

December 31, 2022



## North Dakota State Investment Board Pension Funds

Investment Measurement Service  
Quarterly Review

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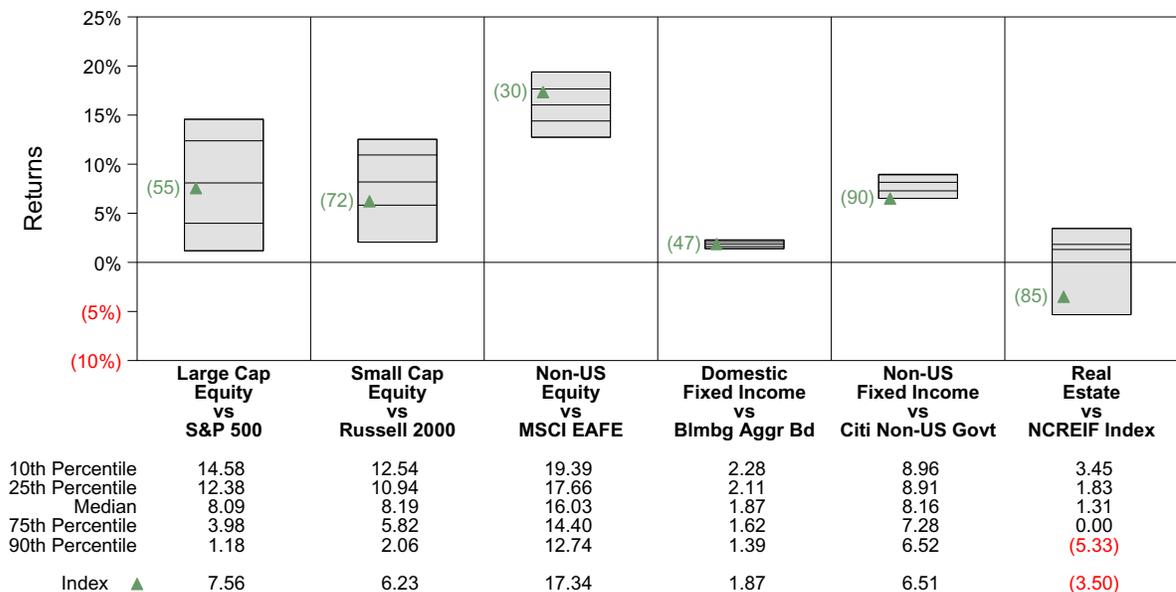
## Market Overview

### Active Management vs Index Returns

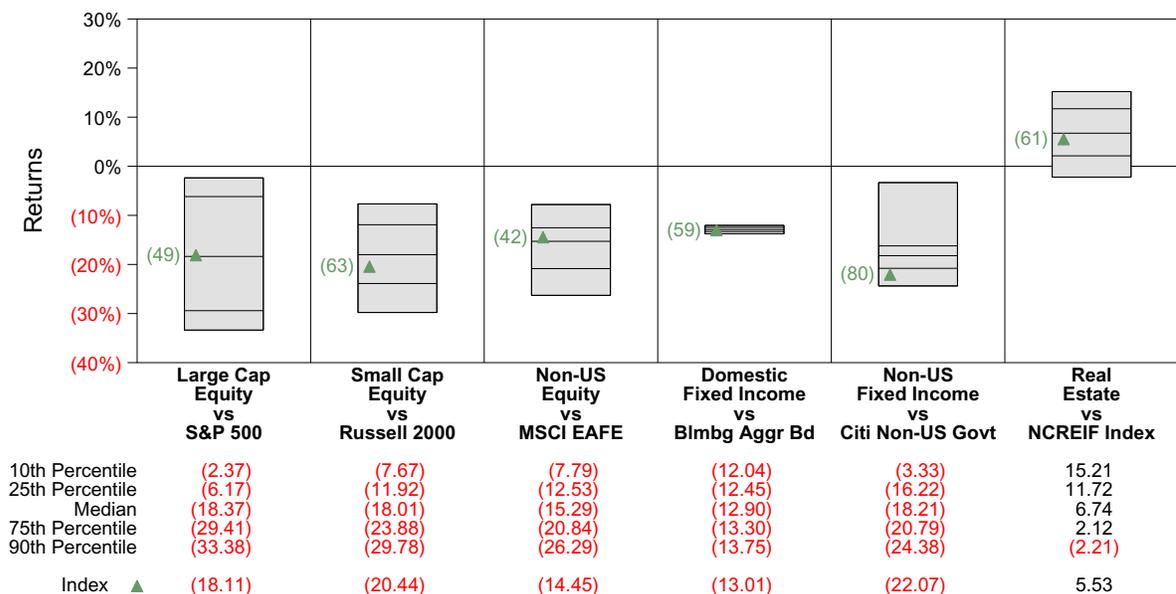
#### Market Overview

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 December 31, 2022



#### Range of Separate Account Manager Returns by Asset Class One Year Ended December 31, 2022



## Is a Recession Inevitable in 2023?

### ECONOMY

**2** The bond market is convinced a recession is inevitable in 2023, as shown by an inverted yield curve. Perhaps bond investors do not believe that we will achieve a “soft landing” from the current economic expansion. Robust current economic indicators conflict with this market expectation.

## Rebound in 4Q for U.S., Global Bonds

### FIXED INCOME

**8** Bonds rose in 4Q but 2022 results remained negative. The gain for the Aggregate was driven by coupon income and spread tightening. The Municipal Bond Index 2022 return was the worst since 1981. Global fixed income 4Q gains were driven largely by U.S. dollar weakness.

## Appetite Continues, but Strategies Shift

### PRIVATE CREDIT

**12** Investors took a new look at upper-middle-market direct lending as all-in spreads have widened and lenders are able to get tighter terms. On average, the asset class has generated net IRRs of 8% to 10% for trailing periods ended Sept. 30, 2022.

## First Full-year Drop in Returns Since 2018

### INSTITUTIONAL INVESTORS

**4** All investor types finished 2022 with steep declines. The S&P 500 and Bloomberg Aggregate were down together for three straight quarters (through 3Q22), and for the year, the first time since 1969. But most investors performed better than a 60% stocks/40% bonds benchmark.

## NPI Falls 3.5% and REITs Lag Equities

### REAL ESTATE/REAL ASSETS

**10** The NCREIF Property Index fell 3.5% during 4Q. The NCREIF ODCE Index dropped 5.2%. The FTSE EPRA Nareit Developed REIT Index rose 6.9% compared to a 9.8% gain for MSCI World. The FTSE Nareit Equity REITs Index increased 5.2%, compared to 7.6% for the S&P 500.

## Year Ends on a High Note After Tough Start

### HEDGE FUNDS/MACs

**13** The median Callan Institutional Hedge Fund Peer rose 1.3%. Within the HFRI indices, the best-performing strategy was the emerging market index (+5.1%). Across the Callan Hedge FOF Database, all managers showed gains. The Callan MAC Style Groups also rose.

## 4Q Gains Can't Stem Big Losses in 2022

### EQUITY

**6** Stocks gained in 4Q but saw sharp drops over the full year. The drop for U.S. equities was broad-based, and almost every sector experienced negative returns. Global equities also rose in 4Q, as lower-than-expected U.S. inflation data buoyed market optimism at year-end.

## Deceleration in 2022; 2023 Very Unclear

### PRIVATE EQUITY

**11** After a record-shattering 2021, private equity activity fell throughout 2022. On average, year-over-year transaction activity fell by about 20% and dollar volumes by 30%. However, fundraising and company investment and exit activity remain comparable to pre-pandemic levels.

## DC Index Falls 4.6%, Third Straight Decline

### DEFINED CONTRIBUTION

**15** The Callan DC Index™ fell 4.6% in 3Q22 and 16.7% for the trailing one year. Balances within the Index declined by 4.7% after a 12.3% decrease the previous quarter. TDFs reclaimed the top spot in terms of quarterly net flows, garnering 73.6% of flows.

## Broad Market Quarterly Returns

**U.S. Equity**  
Russell 3000



**Global ex-U.S. Equity**  
MSCI ACWI ex USA



**U.S. Fixed Income**  
Bloomberg Agg



**Global ex-U.S. Fixed Income**  
Bloomberg Global Agg ex US



Sources: Bloomberg, FTSE Russell, MSCI

# Is a Recession Inevitable in 2023?

ECONOMY | Jay Kloepfer

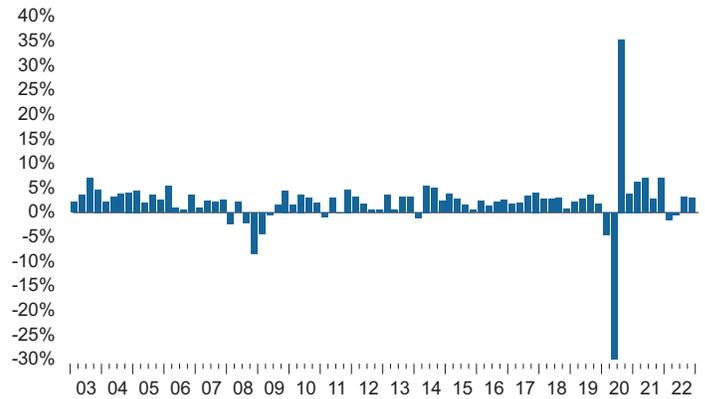
The bond market is convinced a recession is inevitable in 2023. The yield curve is inverted, and this phenomenon has preceded every recession in modern history. This inversion occurs when yields on the short end of the curve are higher than yields on the long end. A normal yield curve is upward sloping, with higher yields offered for taking on debt with greater maturities. An inverted yield curve implies that investors expect interest rates to fall, and that holding longer-dated debt will provide a greater return as rates drop. Why would investors expect interest rates to fall? They believe that a recession is coming, and the Federal Reserve will cut interest rates to stimulate economic growth.

Last year was anything but normal for almost all measures of the capital markets, interest rates, inflation, and the economy. It may be reasonable to be a bit skeptical that the bond market has called this recession correctly. First, the U.S. economy suffered two quarters in a row of GDP loss “way back” in 1Q and 2Q22! A consecutive quarterly decline in GDP is often the rule of thumb used to invoke recession, but last year, such was not the case. The economy resumed robust growth with a solid 3.2% annualized gain in 3Q, and a 2.9% increase in 4Q. As a result, GDP advanced 2.1% for the year, following a strong 5.9% jump in 2021. Where was the growth in 4Q22 and for the year? Consumer spending on services, led by international travel, food services, accommodation, and health care. We also re-built inventories and increased investment in software and equipment. The one large drag was a decline in home construction, as mortgage rates shot up from the low 2% range to over 7% in a matter of months.

Inflation burned out of control by mid-year 2022. Faced with huge increases in the price of daily staples and durable goods like autos, consumers quickly redirected their spending away from goods suffering steep inflation, and spending on such goods within GDP actually declined during the year. This wasn't always captured in the CPI; one of its failings as a measure of inflation is that it assumes a certain basket of goods will continue to be purchased at fixed weights even when prices shoot up. Clearly, higher prices for food staples and rent are impossible to avoid, but consumers substitute budget expenditures with great skill to

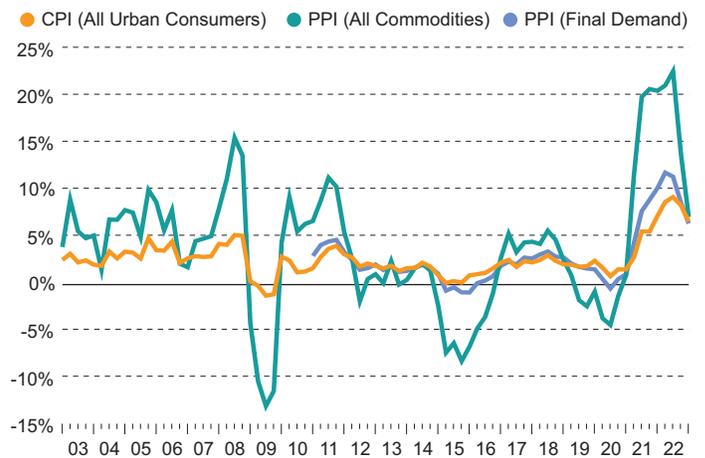
## Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

## Inflation Year-Over-Year



Source: Bureau of Labor Statistics

counter price hikes. Inflation measured by the CPI-U rose sharply year-over-year, cresting at 9% by June, but the rate of increase in prices flattened completely in the second half of the year. So while the year-over-year increase for 4Q CPI hit 6.5%, the quarterly CPI for 4Q came in at 0% (change over 3Q). The problem for consumers and businesses is that even though CPI has stopped rising, prices are now “permanently” higher.

While a disconnect remains in the job market between those looking for work and the jobs offered by employers, the job market notched serious gains in net new jobs throughout the year, adding over 4.5 million. The level of employment finally surpassed the

pre-pandemic peak in August 2022. Additions to the unemployment roll measured by weekly jobless claims continued to stay historically low, while continuing unemployment claims dropped from over 5 million at the start of 2021 to 1.7 million in December. Calendar year 2022 saw the lowest level of continuing claims in more than two decades.

With continued economic strength suggested by the robust job market and solid GDP growth, where is the concern over recession coming from in the bond market? The answer is a logic puzzle that can seem like a circular argument. The Fed raised rates quickly and by a large amount starting last March to battle the surge in inflation. The surge stemmed from supply chain dislocations as we emerged from the pandemic lockdown; from a surge in demand for workers, which drove wage growth; from a surge in demand from consumers; and then layered on top of these trends the disruption from the Russian invasion of Ukraine. The bond market suddenly “believed” in the Fed’s stated plans for interest rates through 2022, and yields moved quickly toward long-term equilibrium by mid-year 2022. The Fed’s primary tool to battle inflation is the Fed Funds rate. The premise is that higher rates cool demand for goods and services from all actors in the economy and wring inflation out of the economy. The reality is that higher rates appear to be working as advertised, as demand has lessened and inflation stopped rising month-to-month in the summer of 2022. The inverted yield curve says the bond market believes the very success of the Fed’s inflation policy is now certain to cause recession, and then a reversal of interest rate policy to fight said recession. Perhaps the bond market does not believe that we will achieve the holy grail of Fed policy, which is to engineer a “soft landing” from the current economic expansion.

### Recent Quarterly Economic Indicators

	4Q22	3Q22	2Q22	1Q22
Employment Cost: Total Compensation Growth	5.1%	5.0%	5.1%	4.5%
Nonfarm Business: Productivity Growth	3.0%	1.4%	-4.1%	-5.9%
GDP Growth	2.9%	3.2%	-0.9%	-1.6%
Manufacturing Capacity Utilization	78.5%	79.2%	79.5%	79.1%
Consumer Sentiment Index (1966=100)	58.8	56.1	57.8	63.1

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

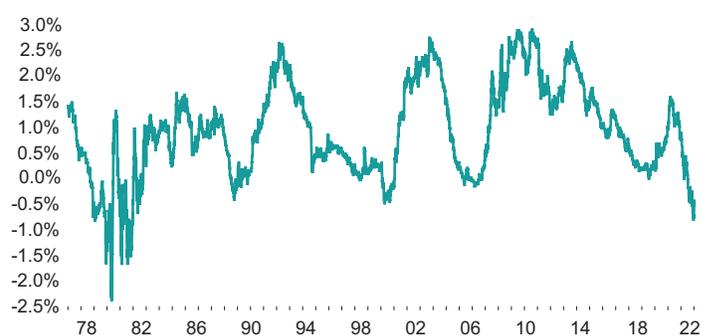
### The Long-Term View

Index	4Q22	Periods Ended 12/31/22			
		1 Yr	5 Yrs	10 Yrs	25 Yrs
<b>U.S. Equity</b>					
Russell 3000	7.2	-19.2	8.8	12.1	7.7
S&P 500	7.6	-18.1	9.4	12.6	7.6
Russell 2000	6.2	-20.4	4.1	9.0	7.1
<b>Global ex-U.S. Equity</b>					
MSCI EAFE	17.3	-14.5	1.5	4.7	4.5
MSCI ACWI ex USA	14.3	-16.0	0.9	3.8	--
MSCI Emerging Markets	9.7	-20.1	-1.4	1.4	--
MSCI ACWI ex USA Small Cap	13.3	-20.0	0.7	5.2	6.9
<b>Fixed Income</b>					
Bloomberg Agg	1.9	-13.0	0.0	1.1	4.0
90-Day T-Bill	0.8	1.5	1.3	0.8	1.9
Bloomberg Long G/C	2.6	-27.1	-1.2	1.6	5.4
Bloomberg GI Agg ex US	6.8	-18.7	-3.1	-1.6	2.7
<b>Real Estate</b>					
NCREIF Property	-3.5	5.5	7.5	8.8	9.0
FTSE Nareit Equity	5.2	-24.4	3.7	6.5	7.9
<b>Alternatives</b>					
CS Hedge Fund	0.9	1.1	4.2	4.2	5.8
Cambridge PE*	-1.8	-3.8	16.8	15.3	14.3
Bloomberg Commodity	2.2	16.1	6.4	-1.3	1.9
Gold Spot Price	9.2	-0.1	6.9	0.9	7.6
<b>Inflation – CPI-U</b>	0.0	6.5	3.8	2.6	2.5

\*Data for most recent period lags. Data as of 9/30/22. Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

It is true that we have never achieved a soft landing in the past, so the bond market may be justified in expecting that the Fed will overshoot and tip the U.S. into recession. Robust current economic indicators, especially in the labor market outside of technology, conflict with this market expectation.

### 10-Year Treasury vs. 2-Year Treasury Spread



Source: Federal Reserve Bank of St. Louis

# Worst Year Since 2018 as Both Stocks and Bonds Fall

## INSTITUTIONAL INVESTORS

### Double-digit declines mark the end of a tough year

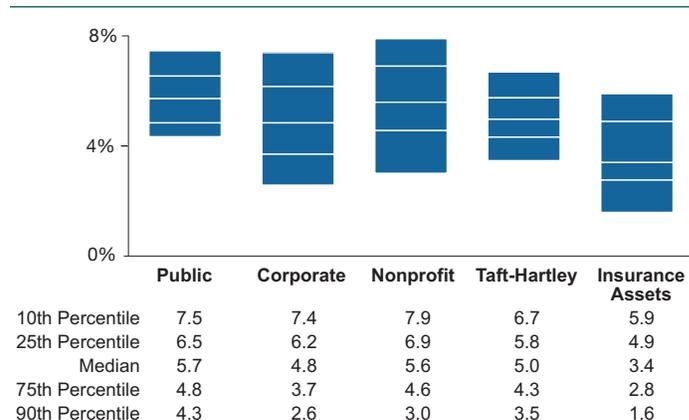
- All investor types finished 2022 with double-digit declines, as both equities and fixed income fell.
- Insurance assets fared the best during the year, while corporate plans saw the lowest returns.
- Most plan types performed better than a benchmark consisting of 60% S&P 500/40% Bloomberg Aggregate, but they had a harder time matching that benchmark over longer time periods.
- The declines in 2022 were far higher than those in 2018, which was the last year that saw drops in the value of portfolios for institutional investors.

### Inflation and interest rates are top client concerns

- CPI-U was up more than 8% year-over-year in each month from March through September.
- The Fed has raised rates 425 bps since March, from 0.0%-0.25% to 4.25%-4.50% in December 2022.
- The S&P 500 and Bloomberg Aggregate were down together for three consecutive quarters (through 3Q22), and for the year, the first time since 1969.
- And there was no place to hide in 2022; every asset class except cash was down. It was the worst year for a 60/40 portfolio in decades.

- However, lower asset values but higher returns expected going forward is a silver lining for investors.
- Institutional investors have a greater chance of hitting return targets and can even reduce risk, after years of risking up to chase return.
- There are rising expectations for a recession; the yield curve is inverted.
- Geopolitical risk surrounding China was another area of focus as institutional investors try to understand how its COVID re-opening and tensions regarding Taiwan could impact markets.

### Quarterly Returns, Callan Database Groups (12/31/22)



Source: Callan

### Callan Database Median and Index Returns\* for Periods Ended 12/31/22

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	5.7	-12.7	4.3	5.3	7.3	7.5
Corporate Database	4.8	-17.4	0.5	3.0	5.8	7.0
Nonprofit Database	5.6	-13.1	3.6	4.8	6.8	7.4
Taft-Hartley Database	5.0	-10.6	4.7	5.7	7.7	7.3
Insurance Assets Database	3.4	-10.0	1.0	2.6	4.0	5.0
All Institutional Investors	5.2	-13.3	3.4	4.7	6.9	7.3
Large (>\$1 billion)	4.9	-12.4	4.1	5.1	7.0	7.6
Medium (\$100mm - \$1bn)	5.2	-13.8	3.3	4.7	7.0	7.2
Small (<\$100 million)	5.5	-13.6	3.2	4.5	6.7	7.0
60% S&P 500/40% Bloomberg Agg	5.3	-15.9	4.0	6.1	8.1	7.4

\*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.

**Return to normal in bonds**

- The role of core bonds in portfolios was restored; cash is viable again as a liquidity tool.
- A 4.5% yield may change the demand for yield substitutes: IG credit, bank loans, high yield, private credit, even real estate and infrastructure?

**Private markets: now over target allocations**

- Downward marks are coming, gradually.
- Interest remains strong in all private assets.

**Public defined benefit (DB) plan priorities**

- Public DB plans are analyzing how the changes to Callan's Capital Markets Assumptions will affect their portfolios.
- Returns in 2022 gave back some of the funded status gains from 2020-21. But downward pressure on actuarial discount rates may now abate as capital markets expectations are higher following the market decline.

**Corporate DB plan priorities**

- Corporate DB plans focused on de-risking.
- The experience of 2022 has these plans questioning what they are doing with LDI, and why. Funded status no longer translates directly to contributions, or expense.

- Higher interest rates may increase discussions about pension risk transfer. Corporate DB plans appear to be inclined to keep the plan on the balance sheet.

**Defined contribution (DC) plan priorities**

- New regulations such as SECURE 2.0 and the U.S. Department of Labor's environmental, social, and governance (ESG) rule were on the minds of many sponsors.
- In investment manager searches, DC-friendly vehicles with competitive pricing are a key criterion.

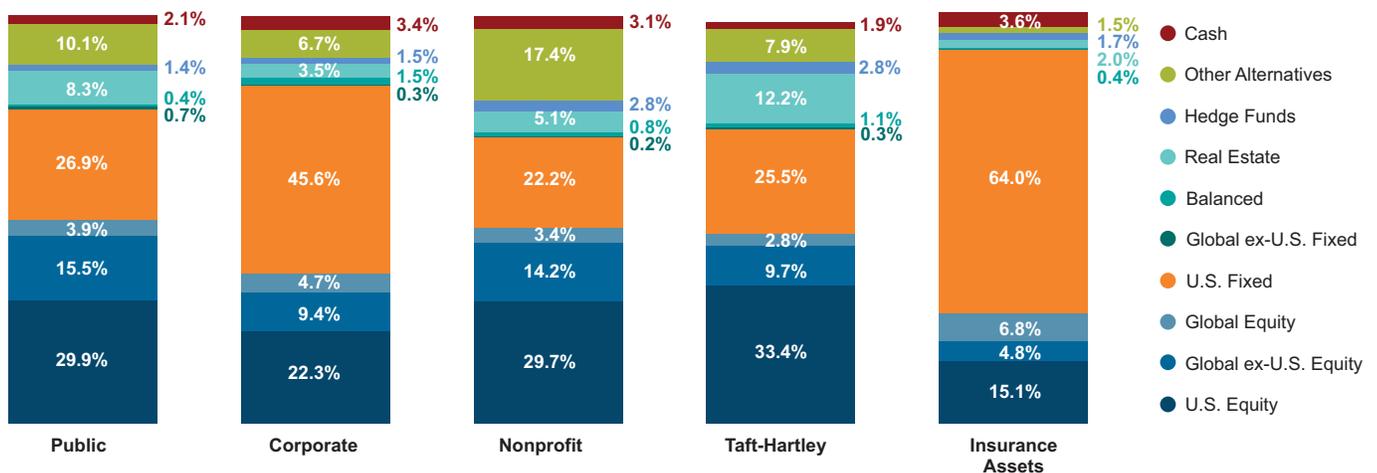
**Nonprofit priorities**

- Reviews of asset-allocation structures were likely in light of the changed market environment.

**Insurance companies' priorities**

- They are one of the few investors that "enjoyed" 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.

**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

### Markets fall in final month of quarter after gains

- The S&P 500 Index posted positive returns in both October and November but fell in December. The index was up 7.6% during 4Q22 but ended 2022 down 18.1%.
- Energy was the best-performing sector during the quarter and 2022, returning 23% and 66% respectively. Consumer Discretionary and Communication Services were the only two sectors that posted negative returns in 4Q.
- Value stocks outperformed growth across the market capitalization spectrum, and for both 4Q and the full year.
- Large cap stocks (Russell 1000) outperformed small caps (Russell 2000) last quarter and for the year.
- Continued macroeconomic concerns (e.g., inflation, potential recession, geopolitical issues) led to higher volatility and a down-year for U.S. equities.

### Market valuations have reset with the broad-based sell-off

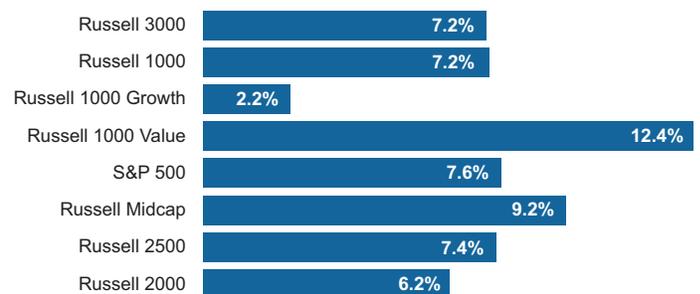
- The drop for equities in 2022 was broad-based, and almost every sector experienced negative returns. Higher interest rates impacted the growth-oriented sectors the most (e.g., Technology, Communication Services).
- Mega-cap technology stocks have underperformed, ending an extended period of market leadership.
- Large cap stocks are now trading around their average P/E ratio, but they are not yet “cheap.”
- Despite the recent outperformance of value stocks, value still looks attractive relative to growth heading into 2023.

### Small cap valuations are attractive relative to large cap

- During 4Q22, the Russell 2000 was trading at a 30% discount to its historical P/E average.
- Relative to large caps, the Russell 2000's forward 12 months P/E is trading at the lowest level versus large cap stocks since the Dot-Com Bubble.
- Relative to large and mid caps, small caps have looked significantly cheaper on various valuation metrics recently.

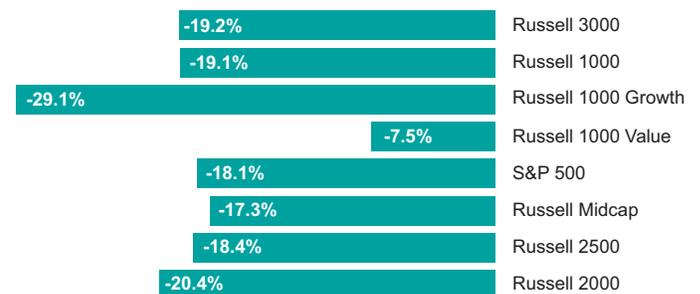
### U.S. Equity: Quarterly Returns

(12/31/22)



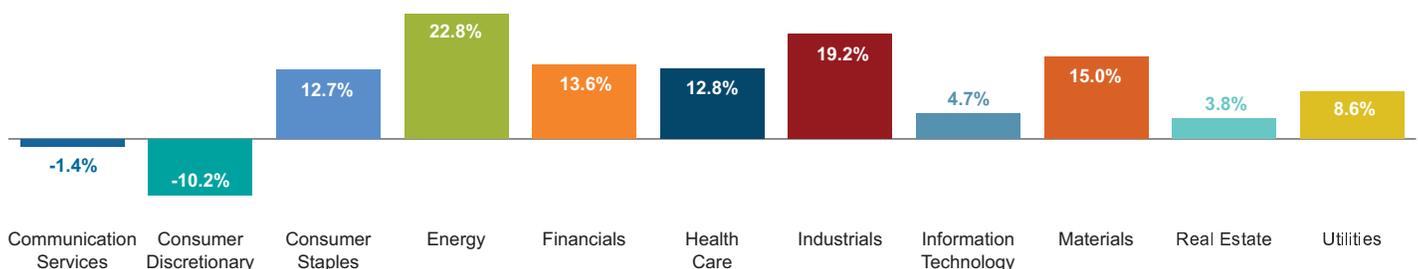
### U.S. Equity: One-Year Returns

(12/31/22)



Sources: FTSE Russell and S&P Dow Jones Indices

### Quarterly Performance of Industry Sectors (12/31/22)



Source: S&P Dow Jones Indices

## Global Equity

### Ending on a high note

4Q22 was a bright spot during a tough calendar year in global and global ex-U.S. equity markets.

### Encouraging signs

- Lower-than-expected U.S. inflation data buoyed market optimism at the end of the year.
- The Fed slowed its pace of tightening, with further slowing expected in 2023.
- China reversed its zero-COVID policies, prompting exuberance from investors.

### Value outpaces growth

- Value outpaced growth in developed and emerging markets.
- Economically sensitive sectors (e.g., Financials and Industrials) benefited from the anticipation of improved growth; Energy was the largest outperformer.

### U.S. dollar vs. other currencies

- After reaching a multi-decade high, the dollar fell against all major currencies with signs of inflation easing.
- Despite the 7.7% decline in 4Q22, the dollar still gained nearly 8% over the full year.
- Global central banks' rate hikes and the U.S. Federal Reserve's slowing pace of tightening could prolong U.S. dollar decline.
- Continued weakening of the U.S. dollar would be a tailwind for non-U.S. equities.

### What about style?

- A sustained shift to value after the recent prolonged growth cycle would likely favor non-U.S. equities over U.S. equities given the higher representation of traditional value sectors in global ex-U.S. equity universes.

### China's reopening spurs hopes for emerging markets

- In addition to pivoting from its zero-COVID policy, Chinese regulators shifted to supportive policies to stabilize the property sector and tech/platform industry.

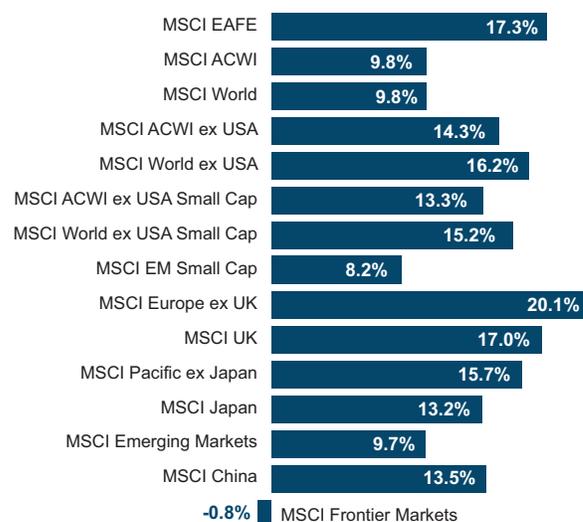
### Reopening is expected to jump-start Chinese economy

- China's real GDP growth is estimated to reach 5.5% in 2023 and nearly 7% on a 4Q/4Q basis.
- Real consumption is projected to grow by 8.5% in 2023 as Chinese households have amassed \$2.6 trillion in savings.

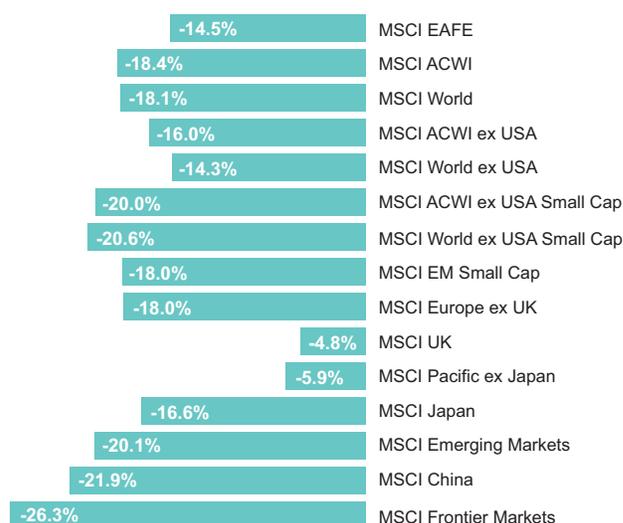
### Recovery in China will spill over to other EM regions

- Growth in Chinese consumption is expected to have positive impact on tourism in Southeast Asia; goods exports in Europe, the Middle East, and Africa; and commodities in Latin America.

### Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 12/31/22)



### Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 12/31/22)



Source: MSCI

# Fixed Income

## U.S. Fixed Income

### Bonds were up in 4Q but 2022 results remain negative

- Gain for the Bloomberg US Aggregate Bond Index driven by coupon income and spread tightening; interest rates rose modestly

### Rates were volatile intra-quarter

- U.S. Treasury 10-year yield: high 4.22% on 11/7; low 3.42% on 12/7
- Curve remained inverted at quarter-end: 10-year yield 3.88% and 2-year yield 4.41%; most since 1981

### Fed raised rates bringing target to 4.25%-4.50%

- Median expectation from Fed is 5.1% for year-end 2023.
- Inflation showed signs of moderating but job market remained tight with solid wage growth.

### Corporates and mortgages outperformed Treasuries in 4Q

- 4Q: Corporates +289 bps excess return; residential mortgage-backed securities (RMBS) +110 bps
- 2022: Corporates -125 bps excess return; RMBS -223 bps
- RMBS had worst month ever (September: -191 bps) and best month ever (November: +135 bps) in excess returns

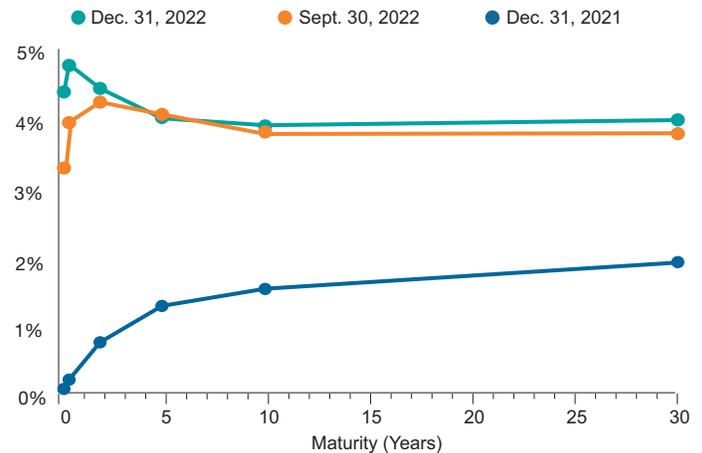
### Valuations fair

- While absolute yields are higher, spreads have not widened materially, and most are close to historical averages.
- An economic slowdown could impact credit spreads.
- Higher yields have boosted forward-looking returns across sectors.

### Economic slowdown clouds the corporate credit picture

- Despite prospects for an economic slowdown in 2023, fundamental credit metrics for many issuers are strong.
- Default rates are expected to tick up, albeit not to the same extent as in previous recessions.
- Investors may be biased toward higher-quality investment grade issuers as they weigh the threat of a looming recession and potential implications for increased volatility in lower-quality corporate credit markets.

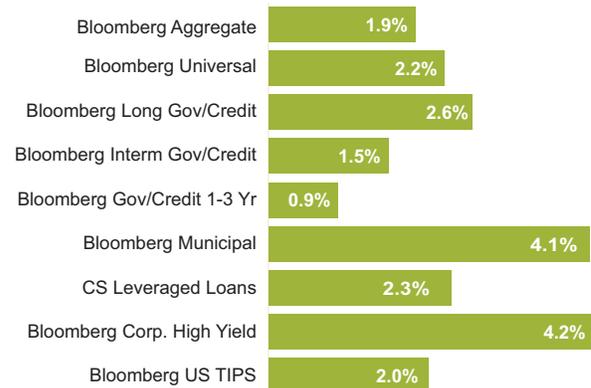
## U.S. Treasury Yield Curves



Source: Bloomberg

## U.S. Fixed Income: Quarterly Returns

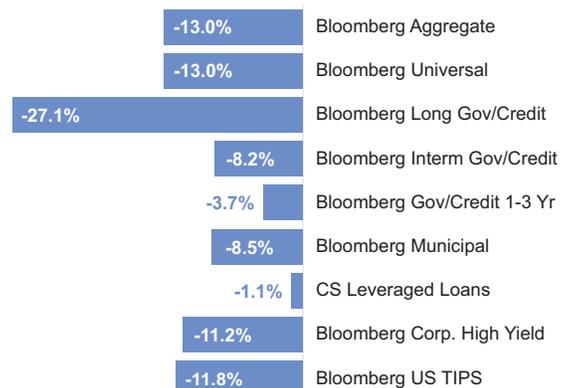
(12/31/22)



Sources: Bloomberg and Credit Suisse

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

(12/31/22)



Sources: Bloomberg and Credit Suisse

## FIXED INCOME (Continued)

### TIPS: Beware of duration

- Despite a rise in inflation, TIPS saw marked declines in 2022 amid rising interest rates.
- TIPS, like nominal Treasuries, are sensitive to changes in interest rates, and as a result, shorter-duration TIPS fared better than full spectrum TIPS in 2022.
- Shorter-term TIPS exhibit a higher correlation to realized inflation but also provide a similar risk-adjusted return as that of full spectrum TIPS.

### Municipal Bonds

#### Gains in 4Q but most 2022 results remain negative

- Municipal Bond Index calendar year return worst since 1981
- Higher quality outperformed in 4Q (AAA: +4.3%; AA: +4.1%; A: +4.0%; BBB: +3.9%; High Yield: +3.5%) and in 2022
- Munis outperformed most other fixed income sectors in 4Q and in 2022

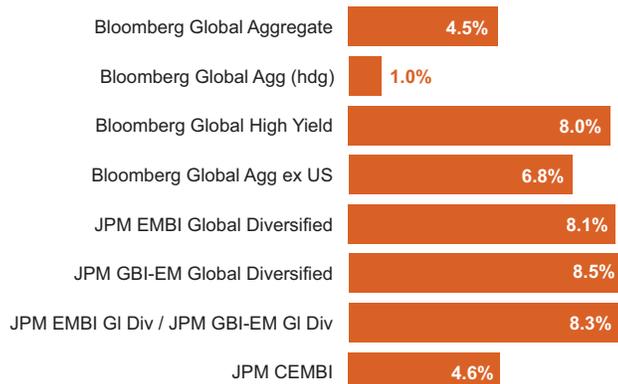
#### Valuations relative to U.S. Treasuries on the rich side

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 68%; below 10-year average of 88%
- After-tax yield of Muni Bond Index = 6.0% (Source: Eaton Vance)

#### Supply/demand

- Mutual fund outflows hit a record \$122 billion in 2022, with tax loss harvesting being a key driver.
- ETFs saw inflows as some investors reinvested in them.
- Supply also down; \$71 billion in 4Q and the lowest in 13 years; 2022 issuance off roughly 20% from 2021

### Global Fixed Income: Quarterly Returns (12/31/22)



Sources: Bloomberg and JPMorgan Chase

### Credit quality remained stable

- State and local tax collections robust and reserves elevated; state revenues up 16% on average vs. 2021

### Global Fixed Income

#### 4Q returns driven largely by U.S. dollar weakness

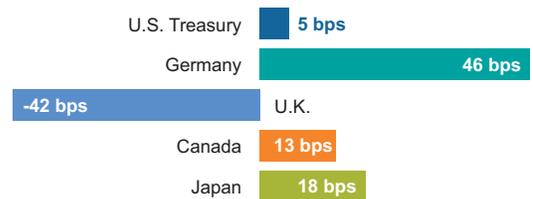
- U.S. dollar down 9% vs. euro, 10% vs. yen, 8% vs. pound
- For the year, dollar up 6% vs. euro, 13% vs. yen, and 11% vs. pound
- Rates up across most of Europe and in Japan
- Rates fell in the U.K.

#### Emerging market debt also did well

- Returns varied across countries but most were positive

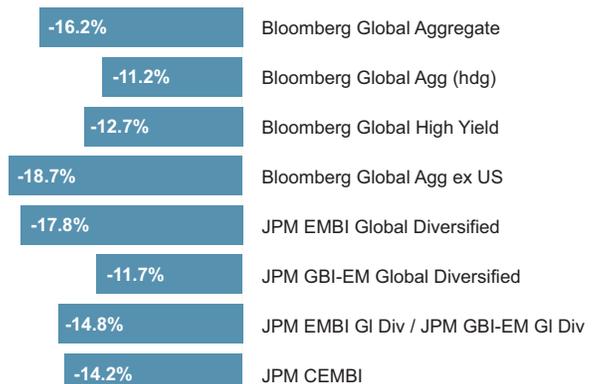
### Change in 10-Year Global Government Bond Yields

3Q22 to 4Q22



Source: Bloomberg

### Global Fixed Income: One-Year Returns (12/31/22)



Sources: Bloomberg and JPMorgan Chase

# NPI Falls 3.5% and REITs Lag Equities

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

## Negative appreciation in four major sectors

- The NCREIF Property Index, a measure of U.S. institutional real estate assets, fell 3.5% during 4Q22. The income return was 1.0% while the appreciation return was -4.5%.
- Hotels, which represent a small portion of the index, led property sector performance with a gain of 3.4%. Office finished last with a loss of 4.8%.
- Regionally, the South led with a loss of 2.5%, while the East was the worst performer with a loss of 3.9%.
- All major property sectors and regions, except for Hotel, experienced negative appreciation.
- The NCREIF Open-End Diversified Core Equity (ODCE) Index, representing equity ownership positions in U.S. core real estate, fell 5.2% during 4Q, with an income return of 0.59% and an appreciation return of -5.76%.

## REITs lagged equity indices

- The FTSE EPRA Nareit Developed REIT Index, a measure of global real estate securities, rose 6.9% during 4Q22 compared to a 9.8% rise for global equities (MSCI World).
- U.S. REITs, as measured by the FTSE Nareit Equity REITs Index, rose 5.2%, in contrast with the S&P 500 Index, which gained 7.6%.
- Despite strong earnings, forward REIT earnings estimates continued to weaken, reflecting the potential for an economic slowdown as well as financing cost pressures.

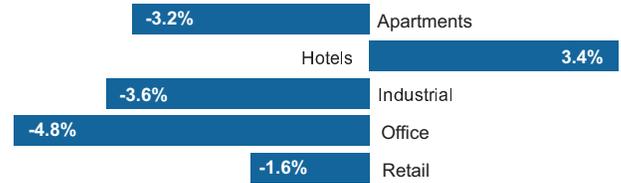
## Callan Database Median and Index Returns\* for Periods Ended 12/31/22

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
<b>Real Estate ODCE Style</b>	<b>1.1</b>	<b>11.3</b>	<b>11.3</b>	<b>10.2</b>	<b>8.3</b>	<b>9.5</b>	<b>5.4</b>
NFI-ODCE (value-weighted, net)	-5.2	6.5	6.5	9.0	7.7	9.1	5.3
NCREIF Property	-3.5	5.5	5.5	8.1	7.5	8.8	6.5
NCREIF Farmland	2.0	9.5	9.5	6.8	6.4	8.8	10.1
NCREIF Timberland	4.9	12.9	12.9	7.5	5.4	5.8	4.7
<b>Public Real Estate</b>							
<b>Global Real Estate Style</b>	<b>7.0</b>	<b>-25.1</b>	<b>-25.1</b>	<b>-2.3</b>	<b>2.3</b>	<b>5.1</b>	<b>4.1</b>
FTSE EPRA Nareit Developed	6.9	-25.1	-25.1	-4.9	-0.2	3.0	2.1
<b>Global ex-U.S. Real Estate Style</b>	<b>11.0</b>	<b>-25.9</b>	<b>-25.9</b>	<b>-6.8</b>	<b>-0.9</b>	<b>3.9</b>	<b>2.1</b>
FTSE EPRA Nareit Dev ex US	10.3	-24.3	-24.3	-8.7	-3.0	0.9	0.1
<b>U.S. REIT Style</b>	<b>4.3</b>	<b>-24.9</b>	<b>-24.9</b>	<b>1.0</b>	<b>5.0</b>	<b>7.4</b>	<b>7.2</b>
FTSE EPRA Nareit Equity REITs	5.2	-24.4	-24.4	-0.1	3.7	6.5	6.2

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

## Sector Quarterly Returns by Property Type

(12/31/22)



Source: NCREIF

- The FTSE EPRA Nareit Asia Index (USD), representing the Asia/Pacific region, rose 9.0%, lifted by a rally in rate-sensitive Australian REITs.
- European REITs, as measured by the FTSE EPRA Nareit Europe Index (USD), rose 13.9%, driven by currency tailwinds in both the euro and the pound.

## Real assets held up in the quarter

- Real assets as a group performed well in 4Q.
- The S&P GSCI Index rose 3.4%; Gold (S&P Gold Spot Price Index: +9.2%), REITs (MSCI US REIT: +5.2%), infrastructure (DJB Global Infrastructure: +9.6%), and TIPS (Bloomberg TIPS: +2.0%) all posted solid returns.
- Full year results remained poor, however, for most real assets outside of those related to energy. The Alerian MLP Index gained 30.9% as it benefited from higher energy prices.

# Deceleration in 2022, with Trends for 2023 Very Unclear

PRIVATE EQUITY | Gary Robertson

Private equity showed a gradual decline in 2022, but fundraising and company investment and exit activity remain comparable to the pre-pandemic levels seen in 2018 and 2019.

**Fundraising** ► In 2022 private equity partnerships holding final closes raised \$870 billion across 2,211 partnerships (unless otherwise noted, all data is from PitchBook and 4Q numbers are very preliminary). The dollar amount is 16% lower than 2021, but partnerships plunged by 47%. 4Q had final closes totaling \$166 billion, down 21% from 3Q. The number of funds totaled 407, down 20%.

**Buyouts** ► New buyout investments for 2022 totaled 12,985, down 14% from 2021. Dollar volume fell 9% to \$837 billion. 4Q saw 2,625 new investments, a 20% decrease from 3Q, but dollar volume rose 27% to \$239 billion.

**VC Investments** ► The year produced 51,020 rounds of new investment in venture capital (VC) companies, down 16% from 2021. Announced volume of \$509 billion was down 31%. 4Q saw 9,280 new rounds, a 20% decline from 3Q, and dollar volume fell 21% to just \$81 billion.

**Exits** ► Last year saw 2,901 buyout-backed private M&A exits, down 23% from 2021, with proceeds of \$590 billion, down 26%. 4Q had 551 private exits, down 22% from 3Q, with proceeds

of \$132 billion, down 2%. The year's 201 buyout-backed IPOs dropped 55% from 2021, with proceeds of \$33 billion, down 75%. 4Q IPOs numbered 50, down 21% from 3Q, and proceeds of \$8 billion declined 27%. Venture-backed M&A exits for the year totaled 2,625, down 24% from 2021. Announced dollar volume of \$110 billion fell 57%. The final quarter had 462 exits, down 20% from 3Q, and value of only \$7 billion, plunging 72%. The year's 317 venture-backed IPOs sank 51% from 2021, with proceeds of \$41 billion, falling 75%. There were 106 in 4Q, up 33% from 3Q, but the \$8 billion of proceeds fell 47%.

**Returns** ► In 3Q, and in the two prior quarters, private equity fell by only about 35% of the public equity market's decline. With the upcoming 4Q valuations being subject to annual audits, continued moderate declines are likely.

## Funds Closed 1/1/22 to 12/31/22

Strategy	No. of Funds	Amt (\$mm)	Share
Venture Capital	1,369	259,199	30%
Growth Equity	156	117,800	14%
Buyouts	477	362,629	42%
Mezzanine Debt	17	26,998	3%
Distressed/Special Credit	40	50,955	6%
Energy	7	2,340	0%
Secondary and Other	116	41,703	5%
Fund-of-funds	29	8,808	1%
<b>Totals</b>	<b>2,211</b>	<b>870,432</b>	<b>100%</b>

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

## Private Equity Performance (%) (Pooled Horizon IRRs through 9/30/22\*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-2.7	-9.1	28.4	23.8	19.4	13.6	12.4	20.6
Growth Equity	-1.8	-9.4	20.8	18.4	15.7	12.8	14.3	14.5
All Buyouts	-1.9	-1.5	18.5	16.1	15.3	10.6	14.7	13.1
Mezzanine	0.2	5.0	11.8	11.1	11.3	10.3	11.1	10.0
Credit Opportunities	0.7	3.9	8.4	7.2	8.3	8.6	9.9	9.5
Control Distressed	-0.2	11.3	19.4	13.8	12.7	10.5	11.9	11.9
<b>All Private Equity</b>	<b>-1.8</b>	<b>-3.7</b>	<b>20.2</b>	<b>17.3</b>	<b>15.5</b>	<b>11.3</b>	<b>13.7</b>	<b>13.8</b>
S&P 500	-4.9	-15.5	8.2	9.2	11.7	8.0	9.8	7.5
Russell 3000	-4.5	-17.6	7.7	8.6	11.4	7.9	9.9	7.5

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.

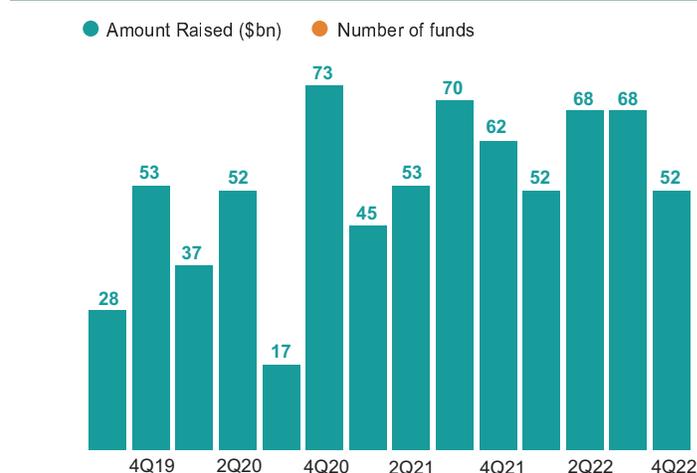
# Investor Appetite Continues, but Strategies of Interest Shift

PRIVATE CREDIT | Catherine Beard

## Upper-middle-market direct lending gets a new look

- During 4Q22, clients took a new look at upper-middle-market direct lending as all-in spreads have widened by over 400 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.
- As economic headwinds are expected to create stress on over-levered companies, there is a renewed interest in stressed and distressed investment opportunities.
- Demand continued to be strong for less-competitive areas of private credit with high barriers to entry and attractive risk/reward opportunities such as specialty finance, non-sponsor, lower-middle-market, and opportunistic lending.
- LPs are seeking alternative structures designed to streamline the investment process while improving underlying liquidity. A number of GPs are launching evergreen structures and private, non-tradeable business development companies as a response to LP interest.
- Private credit performance varies 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 Sept. 30, 2022. Higher-risk strategies performed better than lower-risk strategies.
- 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, asset-based lending, and distressed strategies.
- In the current rising rate environment, a renewed focus has been placed on relative value, downside protection, and managers' internal workout resources.

## Private Credit Fundraising (\$bn)



Source: Preqin

- There is also interest in strategies with strong collateral protection such as asset-based lending as well as capital solutions and distressed strategies.
- Larger sponsor-backed lending is seeing a new focus due to the disintermediation of high yield/broadly syndicated loans by private debt

## Private Credit Performance (%) (Pooled Horizon IRRs through 9/30/22\*)

Strategy	Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	-2.4	-3.5	4.6	5.1	5.7	5.9	6.3	6.1
Mezzanine	0.2	5.0	11.8	11.1	10.8	11.3	10.5	11.3
Credit Opportunities	0.7	3.9	8.4	7.2	6.6	8.3	8.6	9.7
Total Private Credit	-0.1	2.6	8.4	7.7	7.4	8.6	8.8	9.7

Source: Refinitiv/Cambridge

\*Most recent data available at time of publication

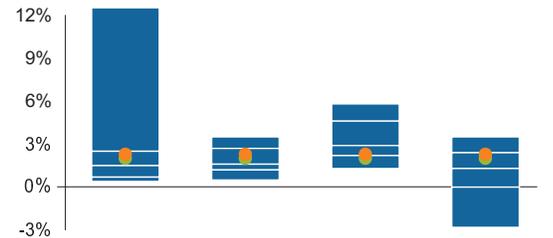
# Managers See Declines but Outpace Benchmarks

HEDGE FUNDS/MACs | Joe McGuane

- Risk assets rallied in 4Q22, as U.S. inflation showed a steady decline from the peak over summer, boosting hopes for fewer rate increases heading into 2023. In addition, corporate earnings were generally better than expected, and China announced the lifting of its zero-COVID policy.
- As the quarter wore on, the Federal Reserve remained committed to tighter monetary conditions, signaling more rate hikes in 2023 in addition to the 50 basis point increase at its December meeting.
- Despite a December sell-off, the S&P 500 gained 8% for the quarter. Value significantly outperformed growth, and stocks across most sectors rebounded, with the energy sector notably higher for the quarter. Global ex-U.S. equities outperformed U.S. equities, as cooling energy prices dragged down inflation. China's reopening and easing of the zero-COVID policy led to Asian equities recovering their initial losses from October.

## Hedge Fund Style Group Returns

(12/31/22)



	Absolute Return FOF	Core Div. FOF	Long/Short Equity FOF	Institutional Hedge Funds
10th Percentile	12.5	3.5	5.8	3.5
25th Percentile	2.5	2.7	4.6	2.4
Median	1.5	1.6	2.9	1.3
75th Percentile	0.7	1.2	2.2	0.0
90th Percentile	0.4	0.5	1.3	-2.8
HFRI Fund Weighted	2.3	2.3	2.3	2.3
90-Day T-Bill + 5%	2.0	2.0	2.0	2.0

Sources: Callan, Credit Suisse, Federal Reserve

## Callan Peer Group Median and Index Returns\* for Periods Ended 12/31/22

Hedge Fund Universe	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years
Callan Institutional Hedge Fund Peer Group	1.3	4.8	6.4	6.0	6.2	6.7
Callan Fund-of-Funds Peer Group	1.9	-1.3	4.9	4.2	4.7	3.5
Callan Absolute Return FOF Style	1.5	4.0	5.6	4.8	5.1	3.9
Callan Core Diversified FOF Style	1.6	-1.2	5.0	4.1	4.4	3.4
Callan Long/Short Equity FOF Style	2.9	-10.4	2.2	3.5	4.8	3.6
HFRI Fund-Weighted Index	2.3	-4.2	5.7	4.4	4.7	3.6
HFRI Fixed Convertible Arbitrage	3.1	-1.2	6.3	5.1	5.1	4.9
HFRI Distressed/Restructuring	2.0	-3.1	7.8	4.9	4.8	4.2
HFRI Emerging Markets	5.1	-12.7	1.7	0.9	2.9	1.4
HFRI Equity Market Neutral	1.1	1.6	2.8	1.9	3.0	1.9
HFRI Event-Driven	3.3	-4.6	5.4	4.3	4.9	4.2
HFRI Relative Value	1.3	-0.8	3.3	3.4	4.0	4.3
HFRI Macro	-1.3	9.0	7.3	4.8	3.1	2.9
HFRI Equity Hedge	4.2	-10.2	5.7	4.5	5.6	3.6
HFRI Multi-Strategy	1.1	-9.8	3.7	1.8	2.9	2.8
HFRI Merger Arbitrage	2.5	2.9	6.2	5.7	4.6	4.0
90-Day T-Bill + 5%	2.0	6.5	5.7	6.3	5.8	5.7

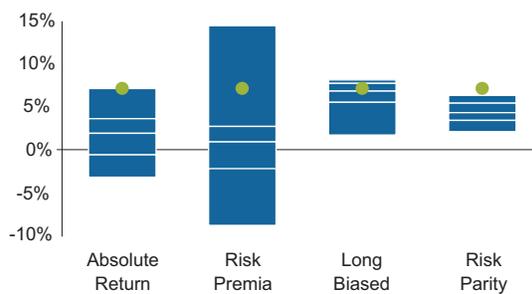
\*Net of fees. Sources: Callan, Credit Suisse, Hedge Fund Research

- Hedge funds ended the final quarter on a positive note, as equity hedge managers clawed back some of their negative performance. Those with a focus on real estate, energy, and industrials saw positive gains while growth-focused managers continued to lag.
- Event-driven strategies had a nice quarter, driven primarily by their event equities that moved higher with the broader markets.
- Relative value strategies finished out the year on a strong note, as managers continued to benefit from elevated rate volatility levels, the convergence of key relative value relationships, global quantitative tightening, and uncertainty surrounding central bank actions.
- Macro strategies ended the quarter slightly lower, as losses were taken in short U.S. equities themes, along with short positions in the Chinese renminbi versus the U.S. dollar.
- The median Callan Institutional Hedge Fund Peer Group rose 1.3%.
- Within the HFRI indices, the best-performing strategy last quarter was the emerging market index (+5.1%), as Asian equities rallied in November and December.
- Across the Callan Hedge FOF Database, the median Absolute Return FOF rose 1.5%, as their allocations to multi-strategy managers put up solid returns on the year.

- The median Callan Long-Short Equity FOF increased 2.9%, as managers benefited from an equity rally in October and November.
- The Callan Core Diversified FOF gained 1.6%, as equity hedge exposure drove performance, offsetting some negative performance from macro managers.
- Within Callan’s database of liquid alternative solutions, the median Long Biased MAC manager generated a gain of 6.9%, as long equity exposure drove performance for the peer group.
- The Callan Risk Parity MAC index, which typically targets an equally risk-weighted allocation to the major asset classes with leverage, was up 4.4%.
- The Callan Absolute Return MAC peer returned a positive 2.0%, as a bias toward value equities and credit helped performance on the quarter.
- The Callan Risk Premia MAC peer rose 1.0%, as equity performance was slightly offset by currency exposure.

### MAC Style Group Returns

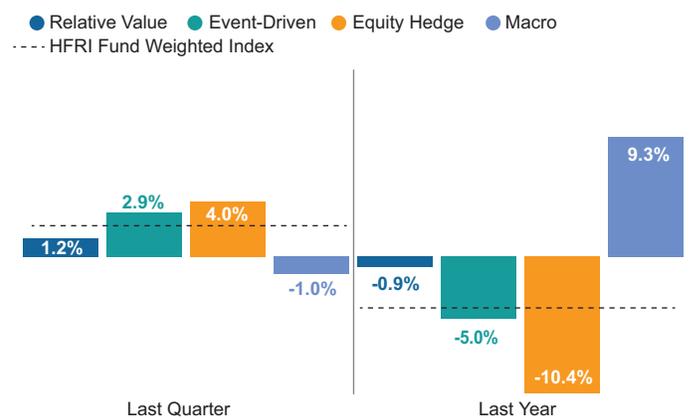
(12/31/22)



10th Percentile	7.2	14.5	8.2	6.4
25th Percentile	3.7	2.8	7.8	5.5
Median	2.0	1.0	6.9	4.4
75th Percentile	-0.5	-2.1	5.6	3.5
90th Percentile	-3.1	-8.7	1.8	2.2
60% MSCI ACWI/ 40% Bloomberg Agg	6.6	6.6	6.6	6.6

### HFRI Hedge Fund-Weighted Strategy Returns

(12/31/22)



Source: HFRI

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

# Third Straight Drop for DC Index

DEFINED CONTRIBUTION | Patrick Wisdom

## Performance: Index dips for third straight quarter

- The Callan DC Index™ fell 4.6% in 3Q22, its third straight quarterly decline, which brought the Index's trailing one-year loss to 16.7%.
- The Age 45 Target Date Fund fell 6.1% in the quarter.

## Growth Sources: Another decline in balances

- Balances within the DC Index declined by 4.7% after a 12.3% decrease the second quarter.

## Turnover: Net transfers well below average

- Turnover (i.e., net transfer activity levels within DC plans) in the DC Index decreased to 0.14% from the previous quarter's 0.37%. With the decrease, the Index's historical average (0.56%) fell slightly.

## Net Cash Flow Analysis: TDFs reclaim top spot

- After taking a back seat to stable value in 2Q22, TDFs reclaimed the top spot, garnering 73.6% of net flows.
- Investors withdrew assets from U.S. large cap equity (-33.1%); global ex-U.S. equity saw net inflows (+9.2%).

## Equity Allocation: Drop in exposure

- The Index's overall allocation to equity (69.3%) fell slightly from the previous quarter's level (69.8%).

## Asset Allocation: Capital preservation gains

- Stable value (10.0%) and U.S. fixed income (5.9%) were among the asset classes with the largest percentage increases in allocation.

