



QUARTERLY PERFORMANCE REPORT

CITY OF FRESNO RETIREMENT
SYSTEMS

JUNE 30, 2022

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SECOND QUARTER 2022 SUMMARY

- **The US economy contracted (in real terms) at an annual rate of 0.9% in the first quarter**
- **The Fed increased rates by 1.25%, and the target Fed Funds rate moved up to 1.50% - 1.75%**
- **US stocks underperformed Non-US stocks with Emerging Market stocks outperforming Developed Markets**
- **US bonds were negative during the quarter as yields increased**
- **Net performance over the last 25 years is 6.9%, trailing the assumed rate of 7.00%**
 - Performance is ahead of the policy index over the last 25 years and trails since inception
- **Manager selection remains a positive contributor to relative performance long-term**



SECOND QUARTER 2022 SUMMARY

- **In the one-year ended June 30, 2022, the Total Fund returned -7.2%, underperforming the benchmark (net of fees) and ranking in the second quartile of peers**
 - Underweight positioning to Private Real Estate detracted from relative performance
 - International Equity manager selection detracted from relative performance while Private Equity and Private Credit outperformed
 - Private Real Estate and Private Equity performance have contributed to overall plan returns over the trailing 1-year period
- **Over the most recent quarter, the Total Fund returned -8.3%, underperforming the policy benchmark (net of fees) and ranking in the second quartile of peers**
 - International Equity manager selection detracted from relative performance
 - Underweight positioning to Private Real Estate detracted from relative performance
- **Total fund volatility remained elevated relative to peers**



ECONOMIC ENVIRONMENT

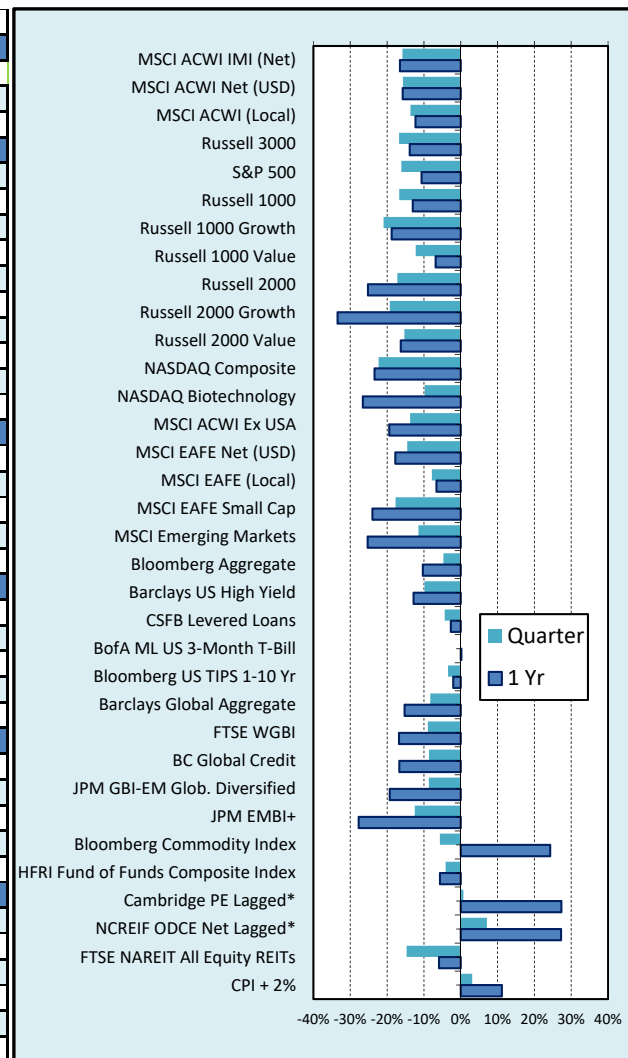
- **Q2 Real GDP (advance estimate) decreased at an annual rate of -0.9%.**
 - Retail sales ended May at +6.9% on a YoY basis. In the same period last year the YoY growth rate was +24.5%.
 - Corporate profits as a percent of GDP ended January 2022 at 11.2%, up from 10.7% in the same period last year and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended May was 1.3. Levels have remained relatively constant since early 2010 with a spike to 1.7 in April 2020.
 - The U.S. trade deficit narrowed in Q2, but remains elevated.
- **The unemployment rate was 3.6% in Q2, flat when compared to Q1; U-6, a broader measure of unemployment, decreased to 6.7% in Q2 from 6.9% in Q1.**
 - The labor force participation rate ended Q2 at 62.2% down from 62.4% Q1 after declining to 60.2% in April 2020 and is at levels below the 10 year pre-pandemic average of 63.0%.
- **The Case-Shiller Home Price Index (ended May) increased to 305.98 up from 294.72 (in March) and remains at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI printed ended Q2 at 9.01% up from 8.67% in Q1. In the same period last year, it was 5.44%; Capacity Utilization increased to 80% in Q2 up from 78.3% in Q1.**
- **Fed Funds rate was increased by 1.25% to a targeted range of 1.50%-to-1.75% up from 0.25%-to-0.50%. The 10-year Treasury Yield (constant maturity) finished Q2 at 3.1% up from 2.1% in Q1.**
 - At its meeting on July 26 – July 27, 2022 the Fed increased the Fed Funds rate 0.75% to a targeted rate of 2.25%-to-2.50%
- **The Fed continues scaling back asset purchases. The Fed’s balance sheet is beginning to shrink after a period of rapid growth post-pandemic.**
- **S&P valuations decreased in Q2 to 29.3 from 34.3 in Q1 and remain higher than the 10-year average of 28.6x.**
 - Cyclically adjusted Shiller PE ratio remains above the long-term average of 16.95x.



