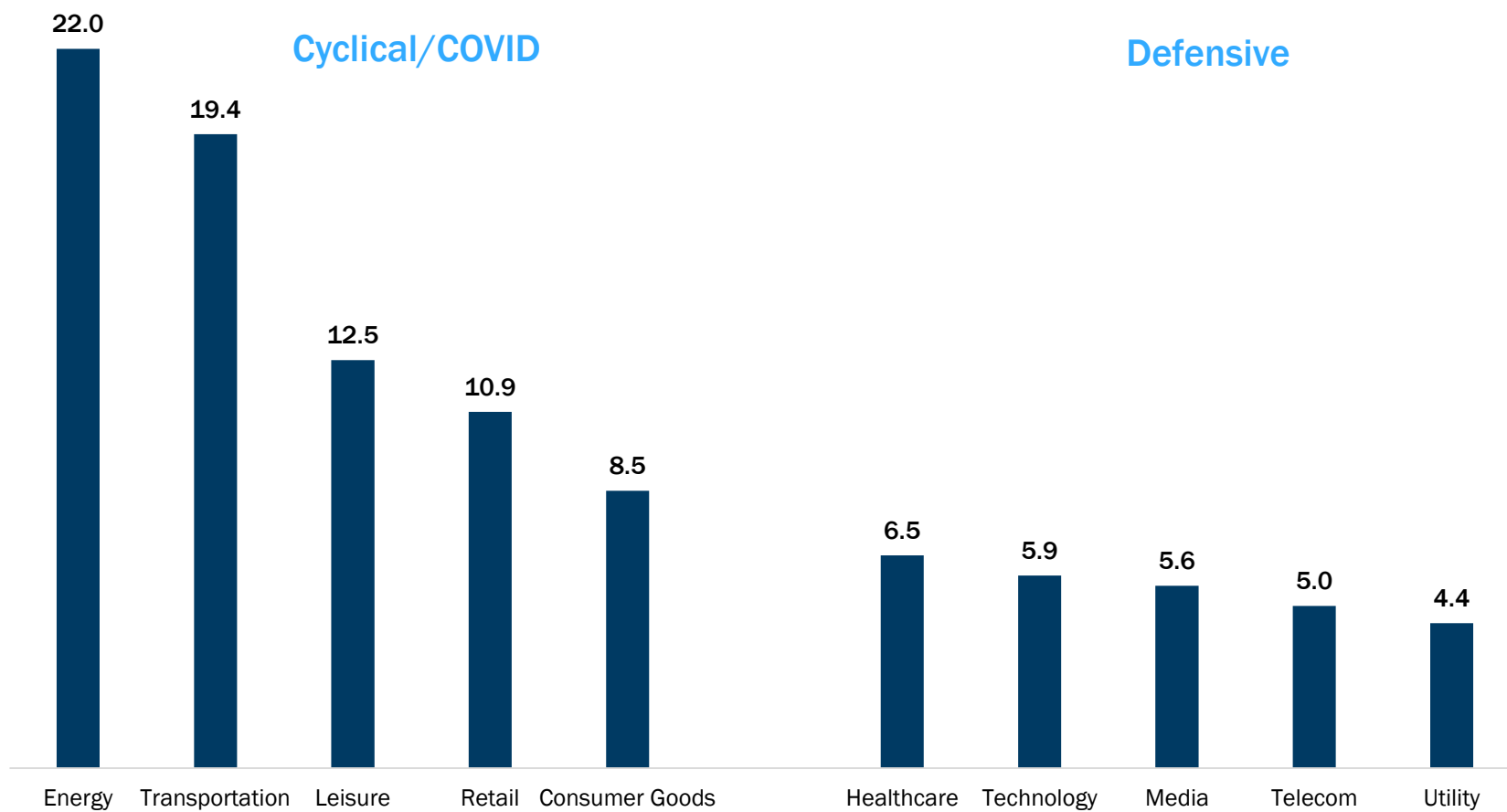
As of September 30, 2021

Source: ICE BofA US High Yield Index.

It is not possible to invest directly in an index. Please see disclosures pages for index descriptions and ICE BofA Credit Rating Disclosures. **Past performance is not indicative of future results.**

Cyclical/COVID Impacted Sectors Drive Returns

Total Return by Sector (%) Since Sept. 2020



As of September 30, 2021

Source: ICE BofA US High Yield Index.

It is not possible to invest directly in an index. Please see disclosures pages for index descriptions and ICE BofA Credit Rating Disclosures. **Past performance is not indicative of future results.**

State of Colorado Public School Fund

Historical Rates of Return (%)

Periods Ending September 30, 2021 (except as noted)

	State of Colorado Gross of Fees	State of Colorado Net of Fees	Bloomberg High Yield Index
3Q 2021	1.16	1.05	0.89
Year to Date	4.60	4.27	4.53
One Year	9.70	9.25	11.28
Since Inception – <i>Annualized</i> (9/1/2020)	8.15	7.70	9.33

	State of Colorado Gross of Fees	State of Colorado Net of Fees	Bloomberg High Yield Index
4Q 2020	4.88	4.77	6.45
1Q 2021	0.94	0.83	0.85
2Q 2021	2.44	2.33	2.74

Portfolio Attribution — Sector

Portfolio	Sep. 2020 to Dec. 2020			YTD 2021		
Sector	Allocation (bps)	Selection (bps)	Total (bps)	Allocation (bps)	Selection (bps)	Total (bps)
Automotive	(0)	(0)	(0)	(1)	0	(1)
Banking	(1)	0	(1)	1	0	1
Basic Industry	0	(13)	(13)	0	10	10
Capital Goods	(0)	(16)	(16)	0	(3)	(4)
Consumer Goods	2	(3)	(1)	(1)	(4)	(4)
Energy	2	(39)	(37)	4	(3)	1
Financial Services	1	(17)	(16)	(1)	10	10
Healthcare	(0)	(18)	(18)	(3)	2	(1)
Insurance	(1)	(1)	(2)	(1)	1	0
Leisure	0	2	2	2	(1)	1
Media	2	(2)	0	3	10	13
Real Estate	(1)	0	(0)	0	(1)	(1)
Retail	(0)	(11)	(11)	0	(4)	(4)
Services	1	(3)	(3)	0	(2)	(2)
Technology & Electronics	(4)	(5)	(9)	(2)	(3)	(5)
Telecommunications	12	1	14	8	3	11
Transportation	5	(10)	(5)	3	(2)	1
Utility	(3)	2	(0)	(2)	3	1
Cash/Other			(11)			(20)
Total	15	(132)	(128)	10	17	7

Portfolio Attribution — Quality

Portfolio	Sep. 2020 to Dec. 2020			YTD 2021		
Sector	Allocation (bps)	Selection (bps)	Total (bps)	Allocation (bps)	Selection (bps)	Total (bps)
BB & Higher	10	(55)	(45)	5	11	16
B	0	(15)	(15)	5	9	14
CCC & Lower	(50)	(21)	(71)	(30)	11	19
Not Rated			14			9
Cash/Other			(11)			(20)
Total	(40)	(91)	(128)	(20)	31	7

State of Colorado Public School Fund

Market Value: \$114,505,297
(as of October 31, 2021)

Statistics

	Portfolio	Index ¹
Current Yield (%)	4.86	5.50
Yield to Worst (%)	3.92	4.17
Modified Duration (years)	3.28	3.96
Average Credit Quality	BB-	B+

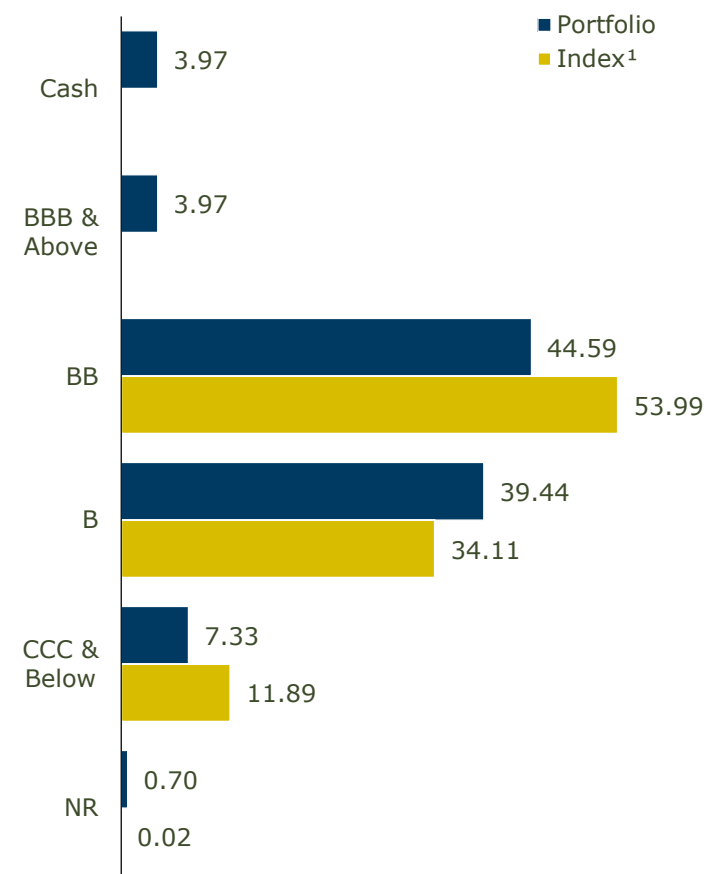
Top Ten Issuers (%)

	Portfolio
Charter Communications	2.17
Carnival Corporation	1.77
Ford Motor Company	1.65
HCA Inc	1.43
TransDigm Group	1.37
Schaeffler Group	1.33
Yum! Brands	1.31
T-Mobile	1.29
Lamar Media	1.12
MSCI Inc.	1.11

¹Bloomberg High Yield Index

²Using median rating of three. If only two are available, the lower rating (Bloomberg Rating Methodology) is used.

Quality Exposure (%)²



State of Colorado Public School Fund

As of October 31, 2021

Duration to Worst (%)

	Portfolio	Index ¹
0 to 3	45.38	41.26
3 to 7	46.82	46.74
7 to 10	7.26	7.71
Greater than 10	0.55	4.29

Sector (%)

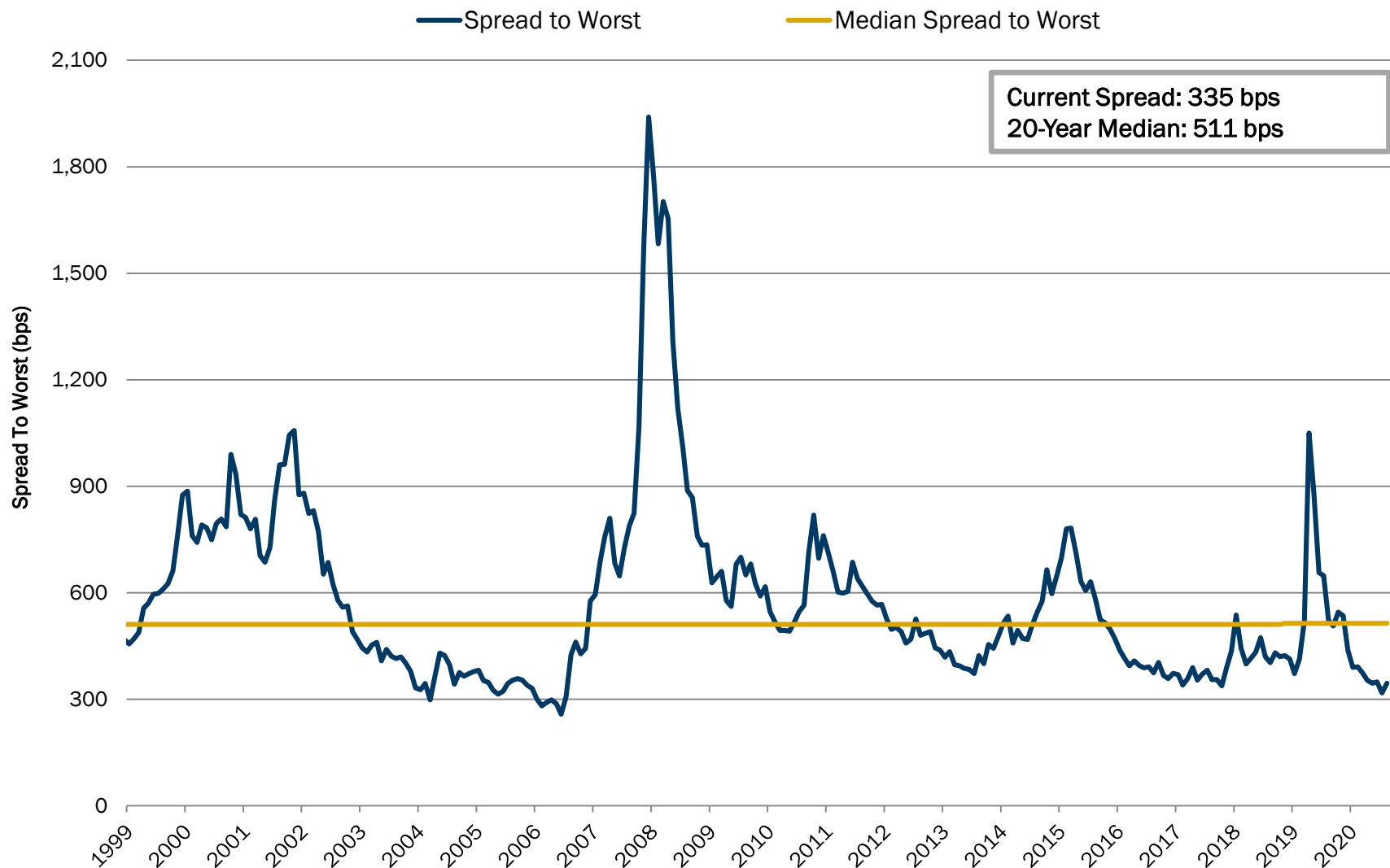
	Portfolio	Index ¹
Automotive	5.42	4.86
Banking	0.00	1.19
Basic Industry	10.37	7.47
Capital Goods	4.79	5.93
Consumer Goods	2.93	5.11
Energy	12.68	13.45
Financial Services	4.81	4.63
Healthcare	12.15	9.21
Insurance	1.09	1.28
Leisure	7.55	7.23
Media	7.03	8.36
Real Estate	3.96	4.20
Retail	6.12	4.96
Services	4.50	6.08
Technology & Electronics	4.61	4.14
Telecommunications	3.53	7.21
Transportation	2.08	1.93
Utility	2.42	2.78

¹Bloomberg High Yield Index

High Yield Market Overview



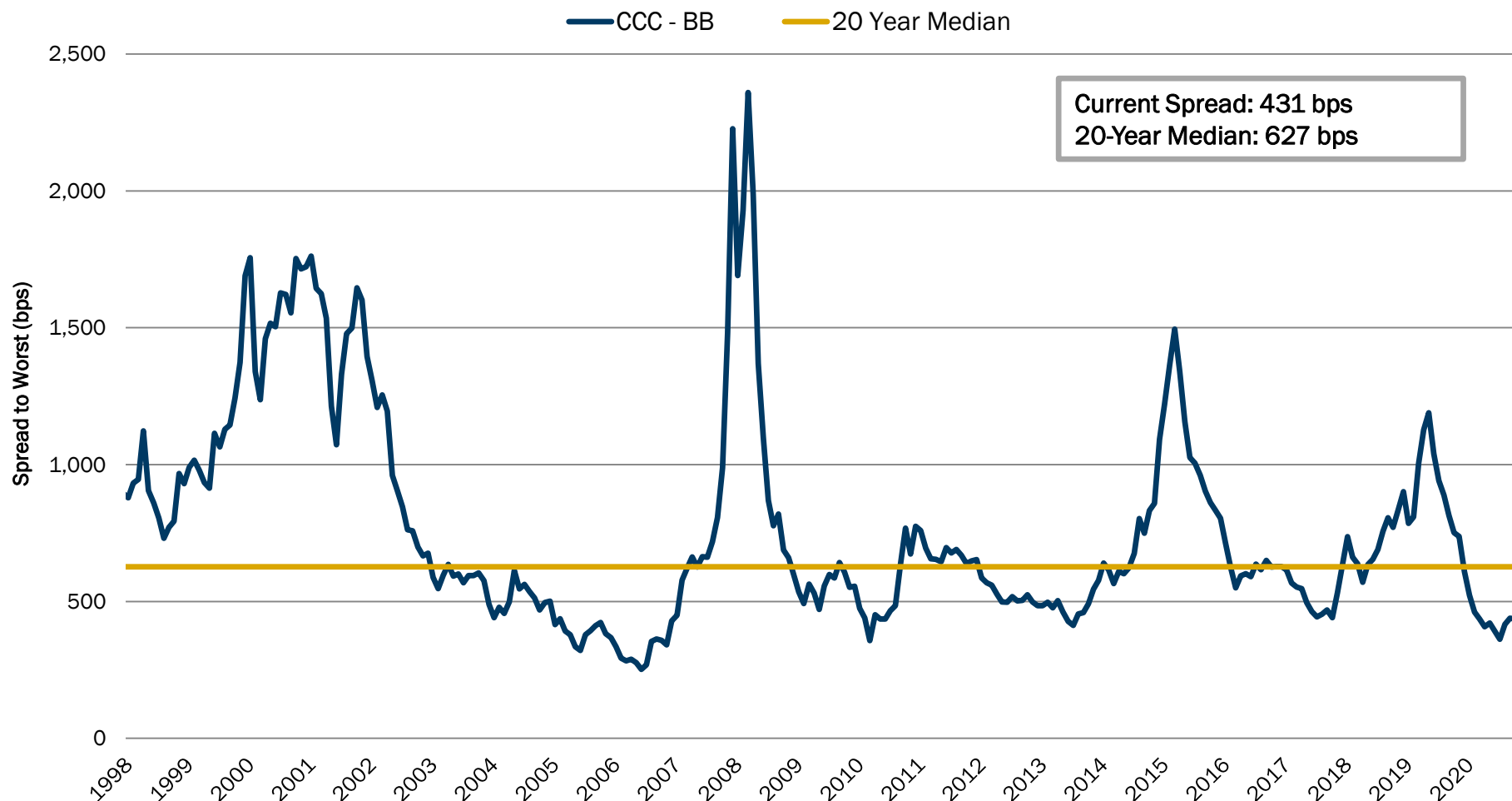
US High Yield Market Spreads



As of October 31, 2021
Source: ICE BofA US High Yield Index

US High Yield Quality Spreads

CCC - BB Spread to Worst (STW) Difference



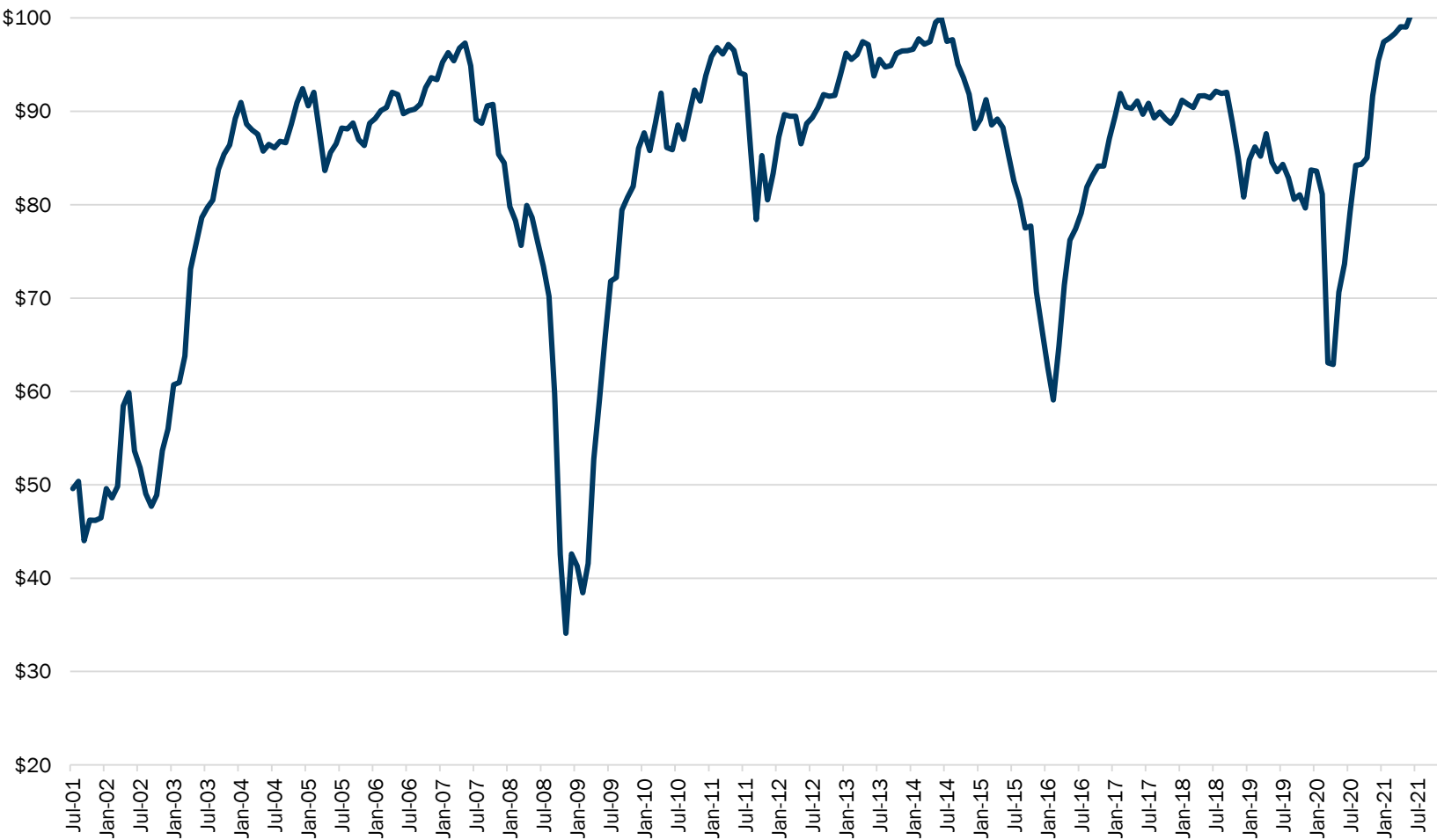
As of October 31, 2021

Source: ICE BofA US High Yield BB Index, ICE BofA US High Yield CCC & Lower Index

