


September 30, 2022



City of Milwaukee Employees' Retirement System

Investment Measurement Service
Quarterly Review

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September 30, 2022

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Mayhem Continues in the Capital Markets

ECONOMY

2 Mayhem continued to plague the capital markets, with both stocks and bonds falling through the first three quarters of the year. But the underlying U.S. economy remains strong, with an uptick in GDP in 3Q and the job market reaching its pre-pandemic level in August.

Bonds Hit Hard as Rates Rose Sharply

FIXED INCOME

8 The Bloomberg US Aggregate saw its worst nine-month return in its history. The yield curve inverted at quarter-end; the 10-year was at 3.83% and 2-year at 4.22%. Negative returns for global fixed income were driven by broad interest rate increases.

Appeal for Investors in Low-Yield Climate

PRIVATE CREDIT

12 Clients moved away from new allocations to traditional sponsor-backed direct lending due to the increased competition and commoditization within the space. Demand has continued to be healthy for less-competitive areas of private credit with high barriers to entry.

Double-digit Declines for Last 12 Months

INSTITUTIONAL INVESTORS

4 Institutional investors saw double-digit losses over the year ending 9/30/22. Almost every asset class was down, and it was the worst start to a year for a 60/40 portfolio in decades. Despite inflation worries, the drop in stocks and bonds became the top concern of institutional investors.

NPI Shows Gains; REITs Lag Equities

REAL ESTATE/REAL ASSETS

10 The NCREIF Property Index rose 0.6% during 3Q22. The NCREIF Open-End Diversified Core Equity Index rose 0.5%. The FTSE EPRA Nareit Developed Asia Index (USD) fell 9.4%. The FTSE EPRA Nareit Developed Europe Index (USD) plunged 21.7%.

Managers in General Outpace Benchmarks

HEDGE FUNDS/MACs

13 Hedge funds fell but outperformed broader indices. The median member of the Callan Institutional Hedge Fund Peer Group rose 0.6%. The median manager of the Callan Multi-Asset Class (MAC) Style Groups saw lower returns, consistent with their underlying risk exposures.

First Three Quarters The Worst in Decades

EQUITY

6 The S&P 500 Index fell 4.9% in 3Q22, and equities are off to the worst three quarters in decades. All major U.S. indices across styles and market cap ranges were negative except for the Russell 2000 Growth. Global markets waned for three straight quarters as well.

Activity Reflects Pre-Pandemic Levels

PRIVATE EQUITY

11 All private equity activity measures dipped in 3Q22 compared to the previous quarter, except for an increase in IPOs. Steep year-to-date declines are largely in contrast to last year's stimulus-induced hyper-liquidity, with 2022 generally reflecting active pre-pandemic levels.

DC Index Sees Third-Worst Decline Ever

DEFINED CONTRIBUTION

15 The Callan DC Index™ fell 12.2% in 2Q22; the Age 45 Target Date Fund dropped 13.4%. Balances within the DC Index declined by 12.3%. Stable value received 47.7% of net flows, topping target date funds. U.S. large cap (25.1%) had the largest percentage decrease in allocation.

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

Mayhem in the Capital Markets

ECONOMY | Jay Kloepfer

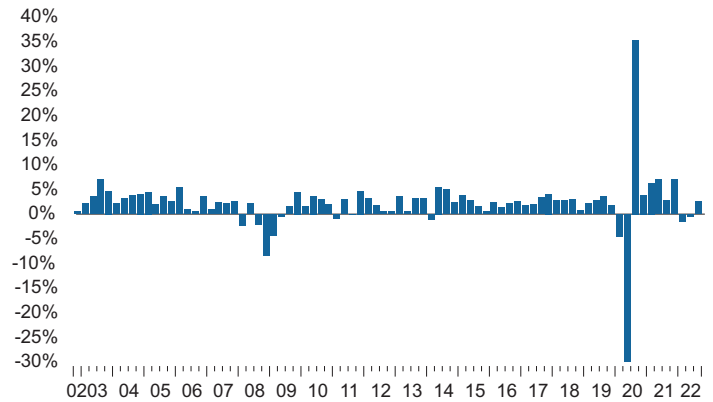
Capital markets abhor uncertainty, and we have seen nothing but uncertainty this year. The Russian invasion of Ukraine threw expectations for an orderly transition from the pandemic era out the window. Kinks in supply chains were expected to be smoothed, energy prices and inflation in general were projected to calm and subside after surging in 2021, and market participants anticipated an orderly transition from zero interest rate policy to a more “normal” yield curve. All these were key components to a consensus view that U.S. and global economies, and their capital markets, would slow gradually toward trend growth and reach the proverbial “Goldilocks” scenario: not too hot, not too cold. Like a soft landing for the Fed, the Goldilocks scenario is aspirational and has never really been achieved.

Instead, inflation is burning out of control. Global energy markets are surging and volatile. Geopolitical uncertainty is moving toward a level some experts liken to the period after World War II, when the United States and the Soviet Union were trying to figure out a new world order. This time, China represents a third axis of power with another agenda. Stock and bond markets around the globe are down together for three quarters in a row through September 2022. The S&P 500 plunged 24% year-to-date, and developed and emerging market equities are down a similar amount, punished by the strong dollar. While painful, such a drawdown in the equity markets is expected periodically. What is not expected is the 14.6% loss in the bond market (Bloomberg Aggregate) at the same time. The nine-month returns for the Aggregate are the worst in its history. There is no place to hide for a diversified portfolio.

The losses in both the bond and stock markets this year are primarily due to the sharp rise in interest rates. The lack of any yield cushion at the start of 2022 makes the rise in rates particularly painful for bonds. Rates have risen this much in the past, but the last time was during the regime change for monetary policy in the early 1980s. The giant capital losses were cushioned by yields as high as 14%. We began this year with the yield on the Aggregate at 1.75%; by Sept. 30, it reached 4.75%. With a duration of over

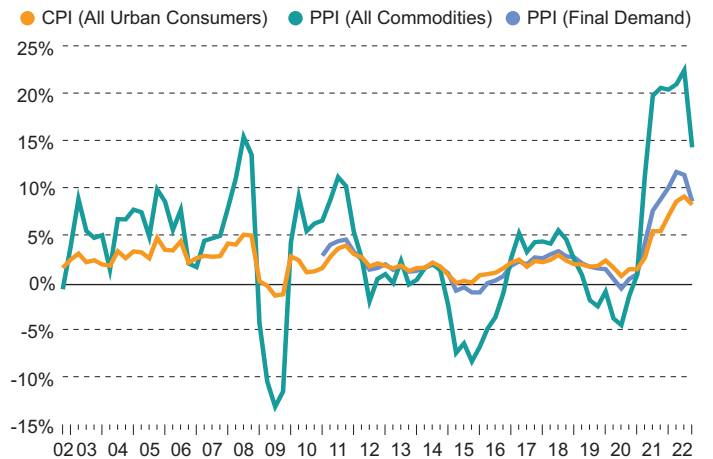
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

six years for the Aggregate, the capital loss implied by such a rate rise is close to 20%. The rising yield collected offsets some of this capital loss.

The Fed announced plans to raise rates aggressively in 2022, targeting a Fed Funds rate of 3.25% to 3.5% by December, but the market didn't really believe it until the Russian invasion in February. Then investors fully priced in the Fed's plans all at once. During the long period of zero interest rate policy over the past decade, we often mused that the best way to return to normal in the bond market would be to rip the “low-rate bandage” off and

move at once to the new normal. Get the pain over with, absorb the capital loss, and start collecting the higher yield. Be careful what you wish for.

Underneath this mayhem in the capital markets, the U.S. economy has been strong, with a particularly robust job market and healthy consumer spending. The economy added 263,000 jobs in September, down from the torrid pace set earlier this year, but for the quarter nonfarm employment increased by more than 1.1 million jobs. Even more importantly, we finally reached the pre-pandemic level for total employment in August 2022. Personal income growth has recovered from the withdrawal of pandemic support (transfer payments), rising 5.9% in 2Q and 5.5% in 3Q. Disposable income (after tax) rose by similar rates. However, inflation has taken a toll this year; real disposable income is 4% to 5% lower than the same month one year ago starting in May 2022, while real consumption expenditures are 6% to 7% higher.

Traditional measures of economic health are still out of whack as they often were during the pandemic. GDP is the biggest puzzle so far this year. GDP fell 1.6% in 1Q and another 0.6% in 2Q, while at the same time we generated more than 2 million new jobs. The GDP declines were deemed to be anomalies driven by inventory swings and net exports, not underlying economic weakness. Third quarter GDP grew by 2.6%, with strong contributions from exports, business fixed investment (equipment and intellectual property), and a resumption of government spending. However, fourth quarter GDP is now projected to fall. After all the mayhem, GDP growth will likely end up being positive in 2022—but it is projected to be negative in 2023, signaling more challenges ahead and the potential for a recession to extend through 2Q23.

The Long-Term View

Index	3Q22	Periods Ended 9/30/22			
		1 Yr	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	-4.5	-17.6	8.6	11.4	7.5
S&P 500	-4.9	-15.5	9.2	11.7	7.4
Russell 2000	-2.2	-23.5	3.6	8.6	6.7
Global ex-U.S. Equity					
MSCI EAFE	-9.4	-25.1	-0.8	3.7	3.5
MSCI ACWI ex USA	-9.9	-25.2	-0.8	3.0	--
MSCI Emerging Markets	-11.6	-28.1	-1.8	1.0	--
MSCI ACWI ex USA Small Cap	-8.4	-28.9	-0.6	4.4	5.6
Fixed Income					
Bloomberg Agg	-4.8	-14.6	-0.3	0.9	4.0
90-Day T-Bill	0.5	0.6	1.1	0.7	1.9
Bloomberg Long G/C	-9.0	-27.4	-1.2	1.4	5.5
Bloomberg GI Agg ex US	-8.8	-24.8	-4.0	-2.4	2.4
Real Estate					
NCREIF Property	0.6	16.1	8.6	9.5	9.4
FTSE Nareit Equity	-9.9	-16.4	2.9	6.3	7.7
Alternatives					
CS Hedge Fund	0.4	1.1	4.5	4.3	5.9
Cambridge PE*	-5.6	3.3	18.2	15.9	14.7
Bloomberg Commodity	-4.1	11.8	7.0	-2.1	1.5
Gold Spot Price	-7.5	-4.8	5.4	-0.6	6.6
Inflation – CPI-U	0.2	8.2	3.8	2.5	2.5

*Data for most recent period lags. Data as of 6/30/22.

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

Recent Quarterly Economic Indicators

	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20
Employment Cost–Total Compensation Growth	5.0%	5.1%	4.5%	4.0%	3.7%	2.9%	2.6%	2.5%
Nonfarm Business–Productivity Growth	0.3%	-4.1%	-5.9%	4.4%	-2.4%	2.7%	3.0%	-3.9%
GDP Growth	2.6%	-0.9%	-1.6%	6.9%	2.3%	6.7%	6.3%	4.5%
Manufacturing Capacity Utilization	79.7%	79.5%	79.1%	78.6%	77.5%	76.8%	75.7%	75.0%
Consumer Sentiment Index (1966=100)	56.1	57.8	63.1	69.9	74.8	85.6	80.2	79.8

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

Double-digit Declines for Last 12 Months

INSTITUTIONAL INVESTORS

Rough year but most investors topped benchmarks

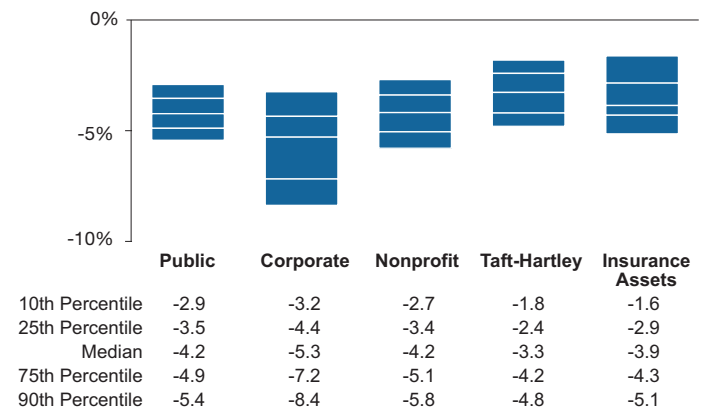
- Institutional investors saw double-digit losses over the year ending 9/30/22.
- Corporate defined benefit (DB) plans had the lowest returns, Taft-Hartley plans the best.
- All investor types aside from corporate DB plans outperformed a 60% S&P 500/40% Bloomberg Aggregate benchmark.
- And all types but corporate DB plans also outperformed equity and bond benchmarks.
- Over longer time periods, all investor types generally underperformed the stocks/bonds benchmark.

- Rebalancing is a natural outcome of a market downturn, except when everything goes down.
- Alternatives are now over target allocations.
 - *This stems from the denominator effect: the plunge in stocks and bonds is immediate but there is a delay in private market loss reporting, meaning the overweight is somewhat artificial.*
 - *This is not the time to hold back on re-upping private market commitments—the “overweight” will self-correct as appraisals reflect public market performance.*

Major concern shifts

- Declines in both equities and fixed income replaced inflation as the greatest concern for institutional investors in 3Q22.
- Almost every asset class was down, and it was the worst start to a year for a 60/40 portfolio in decades.
- But ... inflation is still burning out of control. One ray of hope: month-to-month inflation flattened to zero starting in June.
- Institutional investors are starting to ask questions about what to do now:
 - How does a yield of 4% change the demand for yield substitutes: investment grade credit, bank loans, high yield, private credit? Real estate and infrastructure?

Quarterly Returns, Callan Database Groups (9/30/22)



Source: Callan

Callan Database Median and Index Returns* for Periods Ended 9/30/22

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	-4.2	-13.4	4.1	4.8	6.8	7.3
Corporate Database	-5.3	-17.8	0.8	3.0	5.6	6.9
Nonprofit Database	-4.2	-14.5	3.6	4.3	6.3	7.4
Taft-Hartley Database	-3.3	-11.1	4.8	5.4	7.2	7.1
Insurance Assets Database	-3.9	-11.8	0.7	2.3	3.8	4.8
All Institutional Investors	-4.3	-14.3	3.4	4.3	6.5	7.2
Large (>\$1 billion)	-4.2	-13.0	4.2	5.0	6.8	7.5
Medium (\$100mm - \$1bn)	-4.3	-14.7	3.4	4.4	6.6	7.1
Small (<\$100 million)	-4.3	-14.5	3.0	4.0	6.2	6.8
60% S&P 500/40% Bloomberg Agg	-4.8	-14.9	3.9	5.7	7.5	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.

Key issues for corporate DB plans

- Corporate plans are rethinking their approach to liability-driven investing (LDI). LDI portfolios were hammered by long duration exposure; the typical LDI plan treaded water in funded status.
- According to a survey of client activity, there was a big drop in concern about funded status in recent quarters; plans’ interest in alternative asset classes dropped significantly.

Key issues for public DB plans

- Downward pressure on actuarial discount rates continued into 2022, with the typical rate at or below 7%. This trend may abate now as capital markets expectations rise following the market decline.
- Inflation impacts future liabilities through pressure on salary, and hits plans now with COLAs.
- According to our survey, return enhancement remains the top issue of concern; interest in adding to alternatives stayed steady.
- Clients plan to make few changes with allocations to most traditional asset classes.

- The survey started tracking private credit in 3Q20, and since then interest in increasing allocations to the asset class has held steady, with no clients saying they plan to cut their allocations.

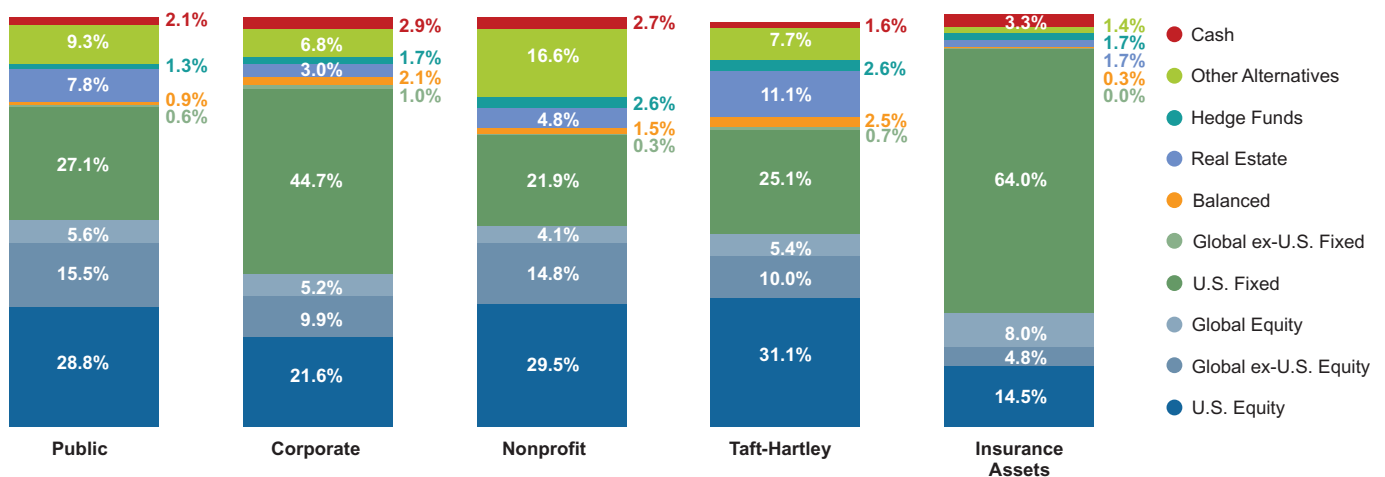
Key issues for defined contribution (DC) plans

- Use of passive target date funds hit an all-time high.
- Fees remained, as they have for years, the top issue, but some plans are focusing on participant communication amid the market turmoil.

Nonprofit priorities

- Nonprofits have expanded the depth and breadth of their private markets investments after a decade of high valuations in public markets growth assets. The inflation surge heightens concern about the erosion of the real values of their assets and distributions.
- According to our survey, there was a noticeable drop in their concerns about liquidity; interest in increasing private real estate allocations hit another high.
- There was also a significant decline in plans to increase private credit allocations between 1Q22 and 3Q22.

