# Callan

June 11, 2024

Pennsylvania State Employees' Retirement System – Defined Benefit Plan

First Quarter 2024

**Executive Summary** 

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# Callan

**Market Environment** 

# **Equity Markets Climb in 1Q, Bonds Falter**

Stocks have recovered losses of 2022; bonds still have ground to make up

#### S&P 500 climbed 10.6% in 1Q24

- Stocks continued their momentum from the end of last year when the index surged 11.7% in 4Q23.
- The S&P 500 has fully recovered after falling 18.1% in 2022.

#### Fixed income faltered in 1Q24

- The Bloomberg Aggregate fell 0.8% amid rising rates in 1Q24.
- Interest rates have been volatile as the markets assess when and how swiftly the Fed will begin easing.
- CPI-U declined during 2023 but remains stalled at 3.5% in 1Q (year-over-year); the inflation index is 13% higher than it was at the start of 2022.
- Grinding out the last bit of stubborn inflation to get to the Fed's broad 2% goal may take longer than expected.

#### First signs of cooling for economy

 The initial estimate for 1Q24 GDP growth came in at 1.6%, failing to meet consensus expectations of 2.5% to 3%.

#### Returns for Periods ended 3/31/24

|                            |         |        | 4 /4 /00 |         |          |          |
|----------------------------|---------|--------|----------|---------|----------|----------|
|                            | 0       | 4 Vaan | 1/1/22 - | F Vacua | 40 V     | 0F V     |
|                            | Quarter | 1 Year | Current  | 5 Years | 10 Years | 25 Years |
| U.S. Equity                |         |        |          |         |          |          |
| Russell 3000               | 10.02   | 29.29  | 5.15     | 14.34   | 12.33    | 8.01     |
| S&P 500                    | 10.56   | 29.88  | 6.13     | 15.05   | 12.96    | 7.78     |
| Russell 2000               | 5.18    | 19.71  | -0.96    | 8.10    | 7.58     | 8.37     |
| Global ex-U.S. Equity      |         |        |          |         |          |          |
| MSCI World ex USA          | 5.59    | 15.29  | 2.94     | 7.48    | 4.81     | 4.78     |
| MSCI Emerging Markets      | 2.37    | 8.15   | -4.65    | 2.22    | 2.95     |          |
| MSCI ACWI ex USA Small Cap | 2.11    | 12.80  | -2.48    | 6.24    | 4.74     | 7.20     |
| Fixed Income               |         |        |          |         |          |          |
| Bloomberg Aggregate        | -0.78   | 1.70   | -4.06    | 0.36    | 1.54     | 3.84     |
| 90-day T-Bill              | 1.29    | 5.24   | 3.45     | 2.02    | 1.38     | 1.91     |
| Bloomberg Long Gov/Credit  | -2.41   | -1.15  | -11.36   | -0.62   | 2.32     | 5.25     |
| Bloomberg Global Agg ex-US | -3.21   | -0.71  | -7.85    | -2.49   | -1.38    | 2.34     |
| Real Estate                |         |        |          |         |          |          |
| NCREIF Property            | -0.98   | -7.16  | -1.71    | 3.76    | 6.41     | 7.88     |
| FTSE Nareit Equity         | -0.20   | 10.54  | -6.56    | 4.15    | 6.61     | 9.48     |
| Alternatives               |         |        |          |         |          |          |
| Cambridge Private Equity*  | -0.42   | 4.17   | 2.69     | 14.59   | 14.27    | 13.87    |
| Cambridge Senior Debt*     | 0.13    | 11.34  | 4.05     | 5.86    | 6.69     |          |
| HFRI Fund Weighted         | 4.44    | 11.60  | 3.58     | 6.91    | 4.93     | 6.34     |
| Bloomberg Commodity        | 2.19    | -0.56  | 4.01     | 6.38    | -1.56    | 2.70     |
| CPI-U                      | 1.82    | 3.48   | 5.18     | 4.20    | 2.83     | 2.58     |

<sup>\*</sup>Cambridge Private Equity and Cambridge Senior Debt data as of 9/30/23.

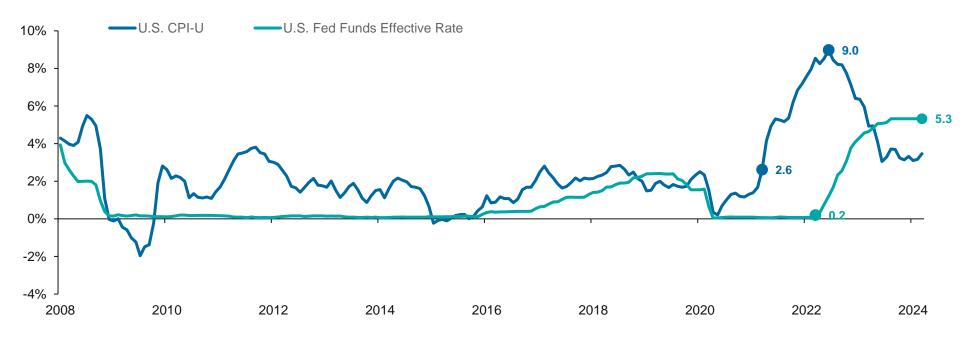
Returns greater than one year are annualized. Sources: Bloomberg, Callan, Cambridge, FTSE Russell, HFRI, MSCI, NCREIF, S&P Dow Jones Indices



## A Tale of Two Fed Rate Cuts

After the GFC, the Fed cut rates to 0%; it worked then, but now ...

#### **How ZIRP Worked Out in Two Different Environments**



- After the Global Financial Crisis, the Fed engineered something never seen before: ZIRP, or zero interest rate policy, which lasted from 2008 to 2015. Surprisingly, inflation did not take off.
- In the wake of COVID-19, the Fed dusted off the ZIRP playbook and lowered interest rates from ~1.5% to zero.
- This time was different. Inflation rose from 2.6% in March 2021 to 9.0% in June 2022.
- The Fed quickly raised interest rates starting in March 2022 from 0% to 5.3% in 18 months after 40 years of secular decline from 19.0%.
- Inflation fell to the current rate of 3.5%. Yet wringing out the last bits of inflation to reach the Fed's target of 2.0% may be more difficult than anticipated by the soft-landing camp.



This material comes from a blog post by Callan consultant Alex Browning: Are We Headed for an Economic 'Rapid Unplanned Disassembly'?

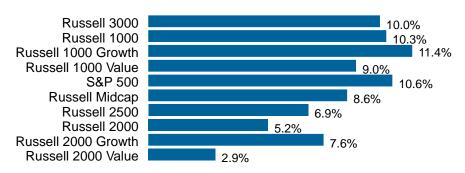


# **U.S. Equity Performance: 1Q24**

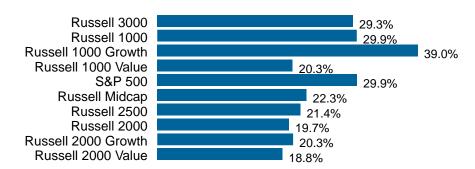
## The market exhibited a strong start to 2024

- The U.S. equity markets had an exceptional start with the S&P 500 posting a YTD gain of nearly 11%, its best first quarter since 2019. Performance was buoyed by continued optimism around a "soft landing" scenario, strong corporate earnings, and the Fed's projected interest rate cuts in mid-2024.
- Almost all of the 11 S&P 500 sectors posted gains in 1Q24.
   Real estate was the only sector that posted negative returns, challenged by the interest rate environment and continued negative sentiment around office real estate.
- The best-performing sector was Communication Services, which generated a nearly 16% return during the quarter.
   Energy, Financials, Information Technology, and Industrials also posted double-digit returns.
- Growth outpaced value across the market cap spectrum once again, and large cap stocks continued to outperform small cap stocks.

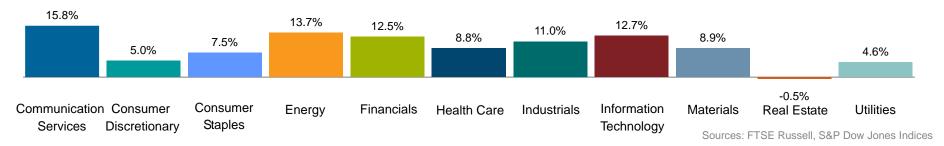
#### U.S. Equity: Quarter Ended 3/31/24



#### U.S. Equity: One Year Ended 3/31/24



#### Industry Sector Quarterly Performance (S&P 500) as of 3/31/24





# Global/Global ex-U.S. Equity Performance: 1Q24

## Continued optimism lifts all markets, except China

#### **Broad market**

- Broad markets delivered strong returns on the decreasing expected probability of a recession in the U.S. and continued optimism around artificial intelligence.
- Small caps once again trailed large caps in a higher interest rate environment, which tends to more negatively impact smaller companies with more significant borrowing needs.
- Japan performed well yet again, beating the S&P 500 in 1Q24, driven by continued stock buybacks, economic resiliency, and a weakening yen, which helped exports.

### **Emerging Markets**

- Emerging markets underperformed developed markets as China struggled with increased regulatory scrutiny and a continued economic slowdown.
- Commodity exporters such as Peru and Colombia benefited from rising energy and metals prices. Turkey also performed well with a return to orthodox monetary policies after experimenting with counterintuitive methodologies.

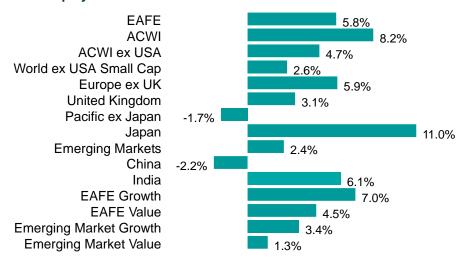
#### **Growth vs. Value**

 Energy's volatility continued; after struggling in 4Q23, energy rebounded and helped deliver stronger performance in the commodity-heavy value space.

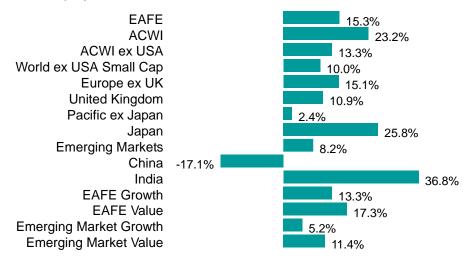
#### **U.S. Dollar Strength**

 The U.S. dollar gained in 1Q as investors recalibrated their interest rate expectations, with investors thinking that the U.S. may cut rates only once or twice in 2024.

#### Global Equity Returns: Quarter Ended 3/31/24



#### Global Equity Returns: One Year Ended 3/31/24



Source: MSCI



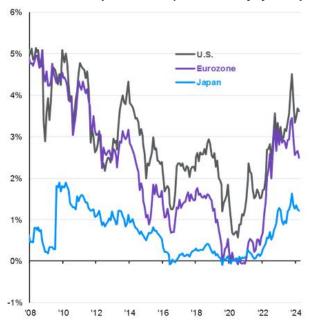
# Global/Global ex-U.S. Equity Key Themes

## Japan in the spotlight

#### Positive tailwinds

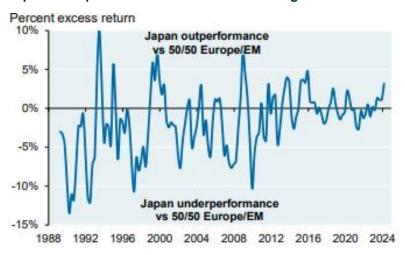
- End of deflation
- Most prolonged period of positive consumption since mid-1990s
- Increase in exports (positive impact to GDP)
- Increased female labor force participation rate, dampening difficult demographics (aging population)
- Reforms support the Japanese equity market through increased M&A and improved corporate governance

#### Interest Rate Expectations (Based on 5y5y Swaps)



Sources: Bloomberg, JP Morgan Asset Management

#### **Japanese Equities Performance vs. Other Regions**



#### What about the yen and interest rates?

- Investors are selling yen in a carry trade due to its low yield, despite being positive, which is putting further pressure on the currency.
- The U.S. dollar has remained resilient relative to peers, even with future rate cuts planned.
  - The U.S.-Japan 10-year government bond yield gap ended around 370 basis points in the quarter.
- The yen hit a 34-year low vs. the dollar and declined 6.8% over the three-month period.



## U.S. Fixed Income Performance: 1Q24

## U.S. Treasury rates rose while risk appetite drove credit spreads tighter

#### Macro environment

- Market's enthusiasm for multiple rate cuts starting in early 2024 was tempered by strong economic data.
- 10-year U.S. Treasury yield rose from 3.88% as of year-end to close the quarter at 4.21%.
- The yield curve remained inverted but less so than one year ago (2-year/10-year 42 bps vs. 57 one year ago).

#### **Performance and drivers**

- The Aggregate fell 0.8% as rates rose.
- Investment grade corporates outperformed like-duration
   Treasuries, while mortgages underperformed.
- Lower quality also outperformed, with high yield corporates and leveraged loans posting the highest returns.

#### **Valuations**

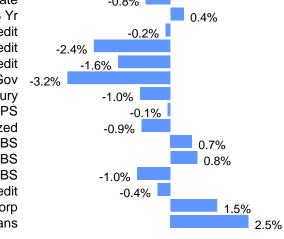
 Investment grade and high yield corporate spreads are tighter than one standard deviation from the trailing 10-year average.

#### Record corporate bond issuance

- Highest first quarter of new issuance on record, with \$529 billion in investment grade corporates, surpassing 2020's \$479 billion.
- High yield quarterly issuance was just as significant with a volume of \$85 billion, a level not seen since 2021.
- Both were met with strong investor demand.