CCCs Now Trade Close to Par

Average \$ Price of CCC & Below Bonds in US High Yield Index

Current Price: \$99
20-Year Median: \$87



As of October 31, 2021.
Source: ICE BofA US High Yield CCC & Lower Index

“COVID-19” Sectors No Longer Trade at Significantly Wider Spreads

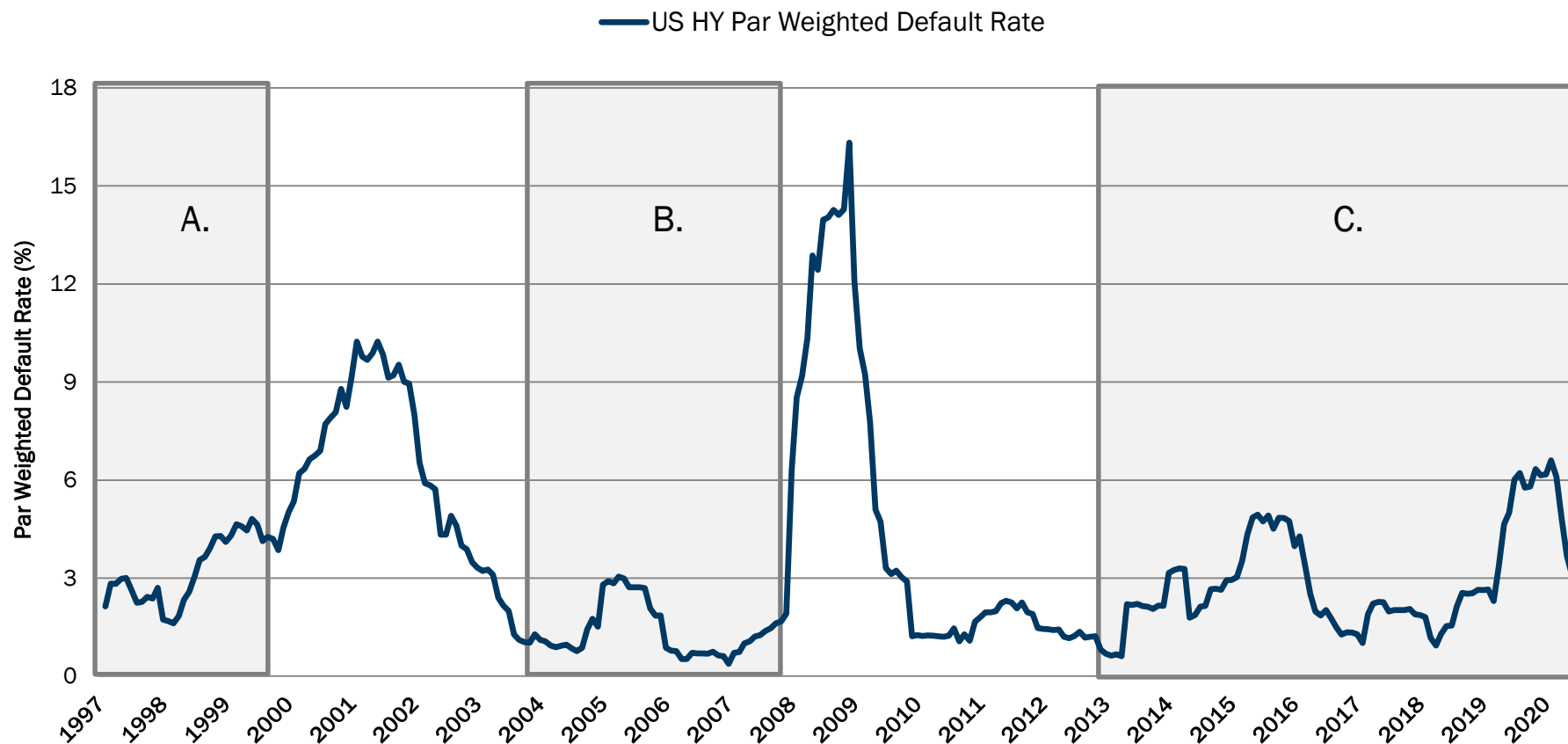
As of June 30, 2020

As of September 30, 2021

Sector/Industry	% of Market	Spread to Worst (bps)
Transportation	1.4	1,111
Energy	13.0	1,014
Aerospace & Defense	2.6	963
Leisure	6.1	775
Specialty Retail	2.9	734
Real Estate	4.2	634
Automotive	5.4	568
"COVID-19" Sectors	35.6	838
Rest of Market	64.4	552
High Yield Market	100.0	648

% of Market	Spread to Worst (bps)
1.8	345
13.7	381
2.4	396
6.5	357
2.7	345
4.1	305
4.9	263
34.1	348
65.9	325
100.0	332

Aggressive Issuance Not Evident In Current Environment



% of New Issuance

A. 1997 -2000

B. 2004 to 2008

C. 2013 to Present

BB-rated	31.3	36.0	55.1
Leveraged Buyouts (LBO)	0.1	22.6	3.1
Non-Cash Coupon¹	9.1	7.1	1.2

As of September 30, 2021

Source: JP Morgan, ICE Data. Default rate includes distressed exchanges.

1. Non-Cash Coupon Issuance includes Zero Coupon bonds, Pay-in-Kind (PIK) bonds, or PIK Toggle bonds

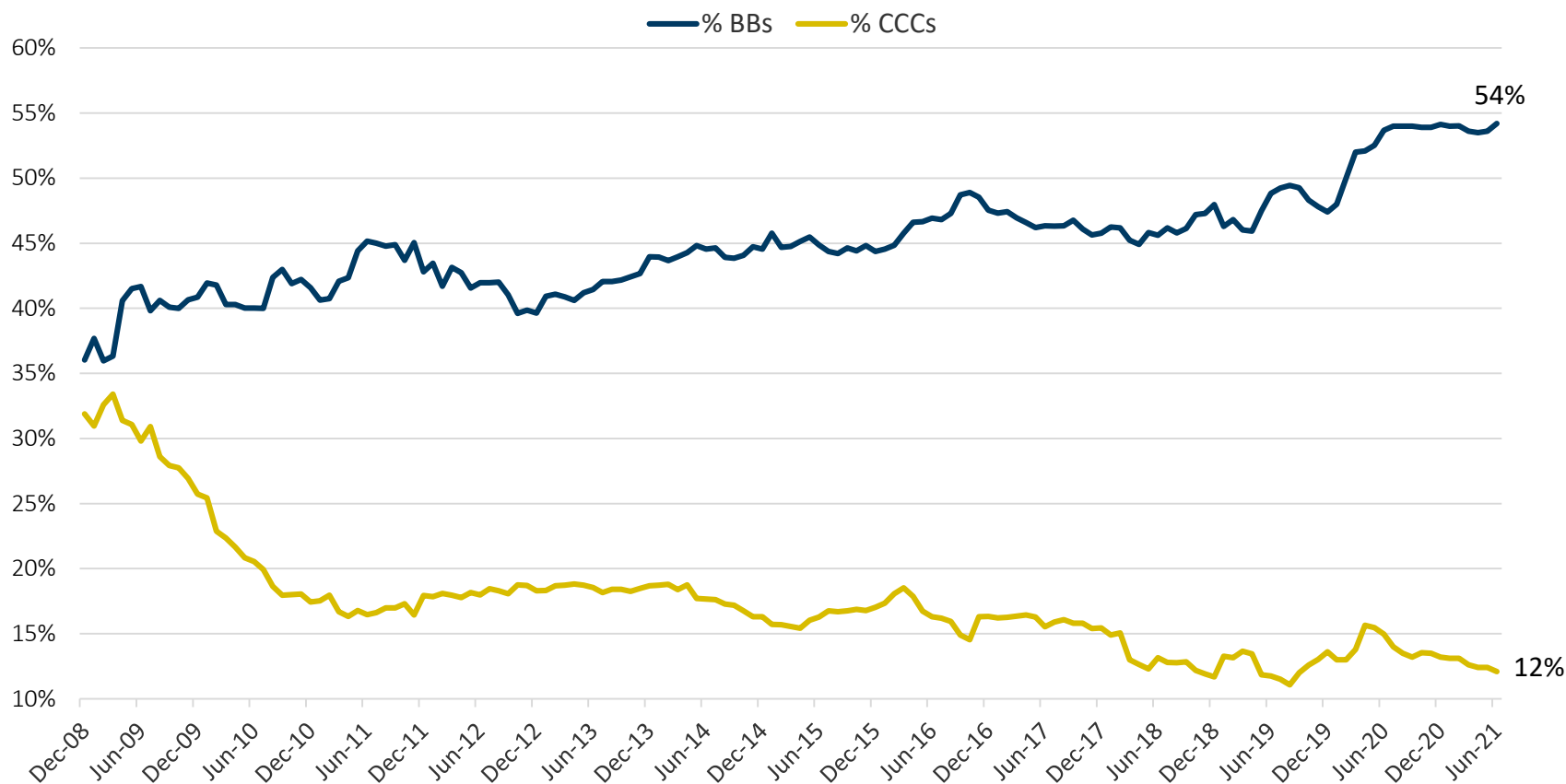
Timeframes A: 1/1/1997 to 12/31/2000; B: 1/1/2004 to 12/31/2008; C: 1/1/2013 to 3/31/2021. Please see disclosures pages for the ICE BofA Credit Rating Disclosure.

US High Yield Has Trended Towards Higher Quality, Public Companies

BB-rated credits have increased as a proportion of the US High Yield Market, alongside a decrease in CCC-bonds

25% of the ICE BofA US High Yield Index is now comprised of companies in the S&P 500 Index

% in Par Value of ICE BofA US High Yield Index

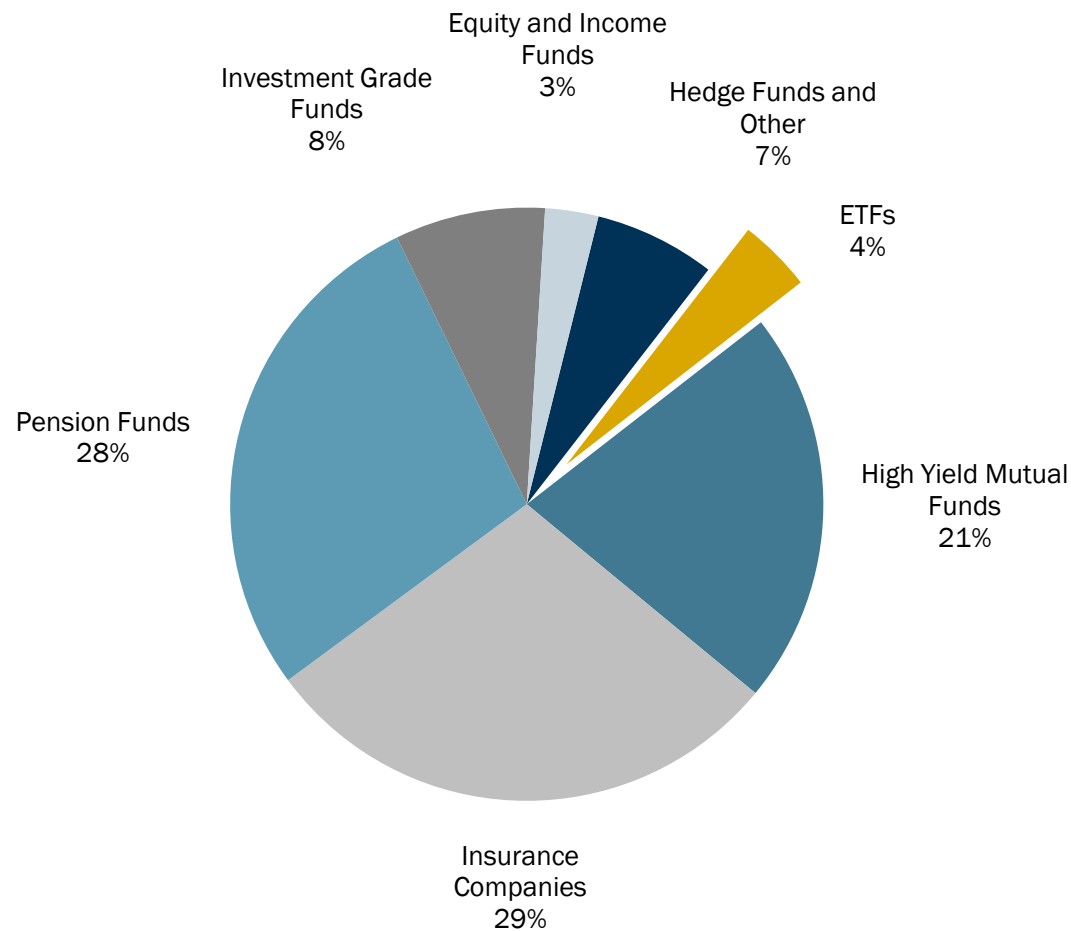


As of September 30, 2021

Sources: MacKay Shields, ICE BofA US High Yield Index. Please See Disclosures pages for the ICE BofA Credit Rating Disclosure.

High Yield Investor Base Is Diverse and Unleveraged

High Yield Investor Base 2020



Source: JP Morgan. Due to rounding, sum of items may not equal 100% or expressed totals as applicable.

Appendix



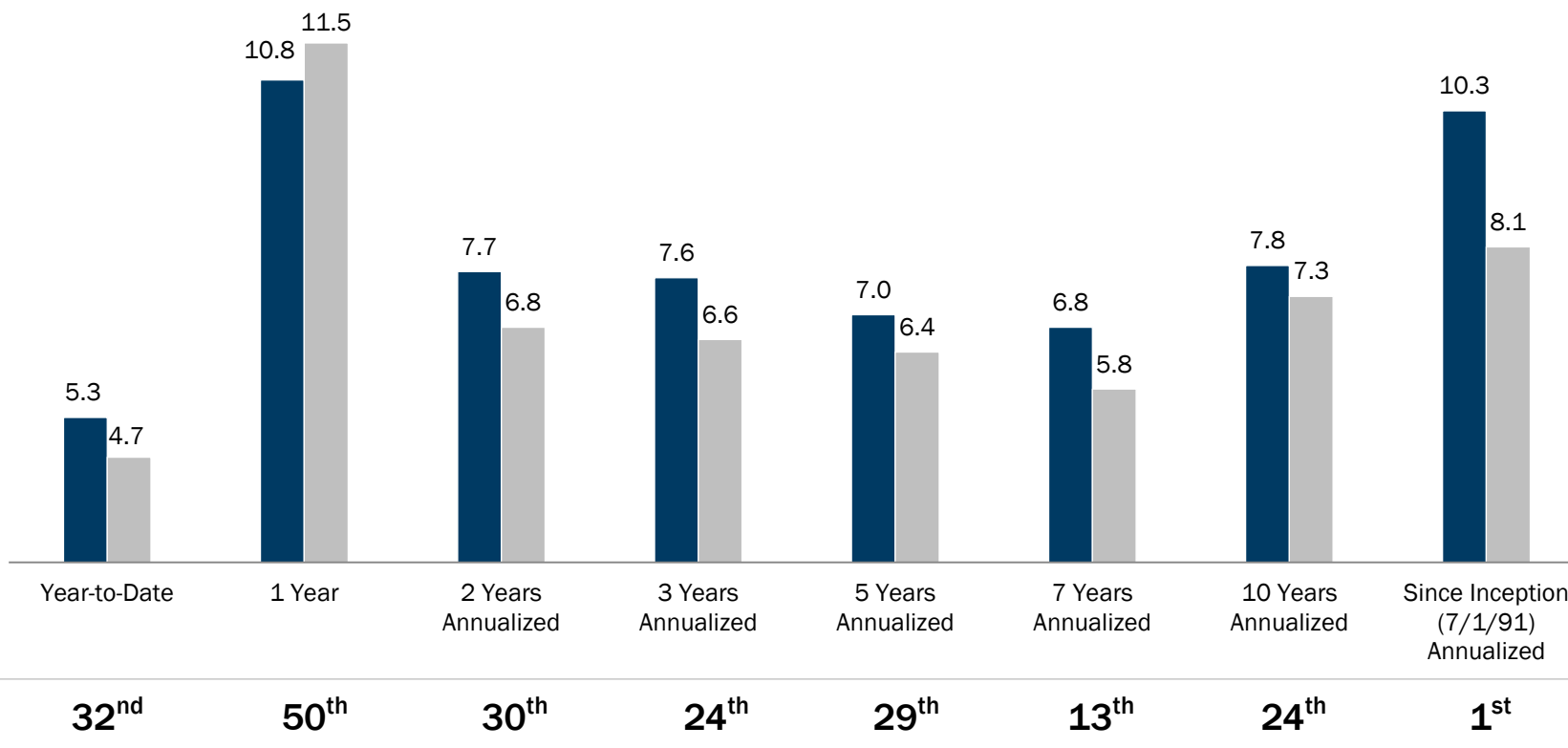
High Yield: Performance

Composite Returns (%)

Periods Ending September 30, 2021

■ MacKay Shields Composite (gross of fees)

■ ICE BofA US HY Index¹



Past performance is not indicative of future results. Please see High Yield Composite Disclosures and Additional Disclosures which are included in this presentation.

1. ICE BofA U.S. High Yield Index. It is not possible to invest directly in an index. Please see Additional Disclosures for important benchmark information, including disclosures related to comparisons to an index.

2. Source: eVestment. eVestment Universe: US High Yield Fixed Income, as of September 30, 2021. Run date: 10/26/2021.

Rankings are provided as supplemental information to the GIPS compliant presentation in the appendix. It is not possible to invest directly into an index.