MARKET ENVIRONMENT

Q2 2022 OVERVIEW

| | | Qtr. | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. |
|---|----------------------------------|---------|---------|--------|--------|--------|
| World Equity Benchmarks | | | | | | |
| MSCI ACWI IMI (Net) | World with Small Cap | -15.83% | -16.52% | 5.98% | 6.70% | 8.71% |
| MSCI ACWI Net (USD) | World W/O Small Cap | -15.66% | -15.75% | 6.21% | 7.00% | 8.76% |
| MSCI ACWI (Local) | World (Local Currency) | -13.64% | -12.27% | 7.41% | 7.68% | 10.05% |
| Domestic Equity Benchmarks | | | | | | |
| Russell 3000 | Domestic All Cap | -16.70% | -13.87% | 9.77% | 10.60% | 12.57% |
| S&P 500 | Large Core | -16.10% | -10.62% | 10.60% | 11.31% | 12.96% |
| Russell 1000 | Large Core | -16.67% | -13.04% | 10.17% | 11.00% | 12.82% |
| Russell 1000 Growth | Large Growth | -20.92% | -18.77% | 12.58% | 14.29% | 14.80% |
| Russell 1000 Value | Large Value | -12.21% | -6.82% | 6.87% | 7.17% | 10.50% |
| Russell 2000 | Small Core | -17.20% | -25.20% | 4.21% | 5.17% | 9.35% |
| Russell 2000 Growth | Small Growth | -19.25% | -33.43% | 1.40% | 4.80% | 9.30% |
| Russell 2000 Value | Small Value | -15.28% | -16.28% | 6.18% | 4.89% | 9.05% |
| NASDAQ Composite | Large Growth | -22.28% | -23.43% | 12.18% | 13.47% | 15.40% |
| NASDAQ Biotechnology | Biotech | -9.78% | -26.57% | 3.73% | 3.56% | 11.22% |
| International Equity Benchmarks | | | | | | |
| MSCI ACWI Ex USA | World ex-US | -13.73% | -19.42% | 1.35% | 2.50% | 4.83% |
| MSCI EAFE Net (USD) | Int'l Developed | -14.51% | -17.77% | 1.07% | 2.20% | 5.40% |
| MSCI EAFE (Local) | Int'l Developed (Local Currency) | -7.83% | -6.59% | 4.37% | 4.27% | 8.33% |
| MSCI EAFE Small Cap | Small Cap Int'l | -17.69% | -23.98% | 1.12% | 1.72% | 7.18% |
| MSCI Emerging Markets | Emerging Equity | -11.45% | -25.29% | 0.57% | 2.18% | 3.06% |
| Domestic Fixed Income Benchmarks | | | | | | |
| Bloomberg Aggregate | Core Bonds | -4.69% | -10.29% | -0.93% | 0.88% | 1.54% |
| Barclays US High Yield | High Yield | -9.83% | -12.82% | 0.21% | 2.10% | 4.47% |
| CSFB Levered Loans | Bank Loans | -4.35% | -2.68% | 2.03% | 2.97% | 3.90% |
| BofA ML US 3-Month T-Bill | Cash | 0.11% | 0.17% | 0.63% | 1.11% | 0.64% |
| Bloomberg US TIPS 1-10 Yr | Inflation | -3.42% | -2.03% | 3.37% | 3.24% | 1.75% |
| Global Fixed Income Benchmarks | | | | | | |
| Barclays Global Aggregate | Global Core Bonds | -8.26% | -15.25% | -3.22% | -0.56% | 0.11% |
| FTSE WGBI | World Gov. Bonds | -8.91% | -16.77% | -4.28% | -1.17% | -0.69% |
| BC Global Credit | Global Bonds | -8.58% | -16.68% | -2.60% | -0.01% | 1.41% |
| JPM GBI-EM Glob. Diversified | Em. Mkt. Bonds (Local Currency) | -8.63% | -19.28% | -5.80% | -2.31% | -1.49% |
| JPM EMBI+ | Em. Mkt. Bonds | -12.46% | -27.71% | -8.66% | -4.02% | 0.37% |
| Alternative Benchmarks | | | | | | |
| Bloomberg Commodity Index | Commodities | -5.66% | 24.27% | 14.34% | 8.40% | -0.82% |
| HFRI Fund of Funds Composite Index | Fund of Hedge Funds | -4.08% | -5.65% | 3.88% | 3.59% | 3.73% |
| Cambridge PE Lagged* | Private Equity | 0.76% | 27.34% | 22.67% | 19.33% | 15.93% |
| NCREIF ODCE Net Lagged* | Real Estate | 7.14% | 27.26% | 10.31% | 8.90% | 9.92% |
| FTSE NAREIT All Equity REITs | REIT | -14.66% | -5.89% | 5.34% | 6.75% | 8.34% |
| CPI + 2% | Inflation/Real Assets | 3.15% | 11.16% | 7.06% | 5.95% | 4.64% |



* As of 3/31/2022



EXECUTIVE SUMMARY

| | Market Value (\$) | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | 15 Yrs (%) | 25 Yr (%) | Inception (%) | Inception Date |
|---|----------------------|------------------|-------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| Total Fund | 3,449,604,647 | -8.3 (48) | -11.0 (48) | -7.2 (49) | 7.0 (29) | 6.9 (39) | 7.0 (25) | 8.2 (31) | 5.7 (41) | 6.9 (18) | 8.7 (21) | Oct-85 |
| <i>Policy Index</i> | | -8.6 (52) | -9.9 (32) | -6.7 (43) | 6.2 (53) | 6.5 (54) | 6.6 (49) | 7.8 (46) | 5.8 (32) | 6.9 (26) | 9.1 (9) | |
| <i>60 MSCI World (Gross)/40 CITI WGBI</i> | | -12.9 (100) | -17.9 (100) | -15.8 (100) | 2.5 (100) | 4.3 (100) | 4.8 (97) | 5.4 (100) | 4.3 (95) | 5.4 (98) | | |
| <i>InvMetrics Public DB > \$1 Billion Median</i> | | -8.4 | -11.7 | -7.4 | 6.3 | 6.8 | 6.5 | 7.6 | 5.5 | 6.6 | 8.0 | |

| 5 Years Ending June 30, 2022 | | | | |
|---|-----------------|--------------------|-----------------|-----------------|
| | Return | Standard Deviation | Sharpe Ratio | Sortino Ratio |
| Total Fund | 6.9 (39) | 10.7 (79) | 0.6 (54) | 0.8 (54) |
| <i>Policy Index</i> | 6.5 (54) | 10.2 (59) | 0.6 (61) | 0.8 (60) |
| <i>60 MSCI World (Gross)/40 CITI WGBI</i> | 4.3 (100) | 10.6 (77) | 0.3 (100) | 0.5 (99) |

| 7 Years Ending June 30, 2022 | | | | |
|---|-----------------|--------------------|-----------------|-----------------|
| | Return | Standard Deviation | Sharpe Ratio | Sortino Ratio |
| Total Fund | 7.0 (25) | 10.0 (83) | 0.6 (50) | 0.9 (50) |
| <i>Policy Index</i> | 6.6 (49) | 9.6 (70) | 0.6 (53) | 0.9 (53) |
| <i>60 MSCI World (Gross)/40 CITI WGBI</i> | 4.8 (97) | 9.8 (77) | 0.4 (98) | 0.6 (98) |

Over the past five years, the Fund returned 6.9% per annum, ranking in the 39th percentile of the Investment Metrics Public Funds > \$1 Billion net of fee universe. The Fund's return outperformed the actuarial rate of 7.0% and outperformed the policy index by 0.4%. The Fund's volatility was 10.7%, which ranks in the 79th percentile of its peers over this period. The Fund's risk-adjusted performance, as measured by the Sharpe Ratio, ranks in the 54th percentile of its peers.