#### U.S. Fixed Income Returns: Quarter Ended 3/31/24

Bloomberg Aggregate -0.8% Bloomberg Gov/Credit 1-3 Yr Bloomberg Intmdt Gov/Credit Bloomberg Long Gov/Credit -2.4% Blmbg:Long Credit -1.6% Blmbg:Long Gov **Bloomberg Treasury** Bloomberg TIPS Bloomberg Securitized Bloomberg ABS Bloomberg CMBS Bloomberg MBS Bloomberg Invst Grd Credit Bloomberg High Yield Corp S&P/LSTA Leveraged Loans



#### U.S. Fixed Income Returns: One Year Ended 3/31/24

Bloomberg Aggregate Bloomberg Gov/Credit 1-3 Yr 3.5% Bloombera Intmdt Gov/Credit 2.7% Bloomberg Long Gov/Credit -1.1% Bloomberg Long Credit 3.3% Bloomberg Long Gov -6.0% **Bloomberg Treasury** 0.1% **Bloomberg TIPS** 0.5% **Bloomberg Securitized** 1.6% Bloomberg ABS 4.3% Bloomberg CMBS 4.4% Bloomberg MBS 1.4% Bloomberg Invst Grd Credit 4.1% Bloomberg High Yield Corp 11.2% S&P/LSTA Leveraged Loans 12.5%





# **Diversification Remains Key Risk Control**

## Periodic Table of Investment Returns

| 2005                 | 2006                 | 2007                 | 2008                 | 2009                 | 2010                 | 2011                 | 2012                 | 2013                 | 2014                 | 2015                 | 2016                 | 2017                 | 2018                 | 2019                 | 2020                 | 2021                 | 2022                 | 2023                 | 1 Qtr.<br>2024       |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Emerging<br>Markets  | Emerging<br>Markets  | Emerging<br>Markets  | U.S. Fixed           | Emerging<br>Markets  | Small Cap            | Real Estate<br>Funds | Emerging<br>Markets  | Small Cap            | Large Cap            | Real Estate<br>Funds | Small Cap            | Emerging<br>Markets  | Real Estate<br>Funds | Large Cap            | Small Cap            | Large Cap            | Real Estate<br>Funds | Large Cap            | Large Cap            |
| 34.00%               | 32.17%               | 39.38%               | 5.24%                | 78.51%               | 26.85%               | 14.96%               | 18.23%               | 38.82%               | 13.69%               | 13.95%               | 21.31%               | 37.28%               | 7.36%                | 31.49%               | 19.96%               | 28.71%               | 6.55%                | 26.29%               | 10.56%               |
| Real Estate<br>Funds | Non-U.S.<br>Equity   | Real Estate<br>Funds | Non-U.S.<br>Fixed    | High Yield           | Emerging<br>Markets  | U.S. Fixed           | Non-U.S.<br>Equity   | Large Cap            | Real Estate<br>Funds | Large Cap            | High Yield           | Non-U.S.<br>Equity   | Cash<br>Equivalent   | Small Cap            | Large Cap            | Real Estate<br>Funds | Cash<br>Equivalent   | Non-U.S.<br>Equity   | Non-U.S.<br>Equity   |
| 20.15%               | 25.71%               | 14.84%               | 4.39%                | 58.21%               | 18.88%               | 7.84%                | 16.41%               | 32.39%               | 11.46%               | 1.38%                | 17.13%               | 24.21%               | 1.87%                | 25.52%               | 18.40%               | 21.02%               | 1.46%                | 17.94%               | 5.59%                |
| Non-U.S.<br>Equity   | Small Cap            |                      | Cash<br>Equivalent   | Non-U.S.<br>Equity   | Real Estate<br>Funds | High Yield           | Small Cap            | Non-U.S.<br>Equity   | U.S. Fixed           | U.S. Fixed           | Large Cap            | Large Cap            | U.S. Fixed           | Non-U.S.<br>Equity   | Emerging<br>Markets  | Small Cap            | Hedge<br>Funds       | Small Cap            | Hedge<br>Funds       |
| 14.47%               | 18.37%               | 12.56%               | 2.06%                | 33.67%               | 15.26%               | 4.98%                | 16.35%               | 21.02%               | 5.97%                | 0.55%                | 11.96%               | 21.83%               | 0.01%                | 22.49%               | 18.31%               | 14.82%               | 1.06%                | 16.93%               | 5.30%                |
| Hedge<br>Funds       | Large Cap            | Non-U.S.<br>Equity   | Real Estate<br>Funds | Small Cap            | High Yield           | Non-U.S.<br>Fixed    | Large Cap            | Real Estate<br>Funds | Small Cap            | Cash<br>Equivalent   | Emerging<br>Markets  | Small Cap            | High Yield           | Emerging<br>Markets  | Non-U.S.<br>Fixed    | Non-U.S.<br>Equity   | High Yield           | High Yield           | Small Cap            |
| 7.61%                | 15.79%               | 12.44%               | -10.70%              | 27.17%               | 15.12%               | 4.36%                | 16.00%               | 12.90%               | 4.89%                | 0.05%                | 11.19%               | 14.65%               | -2.08%               | 18.44%               | 10.11%               | 12.62%               | -11.19%              | 13.44%               | 5.18%                |
| Large Cap            | Real Estate<br>Funds | Non-U.S.<br>Fixed    |                      | Large Cap            | Large Cap            | Large Cap            | High Yield           | Hedge<br>Funds       | Hedge<br>Funds       | Hedge<br>Funds       | Real Estate<br>Funds | Non-U.S.<br>Fixed    | Non-U.S.<br>Fixed    | High Yield           | Non-U.S.<br>Equity   |                      | U.S. Fixed           |                      | Emerging<br>Markets  |
| 4.91%                | 15.27%               | 11.03%               | -19.07%              | 26.47%               | 15.06%               | 2.11%                | 15.81%               | 9.73%                | 4.13%                | -0.71%               | 7.79%                | 10.51%               | -2.15%               | 14.32%               | 7.59%                | 8.23%                | -13.01%              | 9.83%                | 2.37%                |
| Small Cap            | Hedge<br>Funds       | U.S. Fixed           | High Yield           | Hedge<br>Funds       | Hedge<br>Funds       | Cash<br>Equivalent   | Real Estate<br>Funds | High Yield           | High Yield           | Non-U.S.<br>Equity   | Non-U.S.<br>Equity   | High Yield           | Hedge<br>Funds       | Hedge<br>Funds       | U.S. Fixed           |                      | Non-U.S.<br>Equity   |                      | High Yield           |
| 4.55%                | 13.86%               | 6.97%                | -26.16%              | 18.57%               | 10.95%               | 0.10%                | 9.79%                | 7.44%                | 2.45%                | -3.04%               | 2.75%                | 7.50%                | -3.19%               | 9.31%                | 7.51%                | 5.28%                | -14.29%              | 5.83%                | 1.47%                |
| Cash<br>Equivalent   | High Yield           | Large Cap            | Small Cap            | Non-U.S.<br>Fixed    | Non-U.S.<br>Equity   | Hedge<br>Funds       | Hedge<br>Funds       | Cash<br>Equivalent   | Cash<br>Equivalent   | Small Cap            | U.S. Fixed           | Hedge<br>Funds       | Large Cap            | U.S. Fixed           | High Yield           | Cash<br>Equivalent   | Large Cap            | Non-U.S.<br>Fixed    | Cash<br>Equivalent   |
| 3.06%                | 11.85%               | 5.49%                | -33.79%              | 7.53%                | 8.95%                | -2.52%               | 7.67%                | 0.07%                | 0.04%                | -4.41%               | 2.65%                | 7.12%                | -4.38%               | 8.72%                | 7.11%                | 0.05%                | -18.11%              | 5.72%                | 1.29%                |
| High Yield           | Non-U.S.<br>Fixed    | Cash<br>Equivalent   | Large Cap            | U.S. Fixed           | U.S. Fixed           | Small Cap            | U.S. Fixed           | U.S. Fixed           | Emerging<br>Markets  | High Yield           | Non-U.S.<br>Fixed    | Real Estate<br>Funds | Small Cap            | Non-U.S.<br>Fixed    | Hedge<br>Funds       | U.S. Fixed           | Non-U.S.<br>Fixed    | U.S. Fixed           | U.S. Fixed           |
| 2.74%                | 8.16%                | 5.00%                | -37.00%              | 5.93%                | 6.54%                | -4.18%               | 4.21%                | -2.02%               | -2.19%               | -4.47%               | 1.49%                | 6.66%                | -11.01%              | 5.09%                | 6.36%                | -1.54%               | -18.70%              | 5.53%                | -0.78%               |
| U.S. Fixed           | Cash<br>Equivalent   | High Yield           | Non-U.S.<br>Equity   | Cash<br>Equivalent   | Non-U.S.<br>Fixed    | Non-U.S.<br>Equity   | Non-U.S.<br>Fixed    | Emerging<br>Markets  | Non-U.S.<br>Fixed    | Non-U.S.<br>Fixed    | Hedge<br>Funds       | U.S. Fixed           | Non-U.S.<br>Equity   | Real Estate<br>Funds | Cash<br>Equivalent   | Emerging<br>Markets  | Emerging<br>Markets  | Cash<br>Equivalent   | Real Estate<br>Funds |
| 2.43%                | 4.86%                | 1.87%                | -43.56%              | 0.21%                | 4.95%                | -12.21%              | 4.09%                | -2.60%               | -3.09%               | -6.02%               | 1.25%                | 3.54%                | -14.09%              | 4.39%                | 0.67%                | -2.54%               | -20.09%              | 5.01%                | -2.58%               |
| Non-U.S.<br>Fixed    | U.S. Fixed           | Small Cap            | Emerging<br>Markets  | Real Estate<br>Funds | Cash<br>Equivalent   | Emerging<br>Markets  | Cash<br>Equivalent   | Non-U.S.<br>Fixed    | Non-U.S.<br>Equity   | Emerging<br>Markets  | Cash<br>Equivalent   | Cash<br>Equivalent   | Emerging<br>Markets  | Cash<br>Equivalent   | Real Estate<br>Funds | Non-U.S.<br>Fixed    | Small Cap            | Real Estate<br>Funds | Non-U.S.<br>Fixed    |
| -8.65%               | 4.33%                | -1.57%               | -53.33%              | -30.40%              | 0.13%                | -18.42%              | 0.11%                | -3.08%               | -4.32%               | -14.92%              | 0.33%                | 0.86%                | -14.57%              | 2.28%                | 0.34%                | -7.05%               | -20.44%              | -12.73%              | -3.21%               |

Bloomberg Barclays Corp High Yield
 Bloomberg Barclays Global Aggregate ex US
 Bloomberg Barclays US Aggregate



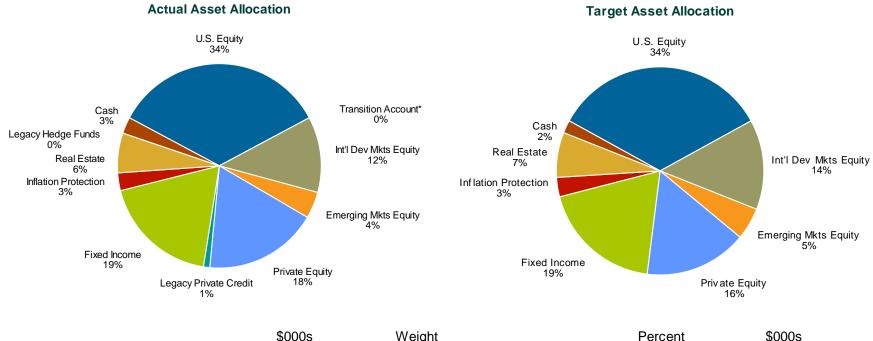
<sup>●</sup> Credit Suisse Hedge Fund ● ICE BofAML US 3-Month Treasury Bill ● MSCI Emerging Markets ● MSCI World ex USA

<sup>●</sup> NFI-ODCE (value-weighted net) ● Russell 2000 ● S&P 500

# Callan

PA SERS Defined Benefit Plan Performance Review

# Actual Asset Allocation versus Target as of March 31, 2024



| A ( O                 | \$000s     | Weight | T      | Percent     | \$000s      |
|-----------------------|------------|--------|--------|-------------|-------------|
| Asset Class           | Actual     | Actual | Target | Diff erence | Diff erence |
| U.S. Equity           | 12,887,026 | 34.4%  | 34.0%  | 0.4%        | 134,931     |
| Transition Account*   | 978        | 0.0%   | 0.0%   | 0.0%        | 978         |
| Int'l Dev Mkts Equity | 4,482,476  | 12.0%  | 14.0%  | (2.0%)      | (768,386)   |
| Emerging Mkts Equity  | 1,588,337  | 4.2%   | 5.0%   | (0.8%)      | (286,971)   |
| Private Equity        | 6,780,487  | 18.1%  | 16.0%  | 2.1%        | 779,502     |
| Legacy Private Credit | 383,028    | 1.0%   | 0.0%   | 1.0%        | 383,028     |
| Fixed Income          | 6,966,114  | 18.6%  | 19.0%  | (0.4%)      | (160,057)   |
| Inflation Protection  | 1,042,793  | 2.8%   | 3.0%   | (0.2%)      | (82,392)    |
| Real Estate           | 2,374,962  | 6.3%   | 7.0%   | (0.7%)      | (250,470)   |
| Legacy Hedge Funds    | 15,414     | 0.0%   | 0.0%   | 0.0%        | 15,414      |
| Cash                  | 984,545    | 2.6%   | 2.0%   | 0.6%        | 234,422     |
| Total                 | 37,506,160 | 100.0% | 100.0% |             |             |

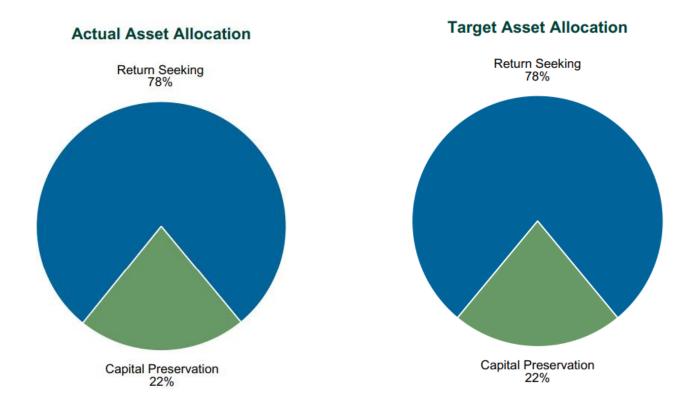
<sup>\*</sup>Market values are shown net of accrued fees.

<sup>\*</sup>Transition account market values are not included in any asset class and are excluded from these charts.



# **Return Seeking and Capital Preservation Assets**

As of March 31, 2024



<sup>\*</sup>Market values are shown net of accrued fees.



<sup>\*</sup>Return Seeking Assets: U.S. Equity, Int'l Developed Markets Equity, Emerging Markets Equity, Transition Account, Private Equity, Real Estate, Opportunistic Fixed Income, Legacy Hedge Funds and Legacy Private Credit.

<sup>\*</sup>Capital Preservation Assets: Core Fixed Income, Nominal U.S. Treasuries, Inflation Protection (TIPS) and Cash.

