Callan

June 30, 2023

Pennsylvania SERS Defined Benefit Plan

Investment Measurement Service Quarterly Review

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Capital Markets Review

Is Recession Risk Really Off the Table?

ECONOMY

2 P A G E Economic forecasts have shifted tone, from one of certain recession to no recession this year or next. What happened? A robust job market, declining inflation, and a GDP rebound appear to point to a soft landing, but recession risks have not completely disappeared.

Aggregate Falls with Rise in Interest Rates

FIXED INCOME

8 P A G E Constant Set 1 Constant Set

IRRs Stay Steady and Range from 8%-10%

PRIVATE CREDIT

12 PAGE Private credit has generated net IRRs of 8% to 10% for trailing periods ended 1Q23. Higher-risk strategies performed better than lowerrisk strategies. Investors focused on relative value, downside protection, and managers' internal workout resources.

Equity Gains Power Positive Returns

INSTITUTIONAL INVESTORS

All investor types saw gains for the one year ended 2Q23 after equity gains in the quarter, but trailed a 60% stocks/40% bonds benchmark. Over the last 20 years, all investor types were within range of the 60%/40% benchmark, lagging U.S. equities but topping U.S. fixed income.

Private RE Falls While REITs Lag Equities

REAL ESTATE/REAL ASSETS

10 P A G E The NCREIF Property Index fell 2.0% during 2Q23. The NCREIF Open-End Diversified Core Equity Index fell 2.7%. Global REITs underperformed, up 0.2% compared to a 6.8% rise for global equities (MSCI World). U.S. REITs rose 2.6%, compared to 8.7% for the S&P 500.

Hedge Funds Gain but Lag Equity Indices

HEDGE FUNDS/MACs

13 PAGE Hedge funds ended 2Q higher but unable to keep up with soaring equity indices, as equity market volatility subsided from 1Q. For individual managers, equity hedge strategies, event-driven managers, and macro strategies all ended with gains for the quarter.

Large Cap Growth Leads Indices Higher

EQUITY

All U.S. equity indices produced positive returns; large cap growth (led by big technology firms) helped power the gains. Global and global ex-U.S. indices also showed gains, while developed markets outperformed emerging markets, in part due to China.

Headwinds in Market Slow Deal Liquidity

PRIVATE EQUITY

First-half private equity fundraising and deal PAGE activity continued а declinina trend, with only IPOs increasing slightly. 1 Ps are consolidating and upgrading portfolios, and GPs are focusing on existing portfolio management to increase exits and distributions.

Index Starts off 2023 With a 5.3% Increase

DEFINED CONTRIBUTION

15 PAGE The Callan DC Index gained 5.3% in 1Q23, and balances within the index rose by the same amount. Target date funds continued to see the largest net inflows. U.S. large cap saw big gains in participant allocations; capital preservation fund options saw a decline.

Broad Market Quarterly Returns













Sources: Bloomberg, FTSE Russell, MSCI

Is Recession Risk Really Off the Table?

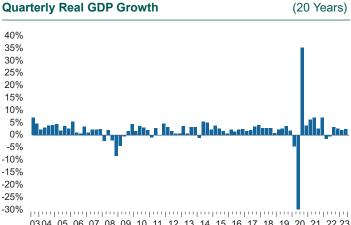
ECONOMY | Jay Kloepfer

We saw a change in tone in economic forecasts coming in over the past six weeks, from one of certain recession in 2023 or at the least 2024, to one of "no recession here." We see it in the tea leaves of the Fed's releases after its last couple of meetings and in investment managers' updates and strategy pieces, and now the professional forecasting community is, well, forecasting no recession this year or next.

What happened? First, the job market remains robust, with unemployment stuck at a generational low. Second, inflation dropped from an alarming 9% rate last June to 3% in just one year. In the broad economy, GDP rebounded from two quarters of decline in 2022 to log four consecutive quarters of solid growth, notching 2.4% in 2Q23. Expectations established just six months ago had a recession hitting in 2Q or 3Q of *this* year. Now it is rare to find a shorterterm outlook (12-18 months) with a recession as the base case; we're back to the notion of a soft landing, with GDP gently declining to 1%-1.5% growth in 2024. Did recession risk really disappear?

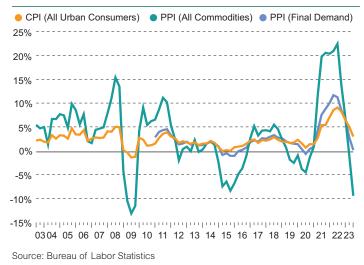
Interest rates could rise more in the second half of 2023, even though inflation is now down at 3%. The Fed has suggested two more rate hikes are in their cards. The strength remaining in the economy after rates rose 5% in one year gives the Fed headroom to further flex its inflation-fighting chops. The bond market has been expecting a recession since last July, when the yield curve inverted, and there is growing sentiment that perhaps this time, bond investors just might be wrong. The argument is that the bond market got ahead of itself in the spring of 2022, when it immediately and (almost) fully priced in the expected Fed moves by June last year. Then almost as quickly as the market believed the Fed would execute as telegraphed, the market began doubting the resolve of the Fed and the ability of the economy to absorb the historic jump in interest rates, and hence the inversion of the yield curve.

The strength of the job market has been Fed Chair Jerome Powell's secret weapon, and we have been looking at the details of the job market with great interest. The U.S. economy recouped the nearly 20 million jobs lost in the first months of the pandemic by the middle



03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 Source: Bureau of Economic Analysis

Inflation Year-Over-Year



of 2022, and now supports 4.3 million more non-farm jobs than at the end of 2019. However, some sectors are still woefully short of workers, and many observers believed a recession was necessary to convince people to take the jobs they no longer wanted in hospitality (hotels and restaurants), retail trade, and state and local government. These three sectors make up 34% of the U.S. job market, but all three have yet to surpass their pre-pandemic levels of employment; in fact, they are still 300,000 behind. That means only two-thirds of the job market has accounted for the 4.3 million new jobs. These lagging sectors have large concentrations of lower-paying jobs, so the differential growth in the job market is exacerbating pressure on lower-income workers.

Three threats that spurred recession fears earlier this year have not yet panned out: crypto, regional banks, and headline layoffs in technology. The collapse of FTX and the troubles across all manner of digital currencies have hurt investors but not taken a meaningful number of jobs, and the failure and takeover of three regional banks has not dented the exuberance of the stock market and the economic forecasters. The job cuts that made headlines at highly visible technology firms were large at the firm level, but small at the industry level, and the job-cutting was contained to technology.

So as recession fears fade, what does it mean for short interest rates, for long rates, and for the stock market? Longer term, the Fed telegraphs 2.5% as the anchor for the Federal Funds rate, but we may see 5%-5.5% for the next 18 months. The broad U.S. stock market (Russell 3000) dropped 24.6% in the first three quarters of 2022, but the index is up 24.5% in the three quarters through June 2023, and the total return since December 2021 is -3%. The back-story is that these gains came from just seven stocks; the rest of the stock market has been flat. Market expectations for stocks exclusive of these hot dots is subdued.

The risk of recession has not gone away, but the onset may have been delayed. One important economic rule of thumb to remember is that it takes about a year for a change in interest rates to work its way through the economy. The Fed started raising rates in March 2022, and has continued into 2023. We may be a year from seeing the full effect of higher rates on the economy.

The Long-Term View

					6/30/23
Index	2Q23	1 Yr	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	8.4	19.0	11.4	12.3	7.7
S&P 500	8.7	19.6	12.3	12.9	7.6
Russell 2000	5.2	12.3	4.2	8.3	7.3
Global ex-U.S. Equity					
MSCI EAFE	3.0	18.8	4.4	5.4	4.3
MSCI ACWI ex USA	2.4	12.7	3.5	4.7	
MSCI Emerging Markets	0.9	1.7	0.9	3.0	
MSCI ACWI ex USA Small Cap	2.0	10.9	2.6	5.8	6.7
Fixed Income					
Bloomberg Agg	-0.8	-0.9	0.8	1.5	3.9
90-Day T-Bill	1.2	3.6	1.6	1.0	1.9
Bloomberg Long G/C	-1.3	-2.6	0.7	2.9	5.3
Bloomberg GI Agg ex US	-2.2	-1.8	-2.7	-0.9	2.6
Real Estate					
NCREIF Property	-2.0	-6.6	5.9	7.8	8.5
FTSE Nareit Equity	2.6	-0.1	4.6	6.4	8.3
Alternatives					
CS Hedge Fund	2.2	5.0	5.0	4.7	6.1
Cambridge PE*	2.1	-4.6	16.0	15.0	13.8
Bloomberg Commodity	-2.6	-9.6	4.7	-1.0	2.0
Gold Spot Price	-2.9	6.8	9.0	4.7	7.8
Inflation – CPI-U	1.1	3.0	3.9	2.7	2.5

*Data for most recent period lags. Data as of 1Q23.

Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

Recent Quarterly Economic Indicators

2Q23	1Q23	4Q22	3Q22	2Q22	1Q22
4.5%	4.8%	5.1%	5.0%	5.1%	4.5%
3.7%	-1.2%	1.6%	1.2%	-3.7%	-6.0%
2.4%	2.0%	2.6%	3.2%	-0.6%	-1.6%
78.3%	78.2%	78.5%	79.4%	79.6%	79.2%
62.4	64.6	58.8	56.1	57.8	63.1
	4.5% 3.7% 2.4% 78.3%	4.5% 4.8% 3.7% -1.2% 2.4% 2.0% 78.3% 78.2%	4.5% 4.8% 5.1% 3.7% -1.2% 1.6% 2.4% 2.0% 2.6% 78.3% 78.2% 78.5%	4.5% 4.8% 5.1% 5.0% 3.7% -1.2% 1.6% 1.2% 2.4% 2.0% 2.6% 3.2% 78.3% 78.2% 78.5% 79.4%	4.5% 4.8% 5.1% 5.0% 5.1% 3.7% -1.2% 1.6% 1.2% -3.7% 2.4% 2.0% 2.6% 3.2% -0.6% 78.3% 78.2% 78.5% 79.4% 79.6%

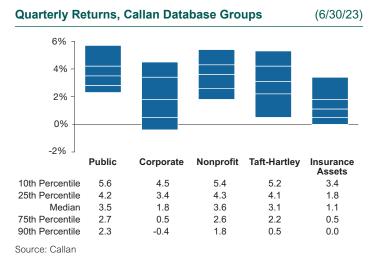
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

Equity Gains Power Positive Returns

INSTITUTIONAL INVESTORS

- Strong equity gains helped all investor types report gains for the trailing year, compared to single-digit losses in the year ending 1Q23.
- Nonprofits reported the best results for the trailing one year, followed closely by public defined benefit plans. Corporate plans and insurance assets, with their typically higher allocations to fixed income, saw the lowest gains.
- All investor types crushed bonds but lagged a benchmark consisting of 60% stocks/40% bonds.
- Over the last 20 years, all investor types were within range of the 60%/40% benchmark, lagging U.S. equities but topping U.S. fixed income and global ex-U.S. equities.
- After a disastrous 2022, the S&P 500 and Bloomberg Aggregate are both up through 2Q23.
 - S&P 500 up 16.9%
 - Aggregate up 2.1%
 - Nasdaq 100 is up almost 40%
- However, seven stocks are leading the charge with most others being flat to negative.

- The yield curve has remained inverted implying a recession is on the horizon
- Investors are focused on how much the world has changed, and whether it alters how they should view and implement portfolios.



Callan Database Median and Index Returns* for Periods Ended 6/30/23

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	3.5	9.3	8.0	6.7	7.5	7.5
Corporate Database	1.8	5.0	2.5	4.7	6.3	7.0
Nonprofit Database	3.6	9.6	8.1	6.4	7.1	7.4
Taft-Hartley Database	3.1	8.4	8.1	6.5	7.7	7.1
Insurance Assets Database	1.1	3.4	1.3	3.1	3.8	4.8
All Institutional Investors	3.1	8.5	7.5	6.2	7.2	7.2
Large (>\$1 billion)	2.7	7.5	8.4	6.8	7.6	7.6
Medium (\$100mm - \$1bn)	3.3	8.7	7.6	6.3	7.3	7.2
Small (<\$100 million)	3.5	9.3	7.2	6.0	6.9	6.9
60% S&P 500/40% Bloomberg Agg	4.9	11.1	7.1	8.1	8.5	7.5

*Returns less than one year are not annualized.

Source: Callan. Callan's database includes the following groups: public defined benefit (DB) plans, corporate DB plans, nonprofits, insurance assets, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

Corporate DB Plans

- Liabilities decreased slightly, reflecting a small increase in discount rates, but assets (both LDI and equities) were up, offsetting any negative liability impact.
- Total return-oriented plans continued to see their funded status improve as the equity market kept rallying.
- Plans that were fully hedged experienced minimal, if any, funded status volatility over the quarter.
- There is a disconnect between hedging the accounting funding ratio and the rules for the ERISA minimum required contributions (MRCs). Callan's forecasted median ERISA rate (used for MRCs) lags the accounting rate by ~100 bps, which could trigger required contributions.

Public DB Plans

- The trend of "de-risking," moving to more fixed income, has somewhat abated.
- Plans have grown accustomed to their current level of risk; they lived through both the pandemic and 2022, and they would rather maintain this risk and collect a higher return.
- For plans that measure at 6/30, they should see a realized one-year return well in excess of their discount rate assumption. For those that smooth their assets, deferring the gains will help offset losses from FYE 2021, stabilizing future contribution requirements.

Insurers

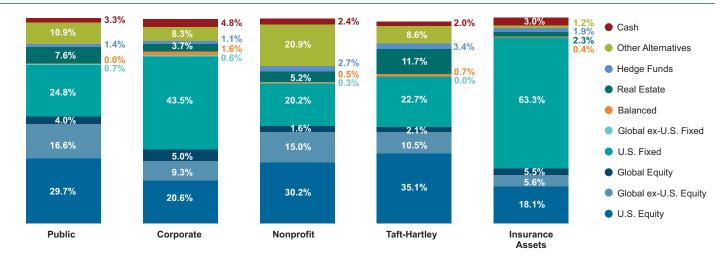
- Insurance companies are some of the few investors that fared well following the spike in yields during 2022.
- Typically invested to match short-term liabilities, they are focused on investment income and use it to offset operating expenses.
- As interest rates rose, insurers sold bonds with lower book yields and took losses, then re-invested at much higher book yields.

Nonprofits

 Foundations and endowments are seeing effective spending rates coming down, to reflect the losses in 2022 (since current spending rates don't yet reflect them, with lags and averages).

Defined Contribution Plans

- Sponsors focused on these significant new issues:
 - SECURE 2.0: Digesting the new provisions and learning what they mean for them
 - Rate environment: Helping participants with options to manage higher inflation
 - Managed accounts and retirement income: Keeping terminated participants and retirees in plans



Average Asset Allocation, Callan Database Groups

Note: Charts may not sum to 100% due to rounding. Other alternatives include but is not limited to: diversified multi-asset, private credit, private equity, and real assets. Source: Callan

Equity

U.S. Equities

Large cap growth stocks lead broad indices higher

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

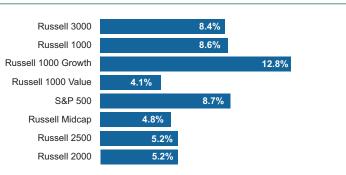
Index concentration is a significant 2Q theme

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

Quarterly Performance of Industry Sectors (6/30/23)

Small cap valuations point to potential opportunity

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

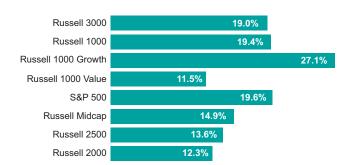


U.S. Equity: One-Year Returns

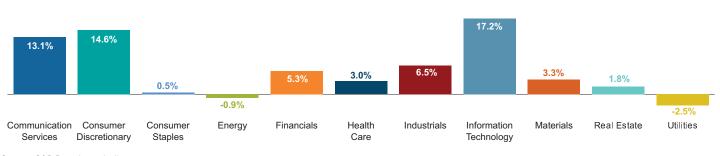
U.S. Equity: Quarterly Returns

(6/30/23)

(6/30/23)



Sources: FTSE Russell and S&P Dow Jones Indices



Source: S&P Dow Jones Indices

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Global Equities

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

Technology stocks lead markets higher

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

Developed vs. emerging markets

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

Growth vs. value

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

Japan's turn

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

India vs. China

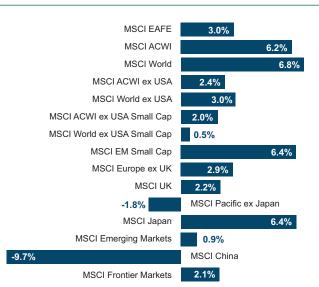
Economics

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

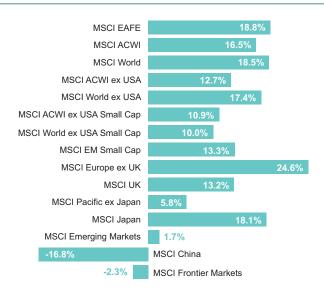
Asset flows

- India's equity market has more than doubled since 2010.
 Growth
- India surpassing China with % of population in the middle class in 2030, and from 2023 to 2030 will contribute twice as much growth from this group than China in the Asia Pacific region.

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 6/30/23)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 6/30/23)



Source: MSCI

Fixed Income

U.S. Fixed Income

Bloomberg Aggregate down as rates rose

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

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

Yield curve inversion steepened

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

TIPS performed in line with nominal U.S. Treasuries

- Five-year breakeven spreads narrowed to 2.18% from 2.40% on 3/31.
- Fed and markets expect inflation to trend down over longer periods.
- Fed Funds target raised to 5.00% 5.25%
- Paused at June meeting but suggested that further hikes are likely
- Median expectation from Fed: 5.6% for year-end 2023
- Market expectations are similar at 5.4%; up sharply from expectations for cuts at the end of 1Q.

Valuations fair

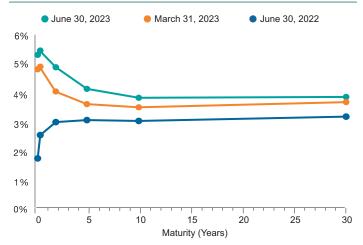
- Credit spreads have not widened materially and are close to historical averages.
- Demand has remained robust with muted issuance.

Municipal Bonds

Municipal bonds outperformed U.S. Treasuries in 2Q

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

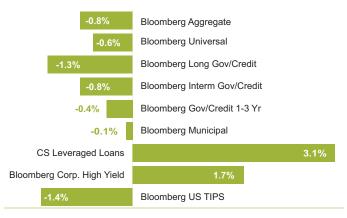






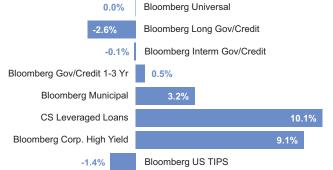
U.S. Fixed Income: Quarterly Returns

(6/30/23)



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns (6/30/23)



FIXED INCOME (Continued)

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

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

Valuations relative to U.S. Treasuries remain rich

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

Supply/demand

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

Fundamentals remain sound

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

Global Fixed Income

Global Aggregate down unhedged but up hedged

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

U.S. dollar mixed

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

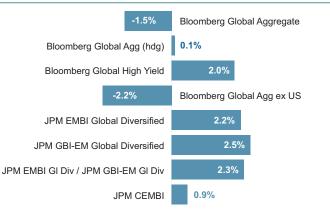
Emerging market debt delivered solid results

 Growth differentials have improved as inflation has peaked in many markets

Change in 10-Year Global Government Bond Yields

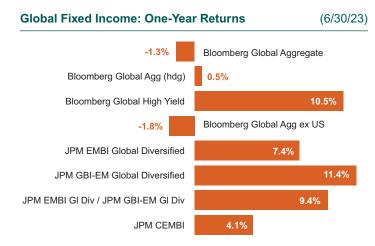


Global Fixed Income: Quarterly Returns



(6/30/23)

Sources: Bloomberg and JPMorgan Chase



Sources: Bloomberg and JPMorgan Chase

Private Real Estate Falls While REITs Lag Equities

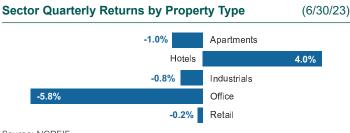
REAL ESTATE/REAL ASSETS | Kristin Bradbury, Munir Iman, and Aaron Quach

Private RE falls but income returns were positive

- The NCREIF Property Index, a measure of U.S. institutional real estate assets, fell 2.0% during 2Q23. The income return was 1.0% while the appreciation return was -3.0%.
- Hotels, which represent a small portion of the index, led property sector performance with a gain of 4.0%. Office finished last with a loss of 5.8%.
- Regionally, the South led with a loss of 0.8%, while the East was the worst performer with a loss of 2.7%.
- The NCREIF Open-End Diversified Core Equity Index, representing equity ownership positions in U.S. core real estate, fell 2.7% during 2Q, with an income return of 0.9% and an appreciation return of -3.6%.

REITs underperform equities

- Global REITs underperformed in 2Q23, rising 0.3% compared to a 6.8% rise for global equities (MSCI World).
- U.S. REITs rose 2.6% in 2Q23, in contrast with the S&P 500 Index, which rose 8.7%.
- The outperformance in the U.S. was driven by the resilient U.S. economy but continued to face headwinds due to higher interest rates and negative sentiment in the capital markets.



Source: NCREIF

Real Assets

- The S&P GSCI fell 2.7% in 2Q.
- WTI Crude ended the quarter at \$70.64/barrel, down from \$75.67/barrel on 3/31.
- Copper (-8%) fell on concerns over ebbing global demand and a slowdown in China, and gold (S&P Gold Spot Price: -2.9%) was hurt by lowered expectations for inflation and reduced safe-haven demand.
- TIPS (Bloomberg TIPS: -1.4%) were hurt by rising interest rates.

Callan Database Median and Index Returns* for Periods Ended 6/30/23

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	-1.0	-4.9	-9.2	7.8	6.5	8.3	4.8
NFI-ODCE (value-weighted, net)	-2.9	-6.2	-10.7	7.0	5.6	7.8	4.7
NCREIF Property	-2.0	-3.8	-6.6	6.8	5.9	7.8	6.1
NCREIF Farmland	0.8	2.9	8.2	7.6	6.5	8.3	9.9
NCREIF Timberland	1.7	3.5	11.1	8.7	5.8	5.9	4.6
Public Real Estate							
Global Real Estate Style	0.8	2.8	-2.9	4.5	2.5	5.2	5.2
FTSE EPRA Nareit Developed	0.3	1.0	-4.5	3.3	-0.1	2.9	3.2
Global ex-U.S. Real Estate Style	-2.3	-2.5	-7.4	-1.1	-1.1	3.8	3.0
FTSE EPRA Nareit Dev ex US	-3.1	-4.7	-9.3	-2.6	-3.8	0.6	1.2
U.S. REIT Style	2.6	5.8	-0.7	8.6	6.0	7.3	7.7
FTSE EPRA Nareit Equity REITs	2.6	5.4	-0.1	8.9	4.6	6.4	6.8

*Returns less than one year are not annualized. Sources: Callan, FTSE Russell, NCREIF

10 Callan Institute

Headwinds Slow Liquidity

PRIVATE EQUITY | Gary Robertson

Fundraising ► Final closes for private equity partnerships in 2Q23 totaled \$170 billion of commitments in 470 partnerships. (Unless otherwise noted, all data in this commentary come from PitchBook.) The dollar volume was down 2% from 1Q23, but the number of funds rose 7%. For the first half, commitments are running 31% behind those of a year ago, with the number of funds down by 51%, and with venture capital commitment volumes falling most notably from about 34% a year ago.

Buyouts ► New buyout transactions by count fell 13% from 1Q23 to 2,462, and disclosed deal value declined 18% to \$122 billion. 1H23 numbers also saw declines of 30% in number of investments and 36% in disclosed value. YTD average buyout prices fell almost a turn (0.9x EBITDA) to 13.4x but remain high on an absolute basis. Average leverage levels YTD fell to only 31% of new deal capital structures, with interest costs rising and impinging company profitability.

VC Investments ► New rounds of financing in venture capital companies totaled 9,955, with \$86 billion of announced value. The number of investments preliminarily fell 20% from 1Q23, but announced value fell only 1%. 1H23 numbers plunged 33% for rounds and 48% for disclosed value compared to 1H22.

Exits ► There were 472 private M&A exits of private equitybacked companies, with disclosed values totaling \$90 billion. The preliminary private sale count fell 21% and the announced dollar volume dropped 13%. There were 46 private equity-backed IPOs in 2Q23 raising an aggregate \$7 billion, up 15% by count, with issuance leaping 40% from 1Q23.

Venture-backed M&A exits totaled 541 transactions with disclosed value of \$14 billion. The number of sales declined 18% from 1Q23, and announced value plunged 50%. There were 86 VC-backed IPOs in 2Q23 with a combined float of \$12 billion; the count was up 19% and the issuance grew 71%.

Returns ► With an uptick in public equity markets in the last two quarters, private equity lagged in both periods but posted modestly positive returns in each.

Funds Closed 1/1/23 to 6/30/23

Strategy	No. of Funds	Amt (\$mm)	Share
Venture Capital	554	59,101	17%
Growth Equity	53	47,704	14%
Buyouts	213	136,312	40%
Mezzanine Debt	11	29,663	9%
Distressed/Special Credit	15	24,043	7%
Energy	4	1,467	0%
Secondary and Other	53	42,486	12%
Fund-of-Funds	7	2,429	1%
Totals	910	343,205	100%

Source: PitchBook (Figures may not total due to rounding.)

Private Equity Performance (%) (Pooled Horizon IRRs through 3/31/23*)

			-	-				
Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-0.70	-16.37	24.98	20.43	18.73	13.20	12.62	19.35
Growth Equity	1.27	-9.26	21.28	16.51	15.11	12.70	14.39	14.17
All Buyouts	3.52	0.69	23.86	16.00	15.24	10.84	15.07	12.82
Mezzanine	3.49	6.08	14.91	10.88	11.08	10.34	11.38	10.02
Credit Opportunities	2.01	4.00	13.42	7.30	7.86	9.17	9.79	9.53
Control Distressed	1.60	2.59	26.00	13.90	12.14	10.72	11.85	11.51
All Private Equity	2.12	-4.57	22.98	16.20	15.12	11.36	13.95	13.37
S&P 500	8.74	19.59	14.60	12.31	12.86	10.88	10.04	7.61
Russell 3000	8.39	18.95	13.89	11.39	12.34	10.61	10.05	7.72

Note: Private equity returns are net of fees. Sources: Refinitiv/Cambridge and S&P Dow Jones Indices *Most recent data available at time of publication

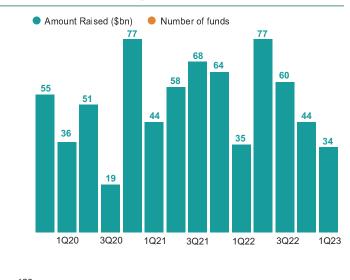
Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of the *Capital Markets Review* and other Callan publications.

IRRs Stay Steady and Range from 8%-10%

PRIVATE CREDIT | Catherine Beard

- Private credit performance varied across sub-asset class and underlying return drivers.
- On average, the asset class has generated net IRRs of 8% to 10% for trailing periods ended March 31, 2023.
- As interest rates declined after the GFC, private credit attracted increased interest from institutional investors.
- Private credit fundraising was robust leading into the COVID dislocation with a particular focus on direct lending, assetbased lending, and distressed strategies.
- Renewed focus on relative value, downside protection, and managers' internal workout resources
- Renewed interest in strategies with strong collateral protection such as asset-based lending as well as capital solutions and distressed/special situations strategies
- Larger sponsor-backed lending is seeing a new focus due to the high yield/broadly syndicated loans disintermediation by private credit.
- U.S. sub-investment grade corporate yields rose dramatically at the beginning of 2022 with yields peaking in September. This was a combination of higher interest rates due to tighter Fed policy and a widening of high yield spreads.
- Spreads widened during the first half of 2022 due to weaker credit conditions as the U.S. economic outlook worsened. This has since moderated.
- Default rates for U.S. corporate bonds ticked up in 2Q but remained well below the historical average of 3%-4%. Callan expects defaults to increase somewhat in coming months as economic growth slows and potentially turns negative.
- The Corporate Bond Market Distress Index (CMDI) rose rapidly during the first nine months of 2022, especially for investment grade bonds, highlighting market volatility and a drying

Private Credit Fundraising (\$bn)





Source: Preqin

up of liquidity, but has fallen since then.

- In 2023, as the IG distress index continued to fall, the HY bond indicator was roughly flat with the end of 2022. The CMDI incorporates a range of indicators, including new issuance and pricing for primary and secondary market bonds.
- During 2Q23, clients took a new look at upper-middle-market direct lending as all-in spreads have widened by over 500 bps and lenders are able to get tighter terms. Strong deal volume was driven partially by a shift from public to private market debt financings in the recent market environment.

Private Credit Performance (%) (Pooled Horizon IRRs through 3/31/23*)

Strategy	Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	2.8	4.3	8.8	5.9	7.0	6.8	7.0	6.9
Mezzanine	3.5	6.1	14.9	10.9	11.2	11	10.5	11.4
Credit Opportunities	2.0	4.0	13.4	7.3	7.3	7.9	9.2	9.4
Total Private Credit	2.5	4.5	12.8	7.9	8.2	8.4	9.2	9.6

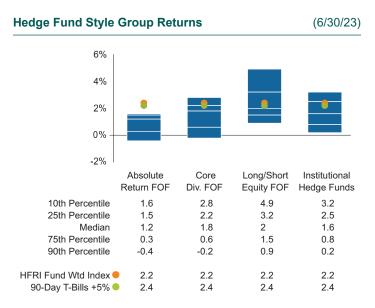
Source: Refinitiv/Cambridge

*Most recent data available at time of publication

Hedge Funds Gain but Lag Equity Indices

HEDGE FUNDS/MACs | Joe McGuane

Equity markets continued to march higher for the first half of this year, as growth equities surpassed expectations while the Federal Reserve paused the hiking cycle for the first time. Treasury yields moved higher across the curve and the spread between 2-year and 10-year Treasuries further inverted in 2Q23. Hedge funds ended 2Q higher but unable to keep up with soaring equity indices, as equity market volatility subsided from 1Q. Equity hedge strategies had another strong quarter, as managers focused on technology and biotechnology companies. Event-driven managers ended the quarter higher, aided by liquid corporate credit and equities. Macro strategies ended with gains, bouncing back from a difficult 1Q.



Sources: Callan, Credit Suisse, Federal Reserve

Hedge Fund Universe	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years
Callan Institutional Hedge Fund Peer Group	1.6	4.6	7.6	5.4	5.7	5.9
Callan Fund-of-Funds Peer Group	1.5	5.0	6.1	4.1	4.5	3.8
Callan Absolute Return FOF Style	1.2	3.8	7.0	4.1	4.6	3.7
Callan Core Diversified FOF Style	1.8	5.1	6.2	4.1	3.9	3.7
Callan Long/Short Equity FOF Style	2.0	5.9	3.6	3.8	5.0	4.2
HFRI Fund-Weighted Index	2.2	5.0	8.1	5.0	4.7	4.0
HFRI Fixed Convertible Arbitrage	1.4	7.2	7.7	5.6	5.0	5.5
HFRI Distressed/Restructuring	1.4	1.6	9.3	4.5	4.3	4.5
HFRI Emerging Markets	2.6	3.4	4.6	2.5	3.4	2.2
HFRI Equity Market Neutral	0.6	2.9	4.1	2.0	2.9	1.9
HFRI Event-Driven	1.1	5.3	8.5	4.3	4.5	4.5
HFRI Relative Value	1.2	4.0	5.9	3.6	4.0	4.6
HFRI Macro	1.7	-0.4	7.3	5.0	3.1	2.4
HFRI Equity Hedge	3.1	7.6	9.0	5.5	5.7	4.3
HFRI Multi-Strategy	0.7	1.9	4.2	2.5	2.7	2.9
HFRI Merger Arbitrage	-1.0	1.9	7.4	4.6	4.2	3.9
90-Day T-Bill + 5%	2.4	8.6	6.3	6.6	6.0	5.8

Callan Peer Group Median and Index Returns* for Periods Ended 6/30/23

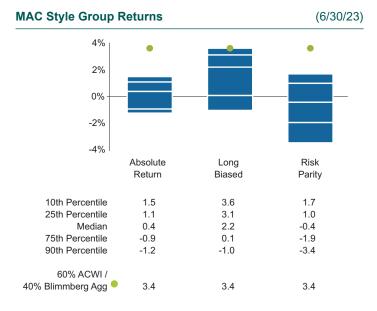
*Net of fees. Sources: Callan, Credit Suisse, Hedge Fund Research

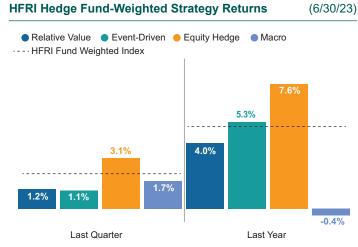
Serving as a proxy for large, broadly diversified hedge funds with low-beta exposure to equity markets, the median Callan Institutional Hedge Fund Peer Group rose 1.6%. Within this style group of 50 peers, the average hedged credit manager gained 2.1% as high yield credit performed positively due to tightening credit spreads. Meanwhile, the average hedged equity manager added 1.7%, as managers with a focus on growth-oriented equities drove performance.

Within the HFRI indices, the best-performing strategy last quarter was the equity hedge index (3.1%), led by manager exposure to AI and growth-related sectors. Macro strategies finished up 1.7%, as managers went long equities and short rates across the U.S. and Europe.

Across the Callan Hedge FOF Database Group, the median Callan Long-Short Equity Fund-of-Funds (FOF) ended up 2.0%, as managers benefited from soaring large-cap technology companies. Meanwhile, the median Callan Core Diverse FOF gained 1.8%, as equity hedge, event-driven, and macro managers drove performance. The Callan Absolute Return FOF rose 1.2%, as a lower weight to equity hedge exposure led to a lower return compared to managers with more equity beta. Within Callan's database, the median Callan Multi-Asset Class (MAC) Long Biased peer group gained 2.2%, the Callan MAC Absolute Return peer group was up 0.4%, and the Callan MAC Risk Parity peer group fell 0.4%.

The strong equity rally during the first half of this year has been hard for hedge funds to keep up with, as many managers came into 2023 more defensive. Throughout the second quarter we began to see managers taking on more risk to catch some of this broader market move higher. As the macro outlook appears to be more benign going into the second half of this year, we continue to think fundamental long/short equity managers are well positioned to profit from this current environment. Long/ short credit managers will be able to opportunistically allocate capital to credits they believe are over- or undervalued in this current environment. We continue to believe macro managers are well positioned to allocate capital across the most attractive asset classes.





Source: HFRI

Sources: Bloomberg, Callan, Eurekahedge, S&P Dow Jones Indices

Index Starts off 2023 With a Gain

DEFINED CONTRIBUTION | Scotty Lee

Performance: DC Index Rises 5.3% in 1Q23

 The Callan DC Index[™] gained 5.3% in 1Q23, which brought the Index's trailing one-year loss to 5.2%.

Growth Sources: Investment Gains Lead to Rise in Balances

- Balances within the DC Index rose by 5.3% after a 5.8% increase in the previous quarter.
- Investment gains (+5.3%) were the sole driver of the gain, while net flows (+0.03%) had a negligible effect.

Turnover: Net Transfers Increase Again

 Turnover (i.e., net transfer activity levels within DC plans) jumped to 0.70% from the previous quarter's measure of 0.18%. The quarterly turnover figure marked the Index's highest level since 2020, when market volatility was heightened during the onset of the COVID-19 pandemic.

Net Cash Flow Analysis: TDFs Remain in Top Spot

 Target date funds (TDFs) received the largest net inflows in the DC Index, as the asset allocation funds garnered 90.6% of quarterly net flows.

Equity Allocation: Exposure Above Historical Average

 The Index's overall allocation to equity (70.8%) rose from the previous quarter's level (70.1%) and sits above the Index's historical average (68.4%).

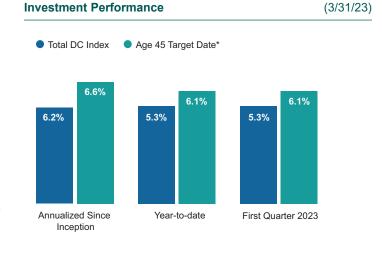
Asset Allocation: Capital Preservation Declines

- U.S. large cap (25.7%) and global ex-U.S. equity (5.2%) were among the asset classes with the largest percentage increases in allocation.
- Within capital preservation, stable value (9.2%) had a decrease in allocation from the previous quarter's level (10.0%), which was exacerbated by investor outflows.

Prevalence of Asset Class: Balanced Funds Rise

 The prevalence of a balanced fund (42.1%) rose by 1.3 percentage points, the first increase in two years.

Underlying fund performance, asset allocation, and cash flows of more than 100 large defined contribution plans representing approximately \$400 billion in assets are tracked in the Callan DC Index.



Growth Sources



(3/31/23)



Net Cash Flow Analysis (1Q23)

(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	90.6%
Brokerage Window	5.6%
U.S. Large Cap	-34.0%
Stable Value	-37.7%
Total Turnover**	0.7%

Data provided here is the most recent available at time of publication. Source: Callan DC Index

Note: DC Index inception date is January 2006.

- * The Age 45 Fund transitioned from the average 2035 TDF to the 2040 TDF in June 2018.
- ** Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

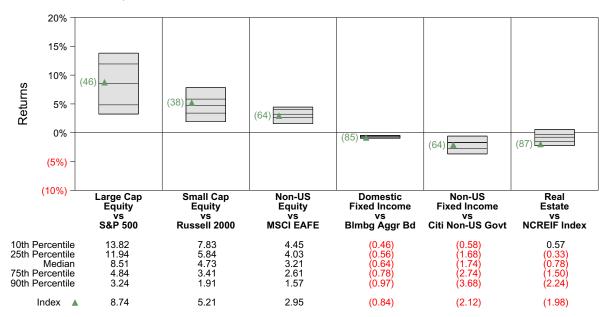
Active Management Overview

Market Overview Active Management vs Index Returns

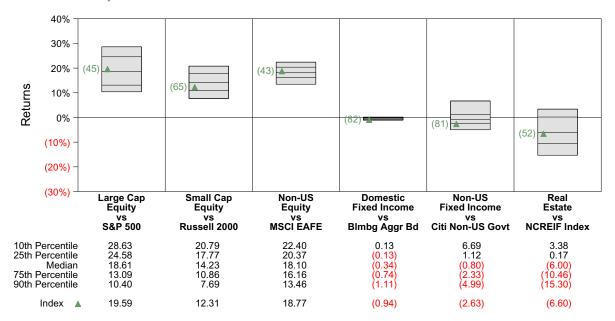
Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

Range of Separate Account Manager Returns by Asset Class One Quarter Ended June 30, 2023



Range of Separate Account Manager Returns by Asset Class One Year Ended June 30, 2023





Asset Allocation and Performance

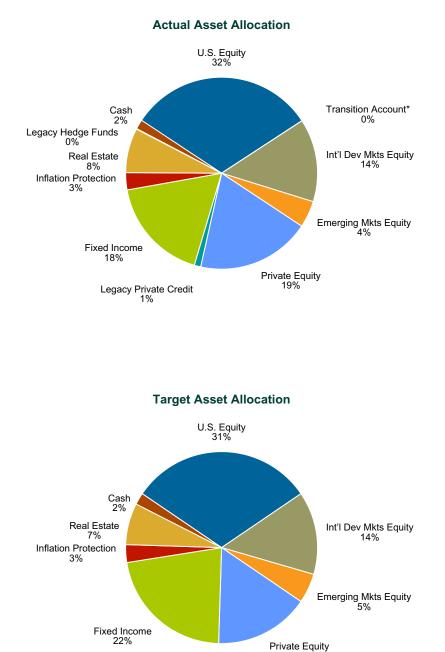
ASSET ALLOCATION AND PERFORMANCE

Asset Allocation and Performance

This section begins with an overview of the fund's asset allocation at the broad asset class level. This is followed by a top down performance attribution analysis which analyzes the fund's performance relative to the performance of the fund's policy target asset allocation. The fund's historical performance is then examined relative to funds with similar objectives. Performance of each asset class is then shown relative to the asset class performance of other funds. Finally, a summary is presented of the holdings of the fund's investment managers, and the returns of those managers over various recent periods.

Actual vs Target Asset Allocation As of June 30, 2023

The first chart below shows the Fund's current asset allocation. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement. Transition account market values are not included in any asset class and are excluded from these charts.



\$000s Weight Percent \$000s Asset Class Difference Difference Actual Actual Target U.S. Equity Transition Account* Int'I Dev Mkts Equity 11,204,054 1,008 4,961,854 31.0% 0.0% 14.0% 31.6% 0.6% 197,994 1,008 (8,624) (177,735) 1,119,626 0.0% 0.0% 0.0% (0.0%) (0.5%) 3.2% 1.1% 14.0% 5.0% 16.0% 0.0% 22.0% Emerging Mkts Equity Private Equity 1,597,436 4.5% 6,800,172 401,117 6,252,257 19.2% 1.1% Legacy Private Credit Fixed Income 401,117 (1,558,494) (39,556) (4.4%) (0.1%) 17.6% 2.9% 7.5% 0.1% 3.0% 7.0% 0.0% Inflation Protection 1,025,546 180,554 2,665,793 17,956 576,224 0.5% Real Estate Legacy Hedge Funds Cash 17,956 1.6% 2.0% (0.4%) (133,844) 35,503,417 100.0% 100.0% Total

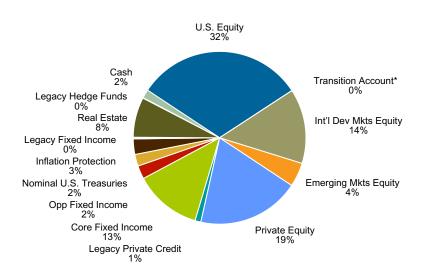
16%

*Market values are shown net of accrued fees.



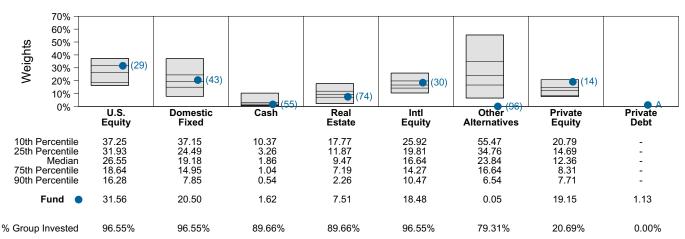
Actual Asset Allocation As of June 30, 2023

The first chart below shows the Fund's asset allocation as of June 30, 2023. The second chart ranks the fund's asset allocation versus the Callan Public Fund Spons- V Lg DB (>10B).



Actual Asset Allocation

Asset Class	\$000s Actual	Weight Actual
U.S. Equity	11,204,054	31.6%
Transition Account*	1,008	0.0%
Int'l Dev Mkts Equity	4,961,854	14.0%
Emerging Mkts Equity	1,597,436	4.5%
Private Equity	6,800,172	19.2%
Legacy Private Credit	401,117	1.1%
Core Fixed Income	4,475,087	12.6%
Opp Fixed Income	881,508	2.5%
Nominal U.S. Treasuries	773,300	2.2%
Inflation Protection	1,025,546	2.9%
Legacy Fixed Income	122,363	0.3%
Real Estate	2,665,793	7.5%
Legacy Hedge Funds	17,956	0.1%
Cash	576,224	1.6%
Total	35,503,417	100.0%

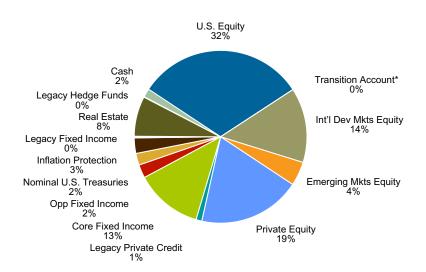


Asset Class Weights vs Callan Public Fund Spons- V Lg DB (>10B)

*Market values are shown net of accrued fees.

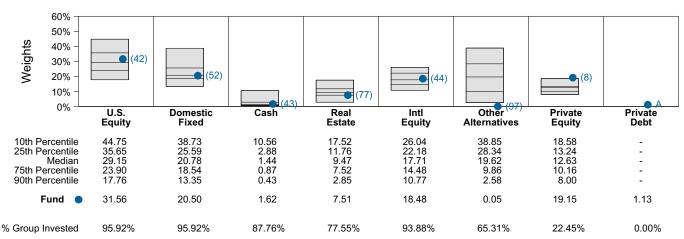
Actual Asset Allocation As of June 30, 2023

The first chart below shows the Fund's asset allocation as of June 30, 2023. The second chart ranks the fund's asset allocation versus the Callan Public Fund Spons - Large (>1B).



Actual Asset Allocation

Asset Class	\$000s Actual	Weight Actual
U.S. Equity	11,204,054	31.6%
Transition Account*	1,008	0.0%
Int'l Dev Mkts Equity	4,961,854	14.0%
Emerging Mkts Equity	1,597,436	4.5%
Private Equity	6,800,172	19.2%
Legacy Private Credit	401,117	1.1%
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Total	35,503,417	100.0%

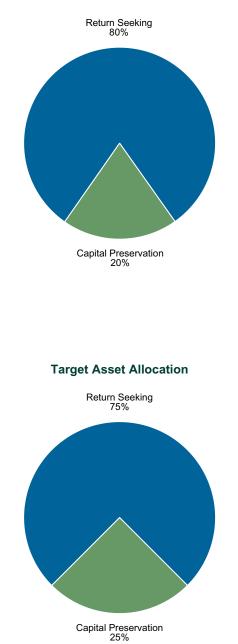


Asset Class Weights vs Callan Public Fund Spons - Large (>1B)

*Market values are shown net of accrued fees.

Actual vs Target Asset Allocation As of June 30, 2023

The first chart below shows the Fund's asset allocation as of June 30, 2023. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.



Actual Asset Allocation

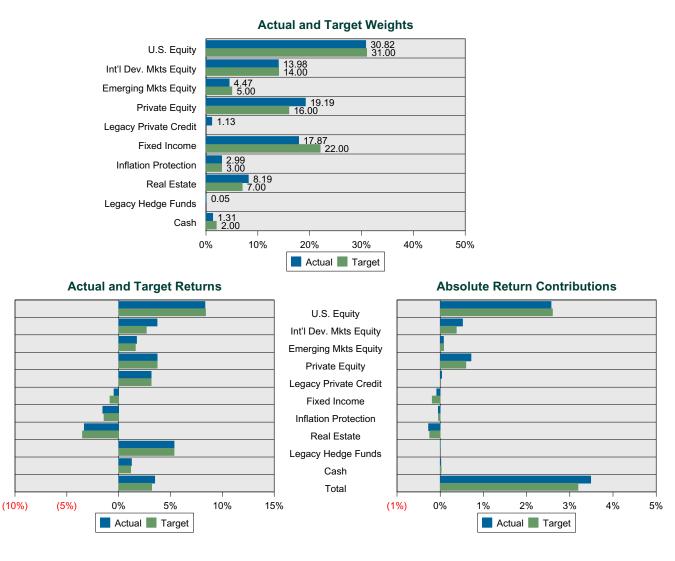
Asset Class	\$Millions Actual	Weight Actual	Target	Percent Difference	\$Millions Difference
Return Seeking Capital Preservation	28,252 6,850	80.5% 19.5%	75.0% 25.0%	5.5% (5.5%)	1,925 (1,925)
Capital Freservation	0,000	19.5%	25.0%	(0.0%)	(1,920)
Total	35,102	100.0%	100.0%		

*Return Seeking Assets: U.S. Equity, Int'l Developed Markets Equity, Emerging Markets Equity, Transition Account, Private Equity, Real Estate, Opportunistic Fixed Income, Legacy Hedge Funds and Legacy Fixed Income. *Capital Preservation Assets: Core Fixed Income, Nominal U.S. Treasuries, Inflation Protection (TIPS) and Cash. *Market values are shown net of accrued fees; Legacy Private Credit is excluded from this analysis.



Quarterly Total Fund Absolute Attribution - June 30, 2023

The following analysis approaches Total Fund Attribution from the perspective of Absolute Return Contribution. Absolute return attribution quantifies the contribution of each asset class to total fund absolute performance as well as target performance. Absolute return contribution is a function of both the size of the exposure (\$ weight) to each asset class as well as the actual return of each asset class.



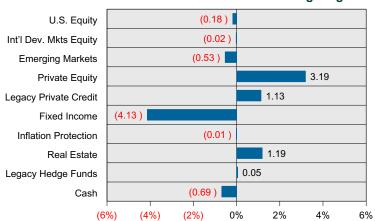
Absolute Attribution Effects for Quarter ended June 30, 2023

Int'l Dev. Mkts Equity Emerging Mkts Equity Private Equity	14% 4% 19%	8.33% 3.71% 1.73% 3.72%	2.57% 0.52% 0.08% 0.71%	31% 14% 5% 16%	8.39% 2.67% 1.62% 3.72%	2.60% 0.37% 0.08% 0.60%	(0.03%) 0.14% (0.00%) 0.12%
Legacy Private Credit	1%	3.14%	0.04%	0%	3.14%	0.00%	0.04%
Fixed Income	18%	(0.46%)	(0.08%)	22%	(0.84%)	(0.19%)	0.10%
Inflation Protection	3%	(1.54%)	(0.05%)	3%	(1.42%)	(0.04%)	(0.00%)
Real Estate	8%	(3.32%)	(0.27%)	7%	(3.50%)	(0.24%)	(0.03%)
Legacy Hedge Funds	0%	5.35%	0.00%	0%	5.35%	0.00%	0.00%
Cash	1%	1.24%	0.02%	2%	1.17%	0.02%	(0.01%)



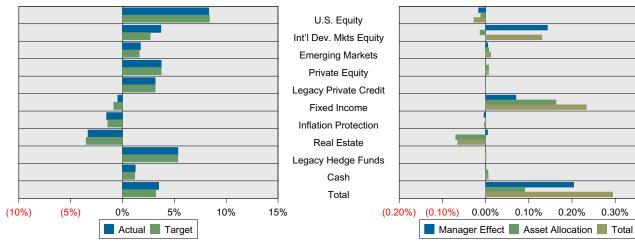
Quarterly Total Fund Relative Attribution - June 30, 2023

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



Asset Class Under or Overweighting

Actual vs Target Returns





0.10%

0.20%

0.30%

0.40%

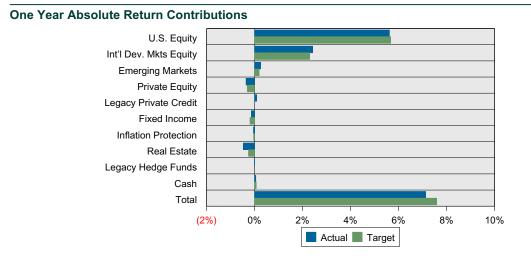


Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	31%	31%	8.33%	8.39%	(0.02%)	(0.01%)	(0.03%)
Int'l Dev. Mkts Equity	14%	14%	3.71%	2.67%	0.14%	(0.01%)	0.13%
Emerging Markets	4%	5%	1.73%	1.62%	0.01%	0.01%	0.01%
Private Equity	19%	16%	3.72%	3.72%	0.00%	0.01%	0.01%
Legacy Private Credit	1%	0%	3.14%	3.14%	0.00%	(0.00%)	(0.00%)
Fixed Income	18%	22%	(0.46%)	(0.84%)	0.07%	0.16%	0.23%
Inflation Protection	3%	3%	(1.54%)	(1.42%)	(0.00%)	0.00%	(0.00%)
Real Estate	8%	7%	(3.32%)	(3.50%)	0.00%	(0.07%)	(0.06%)
Legacy Hedge Funds	0%	0%	5.35%	5.35%	0.00%	0.00%	0.00%
Cash	1%	2%	1.24%	1.17%	0.00%	0.01%	0.01%
Total			3.49% =	3.19% +	0.20% +	0.09%	0.29%

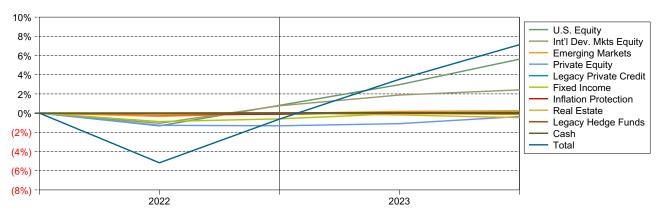


Cumulative Total Fund Absolute Attribution - June 30, 2023

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of absolute total fund performance and target performance. These cumulative results quantify the longer-term contribution of each asset class to absolute total fund return as well as the target return.



Cumulative Absolute Return Contributions



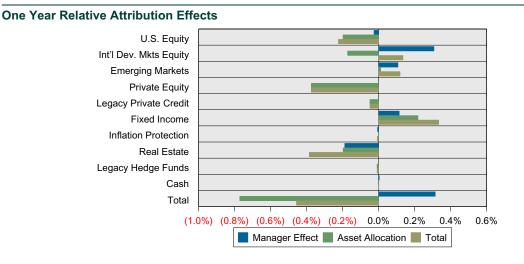
One Year Absolute Attribution Effects

	Effective Actual Weight	Actual Return	Absolute Return Contribution	Effective Target Weight	Target Return	Target Return Contribution	Return Contribution Difference
U.S. Equity	31%	18.86%	5.62%	31%	18.95%	5.67%	(0.05%)
Int'l Dev. Mkts Equity	13%	18.89%	2.42%	14%	16.35%	2.29%	0.13%
Emerging Markets	4%	6.11%	0.26%	5%	3.19%	0.19%	0.06%
Private Equity	19%	(2.34%)	(0.36%)	16%	(2.34%)	(0.30%)	(0.06%)
Legacy Private Credit	1%	7.70%	0.09%	0%	7.70%	0.00%	0.09%
Fixed Income	19%	(0.38%)	(0.14%)	22%	(0.94%)	(0.20%)	0.06%
Inflation Protection	3%	(1.56%)	(0.05%)	3%	(1.40%)	(0.04%)	(0.01%)
Real Estate	8%	(5.41%)	(0.47%)	7%	(3.69%)	(0.26%)	(0.21%)
Legacy Hedge Funds	0%	(6.91%)	(0.00%)	0%	(6.91%)	0.00%	(0.00%)
Cash	1%	3.85%	0.05%	2%	3.59%	0.07%	(0.02%)
	Total Fu	nd Return	7.13%		Target Return	7.59%	(0.46%)

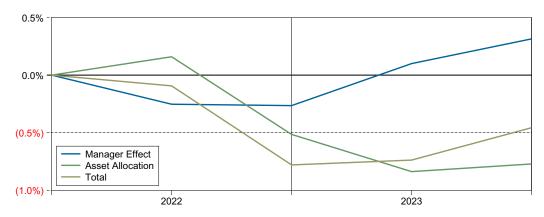


Cumulative Total Fund Relative Attribution - June 30, 2023

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



Cumulative Relative Attribution Effects



One Year Relative Attribution Effects

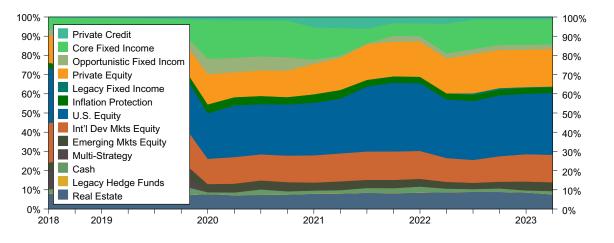
Asset Class	Effective Actual	Effective Target	Actual	Target	Manager	Asset	Total Relative
	Weight	Weight	Return	Return	Effect	Allocation	Return
U.S. Equity	31%	31%	18.86%	18.95%	(0.03%)	(0.20%)	(0.22%)
Int'l Dev. Mkts Equity	13%	14%	18.89%	16.35%	0.31%	(0.17%)	0.14%
Emerging Markets	4%	5%	6.11%	3.19%	0.11%	0.01%	0.12%
Private Equity	19%	16%	(2.34%)	(2.34%)	0.00%	(0.37%)	(0.37%)
Legacy Private Credit	1%	0%	7.70%	7.70%	0.00%	(0.05%)	(0.05%)
Fixed Income	19%	22%	(0.38%)	(0.94%)	0.11%	0.22%	0.33%
Inflation Protection	3%	3%	(1.56%)	(1.40%)	(0.01%)	(0.00%)	(0.01%)
Real Estate	8%	7%	(5.41%)	(3.69%)	(0.19%)	(0.20%)	(0.39%)
Legacy Hedge Funds	0%	0%	(6.91%)	(6.91%)	0.00%	(0.01%)	(0.01%)
Cash	1%	2%	3.85%	3.59%	0.00%	(0.00%)	0.00%
Total			7.13% =	7.59% +	0.31% +	(0.77%)	(0.46%)

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Callan
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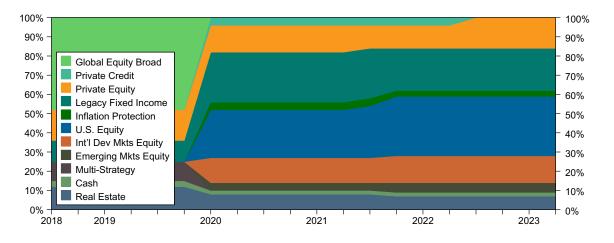
Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Spons- V Lg DB (>10B).