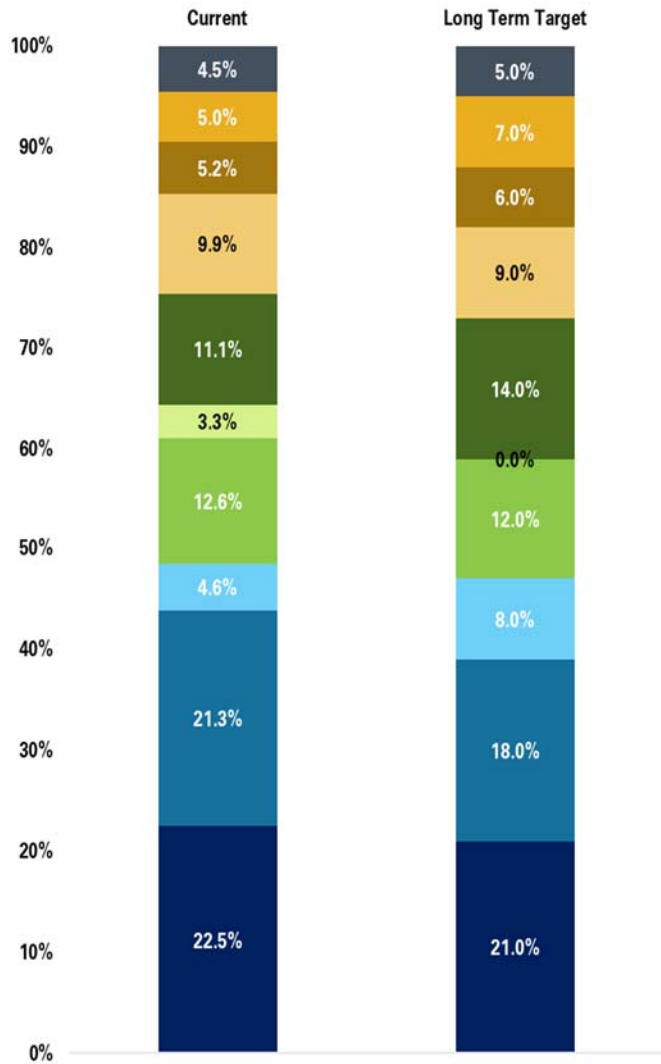
For the year ending June 30, 2022, the Fund returned -7.2%, underperforming the policy index by 0.5% and ranking in the 49th percentile of its peers.

Over the past three years, the Fund returned 7.0% per annum, outperforming the policy index by 0.8% and ranking in the 29th percentile of its peer group. Over the past three years, the Fund's Sharpe Ratio of 0.6 ranks in the 50th percentile.



CITY OF FRESNO RETIREMENT SYSTEMS

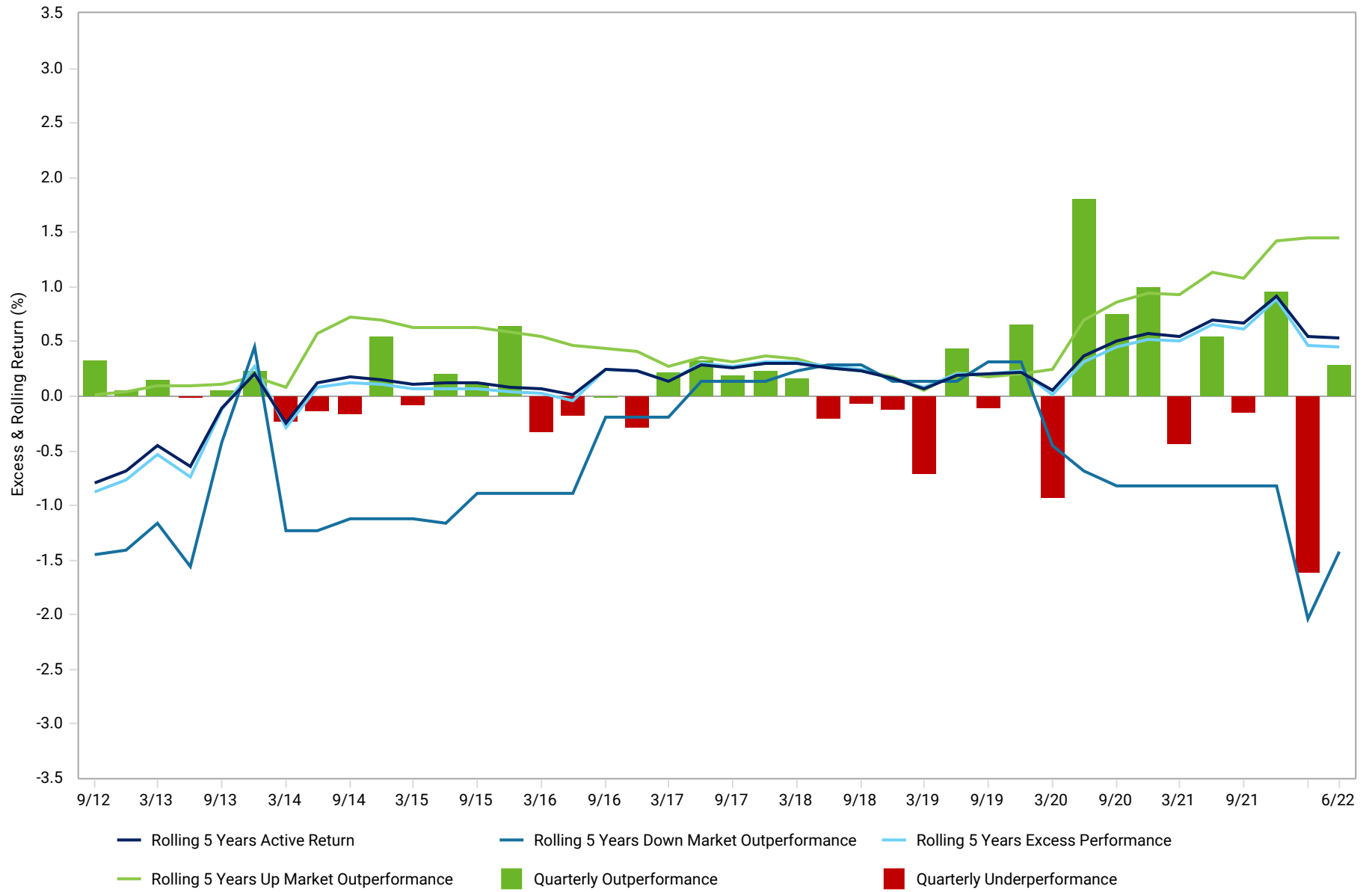
ASSET ALLOCATION VS. POLICY



| | Current (\$) | Current (%) | Long Term Target (%) | Difference (%) | Policy Range (%) | Within Range |
|--------------------------------------|----------------------|--------------|----------------------|----------------|------------------|--------------|
| Domestic Equity | 775,856,813 | 22.5 | 21.0 | 1.5 | 13.0 - 30.0 | Yes |
| International Equity | 736,334,893 | 21.3 | 18.0 | 3.3 | 10.0 - 20.0 | No |
| Private Equity | 159,943,989 | 4.6 | 8.0 | -3.4 | 0.0 - 10.0 | Yes |
| Core Fixed Income | 433,664,427 | 12.6 | 12.0 | 0.6 | 5.0 - 20.0 | Yes |
| High Yield | 115,219,991 | 3.3 | 0.0 | 3.3 | 0.0 - 5.0 | Yes |
| Private Debt | 381,943,345 | 11.1 | 14.0 | -2.9 | 5.0 - 20.0 | Yes |
| Core Real Estate | 340,089,547 | 9.9 | 9.0 | 0.9 | 5.0 - 15.0 | Yes |
| Value Add/Oppportunistic Real Estate | 179,285,654 | 5.2 | 6.0 | -0.8 | 2.0 - 8.0 | Yes |
| Infrastructure | 170,977,582 | 5.0 | 7.0 | -2.0 | 2.0 - 10.0 | Yes |
| Diversifying/Thematic | 155,715,517 | 4.5 | 5.0 | -0.5 | 0.0 - 7.0 | Yes |
| Cash | 572,888 | 0.0 | 0.0 | 0.0 | 0.0 - 2.0 | Yes |
| Total | 3,449,604,647 | 100.0 | 100.0 | 0.0 | | |