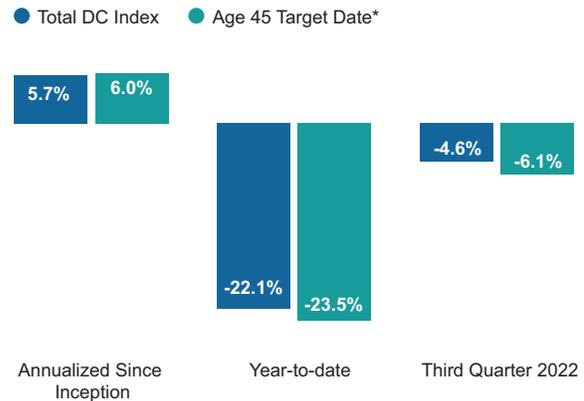
## Prevalence of Asset Class: Balanced funds dip

- The prevalence of a balanced fund (40.9%) decreased again to its lowest level since the inception of the Index in 2006.

*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.*

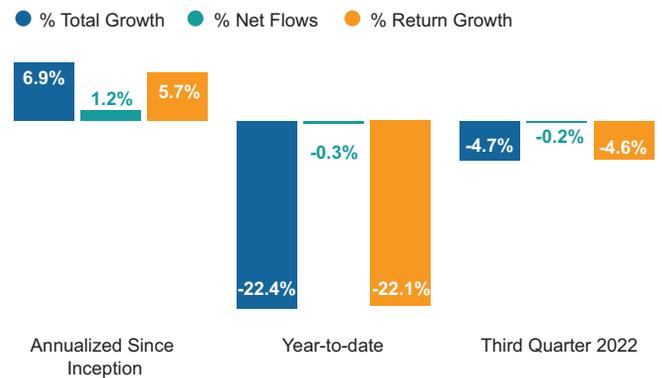
## Investment Performance

(9/30/22)



## Growth Sources

(9/30/22)



## Net Cash Flow Analysis (3Q22)

(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	73.6%
Brokerage Window	13.8%
U.S. Small/Mid Cap	-25.3%
U.S. Large Cap	-33.1%
<b>Total Turnover**</b>	<b>0.1%</b>

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

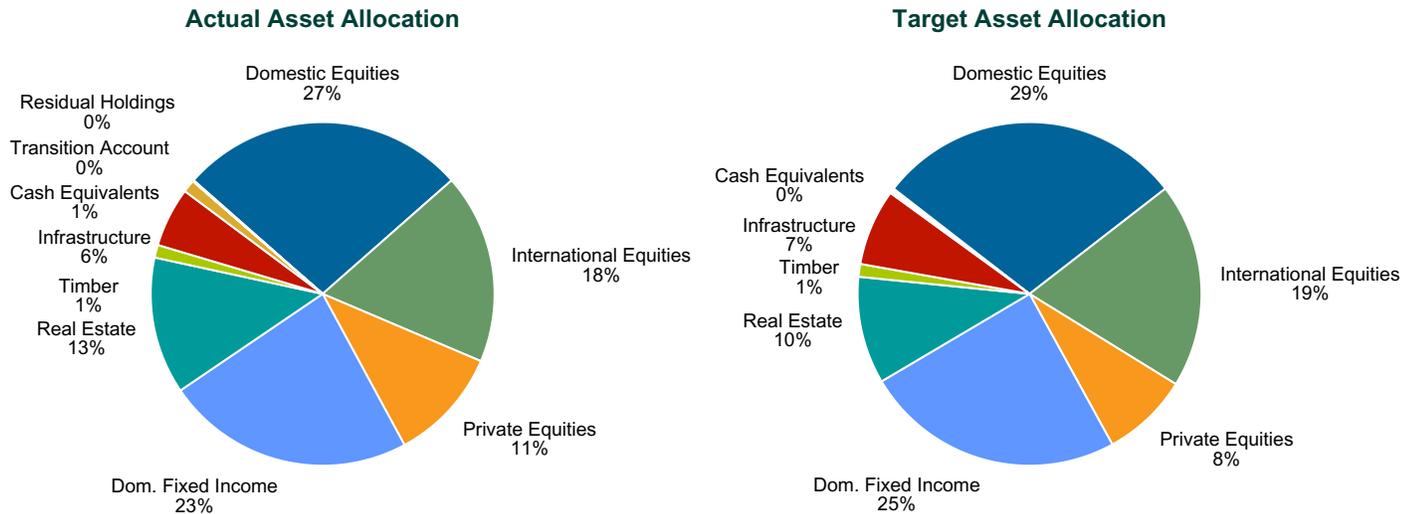
\* The Age 45 Fund transitioned from the average 2035 TDF to the 2040 TDF in June 2018.

\*\* Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.



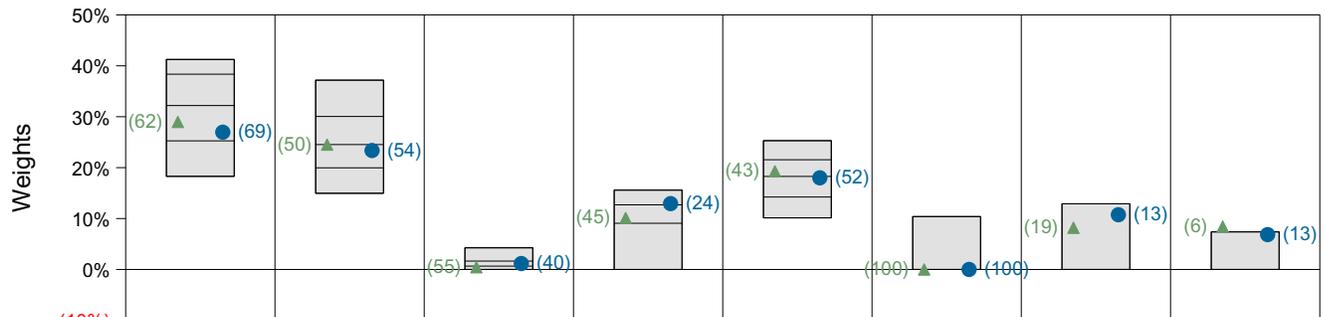
## Actual vs Target Asset Allocation As of December 31, 2022

The top left chart shows the Fund's asset allocation as of December 31, 2022. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.



Asset Class	\$Dollars Actual	Weight Actual	Target	Percent Difference	Difference
Domestic Equities	1,855,688,170	27.0%	29.0%	(2.0%)	(139,940,417)
International Equities	1,235,366,139	17.9%	19.3%	(1.4%)	(93,149,532)
World Equities	-11	-0.0%	0.0%	(0.0%)	(11)
Private Equities	739,813,064	10.7%	8.2%	2.5%	175,045,142
Dom. Fixed Income	1,608,956,218	23.4%	24.5%	(1.2%)	(79,819,916)
Real Estate	890,306,067	12.9%	10.1%	2.8%	193,185,126
Timber	85,879,708	1.2%	1.2%	0.0%	164
Infrastructure	385,519,894	5.6%	7.2%	(1.6%)	(109,135,746)
Cash Equivalents	79,911,771	1.2%	0.4%	0.7%	49,688,953
Transition Account	408,474	0.0%	0.0%	0.0%	408,474
Residual Holdings	3,717,141	0.1%	0.0%	0.1%	3,717,141
<b>Total</b>	<b>6,885,566,634</b>	<b>100.0%</b>	<b>100.0%</b>		

### Asset Class Weights vs Callan Public Fund Sponsor Database



	Domestic Broad Eq	Dom. Fixed Income	Cash Equivalents	Real Estate	Intl Equity	World Equities	Private Equities	Real Assets
10th Percentile	41.25	37.18	4.25	15.58	25.30	10.39	12.90	7.38
25th Percentile	38.35	30.05	1.65	12.69	21.55	0.00	0.00	0.00
Median	32.20	24.53	0.66	9.07	18.28	0.00	0.00	0.00
75th Percentile	25.26	19.97	0.01	0.00	14.23	0.00	0.00	0.00
90th Percentile	18.29	14.96	0.00	0.00	10.13	0.00	0.00	0.00
<b>Fund</b> ●	26.96	23.37	1.16	12.93	18.00	(0.00)	10.74	6.85
<b>Target</b> ▲	28.98	24.53	0.44	10.12	19.29	0.00	8.20	8.43
% Group Invested	93.90%	98.78%	76.83%	73.17%	91.46%	15.85%	21.95%	21.95%

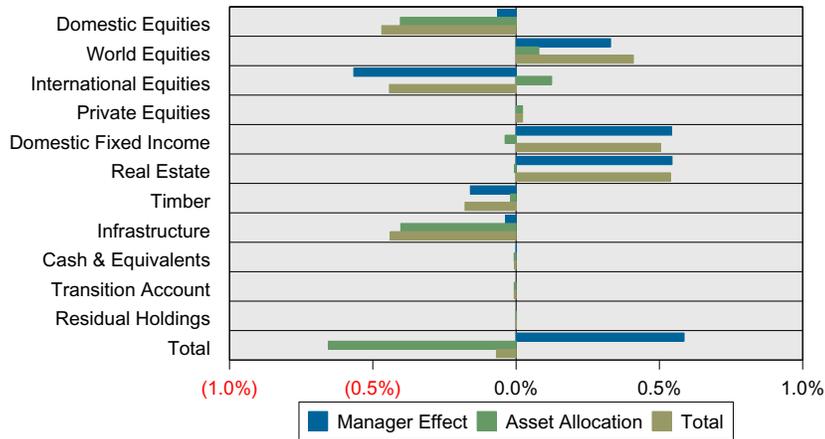
\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.



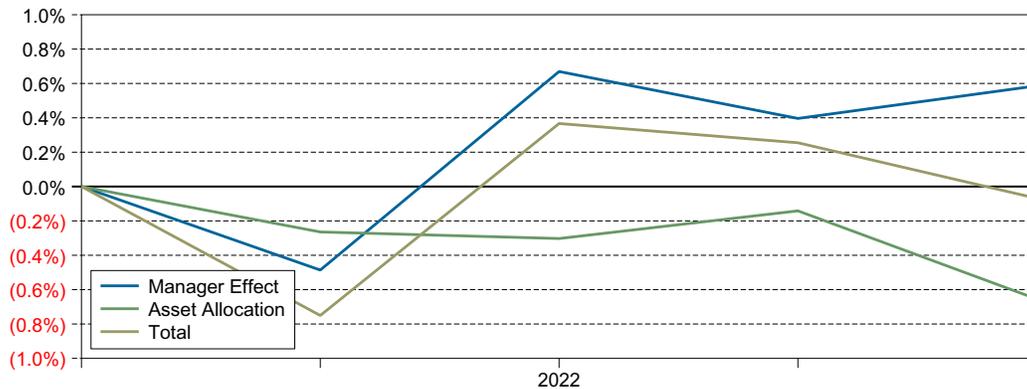
## Cumulative Total Fund Relative Attribution - December 31, 2022

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

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

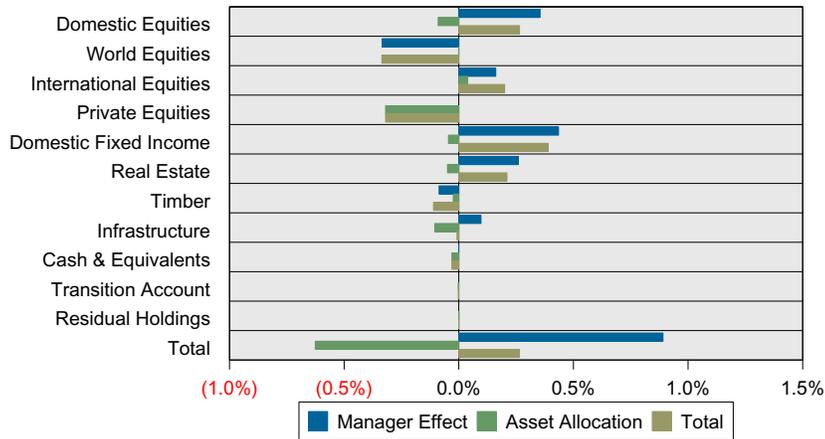
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	24%	24%	(19.55%)	(19.32%)	(0.06%)	(0.40%)	(0.47%)
World Equities	8%	7%	346.64%	330.36%	0.33%	0.08%	0.41%
International Equities	15%	16%	(19.41%)	(15.99%)	(0.57%)	0.12%	(0.44%)
Private Equities	9%	8%	0.27%	0.27%	0.00%	0.02%	0.02%
Domestic Fixed Income	25%	25%	(10.31%)	(12.40%)	0.54%	(0.04%)	0.50%
Real Estate	12%	10%	11.05%	5.53%	0.54%	(0.01%)	0.54%
Timber	1%	1%	(1.54%)	12.90%	(0.16%)	(0.02%)	(0.18%)
Infrastructure	5%	7%	6.66%	7.91%	(0.04%)	(0.40%)	(0.44%)
Cash & Equivalents	1%	0%	1.65%	1.46%	0.00%	(0.01%)	(0.01%)
Transition Account	0%	0%	-	-	0.00%	(0.01%)	(0.01%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>(10.49%)</b>	<b>(10.42%)</b>	<b>+ 0.59%</b>	<b>+ (0.65%)</b>	<b>(0.07%)</b>

\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

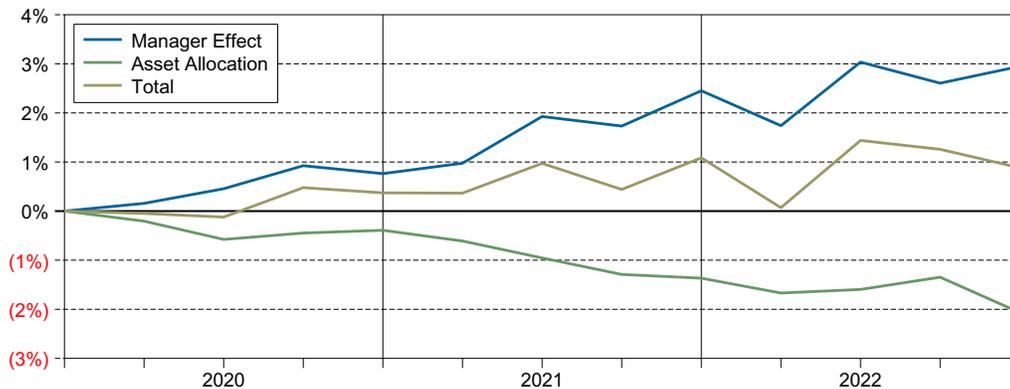
## Cumulative Total Fund Relative Attribution - December 31, 2022

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

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

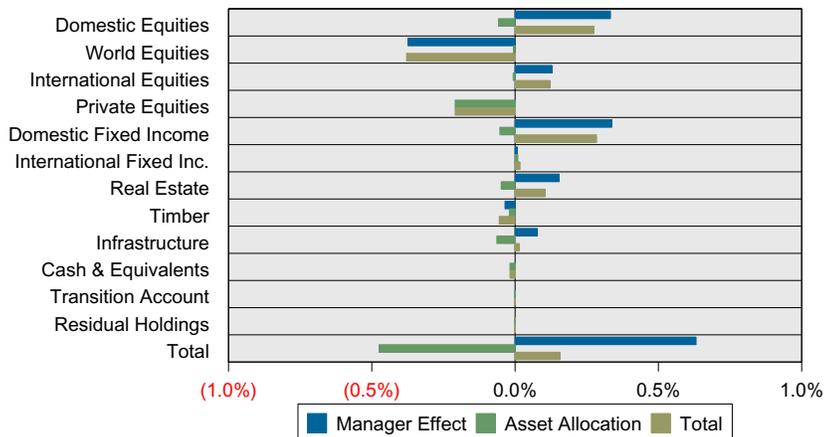
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	24%	23%	8.17%	6.55%	0.35%	(0.09%)	0.26%
World Equities	11%	11%	79.06%	82.48%	(0.33%)	(0.00%)	(0.34%)
International Equities	15%	15%	1.30%	0.20%	0.16%	0.04%	0.20%
Private Equities	7%	8%	20.96%	20.96%	0.00%	(0.32%)	(0.32%)
Domestic Fixed Income	25%	24%	(0.18%)	(1.80%)	0.44%	(0.05%)	0.39%
Real Estate	11%	10%	10.39%	8.06%	0.26%	(0.05%)	0.21%
Timber	2%	2%	1.29%	7.51%	(0.09%)	(0.02%)	(0.11%)
Infrastructure	5%	7%	9.06%	7.33%	0.10%	(0.10%)	0.00%
Cash & Equivalents	1%	0%	0.75%	0.72%	0.00%	(0.03%)	(0.03%)
Transition Account	0%	0%	-	-	0.00%	(0.00%)	(0.00%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>5.49%</b>	<b>5.22%</b>	<b>0.89%</b>	<b>(0.63%)</b>	<b>0.26%</b>

\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

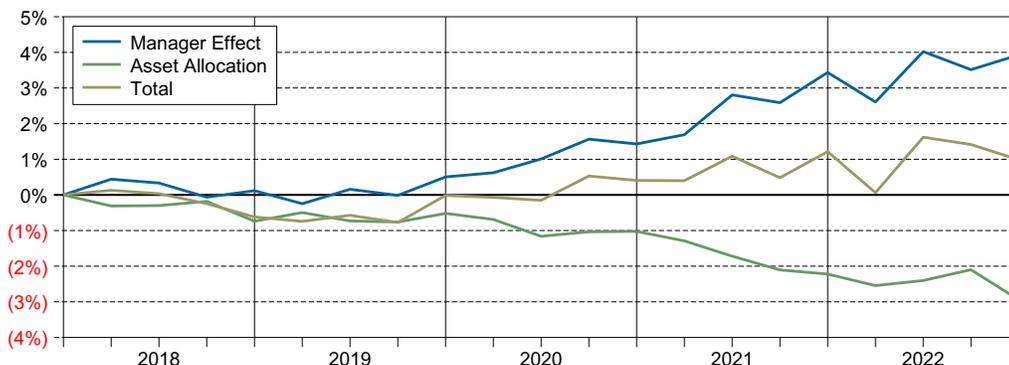
## Cumulative Total Fund Relative Attribution - December 31, 2022

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.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

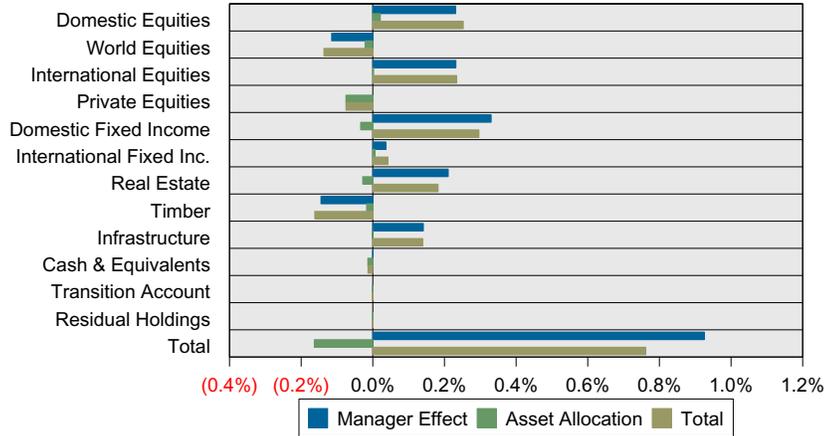
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	22%	9.61%	8.09%	0.33%	(0.06%)	0.27%
World Equities	13%	13%	44.80%	47.92%	(0.37%)	(0.01%)	(0.38%)
International Equities	15%	15%	1.82%	0.99%	0.13%	(0.01%)	0.12%
Private Equities	5%	7%	14.84%	14.84%	0.00%	(0.21%)	(0.21%)
Domestic Fixed Income	24%	24%	2.07%	0.76%	0.34%	(0.05%)	0.28%
International Fixed Inc.	0%	0%	-	-	0.01%	0.01%	0.02%
Real Estate	11%	10%	8.81%	7.46%	0.15%	(0.05%)	0.11%
Timber	2%	2%	2.48%	5.37%	(0.04%)	(0.02%)	(0.06%)
Infrastructure	5%	6%	7.44%	6.00%	0.08%	(0.06%)	0.01%
Cash & Equivalents	1%	0%	1.27%	1.26%	0.00%	(0.02%)	(0.02%)
Transition Account	0%	0%	-	-	0.00%	(0.00%)	(0.00%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>5.94%</b>	<b>5.78%</b>	<b>+ 0.63%</b>	<b>+ (0.47%)</b>	<b>0.16%</b>

\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

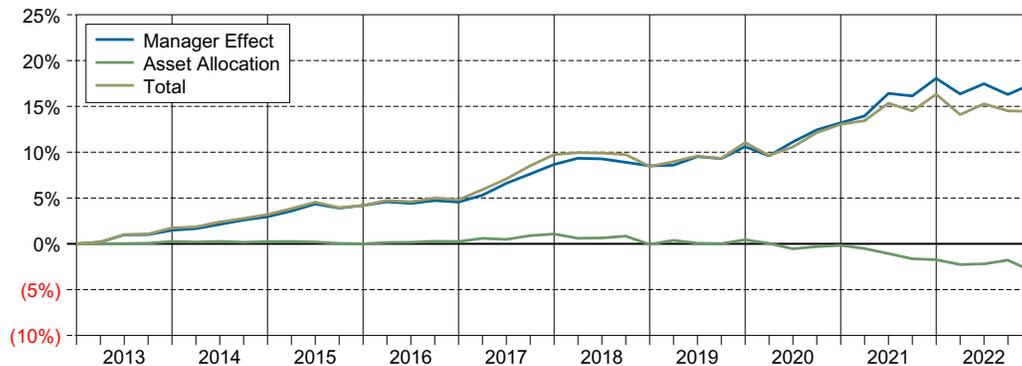
## Cumulative Total Fund Relative Attribution - December 31, 2022

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.

### Ten Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Ten Year Annualized Relative Attribution Effects

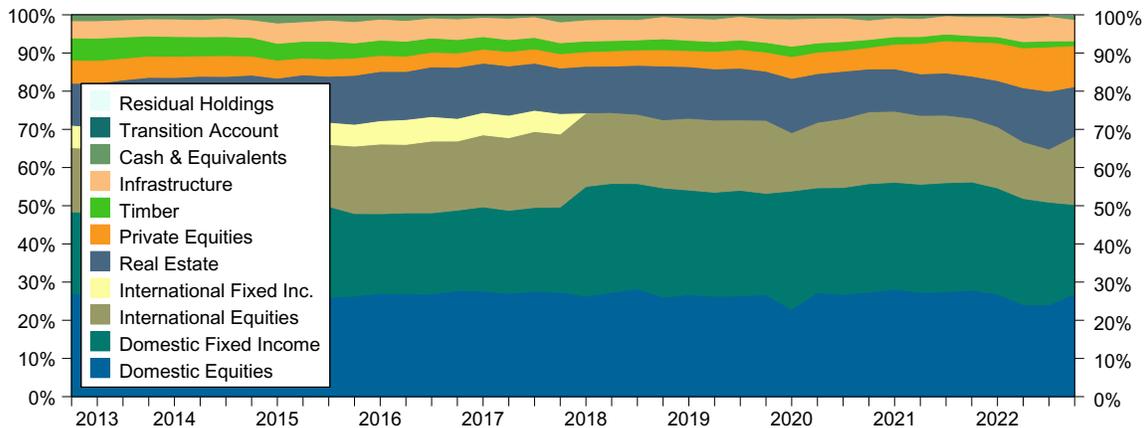
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	22%	12.77%	11.69%	0.23%	0.02%	0.25%
World Equities	15%	14%	27.60%	28.50%	(0.11%)	(0.02%)	(0.14%)
International Equities	15%	15%	5.55%	4.02%	0.23%	0.00%	0.23%
Private Equities	5%	6%	7.90%	7.90%	0.00%	(0.08%)	(0.08%)
Domestic Fixed Income	21%	21%	3.42%	1.92%	0.33%	(0.03%)	0.30%
International Fixed Inc.	3%	3%	-	-	0.04%	0.01%	0.04%
Real Estate	10%	10%	10.89%	8.82%	0.21%	(0.03%)	0.18%
Timber	3%	3%	1.05%	5.80%	(0.14%)	(0.02%)	(0.16%)
Infrastructure	5%	6%	6.77%	3.60%	0.14%	(0.00%)	0.14%
Cash & Equivalents	1%	1%	0.81%	0.76%	0.00%	(0.01%)	(0.01%)
Transition Account	0%	0%	-	-	0.00%	(0.00%)	(0.00%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>7.75%</b>	<b>6.99%</b>	<b>+ 0.93%</b>	<b>+ (0.16%)</b>	<b>0.76%</b>

\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

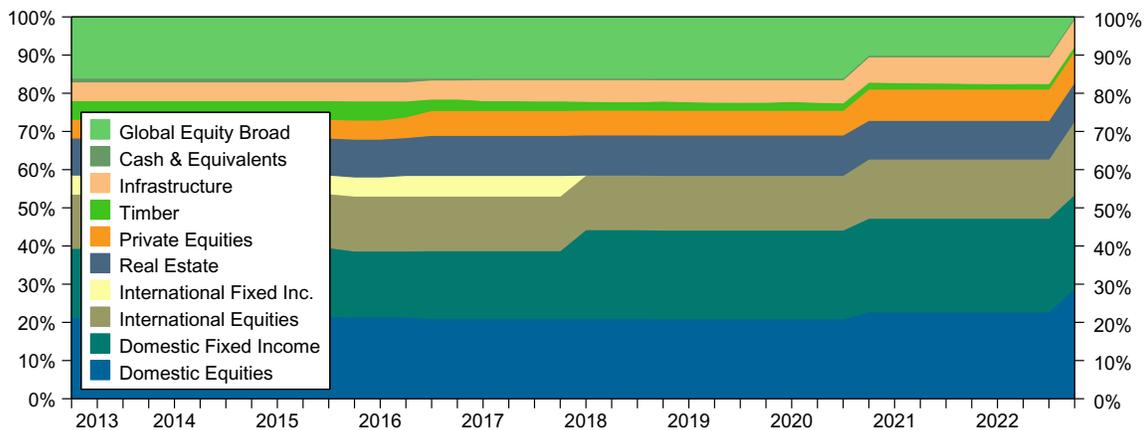
## Actual vs Target Historical Asset Allocation

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 Sponsor Database.

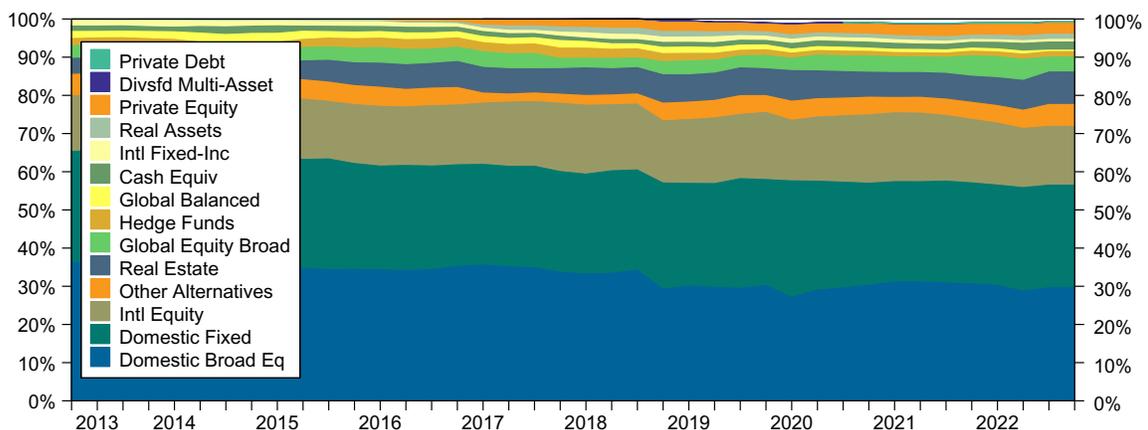
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation

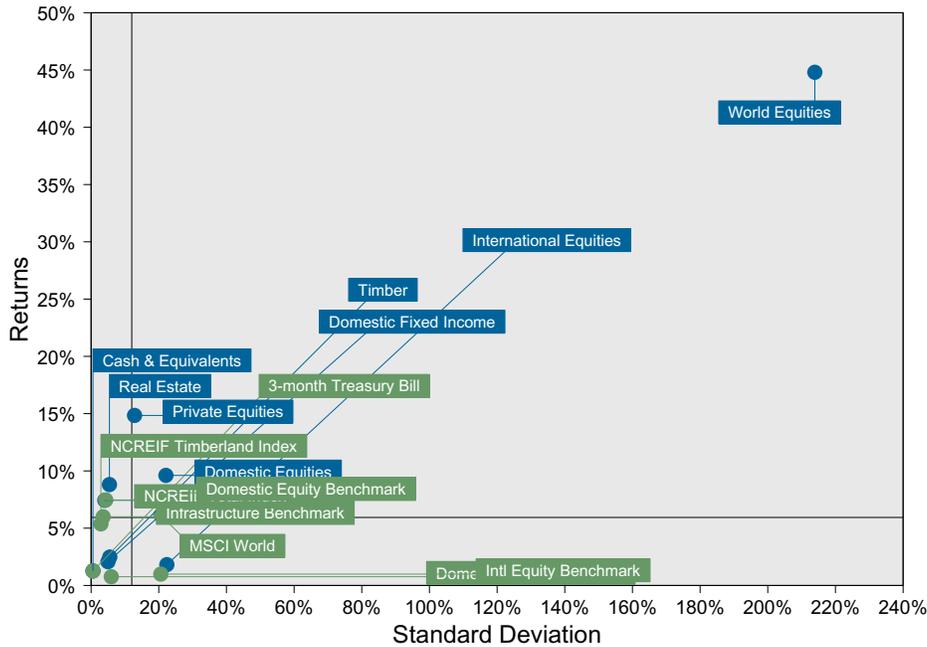


\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

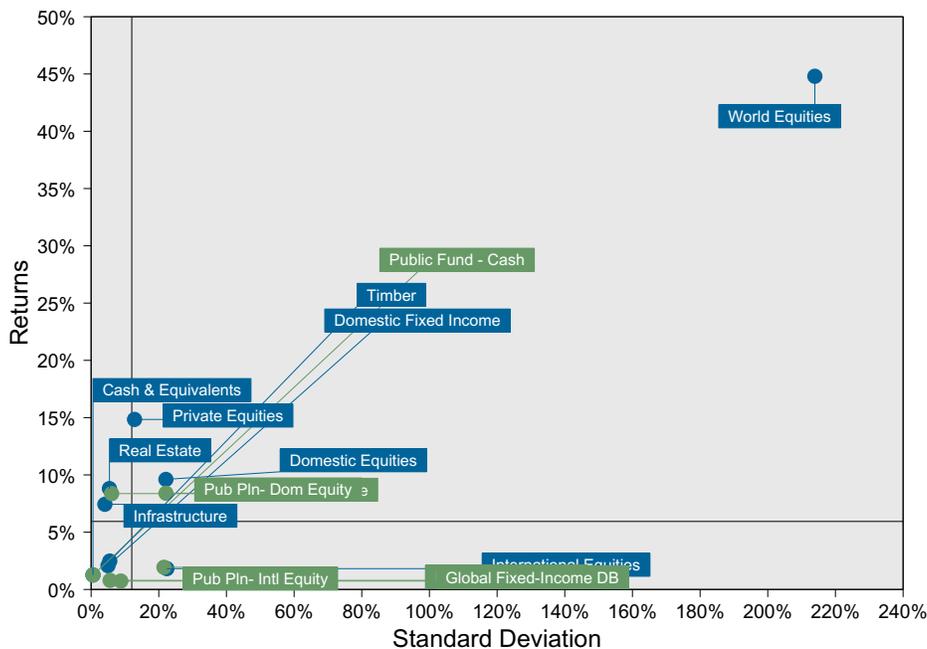
## Asset Class Risk and Return

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



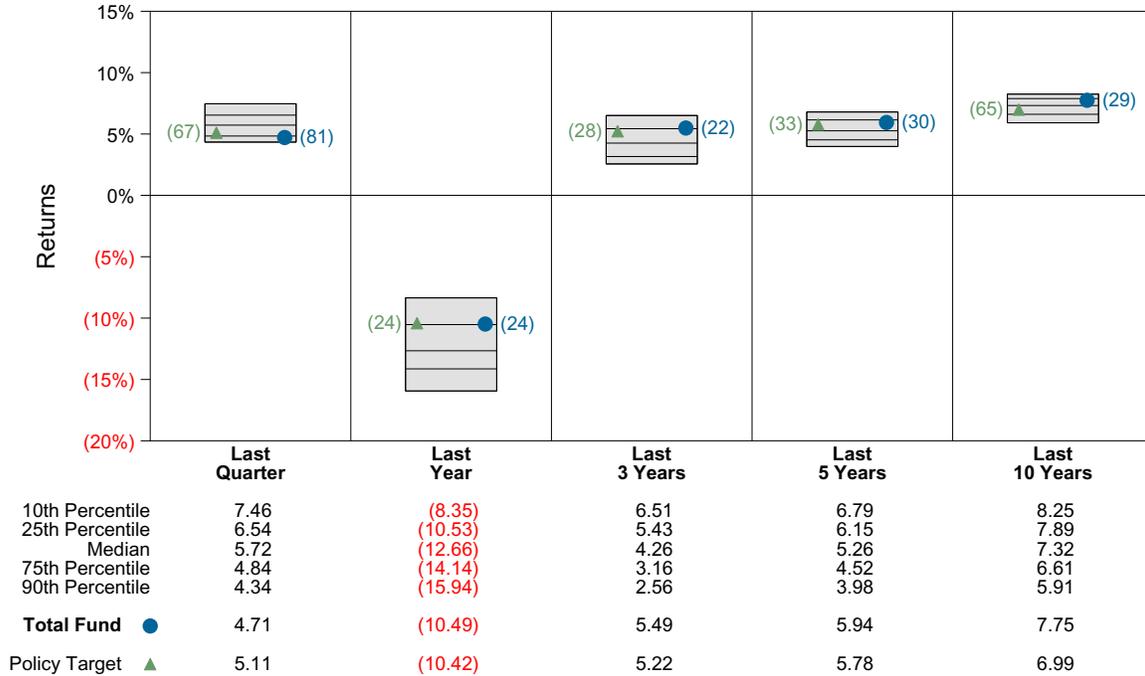
### Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median



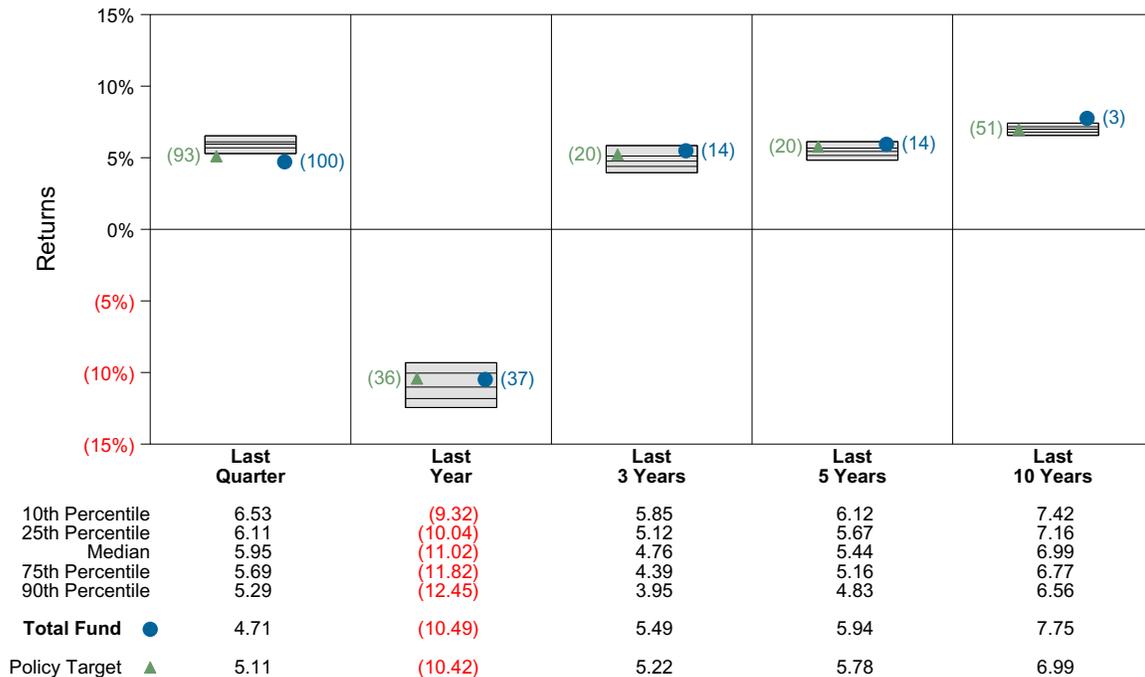
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2022. 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.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

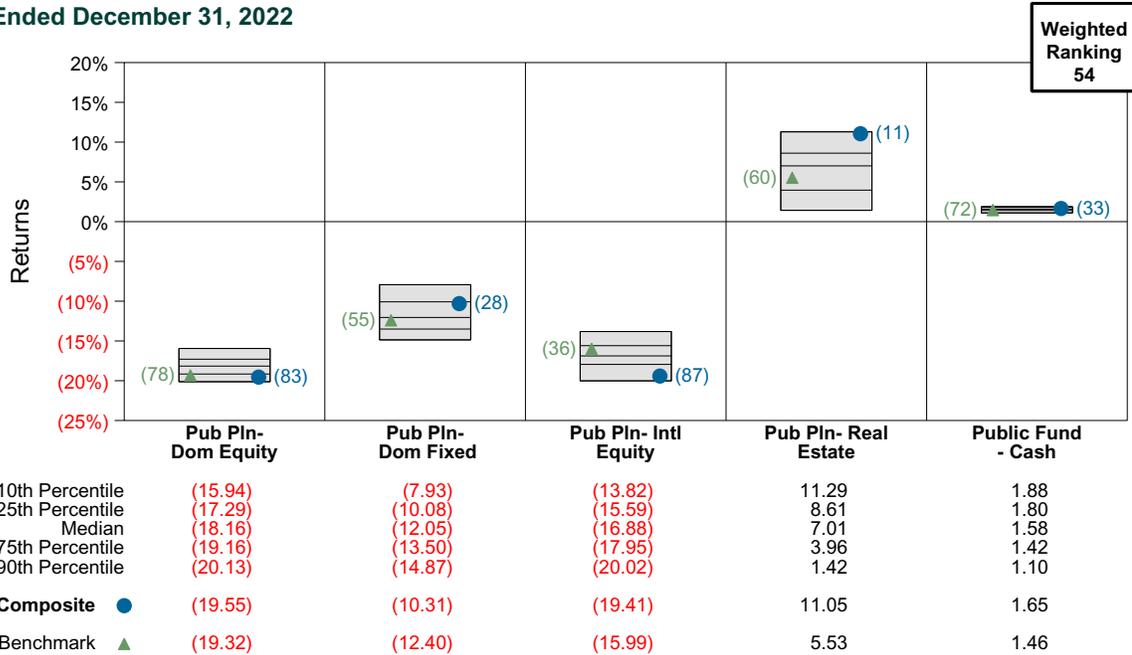


\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

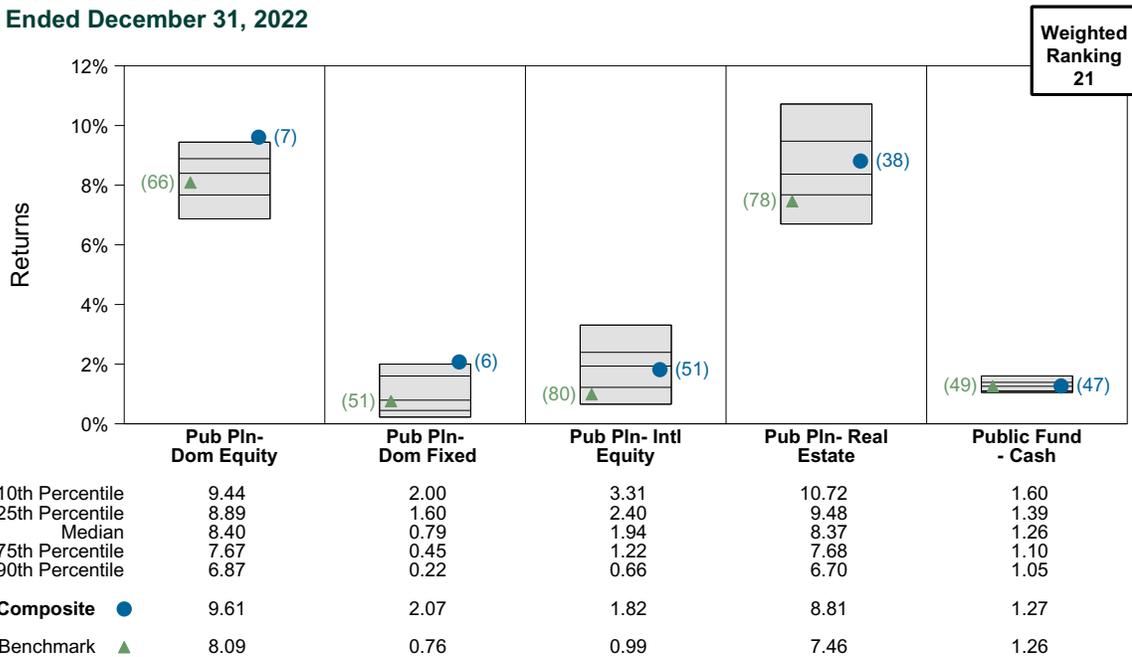
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2022



### Total Asset Class Performance Five Years Ended December 31, 2022



\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2022, with the distribution as of September 30, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	December 31, 2022				September 30, 2022	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Global Equities</b>	<b>\$3,831,275,836</b>	<b>55.64%</b>	<b>\$(65,087,797)</b>	<b>\$303,303,310</b>	<b>\$3,593,060,323</b>	<b>54.28%</b>
<b>Public Equities</b>	<b>\$3,091,462,772</b>	<b>44.90%</b>	<b>\$(95,926,963)</b>	<b>\$292,699,525</b>	<b>\$2,894,690,210</b>	<b>43.73%</b>
<b>World Equities</b>	<b>\$-11</b>	<b>(0.00%)</b>	<b>\$(627,937,685)</b>	<b>\$14,279,069</b>	<b>\$613,658,605</b>	<b>9.27%</b>
EPOCH Investment Partners	-18	(0.00%)	(269,884,417)	6,482,182	263,402,218	3.98%
LSV Asset Management	7	0.00%	(358,053,268)	7,796,887	350,256,388	5.29%
<b>Domestic Equities</b>	<b>\$1,855,688,170</b>	<b>26.95%</b>	<b>\$292,373,433</b>	<b>\$118,826,521</b>	<b>\$1,444,488,215</b>	<b>21.82%</b>
<b>Large Cap</b>	<b>\$1,576,612,017</b>	<b>22.90%</b>	<b>\$328,897,878</b>	<b>\$96,911,004</b>	<b>\$1,150,803,134</b>	<b>17.39%</b>
L.A. Capital	45,141,546	0.66%	(393,822,034)	11,613,004	427,350,576	6.46%
LA Capital Enhanced	650,300,789	9.44%	374,455,952	27,464,019	248,380,818	3.75%
NTAM Quant Enh S&P 500	251,591,199	3.65%	(10,558,735)	21,326,093	240,823,841	3.64%
NTAM R1000 Index	382,293,986	5.55%	364,322,696	17,971,290	-	-
Parametric Enh S&P 500	247,284,496	3.59%	(5,500,000)	18,536,597	234,247,899	3.54%
<b>Small Cap</b>	<b>\$279,076,153</b>	<b>4.05%</b>	<b>\$(36,524,445)</b>	<b>\$21,915,517</b>	<b>\$293,685,081</b>	<b>4.44%</b>
Atlanta Capital	90,134,756	1.31%	(22,876,208)	9,057,415	103,953,549	1.57%
NTAM R2000 Index	15,192,323	0.22%	14,500,000	692,323	-	-
Riverbridge Small Cap Growth	84,038,851	1.22%	4,339,070	600,310	79,099,471	1.20%
Sycamore Small Cap Value	89,710,222	1.30%	(32,487,307)	11,565,468	110,632,061	1.67%
<b>Total International Equity</b>	<b>\$1,235,366,139</b>	<b>17.94%</b>	<b>\$241,205,383</b>	<b>\$157,617,367</b>	<b>\$836,543,389</b>	<b>12.64%</b>
<b>International All Cap</b>	<b>\$471,000,025</b>	<b>6.84%</b>	<b>\$(11,691,268)</b>	<b>\$64,467,774</b>	<b>\$418,223,518</b>	<b>6.32%</b>
William Blair Int'l Leaders	174,836,428	2.54%	(23,370,798)	24,343,112	173,864,114	2.63%
Arrowstreet ACWI ex US	279,393,040	4.06%	(2,820,470)	37,854,106	244,359,404	3.69%
State St MSCI ACWI exUS	16,770,556	0.24%	14,500,000	2,270,556	-	-
<b>Developed Intl Large Cap</b>	<b>\$469,073,456</b>	<b>6.81%</b>	<b>\$304,031,103</b>	<b>\$64,028,155</b>	<b>\$101,014,198</b>	<b>1.53%</b>
NTAM World Ex US	107,906,115	1.57%	(10,500,000)	17,391,917	101,014,198	1.53%
State St MSCI World exUS	361,167,342	5.25%	314,531,103	46,636,239	-	-
<b>Developed Intl Small Cap</b>	<b>\$83,526,869</b>	<b>1.21%</b>	<b>\$(68,356,996)</b>	<b>\$14,134,938</b>	<b>\$137,748,927</b>	<b>2.08%</b>
DFA Intl Small Cap Value	33,326,998	0.48%	(42,600,000)	5,607,579	70,319,419	1.06%
Wellington Intl SM Cap	33,279,798	0.48%	(40,256,996)	6,107,287	67,429,508	1.02%
State St MSCI exUS Small	16,920,072	0.25%	14,500,000	2,420,072	-	-
<b>Emerging Markets</b>	<b>\$211,765,789</b>	<b>3.08%</b>	<b>\$17,222,545</b>	<b>\$14,986,498</b>	<b>\$179,556,746</b>	<b>2.71%</b>
Axiom Emerging Markets	145,249,987	2.11%	10,222,545	8,691,676	126,335,767	1.91%
DFA Emerging Mkts SmallCap	50,348,466	0.73%	(7,500,000)	4,627,487	53,220,979	0.80%
State St MSCI Em Mkts	16,167,335	0.23%	14,500,000	1,667,335	-	-
<b>Transition Account</b>	<b>\$408,474</b>	<b>0.01%</b>	<b>\$(1,568,094)</b>	<b>\$1,976,568</b>	<b>-</b>	<b>-</b>
<b>Private Equity</b>	<b>\$739,813,064</b>	<b>10.74%</b>	<b>\$30,839,166</b>	<b>\$10,603,785</b>	<b>\$698,370,113</b>	<b>10.55%</b>
Total ASP (Brinson) Fds 1998-2003	352,861	0.01%	(55,625)	11,102	397,384	0.01%
Total ASP (Brinson) Non-US Fds 1999-2004	172,210	0.00%	(73,315)	72,030	173,495	0.00%
Adams Street 2008 Non-US Partnership Fd	4,021,883	0.06%	(206,633)	(107,188)	4,335,704	0.07%
Adams Street Direct Co-Invest Fund 2006	15,664	0.00%	0	(9)	15,673	0.00%
Total Adams Street 2010 Funds	9,084,234	0.13%	(523,853)	(153,663)	9,761,750	0.15%
Adams Street 2015 Global Fund	40,351,604	0.59%	(571,320)	(1,305,552)	42,228,476	0.64%
Adams Street 2016 Global Fund	36,219,972	0.53%	0	(663,431)	36,883,403	0.56%
Adams Street 2017 Global Fund	77,955,720	1.13%	0	(1,625,310)	79,581,030	1.20%
Adams Street 2018 Global Fund	70,143,373	1.02%	5,332,425	(1,187,176)	65,998,124	1.00%
Adams Street 2019 Global Fund	57,834,708	0.84%	5,825,972	(1,934,562)	53,943,298	0.81%
Adams Street 2020 Global Fund	37,121,616	0.54%	6,251,757	1,142,862	29,726,997	0.45%
Adams Street 2021 Global Fund	16,950,390	0.25%	7,363,073	865,894	8,721,423	0.13%
BlackRock PEP	215,389,609	3.13%	1,766,608	11,276,489	202,346,512	3.06%
Blackrock PEP 2020	68,012,045	0.99%	6,328,585	5,276,997	56,406,463	0.85%
Sixth Street Partners - TAO	76,987,692	1.12%	5,438,238	1,232,271	70,317,183	1.06%
Private Equity Misc Funds*	29,199,483	0.42%	(6,036,746)	(2,296,969)	37,533,198	0.57%

\* Comprised of Matlin Patterson II, Matlin Patterson III, InvestAmerica Lewis & Clark, InvestAmerica L&C II, Corsair III, Capital Intl Fd V, Capital Intl Fd VI, EIG, Quantum Energy Partners, Hearthstone MSII, Hearthstone MSIII.

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2022, with the distribution as of September 30, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	December 31, 2022			Inv. Return	September 30, 2022	
	Market Value	Weight	Net New Inv.		Market Value	Weight
<b>Global Fixed Income</b>	<b>\$1,608,956,218</b>	<b>23.37%</b>	<b>\$(32,794,922)</b>	<b>\$27,803,359</b>	<b>\$1,613,947,780</b>	<b>24.38%</b>
<b>Domestic Fixed Income</b>	<b>\$1,608,956,218</b>	<b>23.37%</b>	<b>\$(32,794,922)</b>	<b>\$27,803,359</b>	<b>\$1,613,947,780</b>	<b>24.38%</b>
<b>Investment Grade</b>	<b>\$1,127,971,132</b>	<b>16.38%</b>	<b>\$(16,250,951)</b>	<b>\$16,743,116</b>	<b>\$1,127,478,967</b>	<b>17.03%</b>
Manulife-Declaration TRBF	146,657,233	2.13%	0	466,738	146,190,495	2.21%
PIMCO DiSCO II	101,250,214	1.47%	0	698,630	100,551,584	1.52%
PIMCO Core Plus Constrained	392,810,114	5.70%	(6,628,315)	8,479,105	390,959,324	5.91%
Prudential Core	398,948,646	5.79%	381,854	8,387,674	390,179,118	5.89%
SSgA Long US Treas Index	88,304,925	1.28%	(10,004,490)	(1,289,032)	99,598,447	1.50%
<b>Below Investment Grade</b>	<b>\$480,985,086</b>	<b>6.99%</b>	<b>\$(16,543,970)</b>	<b>\$11,060,244</b>	<b>\$486,468,813</b>	<b>7.35%</b>
Ares ND Credit Strategies Fd	158,219,998	2.30%	0	2,104,515	156,115,483	2.36%
Cerberus ND Private Credit Fd	195,409,455	2.84%	22,000,000	3,673,840	169,735,615	2.56%
Goldman Sachs 2006 Offshore	22,577	0.00%	(11,706)	10,435	23,848	0.00%
Goldman Sachs Offshore V	48,749	0.00%	(65,862)	3,375	111,236	0.00%
Loomis Sayles	123,422,384	1.79%	(36,079,942)	6,360,350	153,141,976	2.31%
PIMCO Bravo II Fund	3,861,923	0.06%	(2,386,460)	(1,092,272)	7,340,655	0.11%
<b>Global Real Assets</b>	<b>\$1,361,705,669</b>	<b>19.78%</b>	<b>\$(7,748,662)</b>	<b>\$(20,238,547)</b>	<b>\$1,389,692,878</b>	<b>20.99%</b>
<b>Real Estate</b>	<b>\$890,306,067</b>	<b>12.93%</b>	<b>\$(3,324,706)</b>	<b>\$(14,685,158)</b>	<b>\$908,315,931</b>	<b>13.72%</b>
Invesco Core Real Estate	451,024,664	6.55%	(305,713)	6,265,305	445,065,072	6.72%
Invesco RE Fund VI	34,420,390	0.50%	0	1,293,798	33,126,592	0.50%
Invesco Asia RE Fund III	15,907,946	0.23%	0	(1,492,075)	17,400,021	0.26%
Invesco Value Added Fd IV	2,099,079	0.03%	(1,048,872)	(1,929,618)	5,077,569	0.08%
Invesco Value Added Fd V	70,693,062	1.03%	(1,970,121)	73,283	72,589,900	1.10%
JP Morgan	315,580,071	4.58%	0	(18,945,629)	334,525,700	5.05%
JP Morgan Greater European Opp Fd	580,855	0.01%	0	49,779	531,076	0.01%
<b>Other Real Assets</b>	<b>\$471,399,602</b>	<b>6.85%</b>	<b>\$(4,423,956)</b>	<b>\$(5,553,390)</b>	<b>\$481,376,947</b>	<b>7.27%</b>
<b>Infrastructure</b>	<b>\$385,519,894</b>	<b>5.60%</b>	<b>\$(2,827,956)</b>	<b>\$1,227,242</b>	<b>\$387,120,607</b>	<b>5.85%</b>
ISQ Global Infrastructure II	64,286,614	0.93%	(7,112,545)	(153,058)	71,552,217	1.08%
ISQ Global Infrastructure III	5,821,061	0.08%	0	1,307,216	4,513,845	0.07%
The Rohatyn Group	15,910,711	0.23%	67,198	(67,198)	15,910,711	0.24%
JP Morgan IIF Infrastructure	117,203,361	1.70%	(3,351,167)	(1,901,092)	122,455,619	1.85%
Grosvenor CIS Fund I	9,645,792	0.14%	(382,824)	86,944	9,941,672	0.15%
Grosvenor CIS Fund II	21,600,435	0.31%	(1,291,215)	461,320	22,430,330	0.34%
Grosvenor CIS Fund III	20,223,046	0.29%	3,765,316	(235,721)	16,693,451	0.25%
Macquarie Infrastructure Fund IV	77,904,810	1.13%	(37,269)	794,327	77,147,752	1.17%
Macquarie Infrastructure Fund V	52,924,064	0.77%	5,514,550	934,504	46,475,010	0.70%
<b>Timber</b>	<b>\$85,879,708</b>	<b>1.25%</b>	<b>\$(1,596,000)</b>	<b>\$(6,780,632)</b>	<b>\$94,256,340</b>	<b>1.42%</b>
TIR Teredo	20,455,211	0.30%	0	182,253	20,272,958	0.31%
TIR Springbank	65,424,497	0.95%	(1,596,000)	(6,962,885)	73,983,382	1.12%
<b>Cash</b>	<b>\$79,911,771</b>	<b>1.16%</b>	<b>\$57,053,694</b>	<b>\$396,739</b>	<b>\$22,461,338</b>	<b>0.34%</b>
Northern Trust Cash Account	69,141,449	1.00%	57,053,694	300,381	11,787,374	0.18%
Bank of ND	10,770,322	0.16%	0	96,358	10,673,964	0.16%
<b>Residual Holdings</b>	<b>\$3,717,141</b>	<b>0.05%</b>	<b>\$3,671,502</b>	<b>\$45,639</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$6,885,566,634</b>	<b>100.0%</b>	<b>\$(44,906,184)</b>	<b>\$311,310,499</b>	<b>\$6,619,162,319</b>	<b>100.0%</b>

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Equities</b>					
Gross	8.45%	(15.90%)	6.57%	6.75%	9.48%
Net	8.36%	(16.13%)	6.29%	6.50%	9.19%
Weighted Benchmark	8.76%	(15.28%)	6.95%	7.12%	9.05%
<b>Public Equities</b>					
Gross	10.11%	(18.53%)	4.57%	-	-
Net	10.01%	(18.80%)	4.26%	-	-
Weighted Benchmark	9.98%	(17.90%)	4.24%	-	-
<b>Total Domestic Equity</b>					
Gross	7.63%	(19.55%)	8.17%	9.61%	12.77%
Net	7.58%	(19.78%)	7.92%	9.38%	12.54%
Weighted Benchmark	7.10%	(19.32%)	6.55%	8.09%	11.69%
<b>Large Cap Equity</b>					
Gross	7.79%	(20.24%)	9.53%	10.72%	13.63%
Net	7.77%	(20.41%)	9.38%	10.58%	13.47%
Large Cap Benchmark(1)	7.24%	(19.13%)	7.35%	9.13%	12.37%
L.A. Capital - Gross	3.62%	(27.03%)	9.83%	11.99%	14.62%
L.A. Capital - Net	3.14%	(27.49%)	9.46%	11.67%	14.33%
Russell 1000 Growth Index	2.20%	(29.14%)	7.79%	10.96%	14.10%
LACM Enhanced Index - Gross	6.62%	(18.15%)	8.75%	9.76%	12.90%
LACM Enhanced Index - Net	6.61%	(18.23%)	8.64%	9.65%	12.78%
Russell 1000 Index	7.24%	(19.13%)	7.35%	9.13%	12.37%
NTAM Quant Enh S&P500 - Gross	8.83%	(15.24%)	8.00%	8.42%	12.15%
NTAM Quant Enh S&P500 - Net	8.83%	(15.69%)	7.81%	8.31%	11.95%
S&P 500 Index	7.56%	(18.11%)	7.66%	9.42%	12.56%
Parametric Enh S&P500 - Gross	7.78%	(19.84%)	7.03%	8.92%	12.35%
Parametric Enh S&P500 - Net	7.78%	(19.84%)	6.99%	8.89%	12.31%
S&P 500 Index	7.56%	(18.11%)	7.66%	9.42%	12.56%
<b>Small Cap Equity</b>					
Gross	7.62%	(16.21%)	3.25%	5.73%	9.72%
Net	7.43%	(16.78%)	2.63%	5.20%	9.23%
Russell 2000 Index	6.23%	(20.44%)	3.10%	4.13%	9.01%
Atlanta Capital - Gross	9.90%	(11.54%)	6.24%	9.09%	-
Atlanta Capital - Net	9.70%	(12.12%)	5.58%	8.39%	-
S&P 600 Small Cap Index	9.19%	(16.10%)	5.80%	5.88%	10.82%
Riverbridge Small Cap Growth - Gross	0.61%	(31.53%)	-	-	-
Riverbridge Small Cap Growth - Net	0.42%	(32.09%)	-	-	-
Russell 2000 Growth Index	4.13%	(26.36%)	0.65%	3.51%	9.20%
Sycamore Small Cap Value - Gross	11.64%	(6.29%)	-	-	-
Sycamore Small Cap Value - Net	11.42%	(6.91%)	-	-	-
Russell 2000 Value Index	8.42%	(14.48%)	4.70%	4.13%	8.48%

(1) S&P 500 Index through 12/31/2011 and Russell 1000 Index thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Total International Equity</b>					
Gross	14.34%	(19.41%)	1.30%	1.82%	5.55%
Net	14.25%	(19.64%)	0.99%	1.57%	5.28%
MSCI ACWIxUS IMI(1)	14.15%	(15.99%)	0.20%	0.99%	4.02%
<b>International All Cap</b>					
Gross	14.45%	-	-	-	-
Net	14.31%	-	-	-	-
MSCI ACWI xUS IMI	14.15%	(16.58%)	0.20%	0.85%	3.98%
William Blair Int'l Leaders - Gross	12.92%	(27.82%)	0.94%	3.92%	-
William Blair Int'l Leaders - Net	12.82%	(28.09%)	0.58%	3.55%	-
MSCI ACWI xUS IMI	14.15%	(16.58%)	0.20%	0.85%	3.98%
Arrowstreet ACWI ex US - Gross	15.19%	(7.32%)	-	-	-
Arrowstreet ACWI ex US - Net	15.01%	(7.50%)	-	-	-
MSCI ACWI ex US IMI	14.15%	(16.58%)	0.20%	0.85%	3.98%
<b>Developed Intl Large Cap</b>					
Gross	18.26%	-	-	-	-
Net	18.26%	-	-	-	-
MSCI World xUS	16.18%	(14.29%)	1.27%	1.79%	4.59%
NTAM World ex US - Gross	17.32%	(13.66%)	1.79%	2.30%	-
NTAM World ex US - Net	17.32%	(13.72%)	1.75%	2.26%	-
MSCI World xUS	16.18%	(14.29%)	1.27%	1.79%	4.59%
<b>Developed Intl Small Cap</b>					
Gross	18.61%	-	-	-	-
Net	18.37%	-	-	-	-
MSCI World xUS Small	15.21%	(20.59%)	(0.15%)	0.45%	5.77%
DFA Intl Small Cap Value - Net	19.29%	(9.78%)	1.77%	(0.44%)	5.87%
MSCI World xUS Sm Value	16.80%	(14.00%)	(0.02%)	0.04%	5.32%
Wellington Management - Gross	19.30%	(20.45%)	0.39%	(0.53%)	7.40%
Wellington Management - Net	18.72%	(21.38%)	(0.55%)	(1.43%)	6.47%
Benchmark(4)	15.79%	(21.24%)	(0.82%)	(1.26%)	5.24%
<b>Emerging Markets</b>					
Gross	7.45%	(26.45%)	(2.11%)	(0.94%)	2.47%
Net	7.36%	(26.71%)	(2.64%)	(1.26%)	2.19%
Emerging Mkts - Net	9.70%	(20.09%)	(2.69%)	(1.39%)	1.44%
Axiom Emerging Markets - Gross(3)	6.23%	(30.50%)	(4.20%)	(1.72%)	-
Axiom Emerging Markets - Net	6.09%	(30.83%)	(4.90%)	(2.15%)	-
Emerging Mkts - Net	9.70%	(20.09%)	(2.69%)	(1.39%)	1.44%
DFA Emerging Mkts SmallCap - Net	10.18%	(15.29%)	3.37%	0.91%	3.83%
Emerging Mkts - Net	9.70%	(20.09%)	(2.69%)	(1.39%)	1.44%

(1) Prior to 10/1/2022, the benchmark is calculated based on the approved investment policy asset allocation target.