Credit Selection Drives Performance

We seek to outperform the market with superior credit selection and less risk

	5 Years, Ending Sept. 30, 2021			7 Years, ending Sept. 30, 2021			10 Years, ending Sept. 30, 2021		
	MacKay Shields High Yield Composite ¹	ICE BofA US High Yield Index	Universe Median ²	MacKay Shields High Yield Composite ¹	ICE BofA US High Yield Index	Universe Median ²	MacKay Shields High Yield Composite ¹	ICE BofA US High Yield Index	Universe Median ²
Returns (%)	7.0	6.4	6.4	6.8	5.8	5.8	7.8	7.3	7.4
Beta	0.9	1.0	0.9	0.9	1.0	0.9	0.8	1.0	0.9
Alpha³ (%)	1.3	-	0.6	1.7	-	0.8	1.5	-	0.7
Sharpe Ratio	0.9	0.7	0.8	0.9	0.7	0.8	1.2	1.0	1.1
Information Ratio	0.5	-	0.0	0.8	-	0.0	0.4	-	0.1

1. Gross of fees. MacKay Shields High Yield Composite.

2. Source: eVestment Alliance (based on monthly returns). Run date: 10/26/2021. eVestment Universe: US High Yield Fixed Income

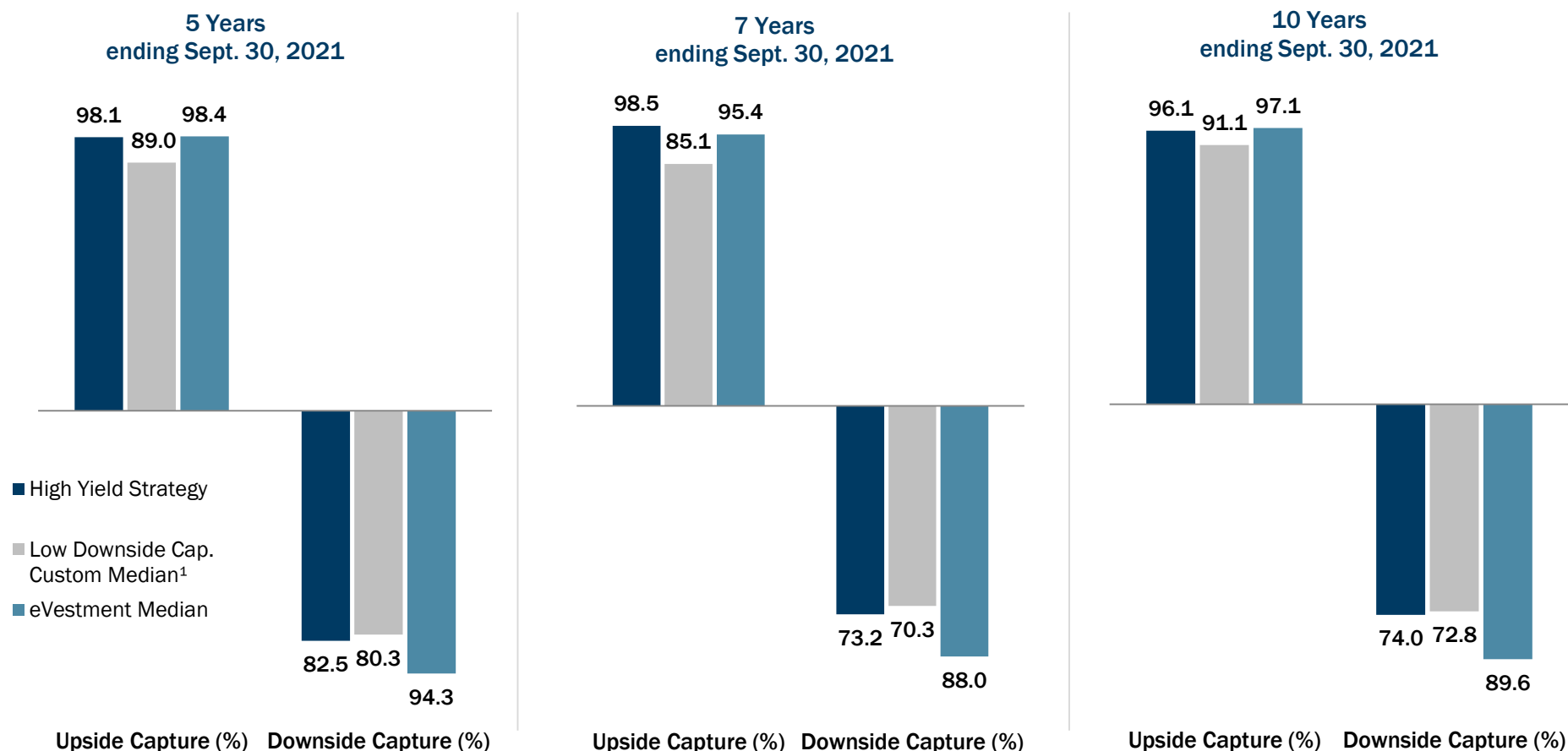
3. See disclosure pages for definition

Provided as supplemental to the GIPS-compliant presentation in the Appendix. It is not possible to invest directly into an index. Please see disclosure pages in the presentation for important index-related disclosures.

Past performance is not indicative of future performance.

Constant Focus on Capital Preservation

The Strategy has outperformed its benchmark in every negative return quarter since 2002²



Gross of fees. Mackay Shields High Yield Composite.

Source: MacKay Shields, eVestment Alliance (based on quarterly returns). eVestment Universe: US High Yield Fixed Income. Run on 10/26/2021

1. Low Downside Cap. Custom Median. Only includes strategies in the eVestment Universe: US High Yield Fixed Income that have a quarterly 10-year (or longest observation) Downside Capture of 85% or lower versus the ICE BofA US High Yield Index. 5-Year = 103 observations; 7-Year = 95 observations; 10-Year = 69 observations

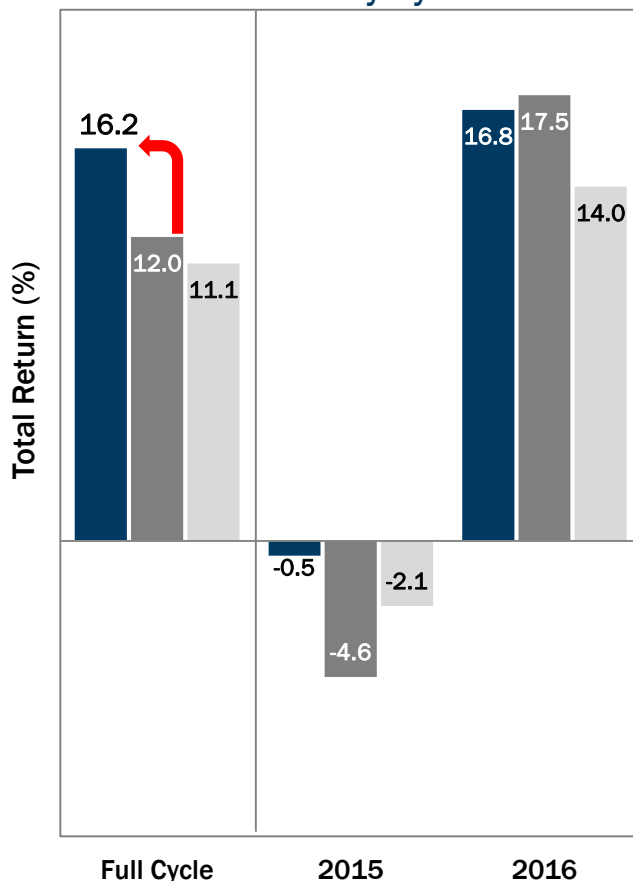
2. High Yield Composite has outperformed the ICE BofA US High Yield Index (gross of fees) in quarters where the ICE BofA US High Yield Index has recorded a negative total return.

Provided as supplemental to the GIPS reports in the Appendix. It is not possible to invest directly into an index. Please see disclosure pages in the presentation for important index-related disclosures. See appendix for most recent final GIPS compliant disclosures, including disclosures related to comparisons to an index and index descriptions.

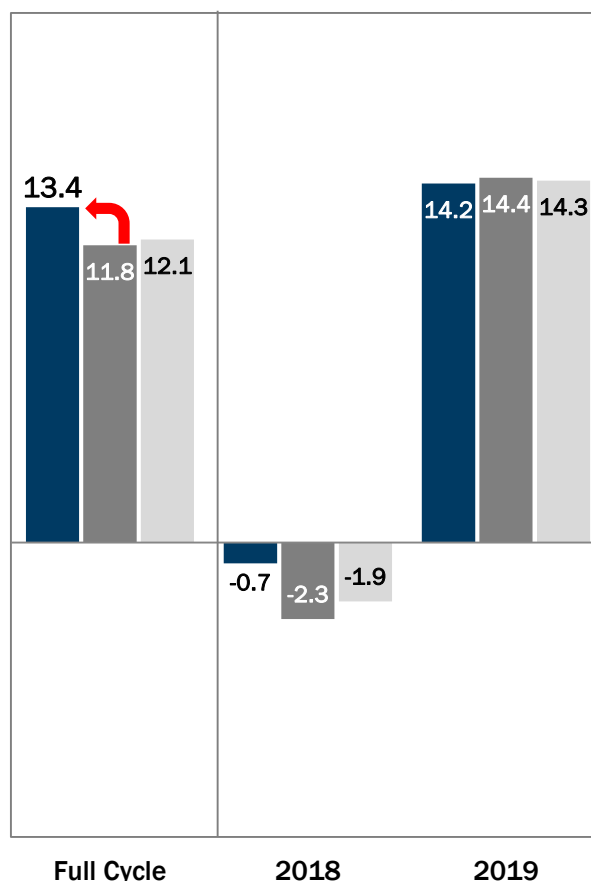
Past performance is not indicative of future performance.

Consistent Outperformance In Recent Mini-Cycles

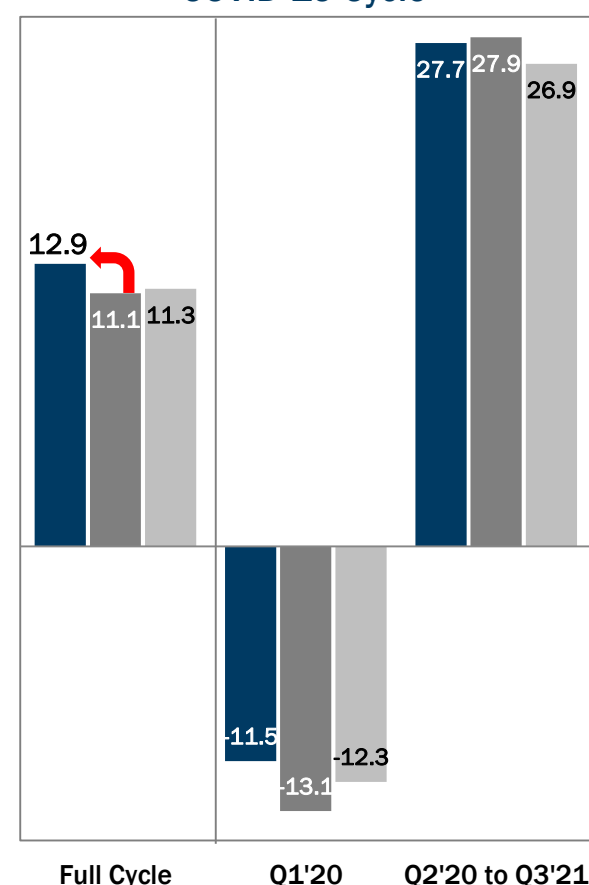
**2015-2016
Commodity Cycle**



**2018-2019
Rates/Global Trade Cycle**



**2020-2021
COVID-19 Cycle**



■ High Yield Strategy ■ ICE BofA US HY Index ■ eVestment Median

1. Gross of fees. MacKay Shields High Yield Composite.

Total Return is cumulative for each period. Cycles are defined by MacKay Shields; thus returns would vary using different time periods. "COVID-19 Cycle" only shows returns through 9/30/21 and doesn't necessarily reflect conclusion of the cycle given the fluid and ongoing nature of current events.

Source: MacKay Shields, eVestment Alliance, eVestment Universe: US High Yield Fixed Income. Run date: 10/26/2021.

Provided as supplemental to the GIPS-compliant presentation in the Appendix. It is not possible to invest directly into an index. Please see disclosure pages in the presentation for important index-related disclosures. See appendix for most recent final GIPS compliant disclosures, including disclosures related to comparisons to an index and index descriptions.

Past performance is not indicative of future performance.

High Yield: Composite Disclosures

Period	MacKay Shields Composite Gross Returns (%)	ICE BofA U.S. HY Index ¹ Returns (%)	Composite 3-Yr St Dev (%)	Benchmark ¹ 3-Yr St Dev (%)	No. of Accts.	Composite Assets (\$Mil)	Firm Assets (\$Mil)	Internal Dispersion (%)	High Yield Team Assets (\$Mil)
2021 (Thru 9/30)	5.3	4.7	8.2	9.3	30	7,055	163,470	N/A	32,197
2020	7.2	6.2	8.3	9.4	31	7,428	153,995	0.8	30,407
2019	14.2	14.4	3.4	4.1	31	6,376	131,978	0.3	25,778
2018	-0.7	-2.3	4.1	4.6	28	5,495	107,467	0.3	20,396
2017	7.7	7.5	4.8	5.6	21	4,404	98,098	0.2	22,754
2016	16.8	17.5	5.2	6.0	22	4,458	94,540	0.4	22,024
2015	-0.5	-4.6	4.3	5.3	25	4,505	89,196	0.3	19,874
2014	2.7	2.5	3.6	4.4	27	5,161	91,626	0.3	20,571
2013	7.1	7.4	4.7	6.4	30	5,312	80,331	0.3	21,045
2012	14.2	15.6	4.8	7.0	29	5,503	78,371	0.2	20,108
2011	7.0	4.4	7.6	11.0	36	7,276	58,115	0.3	17,463

1. ICE BofA US High Yield Index

The High Yield Composite includes all discretionary high yield accounts managed with similar objectives for a full month, including those accounts no longer with the firm. This strategy includes high-yield corporate debt securities, consisting of all types of high-yield domestic and foreign corporate debt securities that are rated below investment grade or, if unrated, that we determine to be of comparable quality. As of 10/1/09, the definition of the High Yield Composite was changed to exclude those accounts where management is shared with another team within MacKay Shields, and, as of 4/1/18, reverted back to allowing accounts with shared management in the composite so long as the other team had no influence on the high yield team's component of the account. Composite performance reflects reinvestment of income and dividends and is a market-weighted average of the time-weighted return, before advisory fees and related expenses, of each account for the period since inception. Policies for valuing investments, calculating performance, and preparing GIPS reports are available upon request. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. Performance is expressed in US Dollars. The composite creation and inception date is 7/1/91. Advisory fees, which are described in the firm's ADV, Part 2A, and related expenses will reduce returns. For example, in flat markets a .50% annual investment advisory fee, our highest fee, applied quarterly, would have the effect of reducing the annual compound return by .50% in the first year and by a cumulative 2.53% in the fifth year. All portfolios in the composite are fee-paying portfolios. There can be no assurance that the rate of return for any account within a composite will be the same as that of the composite presented. **Past performance is not indicative of future results.**

MacKay Shields LLC, an SEC-registered investment adviser, claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. The firm has been independently verified from January 1, 1988 through December 31, 2020. The verification report is available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report. A list including composite descriptions, pooled fund descriptions for limited distribution pooled funds, and broad distribution funds is available upon request. The primary benchmark for this composite is the ICE BofA US High Yield Index. The Credit Suisse High Yield Index was the primary benchmark until 9/30/16. It was removed due to data transparency issues. The benchmark was changed retroactively because returns for the two indices were not meaningfully different through 9/30/16. The correlation of monthly index returns from composite inception through 9/30/16 was 0.983. Indices do not incur management fees, transaction costs or other operating expenses. Investments cannot be made directly into an index. The ICE BofA US High Yield Index is referred to for comparative purposes only and is not intended to parallel the risk or investment style of the portfolios in the MacKay Shields Composite. Internal dispersion is calculated using the equal-weighted standard deviation of annual gross returns of those portfolios that were included in the composite for the entire year. The three-year annualized standard deviation measures the variability of the composite gross returns and the index returns over the preceding 36-month period.

Investment Guidelines

Objective/Reference Benchmark

The objective of this portfolio is to provide high yield fixed income exposure benchmarked against the Bloomberg US Corporate High Yield Index and to invest assets in a manner that complies with the INVESTMENT BOARD's Investment Policy Statement, the Uniform Prudent Investor Act (§ 15-1.1-101, et seq., C.R.S.), Colorado statutes and constitutional provisions governing the Fund (§ 22-41-101, et seq., C.R.S. & Colorado Constitution art. IX, § 3).

Realized Gain/Loss

The Contractor will coordinate with the PSPF Portfolio Administrator, Investment Consultant, Colorado Treasurer's Office, and other third party service providers to aggregate and monitor realized and unrealized gains and losses to ensure that net realized losses are minimized and, when they do occur, immediately coordinate efforts to activate plans to offset such losses with realized gains from other aspects of the Fund, in order to ensure compliance with § 22-41-102 and 104, C.R.S.

Earned Income

Earned income, not including capital gains, on the portfolio shall be swept from the account on a monthly basis. Sufficient liquidity must be maintained to ensure that all operational requirements are met and that the overall quality and marketability of the portfolio is maintained.

Credit Quality Guidelines

Invest in a diversified portfolio of high yield debt securities which are primarily in the lower rating categories of recognized rating agencies:

Moody's: Baa1 to Caa3 or

S&P: BBB+ to CCC-

For temporary defensive and cash management purposes, the portfolio may invest in cash and debt securities (including cash equivalents) rated A- or higher.

Ratings for compliance purposes will be calculated on the middle rating of the available ratings by S&P, Moody's, and Fitch. If only two of the three agencies are available, the lower rating will be used (Bloomberg Rating Methodology). These ratings will be applied to both the portfolio and the benchmark.

Permitted Investments

Debt securities in which the portfolio may invest include all types of debt obligations such as bonds, debentures, notes, bank debt, bank loan participations, commercial paper and US Government securities (including obligations, such as repurchase agreements, secured by such instruments).

Convertible bonds are considered as fixed income hybrids whose properties more closely resemble bonds subject to the limit below.

The portfolio may not hold single name common stock or preferred stock.

The portfolio may invest in public and private placement securities, including Rule 144As with and without registration rights.

The portfolio may invest in securities of non-US issuers if they are denominated in US dollars.

Investment Guidelines (continued)

Concentration Limits

Unrated securities must be considered to be of comparable quality by MacKay Shields and would not comprise more than 15% of the portfolio.

Securities rated CCC+ or below or of comparable quality will not exceed the greater of 1.5x the Index weight or 15% of the portfolio.

Foreign Securities will not exceed the greater of 2.0 times the Index weight or 25% of the portfolio. Emerging market securities, defined as those in which the issuer has a Country of Risk that is not included in the Developed Market countries list by the Bloomberg Indices, will not exceed 10% of the portfolio. Foreign Securities will be identified by the issuer's Country of Risk as defined by Bloomberg.

The portfolio may hold up to 5% in hybrid securities as described above.

The portfolio may participate, purchase, obtain, or exchange for a security (except for common stock and preferred stock) as part of a corporate action, reorganization, or workout.

The maximum holding for any single issuer will be 4% of the portfolio at the time of purchase (excluding government and agency issuers).

The maximum exposure to a single industry (measured on a Bloomberg Level 4 basis) will be the greater of 10% the portfolio's market value or 1.5x the Index weight.

Compliance

If the portfolio is not in full compliance with (i) the Contract, (ii) the Statement of Work, (iii) the Investment Policy Statement for the INVESTMENT BOARD and (iv) these Investment Guidelines, the Contractor shall immediately notify the Chair of the INVESTMENT BOARD, the INVESTMENT BOARD's administrator, and investment consultant and provide plans to move into compliance. The Contractor shall work with the notified parties to establish a reasonable timeline for getting into compliance, keeping in mind the best interests of the Fund.

Biographies



High Yield Team

Andrew Susser

*Executive Managing Director
Head of High Yield*

Andrew Susser is an Executive Managing Director and Head of High Yield, responsible for the group's implementation of its investment process. Prior to joining MacKay Shields in 2006, he was a Portfolio Manager with GoldenTree Asset Management. Previously, he was a Managing Director and Head of High Yield Bond Research at Banc of America Securities covering the gaming, lodging and leisure sectors. From 1999 to 2004, Andrew was named to the Institutional Investor All-America Fixed Income Research Team; from 2002 to 2004, he was ranked by Institutional Investor as the No. 1 analyst in the high yield sector. Andrew also worked as a Fixed Income Analyst for Salomon Brothers, as a Senior Analyst at Moody's Investors Service and as a Market Analyst and Institutional Trading Liaison for Merrill Lynch Capital Markets. He began his career as a Corporate Finance and M&A Attorney at Shearman & Sterling in their New York office.

Andrew received a BA from Vassar College, an MBA from the Wharton Graduate School of Business and a JD from the University of Pennsylvania Law School. He has been working in the investment industry since 1986.