# **Projected Risk, Liquidity and Correlation**

|  | С     | apital Prese                      | rvation Asso | ets                  | Return Seeking Assets |                                      |                               |                               |                |                   |
|--|-------|-----------------------------------|--------------|----------------------|-----------------------|--------------------------------------|-------------------------------|-------------------------------|----------------|-------------------|
|  | Cash  | Inflation<br>Protection<br>(TIPS) | Treasuries   | Core Fixed<br>Income | U.S. Equity           | Developed<br>International<br>Equity | Emerging<br>Markets<br>Equity | Opportunistic<br>Fixed Income | Real<br>Estate | Private<br>Equity |
| Policy Target Asset Allocation   | 2%    | 3%                                | 5%           | 12%                  | 34%                   | 14%                                  | 5%                            | 2%                            | 7%             | 16%               |
| Projected Return*<br>(Geometric)   | 3.00% | 5.05%                             | 4.70%        | 5.25%                | 7.65%                 | 7.50%                                | 7.70%                         | 7.40%                         | 7.65%          | 8.75%             |
| Projected Risk*<br>(Standard Deviation)  | 0.90% | 5.40%                             | 5.55%        | 4.25%                | 17.40%                | 20.15%                               | 25.60%                        | 15.70%                        | 15.75%         | 27.60%            |
| Liquidity  | High  | High                              | High         | High                 | High                  | High                                 | Medium                        | Low                           | Low            | Low               |
| Correlation to U.S. Equity*  | -0.03 | -0.03                             | -0.05        | 0.08                 | 1.00                  | 0.73                                 | 0.84                          | 0.68                          | 0.68           | 0.80              |
| Months of Benefit Payments**   | 3.0   | 3.1                               | 4.7          | 13.5                 |                       |                                      |                               |                               |                |                   |
| Months of Benefit Payments<br>(Includes EE & ER<br>Contributions)**            | 8.9   | 9.4                               | 14.2         | 40.7                 |                       |                                      |                               |                               |                |                   |
| Cumulative Months of Benefit<br>Payments (Includes EE & ER<br>Contributions)** |       | 73                                | 3.2          |                      |                       |                                      |                               |                               |                |                   |

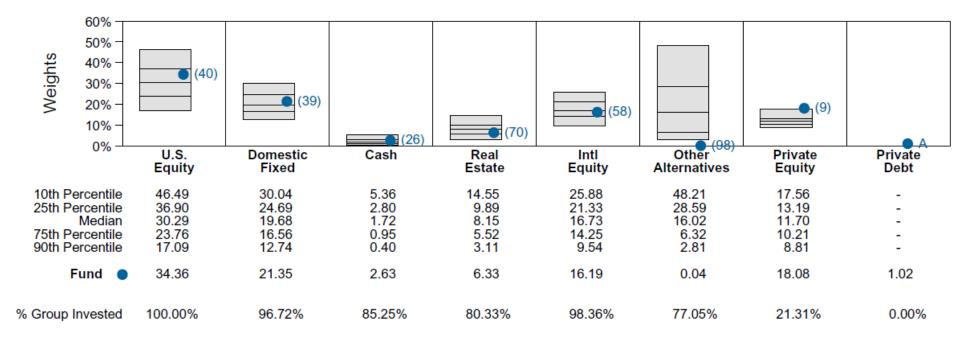
<sup>\*</sup>Callan 2024 Capital Market Projections

<sup>\*\*</sup>Provided by SERS IO as of 3/31/2024.



Actual Asset Allocation versus Large Public Plan (>\$1B) Peers as of March 31, 2024

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

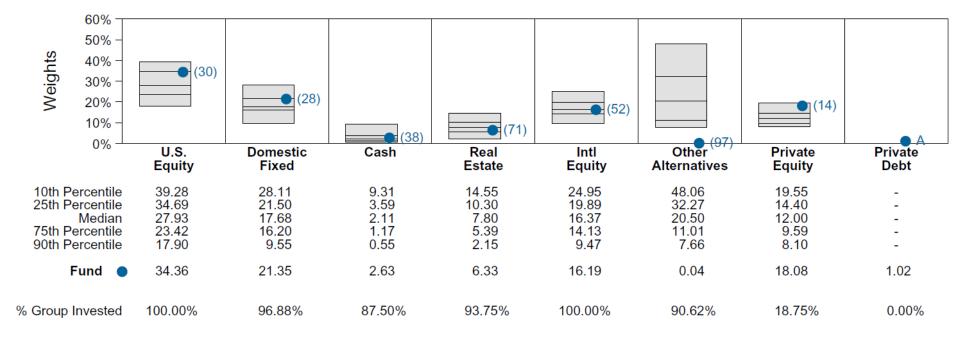


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



Actual Asset Allocation versus Very Large Public DB Plan (>\$10B) Peers as of March 31, 2024

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



<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



## One Quarter Attribution Analysis versus Target – Net of Fees as of March 31, 2024

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate a quarterly attribution effect.

#### Relative Attribution Effects for Quarter ended March 31, 2024

| Asset Class             | Effective<br>Actual<br>Weight | Effective<br>Target<br>Weight | Actual<br>Return | Target<br>Return | Manager<br>Effect | Asset<br>Allocation | Total<br>Relativ e<br>Return |
|-------------------------|-------------------------------|-------------------------------|------------------|------------------|-------------------|---------------------|------------------------------|
| U.S. Equity             | 32%                           | 32%                           | 9.68%            | 10.02%           | (0.10%)           | (0.01%)             | (0.11%)                      |
| Int'l Dev. Mkts Equity  | 12%                           | 14%                           | 5.43%            | 5.18%            | 0.03%             | (0.03%)             | (0.00%)                      |
| Emerging Markets        | 4%                            | 5%                            | 3.43%            | 2.17%            | 0.05%             | 0.00%               | 0.06%                        |
| Private Equity**        | 18%                           | 16%                           | 2.21%            | 2.21%            | 0.00%             | (0.04%)             | (0.04%)                      |
| Legacy Private Credit** | 1%                            | 0%                            | 2.60%            | 2.60%            | 0.00%             | (0.01%)             | (0.01%)                      |
| Fixed Income            | 21%                           | 21%                           | (0.18%)          | (0.78%)          | 0.13%             | 0.01%               | 0.14%                        |
| Inflation Protection    | 3%                            | 3%                            | (0.17%)          | (0.08%)          | (0.00%)           | 0.01%               | 0.00%                        |
| Real Estate             | 7%                            | 7%                            | (5.61%)          | (5.37%)          | (0.01%)           | 0.02%               | 0.01%                        |
| Legacy Hedge Funds      | 0%                            | 0%                            | (3.18%)          | (3.18%)          | 0.00%             | (0.00%)             | (0.00%)                      |
| _Cash                   | 2%                            | 2%                            | 1.34%            | 1.29%            | 0.00%             | (0.01%)             | (0.01%)                      |
| Total                   |                               |                               | 3.81% =          | 3.78% +          | 0.10% +           | (0.07%)             | 0.03%                        |

#### What helped relative attribution?

 Outperformance relative to target from Fixed Income, Emerging Markets and non-U.S. Developed Markets Equity managers helped performance (attribution based on target return)

#### What hurt relative attribution?

- Underperformance relative to target from U.S. Equity managers
- An overweight to Private Equity hurt performance (attribution based on target return)
- An underweight to non-U.S. Developed Markets hurt performance (attribution based on target return)

Returns are shown net of fees



<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

<sup>\*\*</sup>For this analysis, PE and PC are benchmarked to the SERS' PE and PC program returns, respectively.

## One Year Attribution Analysis versus Target – Net of Fees as of March 31, 2024

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate an annual attribution effect.

| Asset Class             | Effective<br>Actual<br>Weight | Effective<br>Target<br>Weight | Actual<br>Return | Target<br>Return | Manager<br>Effect | Asset<br>Allocation | Total<br>Relativ e<br>Return |
|-------------------------|-------------------------------|-------------------------------|------------------|------------------|-------------------|---------------------|------------------------------|
| U.S. Equity             | 31%                           | 31%                           | 28.74%           | 29.29%           | (0.14%)           | (0.03%)             | (0.18%)                      |
| Int'l Dev. Mkts Equity  | 13%                           | 14%                           | 15.75%           | 14.56%           | 0.15%             | (0.06%)             | 0.09%                        |
| Emerging Markets        | 4%                            | 5%                            | 9.34%            | 9.76%            | (0.02%)           | (0.00%)             | (0.03%)                      |
| Private Equity**        | 19%                           | 16%                           | 8.04%            | 8.04%            | 0.00%             | (0.18%)             | (0.18%)                      |
| Legacy Private Credit** | 1%                            | 0%                            | 11.52%           | 11.52%           | 0.00%             | (0.01%)             | (0.01%)                      |
| Fixed Income            | 19%                           | 22%                           | 2.35%            | 1.70%            | 0.15%             | 0.24%               | 0.39%                        |
| Inflation Protection    | 3%                            | 3%                            | 0.09%            | 0.45%            | (0.01%)           | 0.01%               | (0.00%)                      |
| Real Estate             | 7%                            | 7%                            | (14.70%)         | (13.33%)         | (0.14%)           | (0.09%)             | (0.23%)                      |
| Legacy Hedge Funds      | 0%                            | 0%                            | `(9.56%)         | `(9.56%)         | 0.00%             | (0.01%)             | (0.01%)                      |
| Cash                    | 2%                            | 2%                            | 5.38%            | 5.24%            | 0.00%             | 0.03%               | 0.03%                        |

#### • What helped relative attribution?

- An underweight as compared to target to Fixed Income helped performance (attribution based on target return)
- Outperformance relative to target from non-U.S. Developed Markets Equity and Fixed Income managers

#### What hurt relative attribution?

- An overweight as compared to target to Private Equity and Real Estate hurt performance (attribution based on target return)
- Underperformance relative to target from U.S. Equity and Real Estate managers
- A slight underweight as compared to target to non-U.S. Developed Markets Equity (attribution based on target return)

Returns are shown net of fees.



<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

<sup>\*\*</sup>For this analysis, PE and PC are benchmarked to the SERS' PE and PC program returns, respectively.

## Three Year Attribution Analysis versus Target – Net of Fees as of March 31, 2024

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate an annual attribution effect.

#### Three Year Annualized Relative Attribution Effects

| Asset Class             | Effective<br>Actual<br>Weight | Effective<br>Target<br>Weight | Actual<br>Return | Target<br>Return | Manager<br>Effect | Asset<br>Allocation | Total<br>Relativ e<br><u>Return</u> |
|-------------------------|-------------------------------|-------------------------------|------------------|------------------|-------------------|---------------------|-------------------------------------|
| U.S. Equity             | 30%                           | 30%                           | 9.15%            | 9.78%            | (0.18%)           | (0.13%)             | (0.30%)                             |
| Int'l Dev. Mkts Equity  | 13%                           | 14%                           | 5.38%            | 4.06%            | 0.17%             | (0.02%)             | 0.15%                               |
| Emerging Markets        | 4%                            | 5%                            | (4.92%)          | (3.93%)          | (0.04%)           | 0.06%               | 0.02%                               |
| Private Equity **       | 18%                           | 14%                           | 12.06%           | 12.06%           | 0.00%             | 0.16%               | 0.16%                               |
| Legacy Private Credit** | 2%                            | 2%                            | 11.35%           | 11.35%           | 0.00%             | (0.08%)             | (0.08%)                             |
| Fixed Income            | 21%                           | 23%                           | (1.66%)          | (2.46%)          | 0.19%             | 0.08%               | 0.27%                               |
| Inflation Protection    | 3%                            | 3%                            | (1.17%)          | (0.53%)          | (0.02%)           | 0.00%               | (0.02%)                             |
| Real Estate             | 8%                            | 7%                            | 0.49%            | 3.61%            | (0.26%)           | (0.02%)             | (0.28%)                             |
| Legacy Hedge Funds      | 0%                            | 0%                            | (2.98%)          | (5.86%)          | 0.00%             | (0.00%)             | (0.00%)                             |
| Cash                    | 2%                            | 2%                            | 2.71%            | 2.58%            | 0.00%             | 0.02%               | 0.02%                               |

| 10tal | Total | 5.04% = 5.12% + | (0.13%) + 0.05% | (0.07%) |
|-------|-------|-----------------|-----------------|---------|
|-------|-------|-----------------|-----------------|---------|

#### What helped relative attribution?

- Outperformance relative to target from Fixed Income and non-U.S. Developed Markets Equity managers
- An overweight as compared to target to Private Equity helped performance (attribution based on target return)
- An underweight as compared to target to Fixed Income and Emerging Markets Equity helped performance (attribution based on target return)

#### What hurt relative attribution?

- Underperformance relative to target from Real Estate, U.S. Equity and Emerging Markets Equity managers
- A slight underweight as compared to target to U.S. Equity hurt performance (attribution based on target return)
- A slight overweight as compared to target to Legacy Private Credit hurt performance (attribution based on target return)

Returns are shown net of fees.

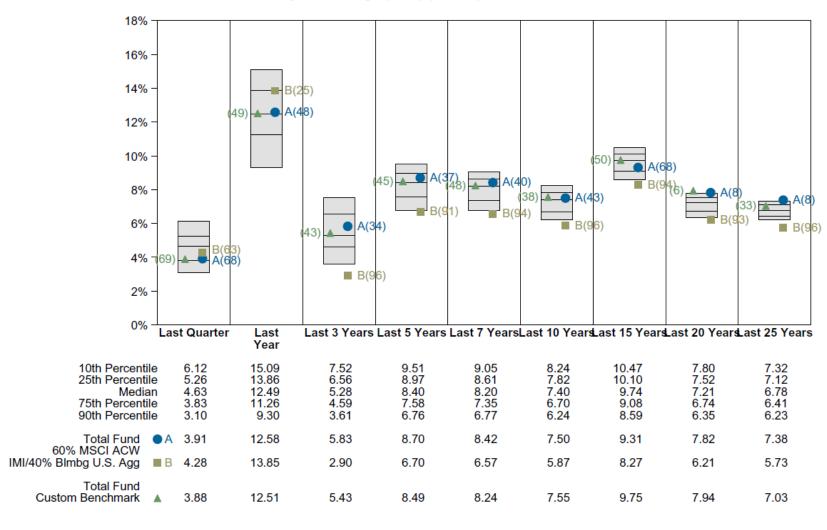


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

<sup>\*\*</sup>For this analysis, PE and PC are benchmarked to the SERS' PE and PC program returns, respectively.

Gross of Fee Performance versus Large Public Plan (>\$1B) Peers and Benchmark as of March 31, 2024

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

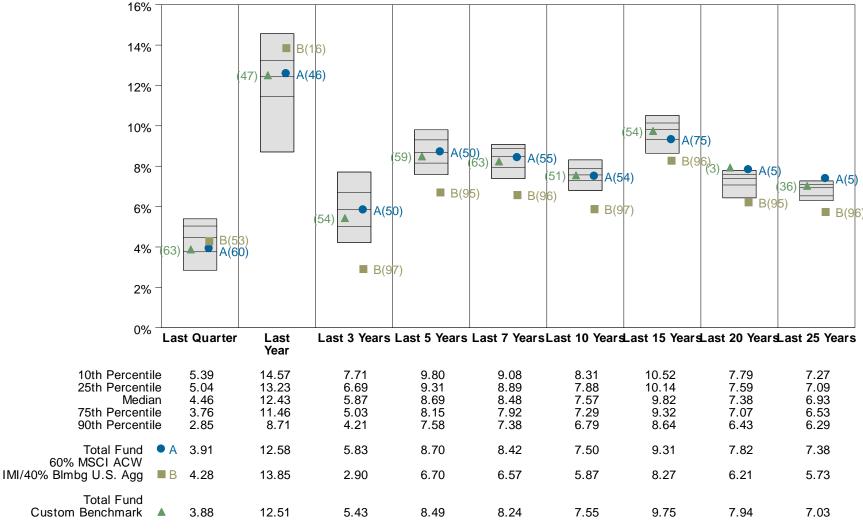


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



Gross of Fee Performance versus Very Large Public DB Plan (>\$10B) Peers and Benchmark as of March 31, 2024