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

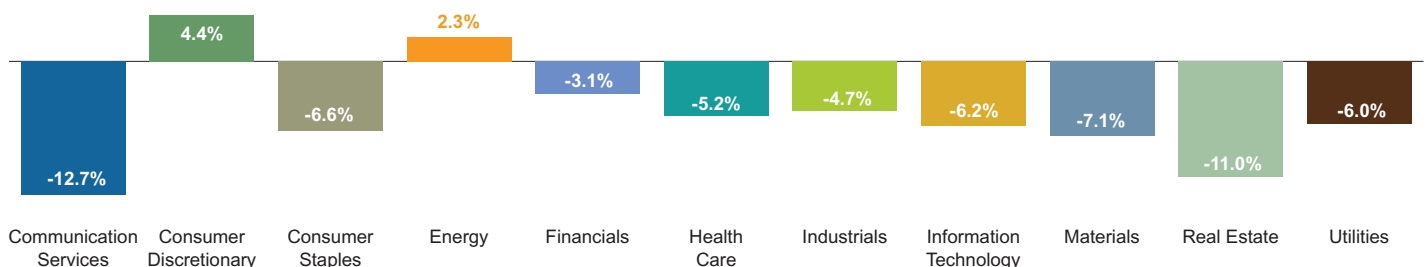
Worst three-quarter start to year in decades

- The S&P 500 Index fell 4.9% in 3Q22; all major U.S. indices across styles and market cap ranges were negative except for the Russell 2000 Growth Index, which gained 0.24%.
- During the quarter, all sectors posted negative returns except for Energy (+2%) and Consumer Discretionary (+4%). The return for Consumer Discretionary was aided by an exceptional July when the sector was up more than 18%. Returns for Real Estate and Communication Services were the worst, down 11% and 13%, respectively.
- Small cap (Russell 2000) outpaced large cap (Russell 1000) and growth outperformed value during the quarter, a reversal from previous quarters this year.
- Continued concerns around inflation and a potential recession, along with geopolitical headlines, contributed to a volatile and risk-averse environment.

More market difficulties; no place to hide

- The pullback of the U.S. equity markets was reminiscent of other periods marked by bearish sentiment, such as 2008 (Global Financial Crisis) and 2020 (start of pandemic).
- High inflation and interest rates continued to pressure the markets. While some inflationary data (particularly around energy) seemed to soften, other data points around food, shelter, and services remained elevated.
- U.S. equity did not provide a safe haven for investors. Like most other asset classes, it has not generated YTD gains and continues to be overshadowed by the outsized outperformance of commodities.

Quarterly Performance of Industry Sectors (9/30/22)



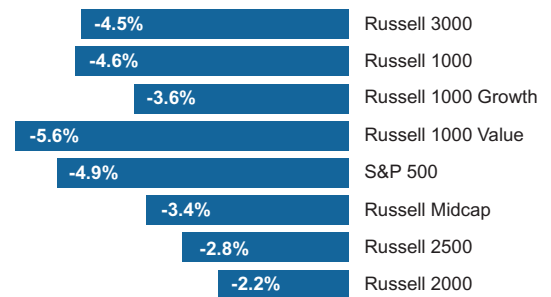
Source: S&P Dow Jones Indices

'Relief rally' but not for active managers

- The market experienced a "relief rally" in late June to August based on optimism that inflation had peaked, lessening the urgency for continued rate hikes.
- The rally was marked by a rebound of cyclical growth companies, and unprofitable companies outperformed profitable companies by wide margins across caps. Active managers underperformed significantly during this period.

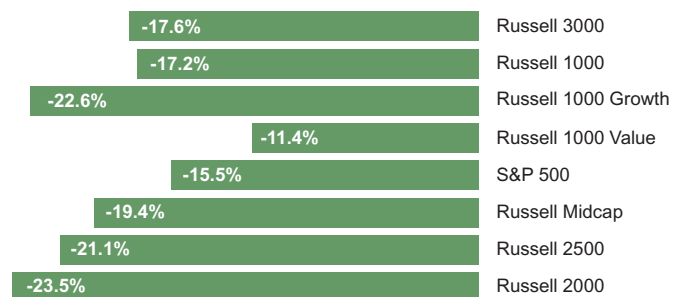
U.S. Equity: Quarterly Returns

(9/30/22)



U.S. Equity: One-Year Returns

(9/30/22)



Sources: FTSE Russell and S&P Dow Jones Indices

Global Equity

Market turmoil around the world

- Global and global ex-U.S. equity markets waned for three straight quarters due to inflation, rising rates, and fears of global recession.

Geopolitical and macro factors plague market

- Political instability in Italy and the U.K. as a result of prime minister departures weighed on the market.
- U.K. equities lost confidence as its newly elected prime minister Liz Truss announced her economic policy.
- China's COVID-19 lockdowns and growing concerns around the property sector sapped sentiment and economic activity.

Growth and value switch places globally

- Growth outpaced value in developed markets but lagged value in emerging markets.
- Rate-sensitive sectors in developed markets (e.g., Communication Services and Real Estate) were challenged given the tightening cycle by global central banks.
- The profitability of Chinese internet companies has compressed due to lockdowns and regulation, and a cyclical downturn in electronics weakened Taiwan and Korean semiconductors.

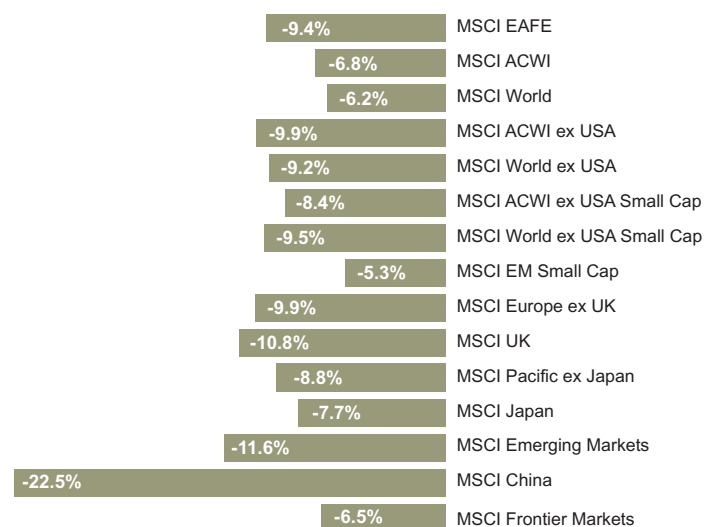
U.S. dollar vs. other currencies

- Growth and the interest rate differential as well as its safe-haven status fueled the U.S. dollar to its highest level in decades.
- The dollar gained vs. the euro and the yen by about 6%.

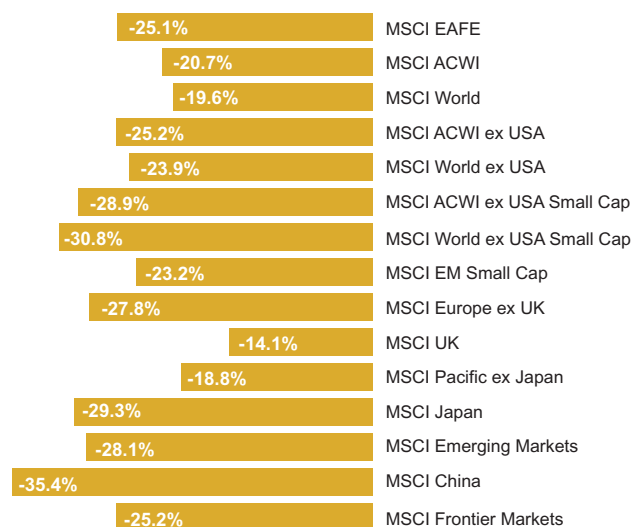
The case for global ex-U.S. equities

- Diversification: Global ex-U.S. equities remain a good diversifier to other public markets investments.
- Valuations/Yield: Valuation of U.S. stocks took off after the Global Financial Crisis (GFC); many of the tailwinds have dissipated—rates, inflation, and liquidity.
- Developed ex-U.S. stocks continue to be undervalued and currently provide a 1.6% yield premium to U.S. stocks (MSCI EAFE 3.5% vs. S&P 500 1.9%).

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 9/30/22)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 9/30/22)



Source: MSCI

- Economic exposure: Emerging market and developing economies' contribution to global GDP has increased while advanced economies' share has steadily decreased since the GFC.
- U.S. companies do not provide significant exposure to non-U.S. economies

Fixed Income

U.S. Fixed Income

Bonds hit hard as rates rose sharply (again)

- Bloomberg US Aggregate saw its worst nine-month return in its history—as did trailing 1-, 3-, 5-, and 10-year returns!
- 10-year annualized return for Aggregate is a mere 0.9%.
- Yield curve inverted at quarter-end; 10-year at 3.83% and 2-year at 4.22%
- 10-year at 4% briefly in late September; first time since 2009
- TIPS underperformed nominal Treasuries, and 10-year breakeven spreads fell to 2.11% from 2.33% as of 6/30/22.
- Fed raised rates by 150 bps during the quarter, bringing target to 3.0% to 3.25%.
- Median expectation from Fed is 4.4% at year-end and 4.6% at the end of 2023.
- Longer-term expectations are much lower.
- Volatility climbed to levels not seen since early 2020.

Spread sectors underperformed

- Mortgages had worst month ever vs. like-duration U.S. Treasuries in September; underperformed by 169 bps for 3Q.
- Corporates also underperformed: 33 bps of excess return.
- Bloomberg Corporate Bond Index yield-to-worst 5.7%
- High yield fared better and loans posted a positive return.
- Bloomberg High Yield Corp yield-to-worst 9.7%

Municipal Bonds

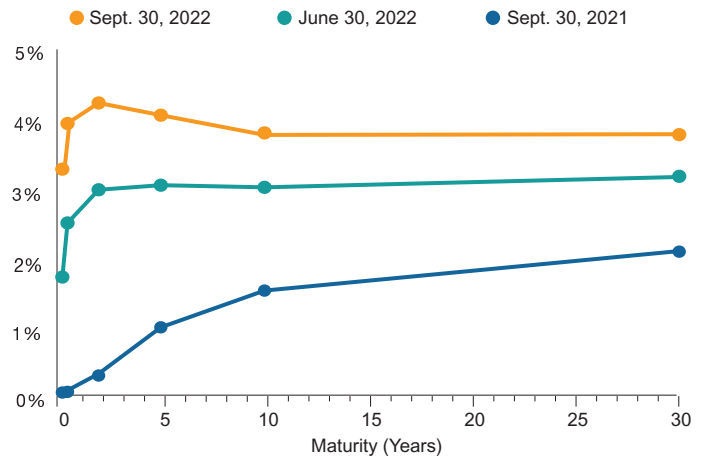
Municipal bond returns hurt by rising rates

- Lower quality continued to underperform.
- BBB: -4.1%; AAA: -3.5% (YTD BBB: -14.9%; AAA: -11.7%)

Valuations relative to U.S. Treasuries at fair value

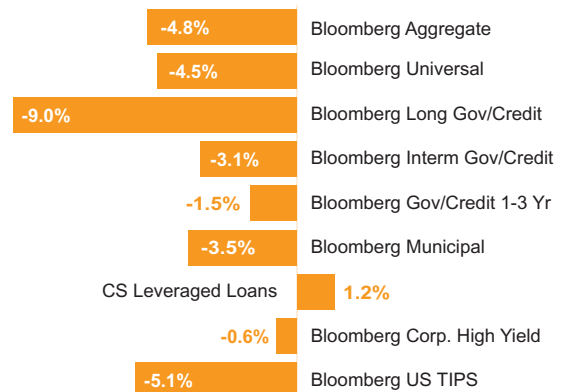
- 10-year AAA Muni/10-year U.S. Treasury yield ratio roughly 87%; in line with 10-year average
- Municipal Bond Index after-tax yield = 6.8% (source: Morgan Stanley)

U.S. Treasury Yield Curves



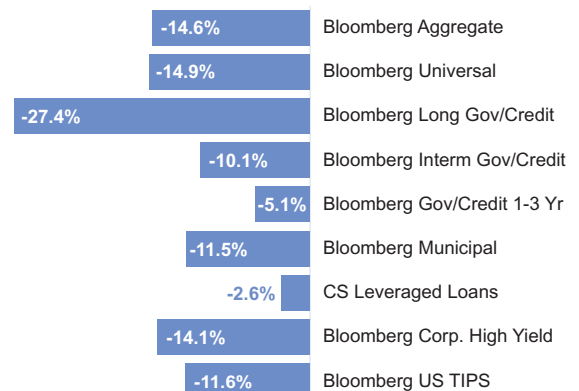
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns (9/30/22)



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns (9/30/22)



Sources: Bloomberg and Credit Suisse

FIXED INCOME (Continued)

Supply/demand

- Outflows of \$91.5 billion YTD—highest cycle outflow since data series began in 1992
- YTD issuance down 14% vs. last year

Credit quality remains stable to improving

- State revenues up more than 18% vs. 2021
- Number of defaults lower than 2021 and concentrated in senior living and industrial revenue bonds

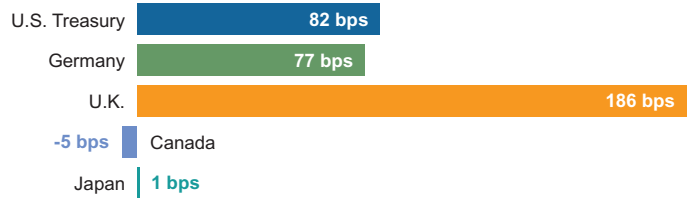
Global Fixed Income

Negative returns driven by broad interest rate increases

- U.S. dollar continued to appreciate vs. yen, euro, and pound
- Bank of Japan intervened to support currency for first time since 1998.
- Pound hit record low vs. U.S. dollar.
- Double-digit negative returns were widespread across developed markets.
- U.K. government bonds were hard-hit on U.K.'s “mini-budget” fiasco.
- ICE BofA U.K. Gilts Index -20.6% in 3Q
- Emerging market debt returns also sharply negative
- Most countries in the USD-denominated JPM EMBI Global Diversified Index posted negative returns, hurt by rising rates in the U.S.
- JPM GBI-EM Global Diversified also fell due largely to EM currency depreciation vs. the U.S. dollar.

Change in 10-Year Global Government Bond Yields

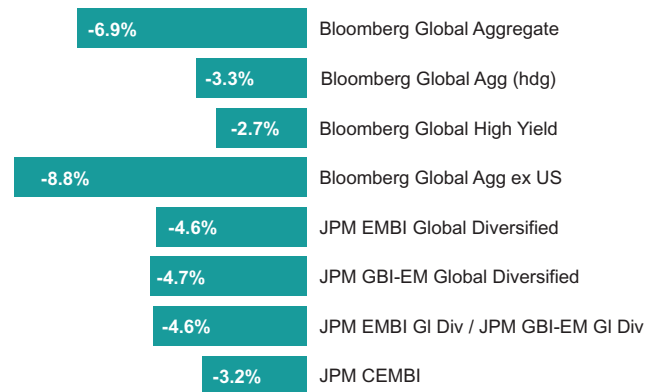
2Q22 to 3Q22



Source: Bloomberg

Global Fixed Income: Quarterly Returns

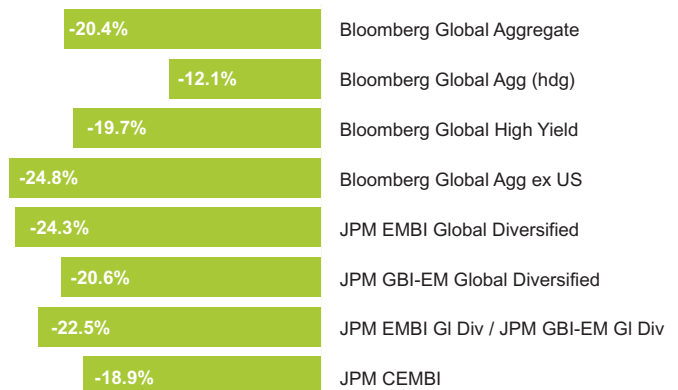
(9/30/22)



Sources: Bloomberg and JPMorgan Chase

Global Fixed Income: One-Year Returns

(9/30/22)



Sources: Bloomberg and JPMorgan Chase

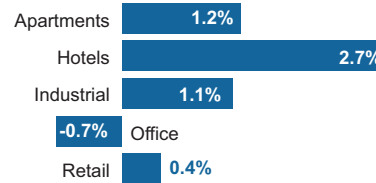
NPI Shows Gains but REITs Lag Equity Indices

REAL ESTATE/REAL ASSETS | Munir Iman

- The NCREIF Property Index, an unlevered measure of U.S. institutional real estate assets, rose 0.6% during 3Q22. The income return was 0.9%; the appreciation return was -0.4%.
- Hotels, which represent a small portion of the index, led property sector performance with a gain of 2.7%. Office finished last with a loss of 0.7%.
- Regionally, the South led with a 1.1% gain, while the Midwest was the worst performer but still rose 0.2%.
- The NCREIF Open-End Diversified Core Equity Index, representing equity ownership positions in U.S. core real estate with leverage, rose 0.3% during 3Q, with an income return of 0.6% and an appreciation return of -0.3%.
- U.S. REITs underperformed the S&P 500 (-4.9%) but exhibited strong performance relative to European REITs. Real estate securities underperformed on the cloudy economic outlook as well as a sizeable upward move in U.S. government bond yields.
- While all property sectors traded lower during the quarter, the sectors that were most resilient included self-storage and hotels amid strong fundamentals and pricing power. Malls also outperformed after being a meaningful laggard year to date.
- The poorest-performing sectors included data centers, due to fears around power costs and higher cost of capital; office,

Sector Quarterly Returns by Property Type

(9/30/22)



Source: NCREIF

- due to sluggish return-to-office momentum; and health care, due to labor cost pressures in senior housing.
- The FTSE EPRA Nareit Developed Asia Index (USD) fell 9.4% during the quarter.
- Australian REITs (-11.5%) were the weakest performers in the region, driven by concerns over slowing demand in office and cap rate expansion in industrial stocks.
- The FTSE EPRA Nareit Developed Europe Index (USD) fell 21.7% during the quarter, led by the United Kingdom (-25.9%), which lagged on the new government's approach to a debt-financed fiscal expansion that resulted in a sharp decline in the pound and government bonds.
- Continental Europe (-19.2%) performed better on a relative basis, but was still weighed down by currency headwinds, accelerating inflation, rate hike expectations, soaring energy prices, and continued conflict between Russia and Ukraine.

Callan Database Median and Index Returns* for Periods Ended 9/30/22

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	3.1	14.8	23.3	12.4	9.9	10.4	6.0
NFI-ODCE (value-weighted, net)	0.3	12.4	21.0	11.4	9.3	9.9	5.8
NCREIF Property	0.6	9.4	16.1	9.9	8.6	9.5	7.0
NCREIF Farmland	2.0	7.4	11.5	6.9	6.6	9.6	10.6
NCREIF Timberland	2.4	7.6	12.5	5.8	4.7	5.9	5.0
Public Real Estate							
Global Real Estate Style	-11.4	-29.9	-22.0	-3.7	2.0	5.1	2.8
FTSE EPRA Nareit Developed	-11.6	-29.9	-22.8	-6.5	-0.9	2.9	0.9
Global ex-U.S. Real Estate Style	-13.8	-32.0	-30.8	-8.6	-2.3	3.7	0.7
FTSE EPRA Nareit Dev ex US	-13.8	-31.4	-30.0	-10.1	-3.7	0.7	-1.2
U.S. REIT Style	-10.4	-28.3	-16.6	-0.4	4.5	7.1	5.8
FTSE EPRA Nareit Equity REITs	-9.9	-28.1	-16.4	-2.0	2.9	6.3	4.9

*Returns less than one year are not annualized.