Ryan Bailes, CFA

Managing Director

Ryan Bailes is a Managing Director on the High Yield Team, where he follows the healthcare, home building, and utilities. Prior to joining MacKay Shields in 2015, he was an Executive Director at Nomura Corporate Research and Asset Management where his research focus over time included the healthcare, forest products and home building sectors. Previously, Ryan was a Vice President at Banc of America Securities where he was ranked #3 in Institutional Investor Magazines' 2005 All American High Yield Fixed Income Research poll in the Metals and Mining sector. Ryan also worked as an analyst at Duma Capital and ING Barings Furman Selz.

Ryan received a BS from the University of Kansas and is a CFA Charterholder. He has been working in the investment industry since 1996.

Dohyun Cha, CFA

Managing Director

Dohyun Cha is a Managing Director on the High Yield Team, where he follows the energy sector. Prior to joining MacKay Shields in 2006, he was a Vice President at Credit Suisse, where he was an equity analyst covering the basic materials sector. Previously, he was a Financial Analyst in the Investment Banking Division of CIBC World Markets.

Dohyun received a BS from Boston College and is a CFA Charterholder. He has been working in the investment industry since 1997.

Institutional Investor Award Disclosures

For more than 30 years, Institutional Investor has recognized people and firms in the financial service industry for excellence. Institutional Investor Research is the premier source of survey-based rankings, identifying top analysts covering equity and fixed-income markets in the United States, Europe, Asia, Japan and Latin America. Awards are determined by Institutional Investor using a proprietary methodology which incorporates polling leading asset management firms from around the world which are listed in Institutional Investor's proprietary database. Both individual-based rankings and team rankings are determined solely by numerical score. For additional information about Institutional Investor's rankings and awards, please visit: <https://www.institutionalinvestor.com/Research-FAQs#6>. Receipt of any award is not indicative of future performance and no representation is being made by MacKay Shields LLC that receipt of any award by one of more of its employees is representative of any client's experience. No fee was paid to be considered for an award. The analysts were not employed by MacKay Shields LLC at the time the awards were received.

High Yield Team

Won Choi, CFA

Managing Director

Won Choi is a Managing Director on the High Yield Team, where he follows the financials and metals & mining sectors. He is also the Team's ESG Coordinator. Prior to joining MacKay Shields in 2002, he was an Associate at Fenway Partners, Inc, a middle market private equity firm. Previously, he was a Financial Analyst in the Investment Banking Division of Salomon Smith Barney.

Won received a BA from Yale University and is a CFA Charterholder. He has been working in the investment industry since 1997.

Nate Hudson, CFA

Managing Director

Nate Hudson is a Managing Director on the High Yield Team, where he follows the automotive/transportation, manufacturing and service sectors. Prior to joining MacKay Shields in 2008, he was a Senior Analyst of High Yield Credit in Strategic Capital's (White Ridge Advisors) proprietary investment group at Banc of America Securities. Previously, he was a sell-side High Yield Analyst at Banc of America Securities and a High Yield Credit Analyst at Nomura Corporate Research & Asset Management (NCRAM).

Nate received a BA from Yale University and is a CFA Charterholder. He has been working in the investment industry since 1991.

Maureen O'Callaghan

Managing Director

Maureen O'Callaghan is a Managing Director on the High Yield Team, where she follows the telecommunications and media sectors. Prior to joining MacKay Shields in 2019, she was a senior global credit analyst and partner at Stone Harbor Investment Partners since the firm's inception in 2006, managing telecom, media and technology (TMT) investments across global high yield, leveraged loans, and emerging market debt, as well as domestic housing and building materials investments. Maureen was a Managing Director and high yield credit analyst covering TMT and gaming at Citigroup Asset Management and Salomon Brothers Asset Management prior to the team's founding of Stone Harbor.

Maureen received a BS and an MBA in Finance from Fordham. She has been working in the investment industry since 1987.

High Yield Team

Thomas Metcalf, CFA

Managing Director

Tom Metcalf is a Managing Director on the High Yield Team, where he follows the retail, consumer/food, and technology sectors. Prior to joining MacKay Shields in 2011, he was a Content Publisher at iO Global Ltd.

Tom received a BS and an MS from the University of Durham and is a CFA charterholder. He has been working in the investment industry since 2011.

Richard Lee, CFA

Associate Director

Richard Lee is an Associate Director and generalist analyst on the High Yield Team. Prior to joining MacKay Shields in 2014, Richard was an Equity Derivatives intern at GFI Group. Richard received a BS in finance and accounting from Georgetown University's McDonough School of Business.

May Wong, CFA

Associate Director

May Wong is an Associate Director and generalist analyst on the High Yield Team. Prior to joining MacKay Shields, May was a Reconciliation Associate and worked on system analysis for client and product onboarding in Middle Office Solutions at BNY Mellon.

May received a BA in Economics from Columbia University. She is a CFA Charterholder and has been working in the investment industry since 2014.

Riley Osborn

Analyst

Riley Osborn is a generalist analyst on the High Yield Team. Riley received a BA in economics and minor in computer science from the University of Chicago.

High Yield Team

J. Alex Leites

Managing Director

Alex Leites is a Managing Director and trader on the High Yield Team. Prior to joining MacKay Shields in 2002, he was a Settlements Specialist at Credit Suisse First Boston. He previously worked at Kinexus, Inc., Bank of New York, Lazard Asset Management and Prudential Securities.

Alex received a BS from New York University's Stern School of Business and has been in the investment industry since 1993.

Scott D. Mallek

Managing Director

Scott Mallek is a Managing Director and trader on the High Yield Team. Prior to joining MacKay Shields in 2002, he was an Assistant Vice President involved with IFG High Yield Trading at Salomon Smith Barney.

Scott received a BA from Fairfield University and has been working in the investment industry since 1996.

Debbie Boadu

Debbie Boadu is a trading assistant on the High Yield Team. She received her Masters in Public Health Administration from Fairleigh Dickinson University and has been working in the investment industry since 2019.

Joseph A. Maietta, CFA

Managing Director

Joseph Maietta is a Managing Director and client portfolio manager on the High Yield Team. Prior to joining MacKay Shields in 2014, he was a Senior Associate in the Institutional Client Management Group at PIMCO and was previously an Associate in the Investment Analytics and Consulting area at JPMorgan Chase & Co.

He earned a B.S. in Finance from Hofstra University Honors College and holds a dual M.S. in Global Finance from New York University's Leonard N. Stern School of Business and Hong Kong University of Science and Technology. He is a CFA Charterholder and has been in the investment management industry since 2008.

Marketing & Client Service

John W. Akkerman, CFA CAIA

*Executive Managing Director
Global Head of Distribution*

John W. Akkerman is an Executive Managing Director and Global Head of Distribution, responsible for creating and implementing strategies for MacKay Shield's distribution, marketing, consultant relations and client service practices. He is a member of the firm's Senior Leadership Team. He joined MacKay Shields in September 2012 after 16 years in various leadership roles at AllianceBernstein, where he most recently led the firm's specialist institutional sales and marketing functions focused on alternatives and fixed income. From 2004 to 2010 he was responsible for the expansion and leadership of AllianceBernstein's institutional business in Canada, the United States and Latin America. This followed the launch and development of AllianceBernstein's Canadian business from 1996 to 2004. Prior to joining AllianceBernstein in 1996, John was a shareholder at TAL Investment Counsel, a business development executive at Sun Life and a corporate banking officer with Bank of Montreal.

He earned a BComm from Saint Mary's University and an MBA from the University of Western Ontario. A member of CFA Society Toronto, he is a CFA charterholder and a Chartered Alternative Investment Analyst. He has been working in the investment industry since 1987.

Beth Griper

*Managing Director
Head of Client Service*

Beth is a Managing Director and Head of Institutional Client Service. She is responsible for managing the firm's day-to-day relationships with clients, consultants and private fund investors, as well as all aspects of client reporting and data. She joined MacKay Shields in 2007 as a Director in the Institutional Client Service Division. Prior to joining MacKay Shields, she was a Director within the Global Corporate Client Group at NYSE Euronext where she was responsible for soliciting new listings and managing relationships with 120 listed companies. Beth also spent six years with Zurich Financial Services Group as a Business Development Analyst working with institutional and high net worth clients. Prior to that, Beth was with Credit Suisse First Boston and Shearman & Sterling. She received an MBA in Finance and Economics from New York University's Leonard N. Stern School of Business and a BA in International Relations and German from Bucknell University. Beth's career in the financial service industry began in 1996.

Therese M. Hernandez

*Managing Director
Institutional Business Development*

Therese joined MacKay Shields as a Director of Institutional Business Development in 2000 and was promoted to Managing Director in 2007. Her primary area of responsibility is marketing the firm's capabilities to the Public Fund community. Prior to joining MacKay Shields, Therese was Vice President of Public Fund Sales at MFS Institutional Management. She was previously with Norwest as a Vice President of Sales and New Business Development and earlier in her career was with Northern Trust Company as an Assistant Vice President providing relationship management to endowment and foundation clients. Therese began her career with the Chicago Board of Trade as a clerk and trade checker. She attended the University of Alabama for two years, before transferring to the University of Denver where she earned her BSBA in Finance. Therese earned an athletic scholarship during her collegiate career. She has been in the industry since 1989.

Marketing & Client Service

Gabriela Perez, CFA

Director

Client Service Representative

Gabriela came to MacKay Shields as an Investment Operation Rotational Analyst in September, 2015. After successfully completing the rotational program, she became a permanent member of the Trade Processing team in 2017. At the beginning of 2018, she transitioned onto our Client Service team becoming a Client Service Representative. Gabriela brought with her the two years of operational and investment management experience she developed at MacKay as well experience earned from two years prior to joining MacKay employed as an accountant at Nardello & Co. Gabriela received a BA in Classical Philology from Bard College and an MBA in Financial Management from Pace University. She is a CFA Charterholder and has been in the investment industry since 2015.

General Disclosure

Availability of products and services provided by MacKay Shields may be limited by applicable laws and regulations in certain jurisdictions and this document is provided only for persons to whom this document and the products and services of MacKay Shields may otherwise lawfully be issued or made available. None of the products and services provided by MacKay Shields are offered to any person in any jurisdiction where such offering would be contrary to local law or regulation. This document is provided for information purposes only. It does not constitute investment advice and should not be construed as an offer to buy securities. The contents of this document have not been reviewed by any regulatory authority in any jurisdiction. All investments contain risks and may lose value. Any forward looking statements speak only as of the date they are made, and MacKay Shields assumes no duty and does not undertake to update forward looking statements. Any opinions expressed are the views and opinions of certain investment professionals at MacKay Shields which are subject to change without notice. Past performance is not indicative of future results. No part of this material may be reproduced in any form, or referred to in any other publication, without the express written permission of MacKay Shields. © 2021 MacKay Shields LLC. All rights reserved.

This material contains the opinions of the High Yield Team of MacKay Shields but not necessarily those of MacKay Shields LLC. The opinions expressed herein are subject to change without notice. Forecasts, estimates, and certain information contained herein are based upon proprietary research and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Information contained herein has been obtained from sources believed to be reliable but not guaranteed.

NOTE TO EUROPEAN INVESTORS

This document is intended for the use of professional and qualifying investors (as defined in the Alternative Investment Fund Manager's Directive) only. Where applicable, this document has been issued by MacKay Shields Europe Investment Management Limited, Hamilton House, 28 Fitzwilliam Place, Dublin 2 Ireland, which is authorized and regulated by the Central Bank of Ireland.

Morningstar Disclosures

The Morningstar Rating™ for funds, or "star rating", is calculated for managed products (including mutual funds, variable annuity and variable life subaccounts, exchange-traded funds, closed-end funds, and separate accounts) with at least a three-year history. Exchange-traded funds and open-ended mutual funds are considered a single population for comparative purposes. It is calculated based on a Morningstar Risk-Adjusted Return measure that accounts for variation in a managed product's monthly excess performance, placing more emphasis on downward variations and rewarding consistent performance. The top 10% of products in each product category receive 5 stars, the next 22.5% receive 4 stars, the next 35% receive 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. The Overall Morningstar Rating for a managed product is derived from a weighted average of the performance figures associated with its three-, five-, and 10-year (if applicable) Morningstar Rating metrics. The weights are: 100% three-year rating for 36-59 months of total returns, 60% five-year rating/40% three-year rating for 60-119 months of total returns, and 50% 10-year rating/30% five-year rating/20% three-year rating for 120 or more months of total returns. While the 10-year overall star rating formula seems to give the most weight to the 10-year period, the most recent three-year period has the greatest impact because it is included in all three rating periods.

Morningstar percentile rank relative to all funds that have the same Morningstar Category. The highest (or most favorable) percentile rank is 1 and the lowest (or least favorable) percentile rank is 100. The top-performing fund in a category will always receive a rank of 1.

MainStay HY Corporate Bond Fund

Morningstar Star Ratings as of 9/30/21: MainStay High Yield Corporate Bond Fund's Class I shares rated four stars overall among 630 high yield bond funds; four stars, four stars and four stars for the three-, five- and 10-year periods from among 630, 552 and 358 high yield bond funds, respectively. Ratings for other share classes may vary.

Morningstar Percentile as of 9/30/21: MainStay High Yield Corporate Bond Fund Class I for: one-year period – 54th (391/677), three-year period – 36th (202/630), five-year period – 35th (190/552), and 10-year period – 32nd (105/358) in the US High Yield Bond Funds category.

MainStay Short Duration High Yield Fund

Morningstar Star Ratings as of 9/30/21: MainStay Short Duration High Yield Bond Fund's Class I shares rated two stars overall among 630 high yield bond funds; two stars and two stars for the three-year and five-year periods from among 630 and 552 high yield bond funds, respectively. Ratings for other share classes may vary.

Morningstar Percentile as of 9/30/21: MainStay Short Duration High Yield Fund Class I for: one-year period – 76th (540/677), three-year period – 75th (508/630) and five-year period – 81st (461/552) in the US High Yield Bond Funds category.

Risk Group Definitions

- Risk Group 1 – Highest Quality – Strongest Credit Profile and Lowest Volatility – (Initial Spread: 100 bps) + (Default Adjustment: 100 bps) = (Required Minimum Spread: 200 bps)
- Risk Group 2 – Seasoned Issuers – Significant Equity Value and Strong Credit Statistics – (Initial Spread: 100 bps) + (Default Adjustment: 200 bps) = (Required Minimum Spread: 300 bps)
- Risk Group 3 – Risk Credits – Trading At Discount and More Research Intensive – (Initial Spread: 100 bps) + (Default Adjustment: 400 bps) = (Required Minimum Spread: 500 bps)
- Risk Group 4 – Special Situations – Significant discount to asset value

Institutional Investor Award Disclosures

For more than 30 years, Institutional Investor has recognized people and firms in the financial service industry for excellence. Institutional Investor Research is the premier source of survey-based rankings, identifying top analysts covering equity and fixed-income markets in the United States, Europe, Asia, Japan and Latin America. Awards are determined by Institutional Investor using a proprietary methodology which incorporates polling leading asset management firms from around the world which are listed in Institutional Investor's proprietary database. Both individual-based rankings and team rankings are determined solely by numerical score. For additional information about Institutional Investor's rankings and awards, please visit: <https://www.institutionalinvestor.com/Research-FAQs#6>. Receipt of any award is not indicative of future performance and no representation is being made by MacKay Shields LLC that receipt of any award by one of more of its employees is representative of any client's experience. No fee was paid to be considered for an award. The analysts were not employed by MacKay Shields LLC at the time the awards were received.

Comparisons to an Index:

Comparisons to a financial index are provided for illustrative purposes only. Comparisons to an index are subject to limitations because portfolio holdings, volatility and other portfolio characteristics may differ materially from the index. Unlike an index, portfolios are actively managed and may also include derivatives. There is no guarantee that any of the securities in an index are contained in any managed portfolio. The performance of an index may assume reinvestment of dividends and income, or follow other index-specific methodologies and criteria, but does not reflect the impact of fees, applicable taxes or trading costs which, unlike an index, may reduce the returns of a managed portfolio. Investors cannot invest in an index. Because of these differences, the performance of an index should not be relied upon as an accurate measure of comparison.

SOURCE: ICE DATA INDICES, LLC ("ICE DATA"), IS USED WITH PERMISSION. ICE® IS A REGISTERED TRADEMARK OF ICE DATA OR ITS AFFILIATES, AND BOFA® IS A REGISTERED TRADEMARK OF BANK OF AMERICA CORPORATION LICENSED BY BANK OF AMERICA CORPORATION AND ITS AFFILIATES ("BOFA") AND MAY NOT BE USED WITHOUT BOFA'S PRIOR WRITTEN APPROVAL. ICE DATA, ITS AFFILIATES AND THEIR RESPECTIVE THIRD PARTY SUPPLIERS DISCLAIM ANY AND ALL WARRANTIES AND REPRESENTATIONS, EXPRESS AND/OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, INCLUDING THE INDICES, INDEX DATA AND ANY DATA INCLUDED IN, RELATED TO, OR DERIVED THEREFROM. NEITHER ICE DATA, ITS AFFILIATES NOR THEIR RESPECTIVE THIRD PARTY SUPPLIERS SHALL BE SUBJECT TO ANY DAMAGES OR LIABILITY WITH RESPECT TO THE ADEQUACY, ACCURACY, TIMELINESS OR COMPLETENESS OF THE INDICES OR THE INDEX DATA OR ANY COMPONENT THEREOF, AND THE INDICES AND INDEX DATA AND ALL COMPONENTS THEREOF ARE PROVIDED ON AN "AS IS" BASIS AND YOUR USE IS AT YOUR OWN RISK. ICE DATA, ITS AFFILIATES AND THEIR RESPECTIVE THIRD PARTY SUPPLIERS DO NOT SPONSOR, ENDORSE, OR RECOMMEND MACKAY SHIELDS LLC, OR ANY OF ITS PRODUCTS OR SERVICES.

"Bloomberg®", "Bloomberg Indices®", Bloomberg Fixed Income Indices, Bloomberg Equity Indices and all other Bloomberg indices referenced herein are service marks of Bloomberg Finance L.P. and its affiliates, including Bloomberg Index Services Limited ("BISL"), the administrator of the indices (collectively, "Bloomberg") and have been licensed for use for certain purposes by MacKay Shields LLC ("MacKay Shields"). Bloomberg is not affiliated with MacKay Shields, and Bloomberg does not approve, endorse, review, or recommend MacKay Shields or any products, funds or services described herein. Bloomberg does not guarantee the timeliness, accurateness, or completeness of any data or information relating to MacKay Shields or any products, funds or services described herein.

The following indices may be referred to in this presentation:

ICE BofA Corporates Cash Pay BB-B 1-5 Year Index

A subset of the ICE BofA U.S. Cash Pay High Yield Index including all securities with a remaining term to final maturity less than 5 years and rated BB1 through B3 inclusive. Index results assume the reinvestment of all capital gain and dividend distributions. An investment cannot be made directly into an index.

ICE BofA US High Yield Index

The ICE BofA US High Yield Index tracks the performance of U.S. dollar denominated below investment grade corporate debt publicly issued in the U.S. domestic market. The ICE BofA US High Yield Index tracks the performance of U.S. dollar denominated below investment grade corporate debt publicly issued in the U.S. domestic market. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch) and an investment grade rated country of risk (based on an average of Moody's, S&P and Fitch foreign currency long term sovereign debt ratings). In addition, qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of \$100 million. Original issue zero coupon bonds, "global" securities (debt issued simultaneously in the eurobond and U. S. domestic bond markets), 144a securities and pay-in-kind securities, including toggle notes, qualify for inclusion in the Index. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. DRD-eligible and defaulted securities are excluded from the Index.

ICE BofA High Yield CCC & Lower Index

The ICE BofA High Yield CCC & Lower Index is a subset of the ICE BofA US High Yield Index including all securities rated CCC1 or lower.

ICE BofA US Fallen Angel High Yield Index

The ICE BofA US Fallen Angel High Yield Index is comprised of below investment grade corporate debt instruments denominated in U.S. dollars that were rated investment grade at the time of issuance. Qualifying securities must be issued in the U.S. domestic market and have a below investment grade rating (based on an average of Moody's, Standard & Poor's Rating Services, or Fitch International Rating Agency).

ICE BofA US High Yield BB Index

The ICE BofA High Yield BB Index is a subset of the ICE BofA US High Yield Index including all securities rated between BB1 and BB3.

JP Morgan Leveraged Loan Index

The JP Morgan Leveraged Loan Index is designed to mirror the investable universe of U.S. dollar institutional leveraged loans, including U.S. and international borrowers.