(2) MSCI EAFE through 12/31/1996; 50% Hedged EAFE through 3/31/2011; MSCI EAFE again through 6/30/2016; MSCI World ex-US thereafter.

(3) Axiom's performance are reported net of fees through 6/30/2020.

(4) EPAC, Developed World, <\$2B through 2/28/2022; MSCI EAFE Small Cap Index thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Private Equity*</b>					
Net	1.54%	0.27%	20.96%	14.84%	7.89%
Total ASP (Brinson) Fds 1998-2003	2.79%	(1.68%)	(0.13%)	0.78%	2.05%
Total ASP (Brinson) Non-US 1999-2004	40.11%	33.28%	10.70%	7.96%	7.22%
Adams St 2008 Non-US P-ship Fund	(2.60%)	(20.14%)	10.32%	11.26%	12.38%
Adams St Direct Co-Invest Fd 2006	(0.06%)	19.12%	(24.90%)	(25.01%)	(8.29%)
Total Adams Street 2010 Funds	(1.69%)	(12.16%)	21.97%	19.50%	16.03%
Adams Street 2015 Global Fund	(3.10%)	(8.70%)	24.73%	21.86%	-
Adams Street 2016 Global Fund	(1.80%)	(1.60%)	25.17%	19.82%	-
Adams Street 2017 Global Fund	(2.04%)	3.15%	28.96%	21.22%	-
Adams Street 2018 Global Fund	(1.74%)	3.21%	30.65%	-	-
Adams Street 2019 Global Fund	(3.32%)	(1.72%)	66.37%	-	-
Adams Street 2020 Global Fund	4.20%	0.03%	-	-	-
Adams Street 2021 Global Fund	10.61%	17.84%	-	-	-
BlackRock PEP	5.50%	2.63%	21.89%	15.73%	-
Blackrock PEP 2020	8.71%	5.94%	-	-	-
Sixth Street Partners - TAO	1.75%	6.05%	-	-	-
Private Equity Misc Funds**	(7.18%)	(16.70%)	(5.54%)	(2.76%)	(3.95%)

\* Corsair III was taken out from the Private Equity Composite on July 1, 2009. It was then added back into the Private Equity Composite on October 1, 2011. At this time Corsair IV, Capital Intl and EIG were also added to this composite.

\*\* Comprised of Matlin Patterson II, Matlin Patterson III, InvestAmerica Lewis & Clark, InvestAmerica L&C II, Corsair III, Capital Intl Fd V, Capital Intl Fd VI, EIG, Quantum Energy Partners, Hearthstone MSII, Hearthstone MSIII.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Fixed Income</b>					
Gross	1.80%	(10.31%)	(0.18%)	2.22%	3.10%
Net	1.77%	(10.43%)	(0.32%)	2.08%	2.91%
Weighted Benchmark	2.58%	(12.40%)	(1.80%)	0.94%	1.69%
<b>Domestic Fixed Income</b>					
Gross	1.80%	(10.31%)	(0.18%)	2.07%	3.42%
Net	1.77%	(10.43%)	(0.32%)	1.94%	3.25%
Weighted Benchmark	2.58%	(12.40%)	(1.80%)	0.76%	1.92%
<b>Investment Grade</b>					
Gross	1.57%	(13.86%)	(2.02%)	0.82%	2.38%
Net	1.55%	(13.97%)	(2.13%)	0.71%	2.26%
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
Manulife-Declaration TRBF- Net	0.32%	(6.88%)	0.29%	2.11%	3.20%
Libor-3 Month	1.13%	2.25%	1.06%	1.58%	1.07%
PIMCO Core Plus Cons. - Gross(1)	2.26%	(13.54%)	(2.10%)	0.51%	1.63%
PIMCO Core Plus Cons. - Net	2.23%	(13.74%)	(2.30%)	0.33%	1.40%
Blended Benchmark(2)	1.87%	(13.01%)	(2.71%)	0.56%	0.58%
PIMCO DiSCO II - Net	0.69%	(0.28%)	3.42%	4.76%	7.25%
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
Prudential Core - Gross	2.24%	(13.69%)	(2.45%)	-	-
Prudential Core - Net	2.20%	(13.79%)	(2.55%)	-	-
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
SSgA Long US Treas Idx - Gross	(1.02%)	(29.56%)	(7.49%)	(2.24%)	-
SSgA Long US Treas Idx - Net	(1.02%)	(29.58%)	(7.50%)	(2.26%)	-
Blmbg Long Treas	(0.59%)	(29.26%)	(7.40%)	(2.20%)	0.60%
<b>Below Investment Grade</b>					
Gross	2.31%	(0.35%)	4.77%	5.37%	6.13%
Net	2.27%	(0.51%)	4.58%	5.16%	5.80%
Blmbg HY Corp 2% Issue	4.17%	(11.18%)	0.03%	2.30%	4.03%
Ares ND Credit Strategies Fd - Net	1.35%	7.79%	7.69%	7.65%	-
Cerberus ND Private Credit Fd - Net	2.12%	6.89%	8.76%	9.19%	-
S&P/LSTA Leveraged Loan B	2.80%	(1.07%)	2.61%	3.50%	3.87%
Goldman Sachs 2006 Offshore - Net	79.34%	45.10%	18.79%	13.91%	19.84%
Goldman Sachs Offshore V - Net	7.44%	(6.88%)	12.63%	24.74%	13.00%
PIMCO Bravo II Fund - Net	(22.05%)	(26.04%)	(6.69%)	(2.58%)	-
Blmbg HY Corp 2% Issue	4.17%	(11.18%)	0.03%	2.30%	4.03%
Loomis Sayles - Gross	4.22%	(12.02%)	0.13%	1.95%	4.12%
Loomis Sayles - Net	4.10%	(12.44%)	(0.34%)	1.46%	3.61%
Blmbg HY Corp 2% Issue	4.17%	(11.18%)	0.03%	2.30%	4.03%

(1) The product changed from Commingled Fund to Separate Account in March 2014.

(2) Libor-3 month through Feb. 28, 2014; Fund's performance through March 31, 2014; Libor-3 month through June 30, 2018; Blmbg Aggregate thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Real Assets</b>					
Gross	(1.45%)	8.88%	9.24%	7.84%	8.16%
Net	(1.49%)	8.52%	8.79%	7.41%	7.73%
Weighted Benchmark	(2.56%)	6.91%	7.71%	6.73%	6.83%
<b>Real Estate</b>					
Gross	(1.62%)	11.05%	10.39%	8.81%	10.89%
Net	(1.65%)	10.60%	9.83%	8.29%	10.35%
NCREIF Total Index	(3.50%)	5.53%	8.06%	7.46%	8.82%
Invesco Core Real Estate - Gross	1.41%	19.92%	11.37%	9.50%	10.85%
Invesco Core Real Estate - Net	1.34%	19.56%	11.01%	9.15%	10.47%
Invesco Asia RE Fund III - Net	(8.58%)	(17.80%)	0.10%	14.40%	-
Invesco Value Added Fd IV - Net	(38.00%)	(37.72%)	(10.37%)	(2.04%)	-
Invesco Value Added Fd V - Net	0.10%	8.91%	13.44%	-	-
JP Morgan - Gross	(5.66%)	2.70%	8.65%	8.03%	10.17%
JP Morgan - Net	(5.66%)	2.02%	7.65%	7.09%	9.17%
JPM Greater European Opp Fd - Net	9.37%	(10.65%)	(7.50%)	(17.08%)	(2.44%)
NCREIF Total Index	(3.50%)	5.53%	8.06%	7.46%	8.82%
<b>Other Real Assets</b>					
Gross	(1.17%)	5.15%	7.11%	-	-
Net	(1.22%)	4.96%	6.85%	-	-
Weighted Benchmark	(1.42%)	8.58%	7.28%	-	-
<b>Infrastructure</b>					
Gross	0.30%	6.66%	9.06%	7.44%	6.77%
Net	0.24%	6.42%	8.70%	7.03%	6.28%
Weighted Benchmark	(2.48%)	7.91%	7.33%	6.00%	3.60%
ISQ Global Infrastructure II - Net	(0.20%)	8.77%	12.30%	-	-
ISQ Global Infrastructure III - Net	28.96%	(25.81%)	-	-	-
The Rohatyn Group - Net	(0.42%)	(2.54%)	(6.60%)	(8.31%)	(2.51%)
JP Morgan IIF - Gross	(1.55%)	(1.27%)	5.53%	5.98%	5.93%
JP Morgan IIF - Net	(1.75%)	(1.91%)	4.76%	5.25%	5.11%
Grosvenor CIS Fund - Net	0.87%	3.78%	8.73%	6.45%	7.88%
Grosvenor CIS Fund II - Net	2.13%	11.48%	14.40%	12.83%	-
Grosvenor CIS Fund III - Net	(1.15%)	(4.23%)	-	-	-
Benchmark(1)	(2.48%)	7.91%	7.33%	6.00%	3.60%
Macquarie Infrastructure Fd IV - Net	1.03%	18.38%	14.18%	-	-
Macquarie Infrastructure Fd V - Net	1.85%	16.47%	-	-	-
Benchmark(2)	(2.48%)	7.91%	7.33%	-	-
<b>Timber</b>					
Net	(7.30%)	(1.54%)	1.29%	2.48%	1.05%
TIR Teredo - Net	0.90%	14.61%	7.84%	5.60%	4.83%
TIR Springbank - Net	(9.59%)	(5.63%)	(0.48%)	1.65%	(0.42%)
NCREIF Timberland Index	4.89%	12.90%	7.51%	5.37%	5.80%
<b>Cash &amp; Cash Equivalents - Net</b>					
Cash Account - Net	0.91%	1.65%	0.75%	1.27%	0.81%
Bank of ND - Net	0.89%	1.63%	0.74%	1.25%	0.80%
3-month Treasury Bill	0.90%	1.63%	0.75%	1.27%	-
	0.84%	1.46%	0.72%	1.26%	0.76%
<b>Total Fund</b>					
Gross	4.71%	(10.49%)	5.49%	5.94%	7.75%
Net	4.65%	(10.71%)	5.22%	5.68%	7.46%
Target*	5.11%	(10.42%)	5.22%	5.78%	6.99%

\* Current Quarter Target = 24.6% Russell 1000 Index, 19.3% MSCI ACWI xUS IMI, 17.1% Blmbg Aggregate, 10.1% NCREIF Total Index, 8.2% Private Equity, 7.4% Blmbg HY Corp 2% Iss Cap, 4.3% Russell 2000 Index, 3.6% CPI All Urban Cons lagged 3 months, 3.6% NCREIF NFI-ODCE Eq Wt Net, 1.2% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

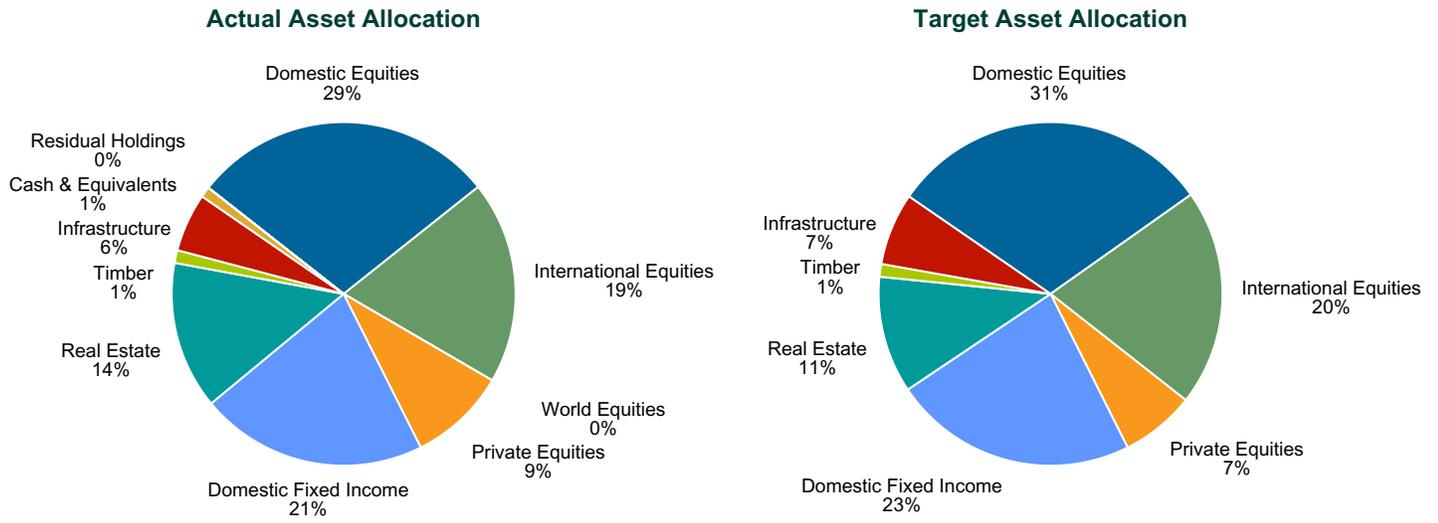
(1) CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.

(2) 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net.



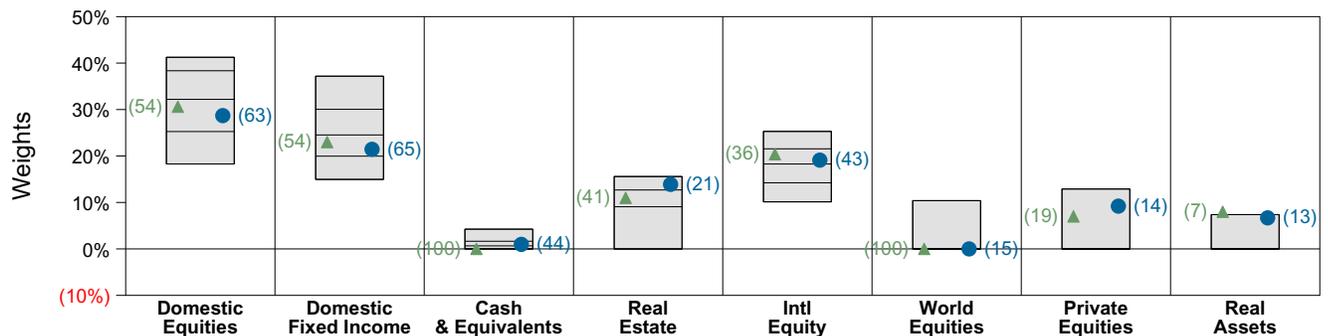
## Actual vs Target Asset Allocation As of December 31, 2022

The top left chart shows the Fund's asset allocation as of December 31, 2022. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equities	1,059,194	28.7%	30.6%	(1.9%)	(71,038)
International Equities	705,082	19.1%	20.4%	(1.3%)	(47,232)
World Equities	40	0.0%	0.0%	0.0%	40
Private Equities	339,884	9.2%	7.0%	2.2%	81,495
Domestic Fixed Income	791,360	21.4%	23.0%	(1.6%)	(57,631)
Real Estate	512,687	13.9%	11.0%	2.9%	106,648
Timber	43,429	1.2%	1.2%	0.0%	0
Infrastructure	203,245	5.5%	6.8%	(1.3%)	(48,627)
Cash & Equivalents	35,981	1.0%	0.0%	1.0%	35,981
Residual Holdings	365	0.0%	0.0%	0.0%	365
<b>Total</b>	<b>3,691,267</b>	<b>100.0%</b>	<b>100.0%</b>		

### Asset Class Weights vs Callan Public Fund Sponsor Database



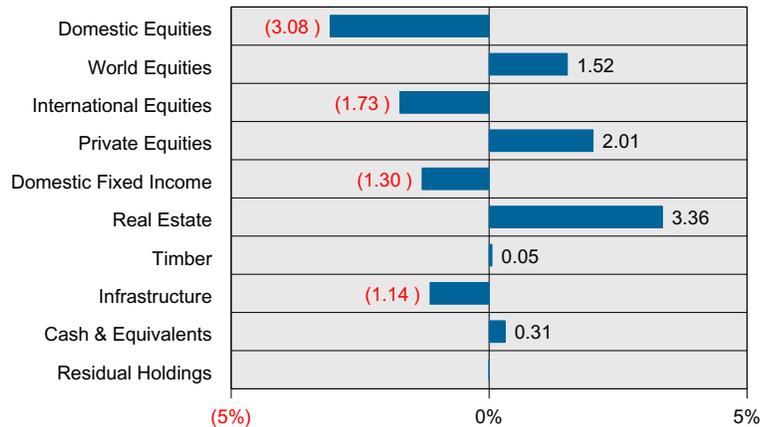
	Domestic Equities	Domestic Fixed Income	Cash & Equivalents	Real Estate	Intl Equity	World Equities	Private Equities	Real Assets
10th Percentile	41.25	37.18	4.25	15.58	25.30	10.39	12.90	7.38
25th Percentile	38.35	30.05	1.65	12.69	21.55	0.00	0.00	0.00
Median	32.20	24.53	0.66	9.07	18.28	0.00	0.00	0.00
75th Percentile	25.26	19.97	0.01	0.00	14.23	0.00	0.00	0.00
90th Percentile	18.29	14.96	0.00	0.00	10.13	0.00	0.00	0.00
<b>Fund</b>	● 28.69	21.44	0.97	13.89	19.11	0.00	9.21	6.68
<b>Target</b>	▲ 30.62	23.00	0.00	11.00	20.38	0.00	7.00	8.00
% Group Invested	93.90%	98.78%	76.83%	73.17%	91.46%	15.85%	21.95%	21.95%

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

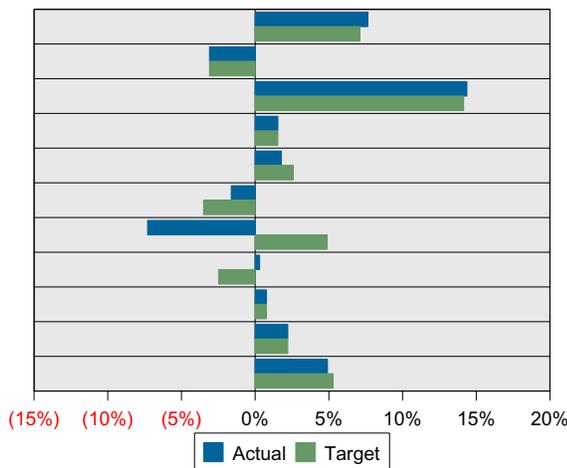
## Quarterly Total Fund Relative Attribution - December 31, 2022

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

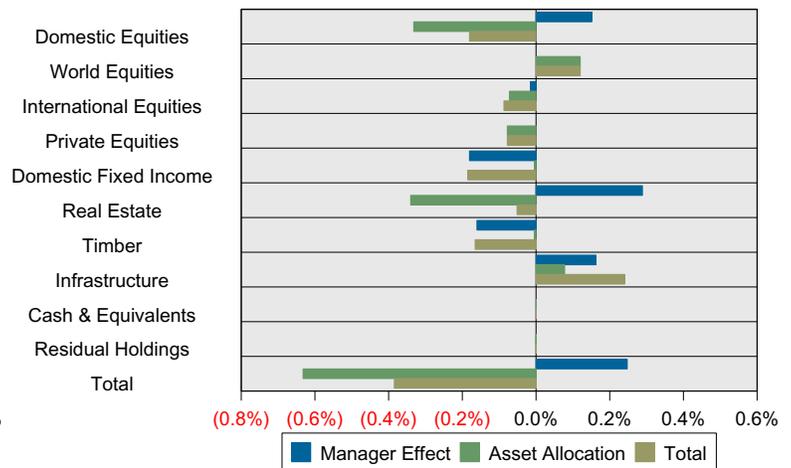
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2022

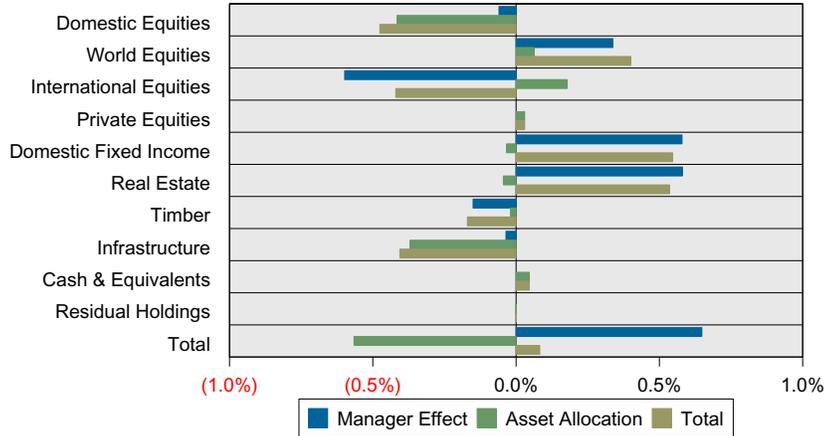
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	28%	31%	7.65%	7.10%	0.15%	(0.33%)	(0.18%)
World Equities	2%	0%	(3.10%)	(3.10%)	0.00%	0.12%	0.12%
International Equities	18%	20%	14.36%	14.15%	(0.01%)	(0.07%)	(0.09%)
Private Equities	9%	7%	1.54%	1.54%	0.00%	(0.08%)	(0.08%)
Domestic Fixed Income	22%	23%	1.78%	2.58%	(0.18%)	(0.00%)	(0.18%)
Real Estate	14%	11%	(1.62%)	(3.50%)	0.29%	(0.34%)	(0.05%)
Timber	1%	1%	(7.30%)	4.89%	(0.16%)	(0.00%)	(0.17%)
Infrastructure	6%	7%	0.30%	(2.48%)	0.16%	0.08%	0.24%
Cash & Equivalents	0%	0%	0.77%	0.77%	0.00%	0.00%	0.00%
Residual Holdings	0%	0%	2.21%	2.21%	0.00%	0.00%	0.00%
<b>Total</b>			<b>4.90%</b>	<b>5.29%</b>	<b>0.25%</b>	<b>(0.63%)</b>	<b>(0.38%)</b>

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

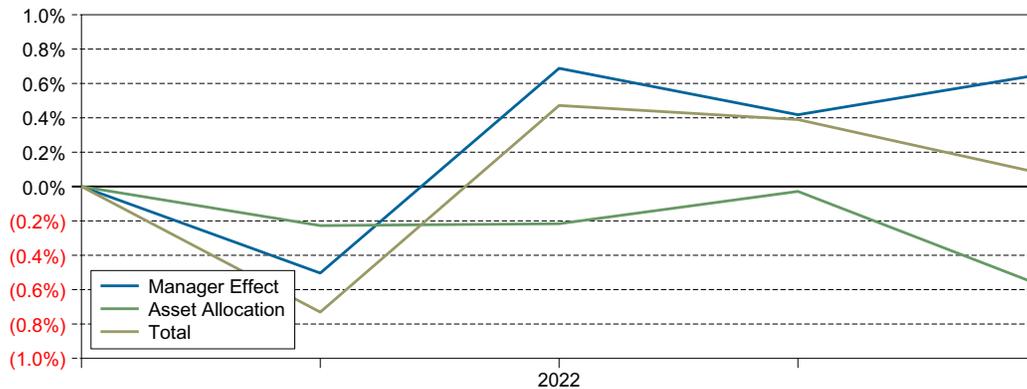
## Cumulative Total Fund Relative Attribution - December 31, 2022

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

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

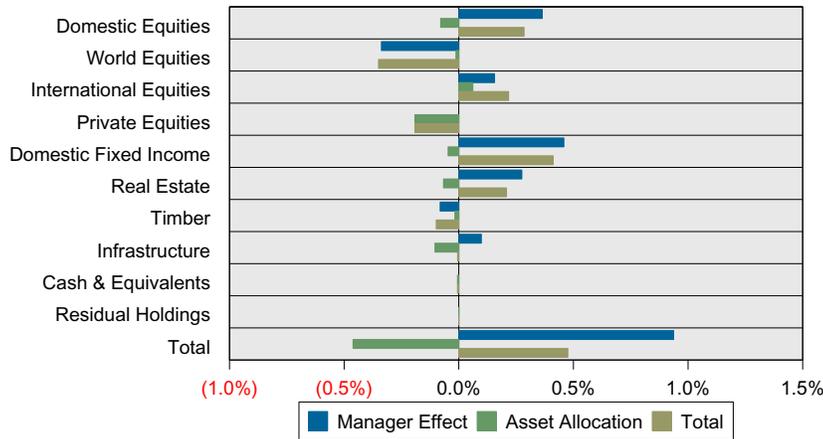
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	25%	26%	(19.52%)	(19.32%)	(0.06%)	(0.42%)	(0.48%)
World Equities	8%	7%	(24.96%)	(27.74%)	0.34%	0.06%	0.40%
International Equities	16%	18%	(19.37%)	(15.99%)	(0.60%)	0.18%	(0.42%)
Private Equities	8%	7%	0.27%	0.27%	0.00%	0.03%	0.03%
Domestic Fixed Income	23%	23%	(10.00%)	(12.40%)	0.58%	(0.03%)	0.55%
Real Estate	13%	11%	11.05%	5.53%	0.58%	(0.04%)	0.54%
Timber	1%	1%	(1.53%)	12.90%	(0.15%)	(0.02%)	(0.17%)
Infrastructure	5%	7%	6.66%	7.91%	(0.04%)	(0.37%)	(0.41%)
Cash & Equivalents	0%	0%	1.52%	1.52%	0.00%	0.05%	0.05%
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>(10.64%)</b>	<b>(10.72%)</b>	<b>+ 0.65%</b>	<b>+ (0.57%)</b>	<b>0.08%</b>

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

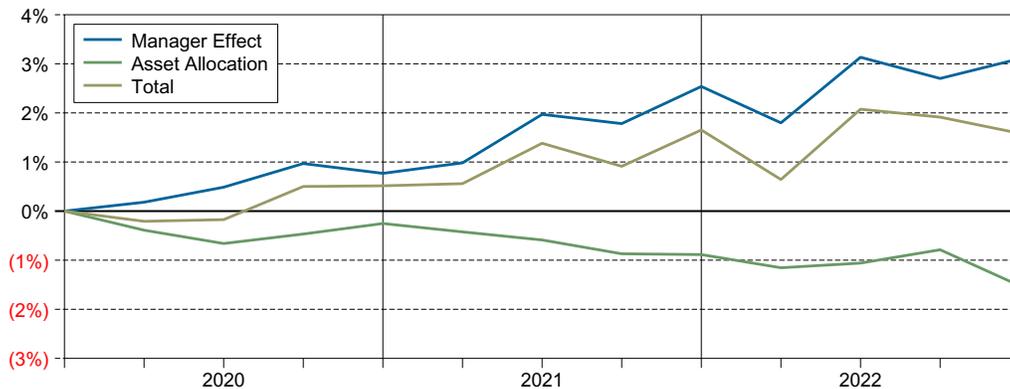
## Cumulative Total Fund Relative Attribution - December 31, 2022

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

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

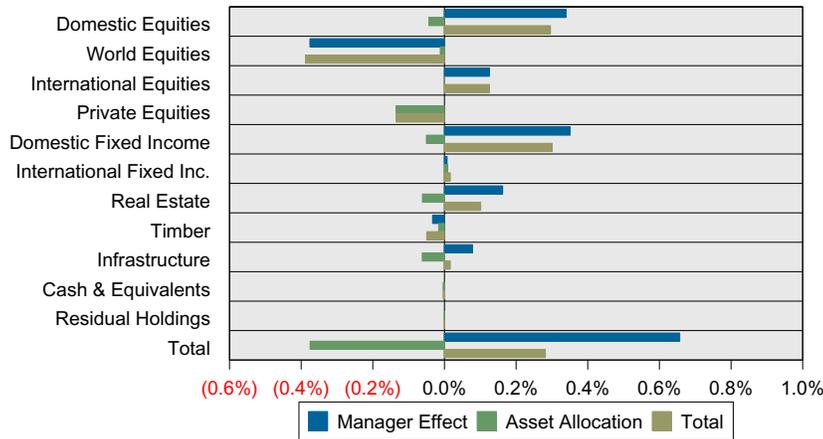
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	24%	24%	8.18%	6.56%	0.36%	(0.08%)	0.28%
World Equities	12%	11%	(1.19%)	0.67%	(0.34%)	(0.01%)	(0.35%)
International Equities	16%	16%	1.36%	0.24%	0.16%	0.06%	0.22%
Private Equities	6%	7%	20.96%	20.96%	0.00%	(0.19%)	(0.19%)
Domestic Fixed Income	23%	23%	0.00%	(1.79%)	0.46%	(0.05%)	0.41%
Real Estate	11%	11%	10.39%	8.06%	0.27%	(0.07%)	0.21%
Timber	2%	2%	1.29%	7.51%	(0.08%)	(0.02%)	(0.10%)
Infrastructure	5%	6%	9.06%	7.33%	0.10%	(0.10%)	0.00%
Cash & Equivalents	0%	0%	0.71%	0.71%	0.00%	(0.01%)	(0.01%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>5.55%</b>	<b>5.07%</b>	<b>+ 0.94%</b>	<b>+ (0.46%)</b>	<b>0.48%</b>

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

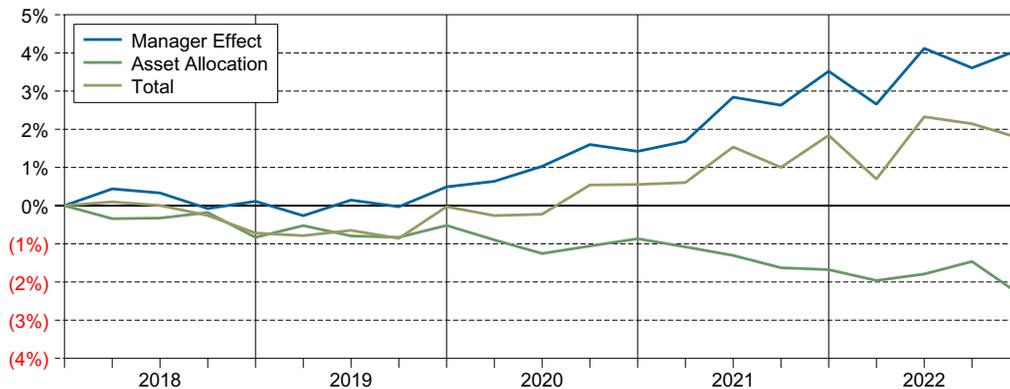
## Cumulative Total Fund Relative Attribution - December 31, 2022

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.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

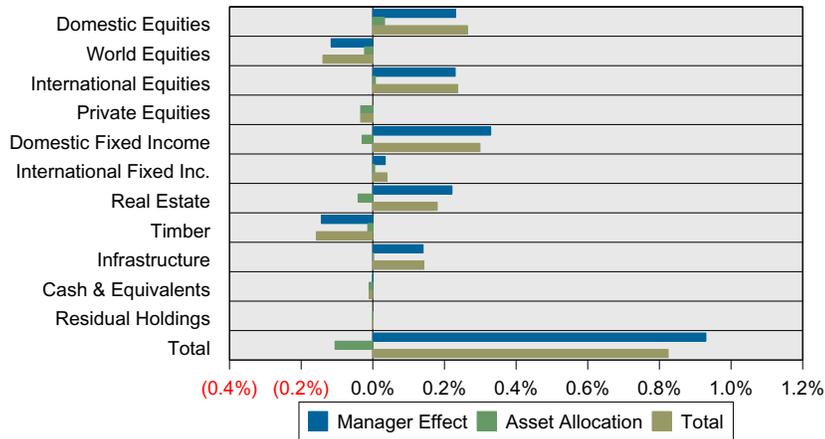
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	24%	22%	9.62%	8.10%	0.34%	(0.04%)	0.30%
World Equities	14%	13%	1.35%	3.53%	(0.38%)	(0.01%)	(0.39%)
International Equities	16%	16%	1.84%	1.00%	0.13%	0.00%	0.13%
Private Equities	5%	7%	14.85%	14.85%	0.00%	(0.13%)	(0.13%)
Domestic Fixed Income	23%	23%	2.20%	0.77%	0.35%	(0.05%)	0.30%
International Fixed Inc.	0%	0%	-	-	0.01%	0.01%	0.02%
Real Estate	11%	11%	8.81%	7.46%	0.16%	(0.06%)	0.10%
Timber	2%	2%	2.48%	5.37%	(0.03%)	(0.02%)	(0.05%)
Infrastructure	5%	6%	7.44%	6.00%	0.08%	(0.06%)	0.02%
Cash & Equivalents	0%	0%	1.26%	1.26%	0.00%	(0.00%)	(0.00%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>					<b>0.66%</b>	<b>(0.38%)</b>	<b>0.28%</b>

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

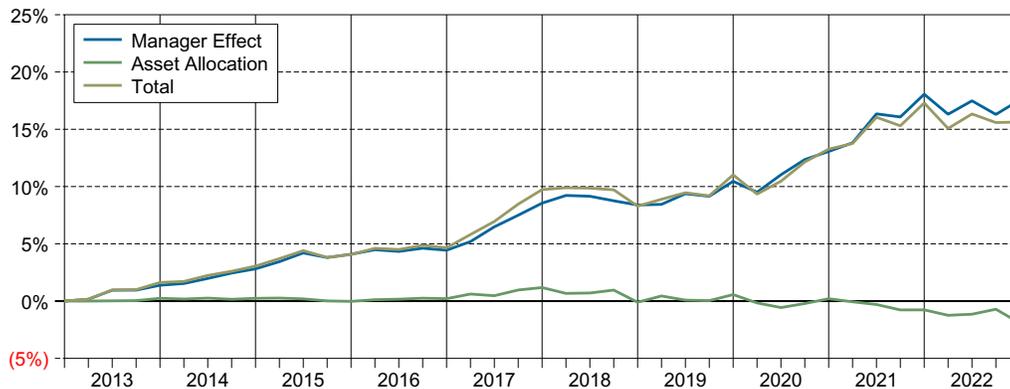
## Cumulative Total Fund Relative Attribution - December 31, 2022

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.

### Ten Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Ten Year Annualized Relative Attribution Effects

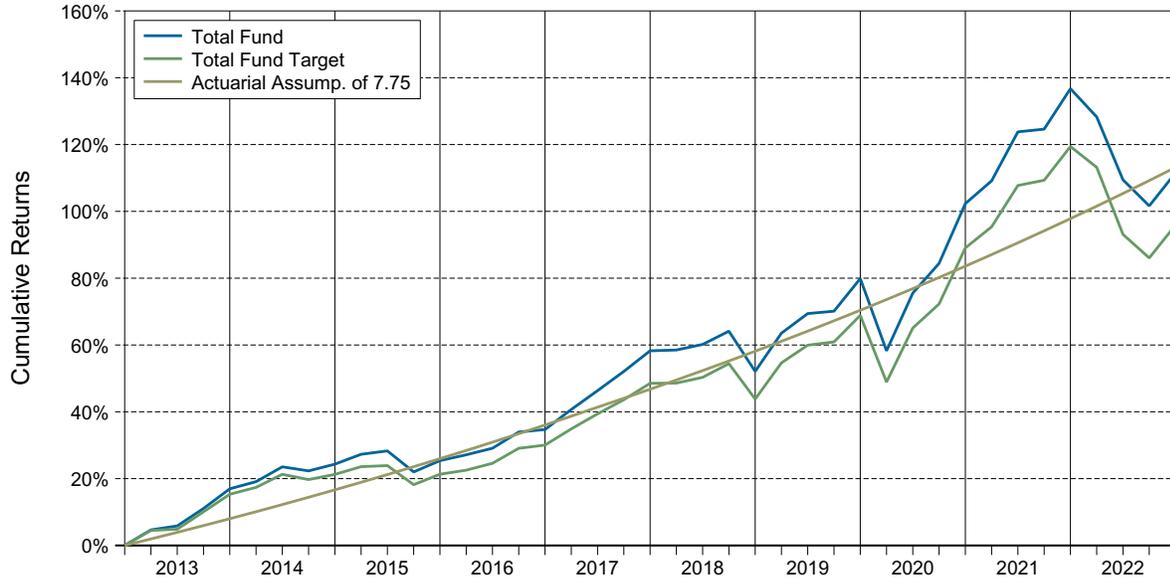
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	22%	12.76%	11.70%	0.23%	0.03%	0.26%
World Equities	15%	14%	6.75%	7.51%	(0.12%)	(0.02%)	(0.14%)
International Equities	16%	15%	5.50%	3.98%	0.23%	0.01%	0.24%
Private Equities	4%	6%	7.88%	7.88%	0.00%	(0.03%)	(0.03%)
Domestic Fixed Income	20%	20%	3.51%	1.96%	0.33%	(0.03%)	0.30%
International Fixed Inc.	3%	3%	-	-	0.03%	0.01%	0.04%
Real Estate	11%	11%	10.91%	8.82%	0.22%	(0.04%)	0.18%
Timber	3%	3%	1.06%	5.80%	(0.14%)	(0.01%)	(0.16%)
Infrastructure	5%	6%	6.77%	3.60%	0.14%	0.00%	0.14%
Cash & Equivalents	1%	0%	0.81%	0.79%	0.00%	(0.01%)	(0.01%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>7.78%</b>	<b>6.96%</b>	<b>+ 0.93%</b>	<b>+ (0.11%)</b>	<b>0.82%</b>

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

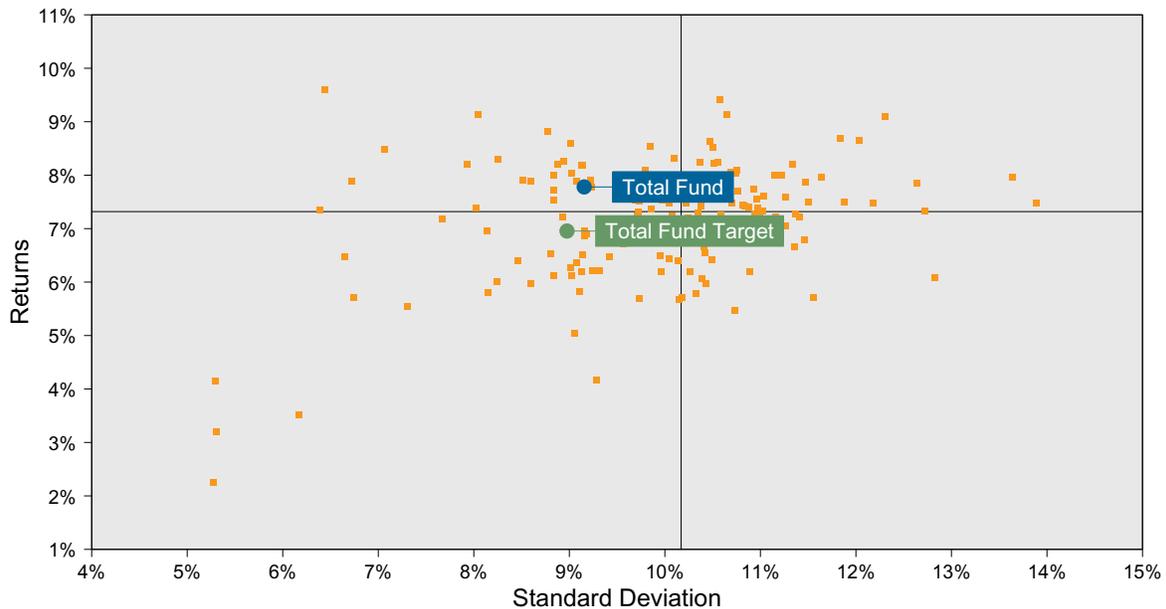
## Cumulative Performance Relative to Target

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 Sponsor Database.

### Cumulative Returns Actual vs Target



### Ten Year Annualized Risk vs Return



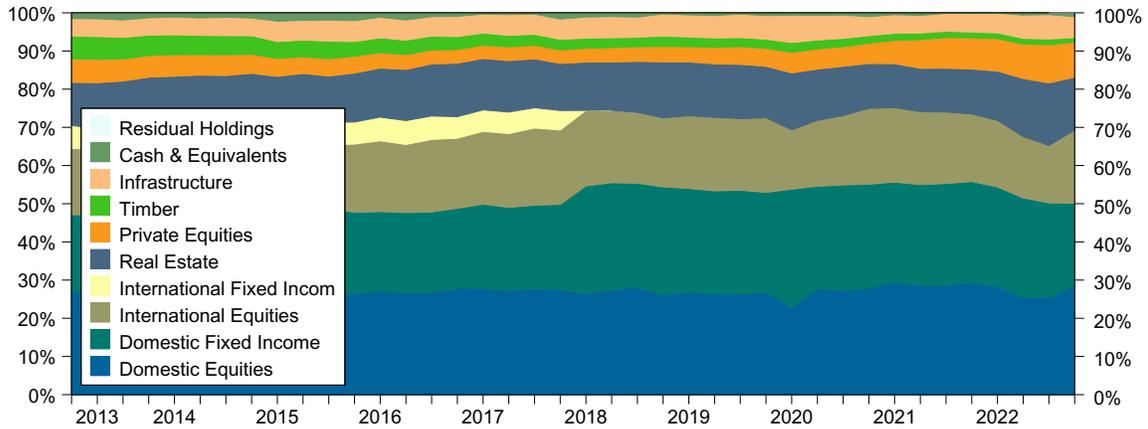
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

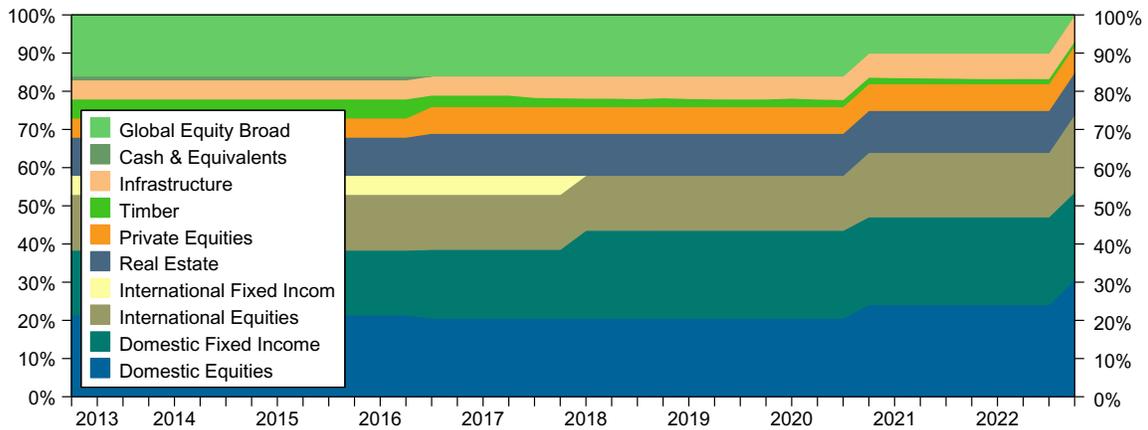
## Actual vs Target Historical Asset Allocation

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 Sponsor Database.

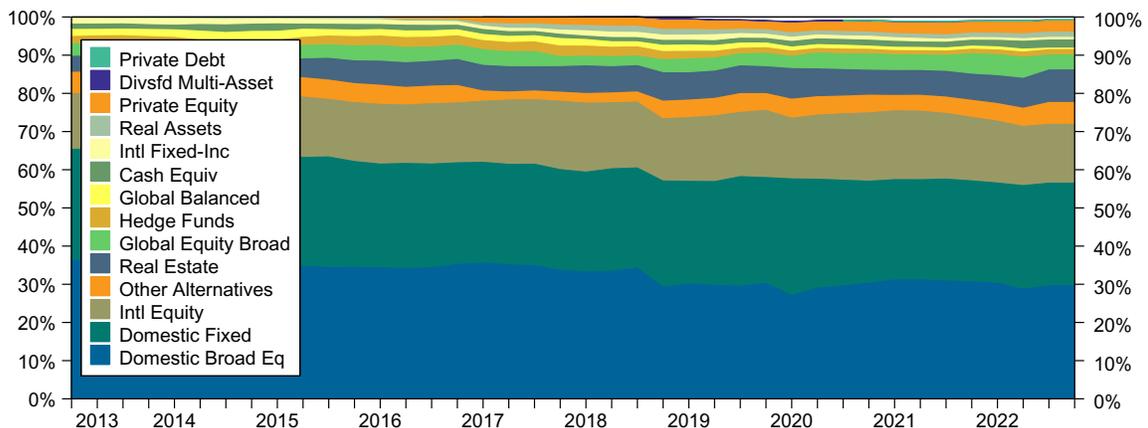
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation

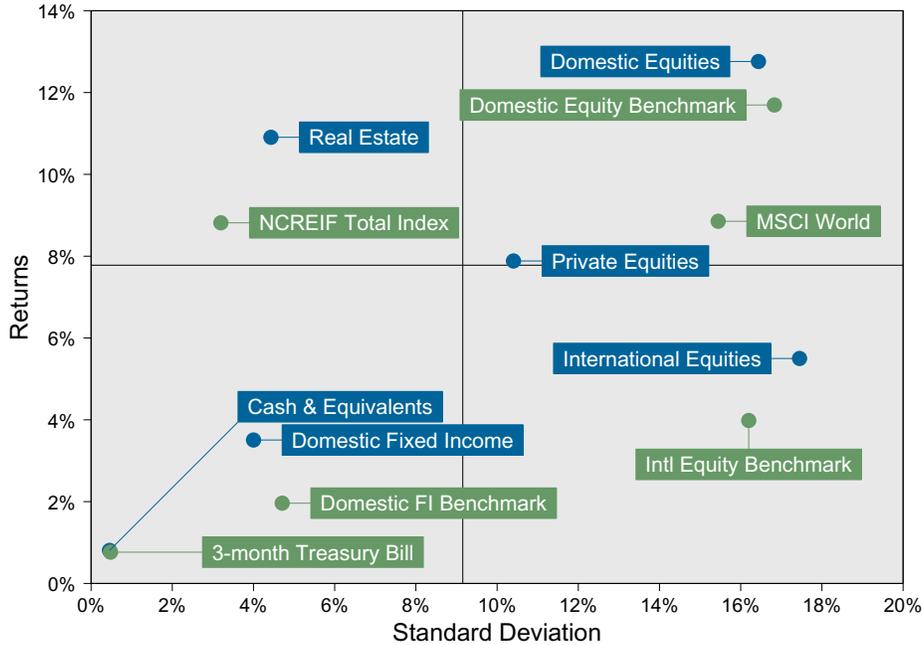


\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

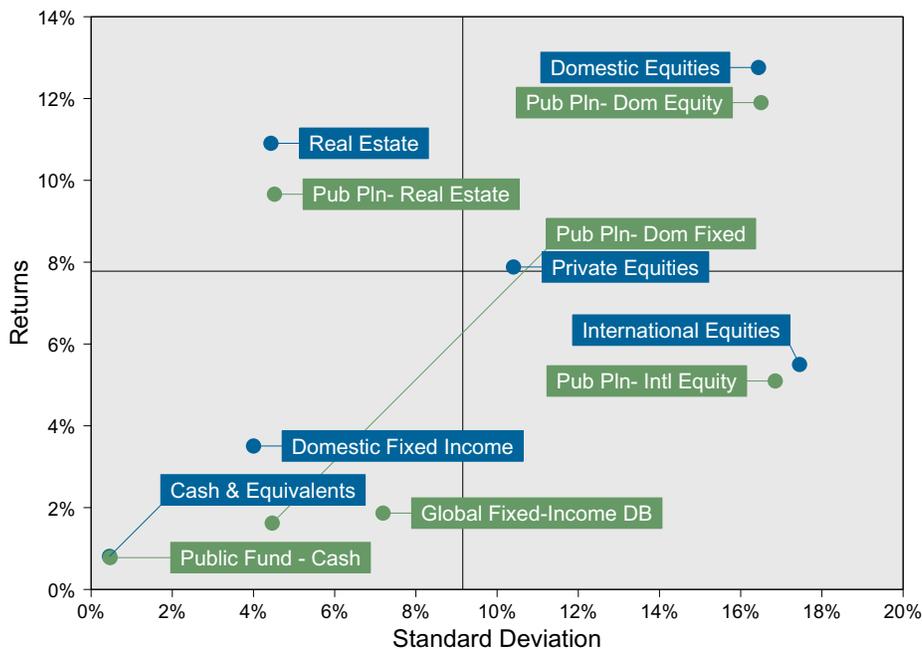
## Asset Class Risk and Return

The charts below show the ten 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.

**Ten Year Annualized Risk vs Return  
Asset Classes vs Benchmark Indices**



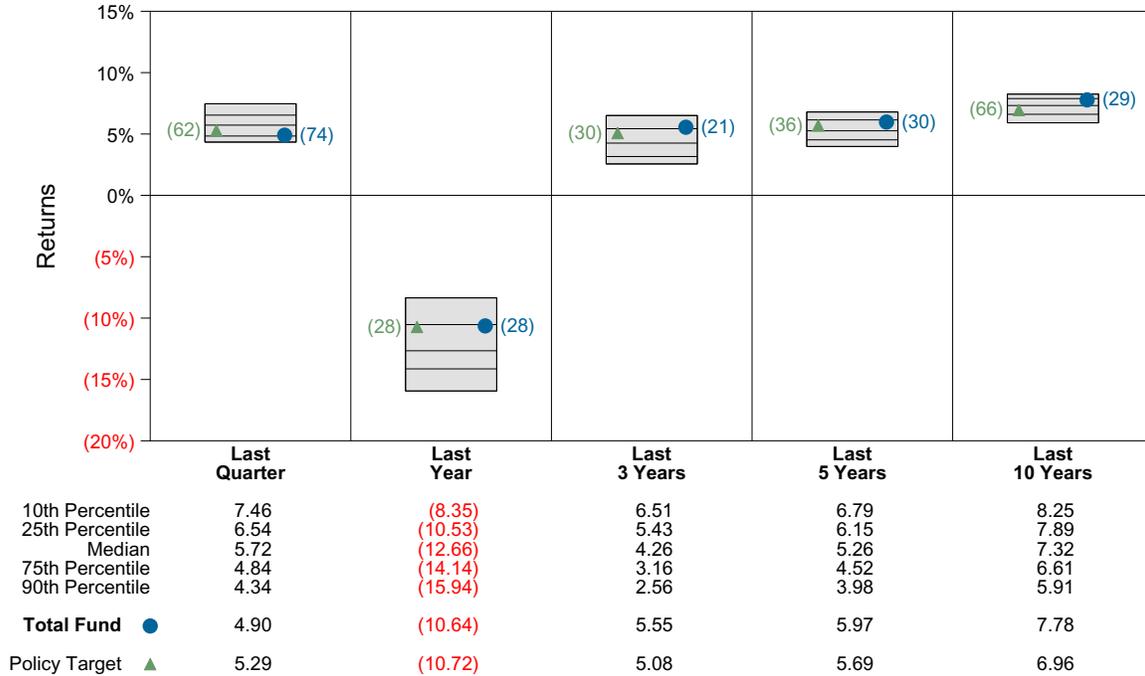
**Ten Year Annualized Risk vs Return  
Asset Classes vs Asset Class Median**



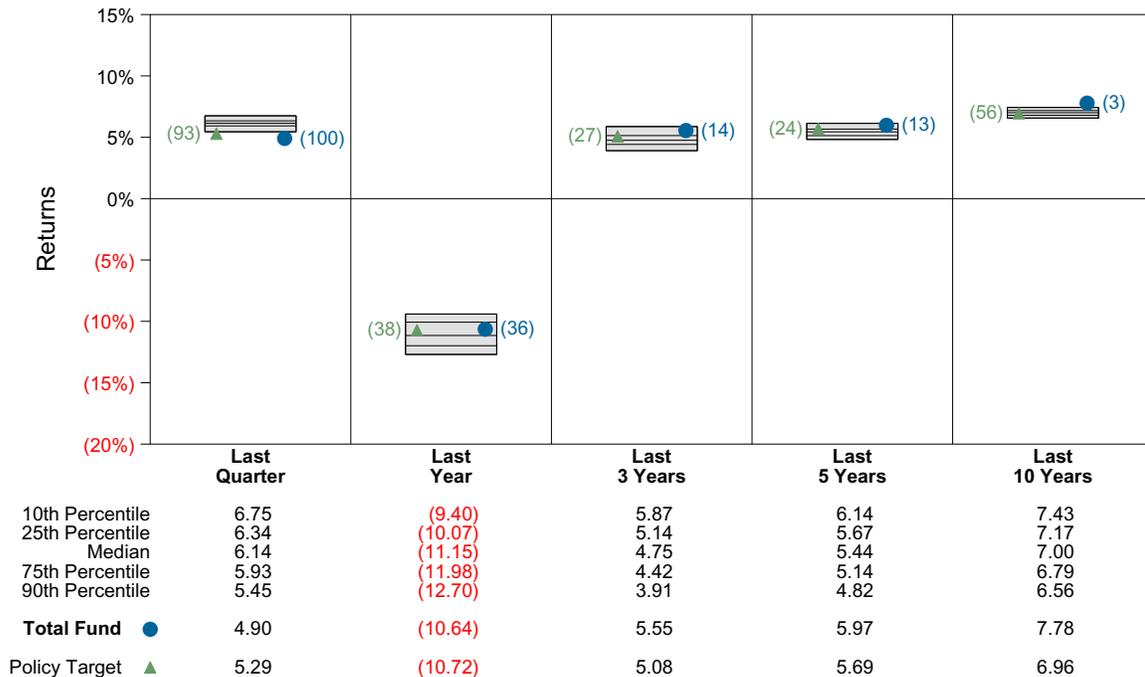
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2022. 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.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

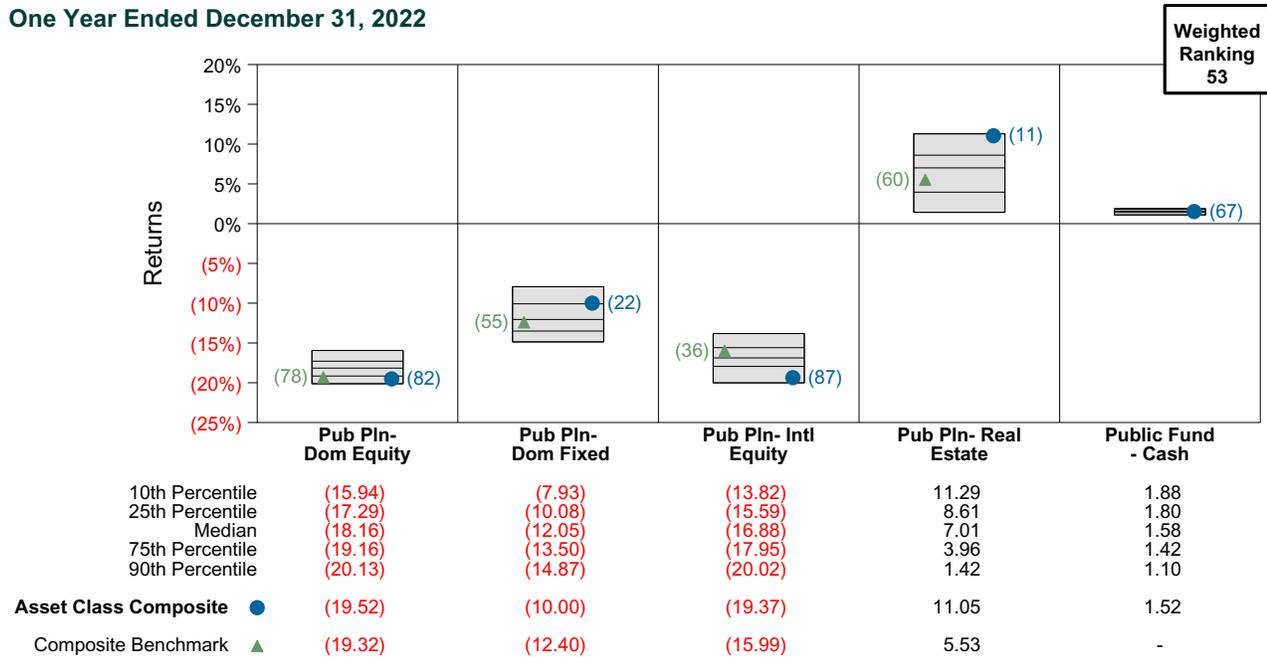


\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

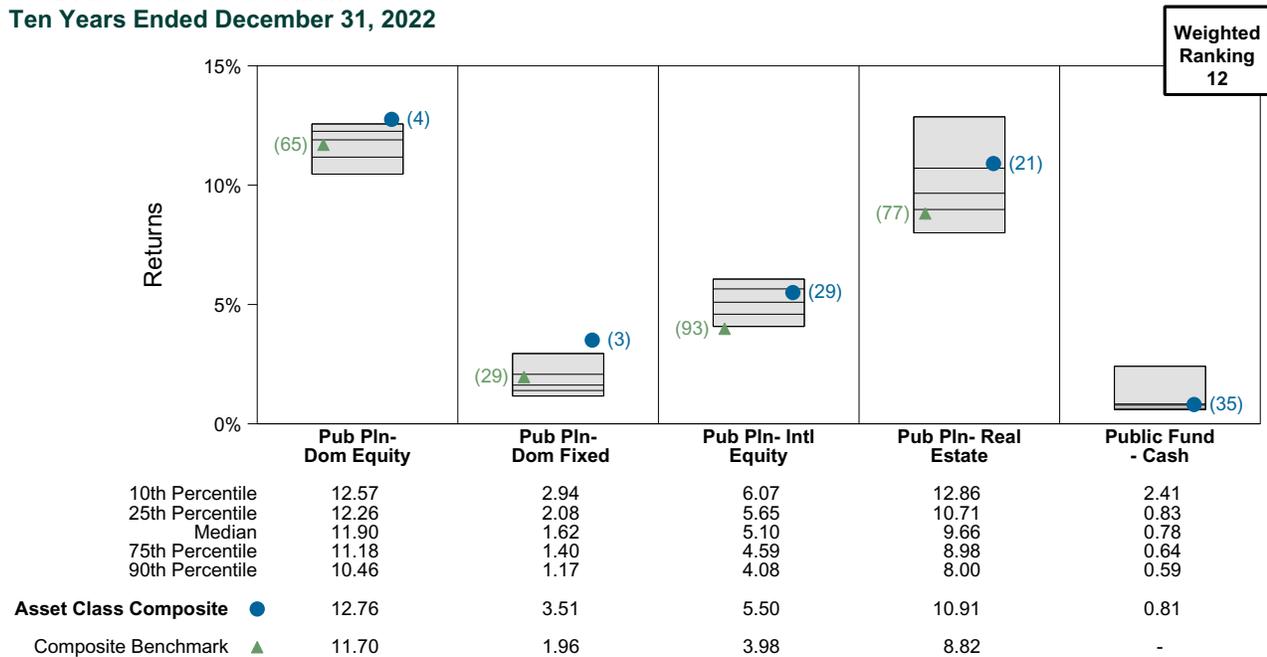
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2022



### Total Asset Class Performance Ten Years Ended December 31, 2022



\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IMI, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.

## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2022, with the distribution as of September 30, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Class Allocation

	December 31, 2022			Inv. Return	September 30, 2022	
	Market Value	Weight	Net New Inv.		Market Value	Weight
<b>Global Equities</b>	<b>\$2,104,199,177</b>	<b>57.00%</b>	<b>\$(21,498,611)</b>	<b>\$170,948,326</b>	<b>\$1,954,749,463</b>	<b>55.23%</b>
<b>Public Equities</b>	<b>\$1,764,315,559</b>	<b>47.80%</b>	<b>\$(35,666,720)</b>	<b>\$166,076,787</b>	<b>\$1,633,905,492</b>	<b>46.16%</b>
<b>World Equities</b>	<b>\$40,104</b>	<b>0.00%</b>	<b>\$(348,145,613)</b>	<b>\$9,180,859</b>	<b>\$339,004,858</b>	<b>9.58%</b>
<b>Total Domestic Equity</b>	<b>\$1,059,193,772</b>	<b>28.69%</b>	<b>\$180,304,701</b>	<b>\$66,049,460</b>	<b>\$812,839,612</b>	<b>22.96%</b>
Large Cap	899,787,983	24.38%	198,548,816	53,856,468	647,382,699	18.29%
Small Cap	159,405,789	4.32%	(18,244,115)	12,192,992	165,456,912	4.67%
<b>Total International Equity</b>	<b>\$705,081,682</b>	<b>19.10%</b>	<b>\$132,174,192</b>	<b>\$90,846,468</b>	<b>\$482,061,022</b>	<b>13.62%</b>
International All Cap	268,592,067	7.28%	(8,378,281)	37,410,867	239,559,480	6.77%
Developed Intl Large Cap	267,493,423	7.25%	173,081,999	36,550,238	57,861,186	1.63%
Developed Intl Small Cap	47,631,960	1.29%	(39,319,697)	8,048,726	78,902,931	2.23%
Emerging Markets	121,364,232	3.29%	6,790,172	8,836,635	105,737,426	2.99%
<b>Private Equities</b>	<b>\$339,883,618</b>	<b>9.21%</b>	<b>\$14,168,109</b>	<b>\$4,871,539</b>	<b>\$320,843,971</b>	<b>9.06%</b>
<b>Global Fixed Income</b>	<b>\$791,360,160</b>	<b>21.44%</b>	<b>\$(16,322,234)</b>	<b>\$13,916,862</b>	<b>\$793,765,531</b>	<b>22.43%</b>
<b>Domestic Fixed Income</b>	<b>\$791,360,160</b>	<b>21.44%</b>	<b>\$(16,322,234)</b>	<b>\$13,916,862</b>	<b>\$793,765,531</b>	<b>22.43%</b>
Investment Grade	551,594,776	14.94%	1,192,351	8,383,164	542,019,262	15.31%
Below Investment Grade	239,765,384	6.50%	(17,514,585)	5,533,699	251,746,270	7.11%
<b>Global Real Assets</b>	<b>\$759,360,952</b>	<b>20.57%</b>	<b>\$(5,504,852)</b>	<b>\$(11,247,288)</b>	<b>\$776,113,093</b>	<b>21.93%</b>
<b>Real Estate</b>	<b>\$512,686,933</b>	<b>13.89%</b>	<b>\$(2,591,942)</b>	<b>\$(8,467,388)</b>	<b>\$523,746,262</b>	<b>14.80%</b>
<b>Other Real Assets</b>	<b>\$246,674,020</b>	<b>6.68%</b>	<b>\$(2,912,911)</b>	<b>\$(2,779,901)</b>	<b>\$252,366,831</b>	<b>7.13%</b>
Infrastructure	203,245,464	5.51%	(2,105,828)	649,001	204,702,292	5.78%
Timber	43,428,556	1.18%	(807,082)	(3,428,901)	47,664,539	1.35%
<b>Cash</b>	<b>\$35,981,417</b>	<b>0.97%</b>	<b>\$21,039,659</b>	<b>\$87,827</b>	<b>\$14,853,931</b>	<b>0.42%</b>
<b>Residual Holdings</b>	<b>\$364,959</b>	<b>0.01%</b>	<b>\$360,478</b>	<b>\$4,481</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$3,691,266,665</b>	<b>100.0%</b>	<b>\$(21,925,560)</b>	<b>\$173,710,207</b>	<b>\$3,539,482,017</b>	<b>100.0%</b>

PLEASE REFER TO PAGES 29-30 FOR INVESTMENT MANAGER LEVEL ASSET ALLOCATION.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Equities</b>					
Gross	8.70%	(16.33%)	6.30%	6.58%	9.37%
Net	8.61%	(16.57%)	6.03%	6.33%	9.08%
Weighted Benchmark	8.96%	(15.73%)	6.44%	6.84%	8.82%
<b>Public Equities</b>					
Gross	10.09%	(18.58%)	4.55%	-	-
Net	9.98%	(18.84%)	4.25%	-	-
Weighted Benchmark	9.98%	(17.89%)	4.22%	-	-
<b>Total Domestic Equity</b>					
Gross	7.65%	(19.52%)	8.18%	9.62%	12.76%
Net	7.61%	(19.76%)	7.95%	9.40%	12.55%
Weighted Benchmark	7.10%	(19.32%)	6.56%	8.10%	11.70%
<b>Large Cap Equity</b>					
Gross	7.79%	(20.22%)	9.57%	10.75%	13.63%
Net	7.77%	(20.40%)	9.41%	10.61%	13.48%
Benchmark(1)	7.24%	(19.13%)	7.35%	9.13%	12.37%
<b>Small Cap Equity</b>					
Gross	7.64%	(16.20%)	3.29%	5.75%	9.72%
Net	7.45%	(16.77%)	2.66%	5.22%	9.28%
Russell 2000 Index	6.23%	(20.44%)	3.10%	4.13%	9.01%
<b>Total International Equity</b>					
Gross	14.36%	(19.37%)	1.36%	1.84%	5.50%
Net	14.27%	(19.59%)	1.06%	1.59%	5.26%
MSCI ACWI xUS IMI(2)	14.15%	(15.99%)	0.24%	1.00%	3.98%
<b>International All Cap</b>					
Gross	14.57%	-	-	-	-
Net	14.42%	-	-	-	-
MSCI ACWI xUS IMI	14.15%	(16.58%)	0.20%	0.85%	3.98%
<b>Developed Intl Large Cap</b>					
Gross	18.09%	-	-	-	-
Net	18.09%	-	-	-	-
MSCI World xUS	16.18%	(14.29%)	1.27%	1.79%	4.59%
<b>Developed Intl Small Cap</b>					
Gross	18.41%	-	-	-	-
Net	18.23%	-	-	-	-
MSCI World xUS Small	15.21%	(20.59%)	(0.15%)	0.45%	5.77%
<b>Emerging Markets</b>					
Gross	7.45%	(26.46%)	(2.11%)	(0.93%)	2.45%
Net	7.36%	(26.71%)	(2.64%)	(1.25%)	2.21%
Benchmark(4)	9.70%	(20.09%)	(2.69%)	(1.39%)	1.44%
<b>Private Equities</b>					
Net	1.54%	0.27%	20.96%	14.85%	7.87%

(1) S&P 500 Index through 12/31/2011 and the Russell 1000 Index thereafter.

(2) Prior to 10/1/2022, the benchmark is calculated based on the approved investment policy asset allocation target.

(3) 50% Hedged EAFE through 3/31/2011, MSCI EAFE through 6/30/2016; MSCI World ex-US thereafter.

(4) MSCI Emerging Mkts Idx (Gross) through 6/30/2011 and MSCI Emerging Mkts Idx Net thereafter.

PLEASE REFER TO PAGES 31-35 FOR INVESTMENT MANAGER LEVEL RETURNS.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Fixed Income</b>					
Gross	1.78%	(10.00%)	0.00%	2.34%	3.17%
Net	1.75%	(10.12%)	(0.13%)	2.20%	2.97%
Weighted Benchmark	2.58%	(12.40%)	(1.79%)	0.93%	1.68%
<b>Domestic Fixed Income</b>					
Gross	1.78%	(10.00%)	0.00%	2.20%	3.51%
Net	1.75%	(10.12%)	(0.13%)	2.06%	3.33%
Weighted Benchmark	2.58%	(12.40%)	(1.79%)	0.77%	1.96%
<b>Inv. Grade Fixed Income</b>					
Gross	1.56%	(13.88%)	(2.03%)	0.81%	2.37%
Net	1.53%	(13.99%)	(2.14%)	0.70%	2.26%
Blmbg Aggregate Index	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
<b>Below Inv. Grade Fixed Income</b>					
Gross	2.24%	(0.06%)	4.87%	5.44%	6.17%
Net	2.20%	(0.21%)	4.69%	5.23%	5.84%
Blmbg HY Corp 2% Issue	4.17%	(11.18%)	0.03%	2.30%	4.03%
<b>Global Real Assets</b>					
Gross	(1.45%)	9.03%	9.33%	7.90%	8.24%
Net	(1.49%)	8.66%	8.88%	7.47%	7.81%
Weighted Benchmark	(2.63%)	(12.06%)	0.98%	2.68%	4.80%
<b>Real Estate</b>					
Gross	(1.62%)	11.05%	10.39%	8.81%	10.91%
Net	(1.65%)	10.60%	9.83%	8.29%	10.37%
NCREIF Total Index	(3.50%)	5.53%	8.06%	7.46%	8.82%
<b>Other Real Assets</b>					
Gross	(1.12%)	5.20%	7.17%	-	-
Net	(1.17%)	5.02%	6.91%	-	-
Weighted Benchmark	(1.42%)	8.59%	7.29%	-	-
<b>Infrastructure</b>					
Gross	0.30%	6.66%	9.06%	7.44%	6.77%
Net	0.24%	6.43%	8.71%	7.04%	6.28%
Benchmark(1)	(2.48%)	7.91%	7.33%	6.00%	3.60%
<b>Timber</b>					
Net	(7.30%)	(1.53%)	1.29%	2.48%	1.06%
NCREIF Timberland Index	4.89%	12.90%	7.51%	5.37%	5.80%
<b>Cash &amp; Equivalents - Net</b>					
3-month Treasury Bill	0.77%	1.52%	0.71%	1.26%	0.81%
	0.84%	1.46%	0.72%	1.26%	0.76%
<b>Total Fund</b>					
Gross	4.90%	(10.64%)	5.55%	5.97%	7.78%
Net	4.84%	(10.87%)	5.28%	5.72%	7.49%
Target*	5.29%	(10.72%)	5.08%	5.69%	6.96%

\* Current Quarter Target = 26.0% Russell 1000 Index, 20.4% MSCI ACWI xUS IML, 16.0% Blmbg Aggregate, 11.0% NCREIF Total Index, 7.0% Blmbg HY Corp 2% Iss Cap, 7.0% Private Equity, 4.6% Russell 2000 Index, 3.4% NCREIF NFI-ODCE Eq Wt Net, 3.4% CPI All Urban Cons lagged 3 months and 1.2% NCREIF Timberland Index.  
(1) CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.

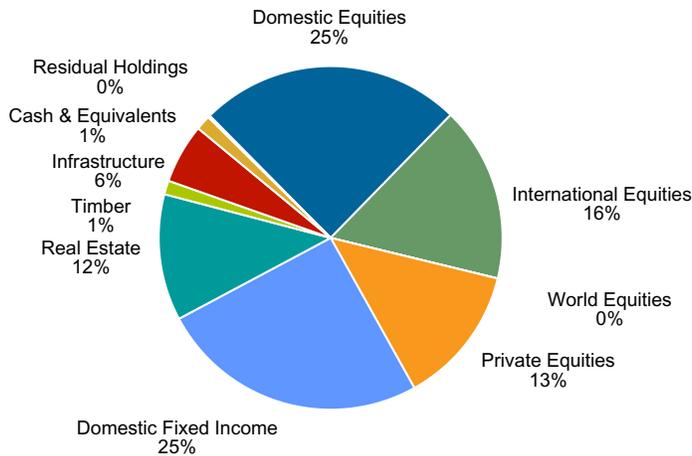
PLEASE REFER TO PAGES 31-35 FOR INVESTMENT MANAGER LEVEL RETURNS.



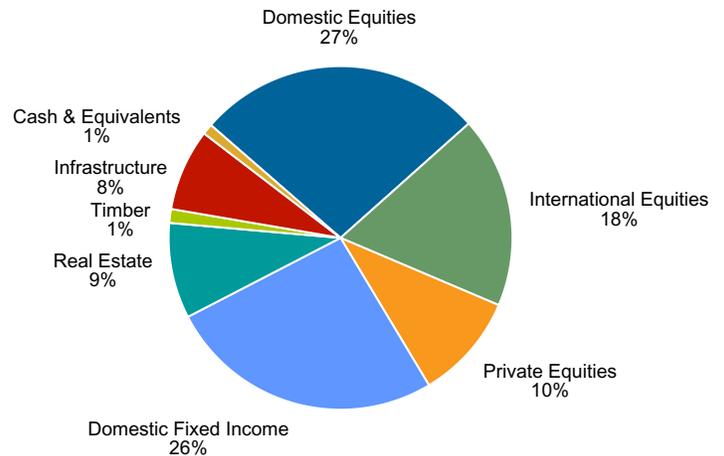
## Actual vs Target Asset Allocation As of December 31, 2022

The top left chart shows the Fund's asset allocation as of December 31, 2022. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.

### Actual Asset Allocation

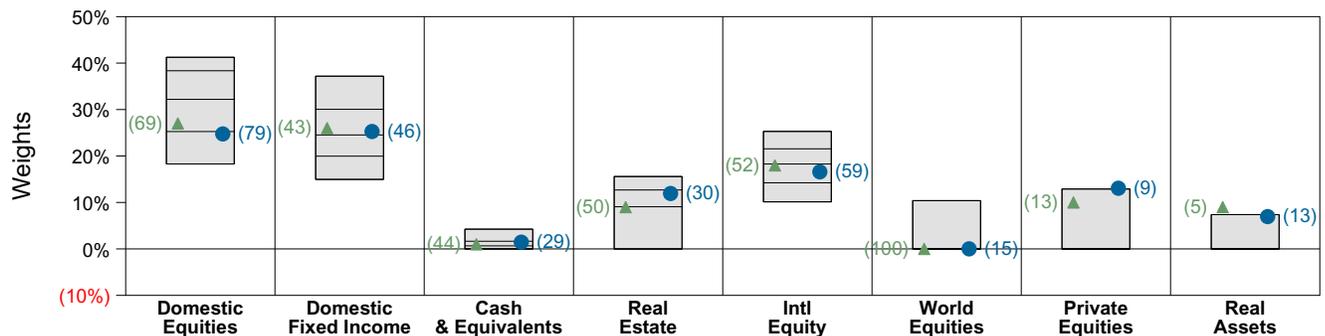


### Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equities	730,651	24.7%	27.0%	(2.3%)	(66,968)
International Equities	486,287	16.5%	18.0%	(1.5%)	(44,631)
World Equities	365	0.0%	0.0%	0.0%	365
Private Equities	385,564	13.1%	10.0%	3.1%	90,333
Domestic Fixed Income	745,933	25.3%	26.0%	(0.7%)	(21,666)
Real Estate	352,250	11.9%	9.0%	2.9%	86,543
Timber	38,766	1.3%	1.3%	0.0%	0
Infrastructure	166,438	5.6%	7.7%	(2.0%)	(60,504)
Cash & Equivalents	42,731	1.4%	1.0%	0.4%	13,208
Residual Holdings	3,319	0.1%	0.0%	0.1%	3,319
Total	2,952,305	100.0%	100.0%		

### Asset Class Weights vs Callan Public Fund Sponsor Database



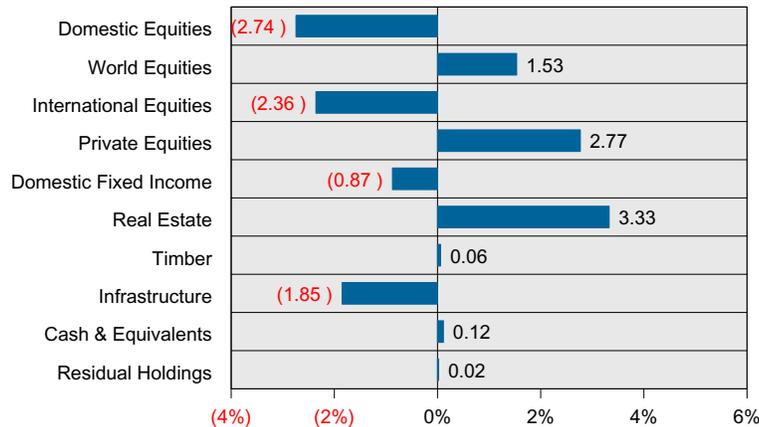
10th Percentile	41.25	37.18	4.25	15.58	25.30	10.39	12.90	7.38
25th Percentile	38.35	30.05	1.65	12.69	21.55	0.00	0.00	0.00
Median	32.20	24.53	0.66	9.07	18.28	0.00	0.00	0.00
75th Percentile	25.26	19.97	0.01	0.00	14.23	0.00	0.00	0.00
90th Percentile	18.29	14.96	0.00	0.00	10.13	0.00	0.00	0.00
<b>Fund</b>	● 24.75	25.27	1.45	11.93	16.58	0.01	13.06	6.95
<b>Target</b>	▲ 27.02	26.00	1.00	9.00	17.98	0.00	10.00	9.00
% Group Invested	93.90%	98.78%	76.83%	73.17%	91.46%	15.85%	21.95%	21.95%

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

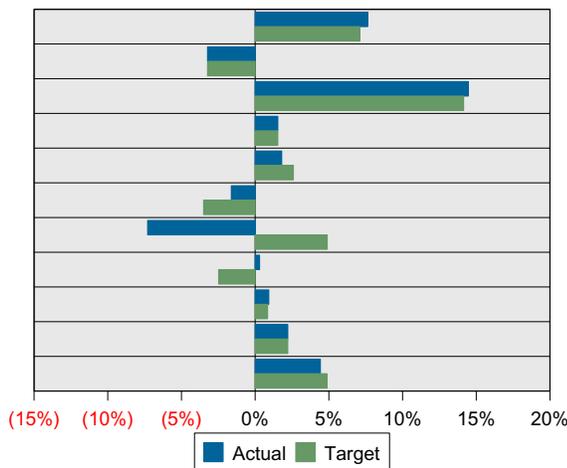
## Quarterly Total Fund Relative Attribution - December 31, 2022

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

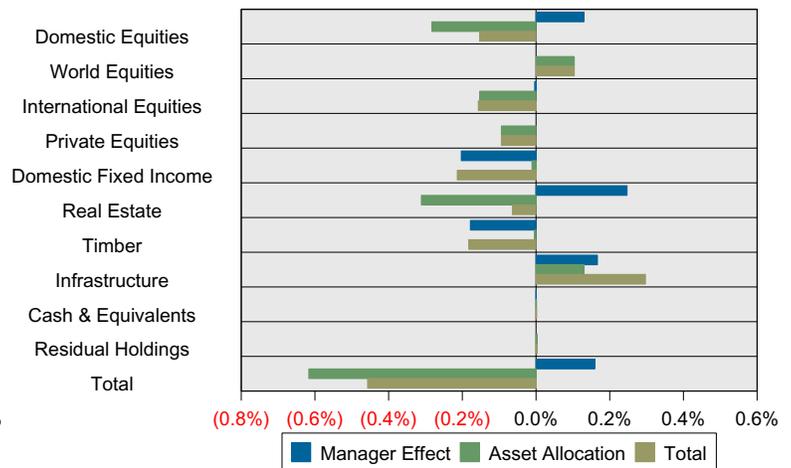
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2022

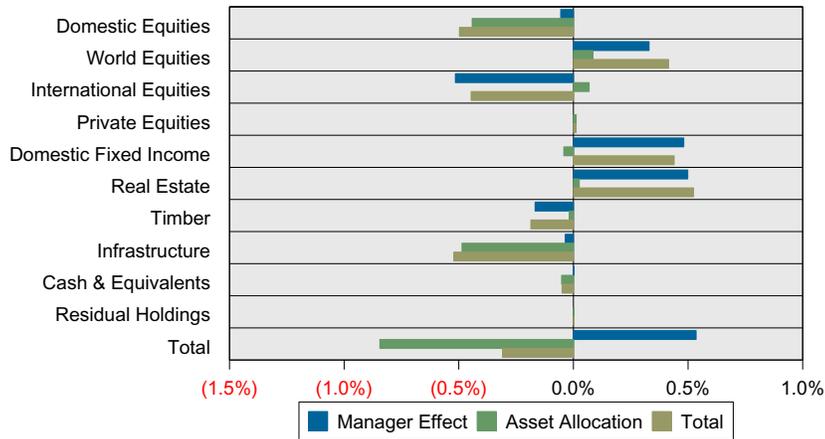
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	25%	27%	7.64%	7.10%	0.13%	(0.28%)	(0.15%)
World Equities	2%	0%	(3.24%)	(3.24%)	0.00%	0.10%	0.10%
International Equities	15%	18%	14.47%	14.15%	(0.00%)	(0.15%)	(0.16%)
Private Equities	13%	10%	1.54%	1.54%	0.00%	(0.09%)	(0.09%)
Domestic Fixed Income	25%	26%	1.80%	2.59%	(0.20%)	(0.01%)	(0.21%)
Real Estate	12%	9%	(1.62%)	(3.50%)	0.25%	(0.31%)	(0.06%)
Timber	1%	1%	(7.30%)	4.89%	(0.18%)	(0.00%)	(0.18%)
Infrastructure	6%	8%	0.30%	(2.48%)	0.17%	0.13%	0.30%
Cash & Equivalents	1%	1%	0.92%	0.84%	0.00%	0.00%	0.00%
Residual Holdings	0%	0%	2.21%	2.21%	0.00%	0.00%	0.00%
<b>Total</b>					<b>4.43%</b>	<b>0.16%</b>	<b>(0.46%)</b>

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

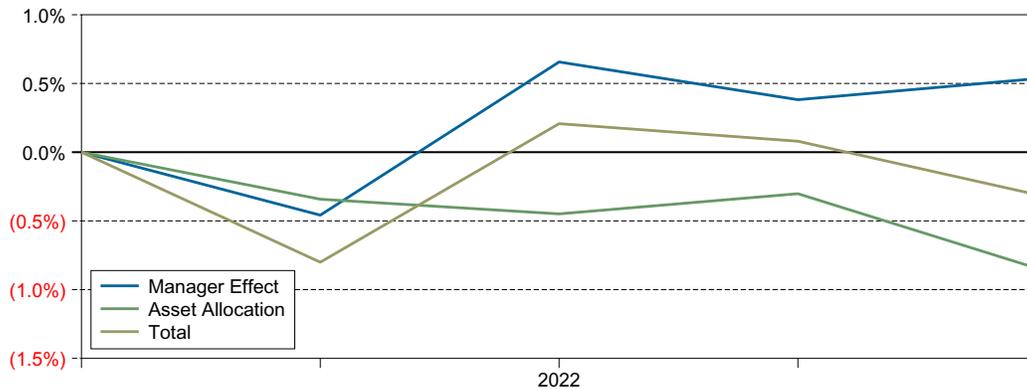
## Cumulative Total Fund Relative Attribution - December 31, 2022

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

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

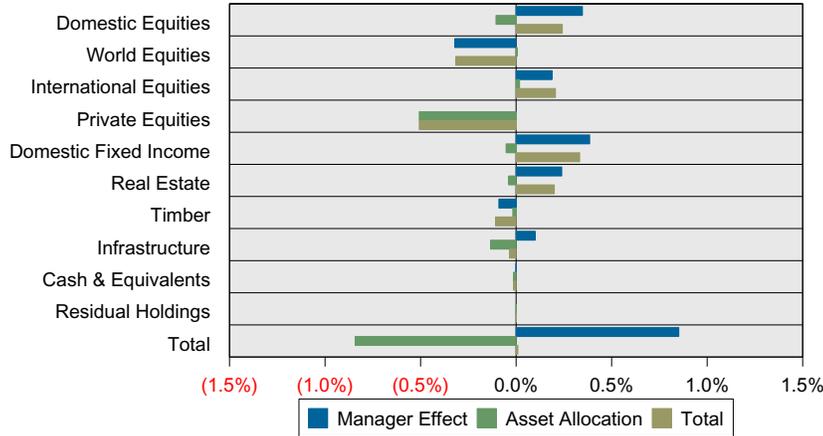
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	23%	(19.52%)	(19.32%)	(0.06%)	(0.44%)	(0.50%)
World Equities	8%	7%	(25.07%)	(27.84%)	0.33%	0.09%	0.42%
International Equities	13%	15%	(19.29%)	(15.99%)	(0.51%)	0.07%	(0.45%)
Private Equities	11%	10%	0.27%	0.27%	0.00%	0.01%	0.01%
Domestic Fixed Income	26%	26%	(10.67%)	(12.39%)	0.48%	(0.04%)	0.44%
Real Estate	11%	9%	11.05%	5.53%	0.50%	0.03%	0.52%
Timber	1%	1%	(1.53%)	12.90%	(0.17%)	(0.02%)	(0.19%)
Infrastructure	5%	8%	6.67%	7.91%	(0.04%)	(0.49%)	(0.52%)
Cash & Equivalents	1%	1%	1.68%	1.46%	0.00%	(0.05%)	(0.05%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>(10.32%)</b>	<b>(10.01%)</b>	<b>+ 0.54%</b>	<b>+ (0.84%)</b>	<b>(0.31%)</b>

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

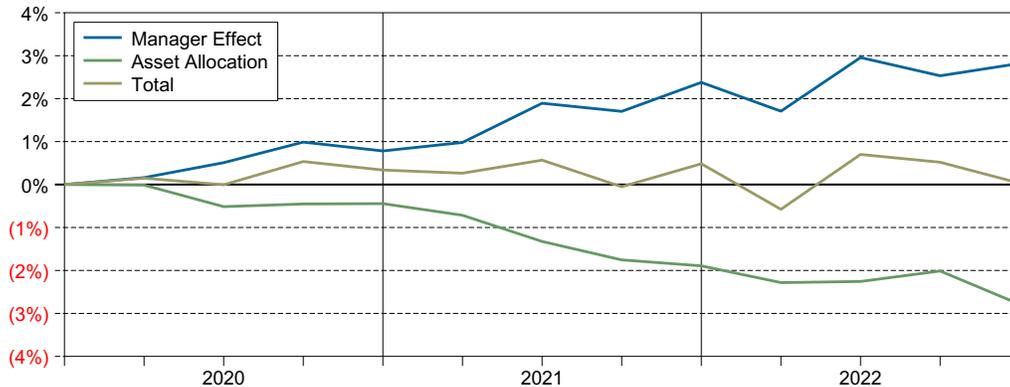
## Cumulative Total Fund Relative Attribution - December 31, 2022

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

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

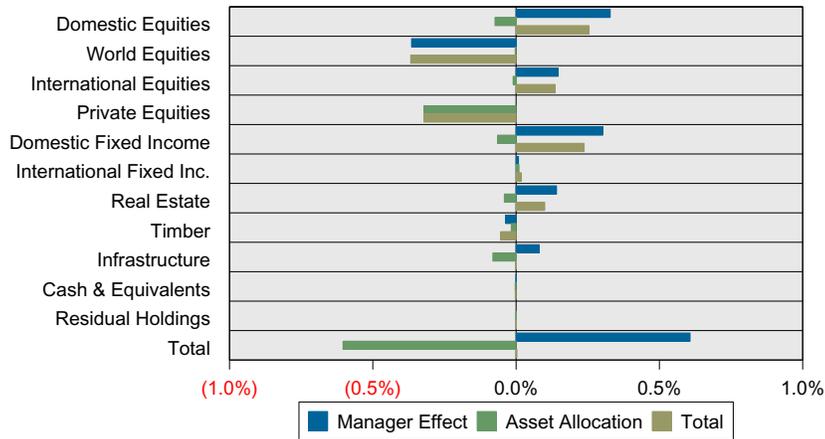
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	22%	8.20%	6.57%	0.35%	(0.11%)	0.24%
World Equities	11%	11%	(1.23%)	0.62%	(0.32%)	0.01%	(0.32%)
International Equities	14%	14%	1.32%	0.12%	0.19%	0.02%	0.21%
Private Equities	8%	9%	20.96%	20.96%	0.00%	(0.51%)	(0.51%)
Domestic Fixed Income	26%	25%	(0.43%)	(1.78%)	0.39%	(0.05%)	0.33%
Real Estate	10%	9%	10.38%	8.06%	0.24%	(0.04%)	0.20%
Timber	2%	2%	1.29%	7.51%	(0.09%)	(0.02%)	(0.11%)
Infrastructure	5%	7%	9.06%	7.33%	0.10%	(0.13%)	(0.03%)
Cash & Equivalents	1%	1%	0.76%	0.72%	0.00%	(0.01%)	(0.01%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>5.48%</b>	<b>5.47%</b>	<b>+ 0.85%</b>	<b>+ (0.84%)</b>	<b>0.01%</b>

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

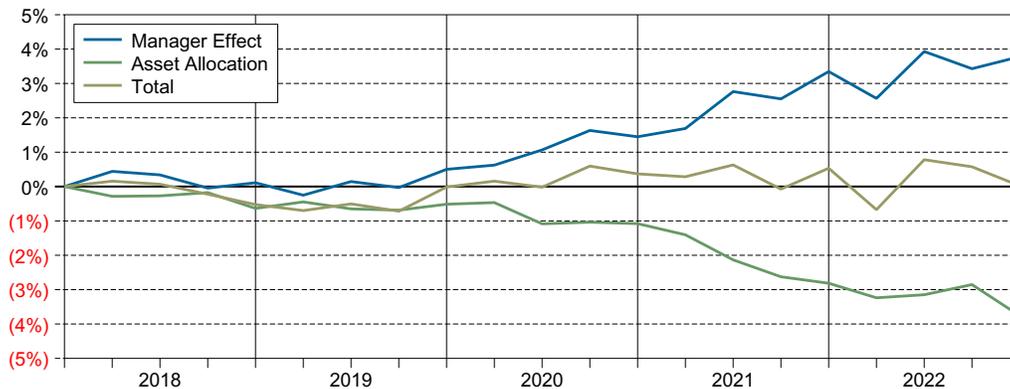
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### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

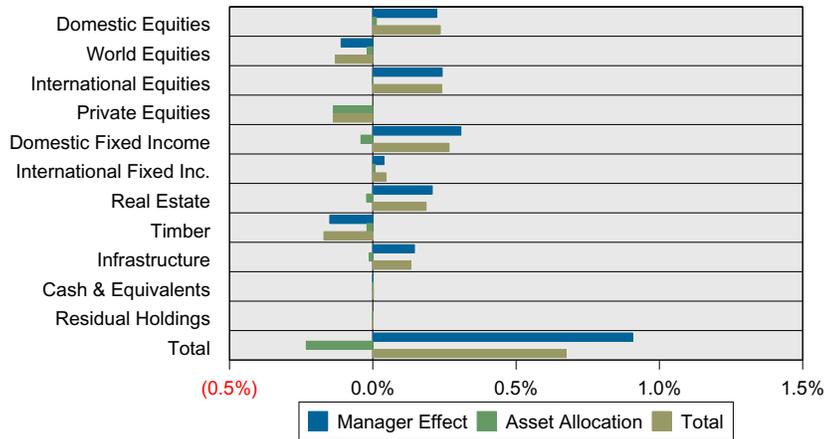
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	22%	9.64%	8.12%	0.33%	(0.07%)	0.25%
World Equities	13%	13%	1.33%	3.50%	(0.36%)	(0.00%)	(0.37%)
International Equities	15%	15%	1.86%	0.96%	0.15%	(0.01%)	0.14%
Private Equities	6%	8%	14.85%	14.85%	0.00%	(0.32%)	(0.32%)
Domestic Fixed Income	25%	24%	1.90%	0.76%	0.30%	(0.06%)	0.24%
International Fixed Inc.	0%	0%	-	-	0.01%	0.01%	0.02%
Real Estate	10%	10%	8.81%	7.46%	0.14%	(0.04%)	0.10%
Timber	2%	2%	2.48%	5.37%	(0.04%)	(0.02%)	(0.05%)
Infrastructure	5%	6%	7.44%	6.00%	0.08%	(0.08%)	(0.00%)
Cash & Equivalents	1%	1%	1.29%	1.26%	0.00%	(0.00%)	(0.00%)
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>			<b>5.94%</b>	<b>5.93%</b>	<b>+ 0.61%</b>	<b>+ (0.60%)</b>	<b>0.00%</b>

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

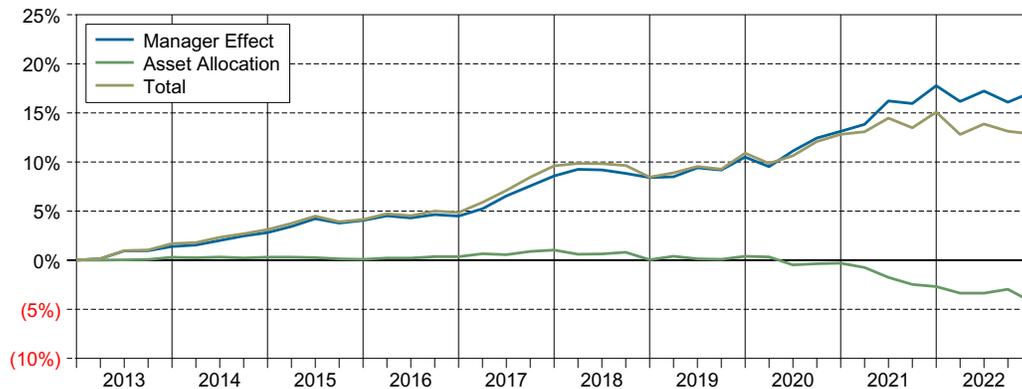
## Cumulative Total Fund Relative Attribution - December 31, 2022

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.

### Ten Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Ten Year Annualized Relative Attribution Effects

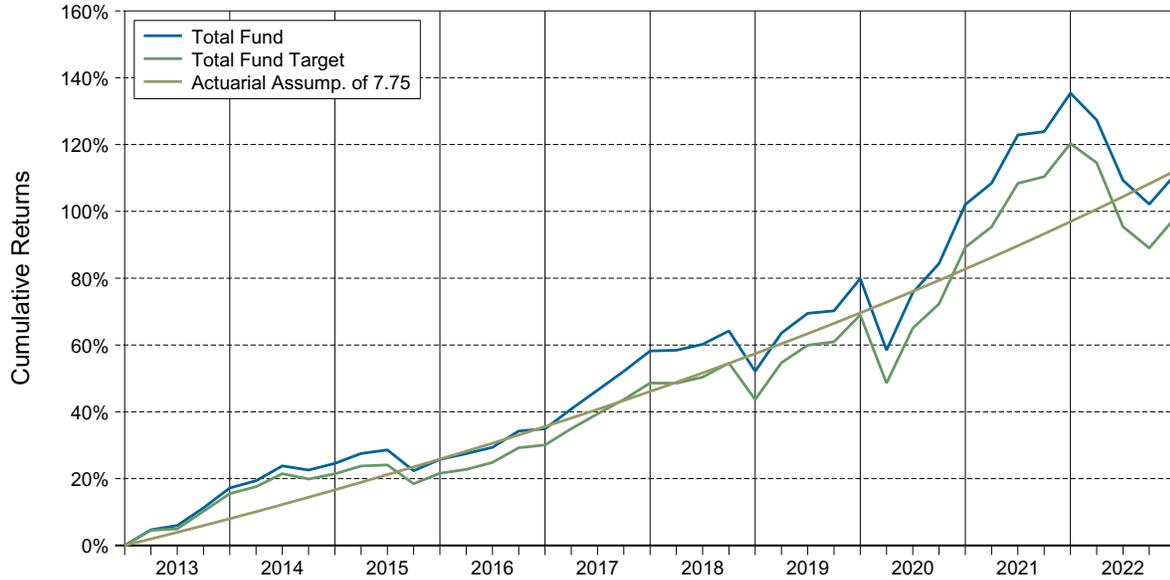
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	21%	12.77%	11.71%	0.22%	0.01%	0.24%
World Equities	15%	14%	6.74%	7.49%	(0.11%)	(0.02%)	(0.13%)
International Equities	15%	15%	5.59%	4.04%	0.24%	(0.00%)	0.24%
Private Equities	5%	6%	7.89%	7.89%	0.00%	(0.14%)	(0.14%)
Domestic Fixed Income	21%	21%	3.33%	1.90%	0.31%	(0.04%)	0.27%
International Fixed Inc.	3%	3%	-	-	0.04%	0.01%	0.05%
Real Estate	10%	10%	10.91%	8.82%	0.21%	(0.02%)	0.19%
Timber	3%	3%	1.06%	5.80%	(0.15%)	(0.02%)	(0.17%)
Infrastructure	5%	6%	6.77%	3.60%	0.15%	(0.01%)	0.13%
Cash & Equivalents	1%	1%	0.82%	0.76%	0.00%	0.00%	0.00%
Residual Holdings	0%	0%	-	-	0.00%	0.00%	0.00%
<b>Total</b>					<b>0.91%</b>	<b>(0.23%)</b>	<b>0.67%</b>

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

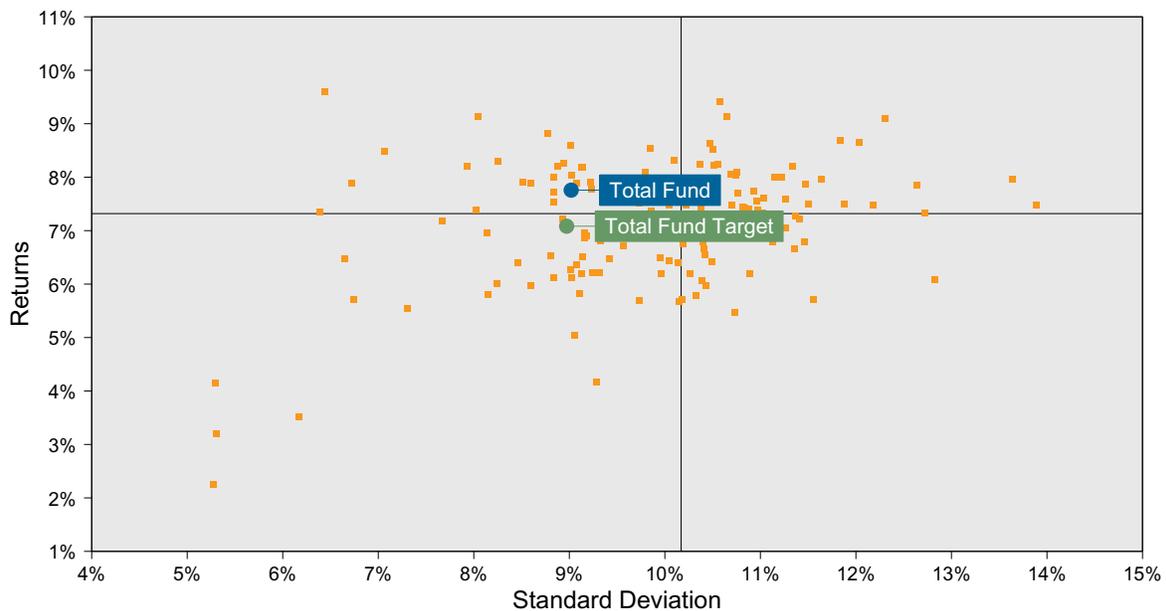
## Cumulative Performance Relative to Target

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 Sponsor Database.

### Cumulative Returns Actual vs Target



### Ten Year Annualized Risk vs Return



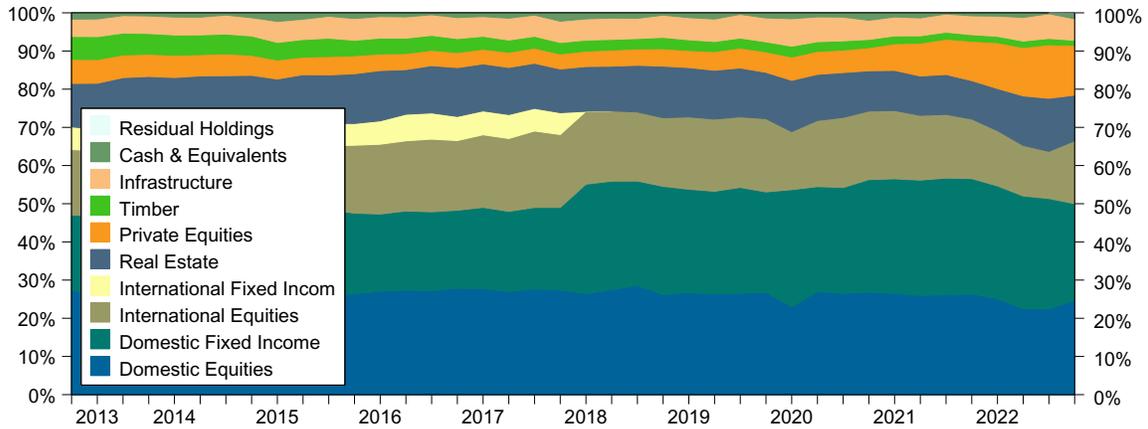
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

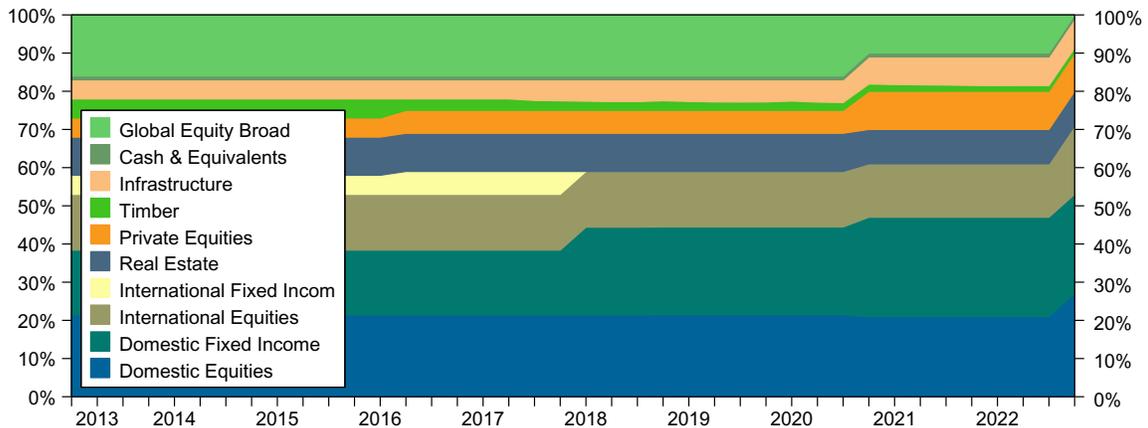
## Actual vs Target Historical Asset Allocation

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 Sponsor Database.

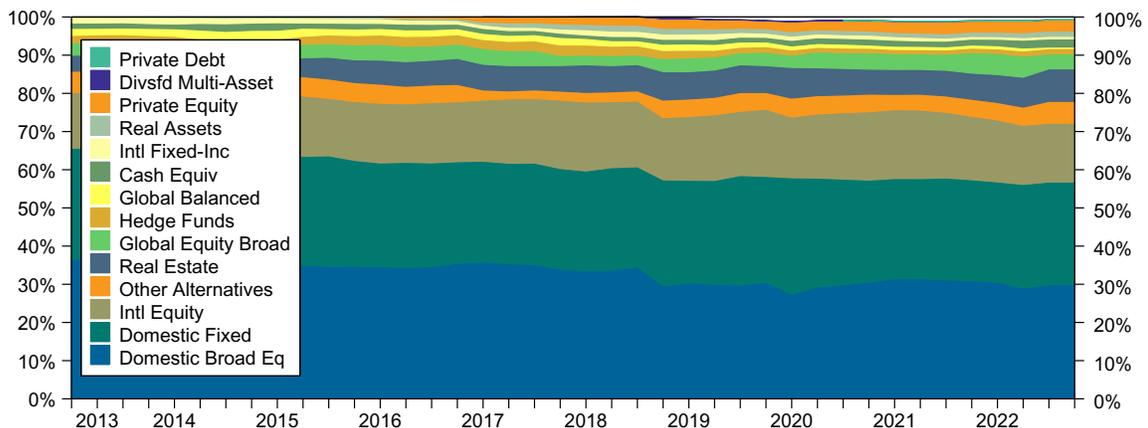
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation

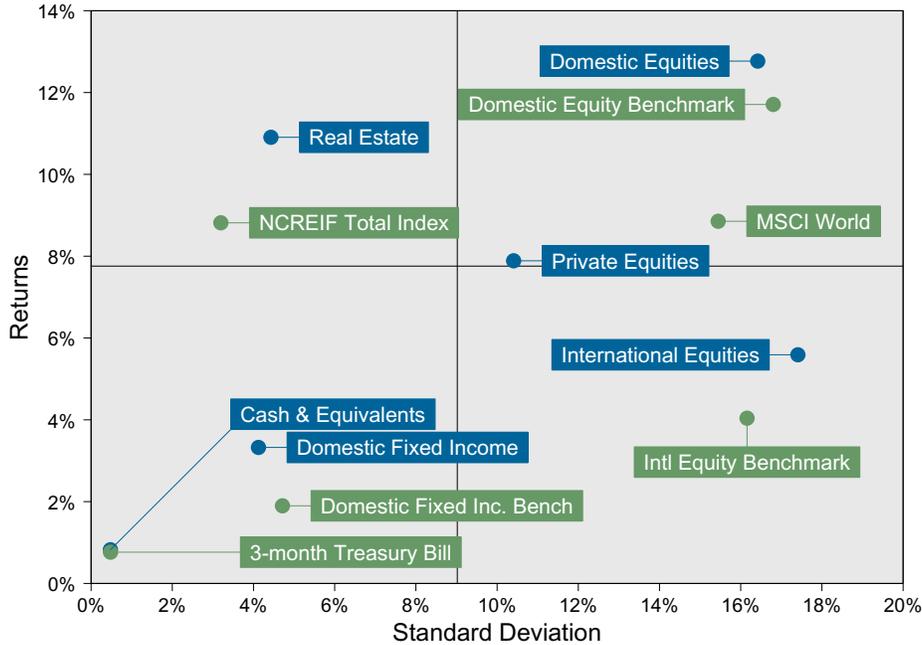


\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

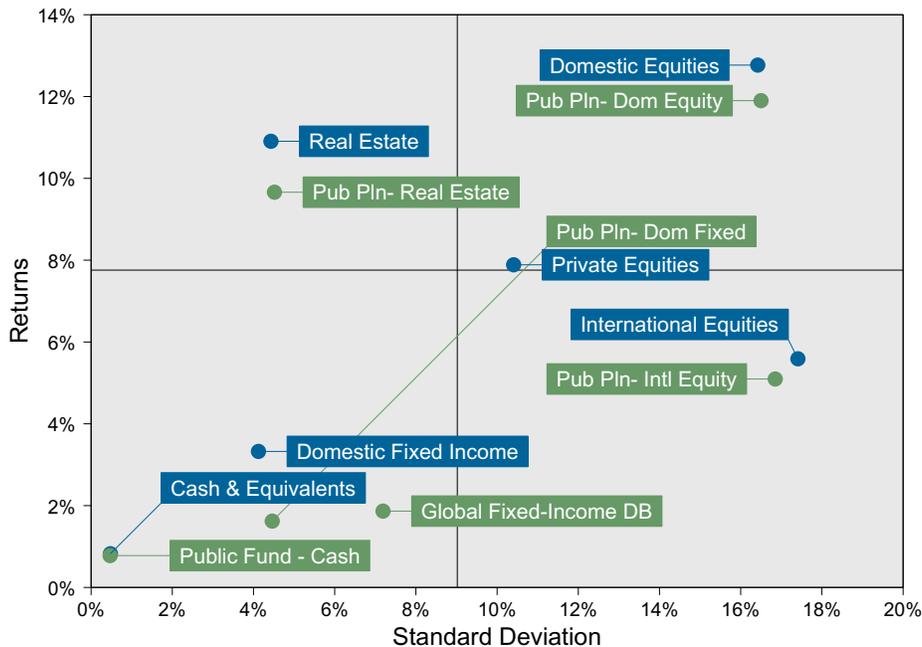
## Asset Class Risk and Return

The charts below show the ten 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.

**Ten Year Annualized Risk vs Return  
Asset Classes vs Benchmark Indices**



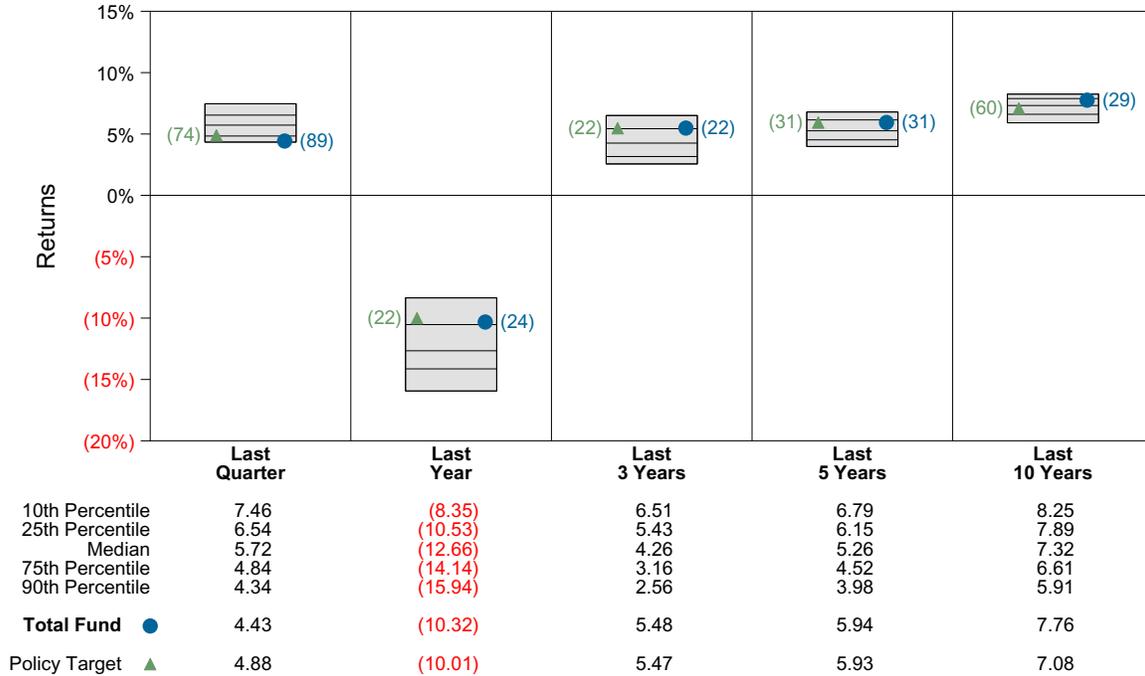
**Ten Year Annualized Risk vs Return  
Asset Classes vs Asset Class Median**



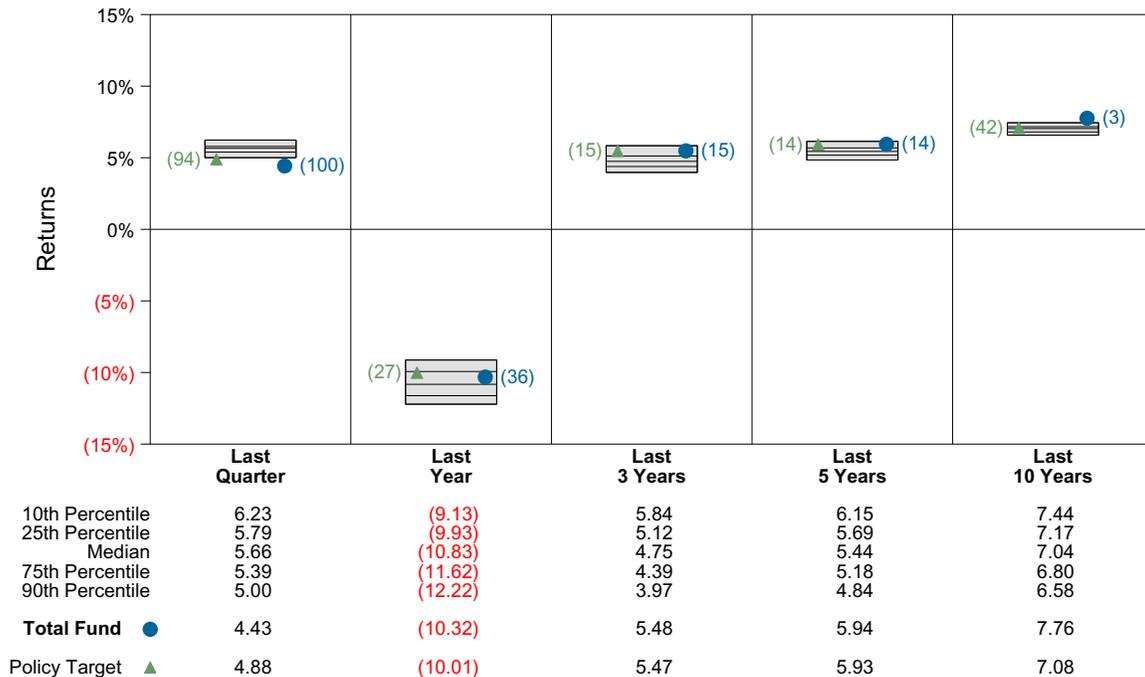
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2022. 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.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

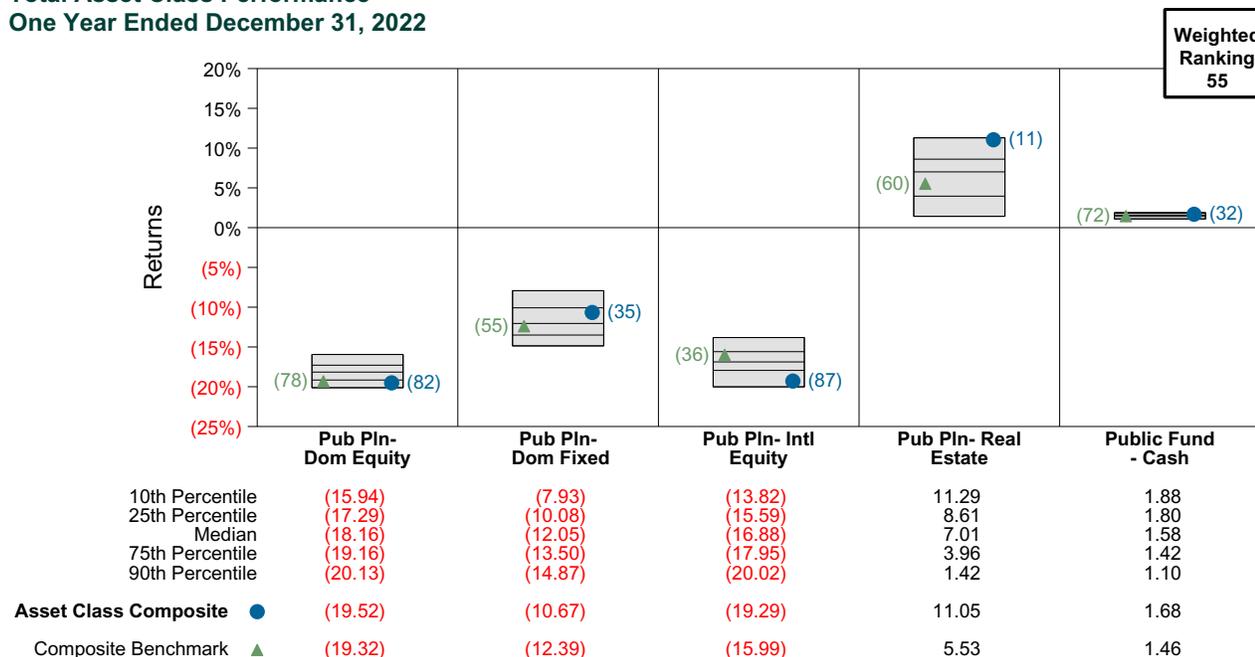


\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

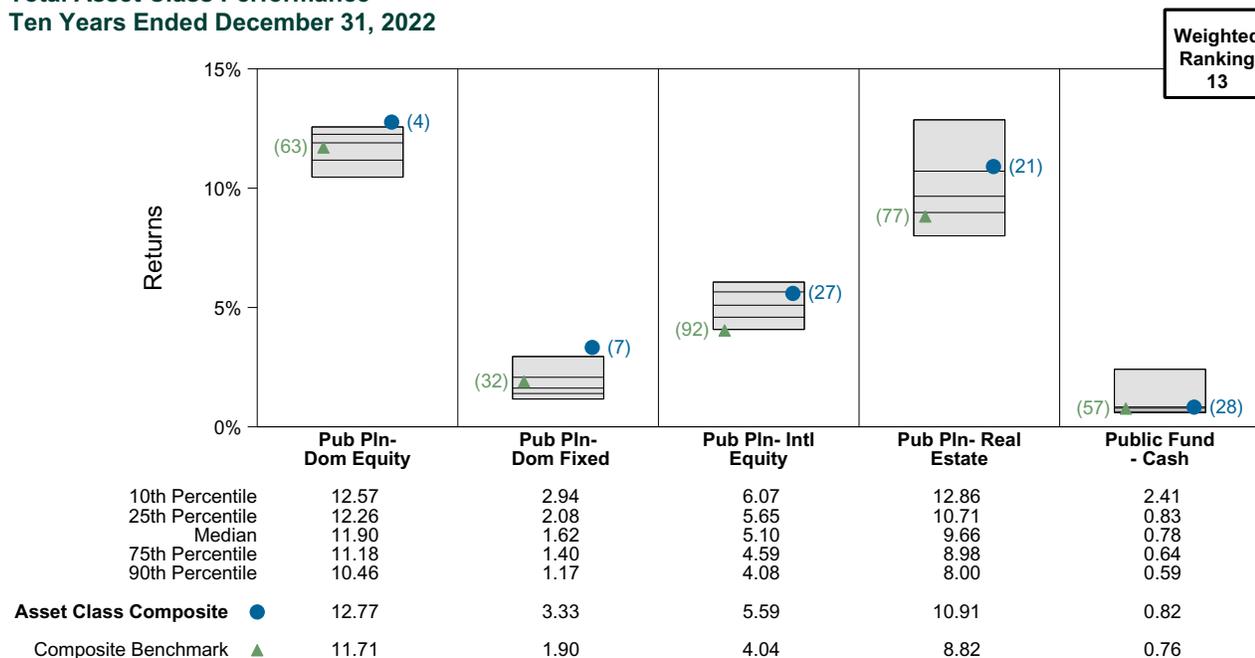
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2022



### Total Asset Class Performance Ten Years Ended December 31, 2022



\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2022, with the distribution as of September 30, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Class Allocation

	December 31, 2022			Inv. Return	September 30, 2022	
	Market Value	Weight	Net New Inv.		Market Value	Weight
<b>Global Equities</b>	<b>\$1,602,866,947</b>	<b>54.29%</b>	<b>\$(35,235,380)</b>	<b>\$121,343,970</b>	<b>\$1,516,758,356</b>	<b>53.34%</b>
<b>Public Equities</b>	<b>\$1,217,303,204</b>	<b>41.23%</b>	<b>\$(51,307,673)</b>	<b>\$115,817,700</b>	<b>\$1,152,793,177</b>	<b>40.54%</b>
<b>World Equities</b>	<b>\$364,762</b>	<b>0.01%</b>	<b>\$(257,724,029)</b>	<b>\$6,446,125</b>	<b>\$251,642,666</b>	<b>8.85%</b>
<b>Domestic Equities</b>	<b>\$730,651,281</b>	<b>24.75%</b>	<b>\$101,185,643</b>	<b>\$48,658,905</b>	<b>\$580,806,734</b>	<b>20.43%</b>
Large Cap	620,937,011	21.03%	121,022,434	39,472,171	460,442,405	16.19%
Small Cap	109,714,270	3.72%	(19,836,791)	9,186,733	120,364,329	4.23%
<b>Total International Equity</b>	<b>\$486,287,161</b>	<b>16.47%</b>	<b>\$105,230,713</b>	<b>\$60,712,670</b>	<b>\$320,343,778</b>	<b>11.27%</b>
International All Cap	185,876,727	6.30%	86,504	24,722,168	161,068,056	5.66%
Developed Intl Large Cap	185,116,421	6.27%	121,296,113	24,917,282	38,903,026	1.37%
Developed Intl Small Cap	32,963,270	1.12%	(25,655,748)	5,568,553	53,050,465	1.87%
Emerging Markets	82,330,742	2.79%	9,503,845	5,504,667	67,322,231	2.37%
<b>Private Equities</b>	<b>\$385,563,742</b>	<b>13.06%</b>	<b>\$16,072,293</b>	<b>\$5,526,270</b>	<b>\$363,965,179</b>	<b>12.80%</b>
<b>Global Fixed Income</b>	<b>\$745,933,390</b>	<b>25.27%</b>	<b>\$(16,786,238)</b>	<b>\$12,603,796</b>	<b>\$750,115,832</b>	<b>26.38%</b>
<b>Domestic Fixed Income</b>	<b>\$745,933,390</b>	<b>25.27%</b>	<b>\$(16,786,238)</b>	<b>\$12,603,796</b>	<b>\$750,115,832</b>	<b>26.38%</b>
Investment Grade	521,583,085	17.67%	(17,798,444)	7,422,478	531,959,051	18.71%
Below Investment Grade	224,350,305	7.60%	1,012,206	5,181,317	218,156,781	7.67%
<b>Global Real Assets</b>	<b>\$557,453,737</b>	<b>18.88%</b>	<b>\$(4,549,089)</b>	<b>\$(8,349,947)</b>	<b>\$570,352,773</b>	<b>20.06%</b>
<b>Real Estate</b>	<b>\$352,249,999</b>	<b>11.93%</b>	<b>\$(1,992,815)</b>	<b>\$(5,821,060)</b>	<b>\$360,063,874</b>	<b>12.66%</b>
<b>Other Real Assets</b>	<b>\$205,203,738</b>	<b>6.95%</b>	<b>\$(2,556,274)</b>	<b>\$(2,528,887)</b>	<b>\$210,288,899</b>	<b>7.40%</b>
Infrastructure	166,438,165	5.64%	(1,835,849)	531,849	167,742,166	5.90%
Timber	38,765,573	1.31%	(720,425)	(3,060,736)	42,546,733	1.50%
<b>Cash</b>	<b>\$42,731,210</b>	<b>1.45%</b>	<b>\$36,179,171</b>	<b>\$307,791</b>	<b>\$6,244,248</b>	<b>0.22%</b>
<b>Residual Holdings</b>	<b>\$3,319,446</b>	<b>0.11%</b>	<b>\$3,278,690</b>	<b>\$40,756</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$2,952,304,730</b>	<b>100.0%</b>	<b>\$(17,112,845)</b>	<b>\$125,946,365</b>	<b>\$2,843,471,210</b>	<b>100.0%</b>

PLEASE REFER TO PAGES 29-30 FOR INVESTMENT MANAGER LEVEL ASSET ALLOCATION.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Equities</b>					
Gross	7.94%	(15.32%)	6.98%	7.02%	9.59%
Net	7.86%	(15.54%)	6.71%	6.78%	9.31%
<b>Public Equities</b>					
Gross	9.93%	(18.54%)	4.63%	-	-
Net	9.83%	(18.81%)	4.32%	-	-
Weighted Benchmark	9.98%	(17.89%)	4.26%	-	-
<b>Total Domestic Equity</b>					
Gross	7.64%	(19.52%)	8.20%	9.64%	12.77%
Net	7.59%	(19.76%)	7.95%	9.42%	12.55%
Weighted Benchmark	7.10%	(19.32%)	6.57%	8.12%	11.71%
<b>Large Cap Equity</b>					
Gross	7.78%	(20.23%)	9.55%	10.74%	13.62%
Net	7.76%	(20.40%)	9.39%	10.59%	13.46%
Benchmark(1)	7.24%	(19.13%)	7.35%	9.13%	12.37%
<b>Small Cap Equity</b>					
Gross	7.63%	(16.20%)	3.28%	5.75%	9.72%
Net	7.44%	(16.78%)	2.65%	5.22%	9.28%
Russell 2000 Index	6.23%	(20.44%)	3.10%	4.13%	9.01%
<b>Total International Equity</b>					
Gross	14.47%	(19.29%)	1.32%	1.86%	5.59%
Net	14.37%	(19.51%)	1.03%	1.61%	5.35%
MSCI ACWI xUS IMI(2)	14.15%	(15.99%)	0.12%	0.96%	4.04%
<b>International All Cap</b>					
Gross	14.44%	-	-	-	-
Net	14.29%	-	-	-	-
MSCI ACWI xUS IMI	14.15%	(16.58%)	0.20%	0.85%	3.98%
<b>Developed Intl Large Cap</b>					
Gross	18.26%	-	-	-	-
Net	18.26%	-	-	-	-
MSCI World xUS	16.18%	(14.29%)	1.27%	1.79%	4.59%
<b>Developed Intl Small Cap</b>					
Gross	18.89%	-	-	-	-
Net	18.71%	-	-	-	-
MSCI World xUS Small	15.21%	(20.59%)	(0.15%)	0.45%	5.77%
<b>Emerging Markets</b>					
Gross	7.45%	(26.45%)	(2.11%)	(0.93%)	2.45%
Net	7.36%	(26.70%)	(2.64%)	(1.25%)	2.21%
Benchmark(4)	9.70%	(20.09%)	(2.69%)	(1.39%)	1.44%
<b>Private Equities</b>					
Net	1.54%	0.27%	20.96%	14.84%	7.88%

(1) S&P 500 Index through 12/31/2011 and the Russell 1000 Index thereafter.