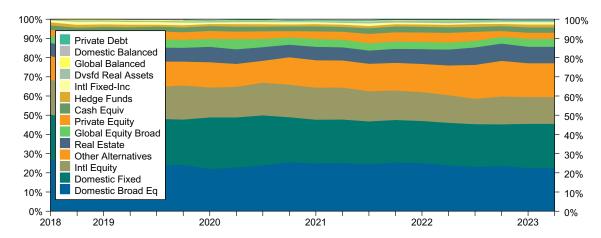
Actual Historical Asset Allocation



Target Historical Asset Allocation



Average Callan Public Fund Spons- V Lg DB (>10B) Historical Asset Allocation



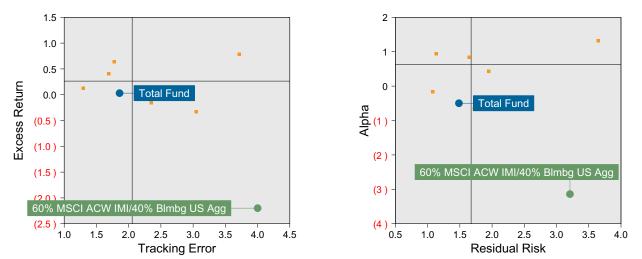


Total Fund Total Fund vs Target Risk Analysis

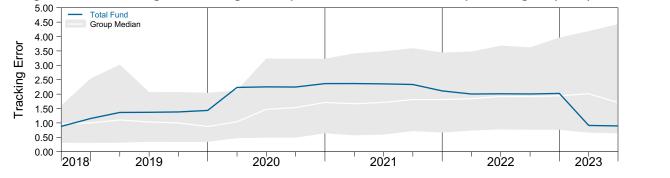
Risk Analysis

The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the target. The second scatter chart displays the relationship, sometimes called Information Ratio, between alpha (market-risk or "beta" adjusted return) and residual risk (non-market or "unsystematic" risk). The third chart shows tracking error patterns over time compared to the range of tracking error patterns for the peer group. The last two charts show the ranking of the fund's risk statistics versus the peer group.

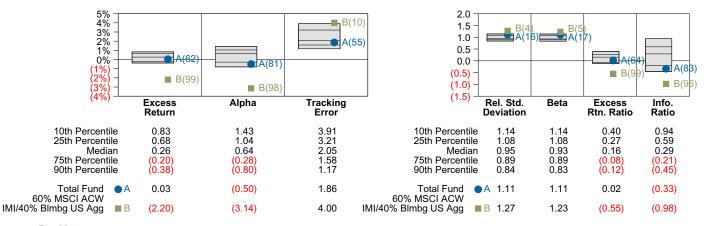
Risk Analysis vs Callan Public Fund Spons- V Lg DB (>10B) Five Years Ended June 30, 2023







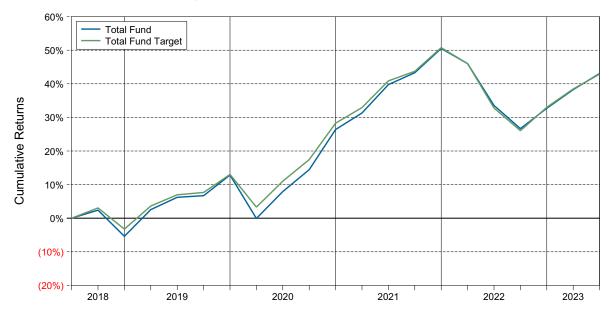
Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Spons- V Lg DB (>10B) Five Years Ended June 30, 2023



Callan

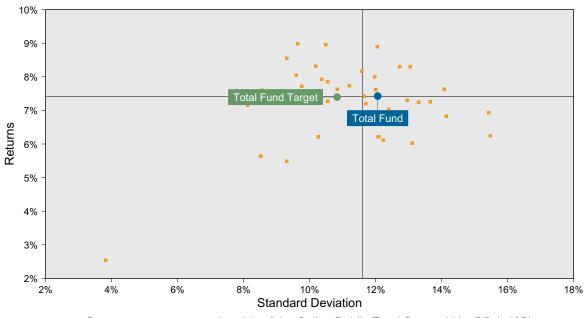
Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Spons- V Lg DB (>10B).



Cumulative Returns Actual vs Target

Five Year Annualized Risk vs Return



Squares represent membership of the Callan Public Fund Spons- V Lg DB (>10B)



Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Spons- V Lg DB (>10B).



Cumulative Returns Actual vs Target





Squares represent membership of the Callan Public Fund Spons- V Lg DB (>10B)



Total Fund Drawdown Analysis for Five Years Ended June 30, 2023

The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

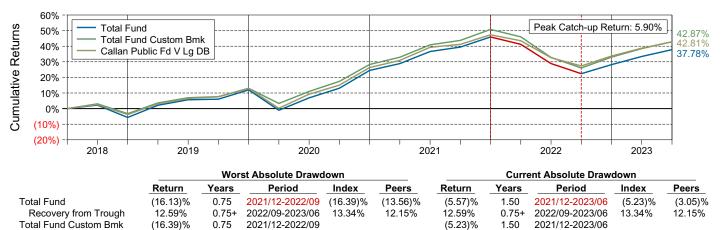
Absolute Cumulative Drawdown Analysis

(13.56)%

0.75

2021/12-2022/09

Callan Public Fd V Lg DB



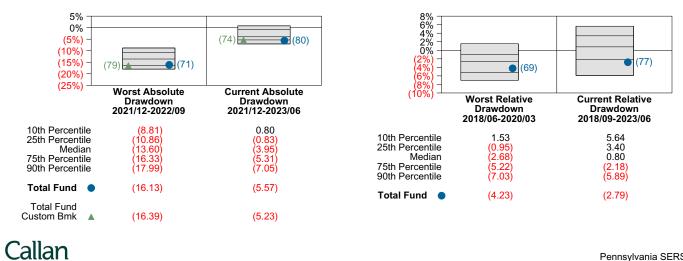
(3.05)%

1.50

2021/12-2023/06

Relative Cumulative Drawdown Analysis vs. Total Fund Custom Bmk **Cumulative Relative Returns** 2% Peak Catch-up Rel Rtn: 2.87% Total Fund 1% Callan Public Fd V Lg DB (0.05%)0% (1%) (2%) (3%) (3.56%)(4%) (5%) 2018 2019 2021 2022 2023 2020 Worst Relative Drawdown **Current Relative Drawdown** Rel Rtn Years Period Rel Rtn Years Period Peers Peers Total Fund (4.23)% 1.75 2018/06-2020/03 (3.00)% (2.79)% 4.75 2018/09-2023/06 0.41% Recovery from Trough 0.54% 0.25 2020/03-2020/06 1.44% 0.70% 325 +2020/03-2023/06 3.04% Callan Public Fd V Lg DB (3.00)% 1.75 2018/06-2020/03 (1.05)% 0.75 2022/09-2023/06

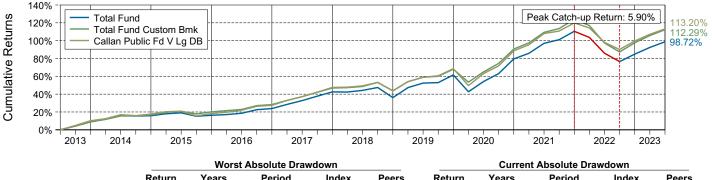
Drawdown Rankings vs. Total Fund Custom Bmk Rankings against Callan Public Fund Spons- V Lg DB (>10B) Five Years Ended June 30, 2023



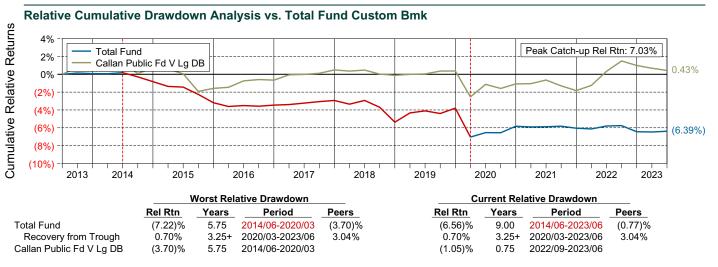
Total Fund Drawdown Analysis for Ten Years Ended June 30, 2023

The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

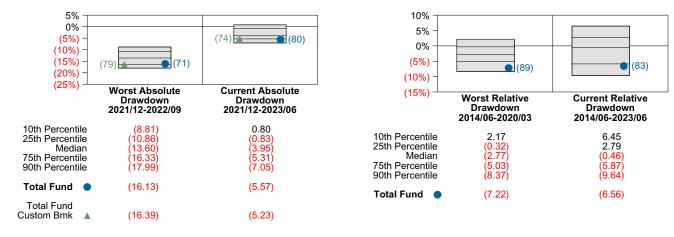
Absolute Cumulative Drawdown Analysis



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	Return	Years	Period	Index	Peers	Return	Years	Period	Index	Peers
Total Fund	(16.13)%	0.75	2021/12-2022/09	(16.39)%	(13.56)%	(5.57)%	1.50	2021/12-2023/06	(5.23)%	(3.05)%
Recovery from Trough	12.59%	0.75+	2022/09-2023/06	13.34%	12.15%	12.59%	0.75+	2022/09-2023/06	13.34%	12.15%
Total Fund Custom Bmk	(16.39)%	0.75	2021/12-2022/09			(5.23)%	1.50	2021/12-2023/06		
Callan Public Fd V Lg DB	(13.56)%	0.75	2021/12-2022/09			(3.05)%	1.50	2021/12-2023/06		

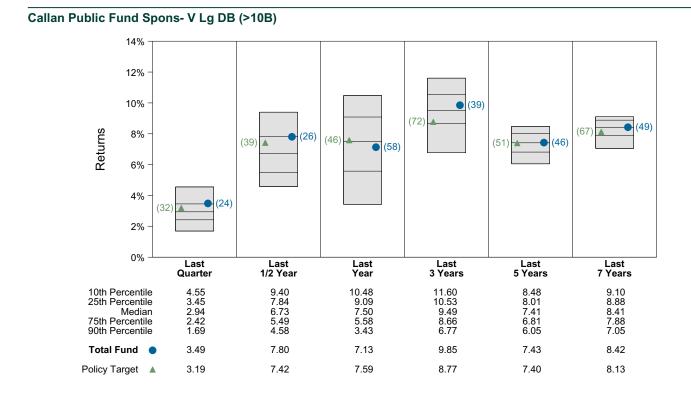


Drawdown Rankings vs. Total Fund Custom Bmk Rankings against Callan Public Fund Spons- V Lg DB (>10B) Ten Years Ended June 30, 2023

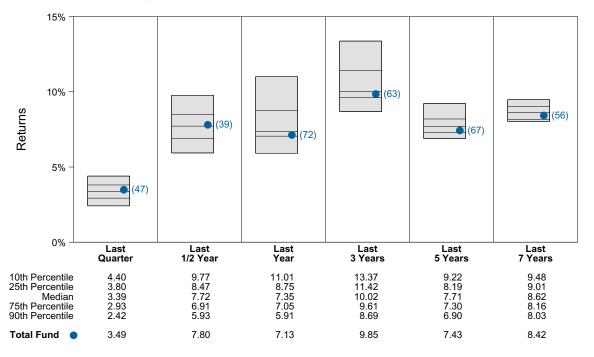


Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Spons- V Lg DB (>10B) for periods ended June 30, 2023. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.



Asset Allocation Adjusted Ranking



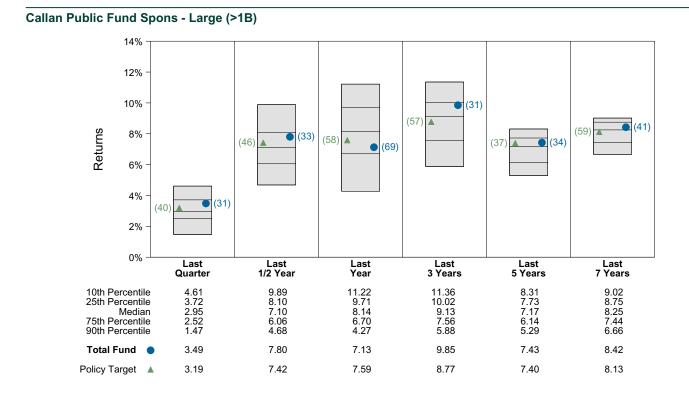
* Current Quarter Target = 31.0% Russell 3000 Index, 22.0% Blmbg:Aggregate, 16.0% Private Equity, 14.0% MSCI World xUS IMI, 7.0% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 5.0% MSCI EM IMI, 3.0% Blmbg TIPS and 2.0% 3-month Treasury Bill.

*The gross history shown is estimated by BNY Mellon using a gross-up methodology through 12/31/19. Gross performance is calculated for the Total Fund starting 01/01/2020.

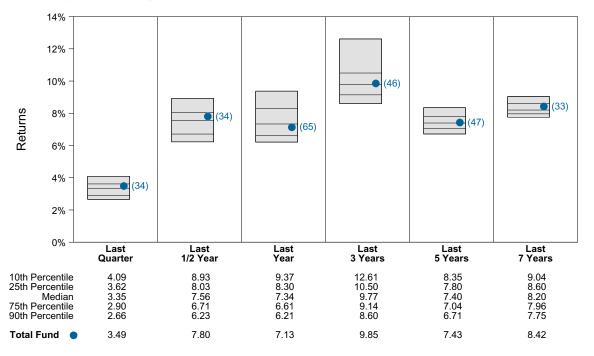


Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Spons - Large (>1B) for periods ended June 30, 2023. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.



Asset Allocation Adjusted Ranking



* Current Quarter Target = 31.0% Russell 3000 Index, 22.0% Blmbg:Aggregate, 16.0% Private Equity, 14.0% MSCI World xUS IMI, 7.0% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 5.0% MSCI EM IMI, 3.0% Blmbg TIPS and 2.0% 3-month Treasury Bill.

*The gross history shown is estimated by BNY Mellon using a gross-up methodology through 12/31/19. Gross performance is calculated for the Total Fund starting 01/01/2020.



Total Fund Period Ended June 30, 2023

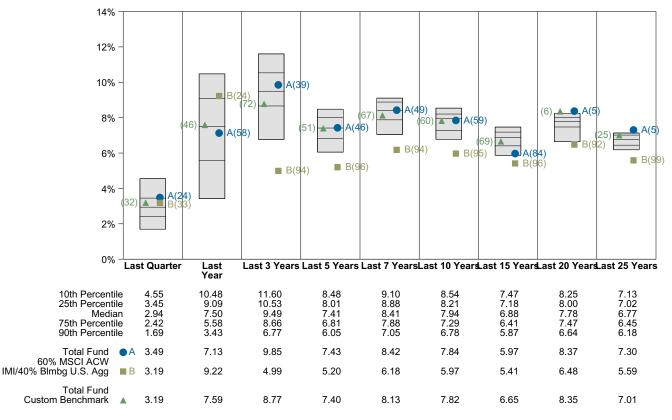
Gross Performance History

The gross history shown is estimated by BNY Mellon using a gross-up methodology through 12/31/19. Gross performance is calculated for the Total Fund starting 01/01/2020.

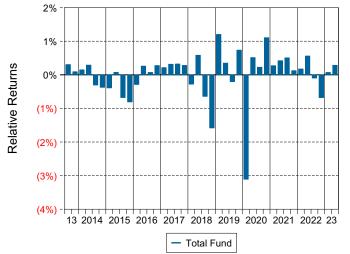
Quarterly Summary and Highlights

- Total Fund's portfolio posted a 3.49% return for the quarter placing it in the 24 percentile of the Callan Public Fund Spons- V Lg DB (>10B) group for the quarter and in the 58 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Custom Benchmark by 0.29% for the quarter and underperformed the Total Fund Custom Benchmark for the year by 0.46%.

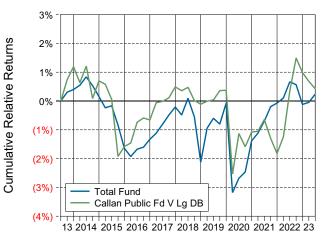
Performance vs Callan Public Fund Spons- V Lg DB (>10B) (Gross)







Cumulative Returns vs Total Fund Custom Benchmark



Total Fund Period Ended June 30, 2023

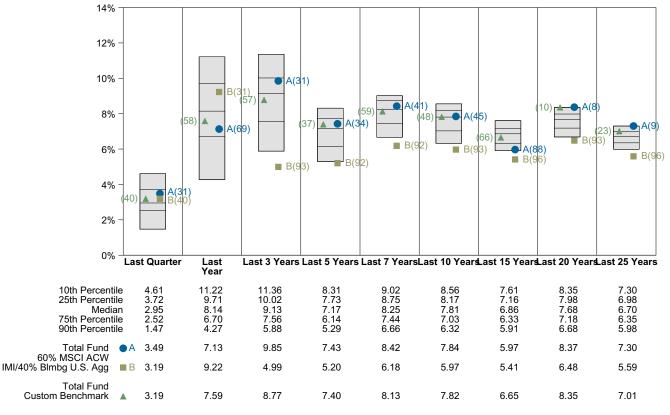
Gross Performance History

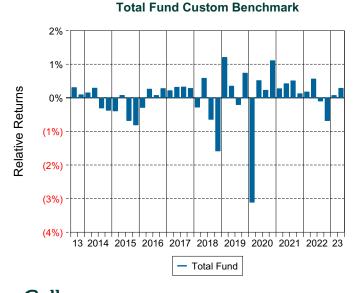
The gross history shown is estimated by BNY Mellon using a gross-up methodology through 12/31/19. Gross performance is calculated for the Total Fund starting 01/01/2020.

Quarterly Summary and Highlights

- Total Fund's portfolio posted a 3.49% return for the quarter placing it in the 31 percentile of the Callan Public Fund Spons Large (>1B) group for the quarter and in the 69 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Custom Benchmark by 0.29% for the quarter and underperformed the Total Fund Custom Benchmark for the year by 0.46%.

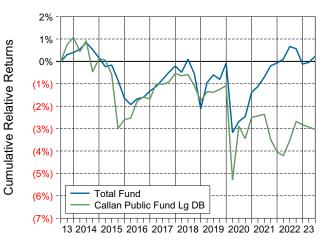
Performance vs Callan Public Fund Spons - Large (>1B) (Gross)





Relative Returns vs

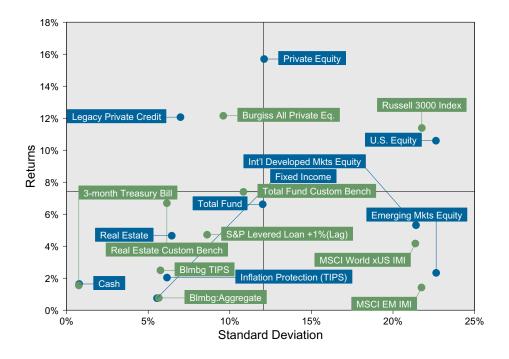
Cumulative Returns vs Total Fund Custom Benchmark



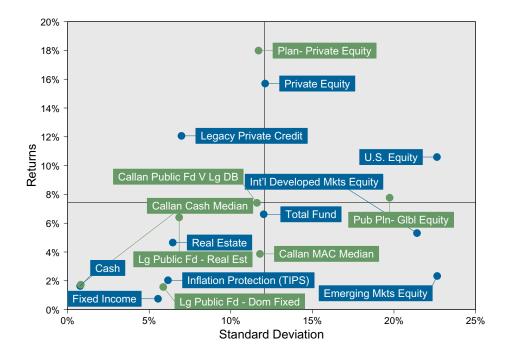
Asset Class Risk and Return

The charts below show the five year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

Five Year Annualized Risk vs Return Asset Classes vs Benchmark Indices



Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median





Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2023, with the distribution as of March 31, 2023.

		J	lune 30, 20	23		r	March 31, 2023	
	Market Value	% of Total	(min)	Target	(max)	Market Value	% of Total	Target
	\$(000)	Weight	Weight	%	Weight	Weight		
NET OF FEES*								
U.S. Equity	\$11,204,054	31.56%	26.00%	31.00%	36.00%	\$10,679,551	30.74%	31.00%
Int'l Developed Markets Equity	\$4,961,854	13.98%	9.00%	14.00%	19.00%	\$4,835,243	13.92%	14.00%
Emerging Mkts Equity	\$1,597,436	4.50%	1.00%	5.00%	9.00%	\$1,571,794	4.52%	5.00%
Private Equity (1)	\$6,800,172	19.15%	14.00%	16.00%	18.00%	\$6,617,175	19.05%	16.00%
Buyouts	3,786,109	10.66%				3,684,914	10.61%	
Special Situations	1,632,161	4.60%				1,572,764	4.53%	
Growth Equity	1,184,771	3.34%				1,152,623	3.32%	
Keystone Legacy (2)	197,131	0.56%				206,874	0.60%	
Legacy Private Credit (3)	\$401,117	1.13%	-	-	-	\$390,861	1.13%	-
Fixed Income (4)	\$6,252,257	17.61%	17.00%	22.00%	27.00%	\$6,295,672	18.12%	22.00%
Core Fixed Income	4,475,087	12.60%				4,509,031	12.98%	
Opportunistic Fixed Income	881,508	2.48%				861,151	2.48%	
Nominal U.S. Treasuries	773,300	2.18%				788,602	2.27%	
Legacy Fixed Income	122,363	0.34%				136,887	0.39%	
Inflation Protection (TIPS)	\$1,025,546	2.89%	0.00%	3.00%	6.00%	\$1,041,855	3.00%	3.00%
Real Estate (1)	\$2,665,793	7.51%	N/A	7.00%	N/A	\$2,933,256	8.44%	7.00%
Core/Core Plus Real Estate Funds		3.47%				1,266,248	3.65%	
Value Add/Opportunistic SMA	555,316	1.56%				598.273	1.72%	
Value Add/Opportunistic Funds	756,535	2.13%				769,558	2.22%	
REITS	121,460	0.34%				298.670	0.86%	
Legacy Real Assets	507	0.00%				507	0.00%	
Legacy Hedge Funds	\$17,956	0.05%	-	-	-	\$17,079	0.05%	-
Cash	\$576,224	1.62%	0.00%	2.00%	7.00%	\$353,599	1.02%	2.00%
Total Fund	\$35,503,417	100.0%		100.0%		\$34,737,086	100.0%	100.0%

Asset Distribution Across Investment Managers

*Market values shown are net of accrued fees.

(1) Private Equity and Real Estate Market Values have a 1 Qtr lag

(2) As of 03/31/2023 Keystone Legacy SPV consists of 44 non-core funds, prior performance reflected in previous sub-asset classes.

(3) The Legacy Private Credit and Legacy Fixed Income composite was incepted on 07/01/2022.

(4) On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income, Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2023, with the distribution as of March 31, 2023.

		J	lune 30, 20	23		r	March 31, 2023	
I	Market Value	% of Total	(min)	Target	(max)	Market Value	% of Total	Target
	\$(000)	Weight	Weight	%	Weight	Weight		
GROSS OF FEES*								
U.S. Equity	\$11,204,661	31.56%	26.00%	31.00%	36.00%	\$10,680,151	30.74%	31.00%
Int'l Developed Markets Equity	\$4,962,963	13.98%	9.00%	14.00%	19.00%	\$4,836,318	13.92%	14.00%
Emerging Mkts Equity	\$1,597,727	4.50%	1.00%	5.00%	9.00%	\$1,572,043	4.53%	5.00%
Private Equity (1)	\$6,800,172	19.15%	14.00%	16.00%	18.00%	\$6,617,175	19.05%	16.00%
Buyouts	3,786,109	10.66%				3,684,914	10.61%	
Special Situations	1,632,161	4.60%				1,572,764	4.53%	
Growth Equity	1,184,771	3.34%				1,152,623	3.32%	
Keystone Legacy (2)	197,131	0.56%				206,874	0.60%	
Legacy Private Credit (3)	\$401,117	1.13%	-	-	-	\$390,861	1.13%	-
Fixed Income (4)	\$6,252,837	17.61%	17.00%	22.00%	27.00%	\$6,296,346	18.12%	22.00%
Core Fixed Income	4,475,422	12.60%				4,509,367	12.98%	
Opportunistic Fixed Income	881,508	2.48%				861,151	2.48%	
Nominal U.S. Treasuries	773,324	2.18%				788,643	2.27%	
Legacy Fixed Income	122,584	0.35%				137,185	0.39%	
Inflation Protection (TIPS)	\$1,025,820	2.89%	0.00%	3.00%	6.00%	\$1,042,127	3.00%	3.00%
Real Estate (1)	\$2,666,008	7.51%	N/A	7.00%	N/A	\$2,933,538	8.44%	7.00%
Core/Core Plus Real Estate Funds		3.47%		1.0070		1,266,248	3.64%	1.0070
Value Add/Opportunistic SMA	555,316	1.56%				598,273	1.72%	
Value Add/Opportunistic Funds	756,535	2.13%				769,558	2.22%	
REITS	121.676	0.34%				298,952	0.86%	
Legacy Real Assets	507	0.00%				507	0.00%	
Legacy Hedge Funds	\$17,956	0.05%	-	-	-	\$17,079	0.05%	-
Cash	\$576,224	1.62%	0.00%	2.00%	7.00%	\$353,599	1.02%	2.00%
Total Fund	\$35,506,494	100.0%		100.0%		\$34,740,238	100.0%	100.0%

Asset Distribution Across Investment Managers

*Market values shown are gross of accrued fees.

(1) Private Equity and Real Estate Market Values have a 1 Qtr lag

(2) As of 03/31/2023 Keystone Legacy SPV consists of 44 non-core funds, prior performance reflected in previous sub-asset classes.

(3) The Legacy Private Credit and Legacy Fixed Income composite was incepted on 07/01/2022.

(4) On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income, Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Ret	urns for Peri	ods Ended J	une 30, 2023			
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance							
Fotal Fund	\$35,503	100.00%	3.28%	7.48%	6.91%	8.83%	6.62%
Total Fund Custom Benchmark(1)	-	-	3.19%	7.42%	7.59%	8.77%	7.40%
Public Market Equiv Benchmark(2)	-	-	4.32%	10.60%	8.55%	7.95%	6.85%
60/40 Index(3)	-	-	3.19%	8.71%	9.22%	4.99%	5.20%
J.S. Equity	\$11,204	31.56%	8.32%	15.88%	18.83%	14.10%	10.59%
Russell 3000 Index (4)	_	-	8.39%	16.17%	18.95%	13.89%	11.39%
S&P 1500 Index	_	-	8.39%	16.15%	19.24%	14.67%	11.83%
nt' l Developed Mkts Equity	\$4,962	13.98%	3.68%	12.37%	18.75%	10.42%	5.31%
MSCI World ex US IMI	-	-	2.67%	10.46%	16.35%	8.87%	4.17%
merging Mkts Equity	\$1,597	4.50%	1.63%	7.10%	5.60%	3.27%	2.33%
MSCI EM IMI	-	-	1.62%	5.62%	3.19%	3.60%	1.42%
Private Equity	\$6,800	19.15%	2.79%	3.64%	(2.75%)	23.54%	15.70%
Burgiss Private Equity Index (Qtr lag)	_	-	0.01%	0.02%	(5.21%)	16.49%	12.15%
Global Equity + 3% (Qtr lag)(5)	_	-	8.05%	19.03%	(3.11%)	20.98%	13.33%
egacy Private Credit Funds (6)	\$401	1.13%	2.50%	4.53%	6.60%	13.46%	12.07%
S&P Levered Loan Index + 1% (Qtr la	ig) -	-	3.46%	6.53%	3.73%	9.59%	4.72%
ixed Income	\$6,252	17.61%	(0.49%)	2.46%	(0.48%)	(2.48%)	0.75%
BImbg U.S. Agg Bond Index	-	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%
nflation Protection (TIPS)	\$1,026	2.89%	(1.57%)	1.96%	(1.66%)	(0.71%)	2.04%
Blmbg U.S. TIPS Index	-	-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
eal Estate	\$2,666	7.51%	(3.35%)	(5.78%)	(5.98%)	7.22%	4.66%
Real Estate Custom Bench (Qtr lag)(7	′) -	-	(3.50%)	(8.40%)	(3.69%)	8.24%	6.69%
CPI + 3% (Qtr lag)	-	-	2.40%	3.16%	7.99%	8.36%	6.88%
Cash	\$576	1.62%	1.24%	2.36%	3.85%	1.38%	1.64%
3-month Treasury Bill	-	-	1.17%	2.25%	3.59%	1.27%	1.55%

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(1)The current total fund benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 75 for full benchmark history.
(2) The current public equivalent benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 12% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 4% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 75 for full benchmark history.
(3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index.
(4) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.
(5) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag).
(6) Legacy Private Credit performance is included in the total fund starting at the composite's true inception date, 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022, the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	iods Ended Jun	e 30, 2023			
	Last 10	Last 15	Last 20	Last 25	Since	
	Years	Years	Years	Years	Inceptior	n
Net Performance		Tears		Tears	meeption	•
Total Fund	7.11%	5.20%	7.54%	6.53%	9.26%	(1/81)
Total Fund Custom Benchmark(1)	7.82%	6.65%	8.35%	7.01%	-	(1/01)
Public Market Equiv Benchmark(2)	7.70%	6.67%	8.37%	7.02%	-	
60/40 Index(3)	5.97%	5.41%	6.48%	5.59%	-	
U.S. Equity	11.51%	8.84%	9.41%	7.35%	10.71%	(110.1)
Russell 3000 Index (4)	12.34%	10.61%	10.05%	7.68%	11.01%	
S&P 1500 Index	12.61%	10.79%	10.12%	7.82%	-	(1/81)
		/				
Int'l Developed Mkts Equity	6.25%	3.66%	7.04%	•	6.21%	(1/02)
MSCI World ex US IMI	5.46%	3.43%	6.80%	4.76%	6.12%	(1/02)
Emerging Mkts Equity	3.99%	0.90%	6.37%	-	6.39%	(1/02)
MSCI EM IMI	3.16%	2.15%	8.34%	6.48%	8.14%	(1/02)
Private Equity	12.95%	10.29%	12.96%	12.26%	11.54%	(1/86)
Burgiss Private Equity Index (Qtr lag)	12.75%	10.22%	13.40%	12.52%	16.48%	(1/86)
Global Equity + 3% (Qtr lag)(5)	14.76%	13.24%	13.74%	10.85%		(1/86)
Legacy Private Credit Funds (6)	-	-	-		10.11%	(4/18)
S&P Levered Loan Index + 1% (Qtr lag)	-	-	-	-	4.82%	(4/18)
Fixed Income	1.67%	3.38%	4.05%	4.51%	7.53%	(1/81)
BImbg U.S. Agg Bond Index	1.52%	2.73%	3.01%	3.90%		(1/81)
Inflation Protection (TIPS)	1.95%	2.15%	2.77%	_	2.87%	(2/03)
Bimbg U.S. TIPS Index	2.08%	2.85%	3.63%	- 4.80%	3.82%	(2/03) (2/03)
Real Estate	6.05%	2.88%	6.40%	6.91%	8.12%	(3/84)
Real Estate Custom Bench (Qtr lag)(7)	8.18%	5.09%	7.52%	7.65%	-	
CPI + 3% (Qtr lag)	5.63%	5.34%	5.50%	5.51%	5.82%	(3/84)
Cash	1.24%	1.04%	1.62%	2.21%	3.41%	(1/87)
3-month Treasury Bill	0.98%	0.75%	1.35%	1.89%	3.14%	(1/87)

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(1)The current total fund benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 75 for full benchmark history.

(2) The current public equivalent benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 12% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 4% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 75 for full benchmark history.

(3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index

(4) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(5) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag). Benchmark performance represents the historical benchmark (Russell 3000 + 3% Qtr lag) linked to the current benchmark.

(6) Legacy Private Credit performance is included in the total fund starting at the composite's true inception date, 07/01/2022. The history is calculated and shown for informational purposes.

(7) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022 the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Ret	urns for Peri	iods Ended J	une 30, 2023	i		
Not Desfermence, Demostic Equity	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance- Domestic Equity U.S. Equity Russell 3000 Index (1) S&P 1500 Index	\$11,204 _ _	100.00% - -	8.32% 8.39% 8.39%	15.88% 16.17% 16.15%	18.83% 18.95% 19.24%	14.10% 13.89% 14.67%	10.59% 11.39% 11.83%
MCM Russell 1000 Index	10,156	90.64%	8.58%	16.70%	19.39%	14.27%	12.01%
Russell 1000 Index	-	-	8.58%	16.68%	19.36%	14.09%	11.92%
S&P 500 Index	-	-	8.74%	16.89%	19.59%	14.60%	12.31%
MCM Russell 2000 Core Index	341	3.04%	5.22%	8.25%	12.50%	11.48%	4.53%
Russell 2000 Index	-	-	5.21%	8.09%	12.31%	10.82%	4.21%
S&P 600 Index	-	-	3.38%	6.03%	9.75%	15.19%	5.22%
MCM Russell 2000 Val Index	330	2.94%	3.20%	2.58%	6.11%	15.54%	3.61%
Russell 2000 Value Index		-	3.18%	2.50%	6.01%	15.43%	3.54%
S&P 600 Value Index		-	1.95%	5.06%	8.88%	18.43%	4.96%
Emerald Asset Management	378	3.37%	8.69%	12.76%	20.75%	6.65%	5.45%
Russell 2000 Growth Index		-	7.05%	13.55%	18.53%	6.10%	4.22%
S&P 600 Growth Index		-	4.78%	7.02%	10.62%	11.88%	5.22%

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	riods Ended Jun	e 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance- Domestic Equity					-
U.S. Equity	11.51%	8.84%	9.41%	7.35%	10.71% (1/81)
Russell 3000 Index (1)	12.34%	10.61%	10.05%	7.68%	11.01% (1/81)
S&P 1500 Index	12.61%	10.79%	10.12%	7.82%	-
MCM Russell 1000 Index	12.70%	-	-	-	13.68%(1/12)13.66%(1/12)13.81%(1/12)
Russell 1000 Index	12.64%	10.77%	10.13%	7.75%	
S&P 500 Index	12.86%	10.88%	10.04%	7.61%	
MCM Russell 2000 Core Index	-	-	-	-	7.22%(12/16)6.98%(12/16)7.92%(12/16)
Russell 2000 Index	8.26%	8.43%	8.89%	7.26%	
S&P 600 Index	9.81%	9.85%	10.29%	8.94%	
MCM Russell 2000 Val Index	-	-	-	-	5.38% (12/16)
Russell 2000 Value Index	7.29%	7.72%	8.29%	7.62%	5.35% (12/16)
S&P 600 Value Index	9.19%	9.45%	9.79%	8.57%	7.10% (12/16)
Emerald Asset Management	-	-	-	-	9.19% (12/16)
Russell 2000 Growth Index	8.83%	8.85%	9.23%	6.39%	8.11% (12/16)
S&P 600 Growth Index	10.26%	10.12%	10.69%	8.89%	8.49% (12/16)

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Ret	urns for Peri	iods Ended J	une 30, 2023	3		
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance- International Equity							
Int'l Developed Mkts Equity	\$4,962	100.00%	3.68%	12.37%	18.75%	10.42%	5.31%
MSCI World ex US IMI	-	-	2.67%	10.46%	16.35%	8.87%	4.17%
Walter Scott & Partners(1)	724	14.60%	5.72%	16.95%	23.15%	12.23%	11.29%
MSCI World		-	6.83%	15.09%	18.51%	12.18%	9.07%
BlackRock MSCI World Ex US Index	3,872	78.04%	3.28%	11.69%	18.01%	9.83%	5.03%
MSCI World ex US	-	-	3.03%	11.29%	17.41%	9.30%	4.58%
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	221	4.46% -	3.50% 2.05%	9.34% 6.84%	12.42% 10.93%	7.23% 8.15%	2.62%
Harris Assoc Int'I SCV	140	2.82%	3.81%	11.05%	25.96%	15.75%	5.05%
MSCI World ex US Sm Cap	-	-	0.49%	5.50%	10.05%	6.42%	1.83%
MSCI World ex US Sm Value	-	-	0.71%	5.30%	10.58%	9.79%	1.88%

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Walter Scott since inception returns were contained in the Global Mandates composite prior to 12/31/2019.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	iods Ended Jun	e 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance- International Equity					
Int'l Developed Mkts Equity	6.25%	3.66%	7.04%	-	6.21% (1/02) 6.12% (1/02)
MSCI World ex US IMI	5.46%	3.43%	6.80%	4.76%	
Walter Scott & Partners(1)	11.48%	9.70%	-	-	9.52% (10/06)
MSCI World	9.50%	7.19%	8.37%	5.98%	6.76% (10/06)
BlackRock MSCI World Ex US Index	-	-	-	-	5.42% (6/17)
MSCI World ex US	5.40%	3.28%	6.62%	4.49%	4.93% (6/17)
Xponance Non-U.S. Small Cap	-	-	-	-	2.12% (10/18)
MSCI ACWI ex US Small Cap	5.75%	4.71%	8.50%	6.73%	3.09% (10/18)
Harris Assoc Int'I SCV	6.70%	7.45%	10.06%	-	10.06% (7/03)
MSCI World ex US Sm Cap	5.97%	4.65%	8.09%	-	8.09% (7/03)
MSCI World ex US Sm Value	5.36%	4.67%	8.17%	7.27%	8.17% (7/03)

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Walter Scott since inception returns were contained in the Global Mandates composite prior to 12/31/2019.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Ret	urns for Peri	iods Ended J	une 30, 2023	3		
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance- Emerging Mkts Eq	uity						
Emerging Mkts Equity	\$1,597	100.00%	1.63%	7.10%	5.60%	3.27%	2.33%
MSCI EM IMI	-	-	1.62%	5.62%	3.19%	3.60%	1.42%
Macquarie Emg Mkts Equity	333	20.86%	0.77%	8.09%	3.58%	1.35%	1.59%
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
Martin Currie Emg Mkts Equity	360	22.56%	1.97%	7.17%	6.16%	1.98%	1.57%
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
BlackRock Emg Mkts Index	540	33.78%	0.79%	4.80%	1.51%	2.08%	0.70%
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
Leading Edge Emg Mkts Fund	_224	14.03%	0.26%	4.36%	4.46%	1.92%	-
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
GlobeFlex Emerging Small Cap	_140	8.76%	8.76%	15.26%	20.80%	18.27%	7.59%
MSCI EM Small Cap		-	6.39%	10.50%	13.28%	13.72%	4.94%

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	iods Ended Jur	ie 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance- Emerging Mkts Equity					
Emerging Mkts Equity	3.99%	0.90%	6.37%	-	6.39% (1/02) 8.14% (1/02)
MSCI EM IMI	3.16%	2.15%	8.34%	6.48%	
Macquarie Emg Mkts Equity	3.82%	-	-	-	2.99% (5/13)
MSCI EM	2.95%	1.81%	8.18%		1.98% (5/13)
Martin Currie Emg Mkts Equity	-	-	-	-	3.52% (1/14)
MSCI EM	2.95%	1.81%	8.18%		2.31% (1/14)
BlackRock Emg Mkts Index	-	-	-	-	1.88% (7/17)
MSCI EM	2.95%	1.81%	8.18%		2.11% (7/17)
Leading Edge Emg Mkts Fund	-	-	-	-	2.84% (11/18)
MSCI EM	2.95%	1.81%	8.18%		3.23% (11/18)
GlobeFlex Emerging Small Cap MSCI EM Small Cap	4.63%	4.60%	- 9.68%	- 7.84%	6.87% (8/13) 4.61% (8/13)

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Periods Ended June 30, 2023									
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years			
Net Performance - Private Equity										
Private Equity	\$6,800	100.00%	2.79%	3.64%	(2.75%)	23.54%	15.70%			
Burgiss Private Equity Index (Qtr lag)	-	-	0.01%	0.02%	(5.21%)	16.49%	12.15%			
Global Equity + 3% (Qtr lag)(1)	-	-	8.05%	19.03%	(3.11%)	20.98%	13.33%			
Buyouts	3,786	55.68%	3.15%	4.89%	0.43%	23.43%	15.63%			
Burgiss Buyout Index (Qtr lag)		-	0.02%	0.05%	(4.26%)	16.25%	10.98%			
Special Situations	1,632	24.00%	2.47%	4.16%	2.75%	24.31%	18.52%			
Burgiss Special Situations Idx (Qtr lag	J) -	-	0.01%	0.01%	(1.41%)	7.87%	4.71%			
Growth Equity	1,185	17.42%	2.79%	0.14%	(14.50%)	28.29%	24.70%			
Burgiss Venture Capital Index (Qtr lag	g) -	-	(0.01%)	(0.05%)	(8.86%)	22.18%	19.51%			
Keystone Legacy (2)	197	2.90%	(1.43%)	(2.03%)	(17.07%)	0.10%	(4.32%)			

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(1) As of 01/01/2020 benchmark consists of 25% MSCI World ex US and 75% Russell 3000 + 3% with a 1 quarter lag. (2) As of 03/31/2023, Keystone Legacy SPV consists of 44 non-core funds, prior performance is reflected in previous sub-asset classes.



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	riods Ended Jun	ie 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Private Equity					
Private Equity	12.95%	10.29%	12.96%	12.26%	11.54% (1/86)
Burgiss Private Equity Index (Qtr lag)	12.75%	10.22%	13.40%	12.52%	16.48% (1/86)
Global Equity + 3% (Qtr lag)(1)	14.76%	13.24%	13.74%	10.85%	14.41% (1/86)
Buyouts	13.99%	11.48%	15.19%	14.27%	13.57% (4/86)
Burgiss Buyout Index (Qtr lag)	12.29%	9.77%	14.22%	12.12%	18.79% (4/86)
Special Situations	12.80%	11.33%	14.34%	12.94%	13.26% (1/95)
Burgiss Special Situations Idx (Qtr lag)	6.61%	6.64%	9.04%	9.10%	9.75% (1/95)
Growth Equity	15.53%	10.79%	9.12%	8.00%	8.55% (1/86)
Burgiss Venture Capital Index (Qtr lag)	17.94%	13.30%	12.24%	13.15%	14.20% (1/86)
Keystone Legacy (2)	-	-	-	-	(4.32%) (7/18)

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	
\$6,252	50.00%	(0.49%)	2.46%	(0.48%)	(2.48%)	0.75%	
-	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%	
\$4,475	35.79%	(0.79%)	2.36%	(0.64%)	(3.41%)	1.03%	
	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%	
526	4.21%	(0.42%)	2.95%	(0.03%)	(3.13%)	1.14%	
	-	(0.47%)	2.45%	(0.10%)	(3.46%)	0.91%	
3,949	31.58%	(0.84%)	2.29%	(0.73%)	(3.98%)	0.73%	
-	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%	
\$882	7.05%	2.36%	3.17%	5.81%	10.13%	6.13%	
882	7.05%	2.36%	3.17%	5.81%	11.09%	6.45%	
	-	1.52%	2.28%	3.69%	5.04%	3.32%	
\$773	6.18%	(1.93%)	3.06%	(4.90%)	(7.63%)	<mark>(0.13%)</mark>	
-	-	(1.91%)	1.78%	(3.55%)	(6.95%)	0.32%	
266	2.13%	(1.15%) (1.15%)	1.22% 1.10%	(1.02%) (1.02%)	(2.88%)	0.82%	
507	4.05% -	(2.34%) (2.30%)	4.50% 3.72%	(6.86%) (6.82%)	(12.09%)	(0.88%)	
\$122	0.98%	(0.36%)	(1.80%)	(3.49%)	-	-	
122	0.98%	(0.36%)	(2.01%)	(3.49%)	2.71%	0.54%	
5) -		(1.05%)	(0.90%)	(4.94%)	(1.01%)	0.62%	
- 0	0.00%	<mark>(1.54%)</mark>	3.44%	2.91%	17.69%	5.98%	
	-	1.23%	3.14%	(0.01%)	3.12%	2.94%	
	Market Value \$(mm) \$6,252 \$4,475 526 - 3,949 \$882 882 - \$773 - 266 - 507 - \$122 5) -	Market Value \$(mm) Ending Weight \$6,252 50.00% \$4,475 35.79% 526 4.21% 3,949 31.58% \$882 7.05% \$882 7.05% 5266 2.13% 507 4.05% 507 4.05% \$122 0.98% 5) -	Market Value \$(mm) Ending Weight Last Quarter $\$6,252$ 50.00% - (0.49%) (0.84%) $$4,475$ $35.79%- (0.79\%)(0.84%)$ 526 $4.21%- (0.42\%)(0.47%)$ $3,949$ $31.58%- (0.84\%) * 0.84\% * 0.42\%(0.47%)$ $$3,949$ $31.58%- (0.84\%) * 7.05\% 2.36\%- $882 7.05\% 2.36\%- * (1.93\%)- * (1.93\%) * (1.93\%) * (1.93\%) * (1.93\%) * (1.93\%) * (1.15\%) 507 4.05\% (2.34\%) * (1.36\%) 5) (0.36\%) * (1.55\%) 0 0.00\% (1.54\%) MarketValue EndingEnding(mm) Last Quarter Year to Date $\$6,252$ 50.00% - (0.49%) (0.84%) $2.46%2.09%$ $$4,475$ $35.79%- (0.79\%)(0.84%)$ $2.36%2.09%$ $$526$ $4.21%- (0.42\%)2.09%$ $2.95% 526$ $4.21%0.42%$ $2.95% $3,949$ $31.58% (0.84%)2.09%$ $2.29% 882 $7.05%$ $2.36%2.36%$ $3.17%2.09%$ $$882$ $7.05%$ $2.36%2.36%$ $3.17%2.28%$ $$773$ $6.18% (1.93%)1.52%$ $3.06% 266 $2.13% (1.15%)1.10%$ $1.22% 507 $4.05% (2.34%) 4.50%3.72%$ $$122$ $0.98%$ $(0.36%)$ $(1.80%)$ $$122$ $0.98%$ $(0.36%)(0.90%)$ $(2.01%)(0.90%)$	Market Value Ending Ending \$(mm)	Market Value \$(mm)Ending WeightLast QuarterYear to DateLast Year\$6,252 50.00% - (0.49%) $(0.84\%)2.46\%2.09\%(0.48\%)(0.94\%)$4,475-35.79\%(0.84\%)0.79\%2.09\%2.36\%0.94\%)(0.48\%)2.09\%$4,475-35.79\%(0.84\%)0.79\%2.09\%2.36\%0.94\%)(0.64\%)0.94\%)526-4.21\%(0.42\%)2.95\%2.45\%(0.03\%)(0.10\%)3,949-31.58\%(0.84\%)2.29\%2.09\%(0.73\%)(0.94\%)882-7.05\% 2.36\%1.52\%3.17\%2.28\%5.81\%3.69\%882-7.05\% 2.36\%1.52\%3.17\%2.28\%5.81\%3.69\%507-6.18\% (1.93\%)1.15\%)1.22\%1.10\%(1.02\%)1.02\%)507-4.05\% (2.34\%)2.30\%)4.50\%3.72\%(6.85\%)(6.82\%)5.1225122-0.98\% (0.36\%) (1.80\%)(3.49\%)5122-0.98\%0.36\%(2.01\%)(4.94\%)6122 0.98\% (0.36\%)(2.30\%)(3.49\%)(4.94\%)5122 0.98\% (0.36\%)(2.01\%)(3.49\%)(4.94\%)600\% (1.54\%)3.44\%2.91\%$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	

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(1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the

 Fixed income included the low lixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income, Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.
 Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.
 Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.

 (4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Yield under the new fixed income structure from 03/01/2021 through 06/30/2022, and Legacy Fixed Income Structure, thereafter.
 (5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter. (6) SEI HY Bank Loans has a 1 month lag in valuation. On this chart, SEI's market value of \$124K has been rounded to \$0M



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	iods Ended Jun	ie 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Fixed Income	16013	16013	16013	16013	meeption
Fixed Income (1)	1.67%	3.38%	4.05%	4.51%	7.53% (1/81)
Blmbg U.S. Agg Bond Index	1.52%	2.73%	3.01%	3.90%	6.83% (1/81)
Core Fixed Income	1.76%	3.45%	3.39%	-	3.80% (1/02)
Bimbg U.S. Agg Bond Index	1.52%	2.73%	3.01%	3.90%	3.45% (1/02)
PIMCO Core Bond Fund BImbg Agg ex Treasury	1.84% 1.81%	3.04%	-	-	1.45% (1/13) 1.47% (1/13)
Mellon Bond Index	1.48%	2.60%	2.91%	3.83%	6.30% (4/84)
Blmbg U.S. Agg Bond Index (2)	1.52%	2.73%	3.01%	3.93%	-
Opportunistic Fixed Income	4.79%	-	-	-	4.99% (10/12)
BAAM Keystone (3)	6.34%	2.04%	-	-	7.29% (7/12)
HFRI FOF Comp Index	3.39%		3.42%	3.83%	3.74% (7/12)
Nominal U.S. Treasuries	0.86%	-	-	-	0.81% (9/11)
Blmbg US Treas Bell 10Y	0.89%	2.53%	2.73%	3.60%	1.01% (9/11)
Mellon Intermediate Treasury Index	-	-	-	-	(3.22%) (3/21)
BImbg Intmdt Treasury	0.93%	1.89%	2.31%	3.25%	(3.23%) (3/21)
Mellon Long Duration Index	-	-	-	-	(13.37%) (1/21)
Blmbg Long Treasury	1.80%	3.69%	3.93%	4.87%	(13.31%) (1/21)
Legacy Fixed Income	-	-	-	-	(3.49%) (7/22)
Fidelity HY CMBS (4)	3.17%	5.74%	5.58%	6.56%	7.07% (4/97)
BImbg US CMBS Ex AAA Index (5)	1.99%	1.10%	0.73%	2.70%	3.19% (4/97)
SEI Str.Credit: HY Bank Loans (6)	6.73%	10.90%	-	-	10.97% (5/08)
FTSE HY Corp (1 month lag)	3.73%	5.88%	6.43%	5.67%	6.15% (5/08)

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	Ret	urns for Peri	ods Ended Ju	une 30, 2023			
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Inflation Protection							
Inflation Protection (TIPS)	\$1,026	100.00%	(1.57%)	1.96%	(1.66%)	(0.71%)	2.04%
Blmbg U.S. TIPS Index	-	-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
NISA Inv Adv TIPS	447	43.55%	(1.48%)	1.99%	(1.39%)	(0.12%)	2.45%
BImbg U.S. TIPS Index (1)		-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
Brown Brothers TIPS	468	45.64%	(1.62%)	1.77%	(1.42%)	(0.28%)	2.41%
BImbg U.S. TIPS Index		-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
New Century Global TIPS	111	10.82%	(1.66%)	2.65%	(3.67%)	(4.00%)	(0.39%)
BImbg Wrld Inflation Linked Unhdg	-	-	(1.73%)	2.59%	(3.44%)	(3.63%)	(0.36%)

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Returns for Periods Ended June 30, 2023									
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception				
Net Performance - Inflation Protection									
Inflation Protection (TIPS)	1.95%	2.15%	2.77%	-	2.87% (2/03) 3.82% (2/03)				
Blmbg U.S. TIPS Index	2.08%	2.85%	3.63%	4.80%					
NISA Inv Adv TIPS	2.07%	2.14%	-	-	2.81% (4/07)				
BImbg U.S. TIPS Index (1)	2.08%	2.14%	3.09%	4.36%	2.81% (4/07)				
Brown Brothers TIPS	2.08%	-	-	-	1.62% (2/12)				
BImbg U.S. TIPS Index	2.08%	2.85%	3.63%	4.80%	1.54% (2/12)				
New Century Global TIPS	1.22%	-	-	-	0.85% (2/12)				
Blmbg Wrld Inflation Linked Unhdg	1.05%	1.47%	3.30%	4.29%	0.62% (2/12)				

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Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Real Estate							
Real Estate	\$ 2,666	100.00%	(3.35%)	(5.78%)	(5.98%)	7.22%	4.66%
Real Estate Custom Bench (Qtr lag)	(1) -	-	(3.50%)	(8.40%)	(3.69%)	8.24%	6.69%
CPI +3% (Qtr lag)	-	-	2.40%	3.16%	7.99%	8.36%	6.88%
Core/Core Plus Real Estate Funds	1,232	46.21%	(1.74%)	(3.46%)	(0.88%)	8.83%	6.80%
NCREIF ODCE Index (Qtr lag)	-	-	(3.50%)	(8.40%)	(3.69%)	8.17%	7.13%
Value Add/Opportunistic SMA	555	20.83%	(8.99%)	(14.00%)	(16.32%)	1.10%	0.19%
NCREIF ODCE Index (Qtr lag)	-		(3.50%)	(8.40%)	(3.69%)	8.17%	7.13%
Value Add/Opportunistic Funds NCREIF ODCE Index (Qtr lag)	757	28.38%	(2.51%) (3.50%)	(5.95%) (8.40%)	(6.69%) (3.69%)	9.39% 8.17%	6.96% 7.13%
REITS	121	4.56%	2.14%	5.00%	(1.47%)	8.96%	7.06%
FTSE NAREIT US Index	-		2.56%	5.28%	(0.45%)	8.80%	5.65%

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(1) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022, the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged). Prior to 03/31/2019, benchmark history was provided by RVK.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Returns for Per	riods Ended Jur	ie 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Real Estate					
Real Estate	6.05%	2.88%	6.40%	6.91%	8.12% (3/84)
Real Estate Custom Bench (Qtr lag) (1)	8.18%	5.09%	7.52%	7.65%	-
CPI +3% (Qtr lag)	5.63%	5.34%	5.50%	5.51%	5.82% (3/84)
Core/Core Plus Real Estate Funds	8.38%	6.18%	7.57%	7.94%	7.11% (9/86)
NCREIF ODCE Index (Qtr lag)	8.82%	5.05%	7.12%	7.48%	6.15% (9/86)
Value Add/Opportunistic SMA	3.64%	0.10%	3.90%	4.89%	4.81% (6/88)
NCREIF ODCE Index (Qtr lag)	8.82%	5.05%	7.12%	7.48%	6.20% (6/88)
Value Add/Opportunistic Funds	8.71%	3.59%	7.44%	8.28%	7.79% (3/84)
NCREIF ODCE Index (Qtr lag)	8.82%	5.05%	7.12%	7.48%	6.39% (3/84)
REITS	5.22%	5.36%	8.90%	7.80%	9.01% (4/96)
FTSE NAREIT US Index	5.64%	5.81%	8.94%	7.70%	9.33% (4/96)

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	Returns for Periods Ended June 30, 2023								
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years		
Net Performance - DWDO Managers									
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	221	0.62% -	3.50% 2.05%	9.34% 6.84%	12.42% 10.93%	7.23% 8.15%	2.62%		
Leading Edge Emg Mkts Fund MSCI EM	_224	0.63% -	0.26% 0.90%	4.36% 4.89%	4.46% 1.75%	1.92% 2.32%	0.93%		
GlobeFlex Emerging Small Cap MSCI EM Small Cap	140 	0.39%	8.76% 6.39%	15.26% 10.50%	20.80% 13.28%	18.27% 13.72%	7.59% 4.94%		
New Century Global TIPS Blmbg Wrld Inflation Linked Unhdg	111 -	0.31% -	(1.66%) (1.73%)	2.65% 2.59%	(3.67%) (3.44%)	(4.00%) (3.63%)	(0.39%) (0.36%)		

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023									
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception				
Net Performance - DWDO Managers									
Xponance Non-U.S. Small Cap	-	-	-	-	2.12% (10/18)				
MSCI ACWI ex US Small Cap	5.75%	4.71%	8.50%	6.73%	3.09% (10/18)				
Leading Edge Emg Mkts Fund	-	-	-	-	2.84% (11/18)				
MSCI EM	2.95%	1.81%	8.18%		3.23% (11/18)				
GlobeFlex Emerging Small Cap	-	-	-	-	6.87% (8/13)				
MSCI EM Small Cap	4.63%	4.60%	9.68%	7.84%	4.61% (8/13)				
New Century Global TIPS	1.22%	-	-	-	0.85% (2/12)				
Blmbg Wrld Inflation Linked Unhdg	1.05%	1.47%	3.30%	4.29%	0.62% (2/12)				