Sources: Callan, FTSE Russell, NCREIF

Persistence Amid Volatility

PRIVATE EQUITY | Gary Robertson

Private equity activity measures in 3Q22 fell from 2Q, although totals reflect reasonable pre-pandemic levels. The IPO market for both venture capital and buyouts increased, but dollar volumes remained miniscule.

Fundraising ► Based on preliminary data, private equity partnerships holding final closes in 3Q totaled \$226 billion, with 484 new partnerships formed (unless otherwise noted, all data are from PitchBook). The dollar volume fell 6% from 2Q22, and the number of funds holding final closes declined 9%. So far, capital raised is running only 2% behind YTD 2021, but the number of funds trails by 31%.

Buyouts ► New buyout transactions and dollar volume fell moderately. Funds closed 2,881 company investments with \$152 billion of disclosed deal value, a 10% decrease in count and a 7% drop in dollar value from 2Q22.

VC Investments ► New financing rounds in venture capital companies totaled 9,985, with \$97 billion of announced value. The number of investments was down 17% from the prior quarter, and the announced value plunged 32%.

Exits ► There were 594 private M&A exits of private equity-backed companies (excluding venture capital), with disclosed values totaling \$128 billion. Exits fell 3% from the prior quarter

and announced dollar volume dropped 10%. There were 62 private equity-backed IPOs in 3Q raising \$11 billion, up from 46 totaling \$7 billion in 2Q.

Venture-backed M&A exits totaled 520 transactions with disclosed value of \$24 billion. The number of sales declined 26% but announced dollar volume fell only 4%. There were 104 VC-backed IPOs with a combined float of \$15 billion.

Returns ► With the strong 2Q retreat in public equity markets, private equity outperformance has widened given private equity's more gradual quarterly mark-to-market valuation methodology. While GPs have put forward persistently high valuations relative to public markets, continued declines are expected.

Funds Closed 1/1/22 to 9/30/22

Strategy	No. of Funds	Amt (\$mm)	Share
Venture Capital	1,030	222,528	32%
Growth Equity	106	81,859	12%
Buyouts	350	297,832	43%
Mezzanine Debt	13	24,423	3%
Distressed/Special Credit	29	36,121	5%
Energy	7	2,050	0%
Secondary and Other	81	29,338	4%
Fund-of-funds	20	5,807	1%
Totals	1,636	699,958	100%

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

Private Equity Performance (%) (Pooled Horizon IRRs through 6/30/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-8.5	0.8	29.2	25.2	19.5	14.0	12.1	22.6
Growth Equity	-7.6	-3.1	21.4	19.7	16.1	13.1	14.1	14.9
All Buyouts	-4.5	5.4	19.7	17.6	15.8	10.8	14.5	13.3
Mezzanine	-0.5	9.3	12.1	11.9	11.6	10.3	11.0	10.1
Credit Opportunities	-1.7	5.4	7.9	7.4	8.8	8.6	9.8	9.6
Control Distressed	-1.1	20.5	20.0	14.5	13.4	10.7	12.0	12.0
All Private Equity	-5.7	3.6	21.2	18.6	15.9	11.5	13.5	14.1
S&P 500	-16.1	-10.6	10.6	11.3	13.0	8.5	9.1	8.0
Russell 3000	-16.7	-13.9	9.8	10.6	12.6	8.4	9.1	8.1

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.

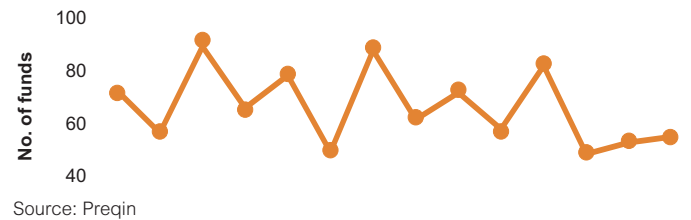
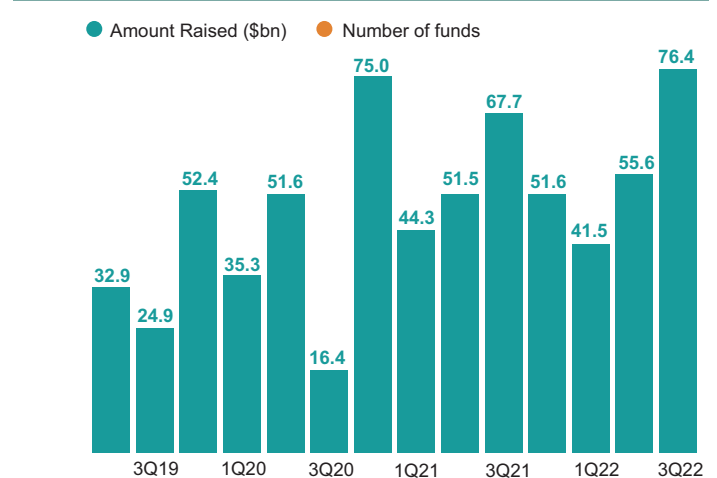
Appealing to Investors in Low-Yield Climate

PRIVATE CREDIT | Catherine Beard

Illiquidity premium close to zero

- There is continued strong private credit demand in a rising rate environment where the returns of floating-rate loans are bolstered.
- During 3Q22, clients moved away from new allocations to traditional sponsor-backed direct lending due to the increased competition and commoditization within the space.
- Demand has continued to be robust for less-competitive areas of private credit with high barriers to entry and attractive risk/reward opportunities.
 - Includes opportunistic lending, specialty finance, and industry or other niche-focused lending strategies such as venture debt and health care lending
- Limited partners (LPs) are seeking alternative structures designed to streamline the investment process while improving underlying liquidity. A number of general partners are launching evergreen structures as a response to LP interest.
- Private credit fundraising was robust leading into the COVID dislocation with a particular focus on direct lending, asset-based lending, and distressed strategies.
- Fundraising activity increased year-over-year, with \$68 billion in capital raised in 3Q21 vs. \$76 billion in 3Q22.
- The average fund size year-over-year increased from \$1.4 billion in 3Q21 to \$1.6 billion in 3Q22 as established managers grow fund sizes in response to strong LP demand.
- For mature private credit programs, demand is increasing for diversifying strategies like specialty finance and royalties' strategies to capture opportunities outside of traditional sponsor-backed direct lending.

Private Credit Fundraising (\$bn)



Source: Preqin

Private Credit Performance (%) (Pooled Horizon IRRs through 6/30/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	-2.2	0.0	5.3	6.3	6.3	6.5	6.8	6.7
Mezzanine	-0.5	9.3	12.1	11.9	11.1	11.6	10.3	11.0
Credit Opportunities	-1.7	5.4	7.9	7.4	6.4	8.8	8.6	9.8
Total Private Credit	-1.6	5.0	8.3	8.2	7.4	9.1	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

Global markets were volatile throughout 3Q22, as persistent inflation, slowing economic growth, and interest rate hikes by central banks caused most asset classes to fall. The S&P 500 dropped 4.9% as U.S. equities ended 3Q back in bear market territory, reversing a bounce upward that began in the final weeks of 2Q. Within technology, the Nasdaq ended the quarter down 4.0%, as the communication and media sectors fell meaningfully for the quarter, slightly offset by mega-cap stocks like Apple, Amazon, and Tesla. Credit markets remained choppy for the quarter as high yield bond prices whipsawed.

Hedge funds again finished the quarter lower but outperformed broader market indices, as equity hedge strategies that focused on growth spaces like tech, media, and telecom continued to be a drag on performance. Some of those declines were offset by managers that focused on the energy sector.

Hedge Fund Style Group Returns

(9/30/22)



Sources: Callan, Credit Suisse, Federal Reserve

Callan Peer Group Median and Index Returns* for Periods Ended 9/30/22

Hedge Fund Universe	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years
Callan Institutional Hedge Fund Peer Group	0.6	3.2	4.0	5.4	6.0	6.2
Callan Fund-of-Funds Peer Group	0.5	-3.4	-3.5	4.7	3.8	4.3
Callan Absolute Return FOF Style	1.0	3.0	3.0	5.9	4.3	4.6
Callan Core Diversified FOF Style	0.6	-4.3	-4.2	4.7	3.7	4.1
Callan Long/Short Equity FOF Style	-1.9	-13.5	-15.5	2.7	2.9	4.3
HFRI Fund-Weighted Index	-0.7	-6.3	-5.9	6.1	4.5	4.6
HFRI Fixed Convertible Arbitrage	0.9	-4.1	-2.6	6.0	4.8	5.0
HFRI Distressed/Restructuring	-1.4	-5.0	-4.3	7.1	4.8	5.0
HFRI Emerging Markets	-5.5	-16.9	-17.3	1.8	0.7	2.9
HFRI Equity Market Neutral	0.7	0.4	1.0	2.5	2.1	3.0
HFRI Event-Driven	-0.4	-7.7	-6.8	5.2	4.0	4.9
HFRI Relative Value	0.0	-2.1	-1.9	3.5	3.3	4.1
HFRI Macro	1.8	10.5	10.1	7.8	5.6	3.1
HFRI Equity Hedge	-2.3	-13.8	-13.2	6.2	4.4	5.3
HFRI Multi-Strategy	-1.7	-10.8	-11.9	4.2	2.0	3.0
HFRI Merger Arbitrage	2.3	0.3	1.9	6.1	5.2	4.5
90-Day T-Bill + 5%	1.7	4.3	5.6	5.6	6.1	5.7

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

Serving as a proxy for large, broadly diversified hedge funds with low-beta exposure to equity markets, the median member of the Callan Institutional Hedge Fund Peer Group rose 0.6%. Within this style group of 50 peers, the average rates manager gained 1.9%, driven by the continued volatility in interest rates. Meanwhile, hedged credit managers were slightly higher at 0.6%, as managers were actively trading around interest rate volatility. The average equity hedge manager gained 1.9%, as this group of managers was able to profit off dispersion in equity indices.

Within the HFRI indices, the best-performing strategy last quarter continued to be macro (+1.8%), aided by its exposure to commodities, currencies, and rates trading. Equity hedge had its third consecutive quarter of negative performance (-2.3%), as managers with a focus on growth sectors continued to be the main drag on performance.

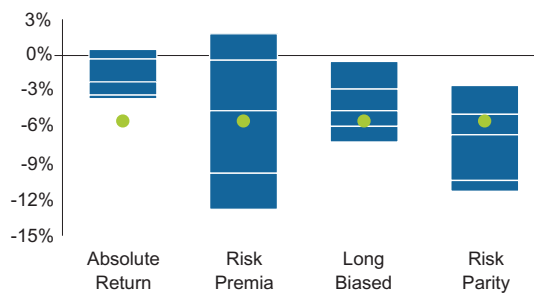
Across the Callan Hedge FOF Database, the median Absolute Return FOF gained 1.0%, the median Callan Long-Short

Equity FOF fell 1.9%, and the median Callan Core Diversified FOF rose 0.6%.

The Bloomberg GSAM Risk Premia Index increased 3.0% based upon a 6% volatility target. Within the underlying styles of the index's derivative-based risk premia, Bond Futures Value (+5.8%) and FX Trend (+4.7%) profited from the volatility in interest rates, along with commodity and currency exposures. The weakest risk premia strategy was FX G10 Value (-1.6%).

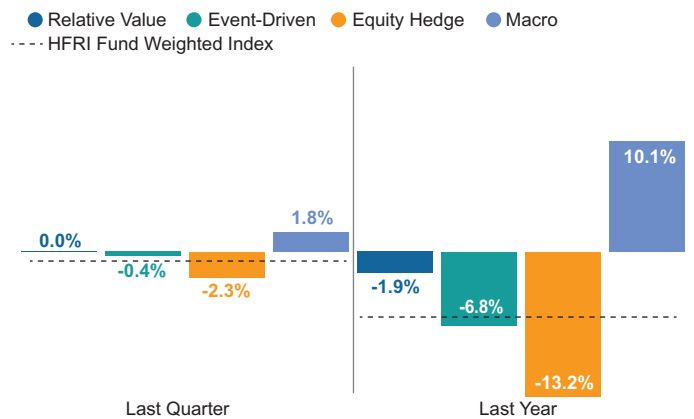
Within Callan's database of liquid alternative solutions, the median manager in the Callan Multi-Asset Class (MAC) Style Groups generated lower returns for the quarter, gross of fees, consistent with their underlying risk exposures. For example, the median Callan Long Biased MAC manager fell 4.6%, as exposure to equity and fixed income continued to be a drag on performance. The Callan Risk Parity MAC Index, which typically targets an equity risk-weighted allocation to the major asset classes with leverage, fell 6.6%.

MAC Style Group Returns (9/30/22)



10th Percentile	0.5	1.8	-0.5	-2.5
25th Percentile	-0.3	-0.4	-2.8	-4.9
Median	-2.2	-4.6	-4.6	-6.6
75th Percentile	-3.3	-9.8	-5.9	-10.4
90th Percentile	-3.6	-12.8	-7.2	-11.3
60% MSCI ACWI/ 40% Bloomberg Agg	-5.9	-5.9	-5.9	-5.9

HFRI Hedge Fund-Weighted Strategy Returns (9/30/22)



Source: HFRI

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

DC Index Sees Third-Worst Decline Ever

DEFINED CONTRIBUTION | Patrick Wisdom

Performance: Index dips again

- The Callan DC Index™ fell 12.2% in 2Q22, its third-largest quarterly decline ever.
- The Age 45 Target Date Fund fell 13.4%.

Growth Sources: Balances take a hit

- Balances within the DC Index declined by 12.3% after a 5.4% decrease the previous quarter.

Turnover: Net transfers fall

- Turnover (i.e., net transfer activity levels within DC plans) decreased to 0.37% from the previous quarter's 0.42%.

Net Cash Flow Analysis: Stable value takes top spot

- Bucking the trend of the last five quarters, TDFs (29.1% of net flows) took a back seat to stable value, which received 47.7% of net flows in perhaps a signal that some participants sought a flight to safety.
- Also of note, real return/TIPS (0.6%) did not attract a large share of flows, even as inflation has remained elevated.

Equity Allocation: Exposure drops sharply

- The Index's overall allocation to equity (69.8%) fell meaningfully from the previous quarter's level (72.0%), which had been within reach of the Index's high mark of 4Q07 (72.9%). The decrease was driven by a combination of investor outflows and declines in equity markets.

Asset Allocation: U.S. large cap equity falls

- U.S. large cap (25.1%) had the largest percentage decrease in allocation.
- Stable value (10.0%) had the largest percentage increase.

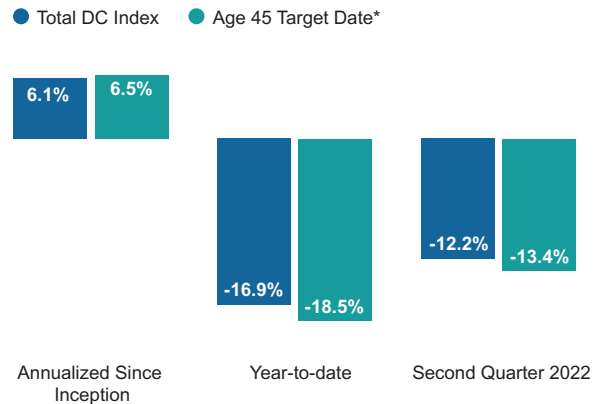
Prevalence of Asset Class: Balanced funds dip again

- The prevalence of a balanced fund (41.4%) decreased again to its lowest level since the inception of the Index in 2006.
- Other notable movements included a 1.1 percentage point decrease in the prevalence of a money market offering (49.6%); on the other hand, the prevalence of a real estate offering (21.8%) increased by 0.6 percentage points.

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.

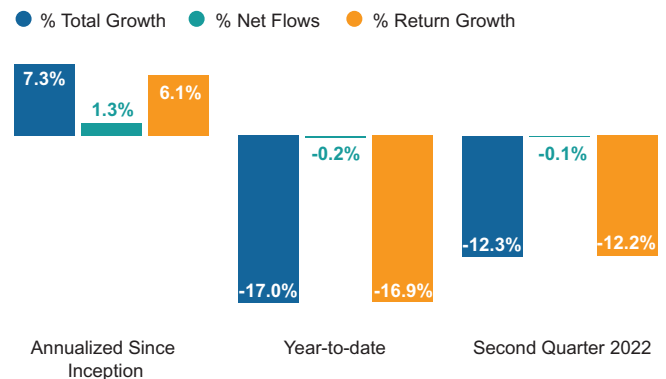
Investment Performance

(6/30/22)



Growth Sources

(6/30/22)



Net Cash Flow Analysis (2Q22)

(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Stable Value	47.7%
Target Date Funds	29.1%
U.S. Fixed Income	-19.5%
U.S. Large Cap	-48.1%
Total Turnover**	0.37%

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.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of September 30, 2022, with the distribution as of June 30, 2022.