(2) Prior to 10/1/2022, the benchmark is calculated based on the approved investment policy asset allocation target.

(3) 50% Hedged EAFE through 3/31/2011; MSCI EAFE through 6/30/16; MSCI World ex-US thereafter.

(4) MSCI Emerging Mkts Idx (Gross) through 6/30/2011 and MSCI Emerging Mkts Idx Net thereafter.

PLEASE REFER TO PAGES 31-35 FOR INVESTMENT MANAGER LEVEL RETURNS.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Fixed Income</b>					
Gross	1.80%	(10.67%)	(0.43%)	2.06%	2.98%
Net	1.77%	(10.79%)	(0.57%)	1.92%	2.79%
Weighted Benchmark	2.59%	(12.39%)	(1.78%)	0.96%	1.64%
<b>Domestic Fixed Income</b>					
Gross	1.80%	(10.67%)	(0.43%)	1.90%	3.33%
Net	1.77%	(10.79%)	(0.57%)	1.76%	3.15%
Weighted Benchmark	2.59%	(12.39%)	(1.78%)	0.76%	1.90%
<b>Inv. Grade Fixed Income</b>					
Gross	1.56%	(13.88%)	(2.03%)	0.81%	2.37%
Net	1.54%	(13.99%)	(2.14%)	0.71%	2.26%
Blmbg Aggregate	1.87%	(13.01%)	(2.71%)	0.02%	1.06%
<b>Below Inv. Grade Fixed Income</b>					
Gross	2.38%	(0.92%)	4.55%	5.24%	6.07%
Net	2.34%	(1.10%)	4.35%	5.01%	5.73%
Blmbg HY Corp 2% Issue	4.17%	(11.18%)	0.03%	2.30%	4.03%
<b>Global Real Assets</b>					
Gross	(1.46%)	8.72%	9.13%	7.76%	8.12%
Net	(1.50%)	8.37%	8.69%	7.34%	7.69%
Weighted Benchmark	(2.47%)	7.05%	7.69%	6.69%	6.82%
<b>Real Estate</b>					
Gross	(1.62%)	11.05%	10.38%	8.81%	10.91%
Net	(1.65%)	10.60%	9.83%	8.28%	10.37%
NCREIF Total Index	(3.50%)	5.53%	8.06%	7.46%	8.82%
<b>Other Real Assets</b>					
Gross	(1.22%)	5.10%	7.05%	-	-
Net	(1.27%)	4.92%	6.79%	-	-
Weighted Benchmark	(1.43%)	8.58%	7.28%	-	-
<b>Infrastructure</b>					
Gross	0.30%	6.67%	9.06%	7.44%	6.77%
Net	0.24%	6.43%	8.71%	7.04%	6.28%
Benchmark(1)	(2.48%)	7.91%	7.33%	6.00%	3.60%
<b>Timber</b>					
Net	(7.30%)	(1.53%)	1.29%	2.48%	1.06%
NCREIF Timberland Index	4.89%	12.90%	7.51%	5.37%	5.80%
<b>Cash &amp; Equivalents - Net</b>					
3-month Treasury Bill	0.92%	1.68%	0.76%	1.29%	0.82%
	0.84%	1.46%	0.72%	1.26%	0.76%
<b>Total Fund</b>					
Gross	4.43%	(10.32%)	5.48%	5.94%	7.76%
Net	4.37%	(10.53%)	5.23%	5.69%	7.47%
Target*	4.88%	(10.01%)	5.47%	5.93%	7.08%

\* Current Quarter Target = 23.0% Russell 1000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 10.0% Private Equity, 9.0% NCREIF Total Index, 8.0% Blmbg HY Corp 2% Iss Cap, 4.1% Russell 2000 Index, 3.8% CPI All Urban Cons lagged 3 months, 3.8% NCREIF NFI-ODCE Eq Wt Net, 1.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.  
(1) CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.

PLEASE REFER TO PAGES 31-35 FOR INVESTMENT MANAGER LEVEL RETURNS.



# Domestic Equities

## Period Ended December 31, 2022

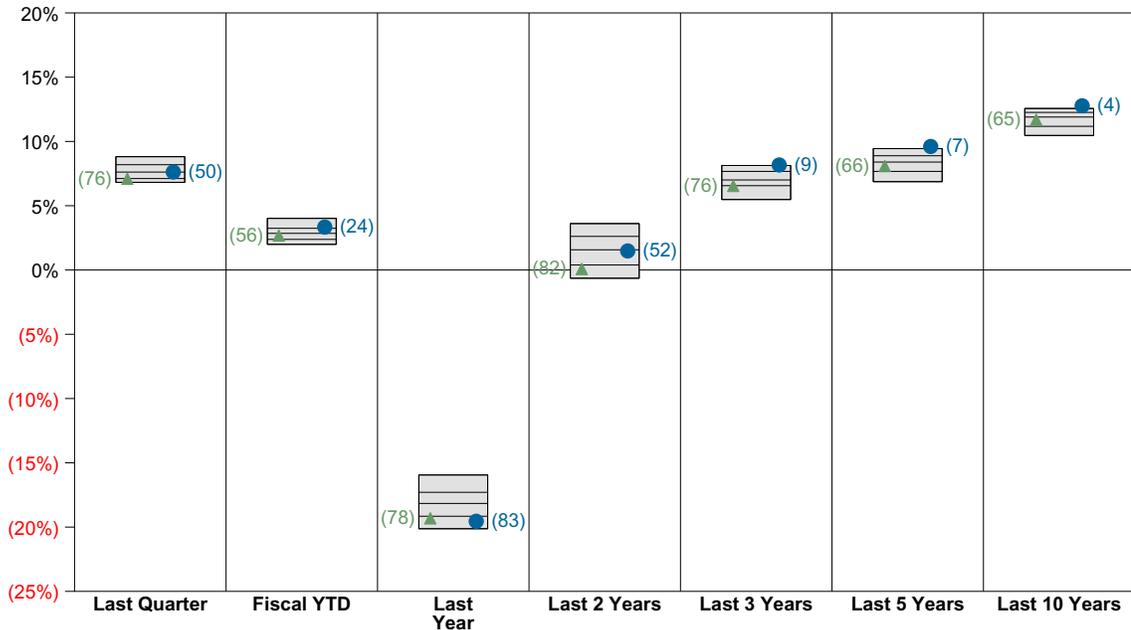
### Quarterly Summary and Highlights

- Domestic Equities's portfolio posted a 7.63% return for the quarter placing it in the 50 percentile of the Public Fund - Domestic Equity group for the quarter and in the 83 percentile for the last year.
- Domestic Equities's portfolio outperformed the Domestic Equity Target by 0.52% for the quarter and underperformed the Domestic Equity Target for the year by 0.23%.

### Quarterly Asset Growth

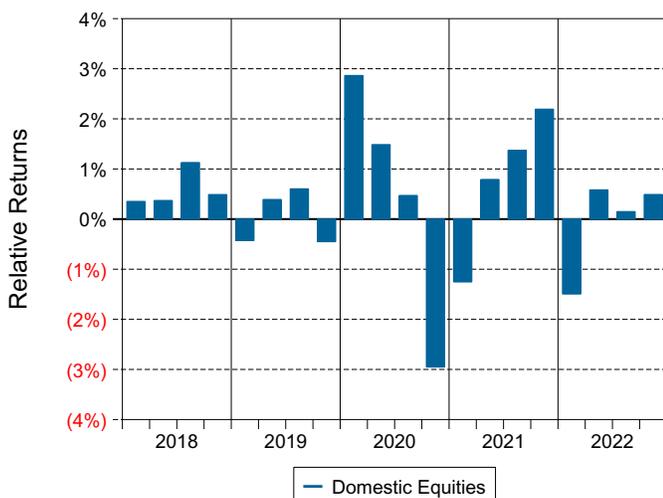
Beginning Market Value	\$1,444,488,215
Net New Investment	\$292,373,433
Investment Gains/(Losses)	\$118,826,521
Ending Market Value	\$1,855,688,170

### Performance vs Public Fund - Domestic Equity (Gross)

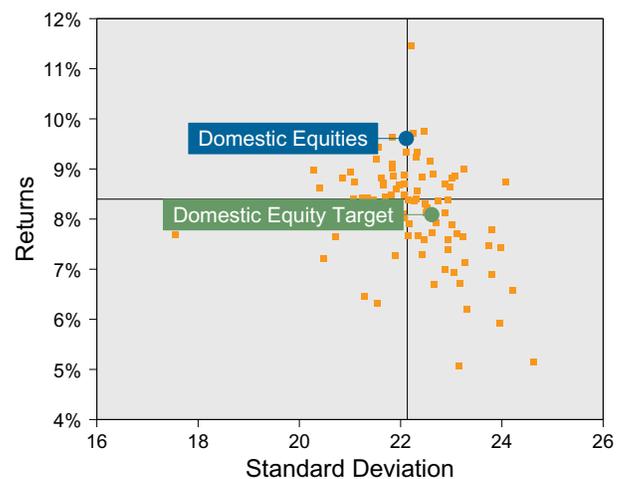


10th Percentile	8.82	4.02	(15.94)	3.61	8.13	9.44	12.57
25th Percentile	8.19	3.25	(17.29)	2.62	7.67	8.89	12.26
Median	7.62	2.85	(18.16)	1.57	7.00	8.40	11.90
75th Percentile	7.11	2.38	(19.16)	0.39	6.56	7.67	11.18
90th Percentile	6.82	2.00	(20.13)	(0.64)	5.48	6.87	10.46
<b>Domestic Equities</b>	<b>7.63</b>	<b>3.34</b>	<b>(19.55)</b>	<b>1.48</b>	<b>8.17</b>	<b>9.61</b>	<b>12.77</b>
Domestic Equity Target	7.10	2.68	(19.32)	0.09	6.55	8.09	11.69

### Relative Return vs Domestic Equity Target



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



# L.A. Capital Period Ended December 31, 2022

## Investment Philosophy

The LA Capital Structured portfolio is a large growth portfolio benchmarked to the Russell 1000 Growth Index. It is an active assignment meaning that it targets a 2% alpha and constrains its risk budget (tracking error) to 4% relative to the benchmark. LA Capital believes that investment results are driven by Investor Preferences and thus recognize that when preferences shift a different posture related to that factor is warranted.

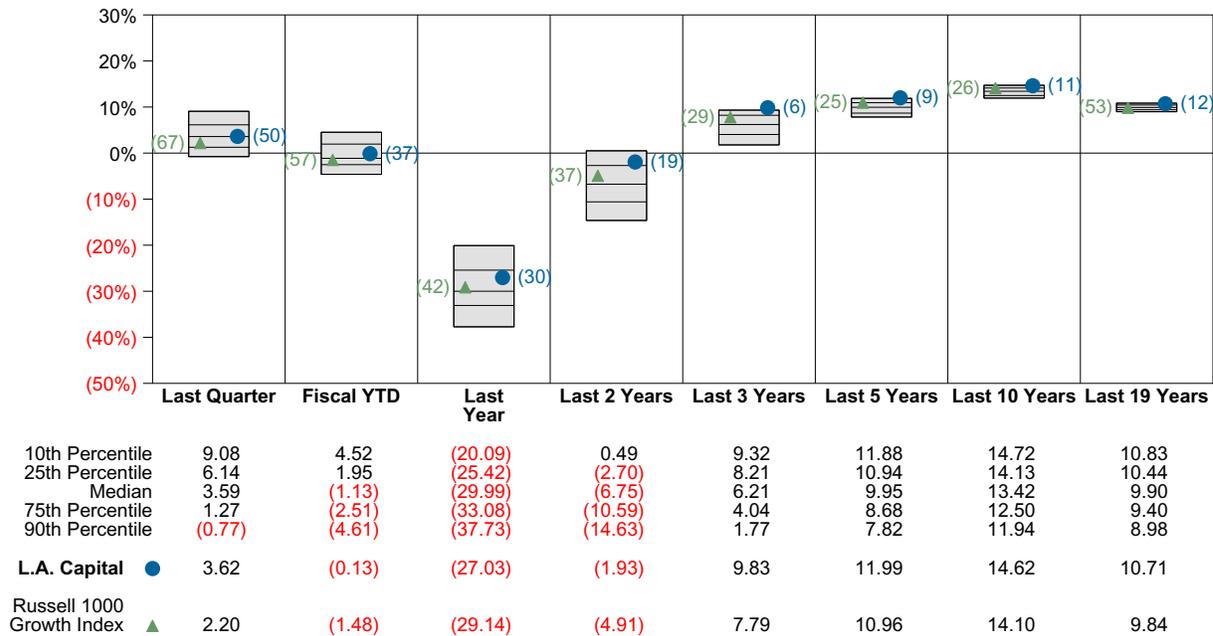
## Quarterly Summary and Highlights

- L.A. Capital's portfolio posted a 3.62% return for the quarter placing it in the 50 percentile of the Callan Large Cap Growth group for the quarter and in the 30 percentile for the last year.
- L.A. Capital's portfolio outperformed the Russell 1000 Growth Index by 1.43% for the quarter and outperformed the Russell 1000 Growth Index for the year by 2.10%.

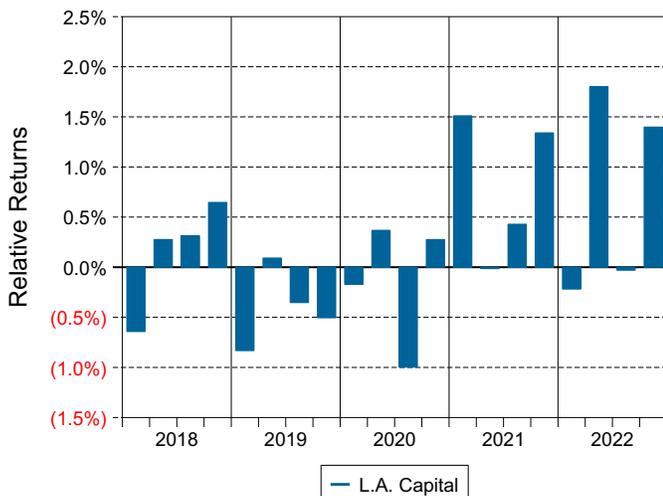
## Quarterly Asset Growth

Beginning Market Value	\$427,350,576
Net New Investment	\$-393,822,034
Investment Gains/(Losses)	\$11,613,004
Ending Market Value	\$45,141,546

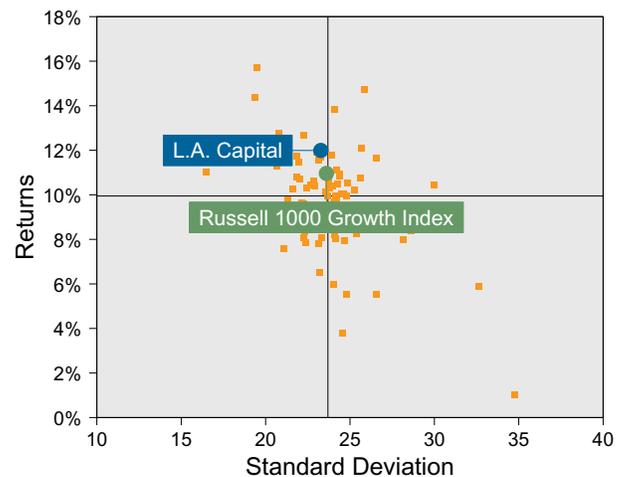
## Performance vs Callan Large Cap Growth (Gross)



## Relative Return vs Russell 1000 Growth Index



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



# L.A. Capital Management Enhanced Index Period Ended December 31, 2022

## Investment Philosophy

The LA Capital Enhanced portfolio is a large core portfolio benchmarked to the Russell 1000 Index. Characterized as an enhanced index assignment, its objective is to track the benchmark with lower variability. The pension portfolio began in August of 2000 and the insurance portfolio was initiated in April of 2004. Since October of 2006 a small portion of each of the two core accounts was allocated into the Large Cap Alpha Fund with intent to add incremental alpha to the assignment given that the information ratio was expected to be higher.

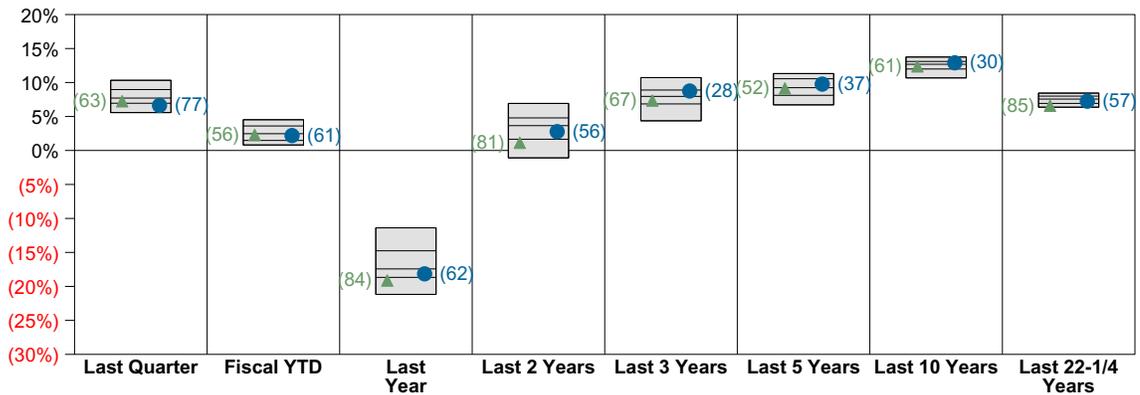
## Quarterly Summary and Highlights

- LACM Enhanced Index's portfolio posted a 6.62% return for the quarter placing it in the 77 percentile of the Callan Large Cap Core group for the quarter and in the 62 percentile for the last year.
- LACM Enhanced Index's portfolio underperformed the Russell 1000 Index by 0.62% for the quarter and outperformed the Russell 1000 Index for the year by 0.98%.

## Quarterly Asset Growth

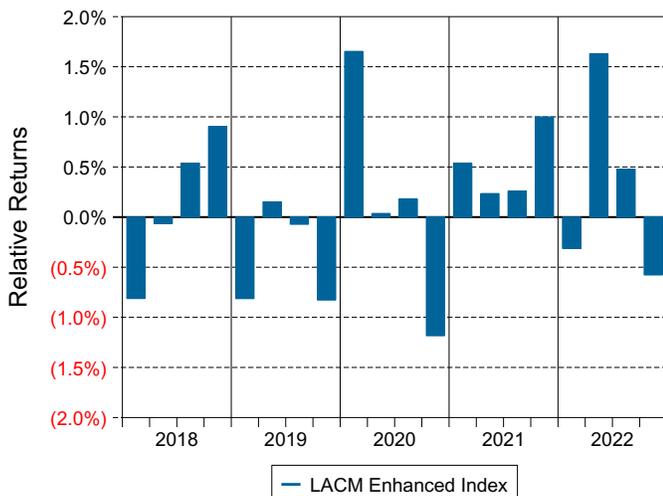
Beginning Market Value	\$248,380,818
Net New Investment	\$374,455,952
Investment Gains/(Losses)	\$27,464,019
Ending Market Value	\$650,300,789

## Performance vs Callan Large Cap Core (Gross)

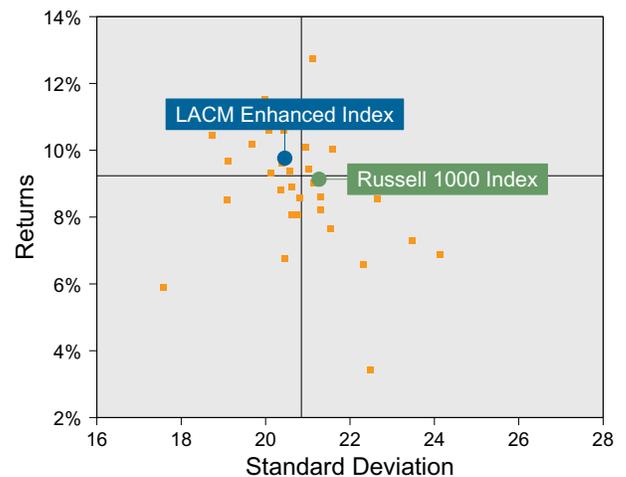


10th Percentile	10.33	4.52	(11.38)	6.92	10.72	11.32	13.75	8.44
25th Percentile	8.96	3.61	(14.76)	4.79	8.89	10.56	13.10	8.00
Median	7.71	2.47	(17.42)	3.65	7.96	9.24	12.68	7.56
75th Percentile	6.95	1.47	(18.67)	1.66	6.85	8.12	11.99	6.93
90th Percentile	5.58	0.80	(21.18)	(1.09)	4.36	6.71	10.68	6.37
<b>LACM Enhanced Index</b>	<b>● 6.62</b>	<b>2.19</b>	<b>(18.15)</b>	<b>2.77</b>	<b>8.75</b>	<b>9.76</b>	<b>12.90</b>	<b>7.25</b>
Russell 1000 Index	▲ 7.24	2.30	(19.13)	1.13	7.35	9.13	12.37	6.58

## Relative Return vs Russell 1000 Index



## Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



# NTAM Quant Enhanced S&P500 Period Ended December 31, 2022

## Investment Philosophy

Northern Trust AM Enhanced S&P 500 employs a quantitative investment approach, focusing on the stock selection process as the principal source of value added. The account invests primarily in a broadly diversified portfolio of equity securities that include securities convertible into equity securities (including common stock), warrants, rights and units or shares in trusts, exchange traded funds and investment companies. The Investment Manager intends to use futures and options to manage market risk associated with the account's investments.

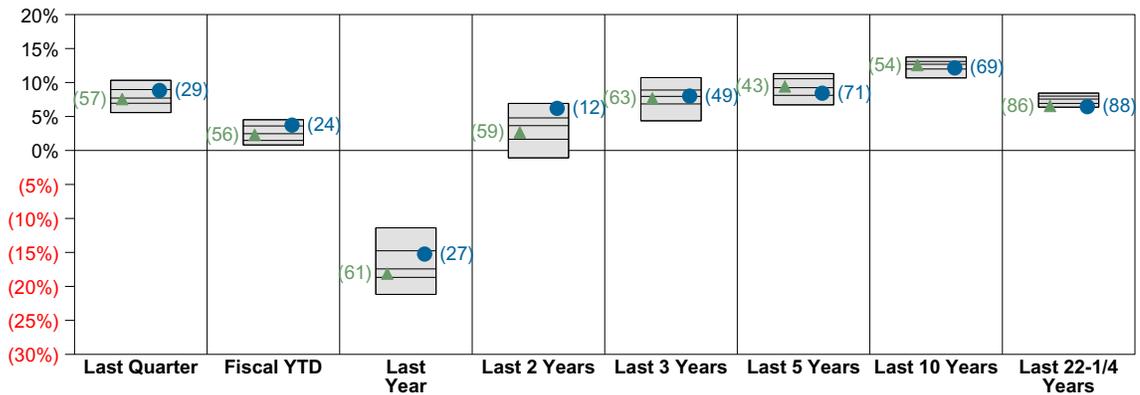
## Quarterly Summary and Highlights

- NTAM Quant Enhanced S&P500's portfolio posted a 8.83% return for the quarter placing it in the 29 percentile of the Callan Large Cap Core group for the quarter and in the 27 percentile for the last year.
- NTAM Quant Enhanced S&P500's portfolio outperformed the S&P 500 Index by 1.27% for the quarter and outperformed the S&P 500 Index for the year by 2.87%.

## Quarterly Asset Growth

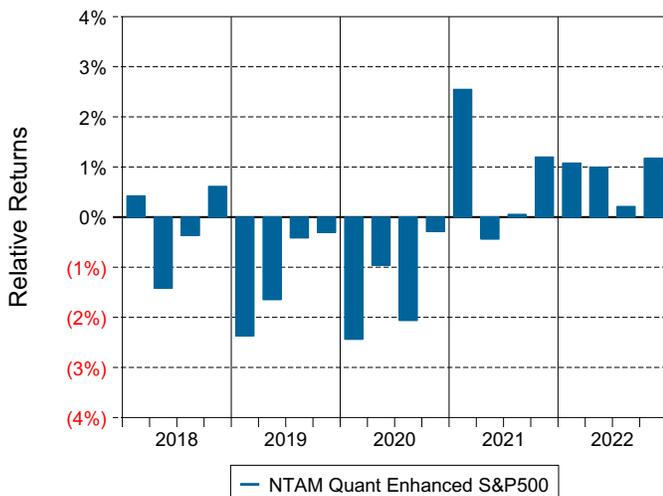
Beginning Market Value	\$240,823,841
Net New Investment	\$-10,558,735
Investment Gains/(Losses)	\$21,326,093
Ending Market Value	\$251,591,199

## Performance vs Callan Large Cap Core (Gross)

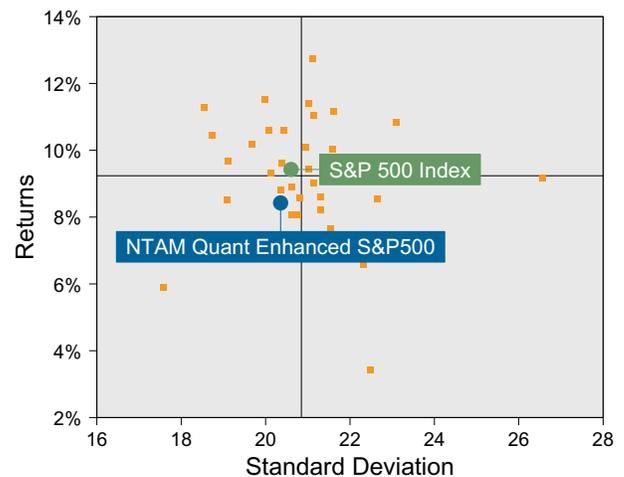


	Last Quarter	Fiscal YTD	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 10 Years	Last 22-1/4 Years
10th Percentile	10.33	4.52	(11.38)	6.92	10.72	11.32	13.75	8.44
25th Percentile	8.96	3.61	(14.76)	4.79	8.89	10.56	13.10	8.00
Median	7.71	2.47	(17.42)	3.65	7.96	9.24	12.68	7.56
75th Percentile	6.95	1.47	(18.67)	1.66	6.85	8.12	11.99	6.93
90th Percentile	5.58	0.80	(21.18)	(1.09)	4.36	6.71	10.68	6.37
<b>NTAM Quant Enhanced S&amp;P500</b>	<b>8.83</b>	<b>3.73</b>	<b>(15.24)</b>	<b>6.19</b>	<b>8.00</b>	<b>8.42</b>	<b>12.15</b>	<b>6.44</b>
<b>S&amp;P 500 Index</b>	<b>7.56</b>	<b>2.31</b>	<b>(18.11)</b>	<b>2.66</b>	<b>7.66</b>	<b>9.42</b>	<b>12.56</b>	<b>6.55</b>

## Relative Return vs S&P 500 Index



## Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



# Parametric Enh S&P 500 Period Ended December 31, 2022

## Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

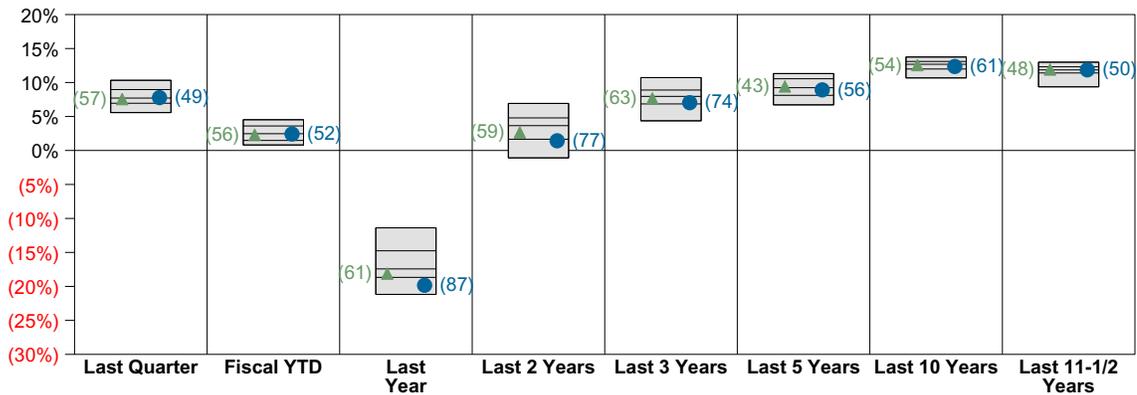
## Quarterly Summary and Highlights

- Parametric Enh S&P 500's portfolio posted a 7.78% return for the quarter placing it in the 49 percentile of the Callan Large Cap Core group for the quarter and in the 87 percentile for the last year.
- Parametric Enh S&P 500's portfolio outperformed the S&P 500 Index by 0.22% for the quarter and underperformed the S&P 500 Index for the year by 1.73%.

## Quarterly Asset Growth

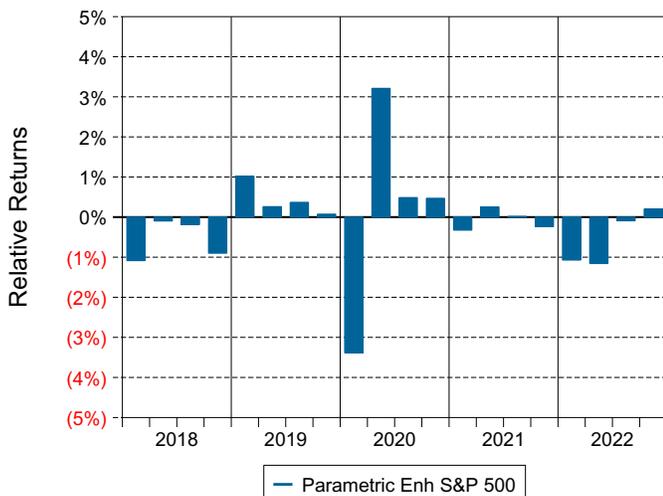
Beginning Market Value	\$234,247,899
Net New Investment	\$-5,500,000
Investment Gains/(Losses)	\$18,536,597
Ending Market Value	\$247,284,496

## Performance vs Callan Large Cap Core (Gross)

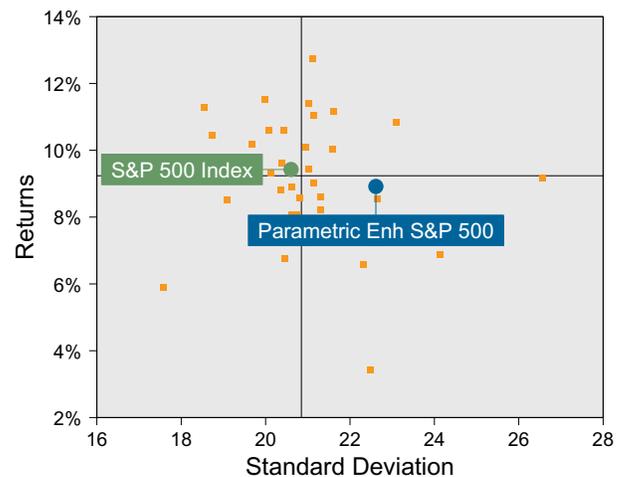


	Last Quarter	Fiscal YTD	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 10 Years	Last 11-1/2 Years
10th Percentile	10.33	4.52	(11.38)	6.92	10.72	11.32	13.75	12.99
25th Percentile	8.96	3.61	(14.76)	4.79	8.89	10.56	13.10	12.31
Median	7.71	2.47	(17.42)	3.65	7.96	9.24	12.68	11.85
75th Percentile	6.95	1.47	(18.67)	1.66	6.85	8.12	11.99	11.40
90th Percentile	5.58	0.80	(21.18)	(1.09)	4.36	6.71	10.68	9.37
<b>Parametric Enh S&amp;P 500</b>	● 7.78	2.42	(19.84)	1.42	7.03	8.92	12.35	11.86
S&P 500 Index	▲ 7.56	2.31	(18.11)	2.66	7.66	9.42	12.56	11.91

## Relative Return vs S&P 500 Index



## Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



# Atlanta Capital Period Ended December 31, 2022

## Investment Philosophy

Atlanta Capital Managements approach with its small cap product is to focus on high quality companies with an overall portfolio risk exposure tied to the Russell 2000 Index. Key characteristics of this portfolio include: (1) stocks rated B+ or better by S&P, (2) equally weighting 75 stocks, (3) sector concentrations similar to that of the benchmark. A group of ten analysts is in charge of screening the Russell 2000 to identify companies they believe have strong price appreciation potential and good business fundamentals. These analysts present the ideas to the portfolio management team, led by Chip Reed, who makes the final decisions on the inclusion of stocks. In general, stocks are sold from the portfolio if the B+ or better financial rating is no longer met, there is an adverse change in the fundamental business, or because of regular portfolio maintenance to ensure broad diversification.

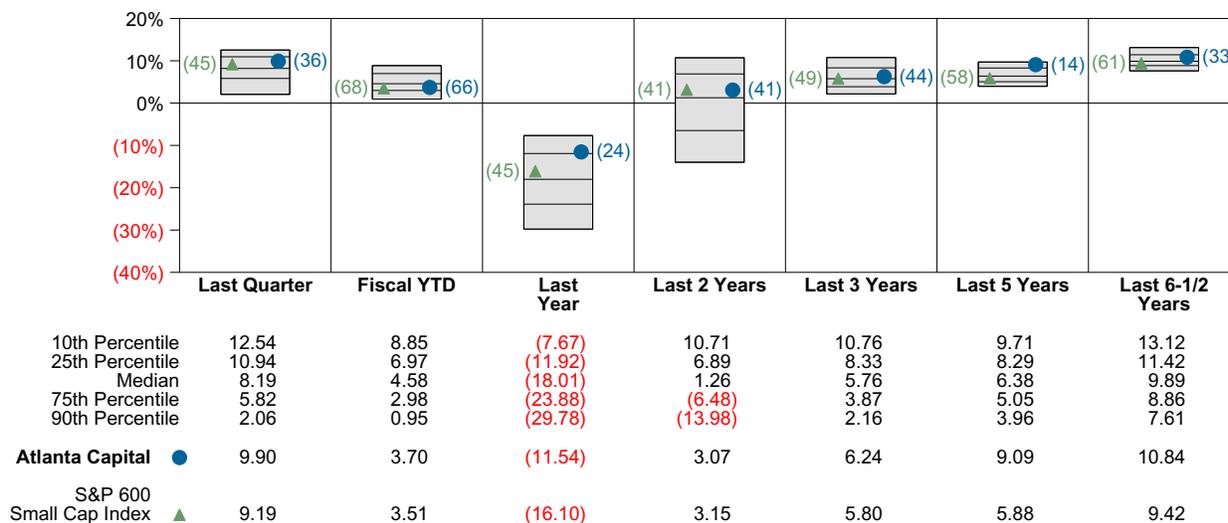
## Quarterly Summary and Highlights

- Atlanta Capital's portfolio posted a 9.90% return for the quarter placing it in the 36 percentile of the Callan Small Capitalization group for the quarter and in the 24 percentile for the last year.
- Atlanta Capital's portfolio outperformed the S&P 600 Small Cap Index by 0.71% for the quarter and outperformed the S&P 600 Small Cap Index for the year by 4.56%.

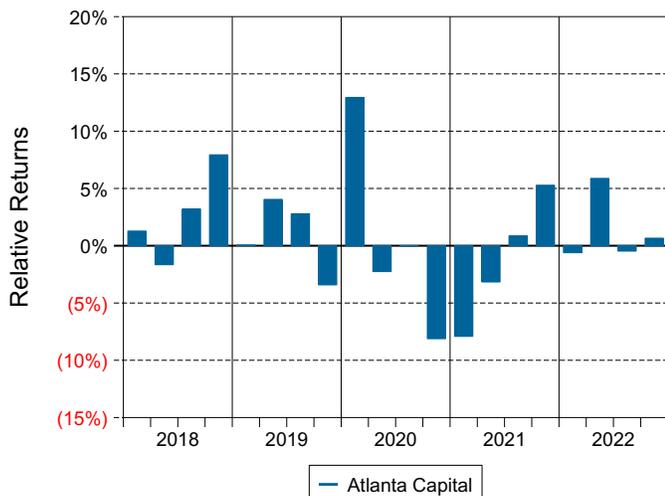
## Quarterly Asset Growth

Beginning Market Value	\$103,953,549
Net New Investment	\$-22,876,208
Investment Gains/(Losses)	\$9,057,415
Ending Market Value	\$90,134,756

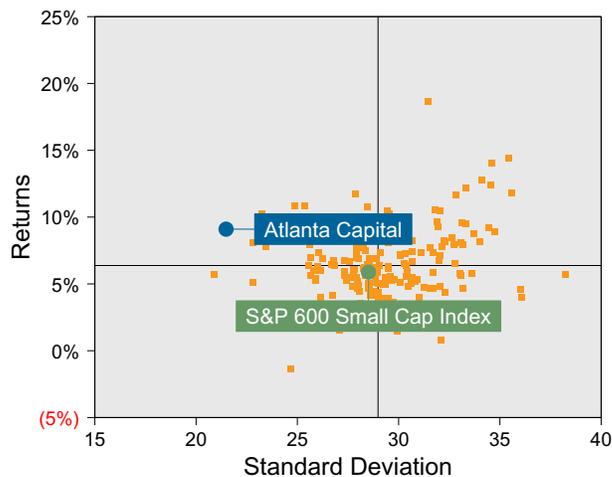
## Performance vs Callan Small Capitalization (Gross)



## Relative Return vs S&P 600 Small Cap Index



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



# Riverbridge Small Cap Growth Period Ended December 31, 2022

## Investment Philosophy

Riverbridge believes earnings power determines the value of a franchise. They focus on companies that are building earnings power and intrinsic value of the company over long periods of time. They also look for high-quality growth companies that demonstrate the ability to sustain strong secular earnings growth, regardless of overall economic conditions.

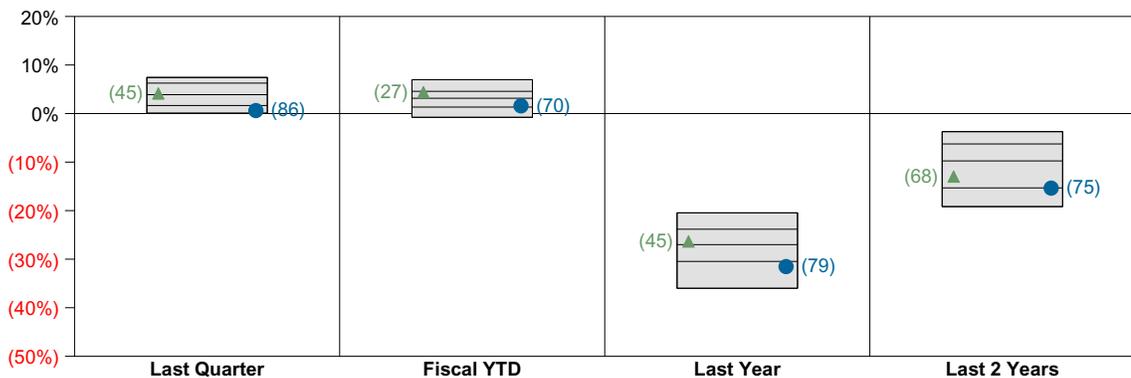
## Quarterly Summary and Highlights

- Riverbridge Small Cap Growth's portfolio posted a 0.61% return for the quarter placing it in the 86 percentile of the Callan Small Cap Growth group for the quarter and in the 79 percentile for the last year.
- Riverbridge Small Cap Growth's portfolio underperformed the Russell 2000 Growth Index by 3.52% for the quarter and underperformed the Russell 2000 Growth Index for the year by 5.17%.

## Quarterly Asset Growth

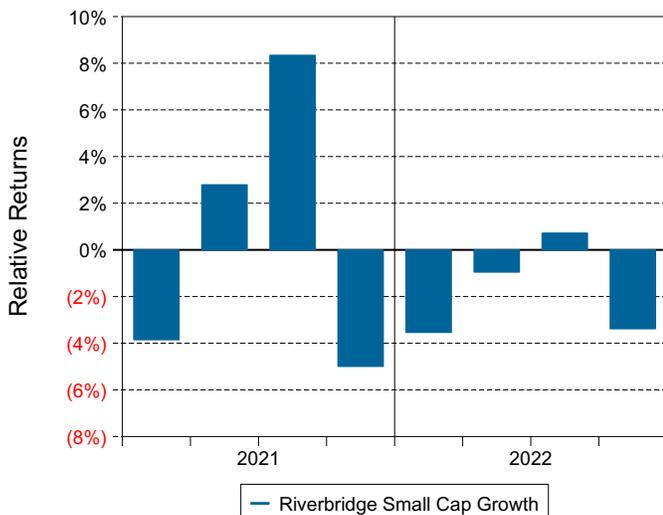
Beginning Market Value	\$79,099,471
Net New Investment	\$4,339,070
Investment Gains/(Losses)	\$600,310
Ending Market Value	\$84,038,851

## Performance vs Callan Small Cap Growth (Gross)

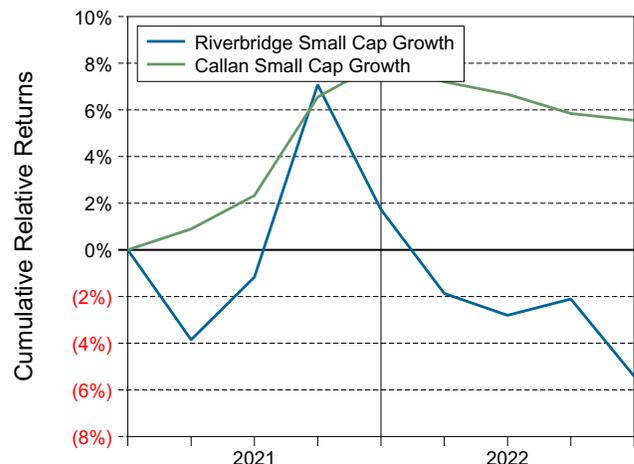


	Last Quarter	Fiscal YTD	Last Year	Last 2 Years
10th Percentile	7.44	6.97	(20.46)	(3.72)
25th Percentile	6.27	4.57	(23.83)	(6.26)
Median	3.89	3.15	(27.01)	(9.75)
75th Percentile	1.65	1.33	(30.46)	(15.32)
90th Percentile	0.07	(0.78)	(35.99)	(19.17)
<b>Riverbridge Small Cap Growth</b> ●	0.61	1.58	(31.53)	(15.37)
Russell 2000 Growth Index ▲	4.13	4.38	(26.36)	(12.98)

## Relative Return vs Russell 2000 Growth Index



## Cumulative Returns vs Russell 2000 Growth Index



# Sycamore Small Cap Value Period Ended December 31, 2022

## Investment Philosophy

The Victory Small Cap Value Equity investment approach focuses on companies with market capitalizations between \$100 million and \$2 billion that are believed offer above-average total return potential with limited risk. The Small Cap Value Equity investment process seeks to identify high quality, low expectation small cap companies that appear poised for continued or improved earnings. Portfolios typically hold 100-125 stocks with average annual portfolio turnover of 40%. The team will begin to sell when a company's market capitalization exceeds \$4 billion, however they focus on the weighted average market capitalization of the total portfolio and thus may retain exposure to some mid cap companies.

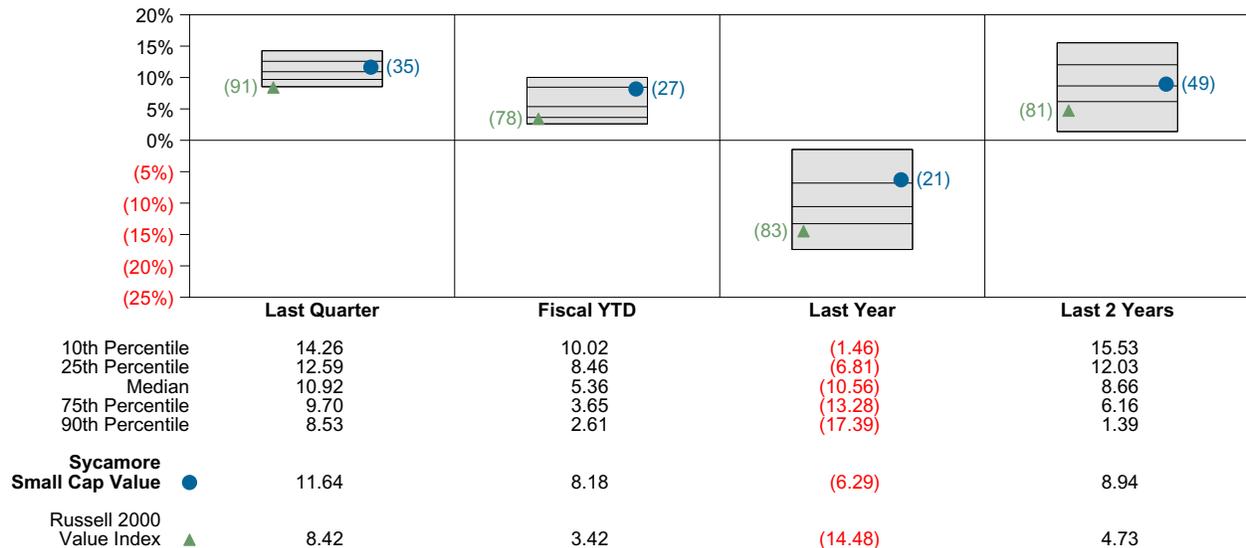
## Quarterly Summary and Highlights

- Sycamore Small Cap Value's portfolio posted a 11.64% return for the quarter placing it in the 35 percentile of the Callan Small Cap Value group for the quarter and in the 21 percentile for the last year.
- Sycamore Small Cap Value's portfolio outperformed the Russell 2000 Value Index by 3.23% for the quarter and outperformed the Russell 2000 Value Index for the year by 8.20%.

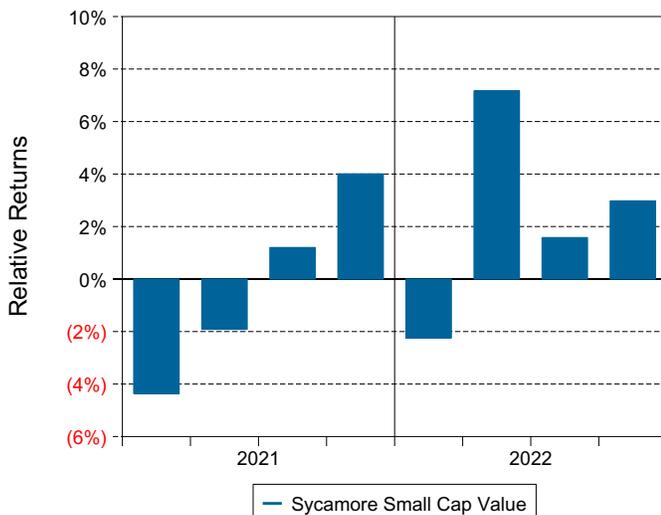
## Quarterly Asset Growth

Beginning Market Value	\$110,632,061
Net New Investment	\$-32,487,307
Investment Gains/(Losses)	\$11,565,468
Ending Market Value	\$89,710,222

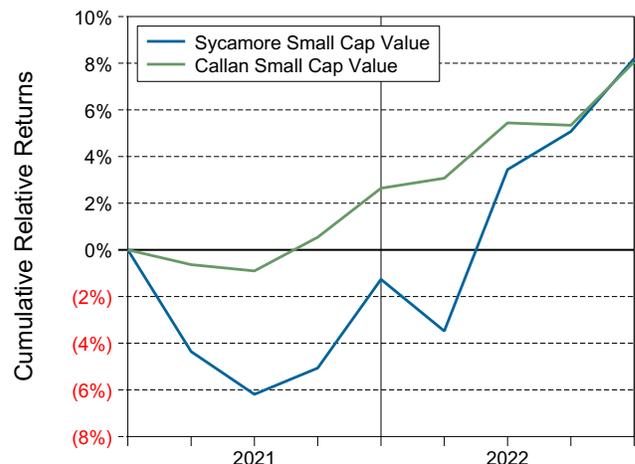
## Performance vs Callan Small Cap Value (Gross)



## Relative Return vs Russell 2000 Value Index



## Cumulative Returns vs Russell 2000 Value Index





# International Equities

## Period Ended December 31, 2022

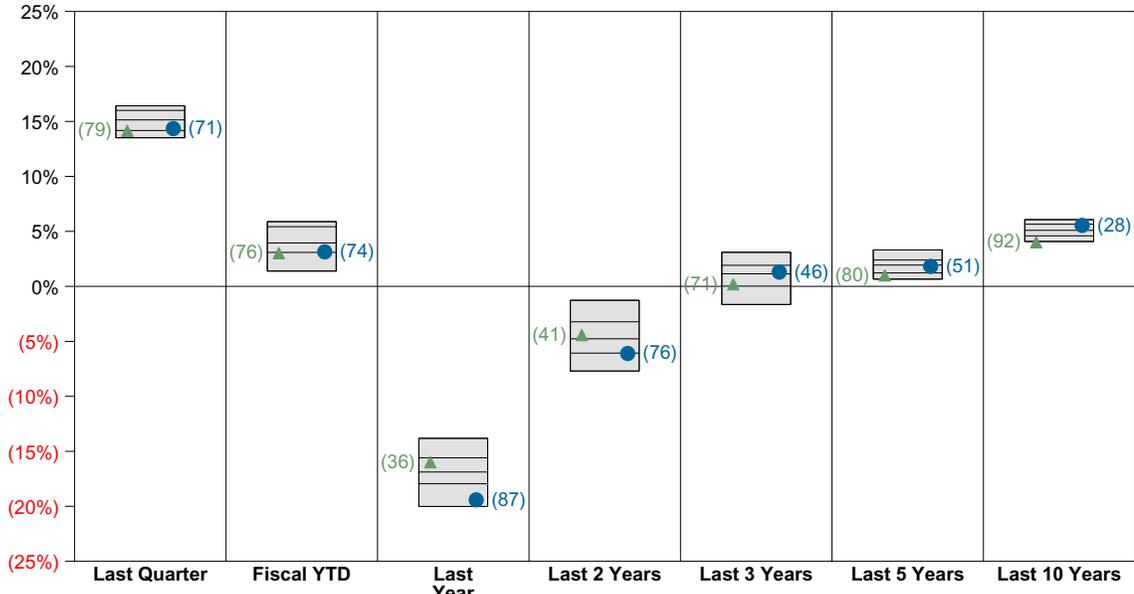
### Quarterly Summary and Highlights

- International Equities's portfolio posted a 14.34% return for the quarter placing it in the 71 percentile of the Public Fund - International Equity group for the quarter and in the 87 percentile for the last year.
- International Equities's portfolio outperformed the International Equity Target by 0.20% for the quarter and underperformed the International Equity Target for the year by 3.43%.

### Quarterly Asset Growth

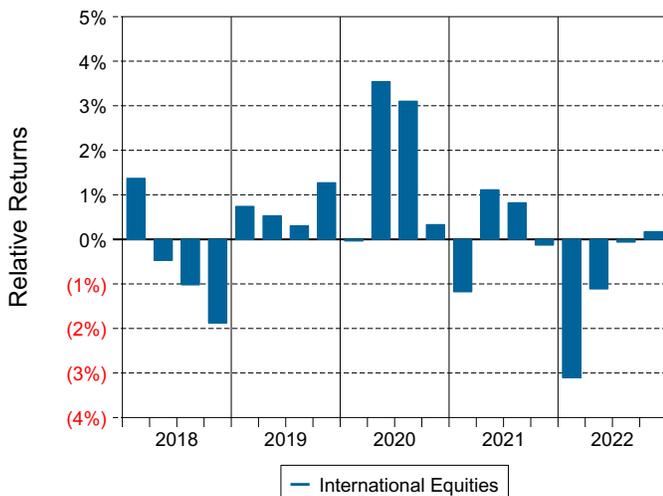
Beginning Market Value	\$836,543,389
Net New Investment	\$241,205,383
Investment Gains/(Losses)	\$157,617,367
Ending Market Value	\$1,235,366,139

### Performance vs Public Fund - International Equity (Gross)

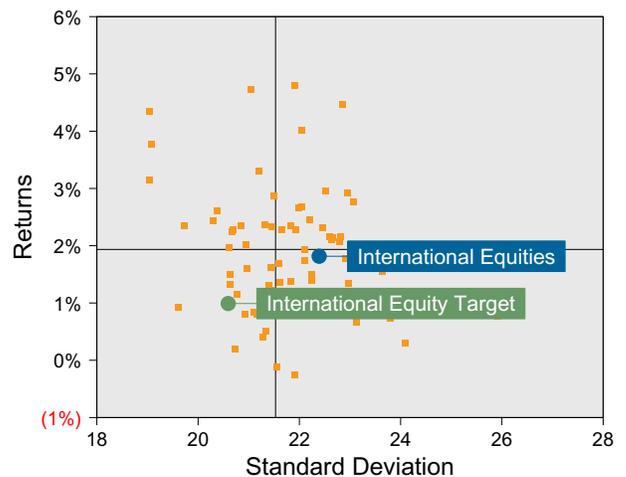


10th Percentile	16.42	5.88	(13.82)	(1.26)	3.10	3.31	6.07
25th Percentile	16.00	5.42	(15.59)	(3.22)	1.92	2.40	5.65
Median	15.14	3.95	(16.88)	(4.77)	1.14	1.94	5.10
75th Percentile	14.17	3.09	(17.95)	(6.07)	0.02	1.22	4.59
90th Percentile	13.52	1.39	(20.02)	(7.70)	(1.65)	0.66	4.08
<b>International Equities</b>	<b>14.34</b>	<b>3.14</b>	<b>(19.41)</b>	<b>(6.10)</b>	<b>1.30</b>	<b>1.82</b>	<b>5.55</b>
International Equity Target	14.15	3.02	(15.99)	(4.42)	0.20	0.99	4.02

### Relative Return vs International Equity Target



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



# Arrowstreet ACWI ex US Period Ended December 31, 2022

## Investment Philosophy

Arrowstreet is a 100% employed-owned firm whose strategies are team-managed by a deep and experienced team. The firm employs a quantitative process that identifies direct and indirect relationships to forecast stock price returns. The investment approach seeks to provide a risk controlled, core exposure to Non-US developed and emerging countries. The portfolio is diversified with 150 to 775 holdings (typically 307-467) across countries and sectors. The firm's dedication to research has led to a model that has adapted to multiple market environments and provided consistent results over time.

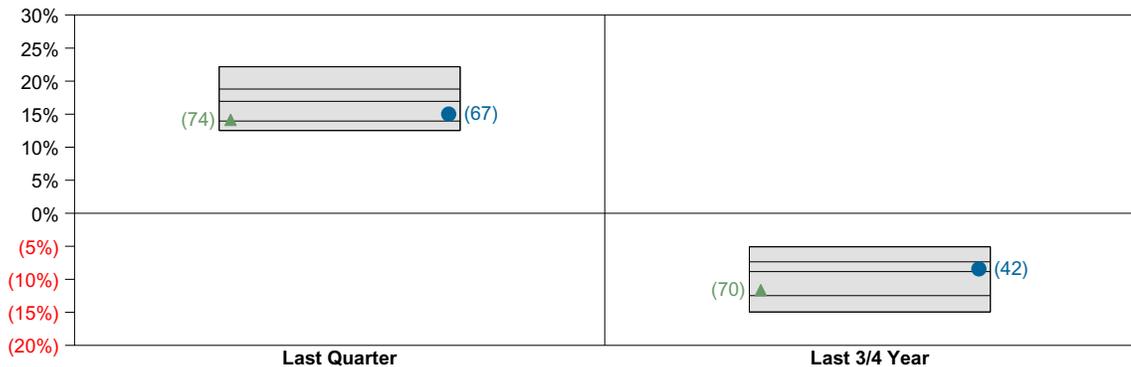
## Quarterly Summary and Highlights

- Arrowstreet ACWI ex US's portfolio posted a 15.01% return for the quarter placing it in the 67 percentile of the Callan Non US Equity Mutual Funds group for the quarter and in the 42 percentile for the last three-quarter year.
- Arrowstreet ACWI ex US's portfolio outperformed the MSCI ACWI xUS IMI by 0.87% for the quarter and outperformed the MSCI ACWI xUS IMI for the three-quarter year by 3.21%.