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	Ret	urns for Peri	Returns for Periods Ended June 30, 2023								
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years				
Gross Performance											
Total Fund (2) Total Fund Estimated Gross History Total Fund Custom Benchmark Public Market Equiv Benchmark 60/40 Index	\$35,506 (2) 35,506 - - -	100.00% 100.00% - - -	3.49% 3.49% 3.19% 4.32% 3.19%	7.80% 7.80% 7.42% 10.60% 8.71%	7.13% 7.13% 7.59% 8.55% 9.22%	9.85% 9.85% 8.77% 7.95% 4.99%	7.43% 7.40% 6.85% 5.20%				
U.S. Equity	\$11,205	31.56%	8.33%	15.89%	18.86%	14.14%	10.65%				
Russell 3000 Index (1)	-	-	8.39%	16.17%	18.95%	13.89%	11.39%				
S&P 1500 Index	-	-	8.39%	16.15%	19.24%	14.67%	11.83%				
Int'l Developed Mkts Equity	\$4,963	13.98%	3.71%	12.44%	18.89%	10.56%	5.45%				
MSCI World ex US IMI	-	-	2.67%	10.46%	16.35%	8.87%	4.17%				
Emerging Mkts Equity	\$1,598	4.50%	1.73%	7.33%	6.11%	3.81%	2.81%				
MSCI EM IMI	-	-	1.62%	5.62%	3.19%	3.60%	1.42%				
Private Equity (2)	\$6,800	19.15%	3.72%	4.94%	(2.34%)	29.46%	-				
Burgiss Private Equity Index (Qtr la	g) -	-	0.01%	0.02%	(5.21%)	16.49%	12.15%				
Global Equity +3% (Qtr lag)	-	-	8.05%	19.03%	(3.11%)	20.98%	13.33%				
Legacy Private Credit (3)	\$401	1.13%	3.14%	5.47%	7.70%	16.67%	-				
S&P Levered Loan Index +1% (Qtr	Lag) -	-	3.46%	6.53%	3.73%	9.59%	4.72%				
Fixed Income	\$6,253	17.61%	(0.46%)	2.52%	(0.38%)	(2.34%)	0.93%				
BImbg U.S. Agg Bond Index	-	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%				
Inflation Protection (TIPS)	\$1,026	2.89%	(1.54%)	2.01%	(1.56%)	(0.61%)	2.16%				
BImbg U.S. TIPS Index	-	-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%				
Real Estate (2) Real Estate Custom Benchmark (Q CPI +3% (Qtr lag)	\$2,666 tr lag) - -	7.51% - -	(3.32%) (3.50%) 2.40%	(5.57%) (8.40%) 3.16%	(5.41%) (3.69%) 7.99%	8.61% 8.24% 8.36%	6.69% 6.88%				
Cash	\$576	1.62%	1.24%	2.36%	3.85%	1.39%	1.64%				
3-month Treasury Bill	-	-	1.17%	2.25%	3.59%	1.27%	1.55%				

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Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.
 The Total Fund Estimated Gross History is calculated by BNY Mellon using a gross-up methodology through 12/31/2019. Starting 01/01/2020 gross performance is calculated for all asset classes and the Total Fund, including Private Equity, Legacy Private Credit, and Real Estate, for which gross history was not previously calculated.
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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Last 10	Last 15	Last 20	Last 25	Since		
	Years	Years	Years	Years	Inception		
Gross Performance	10015	Tears		Tears	mocption		
Total Fund (2)	-	-	-	-	7.02% (1	1/20)	
Total Fund Estimated Gross History (2)	7.84%	5.97%	8.37%	7.30%		1/96)	
Total Fund Custom Benchmark	7.82%	6.65%	8.35%	7.01%	7.96% (1	1/96)	
Public Market Equiv Benchmark	7.70%	6.67%	8.37%	7.02%	7.97% (1	1/96)	
60/40 Index	5.97%	5.41%	6.48%	5.59%	6.11% (1	1/96)	
U.S. Equity	11.62%	8.96%	9.54%	7.47%	10.78% (1	1/81)	
Russell 3000 Index (1)	12.34%	10.61%	10.05%	7.68%	11.01% (1		
S&P 1500 Index	12.61%	10.79%	10.12%	7.82%	-		
Int'l Developed Mkts Equity	6.45%	3.91%	7.33%		6.51% (1	1/02)	
MSCI World ex US IMI	5.46%	3.43%	6.80%	4.76%	,	1/02)	
Emerging Mkts Equity	4.51%	1.36%	6.78%	-	6.77% (1	1/02)	
MSCI EM IMI	3.16%	2.15%	8.34%	6.48%	8.14% (1		
Private Equity (2)					22.95% (1	1/20)	
Burgiss Private Equity Index (Qtr lag)	12.75%	10.22%	13.40%	12.52%		1/20)	
Global Equity +3% (Qtr lag)	14.76%	13.24%	13.74%	10.85%	13.47% (1	1/20)	
Legacy Private Credit (3)					13.31% (1	1/20)	
S&P Levered Loan Index +1% (Qtr Lag)	-	-	-	-		1/20)	
Fixed Income	1.90%	3.60%	4.28%	4.74%	6.81% (1	1/85)	
Blmbg U.S. Agg Bond Index	1.52%	2.73%	3.01%	3.90%	6.00% (1	1/85)	
Inflation Protection (TIPS)	2.08%	2.26%	2.89%	-	3.00% (2	2/03)	
BImbg U.S. TIPS Index	2.08%	2.85%	3.63%	4.80%	3.82% (2	2/03)	
Real Estate (2)	-			-	6.92% (1	1/20)	
Real Estate Custom Benchmark (Qtr lag)	8.18%	5.09%	7.52%	7.65%	6.98% (1	1/20)	
CPI +3% (Qtr lag)	5.63%	5.34%	5.50%	5.51%	7.73% (1	1/20)	
Cash	1.24%	1.05%	1.66%	2.20%	3.77% (1	1/87)	
3-month Treasury Bill	0.98%	0.75%	1.35%	1.89%	3.14% (1	1/87)	

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Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Gross Performance- Domestic Equit U.S. Equity Russell 3000 Index(1) S&P 1500 Index	y \$11,205 _ _	100.00% - -	8.33% 8.39% 8.39%	15.89% 16.17% 16.15%	18.86% 18.95% 19.24%	14.14% 13.89% 14.67%	10.65% 11.39% 11.83%
MCM Russell 1000 Index Russell 1000 Index S&P 500 Index	10,156 - -	90.64% - -	8.58% 8.58% 8.74%	16.71% 16.68% 16.89%	19.40% 19.36% 19.59%	14.28% 14.09% 14.60%	12.02% 11.92% 12.31%
MCM Russell 2000 Core Index Russell 2000 Index S&P 600 Index	341 - -	3.04% - -	5.22% 5.21% 3.38%	8.26% 8.09% 6.03%	12.52% 12.31% 9.75%	11.51% 10.82% 15.19%	4.56% 4.21% 5.22%
MCM Russell 2000 Val Index Russell 2000 Value Index S&P 600 Value Index	330 -	2.94% - -	3.20% 3.18% 1.95%	2.59% 2.50% 5.06%	6.13% 6.01% 8.88%	15.56% 15.43% 18.43%	3.64% 3.54% 4.96%
Emerald Asset Management Russell 2000 Growth Index S&P 600 Growth Index	378 - -	3.38% - -	8.81% 7.05% 4.78%	13.02% 13.55% 7.02%	21.29% 18.53% 10.62%	7.16% 6.10% 11.88%	5.97% 4.22% 5.22%

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	Returns for Per	riods Ended Jun	e 30, 2023		
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Gross Performance- Domestic Equity					
U.S. Equity Russell 3000 Index(1) S&P 1500 Index	11.62% 12.34% 12.61%	8.96% 10.61% 10.79%	9.54% 10.05% 10.12%	7.47% 7.68% 7.82%	10.78% (1/81) 11.01% (1/81)
MCM Russell 1000 Index	12.71%	-	-	-	13.69%(1/12)13.66%(1/12)13.81%(1/12)
Russell 1000 Index	12.64%	10.77%	10.13%	7.75%	
S&P 500 Index	12.86%	10.88%	10.04%	7.61%	
MCM Russell 2000 Core Index	-	-	-	-	7.25%(12/16)6.98%(12/16)7.92%(12/16)
Russell 2000 Index	8.26%	8.43%	8.89%	7.26%	
S&P 600 Index	9.81%	9.85%	10.29%	8.94%	
MCM Russell 2000 Val Index	-	-	-	-	5.40% (12/16)
Russell 2000 Value Index	7.29%	7.72%	8.29%	7.62%	5.35% (12/16)
S&P 600 Value Index	9.19%	9.45%	9.79%	8.57%	7.10% (12/16)
Emerald Asset Management	-	-	-	-	9.71%(12/16)8.11%(12/16)8.49%(12/16)
Russell 2000 Growth Index	8.83%	8.85%	9.23%	6.39%	
S&P 600 Growth Index	10.26%	10.12%	10.69%	8.89%	

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Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Gross Performance - International Equ	ity						
Int'l Developed Mkts Equity	\$4,963	100.00%	3.71%	12.44%	18.89%	10.56%	5.45%
MSCI World ex US IMI		_	2.67%	10.46%	16.35%	8.87%	4.17%
Walter Scott & Partners (1)	725	14.61%	5.82%	17.18%	23.63%	12.68%	11.78%
MSCI World		-	6.83%	15.09%	18.51%	12.18%	9.07%
BlackRock MSCI World Ex US Index	3,873	78.03%	3.28%	11.70%	18.03%	9.84%	5.04%
MSCI World ex US	-	-	3.03%	11.29%	17.41%	9.30%	4.58%
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	221	4.46% -	3.68% 2.05%	9.71% 6.84%	13.19% 10.93%	7.96% 8.15%	2.62%
Harris Assoc Int'l SCV	140	2.82%	4.01%	11.48%	26.92%	16.80%	6.00%
MSCI World ex US Sm Cap	-	-	0.49%	5.50%	10.05%	6.42%	1.83%
MSCI World ex US Sm Value	-	-	0.71%	5.30%	10.58%	9.79%	1.88%

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(1) Walter Scott since inception returns were contained in the Global Mandates composite prior to 12/31/2019.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception		
Gross Performance - International Equity							
Int'l Developed Mkts Equity	6.45%	3.91%	7.33%	-	6.51% (1/02)		
MSCI World ex US IMI	5.46%	3.43%	6.80%	4.76%	6.12% (1/02)		
Walter Scott & Partners (1)	11.95%	10.17%	-	-	9.98% (10/06)		
MSCI World	9.50%	7.19%	8.37%	5.98%	6.76% (10/06)		
BlackRock MSCI World Ex US Index	-	-	-	-	5.43% (6/17)		
MSCI World ex US	5.40%	3.28%	6.62%	4.49%	4.93% (6/17)		
Xponance Non-U.S. Small Cap	-	-	-	-	2.71% (10/18)		
MSCI ACWI ex US Small Cap	5.75%	4.71%	8.50%	6.73%	3.09% (10/18)		
Harris Assoc Int'l SCV	7.52%	8.27%	10.87%	-	10.87% (7/03)		
MSCI World ex US Sm Cap	5.97%	4.65%	8.09%	-	8.09% (7/03)		
MSCI World ex US Sm Value	5.36%	4.67%	8.17%	7.27%	8.17% (7/03)		

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Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Gross Performance - Emerging Mkts							
Emerging Mkts Equity	\$1,598	100.00%	1.73%	7.33%	6.11%	3.81%	2.81%
MSCI EM IMI	-	-	1.62%	5.62%	3.19%	3.60%	1.42%
Macquarie Emg Mkts Equity	333	20.86%	0.91%	8.39%	4.15%	1.92%	2.14%
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
Martin Currie Emg Mkts Equity	360	22.56%	2.09%	7.42%	6.68%	2.49%	2.08%
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
BlackRock Emg Mkts Index	540	33.78%	0.80%	4.82%	1.56%	2.12%	0.78%
MSCI EM		-	0.90%	4.89%	1.75%	2.32%	0.93%
Leading Edge Emg Mkts Fund MSCI EM	_224	14.03% -	0.46% 0.90%	4.78% 4.89%	5.30% 1.75%	2.74% 2.32%	0.93%
GlobeFlex Emerging Small Cap	_140	8.77%	8.93%	15.61%	21.55%	19.01%	8.31%
MSCI EM Small Cap		-	6.39%	10.50%	13.28%	13.72%	4.94%

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	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Gross Performance - Emerging Mkts Equity					
Emerging Mkts Equity	4.51%	1.36%	6.78%	-	6.77% (1/02) 8.14% (1/02)
MSCI EM IMI	3.16%	2.15%	8.34%	6.48%	
Macquarie Emg Mkts Equity	4.49%	-	-	-	3.64% (5/13)
MSCI EM	2.95%	1.81%	8.18%		1.98% (5/13)
Martin Currie Emg Mkts Equity	-	-	-	-	4.07% (1/14)
MSCI EM	2.95%	1.81%	8.18%		2.31% (1/14)
BlackRock Emg Mkts Index	_	-	-	-	1.95% (7/17)
MSCI EM	2.95%	1.81%	8.18%		2.11% (7/17)
Leading Edge Emg Mkts Fund	-	-	-	-	3.53% (11/18)
MSCI EM	2.95%	1.81%	8.18%		3.23% (11/18)
GlobeFlex Emerging Small Cap MSCI EM Small Cap	4.63%	4.60%	- 9.68%	- 7.84%	7.52% (8/13) 4.61% (8/13)

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Returns for Periods Ended June 30, 2023								
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Since Inception	
Gross Performance - Private Equity								
Private Equity (1)	\$6,800	100.00%	3.72%	4.94%	(2.34%)	29.46%	22.95% (1/20)	
Burgiss All Private Equity (Qtr Lag)	-	-	0.01%	0.02%	(5.21%)	16.49%	13.09% (1/20)	
Global Equity +3% (Qtr lag) (2)	-	-	8.05%	19.03%	(3.11%)	20.98%	13.47% (1/20)	
Buyouts	3,786	55.68%	4.05%	6.16%	1.26%	30.03%	23.54% (1/20)	
Burgiss Buyout Index (Qtr Lag)	-	-	0.02%	0.05%	(4.26%)	16.25%	12.17% (1/20)	
Special Situations	1,632	24.00%	3.32%	5.51%	3.68%	30.43%	24.30% (1/20)	
Burgiss Special Sits Index (Qtr Lag)	-		0.01%	0.01%	(1.41%)	7.87%	5.13% (1/20)	
Growth Equity	1,185	17.42%	4.05%	1.64%	(15.46%)	33.91%	28.97% (1/20)	
Burgiss Venture Capital Idx (Qtr Lag	g) -	-	(0.01%)	(0.05%)	(8.86%)	22.18%	19.81% (1/20)	
Keystone Legacy (3)	197	2.90%	(1.10%)	(1.70%)	(16.59%)	4.20%	(0.95%) (1/20)	

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 (1) Starting 01/01/2020 gross performance is calculated for all asset classes and the Total Fund, including Private Equity, Private Credit, and Real Estate, for which gross history was not previously calculated.
 (2) As of 01/01/2020 benchmark is 25% MSCI World ex US Index and 75% Russell 3000 + 3% with a 1 Qtr lag.
 (3) As of 03/31/2023, Keystone Legacy SPV consists of 44 non-core funds, prior performance reflected in previous sub-asset classes



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	
	•						
\$6,253	50.00%	(0.46%)	2.52%	(0.38%)	(2.34%)	0.93%	
-	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%	
\$4,475	35.79%	(0.78%)	2.37%	(0.61%)	(3.36%)	1.10%	
-	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%	
526	11.76%	(0.38%)	2.98%	0.17%	(2.85%)	1.39%	
	-	(0.47%)	2.45%	(0.10%)	(3.46%)	0.91%	
3,949	88.24%	(0.84%)	2.29%	(0.71%)	(3.96%)	0.76%	
	-	(0.84%)	2.09%	(0.94%)	(3.96%)	0.77%	
\$882	7.05%	2.52%	3.48%	6.24%	10.94%	6.85%	
_882	100.00%	2.52%	3.48%	6.24%	11.92%	7.09%	
-	-	1.52%	2.28%	3.69%	5.04%	3.32%	
\$773	6.18%	(1.93%)	3.06%	(4.89%)	(7.50%)	(0.00%)	
-	-	(1.91%)	1.78%	(3.55%)	(6.95%)	0.32%	
266	34.43%	(1.15%) (1.15%)	1.23% 1.10%	(1.01%) (1.02%)	(2.88%)	- 0.82%	
507 -	65.57% -	(2.34%) (2.30%)	4.50% 3.72%	(6.85%) (6.82%)	(12.09%)	(0.88%)	
\$123	0.98%	(0.18%)	(1.47%)	(2.87%)	-	-	
122	99.73%	(0.19%)	(1.68%)	(2.87%)	3.31%	1.21%	
) -	-	(1.05%)	(0.90%)	(4.94%)	(1.01%)	0.62%	
- 0	0.10%	<mark>(1.13%)</mark>	4.21%	4.45%	19.23%	7.30%	
	-	1.23%	3.14%	(0.01%)	3.12%	2.94%	
	Market Value \$(mm) \$6,253 \$4,475 526 3,949 \$882 \$882 \$882 \$882 \$882 507 - \$123 122	Market Value \$(mm) Ending Weight \$6,253 50.00% \$4,475 35.79% 526 11.76% 3,949 88.24% \$882 7.05% 882 100.00% 5773 6.18% 266 34.43% 507 65.57% \$123 0.98%	Market Value \$(mm) Ending Weight Last Quarter $\$6,253$ 50.00% - (0.46%) (0.84%) $$4,475$ $35.79%- (0.84\%) \$4,475 35.79\%- (0.84\%) $26 11.76\%- (0.38\%)- 526 11.76\%- (0.38\%)- 3,949 88.24\%- (0.84\%) $882 7.05\% 2.52\% 882 100.00\%- 2.52\% $882 100.00\%- 2.52\% $7773 6.18\%- (1.93\%) 266 34.43\%- (1.15\%) 507 65.57\%- (2.30\%) $123 0.98\% (0.18\%) 122 99.73\%- (1.05\%) 0 0.10\% (1.13\%)$	Market Value \$(mm) Ending Weight Last Quarter Year to Date $\$6,253$ 50.00% - (0.46%) (0.84%) $2.52%2.09%$ $$4,475$ $35.79%- (0.78\%)(0.84%)$ $2.37%2.09%$ $$4,475$ $35.79%- (0.78\%)(0.84%)$ $2.37%2.09%$ 526 $11.76%- (0.38\%)2.09%$ $2.98%2.09%$ $3,949$ $88.24% (0.84%)2.09%$ $2.29%2.09%$ $$882$ $7.05%$ $2.52%1.52%$ $3.48%2.09%$ $$882$ $100.00% 2.52%1.52%$ $3.48%2.28%$ $$7773$ $6.18% (1.93%)1.78%$ $3.06% 266 $34.43% (1.15%)1.10%$ $1.23%1.10%$ 507 $65.57% (2.34%)3.72%$ $4.50%3.72%$ $$123$ $0.98%$ $(0.18%)$ $(1.47%)$ 122 $99.73% (0.19%)$ $(1.68%)(0.90%)$ 0 $0.10%$ $(1.13%)$ $4.21%$	Market Value Ending Ending Weight Last Quarter Year Date Last Year $\$6,253$ 50.00% (0.46%) (0.84%) $2.52%2.09%$ $(0.38%)(0.94%)$ $$4,475$ $35.79% (0.78%)(0.84%)$ $2.37%2.09%$ $(0.61%)(0.94%)$ 526 $11.76% (0.38%)2.98%$ $2.98%0.17%(0.10%)$ $0.17%0.10%$ $3,949$ $88.24% (0.84%)$ $2.29%2.09%$ $0.71%(0.94%)$ $$882$ $7.05%$ $2.52%$ $3.48%$ $6.24%3.69%$ $$882$ $100.00% 2.52%1.52%$ $3.48%$ $6.24%3.69%$ $$7773$ $6.18% (1.93%)1.78%$ $3.06%(3.55%)$ $(4.89%)(266$ $34.43% (1.15%)$ $1.23%(1.01%)$ $(1.02%)$ 507 $65.57% (2.34%)$ $4.50%$ $(6.85%)(6.82%)$ $$123$ $0.98%$ $(0.18%)$ $(1.47%)$ $(2.87%)$ 122 $99.73% (0.19%)$ $(1.68%)(0.90%)$ $(4.94%)$ 0	Market Value S(mm)Ending WeightLast QuarterYear to DateLast Year3 Years\$6,253 50.00% - (0.46%) $(0.84\%)2.52\%2.09\%(0.38\%)(0.94\%)(2.34\%)(3.96\%)$4,47535.79\%-(0.78\%)(0.84\%)2.37\%2.09\%(0.61\%)(0.94\%)(3.36\%)(3.96\%)$4,47535.79\%-(0.78\%)(0.84\%)2.37\%2.09\%(0.61\%)(0.94\%)(3.36\%)(3.96\%)$52611.76\%-(0.38\%)(0.47\%)2.98\%2.45\%0.17\%(0.10\%)(2.85\%)(3.46\%)3,949-88.24\%-(0.84\%)2.09\%2.29\%(0.94\%)(0.71\%)(3.96\%)3,949-88.24\%-(0.84\%)2.09\%2.29\%(0.94\%)(0.94\%)3,949-88.24\%-(0.84\%)2.09\%2.29\%(0.94\%)(0.10\%)(3.96\%)$882-7.05\%-2.52\%1.52\%3.48\%2.28\%6.24\%3.69\%11.92\%5.04\%$773-6.18\%-(1.93\%)1.15\%1.23\%1.10\%(1.01\%)1.02\%-(2.88\%)$507-6.57\%-(2.34\%)2.30\%4.50\%3.72\%(6.82\%)(1.20\%)-(1.20\%)$5123-0.98\%-(0.18\%)(1.13\%)(1.47\%)(2.87\%)(2.87\%)3.31\%$122-0.98\%-(0.19\%)(1.05\%)(1.68\%)(0.90\%)(2.87\%)(4.94\%)<$	

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the

Fixed income included the low lixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income, Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.
 Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.
 Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.
 High First the Opportunistic Fixed composite, thereafter.

 (4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Yield under the new fixed income structure from 03/01/2021 through 06/30/2022, and Legacy Fixed Income Structure, thereafter.
 (5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter. (6) SEI HY Bank Loans has a 1 month lag in valuation. On this chart, SEI's market value of \$124K has been rounded to \$0M



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception		
Gross Performance - Fixed Income							
Fixed Income (1)	1.90%	3.60%	4.28%	4.74%	6.81% (1/85)		
Blmbg U.S. Agg Bond Index	1.52%	2.73%	3.01%	3.90%	6.00% (1/85)		
Core Fixed Income	1.85%	3.60%	3.54%	-	3.94% (1/02)		
Blmbg U.S. Agg Bond Index	1.52%	2.73%	3.01%	3.90%	3.45% (1/02)		
PIMCO Core Bond Fund BImbg Agg ex Treasury	2.06% 1.81%	- 3.04%	-	-	1.66% (1/13) 1.47% (1/13)		
Mellon Bond Index	1.50%	2.64%	2.95%	3.87%	4.40% (10/93)		
Blmbg U.S. Agg Bond Index (2)	1.52%	2.73%	3.01%	3.93%	4.45% (10/93)		
Opportunistic Fixed Income	5.48%	-	-	-	5.69% (10/12)		
BAAM Keystone (3)	6.66%	-	-	-	7.59% (7/12)		
HFRI FOF Comp Index	3.39%	2.04%	3.42%	3.83%	3.74% (7/12)		
Nominal U.S. Treasuries	0.97%	-	-	-	0.92% (9/11)		
Blmbg US Treas Bell 10Y	0.89%	2.53%	2.73%	3.60%	1.01% (9/11)		
Mellon Intermediate Treasury Index	-	-	-	-	(3.21%) (3/21)		
BImbg Intmdt Treasury	0.93%	1.89%	2.31%	3.25%	(3.23%) (3/21)		
Mellon Long Duration Index	-	-	-	-	(13.36%) (1/21)		
Blmbg Long Treasury	1.80%	3.69%	3.93%	4.87%	(13.31%) (1/21)		
Legacy Fixed Income		-	-	-	(2.87%) (7/22)		
Fidelity HY CMBS (4)	3.83%	6.42%	6.27%	7.25%	7.75% (4/97)		
BImbg US CMBS Ex AAA Index (5)	1.99%	1.10%	0.73%	2.70%	3.19% (4/97)		
SEI Str. Credit: HY Bank Loans (6)	7.82%	12.03%	-	-	12.09% (5/08)		
FTSE HY Corp (1 month lag)	3.73%	5.88%	6.43%	5.67%	6.15% (5/08)		

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(1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income, Opportunistic Fixed Income, Nominal US Treasuries and Legacy Fixed Income sub-composites.

(2) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK. (3) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.

(4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Yield under the new fixed income structure from 03/01/2021 through 06/30/2022, and Legacy Fixed Income Structure, thereafter.
(5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter.

(6) SEI HY Bank Loans has a 1 month lag in valuation.



The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Gross Performance - Inflation Protecti	on						
Inflation Protection (TIPS)	\$1,026	100.00%	(1.54%)	2.01%	(1.56%)	(0.61%)	2.16%
Blmbg U.S. TIPS Index	-	-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
NISA Inv Adv TIPS	447	43.54%	(1.46%)	2.04%	(1.29%)	(0.02%)	2.56%
Blmbg U.S. TIPS Index (1)		-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
Brown Brothers TIPS	468	45.63%	(1.60%)	1.81%	(1.35%)	(0.20%)	2.51%
Blmbg U.S. TIPS Index		-	(1.42%)	1.87%	(1.40%)	(0.12%)	2.49%
New Century Global TIPS	111	10.82%	(1.60%)	2.77%	(3.43%)	(3.78%)	(0.15%)
Blmbg Wrld Inflation Linked Unhdg	-	-	(1.73%)	2.59%	(3.44%)	(3.63%)	(0.36%)

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception		
Gross Performance - Inflation Protection							
Inflation Protection (TIPS)	2.08%	2.26%	2.89%	-	3.00% (2/03)		
Blmbg U.S. TIPS Index	2.08%	2.85%	3.63%	4.80%	3.82% (2/03)		
NISA Inv Adv TIPS	2.18%	2.24%	-	-	2.90% (4/07)		
Blmbg U.S. TIPS Index (1)	2.08%	2.14%	3.09%	4.36%	2.81% (4/07)		
Brown Brothers TIPS	2.20%	-	-	-	1.73% (2/12)		
BImbg U.S. TIPS Index	2.08%	2.85%	3.63%	4.80%	1.54% (2/12)		
New Century Global TIPS	1.47%	-	-	-	1.09% (2/12)		
Blmbg Wrld Inflation Linked Unhdg	1.05%	1.47%	3.30%	4.29%	0.62% (2/12)		

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Since Inception
Gross Performance - Real Estate							
Real Estate (1) Real Estate Custom Bench (Qtr lag CPI + 3% (Qtr lag)	\$2,666 g) (2) - -	100.00% - -	(3.32%) (3.50%) 2.40%	(5.57%) (8.40%) 3.16%	(5.41%) (3.69%) 7.99%	8.61% 8.24% 8.36%	6.92%(1/20)6.98%(1/20)7.73%(1/20)
Core/Core Plus Real Estate Funds NCREIF ODCE Index (Qtr lag)	1,232 -	46.21% -	(1.96%) (3.50%)	(3.71%) (8.40%)	(0.68%) (3.69%)	9.76% 8.17%	8.03% (1/20) 7.58% (1/20)
Value Add/Opportunistic SMA NCREIF ODCE Index (Qtr lag)	555 -	20.83%	(8.87%) (3.50%)	(14.02%) (8.40%)	(16.06%) (3.69%)	1.70% 8.17%	2.86% (1/20) 7.58% (1/20)
Value Add/Opportunistic Funds NCREIF ODCE Index (Qtr lag)	757	28.38%	(2.21%) (3.50%)	(4.84%) (8.40%)	(5.23%) (3.69%)	13.22% 8.17%	10.68% (1/20) 7.58% (1/20)
REITS FTSE NAREIT US Index	122	4.56%	2.23% 2.56%	5.19% 5.28%	(1.12%) (0.45%)	9.35% 8.80%	2.97% (1/20) 0.61% (1/20)

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**Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

 Starting 01/01/2020 gross performance is calculated for all asset classes and the Total Fund, including Private Equity, Private Credit, and Real Estate, for which gross history was not previously calculated.
 As of 03/31/2019 benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged). Prior to 03/31/2019, benchmark history was provided by RVK.

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Gross Performance - DWDO Managers	;						
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	221	0.62% -	3.68% 2.05%	9.71% 6.84%	13.19% 10.93%	7.96% 8.15%	2.62%
Leading Edge Emg Mkts Fund MSCI EM	_224	0.63% -	0.46% 0.90%	4.78% 4.89%	5.30% 1.75%	2.74% 2.32%	- 0.93%
GlobeFlex Emerging Small Cap MSCI EM Small Cap	140	0.39%	8.93% 6.39%	15.61% 10.50%	21.55% 13.28%	19.01% 13.72%	8.31% 4.94%
New Century Global TIPS Blmbg Wrld Inflation Linked Unhdg	111 -	0.31% -	(1.60%) (1.73%)	2.77% 2.59%	(3.43%) (3.44%)	(3.78%) (3.63%)	(0.15%) (0.36%)

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2023							
	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception		
Gross Performance - DWDO Managers							
Xponance Non-U.S. Small Cap	-	-	-	-	2.71% (10/18)		
MSCI ACWI ex US Small Cap	5.75%	4.71%	8.50%	6.73%	3.09% (10/18)		
Leading Edge Emg Mkts Fund	-	-	-	-	3.53% (11/18)		
MSCI EM	2.95%	1.81%	8.18%		3.23% (11/18)		
GlobeFlex Emerging Small Cap	-	-	-	-	7.52% (8/13)		
MSCI EM Small Cap	4.63%	4.60%	9.68%	7.84%	4.61% (8/13)		
New Century Global TIPS	1.47%	-	-	-	1.09% (2/12)		
Blmbg Wrld Inflation Linked Unhdg	1.05%	1.47%	3.30%	4.29%	0.62% (2/12)		

* All returns on this report are shown with 2- decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.



Total Fund Benchmark Definition:

- The Total Fund Custom Benchmark returns were provided by RVK prior to 12/31/2018.
- Starting 01/01/2020, benchmark consists of: 26% Bloomberg U.S. Agg Bond Index, 14% SERS Private Equity Composite, 25% Russell 3000 Index, 13% MSCI World ex US IMI Index, 8% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 4% MSCI Emerging Markets IMI Index, 4% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.
- Starting 07/01/2021, benchmark consists of: 26% Bloomberg U.S. Agg Bond Index, 12% SERS Private Equity Composite, 27% Russell 3000 Index, 13% MSCI World ex US IMI Index, 8% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 4% MSCI Emerging Markets IMI Index, 4% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.
- Starting 10/01/2021, benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 12% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.
- Starting 07/01/2022, benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

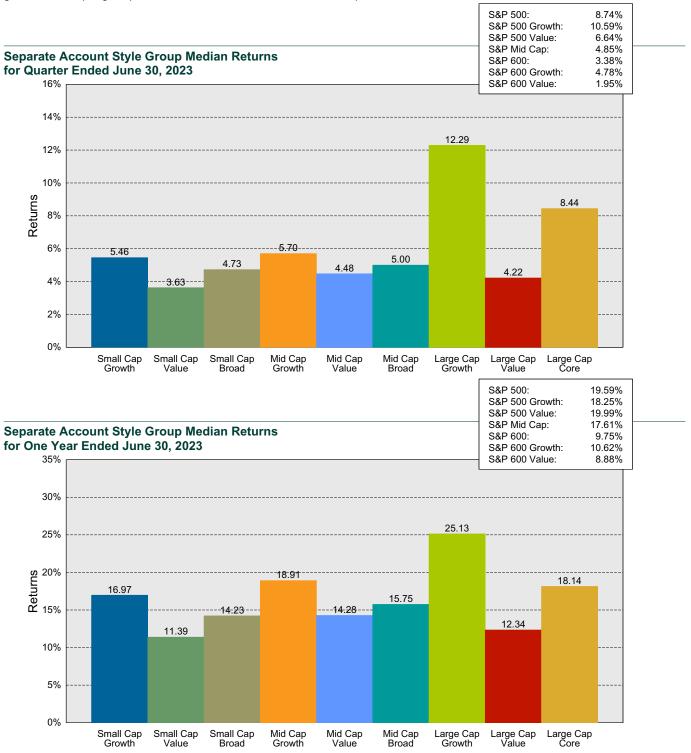
Public Market Equivalent Benchmark Definition:

- The Public Market Equivalent Benchmark returns provided by RVK prior to 12/31/2018.
- As of 01/01/2020, benchmark consists of: 26% Bloomberg U.S. Agg Bond Index, 25% Russell 3000,13% MSCI World ex US Index, 10.5% Russell 3000+ 3% (Qtr lag), 8% CPI+3% (Qtr Lag), 4% S&P/LSTA Levered Loan Index +1% (Qtr lag), 4% Bloomberg US TIPS Index, 4% MSCI Emerging Markets Index, 3.5% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index.
- Starting 07/01/2021, benchmark consists of 26% Bloomberg U.S. Agg Bond Index, 27% Russell 3000, 13% MSCI World IMI ex US, 9% Russell 3000+ 3% (Qtr lag), 8% CPI+3% (Qtr lag), 4% S&P/LSTA Lev. + 1% (Qtr Lag), 4% US TIPS Index,4% MSCI EM IMI Index, 3% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index.
- Starting 10/01/2021, benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 9% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 4% S&P/LSTA Levered Loan Index +1% (Qtr lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 3% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index.
- Starting 07/01/2021, benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 12% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 4% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index.

U.S. Equity

Domestic Equity Active Management Overview

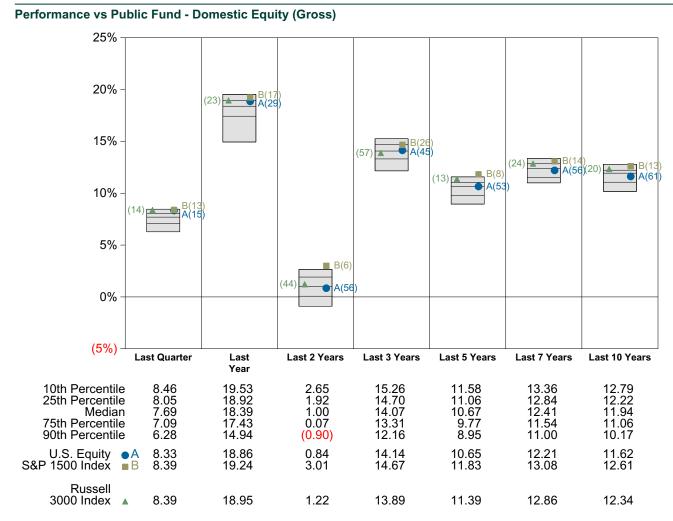
U.S. stock indices posted positive returns in 2Q with performance dominated by large cap technology stocks. The S&P 500 Index rose 8.7% while the tech-heavy Nasdaq Composite returned +13.1%. Within the S&P 500, Technology (+17.2%), Communication Services (+13.1%), and Consumer Discretionary (+14.6%) rose sharply while Energy (-0.9%) and Utilities (-2.5%) fell. Growth stocks trounced value for the quarter (Russell 1000 Growth: +12.8%; Russell 1000 Value: +4.1%) due largely to the sharp outperformance of Technology relative to Health Care, Energy, and Financials. Small cap stocks underperformed large (Russell 2000: +5.2%; Russell 1000: +8.6%) across the style spectrum. Index concentration continued to have a significant impact on returns in 2Q. The aptly named Magnificent Seven (Nvidia, Meta Platforms, Amazon, Tesla, Apple, Microsoft, Alphabet) comprise roughly 25% of the S&P 500 and have accounted for the vast majority of S&P 500 gains in 2023 (Mag 7 up 64% versus 3% for the rest of the Index).



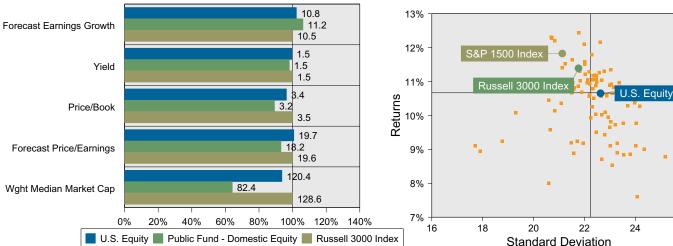
U.S. Equity Period Ended June 30, 2023

Quarterly Summary and Highlights

- U.S. Equity's portfolio posted a 8.33% return for the quarter placing it in the 15 percentile of the Public Fund Domestic Equity group for the quarter and in the 29 percentile for the last year.
- U.S. Equity's portfolio underperformed the Russell 3000 Index by 0.06% for the quarter and underperformed the Russell 3000 Index for the year by 0.10%.







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

Callan

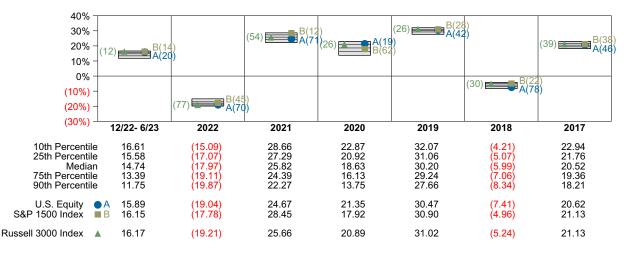
26

U.S. Equity Return Analysis Summary

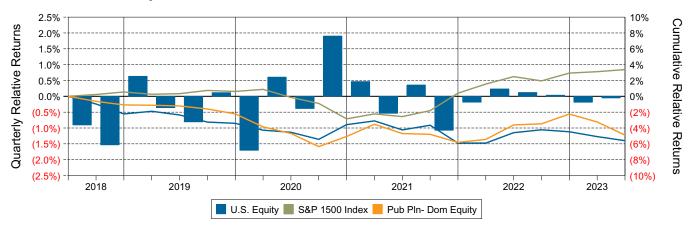
Return Analysis

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.

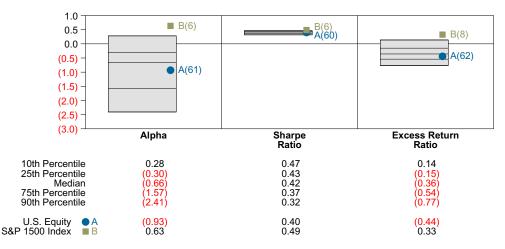




Cumulative and Quarterly Relative Returns vs Russell 3000 Index



Risk Adjusted Return Measures vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended June 30, 2023



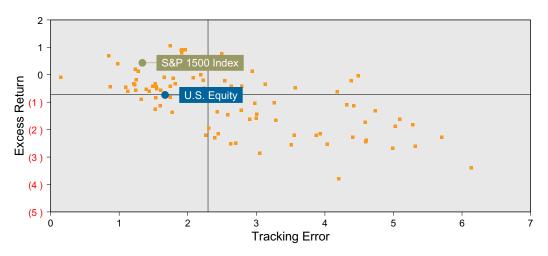


U.S. Equity Risk Analysis Summary

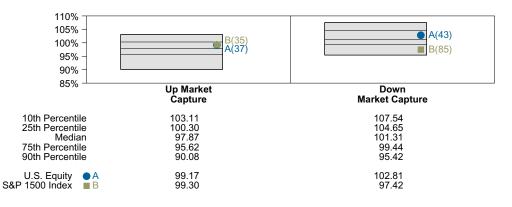
Risk Analysis

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.

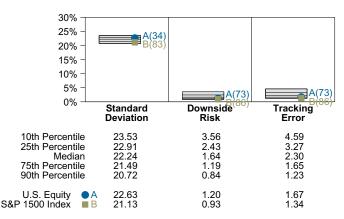
Risk Analysis vs Public Fund - Domestic Equity (Gross) Five Years Ended June 30, 2023

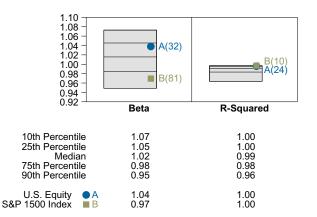


Market Capture vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended June 30, 2023



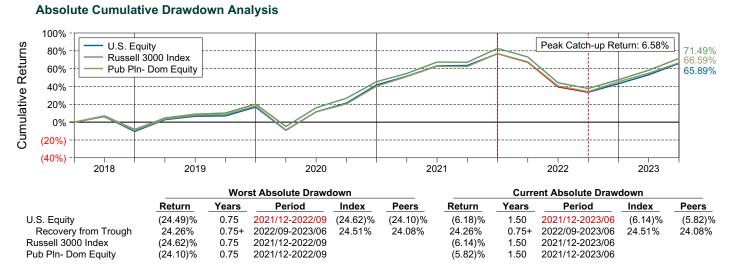
Risk Statistics Rankings vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended June 30, 2023

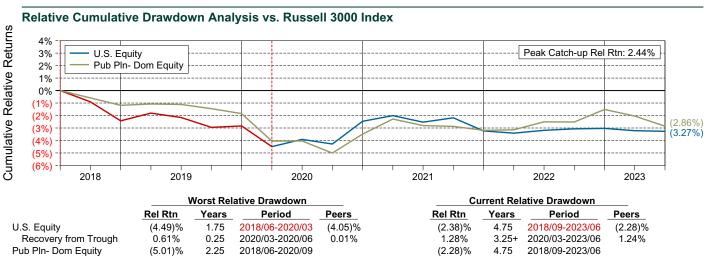




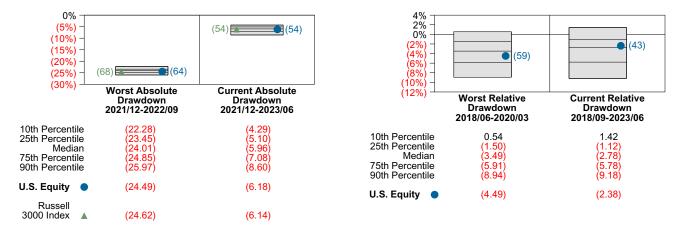
U.S. Equity Drawdown Analysis for Five Years Ended June 30, 2023

The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.





Drawdown Rankings vs. Russell 3000 Index Rankings against Public Fund - Domestic Equity Five Years Ended June 30, 2023



Current Holdings Based Style Analysis U.S. Equity As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

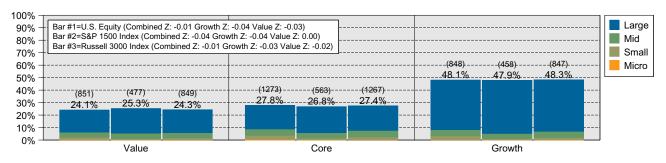
Style Exposure Matrix

Holdings as of June 30, 2023

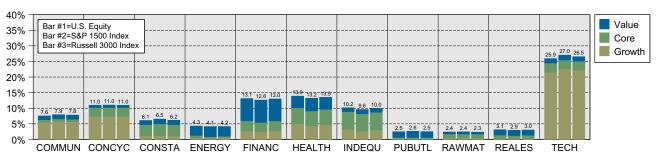


Style Map vs Pub Pln- Dom Equity Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023



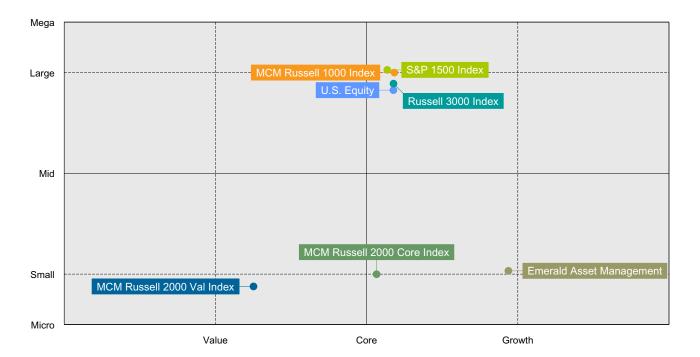
Total

Holdings Based Style Analysis For One Quarter Ended June 30, 2023

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

Style Map

Holdings for One Quarter Ended June 30, 2023



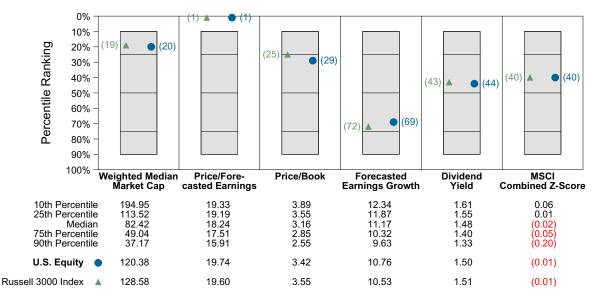
	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities D	Security Diversification
MCM Russell 2000 Val Index	2.94%	2.00	(0.78)	(0.33)	0.45	1463	217.66
MCM Russell 2000 Core Inde	x 3.04%	2.48	(0.10)	(0.12)	(0.02)	2012	332.36
Emerald Asset Management	3.38%	2.91	0.59	0.09	(0.50)	113	35.71
MCM Russell 1000 Index	90.64%	142.59	(0.01)	(0.03)	(0.02)	1010	47.95
U.S. Equity	100.00%	120.38	(0.01)	(0.04)	(0.03)	3027	64.41
Russell 3000 Index	-	128.58	(0.01)	(0.03)	(0.02)	3009	56.83
S&P 1500 Index	-	150.64	(0.04)	(0.04)	0.00	1505	45.93

U.S. Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

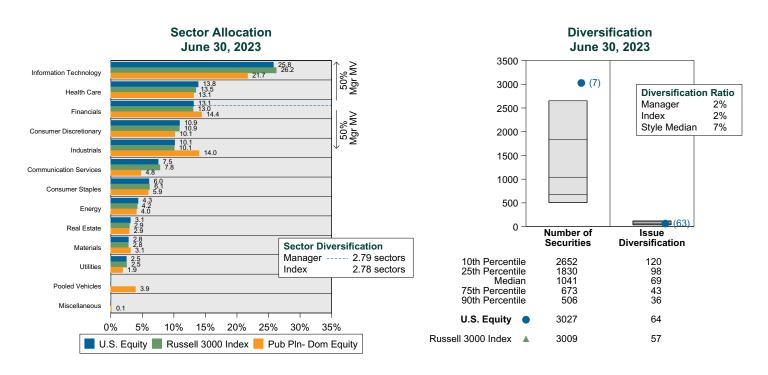
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - Domestic Equity as of June 30, 2023



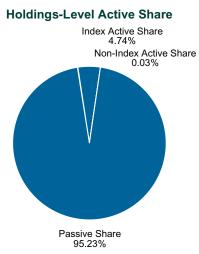
Sector Weights

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

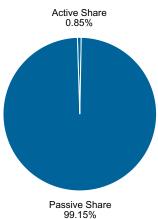


U.S. Equity Active Share Analysis as of June 30, 2023 vs. Russell 3000 Index

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.



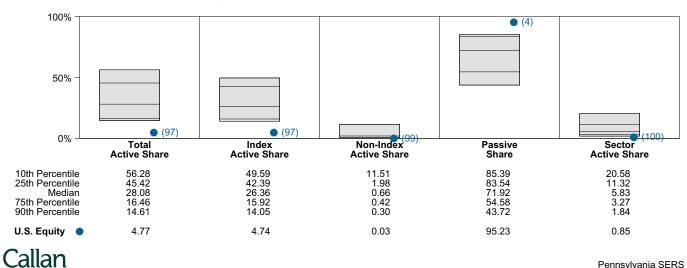
Sector Exposure Active Share



Total Active Share: 4.77%

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	1.10%	0.00%	1.10%	7.78%	7.51%	0.20%
Consumer Discretionary	4.73%	0.11%	4.84%	10.87%	10.90%	0.53%
Consumer Staples	3.49%	0.00%	3.49%	6.14%	6.05%	0.25%
Energy	7.42%	0.00%	7.42%	4.18%	4.32%	0.26%
Financials	5.13%	0.05%	5.18%	13.04%	13.11%	0.63%
Health Care	7.86%	0.01%	7.87%	13.48%	13.84%	0.91%
Industrials	7.02%	0.00%	7.03%	10.05%	10.13%	0.63%
Information Technology	2.55%	0.00%	2.55%	26.22%	25.78%	0.94%
Materials	6.20%	0.00%	6.20%	2.77%	2.79%	0.16%
Miscellaneous	0.00%	100.00%	100.00%	-	0.01%	0.00%
Pooled Vehicles	0.00%	100.00%	100.00%	-	0.01%	0.00%
Real Estate	6.40%	0.00%	6.40%	2.95%	3.10%	0.16%
Utilities	2.88%	0.00%	2.88%	2.50%	2.46%	0.09%
Total	4.74%	0.03%	4.77%	100.00%	100.00%	4.76%





U.S. Equity Managers

MCM Russell 1000 Index Period Ended June 30, 2023

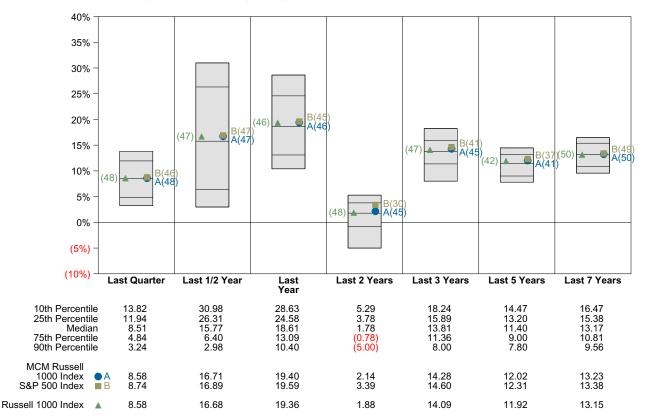
Investment Philosophy

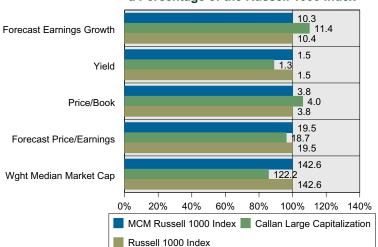
The Russell 1000 Stock Index Fund attempts to replicate the performance and portfolio characteristics of the Russell 1000 Index.

Quarterly Summary and Highlights

- MCM Russell 1000 Index's portfolio posted a 8.58% return for the quarter placing it in the 48 percentile of the Callan Large Capitalization group for the quarter and in the 46 percentile for the last year.
- MCM Russell 1000 Index's portfolio outperformed the Russell 1000 Index by 0.00% for the quarter and outperformed the Russell 1000 Index for the year by 0.04%.

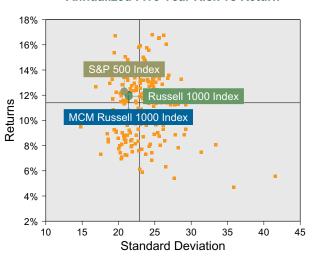
Performance vs Callan Large Capitalization (Gross)





Portfolio Characteristics as a Percentage of the Russell 1000 Index

Callan Large Capitalization (Gross) Annualized Five Year Risk vs Return



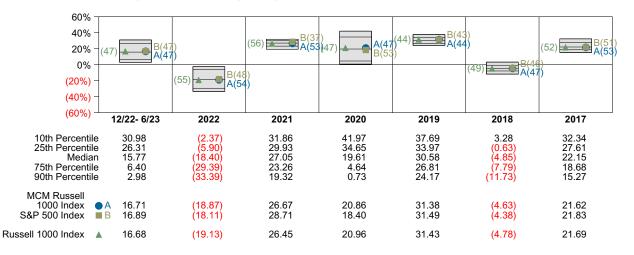


MCM Russell 1000 Index Return Analysis Summary

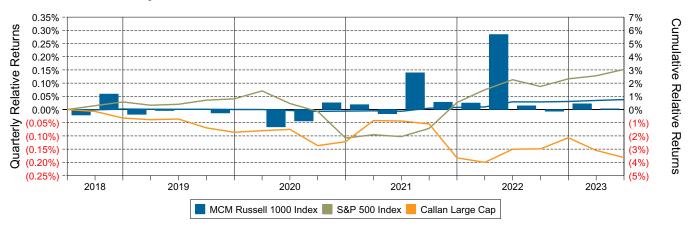
Return Analysis

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.

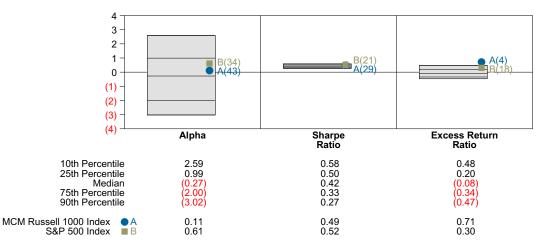
Performance vs Callan Large Capitalization (Gross)



Cumulative and Quarterly Relative Returns vs Russell 1000 Index



Risk Adjusted Return Measures vs Russell 1000 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended June 30, 2023

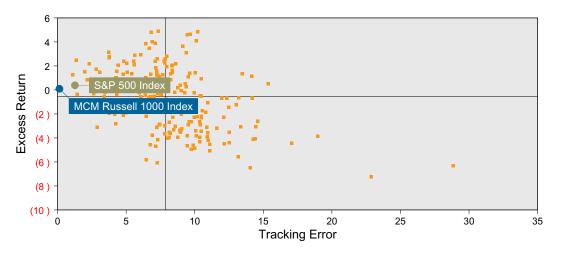


MCM Russell 1000 Index Risk Analysis Summary

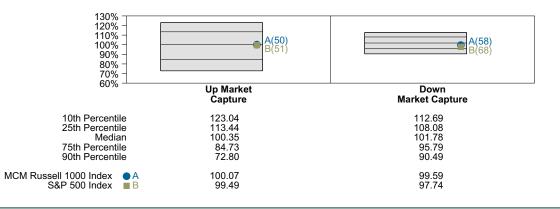
Risk Analysis

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.

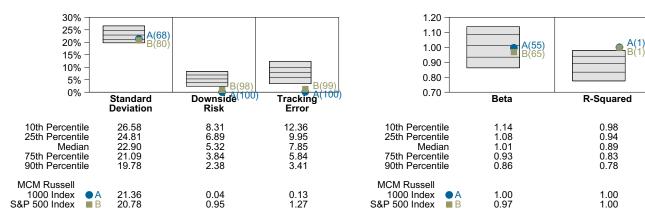
Risk Analysis vs Callan Large Capitalization (Gross) Five Years Ended June 30, 2023



Market Capture vs Russell 1000 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended June 30, 2023



Risk Statistics Rankings vs Russell 1000 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended June 30, 2023



Current Holdings Based Style Analysis MCM Russell 1000 Index As of June 30, 2023

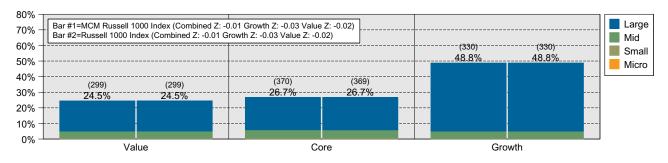
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

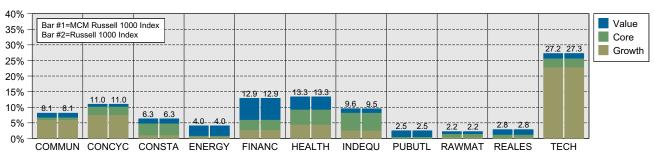


Style Map vs Callan Large Cap Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

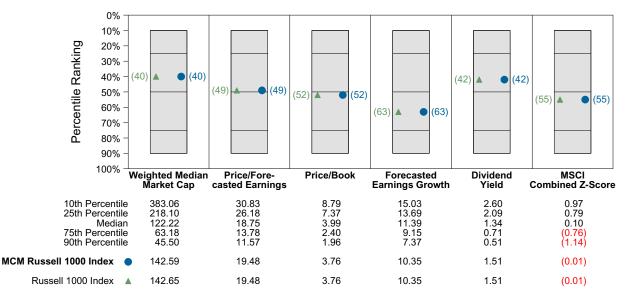


MCM Russell 1000 Index Equity Characteristics Analysis Summary

Portfolio Characteristics

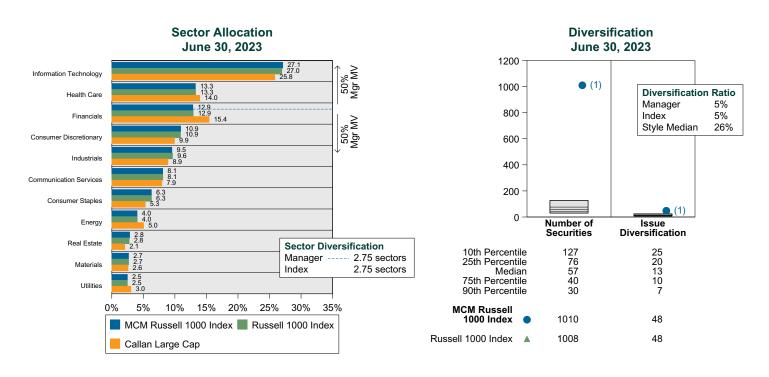
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Large Capitalization as of June 30, 2023



Sector Weights

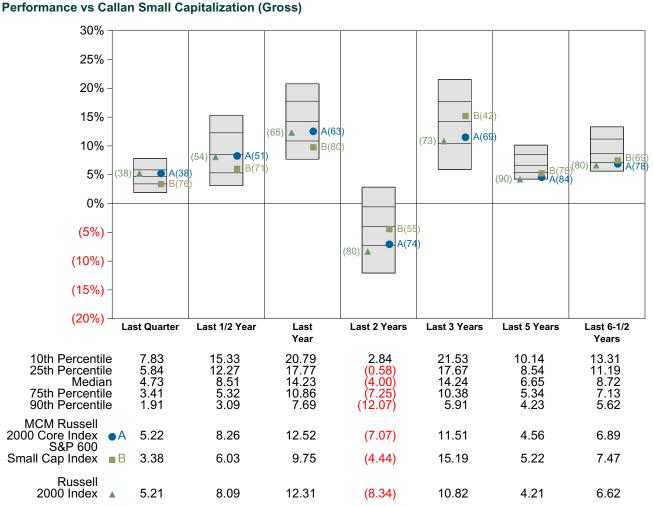
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MCM Russell 2000 Core Index Period Ended June 30, 2023

Quarterly Summary and Highlights

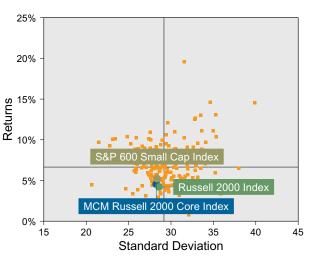
- MCM Russell 2000 Core Index's portfolio posted a 5.22% return for the quarter placing it in the 38 percentile of the Callan Small Capitalization group for the quarter and in the 63 percentile for the last year.
- MCM Russell 2000 Core Index's portfolio outperformed the Russell 2000 Index by 0.02% for the quarter and outperformed the Russell 2000 Index for the year by 0.21%.