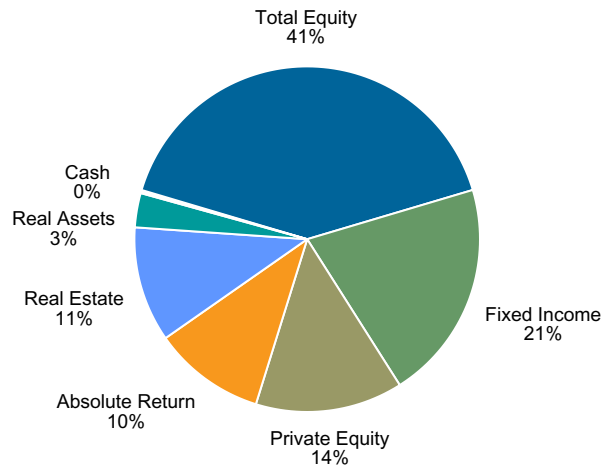
Asset Distribution Across Investment Managers

	September 30, 2022		June 30, 2022	
	Market Value	Weight	Market Value	Weight
Total Domestic Equity	\$1,004,422,485	19.04%	\$1,070,256,720	19.00%
BlackRock Russell 1000 Value	184,380,302	3.49%	141,446,858	2.51%
DFA Large Cap Value	133,161,129	2.52%	140,730,102	2.50%
Northern Trust Global	213,518,523	4.05%	289,720,143	5.14%
Polen Capital Management	127,889,338	2.42%	139,966,344	2.48%
Earnest Partners LLC	97,854,432	1.85%	103,691,710	1.84%
DFA Small Cap Value	168,408,832	3.19%	174,051,599	3.09%
CastleArk Management	79,209,929	1.50%	80,649,963	1.43%
Total Global Equity	\$389,617,509	7.38%	\$421,452,750	7.48%
BlackRock Global Alpha Tilts	227,465,237	4.31%	245,862,083	4.36%
MFS Investment Management	162,152,272	3.07%	175,590,667	3.12%
Total International Equity	\$762,113,942	14.44%	\$841,508,868	14.94%
AQR Emerging Markets	68,504,708	1.30%	78,538,816	1.39%
Brandes Investment Partners	297,467,028	5.64%	337,504,272	5.99%
William Blair & Company	238,613,385	4.52%	259,090,729	4.60%
DFA International Small Cap	157,528,821	2.99%	166,375,050	2.95%
Total Fixed Income	\$1,087,309,840	20.61%	\$1,217,919,587	21.62%
BlackRock US Govt Bond	262,553,288	4.98%	304,037,990	5.40%
Reams Asset Management	488,308,869	9.26%	553,352,425	9.82%
Loomis, Sayles & Company, L.P.	336,447,684	6.38%	360,529,171	6.40%
Total Private Equity	\$726,042,198	13.76%	\$765,319,709	13.58%
Abbott Capital Management 2010	23,347,046	0.44%	27,065,426	0.48%
Abbott Capital Management 2011	47,323,208	0.90%	55,329,663	0.98%
Abbott Capital Management 2012	41,854,246	0.79%	48,214,460	0.86%
Abbott Capital Management 2013	40,721,219	0.77%	46,725,968	0.83%
Abbott Capital Management 2014	46,093,103	0.87%	51,294,490	0.91%
Abbott Capital Management 2015	35,270,416	0.67%	37,767,328	0.67%
Abbott Capital Management 2016	28,253,925	0.54%	29,637,407	0.53%
Abbott Capital Management 2018	20,392,486	0.39%	19,982,940	0.35%
Abbott Capital Management 2019	16,935,416	0.32%	14,701,270	0.26%
Abbott Capital Management 2020	17,193,929	0.33%	17,392,726	0.31%
Abbott Capital Management 2021	6,169,260	0.12%	4,845,758	0.09%
Abbott Capital Management 2022	5,383,816	0.10%	1,212,100	0.02%
Mesirow V	47,671,706	0.90%	55,052,439	0.98%
Mesirow VI	74,761,820	1.42%	85,253,616	1.51%
Mesirow VII	121,745,407	2.31%	122,621,933	2.18%
Mesirow VIII	36,569,307	0.69%	36,750,733	0.65%
NB Secondary Opp Fund III	7,899,732	0.15%	8,446,195	0.15%
NB Secondary Opp Fund IV	18,240,430	0.35%	18,568,328	0.33%
NB Secondary Opp Fund V	10,761,635	0.20%	9,040,512	0.16%
Private Advisors VI	22,870,482	0.43%	23,466,883	0.42%
Private Advisors VII	15,313,691	0.29%	15,770,069	0.28%
Private Advisors VIII	16,559,772	0.31%	15,222,546	0.27%
Private Advisors IX	24,710,146	0.47%	20,956,919	0.37%
Absolute Return	\$551,864,157	10.46%	\$463,617,768	8.23%
Aptitude	85,238,000	1.62%	-	-
UBS A & Q	466,626,157	8.84%	463,617,768	8.23%
Real Assets	\$168,887,943	3.20%	\$198,354,663	3.52%
Principal DRA	168,887,943	3.20%	198,354,663	3.52%
Total Real Estate	\$569,084,172	10.79%	\$610,309,679	10.83%
Real Estate	569,084,172	10.79%	610,309,679	10.83%
Total Cash	\$16,789,067	0.32%	\$44,994,945	0.80%
Cash	16,789,067	0.32%	44,994,945	0.80%
Total Fund	\$5,276,131,314	100.0%	\$5,633,734,690	100.0%

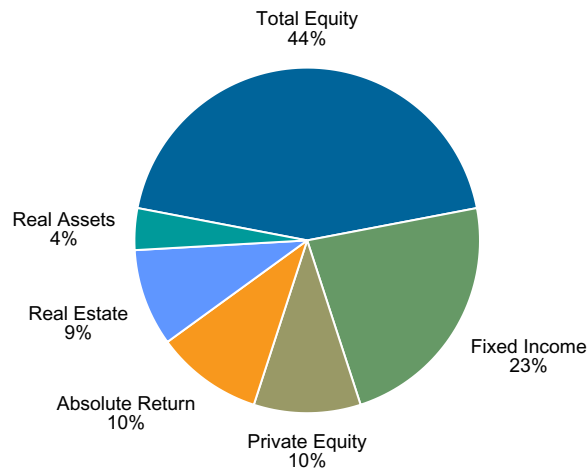
Actual vs Target Asset Allocation As of September 30, 2022

The first chart below shows the Fund's asset allocation as of September 30, 2022. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

Actual Asset Allocation



Target Asset Allocation



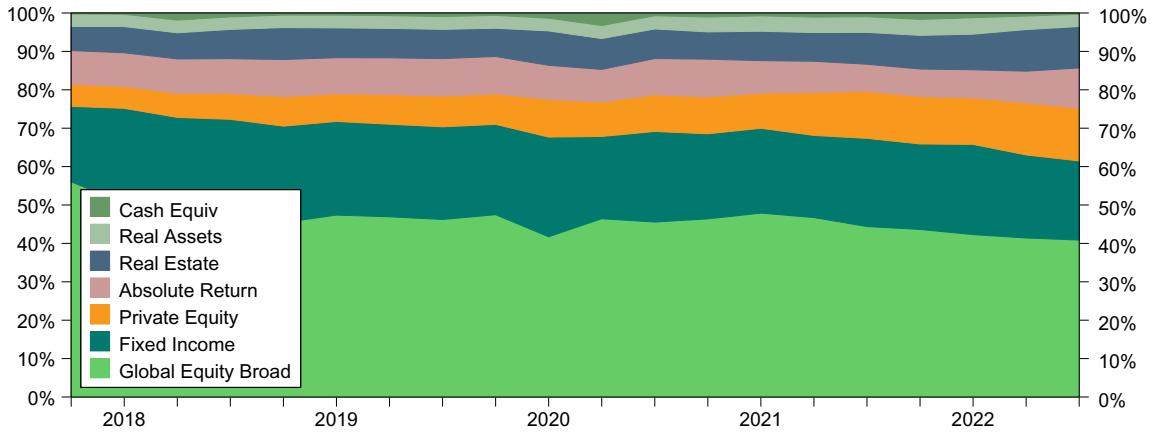
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Total Equity	2,156,154	40.9%	44.0%	(3.1%)	(165,344)
Fixed Income	1,087,310	20.6%	23.0%	(2.4%)	(126,200)
Private Equity	726,042	13.8%	10.0%	3.8%	198,429
Absolute Return	551,864	10.5%	10.0%	0.5%	24,251
Real Estate	569,084	10.8%	9.1%	1.7%	88,956
Real Assets	168,888	3.2%	3.9%	(0.7%)	(36,881)
Cash	16,789	0.3%	0.0%	0.3%	16,789
Total	5,276,131	100.0%	100.0%		

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

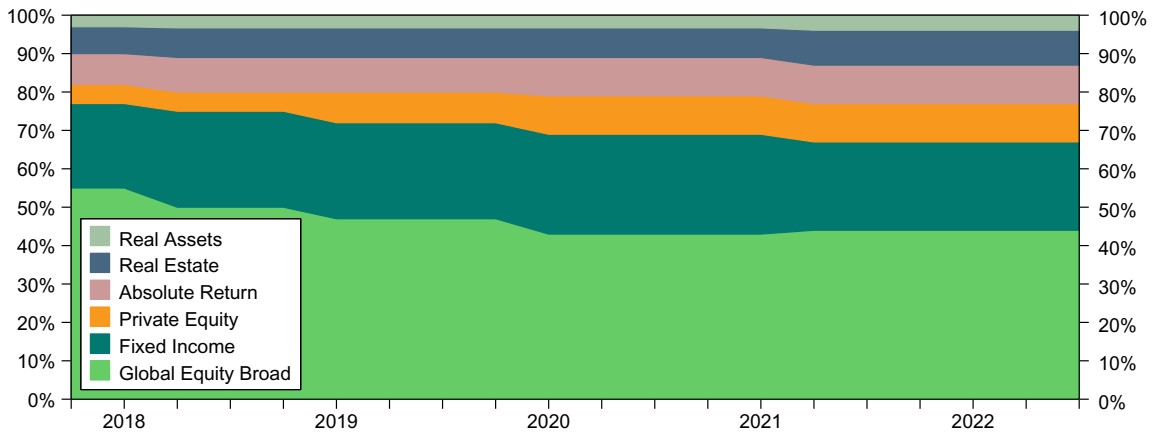
Actual vs Target Historical Asset Allocation

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.

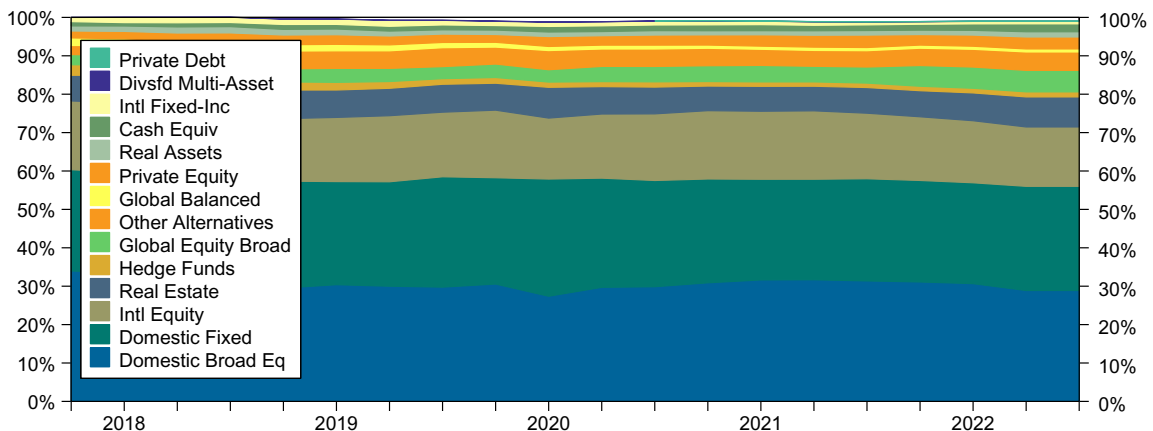
Actual Historical Asset Allocation



Target Historical Asset Allocation



Average Callan Public Fund Sponsor Database Historical Asset Allocation



* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

Total Fund

Period Ended September 30, 2022

Investment Philosophy

The Public Fund Sponsor Database consists of public employee pension total funds including both Callan Associates client and surveyed non-client funds. Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

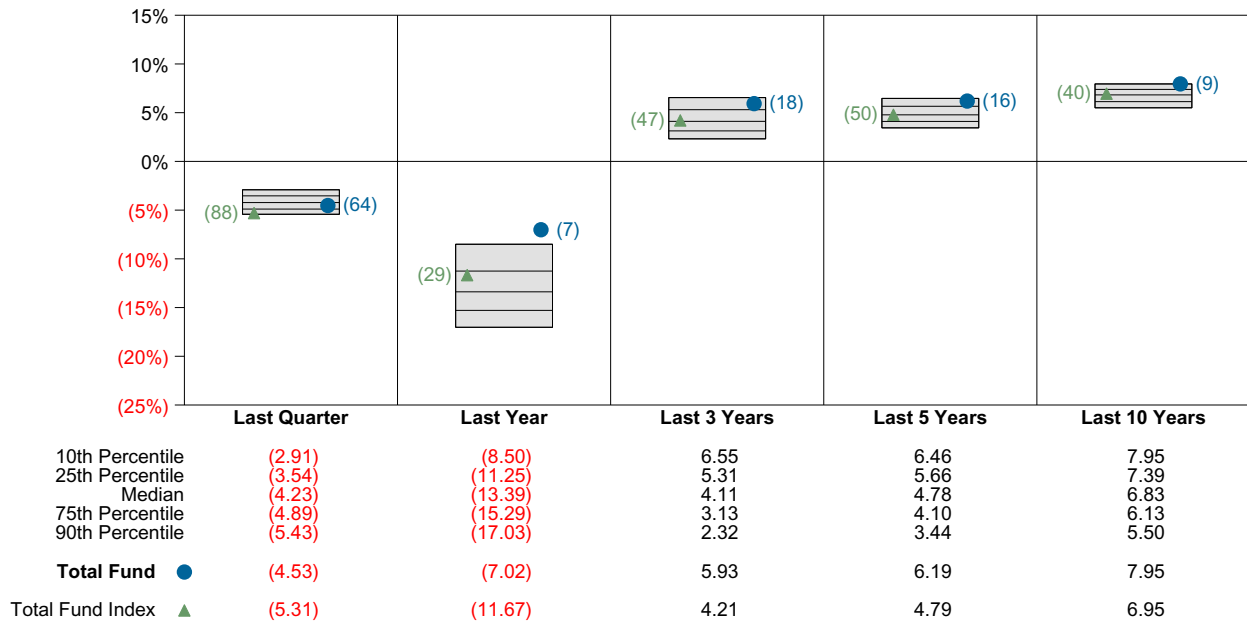
Quarterly Summary and Highlights

- Total Fund's portfolio posted a (4.53)% return for the quarter placing it in the 64 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 7 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Index by 0.78% for the quarter and outperformed the Total Fund Index for the year by 4.66%.

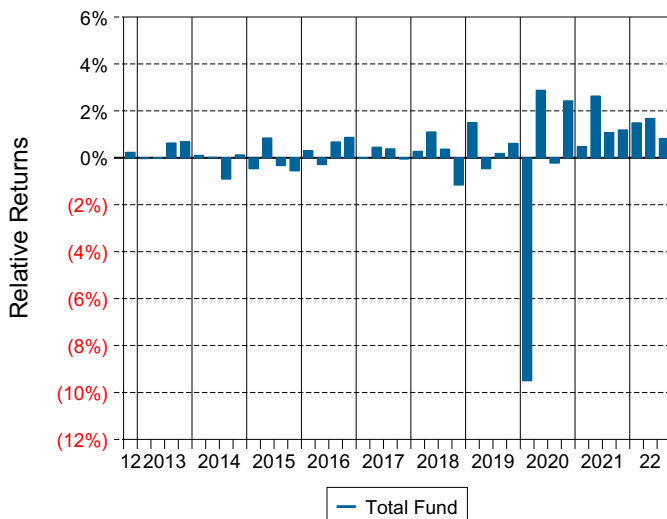
Quarterly Asset Growth

Beginning Market Value	\$5,633,734,690
Net New Investment	\$-110,105,352
Investment Gains/(Losses)	\$-247,498,024
Ending Market Value	\$5,276,131,314

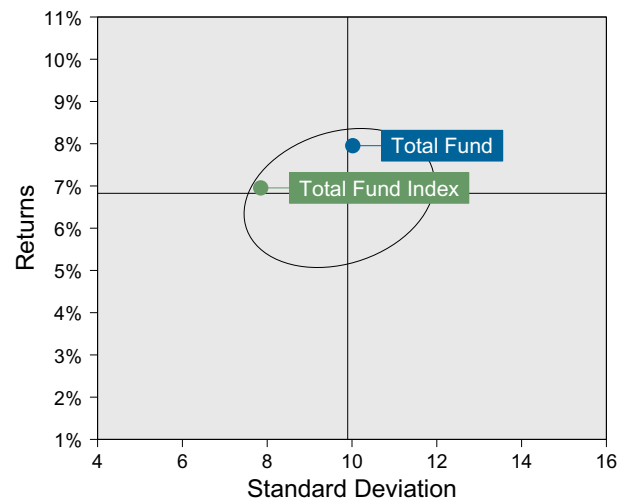
Performance vs Callan Public Fund Sponsor Database (Gross)



Relative Return vs Total Fund Index



Callan Public Fund Sponsor Database (Gross) Annualized Ten Year Risk vs Return

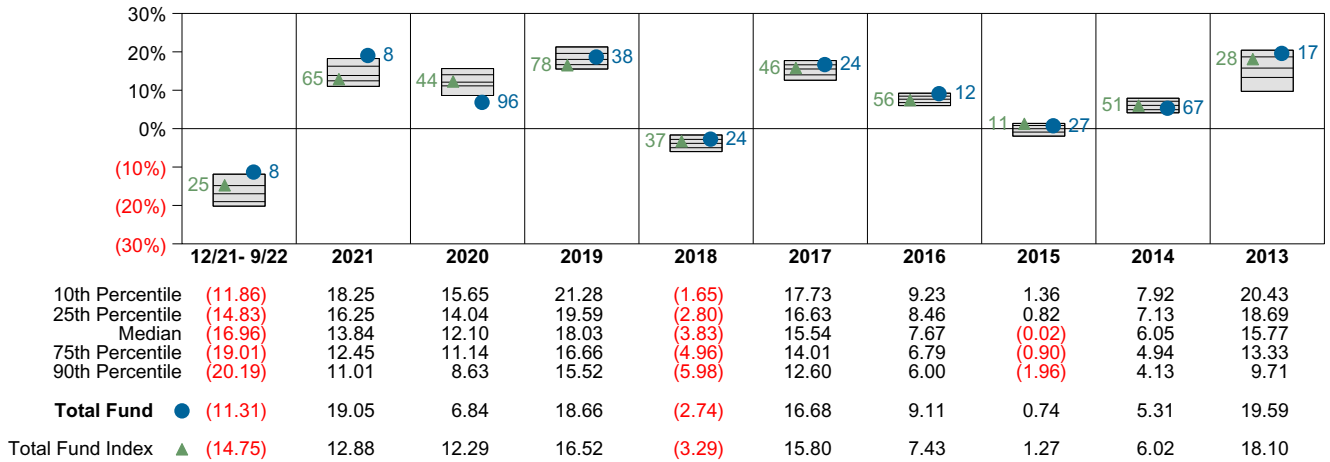


Total Fund Return Analysis Summary

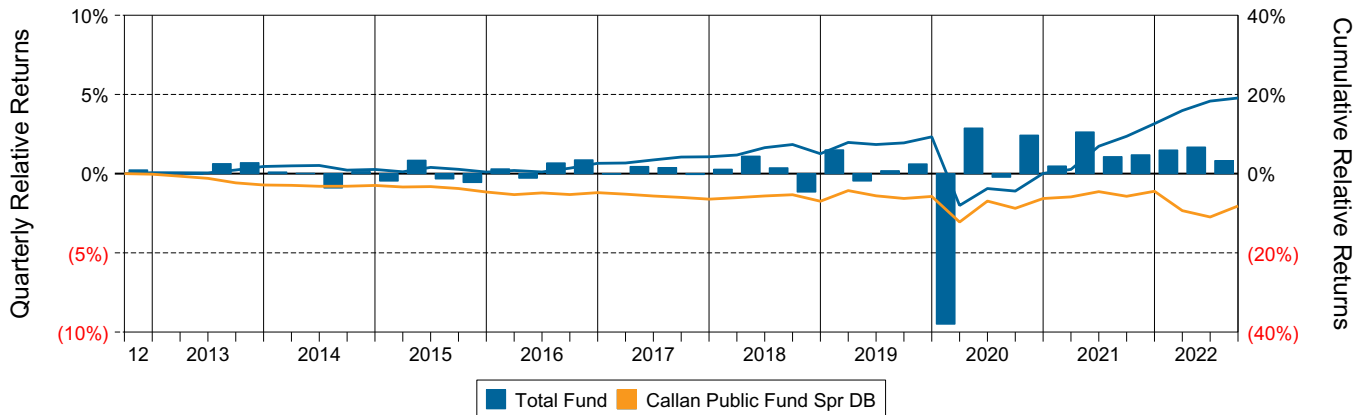
Return Analysis

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

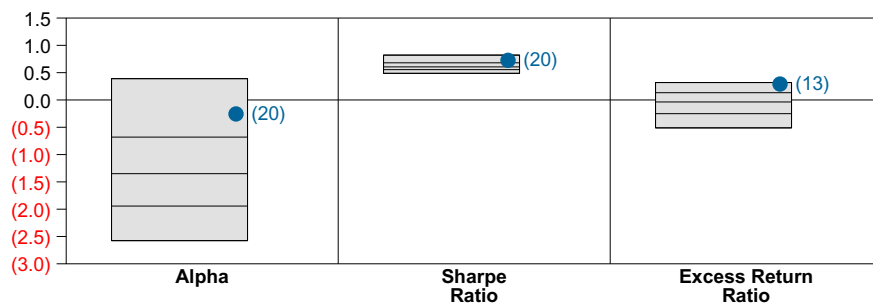
Performance vs Callan Public Fund Sponsor Database (Gross)