## Quarterly Asset Growth

Beginning Market Value	\$244,359,404
Net New Investment	\$-2,400,000
Investment Gains/(Losses)	\$37,433,636
Ending Market Value	\$279,393,040

## Performance vs Callan Non US Equity Mutual Funds (Net)



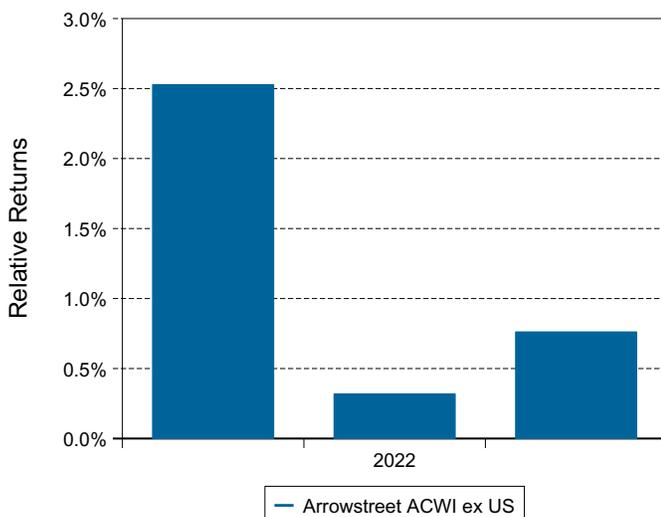
10th Percentile	22.18
25th Percentile	18.81
Median	16.95
75th Percentile	13.96
90th Percentile	12.53

(5.07)
(7.35)
(8.83)
(12.47)
(14.95)

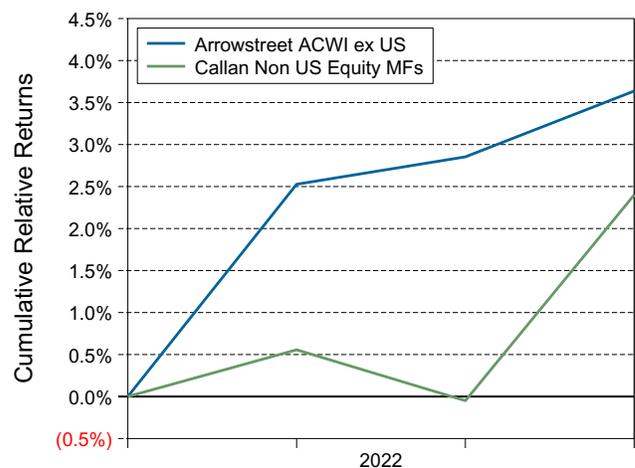
<b>Arrowstreet ACWI ex US</b>	●	15.01
MSCI ACWI xUS IMI	▲	14.15

(8.42)
(11.64)

## Relative Return vs MSCI ACWI xUS IMI



## Cumulative Returns vs MSCI ACWI xUS IMI



# DFA International Small Cap Value Fund

## Period Ended December 31, 2022

### Investment Philosophy

The International Small Cap Value Portfolio invests in the stocks of small, non-US developed markets companies that Dimensional believes to be value stocks at the time of purchase. Specifically, it looks at companies that fall within the smallest 8-10% of each country's market capitalization, and who's shares have a high book value in relation to their market value (BtM). It does not invest in emerging markets.

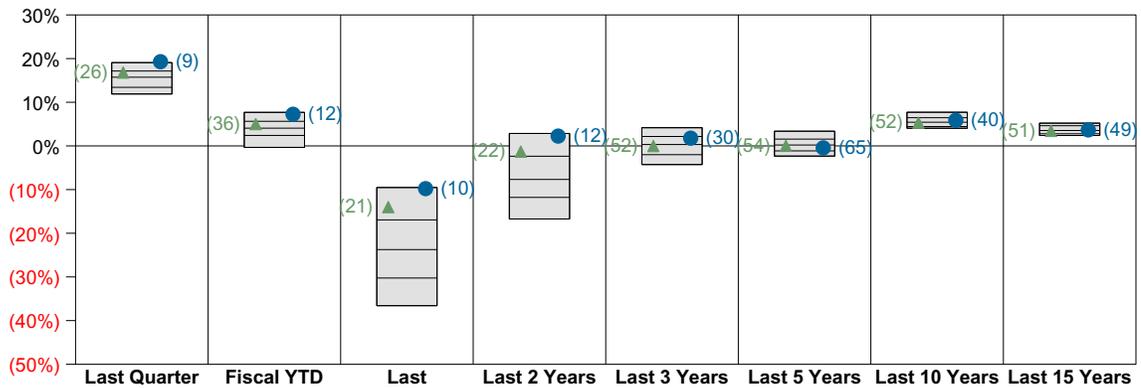
### Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a 19.29% return for the quarter placing it in the 9 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 10 percentile for the last year.
- DFA Intl Small Cap Value's portfolio outperformed the World ex US SC Value by 2.48% for the quarter and outperformed the World ex US SC Value for the year by 4.21%.

### Quarterly Asset Growth

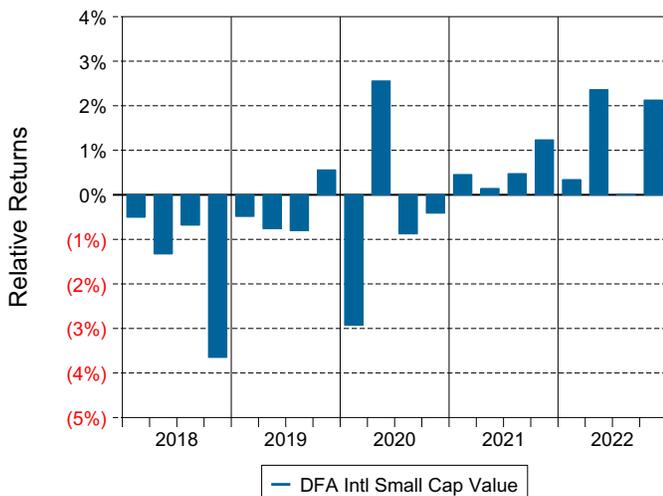
Beginning Market Value	\$70,319,419
Net New Investment	\$-42,600,000
Investment Gains/(Losses)	\$5,607,579
Ending Market Value	\$33,326,998

### Performance vs Callan International Small Cap Mut Funds (Net)

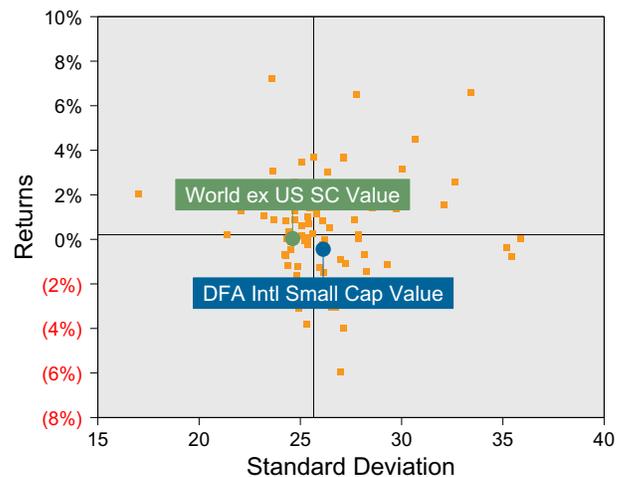


10th Percentile	19.08	7.68	(9.52)	2.86	4.17	3.37	7.71	5.21
25th Percentile	17.15	5.64	(16.94)	(2.36)	2.16	1.56	6.46	4.63
Median	15.74	4.07	(23.74)	(7.68)	0.32	0.21	5.43	3.53
75th Percentile	13.42	2.40	(30.25)	(11.79)	(2.00)	(1.13)	4.43	2.78
90th Percentile	11.90	(0.33)	(36.58)	(16.72)	(4.27)	(2.33)	4.05	2.38
<b>DFA Intl Small Cap Value</b>	<b>● 19.29</b>	<b>7.25</b>	<b>(9.78)</b>	<b>2.25</b>	<b>1.77</b>	<b>(0.44)</b>	<b>5.87</b>	<b>3.66</b>
World ex US SC Value	▲ 16.80	5.01	(14.00)	(1.30)	(0.02)	0.04	5.32	3.44

### Relative Return vs World ex US SC Value



### Callan International Small Cap Mut Funds (Net) Annualized Five Year Risk vs Return



# Northern Tr AM Wrld ex US Period Ended December 31, 2022

## Investment Philosophy

The Fund's objective is to provide investment results that approximate the overall performance of the MSCI World ex-US Equity Index.

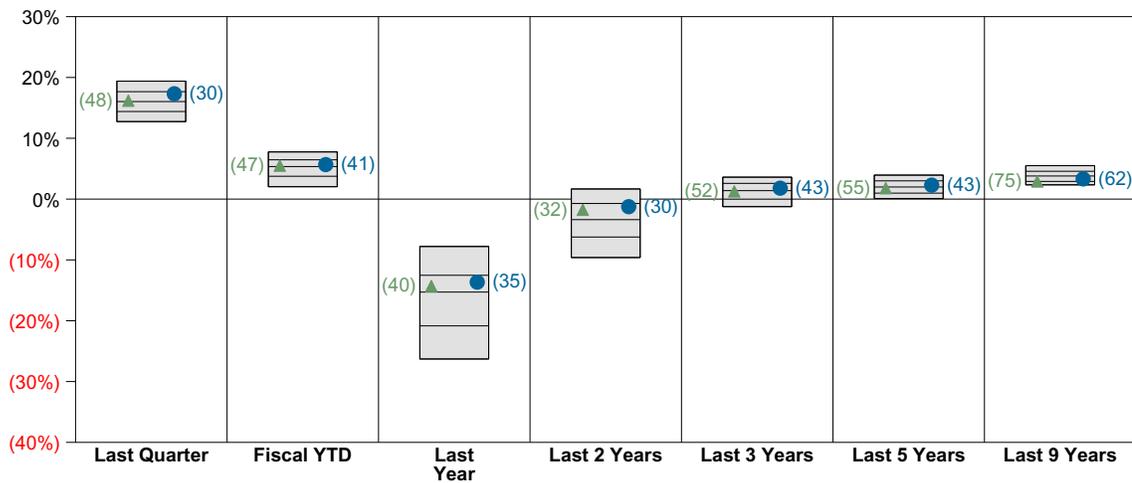
## Quarterly Summary and Highlights

- Northern Tr AM Wrld ex US's portfolio posted a 17.32% return for the quarter placing it in the 30 percentile of the Callan Non-US Equity group for the quarter and in the 35 percentile for the last year.
- Northern Tr AM Wrld ex US's portfolio outperformed the MSCI World xUS by 1.13% for the quarter and outperformed the MSCI World xUS for the year by 0.63%.

## Quarterly Asset Growth

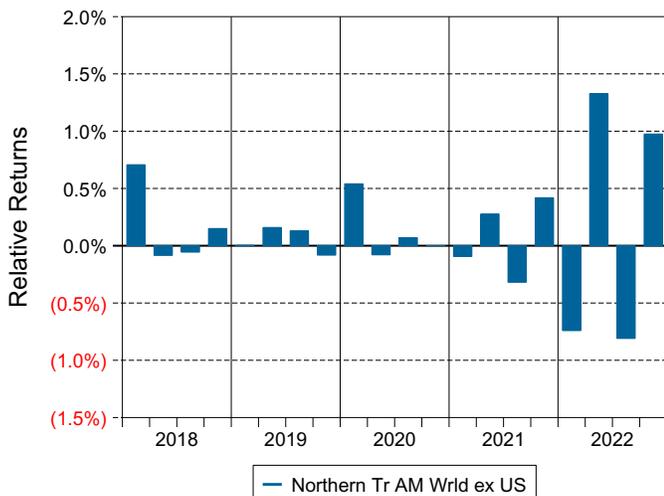
Beginning Market Value	\$101,014,198
Net New Investment	\$-10,500,000
Investment Gains/(Losses)	\$17,391,917
Ending Market Value	\$107,906,115

## Performance vs Callan Non-US Equity (Gross)

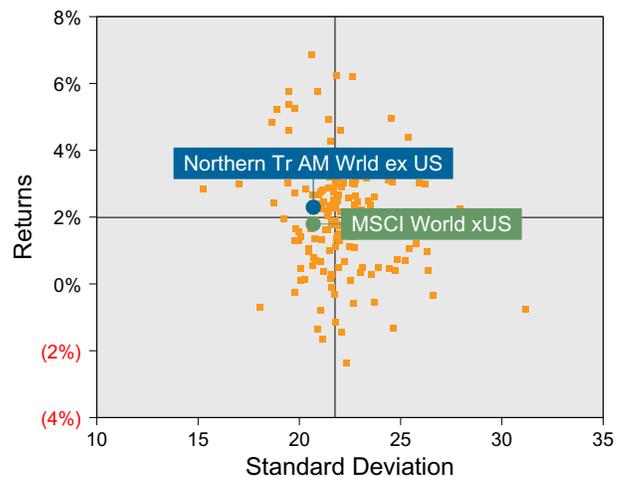


10th Percentile	19.39	7.76	(7.79)	1.66	3.60	3.94	5.49
25th Percentile	17.66	6.46	(12.53)	(0.72)	2.59	3.00	4.57
Median	16.03	5.35	(15.29)	(3.38)	1.39	1.99	3.80
75th Percentile	14.40	3.75	(20.84)	(6.24)	(0.01)	0.98	2.91
90th Percentile	12.74	2.04	(26.29)	(9.61)	(1.24)	0.10	2.34
<b>Northern Tr AM Wrld ex US</b>	<b>● 17.32</b>	<b>5.67</b>	<b>(13.66)</b>	<b>(1.25)</b>	<b>1.79</b>	<b>2.30</b>	<b>3.32</b>
MSCI World xUS	▲ 16.18	5.50	(14.29)	(1.75)	1.27	1.79	2.90

## Relative Return vs MSCI World xUS



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



# Wellington Management Period Ended December 31, 2022

## Investment Philosophy

The objective of the International Small Cap Opportunities Portfolio (the "Portfolio") is to provide long-term total return in excess of the MSCI EAFE Small Cap Index (the "Index"). **The Benchmark is comprised of EPAC, Developed World, <\$2B through 2/28/2022 and MSCI EAFE Small Cap Index thereafter.**

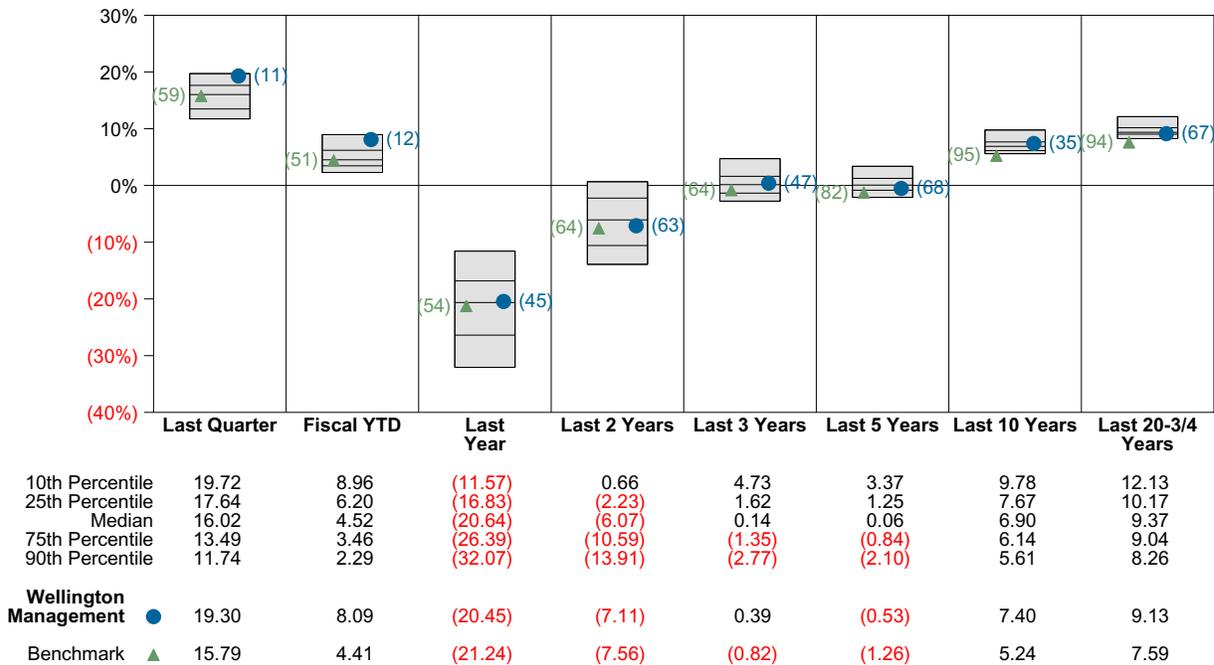
## Quarterly Summary and Highlights

- Wellington Management's portfolio posted a 19.30% return for the quarter placing it in the 11 percentile of the Callan International Small Cap group for the quarter and in the 45 percentile for the last year.
- Wellington Management's portfolio outperformed the Benchmark by 3.50% for the quarter and outperformed the Benchmark for the year by 0.79%.

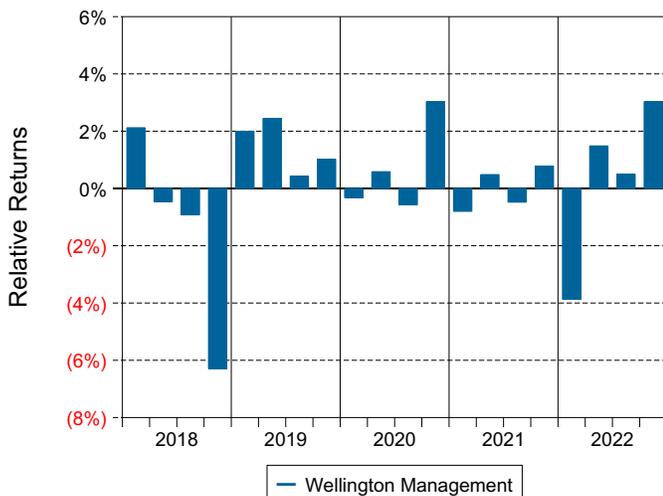
## Quarterly Asset Growth

Beginning Market Value	\$67,429,508
Net New Investment	\$-40,256,996
Investment Gains/(Losses)	\$6,107,287
Ending Market Value	\$33,279,798

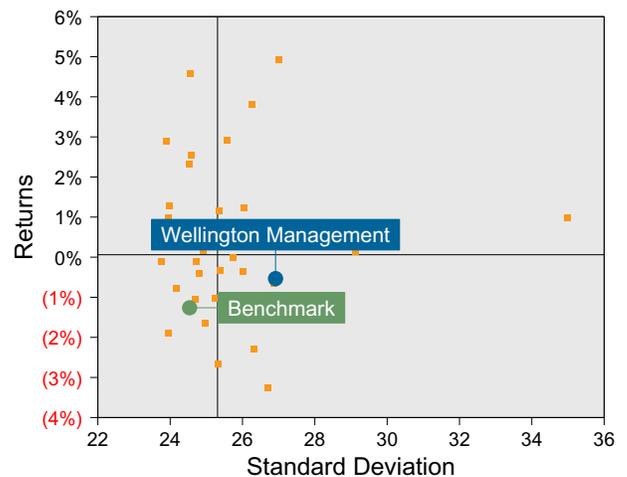
## Performance vs Callan International Small Cap (Gross)



## Relative Return vs Benchmark



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



# William Blair

## Period Ended December 31, 2022

### Investment Philosophy

One of the basic investment tenets of William Blair & Company has been its focus on quality growth companies. They believe that investing in quality growth companies will generate above average results with generally less risk than the market. This opportunity exists because they believe the market underestimates the durability and rate of growth in companies that have the following characteristics: strong management with a unique vision, competitive advantages that prolong the duration and size of earnings growth, and conservative financing. Internationally, they believe that this philosophy can be combined with strategic flexibility in managing geographic exposure, capitalization, sector emphasis, and relative growth and valuation at the portfolio level in order to provide an appropriate degree of adaptability to cyclical conditions.

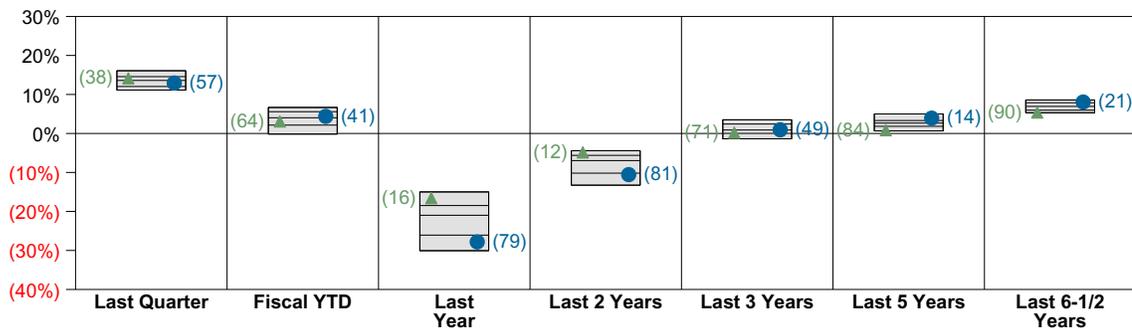
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 12.92% return for the quarter placing it in the 57 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 79 percentile for the last year.
- William Blair's portfolio underperformed the MSCI ACWI xUS IMI by 1.23% for the quarter and underperformed the MSCI ACWI xUS IMI for the year by 11.24%.

### Quarterly Asset Growth

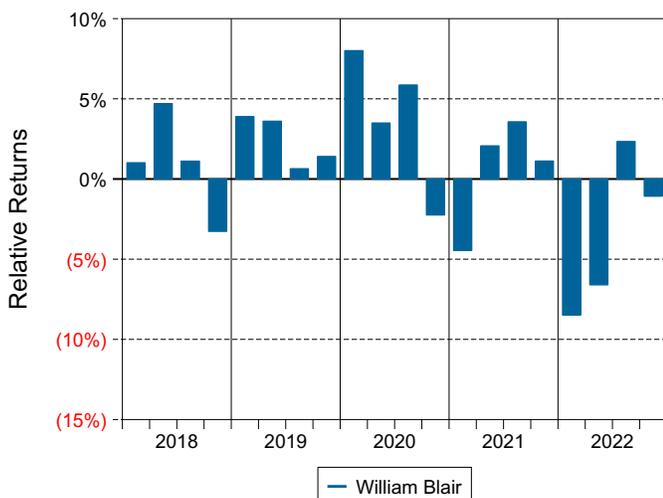
Beginning Market Value	\$173,864,114
Net New Investment	\$-23,370,798
Investment Gains/(Losses)	\$24,343,112
Ending Market Value	\$174,836,428

### Performance vs Callan Non-US All Country Growth Equity (Gross)

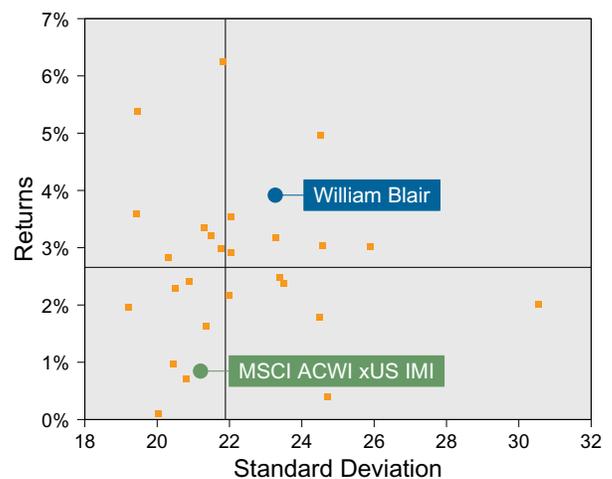


10th Percentile	16.08	6.67	(14.99)	(4.42)	3.50	5.00	8.59
25th Percentile	14.57	5.58	(18.48)	(5.62)	2.42	3.31	7.88
Median	13.59	4.02	(20.98)	(6.96)	0.88	2.66	6.94
75th Percentile	12.04	2.14	(26.07)	(10.18)	0.02	1.82	5.97
90th Percentile	11.12	(0.16)	(30.07)	(13.27)	(1.37)	0.65	5.30
<b>William Blair</b>	<b>12.92</b>	<b>4.37</b>	<b>(27.82)</b>	<b>(10.55)</b>	<b>0.94</b>	<b>3.92</b>	<b>8.06</b>
MSCI ACWI xUS IMI	14.15	3.09	(16.58)	(4.85)	0.20	0.85	5.37

### Relative Return vs MSCI ACWI xUS IMI



### Callan Non-US All Country Growth Equity (Gross) Annualized Five Year Risk vs Return



# Axiom Emerging Markets Period Ended December 31, 2022

## Investment Philosophy

The Emerging Markets Equity strategy seeks to invest in emerging market securities issued by companies whose key business drivers are both improving and exceeding expectations, as determined by Axiom's stock selection techniques focused on fundamental company analysis. The strategy considers companies either (i) located in countries that are not included in the MSCI Developed Markets Index series or (ii) that derive a majority of their revenues or assets from a country or countries not included in the MSCI Developed Markets Index series, in each case at the time of investment. Although the Manager generally expects the strategy's investment portfolio to be geographically diverse, there are no prescribed limits on geographic distribution of the strategy's investments and the strategy has the authority to invest in securities traded in securities markets or any country in the world.

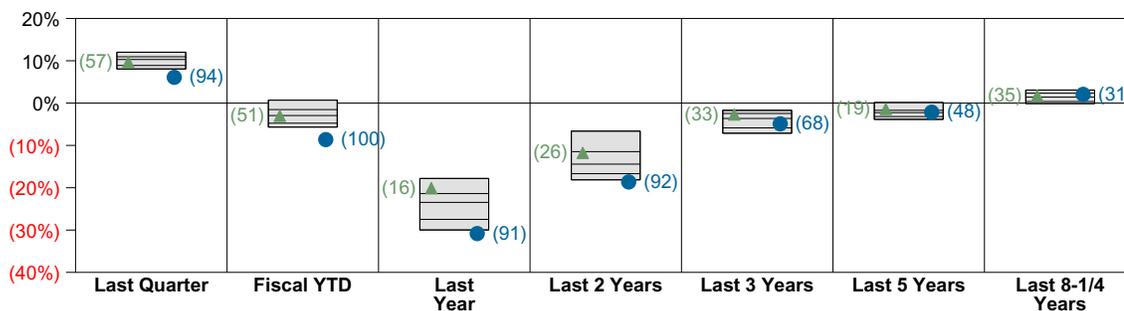
## Quarterly Summary and Highlights

- Axiom Emerging Markets's portfolio posted a 6.09% return for the quarter placing it in the 94 percentile of the Callan Emerging Markets Equity Mut Funds group for the quarter and in the 91 percentile for the last year.
- Axiom Emerging Markets's portfolio underperformed the MSCI EM by 3.61% for the quarter and underperformed the MSCI EM for the year by 10.74%.

## Quarterly Asset Growth

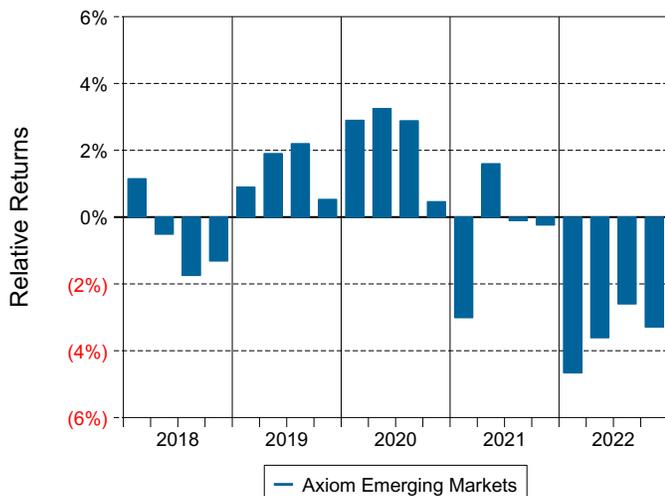
Beginning Market Value	\$126,335,767
Net New Investment	\$10,400,000
Investment Gains/(Losses)	\$8,514,221
Ending Market Value	\$145,249,987

## Performance vs Callan Emerging Markets Equity Mut Funds (Net)

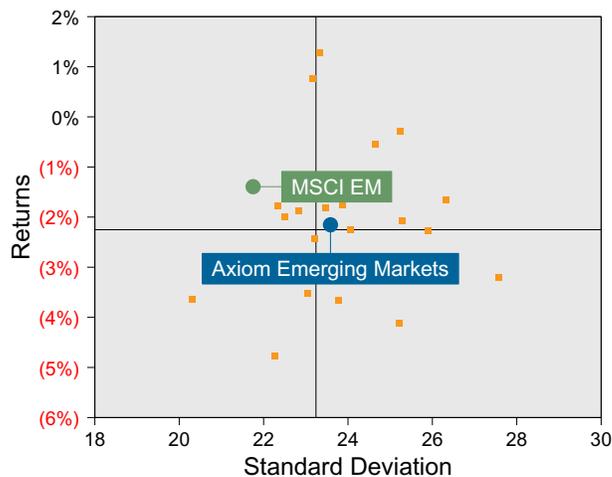


	Last Quarter	Fiscal YTD	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 8-1/4 Years
10th Percentile	12.02	0.70	(17.81)	(6.62)	(1.71)	0.13	3.08
25th Percentile	10.94	(1.53)	(21.38)	(11.47)	(2.45)	(1.70)	2.34
Median	10.30	(2.94)	(23.46)	(14.42)	(3.63)	(2.25)	1.41
75th Percentile	8.89	(4.75)	(27.48)	(16.68)	(5.86)	(3.18)	0.37
90th Percentile	8.06	(5.67)	(29.98)	(18.13)	(7.12)	(3.85)	(0.11)
<b>Axiom Emerging Markets</b>	6.09	(8.63)	(30.83)	(18.64)	(4.90)	(2.15)	2.06
<b>MSCI EM</b>	9.70	(2.99)	(20.09)	(11.75)	(2.69)	(1.39)	1.77

## Relative Return vs MSCI EM



## Callan Emerging Markets Equity Mut Funds (Net) Annualized Five Year Risk vs Return



# DFA Emerging Markets Period Ended December 31, 2022

## Investment Philosophy

The Emerging Markets Small Cap Portfolio invests in small cap emerging markets companies. Presently, this means investment in companies whose market capitalization is less than \$2.3 billion at the time of purchase. Dimensional considers, among other things, information disseminated by the International Finance Corporation in determining and approving emerging market countries.

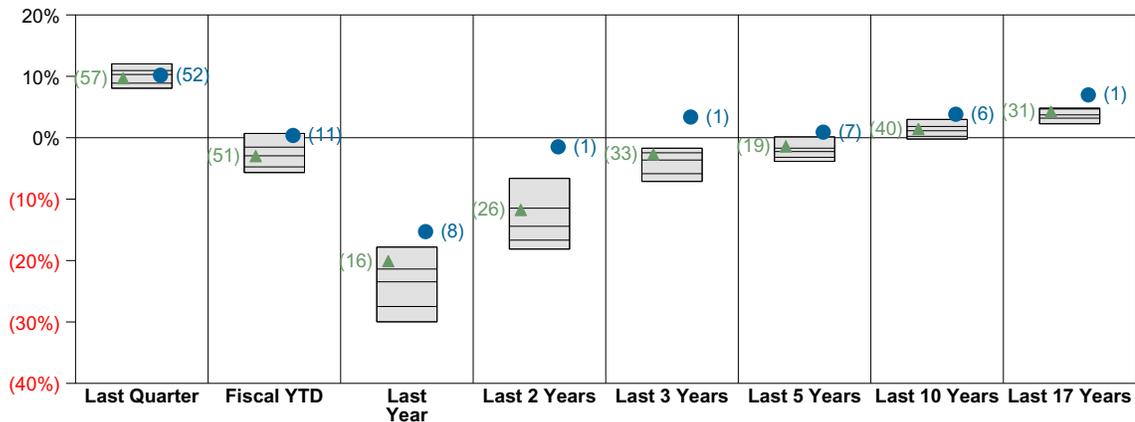
## Quarterly Summary and Highlights

- DFA Emerging Markets's portfolio posted a 10.18% return for the quarter placing it in the 52 percentile of the Callan Emerging Markets Equity Mut Funds group for the quarter and in the 8 percentile for the last year.
- DFA Emerging Markets's portfolio outperformed the MSCI EM by 0.48% for the quarter and outperformed the MSCI EM for the year by 4.80%.

## Quarterly Asset Growth

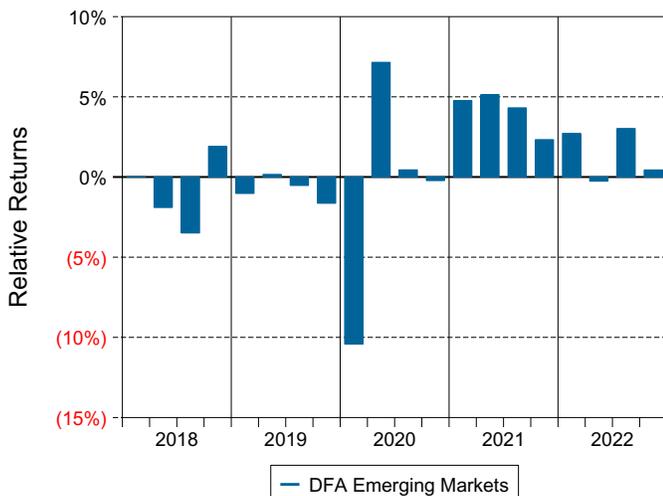
Beginning Market Value	\$53,220,979
Net New Investment	\$-7,500,000
Investment Gains/(Losses)	\$4,627,487
Ending Market Value	\$50,348,466

## Performance vs Callan Emerging Markets Equity Mut Funds (Net)

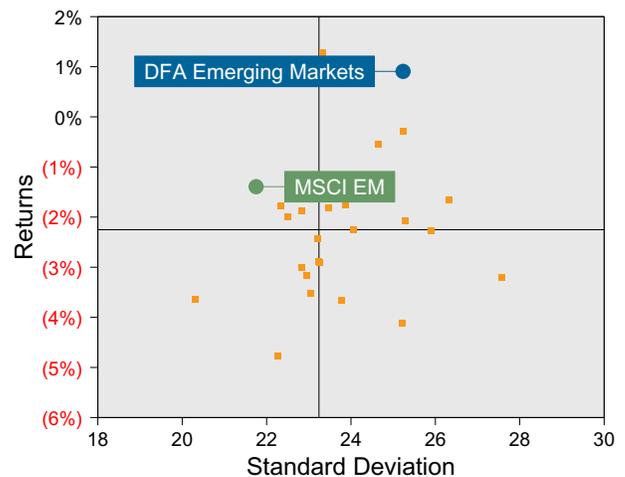


10th Percentile	12.02	0.70	(17.81)	(6.62)	(1.71)	0.13	2.98	4.81
25th Percentile	10.94	(1.53)	(21.38)	(11.47)	(2.45)	(1.70)	1.83	4.69
Median	10.30	(2.94)	(23.46)	(14.42)	(3.63)	(2.25)	1.13	3.72
75th Percentile	8.89	(4.75)	(27.48)	(16.68)	(5.86)	(3.18)	0.23	3.19
90th Percentile	8.06	(5.67)	(29.98)	(18.13)	(7.12)	(3.85)	(0.21)	2.28
<b>DFA Emerging Markets</b>	<b>● 10.18</b>	<b>0.37</b>	<b>(15.29)</b>	<b>(1.48)</b>	<b>3.37</b>	<b>0.91</b>	<b>3.83</b>	<b>6.98</b>
MSCI EM	▲ 9.70	(2.99)	(20.09)	(11.75)	(2.69)	(1.39)	1.44	4.25

## Relative Return vs MSCI EM



## Callan Emerging Markets Equity Mut Funds (Net) Annualized Five Year Risk vs Return





## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2022. 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 December 31, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 22 Years
<b>Private Equity</b>	<b>1.54%</b>	<b>0.27%</b>	<b>20.96%</b>	<b>14.84%</b>	<b>5.07%</b>
Total ASP (Brinson) Fds 1998-2003	2.79%	(1.68%)	(0.13%)	0.78%	-
Total ASP (Brinson) Non-US 1999-2004	40.11%	33.28%	10.70%	7.96%	-
Adams Street 2008 Non-US P-ship Fd	(2.60%)	(20.14%)	10.32%	11.26%	-
Adams Street Direct Co-Invest Fd 2006	(0.06%)	19.12%	(24.90%)	(25.01%)	-
Total Adams Street 2010 Funds	(1.69%)	(12.16%)	21.97%	19.50%	-
Adams Street 2015 Global Fund	(3.10%)	(8.70%)	24.73%	21.86%	-
Adams Street 2016 Global Fund	(1.80%)	(1.60%)	25.17%	19.82%	-
Adams Street 2017 Global Fund	(2.04%)	3.15%	28.96%	21.22%	-
Adams Street 2018 Global Fund	(1.74%)	3.21%	30.65%	-	-
Adams Street 2019 Global Fund	(3.32%)	(1.72%)	66.37%	-	-
Adams Street 2020 Global Fund	4.20%	0.03%	-	-	-
Adams Street 2021 Global Fund	10.61%	17.84%	-	-	-
BlackRock PEP	5.50%	2.63%	21.89%	15.73%	-
Blackrock PEP 2020	8.71%	5.94%	-	-	-
Sixth Street Partners - TAO	1.75%	6.05%	-	-	-
Private Equity Misc Funds*	(7.18%)	(16.70%)	(5.54%)	(2.76%)	-
Russell 1000 Index	7.24%	(19.13%)	7.35%	9.13%	7.13%
Russell 2000 Index	6.23%	(20.44%)	3.10%	4.13%	7.47%

\* Comprised of Matlin Patterson II, Matlin Patterson III, InvestAmerica Lewis & Clark, InvestAmerica L&C II, Corsair III, Capital Intl Fd V, Capital Intl Fd VI, EIG, Quantum Energy Partners, Hearthstone MSII, Hearthstone MSIII.



# Domestic Fixed Income Period Ended December 31, 2022

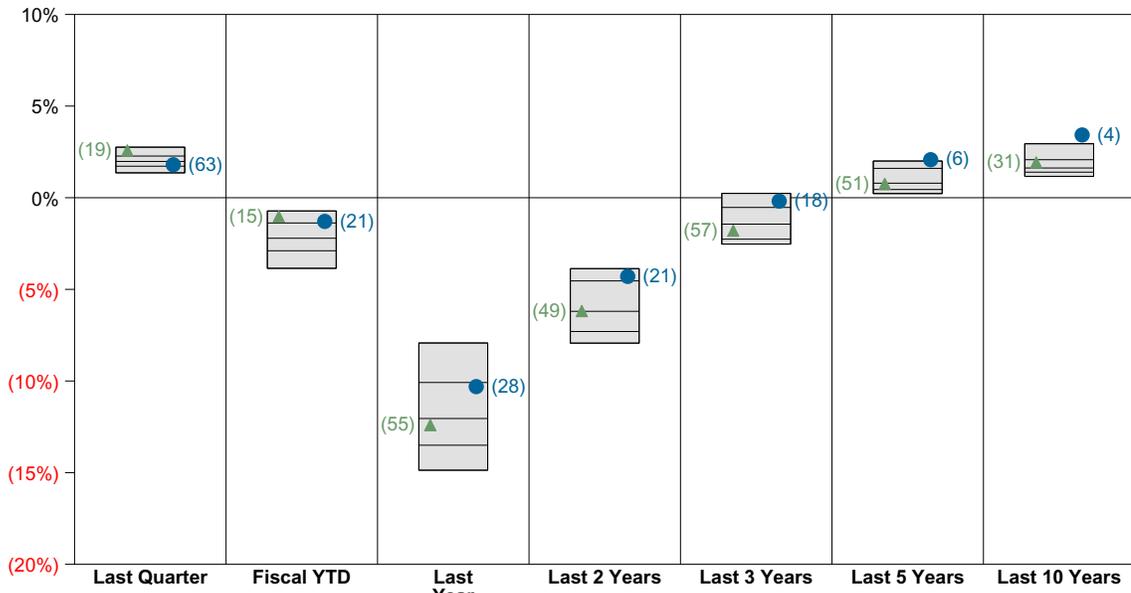
## Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a 1.80% return for the quarter placing it in the 63 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 28 percentile for the last year.
- Domestic Fixed Income's portfolio underperformed the Domestic Fixed Income Target by 0.78% for the quarter and outperformed the Domestic Fixed Income Target for the year by 2.10%.

## Quarterly Asset Growth

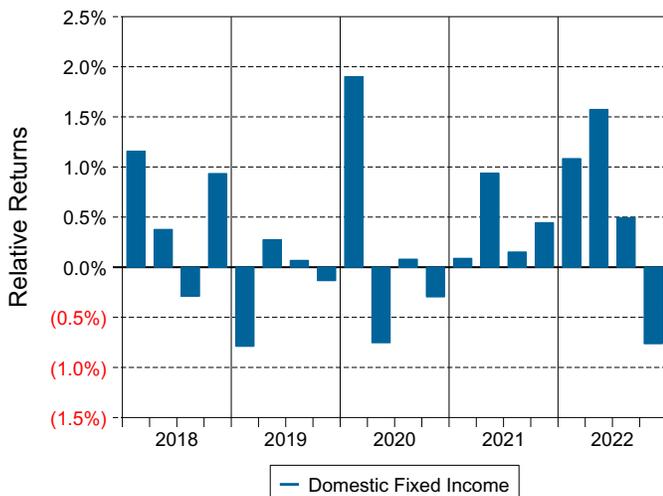
Beginning Market Value	\$1,613,947,780
Net New Investment	\$-32,794,922
Investment Gains/(Losses)	\$27,803,359
Ending Market Value	\$1,608,956,218

## Performance vs Public Fund - Domestic Fixed (Gross)

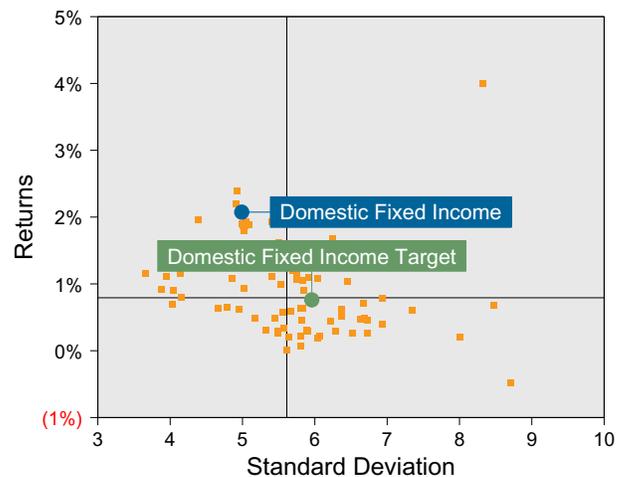


10th Percentile	2.76	(0.72)	(7.93)	(3.87)	0.24	2.00	2.94	
25th Percentile	2.27	(1.38)	(10.08)	(4.54)	(0.53)	1.60	2.08	
Median	1.98	(2.21)	(12.05)	(6.20)	(1.44)	0.79	1.62	
75th Percentile	1.72	(2.89)	(13.50)	(7.30)	(2.26)	0.45	1.40	
90th Percentile	1.36	(3.85)	(14.87)	(7.93)	(2.53)	0.22	1.17	
<b>Domestic Fixed Income</b>	<b>●</b>	<b>1.80</b>	<b>(1.29)</b>	<b>(10.31)</b>	<b>(4.29)</b>	<b>(0.18)</b>	<b>2.07</b>	<b>3.42</b>
Domestic Fixed Income Target	<b>▲</b>	<b>2.58</b>	<b>(1.02)</b>	<b>(12.40)</b>	<b>(6.18)</b>	<b>(1.80)</b>	<b>0.76</b>	<b>1.92</b>

## Relative Returns vs Domestic Fixed Income Target



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



# Manulife-Declaration TRBF Period Ended December 31, 2022

## Investment Philosophy

The Fund's portfolio holdings consist primarily of RMBS issued by private sector companies (Non-Agency RMBS) and government agencies (Agency MBS) and CMBS issued by private sector companies. Agency MBS includes securities issued by the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac) and the Government National Mortgage Association (Ginnie Mae). Portfolio holdings may range from short tenure senior classes to stressed issues or subordinated securities with substantial risk of non-payment and correspondingly higher yields. Smaller portfolio allocations may include consumer asset-backed securities (ABS), or other structured credit securities and corporate bonds. As a diversification strategy and a potential hedge to credit risk, the Fund may invest in securities which tend to benefit from slow mortgage prepayments and economic growth, such as interest only (IO) MBS.

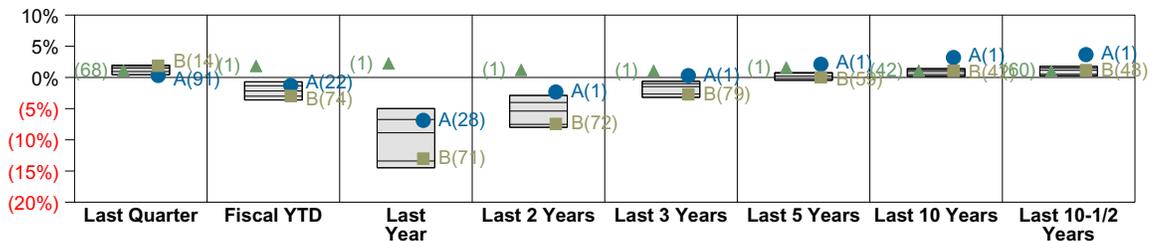
## Quarterly Summary and Highlights

- Manulife-Declaration TRBF's portfolio posted a 0.32% return for the quarter placing it in the 91 percentile of the Callan Intermediate Fixed Inc Mut Funds group for the quarter and in the 28 percentile for the last year.
- Manulife-Declaration TRBF's portfolio underperformed the LIBOR - 3 Month by 0.81% for the quarter and underperformed the LIBOR - 3 Month for the year by 9.14%.

## Quarterly Asset Growth

Beginning Market Value	\$146,190,495
Net New Investment	\$0
Investment Gains/(Losses)	\$466,738
Ending Market Value	\$146,657,233

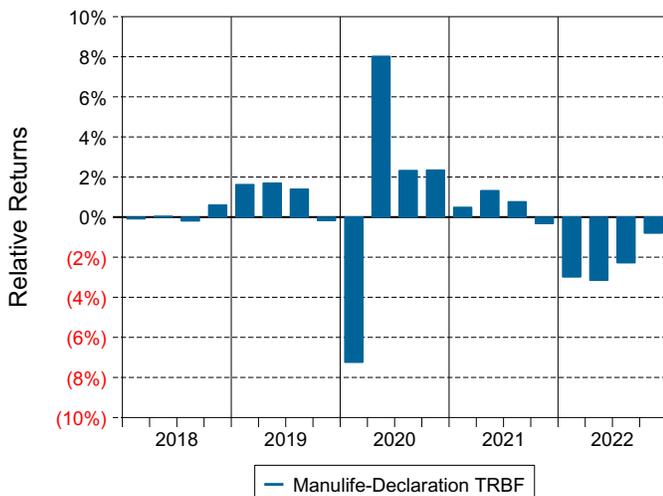
## Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



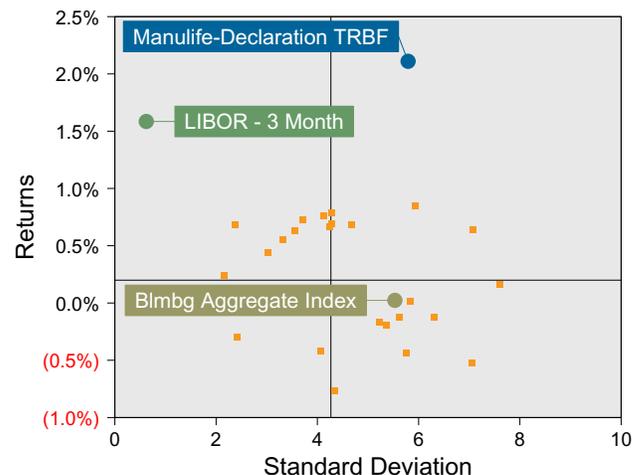
10th Percentile	1.98	(0.70)	(4.99)	(2.88)	(0.62)	0.77	1.42	1.78
25th Percentile	1.78	(1.34)	(6.74)	(4.01)	(1.00)	0.68	1.24	1.50
Median	1.48	(2.17)	(8.87)	(5.39)	(1.47)	0.20	0.96	1.16
75th Percentile	0.95	(3.00)	(13.40)	(7.52)	(2.67)	(0.17)	0.47	0.50
90th Percentile	0.43	(3.61)	(14.48)	(7.99)	(3.19)	(0.46)	0.18	0.27

Manulife-Declaration TRBF	● A	0.32	(1.29)	(6.88)	(2.33)	0.29	2.11	3.20	3.66
Blmbg Aggregate Index	■ B	1.87	(2.97)	(13.01)	(7.45)	(2.71)	0.02	1.06	1.18
LIBOR - 3 Month	▲	1.13	1.83	2.25	1.20	1.06	1.58	1.07	1.04

## Relative Return vs LIBOR - 3 Month



## Callan Intermediate Fixed Inc Mut Funds (Net) Annualized Five Year Risk vs Return



# PIMCO DiSCO II

## Period Ended December 31, 2022

### Investment Philosophy

The PIMCO Distressed Senior Credit Opportunities Fund is an opportunistic private-equity style Fund which seeks to provide investors enhanced returns principally through long-biased investments in undervalued senior and super senior structured credit securities that are expected to produce attractive levels of current income and that may also appreciate in value over the long term. The fund will look to capitalize on forced sales by liquidity constrained investors.

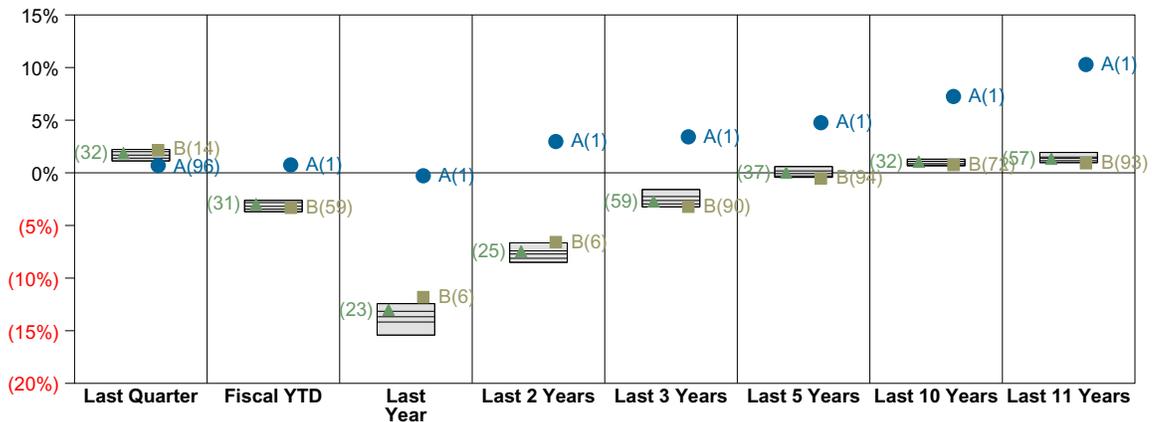
### Quarterly Summary and Highlights

- PIMCO DiSCO II's portfolio posted a 0.69% return for the quarter placing it in the 96 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 1 percentile for the last year.
- PIMCO DiSCO II's portfolio underperformed the Blmbg Aggregate by 1.18% for the quarter and outperformed the Blmbg Aggregate for the year by 12.73%.

### Quarterly Asset Growth

Beginning Market Value	\$100,551,584
Net New Investment	\$0
Investment Gains/(Losses)	\$698,630
Ending Market Value	\$101,250,214

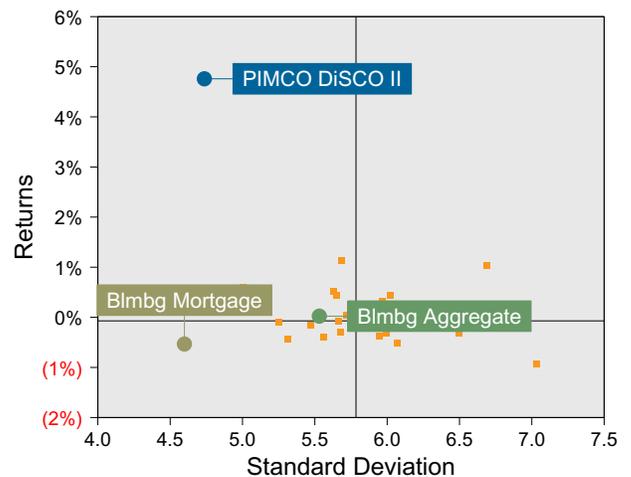
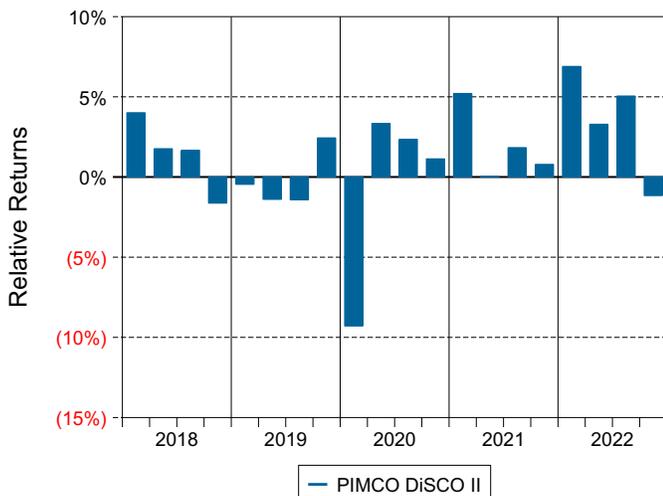
### Performance vs Callan Core Bond Mutual Funds (Net)



10th Percentile	2.22	(2.61)	(12.43)	(6.65)	(1.59)	0.60	1.30	1.93
25th Percentile	2.01	(2.83)	(13.16)	(7.42)	(2.25)	0.18	1.09	1.50
Median	1.68	(3.18)	(13.67)	(7.71)	(2.63)	(0.07)	0.87	1.38
75th Percentile	1.39	(3.45)	(14.17)	(8.12)	(2.95)	(0.30)	0.73	1.15
90th Percentile	1.13	(3.70)	(15.42)	(8.50)	(3.24)	(0.43)	0.67	0.97
PIMCO DiSCO II	0.69	0.75	(0.28)	2.97	3.42	4.76	7.25	10.28
Blmbg Mortgage	2.14	(3.32)	(11.81)	(6.58)	(3.22)	(0.53)	0.74	0.91
Blmbg Aggregate	1.87	(2.97)	(13.01)	(7.45)	(2.71)	0.02	1.06	1.34

### Callan Core Bond Mutual Funds (Net) Annualized Five Year Risk vs Return

### Relative Return vs Blmbg Aggregate



# PIMCO Core Plus Constrained Period Ended December 31, 2022

## Investment Philosophy

PIMCO's investment process utilizes both "top-down" and "bottom-up" strategies. Top-down strategies focus on duration, yield curve positioning, volatility, and sector rotation. These strategies are deployed from a macro view of the portfolio driven by their secular outlook of the forces likely to influence the economy and financial markets over the next three to five years and their cyclical views of two- to four-quarter trends. Implementation in portfolios is effected by selecting securities that achieve the designated objectives. Bottom-up strategies drive their security selection process and facilitate the identification and analysis of undervalued securities. **The product changed from Commingled Fund to Separate Account in March 2014. \*Libor-3 month through February 28, 2017; Fund's performance through March 31, 2014; Libor-3 month through June 30, 2018; Bloomberg Aggregate thereafter.**

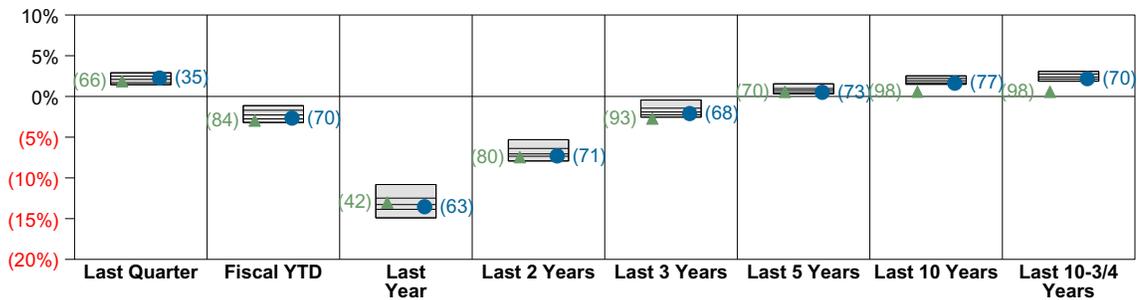
## Quarterly Summary and Highlights

- PIMCO Core Plus Constrained's portfolio posted a 2.26% return for the quarter placing it in the 35 percentile of the Callan Core Plus Fixed Income group for the quarter and in the 63 percentile for the last year.
- PIMCO Core Plus Constrained's portfolio outperformed the Blended Benchmark\* by 0.39% for the quarter and underperformed the Blended Benchmark\* for the year by 0.53%.

## Quarterly Asset Growth

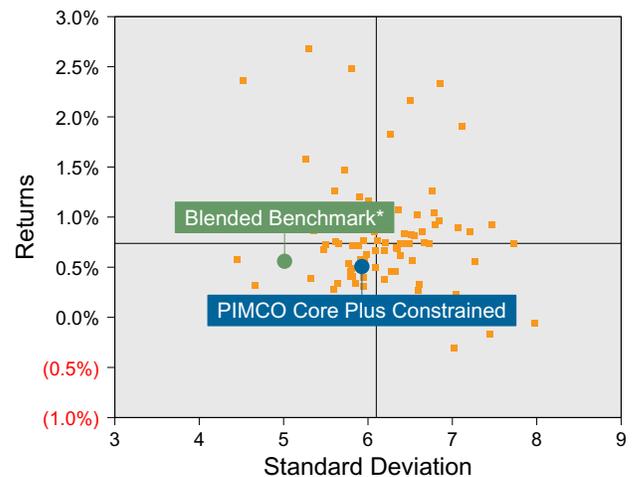
Beginning Market Value	\$390,959,324
Net New Investment	\$-6,628,315
Investment Gains/(Losses)	\$8,479,105
Ending Market Value	\$392,810,114

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

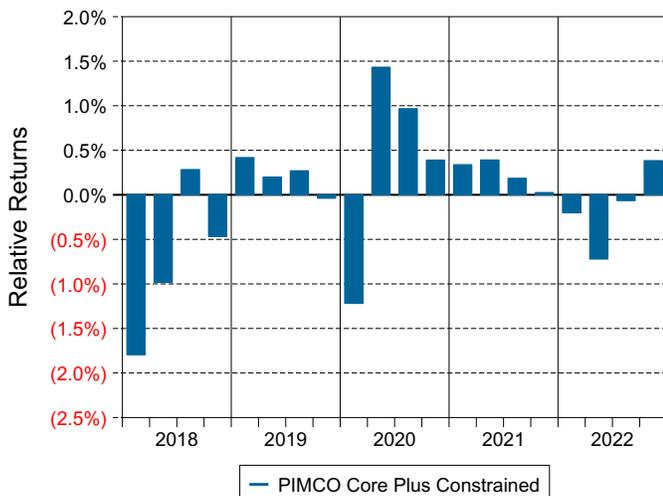


10th Percentile	2.91	(1.13)	(10.81)	(5.31)	(0.44)	1.55	2.53	3.08	
25th Percentile	2.48	(1.70)	(12.48)	(6.39)	(1.44)	0.97	2.22	2.75	
Median	2.09	(2.27)	(13.28)	(7.05)	(1.90)	0.74	1.93	2.37	
75th Percentile	1.69	(2.75)	(13.86)	(7.34)	(2.25)	0.47	1.67	2.12	
90th Percentile	1.45	(3.20)	(14.91)	(7.92)	(2.54)	0.31	1.49	1.87	
<b>PIMCO Core Plus Constrained</b>	<b>●</b>	<b>2.26</b>	<b>(2.66)</b>	<b>(13.54)</b>	<b>(7.30)</b>	<b>(2.10)</b>	<b>0.51</b>	<b>1.63</b>	<b>2.19</b>
<b>Blended Benchmark*</b>	<b>▲</b>	<b>1.87</b>	<b>(2.97)</b>	<b>(13.01)</b>	<b>(7.45)</b>	<b>(2.71)</b>	<b>0.56</b>	<b>0.58</b>	<b>0.57</b>

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



## Relative Return vs Blended Benchmark\*



# Prudential Core Period Ended December 31, 2022

## Investment Philosophy

The PGIM Fixed Income Core Fixed Income strategy seeks to provide +60 bps over the Bloomberg Barclays Aggregate Index over a market cycle. The strategy tends to generate its excess return from fairly equal increments of both sector allocation and subsector/security allocation. Duration and yield curve positioning is generally de-emphasized, but will be considered when market opportunities dictate. The primary way they add value is through intensive research-based sector, industry, and security selection. The strategy is predominately investment grade, but may also invest nominally in crossover/high yield bonds and emerging markets debt, when guidelines permit.