Bloomberg US Aggregate Index

Barclays US Aggregate Bond Index Represents securities that are taxable, registered with the Securities and Exchange Commission, and US dollar-denominated. The index covers the US investment-grade fixed-rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.

ICE BofA US High Yield Constrained Index

The ICE BofA US High Yield Constrained Index tracks the performance of U.S. dollar denominated below investment grade corporate debt publicly issued in the U.S. domestic market and caps issuer exposure at 2%. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch) and an investment grade rated country of risk (based on an average of Moody's, S&P and Fitch foreign currency long term sovereign debt ratings). In addition, qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of \$100 million. Original issue zero coupon bonds, "global" securities (debt issued simultaneously in the eurobond and U. S. domestic bond markets), 144a securities and pay-in-kind securities, including toggle notes, qualify for inclusion in the Index. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. DRD-eligible and defaulted securities are excluded from the Index.

Credit Suisse Leveraged Loan Index

The Credit Suisse Leveraged Loan Index is a representative index of tradable, senior secured, U.S. dollar-denominated non-investment grade loans.

The ICE BofA BB-B US Non-Financial High Yield Constrained Index

The ICE BofA BB-B US Non-Financial High Yield Constrained Index contains all securities in The ICE BofA US High Yield Index that are rated BB1 through B3, inclusive, except those of financial issuers, but caps issuer exposure at 2%. Index constituents are capitalization-weighted, based on their current amount outstanding, provided the total allocation to an individual issuer does not exceed 2%. Issuers that exceed the limit are reduced to 2% and the face value of each of their bonds is adjusted on a pro-rata basis. Similarly, the face values of bonds of all other issuers that fall below the 2% cap are increased on a pro-rata basis. In the event there are fewer than 50 issuers in the Index, each is equally weighted and the face values of their respective bonds are increased or decreased on a pro-rata basis.

Alpha

Alpha is calculated as the difference between the portfolio's return and the beta-adjusted return of the benchmark.

ICE BA Credit Ratings Disclosure (for index)

ICE BA utilizes its own composite scale, similar to those of Moody's, S&P and Fitch, when publishing a composite rating on an index constituent (eg. BBB3, BBB2, BBB1). Index constituent composite ratings are the simple averages of numerical equivalent values of the ratings from Moody's, S&P and Fitch. If only two of the designated agencies rate a bond, the composite rating is based on an average of the two. Likewise, if only one of the designated agencies rates a bond, the composite rating is based on that one rating.

Bloomberg Credit Rating Disclosure (for index)

For rated securities, credit quality for index classification purposes is assigned as the middle rating of Moody's, S&P and Fitch; when a rating from only two agencies is available, the lower is used; when only one agency rates a bond, that rating issued.

Credit Suisse Leveraged Loan Credit Rating Disclosure (for index)

The Credit Suisse Leveraged Loan Index uses a single "blended" Moody's/S&P rating to compute averages sorted by rating. There are nine blended ratings: Investment Grade (which, of course, is excluded from the index), Split BBB, BB, Split BB, B, Split B, CCC/Split CCC, Distressed/Default and Not Rated. Credit Suisse developed the blended ratings because Moody's and S&P do not always agree on equivalent ratings for a loan facility. The number of unique Moody's/S&P pairings in the index is large, with many groupings containing only a few facilities.



SPECTRUM

Asset Management

The Firm

The Capital Securities Market

The Investment Process

AUG. 2021 Overview
For Discussion with
Professional / Institutional Investors
(Colorado PSFB)

Steven J. Solmonson
Senior Vice President
SPECTRUM ASSET MANAGEMENT INC.
2 High Ridge Park, Stamford, CT 06905
Email: ssolmonson@samipfd.com
T. +1.203.321.1133 / M. +1.646.321.2305

► Spectrum is recognized as a world-leading investment manager specifically focused on the Capital Securities market. The universe of capital securities (which includes Baby Bonds, Subordinated Debt, Jr. Subordinated Debt, Preferred Securities and COCOs) is a specialty segment of the broader corporate fixed-income market.

► Capital Securities are primarily issued by regulated banks, insurance companies and utilities as well as some telecoms, real estate trusts, industrials and other corporate issuers.

► Spectrum was founded in 1987 and has been a wholly owned and independently operated affiliate of Principal Global Investors, a member of the Principal Financial Group®, since 2001. Spectrum's team of twenty-four dedicated professionals is headquartered in Stamford, Connecticut. As of August 2021, Spectrum's total firm AUM totaled approximately \$28.9 Billion.

► Spectrum manages a broad range of portfolio products to meet the needs of our investors. All portfolios are managed by the same team, utilizing the same investment process and drawing upon the same key portfolio guidelines

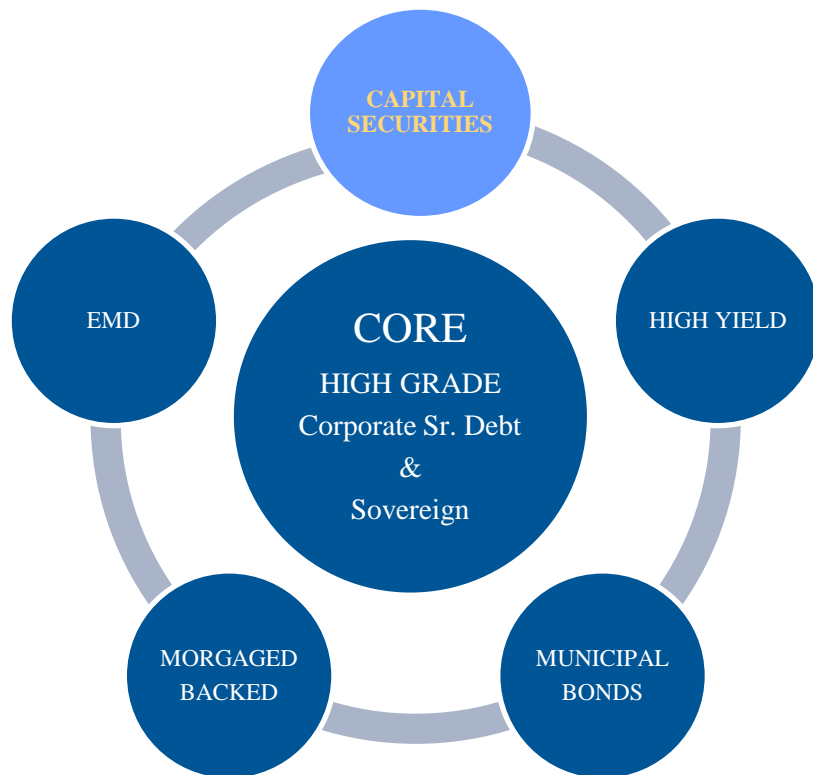
► Products include: 1) open-end and closed-end U.S. 40 Act mutual funds, 2) open-end Irish UCITS funds, 3) a REG D Institutional fund, 4) actively managed ETFs 5) customized institutional separately managed accounts for Insurance Companies, Pensions, Endowment & Foundations, Fund-of-Funds, Family Offices and OCIOs as well as 6) four separately managed account models for high-net-worth individual investors that are available via leading broker-dealer and RIA Platforms.

► Spectrum has produced a record of strong performance by consistently employing an investment process that emphasizes comprehensive credit analysis and portfolio construction focused on relative-value analytics.

Fixed Income Portfolio Positioning

Enhancing Yield by Including Capital Securities

“The Search for Yield”



- Capital Securities are a segment of Corporate Fixed Income.
- Capital Securities should be considered as an effective additive to a diversified fixed income portfolio seeking capital preservation and higher income.
- Capital Securities provide yield enhancement to a High-Grade Core Fixed Income portfolio to achieve Core PLUS.
- Some Capital Securities can provide tax advantaged treatment for U.S. taxable investors (i.e., QDI and DRD).
- Capital Securities (IOCS) are positioned between Sr. Corporate Debt / High Grade (COA0) and Sr. Debt / High Yield (H0A0)
- Capital Securities are complimentary to other high yielding “PLUS” strategies, given that there is little, if any, issuer overlap.
- The typical case for adding or blending Capital Securities:
 - 1) Enhancing Yield vs. High Grade
 - 2) Enhancing Credit Quality vs. High Yield

*Tickers: COA0, IOCS and H0A0 are ICE Indices that are used as a point of comparative reference. <https://www.theice.com/market-data/indices/fixed-income-indices>

Spectrum: Capital Securities @ a glance

CAPITAL SECURITIES

A Segment of Corporate Fixed Income Market

Positioned between High Grade Sr. Corp. Debt & High Yield Sr. Corp. Debt

ICE BofA Indices	US Corp	US All Capital Securities	US High Yield
Segment of Corp FI	Sr. Debt / High Grade	Preferred & Capital Securities	Sr. Debt / Below IG
Index Ticker	C0A0	I0CS	H0A0
Avg Wght Credit	A-	BBB-	B+
Cumulative Total Returns			
Mar 2012 - Aug 2021	56.82%	93.19%	81.05%
Annual Total Returns			
2021 YTD - Aug	-0.06%	3.46%	4.64%
2020	9.81%	7.63%	6.17%
2019	14.23%	18.39%	14.41%
2018	-2.25%	-4.45%	-2.26%
2017	6.48%	10.55%	7.48%
2016	5.96%	3.81%	17.49%
2015	-0.63%	5.43%	-4.64%
2014	7.51%	11.95%	2.50%
2013	-1.46%	2.67%	7.42%
Mar-Dec 2012	7.74%	10.27%	9.92%
Past performance is no guarantee of future returns			
Note: the I0CS Index (launched in April 2012) which incorporates 4 sub indices covering both \$25par and \$1000par securities.			
Data source: ICE Index Platform www.theice.com			

Sources: Bloomberg, (used with permission of Bloomberg), Bloomberg ICE FOA/ML, Barclays Capital, Spectrum.

¹ Cumulative Return data of the Spectrum Asset Management Intermediate Duration Total Return Composite is provided as supplemental information only and complements the annual disclosure presentation which can be found in the notes to performance section. Past performance is not a reliable indicator of future performance. It is not possible to invest directly in an index.

As of 31 August 2021

SPECTRUM
Asset Management

Credit and Industry: Comparative Weightings @ a glance

Attractive Opportunities to design a blended allocation between HG – Cap. Sec – HY

ICE BofA Indices	US Corp	US All Capital Securities	US High Yield
Segment of Corp FI	Sr. Debt / High Grade	Preferred & Capital Securities	Sr. Debt / Below IG
Index Ticker	COA0	IOCS	H0A0
CREDIT QUALITY AVG. WEIGHT as of 8-31-2021			
AAA	1.3	0.0	0.0
AA	8.3	0.0	0.0
A	39.9	6.7	0.0
BBB	50.2	59.4	0.3
BB	0.0	31.0	34.1
B	0.0	2.4	20.9
CCC	0.0	0.0	6.7
CC or lower	0.0	0.0	38.0
Total	100	100	100
Avg Credit	A-	BBB-	B+
INDUSTRY AVG. WEIGHT as of 8-31-2021			
Banks	20.17	43.02	1.91
Insurance	4.58	20.73	1.01
Other Financials	4.24	8.56	4.33
Utilities	8.19	9.28	3.03
Industrials	38.89	2.60	49.33
REITs	3.15	3.71	3.52
Retail	2.82	0.76	8.45
Energy	10.17	7.15	13.44
Media	3.13	0.19	7.78
TelCom	4.65	4.00	7.18

Attractive Comparative Default Characteristics

Annual Default Rates: 2010 – 2020

COMPARATIVE DEFAULT RATES			
	Sr. Debt / High Grade	Pfd & Capital Securities	Sr. Debt / HY Below IG
Avg. Credit	A-	BBB/BBB-	B+
10 Yr Avg	0.04%	0.11%	2.57%
2020	0.01%	0.07%	6.07%
2019	0.22%	0.44%	2.82%
2018	0.00%	0.11%	1.92%
2017	0.00%	0.13%	1.82%
2016	0.00%	0.00%	3.27%
2015	0.00%	0.06%	3.48%
2014	0.01%	0.00%	1.74%
2013	0.04%	0.00%	1.08%
2012	0.01%	0.00%	2.05%
2011	0.15%	0.35%	1.46%

Default risk is an import factor – but just as importantly - active management affords rigorous credit research not only avert default risk, but to minimize credit downgrading risk - which has always been and continues to be an essential part of Spectrum’s comprehensive in-house credit research process.

Notes: Preferred Securities default rates include deferrals that may not constitute technical events of default. All default and deferral rates are volume weighted.

Sources: Moody’s Investors Service (investment grade corporate bonds and high yield corporate bonds). Spectrum Asset Management, Inc. (preferred securities).

The Capital Securities Market Universe

Preferred & Subordinated Securities

Key Characteristics

The primary issuers of Capital Securities are Banks, Insurance Companies and Utilities that are subject to regulatory oversight and are generally well capitalized.

- By issuing Capital Securities, issuers bolster their senior debt credit rating and lower their borrowing cost. Yet, avoid diluting their common equity stakeholders.
- Any capital-intensive company may find it advantageous to issue Capital Securities. However, regulated banks, insurance companies, brokerage firms and utilities are especially advantaged by issuing Capital Securities pursuant the governing capital requirement rules.
- For example, under Dodd-Frank and Basel III regulations, U.S. and European Banks, respectively, can meet a limited portion of their Alternative Tier 1 capital requirements by issuing Non-Cumulative Perpetual Preferred and AT1 CoCos. They can also issue Cumulative Dated subordinated debt to meet Alternative Tier 2 requirements capital requirements.
- Typically, Capital Securities are callable by the issuer in 5 or 10 years from the initial date issuance. As an active manager, understanding the call term provisions is especially important. For example, the call terms may be fixed-for-life (F4L), fixed-to-float (F2F) or fixed-to-variable/reset (F2V). F2F and F2V have become more common over the past 10 years. In both instances - the initial spread rate set at the time of original issue (i.e., "backend") remains in place and is a key factor impacting duration and valuation.
- Spectrum guidelines provide that the Enterprise Credit Rating (Sr. Debt rating) of all issuers of Capital Securities shall be Investment Grade. The Capital Securities Universe of securities includes both Investment Grade (i.e., at or above BBB-) as well as Non-IG (i.e., below BBB -) securities. The Fund 's guidelines provide for maintaining an Investment Grade Avg. Weighted Credit Rating above BBB-.

A SEGMENT OF THE CORPORATE FIXED INCOME UNIVERSE SUBORDINATED TO SENIOR DEBT & SENIOR TO COMMON STOCK.

Global DM Issuers	Key Security Types			Typical Key Characteristics
BANKING INSURANCE BROKERAGE UTILITIES INDUSTRIALS TELECOM ENERGY	25 par Baby Bonds	Subordinated Debt	T2 CoCo	Non Deferrable Callable Cumulative Dated
	25 par Jr. SubDebt	1000 par Jr. SubDebt		Deferrable Callable Cumulative Dated
	AT1 CoCo	25 par Preferreds	1000 par Preferreds	Deferrable Callable Non-Cum Perpetual

INCREASING SUBORDINATION

SECURITY STRUCTURE IS A KEY FACTOR FOR EVALUATING RELATIVE-VALUE

Security Types Explained

- **Baby bonds** which rank below senior secured debt and above subordinated debt. Baby bonds are bonds that are typically issued with a low issue price (e.g. \$25) (traded on the NYSE) and are typically Non-Deferrable, Callable, Cumulative, and have a dated maturity.

- **Subordinated debt securities** (i.e. bonds) which rank below senior debt and above junior subordinated debt. Subordinated debt securities are typically issued with a \$1000 issue price (traded on the over-the-counter institutional market) and are typically Non-Deferrable, Callable, Cumulative and have a dated maturity.

- **Junior subordinated debt securities** (i.e. bonds) which rank below subordinated debt and above preferred securities. Junior subordinated debt securities are typically issued with a \$25 issue price or a \$1000 issue price and are typically Deferrable, Callable, Cumulative and have a dated maturity.

- **Preferred securities** which rank below junior subordinated debt and above common stock equity. Preferred securities are typically issued with a \$25 issue price or a \$1000 issue price and are typically Deferrable, Callable, Non-Cumulative, non-voting, non-convertible and have an undated (i.e. perpetual) maturity. Although legally a form of equity, preferred securities share some of the characteristics of a bond, in that preferred securities generally have no (or limited) voting rights and returns are limited to a fixed income coupon and principal payments, which must be paid before dividends or capital distributions can be paid to common equity shareholders. Because of these bond-like features, preferred securities are typically classified as a corporate fixed income asset by credit rating agencies, market-makers, portfolio managers and insurance regulators.

- Tier-2 ("**T2**") and Additional Tier-1 ("**AT1**") contingent convertible capital bonds (also known as "**CoCos**") are issued by European banks and other regulated credit institutions pursuant to Basel III. CoCos are similar to subordinated debt and preferred securities in that: (i) T2 CoCos are Non-Deferrable, Callable, Non-Cumulative, and have a dated maturity and (ii) AT1 CoCos are Deferrable, Callable, Non-Cumulative and have an undated (i.e. perpetual) maturity. However, CoCos contain an additional trigger provision in the event that the issuer's required regulatory capital ratio fails to meet minimum requirements whereby the issuer may convert the CoCo from a fixed income debt security to a common stock equity security, or in some instances, the issuer may write-down the principal face value to a lower level sufficient to ensure that the common equity capital requirements are restored to meet the required minimum capital ratio.

\$600 Billion Total Market Cap

\$25par + \$1000par + CoCo Breakdown & Key Characteristics

\$25 par Preferred Securities (POP4)

Market size **\$134.9 billion**

61.2%

Investment-grade

38.8%

Below-investment-grade

81.1%

Fixed-rate

18.9%

Fixed-to-float &
Fixed-to-variable

Current yield	5.2%
Yield to worst	1.5%
Effective duration	5.1
Volatility	9.5
Percent callable next 12 months	16.4%

\$1,000 par Preferred Securities (CIPS and HIPS)

Market size **\$213.2 billion**

69.1%

Investment-grade

30.9%

Below-investment-grade

7.8%

Fixed-rate

92.2%

Fixed-to-float &
Fixed-to-variable

Current yield	5.0%
Yield to worst	3.1%
Effective duration	4.4
Volatility	9.5
Percent callable next 12 months	16.5% ¹

Contingent Convertible Securities (COCO)

Market size **\$257.3 billion**

30.6%

Investment-grade

69.4%

Below-investment-grade

3.9%

Fixed-rate

96.1%

Fixed-to-float &
Fixed-to-variable

Current yield	5.7%
Yield to worst	3.3%
Effective duration	3.5
Volatility	11.5
Percent callable next 12 months	10.7%

Source: Bloomberg; as of 30 June 2021.

POP4: ICE BofA Core Plus Fixed Rate Preferred Securities Index. CIPS: ICE BofA US Investment Grade Institutional Capital Securities Index.

HIPS: ICE BofA US High Yield Institutional Capital Securities Index. COCO: ICE BofA Contingent Capital Index.

Index performance information reflects no deduction for fees, expenses, or taxes. Indices are unmanaged and individuals cannot invest directly in an index.