Cumulative and Quarterly Relative Returns vs Total Fund Index



Risk Adjusted Return Measures vs Total Fund Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended September 30, 2022



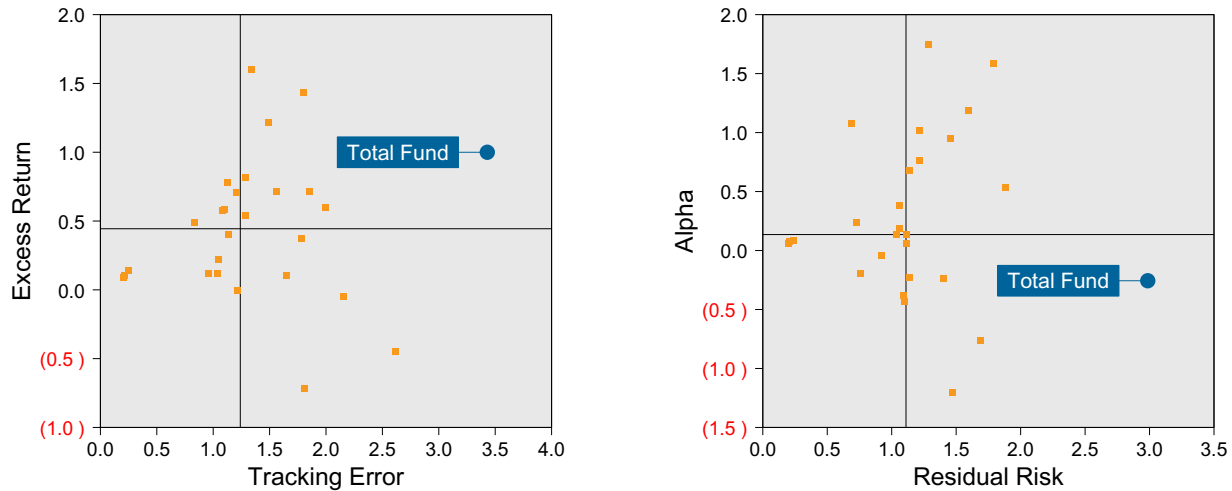
Total Fund

Total Fund vs Target Risk Analysis

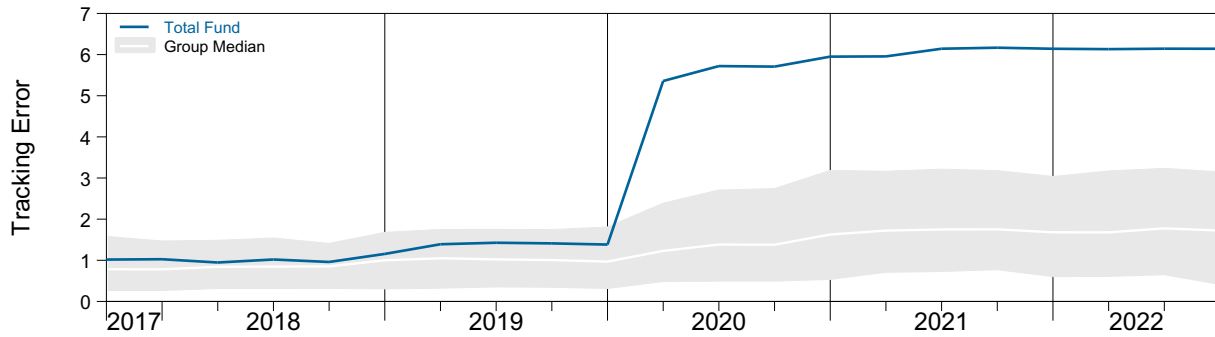
Risk Analysis

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

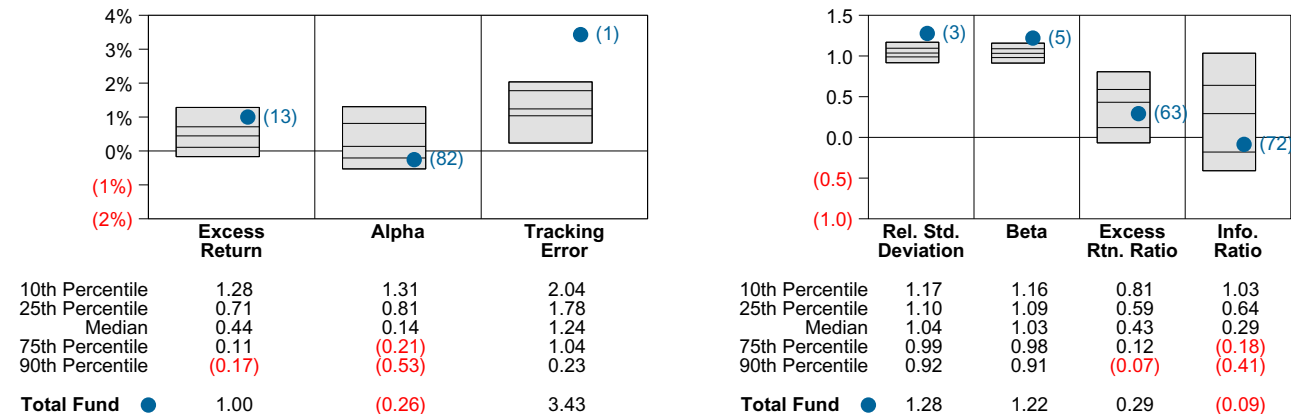
Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended September 30, 2022



Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Sponsor Database



Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Sponsor Database Ten Years Ended September 30, 2022



Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended September 30, 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 and Rankings for Periods Ended September 30, 2022

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
Total Public Equity	(7.16%)		(20.87%)		4.38%		4.69%		7.49%	(1/16)
MSCI ACWI IMI	(6.64%)		(21.18%)		3.64%		4.16%		6.79%	(1/16)
Total Domestic Equity	(4.57%)	73	(16.56%)	40	7.71%	36	8.22%	45	7.33%	(7/98)
Russell 3000 Index	(4.46%)	64	(17.63%)	66	7.70%	37	8.62%	28	6.99%	(7/98)
Pub Pln- Dom Equity	(4.27%)		(16.94%)		7.38%		8.13%		-	
BlackRock Russell 1000 Value	(5.61%)	56	(11.34%)	72	4.53%	85	5.47%	70	5.87%	(3/17)
Russell 1000 Value Index	(5.62%)	56	(11.36%)	72	4.36%	88	5.29%	78	5.36%	(3/17)
Callan Large Cap Value	(5.24%)		(9.37%)		5.97%		6.37%		-	
DFA Large Cap Value	(5.38%)	51	(11.07%)	70	4.49%	86	-		4.48%	(11/17)
Russell 1000 Value Index	(5.62%)	56	(11.36%)	72	4.36%	88	5.29%	78	5.22%	(11/17)
Callan Large Cap Value	(5.24%)		(9.37%)		5.97%		6.37%		-	
Northern Trust Global	(4.86%)	56	(15.44%)	49	8.18%	53	9.27%	37	10.22%	(8/88)
S&P 500 Index	(4.88%)	57	(15.47%)	49	8.16%	53	9.24%	37	10.17%	(8/88)
Callan Large Cap Core	(4.73%)		(15.54%)		8.40%		8.96%		-	
Polen Capital Management	(5.10%)	76	(34.72%)	88	4.97%	84	10.76%	45	13.31%	(7/12)
S&P 500 Index	(4.88%)	70	(15.47%)	5	8.16%	48	9.24%	78	12.07%	(7/12)
Callan Large Cap Growth	(4.20%)		(25.84%)		7.85%		10.52%		-	
Earnest Partners LLC	(5.63%)	82	(12.12%)	38	9.15%	11	10.20%	6	10.63%	(5/05)
Russell MidCap Index	(3.44%)	47	(19.39%)	60	5.19%	65	6.48%	52	8.86%	(5/05)
Callan Mid Capitalization	(3.84%)		(16.25%)		6.10%		6.55%		-	
DFA Small Cap Value	(3.24%)	23	(8.40%)	11	10.86%	7	5.50%	17	11.17%	(11/96)
Russell 2000 Value Index	(4.61%)	46	(17.69%)	82	4.72%	70	2.87%	77	8.59%	(11/96)
Callan Small Cap Value	(4.73%)		(13.50%)		6.13%		3.78%		-	
CastleArk Management	1.67%	14	(27.33%)	36	6.57%	46	8.41%	48	9.49%	(9/13)
Russell 2000 Growth Index	0.24%	31	(29.27%)	56	2.94%	89	3.60%	96	7.13%	(9/13)
Callan Small Cap Growth	(0.98%)		(28.75%)		6.14%		8.37%		-	
Total Global Equity	(7.55%)	68	(20.00%)	40	4.61%	40	6.30%	29	7.75%	(4/10)
MSCI World	(6.19%)	37	(19.63%)	39	4.56%	42	5.30%	48	7.68%	(4/10)
Callan Global Equity	(6.78%)		(21.39%)		4.32%		5.19%		-	
BlackRock Global Alpha Tilts	(7.48%)	67	(20.10%)	41	3.90%	57	4.56%	57	8.86%	(3/16)
MSCI ACWI Gross	(6.71%)	49	(20.29%)	42	4.23%	51	4.96%	52	8.80%	(3/16)
Callan Global Equity	(6.78%)		(21.39%)		4.32%		5.19%		-	
MFS Investment Management	(7.65%)	69	(19.80%)	40	5.75%	22	8.90%	5	10.50%	(12/12)
MSCI ACWI Gross	(6.71%)	49	(20.29%)	42	4.23%	51	4.96%	52	7.90%	(12/12)
Callan Global Equity	(6.78%)		(21.39%)		4.32%		5.19%		-	
Total International Equity	(10.33%)	69	(26.69%)	47	0.03%	25	(0.57%)	66	5.97%	(5/96)
MSCI EAFE	(9.36%)	19	(25.13%)	26	(1.83%)	79	(0.84%)	78	3.70%	(5/96)
Pub Pln- Intl Equity	(10.02%)		(27.08%)		(0.76%)		(0.19%)		-	
AQR Emerging Markets	(12.59%)	80	(27.92%)	42	(0.27%)	21	(2.11%)	67	2.79%	(8/16)
MSCI EM Gross	(11.42%)	60	(27.80%)	42	(1.71%)	44	(1.44%)	45	2.82%	(8/16)
Callan Emerging Broad	(10.95%)		(29.12%)		(2.18%)		(1.71%)		-	
Brandes Investment Partners	(11.86%)	93	(22.97%)	23	(2.06%)	73	(1.34%)	77	6.46%	(2/98)
MSCI EAFE	(9.36%)	52	(25.13%)	42	(1.83%)	70	(0.84%)	65	3.69%	(2/98)
Callan NonUS Eq	(9.30%)		(25.79%)		(0.57%)		(0.13%)		-	
William Blair & Company	(7.87%)	15	(34.57%)	92	1.65%	11	1.78%	13	6.48%	(12/03)
MSCI ACWIxUS Gross	(9.80%)	63	(24.79%)	36	(1.07%)	60	(0.34%)	54	5.37%	(12/03)
Callan NonUS Eq	(9.30%)		(25.79%)		(0.57%)		(0.13%)		-	
DFA International Small Cap	(10.00%)	58	(22.56%)	4	0.14%	30	(2.79%)	76	3.34%	(5/06)
MSCI EAFE Small	(9.83%)	57	(32.06%)	61	(2.16%)	69	(1.79%)	51	2.84%	(5/06)
Callan Intl Small Cap	(9.72%)		(31.16%)		(0.97%)		(1.75%)		-	

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended September 30, 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 and Rankings for Periods Ended September 30, 2022

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
Total Fixed Income	(3.92%)	63	(9.20%)	10	(3.57%)	98	(0.08%)	94	6.56%	(12/87)
Blmbg Aggregate	(4.75%)	86	(14.60%)	75	(3.26%)	98	(0.27%)	97	5.44%	(12/87)
Pub Pln- Dom Fixed	(3.45%)		(13.37%)		(1.69%)		0.60%		-	
BlackRock US Govt Bond	(4.19%)	7	-	-	-	-	-	-	(13.12%)	(12/21)
Blmbg Government	(4.30%)	15	(12.81%)	2	(3.05%)	86	(0.20%)	93	(13.39%)	(12/21)
Callan Core Bond FI	(4.56%)		(14.47%)		(2.70%)		0.19%		-	
Reams Asset Management	(4.58%)	70	(14.00%)	25	(0.24%)	4	2.00%	4	4.84%	(1/01)
Blmbg Aggregate	(4.75%)	88	(14.60%)	43	(3.26%)	94	(0.27%)	96	3.61%	(1/01)
Callan Core Plus FI	(4.30%)		(14.86%)		(2.45%)		0.41%		-	
Loomis, Sayles & Company, L.P.	(2.70%)	6	(14.58%)	43	(1.59%)	17	1.15%	11	8.08%	(12/87)
Blmbg Aggregate	(4.75%)	88	(14.60%)	43	(3.26%)	94	(0.27%)	96	5.44%	(12/87)
Callan Core Plus FI	(4.30%)		(14.86%)		(2.45%)		0.41%		-	
Total Private Equity	(4.42%)		7.68%		26.94%		23.87%		13.97%	(6/10)
Private Equity Benchmark (3)	(15.75%)		(11.49%)		12.41%		13.56%		-	
Abbott Capital Management 2010	(10.26%)		(0.90%)		21.42%		22.43%		1.96%	(6/10)
Abbott Capital Management 2011	(10.35%)		(2.07%)		25.65%		24.98%		5.82%	(6/11)
Abbott Capital Management 2012	(8.17%)		3.41%		27.56%		25.31%		13.50%	(7/12)
Abbott Capital Management 2013	(6.85%)		3.63%		27.45%		25.91%		14.49%	(5/13)
Abbott Capital Management 2014	(5.54%)		7.99%		28.60%		25.79%		14.10%	(4/14)
Abbott Capital Management 2015	(4.67%)		10.55%		27.66%		21.77%		15.81%	(4/15)
Abbott Capital Management 2016	(3.27%)		14.96%		29.08%		20.24%		14.94%	(3/16)
Abbott Capital Management 2018	(0.88%)		20.77%		27.50%		-		18.35%	(7/18)
Abbott Capital Management 2019	(1.78%)		16.10%		-		-		25.47%	(1/20)
Abbott Capital Management 2020	(1.14%)		2.81%		-		-		35.24%	(1/21)
Abbott Capital Management 2021	(2.12%)		9.24%		-		-		7.87%	(2/21)
Abbott Capital Management 2022	(0.41%)		-		-		-		(1.46%)	(2/22)
Mesirov V	(9.90%)		(12.34%)		22.49%		20.74%		16.22%	(6/10)
Mesirov VI	(9.02%)		(2.46%)		31.88%		27.67%		15.50%	(7/13)
Mesirov VII	(3.16%)		12.25%		23.43%		10.60%		3.76%	(6/17)
Mesirov VIII	(0.49%)		4.25%		-		-		(0.94%)	(9/20)
NB Secondary Opp Fund III	(3.42%)		1.03%		11.66%		12.80%		12.11%	(12/13)
NB Secondary Opp Fund IV	(3.76%)		9.68%		21.35%		17.70%		23.45%	(4/17)
NB Secondary Opp Fund V	(8.85%)		-		-		-		163.68%	(3/22)
Private Advisors VI			26.93%		35.95%		26.71%		15.66%	(4/15)
Private Advisors VII			8.36%		34.06%		20.30%		16.97%	(1/17)
Private Advisors VIII			14.18%		36.11%		25.69%		22.28%	(8/18)
Private Advisors IX			12.58%		27.59%		-		29.50%	(2/20)
Absolute Return	0.63%		25.52%		5.79%		5.91%		5.70%	(6/14)
90 Day T-Bill + 3%	1.19%		3.62%		3.59%		4.14%		3.80%	(6/14)
UBS A & Q	0.65%	67	7.91%	11	9.79%	12	7.67%	11	6.12%	(12/14)
1-month LIBOR + 4%	1.54%	35	4.82%	44	4.67%	65	5.24%	21	4.98%	(12/14)
Callan Abs Rtn Hedge FoF	1.00%		2.97%		5.95%		4.31%		-	
Real Assets	(7.85%)		(7.86%)		4.44%		3.53%		4.76%	(1/16)
Principal DRA	(7.85%)	96	(7.86%)	85	4.44%	60	3.53%	70	4.76%	(1/16)
Principal DRA Blend Index (1)	(7.91%)	96	(8.70%)	87	2.59%	73	2.75%	75	4.01%	(1/16)
Callan Alternative Inv DB	0.14%		8.83%		8.17%		6.20%		-	
Total Real Estate	1.31%		27.70%		14.18%		11.73%		7.28%	(7/86)
Real Estate	1.31%	79	27.70%	11	14.18%	10	11.73%	15	7.28%	(7/86)
Blended Benchmark (2)	3.35%	35	27.66%	11	11.92%	30	9.86%	38	-	
Callan Tot Real Est DB	3.07%		17.91%		10.18%		9.15%		-	
Total Fund	(4.53%)	64	(7.02%)	7	5.93%	18	6.19%	16	-	
Total Fund Index*	(5.31%)	88	(11.67%)	29	4.21%	47	4.79%	50	-	
Callan Public Fund Spr DB	(4.23%)		(13.39%)		4.11%		4.78%		-	

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% thereafter.

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. 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.