Portfolio Characteristics as a Percentage of the Russell 2000 Index

Callan Small Capitalization (Gross) Annualized Five Year Risk vs Return



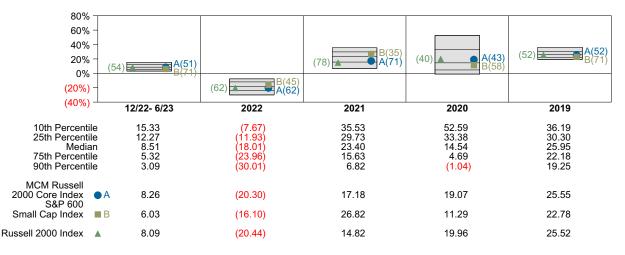


MCM Russell 2000 Core Index Return Analysis Summary

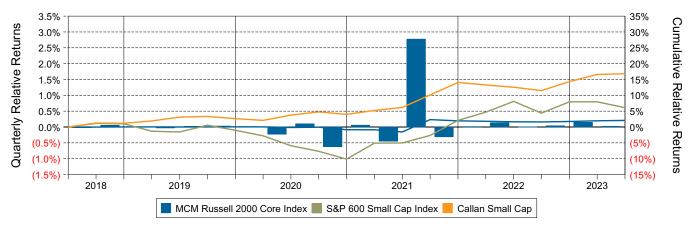
Return Analysis

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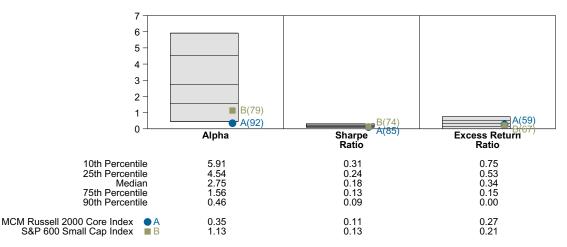
Performance vs Callan Small Capitalization (Gross)



Cumulative and Quarterly Relative Returns vs Russell 2000 Index



Risk Adjusted Return Measures vs Russell 2000 Index Rankings Against Callan Small Capitalization (Gross) Five Years Ended June 30, 2023



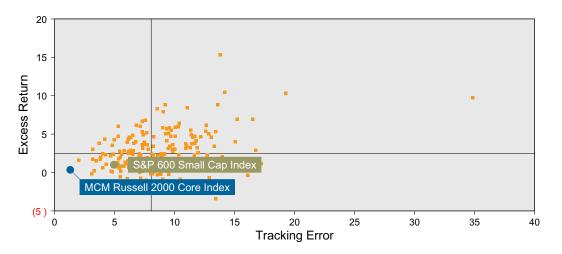


MCM Russell 2000 Core Index Risk Analysis Summary

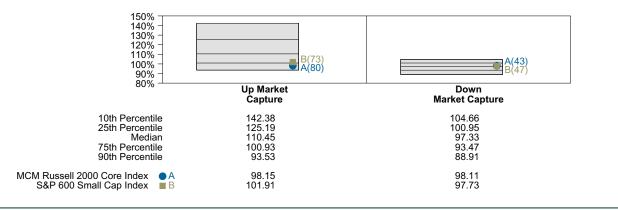
Risk Analysis

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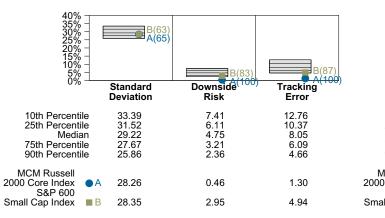
Risk Analysis vs Callan Small Capitalization (Gross) Five Years Ended June 30, 2023

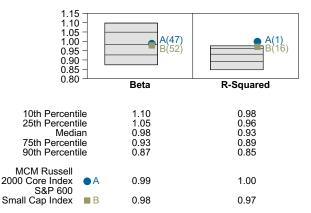


Market Capture vs Russell 2000 Index Rankings Against Callan Small Capitalization (Gross) Five Years Ended June 30, 2023



Risk Statistics Rankings vs Russell 2000 Index Rankings Against Callan Small Capitalization (Gross) Five Years Ended June 30, 2023





Current Holdings Based Style Analysis MCM Russell 2000 Core Index As of June 30, 2023

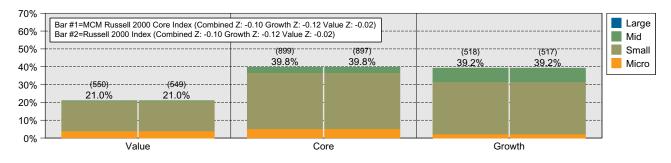
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Style Exposure Matrix

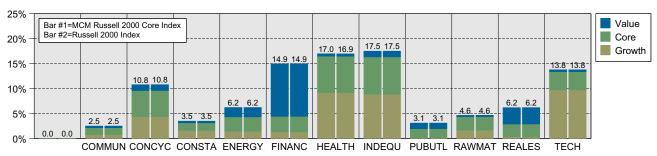


Style Map vs Callan Small Cap Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

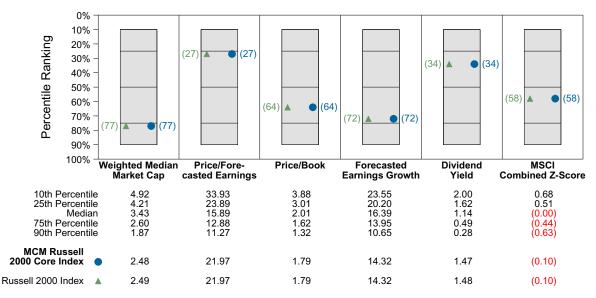


MCM Russell 2000 Core Index Equity Characteristics Analysis Summary

Portfolio Characteristics

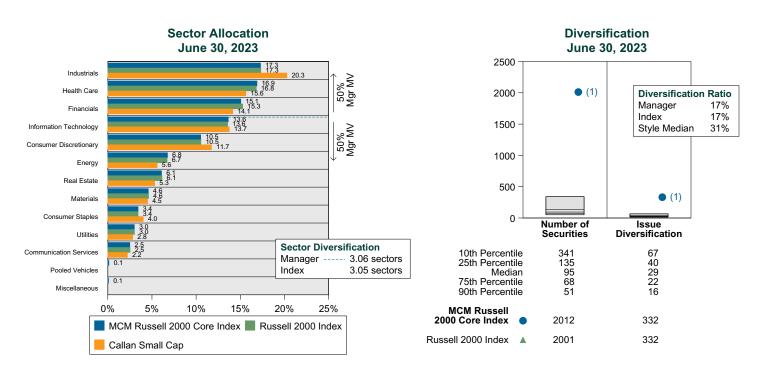
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Capitalization as of June 30, 2023



Sector Weights

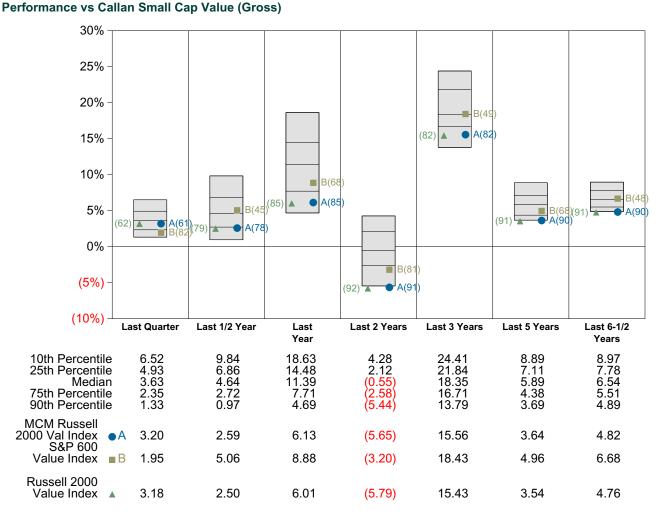
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration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

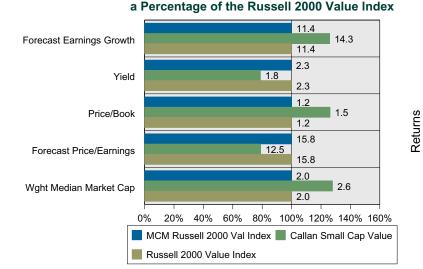


MCM Russell 2000 Val Index Period Ended June 30, 2023

Quarterly Summary and Highlights

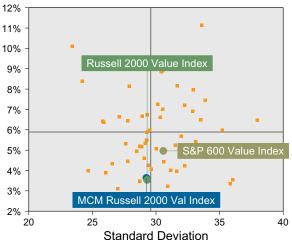
- MCM Russell 2000 Val Index's portfolio posted a 3.20% return for the quarter placing it in the 61 percentile of the Callan Small Cap Value group for the quarter and in the 85 percentile for the last year.
- MCM Russell 2000 Val Index's portfolio outperformed the Russell 2000 Value Index by 0.02% for the quarter and outperformed the Russell 2000 Value Index for the year by 0.13%.





Portfolio Characteristics as

Callan Small Cap Value (Gross) Annualized Five Year Risk vs Return



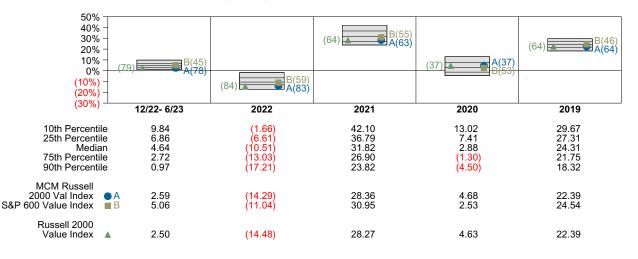


MCM Russell 2000 Val Index Return Analysis Summary

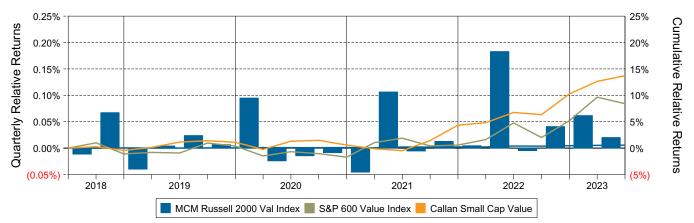
Return Analysis

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.

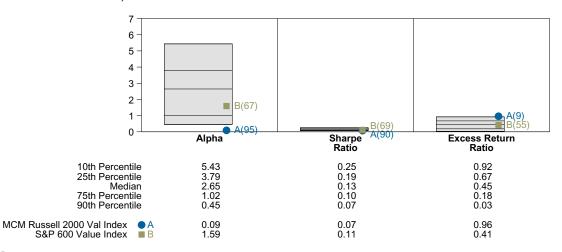
Performance vs Callan Small Cap Value (Gross)



Cumulative and Quarterly Relative Returns vs Russell 2000 Value Index



Risk Adjusted Return Measures vs Russell 2000 Value Index Rankings Against Callan Small Cap Value (Gross) Five Years Ended June 30, 2023

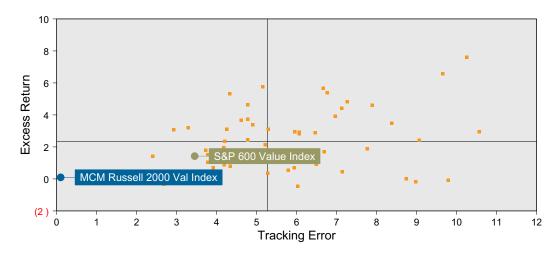


MCM Russell 2000 Val Index **Risk Analysis Summary**

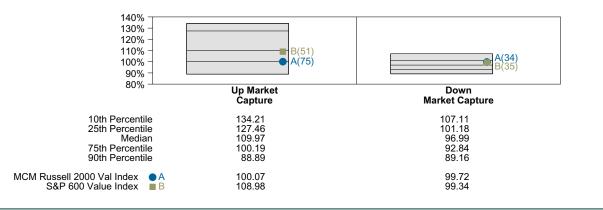
Risk Analysis

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.

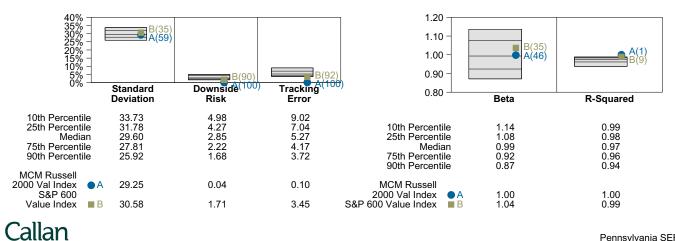
Risk Analysis vs Callan Small Cap Value (Gross) Five Years Ended June 30, 2023



Market Capture vs Russell 2000 Value Index Rankings Against Callan Small Cap Value (Gross) Five Years Ended June 30, 2023



Risk Statistics Rankings vs Russell 2000 Value Index Rankings Against Callan Small Cap Value (Gross) Five Years Ended June 30, 2023



Current Holdings Based Style Analysis MCM Russell 2000 Val Index As of June 30, 2023

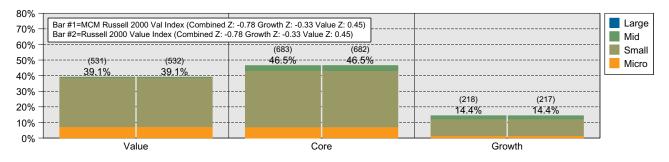
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

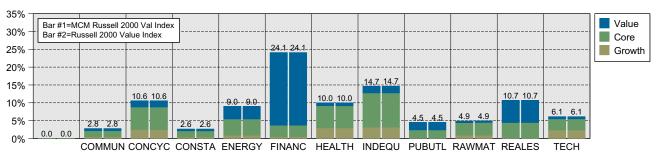


Style Map vs Callan Small Cap Value Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

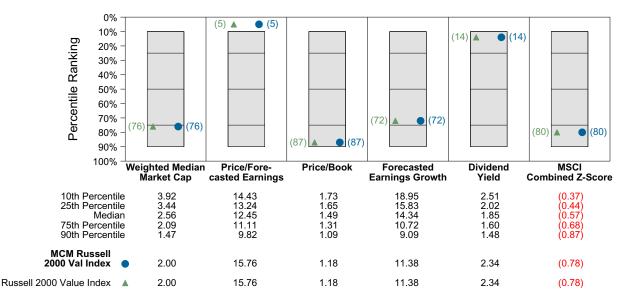


MCM Russell 2000 Val Index Equity Characteristics Analysis Summary

Portfolio Characteristics

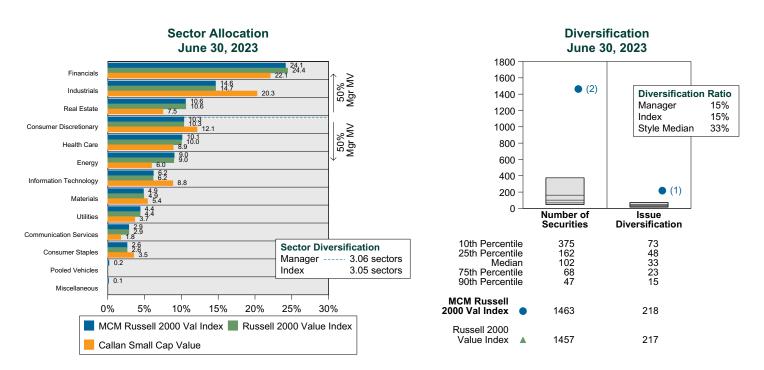
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Cap Value as of June 30, 2023



Sector Weights

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



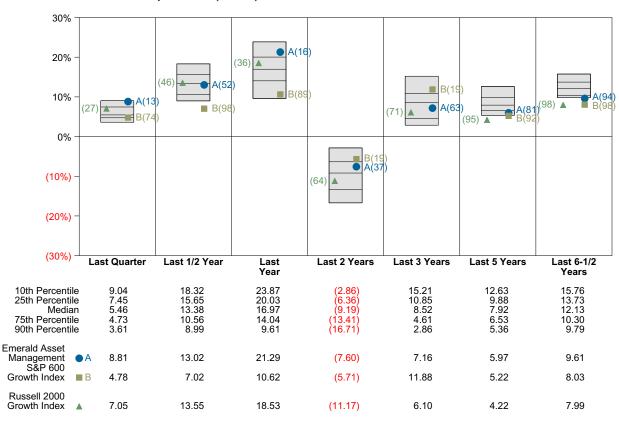
Emerald Asset Management Period Ended June 30, 2023

Investment Philosophy

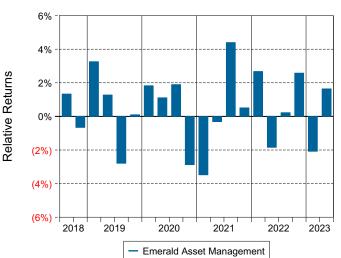
Emerald is dedicated to fundamental, bottom-up research designed to identify unrecognized, under-researched and undervalued growth companies.

Quarterly Summary and Highlights

- Emerald Asset Management's portfolio posted a 8.81% return for the quarter placing it in the 13 percentile of the Callan Small Cap Growth group for the quarter and in the 16 percentile for the last year.
- Emerald Asset Management's portfolio outperformed the Russell 2000 Growth Index by 1.76% for the quarter and outperformed the Russell 2000 Growth Index for the year by 2.76%.

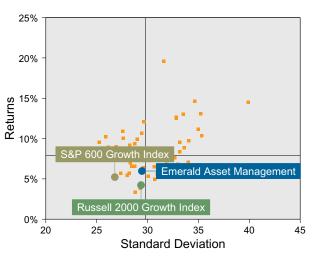


Performance vs Callan Small Cap Growth (Gross)



Relative Return vs Russell 2000 Growth Index

Callan Small Cap Growth (Gross) Annualized Five Year Risk vs Return

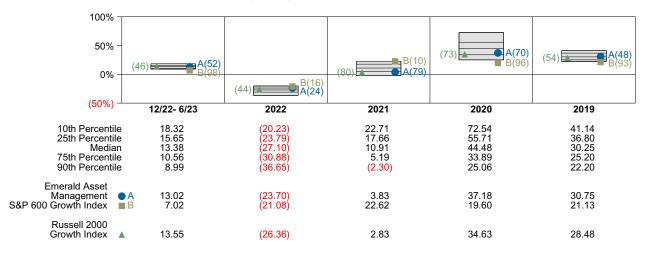


Emerald Asset Management Return Analysis Summary

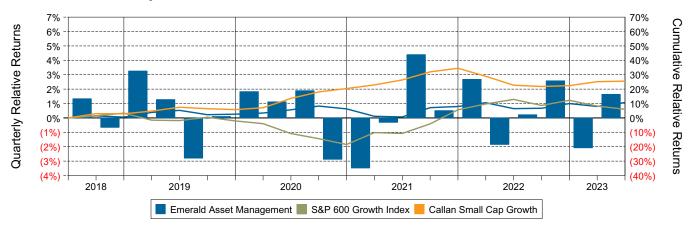
Return Analysis

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.

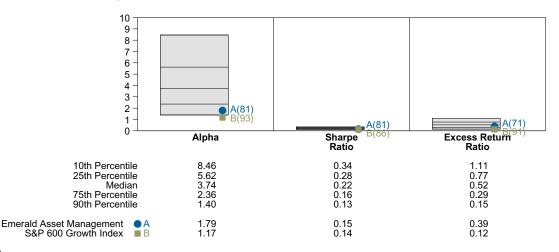
Performance vs Callan Small Cap Growth (Gross)



Cumulative and Quarterly Relative Returns vs Russell 2000 Growth Index



Risk Adjusted Return Measures vs Russell 2000 Growth Index Rankings Against Callan Small Cap Growth (Gross) Five Years Ended June 30, 2023

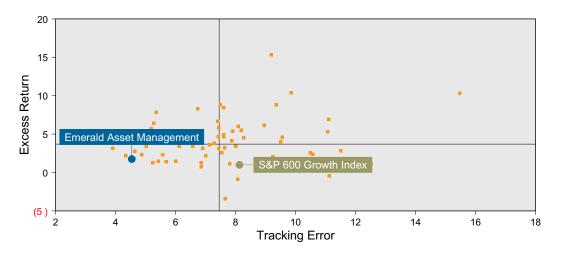


Emerald Asset Management Risk Analysis Summary

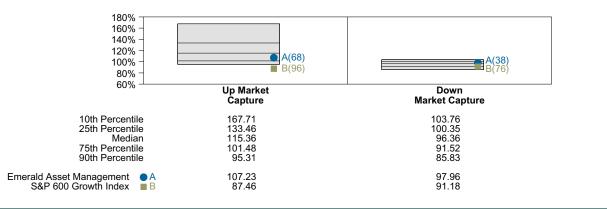
Risk Analysis

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.

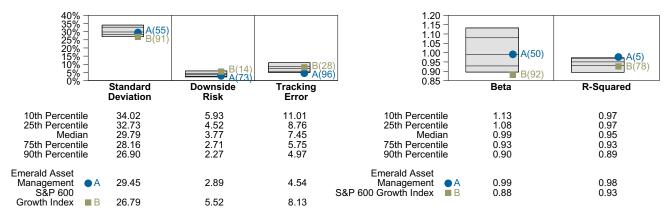
Risk Analysis vs Callan Small Cap Growth (Gross) Five Years Ended June 30, 2023



Market Capture vs Russell 2000 Growth Index Rankings Against Callan Small Cap Growth (Gross) Five Years Ended June 30, 2023



Risk Statistics Rankings vs Russell 2000 Growth Index Rankings Against Callan Small Cap Growth (Gross) Five Years Ended June 30, 2023



Current Holdings Based Style Analysis Emerald Asset Management As of June 30, 2023

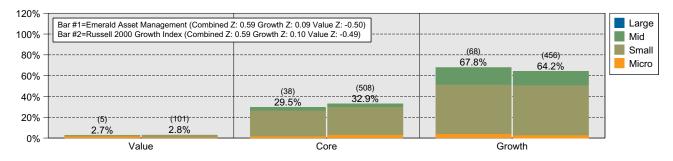
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

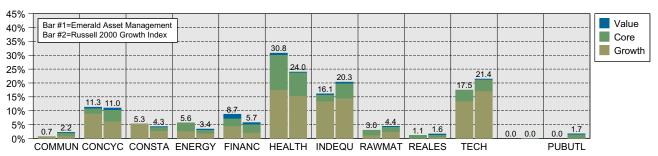


Style Map vs Callan Small Cap Growth Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

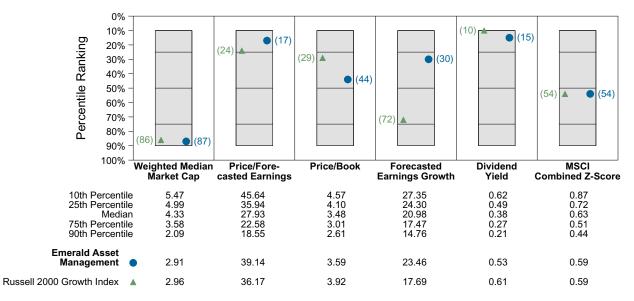


Emerald Asset Management Equity Characteristics Analysis Summary

Portfolio Characteristics

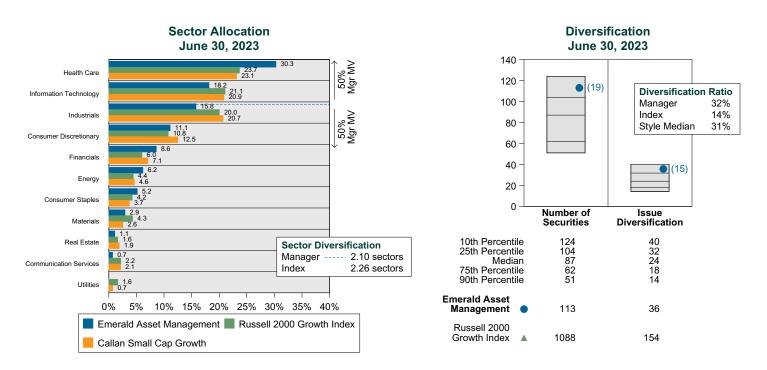
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Cap Growth as of June 30, 2023



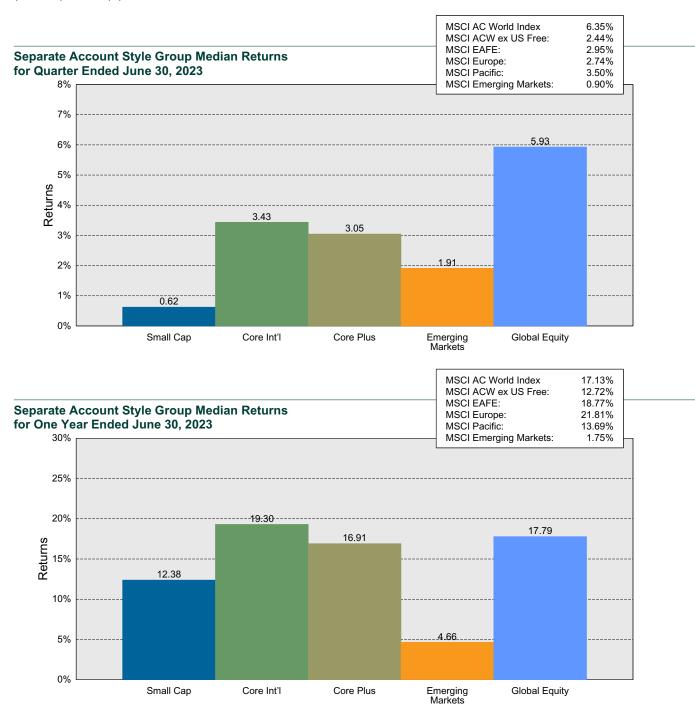
Sector Weights

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



International Equity Active Management Overview

Global ex-U.S. equity markets trailed U.S. equity markets given lower technology exposure. Lacking the U.S. markets exuberance for any company associated with Artificial Intelligence, style impacts in developed ex-U.S. equity were more muted with value (MSCI World ex USA Value: +3.1%) in line with growth (MSCI World ex USA Growth: +3.0%). Illustratively, Industrials (EAFE Industrials: +6.4%) outperformed Technology (EAFE Technology: +5.9%). Japan (+6.4%) was a top performer and the Nikkei 225 Index hit its highest level since 1990. Japan benefited from strong inflows from foreign investors, expectations for corporate governance reform and an improved outlook for the Japanese economy. The yen sank 8% versus the U.S. dollar as monetary policy was kept ultra-loose, but the dollar fell versus the British pound (+2.8%) and the euro (+0.4%).^L^Emerging market equity underperformed developed market equity, but results varied widely. Emerging Europe (+11.2%) and Latin America (+14.0%) posted double-digit results while Emerging Asia (-0.8%) was hurt by poor performance from China (-9.7%) offsetting results from India (+12.2%). Poland (+24.5%) boosted the performance of Emerging Europe while Turkey (-10.7%) weighed on the regions results. In Latin America, Brazil (+20.7%) and Colombia (+11.7%) were top performers.

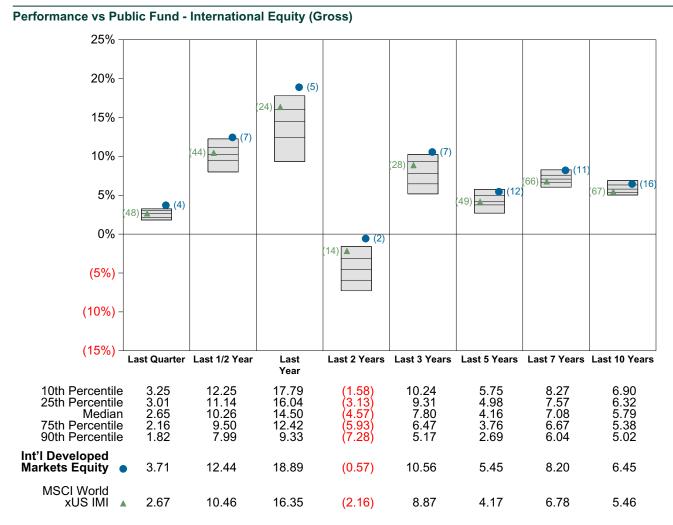


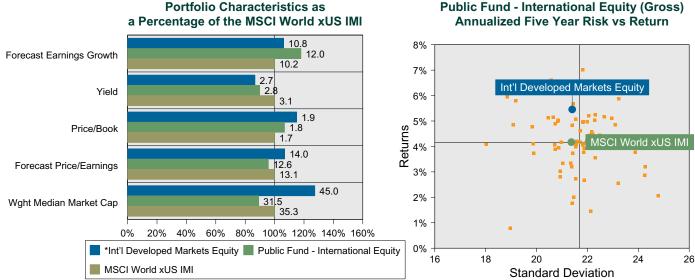
International Developed Markets Equity

Int'l Developed Markets Equity Period Ended June 30, 2023

Quarterly Summary and Highlights

- Int'l Developed Markets Equity's portfolio posted a 3.71% return for the quarter placing it in the 4 percentile of the Public Fund - International Equity group for the quarter and in the 5 percentile for the last year.
- Int'l Developed Markets Equity's portfolio outperformed the MSCI World xUS IMI by 1.04% for the quarter and outperformed the MSCI World xUS IMI for the year by 2.54%.





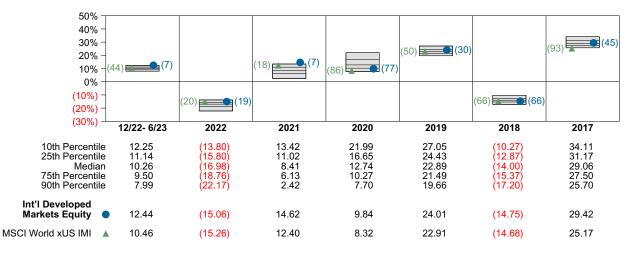
*6/30/23 portfolio characteristics generated using most recently available holdings (3/31/23) modified based on a "buy-and-hold" assumption (repriced and adjusted for corporate actions). Analysis is then done using current market and company financial data.

Int'l Developed Markets Equity Return Analysis Summary

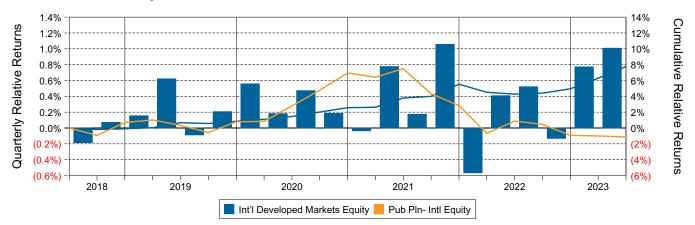
Return Analysis

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.

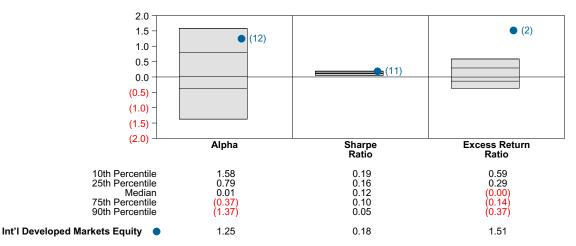




Cumulative and Quarterly Relative Returns vs MSCI World xUS IMI



Risk Adjusted Return Measures vs MSCI World xUS IMI Rankings Against Public Fund - International Equity (Gross) Five Years Ended June 30, 2023



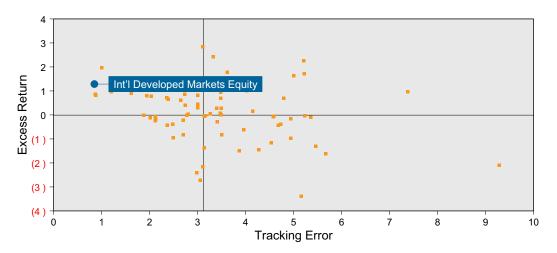


Int'l Developed Markets Equity Risk Analysis Summary

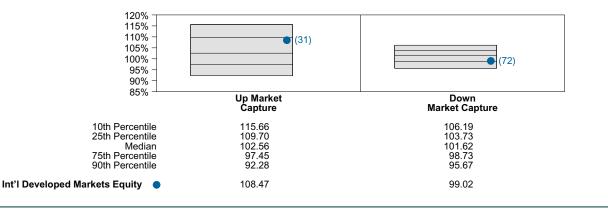
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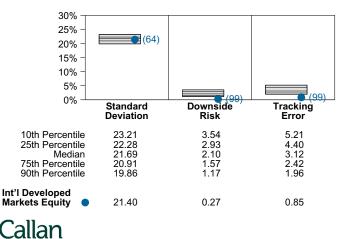
Risk Analysis vs Public Fund - International Equity (Gross) Five Years Ended June 30, 2023

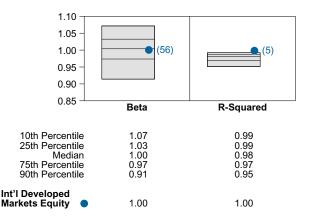


Market Capture vs MSCI World xUS IMI (Net) Rankings Against Public Fund - International Equity (Gross) Five Years Ended June 30, 2023





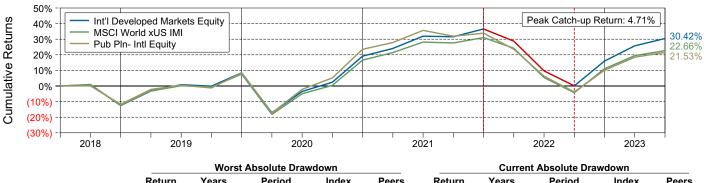




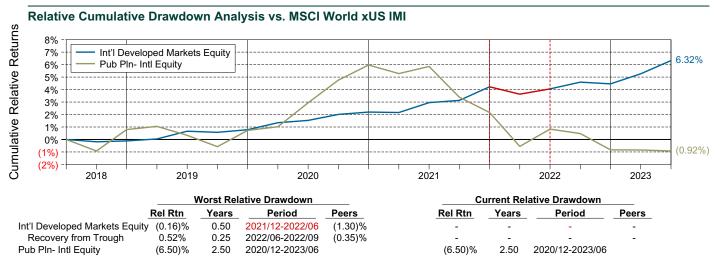
Int'l Developed Markets Equity Drawdown Analysis for Five Years Ended June 30, 2023

The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

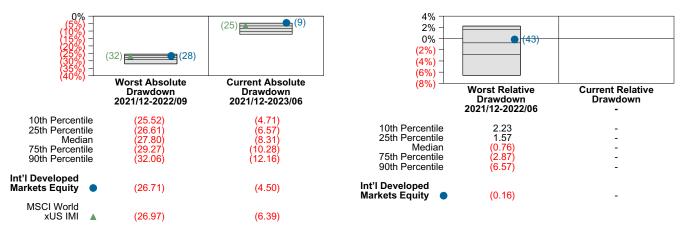
Absolute Cumulative Drawdown Analysis



	Return	Years	Period	Index	Peers	Return	Years	Period	Index	Peers
Int'l Developed Markets Equi	ty (26.71)%	0.75	2021/12-2022/09	(26.97)%	(28.18)%	(4.50)%	1.50	2021/12-2023/06	(6.39)%	(9.22)%
Recovery from Trough	30.30%	0.75+	2022/09-2023/06	28.18%	26.40%	30.30%	0.75+	2022/09-2023/06	28.18%	26.40%
MSCI World xUS IMI	(26.97)%	0.75	2021/12-2022/09			(6.39)%	1.50	2021/12-2023/06		
Pub Pln- Intl Equity	(29.12)%	1.25	2021/06-2022/09			(10.40)%	2.00	2021/06-2023/06		



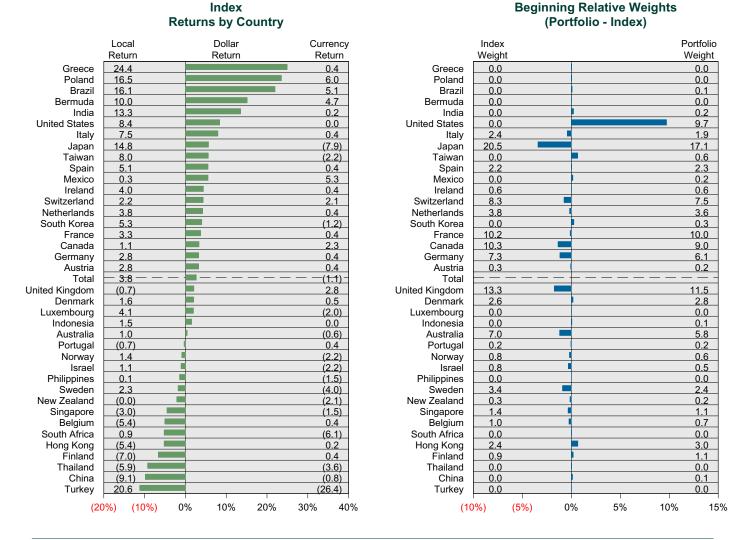
Drawdown Rankings vs. MSCI World xUS IMI Rankings against Public Fund - International Equity Five Years Ended June 30, 2023



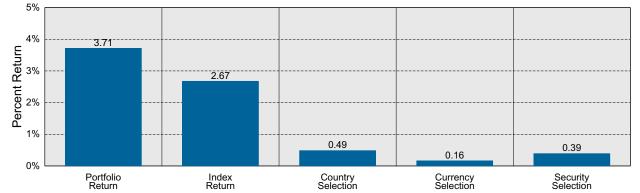
Int'l Developed Markets Equity vs MSCI World xUS IMI Attribution for Quarter Ended June 30, 2023

International Attribution

The first chart below illustrates the return for each country in the index sorted from high to low. The total return for the index is highlighted with a dotted line. The second chart (countries presented in the same order) illustrates the manager's country allocation decisions relative to the index. To the extent that the manager over-weighted a country that had a higher return than the total return for the index (above the dotted line) it contributes positively to the manager's country (or currency) selection effect. The last chart details the manager return, the index return, and the attribution factors for the quarter.







Current Holdings Based Style Analysis Int'l Developed Markets Equity As of June 30, 2023

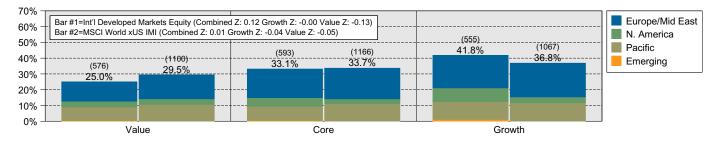
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

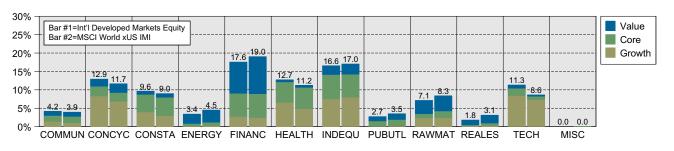


Style Map vs Pub Pln- Intl Equity Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

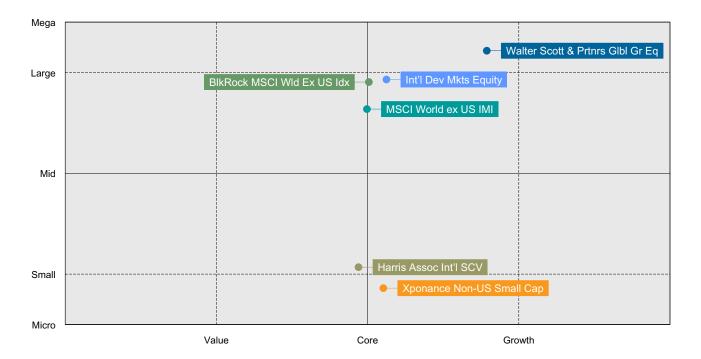


International Holdings Based Style Analysis For One Quarter Ended June 30, 2023

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

Style Map

Holdings for One Quarter Ended June 30, 2023



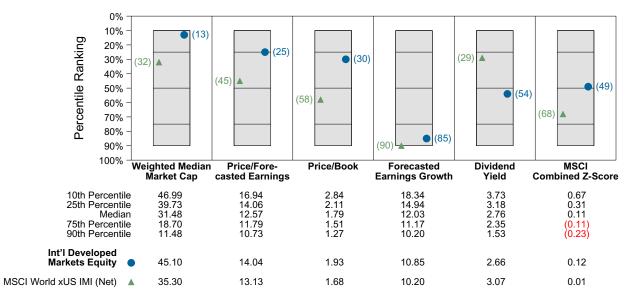
	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities I	Security Diversification
Walter Scott & Prtnrs Glbl Gr	E q 4.61%	110.91	0.71	0.15	(0.56)	47	17.26
BlkRock MSCI WId Ex US Idx	78.03%	44.26	0.02	(0.04)	(0.06)	883	104.07
Harris Assoc Int'l SCV	2.82%	3.14	(0.04)	(0.02)	0.03	63	18.87
Xponance Non-US Small Cap	4.46%	2.01	0.10	0.12	0.02	862	107.71
Int'l Dev Mkts Equity	100.00%	45.10	0.12	(0.00)	(0.13)	1789	114.05
MSCI World ex US IMI	-	35.30	0.01	(0.04)	(0.05)	3373	140.67

Int'l Developed Markets Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

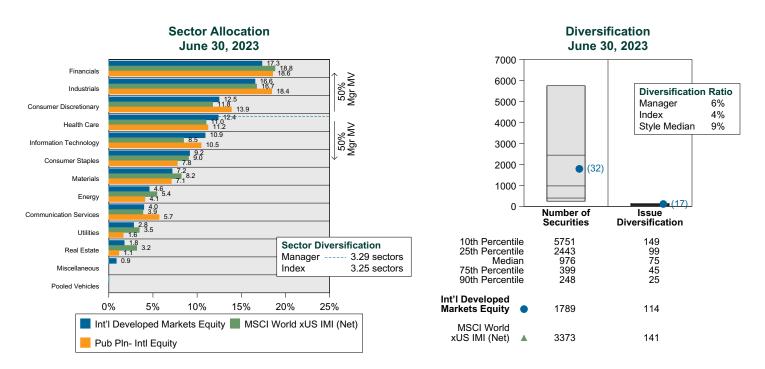
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - International Equity as of June 30, 2023



Sector Weights

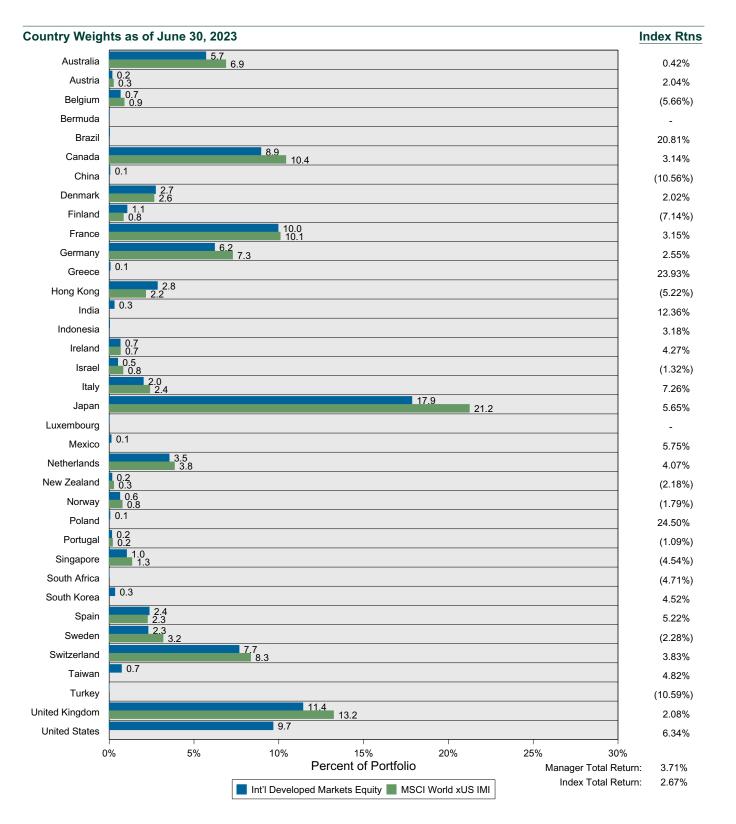
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Country Allocation Int'I Developed Markets Equity VS MSCI World xUS IMI (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

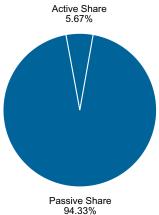


Int'l Developed Markets Equity Active Share Analysis as of June 30, 2023 vs. MSCI World xUS IMI (Net)

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.



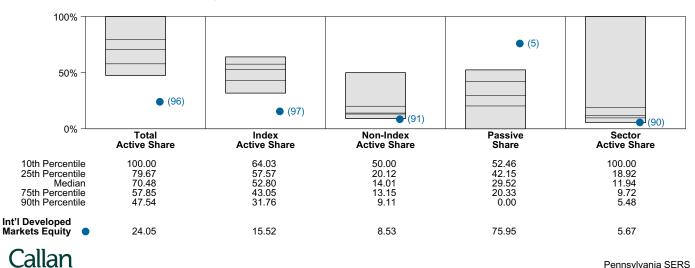
Sector Exposure Active Share



Total Active Share: 24.05%

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	13.50%	8.19%	21.69%	3.87%	3.97%	0.81%
Consumer Discretionary	19.26%	8.51%	27.77%	11.76%	12.49%	3.23%
Consumer Staples	10.50%	6.35%	16.85%	9.03%	9.15%	1.51%
Energy	21.95%	15.39%	37.34%	5.45%	4.58%	1.87%
Financials	9.92%	3.70%	13.62%	18.82%	17.34%	2.98%
Health Care	14.61%	9.18%	23.79%	11.02%	12.39%	2.58%
Industrials	18.13%	8.04%	26.18%	16.74%	16.56%	4.42%
Information Technology	21.88%	16.65%	38.53%	8.48%	10.91%	3.18%
Materials	14.32%	3.66%	17.98%	8.21%	7.17%	1.49%
Miscellaneous	0.00%	100.00%	100.00%	-	0.85%	0.46%
Pooled Vehicles	50.00%	50.00%	100.00%	-	0.00%	0.01%
Real Estate	41.20%	3.98%	45.18%	3.17%	1.75%	0.88%
Utilities	15.57%	4.66%	20.22%	3.45%	2.82%	0.62%
Total	15.52%	8.53%	24.05%	100.00%	100.00%	24.04%

Active Share vs. Pub Pln- Intl Equity



International Developed Equity Managers

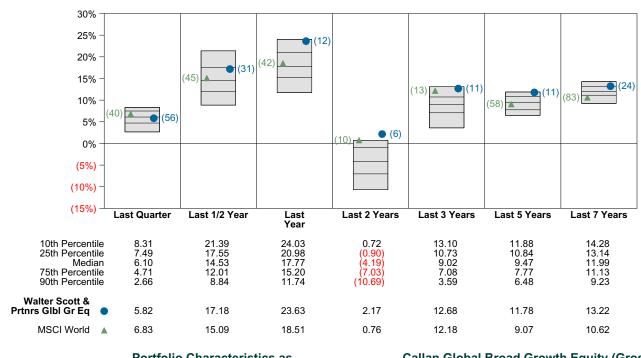
Walter Scott & Prtnrs Glbl Gr Eq Period Ended June 30, 2023

Investment Philosophy

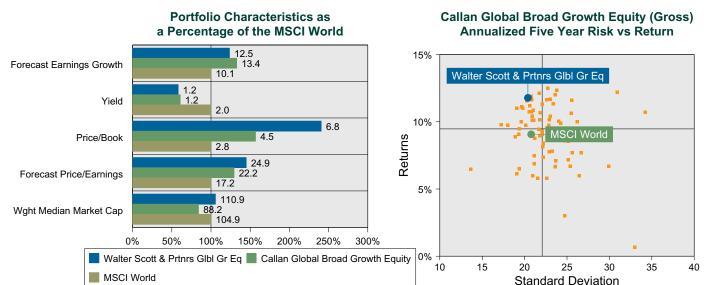
Walter Scott was founded in 1983 and is based in Edinburgh, Scotland. The firm-wide philosophy is centered on the belief that companies with sustainable wealth generation, as defined by 1) cash return on capital employed, 2) return on equity, and 3) growth in earnings per share, will outperform over the long-term. The 24-person investment team of regional experts identifies these opportunities through in-house, bottom-up research. Walter Scott seeks high-quality and competitively-positioned companies that generate strong cash flows and are led by prudent management teams. The Global Equity portfolio holds 40 to 60 stocks with opportunistic exposure to emerging markets. The consistently-applied process is reflected in the strategy's compelling longer-term investment performance.

Quarterly Summary and Highlights

- Walter Scott & Prtnrs Glbl Gr Eq's portfolio posted a 5.82% return for the quarter placing it in the 56 percentile of the Callan Global Broad Growth Equity group for the quarter and in the 12 percentile for the last year.
- Walter Scott & Prtnrs Glbl Gr Eq's portfolio underperformed the MSCI World by 1.01% for the quarter and outperformed the MSCI World for the year by 5.12%.



Performance vs Callan Global Broad Growth Equity (Gross)

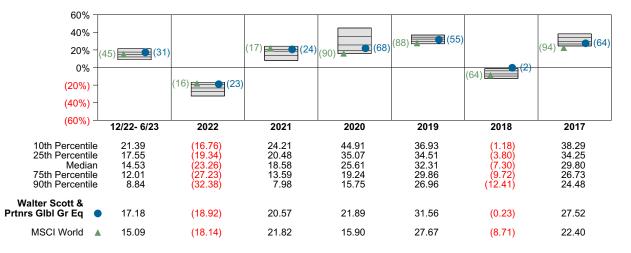


Walter Scott & Prtnrs Glbl Gr Eq Return Analysis Summary

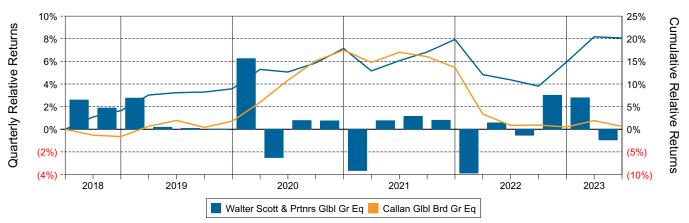
Return Analysis

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.

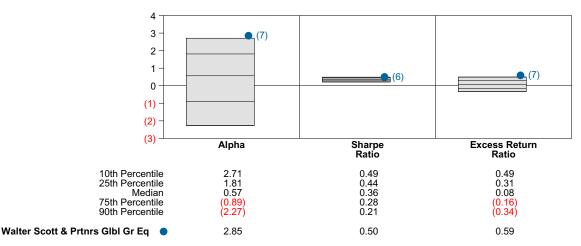




Cumulative and Quarterly Relative Returns vs MSCI World



Risk Adjusted Return Measures vs MSCI World Rankings Against Callan Global Broad Growth Equity (Gross) Five Years Ended June 30, 2023



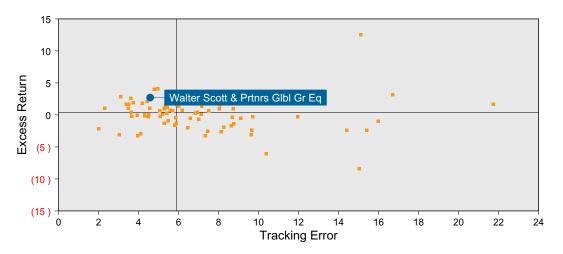


Walter Scott & Prtnrs Glbl Gr Eq Risk Analysis Summary

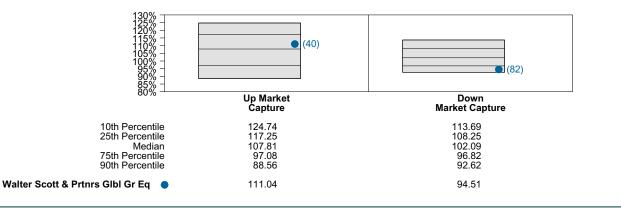
Risk Analysis

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.

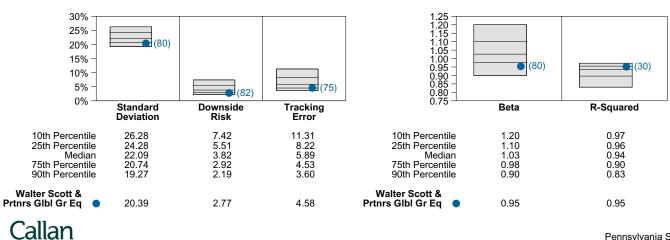
Risk Analysis vs Callan Global Broad Growth Equity (Gross) Five Years Ended June 30, 2023



Market Capture vs MSCI World (Net) Rankings Against Callan Global Broad Growth Equity (Gross) Five Years Ended June 30, 2023

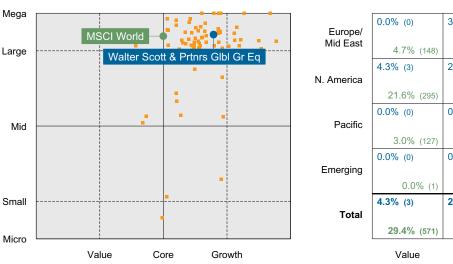


Risk Statistics Rankings vs MSCI World (Net) Rankings Against Callan Global Broad Growth Equity (Gross) Five Years Ended June 30, 2023



Current Holdings Based Style Analysis Walter Scott & Prtnrs Glbl Gr Eq As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

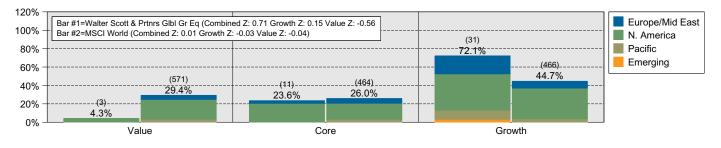


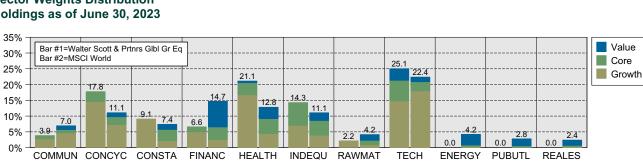
Style Map vs Callan Glbl Brd Gr Eq Holdings as of June 30, 2023

Style Exposure Matrix Holdings as of June 30, 2023

	Value	Core	Growth	Total
	29.4% (571)	26.0% (464)	44.7% (466)	100.0% (1501)
Total				
	4.3% (3)	23.6% (11)	72.1% (31)	100.0% (45)
	0.0% (1)	0.0% (0)	0.0% (1)	0.1% (2)
Emerging				
	0.0% (0)	0.0% (0)	3.0% (1)	3.0% (1)
	3.0% (127)	3.1% (117)	3.6% (113)	9.7% (357)
Pacific				
	0.0% (0)	0.0% (0)	10.1% (5)	10.1% (5)
	21.6% (295)	17.5% (214)	33.4% (193)	72.5% (702)
. America				
	4.3% (3)	20.4% (9)	39.3% (16)	64.0% (28)
Mid East	4.7% (148)	5.4% (133)	7.6% (159)	17.8% (440)
Europe/	0.070 (0)	5.270 (2)	13.776 (3)	22.370 (11)
	0.0% (0)	3.2% (2)	19.7% (9)	22.9% (11)

Combined Z-Score Style Distribution Holdings as of June 30, 2023





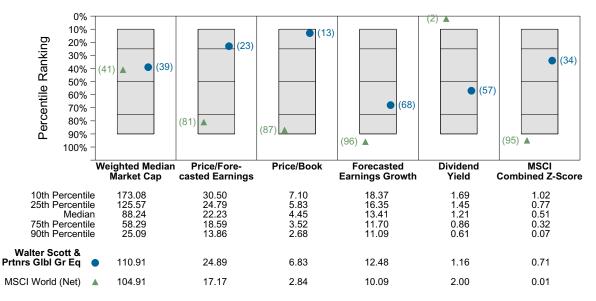
Sector Weights Distribution Holdings as of June 30, 2023

Walter Scott & Prtnrs Glbl Gr Eq Equity Characteristics Analysis Summary

Portfolio Characteristics

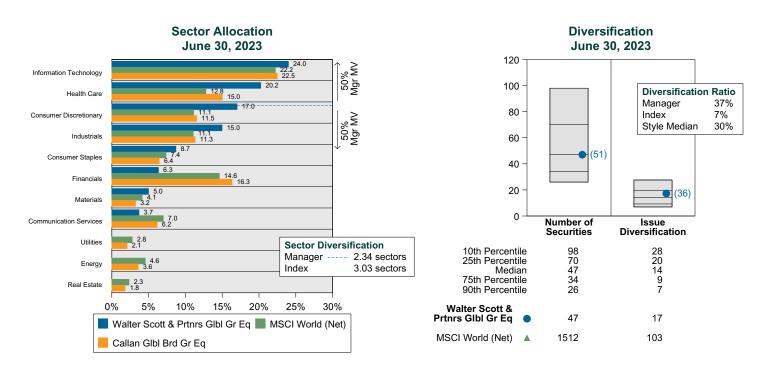
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Global Broad Growth Equity as of June 30, 2023



Sector Weights

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



BlackRock MSCI World Ex US Index Period Ended June 30, 2023

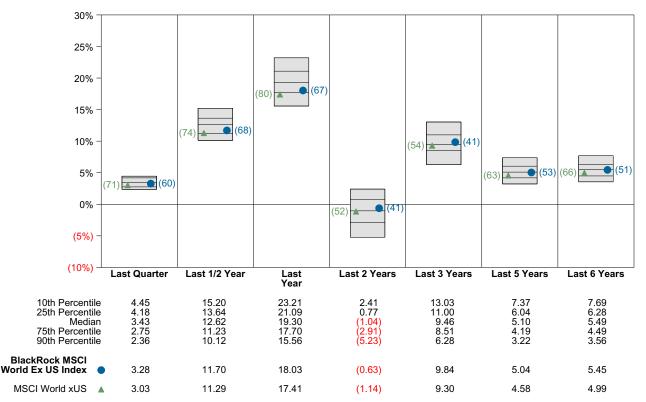
Investment Philosophy

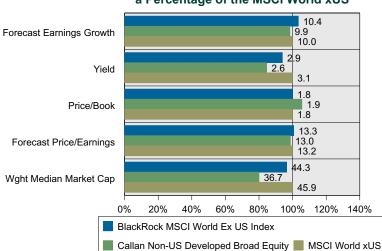
The objective of the World ex-U.S. Index Fund is to track the performance of the MSCI World ex-U.S. Index. The Fund fully replicates the index, holding every stock in the index in its market capitalization weight to ensure close tracking and minimize transaction costs.