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

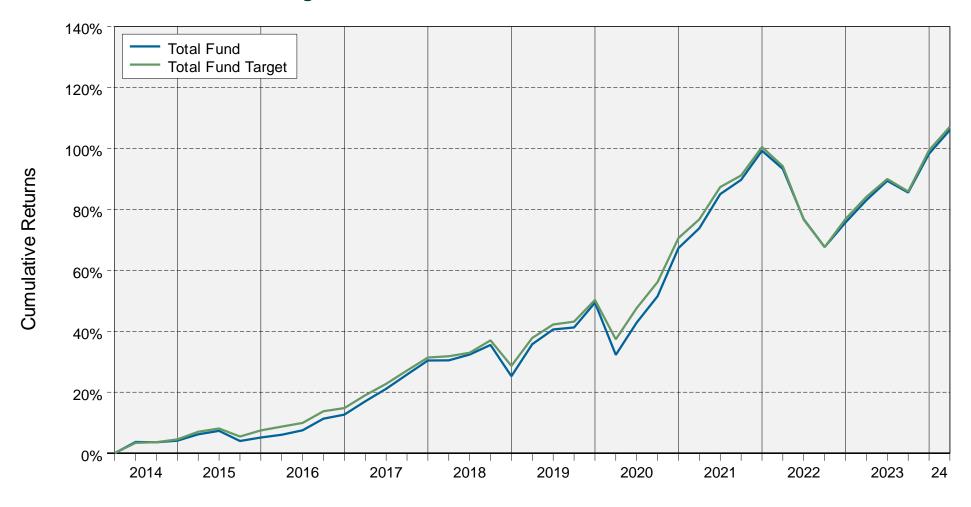


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



# Cumulative 10-year Returns vs Target as of March 31, 2024

## **Cumulative Returns Actual vs Target**

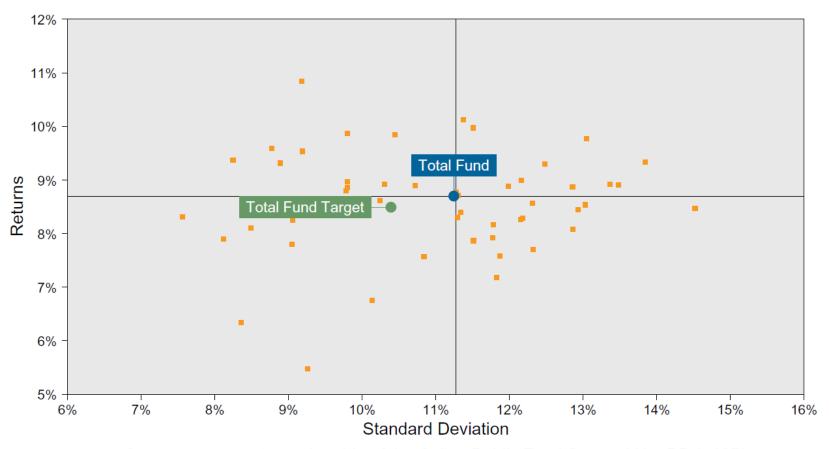


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



## 5-year Returns vs Return as of March 31, 2024

#### Five Year Annualized Risk vs Return



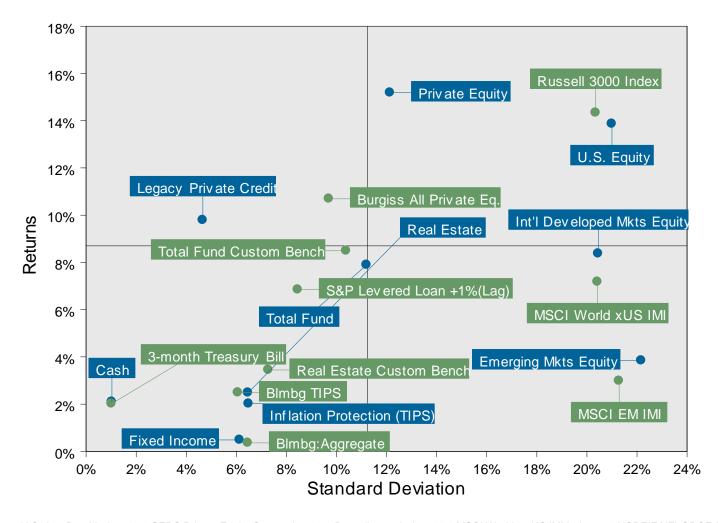
Squares represent membership of the Callan Public Fund Spons- V Lg DB (>10B)

<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



Asset Class Risk and Return as of March 31, 2024

### Five Year Annualized Risk vs Return Asset Classes vs Benchmark Indices

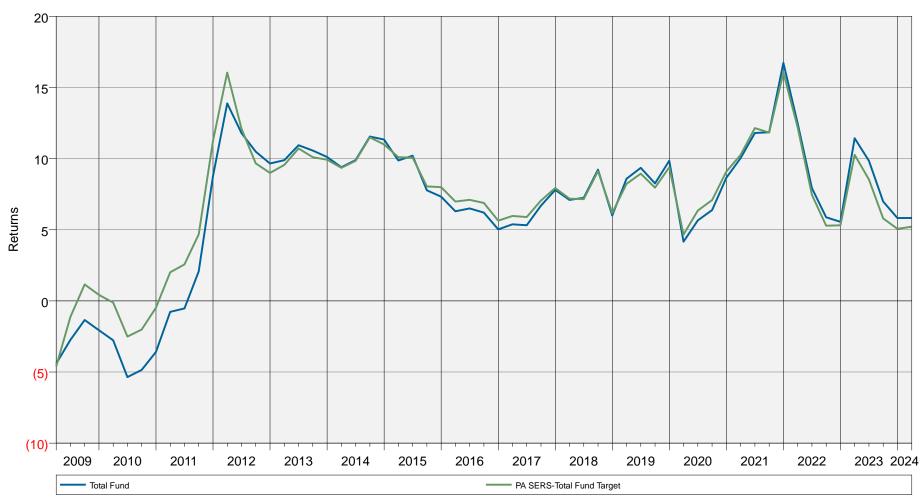


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



# Rolling 3-year Gross of Fee Performance versus Benchmark as of March 31, 2024

Rolling 12 Quarter Gross of Fee Returns for 15 Years Ended March 31, 2024

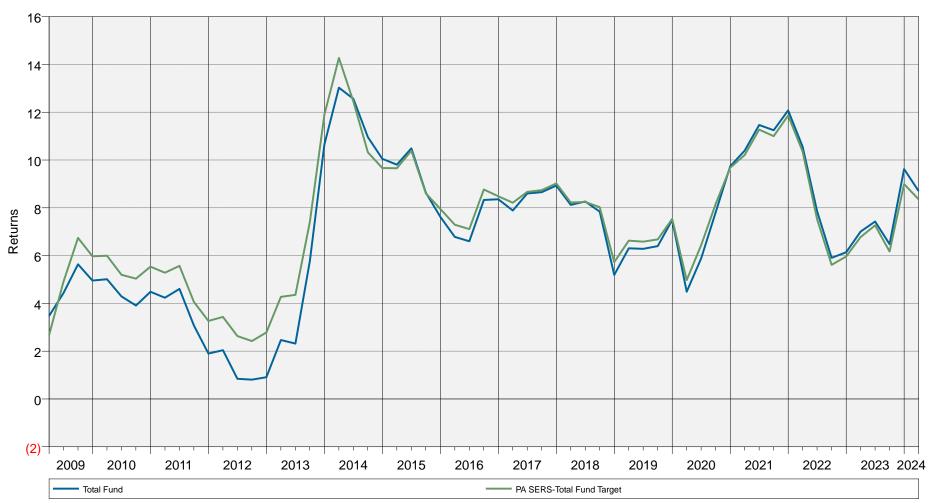


<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



# Rolling 5-year Gross of Fee Performance versus Benchmark as of March 31, 2024

Rolling 20 Quarter Gross of Fee Returns for 15 Years Ended March 31, 2024



<sup>\*</sup> Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



# **Asset Class Returns**

# As of March 31, 2024

|   | Market<br>Value<br>\$(mm) | Ending<br>Weight       | Last<br>Quarter                  | Last<br>Year                         | Last<br>3<br>Years               | Last<br>5<br>Years                | <u> </u>   |
|---|---------------------------|------------------------|----------------------------------|--------------------------------------|----------------------------------|-----------------------------------|--|
| Net Performance   |                           |                        |                                  |                                      |                                  |                                   |  |
| Total Fund Total Fund Custom Benchmark(1) Public Market Equiv Benchmark(2) 60/40 Index(3) | \$37,506<br>-<br>-<br>-   | 100.00%<br>-<br>-<br>- | 3.81%<br>3.88%<br>5.84%<br>4.28% | 11.94%<br>12.51%<br>16.92%<br>13.85% | <b>5.04%</b> 5.43% 5.45% 2.90%   | <b>7.89%</b> 8.49% 8.92% 6.70%    | <ul> <li>* All returns on this report are shown with 2- decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.</li> <li>(1) Current Quarter Target = 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity</li> </ul> |
| U.S. Equity Russell 3000 Index (4) S&P 1500 Index   | \$12,887<br>-<br>-        | 34.36%<br>-<br>-       | 9.68%<br>10.02%<br>10.31%        | <b>28.74%</b><br>29.29%<br>29.15%    | 9.15%<br>9.78%<br>10.99%         | <b>13.86%</b><br>14.34%<br>14.70% | Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Quarter lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full                                  |
| Int'l Developed Mkts Equity MSCI World ex US IMI  | \$4,482<br>-              | 11.95%<br>-            | <b>5.43%</b><br>5.18%            | <b>15.75%</b><br>14.56%              | <b>5.38%</b><br>4.06%            | <b>8.37%</b><br>7.18%             | benchmark history.  (2) The current public equivalent benchmark consists of: 19% Bloomberg U.S. Agg Bond Index,  |
| Emerging Mkts Equity<br>MSCI EM IMI   | \$1,588<br>-              | 4.23%                  | <b>3.43%</b><br>2.17%            | <b>9.34%</b><br>9.76%                | <b>(4.92%)</b><br>(3.93%)        | <b>3.84%</b><br>2.98%             | 34% Russell 3000, 14% MSCI World ex US IMI<br>Index, 12% Russell 3000+ 3% (Qtr lag), 7%<br>CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index,<br>5% MSCI EM IMI Index, 4% MSCI World ex US  |
| Private Equity Burgiss Private Equity Index (Qtr lag) Global Equity + 3% (Qtr lag)(5)     | \$6,780<br>-<br>-         | 18.08%<br>-<br>-       | 2.21%<br>0.03%<br>12.32%         | 8.04%<br>0.05%<br>27.35%             | <b>12.06%</b><br>6.12%<br>11.15% | <b>15.19%</b><br>10.69%<br>17.58% | +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history.   |
|   |                           |                        |                                  |                                      |                                  |                                   | (3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index.  |
| Legacy Private Credit Funds (6)<br>S&P Levered Loan Index + 1% (Qtr lag)                  | \$383<br>-                | 1.02%<br>-             | <b>2.60%</b><br>3.10%            | <b>11.52%</b><br>14.33%              | <b>11.35%</b><br>6.77%           | <b>9.79%</b><br>6.85%             | (4) Benchmark history is a blend of current and past<br>benchmark indices. History prior to 12/31/2018 is<br>provided by RVK.  |
| Fixed Income<br>Blmbg U.S. Agg Bond Index   | \$6,966<br>-              | 18.57%                 | (0.18%)<br>(0.78%)               | <b>2.35%</b><br>1.70%                | <b>(1.66%)</b><br>(2.46%)        | <b>0.49%</b><br>0.36%             | (5) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag). Benchmark performance   |
| Inflation Protection (TIPS) Blmbg U.S. TIPS Index   | \$1,043<br>-              | 2.78%                  | (0.17%)<br>(0.08%)               | <b>0.09%</b><br>0.45%                | <b>(1.17%)</b><br>(0.53%)        | <b>2.02%</b><br>2.49%             | represents the historical benchmark (Russell 3000 +3% Qtr lag) linked to the current benchmark.  |
| Real Estate  Real Estate Custom Bench (Qtr lag)(7)  CPI + 3% (Qtr lag)                    | \$2,375<br>-              | 6.33%                  | (5.61%)<br>(5.37%)<br>0.41%      | (14.70%)<br>(13.33%)<br>6.35%        | <b>0.49%</b><br>3.61%<br>8.60%   | <b>2.48%</b><br>3.45%<br>7.08%    | (6) Legacy Private Credit performance is included in<br>the total fund starting at the composite's true<br>inception date, 07/01/2022. The history is calculated<br>and shown for informational purposes.  |
| Cash<br>3-month Treasury Bill   | \$985<br>-                | 2.63%                  | <b>1.34%</b><br>1.29%            | <b>5.38%</b><br>5.24%                | <b>2.71%</b><br>2.58%            | <b>2.09%</b><br>2.02%             | (7) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022, the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).   |



# **Asset Class Returns**

# As of March 31, 2024

|  | Last<br>10<br>Years                          | Last<br>15<br>Years                          | Last<br>20<br>Years                          | Last<br>25<br>Years                     | Since<br>Inception  |   |
|--|--|--|--|---|---|---|
| Net Performance  |  |  |  |   | •   | -<br>-  |
| Total Fund Total Fund Custom Benchmark(1) Public Market Equiv Benchmark(2) 60/40 Index(3)                                  | <b>6.78%</b><br>7.55%<br>7.62%<br>5.87%      | <b>8.54%</b><br>9.75%<br>9.97%<br>8.27%      | <b>7.01%</b><br>7.94%<br>8.10%<br>6.21%      | <b>6.60%</b><br>7.03%<br>7.16%<br>5.73% | 9.30% (1/81)<br>-<br>-  | * All returns on this report are shown with 2- decimal precision. This may differ from the decimal precision shown in BNY Mellon reports.   |
| U.S. Equity  Russell 3000 Index (4)  S&P 1500 Index  Int'l Developed Mkts Equity  MSCI World ex US IMI                     | 11.50%<br>12.33%<br>12.65%<br>5.58%<br>4.76% | 14.95%<br>15.44%<br>15.56%<br>9.58%<br>8.54% | 9.27%<br>10.07%<br>10.16%<br>6.00%<br>5.86%  | 7.75%<br>8.01%<br>8.07%                 | 10.96% (1/81)<br>11.26% (1/81)<br>-<br>6.52% (1/02)<br>6.43% (1/02)             | (1)The current total fund benchmark consists of: 19% Bloomberg U.S. Agg Bond Index, 16% SERS Private Equity Composite, 34% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history.            |
| Emerging Mkts Equity  MSCI EM IMI  Private Equity  Burgiss Private Equity Index (Qtr lag)  Global Equity + 3% (Qtr lag)(5) | 3.98%<br>3.22%<br>12.12%<br>11.07%<br>14.32% | 6.34%<br>7.04%<br>12.69%<br>12.29%<br>16.91% | 5.08%<br>6.71%<br>12.40%<br>12.42%<br>12.87% | 7.05%<br>11.86%<br>12.20%<br>11.03%     | 6.51% (1/02)<br>8.23% (1/02)<br>11.45% (1/86)<br>16.14% (1/86)<br>14.60% (1/86) | (2) The current public equivalent benchmark consists of: 19% Bloomberg U.S. Agg Bond Index, 34% Russell 3000, 14% MSCI World ex US IMI Index, 12% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 4% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 77 for full benchmark history. |
| Legacy Private Credit Funds (6)<br>S&P Levered Loan Index + 1% (Qtr lag)   | •  | :  | :  | :                                       | <b>10.33%</b> (4/18) 5.93% (4/18)   | <ul> <li>(3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index</li> <li>(4) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.</li> </ul>   |
| Fixed Income Blmbg U.S. Agg Bond Index  Inflation Protection (TIPS) Blmbg U.S. TIPS Index                                  | 1.59%<br>1.54%<br>1.99%<br>2.21%             | <b>4.68%</b> 2.62% <b>2.42%</b> 3.10%        | 3.86%<br>2.99%<br>2.74%<br>3.36%             | 4.44%<br>3.84%<br>-<br>4.77%            | 7.47% (1/81)<br>6.77% (1/81)<br>2.85% (2/03)<br>3.78% (2/03)                    | (5) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag). Benchmark performance represents the historical benchmark (Russell 3000 +3% Qtr lag) linked to the current benchmark.  |
| Real Estate Real Estate Custom Bench (Qtr lag)(7) CPI + 3% (Qtr lag)   | <b>3.70%</b><br>6.12%<br>5.79%               | 3.85%<br>5.62%<br>5.55%                      | <b>5.13%</b> 6.43% 5.58%                     | <b>6.02%</b><br>6.94%<br>5.54%          | 7.63% (3/84)<br>-<br>5.81% (3/84)   | (6) Legacy Private Credit performance is included in<br>the total fund starting at the composite's true<br>inception date, 07/01/2022. The history is calculated<br>and shown for informational purposes.   |
| Cash<br>3-month Treasury Bill  | <b>1.63%</b><br>1.38%                        | <b>1.18%</b><br>0.96%                        | <b>1.78%</b><br>1.52%                        | <b>2.25%</b><br>1.91%                   | <b>3.45%</b> (1/87)<br>3.19% (1/87)   | (7) As of 07/01/2022, the benchmark consists of 100% NCREIF NFI-ODCE (Qtr lag). From 03/31/2019 to 07/01/2022 the benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).   |