	12/2021- 9/2022		2021		2020		2019		2018	
Total Public Equity	(25.04%)		20.92%		14.78%		26.90%		(9.67%)	
MSCI ACWI IMI	(25.72%)		18.22%		16.25%		26.35%		(10.08%)	
Total Domestic Equity	(22.89%)	19	28.12%	14	16.35%	76	29.24%	74	(5.80%)	48
Russell 3000 Index	(24.62%)	75	25.66%	55	20.89%	26	31.02%	30	(5.24%)	33
Pub Pln- Dom Equity	(23.83%)		25.78%		18.71%		30.26%		(5.85%)	
BlackRock Russell 1000 Value	(17.76%)	80	25.18%	79	3.28%	46	26.79%	46	(8.12%)	43
Russell 1000 Value Index	(17.75%)	80	25.16%	79	2.80%	52	26.54%	50	(8.27%)	45
Callan Large Cap Value	(15.96%)		28.39%		3.04%		26.52%		(8.70%)	
DFA Large Cap Value	(16.83%)	58	27.52%	65	(1.56%)	90	26.71%	47	(12.40%)	84
Russell 1000 Value Index	(17.75%)	80	25.16%	79	2.80%	52	26.54%	50	(8.27%)	45
Callan Large Cap Value	(15.96%)		28.39%		3.04%		26.52%		(8.70%)	
Northern Trust Global	(23.84%)	64	28.69%	53	18.42%	53	31.54%	39	(4.34%)	31
S&P 500 Index	(23.87%)	65	28.71%	53	18.40%	53	31.49%	39	(4.38%)	32
Callan Large Cap Core	(23.56%)		28.98%		19.19%		30.50%		(5.41%)	
Polen Capital Management	(38.00%)	89	24.84%	43	35.13%	55	38.85%	11	9.14%	4
S&P 500 Index	(23.87%)	4	28.71%	20	18.40%	98	31.49%	76	(4.38%)	91
Callan Large Cap Growth	(31.97%)		24.26%		35.55%		34.55%		0.51%	
Earnest Partners LLC	(21.23%)	48	26.09%	48	21.61%	41	38.38%	12	(9.80%)	45
Russell MidCap Index	(24.27%)	56	22.58%	58	17.10%	48	30.54%	52	(9.06%)	41
Callan Mid Capitalization	(21.44%)		25.38%		16.17%		31.00%		(10.60%)	
DFA Small Cap Value	(14.13%)	13	40.61%	16	3.85%	45	18.79%	89	(14.84%)	53
Russell 2000 Value Index	(21.12%)	74	28.27%	64	4.63%	37	22.39%	64	(12.86%)	23
Callan Small Cap Value	(18.94%)		31.82%		2.88%		24.31%		(14.79%)	
CastleArk Management	(30.75%)	51	12.30%	42	45.10%	46	23.28%	86	3.29%	15
Russell 2000 Growth Index	(29.28%)	41	2.83%	80	34.63%	73	28.48%	54	(9.31%)	84
Callan Small Cap Growth	(30.58%)		10.91%		44.48%		30.25%		(2.91%)	
Total Global Equity	(25.68%)	45	19.03%	54	18.78%	43	31.05%	27	(8.18%)	40
MSCI World	(25.42%)	43	21.82%	28	15.90%	55	27.67%	49	(8.71%)	44
Callan Global Equity	(26.38%)		19.50%		17.13%		27.49%		(9.52%)	
BlackRock Global Alpha Tilts	(25.41%)	43	18.73%	57	16.53%	52	26.86%	53	(11.20%)	67
MSCI ACWI Gross	(25.34%)	43	19.04%	54	16.82%	51	27.30%	51	(8.93%)	46
Callan Global Equity	(26.38%)		19.50%		17.13%		27.49%		(9.52%)	
MFS Investment Management	(26.08%)	48	19.56%	50	22.42%	32	37.31%	4	(3.75%)	11
MSCI ACWI Gross	(25.34%)	43	19.04%	54	16.82%	51	27.30%	51	(8.93%)	46
Callan Global Equity	(26.38%)		19.50%		17.13%		27.49%		(9.52%)	
Total International Equity	(27.56%)	43	13.08%	11	10.84%	73	21.68%	75	(15.19%)	69
MSCI EAFE	(27.09%)	36	11.26%	23	7.82%	91	22.01%	64	(13.79%)	42
Pub Pln- Intl Equity	(28.16%)		8.40%		13.19%		22.93%		(14.04%)	
AQR Emerging Markets	(27.17%)	37	1.23%	36	18.26%	49	20.54%	63	(18.31%)	86
MSCI EM Gross	(26.89%)	35	(2.22%)	55	18.69%	44	18.90%	71	(14.24%)	28
Callan Emerging Broad	(29.16%)		(0.57%)		18.17%		22.12%		(15.34%)	
Brandes Investment Partners	(23.15%)	12	14.42%	18	(1.30%)	96	15.31%	98	(8.79%)	6
MSCI EAFE	(27.09%)	46	11.26%	52	7.82%	66	22.01%	66	(13.79%)	36
Callan NonUS Eq	(27.69%)		11.45%		11.48%		23.64%		(15.13%)	
William Blair & Company	(36.25%)	92	13.27%	30	31.44%	6	31.58%	9	(16.86%)	73
MSCI ACWIxUS Gross	(26.18%)	39	8.29%	71	11.13%	51	22.13%	64	(13.77%)	36
Callan NonUS Eq	(27.69%)		11.45%		11.48%		23.64%		(15.13%)	
DFA International Small Cap	(24.14%)	4	16.47%	14	1.47%	89	21.62%	81	(23.31%)	91
MSCI EAFE Small	(32.11%)	52	10.10%	72	12.34%	45	24.96%	50	(17.89%)	30
Callan Intl Small Cap	(31.80%)		12.78%		11.08%		24.96%		(19.67%)	

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. 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.

	12/2021- 9/2022		2021		2020		2019		2018	
Total Fixed Income	(9.22%)	13	(0.36%)	43	(1.82%)	98	11.82%	5	(0.33%)	72
Blmbg Aggregate	(14.61%)	72	(1.54%)	91	7.51%	66	8.72%	58	0.01%	57
Pub Pln- Dom Fixed	(13.17%)		(0.70%)		8.40%		8.97%		0.11%	
BlackRock US Govt Bond	(12.84%)	2	-		-		-		-	
Blmbg Government	(12.95%)	2	(2.28%)	100	7.94%	85	6.83%	100	0.88%	4
Callan Core Bond FI	(14.47%)		(1.04%)		8.70%		9.17%		0.11%	
Reams Asset Management	(14.35%)	27	(1.23%)	91	17.28%	2	8.82%	92	1.91%	1
Blmbg Aggregate	(14.61%)	41	(1.54%)	97	7.51%	91	8.72%	93	0.01%	30
Callan Core Plus FI	(14.95%)		(0.28%)		9.25%		10.03%		(0.24%)	
Loomis, Sayles & Company, L.P.	(14.51%)	36	2.13%	5	7.14%	92	14.42%	1	(2.11%)	98
Blmbg Aggregate	(14.61%)	41	(1.54%)	97	7.51%	91	8.72%	93	0.01%	30
Callan Core Plus FI	(14.95%)		(0.28%)		9.25%		10.03%		(0.24%)	
Total Private Equity	(2.81%)		67.66%		22.14%		16.63%		21.48%	
Private Equity Benchmark (3)	(11.88%)		34.08%		17.99%		6.65%		20.71%	
Abbott Capital Management 2010	(14.19%)		65.55%		24.43%		16.52%		26.90%	
Abbott Capital Management 2011	(14.98%)		76.29%		29.13%		19.64%		25.70%	
Abbott Capital Management 2012	(9.69%)		72.85%		29.04%		17.91%		24.39%	
Abbott Capital Management 2013	(8.86%)		70.21%		28.65%		21.13%		25.17%	
Abbott Capital Management 2014	(6.72%)		75.52%		26.51%		19.74%		22.58%	
Abbott Capital Management 2015	(0.56%)		75.81%		16.62%		15.14%		13.57%	
Abbott Capital Management 2016	3.41%		71.04%		20.02%		9.08%		9.43%	
Abbott Capital Management 2018	8.28%		47.06%		22.73%		7.26%		-	
Abbott Capital Management 2019	7.88%		57.22%		10.04%		-		-	
Abbott Capital Management 2020	2.57%		65.36%		-		-		-	
Abbott Capital Management 2021	1.89%		-		-		-		-	
Mesirow V	(16.52%)		78.52%		21.39%		16.29%		18.01%	
Mesirow VI	(10.66%)		88.26%		29.10%		22.73%		24.87%	
Mesirow VII	0.41%		60.27%		16.43%		3.33%		(7.82%)	
Mesirow VIII	2.08%		10.14%		-		-		-	
NB Secondary Opp Fund III	(1.29%)		30.34%		4.23%		12.18%		16.65%	
NB Secondary Opp Fund IV	1.87%		48.73%		14.80%		14.76%		68.26%	
Private Advisors VI	10.04%		83.78%		16.54%		17.98%		15.19%	
Private Advisors VII	21.31%		52.55%		3.97%		11.23%		19.02%	
Private Advisors VIII	24.34%		47.25%		15.78%		(4.08%)		-	
Private Advisors IX	17.47%		37.25%		-		-		-	
Absolute Return	22.41%		8.87%		(14.04%)		12.79%		1.61%	
90 Day T-Bill + 3%	2.84%		3.05%		3.67%		5.28%		4.85%	
UBS A & Q	5.24%	15	8.08%	45	12.18%	11	9.53%	4	2.65%	12
1-month LIBOR + 4%	3.78%	22	4.11%	77	4.63%	45	6.32%	30	6.03%	2
Callan Abs Rtn Hedge FoF	3.05%		6.76%		4.03%		4.71%		0.58%	
Real Assets	(12.11%)		18.24%		4.69%		15.39%		(7.47%)	
Principal DRA	(12.11%)	92	18.24%	41	4.69%	25	15.39%	15	(7.47%)	51
Principal DRA Blend Index (1)	(12.20%)	92	15.87%	45	2.08%	34	14.86%	17	(7.27%)	49
Callan Alternative Inv DB	5.61%		13.49%		(0.39%)		7.90%		(7.42%)	
Total Real Estate	16.76%		23.85%		0.76%		6.21%		9.18%	
Real Estate	16.76%	19	23.85%	35	0.76%	54	6.21%	65	9.18%	40
Blended Benchmark (2)	19.59%	7	14.83%	60	0.89%	53	5.26%	72	7.89%	50
Callan Tot Real Est DB	10.89%		19.69%		1.40%		7.71%		7.92%	
Total Fund	(11.31%)	8	19.05%	8	6.84%	96	18.66%	38	(2.74%)	24
Total Fund Index*	(14.75%)	25	12.88%	65	12.29%	44	16.52%	78	(3.29%)	37
Callan Public Fund Spr DB	(16.96%)		13.84%		12.10%		18.03%		(3.83%)	

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% thereafter.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended September 30, 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 September 30, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fee Returns					
Total Domestic Equity Net	(4.60%)	(16.74%)	7.48%	7.96%	10.92%
Russell 3000 Index	(4.46%)	(17.63%)	7.70%	8.62%	11.39%
BlackRock Russell 1000 Value	(5.61%)	(11.35%)	4.52%	5.46%	-
Russell 1000 Value Index	(5.62%)	(11.36%)	4.36%	5.29%	9.17%
DFA Large Cap Value	(5.42%)	(11.23%)	4.29%	-	-
Russell 1000 Value Index	(5.62%)	(11.36%)	4.36%	5.29%	9.17%
Northern Trust Global	(4.86%)	(15.45%)	8.17%	9.25%	11.73%
S&P 500 Index	(4.88%)	(15.47%)	8.16%	9.24%	11.70%
Polen Capital Management	(5.20%)	(34.99%)	4.55%	10.28%	12.56%
S&P 500 Index	(4.88%)	(15.47%)	8.16%	9.24%	11.70%
Earnest Partners LLC	(5.76%)	(12.47%)	8.61%	9.64%	12.37%
Russell MidCap Index	(3.44%)	(19.39%)	5.19%	6.48%	10.30%
DFA Small Cap Value	(3.24%)	(8.73%)	10.64%	5.20%	9.63%
Russell 2000 Value Index	(4.61%)	(17.69%)	4.72%	2.87%	7.94%
CastleArk Management	1.67%	(27.70%)	5.91%	7.72%	-
Russell 2000 Growth Index	0.24%	(29.27%)	2.94%	3.60%	8.81%
Total Global Equity Net	(7.61%)	(20.17%)	4.36%	6.00%	8.44%
MSCI World	(6.19%)	(19.63%)	4.56%	5.30%	8.11%
BlackRock Global Alpha Tilts	(7.50%)	(20.15%)	3.80%	4.44%	-
MFS Investment Management	(7.76%)	(20.15%)	5.29%	8.44%	-
MSCI ACWI Gross	(6.71%)	(20.29%)	4.23%	4.96%	7.84%
Total International Equity Net	(10.44%)	(27.03%)	(0.45%)	(1.04%)	4.25%
MSCI EAFE Index	(9.36%)	(25.13%)	(1.83%)	(0.84%)	3.67%
AQR Emerging Markets	(12.78%)	(28.48%)	(1.02%)	(2.85%)	-
MSCI EM Gross	(11.42%)	(27.80%)	(1.71%)	(1.44%)	1.42%
Brandes Investment Partners	(11.95%)	(23.27%)	(2.43%)	(1.73%)	3.59%
MSCI EAFE Index	(9.36%)	(25.13%)	(1.83%)	(0.84%)	3.67%
William Blair & Company	(7.98%)	(34.88%)	1.18%	1.33%	5.07%
MSCI ACWI ex-US Index	(9.80%)	(24.79%)	(1.07%)	(0.34%)	3.48%
DFA International Small Cap	(10.09%)	(22.90%)	(0.41%)	(3.17%)	4.89%
MSCI EAFE Small	(9.83%)	(32.06%)	(2.16%)	(1.79%)	5.28%
Total Fixed Income Net	(3.95%)	(9.29%)	(3.66%)	(0.20%)	1.18%
Bimbg Aggregate	(4.75%)	(14.60%)	(3.26%)	(0.27%)	0.89%
BlackRock US Govt Bond	(4.20%)	-	-	-	-
Bimbg Government	(4.30%)	(12.81%)	(3.05%)	(0.20%)	0.53%
Reams Asset Management	(4.61%)	(14.12%)	(0.38%)	1.85%	2.04%
Loomis, Sayles & Company, L.P.	(2.74%)	(14.71%)	(1.73%)	1.00%	2.91%
Bimbg Aggregate	(4.75%)	(14.60%)	(3.26%)	(0.27%)	0.89%
Total Private Equity	(4.42%)	7.68%	26.94%	23.87%	17.73%
Private Equity Benchmark	(15.75%)	(11.49%)	12.41%	13.56%	-
Abbott Capital Management 2010	(10.26%)	(0.90%)	21.42%	22.43%	16.62%
Abbott Capital Management 2011	(10.35%)	(2.07%)	25.65%	24.98%	16.31%
Abbott Capital Management 2012	(8.17%)	3.41%	27.56%	25.31%	14.21%
Abbott Capital Management 2013	(6.85%)	3.63%	27.45%	25.91%	-
Abbott Capital Management 2014	(5.54%)	7.99%	28.60%	25.79%	-
Abbott Capital Management 2015	(4.67%)	10.55%	27.66%	21.77%	-
Abbott Capital Management 2016	(3.27%)	14.96%	29.08%	20.24%	-
Abbott Capital Management 2018	(0.88%)	20.77%	27.50%	-	-
Abbott Capital Management 2019	(1.78%)	16.10%	-	-	-
Abbott Capital Management 2020	(1.14%)	2.81%	-	-	-
Abbott Capital Management 2021	(2.12%)	9.24%	-	-	-
Abbott Capital Management 2022	(0.41%)	-	-	-	-
Mesirow V	(9.90%)	(12.34%)	22.49%	20.74%	18.96%
Mesirow IV	(9.02%)	(2.46%)	31.88%	27.67%	-
Mesirow VII	(3.16%)	12.25%	23.43%	10.60%	-
Mesirow VIII	(0.49%)	4.25%	-	-	-
NB Secondary Opp Fund III	(3.42%)	1.03%	11.66%	12.80%	-
NB Secondary Opp Fund IV	(3.76%)	9.68%	21.35%	17.70%	-
NB Secondary Opp Fund V	(8.85%)	-	-	-	-
Private Advisors VI	0.82%	26.93%	35.95%	26.71%	-
Private Advisors VII	8.36%	34.06%	24.40%	20.30%	-
Private Advisors VIII	14.18%	36.11%	25.69%	-	-
Private Advisors IX	12.58%	27.59%	-	-	-
Absolute Return	0.63%	25.52%	5.67%	5.80%	-
90 Day T-Bill + 3%	1.19%	3.62%	3.59%	4.14%	3.68%
UBS A & Q	0.65%	7.91%	9.79%	7.67%	-
1-month LIBOR + 4%	1.54%	4.82%	4.67%	5.24%	4.80%
Real Assets	(8.01%)	(8.46%)	3.77%	3.06%	-
Principal DRA	(8.01%)	(8.46%)	3.77%	3.06%	-
Principal DRA Blend Index	(7.91%)	(8.70%)	2.59%	2.75%	-
Total Real Estate	1.22%	27.34%	13.81%	11.41%	11.47%
Real Estate	1.22%	27.34%	13.81%	11.41%	11.47%
Blended Benchmark	3.35%	27.66%	11.92%	9.86%	10.26%
Total Fund Net	(4.57%)	(7.20%)	5.70%	5.93%	7.67%
Total Fund Index	(5.31%)	(11.67%)	4.21%	4.79%	6.95%

*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. 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.