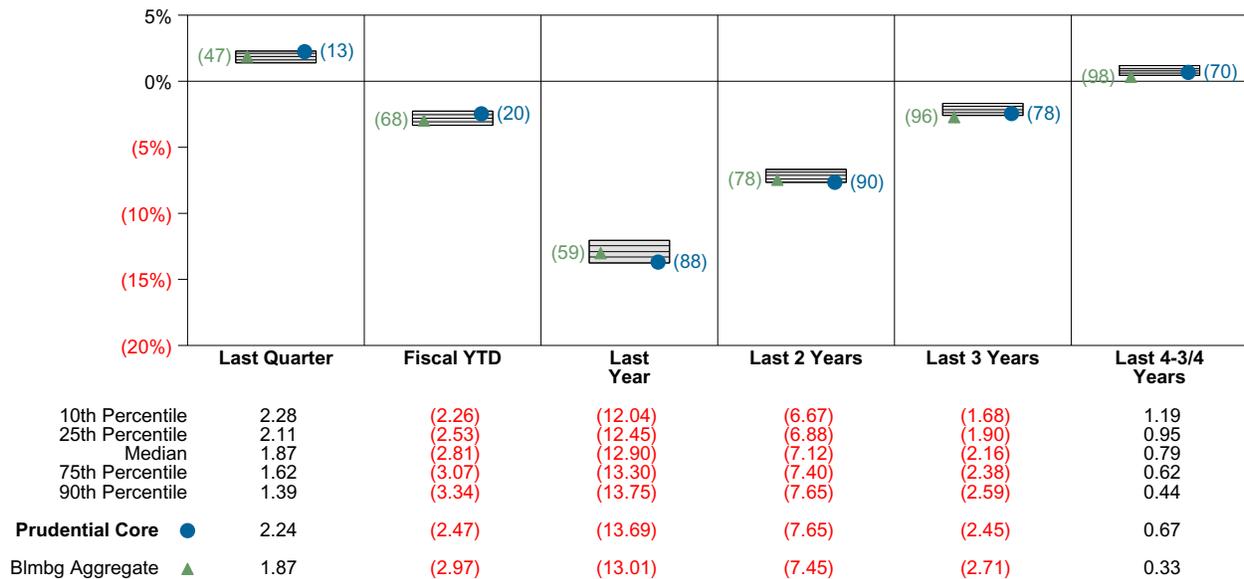
## Quarterly Summary and Highlights

- Prudential Core's portfolio posted a 2.24% return for the quarter placing it in the 13 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 88 percentile for the last year.
- Prudential Core's portfolio outperformed the Blmbg Aggregate by 0.36% for the quarter and underperformed the Blmbg Aggregate for the year by 0.68%.

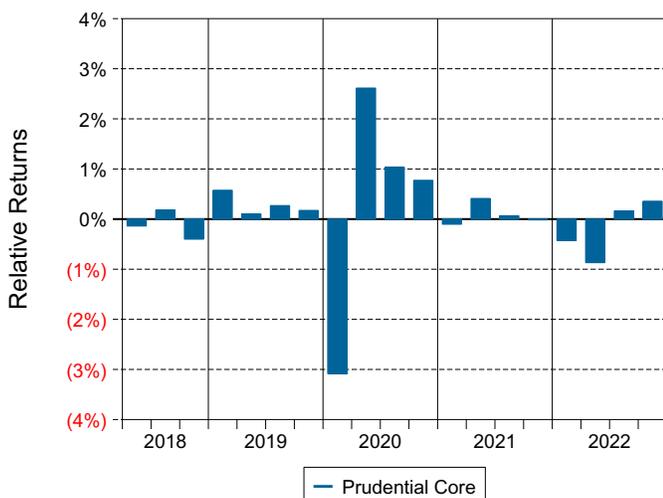
## Quarterly Asset Growth

Beginning Market Value	\$390,179,118
Net New Investment	\$381,854
Investment Gains/(Losses)	\$8,387,674
Ending Market Value	\$398,948,646

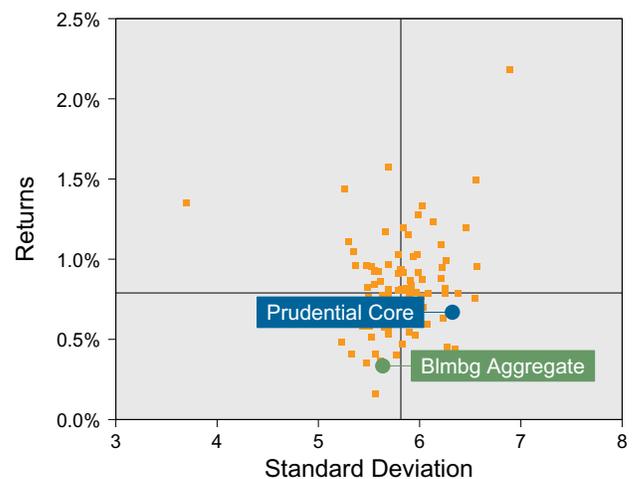
## Performance vs Callan Core Bond Fixed Income (Gross)



## Relative Return vs Blmbg Aggregate



## Callan Core Bond Fixed Income (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# SSgA Long US Treas Index Period Ended December 31, 2022

## Investment Philosophy

The Fund seeks an investment return that approximates as closely as practicable, before expenses, the performance of the Bloomberg Capital U.S. Long Treasury Bond Index over the long term.

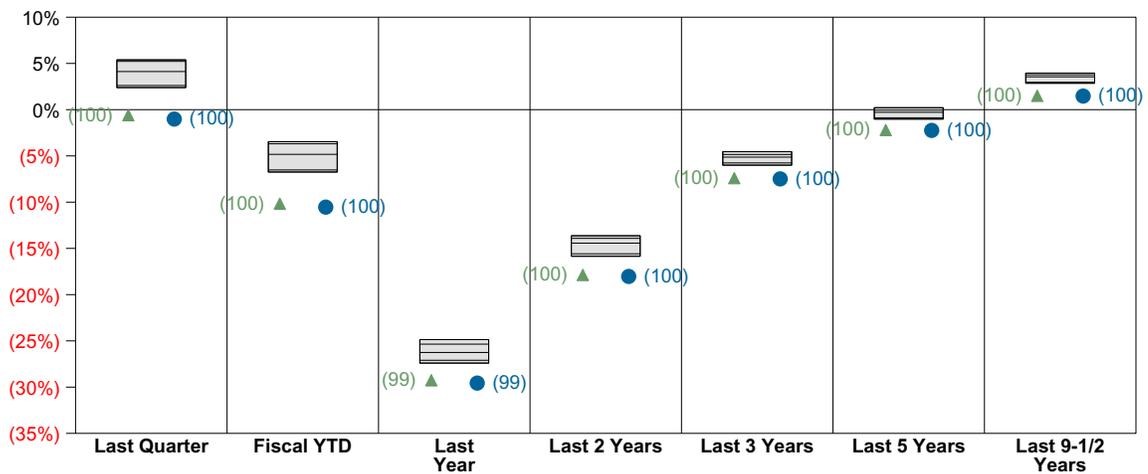
## Quarterly Summary and Highlights

- SSgA Long US Treas Index's portfolio posted a (1.02)% return for the quarter placing it in the 100 percentile of the Callan Extended Maturity Fixed Income group for the quarter and in the 99 percentile for the last year.
- SSgA Long US Treas Index's portfolio underperformed the Blmbg Long Treasury by 0.43% for the quarter and underperformed the Blmbg Long Treasury for the year by 0.31%.

## Quarterly Asset Growth

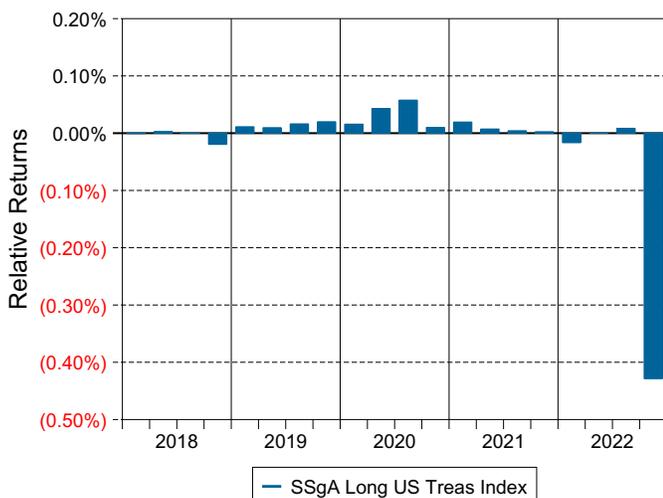
Beginning Market Value	\$99,598,447
Net New Investment	\$-10,004,490
Investment Gains/(Losses)	\$-1,289,032
Ending Market Value	\$88,304,925

## Performance vs Callan Extended Maturity Fixed Income (Gross)

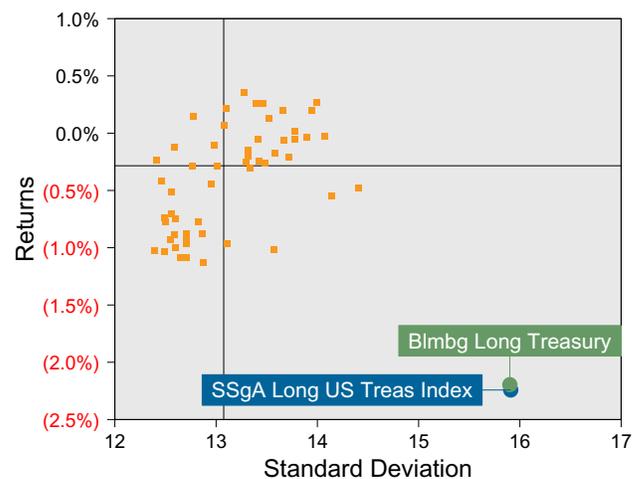


10th Percentile	5.39	(3.46)	(24.86)	(13.64)	(4.54)	0.21	3.95
25th Percentile	5.22	(3.69)	(25.35)	(13.91)	(4.85)	(0.04)	3.78
Median	4.12	(4.83)	(26.25)	(14.43)	(5.13)	(0.28)	3.55
75th Percentile	2.61	(6.52)	(27.10)	(15.58)	(5.76)	(0.88)	2.96
90th Percentile	2.39	(6.75)	(27.40)	(15.85)	(6.00)	(1.02)	2.86
<b>SSgA Long US Treas Index</b>	●	(1.02)	(29.56)	(18.03)	(7.49)	(2.24)	1.47
Blmbg Long Treasury	▲	(0.59)	(29.26)	(17.87)	(7.40)	(2.20)	1.50

## Relative Return vs Blmbg Long Treasury



## Callan Extended Maturity Fixed Income (Gross) Annualized Five Year Risk vs Return



# Ares ND Credit Strategies Fd Period Ended December 31, 2022

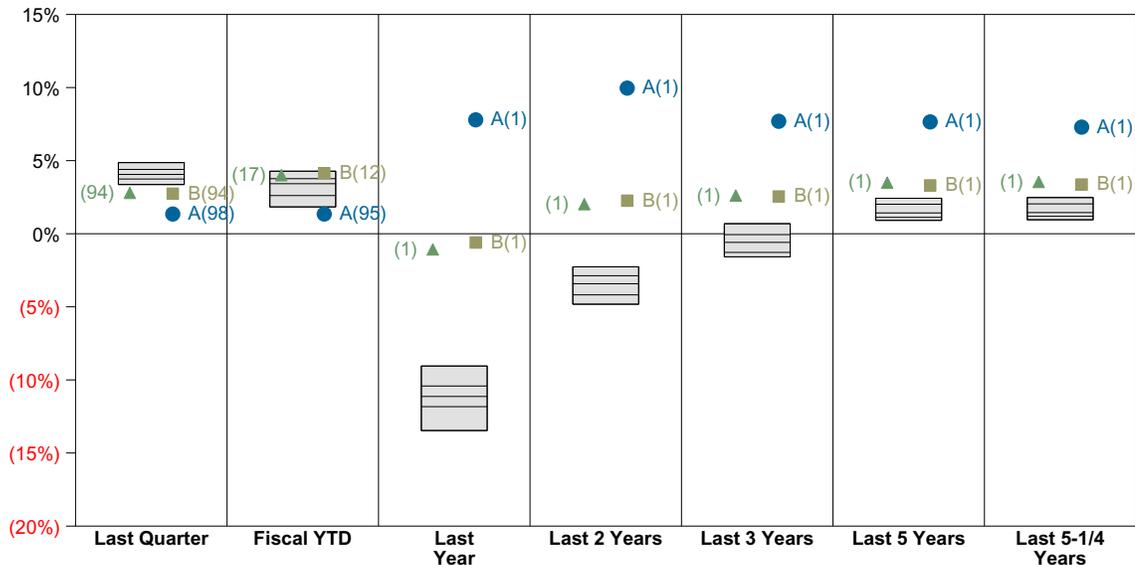
## Quarterly Summary and Highlights

- Ares ND Credit Strategies Fd's portfolio posted a 1.35% return for the quarter placing it in the 98 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 1 percentile for the last year.
- Ares ND Credit Strategies Fd's portfolio underperformed the Mstar LSTA Lev Loan B by 1.45% for the quarter and outperformed the Mstar LSTA Lev Loan B for the year by 8.86%.

## Quarterly Asset Growth

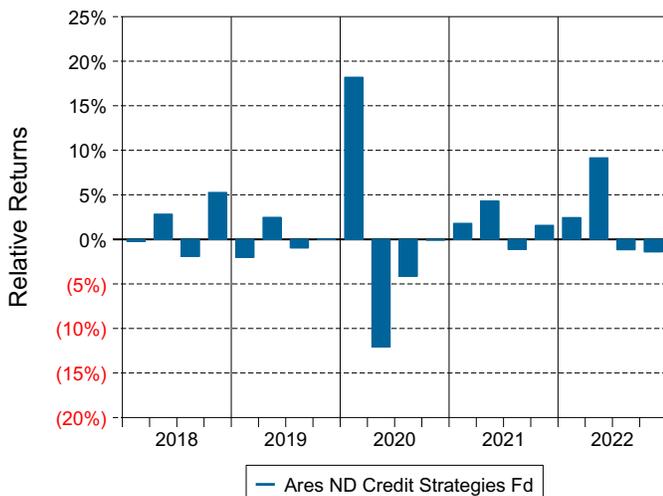
Beginning Market Value	\$156,115,483
Net New Investment	\$0
Investment Gains/(Losses)	\$2,104,515
Ending Market Value	\$158,219,998

## Performance vs Callan High Yield Mutual Funds (Net)

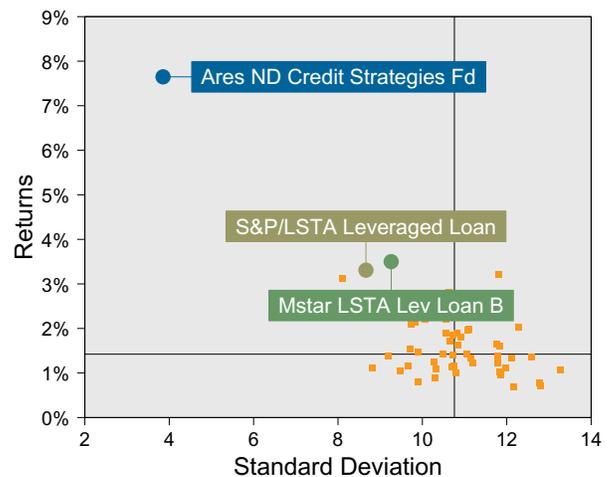


	Last Quarter	Fiscal YTD	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 5-1/4 Years
10th Percentile	4.87	4.28	(9.05)	(2.26)	0.69	2.43	2.48
25th Percentile	4.40	3.77	(10.42)	(2.87)	(0.06)	2.02	2.04
Median	4.06	3.42	(11.13)	(3.42)	(0.59)	1.42	1.45
75th Percentile	3.74	2.61	(11.83)	(4.18)	(1.28)	1.12	1.19
90th Percentile	3.37	1.83	(13.46)	(4.82)	(1.58)	0.92	0.95
Ares ND Credit Strategies Fd	1.35	1.35	7.79	9.96	7.69	7.65	7.29
S&P/LSTA Leveraged Loan	2.74	4.14	(0.60)	2.26	2.55	3.31	3.37
Mstar LSTA Lev Loan B	2.80	4.01	(1.07)	2.02	2.61	3.50	3.54

## Relative Return vs Mstar LSTA Lev Loan B



## Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return



# Cerberus ND Private Credit Fd Period Ended December 31, 2022

## Investment Philosophy

The investment objective of the LLC is to achieve superior risk-adjusted rates of return primarily through origination of, and investment in, secured debt assets consistent with the Loan Opportunities Strategy of the Cerberus Business Finance lending platform ("CBF", "Cerberus Business Finance" or the "Cerberus Lending Platform"). The Cerberus Lending Platform is a direct origination and lending business focused on providing secured debt primarily to U.S. middle-market companies. The LLC expects to generate both current income and capital appreciation.

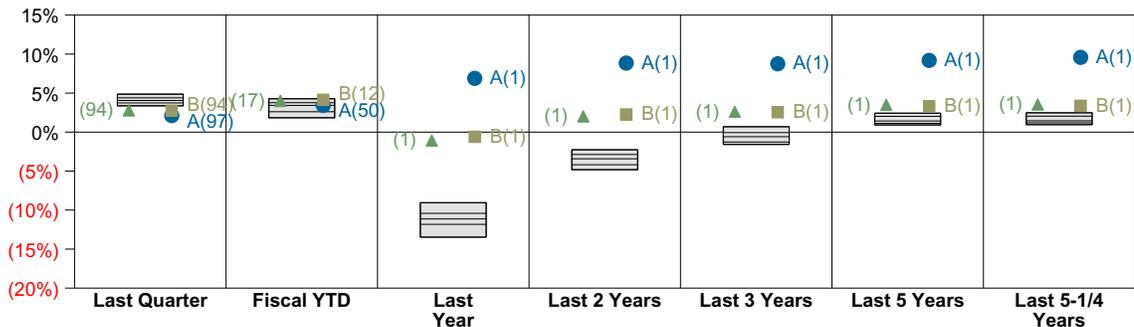
## Quarterly Summary and Highlights

- Cerberus ND Private Credit Fd's portfolio posted a 2.12% return for the quarter placing it in the 97 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 1st percentile for the last year.
- Cerberus ND Private Credit Fd's portfolio underperformed the Mstar LSTA Lev Loan B by 0.68% for the quarter and outperformed the Mstar LSTA Lev Loan B for the year by 7.96%.

## Quarterly Asset Growth

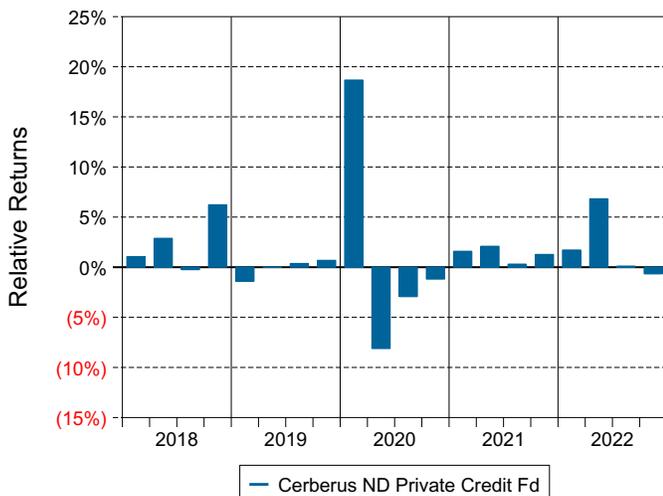
Beginning Market Value	\$169,735,615
Net New Investment	\$22,000,000
Investment Gains/(Losses)	\$3,673,840
Ending Market Value	\$195,409,455

## Performance vs Callan High Yield Mutual Funds (Net)

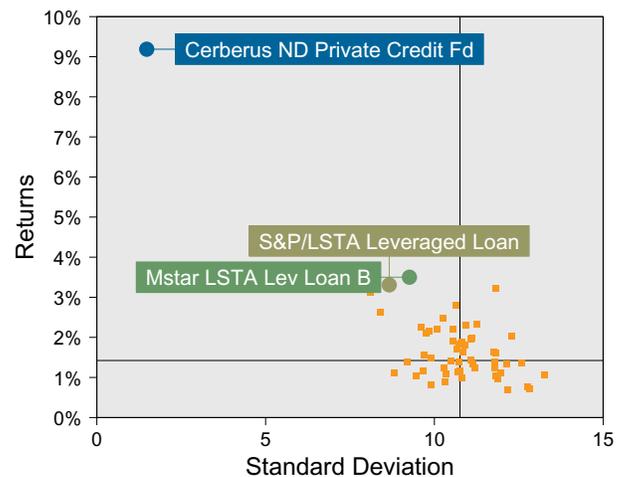


10th Percentile	4.87	4.28	(9.05)	(2.26)	0.69	2.43	2.48
25th Percentile	4.40	3.77	(10.42)	(2.87)	(0.06)	2.02	2.04
Median	4.06	3.42	(11.13)	(3.42)	(0.59)	1.42	1.45
75th Percentile	3.74	2.61	(11.83)	(4.18)	(1.28)	1.12	1.19
90th Percentile	3.37	1.83	(13.46)	(4.82)	(1.58)	0.92	0.95
Cerberus ND Private Credit Fd S&P/LSTA Leveraged Loan	● A 2.12	3.43	6.89	8.84	8.76	9.19	9.58
Mstar LSTA Lev Loan B	▲ 2.80	4.01	(1.07)	2.02	2.61	3.50	3.54

## Relative Return vs Mstar LSTA Lev Loan B



## Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return



# Goldman Sachs 2006 Offshore Period Ended December 31, 2022

## Investment Philosophy

GS Mezzanine Partners seeks large-sized mezzanine investments comprised generally of fixed income securities and an associated equity component. They focus on providing "private high yield" capital for mid- to large-sized leveraged and management buyout transactions, recapitalizations, financings, re-financings, acquisitions and restructurings for private equity firms, private family companies and corporate issuers.

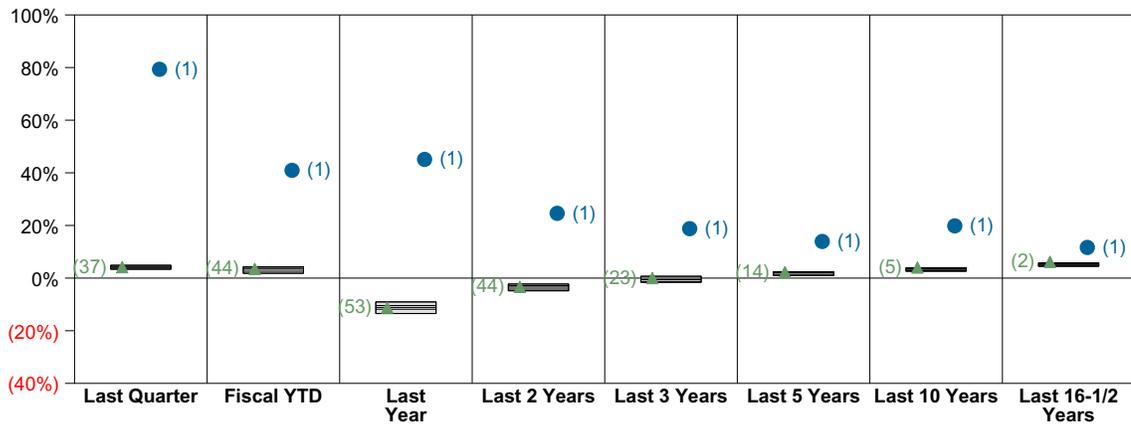
## Quarterly Summary and Highlights

- Goldman Sachs's portfolio posted a 79.34% return for the quarter placing it in the 1 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 1 percentile for the last year.
- Goldman Sachs's portfolio outperformed the Blmbg HY Corp 2% Iss Cap by 75.17% for the quarter and outperformed the Blmbg HY Corp 2% Iss Cap for the year by 56.28%.

## Quarterly Asset Growth

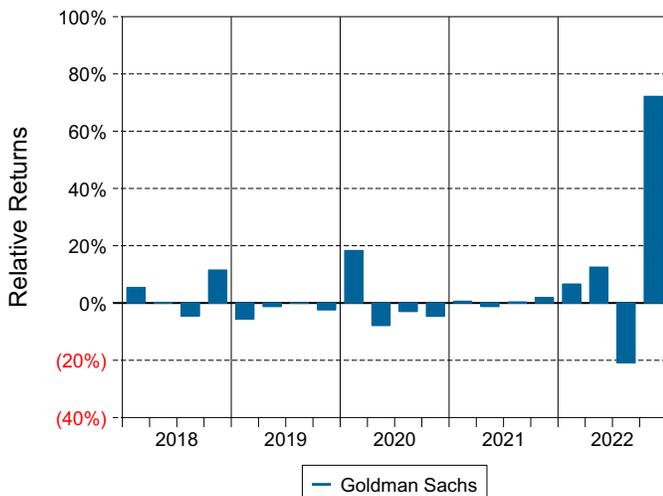
Beginning Market Value	\$23,848
Net New Investment	\$-11,706
Investment Gains/(Losses)	\$10,435
Ending Market Value	\$22,577

## Performance vs Callan High Yield Mutual Funds (Net)

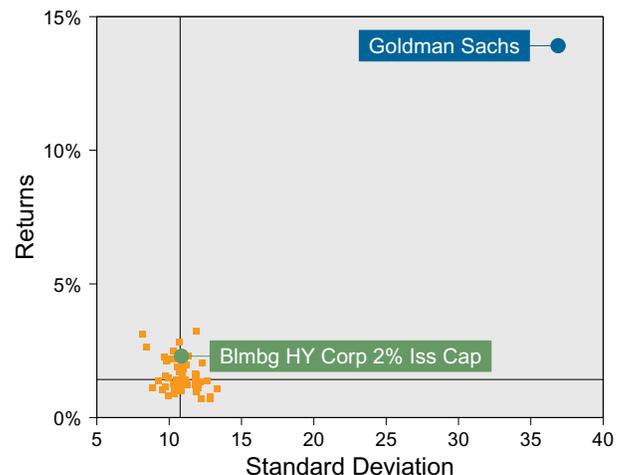


10th Percentile	4.87	4.28	(9.05)	(2.26)	0.69	2.43	3.90	5.77
25th Percentile	4.40	3.77	(10.42)	(2.87)	(0.06)	2.02	3.58	5.43
Median	4.06	3.42	(11.13)	(3.42)	(0.59)	1.42	3.08	5.00
75th Percentile	3.74	2.61	(11.83)	(4.18)	(1.28)	1.12	2.81	4.77
90th Percentile	3.37	1.83	(13.46)	(4.82)	(1.58)	0.92	2.61	4.48
<b>Goldman Sachs</b>	<b>79.34</b>	<b>40.94</b>	<b>45.10</b>	<b>24.61</b>	<b>18.79</b>	<b>13.91</b>	<b>19.84</b>	<b>11.64</b>
<b>Blmbg HY Corp 2% Iss Cap</b>	<b>4.17</b>	<b>3.50</b>	<b>(11.18)</b>	<b>(3.31)</b>	<b>0.03</b>	<b>2.30</b>	<b>4.03</b>	<b>6.19</b>

## Relative Return vs Blmbg HY Corp 2% Iss Cap



## Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return



# Goldman Sachs Offshore Fund V Period Ended December 31, 2022

## Investment Philosophy

GS Mezzanine Partners seeks large-sized mezzanine investments comprised generally of fixed income securities and an associated equity component. They focus on providing "private high yield" capital for mid- to large-sized leveraged and management buyout transactions, recapitalizations, financings, re-financings, acquisitions and restructurings for private equity firms, private family companies and corporate issuers.

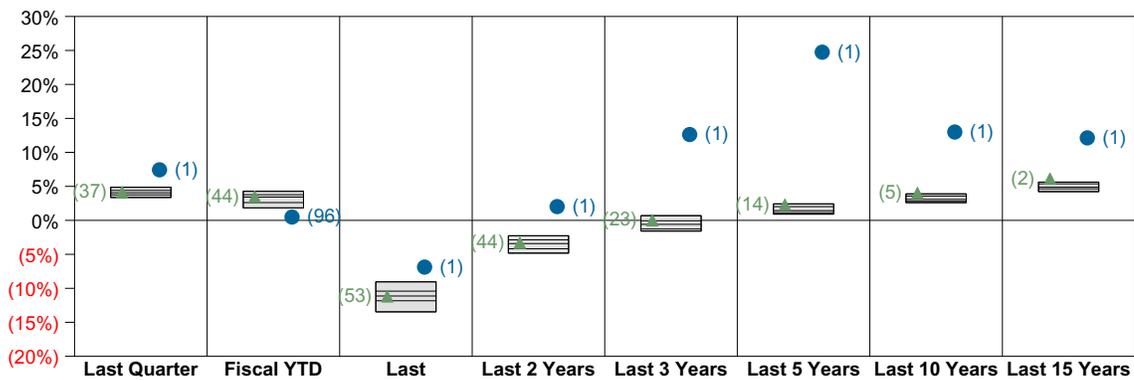
## Quarterly Summary and Highlights

- Goldman Sachs Offshore V's portfolio posted a 7.44% return for the quarter placing it in the 1 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 1 percentile for the last year.
- Goldman Sachs Offshore V's portfolio outperformed the Blmbg HY Corp 2% Iss Cap by 3.27% for the quarter and outperformed the Blmbg HY Corp 2% Iss Cap for the year by 4.30%.

## Quarterly Asset Growth

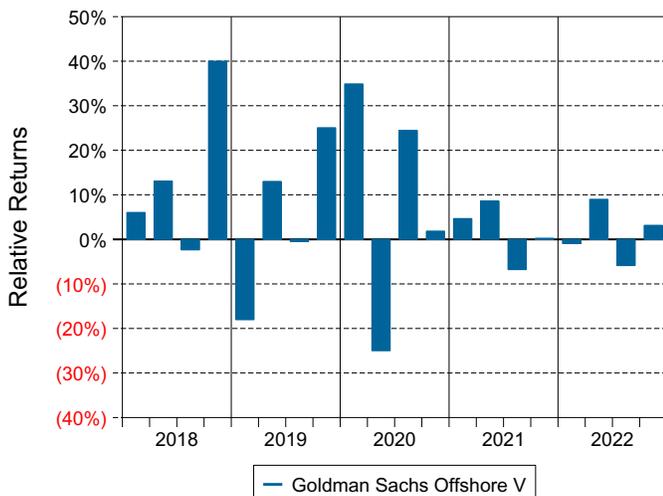
Beginning Market Value	\$111,236
Net New Investment	-\$65,862
Investment Gains/(Losses)	\$3,375
Ending Market Value	\$48,749

## Performance vs Callan High Yield Mutual Funds (Net)

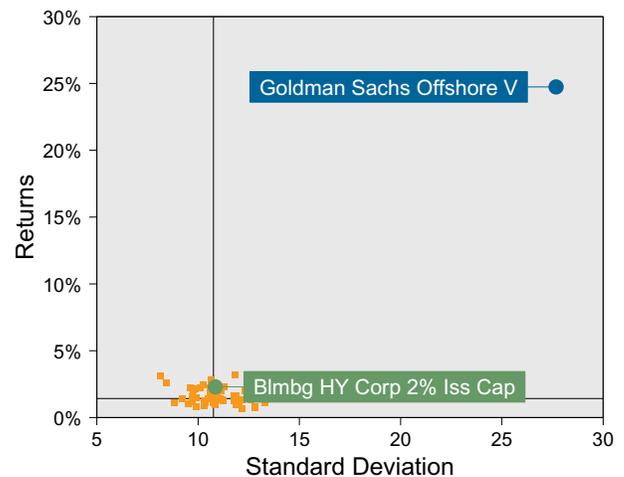


10th Percentile	4.87	4.28	(9.05)	(2.26)	0.69	2.43	3.90	5.63
25th Percentile	4.40	3.77	(10.42)	(2.87)	(0.06)	2.02	3.58	5.38
Median	4.06	3.42	(11.13)	(3.42)	(0.59)	1.42	3.08	4.87
75th Percentile	3.74	2.61	(11.83)	(4.18)	(1.28)	1.12	2.81	4.64
90th Percentile	3.37	1.83	(13.46)	(4.82)	(1.58)	0.92	2.61	4.22
<b>Goldman Sachs Offshore V</b>	● 7.44	0.49	(6.88)	2.02	12.63	24.74	13.00	12.13
<b>Blmbg HY Corp 2% Iss Cap</b>	▲ 4.17	3.50	(11.18)	(3.31)	0.03	2.30	4.03	6.12

## Relative Return vs Blmbg HY Corp 2% Iss Cap



## Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return



# Loomis Sayles

## Period Ended December 31, 2022

### Investment Philosophy

The High Yield Full Discretion Strategy seeks to identify attractive sectors and specific investment opportunities primarily within the global fixed income market through a global economic and interest rate framework. Portfolio managers incorporate a long-term macroeconomic view along with a stringent bottom-up investment evaluation process that drives security selection and resulting sector allocations. Opportunistic investments in non-benchmark sectors including investment grade corporate, emerging market, and non-US dollar debt and convertible bonds help to manage overall portfolio risk and enhance total return potential.

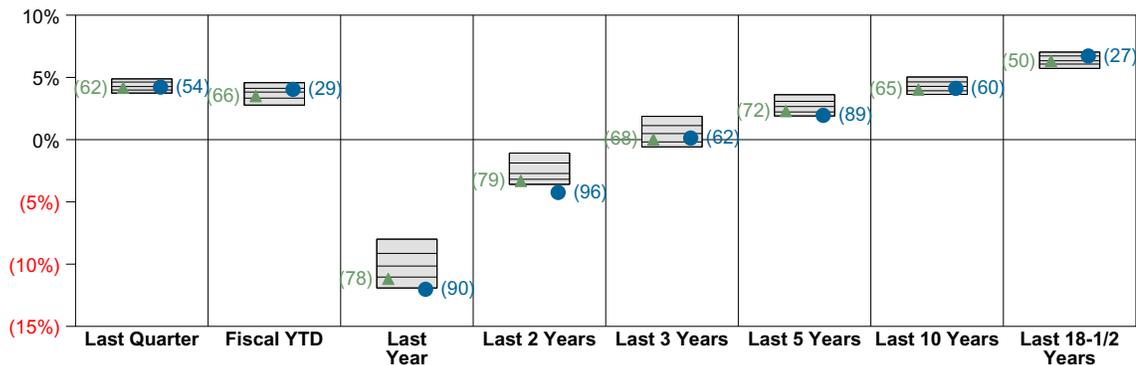
### Quarterly Summary and Highlights

- Loomis Sayles's portfolio posted a 4.22% return for the quarter placing it in the 54 percentile of the Callan High Yield Fixed Income group for the quarter and in the 90 percentile for the last year.
- Loomis Sayles's portfolio outperformed the Blmbg HY Corp 2% Iss Cap by 0.05% for the quarter and underperformed the Blmbg HY Corp 2% Iss Cap for the year by 0.84%.

### Quarterly Asset Growth

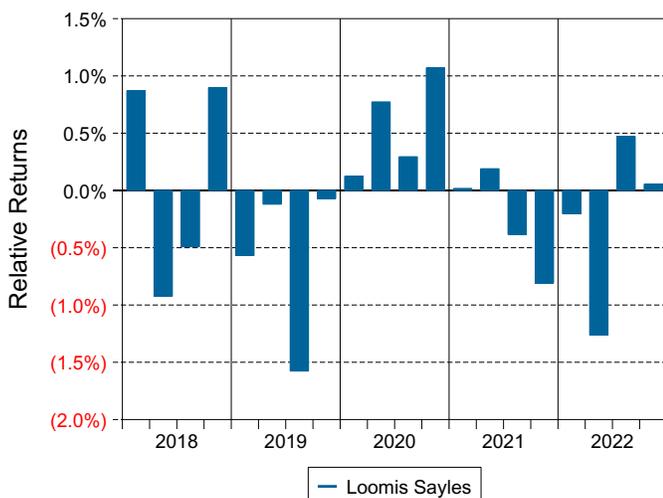
Beginning Market Value	\$153,141,976
Net New Investment	\$-36,079,942
Investment Gains/(Losses)	\$6,360,350
Ending Market Value	\$123,422,384

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

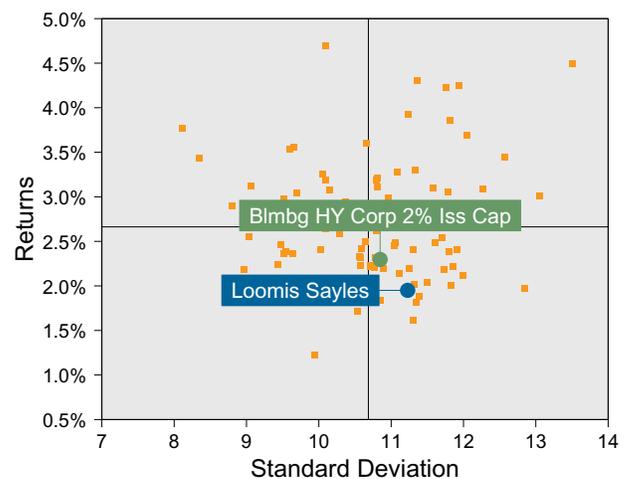


	Last Quarter	Fiscal YTD	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 10 Years	Last 18-1/2 Years
10th Percentile	4.88	4.58	(7.99)	(1.08)	1.87	3.61	5.03	7.04
25th Percentile	4.63	4.12	(9.14)	(1.88)	1.13	3.08	4.64	6.73
Median	4.27	3.82	(10.15)	(2.72)	0.49	2.66	4.28	6.34
75th Percentile	3.99	3.33	(11.04)	(3.18)	(0.18)	2.23	3.93	6.07
90th Percentile	3.74	2.77	(11.92)	(3.59)	(0.58)	1.90	3.64	5.72
<b>Loomis Sayles</b>	<b>4.22</b>	<b>4.04</b>	<b>(12.02)</b>	<b>(4.24)</b>	<b>0.13</b>	<b>1.95</b>	<b>4.12</b>	<b>6.72</b>
<b>Blmbg HY Corp 2% Iss Cap</b>	<b>4.17</b>	<b>3.50</b>	<b>(11.18)</b>	<b>(3.31)</b>	<b>0.03</b>	<b>2.30</b>	<b>4.03</b>	<b>6.33</b>

### Relative Return vs Blmbg HY Corp 2% Iss Cap



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



# PIMCO Bravo II Fund

## Period Ended December 31, 2022

### Investment Philosophy

The BRAVO II Fund is a private equity style fund targeting an annualized IRR of 15-20% and multiple of 1.8-2x, net of fees and carried interest with an initial 5-year term. The fund will seek to capitalize on non-economic asset sale decisions by global financial institutions. The fund will have the flexibility to acquire attractively discounted, less liquid loans, structured credit and other assets tied to residential or commercial real estate markets in the U.S. and Europe.

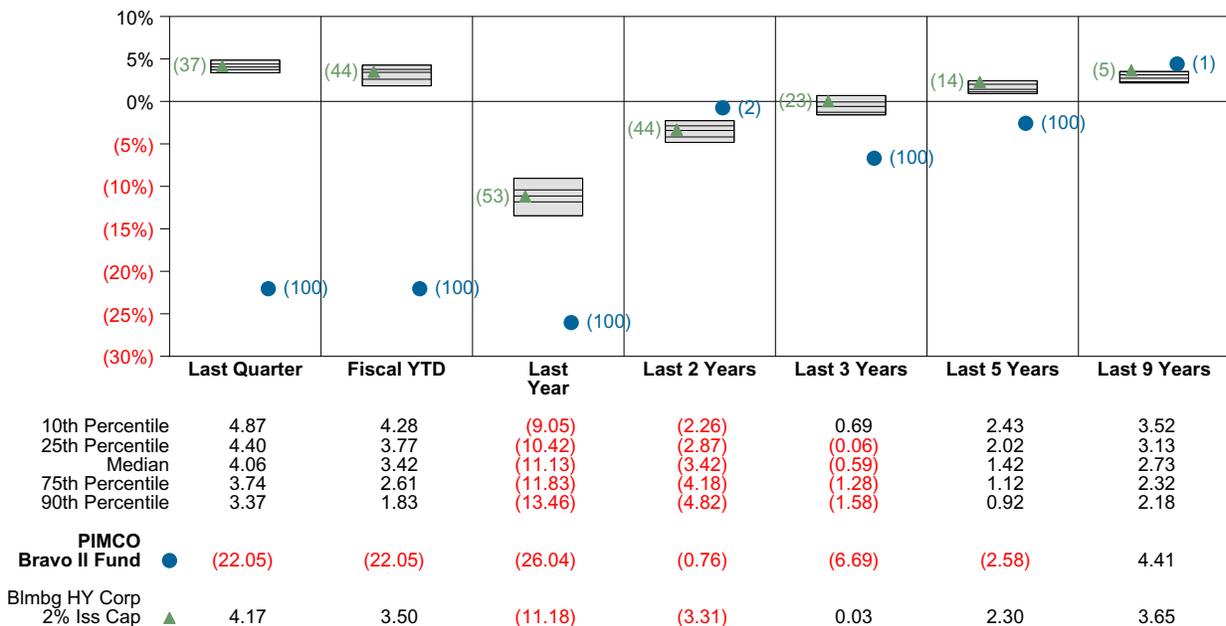
### Quarterly Summary and Highlights

- PIMCO Bravo II Fund's portfolio posted a (22.05)% return for the quarter placing it in the 100 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 100 percentile for the last year.
- PIMCO Bravo II Fund's portfolio underperformed the Blmbg HY Corp 2% Iss Cap by 26.21% for the quarter and underperformed the Blmbg HY Corp 2% Iss Cap for the year by 14.86%.

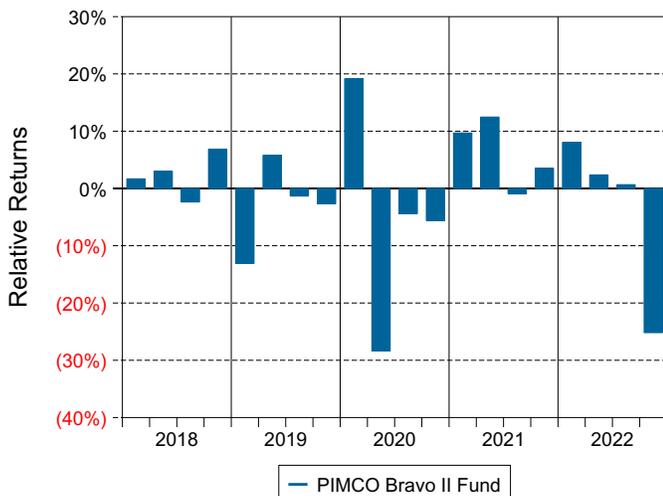
### Quarterly Asset Growth

Beginning Market Value	\$7,340,655
Net New Investment	\$-2,386,460
Investment Gains/(Losses)	\$-1,092,272
Ending Market Value	\$3,861,923

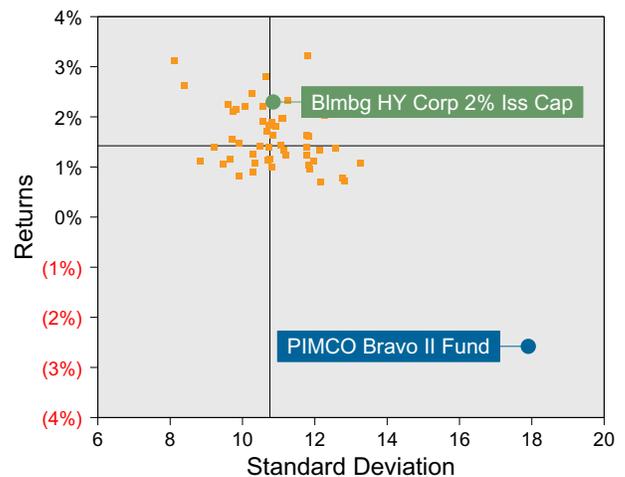
### Performance vs Callan High Yield Mutual Funds (Net)



### Relative Return vs Blmbg HY Corp 2% Iss Cap



### Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return





# Real Estate Period Ended December 31, 2022

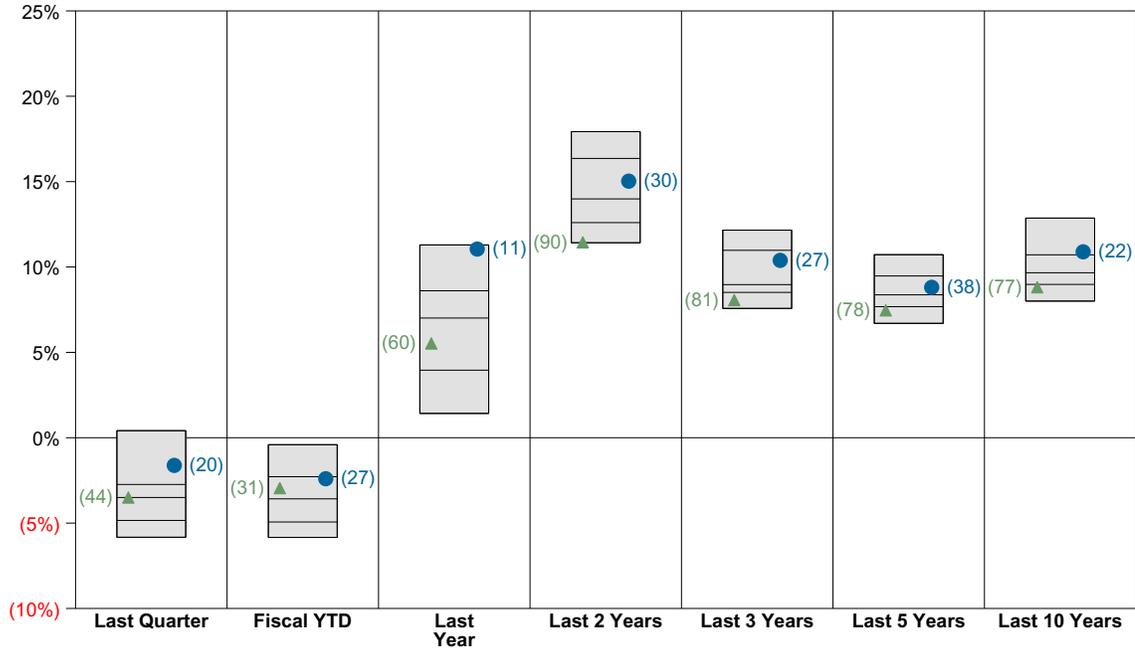
## Quarterly Summary and Highlights

- Real Estate's portfolio posted a (1.62)% return for the quarter placing it in the 20 percentile of the Public Fund - Real Estate group for the quarter and in the 11 percentile for the last year.
- Real Estate's portfolio outperformed the NCREIF Total Index by 1.88% for the quarter and outperformed the NCREIF Total Index for the year by 5.52%.

## Quarterly Asset Growth

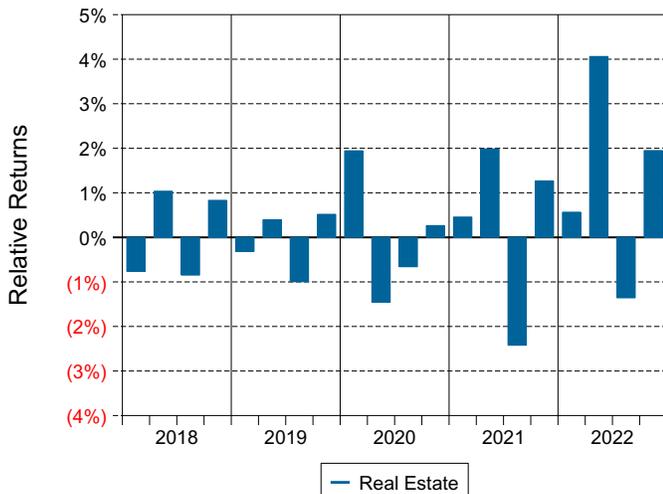
Beginning Market Value	\$908,315,931
Net New Investment	\$-3,324,706
Investment Gains/(Losses)	\$-14,685,158
Ending Market Value	\$890,306,067

## Performance vs Public Fund - Real Estate (Gross)

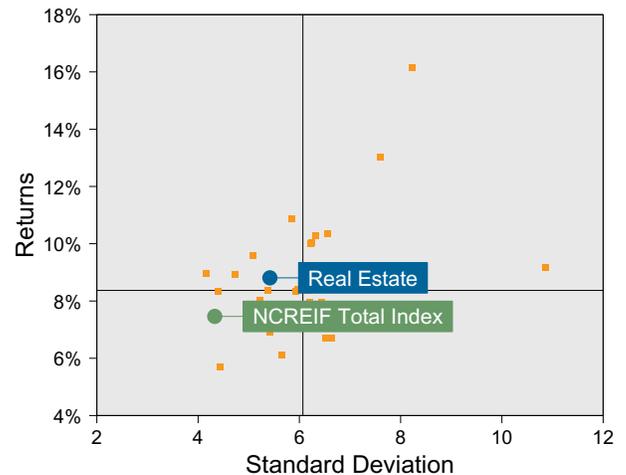


10th Percentile	0.41	(0.41)	11.29	17.93	12.16	10.72	12.86
25th Percentile	(2.74)	(2.28)	8.61	16.36	10.98	9.48	10.71
Median	(3.50)	(3.58)	7.01	13.99	8.97	8.37	9.66
75th Percentile	(4.84)	(4.94)	3.96	12.60	8.51	7.68	8.98
90th Percentile	(5.83)	(5.84)	1.42	11.42	7.57	6.70	8.00
<b>Real Estate</b>	● (1.62)	(2.40)	11.05	15.03	10.39	8.81	10.89
<b>NCREIF Total Index</b>	▲ (3.50)	(2.95)	5.53	11.44	8.06	7.46	8.82

## Relative Return vs NCREIF Total Index



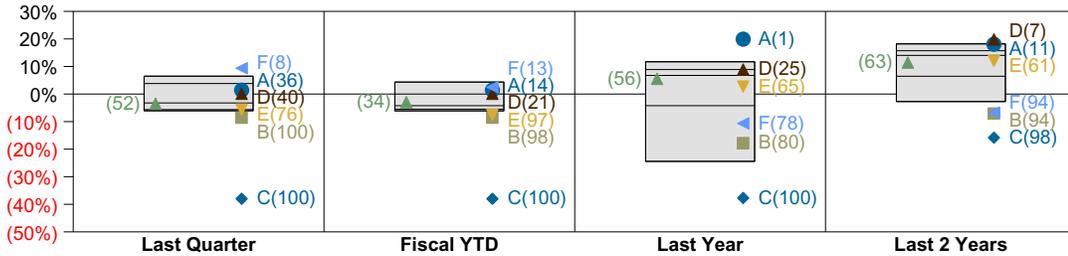
## Public Fund - Real Estate (Gross) Annualized Five Year Risk vs Return



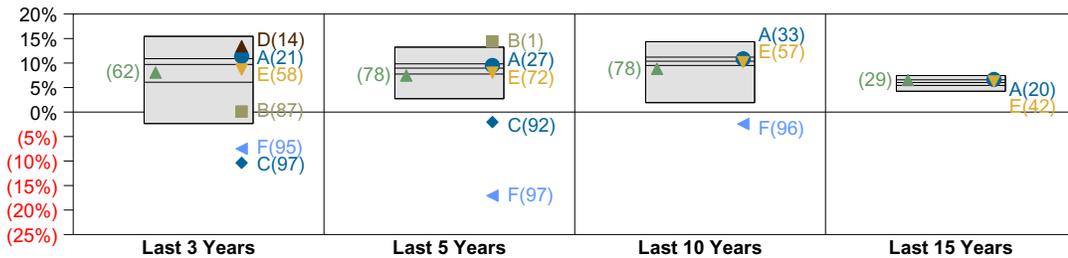
# North Dakota State Investment Board Pension Funds Performance vs Callan Total Domestic Real Estate DB Periods Ended December 31, 2022

## Return Ranking

The chart below illustrates fund rankings over various periods versus the Callan Total Domestic Real Estate DB. The bars represent the range of returns from the 10th percentile to the 90th percentile for each period for all funds in the Callan Total Domestic Real Estate DB. The numbers to the right of the bar represent the percentile rankings of the funds being analyzed. The table below the chart details the rates of return plotted in the graph above.



Invesco Core Real Estate	● A	1.41	1.41	19.92	18.08
Invesco Asia RE Fund III	■ B	(8.58)	(8.58)	(17.80)	(7.07)
Invesco Value Added Fd IV	◆ C	(38.00)	(38.00)	(37.72)	(15.83)
Invesco Value Added Fd V	▲ D	0.10	0.10	8.91	19.81
JPM SPC & Strat RE	▼ E	(5.66)	(7.60)	2.70	12.01
JPM GreaterEur	◀ F	9.37	2.49	(10.65)	(6.75)
Opp Prop Fd					
NCREIF Total Index	▲	(3.50)	(2.95)	5.53	11.44



Invesco Core Real Estate	● A	11.37	9.50	10.85	6.65
Invesco Asia RE Fund III	■ B	0.10	14.40	-	-
Invesco Value Added Fd IV	◆ C	(10.37)	(2.04)	-	-
Invesco Value Added Fd V	▲ D	13.44	-	-	-
JPM SPC & Strat RE	▼ E	8.65	8.03	10.17	6.23
JPM GreaterEur	◀ F	(7.50)	(17.08)	(2.44)	-
Opp Prop Fd					
NCREIF Total Index	▲	8.06	7.46	8.82	6.54



# TIR Teredo

## Period Ended December 31, 2022

### Investment Philosophy

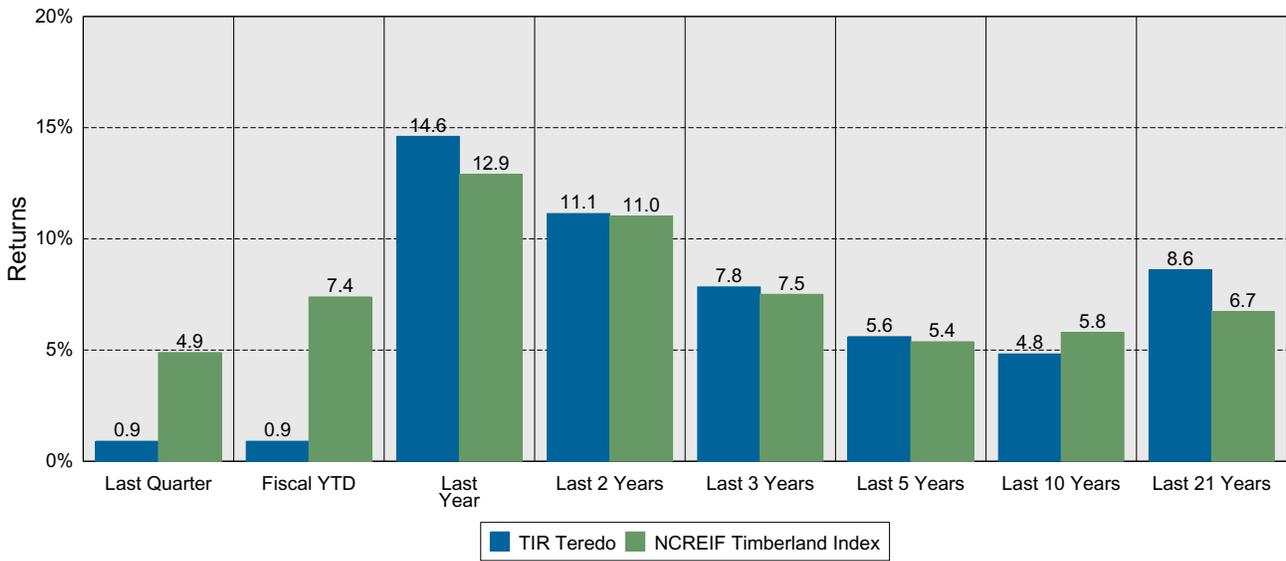
Teredo Timber LLC - The investment objective of Teredo is to provide competitive investment returns from increasing saw timber production through the 20 year term of the partnership. TIR's management strategy is to maximize saw timber volume by applying intensive forest management techniques which accelerate growth through the diameter class distribution. Periodic cash flows are produced from thinning and final harvests of the individual timber stands.

### Quarterly Summary and Highlights

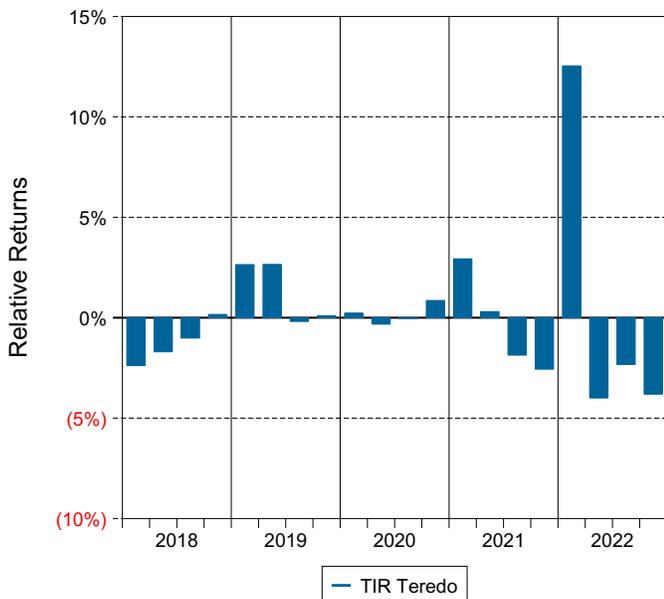
- TIR Teredo's portfolio underperformed the NCREIF Timberland Index by 3.99% for the quarter and outperformed the NCREIF Timberland Index for the year by 1.71%.

### Quarterly Asset Growth

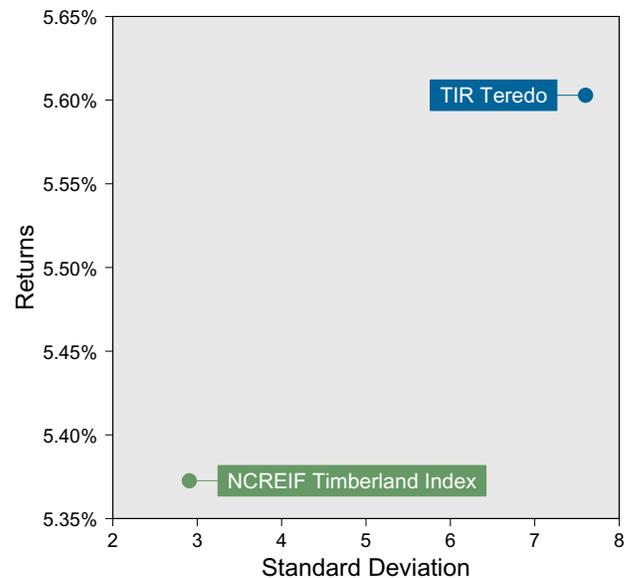
Beginning Market Value	\$20,272,958
Net New Investment	\$0
Investment Gains/(Losses)	\$182,253
Ending Market Value	\$20,455,211



Relative Return vs NCREIF Timberland Index



Annualized Five Year Risk vs Return



# TIR Springbank

## Period Ended December 31, 2022

### Investment Philosophy

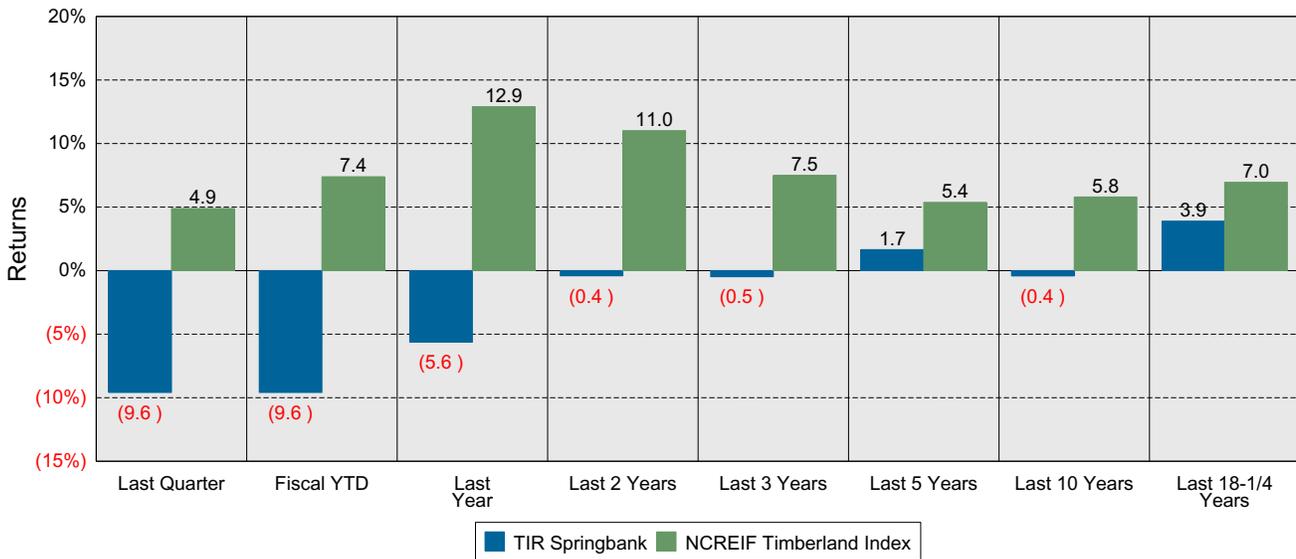
Springbank LLC - The investment objective of Springbank is to maximize long-term investment potential by means of the formation of a dedicated land management group, intensive timber management to increase timber production, the coordination of timber harvesting with land management activities and direct marketing and selective real estate partnerships.