Quarterly Summary and Highlights

- BlackRock MSCI World Ex US Index's portfolio posted a 3.28% return for the quarter placing it in the 60 percentile of the Callan Non-US Developed Broad Equity group for the quarter and in the 67 percentile for the last year.
- BlackRock MSCI World Ex US Index's portfolio outperformed the MSCI World xUS by 0.25% for the quarter and outperformed the MSCI World xUS for the year by 0.61%.

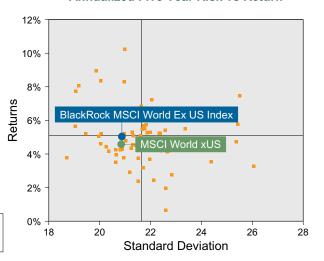
Performance vs Callan Non-US Developed Broad Equity (Gross)





Portfolio Characteristics as a Percentage of the MSCI World xUS

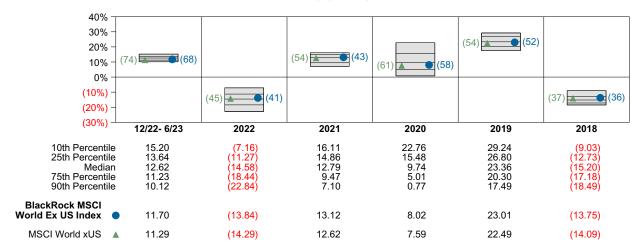
Callan Non-US Developed Broad Equity (Gross) Annualized Five Year Risk vs Return



BlackRock MSCI World Ex US Index Return Analysis Summary

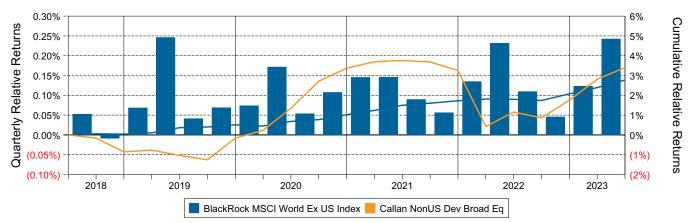
Return Analysis

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.

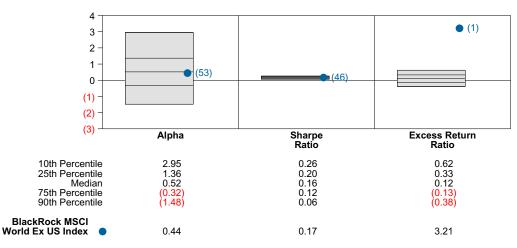


Performance vs Callan Non-US Developed Broad Equity (Gross)





Risk Adjusted Return Measures vs MSCI World xUS Rankings Against Callan Non-US Developed Broad Equity (Gross) Five Years Ended June 30, 2023

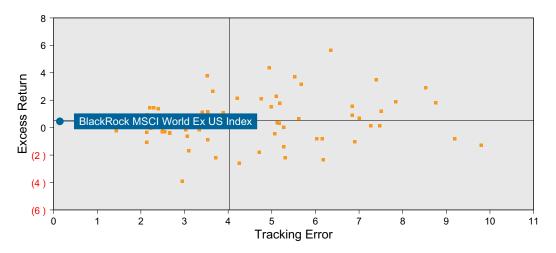


BlackRock MSCI World Ex US Index Risk Analysis Summary

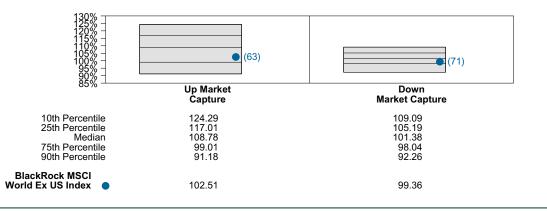
Risk Analysis

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.

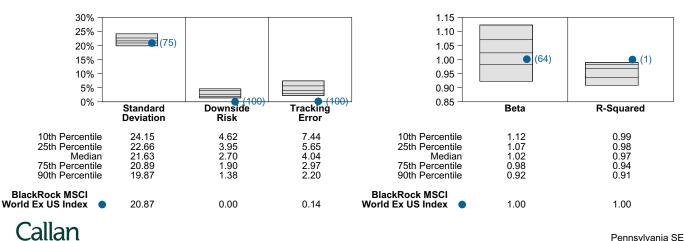
Risk Analysis vs Callan Non-US Developed Broad Equity (Gross) Five Years Ended June 30, 2023



Market Capture vs MSCI World xUS (Net) Rankings Against Callan Non-US Developed Broad Equity (Gross) Five Years Ended June 30, 2023



Risk Statistics Rankings vs MSCI World xUS (Net) Rankings Against Callan Non-US Developed Broad Equity (Gross) Five Years Ended June 30, 2023



Pennsylvania SERS 128

Current Holdings Based Style Analysis BlackRock MSCI World Ex US Index As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

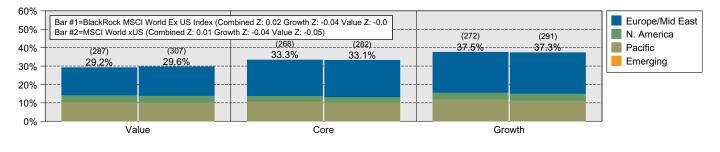
Style Exposure Matrix

Holdings as of June 30, 2023

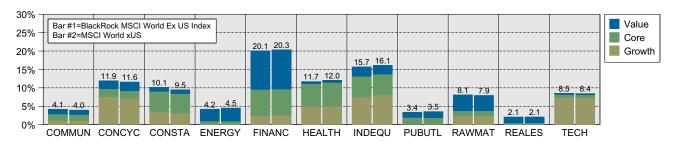


Style Map vs Callan NonUS Dev Broad Eq Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

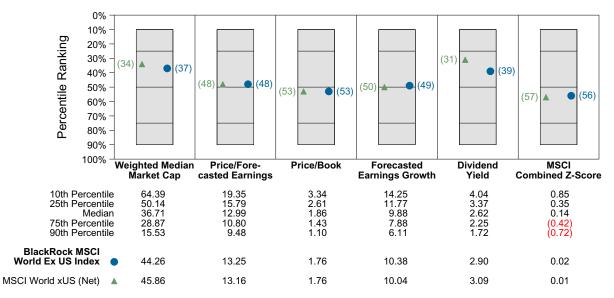


BlackRock MSCI World Ex US Index Equity Characteristics Analysis Summary

Portfolio Characteristics

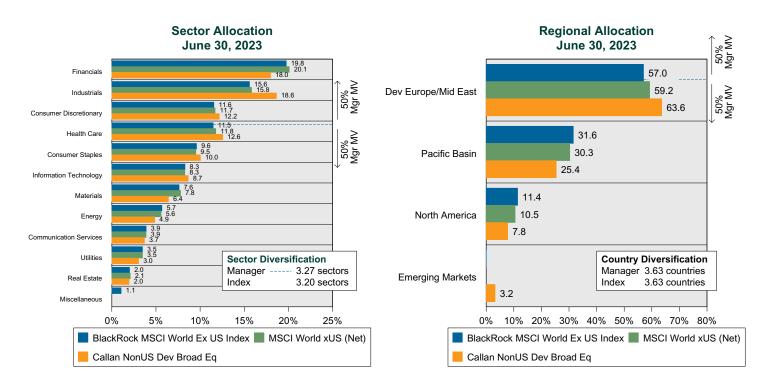
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Non-US Developed Broad Equity as of June 30, 2023



Sector Weights

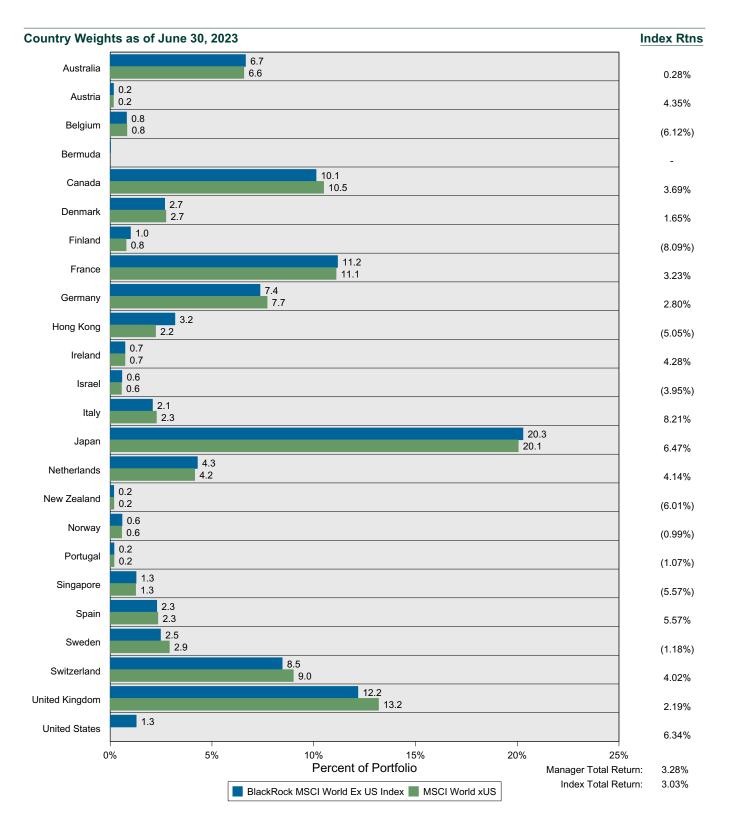
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation BlackRock MSCI World Ex US Index VS MSCI World xUS (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



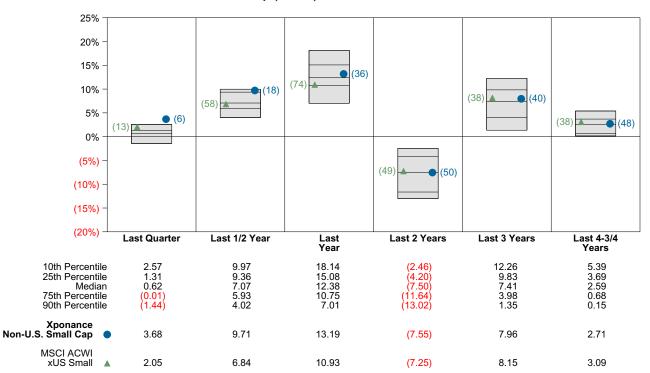
Xponance Non-U.S. Small Cap Period Ended June 30, 2023

Investment Philosophy

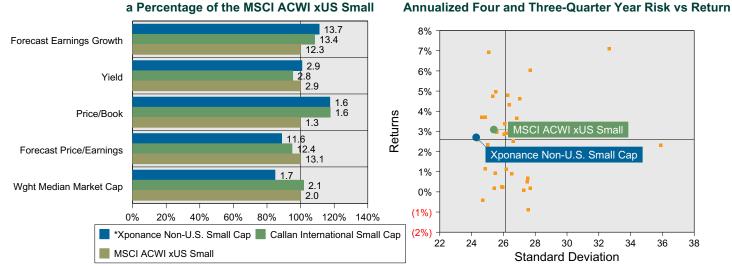
Xponance utilizes an integrated investment process to actively generate investment alpha across its offerings. 25%-50% of outperformance is driven by top-down investment strategy implementation that informs risk management and portfolio construction and provides context to the market environment. Bottom up analysis through manager selection drives 50-75% of outperformance. Xponance uses a forward-looking proprietary factor scoring system in their manager due diligence process to help identify which managers are most likely to produce positive long-term outperformance.

Quarterly Summary and Highlights

- Xponance Non-U.S. Small Cap's portfolio posted a 3.68% return for the quarter placing it in the 6 percentile of the Callan International Small Cap group for the quarter and in the 36 percentile for the last year.
- Xponance Non-U.S. Small Cap's portfolio outperformed the MSCI ACWI xUS Small by 1.63% for the quarter and outperformed the MSCI ACWI xUS Small for the year by 2.26%.



Performance vs Callan International Small Cap (Gross)



Portfolio Characteristics as

*6/30/23 portfolio characteristics generated using most recently available holdings (3/31/23) modified based on a "buy-and-hold" assumption (repriced and adjusted for corporate actions). Analysis is then done using current market and company financial data.

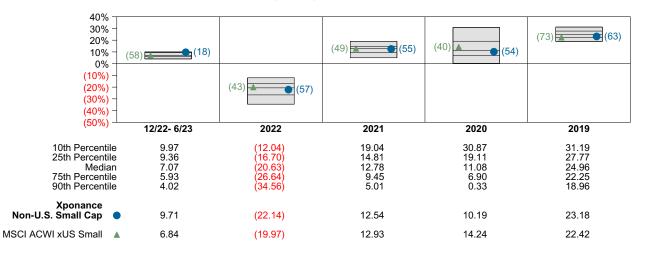
Callan International Small Cap (Gross)

Xponance Non-U.S. Small Cap Return Analysis Summary

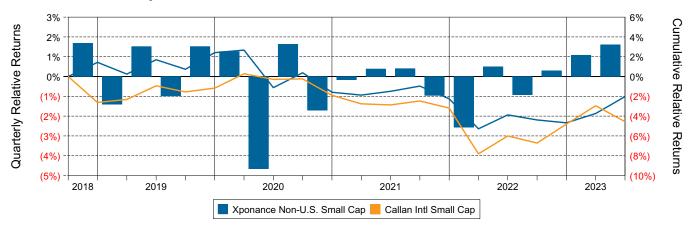
Return Analysis

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.

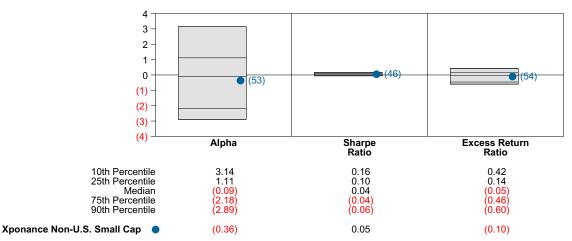
Performance vs Callan International Small Cap (Gross)



Cumulative and Quarterly Relative Returns vs MSCI ACWI xUS Small





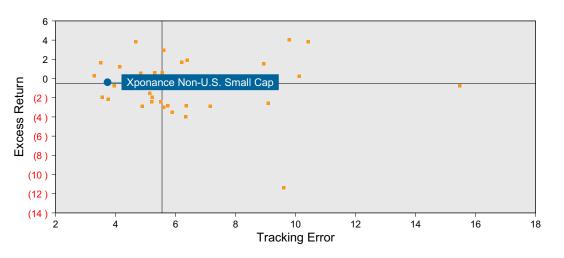


Xponance Non-U.S. Small Cap Risk Analysis Summary

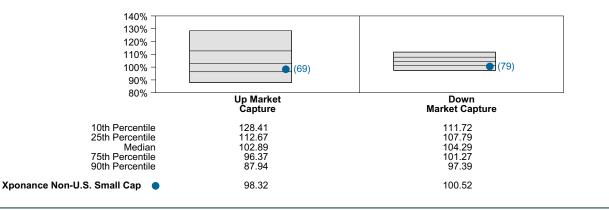
Risk Analysis

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.

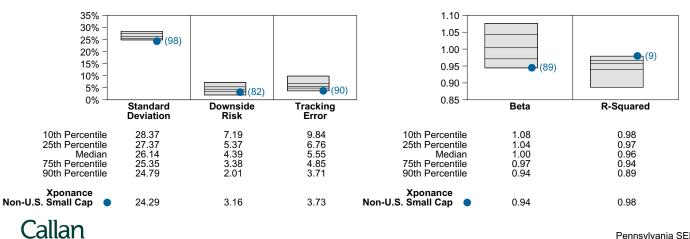
Risk Analysis vs Callan International Small Cap (Gross) Four and Three-Quarter Years Ended June 30, 2023



Market Capture vs MSCI ACWI xUS Small (Net) Rankings Against Callan International Small Cap (Gross) Four and Three-Quarter Years Ended June 30, 2023



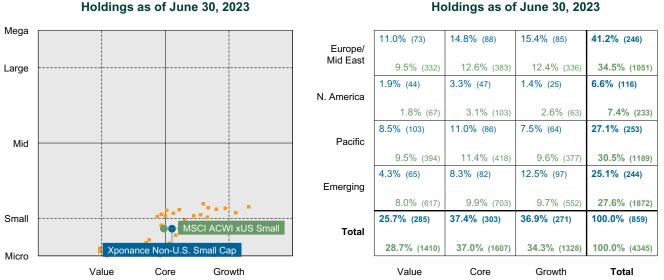
Risk Statistics Rankings vs MSCI ACWI xUS Small (Net) Rankings Against Callan International Small Cap (Gross) Four and Three-Quarter Years Ended June 30, 2023



Current Holdings Based Style Analysis Xponance Non-U.S. Small Cap As of June 30, 2023

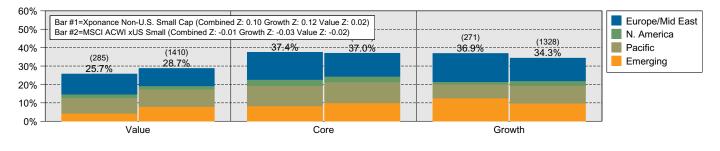
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

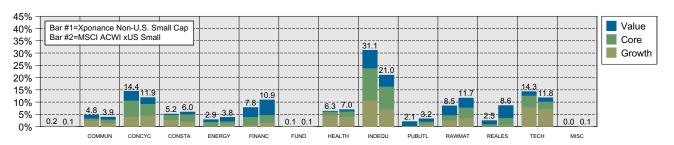


Style Map vs Callan Intl Small Cap Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

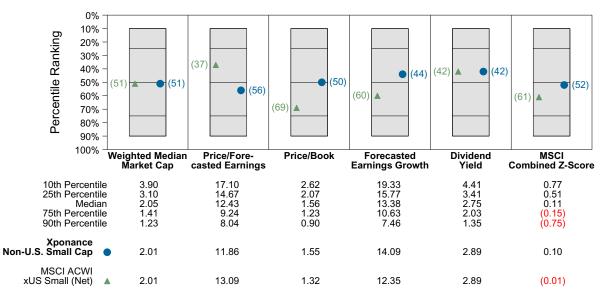


Xponance Non-U.S. Small Cap Equity Characteristics Analysis Summary

Portfolio Characteristics

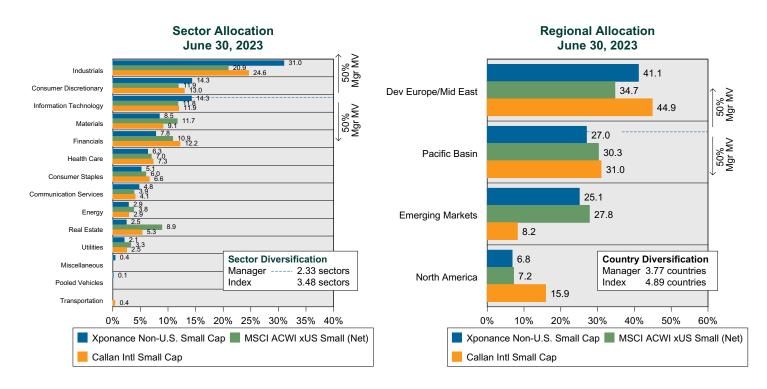
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan International Small Cap as of June 30, 2023



Sector Weights

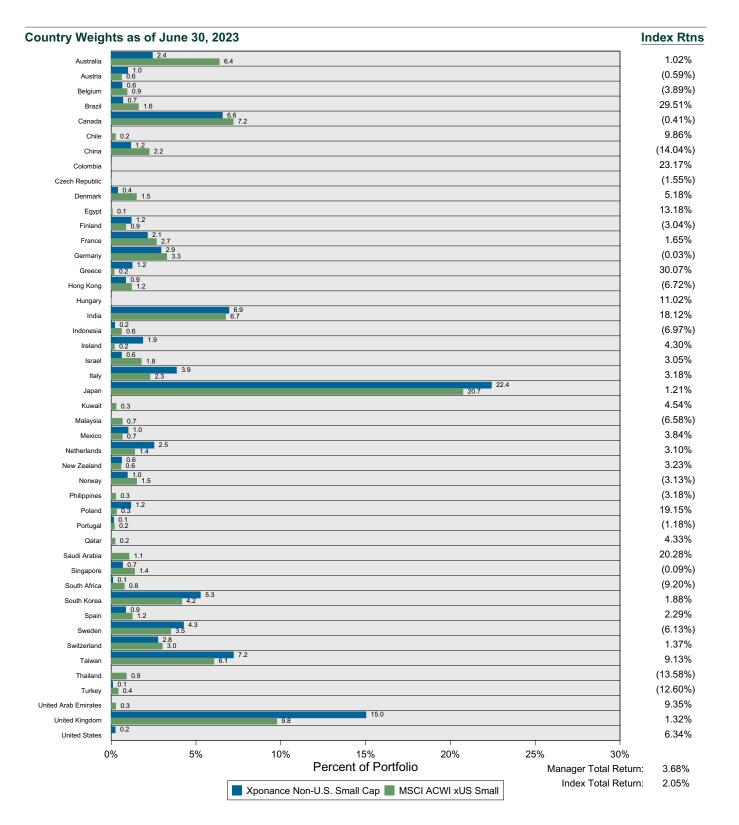
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation Xponance Non-U.S. Small Cap VS MSCI ACWI xUS Small (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



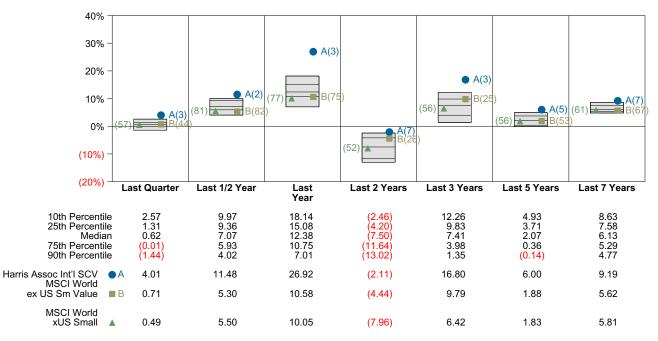
Harris Assoc Int'l SCV Period Ended June 30, 2023

Investment Philosophy

The Oakmark International Small Cap Fund is sub-advised by Harris Associates. Harris employs a value approach to investing and relies on its in-house research capabilities to build focused portfolios. The investment team purchases international stocks in both established and emerging markets that are selling at a substantial discount to intrinsic value. A company must be selling at a 30% or greater discount to its value to be a candidate for purchase. Unlike some value managers, Harris places particular emphasis on a company's ability to generate free cash flow as well as the strength of company management. Stocks are also analyzed in terms of financial strength, the position of the company in its industry, and the attractiveness of the industry.

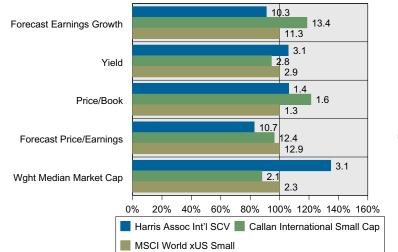
Quarterly Summary and Highlights

- Harris Assoc Int'l SCV's portfolio posted a 4.01% return for the quarter placing it in the 3 percentile of the Callan International Small Cap group for the quarter and in the 3 percentile for the last year.
- Harris Assoc Int'I SCV's portfolio outperformed the MSCI World xUS Small by 3.52% for the quarter and outperformed the MSCI World xUS Small for the year by 16.87%.

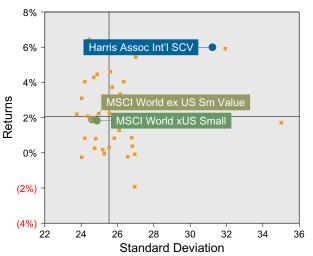


Performance vs Callan International Small Cap (Gross)





Callan International Small Cap (Gross) Annualized Five Year Risk vs Return



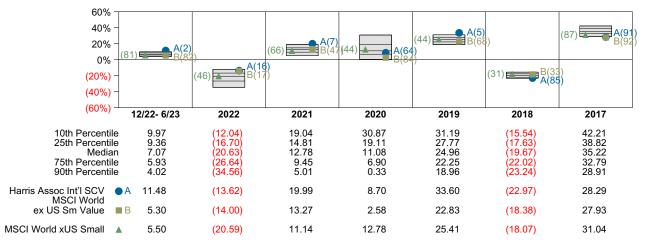


Harris Assoc Int'l SCV Return Analysis Summary

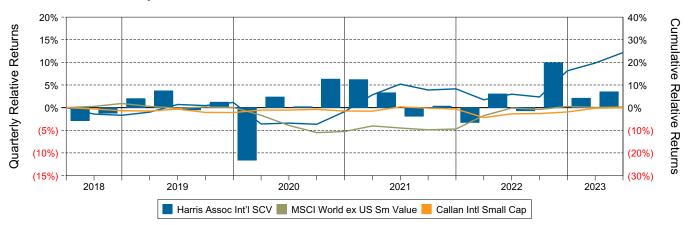
Return Analysis

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.

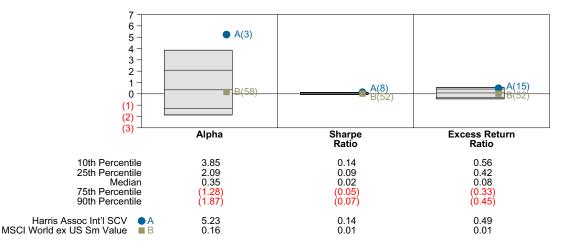
Performance vs Callan International Small Cap (Gross)



Cumulative and Quarterly Relative Returns vs MSCI World xUS Small



Risk Adjusted Return Measures vs MSCI World xUS Small Rankings Against Callan International Small Cap (Gross) Five Years Ended June 30, 2023

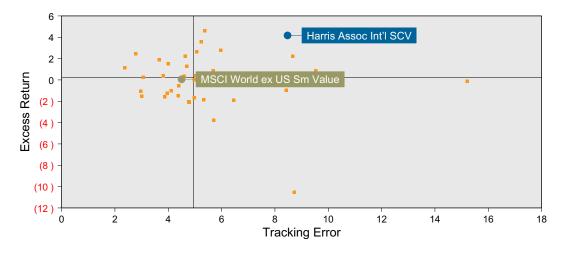


Harris Assoc Int'l SCV Risk Analysis Summary

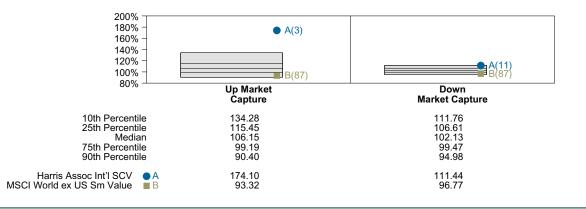
Risk Analysis

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.

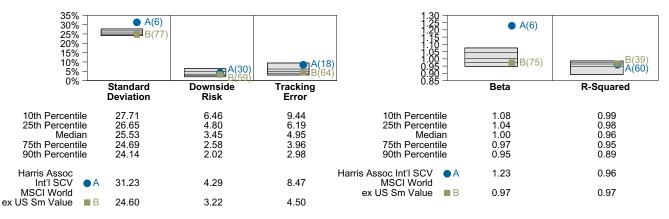
Risk Analysis vs Callan International Small Cap (Gross) Five Years Ended June 30, 2023



Market Capture vs MSCI World xUS Small (Net) Rankings Against Callan International Small Cap (Gross) Five Years Ended June 30, 2023



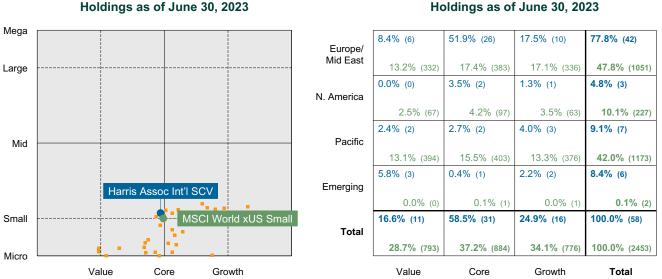
Risk Statistics Rankings vs MSCI World xUS Small (Net) Rankings Against Callan International Small Cap (Gross) Five Years Ended June 30, 2023



Current Holdings Based Style Analysis Harris Assoc Int'l SCV As of June 30, 2023

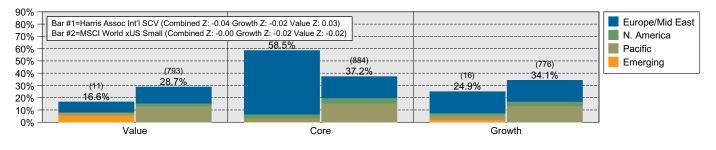
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

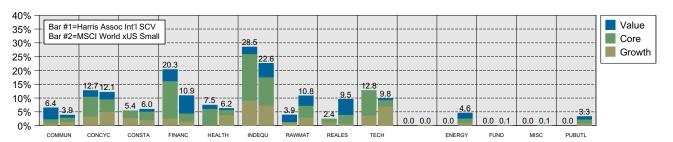


Style Map vs Callan Intl Small Cap Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023





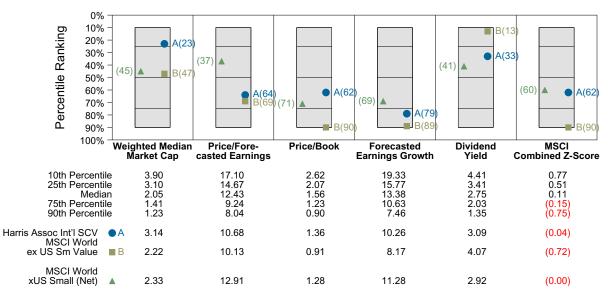


Harris Assoc Int'l SCV Equity Characteristics Analysis Summary

Portfolio Characteristics

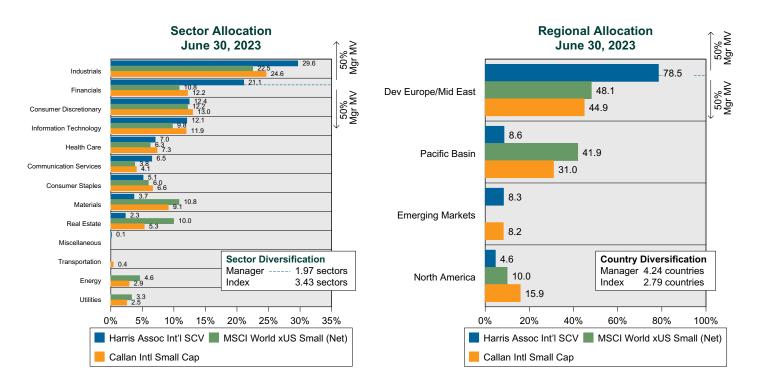
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan International Small Cap as of June 30, 2023



Sector Weights

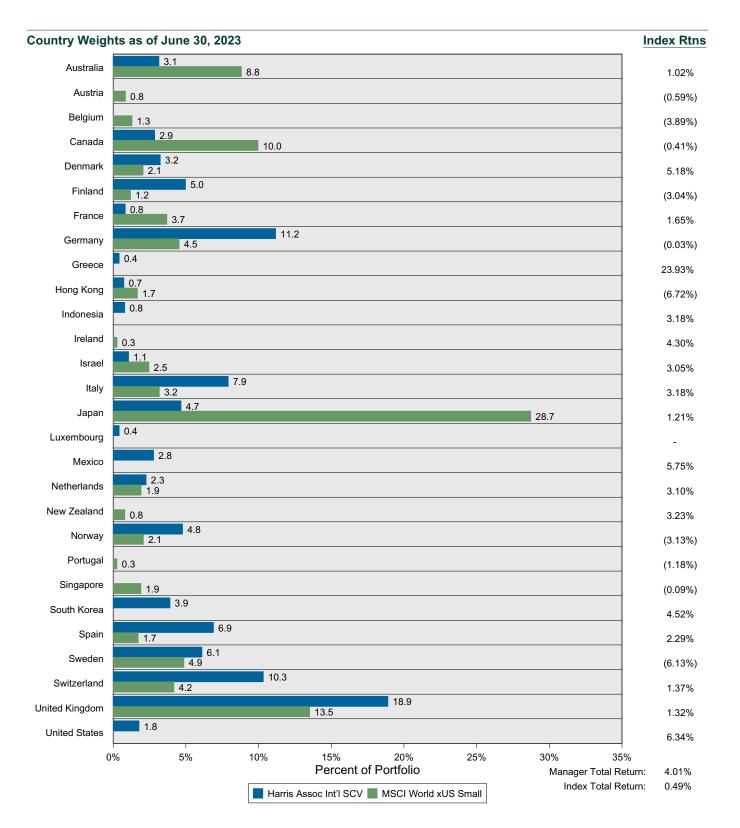
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation Harris Assoc Int'I SCV VS MSCI World xUS Small (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



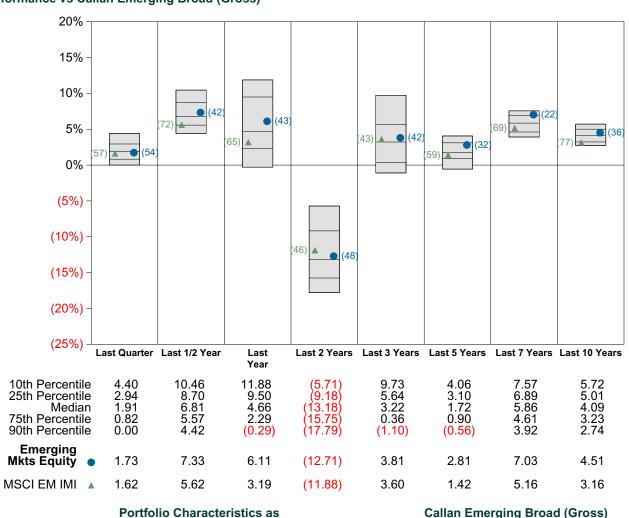


Emerging Markets Equity

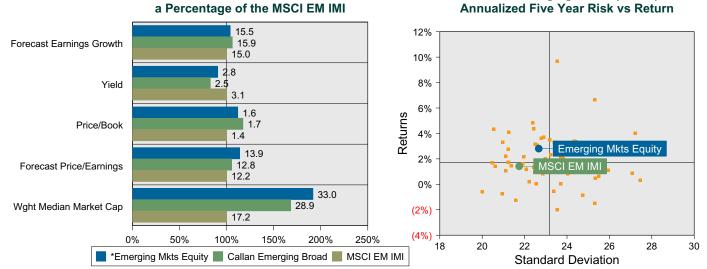
Emerging Mkts Equity Period Ended June 30, 2023

Quarterly Summary and Highlights

- Emerging Mkts Equity's portfolio posted a 1.73% return for the quarter placing it in the 54 percentile of the Callan Emerging Broad group for the quarter and in the 43 percentile for the last year.
- Emerging Mkts Equity's portfolio outperformed the MSCI EM IMI by 0.11% for the quarter and outperformed the MSCI EM IMI for the year by 2.92%.







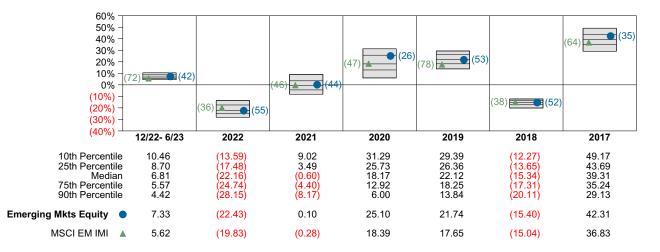
*6/30/23 portfolio characteristics generated using most recently available holdings (3/31/23) modified based on a "buy-and-hold" assumption (repriced and adjusted for corporate actions). Analysis is then done using current market and company financial data.

Emerging Mkts Equity Return Analysis Summary

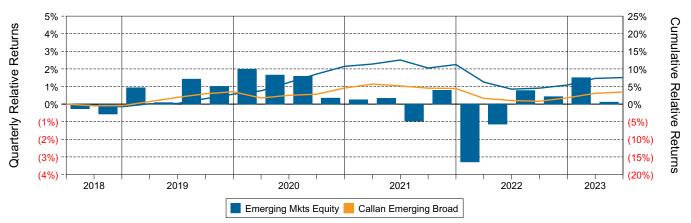
Return Analysis

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 Callan Emerging Broad (Gross)



Cumulative and Quarterly Relative Returns vs MSCI EM IMI



Risk Adjusted Return Measures vs MSCI EM IMI Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023

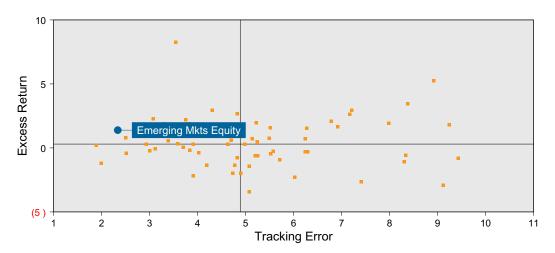


Emerging Mkts Equity Risk Analysis Summary

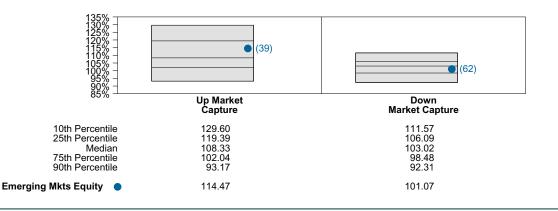
Risk Analysis

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.

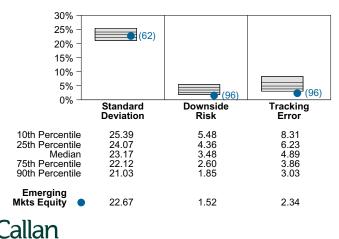
Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended June 30, 2023

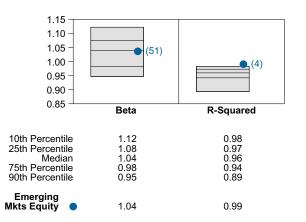


Market Capture vs MSCI EM IMI (Net) Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



Risk Statistics Rankings vs MSCI EM IMI (Net) Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023

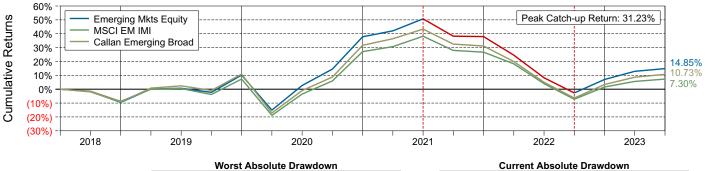




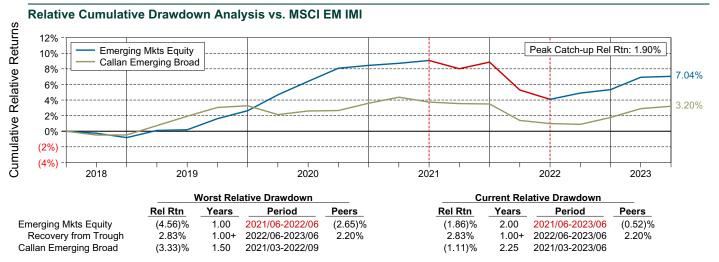
Emerging Mkts Equity Drawdown Analysis for Five Years Ended June 30, 2023

The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

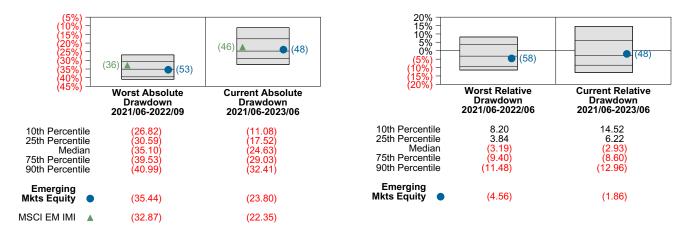
Absolute Cumulative Drawdown Analysis



	Return	Years	Period	Index	Peers	Return	Years	Period	Index	Peers
Emerging Mkts Equity	(35.44)%	1.25	2021/06-2022/09	(32.87)%	(34.71)%	(23.80)%	2.00	2021/06-2023/06	(22.35)%	(22.75)%
Recovery from Trough	18.03%	0.75+	2022/09-2023/06	15.66%	18.32%	18.03%	0.75+	2022/09-2023/06	15.66%	18.32%
MSCI EM IMI	(32.87)%	1.25	2021/06-2022/09			(22.35)%	2.00	2021/06-2023/06		
Callan Emerging Broad	(34.71)%	1.25	2021/06-2022/09			(22.75)%	2.00	2021/06-2023/06		



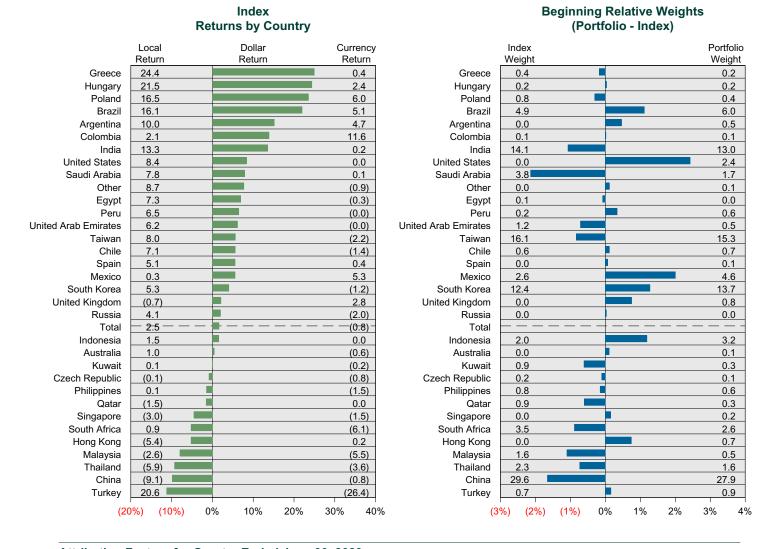
Drawdown Rankings vs. MSCI EM IMI Rankings against Callan Emerging Broad Five Years Ended June 30, 2023

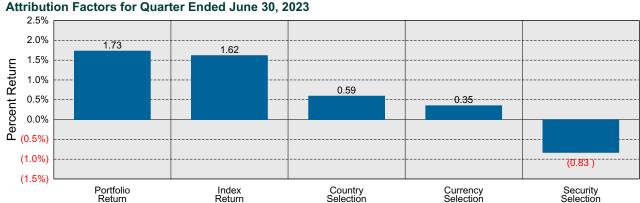


Emerging Mkts Equity vs MSCI EM IMI Attribution for Quarter Ended June 30, 2023

International Attribution

The first chart below illustrates the return for each country in the index sorted from high to low. The total return for the index is highlighted with a dotted line. The second chart (countries presented in the same order) illustrates the manager's country allocation decisions relative to the index. To the extent that the manager over-weighted a country that had a higher return than the total return for the index (above the dotted line) it contributes positively to the manager's country (or currency) selection effect. The last chart details the manager return, the index return, and the attribution factors for the quarter.





Current Holdings Based Style Analysis Emerging Mkts Equity As of June 30, 2023

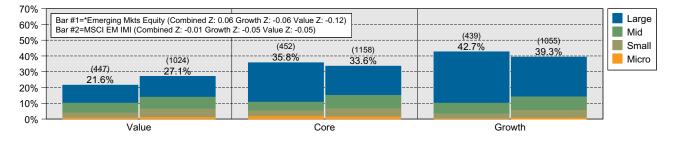
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

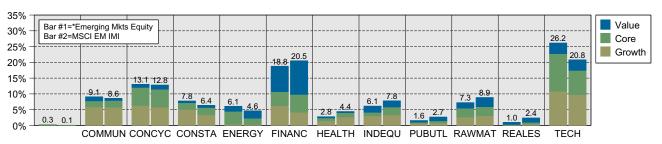


Style Map vs Callan Emerging Broad Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023



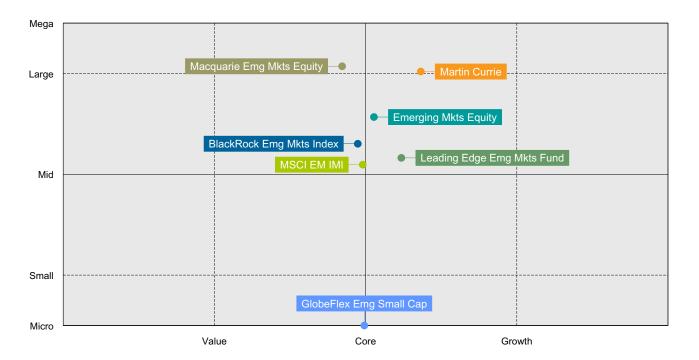
*6/30/23 portfolio characteristics generated using most recently available holdings (3/31/23) modified based on a "buy-and-hold" assumption (repriced and adjusted for corporate actions). Analysis is then done using current market and company financial data.

International Holdings Based Style Analysis For One Quarter Ended June 30, 2023

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

Style Map

Holdings for One Quarter Ended June 30, 2023



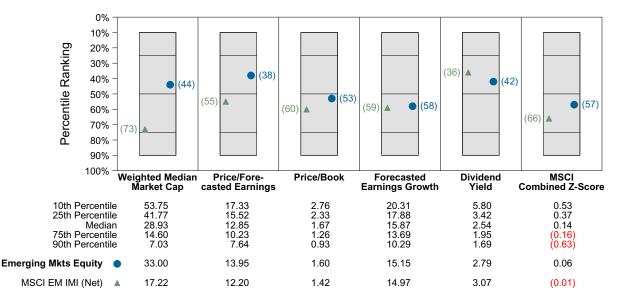
	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities D	Security Diversification
BlackRock Emg Mkts Index	33.78%	24.15	(0.04)	(0.07)	(0.03)	1424	83.13
Leading Edge Emg Mkts Fund	14.03%	19.47	0.22	0.10	(0.13)	254	42.27
Macquarie Emg Mkts Equity	20.86%	68.52	(0.13)	(0.19)	(0.06)	81	8.81
Martin Currie	22.56%	53.22	0.34	(0.01)	(0.35)	55	11.90
GlobeFlex Emg Small Cap	8.77%	0.83	0.00	0.02	0.01	130	14.41
Emerging Mkts Equity	100.00%	33.00	0.06	(0.06)	(0.12)	1688	45.68
MSCI EM IMI	-	17.22	(0.01)	(0.05)	(0.05)	3327	127.88

Emerging Mkts Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

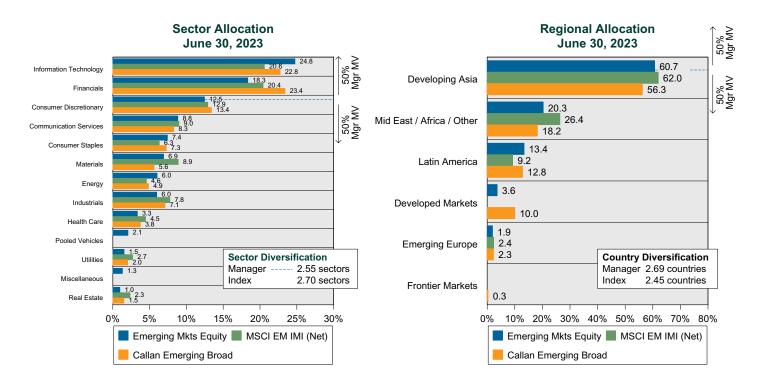
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of June 30, 2023



Sector Weights

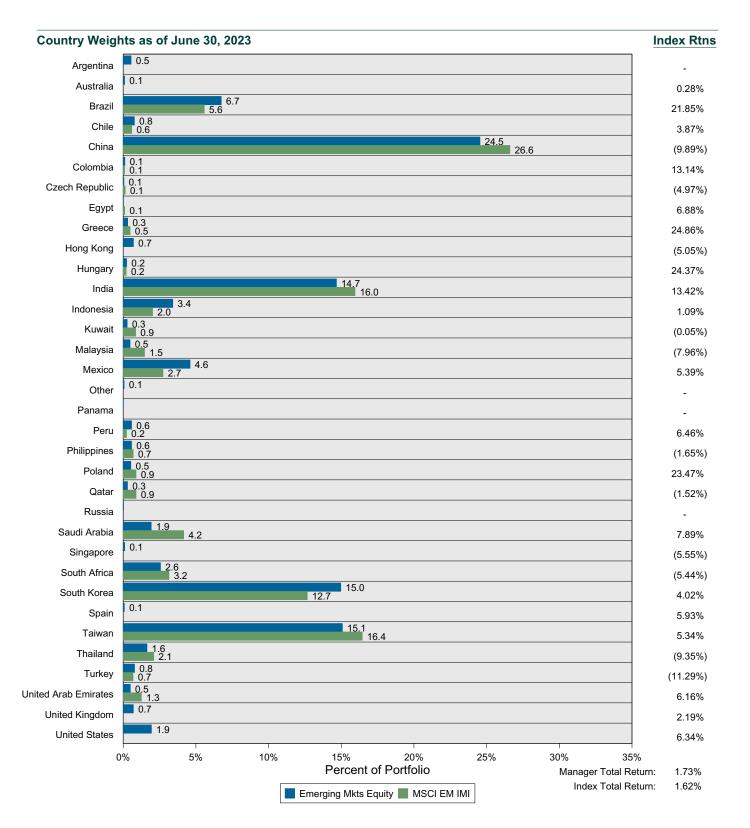
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation Emerging Mkts Equity VS MSCI EM IMI (Net)

Country Allocation

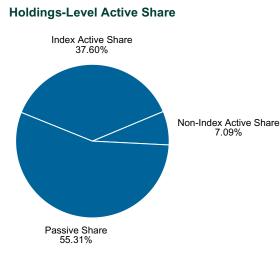
The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



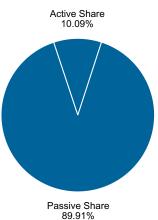


Emerging Mkts Equity Active Share Analysis as of June 30, 2023 vs. MSCI EM IMI (Net)

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.



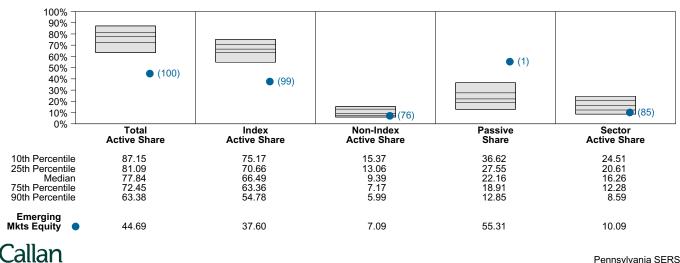
Sector Exposure Active Share



Total Active Share: 44.69%

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	40.75%	7.72%	48.47%	8.99%	8.84%	4.35%
Consumer Discretionary	33.31%	12.30%	45.61%	12.91%	12.46%	5.86%
Consumer Staples	48.01%	3.50%	51.51%	6.33%	7.43%	3.48%
Energy	33.74%	4.29%	38.03%	4.58%	6.03%	1.69%
Financials	35.26%	4.76%	40.02%	20.43%	18.35%	8.08%
Health Care	46.80%	9.79%	56.58%	4.46%	3.35%	2.32%
Industrials	52.37%	3.45%	55.82%	7.77%	5.98%	3.96%
Information Technology	29.94%	2.45%	32.38%	20.60%	24.76%	7.19%
Materials	38.61%	8.00%	46.61%	8.89%	6.92%	3.98%
Miscellaneous	50.00%	50.43%	100.43%	-	1.32%	0.53%
Pooled Vehicles	50.00%	50.00%	100.00%	-	2.07%	1.03%
Real Estate	36.42%	5.37%	41.80%	2.35%	0.97%	0.94%
Utilities	41.32%	2.41%	43.73%	2.70%	1.54%	1.11%
Total	37.60%	7.09%	44.69%	100.00%	100.00%	44.52%

Active Share vs. Callan Emerging Broad



Emerging Markets Managers

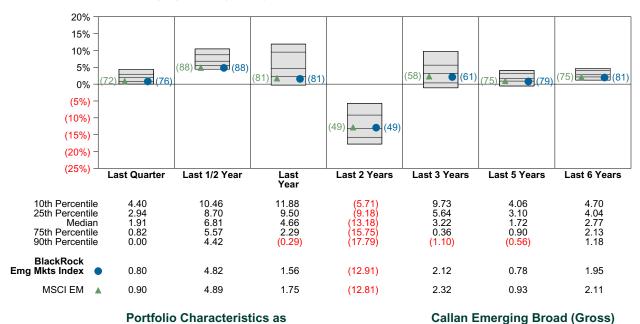
BlackRock Emg Mkts Index Period Ended June 30, 2023

Investment Philosophy

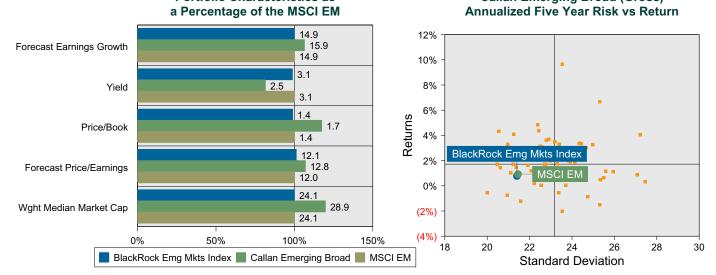
As with all indexing strategies, the objective of the Emerging Markets Index Funds is to match the performance of the benchmark, the MSCI EMF indexes. BlackRock's objective in managing the fund is to deliver a high quality and cost-effective index-based portfolio available to institutional investors. BlackRock's goal in the management of its emerging market country funds is to provide cost-effective and risk controlled exposure with close benchmark tracking. As such, country selection is dictated by the index, and BlackRock's funds approximate the sector and industry breakdowns of the respective country index. The team seeks to construct its country funds using the widest possible range of index constituent stocks to allow for replication of index returns while minimizing transaction costs. Therefore stock selection and weighting is generally dictated by the composition of the index. However, where investment restrictions exist, BlackRock may choose to use alternative investment approaches. In general, BlackRock aims to cover a significant percentage of the security market capitalization of each country index.