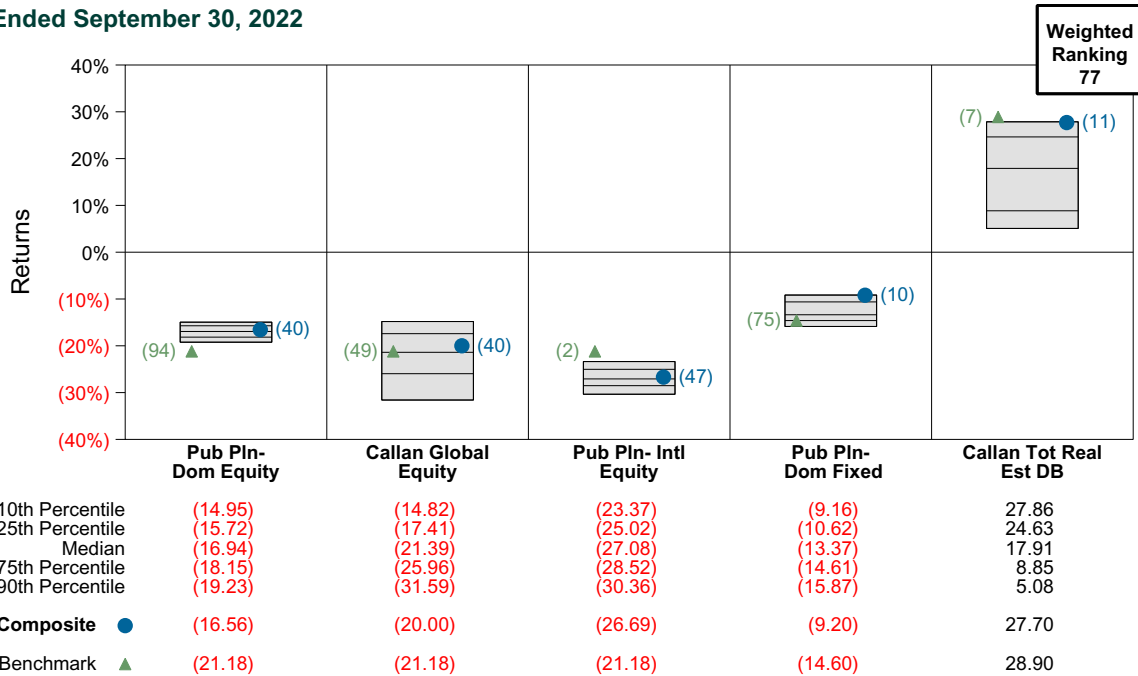
	12/2021- 9/2022	2021	2020	2019	2018
Net of Fee Returns					
Total Domestic Equity Net	(23.02%)	27.88%	16.09%	28.94%	(6.10%)
Russell 3000 Index	(24.62%)	25.66%	20.89%	31.02%	(5.24%)
BlackRock Russell 1000 Value	(17.76%)	25.17%	3.27%	26.77%	(8.13%)
Russell 1000 Value Index	(17.75%)	25.16%	2.80%	26.54%	(8.27%)
DFA Large Cap Value	(16.94%)	27.35%	(1.78%)	26.42%	(12.60%)
Russell 1000 Value Index	(17.75%)	25.16%	2.80%	26.54%	(8.27%)
Northern Trust Global	(23.84%)	28.68%	18.41%	31.53%	(4.37%)
S&P 500 Index	(23.87%)	28.71%	18.40%	31.49%	(4.38%)
Polen Capital Management	(38.19%)	24.34%	34.59%	38.27%	8.60%
S&P 500 Index	(23.87%)	28.71%	18.40%	31.49%	(4.38%)
Earnest Partners LLC	(21.54%)	25.59%	20.96%	37.65%	(10.29%)
Russell MidCap Index	(24.27%)	22.58%	17.10%	30.54%	(9.06%)
DFA Small Cap Value	(14.38%)	40.38%	3.74%	18.58%	(15.30%)
Russell 2000 Value Index	(21.12%)	28.27%	4.63%	22.39%	(12.86%)
CastleArk Management	(30.99%)	11.55%	44.12%	22.47%	2.60%
Russell 2000 Growth Index	(29.28%)	2.83%	34.63%	28.48%	(9.31%)
Total Global Equity Net	(25.80%)	18.80%	18.48%	30.55%	(8.51%)
MSCI World	(25.42%)	21.82%	15.90%	27.67%	(8.71%)
BlackRock Global Alpha Tilts	(25.45%)	18.67%	16.39%	26.48%	(11.24%)
MFS Investment Management	(26.32%)	19.05%	21.88%	36.74%	(4.16%)
MSCI ACWI Gross	(25.34%)	19.04%	16.82%	27.30%	(8.93%)
Total International Equity Net	(27.81%)	12.57%	10.28%	21.08%	(15.60%)
MSCI EAFE Index	(27.09%)	11.26%	7.82%	22.01%	(13.79%)
AQR Emerging Markets	(27.60%)	0.47%	17.38%	19.64%	(18.93%)
MSCI EM Gross	(26.89%)	(2.22%)	18.69%	18.90%	(14.24%)
Brandes Investment Partners	(23.37%)	14.00%	(1.69%)	14.86%	(9.17%)
MSCI EAFE Index	(27.09%)	11.26%	7.82%	22.01%	(13.79%)
William Blair & Company	(36.48%)	12.77%	30.84%	31.01%	(17.20%)
MSCI ACWI ex-US Index	(26.18%)	8.29%	11.13%	22.13%	(13.77%)
DFA International Small Cap	(24.38%)	15.89%	0.81%	21.00%	(23.31%)
MSCI EAFE Small	(32.11%)	10.10%	12.34%	24.96%	(17.89%)
Total Fixed Income Net	(9.30%)	(0.45%)	(1.91%)	11.68%	(0.47%)
Bimbg Aggregate	(14.61%)	(1.54%)	7.51%	8.72%	0.01%
BlackRock US Govt Bond	(12.86%)	-	-	-	-
Bimbg Government	(12.95%)	(2.28%)	7.94%	6.83%	0.88%
Reams Asset Management	(14.43%)	(1.36%)	17.11%	8.65%	1.76%
Loomis, Sayles & Company, L.P.	(14.61%)	1.98%	6.99%	14.25%	(2.24%)
Bimbg Aggregate	(14.61%)	(1.54%)	7.51%	8.72%	0.01%
Total Private Equity	(2.81%)	67.66%	22.14%	16.63%	21.48%
Private Equity Benchmark	(11.88%)	34.08%	17.99%	6.65%	20.71%
Abbott Capital Management 2010	(14.19%)	65.55%	24.43%	16.52%	26.90%
Abbott Capital Management 2011	(14.98%)	76.29%	29.13%	19.64%	25.70%
Abbott Capital Management 2012	(9.69%)	72.85%	29.04%	17.91%	24.39%
Abbott Capital Management 2013	(8.86%)	70.21%	28.65%	21.13%	25.17%
Abbott Capital Management 2014	(6.72%)	75.52%	26.51%	19.74%	22.58%
Abbott Capital Management 2015	(0.56%)	75.81%	16.62%	15.14%	13.57%
Abbott Capital Management 2016	3.41%	71.04%	20.02%	9.08%	9.43%
Abbott Capital Management 2018	8.28%	47.06%	22.73%	7.26%	-
Abbott Capital Management 2019	7.88%	57.22%	10.04%	-	-
Abbott Capital Management 2020	2.57%	65.36%	-	-	-
Abbott Capital Management 2021	1.89%	-	-	-	-
Mesirow V	(16.52%)	78.52%	21.39%	16.29%	18.01%
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Mesirow VII	0.41%	60.27%	16.43%	3.33%	(7.82%)
Mesirow VIII	2.08%	10.14%	-	-	-
NB Secondary Opp Fund III	(1.29%)	30.34%	4.23%	12.18%	16.65%
NB Secondary Opp Fund IV	1.87%	48.73%	14.80%	14.76%	68.26%
Private Advisors VI	10.04%	83.78%	16.54%	17.98%	15.19%
Private Advisors VII	21.31%	52.55%	3.97%	11.23%	19.02%
Private Advisors VIII	24.34%	47.25%	15.78%	(4.08%)	-
Private Advisors IX	17.47%	37.25%	-	-	-
Absolute Return	22.41%	8.77%	(14.21%)	12.52%	1.61%
90 Day T-Bill + 3%	2.84%	3.05%	3.67%	5.28%	4.85%
UBS A & Q	5.24%	8.08%	12.18%	9.53%	2.65%
1-month LIBOR + 4%	3.78%	4.11%	4.63%	6.32%	6.03%
Real Assets	(12.55%)	17.51%	4.02%	14.84%	(7.47%)
Principal DRA	(12.55%)	17.51%	4.02%	14.84%	(7.47%)
Principal DRA Blend Index	(12.20%)	15.87%	2.08%	14.86%	(7.27%)
Total Real Estate	16.52%	23.45%	0.39%	5.95%	8.94%
Real Estate	16.52%	23.45%	0.39%	5.95%	8.94%
Blended Benchmark	19.59%	14.83%	0.89%	5.26%	7.89%
Total Fund Net	(11.45%)	18.80%	6.59%	18.34%	(3.01%)
Total Fund Index	(14.75%)	12.88%	12.29%	16.52%	(3.29%)

*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

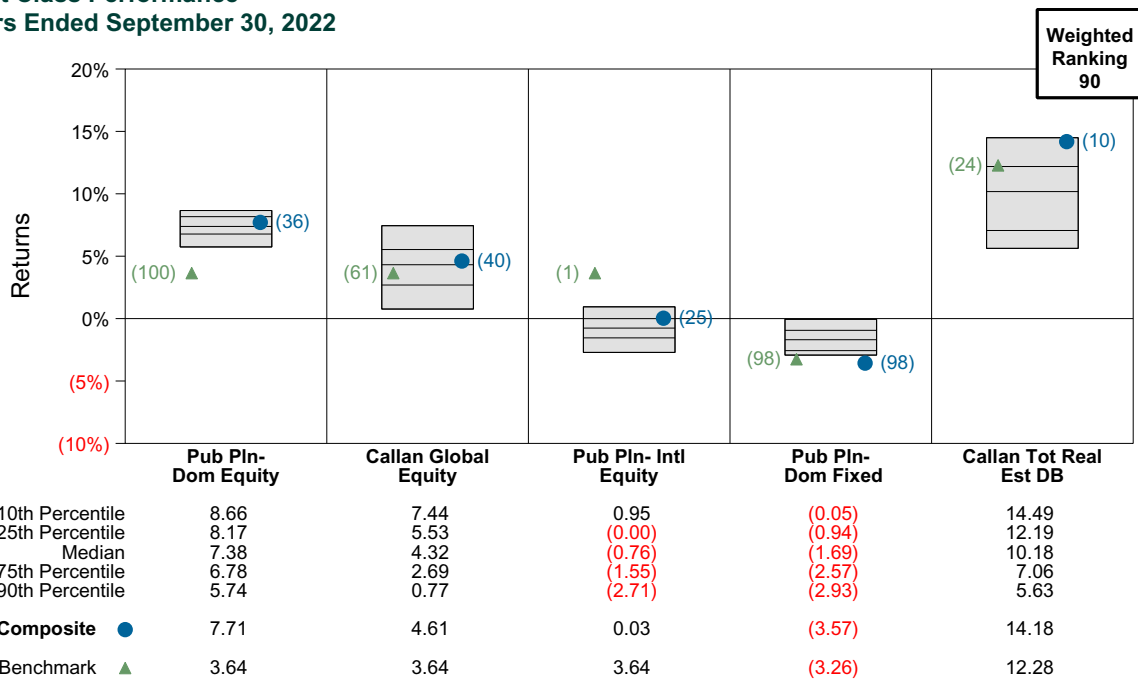
Asset Class Rankings

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 September 30, 2022



Total Asset Class Performance Three Years Ended September 30, 2022

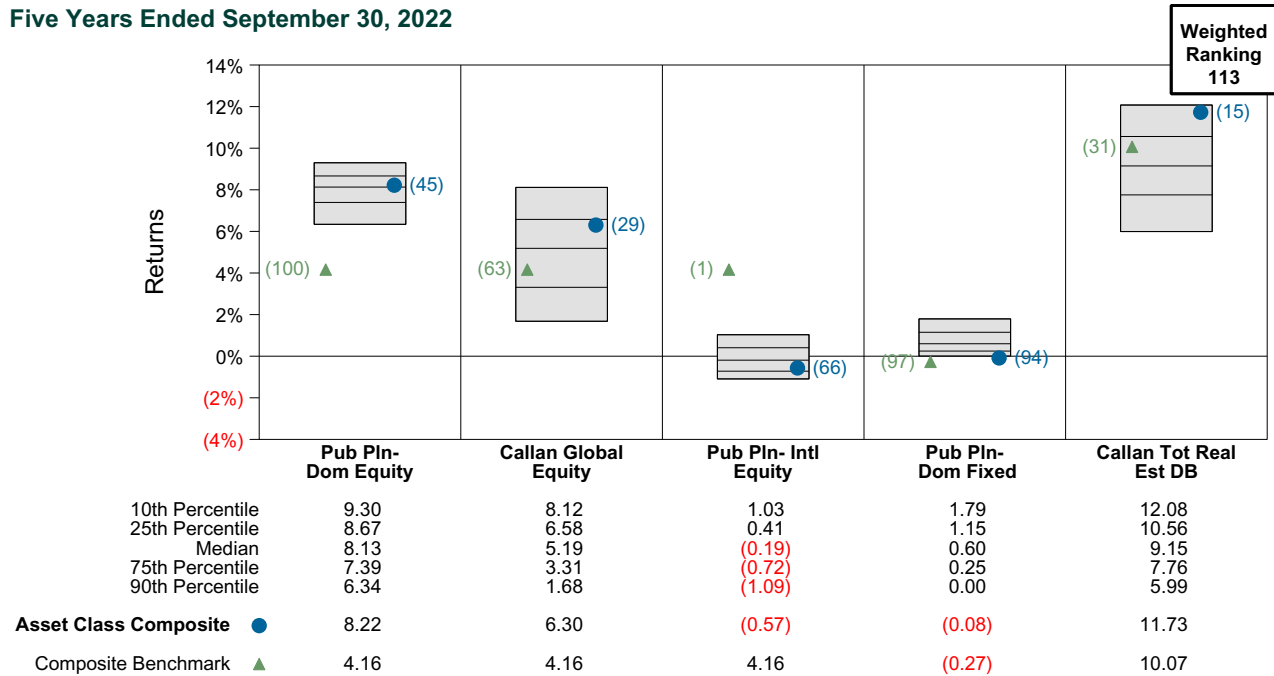


* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal DRA Blend Index.

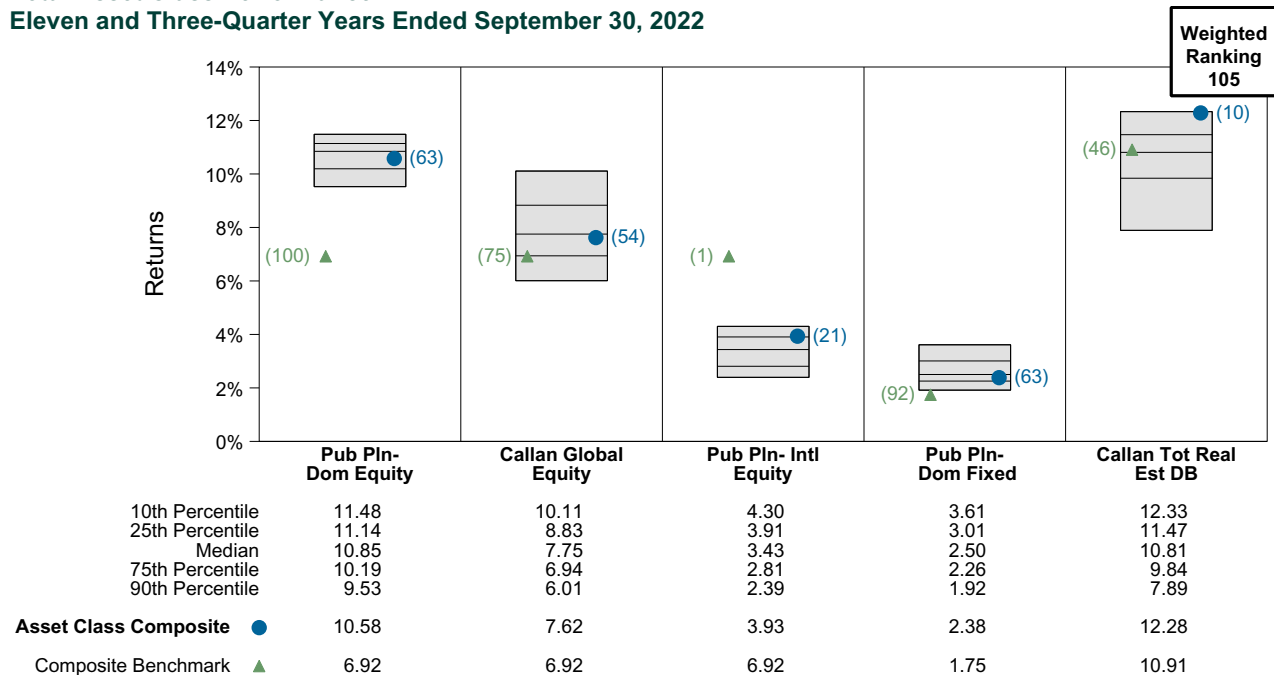
Asset Class Rankings

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 Five Years Ended September 30, 2022



Total Asset Class Performance Eleven and Three-Quarter Years Ended September 30, 2022

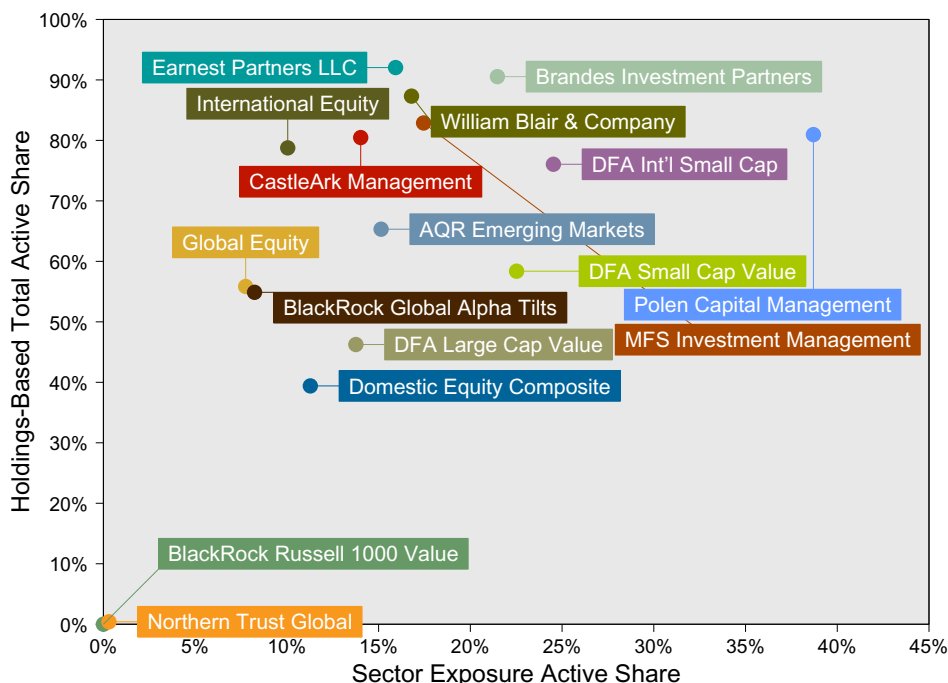


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Active Share Structure Analysis For One Quarter Ended September 30, 2022

This analysis compares multiple portfolios and composites in an active share context, illustrating the varying degrees of active risk taken by individual portfolios, and how they combine into active risk profiles for composites and the equity structure. Two sources of active share (active risk) are shown: 1) Total Holdings-Based Active Share based on individual position comparisons to the index (and the subcomponent from holding non-index securities), and 2) Sector Exposure Active Share that quantifies the more macro-level sector differences from the index.