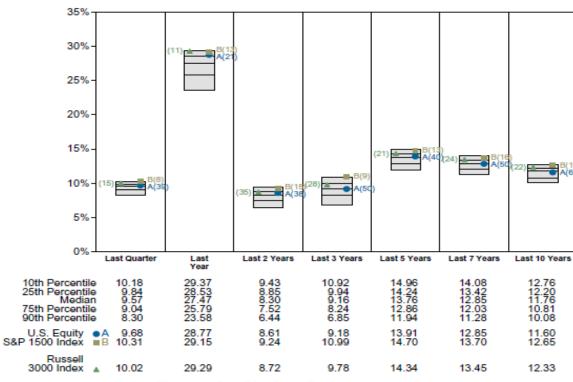


# Callan

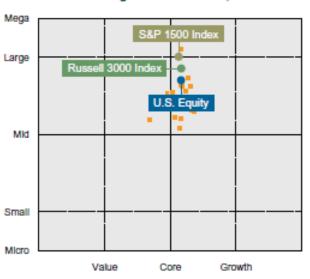
**Appendix I – Asset Class and Manager Performance** 

# U.S. Equity as of March 31, 2024

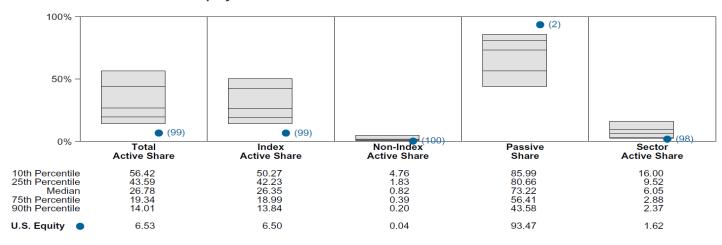
Performance vs Public Fund - Domestic Equity (Gross)



#### Style Map vs Pub Pln- Dom Equity Holdings as of March 31, 2024



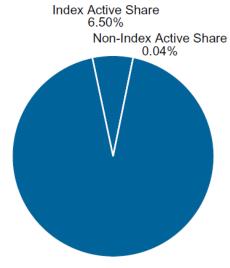
Active Share vs. Pub Pln- Dom Equity





# U.S. Equity as of March 31, 2024

#### **Holdings-Level Active Share**



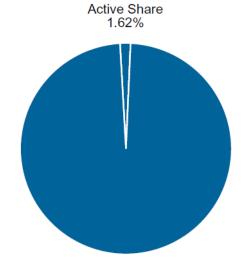
Passive Share 93.47%

#### **Total Active Share: 6.53%**



| Index<br>Active Share<br>Within Sector | Non-Index<br>Active Share<br>Within Sector | Total<br>Active Share<br>Within Sector | Index<br>Weight | Manager<br>Weight | Contribution to<br>Total Portfolio<br>Active Share |
|--|--|--|-----------------|-------------------|--|
| 1.37%                                  | 0.00%                                      | 1.37%                                  | 8.36%           | 7.86%             | 0.33%  |
| 6.32%                                  | 0.14%                                      | 6.45%                                  | 10.48%          | 10.46%            | 0.68%  |
| 4.06%                                  | 0.00%                                      | 4.06%                                  | 5.58%           | 5.42%             | 0.29%  |
| 10.22%                                 | 0.00%                                      | 10.22%                                 | 4.06%           | 4.28%             | 0.36%  |
| 8.29%                                  | 0.05%                                      | 8.34%                                  | 13.84%          | 14.20%            | 1.05%  |
| 8.74%                                  | 0.07%                                      | 8.81%                                  | 12.44%          | 12.79%            | 0.98%  |
| 9.05%                                  | 0.00%                                      | 9.05%                                  | 10.08%          | 10.42%            | 0.80%  |
| 3.78%                                  | 0.02%                                      | 3.80%                                  | 27.67%          | 26.74%            | 1.42%  |
| 10.32%                                 | 0.00%                                      | 10.32%                                 | 2.66%           | 2.81%             | 0.23%  |
| 0.00%                                  | 100.00%                                    | 100.00%                                | -               | 0.00%             | 0.00%  |
| 11.36%                                 | 0.00%                                      | 11.36%                                 | 2.69%           | 2.89%             | 0.26%  |
| 5.62%                                  | 0.00%                                      | 5.62%                                  | 2.15%           | 2.14%             | 0.13%  |
| 6.50%                                  | 0.04%                                      | 6.53%                                  | 100.00%         | 100.00%           | 6.53%  |

#### **Sector Exposure Active Share**



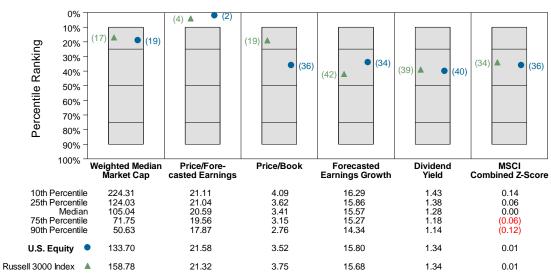
Passive Share 98.38%

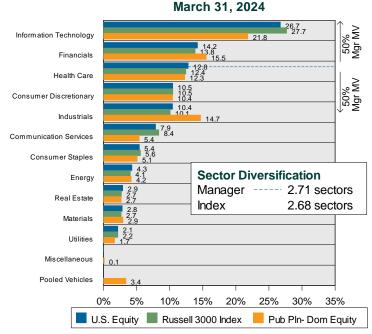


# **U.S. Equity**

## As of March 31, 2024

Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - Domestic Equity as of March 31, 2024

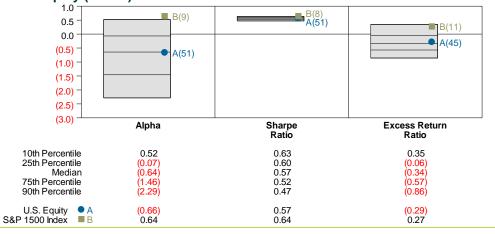




**Sector Allocation** 

Risk Adjusted Return Measures vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross)

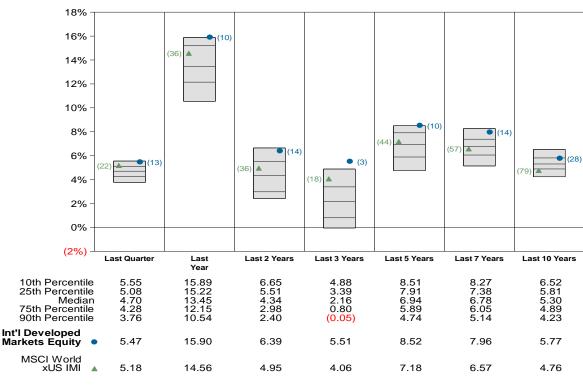
Five Years Ended March 31, 2024



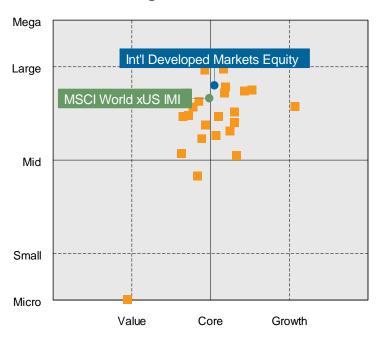


# International Equity as of March 31, 2024

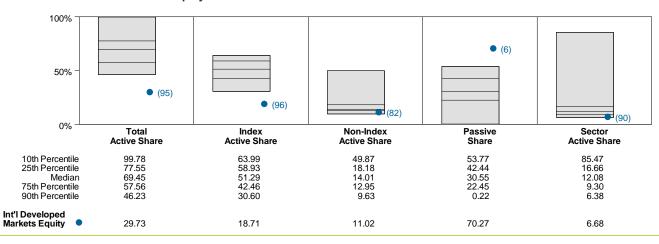
#### Performance vs Public Fund - International Equity (Gross)



#### Style Map vs Pub Pln- Intl Equity Holdings as of March 31, 2024



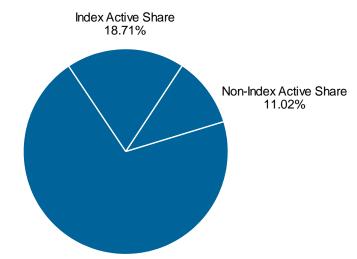
Active Share vs. Pub Pln- Intl Equity





# International Equity as of March 31, 2024

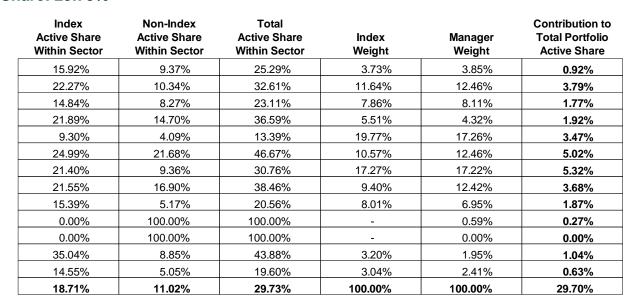
#### **Holdings-Level Active Share**



Passive Share 70.27%

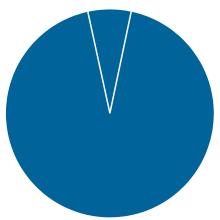
#### **Total Active Share: 29.73%**





#### **Sector Exposure Active Share**





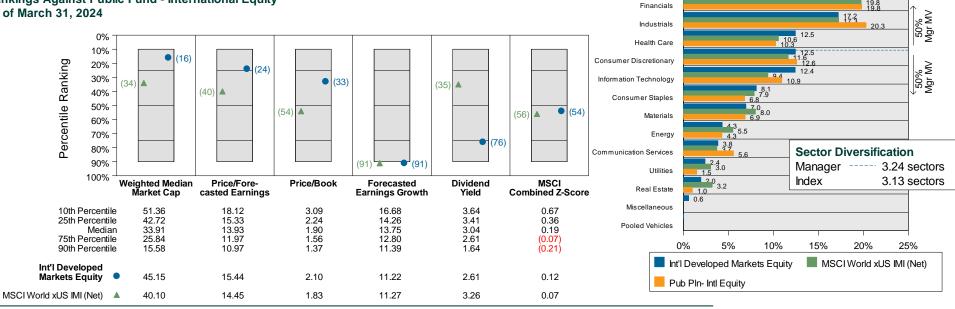
Passive Share 93.32%



# **International Equity**

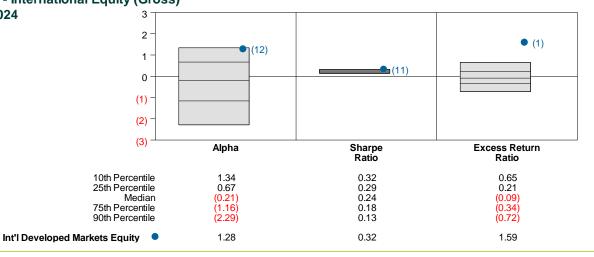
As of March 31, 2024

Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - International Equity as of March 31, 2024



Risk Adjusted Return Measures vs MSCI World xUS IMI Rankings Against Public Fund - International Equity (Gross)

Five Years Ended March 31, 2024

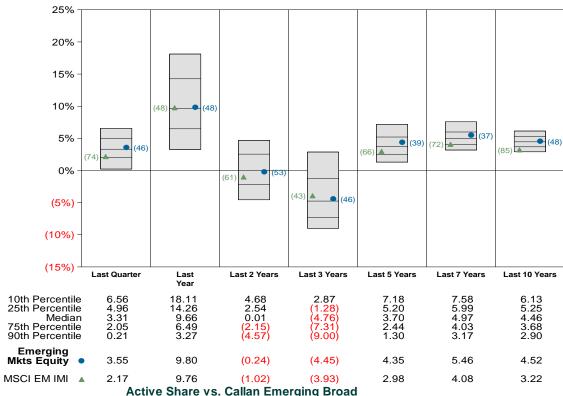




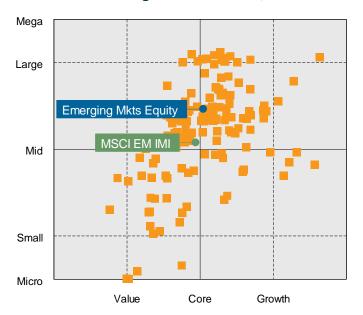
Sector Allocation March 31, 2024

# Emerging Markets Equity as of March 31, 2024

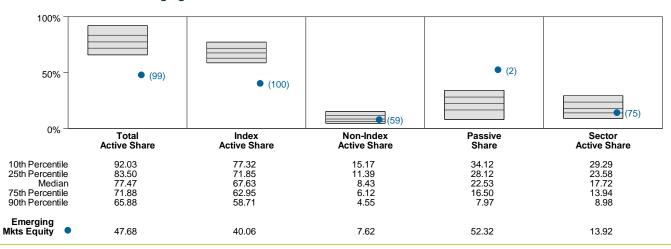
Performance vs Callan Emerging Broad (Gross)



#### Style Map vs Callan Emerging Broad Holdings as of March 31, 2024



Active Share vs. Callan Emerging Broad





# Emerging Markets Equity as of March 31, 2024

### **Holdings-Level Active Share**

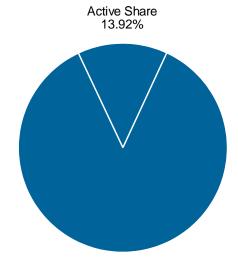
# Index Active Share 40.06% Non-Index Active Share 7.62% Passive Share