Quarterly Summary and Highlights

- BlackRock Emg Mkts Index's portfolio posted a 0.80% return for the quarter placing it in the 76 percentile of the Callan Emerging Broad group for the quarter and in the 81 percentile for the last year.
- BlackRock Emg Mkts Index's portfolio underperformed the MSCI EM by 0.10% for the quarter and underperformed the MSCI EM for the year by 0.19%.





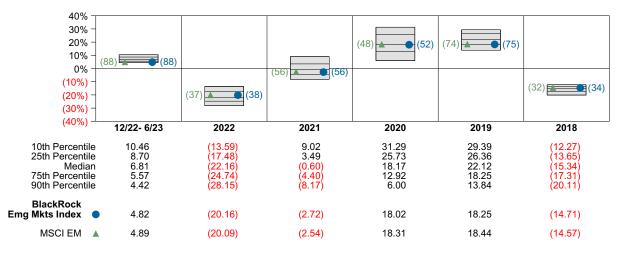


BlackRock Emg Mkts Index Return Analysis Summary

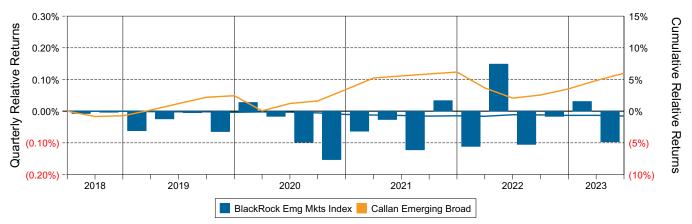
Return Analysis

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.

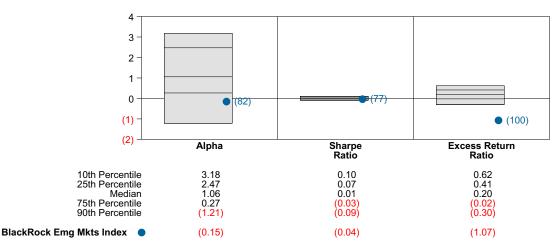
Performance vs Callan Emerging Broad (Gross)



Cumulative and Quarterly Relative Returns vs MSCI EM



Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



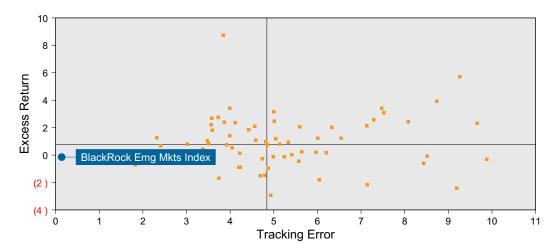


BlackRock Emg Mkts Index Risk Analysis Summary

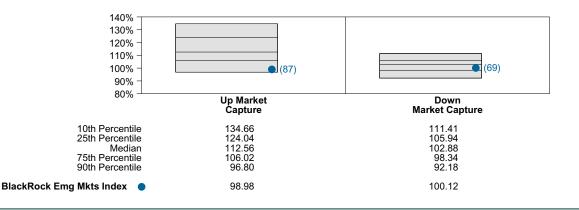
Risk Analysis

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.

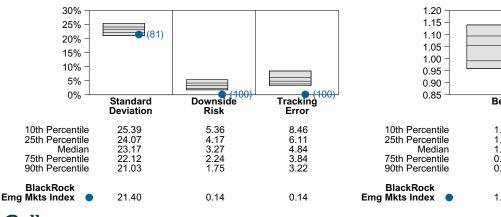
Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



Market Capture vs MSCI Emerging Markets (Net) Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023







(74) (1) Beta R-Squared 1.14 0.98 1.09 0.98 1.05 0.96 0.99 0.94 0.96 0.89 1.00 1.00



Current Holdings Based Style Analysis BlackRock Emg Mkts Index As of June 30, 2023

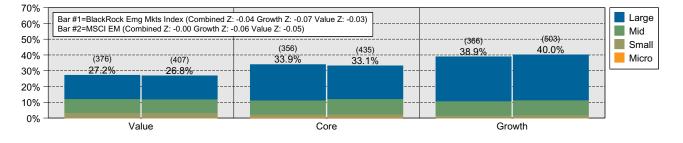
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

Style Exposure Matrix

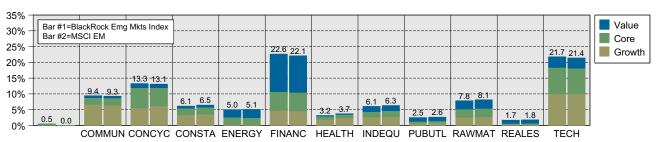


Style Map vs Callan Emerging Broad Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

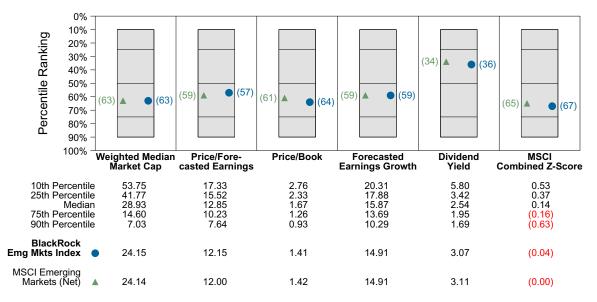


BlackRock Emg Mkts Index Equity Characteristics Analysis Summary

Portfolio Characteristics

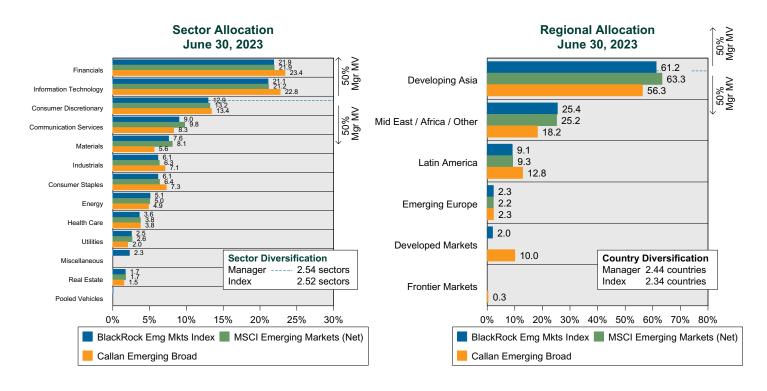
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of June 30, 2023



Sector Weights

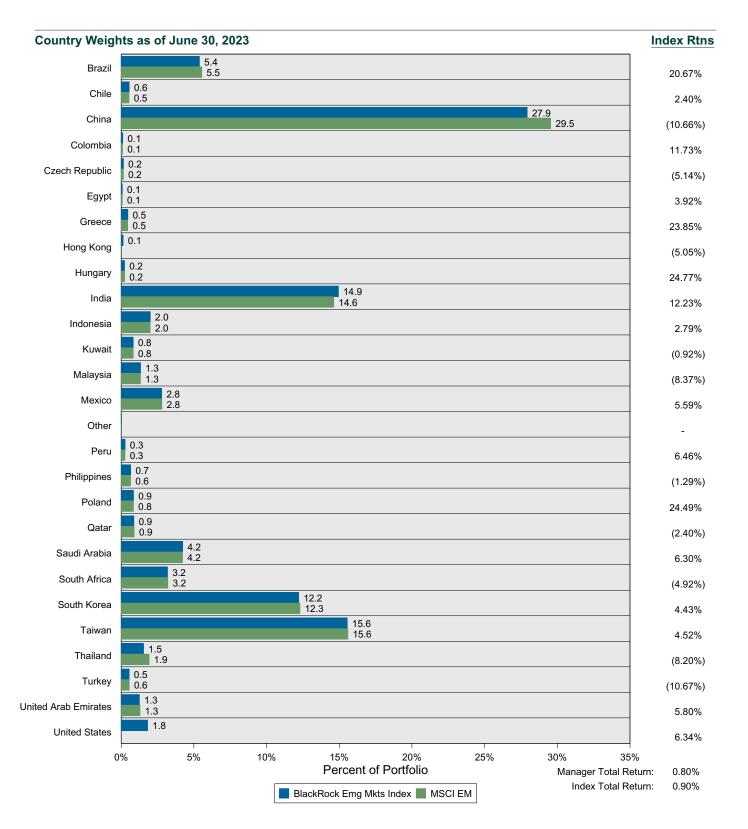
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation BlackRock Emg Mkts Index VS MSCI Emerging Markets (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



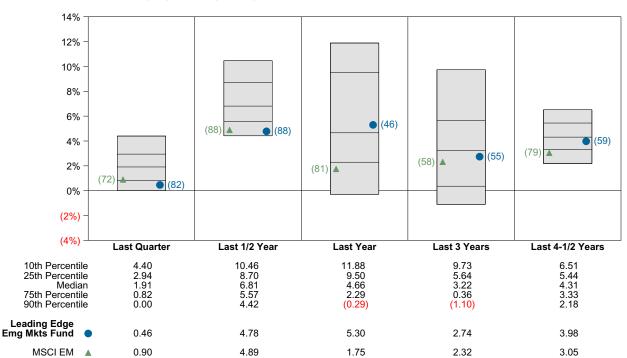
Leading Edge Emg Mkts Fund Period Ended June 30, 2023

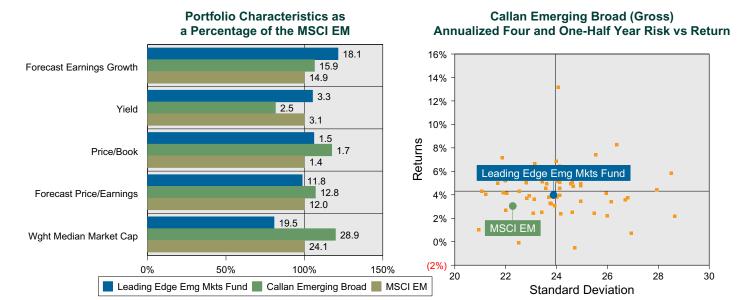
Investment Philosophy

Leading Edge Investment Advisors pursues innovation in research and investment technology to define how managers are discovered, evaluated and selected. They believe smaller, specialized managers are more innovative than their larger peers, thus producing better risk-adjusted performance. They utilize long-term, ongoing proprietary research to quantify and qualify characteristics that make managers competitive and structure these managers into an optimized, risk-managed Emerging Markets portfolio.

Quarterly Summary and Highlights

- Leading Edge Emg Mkts Fund's portfolio posted a 0.46% return for the quarter placing it in the 82 percentile of the Callan Emerging Broad group for the quarter and in the 46 percentile for the last year.
- Leading Edge Emg Mkts Fund's portfolio underperformed the MSCI EM by 0.43% for the quarter and outperformed the MSCI EM for the year by 3.55%.





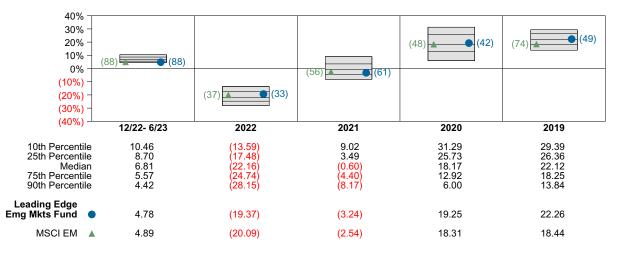
Performance vs Callan Emerging Broad (Gross)

Leading Edge Emg Mkts Fund Return Analysis Summary

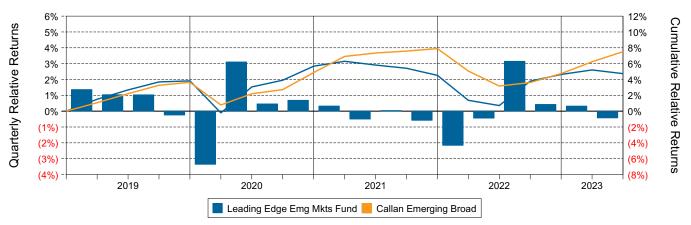
Return Analysis

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.

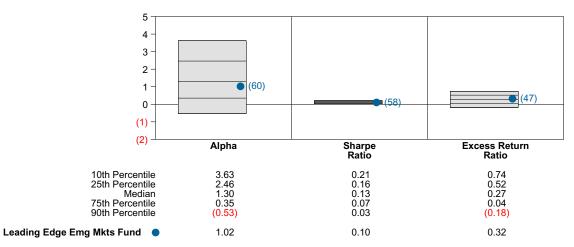
Performance vs Callan Emerging Broad (Gross)



Cumulative and Quarterly Relative Returns vs MSCI EM



Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Four and One-Half Years Ended June 30, 2023

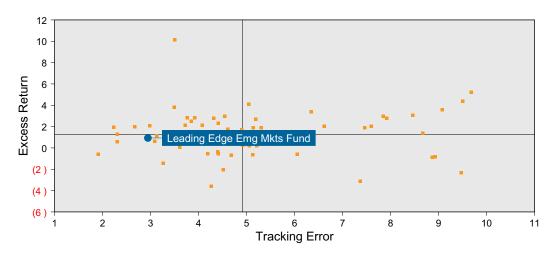


Leading Edge Emg Mkts Fund Risk Analysis Summary

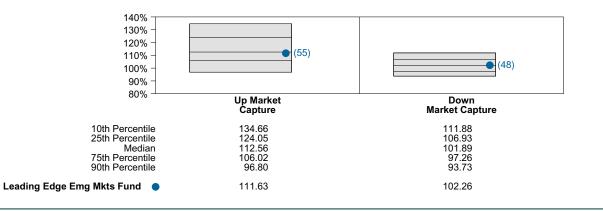
Risk Analysis

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.

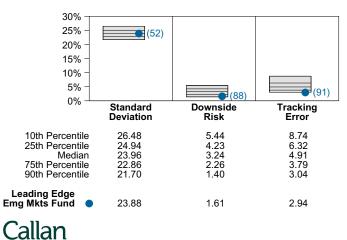
Risk Analysis vs Callan Emerging Broad (Gross) Four and One-Half Years Ended June 30, 2023

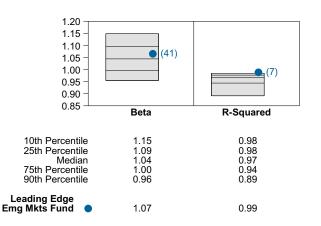


Market Capture vs MSCI Emerging Markets (Net) Rankings Against Callan Emerging Broad (Gross) Four and One-Half Years Ended June 30, 2023



Risk Statistics Rankings vs MSCI Emerging Markets (Net) Rankings Against Callan Emerging Broad (Gross) Four and One-Half Years Ended June 30, 2023





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Current Holdings Based Style Analysis Leading Edge Emg Mkts Fund As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

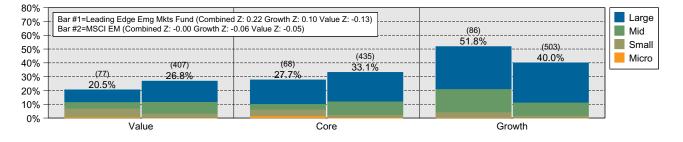


Style Map vs Callan Emerging Broad Holdings as of June 30, 2023

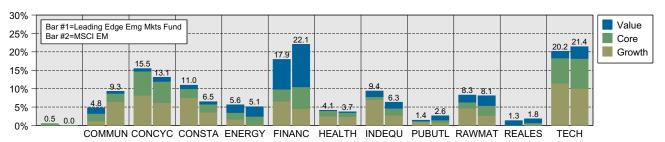
Style Exposure Matrix Holdings as of June 30, 2023

()			
26.8% (407)	33.1% (435)	40.0% (503)	100.0% (1345)
20.5% (77)	27.7% (68)	51.8% (86)	100.0% (231)
0.1% (2)	0.4% (2)	0.1% (4)	0.5% (8)
0.7 % (3)	1.0 / (4)	0.4 /0 (3)	2.7 /0 (12)
. ,	. ,	· · · ·	2.7% (12)
3 3% (1/3)	2.0% (115)	1 9% (118)	7.2% (376)
6.4% (28)	4.6% (21)	3.9% (13)	15.0% (62)
8.6% (173)	9.8% (248)	9.5% (274)	27.8% (695)
4.6% (22)	4.1% (16)	16.7% (34)	25.4% (72)
14.9% (89)	21.0% (70)	28.7% (107)	64.5% (266)
8.8% (22)	17.4% (27)	30.7% (36)	56.9% (85)
	4.6% (22) 8.6% (173) 6.4% (28) 3.3% (143) 0.7% (5) 0.1% (2) 20.5% (77)	14.9% (89) 21.0% (70) 4.6% (22) 4.1% (16) 8.6% (173) 9.8% (248) 6.4% (28) 4.6% (21) 3.3% (143) 2.0% (115) 0.7% (5) 1.6% (4) 0.1% (2) 0.4% (2) 20.5% (77) 27.7% (68)	14.9% (89) 21.0% (70) 28.7% (107) 4.6% (22) 4.1% (16) 16.7% (34) 8.6% (173) 9.8% (248) 9.5% (274) 6.4% (28) 4.6% (21) 3.9% (13) 3.3% (143) 2.0% (115) 1.9% (118) 0.7% (5) 1.6% (4) 0.4% (3) 0.1% (2) 0.4% (2) 0.1% (4) 20.5% (77) 27.7% (68) 51.8% (86)

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

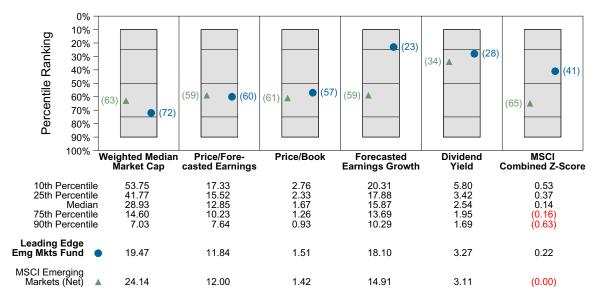


Leading Edge Emg Mkts Fund Equity Characteristics Analysis Summary

Portfolio Characteristics

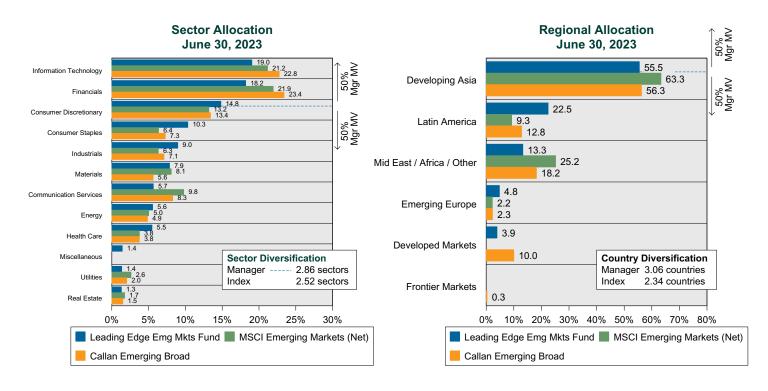
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of June 30, 2023



Sector Weights

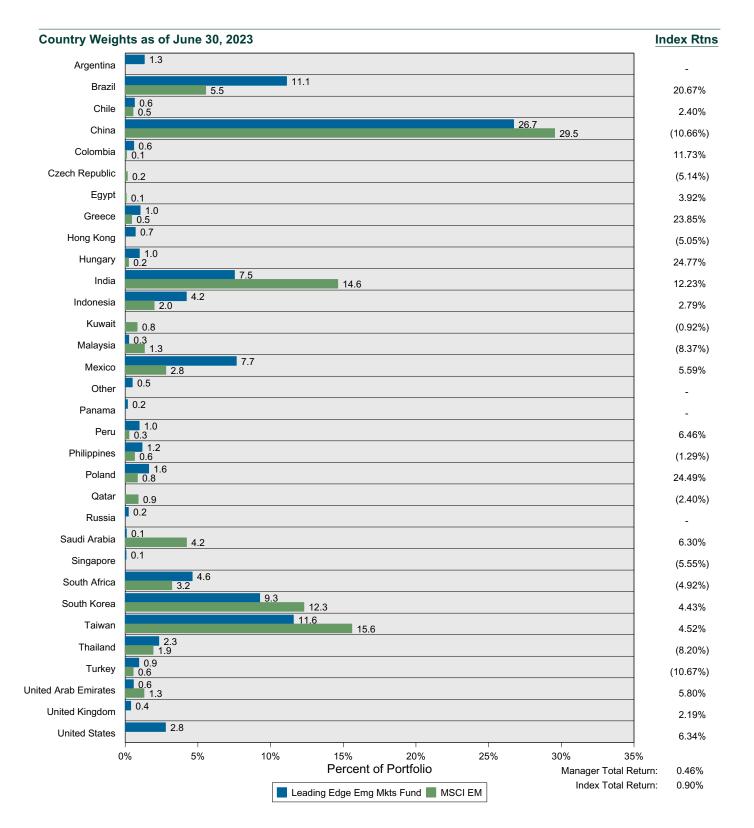
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation Leading Edge Emg Mkts Fund VS MSCI Emerging Markets (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.





Macquarie Emerging Markets Equity Period Ended June 30, 2023

Investment Philosophy

Macquarie believes that market price and intrinsic business value are correlated in the long-run and short-term divergences offer disciplined, bottom-up, fundamental investors, attractive risk-adjusted opportunities. The team defines intrinsic value as the appropriately discounted value of a business' cash flow stream. They buy only when the business trades at a significant discount to their intrinsic value estimate. The team focuses resources on franchises, defined as those companies with high potential to earn excess returns above their cost of capital over the long-run. The team aims to capture market inefficiencies by: 1. Judging a franchise's sustainability and secular growth prospects better than the market 2. Maintaining a long-term, structural bias to capture franchises oversold due to temporary setbacks 3. Exploiting public market and private market valuation discrepancies 4. Buying assets below their replacement costs.

Quarterly Summary and Highlights

- Macquarie Emerging Markets Equity's portfolio posted a 0.91% return for the quarter placing it in the 71 percentile of the Callan Emerging Broad group for the quarter and in the 55 percentile for the last year.
- Macquarie Emerging Markets Equity's portfolio outperformed the MSCI EM by 0.01% for the quarter and outperformed the MSCI EM for the year by 2.40%.



Performance vs Callan Emerging Broad (Gross)

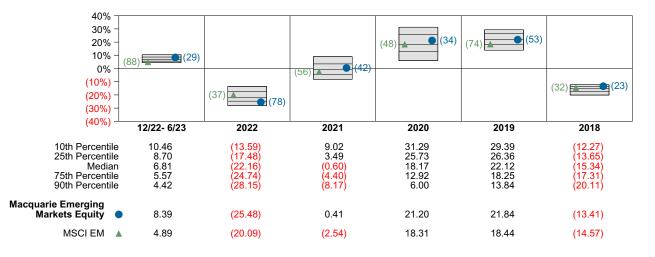


Macquarie Emerging Markets Equity Return Analysis Summary

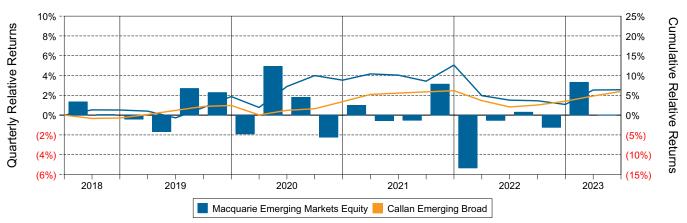
Return Analysis

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.

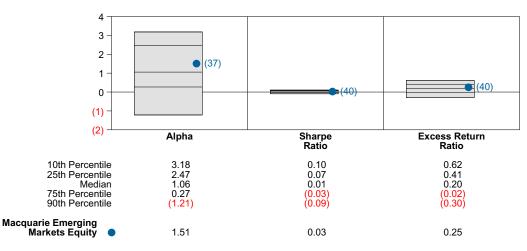
Performance vs Callan Emerging Broad (Gross)



Cumulative and Quarterly Relative Returns vs MSCI EM



Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



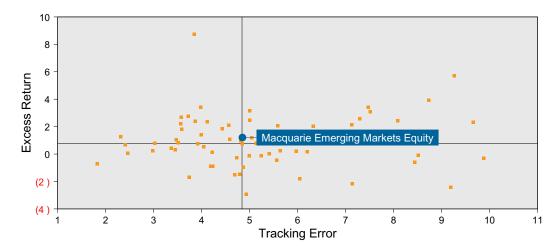


Macquarie Emerging Markets Equity Risk Analysis Summary

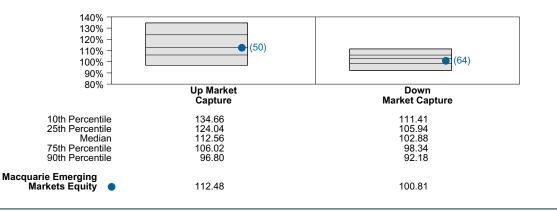
Risk Analysis

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.

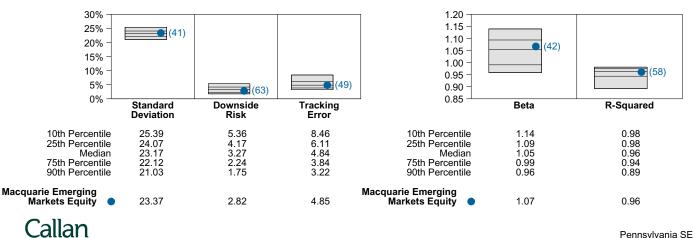
Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



Market Capture vs MSCI Emerging Markets (Net) Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



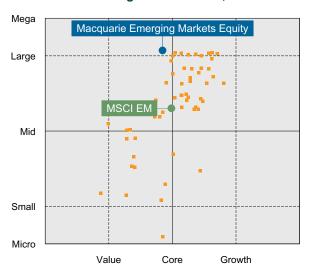




Pennsylvania SERS 170

Current Holdings Based Style Analysis Macquarie Emerging Markets Equity As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

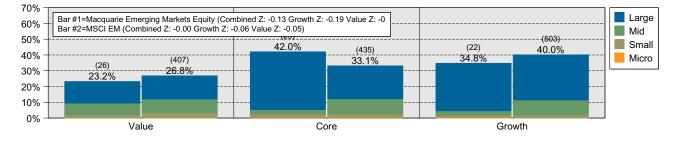


Style Map vs Callan Emerging Broad Holdings as of June 30, 2023

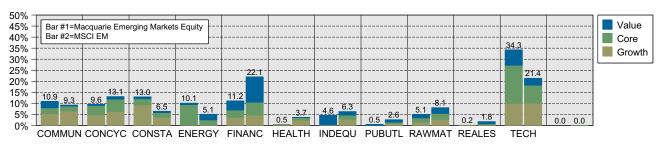
Style Exposure Matrix Holdings as of June 30, 2023

Total	26.8% (407)	33.1% (435)	40.0% (503)	100.0% (1345)
	23.2% (26)	42.0% (29)	34.8% (22)	100.0% (77)
	0.1% (2)	0.4% (2)	0.1% (4)	0.5% (8)
Micro	0.1% (1)	0.3% (1)	0.4 % (2)	0.0 /0 (4)
	0.1% (1)	0.3% (1)	0.4% (2)	0.8% (4)
Small	3.3% (143)	2.0% (115)	1.9% (118)	7.2% (376)
Small	1.8% (5)	2.1% (7)	1.2% (4)	5.2% (16)
	8.6% (173)	9.8% (248)	9.5% (274)	27.8% (695)
Mid				
	7.6% (8)	2.8% (5)	3.0% (4)	13.4% (17)
Ū	14.9% (89)	21.0% (70)	28.7% (107)	64.5 % (266)
Large	13.7 % (12)	30.0% (16)	30.2% (12)	60. <i>1</i> % (40)
Large	13.7% (12)	36.8% (16)	30.2% (12)	80.7%

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023



Macquarie Emerging Markets Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

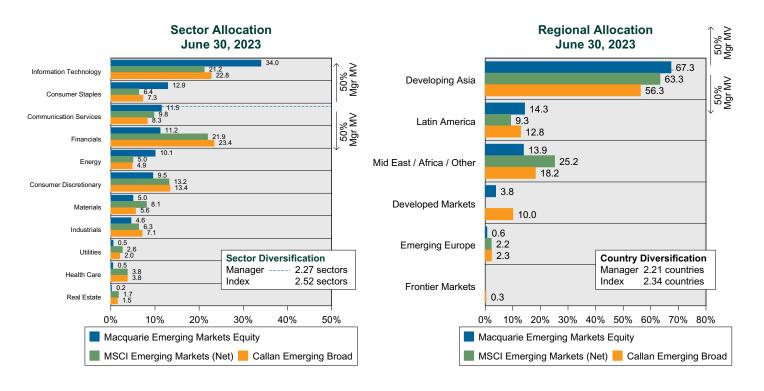
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of June 30, 2023



Sector Weights

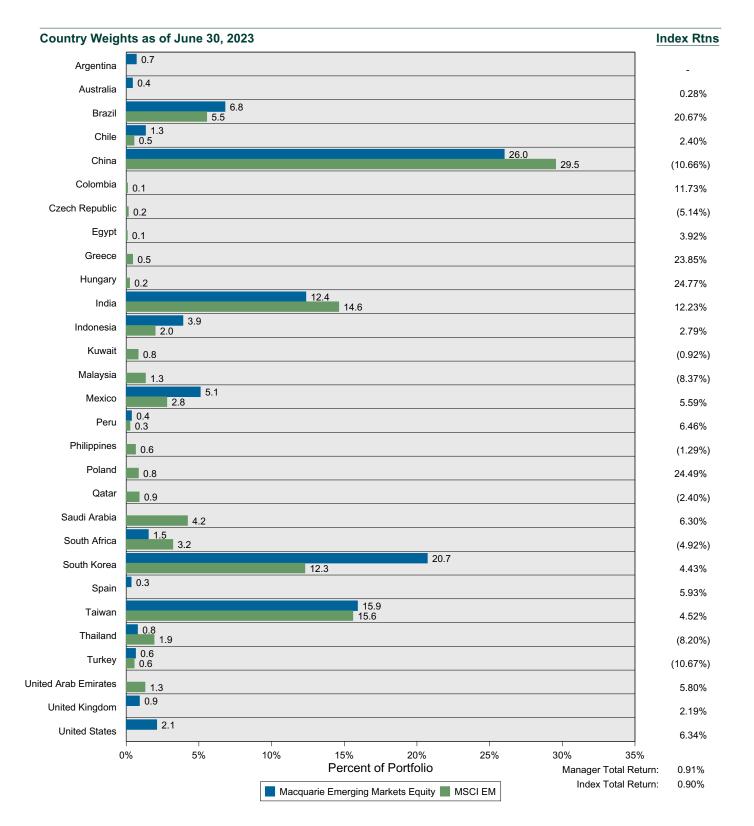
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation Macquarie Emerging Markets Equity VS MSCI Emerging Markets (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.





Martin Currie Period Ended June 30, 2023

Investment Philosophy

The Martin Currie GEMs team builds long-term, high conviction stock-focused portfolios, driven by fundamental research within an appropriate risk framework. Their primary belief with regard to GEMs investing is that sustainable cash flows and the effective allocation of capital are the main determinants of share-price movement over the long term. They seek to identify those emerging-market companies that can sustain cash-flow growth and generate returns in excess of their cost of capital. They believe that it takes a long time for the success of a business model to become fully apparent, so they typically invest with a three-to-five-year horizon. The Martin Currie GEMs team believes that an assessment of a company environmental, social and governance (ESG) performance, or sustainability, can help identify those business models that are most likely to sustain high returns and resist competitive pressures.

Quarterly Summary and Highlights

- Martin Currie's portfolio posted a 2.09% return for the quarter placing it in the 40 percentile of the Callan Emerging Broad group for the quarter and in the 37 percentile for the last year.
- Martin Currie's portfolio outperformed the MSCI EM by 1.20% for the quarter and outperformed the MSCI EM for the year by 4.93%.



Performance vs Callan Emerging Broad (Gross)

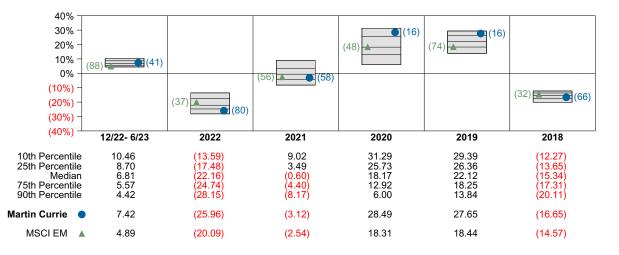
*6/30/23 portfolio characteristics generated using most recently available holdings (3/31/23) modified based on a "buy-and-hold" assumption (repriced and adjusted for corporate actions). Analysis is then done using current market and company financial data.

Martin Currie Return Analysis Summary

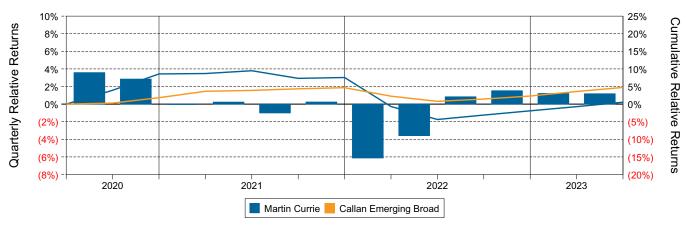
Return Analysis

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.

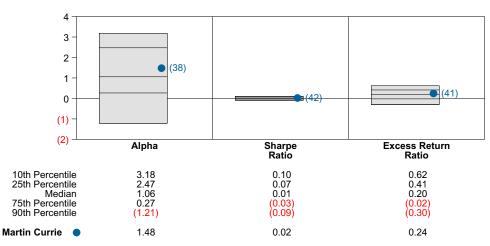
Performance vs Callan Emerging Broad (Gross)



Cumulative and Quarterly Relative Returns vs MSCI EM



Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023



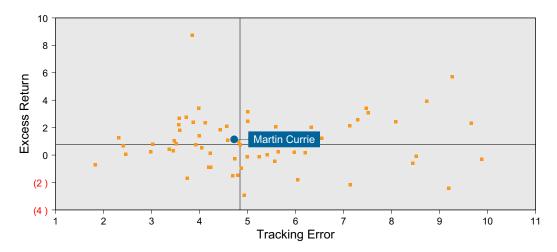


Martin Currie Risk Analysis Summary

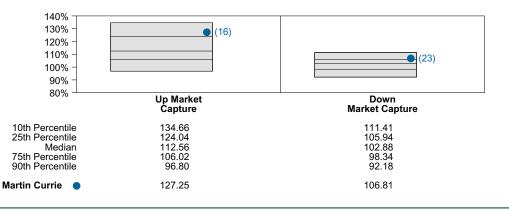
Risk Analysis

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.

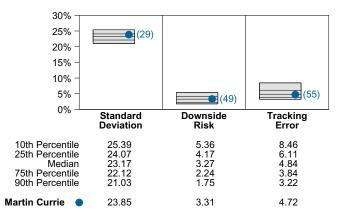
Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended June 30, 2023

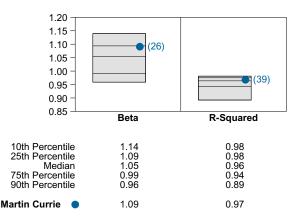


Market Capture vs MSCI Emerging Markets (Net) Rankings Against Callan Emerging Broad (Gross) Five Years Ended June 30, 2023





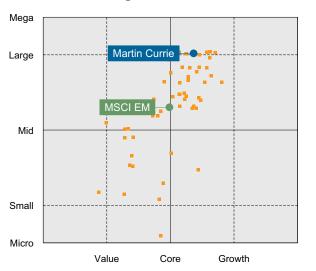






Current Holdings Based Style Analysis Martin Currie As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

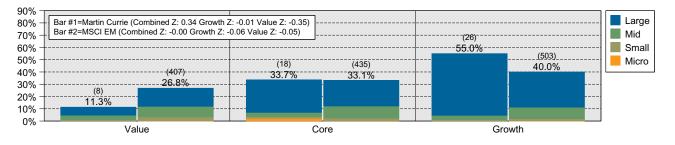


Style Map vs Callan Emerging Broad Holdings as of June 30, 2023

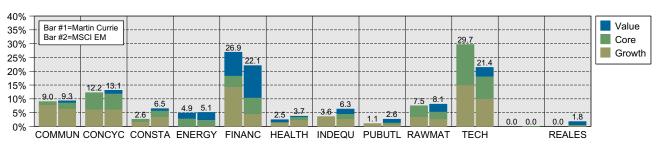
Style Exposure Matrix Holdings as of June 30, 2023

26.8% (407)	33.1% (435)	40.0% (503)	100.0% (1345)	
11.3% (8)	33.7% (18)	55.0% (26)	100.0% (52)	
0.1% (2)	0.4% (2)	0.1% (4)	0.5% (8)	
0.0% (0)	2.2% (1)	0.0% (0)	2.2% (1)	
3.3% (143)	2.0% (115)	1.9% (118)	7.2% (376)	
0.9% (1)	1.4% (2)	1.0% (1)	3.3% (4)	
8.6% (173)	9.8% (248)	9.5% (274)	27.8% (695)	
3.8% (3)	3.4% (4)	3.6% (4)	10.8% (11)	
14.9% (89)	21.0% (70)	28.7% (107)	64.5% (266)	
6.6% (4)	26.7% (11)	50.4% (21)	83.7% (36)	
	3.8% (3) 8.6% (173) 0.9% (1) 3.3% (143) 0.0% (0) 0.1% (2) 11.3% (8)	14.9% (89) 21.0% (70) 3.8% (3) 3.4% (4) 8.6% (173) 9.8% (248) 0.9% (1) 1.4% (2) 3.3% (143) 2.0% (115) 0.0% (0) 2.2% (1) 0.1% (2) 0.4% (2) 11.3% (8) 33.7% (18)	14.9% (89) 21.0% (70) 28.7% (107) 3.8% (3) 3.4% (4) 3.6% (4) 8.6% (173) 9.8% (248) 9.5% (274) 0.9% (1) 1.4% (2) 1.0% (1) 3.3% (143) 2.0% (115) 1.9% (118) 0.0% (0) 2.2% (1) 0.0% (0) 0.1% (2) 0.4% (2) 0.1% (4) 11.3% (8) 33.7% (18) 55.0% (26)	

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023

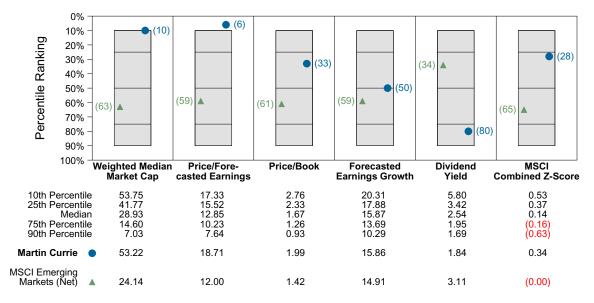


Martin Currie Equity Characteristics Analysis Summary

Portfolio Characteristics

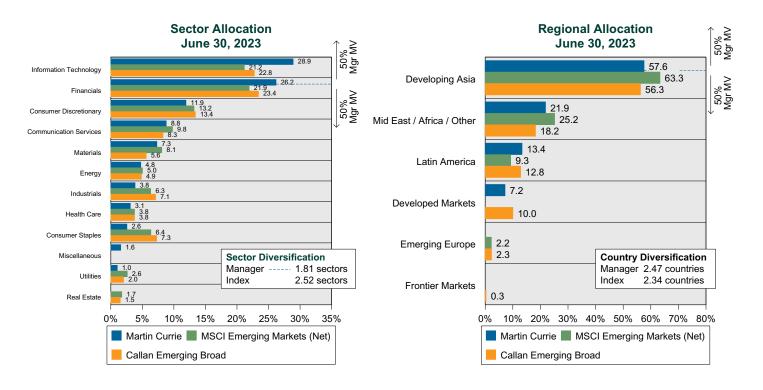
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of June 30, 2023



Sector Weights

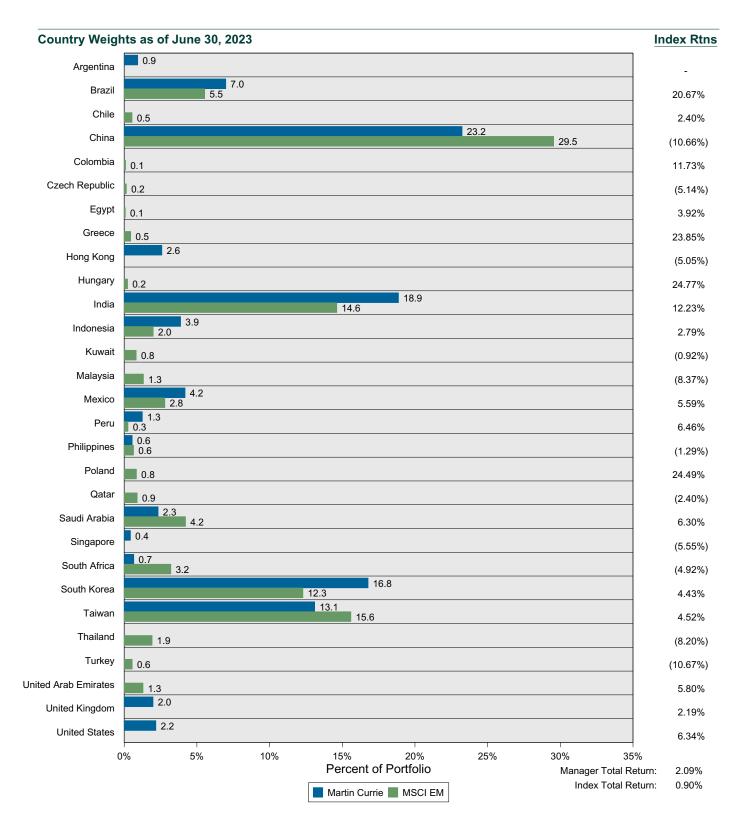
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation Martin Currie VS MSCI Emerging Markets (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



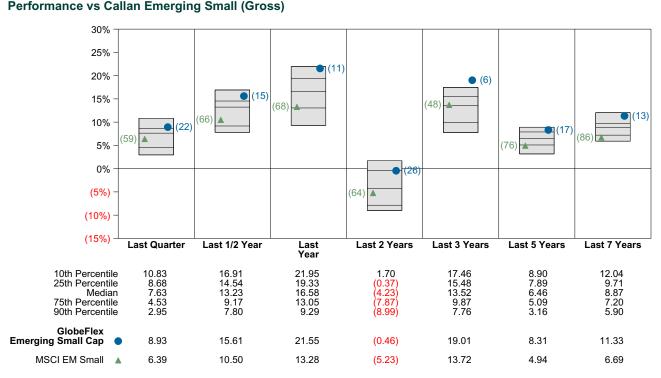
GlobeFlex Emerging Small Cap Period Ended June 30, 2023

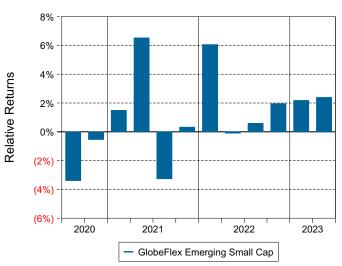
Investment Philosophy

GlobeFlex is an active equity manager focused on bottom-up, stock selection. Their philosophy is based on the early identification of fundamental growth before it is recognized by other investors, defined by: Business Improvement: Finding companies with accelerating business conditions to identify early signs of growth; Management Quality: Evaluating the long-term growth sustainability through in-depth analysis of prospective operating performance and management's skill to increase shareholder wealth; and Relative Value: Recognizing accelerating business conditions early, buying and holding companies below fair market value given future growth prospects.

Quarterly Summary and Highlights

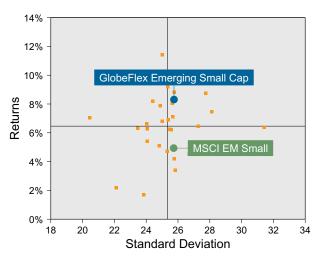
- GlobeFlex Emerging Small Cap's portfolio posted a 8.93% return for the quarter placing it in the 22 percentile of the Callan Emerging Small group for the quarter and in the 11 percentile for the last year.
- GlobeFlex Emerging Small Cap's portfolio outperformed the MSCI EM Small by 2.54% for the quarter and outperformed the MSCI EM Small for the year by 8.27%.





Relative Return vs MSCI EM Small

Callan Emerging Small (Gross) Annualized Five Year Risk vs Return

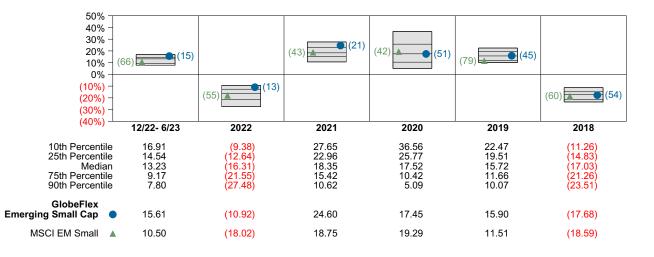


GlobeFlex Emerging Small Cap Return Analysis Summary

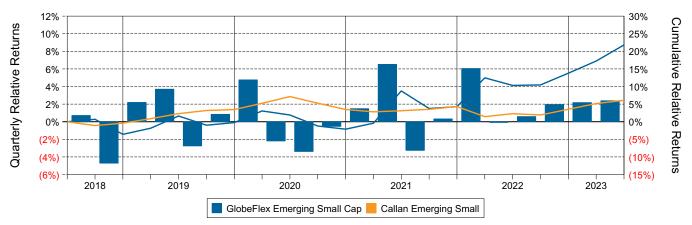
Return Analysis

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 Emerging Small (Gross)



Cumulative and Quarterly Relative Returns vs MSCI EM Small







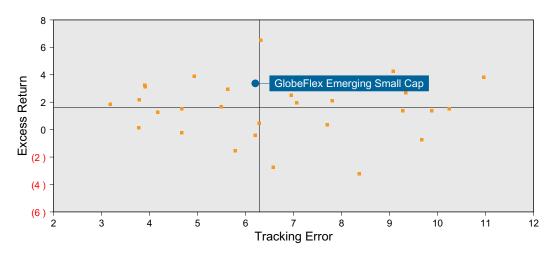


GlobeFlex Emerging Small Cap Risk Analysis Summary

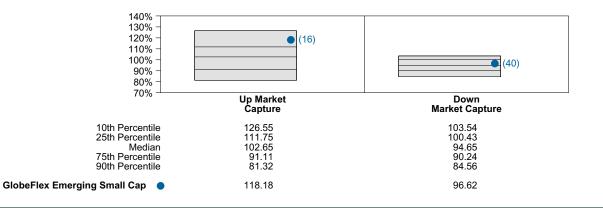
Risk Analysis

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.

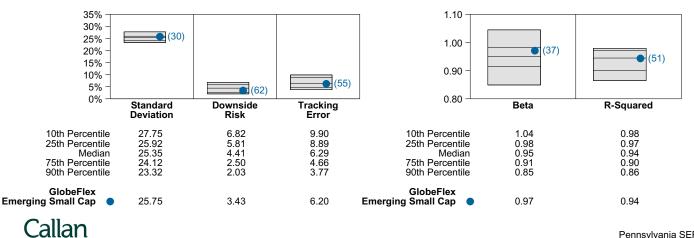
Risk Analysis vs Callan Emerging Small (Gross) Five Years Ended June 30, 2023



Market Capture vs MSCI EM Small (Net) Rankings Against Callan Emerging Small (Gross) Five Years Ended June 30, 2023







Pennsylvania SERS 182

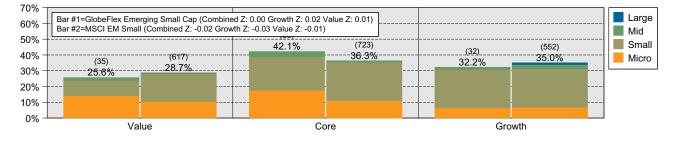
Current Holdings Based Style Analysis GlobeFlex Emerging Small Cap As of June 30, 2023

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

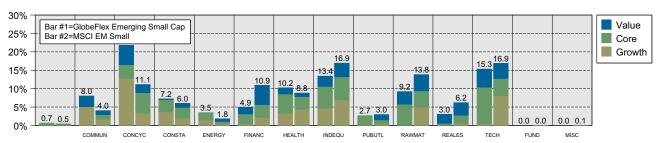


Style Map vs Callan Emerging Small Holdings as of June 30, 2023

Combined Z-Score Style Distribution Holdings as of June 30, 2023



Sector Weights Distribution Holdings as of June 30, 2023



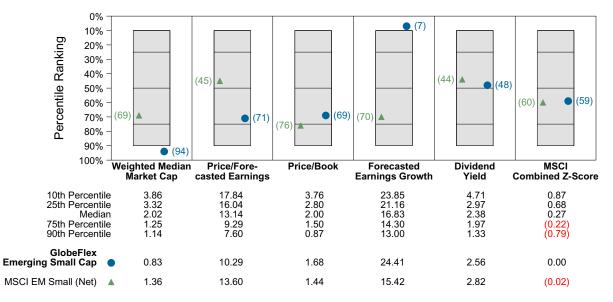
Style Exposure Matrix Holdings as of June 30, 2023

GlobeFlex Emerging Small Cap Equity Characteristics Analysis Summary

Portfolio Characteristics

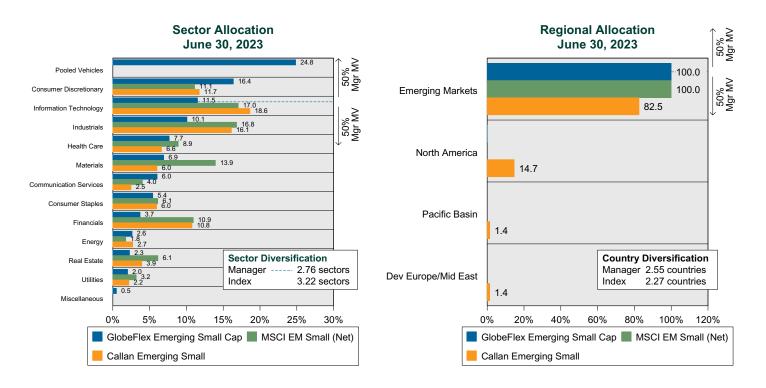
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Small as of June 30, 2023



Sector Weights

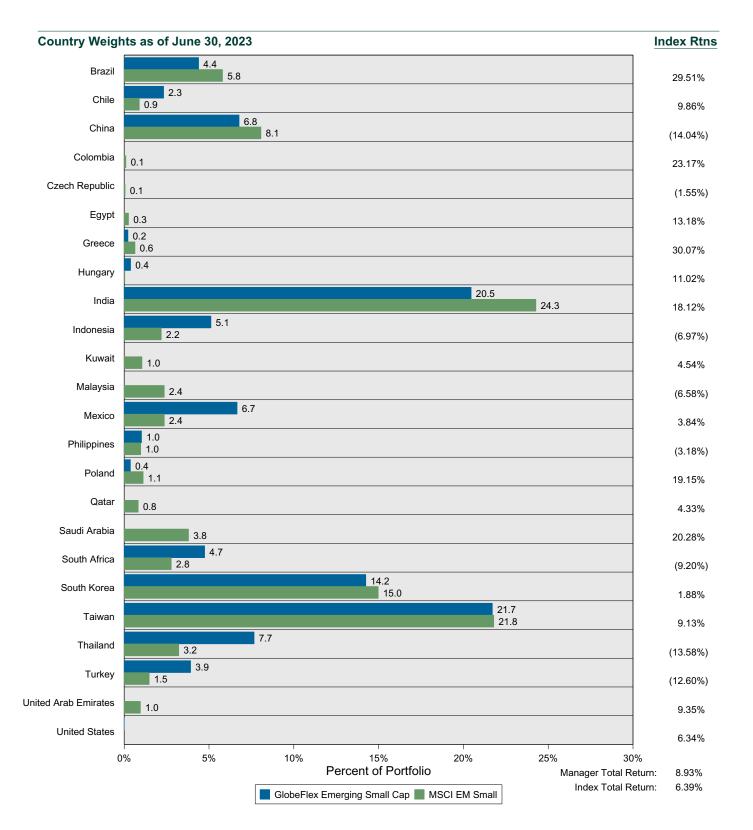
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares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



Country Allocation GlobeFlex Emerging Small Cap VS MSCI EM Small (Net)

Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of June 30, 2023. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.



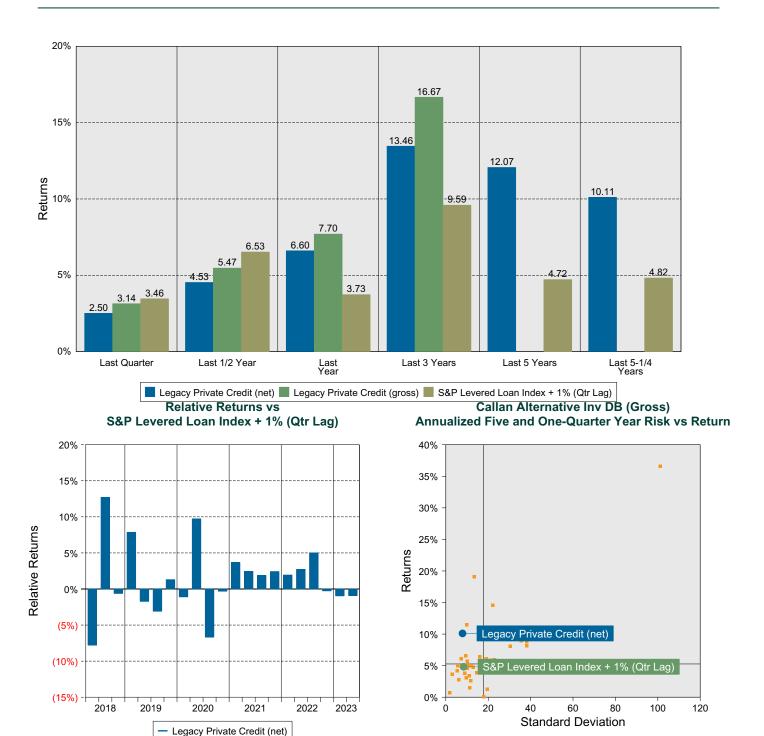
Legacy Private Credit Period Ended June 30, 2023

Asset Class Membership Changes

Legacy Private Credit performance is included in the total fund starting at the composite's true inception date, 07/01/2022. The history of this composite is calculated and shown for informational purposes.

Quarterly Summary and Highlights

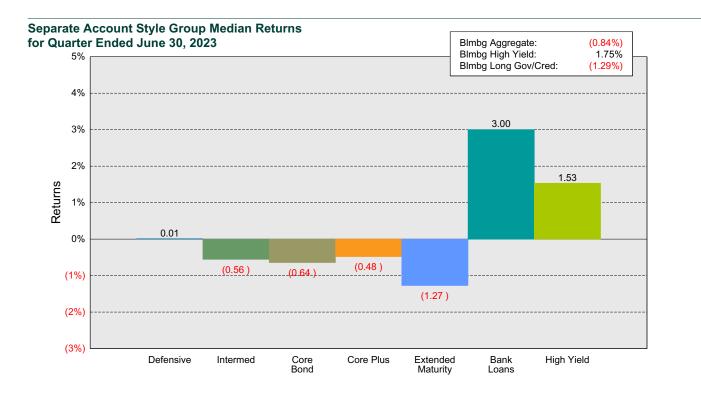
- Legacy Private Credit (net)'s portfolio posted a 2.50% return for the quarter placing it in the 40 percentile of the Callan Alternative Inv DB group for the quarter and in the 30 percentile for the last year.
- Legacy Private Credit (net)'s portfolio underperformed the S&P Levered Loan Index + 1% (Qtr Lag) by 0.95% for the quarter and outperformed the S&P Levered Loan Index + 1% (Qtr Lag) for the year by 2.87%.