### Quarterly Summary and Highlights

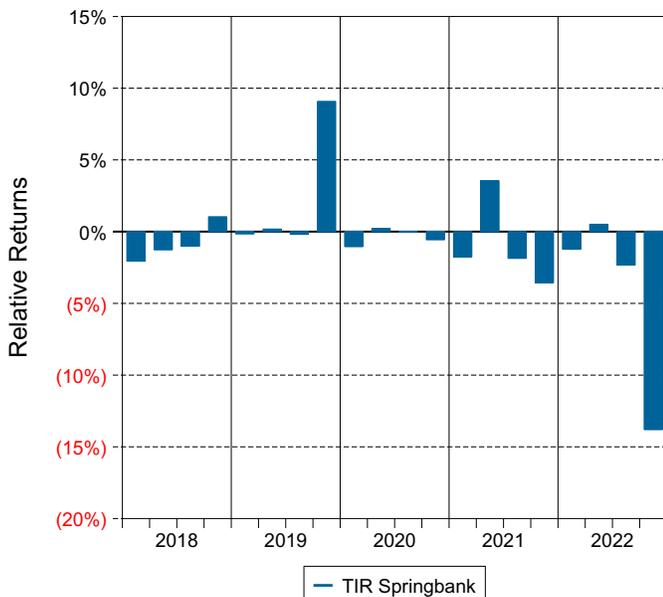
- TIR Springbank's portfolio underperformed the NCREIF Timberland Index by 14.47% for the quarter and underperformed the NCREIF Timberland Index for the year by 18.53%.

### Quarterly Asset Growth

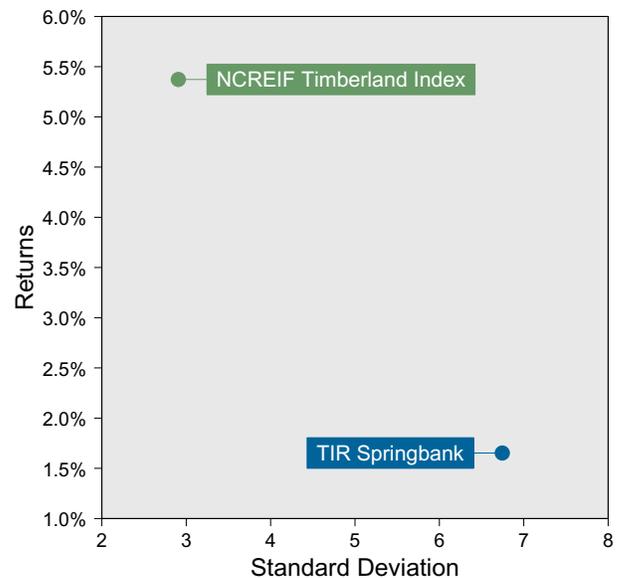
Beginning Market Value	\$73,983,382
Net New Investment	\$-1,596,000
Investment Gains/(Losses)	\$-6,962,885
Ending Market Value	\$65,424,497



Relative Return vs NCREIF Timberland Index



Annualized Five Year Risk vs Return





# ISQ Global Infrastructure II

## Period Ended December 31, 2022

### Investment Philosophy

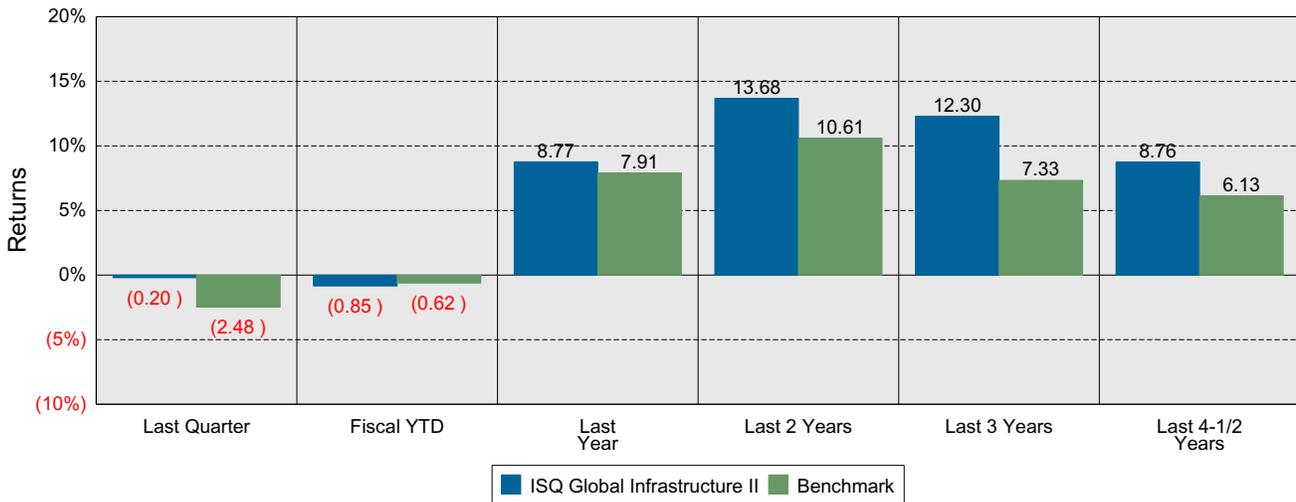
The ISQ Global Infrastructure Fund II seeks to achieve long-term capital appreciation as well as current income through equity and equity related investments in infrastructure and infrastructure related assets located globally, with a focus on North America, Europe, and selected growth economies in Asia and Latin America. The Fund may also invest in debt Securities that have equity-like returns or an equity component, or are related to its equity investments, including without limitation convertible debt, bank loans and participations and other similar instruments. **The Benchmark is comprised of 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net.**

### Quarterly Summary and Highlights

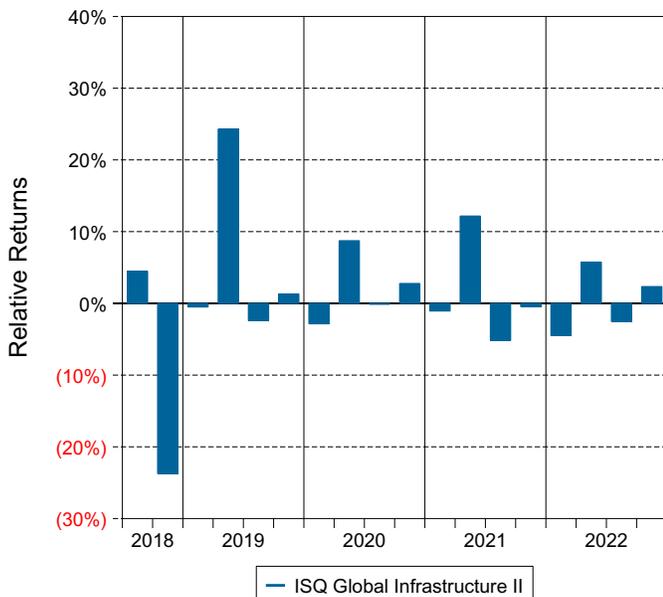
- ISQ Global Infrastructure II's portfolio outperformed the Benchmark by 2.28% for the quarter and outperformed the Benchmark for the year by 0.85%.

### Quarterly Asset Growth

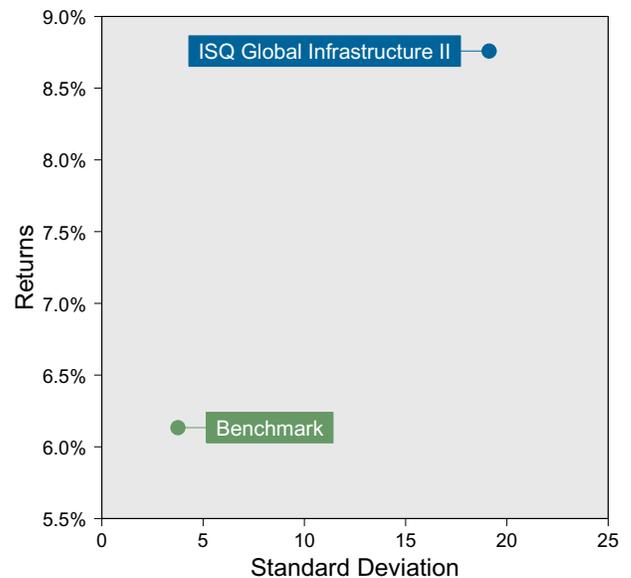
Beginning Market Value	\$71,552,217
Net New Investment	\$-7,112,545
Investment Gains/(Losses)	\$-153,058
Ending Market Value	\$64,286,614



### Relative Return vs Benchmark



### Annualized Four and One-Half Year Risk vs Return



# ISQ Global Infrastructure III

## Period Ended December 31, 2022

### Investment Philosophy

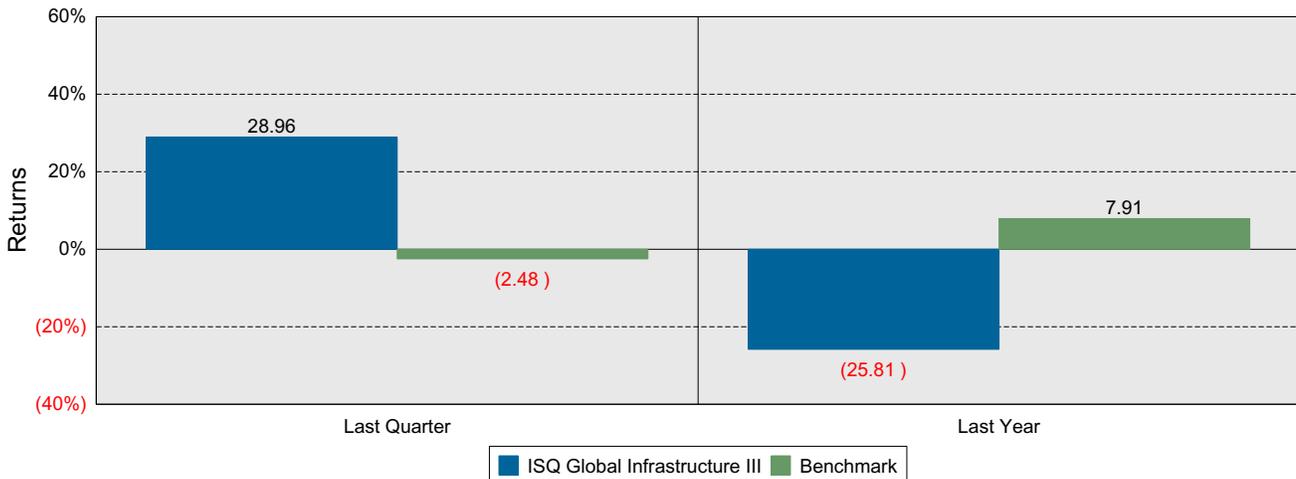
The ISQ Global Infrastructure Fund II seeks to achieve long-term capital appreciation as well as current income through equity and equity related investments in infrastructure and infrastructure related assets located globally, with a focus on North America, Europe, and selected growth economies in Asia and Latin America. The Fund may also invest in debt Securities that have equity-like returns or an equity component, or are related to its equity investments, including without limitation convertible debt, bank loans and participations and other similar instruments. **The Benchmark is comprised of 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net.**

### Quarterly Summary and Highlights

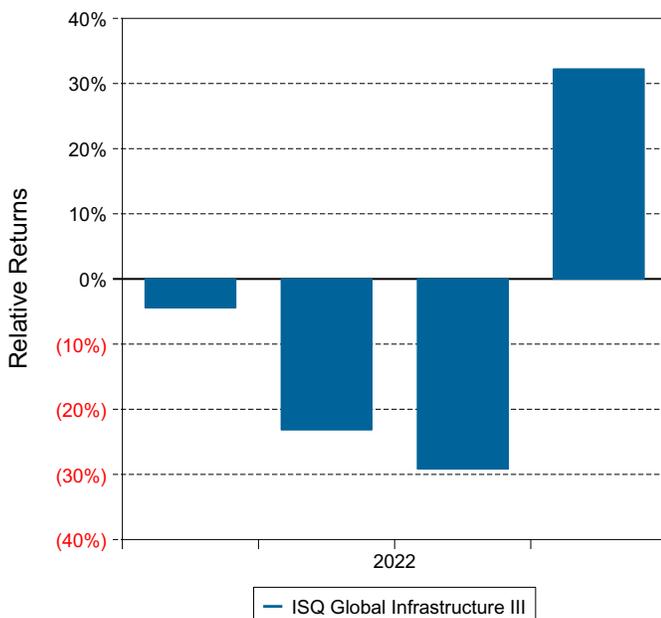
- ISQ Global Infrastructure III's portfolio outperformed the Benchmark by 31.44% for the quarter and underperformed the Benchmark for the year by 33.72%.

### Quarterly Asset Growth

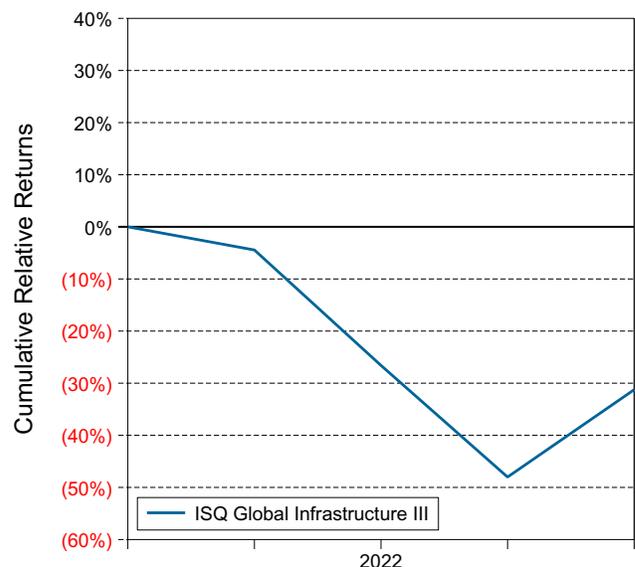
Beginning Market Value	\$4,513,845
Net New Investment	\$0
Investment Gains/(Losses)	\$1,307,216
Ending Market Value	\$5,821,061



Relative Return vs Benchmark



Cumulative Returns vs Benchmark



# The Rohatyn Group

## Period Ended December 31, 2022

### Investment Philosophy

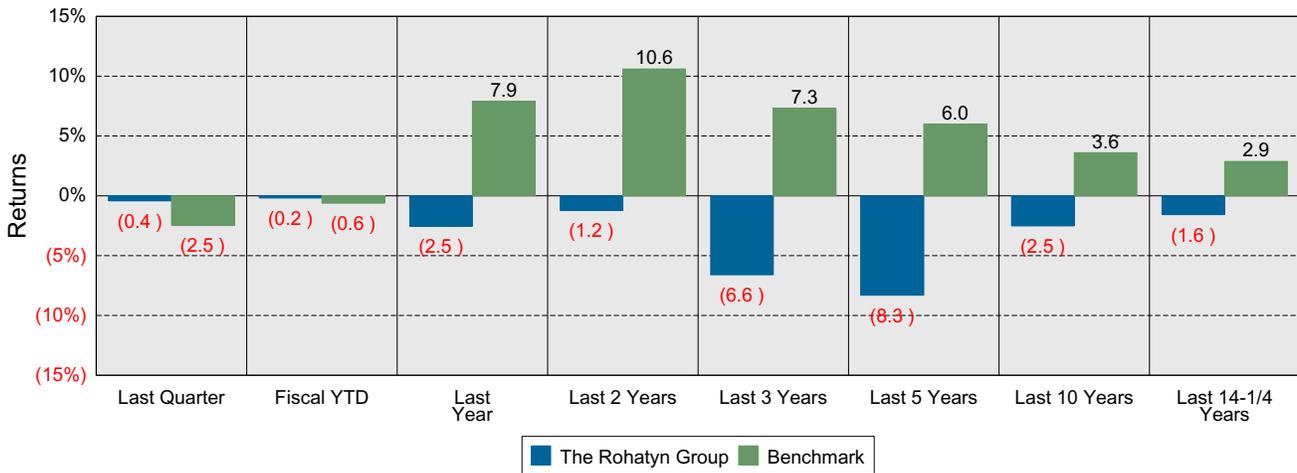
The Rohatyn Group's Asian Infrastructure & Related Resources Opportunity (AIRRO) Fund seeks to invest in infrastructure and related resources opportunities across the greater Asia Pacific region. The Fund seeks to invest in a broad range of assets, including: core infrastructure, power both from conventional and renewable sources, communications, water and waste-water, public works, urban development and other "social" infrastructure assets and related resources. The management of the AIRRO Fund was transferred from JP Morgan to The Rohatyn Group in May, 2018. **The Benchmark is comprised of CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.**

### Quarterly Summary and Highlights

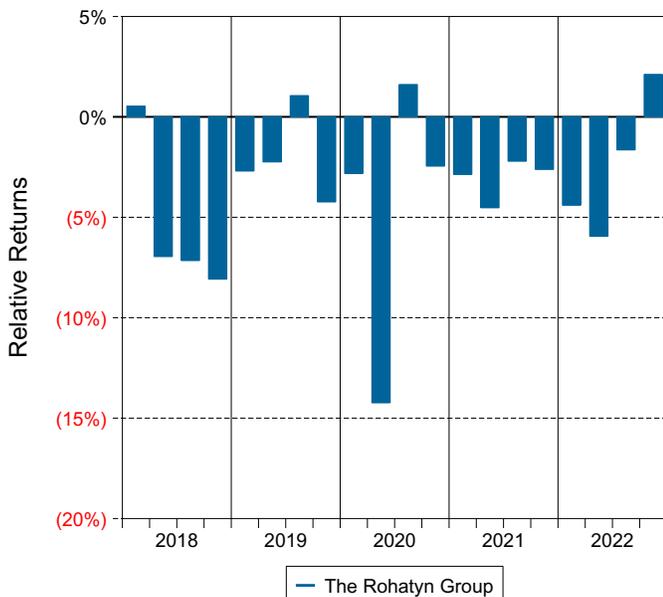
- The Rohatyn Group's portfolio outperformed the Benchmark by 2.06% for the quarter and underperformed the Benchmark for the year by 10.46%.

### Quarterly Asset Growth

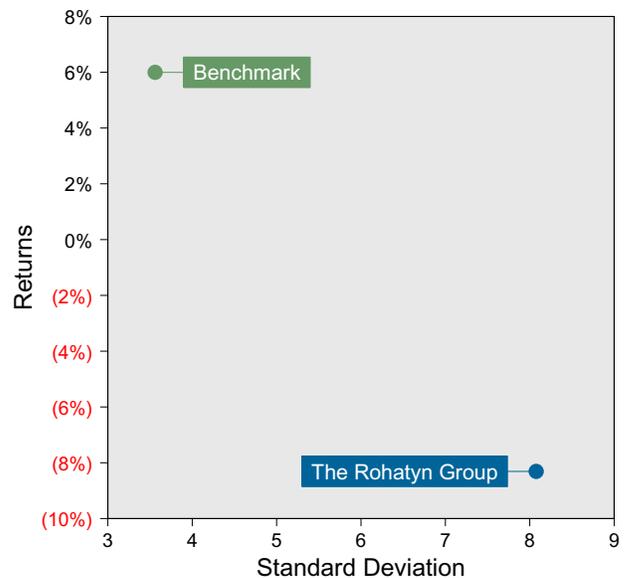
Beginning Market Value	\$15,910,711
Net New Investment	\$67,198
Investment Gains/(Losses)	\$-67,198
Ending Market Value	\$15,910,711



### Relative Return vs Benchmark



### Annualized Five Year Risk vs Return



# JP Morgan IIF Infrastructure Period Ended December 31, 2022

## Investment Philosophy

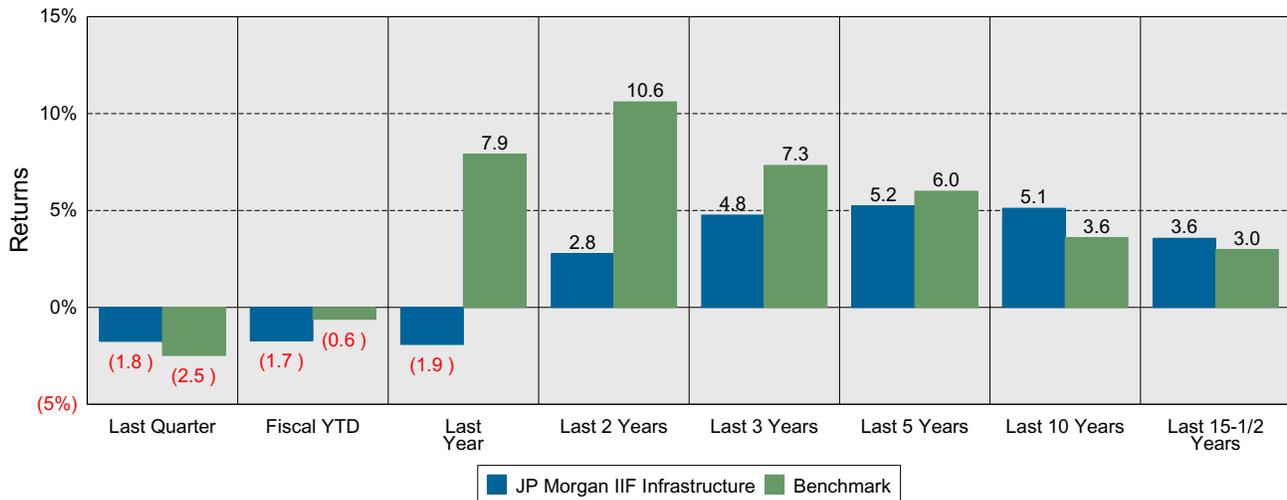
The only open-ended private commingled infrastructure fund in the U.S., the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas pipelines; electricity transmission and distribution facilities; contracted power generation assets; water distribution; waste-water collection and processing; railway lines and rapid rail links; and seaports and airports. **The Benchmark is comprised of CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.**

## Quarterly Summary and Highlights

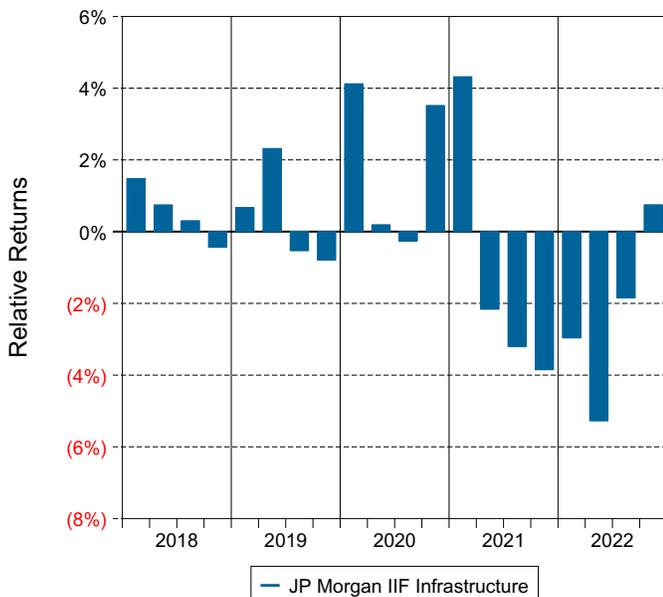
- JP Morgan IIF Infrastructure's portfolio outperformed the Benchmark by 0.73% for the quarter and underperformed the Benchmark for the year by 9.82%.

## Quarterly Asset Growth

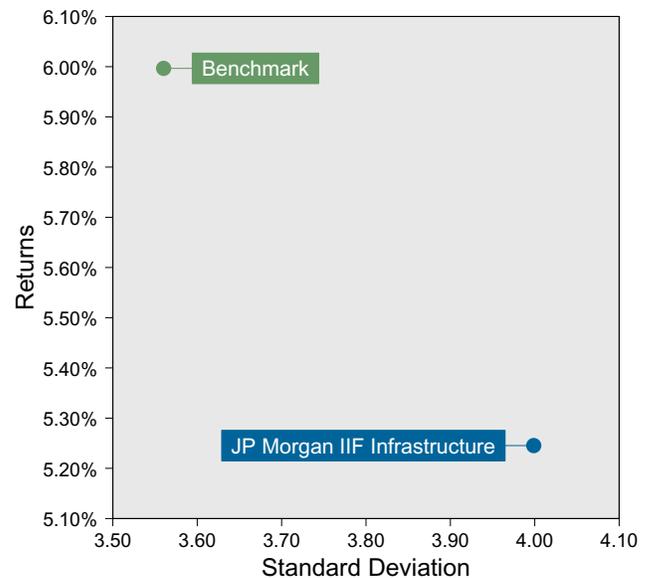
Beginning Market Value	\$122,455,619
Net New Investment	\$-3,106,359
Investment Gains/(Losses)	\$-2,145,900
Ending Market Value	\$117,203,361



## Relative Return vs Benchmark



## Annualized Five Year Risk vs Return



# Grosvenor CIS Fund

## Period Ended December 31, 2022

### Investment Philosophy

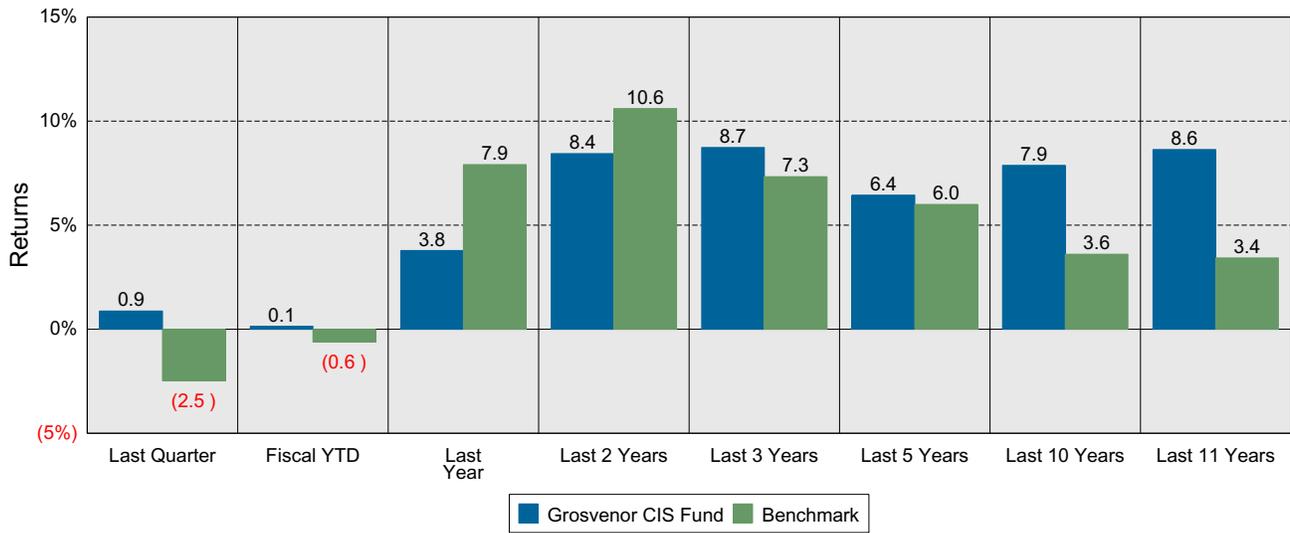
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure yields (30%), co-investments (40%) and opportunistic secondary fund purchases (30%). **The Benchmark is comprised of CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.**

### Quarterly Summary and Highlights

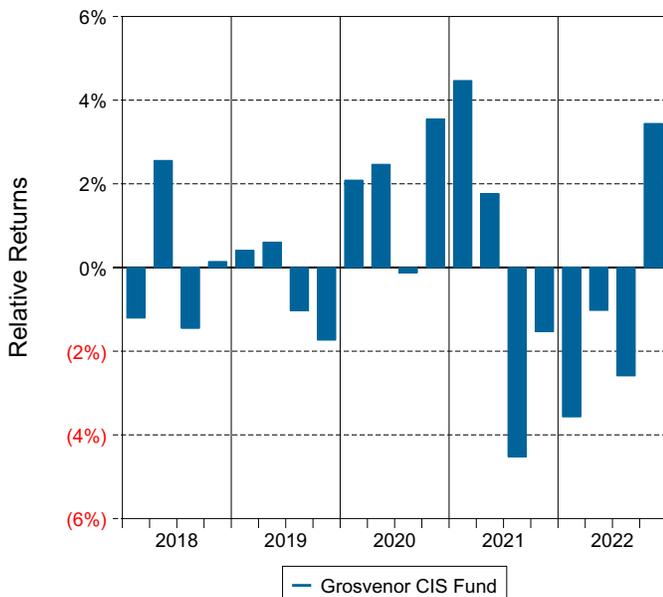
- Grosvenor CIS Fund's portfolio outperformed the Benchmark by 3.36% for the quarter and underperformed the Benchmark for the year by 4.13%.

### Quarterly Asset Growth

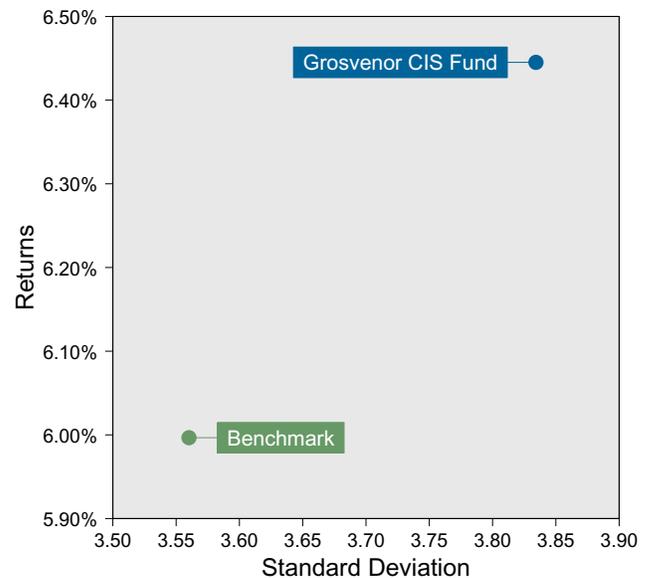
Beginning Market Value	\$9,941,672
Net New Investment	\$-382,824
Investment Gains/(Losses)	\$86,944
Ending Market Value	\$9,645,792



Relative Return vs Benchmark



Annualized Five Year Risk vs Return



# Grosvenor CIS Fund II

## Period Ended December 31, 2022

### Investment Philosophy

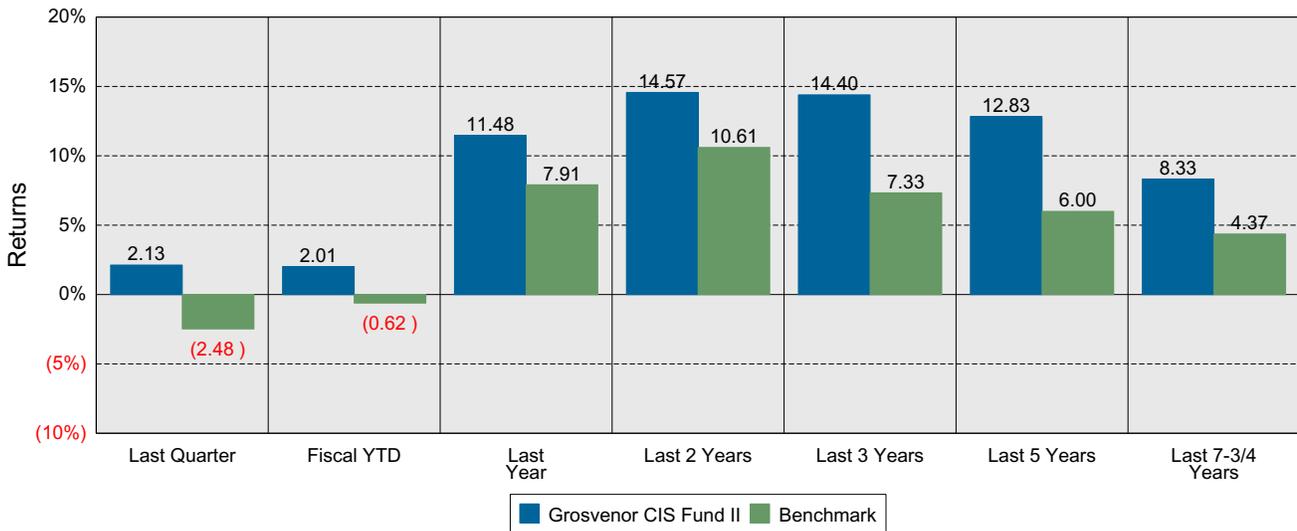
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure funds (30%), co-investments (40%) and opportunistic secondary fund purchases (30%). **The Benchmark is comprised of CPI-W through June 30, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.**

### Quarterly Summary and Highlights

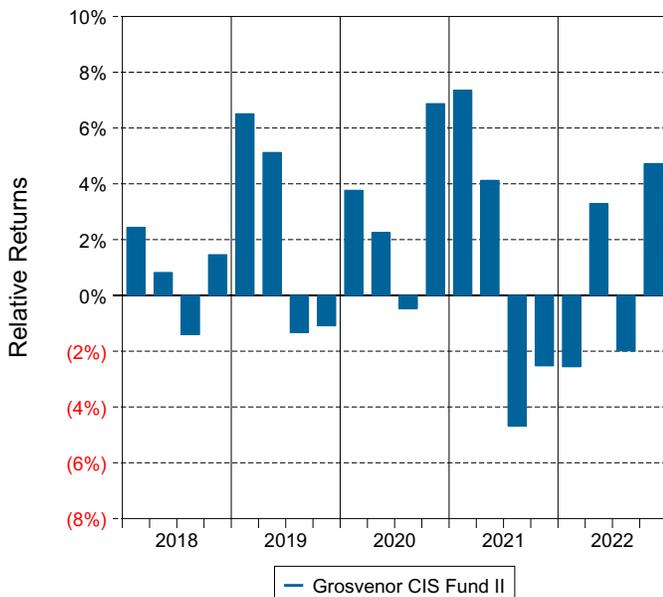
- Grosvenor CIS Fund II's portfolio outperformed the Benchmark by 4.61% for the quarter and outperformed the Benchmark for the year by 3.57%.

### Quarterly Asset Growth

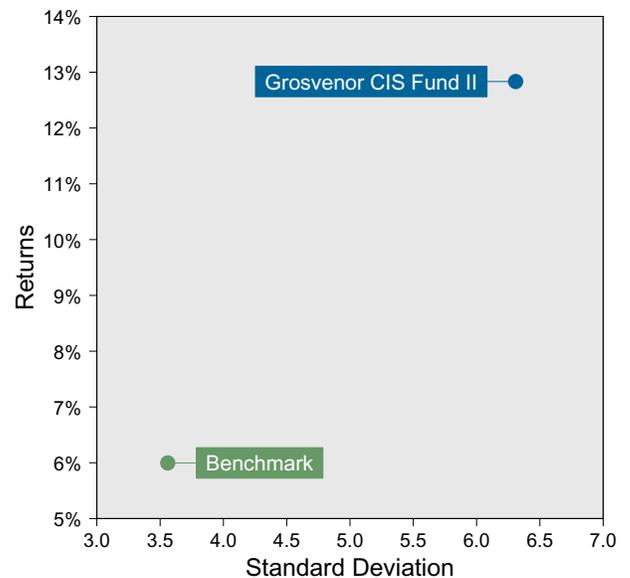
Beginning Market Value	\$22,430,330
Net New Investment	\$-1,291,215
Investment Gains/(Losses)	\$461,320
Ending Market Value	\$21,600,435



### Relative Return vs Benchmark



### Annualized Five Year Risk vs Return



# Grosvenor CIS Fund III

## Period Ended December 31, 2022

### Investment Philosophy

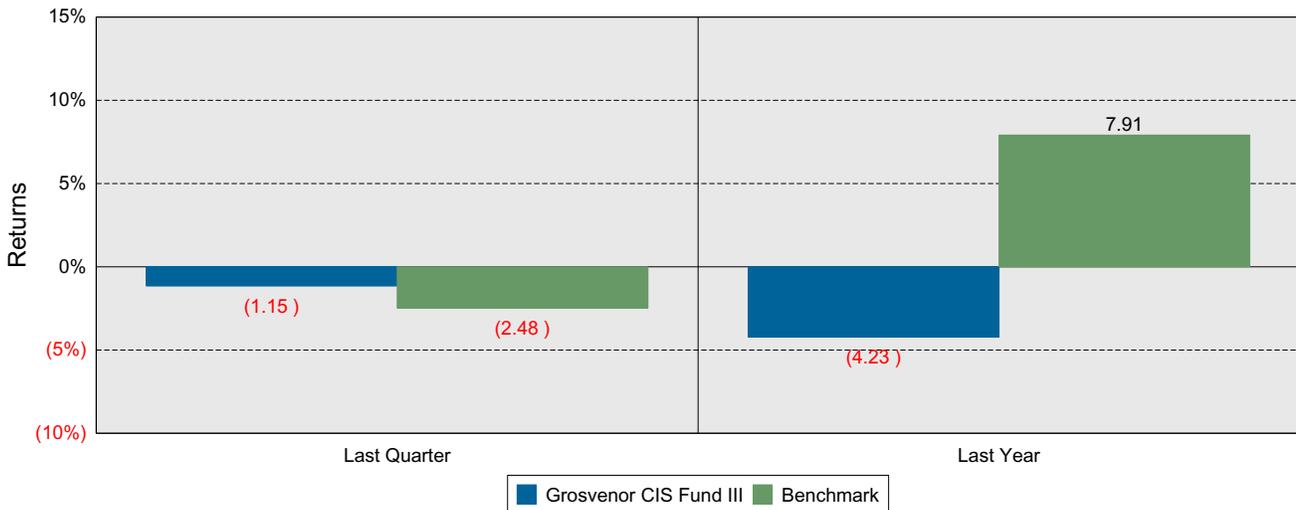
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure funds (30%), co-investments (40%) and opportunistic secondary fund purchases (30%). **The Benchmark is comprised of 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net.**

### Quarterly Summary and Highlights

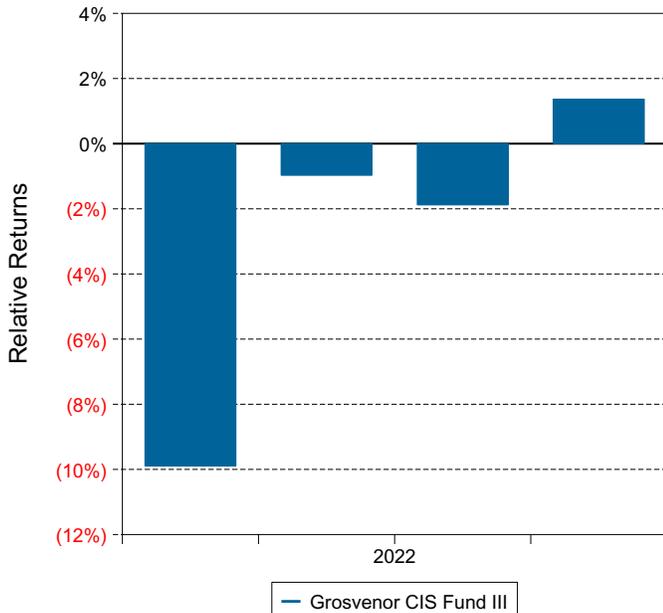
- Grosvenor CIS Fund III's portfolio outperformed the Benchmark by 1.33% for the quarter and underperformed the Benchmark for the year by 12.14%.

### Quarterly Asset Growth

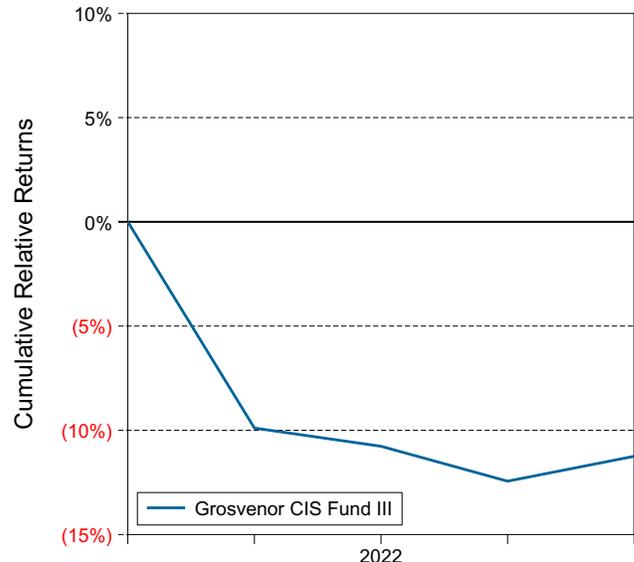
Beginning Market Value	\$16,693,451
Net New Investment	\$3,765,316
Investment Gains/(Losses)	\$-235,721
Ending Market Value	\$20,223,046



Relative Return vs Benchmark



Cumulative Returns vs Benchmark



# Macquarie Infrastructure Fund IV Period Ended December 31, 2022

## Investment Philosophy

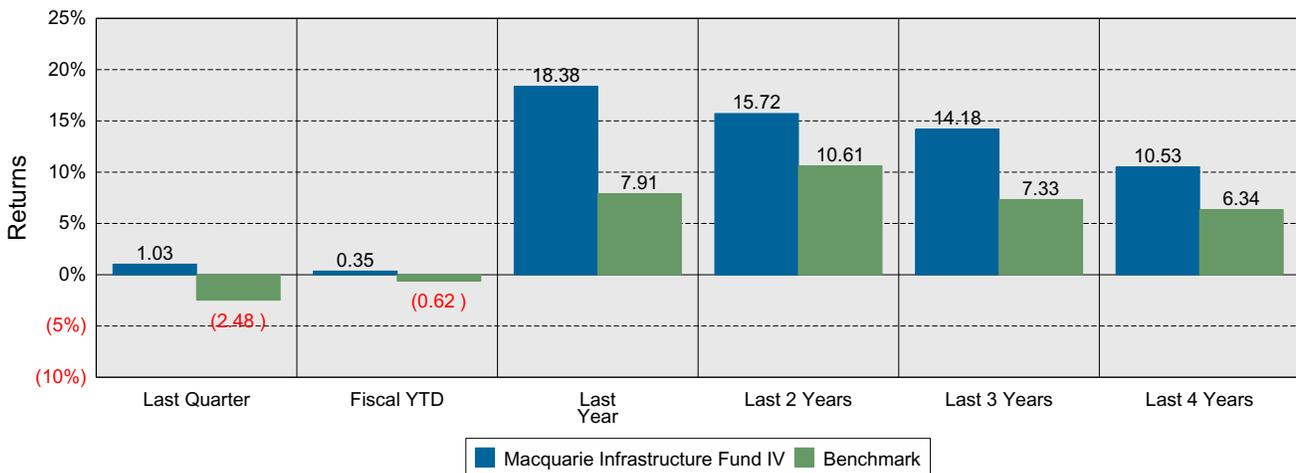
Macquarie’s principal investment philosophy is to invest in infrastructure assets that exhibit monopolistic and/or contractual revenue drivers, limited substitution risk and high barriers to entry. The manager has continued to focus on investments where the team’s sector expertise and operating experience will provide a competitive advantage in sourcing and due diligence. Furthermore, the manager will also continue to focus on opportunities where its active management capabilities can add value for investors in terms of enhancing returns and the substantial mitigation and/or elimination of material operational risks. **The Benchmark is comprised of 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net.**

## Quarterly Summary and Highlights

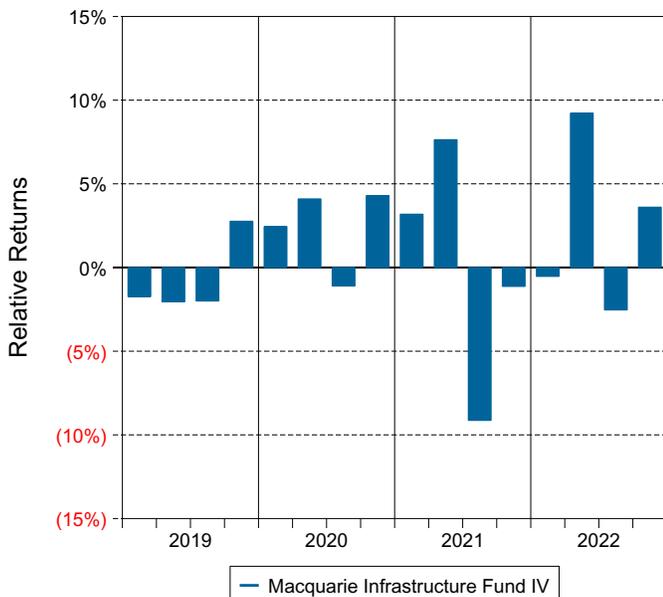
- Macquarie Infrastructure Fund IV’s portfolio outperformed the Benchmark by 3.51% for the quarter and outperformed the Benchmark for the year by 10.47%.

## Quarterly Asset Growth

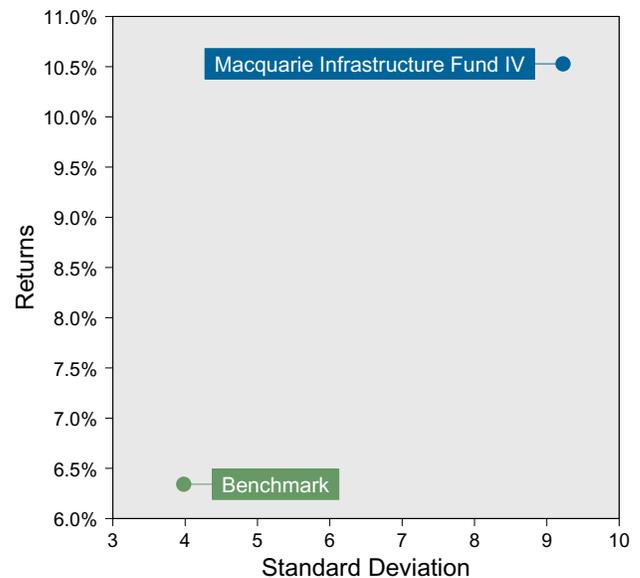
Beginning Market Value	\$77,147,752
Net New Investment	\$-37,269
Investment Gains/(Losses)	\$794,327
Ending Market Value	\$77,904,810



Relative Return vs Benchmark



Annualized Four Year Risk vs Return



# Macquarie Infrastructure Fund V

## Period Ended December 31, 2022

### Investment Philosophy

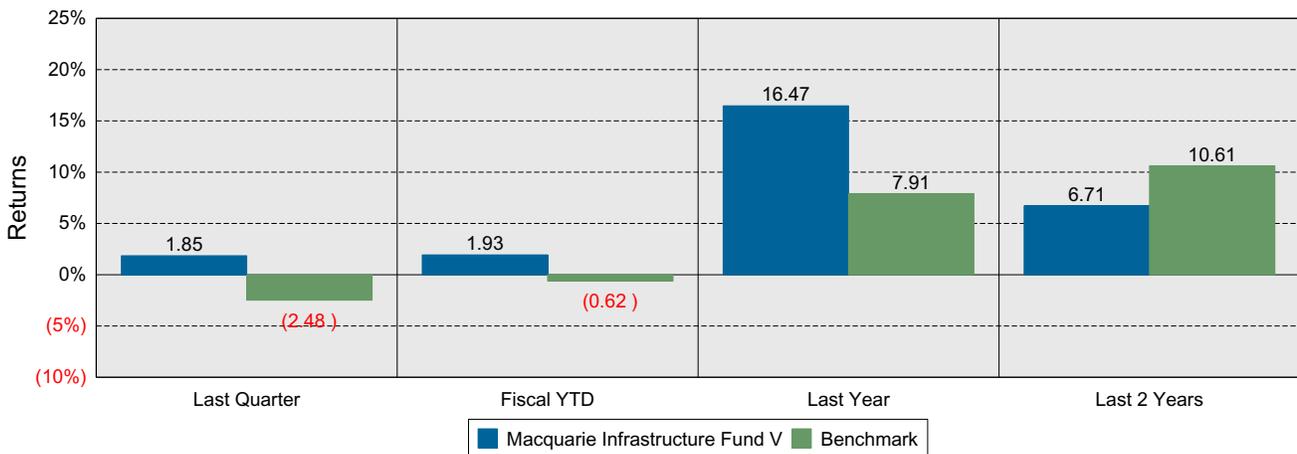
Macquarie's principal investment philosophy is to invest in infrastructure assets that exhibit monopolistic and/or contractual revenue drivers, limited substitution risk and high barriers to entry. The manager has continued to focus on investments where the team's sector expertise and operating experience will provide a competitive advantage in sourcing and due diligence. Furthermore, the manager will also continue to focus on opportunities where its active management capabilities can add value for investors in terms of enhancing returns and the substantial mitigation and/or elimination of material operational risks. **The Benchmark is comprised of 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net.**

### Quarterly Summary and Highlights

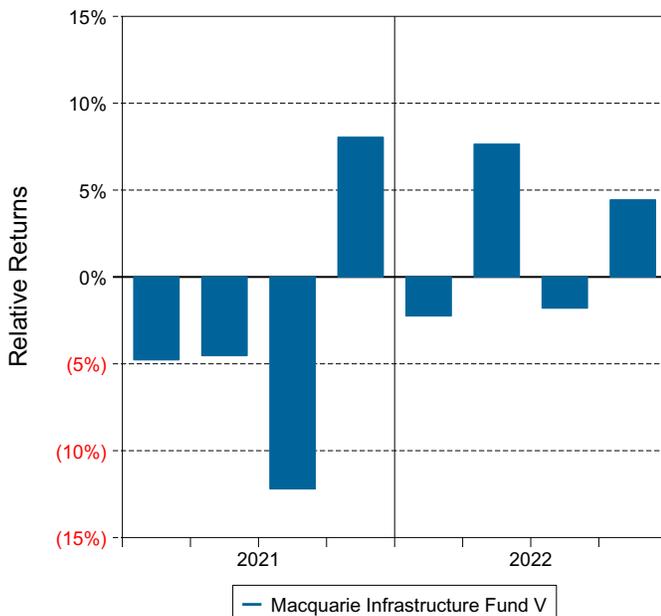
- Macquarie Infrastructure Fund V's portfolio outperformed the Benchmark by 4.33% for the quarter and outperformed the Benchmark for the year by 8.56%.

### Quarterly Asset Growth

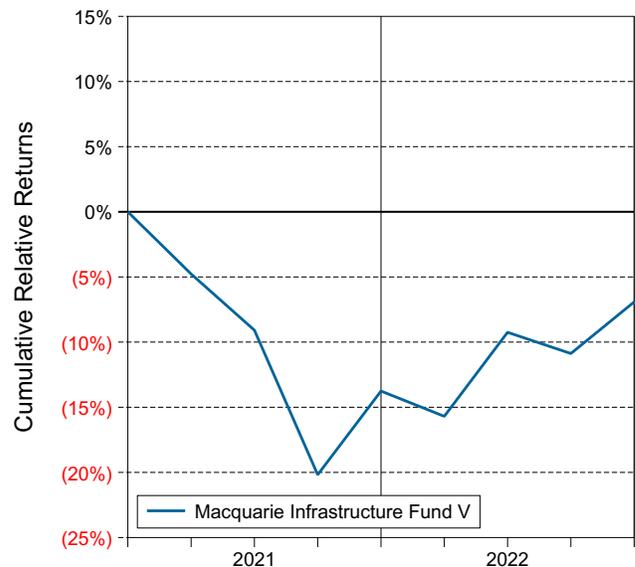
Beginning Market Value	\$46,475,010
Net New Investment	\$5,514,550
Investment Gains/(Losses)	\$934,504
Ending Market Value	\$52,924,064



### Relative Return vs Benchmark



### Cumulative Returns vs Benchmark





## Quarterly Highlights

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

## New Research from Callan's Experts

**2022 ESG Survey** | Callan's 10th annual survey assesses the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market.

**Considering Currency: A Guide for Institutional Investors** | This guide to currency trends over time provides institutional investors with multiple ways to benchmark and analyze their portfolios.

**2022 Nuclear Decommissioning Funding Study** | Julia Moriarty offers key insights into the status of nuclear decommissioning funding to make peer comparisons more accurate and relevant.

## Blog Highlights

**What DC Plan Sponsors Should Know About Recent Litigation Trends** | Callan reviewed lawsuits filed against DC plans between January 2019 and August 2022, to provide an analysis of trends in litigation centered on the fiduciary duties outlined in ERISA.

**How Does Your Public DB Plan Measure Up?** | Most public DB plans saw sharp losses for the fiscal year ended 6/30/22. However, plan returns for fiscal year 2021 were the strongest in three decades.

**Index Selection Within TDF Benchmarks Can Make a Big Difference** | Most TDF providers build a custom benchmark for performance comparisons. While this approach is useful, it does not capture differences in glidepath design and asset allocation that are the major drivers of relative performance.

## Webinar Replays

**Callan's 2023-2032 Capital Markets Assumptions** | During this webinar, Jay Kloepfer, Kevin Machiz, and Adam Lozinski described our 2023-2032 Capital Markets Assumptions, discussed the process

and rationale behind these long-term assumptions, and explained the potential implications for strategic recommendations.

**Corporate Pension Hibernation** | Callan specialists explore why closed and frozen plans might wish to hibernate in the current market, thereby deferring the decision to fully terminate until the future.

**Research Cafe: ESG Interview Series** | During this interview, Tom Shingler of Callan discusses with Sara Rosner, director of environment research and engagement for AllianceBernstein's responsible investing team, carbon emissions and why they matter to investors.

## Quarterly Periodicals

**Private Equity Update, 3Q22** | A high-level summary of private equity activity in the quarter through all the investment stages

**Active vs. Passive Charts, 3Q22** | A comparison of active managers alongside relevant benchmarks over the long term

**Market Pulse, 3Q22** | 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, 3Q22** | 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, 3Q22** | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

**Real Assets Update, 3Q22** | A summary of market activity for real assets and private real estate during the quarter

**Private Credit Update, 3Q22** | A review of performance and fundraising activity for private credit during the quarter

## Events

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

*Please mark your calendar and look forward to upcoming invitations:*

### 2023 National Conference

April 2-4, 2023 – Scottsdale, AZ

### 2023 June Workshops

June 27, 2023 – New York

June 29, 2023 – Chicago

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

## Education: By the Numbers

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**50+**

Unique pieces of research the Institute generates each year

**525**

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

**3,700**

Total attendees of the "Callan College" since 1994

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## Education

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

### Introduction to Investments

March 1-2 – Chicago

May 23-25 – Virtual

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

Additional information including registration can be found at: [callan.com/events-education](https://callan.com/events-education)



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

Greg Allen, CEO and Chief Research Officer



## List of Callan's Investment Manager Clients

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

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

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

Manager Name
abrdrn (Aberdeen Standard Investments)
Acadian Asset Management LLC
Adams Street Partners, LLC
AEGON USA Investment Management Inc.
AllianceBernstein
Allianz
Allspring Global Investments
American Century Investments
Amundi US, Inc.
Antares Capital LP
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Arrowmark Partners
ARS Investment Partners LLC
Atlanta Capital Management Co., LLC
AXA Investment Managers

Manager Name
Baillie Gifford International, LLC
Baird Advisors
Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
Belle Haven Investments
BentallGreenOak
BlackRock
Blackstone Group (The)
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brookfield Asset Management Inc.
Brown Brothers Harriman & Company
Capital Group
Carillon Tower Advisers
Carlyle Group

**Manager Name**

CastleArk Management, LLC  
Chartwell Investment Partners  
ClearBridge Investments, LLC  
Clearlake Capital  
Cohen & Steers Capital Management, Inc.  
Columbia Threadneedle Investments North America  
Conestoga Capital Advisors  
Credit Suisse Asset Management, LLC  
Crescent Capital Group LP  
D.E. Shaw Investment Management, LLC  
DePrince, Race & Zollo, Inc.  
Diamond Hill Capital Management, Inc.  
Dimensional Fund Advisors L.P.  
Doubleline  
Duff & Phelps Investment Management Co.  
DWS  
EARNEST Partners, LLC  
Epoch Investment Partners, Inc.  
Fayez Sarofim & Company  
Federated Hermes, Inc.  
Fidelity Institutional Asset Management  
Fiera Capital Corporation  
First Hawaiian Bank Wealth Management Division  
First Sentier Investors  
Fisher Investments  
Franklin Templeton  
Fred Alger Management, LLC  
GAM (USA) Inc.  
GlobeFlex Capital, L.P.  
GoldenTree Asset Management, LP  
Goldman Sachs  
Golub Capital  
Guggenheim Investments  
GW&K Investment Management  
Harbor Capital Advisors  
HarbourVest Partners, LLC  
Hardman Johnston Global Advisors LLC  
Heitman LLC  
HPS Investment Partners, LLC  
Hotchkis & Wiley Capital Management, LLC

**Manager Name**

Impax Asset Management LLC  
Income Research + Management  
Insight Investment  
Intech Investment Management LLC  
Intercontinental Real Estate Corporation  
Invesco  
J.P. Morgan  
Janus  
Jennison Associates LLC  
J O Hambro Capital Management Limited  
Jobs Peak Advisors  
Johnson Asset Management  
KeyCorp  
Kohlberg Kravis Roberts & Co. (KKR)  
Lazard Asset Management  
LGIM America  
Lighthouse Investment Partners, LLC  
Lincoln National Corporation  
Longview Partners  
Loomis, Sayles & Company, L.P.  
Lord Abbett & Company  
LSV Asset Management  
MackKay Shields LLC  
Macquarie Asset Management  
Man Group  
Manning & Napier Advisors, LLC  
Manulife Investment Management  
Marathon Asset Management, L.P.  
McKinley Capital Management, LLC  
Mellon  
MetLife Investment Management  
MFS Investment Management  
MidFirst Bank  
MLC Asset Management  
Mondrian Investment Partners Limited  
Monroe Capital LLC  
Montag & Caldwell, LLC  
Morgan Stanley Investment Management  
MUFG Union Bank, N.A.  
Napier Park Global Capital

**Manager Name**

Natixis Investment Managers

Neuberger Berman

Newton Investment Management

Ninety One North America, Inc.

Northern Trust Asset Management

Nuveen

Oaktree Capital Management, L.P.

P/E Investments

Pacific Investment Management Company

Pantheon Ventures

Parametric Portfolio Associates LLC

Partners Group (USA) Inc.

Pathway Capital Management, LP

Peregrine Capital Management, LLC

PFM Asset Management LLC

PGIM Fixed Income

PGIM Quantitative Solutions LLC

Pictet Asset Management

PineBridge Investments

Polen Capital Management, LLC

Principal Asset (formerly Principal Global)

Pugh Capital Management Inc.

Putnam Investments, LLC

Pzena Investment Management, LLC

Raymond James Investment Management

RBC Global Asset Management

Regions Financial Corporation

Richard Bernstein Advisors LLC

Robeco Institutional Asset Management, US Inc.

**Manager Name**

Rothschild &amp; Co. Asset Management US

S&amp;P Dow Jones Indices

Schroder Investment Management North America Inc.

Segall Bryant &amp; Hamill

SLC Management

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

State Street Global Advisors

Strategic Global Advisors, LLC

Strategic Value Partners, LLC

T. Rowe Price Associates, Inc.

The TCW Group, Inc.

Thompson, Siegel &amp; Walmsley LLC

Thornburg Investment Management, Inc.

Tri-Star Trust Bank

UBS Asset Management

ULLICO Investment Advisors, Inc.

VanEck

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

Walter Scott &amp; Partners Limited

WCM Investment Management

Wellington Management Company, LLP

Western Asset Management Company LLC

Westfield Capital Management Company, LP

Westwood Global Investments

William Blair &amp; Company LLC

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