**Total Active Share: 47.68%** 

52.32%

Communication Services
Consumer Discretionary
Consumer Staples
Energy
Financials
Health Care
Industrials
Information Technology
Materials
Miscellaneous
Pooled Vehicles
Real Estate
Utilities
Total

# Sector Exposure Active Share



Passive Share 86.08%

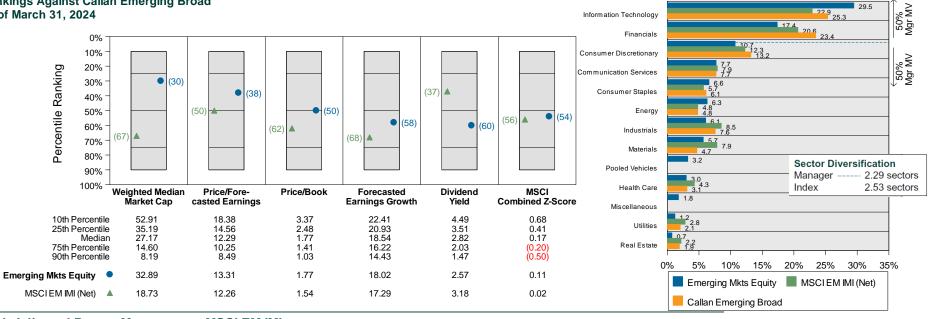
| Index<br>Active Share<br>Within Sector | Non-Index<br>Active Share<br>Within Sector | Total<br>Active Share<br>Within Sector | Index<br>Weight | Manager<br>Weight | Contribution to<br>Total Portfolio<br>Active Share |
|--|--|--|-----------------|-------------------|--|
| 44.26%                                 | 4.36%                                      | 48.61%                                 | 7.92%           | 7.72%             | 3.83%  |
| 36.79%                                 | 13.55%                                     | 50.35%                                 | 12.27%          | 10.74%            | 6.03%  |
| 48.97%                                 | 4.92%                                      | 53.89%                                 | 5.73%           | 6.59%             | 3.27%  |
| 32.97%                                 | 5.92%                                      | 38.88%                                 | 4.83%           | 6.30%             | 1.80%  |
| 38.30%                                 | 3.68%                                      | 41.98%                                 | 20.64%          | 17.38%            | 8.44%  |
| 48.11%                                 | 11.26%                                     | 59.37%                                 | 4.30%           | 3.02%             | 2.31%  |
| 56.27%                                 | 3.53%                                      | 59.81%                                 | 8.54%           | 6.08%             | 4.60%  |
| 31.86%                                 | 2.97%                                      | 34.82%                                 | 22.90%          | 29.47%            | 9.02%  |
| 41.93%                                 | 8.29%                                      | 50.21%                                 | 7.85%           | 5.70%             | 3.68%  |
| 50.00%                                 | 50.27%                                     | 100.27%                                | -               | 1.78%             | 0.84%  |
| 50.00%                                 | 50.00%                                     | 100.00%                                | -               | 3.25%             | 1.63%  |
| 40.02%                                 | 5.72%                                      | 45.74%                                 | 2.18%           | 0.74%             | 0.94%  |
| 36.92%                                 | 2.15%                                      | 39.07%                                 | 2.84%           | 1.22%             | 1.16%  |
| 40.06%                                 | 7.62%                                      | 47.68%                                 | 100.00%         | 100.00%           | 47.54%   |

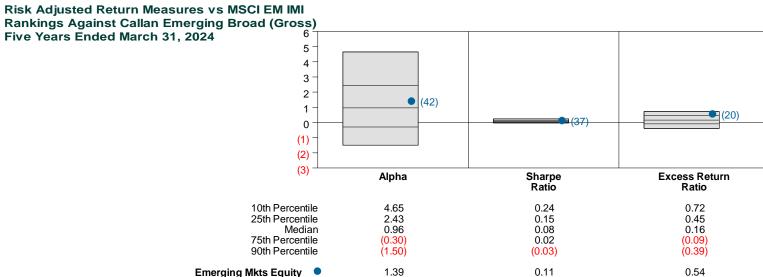


## **Emerging Markets Equity**

### As of March 31, 2024

Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2024





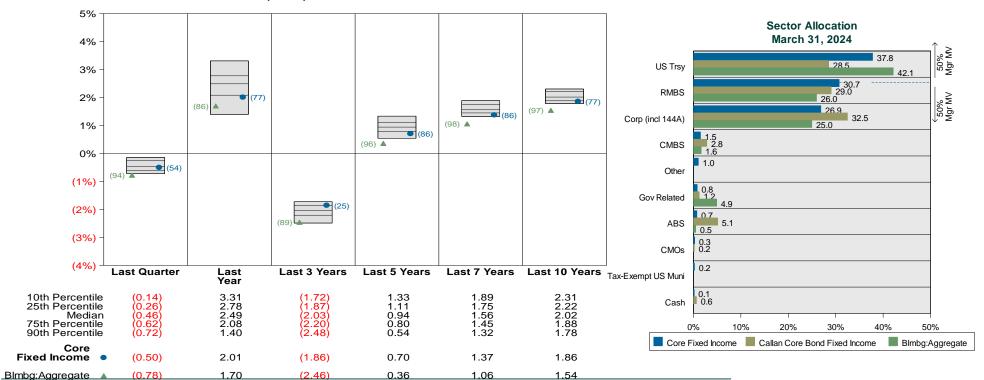


**Sector Allocation** 

March 31, 2024

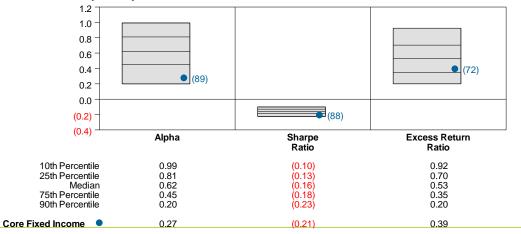
## Core Fixed Income As of March 31, 2024

Performance vs Callan Core Bond Fixed Income (Gross)



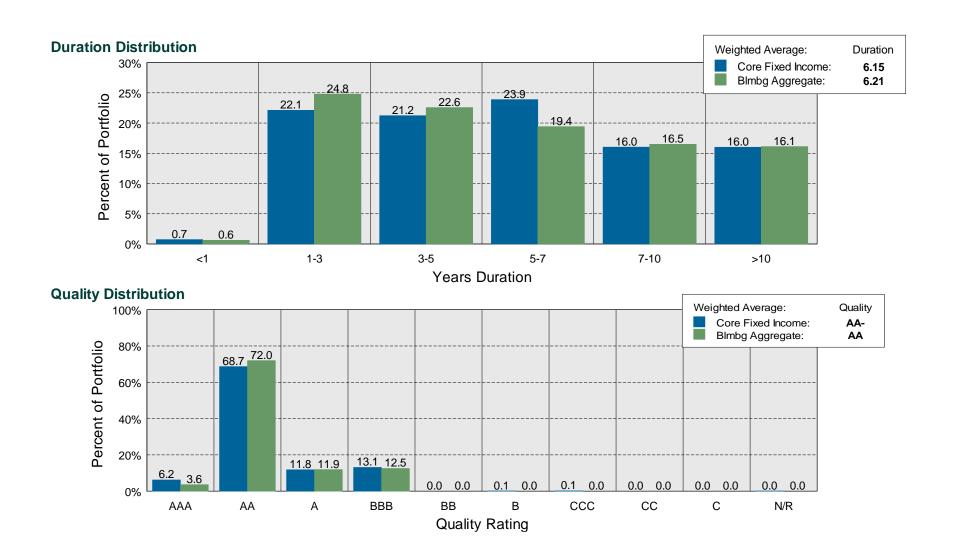
Risk Adjusted Return Measures vs Blmbg:Aggregate Rankings Against Callan Core Bond Fixed Income (Gross)

Five Years Ended March 31, 2024





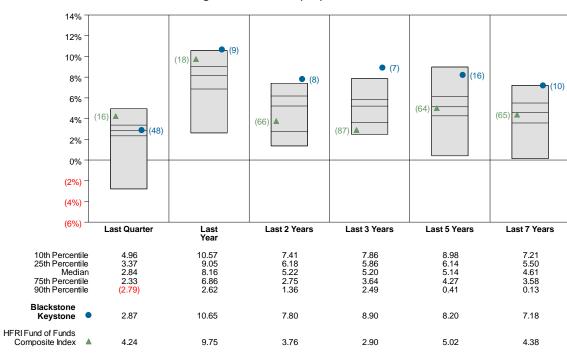
## **Core Fixed Income**



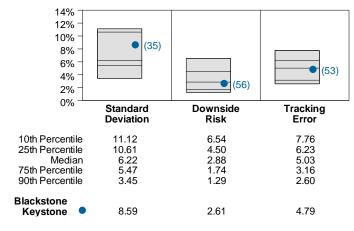


## Opportunistic Fixed Income As of March 31, 2024

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

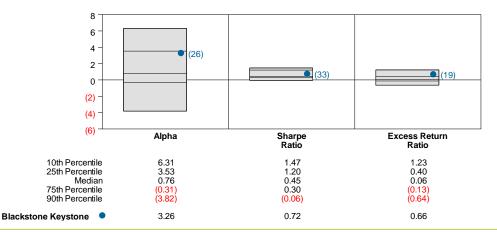


Risk Statistics Rankings vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended March 31, 2024



Risk Adjusted Return Measures vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net)

Five Years Ended March 31, 2024





| ,   | Market<br>Value<br>\$(mm) | Ending<br>Weight | Last<br>Quarter  | Last<br>Year     | Last<br>3<br>Years | Last<br>5<br>Years |                    |  |
|---|---------------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|--|
| Net Performance- Domestic Equity                  |                           |                  |                  |                  |                    |                    |                    |  |
| U.S. Equity                                       | \$12,887                  | 100.00%          | 9.68%            | 28.74%           | 9.15%              | 13.86%             |                    |  |
| Russell 3000 Index (1)<br>S&P 1500 Index          | -                         | -                | 10.02%<br>10.31% | 29.29%<br>29.15% | 9.78%<br>10.99%    | 14.34%<br>14.70%   |                    |  |
| MCM Russell 1000 Index<br>Russell 1000 Index      | 11,372                    | 88.24%           | 10.30%<br>10.30% | 29.92%<br>29.87% | 10.64%<br>10.45%   | 14.85%<br>14.76%   |                    |  |
| S&P 500 Index                                     | -                         | -                | 10.56%           | 29.88%           | 11.49%             | 15.05%             |                    |  |
| MCM Russell 2000 Core Index                       | 716                       | 5.56%            | 5.72%            | 20.26%           | 0.80%              | 8.53%              |                    |  |
| Russell 2000 Index<br>S&P 600 Index               | -                         | -                | 5.18%<br>2.46%   | 19.71%<br>15.93% | (0.10%)<br>2.28%   | 8.10%<br>9.15%     |                    |  |
| MCM Russell 2000 Val Index                        | 380                       | 2.95%            | 2.90%            | 18.73%           | 2.33%              | 8.24%              |                    |  |
| Russell 2000 Value Index<br>S&P 600 Value Index   | -                         | -                | 2.90%<br>0.14%   | 18.75%<br>11.64% | 2.22%<br>2.58%     | 8.17%<br>8.76%     |                    |  |
| Emerald Asset Management                          | 419                       | 3.25%            | 5.51%            | 20.60%           | (0.99%)            | 7.60%              |                    |  |
| Russell 2000 Growth Index<br>S&P 600 Growth Index | -                         | -                | 7.58%<br>4.77%   | 20.35%<br>20.12% | (2.68%)<br>1.89%   | 7.38%<br>9.19%     |                    |  |
|   | Las                       | st               | Last             | Last             | Last               |                    |                    |  |
|   | 10                        | )                | 15               | 20               | 25                 | Since              |                    |  |
| Net Performance- Domestic Equity                  | Yea                       | rs               | Years            | Years            | Years              | Inceptio           | <u>1</u>           |  |
| U.S. Equity                                       | 11.5                      | 0%               | 14.95%           | 9.27%            | 7.75%              | 10.96%             | (1/01)             |  |
| Russell 3000 Index (1)                            | 12.3                      | 3%               | 15.44%           | 10.07%           | 8.01%              | 11.26%             |                    |  |
| S&P 1500 Index                                    | 12.6                      | 5%               | 15.56%           | 10.16%           | 8.07%              | -                  |                    |  |
| MCM Russell 1000 Index                            | 12.7                      |                  |                  | -                |                    | 14.46%             |                    | * All returns on this report are shown with 2- decimal precision.  |
| Russell 1000 Index<br>S&P 500 Index               | 12.6<br>12.9              |                  | 15.62%<br>15.63% | 10.21%<br>10.15% | 7.97%<br>7.78%     | 14.44%<br>14.56%   | (1/12)<br>(1/12)   | This may differ from the decimal   |
| MCM Russell 2000 Core Index                       | -                         |                  | -                | -                | -                  | 8.42%              | (12/16)            | precision shown in BNY Mellon reports.   |
| Russell 2000 Index<br>S&P 600 Index               | 7.5<br>8.8                |                  | 12.89%<br>14.32% | 8.05%<br>9.45%   | 8.37%<br>10.17%    | 8.13%<br>8.77%     | (12/16)<br>(12/16) | ** Market values may not sum as<br>a result of accounts funded within  |
| MCM Russell 2000 Val Index                        | _                         |                  | _                | _                | _                  | 6.84%              | (12/16)            | the quarter or accounts in the   |
| Russell 2000 Value Index                          | 6.8                       | 7%               | 12.10%           | 7.47%            | 9.15%              | 6.81%              | (12/16)            | process of liquidation.  |
| S&P 600 Value Index                               | 7.9                       | 6%               | 13.59%           | 8.76%            | 9.94%              | 7.68%              | (12/16)            | The market values and performance of such accounts are   |
| Emerald Asset Management                          | -                         |                  | -                | -                | -                  | 9.76%              | (12/16)            | included within their relevant   |
| Russell 2000 Growth Index                         | 7.8                       |                  | 13.39%           | 8.38%            | 7.14%              | 8.97%              | (12/16)            | composites.  |
| S&P 600 Growth Index                              | 9.4                       | O 70             | 14.94%           | 10.04%           | 9.99%              | 9.62%              | (12/16)            | (1) Benchmark history is a blend<br>of current and past benchmark<br>indices. History prior to<br>12/31/2018 is provided by RVK. |