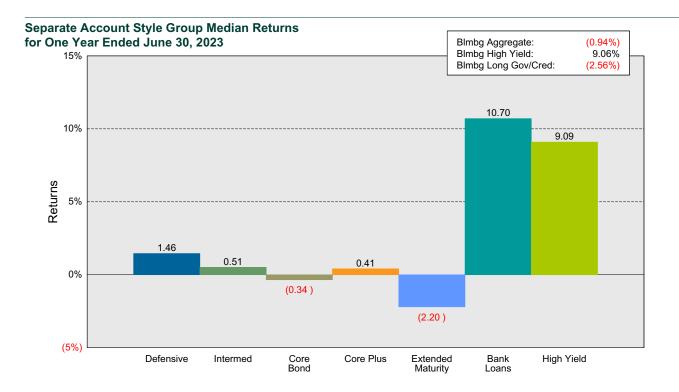


Fixed Income

Domestic Fixed Income Active Management Overview

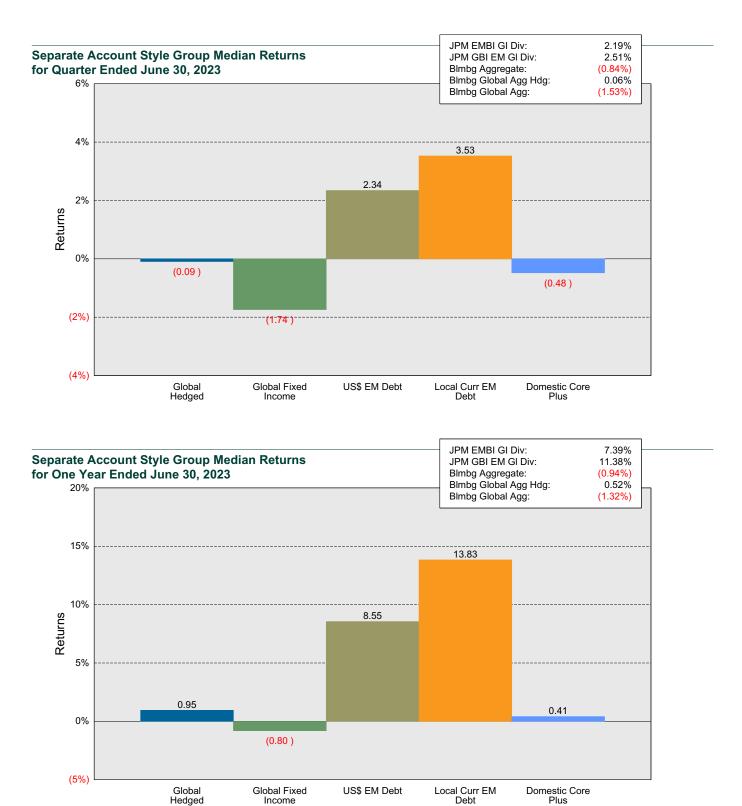
The Bloomberg US Aggregate Bond Index fell 0.8% in 2Q as interest rates rose. A risk-on environment bolstered returns for credit and securitized sectors, both of which outperformed U.S. Treasuries on a duration-adjusted basis. The 10-year U.S. Treasury yield was 3.81% as of quarter-end, up from 3.48% as of 3/31. The yield curve was sharply inverted at quarter-end with the 2-year U.S. Treasury yielding 4.87%. High yield (Bloomberg High Yield Index: +1.8%) performed well amid robust risk appetite, muted issuance, and promising economic news.





Global Fixed Income Active Management Overview

The Bloomberg Global Aggregate ex USD Index fell 2.2% (hedged: +0.7%). Japan (-8.0%) was the worst-performing constituent, due largely to yen deprecation. Rates were mixed, rising in the United Kingdom and Australia but flat to slightly lower across other developed markets. Currency shifts impacted returns across countries with mixed performance from the U.S. dollar. The greenback gained 8% versus the Japanese yen but was down about 3% versus the British pound and 0.4% versus the euro.

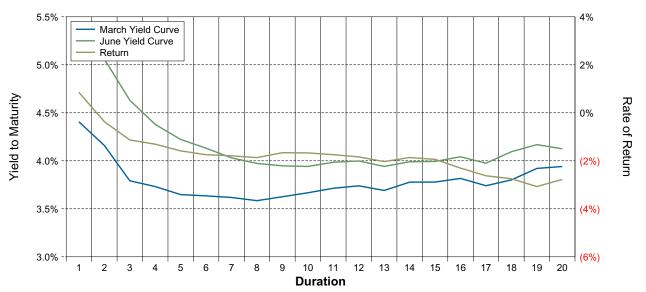


Bond Market Environment

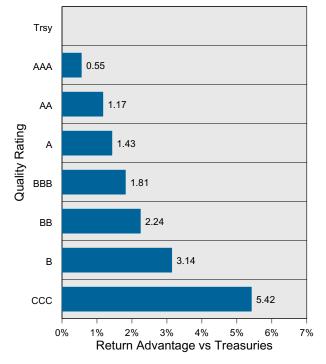
Factors Influencing Bond Returns

The charts below are designed to give you an overview of the factors that influenced bond market returns for the quarter. The first chart shows the shift in the Treasury yield curve and the resulting returns by duration. The second chart shows the average return premium (relative to Treasuries) for bonds with different quality ratings. The final chart shows the average return premium of the different sectors relative to Treasuries. These sector premiums are calculated after differences in quality and term structure have been accounted for across the sectors. They are typically explained by differences in convexity, sector specific supply and demand considerations, or other factors that influence the perceived risk of the sector.

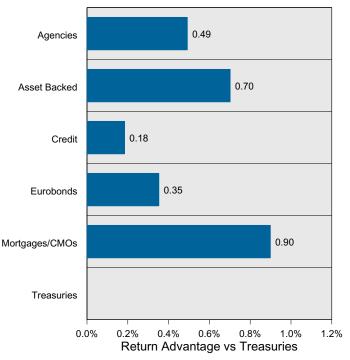
Yield Curve Change and Rate of Return One Quarter Ended June 30, 2023



Duration Adjusted Return Premium to Quality One Quarter Ended June 30, 2023



Quality and Duration Adjusted Return Premium by Sector One Quarter Ended June 30, 2023



Fixed Income Period Ended June 30, 2023

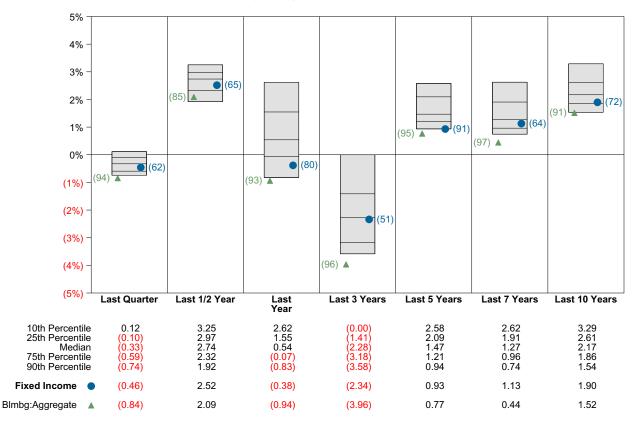
Asset Class Membership Changes

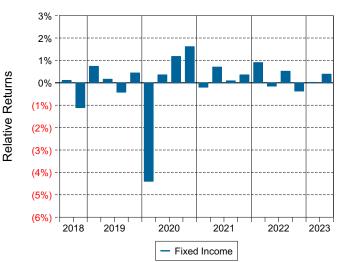
Fixed Income also includes the new fixed income sub-composite which was funded in 03/01/2021 and ended in 06/30/2022.

Quarterly Summary and Highlights

- Fixed Income's portfolio posted a (0.46)% return for the quarter placing it in the 62 percentile of the Public Fund Domestic Fixed group for the quarter and in the 80 percentile for the last year.
- Fixed Income's portfolio outperformed the BImbg:Aggregate by 0.39% for the quarter and outperformed the BImbg:Aggregate for the year by 0.55%.

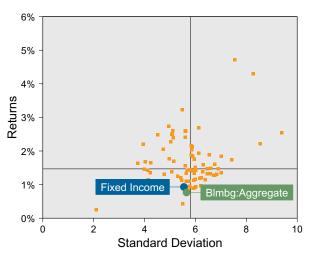
Performance vs Public Fund - Domestic Fixed (Gross)





Relative Return vs Blmbg:Aggregate

Public Fund - Domestic Fixed (Gross) Annualized Five Year Risk vs Return

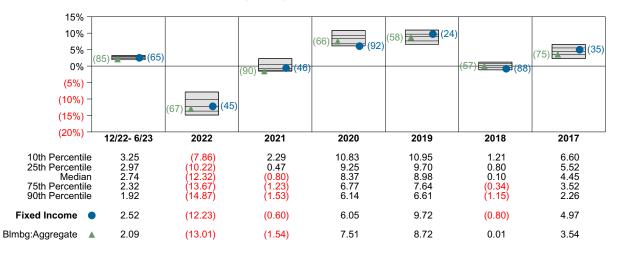


Fixed Income Return Analysis Summary

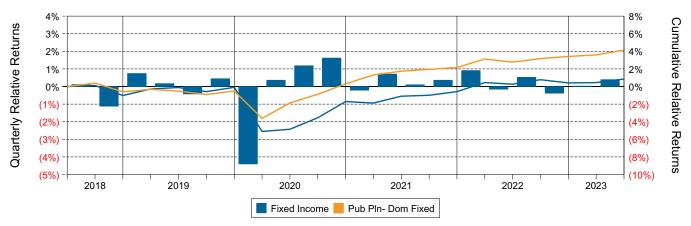
Return Analysis

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.

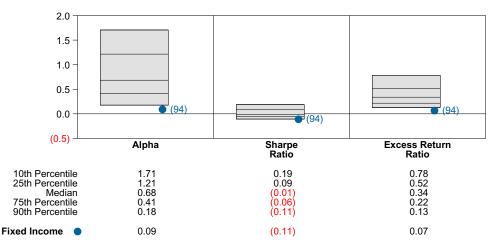
Performance vs Public Fund - Domestic Fixed (Gross)



Cumulative and Quarterly Relative Returns vs Blmbg:Aggregate



Risk Adjusted Return Measures vs Blmbg:Aggregate Rankings Against Public Fund - Domestic Fixed (Gross) Five Years Ended June 30, 2023

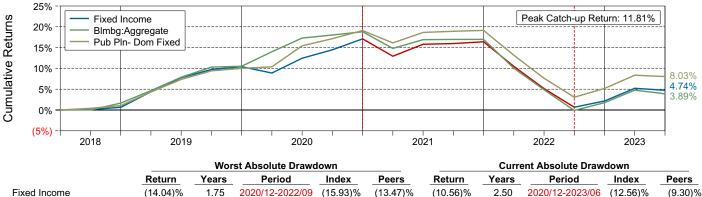




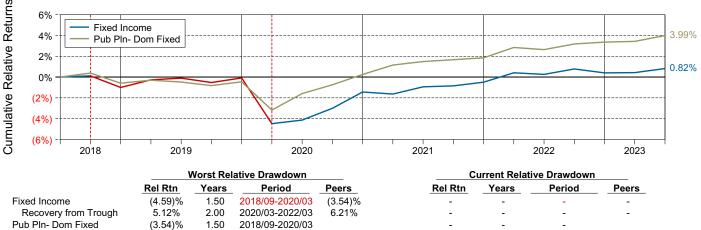
Fixed Income Drawdown Analysis for Five Years Ended June 30, 2023

The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

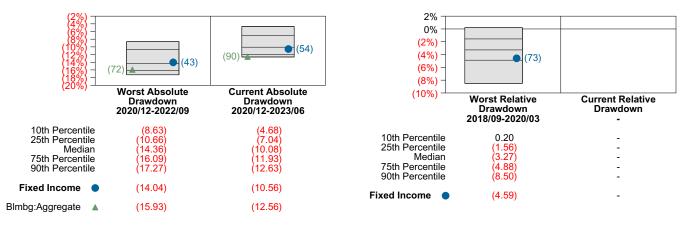
Absolute Cumulative Drawdown Analysis



Fixed Income	(14.04)%	1.75	2020/12-2022/09	(15.93)%	(13.47)%	(10.56)%	2.50	2020/12-2023/06	(12.56)%	(9.30)%	
Recovery from Trough	4.05%	0.75+	2022/09-2023/06	4.00%	4.82%	4.05%	0.75+	2022/09-2023/06	4.00%	4.82%	
Blmbg:Aggregate	(15.93)%	1.75	2020/12-2022/09			(12.56)%	2.50	2020/12-2023/06			
Pub PIn- Dom Fixed	(13.49)%	0.75	2021/12-2022/09			(9.32)%	1.50	2021/12-2023/06			
Relative Cumulative Drawdown Analysis vs. Blmbg:Aggregate											



Drawdown Rankings vs. Blmbg:Aggregate Rankings against Public Fund - Domestic Fixed Five Years Ended June 30, 2023

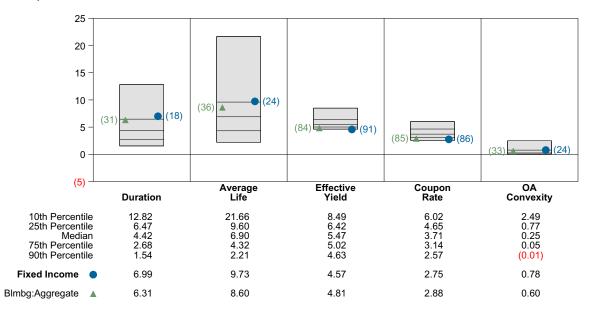


Fixed Income Bond Characteristics Analysis Summary

Portfolio Characteristics

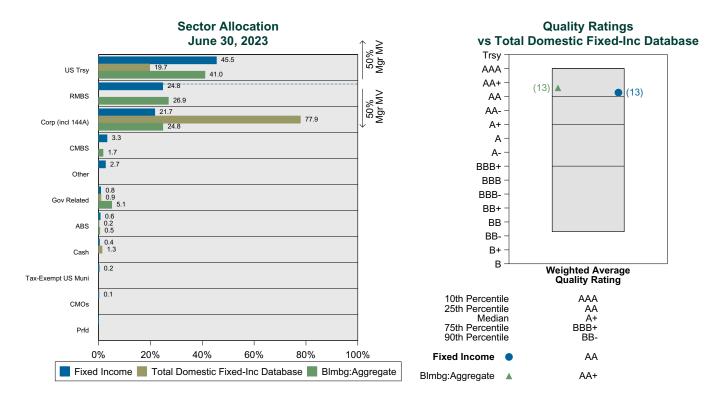
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Total Domestic Fixed-Inc Database as of June 30, 2023



Sector Allocation and Quality Ratings

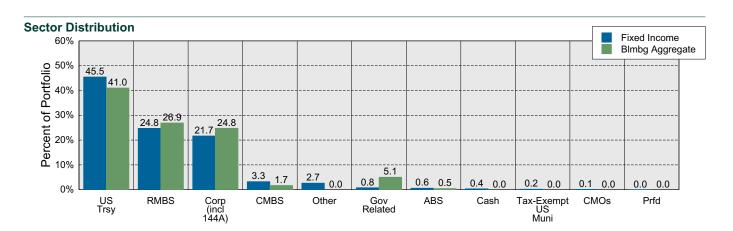
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

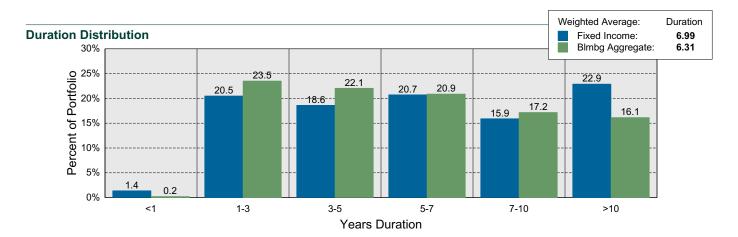


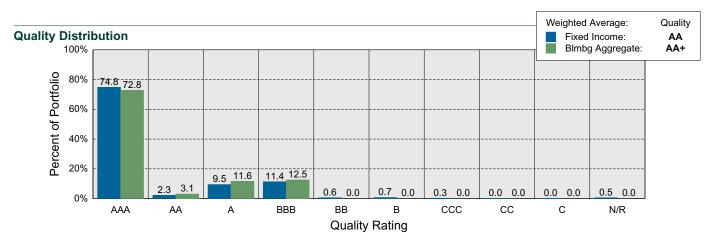
Fixed Income Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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





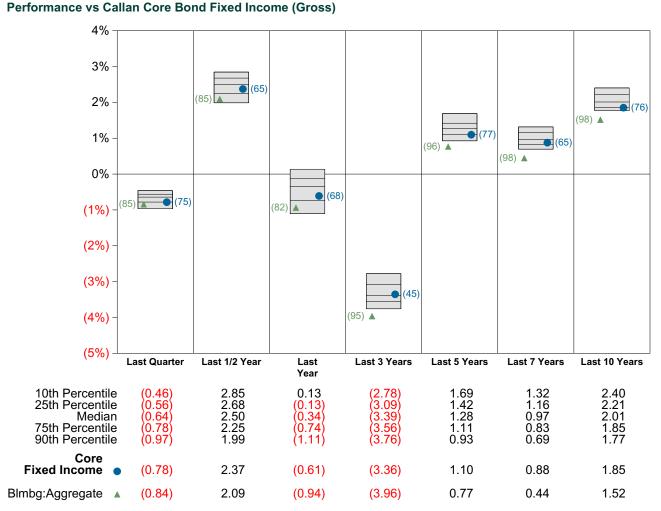


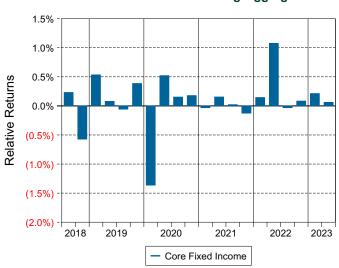
Core Fixed Income

Core Fixed Income Period Ended June 30, 2023

Quarterly Summary and Highlights

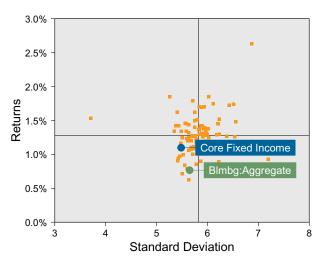
- Core Fixed Income's portfolio posted a (0.78)% return for the quarter placing it in the 75 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 68 percentile for the last year.
- Core Fixed Income's portfolio outperformed the Blmbg:Aggregate by 0.06% for the quarter and outperformed the Blmbg:Aggregate for the year by 0.33%.





Relative Return vs Blmbg:Aggregate

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

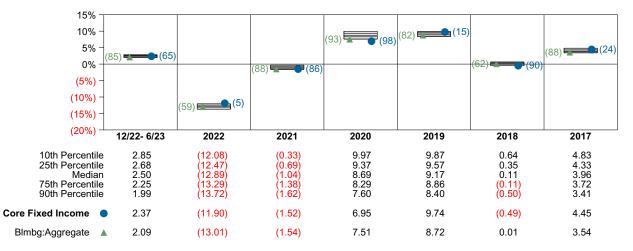


Core Fixed Income Return Analysis Summary

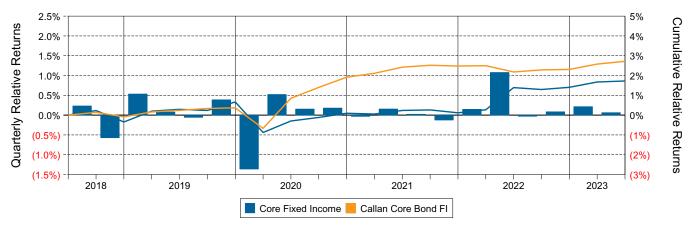
Return Analysis

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.





Cumulative and Quarterly Relative Returns vs Blmbg:Aggregate



Risk Adjusted Return Measures vs Blmbg:Aggregate Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023



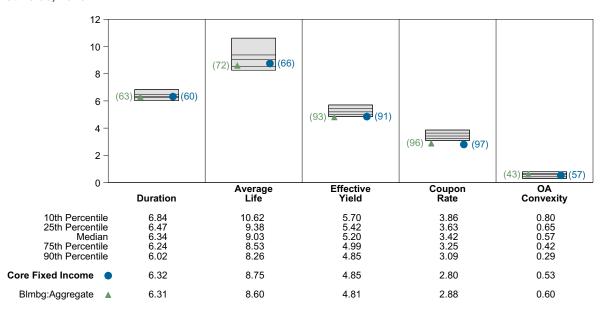


Core Fixed Income Bond Characteristics Analysis Summary

Portfolio Characteristics

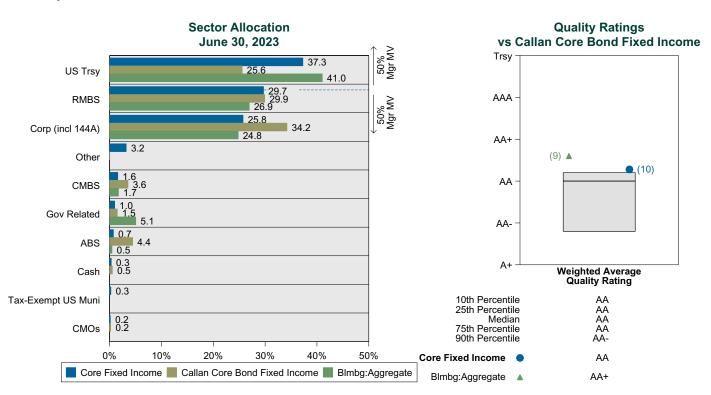
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of June 30, 2023



Sector Allocation and Quality Ratings

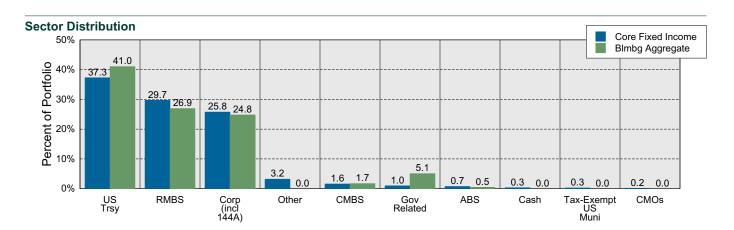
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

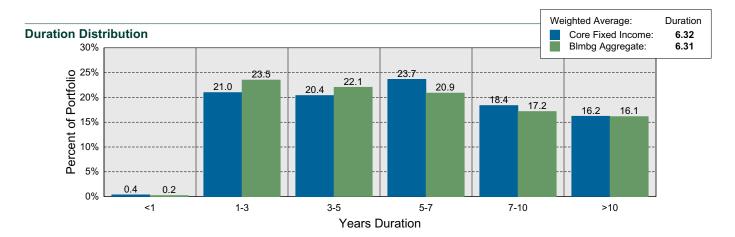


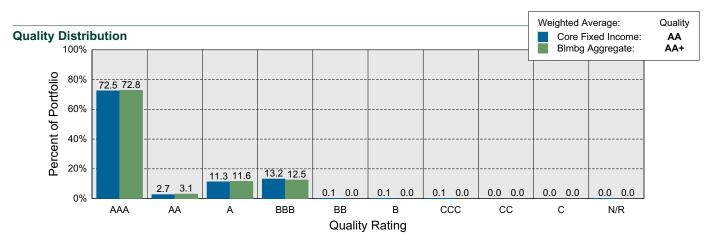
Core Fixed Income Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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







Core Fixed Income Managers

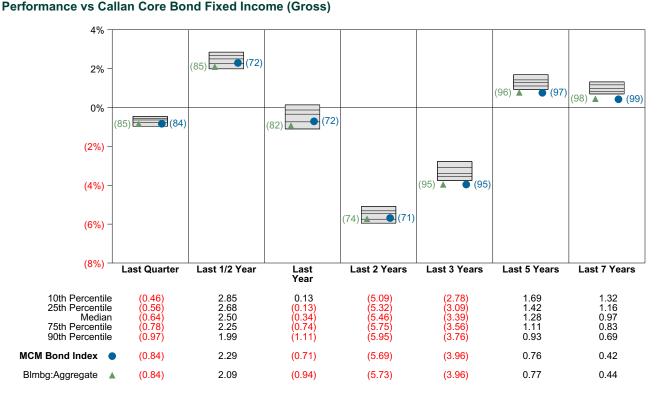
MCM Bond Index Period Ended June 30, 2023

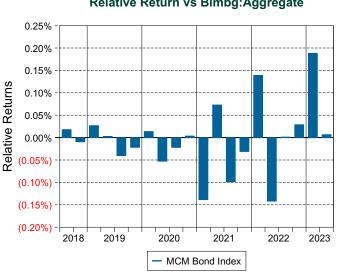
Investment Philosophy

Fixed income indexing offers a cost-effective, sensible investment approach to gaining diversified market exposure and receiving competitive relative returns over the long-term. Mellon Capital's Aggregate Bond Index Strategy employs a stratified sampling approach that has consistently added value with very little tracking error versus the Barclays Capital Aggregate Bond Index. We emphasize low turnover (low transaction costs) and strict risk control in the structuring of our portfolios.

Quarterly Summary and Highlights

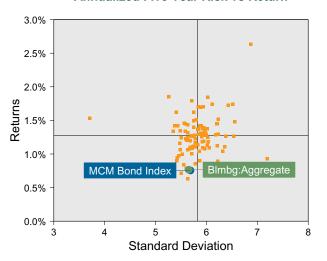
- MCM Bond Index's portfolio posted a (0.84)% return for the guarter placing it in the 84 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 72 percentile for the last year.
- MCM Bond Index's portfolio outperformed the Blmbg:Aggregate by 0.01% for the quarter and outperformed the ٠ Blmbg:Aggregate for the year by 0.22%.





Relative Return vs Blmbg:Aggregate

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

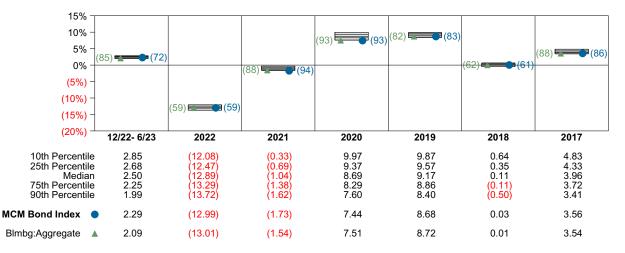


MCM Bond Index Return Analysis Summary

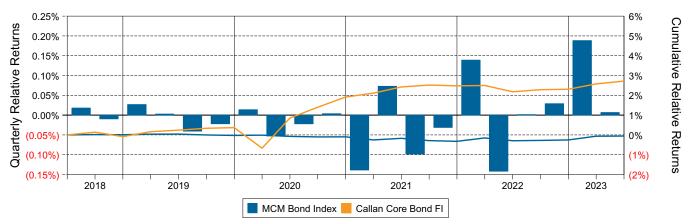
Return Analysis

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.

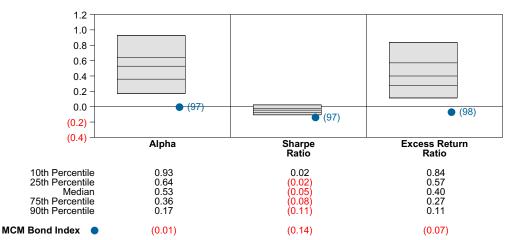




Cumulative and Quarterly Relative Returns vs Blmbg:Aggregate



Risk Adjusted Return Measures vs Blmbg:Aggregate Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023



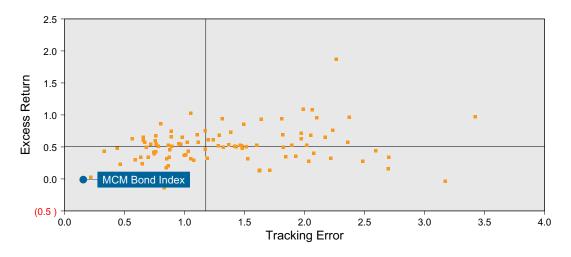


MCM Bond Index Risk Analysis Summary

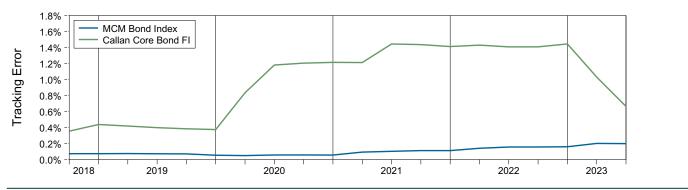
Risk Analysis

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

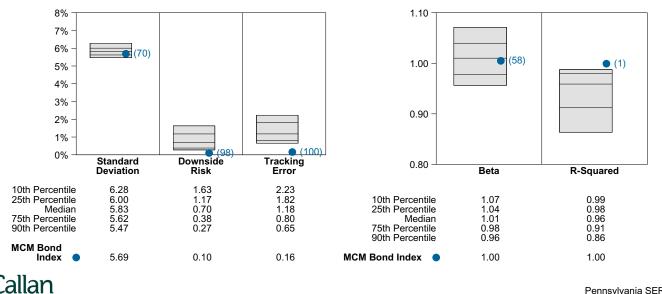
Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023









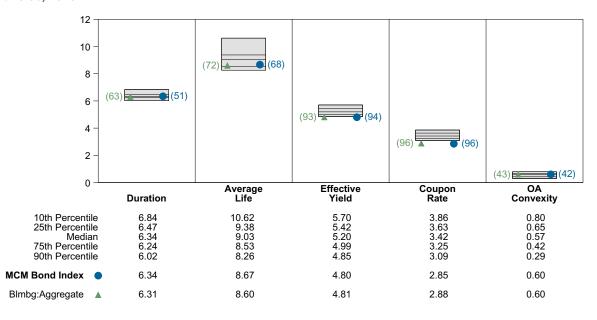


MCM Bond Index Bond Characteristics Analysis Summary

Portfolio Characteristics

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

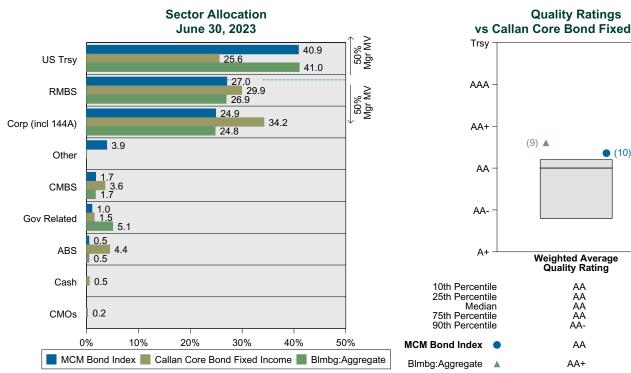
Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of June 30, 2023



Sector Allocation and Quality Ratings

Callan

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.

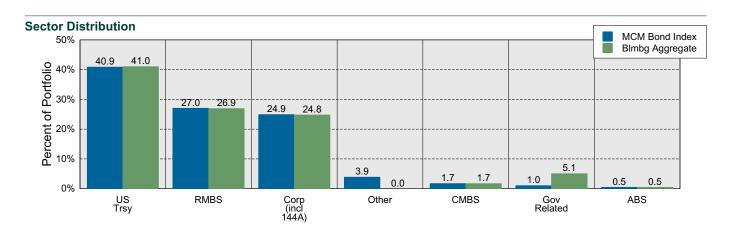


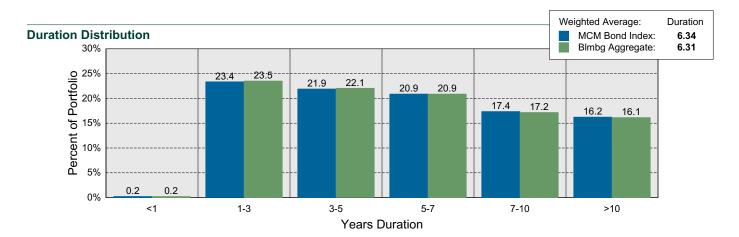
Quality Ratings vs Callan Core Bond Fixed Income

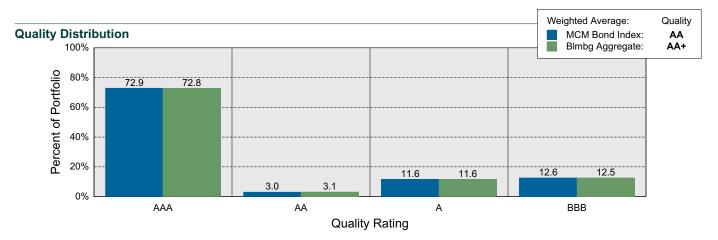
MCM Bond Index Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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



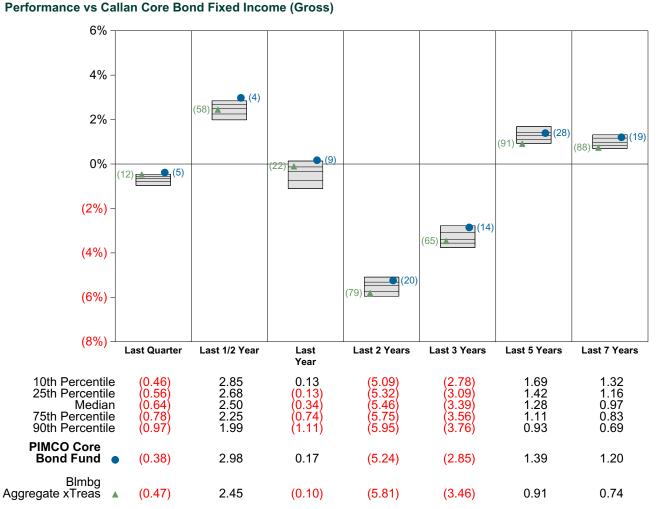


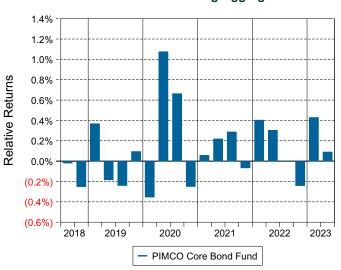


PIMCO Core Bond Fund Period Ended June 30, 2023

Quarterly Summary and Highlights

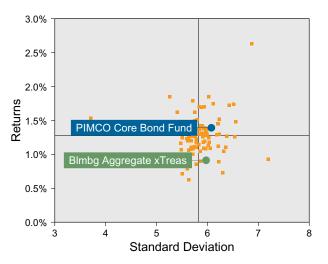
- PIMCO Core Bond Fund's portfolio posted a (0.38)% return for the quarter placing it in the 5 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 9 percentile for the last year.
- PIMCO Core Bond Fund's portfolio outperformed the BImbg Aggregate xTreas by 0.09% for the quarter and outperformed the BImbg Aggregate xTreas for the year by 0.27%.





Relative Return vs Blmbg Aggregate xTreas



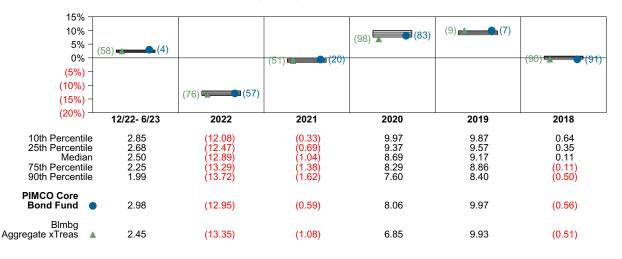


PIMCO Core Bond Fund Return Analysis Summary

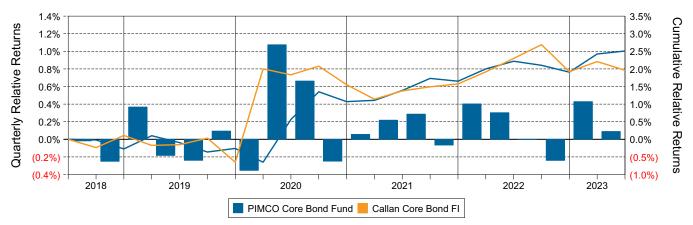
Return Analysis

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

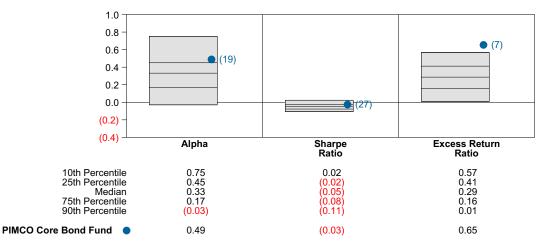
Performance vs Callan Core Bond Fixed Income (Gross)



Cumulative and Quarterly Relative Returns vs Blmbg Aggregate xTreas



Risk Adjusted Return Measures vs Blmbg Aggregate xTreas Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023



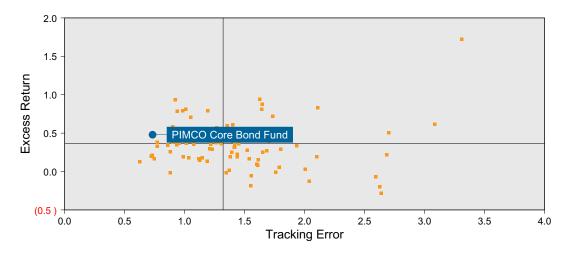


PIMCO Core Bond Fund Risk Analysis Summary

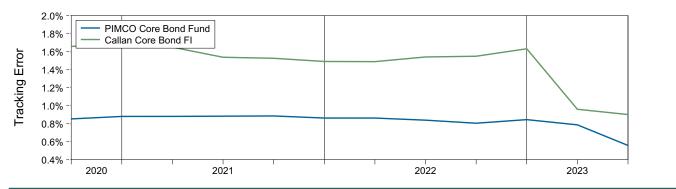
Risk Analysis

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

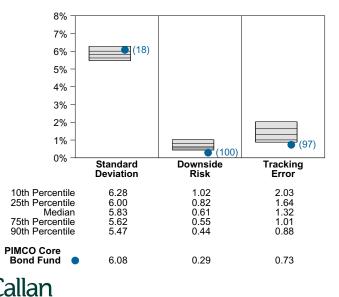
Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended June 30, 2023

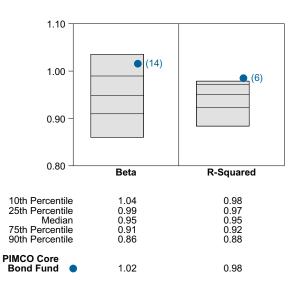










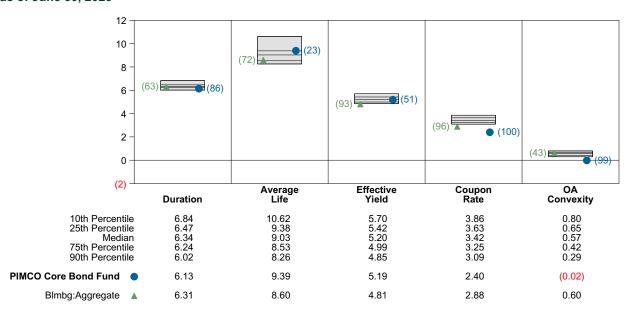


PIMCO Core Bond Fund Bond Characteristics Analysis Summary

Portfolio Characteristics

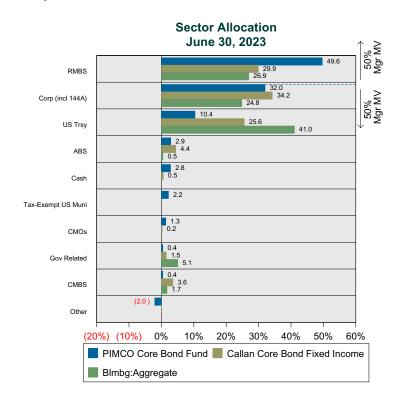
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of June 30, 2023

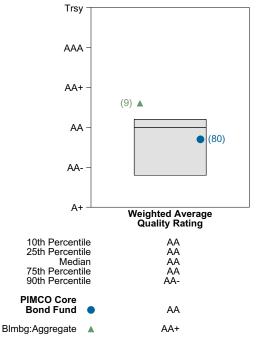


Sector Allocation and Quality Ratings

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



Quality Ratings vs Callan Core Bond Fixed Income

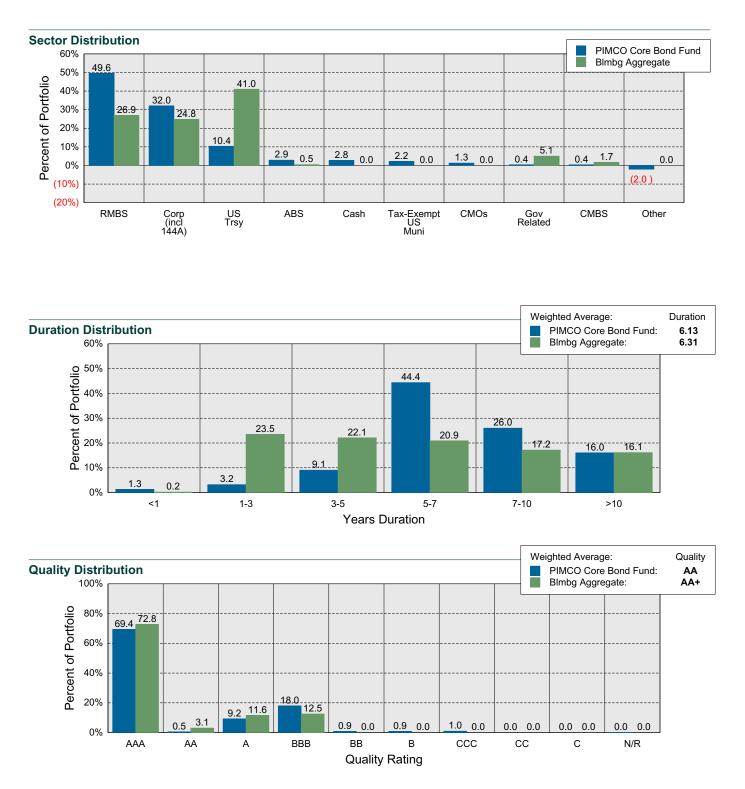




PIMCO Core Bond Fund Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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



Opportunistic Fixed Income

Blackstone Keystone Period Ended June 30, 2023

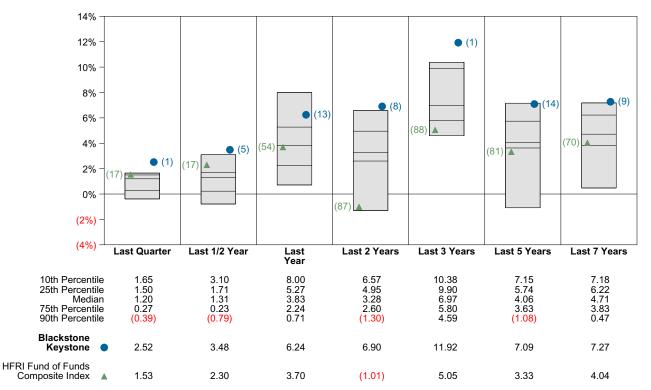
Asset Class Membership Changes

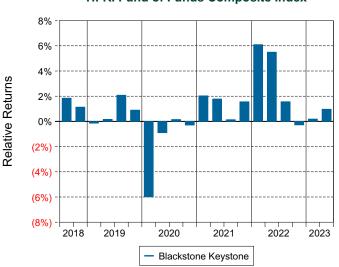
Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.

Quarterly Summary and Highlights

- Blackstone Keystone's portfolio posted a 2.52% return for the quarter placing it in the 1 percentile of the Callan Absolute Rtn Hedge Fund of Funds group for the quarter and in the 13 percentile for the last year.
- Blackstone Keystone's portfolio outperformed the HFRI Fund of Funds Composite Index by 0.98% for the quarter and outperformed the HFRI Fund of Funds Composite Index for the year by 2.55%.

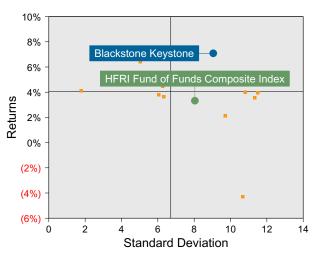
Performance vs Callan Absolute Rtn Hedge Fund of Funds (Net)





Relative Returns vs HFRI Fund of Funds Composite Index

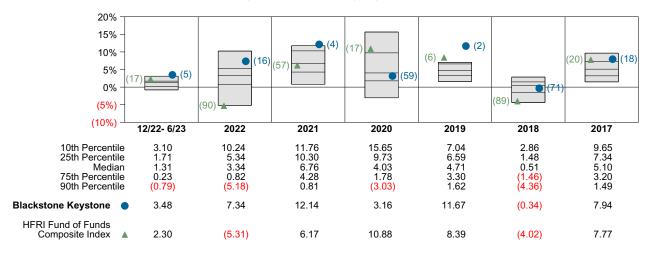
Callan Absolute Rtn Hedge Fund of Funds (Net) Annualized Five Year Risk vs Return



Blackstone Keystone Return Analysis Summary

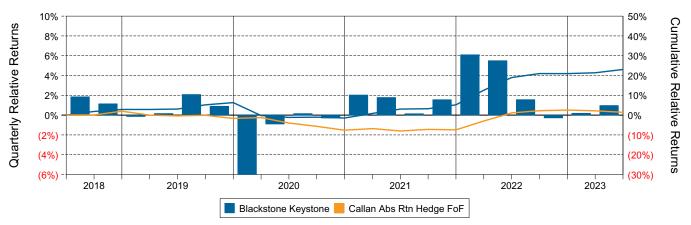
Return Analysis

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.

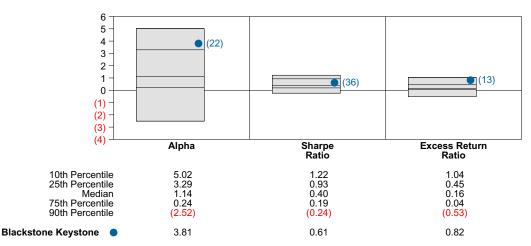


Performance vs Callan Absolute Rtn Hedge Fund of Funds (Net)

Cumulative and Quarterly Relative Returns vs HFRI Fund of Funds Composite Index



Risk Adjusted Return Measures vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended June 30, 2023

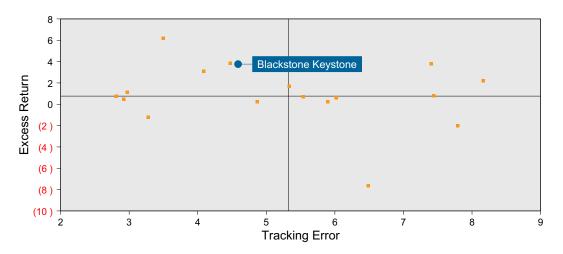


Blackstone Keystone Risk Analysis Summary

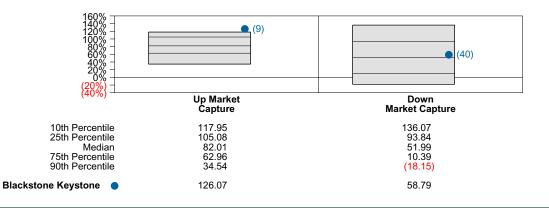
Risk Analysis

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.

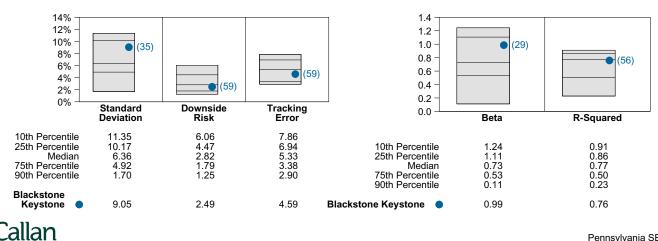
Risk Analysis vs Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended June 30, 2023



Market Capture vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended June 30, 2023



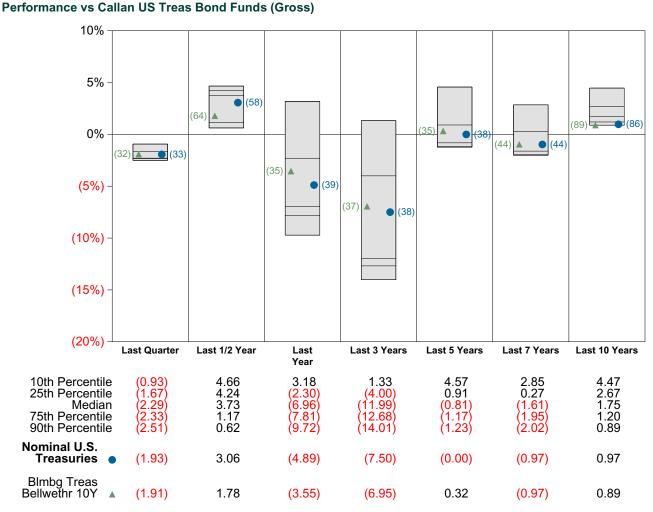
Risk Statistics Rankings vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended June 30, 2023



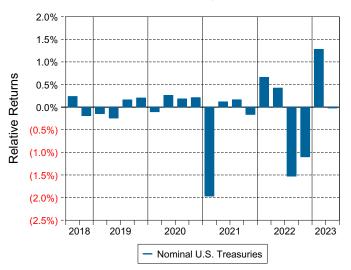
Nominal U.S. Treasuries Period Ended June 30, 2023

Quarterly Summary and Highlights

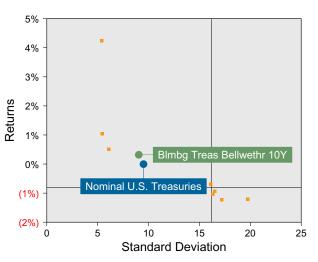
- Nominal U.S. Treasuries's portfolio posted a (1.93)% return for the quarter placing it in the 33 percentile of the Callan US Treas Bond Funds group for the quarter and in the 39 percentile for the last year.
- Nominal U.S. Treasuries's portfolio underperformed the Blmbg Treas Bellwethr 10Y by 0.02% for the quarter and underperformed the Blmbg Treas Bellwethr 10Y for the year by 1.34%.



Relative Return vs Blmbg Treas Bellwethr 10Y





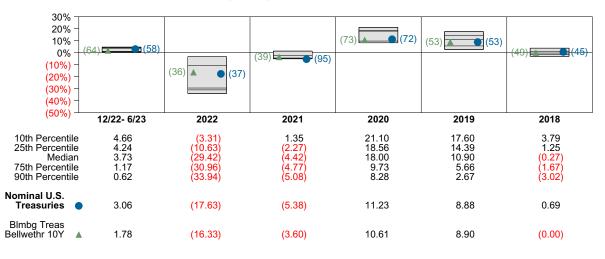


Nominal U.S. Treasuries Return Analysis Summary

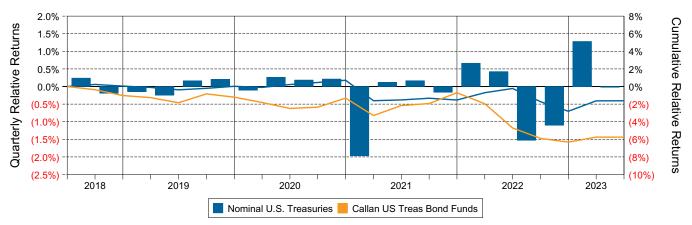
Return Analysis

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.

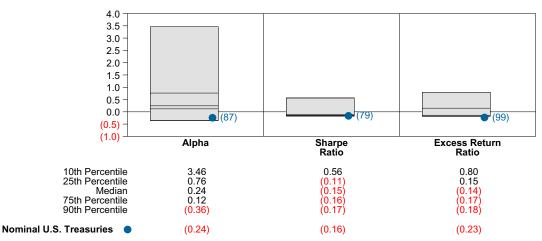
Performance vs Callan US Treas Bond Funds (Gross)



Cumulative and Quarterly Relative Returns vs Blmbg Treas Bellwethr 10Y









Nominal U.S. Treasuries Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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



Quality Rating



Nominal U.S. Treasuries Managers

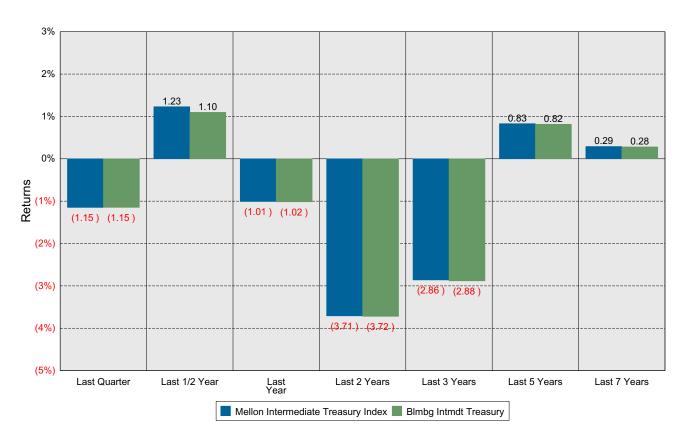
Mellon Intermediate Treasury Index Period Ended June 30, 2023

Return History

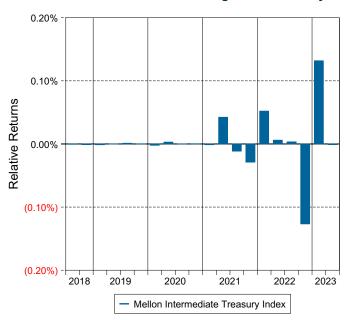
The Mellon Intermediate Treasury Index account was funded in March of 2021. Previous history reflects the manager's composite returns.

Quarterly Summary and Highlights

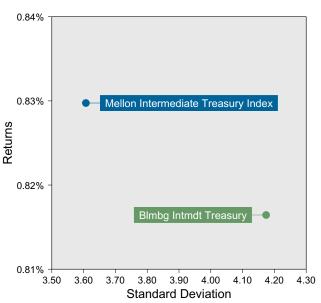
• Mellon Intermediate Treasury Index's portfolio underperformed the Blmbg Intmdt Treasury by 0.00% for the quarter and outperformed the Blmbg Intmdt Treasury for the year by 0.01%.



Relative Return vs Blmbg Intmdt Treasury



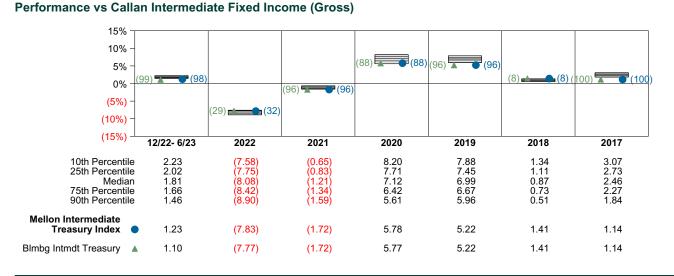
Annualized Five Year Risk vs Return



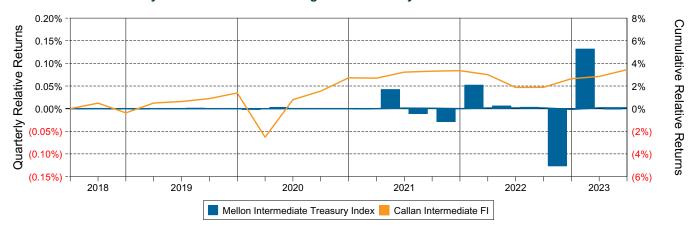
Mellon Intermediate Treasury Index Return Analysis Summary

Return Analysis

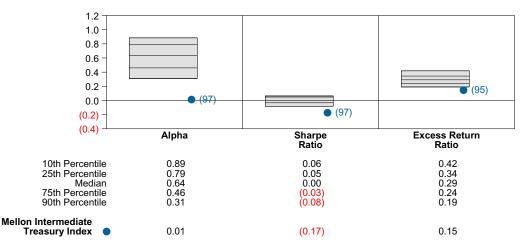
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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



Cumulative and Quarterly Relative Returns vs Blmbg Intmdt Treasury



Risk Adjusted Return Measures vs Blmbg Intmdt Treasury Rankings Against Callan Intermediate Fixed Income (Gross) Five Years Ended June 30, 2023



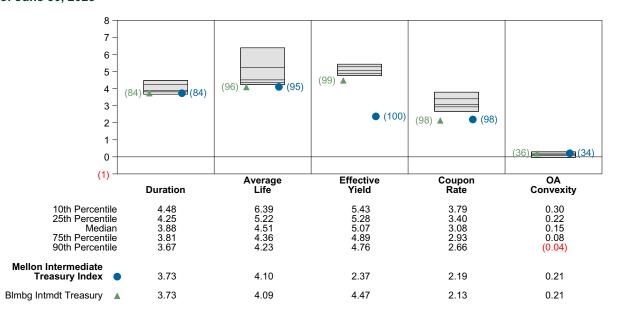


Mellon Intermediate Treasury Index Bond Characteristics Analysis Summary

Portfolio Characteristics

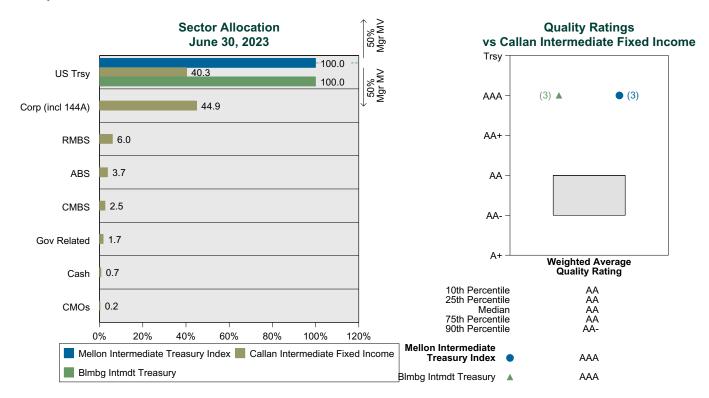
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Intermediate Fixed Income as of June 30, 2023



Sector Allocation and Quality Ratings

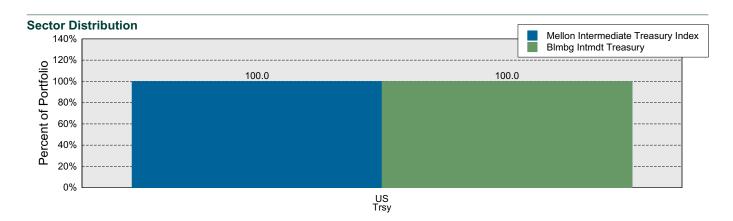
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

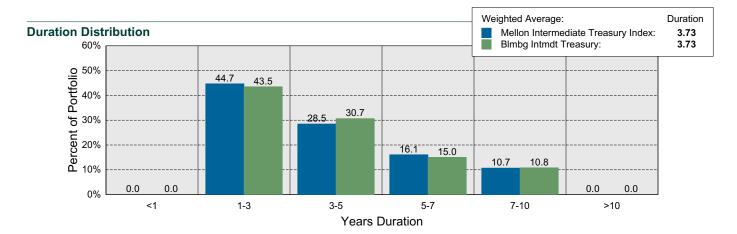


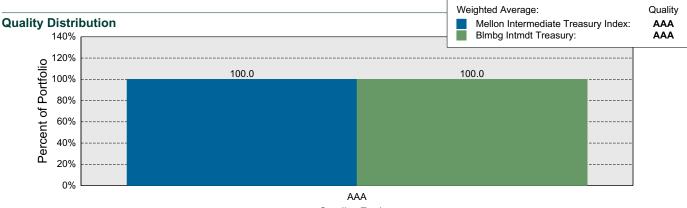
Mellon Intermediate Treasury Index Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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







Quality Rating



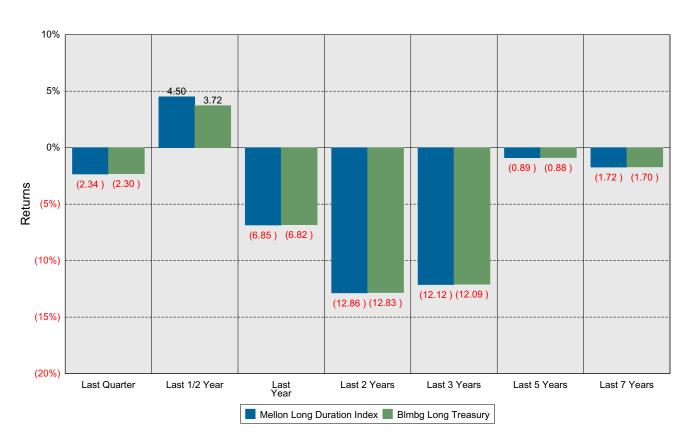
Mellon Long Duration Index Period Ended June 30, 2023

Return History

The Mellon Long Duration Index account was funded in March of 2021. Previous history reflects the manager's composite returns.