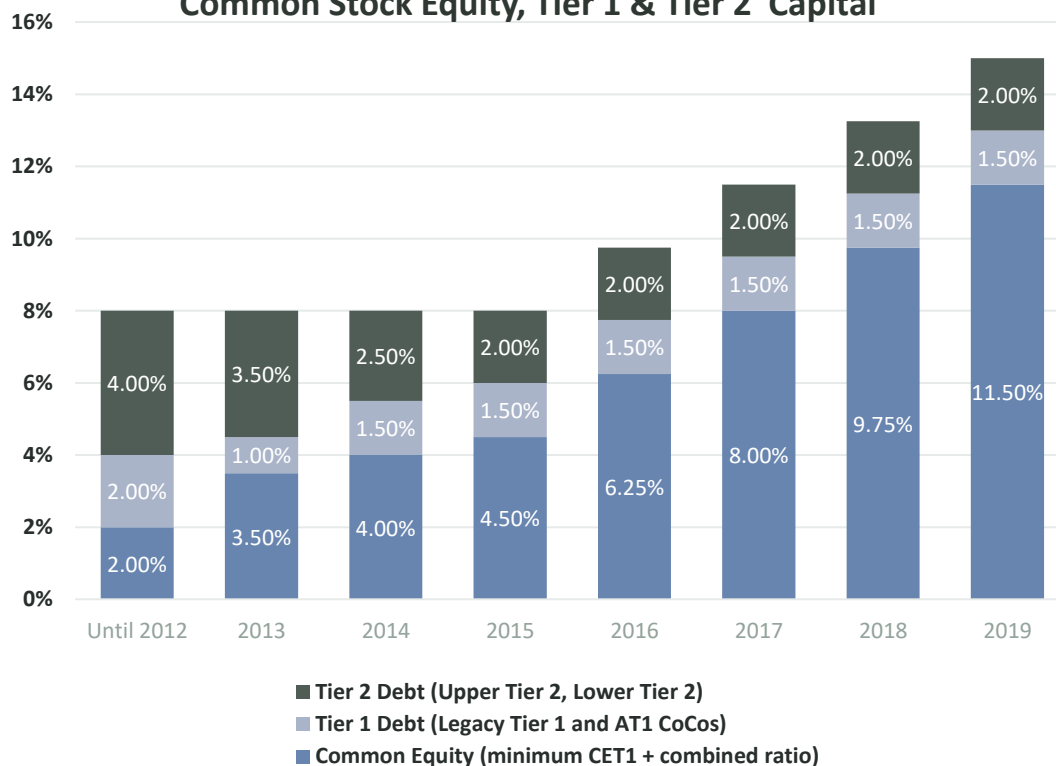
¹ The CIPS and HIPS index definitions exclude all securities callable within the next 12 months. The data presented "Percent callable next 12 months" was calculated by adjusting the indices to include all otherwise applicable securities that are callable within the next 12 months.

Regulatory Capital Requirements Have Significantly Increased

The Transition to Stronger Balance Sheets

- In the aftermath of the 2008 financial crisis, regulatory reform was adopted globally (i.e., Dodd-Frank & Basel III).
- Bottom-line, capital requirements were significantly increased, and risk reduced. The slide shows that the required levels of bank Common Equity Capital (CET1) has increased from 2% in 2012 to 11.50% in 2019.
- Regulatory capital requirements are based on risk-weighted assets “RWAs” basis.
- CET1 = common equity Tier 1 = common share + retained earnings.
- AT1 CoCos = Additional Tier 1 contingent convertibles. A CoCo is a loss absorbing subordinated debt issued by an institution for regulatory purposes
- Tier 1 debt: “legacy Tier 1” are grandfathered securities issued under Basel II that have been largely phased out and replaced either by AT1 CoCos or CET1.
- U.S. and Non-US Bank capital has been significantly as a result of the regulatory reforms whereby Alternative Tier 1 Capital (non-cumulative perpetual Preferreds and CoCos) have a far greater CET1 buffer.

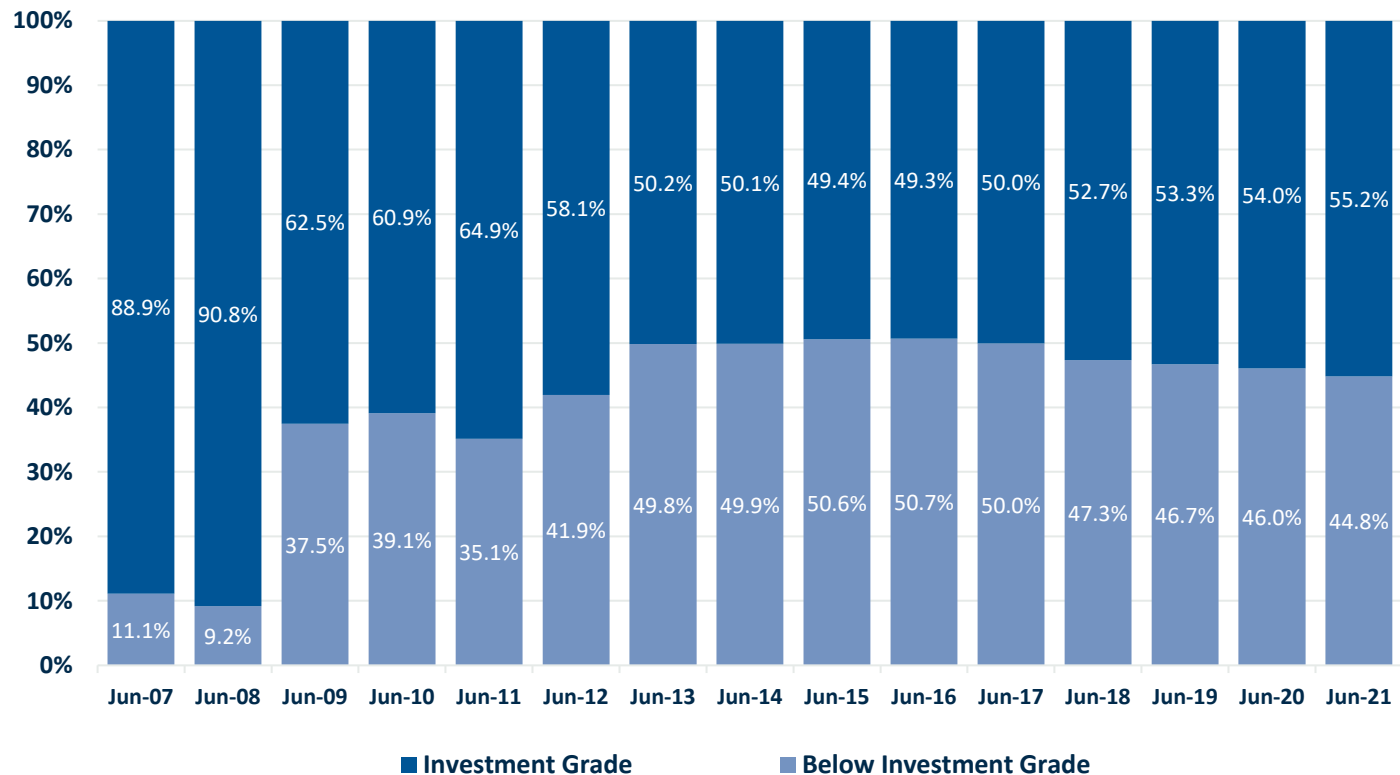
Regulatory Capital Levels
Common Stock Equity, Tier 1 & Tier 2 Capital



Credit Agency Ratings Have Been Significantly Downgraded

In the aftermath of the 2008 financial crisis
Credit Rating Agencies substantially lowered ratings guidelines
Regulators mandated substantially higher capital requirements.

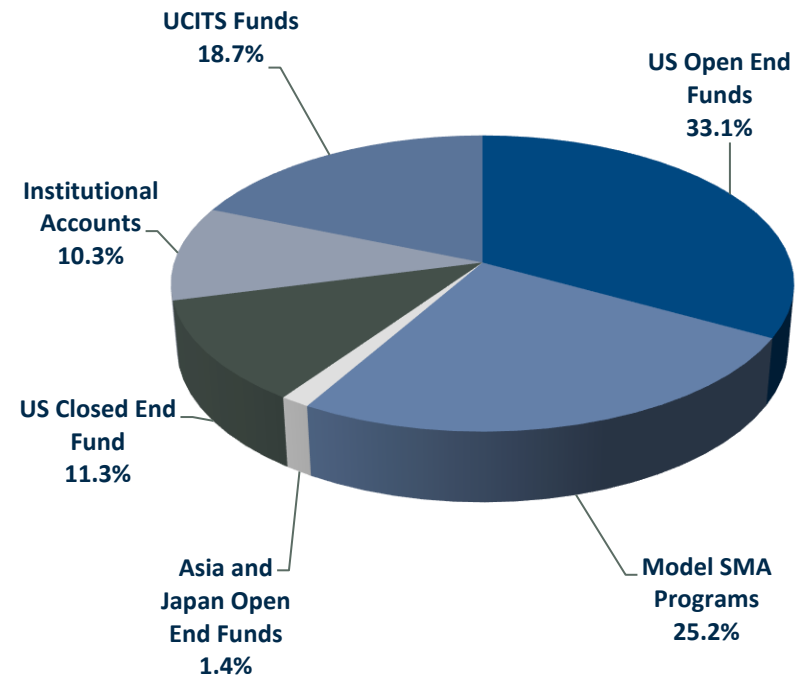
Stronger Financials & Lower Ratings = Investor Opportunity



Spectrum: Firm AUM Breakdown

Spectrum Total Firm AUM = \$28.5 billion as of June 30, 2021, including \$5.06 billion in SMA Model advisory assets

- Individual mandates for a global roster of institutional pension fund, insurance, corporate, endowment and foundation clients
- Separately Managed Account wrap programs for US domiciled high net worth investors distributed by national and regional broker-dealers
- Three open-end mutual funds and two preferred securities active ETFs domiciled and distributed in the United States, including the largest specialized open-end mutual fund focused on preferred securities
- Three open-end UCITS funds domiciled in Dublin and distributed globally to non-United States taxpayers
- Three open-end mutual funds domiciled and distributed in Asia and Japan
- One closed-end fund listed on the New York Stock Exchange



The Firm - Spectrum Products - Funds & SMAs

FUNDS & SMA PROGRAM MANAGED BY SPECTRUM ASSET MANAGEMENT

Managed by the same team, utilizing the same investment process and drawing upon the same key portfolio guidelines

FUNDS	
2 US Onshore Funds For US Investors	2 Offshore Funds for Non-US Investors
Principal Spectrum Preferred & Capital Securities Income Fund <i>Traditional US Open-End Mutual Fund</i> <i>No Leverage</i> <i>Launched: 2001</i> <i>Sponsor: PGI Fund Platform</i> <i>AUM: \$8.3 Bil</i> <i>Ticker: PPSIX (headline I Shares)</i> <i>Tax Adv on US QDI holdings for US Investors</i>	Principal Preferred Securities UCITS Fund <i>Traditional Irish UCITS</i> <i>No Leverage</i> <i>Launched: 2003</i> <i>Sponsor: PGI Fund Platform</i> <i>AUM: \$5.3 Bil</i> <i>Ticker: PGIPSIA (headline US\$ I Shares)</i> <i>No US QDI holdings / No US Withholdings Tax</i>
Nuveen Preferred Sec & Income Fund US Closed-End Mutual Fund Moderate Leverage Permitted <i>Launched: 2003</i> <i>Sponsor: Nuveen Fund Platform</i> <i>AUM: \$2.0 Bil</i> <i>Ticker: JPS</i> <i>Tax Adv on US QDI holdings for US Investors</i>	High Ridge Credit Opportunities UCITS Fund Alt Inv. Irish UCITS Moderate Leverage Permitted <i>Launched: 2017</i> <i>Sponsor: Waystone UCITS Platform</i> <i>AUM: \$10.79 Mil</i> <i>Ticker: MLHRUF (headline US\$ F Shares)</i> <i>No US QDI holdings / No US Withholdings Tax</i>
<i>Funds Offered By Prospectus Only</i>	

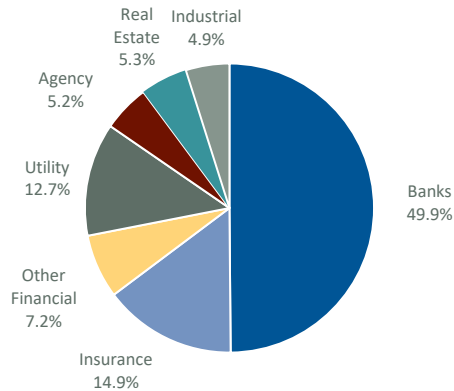
SEPARATELY MANAGED ACCOUNTS
SMA Program for Wrap Accounts Platforms Total AUM \$7.19 Bil Minimum Account Size: Typically, \$100,000 Available from leading Brokerage Firms and RIA
1) SMA \$25 Par with Standard Weighting 2) SMA \$25 Par with QDI Overweighting 3) SMA \$25 Par with Specialty \$1000 par Cap Securities Fund 4) SMA \$25 Par for NRA without QDI
SMA Bespoke Portfolios with Customized Guidelines Minimum Account Size: Typically, \$25Mil. Available for U.S. and Non-US Insurance Companies, Corporate Treasury, Pensions, Family Offices, Endowment & Foundations

Capital Securities Market Universe

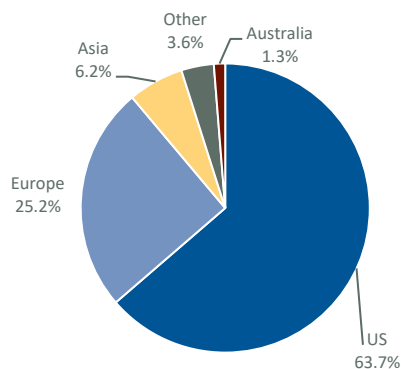
Spectrum vs. the Broad Market – Placing Added Emphasis On Credit Quality

The Broad Market Universe

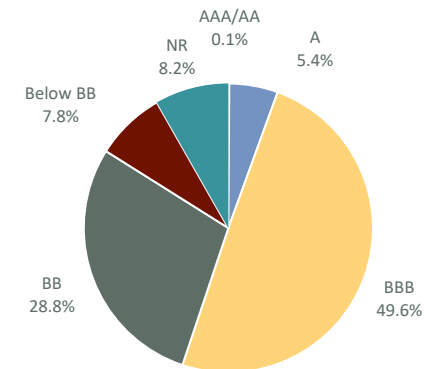
By Industry



By Country



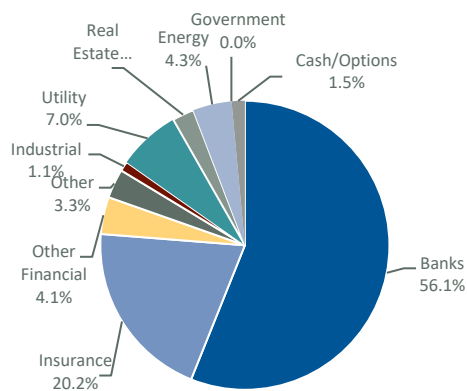
By Credit Rating



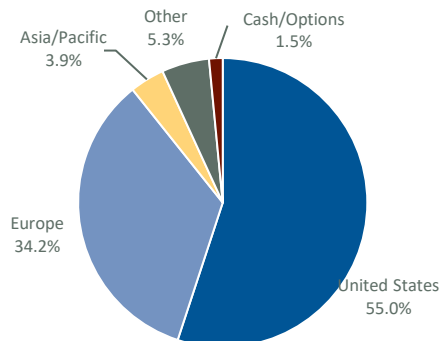
* Average of S&P, Moody's and Fitch ratings

Spectrum (PPSIX Fund)

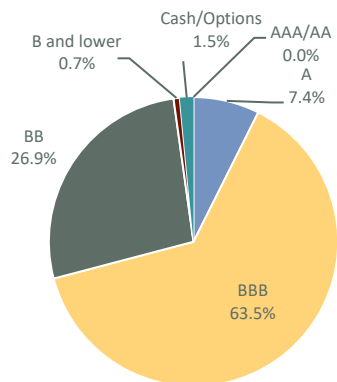
By Industry



By Country



By Credit Rating



* Higher of S&P and Moody's ratings

As of 30 June 2021

Source: Spectrum Asset Management, Inc. Information was obtained from Bloomberg and other third-party sources, which we believe to be reliable, but which are not guaranteed.

SPECTRUM: Product Comparative Returns: 2010 to YTD Aug. 2021

Funds & SMA Platform Models

Spectrum
Intermediate Duration

Avg Weighted Credit \geq BBB-

Managed by the same team, utilizing the same investment process and drawing upon the same key portfolio guidelines

YEAR	US Mutual Fund	UCITS Fund	REG D Fund*		SMA	SMA	SMA	SMA
	PPSIX	PGIPSIA	SCS Institutional		Tax Adv-QDI \$25 par only	Taxable- Standard \$25 par only	with 1000 par Cap Sec Fund	NRC \$25 par only
	NET %	NET %	NET %		GROSS %	GROSS %	GROSS %	GROSS %
2021 Aug	3.6	3.3	3.0		2.5	1.6	2.5	0.7
2020	5.5	5.2	6.6		8.1	8.0	7.5	6.6
2019	16.4	17.0	17.9		17.8	17.4	16.6	18.7
2018	-4.5	-4.8	-4.9		-4.4	-4.2	-4.1	-3.4
2017	10.5	10.6	10.2		11.4	11.4	11.2	9.9
2016	3.7	5.5	6.0		0.3	0.1	0.7	0.3
2015	5.0	3.1	3.6		9.5	9.1	6.3	7.2
2014	11.5	11.1	15.9		16.6	16.5	NA	15.4
2013	1.8	3.7	NA		-4.4	-3.9	NA	-2.4
2012	19.7	21.2	NA		18.0	17.0	NA	NA
2011	1.5	-0.08	NA		0.9	3.1	NA	NA
2010	16.5	13.9	NA		13.4	15.2	NA	NA
Notes	Headline Institutional "I" Share Class		*PGIT until 12/31/18		Composite Models - GROSS before fees			
Past performance is no guarantee of future results.								
Spectrum Capital Securities Institutional Fund is designed for Qualified Purchasers under Section 3(c)(7) of the Investment Company Act.								
Fund Returns are NET after fees. SMA returns are GROSS before wrap fees. Wrap fees determined by sponsoring B/D and RIA Platform provider.								

Each product is designed to meet specific investor objectives and needs.
Spectrum also provides customized institutional SMAs designed for institutions; including Corporate Treasury, Insurance Companies, FOFs, Endowments, Foundations and Family Offices.

As of 30 Aug 2021

SPECTRUM
Asset Management

Investment Process

Credit Research – Security Selection – Portfolio Construction

Credit Quality Analysis by the Credit Research Team

- The Top-Down / Bottom-Up mosaic research process using broad range of input source including and ESG screen.
- Bottom-Up company fundamentals analysis with focus on a broad range of qualitative factors, such as business model, ownership, acquisitiveness, risk temperament, management structure, expense controls, strategic direction, company structure, footprint, etc.
- Top-Down macro analytics with focus on a) Global geopolitical factors, b) Regional / Local factors and c) Industry specific factors
- In-house proprietary rating and ranking utilizing CAMEL Analytics (Capital-Asset Quality – Management – Earnings – Liquidity)

Portfolio Construction by the Portfolio Management Team

- Relative Value is a key driver to security selection; evaluating comparative Price, Yields, Credit Spreads (e.g., OAS) of securities versus a) senior debt of the same issuer b) other preferred or subordinated debt issues of the same issuer and c) similar securities of other issuers.
- Security Structure is a key factor; taking account of security type, call terms, fixed-to-float backend spread and/or CoCo contingent conversion trigger terms, if applicable.
- Given portfolio guidelines, security selection is also driven by evaluating the impact on the overall portfolio; i.e. issuer, industry, regional, credit weightings as well as duration, YTW and Duration.