Active Share Analysis Ended September 30, 2022



	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
Domestic Equity Composite	Russell 3000	39.40%	0.60%	11.28%	1894	118.57
BlackRock Russell 1000 Value	Russell 1000 Value	0.00%	0.00%	0.00%	855	65.15
DFA Large Cap Value	Russell 1000 Value	46.25%	0.59%	13.76%	311	38.54
Northern Trust Global	S&P 500	0.41%	0.00%	0.30%	501	41.28
Polen Capital Management	S&P 500	80.96%	2.87%	38.70%	22	7.48
Earnest Partners LLC	Russell MidCap	92.04%	8.14%	15.93%	58	21.71
DFA Small Cap Value	Russell 2000 Value	58.37%	15.69%	22.52%	955	128.78
CastleArk Management	Russell 2000 Growth	80.47%	16.87%	14.03%	107	33.63
Global Equity	MSCI World	55.84%	6.72%	7.75%	818	54.31
BlackRock Global Alpha Tilts	MSCI ACWI GD	54.88%	3.57%	8.24%	781	50.54
MFS Investment Management	MSCI ACWI GD	82.88%	3.31%	17.45%	77	22.57
International Equity	MSCI EAFE	78.76%	27.48%	10.05%	2576	69.48
AQR Emerging Markets	MSCI EM GD	65.32%	3.20%	15.14%	420	34.32
Brandes Investment Partners	MSCI EAFE	90.54%	15.06%	21.47%	63	21.90
William Blair & Company	MSCI ACWI xUS GD	87.32%	18.16%	16.79%	296	50.47
DFA Int'l Small Cap	MSCI EAFE Small	76.05%	15.75%	24.53%	1964	175.50

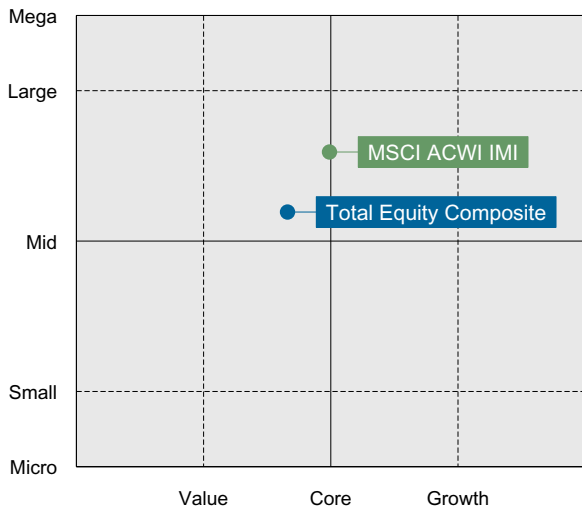
Current Holdings Based Style Analysis

Total Equity Composite

As of September 30, 2022

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

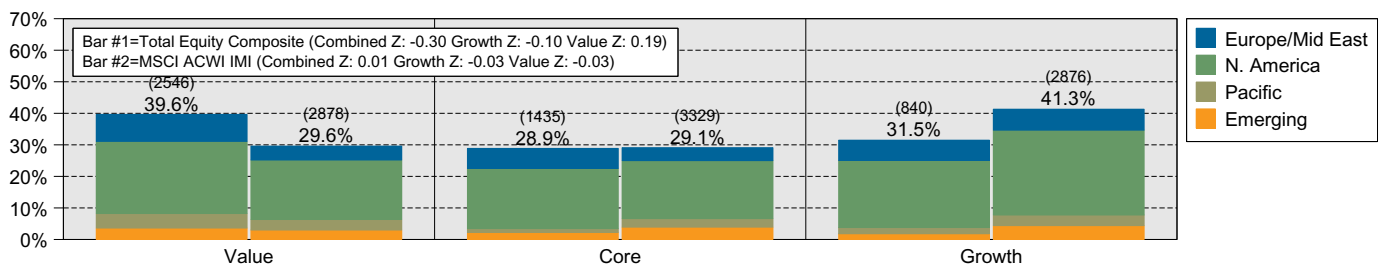
Style Map vs Callan Public Fund Spr DB Holdings as of September 30, 2022



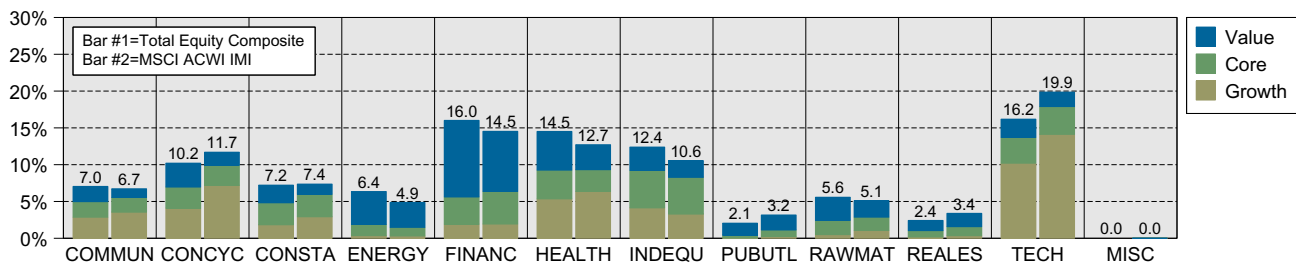
Style Exposure Matrix Holdings as of September 30, 2022

	Value	Core	Growth	Total
Europe/Mid East	8.6% (449)	6.4% (311)	6.4% (162)	21.3% (922)
N. America	4.4% (480)	4.1% (539)	6.6% (518)	15.1% (1537)
Pacific	22.9% (995)	19.1% (683)	21.3% (381)	63.2% (2059)
Emerging	18.9% (909)	18.4% (1170)	26.9% (801)	64.2% (2880)
Total	39.6% (2546)	28.9% (1435)	31.5% (840)	100.0% (4821)
	29.6% (2878)	29.1% (3329)	41.3% (2876)	100.0% (9083)

Combined Z-Score Style Distribution Holdings as of September 30, 2022



Sector Weights Distribution Holdings as of September 30, 2022



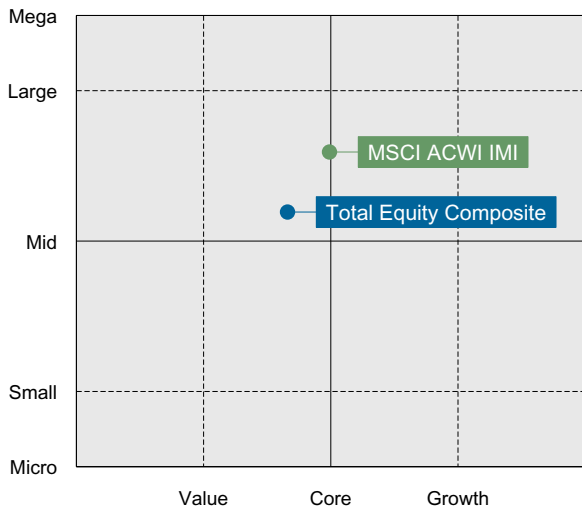
Current Holdings Based Style Analysis

Total Equity Composite

As of September 30, 2022

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

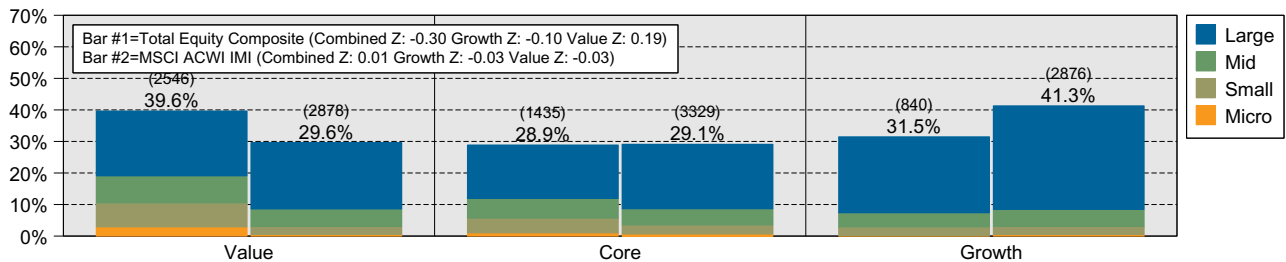
Style Map vs Callan Public Fund Spr DB Holdings as of September 30, 2022



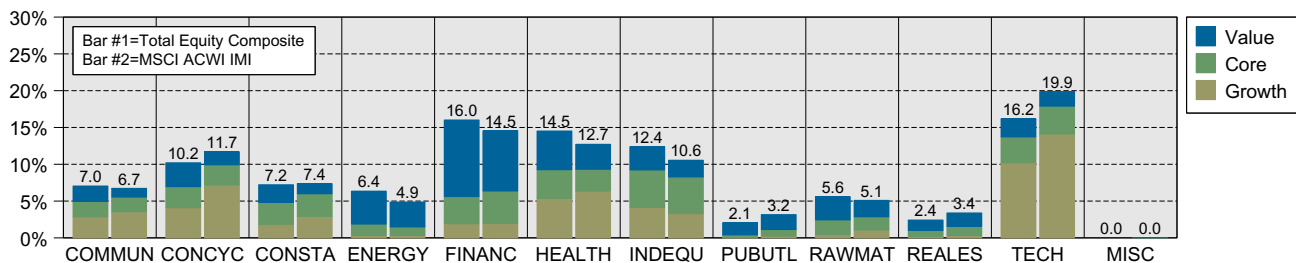
Style Exposure Matrix Holdings as of September 30, 2022

	Value	Core	Growth	Total
Large	20.6% (246)	16.9% (197)	24.1% (229)	61.6% (672)
	21.0% (318)	20.4% (267)	32.8% (324)	74.2% (909)
Mid	8.6% (315)	6.2% (327)	4.5% (296)	19.3% (938)
	5.5% (547)	5.1% (590)	5.4% (679)	16.1% (1816)
Small	7.6% (529)	4.7% (441)	2.8% (210)	15.0% (1180)
	2.6% (1110)	2.9% (1355)	2.6% (1168)	8.0% (3633)
Micro	2.9% (1456)	1.0% (470)	0.1% (105)	4.1% (2031)
	0.5% (903)	0.7% (1117)	0.5% (705)	1.7% (2725)
Total	39.6% (2546)	28.9% (1435)	31.5% (840)	100.0% (4821)
	29.6% (2878)	29.1% (3329)	41.3% (2876)	100.0% (9083)

Combined Z-Score Style Distribution Holdings as of September 30, 2022



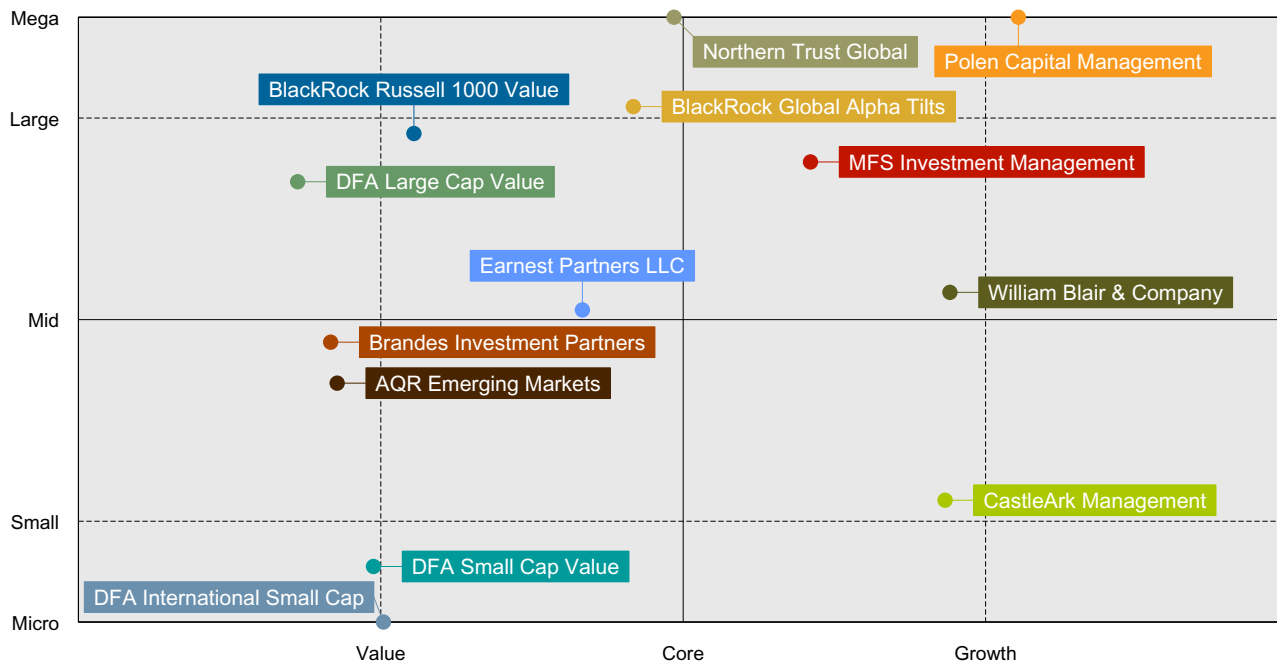
Sector Weights Distribution Holdings as of September 30, 2022



Global Holdings Based Style Analysis For One Quarter Ended September 30, 2022

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

Style Map Holdings for One Quarter Ended September 30, 2022



	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock Russell 1000 Value	8.55%	71.65	(0.81)	(0.37)	0.43	855	65.15
DFA Large Cap Value	6.18%	57.44	(1.16)	(0.37)	0.79	311	38.54
Northern Trust Global	9.90%	143.75	(0.01)	(0.02)	(0.01)	501	41.28
Polen Capital Management	5.93%	167.87	1.07	0.43	(0.64)	22	7.48
Earnest Partners LLC	4.54%	19.68	(0.29)	(0.10)	0.19	58	21.71
DFA Small Cap Value	7.81%	2.17	(0.93)	(0.22)	0.71	955	128.78
CastleArk Management	3.67%	4.26	0.84	0.21	(0.63)	107	33.63
MFS Investment Management	7.52%	63.28	0.42	(0.02)	(0.43)	77	22.57
BlackRock Global Alpha Tilts	10.55%	83.74	(0.13)	(0.05)	0.08	781	50.54
AQR Emerging Markets	3.18%	12.40	(1.04)	(0.19)	0.85	420	34.32
Brandes Investment Partners	13.80%	15.25	(1.06)	(0.36)	0.70	63	21.90
William Blair & Company	11.07%	24.86	0.85	0.25	(0.60)	296	50.47
DFA International Small Cap	7.31%	1.33	(0.90)	(0.16)	0.74	1964	175.50

Quarterly Highlights

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

New Research from Callan's Experts

[Research Cafe: Preliminary Mid-Year Capital Markets Assumptions](#) | In this coffee break session, our experts, Jay Kloepfer and Adam Lozinski, describe our preliminary 2023-2032 Capital Markets Assumptions, discuss the process and rationale behind the adjustments of these long-term projections, and explain the potential implications for strategic recommendations.

[Is Financial Wellness the Right Prescription for Your DC Plan?](#) Jana Steele discusses what financial wellness is and how it can be incorporated effectively into a defined contribution (DC) plan.

Blog Highlights

[Do Active Core Plus Fixed Income Managers Add Value With Sector Rotation?](#) | To help answer this question, we used benchmark indices and risk-adjusted them to disentangle an active manager's contribution to performance from a strategic overweight to credit vs. the contribution added by true sector rotation. This provides a quantitative framework for evaluating potential performance, which can be balanced against other considerations, including fees and expenses, complexity, and desired risk and performance patterns.

[Bubbles Bursting Everywhere](#) | The S&P 500 posted its worst six-month return in over 50 years to start the year. Inflation is surging, hitting 40-year highs in the United States. At the same time, interest rates are rising, and, to top it off, a recession may be on the horizon. For institutional investors, navigating these treacherous cross-currents requires an understanding of just how we arrived at this point.

[The Fading Unicorn: How Volatility, Inflation, and Rate Hikes Impact Venture Capital](#) | With Fed rate hikes, skyrocketing prices, and a Nasdaq selloff, venture capital (VC) limited partners have no shortage of worries. The unicorn stampede of the past decade has begun to fade, with many technology companies drastically declining

in value in the public markets. By understanding venture capital's relationship with interest rates, inflation, and the public markets, institutional investors can better navigate the effect on their portfolios in 2022 and beyond.

[Target Date Funds and the Ever-Evolving Glidepath](#) | In 2021 and the first half of 2022, multiple target date fund (TDF) providers announced changes to their strategic TDF glidepaths. The timing of these changes was unique, as capital markets adjusted to a post-pandemic world and a vastly different global outlook.

Quarterly Periodicals

[Private Equity Update, 2Q22](#) | A high-level summary of private equity activity in the quarter through all the investment stages

[Active vs. Passive Charts, 2Q22](#) | A comparison of active managers alongside relevant benchmarks over the long term

[Market Pulse, 2Q22](#) | 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, 2Q22](#) | 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, 2Q22](#) | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

[Real Assets Update, 2Q22](#) | A summary of market activity for real assets and private real estate during the quarter

[Private Credit Update, 2Q22](#) | A review of performance and fundraising activity for private credit during the quarter

Events

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

Please mark your calendar and look forward to upcoming invitations:

2023 Capital Markets Projections Webinar

Jan. 18, 2023 – Virtual

2023 National Conference

April 2-4, 2023 – Scottsdale, AZ

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

Education: By the Numbers

50+

Unique pieces of research the Institute generates each year

525

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

3,700

Total attendees of the "Callan College" since 1994

Education

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

Introduction to Investments

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



“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
Atlanta Capital Management Co., LLC
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors

Manager Name

Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
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
CastleArk Management, LLC
Chartwell Investment Partners
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.

Manager Name

Columbia Threadneedle Investments North America

Credit Suisse Asset Management, LLC

Crescent Capital Group LP

DePrince, Race & Zollo, 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 Group Trust

Hardman Johnston Global Advisors LLC

Heitman LLC

Hotchkis & Wiley Capital Management, LLC

Impax Asset Management LLC

Income Research + Management

Insight Investment

Intech Investment Management LLC

Intercontinental Real Estate Corporation

Invesco

J.P. Morgan

Janus

Jennison Associates LLC

Jobs Peak Advisors

Manager Name

KeyCorp

Lazard Asset Management

LGIM America

Lincoln National Corporation

Longview Partners

Loomis, Sayles & Company, L.P.

Lord Abbett & Company

LSV Asset Management

MackKay Shields LLC

Macquarie Asset Management

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

Montag & Caldwell, LLC

Morgan Stanley Investment Management

MUFG Union Bank, N.A.

Natixis Investment Managers

Neuberger Berman

Newton Investment Management

Ninety One North America, Inc.

Northern Trust Asset Management

Nuveen

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

Manager Name

PineBridge Investments

Polen Capital Management, LLC

Principal Global Investors

Putnam Investments, LLC

Raymond James Investment Management

RBC Global Asset Management

Regions Financial Corporation

Richard Bernstein Advisors LLC

Robeco Institutional Asset Management, US Inc.

Rothschild & Co. Asset Management US

S&P Dow Jones Indices

Schroder Investment Management North America Inc.

Segall Bryant & Hamill

SLC Management

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

State Street Global Advisors

Strategic Global Advisors, LLC

T. Rowe Price Associates, Inc.

Manager Name

The TCW Group, Inc.

Thompson, Siegel & Walmsley LLC

Thornburg Investment Management, Inc.

Tri-Star Trust Bank

UBS Asset Management

VanEck

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

Walter Scott & Partners Limited

WCM Investment Management

Wellington Management Company, LLP

Western Asset Management Company LLC

Westfield Capital Management Company, LP

William Blair & Company LLC

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Past performance is no guarantee of future results.