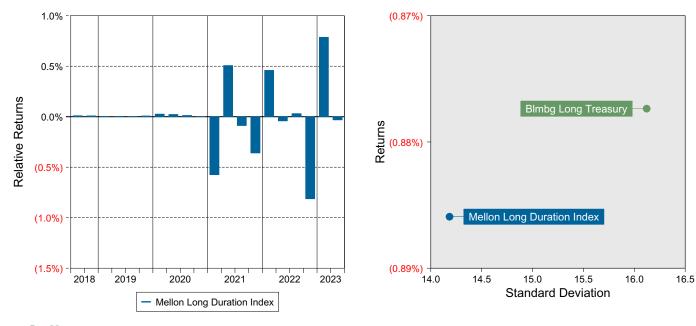
Quarterly Summary and Highlights

• Mellon Long Duration Index's portfolio underperformed the Blmbg Long Treasury by 0.03% for the quarter and underperformed the Blmbg Long Treasury for the year by 0.03%.



Relative Return vs Blmbg Long Treasury

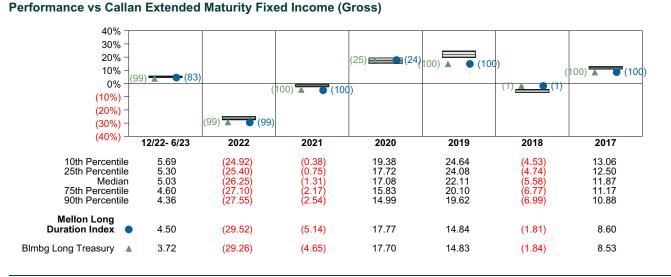




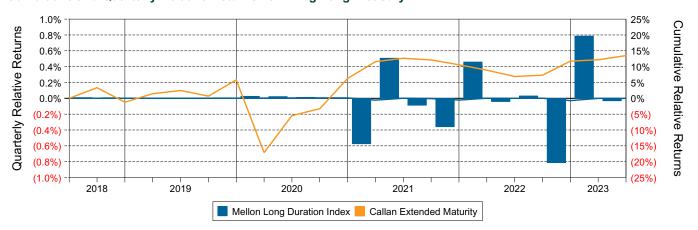
Mellon Long Duration Index Return Analysis Summary

Return Analysis

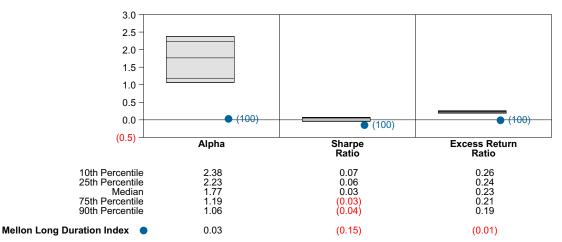
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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



Cumulative and Quarterly Relative Returns vs Blmbg Long Treasury



Risk Adjusted Return Measures vs Blmbg Long Treasury Rankings Against Callan Extended Maturity Fixed Income (Gross) Five Years Ended June 30, 2023



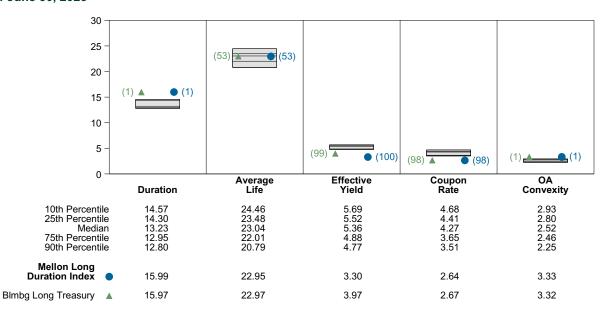


Mellon Long Duration Index Bond Characteristics Analysis Summary

Portfolio Characteristics

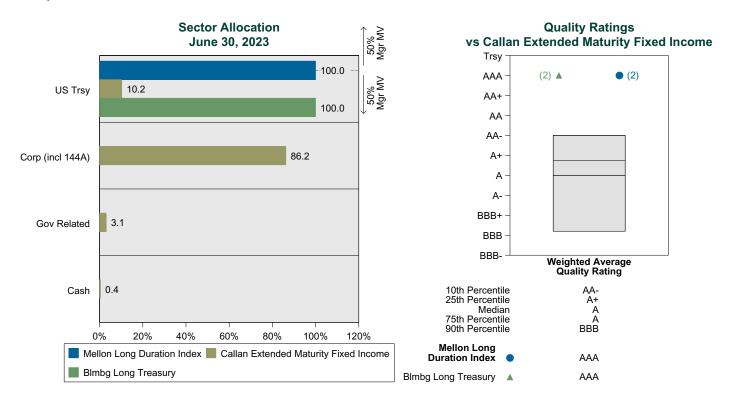
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Extended Maturity Fixed Income as of June 30, 2023



Sector Allocation and Quality Ratings

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



Mellon Long Duration Index Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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



Quality Rating



Legacy Fixed Income

Fidelity HY CMBS Period Ended June 30, 2023

Asset Class Membership Changes

Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Yield under the new fixed income structure from 03/01/2021 through 06/30/2022, and Legacy Fixed Income Structure, thereafter.

Quarterly Summary and Highlights

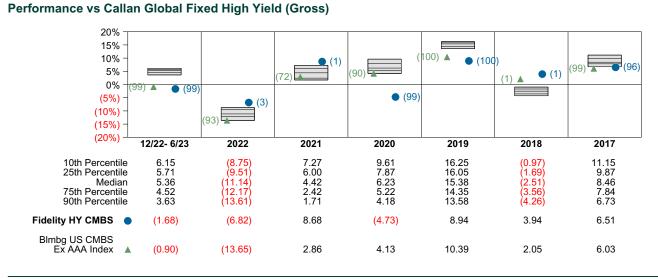
- Fidelity HY CMBS's portfolio posted a (0.19)% return for the quarter placing it in the 99 percentile of the Callan Global Fixed High Yield group for the quarter and in the 99 percentile for the last year.
- Fidelity HY CMBS's portfolio outperformed the BImbg US CMBS Ex AAA Index by 0.86% for the quarter and outperformed the BImbg US CMBS Ex AAA Index for the year by 2.06%.



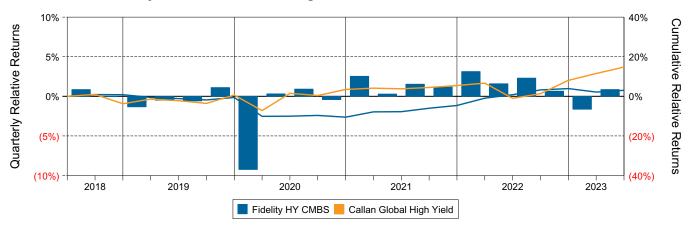
Fidelity HY CMBS Return Analysis Summary

Return Analysis

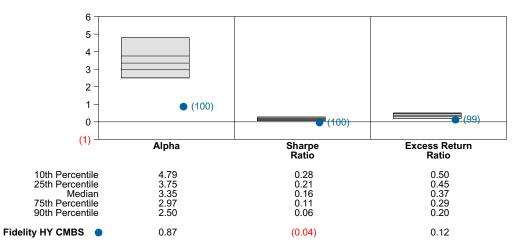
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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



Cumulative and Quarterly Relative Returns vs BImbg US CMBS Ex AAA Index



Risk Adjusted Return Measures vs Blmbg US CMBS Ex AAA Index Rankings Against Callan Global Fixed High Yield (Gross) Five Years Ended June 30, 2023



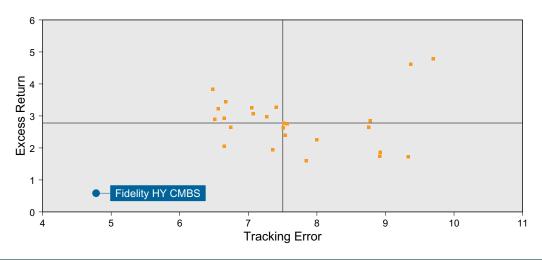


Fidelity HY CMBS Risk Analysis Summary

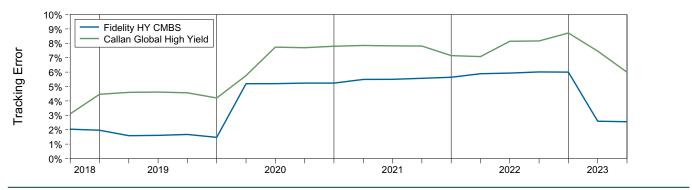
Risk Analysis

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.

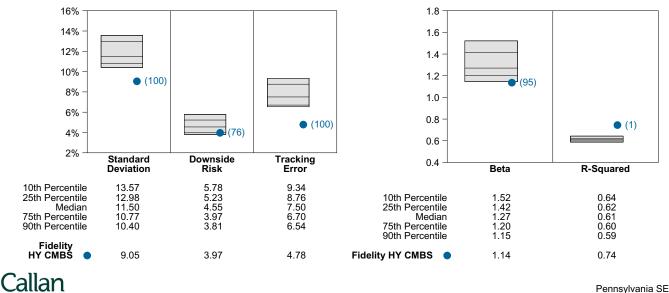
Risk Analysis vs Callan Global Fixed High Yield (Gross) Five Years Ended June 30, 2023









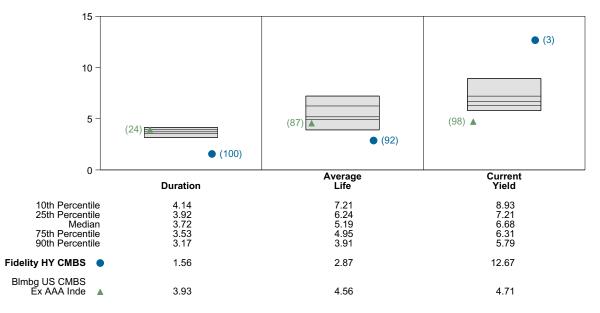


Fidelity HY CMBS Bond Characteristics Analysis Summary

Portfolio Characteristics

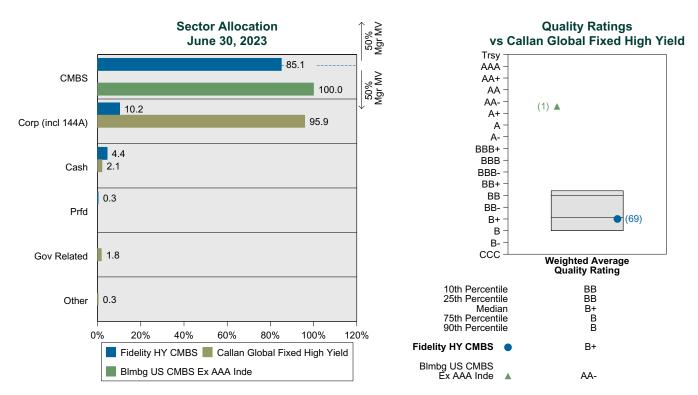
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Global Fixed High Yield as of June 30, 2023



Sector Allocation and Quality Ratings

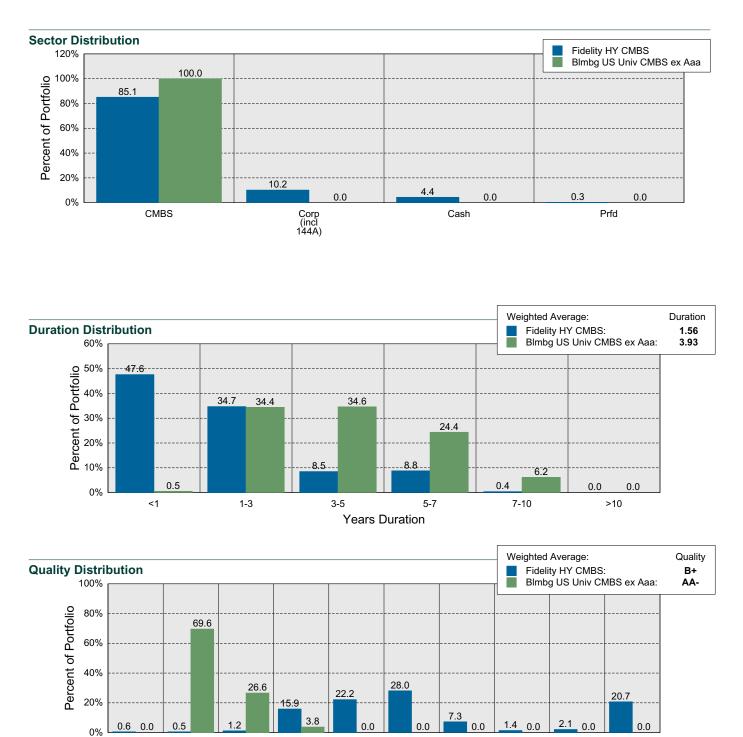
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



Fidelity HY CMBS Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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



Callan

AAA

AA

А

BBB

BΒ

в

Quality Rating

CCC

СС

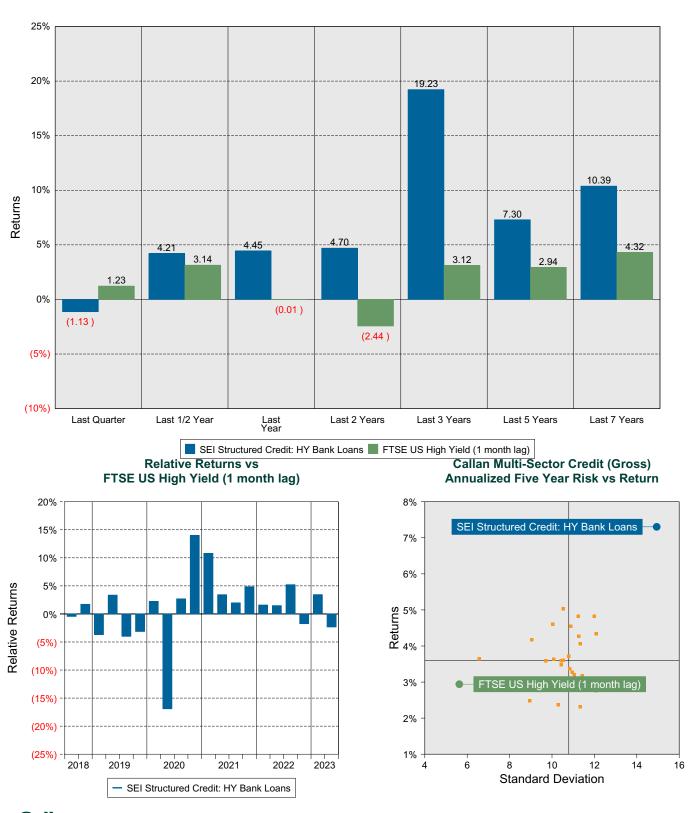
С

N/R

SEI Structured Credit: HY Bank Loans Period Ended June 30, 2023

Quarterly Summary and Highlights

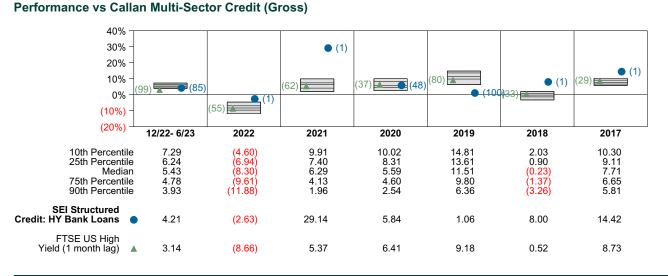
- SEI Structured Credit: HY Bank Loans's portfolio posted a (1.13)% return for the quarter placing it in the 100 percentile of the Callan Multi-Sector Credit group for the quarter and in the 89 percentile for the last year.
- SEI Structured Credit: HY Bank Loans's portfolio underperformed the FTSE US High Yield (1 month lag) by 2.36% for the quarter and outperformed the FTSE US High Yield (1 month lag) for the year by 4.45%.



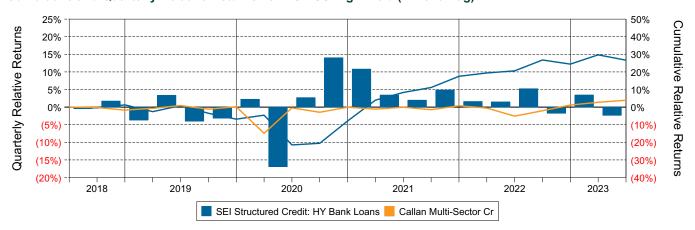
SEI Structured Credit: HY Bank Loans Return Analysis Summary

Return Analysis

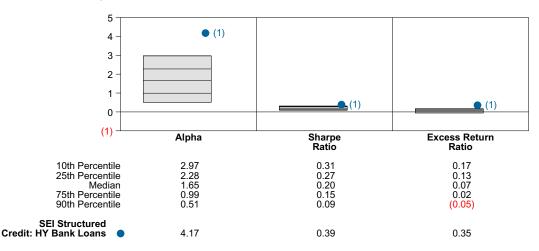
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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



Cumulative and Quarterly Relative Returns vs FTSE US High Yield (1 month lag)



Risk Adjusted Return Measures vs FTSE US High Yield (1 month lag) Rankings Against Callan Multi-Sector Credit (Gross) Five Years Ended June 30, 2023



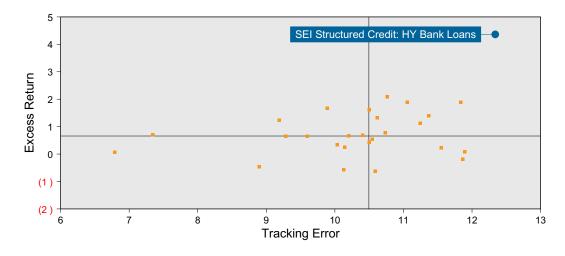


SEI Structured Credit: HY Bank Loans Risk Analysis Summary

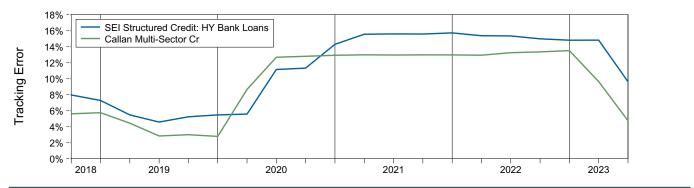
Risk Analysis

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.

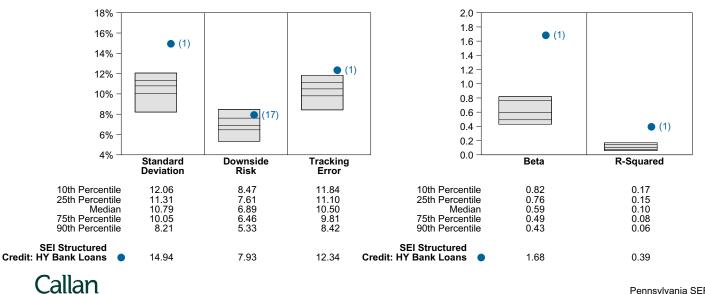
Risk Analysis vs Callan Multi-Sector Credit (Gross) Five Years Ended June 30, 2023









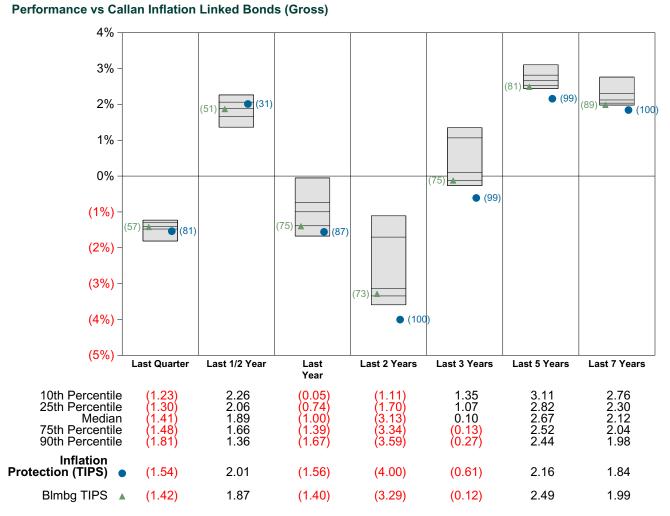


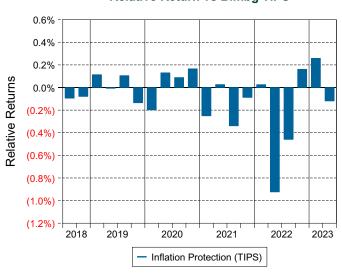
Inflation Protection (TIPS)

Inflation Protection (TIPS) Period Ended June 30, 2023

Quarterly Summary and Highlights

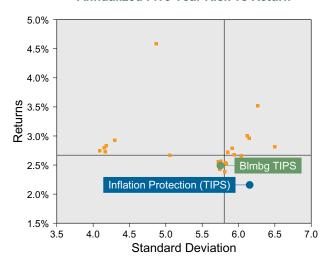
- Inflation Protection (TIPS)'s portfolio posted a (1.54)% return for the quarter placing it in the 81 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 87 percentile for the last year.
- Inflation Protection (TIPS)'s portfolio underperformed the Blmbg TIPS by 0.12% for the quarter and underperformed the Blmbg TIPS for the year by 0.16%.





Relative Return vs Blmbg TIPS

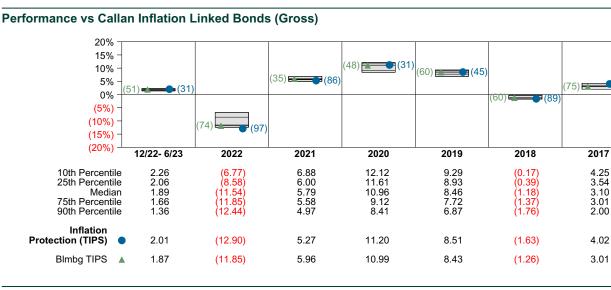




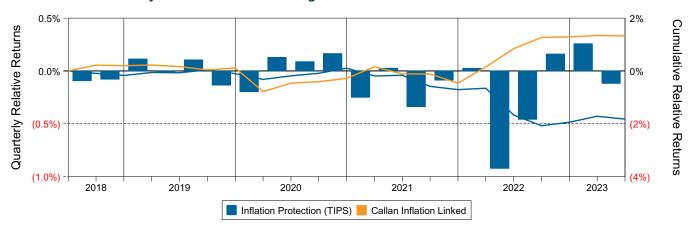
Inflation Protection (TIPS) Return Analysis Summary

Return Analysis

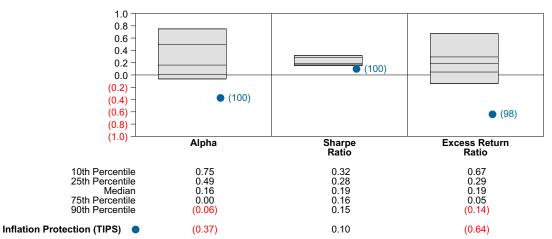
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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



Cumulative and Quarterly Relative Returns vs Blmbg TIPS









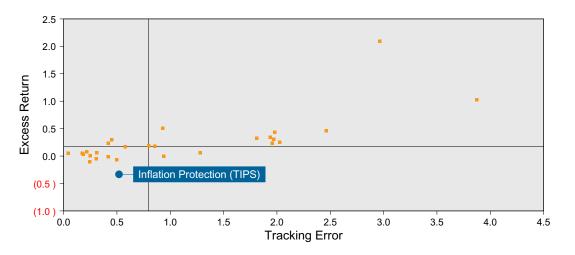
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Inflation Protection (TIPS) Risk Analysis Summary

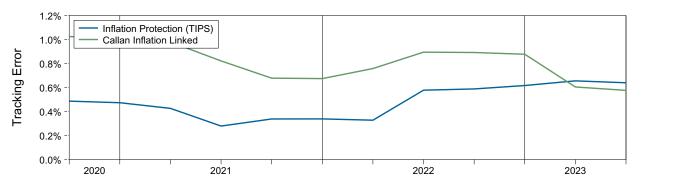
Risk Analysis

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.

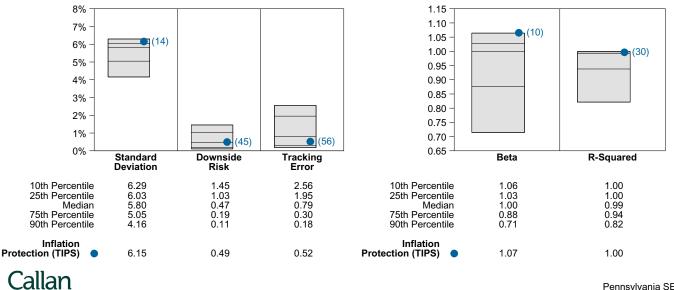
Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended June 30, 2023









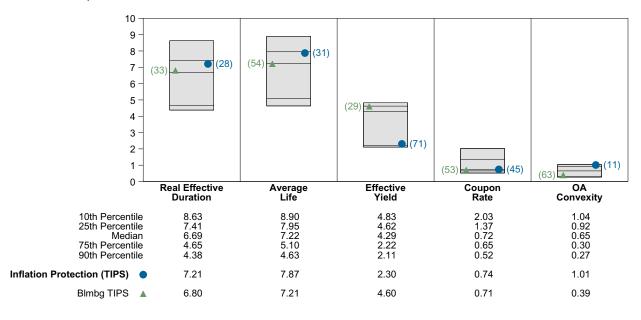


Inflation Protection (TIPS) Bond Characteristics Analysis Summary

Portfolio Characteristics

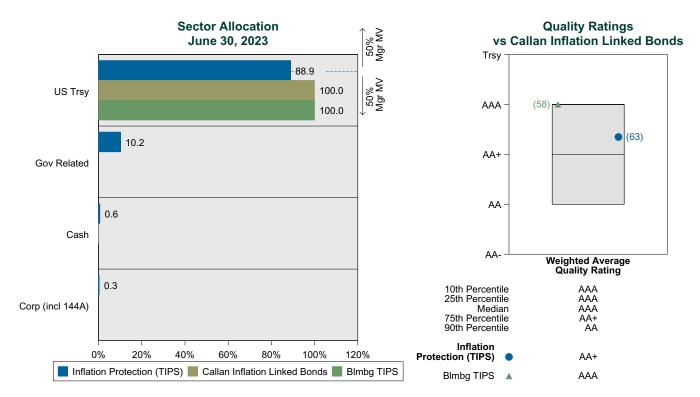
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of June 30, 2023



Sector Allocation and Quality Ratings

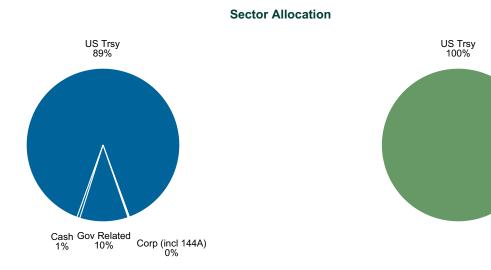
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



Inflation Protection (TIPS) Portfolio Characteristics Summary As of June 30, 2023

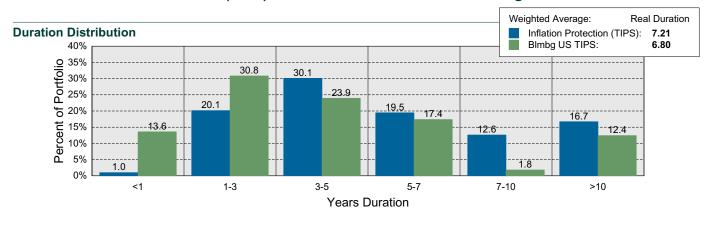
Portfolio Structure Comparison

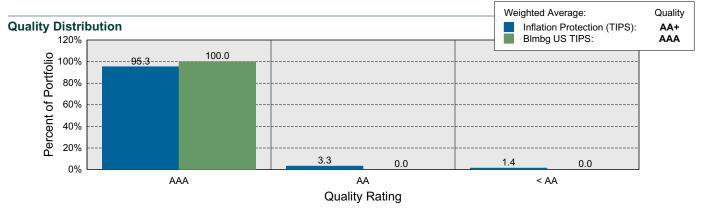
The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution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



Inflation Protection (TIPS)







Inflation Protection (TIPS) Managers

Brown Brothers TIPS Period Ended June 30, 2023

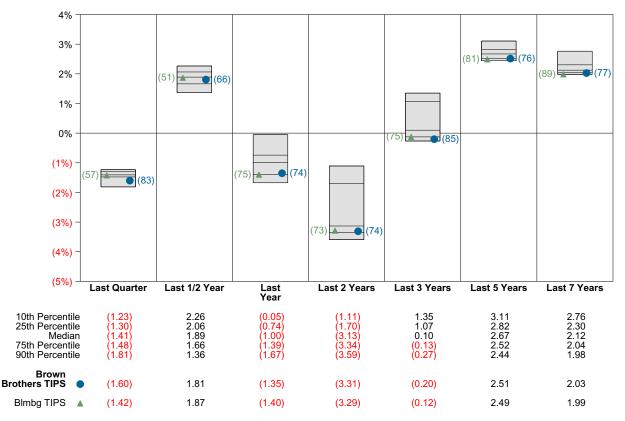
Investment Philosophy

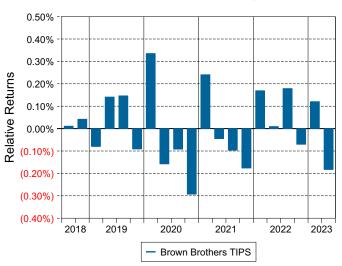
The BBH U.S. TIPS strategy seeks to capture a range of fundamentally-based and technically-based opportunities in the inflation-indexed securities market.

Quarterly Summary and Highlights

- Brown Brothers TIPS's portfolio posted a (1.60)% return for the quarter placing it in the 83 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 74 percentile for the last year.
- Brown Brothers TIPS's portfolio underperformed the Blmbg TIPS by 0.18% for the quarter and outperformed the Blmbg TIPS for the year by 0.05%.

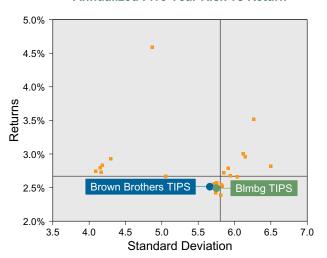
Performance vs Callan Inflation Linked Bonds (Gross)





Relative Return vs Blmbg TIPS

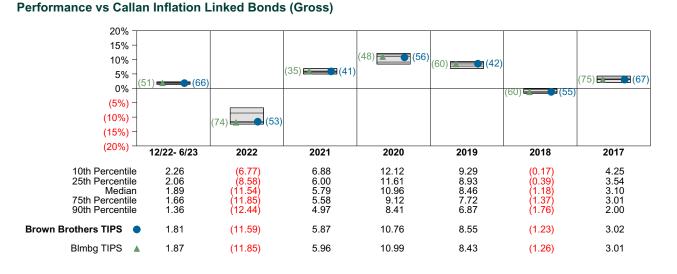
Callan Inflation Linked Bonds (Gross) Annualized Five Year Risk vs Return



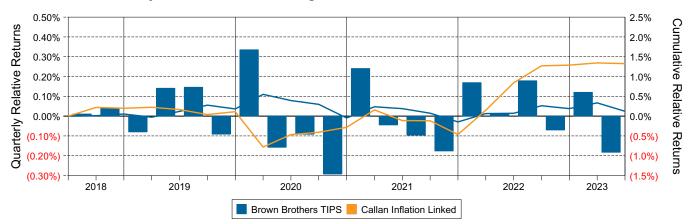
Brown Brothers TIPS Return Analysis Summary

Return Analysis

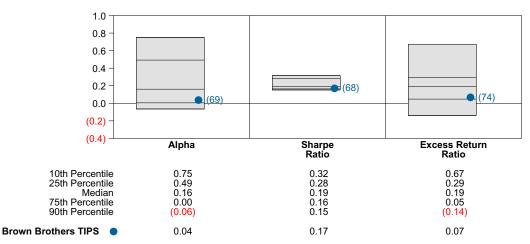
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate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



Cumulative and Quarterly Relative Returns vs Blmbg TIPS



Risk Adjusted Return Measures vs Blmbg TIPS Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended June 30, 2023



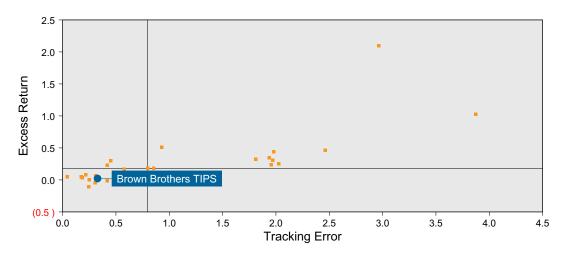


Brown Brothers TIPS Risk Analysis Summary

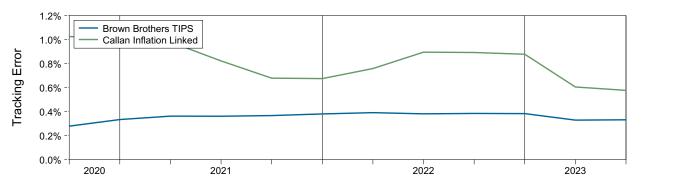
Risk Analysis

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.

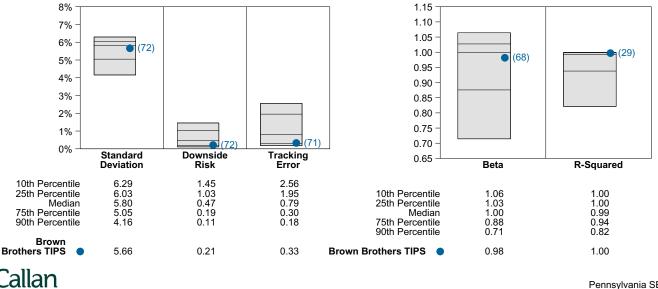
Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended June 30, 2023









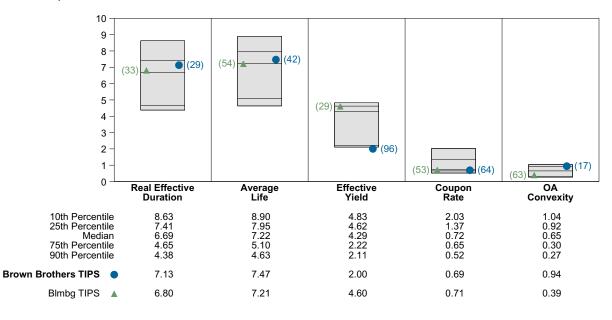


Brown Brothers TIPS Bond Characteristics Analysis Summary

Portfolio Characteristics

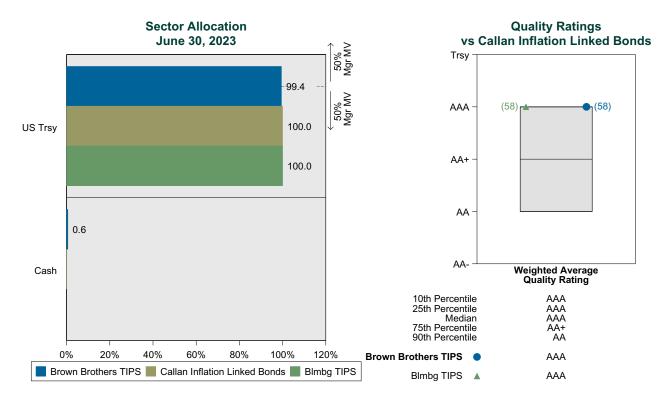
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of June 30, 2023



Sector Allocation and Quality Ratings

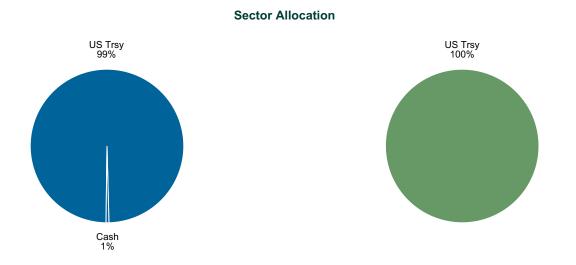
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



Brown Brothers TIPS Portfolio Characteristics Summary As of June 30, 2023

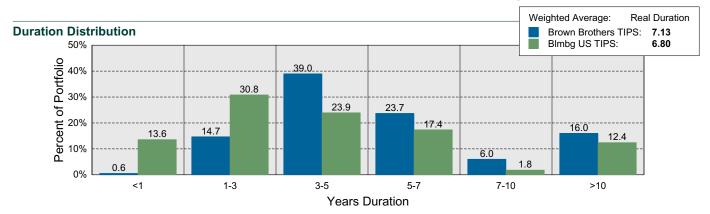
Portfolio Structure Comparison

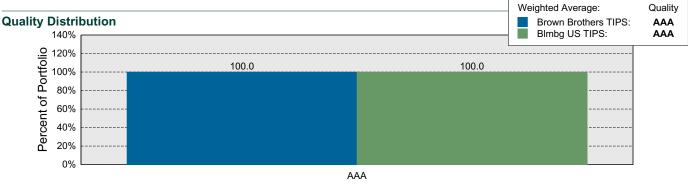
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Brown Brothers TIPS







Quality Rating



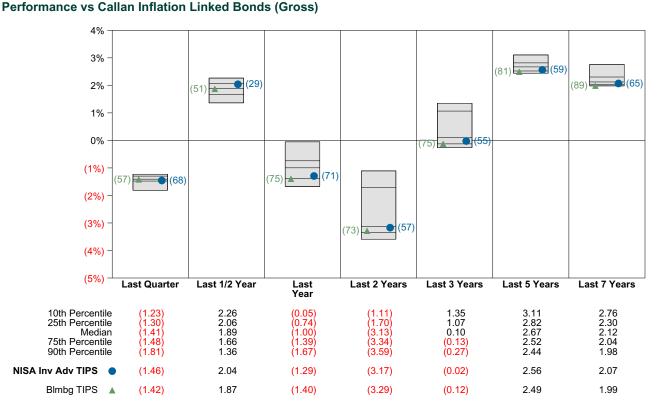
NISA Inv Adv TIPS Period Ended June 30, 2023

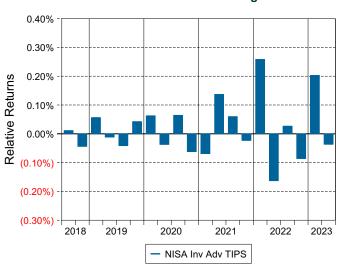
Investment Philosophy

NISA believes that markets offer opportunities to capitalize on moderate inefficiencies for predictable gains. The team applies a fundamental approach and strategy to all fixed income portfolios, regardless of benchmark. Central to their investment philosophy is the following: practice active trading, hold high average credit quality, maintain tight duration collars, and avoid large exposure to any one entity.

Quarterly Summary and Highlights

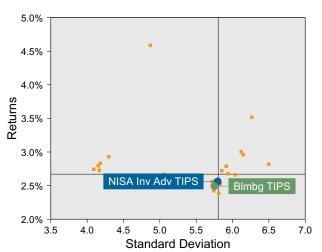
- NISA Inv Adv TIPS's portfolio posted a (1.46)% return for the quarter placing it in the 68 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 71 percentile for the last year.
- NISA Inv Adv TIPS's portfolio underperformed the Blmbg TIPS by 0.04% for the quarter and outperformed the Blmbg TIPS for the year by 0.11%.





Relative Return vs Blmbg TIPS

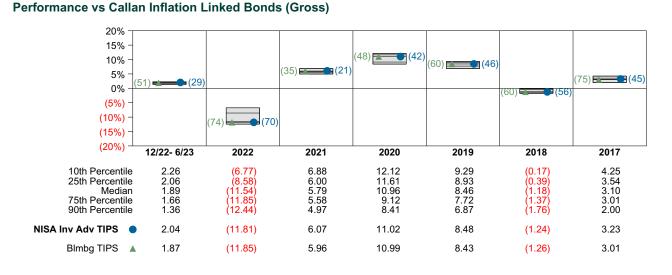
Callan Inflation Linked Bonds (Gross) Annualized Five Year Risk vs Return



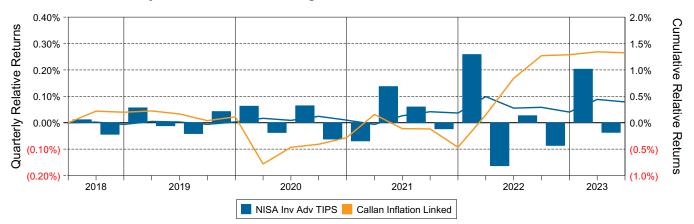
NISA Inv Adv TIPS Return Analysis Summary

Return Analysis

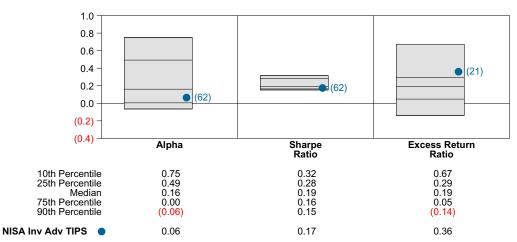
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Cumulative and Quarterly Relative Returns vs Blmbg TIPS



Risk Adjusted Return Measures vs Blmbg TIPS Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended June 30, 2023



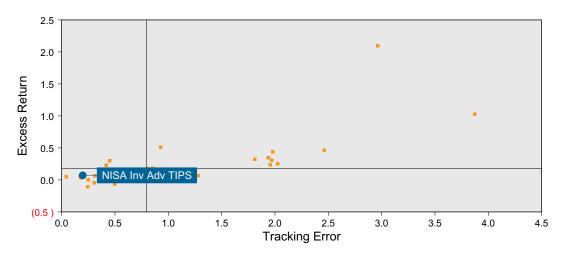


NISA Inv Adv TIPS Risk Analysis Summary

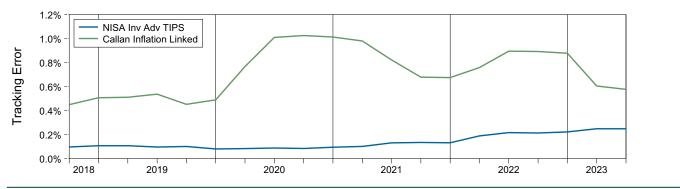
Risk Analysis

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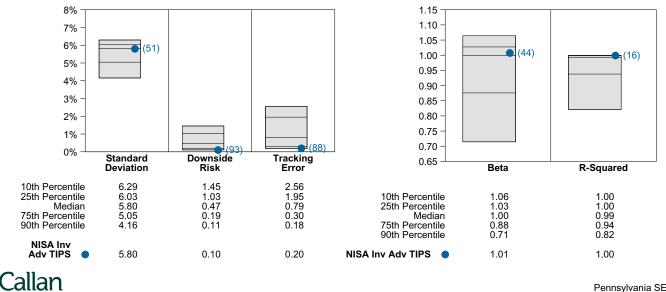
Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended June 30, 2023









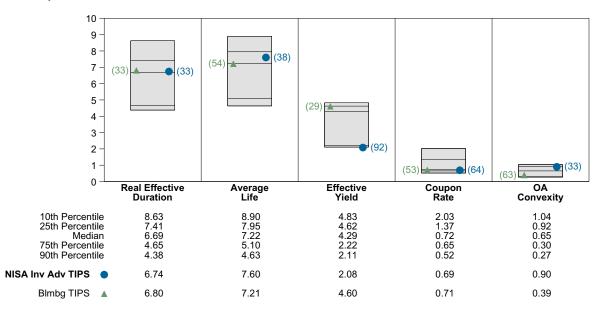


NISA Inv Adv TIPS Bond Characteristics Analysis Summary

Portfolio Characteristics

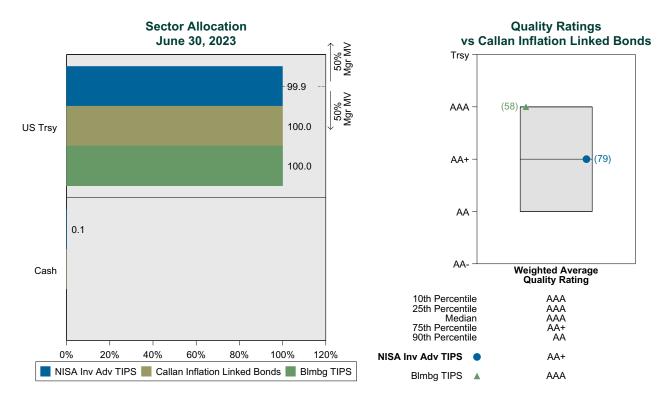
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of June 30, 2023



Sector Allocation and Quality Ratings

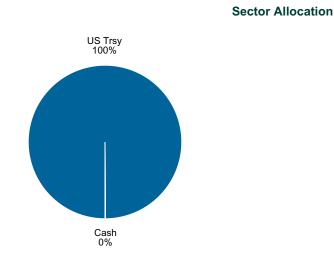
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



NISA Inv Adv TIPS Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

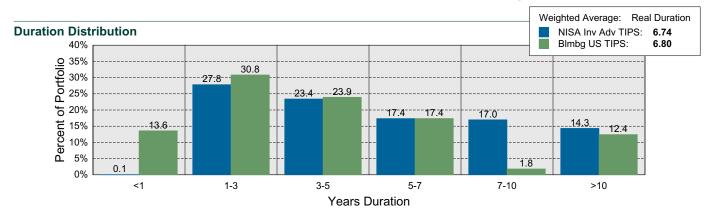
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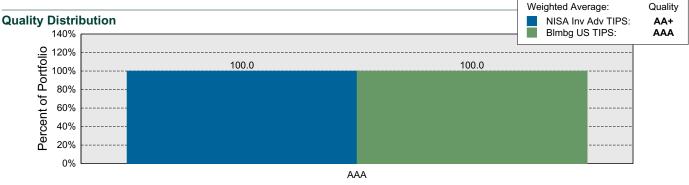


US Trsy 100%

NISA Inv Adv TIPS







Quality Rating



New Century Global TIPS Period Ended June 30, 2023

Investment Philosophy

New Century Advisors believes there are five main sources of excess return that an active manager can capture in the Global Inflation Linked Bond Product: duration management, county selection, currency management, yield curve positioning, and nominal/linker relative value. New Century Advisors approach to adding value in each case is the same, a three pronged approach combining fundamental analysis, technical analysis and human judgment.

Quarterly Summary and Highlights

- New Century Global TIPS's portfolio posted a (1.60)% return for the quarter placing it in the 83 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 100 percentile for the last year.
- New Century Global TIPS's portfolio outperformed the Blmbg Wld Infl-Lnk Unhdg by 0.13% for the quarter and outperformed the Blmbg Wld Infl-Lnk Unhdg for the year by 0.01%.



0%

(1%)

3

5

4

6

2023

2022

Callan

(1.0%)

2018

2019

2020

2021

New Century Global TIPS

11

10

New Century Global TIPS

Blmbg Wld Infl-Lnk Unhdo

8

9

7

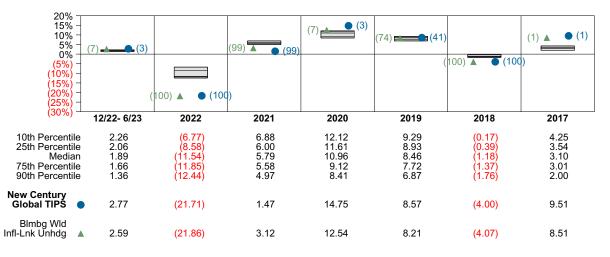
Standard Deviation

New Century Global TIPS Return Analysis Summary

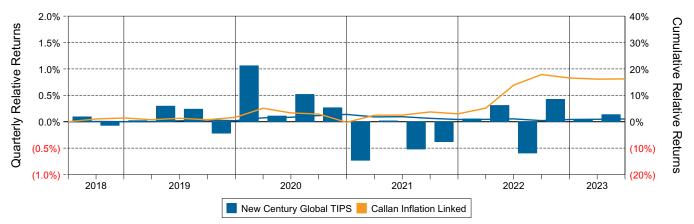
Return Analysis

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.

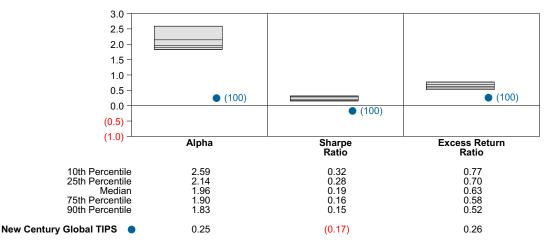




Cumulative and Quarterly Relative Returns vs Blmbg Wld Infl-Lnk Unhdg





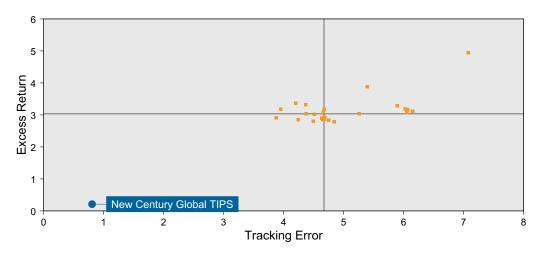


New Century Global TIPS Risk Analysis Summary

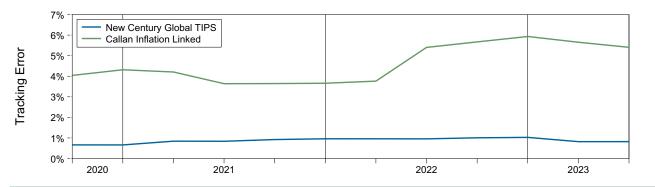
Risk Analysis

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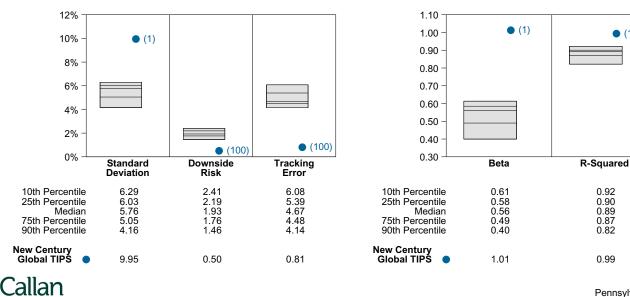
Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended June 30, 2023











• (1)

0.92

0.90

0.89

0.87

0.82

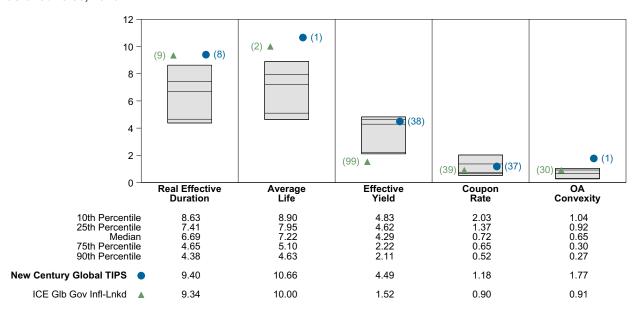
0.99

New Century Global TIPS Bond Characteristics Analysis Summary

Portfolio Characteristics

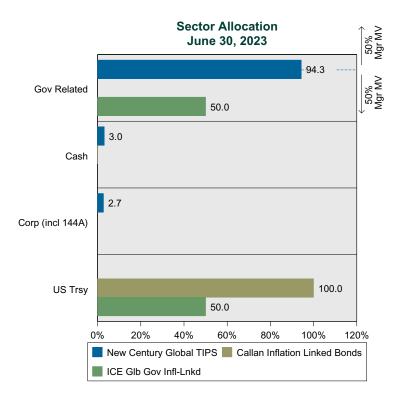
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of June 30, 2023

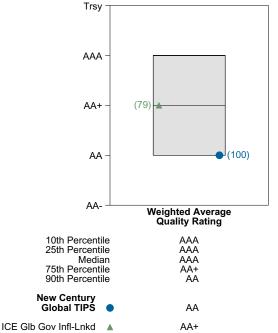


Sector Allocation and Quality Ratings

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



Quality Ratings vs Callan Inflation Linked Bonds



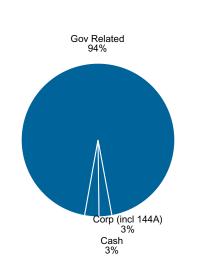


New Century Global TIPS Portfolio Characteristics Summary As of June 30, 2023

Portfolio Structure Comparison

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

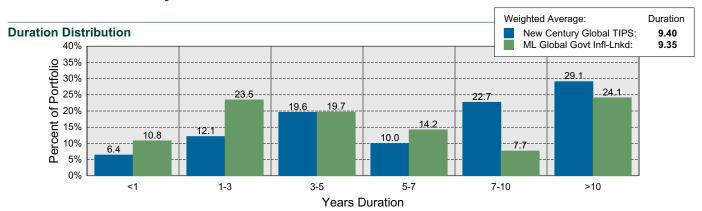
Sector Allocation

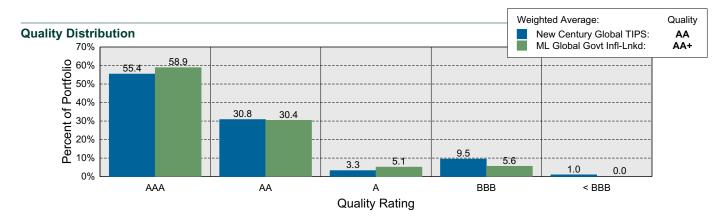


US Trsy 50%

New Century Global TIPS

ML Global Govt Infl-Lnkd









Education

2nd Quarter 2023

Quarterly Highlights

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

New Research from Callan's Experts

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

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

The Critical Underlying Technology Behind Digital Assets: <u>A Primer for Institutional Investors</u> | This paper provides background on key concepts around digital assets: blockchains and distributed ledgers; cryptography; validation protocols; smart contracts; and tokenization.

Blog Highlights

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

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

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

Webinar Replays

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

Quarterly Periodicals

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

Active vs. Passive Charts, 1Q23 | A comparison of active managers alongside relevant benchmarks over the long term

Market Pulse, 1Q23 | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data on the capital markets

Capital Markets Review, 1Q23 | Analysis and a broad overview of the economy and public and private markets activity each quarter across a wide range of asset classes

Hedge Fund Update, 1Q23 | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

Real Assets Update, 1Q23 | A summary of market activity for real assets and private real estate during the quarter

Private Credit Update, 1Q23 | A review of performance and fundraising activity for private credit during the quarter

Events

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

Please mark your calendar and look forward to upcoming invitations:

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

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

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

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

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 ^{Tr}_C

Total attendees of the "Callan College" since 1994

Education

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

Introduction to Investments Sept. 26-28 – Virtual

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

Alternative Investments Aug. 23-24 – Virtual

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

Our virtual sessions are held over two to three days with virtual modules of 2.5-3 hours, while in-person sessions run either a full day or one-and-a-half days. Virtual tuition is \$950 per person and includes instruction and digital materials. In-person tuition is \$2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

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



"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

Callan Institute



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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	Manager Name

Manager Name	Manager Name

Manager Name	Manager Name

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