Operations and Compliance by Mid & Back-Office and Compliance

Spectrum's customized Bloomberg AIM System is a key operational and compliance tool for pre and post trade processing; specially used in connection with the following:

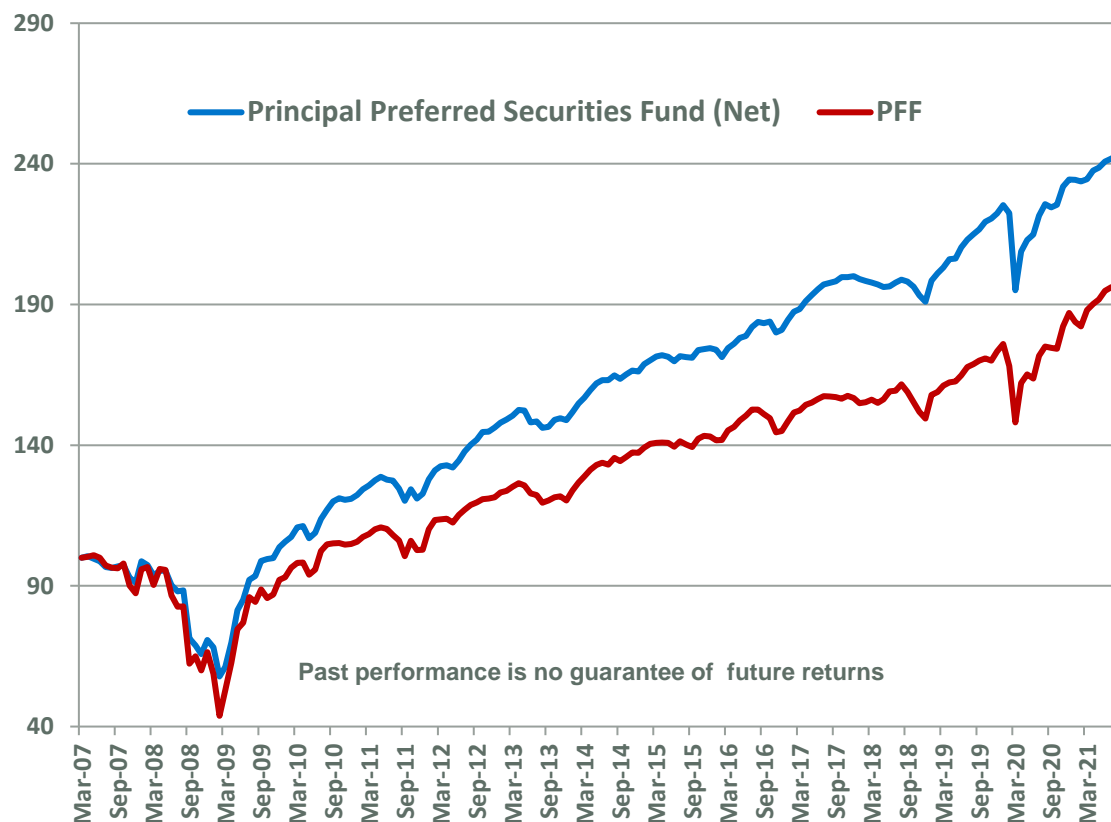
- Pre-trade testing
- Efficient order entry and confirmation,
- Best execution,
- Fair and equitable allocation,
- Timely reporting,
- Portfolio guideline compliance,
- Orderly trade clearing & settlement,
- Portfolio Analytics

Active vs. Passive Management

Spectrum Active Managed US Mutual Fund (PPSIX) vs. Passive iShare ETF (PFF)

The Added-Value of Active Specialty Management

Enhanced Performance + Credit Quality + Diversification



Source: Bloomberg

Note: Weighted Credit Rating excludes not rated securities

Snapshot as of 08/31/21

	Principal Spectrum Preferred Securities	PFF Passive ETF
%25 Par	7.62%	75.08%
% 1000 Par	89.89%	24.31%
Total Issuers	133	245
% Top 5 Issuers	17.48%	19.69%
% Top 10 Issuers	29.81%	31.46%
Industry Concentrations		
Banks	54.58%	30.69%
Other Financial	28.07%	31.36%
Non-Financial	14.86%	37.61%
Regional Concentrations		
North America	60.26%	97.70%
Europe	33.41%	0.82%
Other	3.84%	1.48%
Weighted Credit Rating		
Not Rated*	0%	23.84%
% Negative YTW		
	1.22%	5.44%

Spectrum Asset Management Team

Team Overview	Responsibilities	Education	Industry Start Date	Experience with Firm	Experience on Product
Mark Lieb	Founder & CEO	BA/MBA	1977	1987	1982
Phillip Jacoby	CIO & Sr. PM	BSBA	1982	1995	1982
Matthew Byer, JD	COO	BS/JD	1991	2007	1998
Joseph Urciuoli	Director Credit Research	BA/MBA	1980	1998	1993
John Kriz	Analyst Credit Research	BA/MA/MBA	1985	2008	2008
Chad Stogel	Analyst Credit Research	BS/MBA	2008	2011	2011
Victoria Cai	Analyst ESG / Credit Research	BA/MIA	2020	2021	2021
Fred Diaz	Portfolio Management	US Military	1992	2000	2000
Roberto Giangregorio	Portfolio Management	BS/MBA	2003	2003	2003
Manu Krishnan, CFA	Portfolio Management	BS/MBA	2004	2004	2004
Kevin Nugent	Portfolio Management	BA	1984	2012	1984
Albano Tunnera	Portfolio Management	AB	1996	1997	1997
Satomi Yarnell, CFA	Portfolio Management	MA	2006	2018	2013
Andrew Zint	Portfolio Admin & Client Services	BS	2012	2018	2018
Garrett Lieb	Portfolio Admin & Client Services	BS/MBA	2015	2018	2018
Matthew Molinski	Portfolio Admin & Client Services	BA	2014	2021	2021
Joseph Hanczor, J.D.	Compliance, Risk Mgt, Legal	BA/JD	1987	2009	1987
Steven Solmonson, JD	Product Specialist – Institutional Investors	BA/JD	1978	2012	1982
Dave Reichardt	Product Specialist – Institutional Investors	BBA	1991	2021	2008
James Hodapp	Product Specialist – Retail Investors	BSBA	1981	2015	2015
Jean Orlando	CFO & Operations Manager	BBA	1980	1987	1987
Jennifer Simpson	Controller & Operations	BA/MS	2003	2017	2017
Thomas Kuna	Operations	BA	2011	2015	2011
Nancy Dray	Compliance & Regulatory	BA	1981	1987	1987
Patty Tyler	General Office Admin	Na	1999	1999	1999



Mark Lieb



L. Philip Jacoby IV



Manu Krishnan

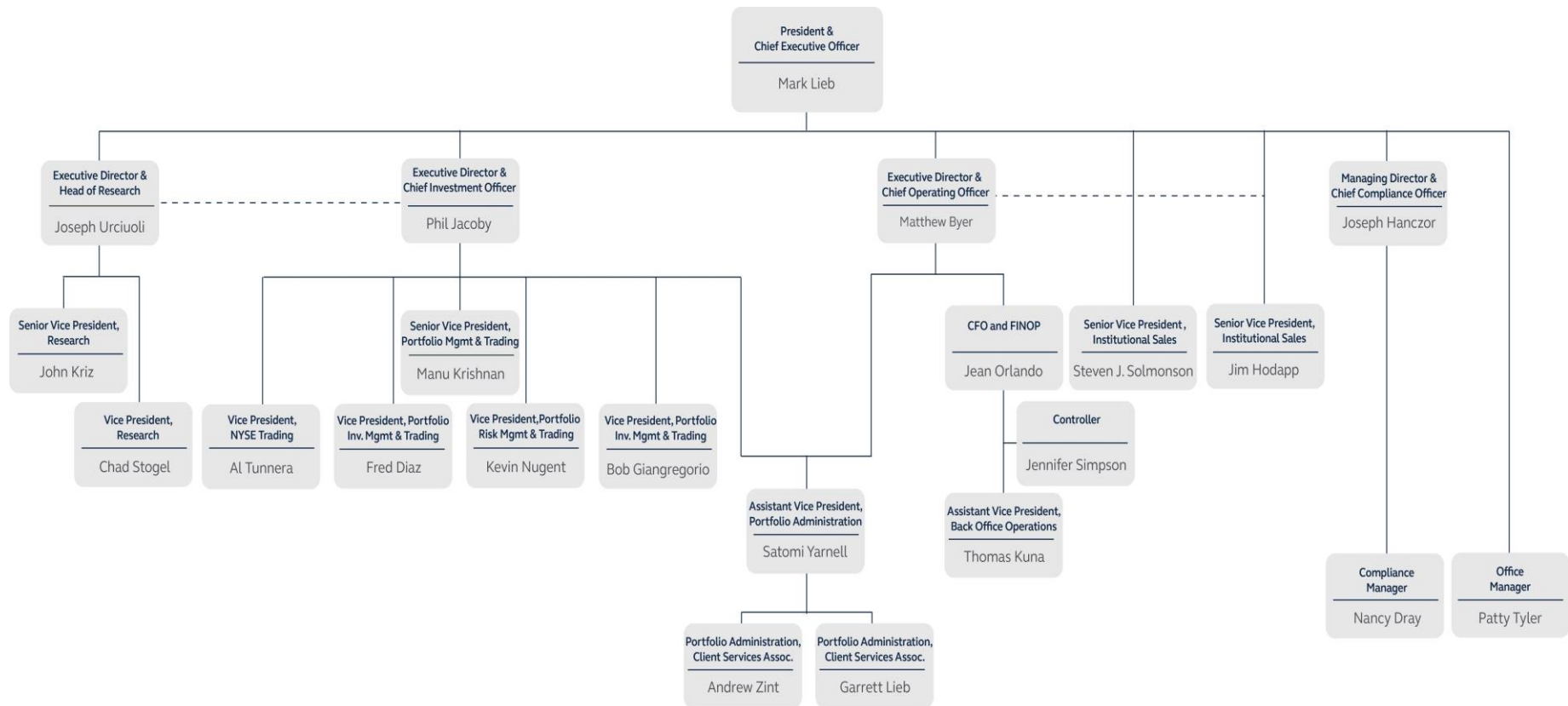


Fred Diaz



Roberto Giangregorio

Spectrum Asset Management, Inc.



Spectrum Asset Management Team Biographies

SENIOR LEADERSHIP

MARK A. LIEB - Founder, President and Chief Executive Officer. Prior to founding Spectrum in 1987, Mr. Lieb was a Founder, Director and Partner of DBL Preferred Management, Inc., a wholly owned corporate cash management subsidiary of Drexel Burnham Lambert, Inc. Mr. Lieb was instrumental in the formation and development of all aspects of DBL Preferred Management, Inc., including the daily management of preferred stock portfolios for institutional clients, hedging strategies, and marketing strategies. Mr. Lieb's prior employment included the development of the preferred stock trading desk at Mosley Hallgarten & Estabrook. Mr. Lieb holds a BA in Economics from Central Connecticut State College and an MBA (Finance) from the University of Hartford.

L. PHILLIP JACOBY, IV - Executive Director and Chief Investment Officer. Mr. Jacoby joined Spectrum in 1995 as a Portfolio Manager and most recently held the position of Managing Director and Senior Portfolio Manager until his appointment as CIO on January 1, 2010, following the planned retirement of his predecessor. Prior to joining Spectrum, Mr. Jacoby was a Senior Investment Officer at USL Capital Corporation (a subsidiary of Ford Motor Corporation) and co-manager of the preferred stock portfolio of its US Corporate Financing Division for six years. Mr. Jacoby began his career in 1981 with The Northern Trust Company, Chicago and then moved to Los Angeles to join E.F. Hutton & Co. as a Vice President and Institutional Salesman, Generalist Fixed Income Sales through most of the 1980s. Mr. Jacoby holds a BSBA (Finance) from the Boston University Questrom School of Business.

MATTHEW R. BYER – Executive Director and Chief Operating Officer. Mr. Byer joined Spectrum in 2007 and held the position of Senior Vice President with responsibilities for various areas of business and product development, client relations and asset management, until his appointment as COO on January 1, 2010. Prior to joining Spectrum, Mr. Byer was a Vice President and Director - Investment Banking at A.G. Edwards where he served as a senior member of the Financial Services Group for eight years. Mr. Byer began his career in 1991 as an attorney with Armstrong Teasdale LLP where his practice included the representation of issuers and underwriters of preferred securities. Mr. Byer holds a BS (Mathematics) and JD from the University of Illinois at Urbana - Champaign and is a Member of the Missouri and Illinois bar.

JOSEPH J. URCIUOLI – Executive Director and Head of Research. Mr. Urciuoli formerly held the position of Managing Director. Prior to joining Spectrum in 1998, Mr. Urciuoli was an analyst and assistant portfolio manager at Presidential Life Insurance recommending corporate, structured product and preferred security investments for the general account. Mr. Urciuoli started his career in 1980 as an equity analyst at Standard & Poor's, responsible for companies in the gaming, motion picture, lodging and recreation industries. Mr. Urciuoli also was a generalist in the Securities Division of the American Stock Exchange managing equity listings on the exchange, and manager of business valuations at American Appraisal Associates, where he was involved in LBO analyses, debt and equity valuations, and rendering fairness opinions. Mr. Urciuoli holds a BA/MBA (Finance) from Long Island University.

JOSEPH HANCZOR – Managing Director and Chief Compliance Officer. Mr. Hanczor is responsible for all of the firm's compliance, regulatory and legal affairs, including its due diligence and risk management operations. Prior to joining Spectrum in 2009, Mr. Hanczor served for more than twenty years as legal counsel and compliance director for global investment advisory firms and broker/dealers, including Merrill Lynch, UBS and Smith Barney, advising them on a wide range of compliance, legal, regulatory, risk management and litigation matters. Mr. Hanczor also devoted several years to private law practice where he represented major financial services firms. Mr. Hanczor holds a BA (Economics) from Fordham College, a JD from Fordham Law School, FINRA Series 7, 24 and 63 registrations, and is a member of the Connecticut, New York and Florida bars. Mr. Hanczor participates in various securities industry legal and compliance associations.

JAMES E. HODAPP – Senior Vice President and Portfolio Specialist. Mr. Hodapp joined Spectrum in 2015 as Senior Vice President and Portfolio Specialist with responsibilities for distribution, relationship management and business development. Prior to joining Spectrum, Mr. Hodapp was a Senior Vice President, Markets and Product Strategy at Wells Fargo Advisors. Mr. Hodapp began his career in 1981 at A.G. Edwards in the Fixed Income Department, and he has served as Director of the High-Net -Worth Portfolio Services Group, Manager of Taxable Trading, and as Manager of the Corporate Debt Syndicate Department. He holds a B.S.B.A from Southern Illinois University – Edwardsville.

STEVEN J. SOLMONSON – Senior Vice President and Institutional Product Specialist. Mr. Solmonson joined Spectrum in 2012. Working closely with the portfolio team, he is responsible for institutional mandates, investor solutions and product development. Prior to joining Spectrum, Mr. Solmonson was the President and COO of Park Place Capital Ltd. for 12 years. Earlier in his career, Mr. Solmonson was the President of Value Investing Partners Inc, an investment banking boutique with offices in NY, London and Paris. Earlier, he was Managing Director at Lehman Brothers where he headed the international branch offices. Mr. Solmonson began his career at Drexel Burnham Lambert Inc., where he co-headed the Futures Division and was instrumental in the development and oversight of proprietary trading, brokerage services, risk management and the management of specialty investment advisory products. In that regard, he was a founding director of DBL Preferred Management Inc; working closely with Mark Lieb, who co-headed Preferred Management team. Mr. Solmonson attended Columbia College (BA Economics), The London School of Economics (Post-Grad / International Business) and Brooklyn Law School (JD). He is a member of the New York Bar.

Spectrum Asset Management Team Biographies

PORTFOLIO MANAGEMENT TEAM

JOHN J. KRIZ – Senior Vice President, Research. Mr. Kriz joined Spectrum in 2008 as Vice President and focuses on credit and research coverage for US and non-US banks and REITs. Mr. Kriz came to Spectrum from Moody's where he was Managing Director for its real estate finance rating team. In prior positions at Moody's, he was an analyst for US and foreign banks, securities firms and other financial institutions, and sovereigns. Mr. Kriz holds a MBA from the Kellogg School of Management, a MA (Political Science) from Northwestern, and a BA from St. John's University in Minnesota.

FERNANDO "FRED" DIAZ – Vice President and Portfolio Manager. Prior to joining Spectrum in 2000, Mr. Diaz was head of preferred trading at Spear, Leeds & Kellogg and Pershing, a division of DLJ, where he initiated preferred trading operations at both firms. Mr. Diaz also worked at Goldman Sachs as an analyst in the Investment Banking division and in the Preferred Stock Department as a trader and product analyst. Mr. Diaz began his career in the aviation industry at Lockheed and earned the FAA Airframe & Powerplant certification before joining the U.S. Air Force and National Security Agency. In connection with his military service, Mr. Diaz attended the Defense Language Institute, the U.S. Department of Defense's educational and research institution to study Russian.

ROBERTO GIANGREGORIO – Vice President and Portfolio Manager. Mr. Giangregorio joined Spectrum in 2003. Previously, he was an intern with the Cayuga MBA Fund LLC where he covered Utility Sector equities. He also worked for the Ford Motor Company for over eight years as an engine design engineer. Mr. Giangregorio holds a BS (Mechanical Engineering) from S.U.N.Y. at Stony Brook, a MS (Mechanical Engineering) from the University of Wisconsin-Madison and a MBA (Finance) with distinction from Cornell University.

MANU KRISHNAN – Senior Vice President, Portfolio Manager. Mr. Krishnan is a Portfolio Manager and Senior Vice President. He is a senior member of the Portfolio Management team and has been closely involved with managing Spectrum's strategies. Mr. Krishnan joined Spectrum in 2004 and in January of 2009 he joined the Portfolio Management team and has focused on the \$1000 par preferred market since then. Prior to joining Spectrum Mr. Krishnan worked as a software development engineer with the MathWorks, Inc. for three years developing algorithms for control and embedded systems. Mr. Krishnan is a CFA Charterholder and holds a MBA (Finance) from Cornell University, a MS (Mechanical Engineering) from the University of Delaware, a BS (Mechanical Engineering) from the College of Engineering, Osmania University India and has studied Computer Science in the Graduate School of Arts and Sciences at Harvard University.

KEVIN NUGENT - Vice President and Portfolio Manager. Mr. Nugent joined Spectrum in 2012 following 28 years of experience in trading and managing option derivative portfolios and has held senior trading and relationship management positions at Smith Barney, UBS and Prudential Securities where he developed risk reducing portfolio strategies for institutional clients using statistical analysis and a proprietary options trading model. Since 2007, Mr. Nugent has been managing a disciplined rules- based Volatility Flex Strategy in separately managed account, hedge fund and open-end mutual fund products. In his prior role as Co-Founder and Chief Investment Officer of Bishop Asset Management, Mr. Nugent managed a public fund named the Volatility Flex Fund. Mr. Nugent holds a BA from Ohio Wesleyan University as well as FINRA Series 65 registration.

ALBANO TUNNERA - Vice President, NYSE Trading. Prior to joining Spectrum in 1997, Mr. Tunnera was the Assistant Operations Manager for the Stamford, CT branch of Smith Barney, Inc. Mr. Tunnera holds an AB (Finance and Banking) from Norwalk Community and Technical College.

CHAD T. STOGEL – Vice President, Research. Mr. Stogel joined Spectrum in 2011 and currently serves as Vice President. He is responsible for coverage of the U.S. and global property & casualty and life insurance industries, as well as public utilities. Prior to joining Spectrum, Mr. Stogel was an equity trader with Trillium Trading. Mr. Stogel holds a MBA, specializing in Finance, Economics and Management from the NYU Stern School of Business, and a BS in Finance from the Smeal College of Business at The Pennsylvania State University.

SATOMI YARNELL – Assistant Vice President, Portfolio Administration. Prior to joining Spectrum in 2015, Ms. Yarnell was a Marketing and Client Service Specialist at Principal Global Investors (Japan) for two years. Previously, Ms. Yarnell worked for more than three years in Japan at Mitsubishi UFJ Securities and Daiwa Asset Management. Ms. Yarnell is a CFA Charterholder and Chartered Member of Security Analyst Association of Japan (CMA) and holds a MA (Economics) from Waseda University, Japan.

GARRETT LIEB – Associate, Portfolio Administration and Client Service. Mr. Lieb joined Spectrum in 2018 as an Associate, Portfolio Administration and Client Service. Prior to joining Spectrum, Mr. Lieb was an Analyst at the Falconwood Corporation, a fund incubator for a high net worth individual. Mr. Lieb holds a BS in Economics from Franklin and Marshall College and an MBA from the University of Hartford Barney School of Business.

ANDREW ZINT – Associate, Portfolio Administration and Client Service. Mr. Zint joined Spectrum in 2018 as an Associate, Portfolio Administration and Client Service. Prior to joining Spectrum, Mr. Zint held the role of Operations Specialist at Raylor Asset Management Group, LLC and assisted with client service, reporting, trade-support, compliance, and operations and control functions. Previously, Mr. Zint was a member of the Graduate Training Program at UBS Investment Bank ("UBS") and held roles in three separate areas within the Finance department. Mr. Zint holds a B.S. in Finance from the University of Connecticut.

Capital Securities – General FAQs:

What is the size of the Capital Securities Market? The global capital securities public market totals approximately \$1 Trillion. However, Spectrum is predominately focused on the higher quality / most liquid segment of market which approximately \$500 Billion. At any given time, Spectrum is likely to be actively following approximately 250 issuers and approximately 400 to 500 issues. The market has evolved substantially since the early 1980s and continues to grow.

Is the Capital Securities Market Global? The market is global. That said, nearly all issuers are based in North America, Western Europe and developed Asia. Although Issuers also issue in GBP and Euros, Spectrum generally favors the US\$ denominated side of the market, which includes the Yankee issues by Non-US issuers. Why, because the US\$ market has broad market retail and institutional participation, and consequently, the US\$ denominated issues generally provide greater liquidity.