|  | Market<br>Value<br>\$(mm) | Ending<br>Weight | Last<br>Quarter          | Last<br>Year               | Last<br>3<br>Years        | Last<br>5<br>Years       |                            |  |
|--|---------------------------|------------------|--------------------------|----------------------------|---------------------------|--------------------------|----------------------------|--|
| Net Performance- International Equity  |                           |                  |                          |                            |                           |                          |                            |  |
| Int'l Developed Mkts Equity MSCI World ex US IMI                               | \$4,482<br>-              | 100.00%          | <b>5.43</b> % 5.18%      | <b>15.75%</b> 14.56%       | <b>5.38%</b> 4.06%        | 8.37%<br>7.18%           |                            |  |
| Walter Scott & Partners(1) MSCI World  | 823<br>-                  | 18.35%           | 8.07%<br>8.88%           | 20.07%<br>25.11%           | 8.45%<br>8.60%            | 12.11%<br>12.07%         |                            |  |
| BlackRock MSCI World Ex US Index<br>MSCI World ex US                           | 3,260<br>-                | 72.72%<br>-      | 5.63%<br>5.59%           | 15.65%<br>15.29%           | 5.36%<br>4.93%            | 7.93%<br>7.48%           |                            |  |
| Xponance Non-U.S. Small Cap<br>MSCI ACWI ex US Small Cap                       | 244                       | 5.45%            | 4.02%<br>2.11%           | 14.10%<br>12.80%           | (0.32%)<br>0.38%          | 5.18%<br>6.24%           |                            |  |
| Harris Assoc Int'l SCV<br>MSCI World ex US Sm Cap<br>MSCI World ex US Sm Value | 152<br>-<br>-             | 3.40%<br>-<br>-  | 0.64%<br>2.58%<br>2.89%  | 12.99%<br>10.04%<br>12.88% | 3.52%<br>(0.93%)<br>2.22% | 9.19%<br>5.39%<br>5.82%  |                            |  |
|  | Last<br>10<br>Year        |                  | Last<br>15<br>Years      | Last<br>20<br>Years        | Last<br>25<br>Years       | Since<br>Inception       | า                          |  |
| Net Performance- International Equity  |                           |                  |                          |                            |                           | •                        |                            |  |
| Int'l Developed Mkts Equity<br>MSCI World ex US IMI                            | <b>5.58</b> 4.76          |                  | <b>9.58</b> % 8.54%      | <b>6.00%</b><br>5.86%      | -<br>5.03%                | <b>6.52</b> % 6.43%      |                            |  |
| Walter Scott & Partners(1) MSCI World  | 11.41<br>9.39             |                  | 13.28%<br>12.28%         | -<br>8.11%                 | -<br>6.23%                | 9.89%<br>7.43%           | (10/06)<br>(10/06)         |  |
| BlackRock MSCI World Ex US Index<br>MSCI World ex US                           | -<br>4.81                 | %                | -<br>8.37%               | -<br>5.75%                 | -<br>4.78%                | 6.56%<br>6.11%           | (6/17)<br>(6/17)           | * All returns on this report are shown with 2-<br>decimal precision. This may differ from the<br>decimal precision shown in BNY Mellon   |
| Xponance Non-U.S. Small Cap<br>MSCI ACWI ex US Small Cap                       | -<br>4.74                 | %                | -<br>9.96%               | -<br>7.01%                 | -<br>7.20%                | 3.65%<br>4.55%           | (10/18)<br>(10/18)         | reports.  ** Market values may not sum as a result of accounts funded within the quarter or  |
| Harris Assoc Int'l SCV<br>MSCI World ex US Sm Cap<br>MSCI World ex US Sm Value | 5.34<br>4.54<br>4.09      | %                | 12.12%<br>9.91%<br>9.75% | 8.72%<br>6.46%<br>6.72%    | -<br>-<br>7.90%           | 10.13%<br>8.26%<br>8.46% | (7/03)<br>(7/03)<br>(7/03) | accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.  (1) Walter Scott since inception returns were contained in the Global Mandates composite prior to 12/31/2019. |



|   | Market<br>Value<br>\$(mm) | Ending<br>Weight | Last<br>Quarter     | Last<br>Year          | Last<br>3<br>Years     | Last<br>5<br>Years     |                    |
|---|---------------------------|------------------|---------------------|-----------------------|------------------------|------------------------|--------------------|
| Net Performance- Emerging Mkts Equity             |                           |                  |                     |                       |                        |                        |                    |
| Emerging Mkts Equity<br>MSCI EM IMI               | \$1,588<br>-              | 100.00%          | 3.43%<br>2.17%      | <b>9.34</b> % 9.76%   | <b>(4.92%)</b> (3.93%) | <b>3.84</b> %<br>2.98% |                    |
| Macquarie Emg Mkts Equity<br>MSCI EM              | 386                       | 24.33%           | 7.95%<br>2.37%      | 16.83%<br>8.15%       | (3.49%)<br>(5.05%)     | 4.38%<br>2.22%         |                    |
| Martin Currie Emg Mkts Equity<br>MSCI EM          | 363<br>-                  | 22.86%           | 1.38%<br>2.37%      | 2.71%<br>8.15%        | (9.11%)<br>(5.05%)     | 2.12%<br>2.22%         |                    |
| BlackRock Emg Mkts Index<br>MSCI EM               | 445                       | 28.00%           | 2.17%<br>2.37%      | 7.36%<br>8.15%        | (5.36%)<br>(5.05%)     | 1.89%<br>2.22%         |                    |
| Leading Edge Emg Mkts Fund<br>MSCI EM             | 238                       | 15.01%<br>-      | 2.73%<br>2.37%      | 6.68%<br>8.15%        | (5.93%)<br>(5.05%)     | 1.98%<br>2.22%         |                    |
| GlobeFlex Emerging Small Cap<br>MSCI EM Small Cap | 156<br>-                  | 9.80%            | 3.20%<br>1.05%      | 20.99%<br>20.56%      | 8.79%<br>4.23%         | 11.36%<br>8.51%        |                    |
|   | Last<br>10<br>Years       |                  | Last<br>15<br>′ears | Last<br>20<br>Years   | Last<br>25<br>Years    | Since<br>Inception     | n                  |
| Net Performance- Emerging Mkts Equity             |                           |                  |                     |                       |                        |                        | -                  |
| Emerging Mkts Equity<br>MSCI EM IMI               | <b>3.98%</b><br>3.22%     |                  | <b>6.34%</b> 7.04%  | <b>5.08%</b><br>6.71% | -<br>7.05%             | <b>6.51%</b> 8.23%     | (1/02)<br>(1/02)   |
| Macquarie Emg Mkts Equity<br>MSCI EM              | 4.27%<br>2.95%            |                  | 6.66%               | 6.47%                 | -<br>-                 | 4.19%<br>2.49%         | (5/13)<br>(5/13)   |
| Martin Currie Emg Mkts Equity<br>MSCI EM          | 3.87%<br>2.95%            |                  | 6.66%               | -<br>6.47%            | -                      | 3.33%<br>2.83%         | (1/14)<br>(1/14)   |
| BlackRock Emg Mkts Index<br>MSCI EM               | -<br>2.95%                |                  | 6.66%               | -<br>6.47%            | -                      | 2.62%<br>2.93%         | (7/17)<br>(7/17)   |
| Leading Edge Emg Mkts Fund<br>MSCI EM             | -<br>2.95%                |                  | 6.66%               | 6.47%                 | -<br>-                 | 3.62%<br>4.11%         | (11/18)<br>(11/18) |
| GlobeFlex Emerging Small Cap<br>MSCI EM Small Cap | 6.97%<br>5.09%            |                  | 9.75%               | -<br>8.34%            | -<br>8.28%             | 7.44%<br>5.51%         | (8/13)<br>(8/13)   |

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



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

| 7.6 6. Maren 61, 262  | Market<br>Value | Ending  | Last                      | Last                  | Last<br>3                 | Last<br>5                 |  |
|---|-----------------|---------|---------------------------|-----------------------|---------------------------|---------------------------|--|
| Net Performance - Fixed Income                              | \$(mm)          | Weight  | Quarter                   | Year                  | Years                     | Years                     | * All returns on this report are shown with 2-<br>decimal precision. This may differ from the  |
| Fixed Income (1) Blmbg U.S. Agg Bond Index                  | \$6,966<br>-    | 100.00% | (0.18%)<br>(0.78%)        | <b>2.35%</b> 1.70%    | <b>(1.66%)</b> (2.46%)    | <b>0.49%</b><br>0.36%     | decimal precision shown in BNY Mellon reports.  ** Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation.  The market values and performance of such accounts are included within their relevant composites. |
| Core Fixed Income<br>Blmbg U.S. Agg Bond Index              | \$4,492         | 64.48%  | (0.51%)<br>(0.78%)        | <b>1.97%</b><br>1.70% | (1.90%)<br>(2.46%)        | 0.64%<br>0.36%            | (1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022.  |
| PIMCO Core Bond Fund<br>Blmbg Agg ex Treasury               | 544             | 7.81%   | (0.40%)<br>(0.64%)        | 2.89%<br>2.88%        | (1.96%)<br>(2.24%)        | 0.82%<br>0.60%            | On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income,   |
| Mellon Bond Index<br>Blmbg U.S. Agg Bond Index (2)          | 3,948<br>-      | 56.68%  | (0.62%)<br>(0.78%)        | 1.76%<br>1.70%        | (2.40%)<br>(2.46%)        | 0.34%<br>0.36%            | Opportunistic Fixed Income, Nominal US<br>Treasuries and Legacy Fixed Income sub-<br>composites.   |
| Opportunistic Fixed Income                                  | \$854           | 12.26%  | 2.60%                     | 9.55%                 | 8.11%                     | 6.66%                     | (2) Benchmark history is a blend of current and past benchmark indices. History prior to   |
| BAAM Keystone (3)   | 854             | 12.26%  | 2.60%                     | 9.55%                 | 7.94%                     | 7.37%                     | 12/31/2018 is provided by RVK.   |
| HFRI FOF Comp Index   | -               | -       | 4.17%                     | 9.68%                 | 2.88%                     | 5.00%                     | (3) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund   |
| Nominal U.S. Treasuries<br>Bimbg US Treas Bell 10Y          | \$1,564<br>-    | 22.45%  | <b>(1.02%)</b><br>(1.67%) | (2.46%)<br>(2.20%)    | <b>(4.43%)</b><br>(4.16%) | <b>(1.35%)</b><br>(0.88%) | composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the  |
| Mellon Intermediate Treasury Index<br>Blmbg Intmdt Treasury | 1,077           | 15.46%  | (0.11%)<br>(0.36%)        | 1.75%<br>1.60%        | (1.33%)<br>(1.40%)        | 0.63%                     | Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.   |
| Mellon Long Duration Index<br>Blmbg Long Treasury           | 487<br>-        | 6.99%   | (3.03%)<br>(3.26%)        | (6.24%)<br>(6.08%)    | (7.95%)<br>(8.04%)        | (2.78%)                   | (4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in  |
| Legacy Fixed Income   | \$56            | 0.81%   | 8.71%                     | 5.97%                 | -                         | -                         | the High Yield under the new fixed income<br>structure from 03/01/2021 through 06/30/2022,<br>and Legacy Fixed Income Structure, thereafter.   |
| Fidelity HY CMBS (4) Blmbg US CMBS Ex AAA Index (5)         | 56<br>-         | 0.81%   | 9.30%<br>1.71%            | 6.53%<br>5.24%        | 0.70%<br>(2.29%)          | 0.87%<br>0.61%            | (5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to   |
| SEI Str.Credit: HY Bank Loans (6)                           | 0               | 0.00%   | 7.19%                     | 18.11%                | 10.31%                    | 9.76%                     | 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter.   |
| FTSE HY Corp (1 month lag)                                  | -               | -       | 4.02%                     | 11.15%                | 2.03%                     | 4.04%                     | (6) SEI HY Bank Loans has a 1 month lag in valuation. On this chart, SEI's market value of \$6K has been rounded to \$0MM.   |



|  | Last<br>10                       | Last<br>15                   | Last<br>20               | Last<br>25            | Since  |  |  |
|--|----------------------------------|------------------------------|--------------------------|-----------------------|--|--|--|
|  | Years                            | Years                        | Years                    | Years                 | Inception  | * All returns on this report are shown with 2-   |  |
| Net Performance - Fixed Income  Fixed Income (1)  Blmbg U.S. Agg Bond Index            | <b>1.59%</b><br>1.54%            | <b>4.68%</b><br>2.62%        | <b>3.86%</b><br>2.99%    | <b>4.44%</b><br>3.84% | <b>7.47%</b> (1/81) 6.77% (1/81)                             | decimal precision. This may differ from the decimal precision shown in BNY Mellon reports ** Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation.  The market values and performance of such accounts are included within their relevant |  |
| Core Fixed Income Blmbg U.S. Agg Bond Index PIMCO Core Bond Fund Blmbg Agg ex Treasury | 1.77%<br>1.54%<br>1.95%<br>1.83% | 3.81%<br>2.62%<br>-<br>3.09% | 3.37%<br>2.99%<br>-<br>- | 3.84%<br>-<br>-       | 3.79% (1/02)<br>3.45% (1/02)<br>1.65% (1/13)<br>1.67% (1/13) | composites.  (1) Fixed Income included the new fixed income sub-composite from 03/01/2021 to 06/30/2022. On 07/01/2022, the sub-composites of the new fixed income structure was liquidated and the managers reorganized under Core Fixed Income,  |  |
| Mellon Bond Index<br>Blmbg U.S. Agg Bond Index (2)                                     | 1.52%<br>1.54%                   | 2.52%<br>2.62%               | 2.90%<br>2.99%           | 3.79%<br>3.89%        | 6.25% (4/84)<br>-  | Opportunistic Fixed Income, Nominal US<br>Treasuries and Legacy Fixed Income sub-<br>composites.   |  |
| Opportunistic Fixed Income  BAAM Keystone (3)  | <b>4.76%</b><br>6.03%            | -                            | -                        |                       | <b>5.27%</b> (10/12)<br>7.43% (7/12)                         | (2) Benchmark history is a blend of current and<br>past benchmark indices. History prior to<br>12/31/2018 is provided by RVK.  |  |
| HFRI FOF Comp Index  | 3.59%                            | 4.03%                        | 3.35%                    | 4.42%                 | 4.18% (7/12)   | (3) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund   |  |
| Nominal U.S. Treasuries<br>Blmbg US Treas Bell 10Y                                     | <b>0.74%</b><br>0.84%            | 1.59%                        | 2.64%                    | 3.39%                 | <b>0.72%</b> (9/11) 0.92% (9/11)                             | composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the  |  |
| Mellon Intermediate Treasury Index<br>Blmbg Intmdt Treasury                            | 1.14%                            | 1.53%                        | 2.36%                    | 3.17%                 | (1.53%) (3/21)<br>(1.58%) (3/21)                             | Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and  |  |
| Mellon Long Duration Index<br>Blmbg Long Treasury                                      | 1.25%                            | 2.42%                        | 3.65%                    | -<br>4.61%            | (11.57%) (1/21)<br>(11.49%) (1/21)                           | Opportunistic Fixed composite, thereafter.  (4) Fidelity was included in the Opportunistic Fixed composite prior to 03/01/2021, included in the High Vield under the pay fixed income.   |  |
| Legacy Fixed Income  | -                                | -                            | -                        | -                     | 1.50% (7/22)   | the High Yield under the new fixed income<br>structure from 03/01/2021 through 06/30/2022,<br>and Legacy Fixed Income Structure, thereafter.   |  |
| Fidelity HY CMBS (4)<br>BImbg US CMBS Ex AAA Index (5)                                 | 2.94%<br>2.23%                   | 9.12%<br>7.13%               | 5.45%<br>0.90%           | 6.81%<br>2.95%        | 7.13% (4/97)<br>3.34% (4/97)                                 | (5) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA   |  |
| SEI Str.Credit: HY Bank Loans (6)<br>FTSE HY Corp (1 month lag)                        | 8.28%<br>4.13%                   | 19.40%<br>8.73%              | 6.24%                    | 6.10%                 | 11.70% (5/08)<br>6.48% (5/08)                                | Index, thereafter.   |  |
|  |                                  |                              |                          |                       |  | (6) SEI HY Bank Loans has a 1 month lag in valuation. On this chart, SEI's market value of \$6K has been rounded to \$0MM.   |  |