How do investors position Capital Securities in their portfolio? Capital Securities, together with High Yield and EMD, are often included within the “PLUS” category, when constructing the components of a Core Plus Fixed Income Portfolio. Including Capital Securities adds depth and breadth to the portfolio; especially given that there is nearly no overlap of issuers between the issuers of Capital Securities vs. issuers of High Yield Sr. Debt and EMD.

Is the Capital Securities Market Liquid? Capital Securities have a unique liquidity advantage since Capital Securities trade on a relative value basis to the Issuers High Grade Sr. Debt, which is extremely liquid. While spreads will narrow and widen, largely due to credit sensitivity, even in the depths of the financial crisis, Capital Securities liquidity remained active, and did not freeze, like some other specialty fixed income markets. Moreover, Capital Securities trade as \$25par Listed securities as well as \$1000par OTC securities. The \$25par side has strong retail participation and the \$1000par side has strong institutional participation. Spectrum is active in both and routinely focuses on relative value.

There seem to be many types of “Preferred” securities? The terminology can be confusing. There are various types of securities structures that are generically referred to as Preferred Securities, which historically, were the predominate structure used by utility and bank issuers. The market has evolved and there are a variety of security structures – in addition to Traditional Preferreds -- that we include in the capital securities universe. (For clarity, it is noted that unlike Traditional Preferreds Securities - Convertible Preferred include a right for the holder convert the preferred stock to common stock – and therefore are not typically included in the universe fixed income capital securities.)

The terms “preferreds”, “hybrids” and “subordinated” securities are often used as generic reference to range of fixed income securities that all fall within capital securities market universe. As set forth on pages 6 & 8, these include: 1) \$25 par Baby Bonds (which are actually senior corporate debt that trades on a listed exchange along-side \$25par Preferreds), 2) Subordinated Debt, 3) AT2 CoCos, 4) \$25par & \$1000 par Jr. Subordinated Debt, 5) \$25par & \$1000par Preferreds and 6) AT1 CoCos). Typically, all of these capital securities i) pay a coupon, ii) are callable by the issuer (typically 5yr or 10 yr. call terms) and iii) have no (or limited) voting rights. Whether Dated or Perpetual / Cumulative or Non-Cumulative – they are senior to common stock.

How are Capital Securities coupon payments taxed? Spectrum does not provide tax advice and investors are advised to consult with their own tax advisor. That noted, coupon payments on perpetual Traditional Preferreds and most CoCos typically qualify for the lower QDI tax rate for U.S. individual investors. However, non-US investors are typically subject to U.S. withholding tax on QDI coupon payments by U.S. Issuers. Accordingly, Spectrum typically does not include U.S. issuer QDI securities in the UCITS Funds and NRC SMAs that are designed specifically for non-U.S. investors. Further, coupon payments on U.S. Issuer traditional perpetual preferreds are typically DRD eligible for U.S. corporate investors. The fact that perpetual preferreds and CoCos coupon payments may qualify for QDI and/or DRD tax treatment for the investors is largely a matter of how the corporate tax applies to the issuer – which is a complex subject (i.e., coupon payment is paid form after tax earning and not deductible by the issuer as interest expense). The point is that one should distinguish between the separate subject of U.S. tax law treatment vs. the subject of classifying securities as fixed income coupon payments.

Capital Securities– General FAQs cont'd

Are Capital Securities an “asset class”?: Here too – capital securities are not typically considered a standalone asset class. Rather -- the universe of capital securities are typically classified as a segment of the broader corporate fixed income asset class.

Why are Capital Securities issued? **Most importantly** - corporate borrowers find it attractive to issue capital securities in order to enhance the credit rating (and lower the cost) on their Senior Debt. That is, since Capital Securities are subordinate to Sr. Debt, the issuers' Sr. Debt rating gets a boost from issuing any form of subordinated capital securities (i.e., Subordinated Debt, Cumulative Jr. Subordinated Debt, Non-Cumulative Preferreds and/or Non-Cumulative CoCos. At the same time, by issuing capital securities rather than common equity, the issuer avoids diluting its common stock. Industrials like Comcast, Verizon, DuPont and others have issue capital securities. Banks, Insurance Companies and Utilities are all capital-intensive business that are regulated. Regulators want these institutions to maintain strong balance sheets with ready access to low-cost senior debt borrowing. As such, the regulators and credit agencies alike recognize the benefits of issuing capital securities which lowers the cost of senior debt, while limiting the level of common stock dilution. Accordingly, each of these regulatory regimes provide applicable carve-out treatment for issuing capital securities. For example, U.S. banks are generally permitted to treat their non-cumulative perpetual Preferreds as Alternative Tier 1 Capital, subject to a 1.5% limit. Similarly, NAIC applies a Category 2 Level on investment grade rated Jr. Subordinated debt held for investment by insurance companies.

What is the impact of Regulatory Reform? The “financial crisis” in 2008-2009 gave rise to material regulatory reform of US and European Banks as well as Insurance Companies. While it is not possible to address the various regulatory changes in detail in this Q&A, it is notable that Basel III and Dodd Frank as well as Solvency II and NAIC Rules all similarly focused on and implemented reforms to materially strengthen the capital structure of banks and insurance companies worldwide. In common, they similarly required an increase of loss-absorbing capital – staked from the bottom to the top from the common equity level, the subordinated level to the senior debt level.

In short, the regulatory reforms reaffirmed that the benefits of issuing capital securities - enhancing the credit quality of senior debt, without diluting Common Equity holdings. Key changes under Basel III and Dodd Frank required banks to phase-out cumulative Bank TruPfds (Jr. Subordinated Debt), which was replaced by the issuance of non-cumulative perpetual Preferreds by Banks in the US and AT1 (CoCos) by Non-US Banks. The market had steadily grown larger and at the same time has increased the issuance of more Fixed-to-Float and Fixed to Reset securities (generally with 5 Year or 10 Year Calls) that afford reduced durations, that have proven to be very popular with investors.

Under NAIC as well as Solvency II, Insurance companies, like banks, are subject to stricter capital requirements. In doing so, the new regulations and the credit agencies recognized the benefits of issuing Capital Securities (primarily Jr. Subordinated Debt in order enhance senior debt, while minimizing common equity dilution. Moreover, Capital Securities continue to be an attractive investment for insurance companies' general account portfolios. All in all, a benefit to preferred investors, who are senior to common equity stockholders, yet are paid an added premium for their subordinated to senior debt holders.

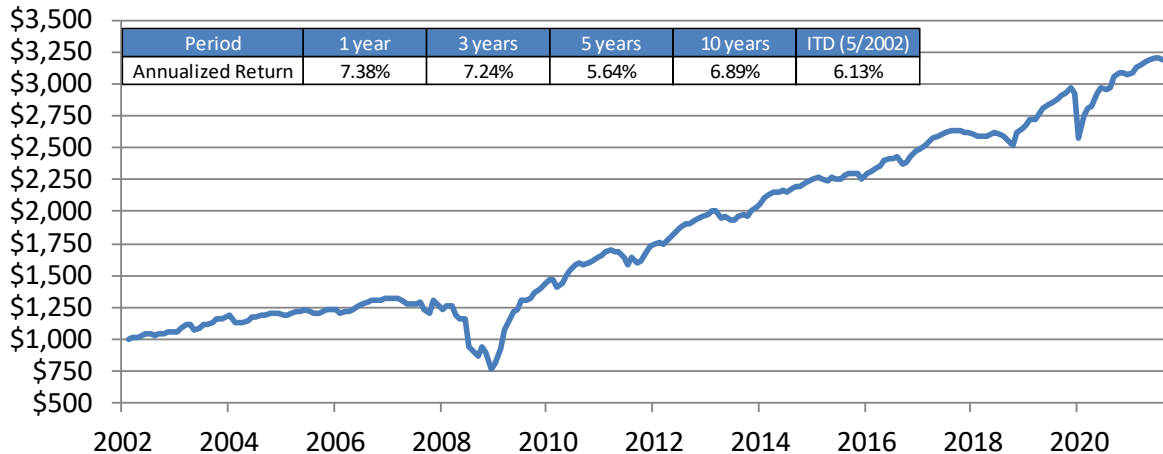
Why not simply invest in a passive ETF? See page 16 comparing a passive ETF vs. PPSIX – the headline U.S. Mutual fund actively managed by Spectrum. In-depth credit analysis and attentive security selection based upon relative-value and security structure analysis not only serves to drive Alpha, but often overlooked, active management a key ingredient for effective risk management. As a specialty credit strategy – active vs. passive is especially important. The ETF structure is attractive – but if considering an ETF rather than a Mutual Fund structure – consider using an actively managed ETF rather than a passive ETF. Spectrum manages two actively managed ETFs – Ticket PREF (focused on the \$1000par market) and PQDI (focused on the QDI market).

SPECTRUM

Spectrum Preferred and Capital Securities Income Fund A U.S. Mutual Fund October 2021 Overview

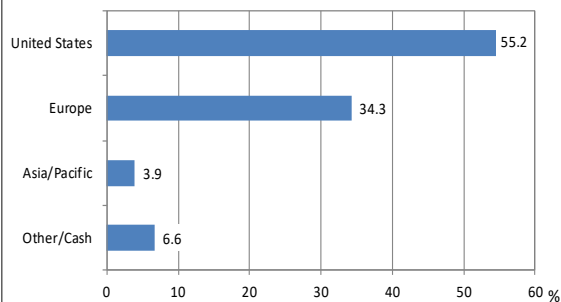
Headline "I" Share Class
ISIN: US74253Q4165 Bloomberg: PPSIX

Growth of \$1,000 Since Inception

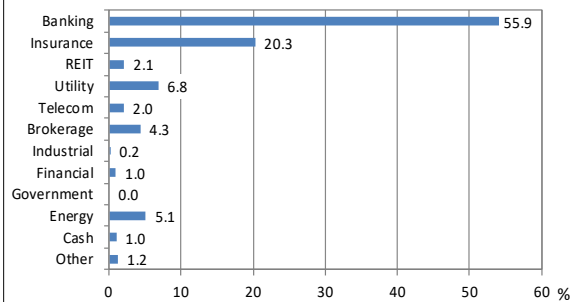


Past performance is not a reliable indicator of future performance and should not be relied upon to make investment decisions.

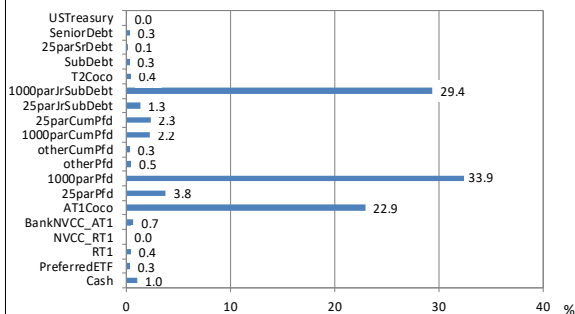
Geographic Allocation



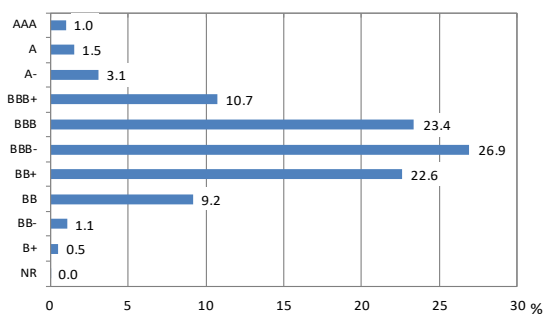
Industry Sectors



Security Type



Credit Quality



Spectrum Preferred and Capital Securities Income Fund Snapshot

October 2021 Overview

Monthly and Annual Returns

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2002					0.80%	0.20%	1.19%	1.76%	0.67%	-1.62%	1.07%	-0.10%	4.00%
2003	0.87%	1.05%	0.28%	1.69%	3.33%	0.45%	-4.19%	1.30%	2.57%	0.36%	0.80%	1.90%	10.72%
2004	1.18%	0.80%	1.15%	-4.82%	-0.37%	-0.09%	2.04%	1.81%	0.27%	0.71%	0.53%	1.25%	4.36%
2005	0.45%	0.18%	-1.83%	0.65%	0.83%	0.51%	0.37%	0.83%	-0.57%	-1.12%	0.09%	1.25%	1.62%
2006	0.57%	0.75%	-0.79%	-1.62%	0.19%	0.05%	2.15%	2.11%	0.95%	1.04%	1.40%	0.00%	6.94%
2007	0.19%	0.74%	0.02%	0.56%	-0.84%	-0.93%	-2.12%	-0.29%	0.54%	0.51%	-4.62%	-1.93%	-7.99%
2008	8.37%	-1.53%	-3.65%	1.78%	0.10%	-5.55%	-2.35%	0.36%	-19.28%	-3.48%	-4.53%	7.75%	-22.30%
2009	-3.67%	-15.31%	6.03%	14.00%	16.52%	4.59%	8.28%	1.43%	5.81%	0.59%	0.42%	3.88%	46.57%
2010	1.80%	1.68%	3.15%	0.36%	-3.83%	1.80%	4.53%	2.86%	2.56%	0.92%	-0.46%	0.25%	16.49%
2011	1.13%	1.71%	1.09%	1.48%	0.96%	-0.79%	-0.31%	-2.18%	-3.54%	3.46%	-2.64%	1.40%	1.53%
2012	4.14%	2.54%	1.08%	0.26%	-0.62%	1.92%	2.38%	1.74%	1.31%	1.87%	0.14%	0.99%	19.18%
2013	1.14%	0.82%	0.91%	1.35%	-0.16%	-2.79%	0.24%	-1.49%	0.22%	1.72%	0.33%	-0.41%	1.81%
2014	1.91%	1.96%	1.33%	1.79%	1.47%	0.68%	0.02%	1.08%	-0.79%	0.96%	0.85%	-0.25%	11.54%
2015	1.61%	0.80%	0.81%	0.23%	-0.33%	-0.92%	1.09%	-0.19%	-0.16%	1.60%	0.21%	0.21%	5.04%
2016	-0.37%	-1.47%	1.85%	0.92%	1.18%	0.39%	1.77%	0.96%	-0.19%	0.31%	-2.11%	0.51%	3.72%
2017	1.93%	1.60%	0.50%	1.52%	1.10%	1.07%	0.88%	0.27%	0.31%	0.69%	0.01%	0.16%	10.50%
2018	-0.47%	-0.37%	-0.28%	-0.36%	-0.47%	0.13%	0.72%	0.52%	-0.35%	-0.94%	-1.54%	-1.20%	-4.54%
2019	3.94%	1.34%	1.03%	1.44%	0.12%	1.94%	1.29%	0.90%	0.77%	1.26%	0.53%	0.83%	16.44%
2020	1.32%	-1.27%	-12.28%	7.06%	1.95%	0.90%	3.13%	1.83%	-0.49%	0.39%	2.88%	1.10%	5.45%
2021	-0.06%	-0.25%	0.34%	1.30%	0.44%	0.91%	0.43%	0.43%	0.00%	-0.34%			3.24%

Portfolio Characteristics:

Annualized return (since 5/2002):	6.1%
Approx. income:	5.9%
Approx. capital gain:	0.2%
Standard deviation (3 years):	9.2%
Sharpe Ratio:	0.7
Percentage of positive months:	72.6%
Best month (05/2009):	16.5%
Worst month (09/2008):	-19.3%
Largest runup (02/28/09 to 09/30/21):	320.4%
Largest drawdown (04/30/07 to 02/28/09):	-42.5%
Number of holdings:	365
Number of issuers:	133
Modified Duration:	4.1
Average Dollar Price:	\$112.3
Average Coupon:	5.7
Current Yield:	5.2
QDI:	56.3
Yield to Maturity:	5.1
Yield to Call Annualized:	3.1
Yield To Worst:	3.0
Average Credit Rating (best of 3):	BBB
Annual Turnover:	20.5%
Fixed to Floating	33.4%
Fixed to Variable	52.4%
Fixed Rate	9.9%
Floating	3.0%
Cash	1.0%
Options and Futures	0.0%

Top 10 Holdings:

Holding	Percentage
JP Morgan Chase 6.75 02/24-49 DRD	2.17%
J P Morgan Chase & Co 3.65 06/26 perp DRI	1.65%
Dominion Energy 4.65 12/24 perp DRD	1.55%
Charles Schwab Corp 5.375 6/25 perp DRD	1.41%
HSBC Capital Funding 10.176 6/30/30 144A	1.38%
Bank of America 6.50 10/23/24-49 DRD	1.29%
Liberty Mutual Group 7.8 3/37-87 144a	1.29%
Truist Financial 4.8 9/24-49 DRD	1.23%
Duke Energy 4.875 9/24-perp DRD	1.21%
Citigroup 6.25 8/26-49 DRD	1.20%

Top 10 Issuer Concentrations:

Issuer	Percentage
JP Morgan	4.42%
MetLife	3.56%
HSBC	3.29%
Wells Fargo	3.15%
Charles Schwab	2.96%
Ing Groep	2.72%
Bank of America	2.63%
Citigroup	2.61%
Credit Suisse	2.46%
Truist Financial	2.27%

Sources: Bloomberg, Moody's, S&P, Fitch, Spectrum. Data from outside sources is believed to be reliable but has not been verified.

Disclaimers: This document contains general information and is for discussion purposes only. It should not be considered a comprehensive statement on any matter and should not be relied upon as such. Past performance is not a reliable indicator of future performance and should not be relied upon as a significant basis for an investment decision.

Investment Manager

Founded in 1987, Spectrum Asset Management Inc. ("Spectrum") - headquartered in Stamford, CT - is a specialty manager focused on the preferred and subordinated debt securities – a segment of the global corporate fixed income market.

Principal Global Investors, LLC has been appointed as Investment Advisor to the Fund, and has appointed Spectrum Asset Management, Inc. as the Sub-Investment Advisor.

Fund Managers

Mark A. Lieb, Founder & CEO
L. Phillip Jacoby, CIO & Sr. PM
Manu Krishnan, PM
Robert Giangregorio, PM
Fred Diaz, PM
Kevin Nugent, PM

Fund Facts

- Spectrum Total Firm AUM: US \$28.99B
- Spectrum Founded: 1987
- Fund AUM: \$8.40B
- Fund Launch Date: May 2002
- Fund Base Currency: USD
- Min Investment : "I" Share US\$2M
- TER: "I" Shares 0.81% pa
- Subscriptions: Daily
- Redemptions: Daily
- Administrator : Principal Global Investors
- Custodian: BNY Mellon
- Auditor: Ernst & Young LLP
- Target Avg. Credit Quality: Investment Grade
- Target Mod. Duration: Intermediate

Investment Objective

The Fund is an actively managed 40 Act Mutual which seeks to provide enhanced income return as well as capital appreciation, whilst attentive to capital preservation and volatility.

The Fund primarily invests in Preferred, Jr. Subordinated Debt, Subordinated Debt and Contingent Capital Securities (CoCos) securities; issued by major US, European and Asian Banks, Insurance Companies, Utilities, Telcoms, Reits, Industrials and other corporate issuers.

Security selection is based upon analysis of credit quality, relative value and securities structure.

There are several other share classes in addition to the Institutional I Share Class, including PPSAX and PPSPX. The Fund is available from broad range of leading Broker/Dealer throughout the U.S.

Benchmark

ICE BofA US All Capital Securities Index
(Bloomberg Ticker I0CS)



Contact

Steven Solmonson
Sr. Vice President
Spectrum Asset Management Inc.
Institutional Investment Services
T. 203-321-1133
ssolmonson@samipfd.com
www.samipfd.com

Preferred Stock

Fund Name / Symbol	Fund Prices (as of 11/10/21)				Average Annual Total Returns (%) (as of 10/31/21)						Fund Expenses			
	\$ NAV	\$ Chg	% Chg	% YTD	1 yr	3 yr	5 yr	10 yr	Since Incep	Incep Date	Net Expense	Gross Expense	Contractual Cap	Waiver Exp. Date
Spectrum Preferred and Capital Sec Income Inst Fd	10.45	▼-0.02	▼-0.19	3.34	7.30	7.24	5.64	6.09	6.10	5/1/02	0.01	0.01	12/30/21	N/A
15, 16, 31 PPSIX	Morningstar Rating Category: Preferred Stock				3 yrs: ★★★★★ 60 funds		5 yrs: ★★★★★ 49 funds		10 yrs: ★★★★★ 29 funds		Overall: ★★★★★ 60 funds			

Distribution of BEST grant funding across Colorado