| ŕ  | Market<br>Value       | Ending       | Last                   | Last                  | Last<br>3              | Last<br>5             |                  |   |
|--|-----------------------|--------------|------------------------|-----------------------|------------------------|-----------------------|------------------|---|
| Net Performance - Inflation Protection                       | \$(mm)                | Weight       | Quarter                | Year                  | Years                  | Years                 |                  | -   |
| Inflation Protection (TIPS) Blmbg U.S. TIPS Index            | \$1,043<br>-          | 100.00%<br>- | <b>(0.17%)</b> (0.08%) | <b>0.09%</b><br>0.45% | <b>(1.17%)</b> (0.53%) | <b>2.02%</b><br>2.49% |                  |   |
| NISA Inv Adv TIPS<br>Blmbg U.S. TIPS Index (1)               | 455<br>-              | 43.60%       | 0.03%<br>(0.08%)       | 0.31%<br>0.46%        | (0.52%)<br>(0.53%)     | 2.44%<br>2.49%        |                  |   |
| Brown Brothers TIPS<br>Blmbg U.S. TIPS Index                 | 476<br>-              | 45.64%<br>-  | (0.02%)<br>(0.08%)     | 0.04%<br>0.45%        | (0.69%)<br>(0.53%)     | 2.39%<br>2.49%        |                  |   |
| New Century Global TIPS<br>Blmbg Wrld Inflation Linked Unhdg | 112<br>-              | 10.76%<br>-  | (1.58%)<br>(1.56%)     | (0.59%)<br>(0.54%)    | (5.07%)<br>(4.69%)     | (0.44%)<br>(0.40%)    |                  |   |
|  | Last<br>10<br>Years   |              | .ast<br>15<br>ears     | Last<br>20<br>Years   | Last<br>25<br>Years    | Since<br>Inception    |                  |   |
| Net Performance - Inflation Protection                       |                       |              |                        |                       |                        | •                     |                  |   |
| Inflation Protection (TIPS) Blmbg U.S. TIPS Index            | <b>1.99%</b><br>2.21% |              | <b>2.42%</b><br>3.10%  | <b>2.74%</b> 3.36%    | -<br>4.77%             | <b>2.85%</b> 3.78%    |                  | * All returns on this report are shown with 2- decimal precision.   |
| NISA Inv Adv TIPS<br>Blmbg U.S. TIPS Index (1)               | 2.20%<br>2.21%        |              | 2.42%<br>2.43%         | -<br>2.83%            | -<br>4.33%             | 2.79%<br>2.80%        |                  | This may differ from the decimal precision shown in BNY Mellon reports.   |
| Brown Brothers TIPS<br>Blmbg U.S. TIPS Index                 | 2.19%<br>2.21%        |              | -<br>3.10%             | 3.36%                 | -<br>4.77%             | 1.66%<br>1.60%        |                  | ** Market values may not sum as<br>a result of accounts funded<br>within the quarter or accounts in<br>the process of liquidation.  |
| New Century Global TIPS<br>Blmbg Wrld Inflation Linked Unhdg | 0.70%<br>0.64%        |              | -<br>2.53%             | -<br>2.80%            | -<br>4.12%             | 0.88%<br>0.68%        | (2/12)<br>(2/12) | The market values and performance of such accounts are included within their relevant composites.  (1) Benchmark history is a blend |
|  |                       |              |                        |                       |                        |                       |                  | of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.  |



|  | Market<br>Value<br>\$(mm) | Ending<br>Weight | Last<br>Quarter     | Last<br>Year       | Last<br>3<br>Years  | Last<br>5<br>Years      |  |
|--|---------------------------|------------------|---------------------|--------------------|---------------------|-------------------------|--|
| Net Performance - Private Equity                               |                           | -                |                     |                    |                     |                         |  |
| Private Equity Burgiss Private Equity Index (Qtr lag)          | \$6,780<br>-              | 100.00%          | <b>2.21</b> % 0.03% | <b>8.04%</b> 0.05% | <b>12.06%</b> 6.12% | <b>15.19%</b><br>10.69% |  |
| Global Equity + 3% (Qtr lag)(1)                                | -                         | -                | 12.32%              | 27.35%             | 11.15%              | 17.58%                  |  |
| Buyouts<br>Burgiss Buyout Index (Qtr lag)                      | 3,620<br>-                | 53.38%           | 1.27%<br>0.03%      | 7.18%<br>0.07%     | 12.29%<br>6.76%     | 15.23%<br>9.93%         |  |
| Special Situations<br>Burgiss Special Situations Idx (Qtr lag) | 1,701<br>-                | 25.09%<br>-      | 3.53%<br>0.03%      | 10.79%<br>0.07%    | 18.46%<br>3.45%     | 17.65%<br>4.27%         |  |
| Growth Equity<br>Burgiss Venture Capital Index (Qtr lag)       | 1,270<br>-                | 18.73%<br>-      | 4.08%<br>0.01%      | 8.29%<br>(0.03%)   | 10.09%<br>6.20%     | 20.24%<br>16.10%        |  |
| Keystone Legacy (2)  | 189                       | 2.79%            | (3.17%)             | (0.80%)            | (7.29%)             | (3.10%)                 |  |
|  | La                        | st               | Last                | Last               | Last                |                         |  |
|  | 1                         |                  | 15                  | 20                 | 25                  | Since                   |  |
| Net Performance - Private Equity                               | Yea                       | ırs              | Years               | Years              | Years               | Inception               |  |
| Private Equity   | 12.                       | 12%              | 12.69%              | 12.40%             | 11.86%              | <b>11.45%</b> (1/86)    |  |
| Burgiss Private Equity Index (Qtr lag)                         | 11.                       | 07%              | 12.29%              | 12.42%             | 12.20%              | 16.14% (1/86)           | * All returns on this report are shown with  |
| Global Equity + 3% (Qtr lag)(1)                                | 14.3                      | 32%              | 16.91%              | 12.87%             | 11.03%              | 14.60% (1/86)           | 2- decimal precision. This may differ from the decimal precision shown in BNY  |
| Buyouts  | 13.                       | 08%              | 14.05%              | 14.32%             | 13.59%              | 13.40% (4/86)           | Mellon reports.  ** Market values may not sum as a result  |
| Burgiss Buyout Index (Qtr lag)                                 | 10.                       | 68%              | 12.09%              | 12.95%             | 11.82%              | 18.39% (4/86)           | of accounts funded within the quarter or accounts in the process of liquidation.   |
| Special Situations   | 12.                       | 26%              | 14.18%              | 13.52%             | 13.09%              | 13.20% (1/95)           | The market values and performance of   |
| Burgiss Special Situations Idx (Qtr lag)                       | 5.                        | 54%              | 8.76%               | 7.96%              | 9.07%               | 9.49% (1/95)            | such accounts are included within their relevant composites.   |
| Growth Equity  | 14.                       | 56%              | 12.46%              | 9.63%              | 7.79%               | 8.52% (1/86)            | (1) As of 01/01/2020 benchmark consists  |
| Burgiss Venture Capital Index (Qtr lag)                        |                           | 17%              | 14.51%              | 12.26%             | 12.42%              | 13.90% (1/86)           | of 25% MSCI World ex US and 75% Russell 3000 + 3% with a 1 quarter lag.  |
| Keystone Legacy (2)  | -                         |                  | -                   | -                  | -                   | (3.66%) (7/18)          | (2) As of 12/31/2023, Keystone Legacy SPV consists of 38 non-core funds, prior performance is reflected in previous sub-asset classes. |



|  | Market  |         |         |          | Last     | Last      |        |   |
|--|---------|---------|---------|----------|----------|-----------|--------|---|
|  | Value   | Ending  | Last    | Last     | 3        | 5         |        |   |
|  | \$(mm)  | Weight  | Quarter | Year     | Years    | Years     |        |   |
| Net Performance - Real Estate          |         |         |         |          |          |           |        |   |
| Real Estate                            | \$2,375 | 100.00% | (5.61%) | (14.70%) | 0.49%    | 2.48%     |        |   |
| Real Estate Custom Bench (Qtr lag) (1) | -       | -       | (5.37%) | (13.33%) | 3.61%    | 3.45%     |        |   |
| CPI +3% (Qtr lag)                      | -       | -       | 0.41%   | 6.35%    | 8.60%    | 7.08%     |        |   |
| Core/Core Plus Real Estate Funds       | 1,095   | 46.11%  | (6.34%) | (10.55%) | 3.87%    | 3.63%     |        |   |
| NCREIF ODCE Index (Qtr lag)            | -       | -       | (5.37%) | (13.33%) | 4.35%    | 3.78%     |        |   |
| Value Add/Opportunistic SMA            | 407     | 17.15%  | (7.94%) | (33.00%) | (10.18%) | (2.97%)   |        |   |
| NCREIF ODCE Index (Qtr lag)            | -       | -       | (5.37%) | (13.33%) | 4.35%    | 3.78%     |        |   |
| Value Add/Opportunistic Funds          | 742     | 31.24%  | (4.05%) | (11.29%) | 3.64%    | 3.91%     |        |   |
| NCREIF ODCE Index (Qtr lag)            | -       | -       | (5.37%) | (13.33%) | 4.35%    | 3.78%     |        |   |
| REITS                                  | 130     | 5.49%   | (0.40%) | 9.68%    | 4.12%    | 5.05%     |        |   |
| FTSE NAREIT US Index                   | -       | -       | (0.61%) | 9.67%    | 3.30%    | 3.22%     |        |   |
|  |         |         |         |          |          |           |        |   |
|  | Last    |         | Last    | Last     | Last     |           |        |   |
|  | 10      |         | 15      | 20       | 25       | Since     |        |   |
|  | Years   | ;       | Years   | Years    | Years    | Inception | 1      |   |
| Net Performance - Real Estate          |         |         |         |          |          |           |        |   |
| Real Estate                            | 3.70%   | 6       | 3.85%   | 5.13%    | 6.02%    | 7.63%     | (3/84) |   |
| Real Estate Custom Bench (Qtr lag) (1) | 6.129   | -       | 5.62%   | 6.43%    | 6.94%    | -         |        | * All returns on this report are shown with 2-  |
| CPI +3% (Qtr lag)                      | 5.79%   | 6       | 5.55%   | 5.58%    | 5.54%    | 5.81%     | (3/84) | decimal precision. This may differ from the decimal precision shown in BNY Mellon   |
| Core/Core Plus Real Estate Funds       | 6.39%   | 6       | 6.31%   | 6.78%    | 7.09%    | 6.70%     | (9/86) | reports.  |
| NCREIF ODCE Index (Qtr lag)            | 6.65%   |         | 5.20%   | 6.22%    | 6.60%    | 5.72%     |        | ** Market values may not sum as a result of   |
| ( - 3)                                 |         |         |         |          |          |           | . ,    | accounts funded within the quarter or   |
| Value Add/Opportunistic SMA            | (0.62%  | 6)      | (0.43%) | 2.17%    | 3.36%    | 3.82%     | (6/88) | accounts in the process of liquidation.   |
| NCREIF ODCE Index (Qtr lag)            | 6.65%   | 6       | 5.20%   | 6.22%    | 6.60%    | 5.75%     | (6/88) | The market values and performance of such accounts are included within their relevant   |
| Value Add/Opportunistic Funds          | 6.27%   | 6       | 5.77%   | 6.38%    | 7.11%    | 7.39%     | (3/84) | composites.   |
| NCREIF ODCE Index (Qtr lag)            | 6.65%   | 6       | 5.20%   | 6.22%    | 6.60%    | 5.98%     |        | (1) As of 07/01/2022, the benchmark consists  |
| ·                                      |         |         |         |          |          |           |        | of 100% NCREIF NFI-ODCE (Qtr lag). From   |
| REITS                                  | 5.80%   |         | 9.18%   | 7.71%    | 8.91%    | 9.04%     |        | 03/31/2019 to 07/01/2022, the benchmark   |
| FTSE NAREIT US Index                   | 6.90%   | 6       | 10.01%  | 7.63%    | 8.85%    | 9.33%     | (4/96) | consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged). Prior to 03/31/2019, benchmark history was provided by RVK. |



# Callan

**Appendix II – Callan Update** 

## **Published Research Highlights: 1Q24**

**STAR Report Executive Summary: Year-End 2023** 



A Primer on Investable Types of Rental Housing



The Callan Periodic Table Collection: Year-End 2023



Callan 2024-2033 Capital Markets Assumptions



### **Recent Blog Posts**

SEC Releases Final Climate Disclosure Rule

Kristin Bradbury

A Strong Finish to 2023 Bodes Well for Hedge Funds in 2024

Joe McGuane

The Magnificent Seven and Large Cap Portfolios

Nicole Wubbena

### **Additional Reading**

Alternatives Focus quarterly newsletter
Active vs. Passive quarterly charts
Capital Markets Review quarterly newsletter
Monthly Updates to the Periodic Table
Market Pulse Flipbook quarterly markets update
Real Estate Indicators market outlook



### **Callan Institute Events**

Upcoming conferences, workshops, and webinars

### Callan College

#### Intro to Investments—Learn the Fundamentals

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

- June 18-19, 2024 In-Person Session in Chicago
- September 24-26, 2024 Virtual Session via Zoom

### Intro to Alternatives

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with alternative investments like private equity, hedge funds, and real estate, and how they can play a key role in any portfolio. You will learn about the importance of allocations to alternatives and how to consider integrating, evaluating, and monitoring them.

- August 21-22, 2024 - Virtual Session via Zoom

Please visit our website at <u>callan.com/events-education</u> as we add dates to our 2024 calendar!

### **Mark Your Calendar**

### 2024 Regional Workshops

June 25, 2024 - Atlanta

June 27, 2024 - San Francisco

October 22, 2024 - Denver

October 23, 2024 - Chicago

Watch your email for further details and an invitation.

### Webinars & Research Café Sessions

Webinar: Market Intelligence

April 26, 2024 – Virtual Session via Zoom

**Webinar: Fee Study Results (National Conference)** 

May 16, 2024 – Virtual Session via Zoom



## **Introducing CODE: Callan On-Demand Education**

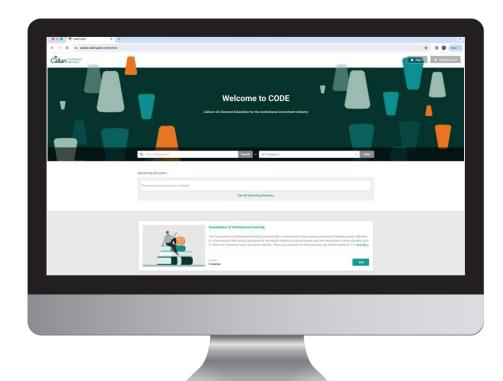


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- Learn from Callan's investment experts



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