TOTAL FUND VS. POLICY INDEX

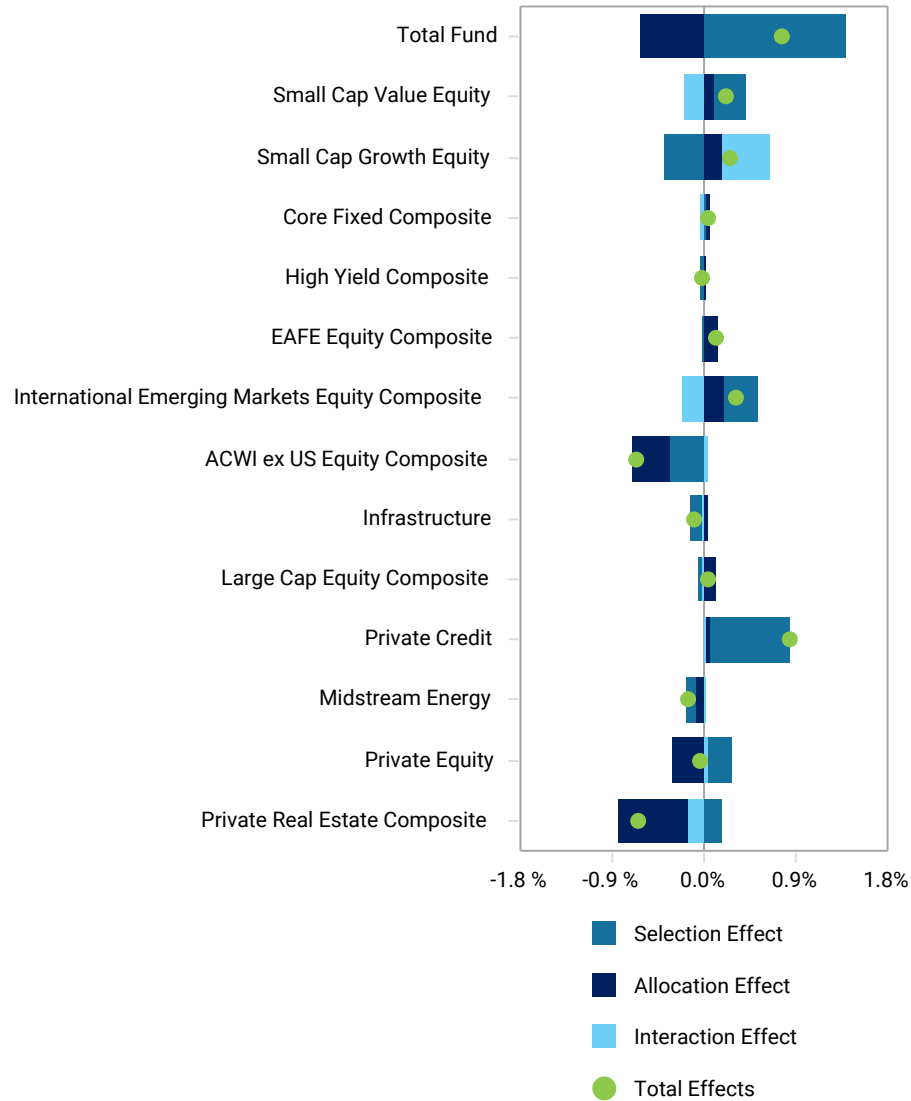


City of Fresno Retirement Systems

ATTRIBUTION ANALYSIS

June 30, 2022

Attribution Effects 3 Years Ending June 30, 2022



Attribution Summary 3 Years Ending June 30, 2022

| | Wtd. Actual Return (%) | Wtd. Index Return (%) | Excess Return (%) | Selection Effect (%) | Allocation Effect (%) | Interaction Effects (%) | Total Effects (%) |
|---|------------------------|-----------------------|-------------------|----------------------|-----------------------|-------------------------|-------------------|
| Small Cap Value Equity | 15.2 | 6.2 | 9.1 | 0.1 | 0.1 | -0.2 | 0.2 |
| Small Cap Growth Equity | -15.0 | 1.4 | -16.4 | 0.1 | 0.2 | 0.5 | 0.3 |
| Core Fixed Composite | -0.5 | -0.9 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| High Yield Composite | -0.5 | 0.2 | -0.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| EAFE Equity Composite | 2.1 | -1.6 | 3.7 | 0.0 | 0.1 | 0.0 | 0.1 |
| International Emerging Markets Equity Composite | 5.9 | 0.9 | 5.0 | 0.1 | 0.2 | -0.2 | 0.3 |
| ACWI ex US Equity Composite | 0.8 | 1.8 | -1.0 | -0.3 | -0.4 | 0.0 | -0.7 |
| Infrastructure | 6.1 | 9.2 | -3.0 | -0.1 | 0.0 | 0.0 | -0.1 |
| Large Cap Equity Composite | 9.8 | 10.2 | -0.3 | -0.1 | 0.1 | 0.0 | 0.0 |
| Private Credit | 10.1 | 0.7 | 9.3 | 0.8 | 0.0 | 0.0 | 0.9 |
| Midstream Energy | 4.3 | 6.2 | -1.8 | -0.1 | -0.1 | 0.0 | -0.2 |
| Private Equity | 22.0 | 15.2 | 6.8 | 0.3 | -0.3 | 0.0 | 0.0 |
| Private Real Estate Composite | 13.1 | 12.0 | 1.2 | 0.0 | -0.7 | -0.2 | -0.7 |
| Total Fund | 7.0 | 6.2 | 0.8 | 0.8 | -0.6 | 0.0 | 0.8 |



TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | | |
|---|----------------------|----------------|--------------------|--------------------|--------------------|------------------|------------------|------------------|------------------|------------------|----------------|--|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date | |
| Total Fund | 3,449,604,647 | 100.0 | -8.3 (48) | -11.0 (48) | -7.2 (49) | 7.0 (29) | 6.9 (39) | 7.0 (25) | 8.2 (31) | 8.7 (21) | Oct-85 | |
| <i>Policy Index</i> | | | <u>-8.6</u> (52) | <u>-9.9</u> (32) | <u>-6.7</u> (43) | <u>6.2</u> (53) | <u>6.5</u> (54) | <u>6.6</u> (49) | <u>7.8</u> (46) | <u>9.1</u> (9) | | |
| Over/Under | | | 0.3 | -1.1 | -0.5 | 0.8 | 0.4 | 0.4 | 0.4 | -0.4 | | |
| <i>60 MSCI World (Gross)/40 CITI WGBI</i> | | | <u>-12.9</u> (100) | <u>-17.9</u> (100) | <u>-15.8</u> (100) | <u>2.5</u> (100) | <u>4.3</u> (100) | <u>4.8</u> (97) | <u>5.4</u> (100) | | | |
| Over/Under | | | 4.6 | 6.9 | 8.6 | 4.5 | 2.6 | 2.2 | 2.8 | | | |
| <i>InvMetrics Public DB > \$1 Billion Median</i> | | | -8.4 | -11.7 | -7.4 | 6.3 | 6.8 | 6.5 | 7.6 | 8.0 | | |
| Total Equity Composite | 1,672,135,695 | 48.5 | -14.9 | -21.7 | -18.6 | 6.3 | 7.0 | 7.3 | 9.4 | 8.0 | Nov-95 | |
| <i>MSCI AC World All Cap Index (Net)</i> | | | <u>-15.8</u> | <u>-20.5</u> | <u>-16.6</u> | <u>6.0</u> | <u>6.7</u> | <u>6.8</u> | <u>8.7</u> | | | |
| Over/Under | | | 0.9 | -1.2 | -2.0 | 0.3 | 0.3 | 0.5 | 0.7 | | | |
| Domestic Equity Composite | 775,856,813 | 22.5 | -16.7 | -22.1 | -15.7 | 8.9 | 9.6 | 9.7 | 12.0 | 10.1 | Apr-03 | |
| <i>Domestic Equity Index</i> | | | <u>-16.8</u> | <u>-21.7</u> | <u>-17.0</u> | <u>8.3</u> | <u>9.2</u> | <u>9.4</u> | <u>11.8</u> | <u>10.1</u> | | |
| Over/Under | | | 0.1 | -0.4 | 1.3 | 0.6 | 0.4 | 0.3 | 0.2 | 0.0 | | |
| NTAM Russell 3000 | 775,856,796 | 22.5 | -16.7 (86) | -21.7 (77) | -13.8 (76) | 9.8 (39) | 10.8 (34) | | | 11.8 (32) | Oct-16 | |
| <i>Russell 3000 Index</i> | | | <u>-16.7</u> (87) | <u>-21.1</u> (72) | <u>-13.9</u> (77) | <u>9.8</u> (40) | <u>10.6</u> (41) | <u>10.4</u> (35) | <u>12.6</u> (29) | <u>11.6</u> (37) | | |
| Over/Under | | | 0.0 | -0.6 | 0.1 | 0.0 | 0.2 | | | 0.2 | | |
| <i>eV US Large Cap Core Equity Median</i> | | | -14.8 | -19.1 | -11.0 | 9.1 | 10.1 | 9.7 | 11.9 | 11.0 | | |
| Eagle Asset Management | 17 | 0.0 | | | | | | | | | | |
| Private Equity | 159,943,989 | 4.6 | 6.3 | 6.3 | 29.1 | 22.0 | | | | 20.3 | Apr-19 | |
| <i>Pantheon PE Fund of 1</i> | 154,456,574 | 4.5 | 6.5 | 6.5 | 29.3 | 22.1 | | | | 20.8 | May-19 | |
| <i>Private Equity Index</i> | | | <u>-5.1</u> | <u>1.0</u> | <u>7.9</u> | <u>15.5</u> | <u>14.4</u> | <u>13.2</u> | <u>14.7</u> | <u>16.5</u> | | |
| Over/Under | | | 11.6 | 5.5 | 21.4 | 6.6 | | | | 4.3 | | |
| Pantheon Co 2022 | 5,487,415 | 0.2 | | | | | | | | | Jul-22 | |
| <i>Private Equity Index</i> | | | <u>-5.1</u> | <u>1.0</u> | <u>7.9</u> | <u>15.5</u> | <u>14.4</u> | <u>13.2</u> | <u>14.7</u> | | | |
| Over/Under | | | | | | | | | | | | |

Fiscal year end: June 30



TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | | Inception Date |
|---------------------------------------|--------------------|----------------|-------------------|-------------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | | |
| International Equity Composite | 736,334,893 | 21.3 | -16.5 | -25.3 | -27.1 | 0.7 | 2.5 | 3.4 | 5.5 | | | Apr-94 |
| International Equity Index | | | -12.9 | -18.0 | -20.6 | 1.7 | 2.7 | 3.2 | 5.3 | 5.1 | | |
| Over/Under | | | -3.6 | -7.3 | -6.5 | -1.0 | -0.2 | 0.2 | 0.2 | | | |
| ACWI ex US Equity Composite | 736,325,903 | 21.3 | -16.6 (69) | -25.6 (72) | -26.8 (75) | 0.8 (69) | 2.8 (50) | 3.7 (44) | 5.7 (65) | 5.2 (58) | | Oct-08 |
| MSCI AC World ex USA index | | | -13.5 (31) | -18.2 (28) | -19.0 (31) | 1.8 (56) | 3.0 (49) | 3.4 (54) | 5.3 (72) | 4.6 (65) | | |
| Over/Under | | | -3.1 | -7.4 | -7.8 | -1.0 | -0.2 | 0.3 | 0.4 | 0.6 | | |
| eV ACWI ex-US All Cap Equity Median | | | -15.0 | -22.9 | -21.6 | 2.1 | 2.7 | 3.6 | 6.1 | 5.5 | | |
| Baillie Gifford | 201,894,335 | 5.9 | -18.2 (84) | -30.3 (82) | -34.2 (92) | -0.6 (85) | 2.3 (61) | 4.0 (41) | 6.2 (44) | 5.8 (39) | | Oct-08 |
| MSCI AC World ex USA index | | | -13.5 (37) | -18.2 (30) | -19.0 (34) | 1.8 (55) | 3.0 (44) | 3.4 (55) | 5.3 (71) | 4.6 (69) | | |
| Over/Under | | | -4.7 | -12.1 | -15.2 | -2.4 | -0.7 | 0.6 | 0.9 | 1.2 | | |
| eV All ACWI ex-US Equity Median | | | -15.0 | -21.7 | -21.7 | 2.0 | 2.7 | 3.6 | 6.0 | 5.5 | | |
| Baillie Gifford Smaller Cos. | 48,933,744 | 1.4 | -24.1 (89) | -40.7 (96) | -39.1 (94) | | | | | | -39.1 (94) | Jul-21 |
| MSCI EAFE + Canada Small Cap Index | | | -17.8 (61) | -23.6 (40) | -22.7 (35) | 2.4 (47) | 2.6 (52) | 4.3 (49) | 7.1 (55) | -22.7 (35) | | |
| Over/Under | | | -6.3 | -17.1 | -16.4 | | | | | -16.4 | | |
| eV ACWI ex-US Small Cap Equity Median | | | -17.5 | -26.8 | -25.5 | 2.0 | 2.7 | 4.2 | 7.4 | -25.5 | | |
| BlackRock ACWI ex US | 279,362,323 | 8.1 | -14.1 (42) | -18.9 (36) | -19.6 (38) | 1.4 (63) | 2.6 (52) | 3.1 (62) | 5.0 (80) | 3.0 (82) | | Mar-11 |
| MSCI AC World ex USA index | | | -13.5 (37) | -18.2 (30) | -19.0 (34) | 1.8 (55) | 3.0 (44) | 3.4 (55) | 5.3 (71) | 3.3 (72) | | |
| Over/Under | | | -0.6 | -0.7 | -0.6 | -0.4 | -0.4 | -0.3 | -0.3 | -0.3 | | |
| eV All ACWI ex-US Equity Median | | | -15.0 | -21.7 | -21.7 | 2.0 | 2.7 | 3.6 | 6.0 | 4.2 | | |
| Principal Global | 205,906,267 | 6.0 | -15.8 (61) | -23.0 (57) | -22.5 (56) | 1.4 (63) | 2.6 (56) | 2.9 (67) | 6.2 (44) | 4.7 (38) | | Sep-08 |
| MSCI AC World ex USA index | | | -13.5 (37) | -18.2 (30) | -19.0 (34) | 1.8 (55) | 3.0 (44) | 3.4 (55) | 5.3 (71) | 3.3 (71) | | |
| Over/Under | | | -2.3 | -4.8 | -3.5 | -0.4 | -0.4 | -0.5 | 0.9 | 1.4 | | |
| eV All ACWI ex-US Equity Median | | | -15.0 | -21.7 | -21.7 | 2.0 | 2.7 | 3.6 | 6.0 | 4.3 | | |
| Sanctioned Assets | 229,234 | 0.0 | | | | | | | | | | Jul-22 |
| MSCI EAFE (Net) | | | -14.5 | -19.6 | -17.8 | 1.1 | 2.2 | 2.7 | 5.4 | | | |
| Over/Under | | | | | | | | | | | | |



TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | | Inception Date |
|-------------------------------------|--------------------|----------------|------------------|-------------------|-------------------|------------------|-----------------|-----------------|-----------------|-----------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | | |
| Total Fixed Income Composite | 930,827,763 | 27.0 | -3.8 | -5.7 | -4.6 | 3.2 | 3.9 | 4.1 | 4.2 | 5.6 | Nov-95 | |
| Fixed Income Index | | | <u>-4.5</u> | <u>-7.4</u> | <u>-6.6</u> | <u>1.2</u> | <u>2.5</u> | <u>3.0</u> | <u>3.1</u> | <u>5.0</u> | | |
| Over/Under | | | 0.7 | 1.7 | 2.0 | 2.0 | 1.4 | 1.1 | 1.1 | 0.6 | | |
| Core Fixed Composite | 433,664,427 | 12.6 | -5.1 | -10.8 | -10.9 | -0.5 | 1.3 | 2.0 | 2.2 | 3.6 | Apr-03 | |
| Blmbg. U.S. Aggregate Index | | | <u>-4.7</u> | <u>-10.3</u> | <u>-10.3</u> | <u>-0.9</u> | <u>0.9</u> | <u>1.4</u> | <u>1.5</u> | <u>3.3</u> | | |
| Over/Under | | | -0.4 | -0.5 | -0.6 | 0.4 | 0.4 | 0.6 | 0.7 | 0.3 | | |
| Dodge & Cox | 216,451,696 | 6.3 | -4.7 (33) | -9.9 (26) | -10.2 (31) | 0.5 (4) | 2.0 (2) | 2.6 (2) | 2.9 (1) | 4.2 (5) | Jan-03 | |
| Blmbg. U.S. Aggregate Index | | | <u>-4.7</u> (34) | <u>-10.3</u> (42) | <u>-10.3</u> (38) | <u>-0.9</u> (75) | <u>0.9</u> (72) | <u>1.4</u> (73) | <u>1.5</u> (77) | <u>3.3</u> (70) | | |
| Over/Under | | | 0.0 | 0.4 | 0.1 | 1.4 | 1.1 | 1.2 | 1.4 | 0.9 | | |
| eV US Core Fixed Inc Median | | | -4.9 | -10.5 | -10.5 | -0.7 | 1.1 | 1.6 | 1.8 | 3.5 | | |
| PGIM | 217,212,731 | 6.3 | -5.6 (90) | -11.6 (94) | -11.6 (94) | -1.1 (88) | 0.8 (82) | 1.4 (78) | 1.5 (77) | 3.5 (51) | Apr-03 | |
| Blmbg. U.S. Aggregate Index | | | <u>-4.7</u> (34) | <u>-10.3</u> (42) | <u>-10.3</u> (38) | <u>-0.9</u> (75) | <u>0.9</u> (72) | <u>1.4</u> (73) | <u>1.5</u> (77) | <u>3.3</u> (70) | | |
| Over/Under | | | -0.9 | -1.3 | -1.3 | -0.2 | -0.1 | 0.0 | 0.0 | 0.2 | | |
| eV US Core Fixed Inc Median | | | -4.9 | -10.5 | -10.5 | -0.7 | 1.1 | 1.6 | 1.8 | 3.5 | | |
| High Yield Composite | 115,219,991 | 3.3 | -10.9 | -15.5 | -15.4 | -0.5 | 1.5 | 2.9 | 4.2 | 6.1 | Sep-04 | |
| Blmbg. U.S. Corp: High Yield Index | | | <u>-9.8</u> | <u>-14.2</u> | <u>-12.8</u> | <u>0.2</u> | <u>2.1</u> | <u>3.5</u> | <u>4.5</u> | <u>6.2</u> | | |
| Over/Under | | | -1.1 | -1.3 | -2.6 | -0.7 | -0.6 | -0.6 | -0.3 | -0.1 | | |
| Loomis Sayles | 115,219,991 | 3.3 | -10.9 (91) | -15.5 (94) | -15.5 (99) | -0.5 (80) | 1.5 (83) | 2.7 (72) | 4.4 (35) | 6.2 (17) | Sep-04 | |
| Blmbg. U.S. Corp: High Yield Index | | | <u>-9.8</u> (64) | <u>-14.2</u> (80) | <u>-12.8</u> (75) | <u>0.2</u> (58) | <u>2.1</u> (47) | <u>3.5</u> (31) | <u>4.5</u> (30) | <u>6.2</u> (18) | | |
| Over/Under | | | -1.1 | -1.3 | -2.7 | -0.7 | -0.6 | -0.8 | -0.1 | 0.0 | | |
| eV US High Yield Fixed Inc Median | | | -9.5 | -13.2 | -11.9 | 0.4 | 2.0 | 3.1 | 4.2 | 5.7 | | |



TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | Inception (%) | Inception Date |
|-----------------------------|--------------------|----------------|-----------------|--------------|--------------|-------------|------------|-----------|------------|-------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | | | |
| Private Credit | 381,943,345 | 11.1 | 0.2 | 5.1 | 10.1 | 10.1 | 9.3 | | | 8.6 | Sep-15 | |
| <i>Private Credit Index</i> | | | <u>-7.0</u> | <u>-11.8</u> | <u>-10.6</u> | <u>0.7</u> | <u>3.5</u> | | | <u>4.6</u> | | |
| Over/Under | | | 7.2 | 16.9 | 20.7 | 9.4 | 5.8 | | | 4.0 | | |
| Crescent Capital | 40,984,482 | 1.2 | 3.7 | 9.1 | 10.2 | 8.5 | 8.3 | | | 7.7 | Sep-15 | |
| <i>Private Credit Index</i> | | | <u>-7.0</u> | <u>-11.8</u> | <u>-10.6</u> | <u>0.7</u> | <u>3.5</u> | | | <u>4.6</u> | | |
| Over/Under | | | 10.7 | 20.9 | 20.8 | 7.8 | 4.8 | | | 3.1 | | |
| Arcmont Euro Private Debt | 61,577,886 | 1.8 | 1.1 | 5.5 | 6.9 | | | | | 9.2 | Apr-21 | |
| <i>Private Credit Index</i> | | | <u>-7.0</u> | <u>-11.8</u> | <u>-10.6</u> | <u>0.7</u> | <u>3.5</u> | | | <u>-6.7</u> | | |
| Over/Under | | | 8.1 | 17.3 | 17.5 | | | | | 15.9 | | |
| Monroe Capital | 174,542,324 | 5.1 | 1.0 | 2.3 | 9.6 | 9.6 | 9.3 | | | 9.8 | Apr-16 | |
| <i>Private Credit Index</i> | | | <u>-7.0</u> | <u>-11.8</u> | <u>-10.6</u> | <u>0.7</u> | <u>3.5</u> | | | <u>4.4</u> | | |
| Over/Under | | | 8.0 | 14.1 | 20.2 | 8.9 | 5.8 | | | 5.4 | | |
| PIMCO COF II | 21,299,384 | 0.6 | 0.0 | 11.8 | 23.2 | 12.9 | 11.5 | | | 11.8 | Aug-16 | |
| <i>Private Credit Index</i> | | | <u>-7.0</u> | <u>-11.8</u> | <u>-10.6</u> | <u>0.7</u> | <u>3.5</u> | | | <u>4.2</u> | | |
| Over/Under | | | 7.0 | 23.6 | 33.8 | 12.2 | 8.0 | | | 7.6 | | |
| PIMCO COF III | 83,539,268 | 2.4 | -3.9 | 7.4 | 11.4 | | | | | 51.1 | May-20 | |
| <i>Private Credit Index</i> | | | <u>-7.0</u> | <u>-11.8</u> | <u>-10.6</u> | <u>0.7</u> | <u>3.5</u> | | | <u>0.1</u> | | |
| Over/Under | | | 3.1 | 19.2 | 22.0 | | | | | 51.0 | | |

TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | | Inception Date |
|--|--------------------|----------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | | |
| Real Assets | 690,352,783 | 20.0 | 4.6 | 10.7 | 24.1 | 10.8 | 9.5 | 9.7 | 10.6 | 10.0 | Jan-96 | |
| JP Morgan RE | 171,828,327 | 5.0 | 4.5 | 11.1 | 27.4 | 11.0 | 8.9 | 8.8 | 10.0 | 9.1 | Jan-96 | |
| <i>NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net)</i> | | | <u>4.5</u> | <u>12.0</u> | <u>28.3</u> | <u>11.7</u> | <u>9.6</u> | <u>9.3</u> | <u>10.2</u> | <u>8.6</u> | | |
| Over/Under | | | 0.0 | -0.9 | -0.9 | -0.7 | -0.7 | -0.5 | -0.2 | 0.5 | | |
| CFRSR-Carlyle CPI Fund | 168,261,220 | 4.9 | 6.4 | 16.7 | 36.2 | | | | | 18.6 | Jul-20 | |
| <i>NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net)</i> | | | <u>4.5</u> | <u>12.0</u> | <u>28.3</u> | <u>11.7</u> | <u>9.6</u> | <u>9.3</u> | <u>10.2</u> | <u>17.2</u> | | |
| Over/Under | | | 1.9 | 4.7 | 7.9 | | | | | 1.4 | | |
| Private Real Estate Composite | 179,285,654 | 5.2 | 5.6 | 12.5 | 27.5 | 13.1 | 14.0 | 13.8 | 13.5 | 10.4 | Jan-96 | |
| <i>NCREIF ODCE</i> | | | <u>4.8</u> | <u>12.5</u> | <u>29.5</u> | <u>12.7</u> | <u>10.5</u> | <u>10.3</u> | <u>11.2</u> | <u>9.6</u> | | |
| Over/Under | | | 0.8 | 0.0 | -2.0 | 0.4 | 3.5 | 3.5 | 2.3 | 0.8 | | |
| Oaktree Value Add | 11,519,223 | 0.3 | 1.9 | 8.3 | 25.4 | 10.5 | 17.3 | | | 16.4 | Dec-16 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>10.6</u> | | |
| Over/Under | | | -2.9 | -4.3 | -4.2 | -2.3 | 6.7 | | | 5.8 | | |
| PCCP Value Add | 24,506,464 | 0.7 | 9.2 | 18.0 | 41.2 | 19.7 | 18.2 | | | 19.9 | Oct-16 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>10.3</u> | | |
| Over/Under | | | 4.4 | 5.4 | 11.6 | 6.9 | 7.6 | | | 9.6 | | |
| PIMCO Bravo III | 49,444,844 | 1.4 | 3.2 | 8.1 | 21.8 | 11.1 | 11.6 | | | 10.4 | Nov-16 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>10.4</u> | | |
| Over/Under | | | -1.6 | -4.5 | -7.8 | -1.7 | 1.0 | | | 0.0 | | |
| Alidade Capital V | 9,120,061 | 0.3 | -4.6 | -4.6 | | | | | | -4.6 | Dec-21 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>21.3</u> | | |
| Over/Under | | | -9.4 | -17.2 | | | | | | -25.9 | | |
| Artemis AREPF III | 15,528,563 | 0.5 | 0.1 | 18.9 | 55.1 | 27.4 | | | | 14.7 | Jan-19 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>11.6</u> | | |
| Over/Under | | | -4.7 | 6.3 | 25.5 | 14.6 | | | | 3.1 | | |
| Brookfield SREP III | 43,776,184 | 1.3 | 4.5 | 12.8 | 19.1 | 8.2 | | | | 7.8 | May-19 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>12.4</u> | | |
| Over/Under | | | -0.3 | 0.2 | -10.5 | -4.6 | | | | -4.6 | | |
| Blue Vista BVREP V | 15,490,316 | 0.4 | 46.2 | 46.2 | 70.8 | | | | | 21.6 | Mar-20 | |
| <i>NCREIF ODCE + 1%</i> | | | <u>4.8</u> | <u>12.6</u> | <u>29.6</u> | <u>12.8</u> | <u>10.6</u> | <u>10.4</u> | <u>11.3</u> | <u>15.2</u> | | |
| Over/Under | | | 41.4 | 33.6 | 41.2 | | | | | 6.4 | | |
| Kayne Anderson VI | 9,899,999 | 0.3 | -7.9 | -7.9 | | | | | | -7.9 | Nov-21 | |
| <i>NCREIF ODCE + 1%</i> | | | | | | | | | | | | |
| Over/Under | | | | | | | | | | | | |



TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | |
|--------------------------------|--------------------|----------------|-----------------|-------------|-------------|------------|------------|------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Infrastructure | 170,977,582 | 5.0 | 1.9 | 3.4 | 6.3 | 6.1 | | | | 5.4 | Oct-18 |
| CPI + 4% (Unadjusted) | | | <u>4.1</u> | <u>8.4</u> | <u>13.4</u> | <u>9.2</u> | <u>8.0</u> | <u>7.3</u> | <u>6.7</u> | <u>8.5</u> | |
| Over/Under | | | -2.2 | -5.0 | -7.1 | -3.1 | | | | -3.1 | |
| JP Morgan IIF | 104,628,147 | 3.0 | 1.5 | 1.5 | 4.1 | 6.5 | | | | 5.8 | Oct-18 |
| CPI + 4% (Unadjusted) | | | <u>4.1</u> | <u>8.4</u> | <u>13.4</u> | <u>9.2</u> | <u>8.0</u> | <u>7.3</u> | <u>6.7</u> | <u>8.5</u> | |
| Over/Under | | | -2.6 | -6.9 | -9.3 | -2.7 | | | | -2.7 | |
| Ullico UIF | 66,349,435 | 1.9 | 2.6 | 6.5 | 9.9 | 6.1 | | | | 5.4 | Dec-18 |
| CPI + 4% (Unadjusted) | | | <u>4.1</u> | <u>8.4</u> | <u>13.4</u> | <u>9.2</u> | <u>8.0</u> | <u>7.3</u> | <u>6.7</u> | <u>8.8</u> | |
| Over/Under | | | -1.5 | -1.9 | -3.5 | -3.1 | | | | -3.4 | |
| Midstream Energy | 155,715,517 | 4.5 | -9.4 | 12.6 | 14.2 | 4.3 | | | | 4.3 | Jul-19 |
| Alerian Midstream Energy Index | | | <u>-8.6</u> | <u>13.2</u> | <u>11.4</u> | <u>6.4</u> | <u>5.2</u> | <u>2.8</u> | | <u>6.4</u> | |
| Over/Under | | | -0.8 | -0.6 | 2.8 | -2.1 | | | | -2.1 | |
| Tortoise | 72,995,745 | 2.1 | -9.9 | 11.4 | 12.2 | | | | | 3.8 | Aug-19 |
| Alerian Midstream Energy Index | | | <u>-8.6</u> | <u>13.2</u> | <u>11.4</u> | <u>6.4</u> | <u>5.2</u> | <u>2.8</u> | | <u>7.1</u> | |
| Over/Under | | | -1.3 | -1.8 | 0.8 | | | | | -3.3 | |
| Harvest | 82,719,772 | 2.4 | -8.9 | 13.6 | 15.9 | 5.1 | | | | 5.1 | Jul-19 |
| Alerian Midstream Energy Index | | | <u>-8.6</u> | <u>13.2</u> | <u>11.4</u> | <u>6.4</u> | <u>5.2</u> | <u>2.8</u> | | <u>6.4</u> | |
| Over/Under | | | -0.3 | 0.4 | 4.5 | -1.3 | | | | -1.3 | |

TOTAL FUND PERFORMANCE DETAIL - SHORT - TERM - NET OF FEES

| | Allocation | | Performance (%) | | | | | | | | |
|---|-------------------|----------------|-----------------|------------|------------|------------|------------|------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Cash & Equivalents Composite | 572,888 | 0.0 | 5.0 | 5.1 | 9.5 | 3.7 | 3.0 | 2.3 | 1.6 | 1.9 | Oct-03 |
| <i>90 Day U.S. Treasury Bill</i> | | | <u>0.1</u> | <u>0.1</u> | <u>0.2</u> | <u>0.6</u> | <u>1.1</u> | <u>0.9</u> | <u>0.6</u> | <u>1.2</u> | |
| Over/Under | | | 4.9 | 5.0 | 9.3 | 3.1 | 1.9 | 1.4 | 1.0 | 0.7 | |
| Payroll Account | 201,352 | 0.0 | 5.0 | 5.1 | 5.1 | 2.3 | 2.1 | 1.7 | 1.2 | 2.1 | Apr-99 |
| <i>90 Day U.S. Treasury Bill</i> | | | <u>0.1</u> | <u>0.1</u> | <u>0.2</u> | <u>0.6</u> | <u>1.1</u> | <u>0.9</u> | <u>0.6</u> | <u>1.7</u> | |
| Over/Under | | | 4.9 | 5.0 | 4.9 | 1.7 | 1.0 | 0.8 | 0.6 | 0.4 | |
| Operating Funds | 371,536 | 0.0 | 5.0 | 5.1 | 5.1 | 2.2 | 2.0 | 1.6 | 1.2 | 1.6 | Oct-03 |
| <i>90 Day U.S. Treasury Bill</i> | | | <u>0.1</u> | <u>0.1</u> | <u>0.2</u> | <u>0.6</u> | <u>1.1</u> | <u>0.9</u> | <u>0.6</u> | <u>1.2</u> | |
| Over/Under | | | 4.9 | 5.0 | 4.9 | 1.6 | 0.9 | 0.7 | 0.6 | 0.4 | |

Fiscal year end: June 30

Composite rankings are used for Total Equity Composite (InvMetrics Public DB US Eq), Domestic Equity Composite (InvMetrics Public DB Total Eq), International Equity Composite (InvMetrics Public DB ex- US Eq), International Developed Equity Composite (InvMetrics Public DB Dev Mkt ex-US), International Emerging Markets Equity (InvMetrics Public DB Emg Mkt Eq), Total Fixed Income (InvMetrics Public DB Total Fix Inc), Core Fixed Composite (InvMetrics Public DB US Fix Inc), High Yield Composite (InvMetrics Public DB US Fix Inc) and Total Real Estate (InvMetrics Public DB Real Estate Pub+Priv).

Manager rankings are used for Large Cap Equity Composite (eA US Large Cap Equity), Small Cap Equity Composite (eA US Small Cap Equity), ACWI ex US Equity Composite (eA ACWI ex-US Equity), EAFE Equity Composite (eA All EAFE Equity) and Public Real Estate Composite (eA US REIT).





APPENDIX

CALENDAR YEAR INDEX PERFORMANCE

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Jun | YTD |
|---------------------------------|-------|--------|--------|--------|-------|-------|--------|-------|--------|-------|--------|--------|
| S&P 500 | 16.0% | 32.4% | 13.7% | 1.4% | 12.0% | 21.8% | -4.4% | 31.5% | 18.4% | 28.7% | -8.3% | -20.0% |
| Russell 1000 | 16.4% | 33.1% | 13.2% | 0.9% | 12.1% | 21.7% | -4.8% | 31.4% | 21.0% | 26.5% | -8.4% | -20.9% |
| Russell 2000 | 16.3% | 38.8% | 4.9% | -4.4% | 21.3% | 14.6% | -11.0% | 25.5% | 20.0% | 14.8% | -8.2% | -23.4% |
| Russell 2500 | 17.9% | 36.8% | 7.1% | -2.9% | 17.6% | 16.8% | -10.0% | 27.8% | 20.0% | 18.2% | -9.6% | -21.8% |
| MSCI EAFE | 17.3% | 22.8% | -4.9% | -0.8% | 1.0% | 25.0% | -13.8% | 22.0% | 7.8% | 11.3% | -9.3% | -19.6% |
| MSCI EM | 18.2% | -2.6% | -2.2% | -14.9% | 11.2% | 37.3% | -14.6% | 18.4% | 18.3% | -2.5% | -6.6% | -17.6% |
| MSCI ACWI | 16.1% | 22.8% | 4.2% | -2.4% | 7.9% | 24.0% | -9.4% | 26.6% | 16.3% | 18.5% | -8.4% | -20.2% |
| Private Equity | 9.5% | 12.6% | 22.3% | 14.6% | 10.4% | 10.3% | 21.0% | 13.1% | 17.2% | 37.7% | - | - |
| BBG TIPS | 7.0% | -8.6% | 3.6% | -1.4% | 4.7% | 3.0% | -1.3% | 8.4% | 11.0% | 6.0% | -3.2% | -8.9% |
| BBG Municipal | 6.8% | -2.6% | 9.1% | 3.3% | 0.2% | 5.4% | 1.3% | 7.5% | 5.2% | 1.5% | -1.6% | -9.0% |
| BBG Muni High Yield | 18.1% | -5.5% | 13.8% | 1.8% | 3.0% | 9.7% | 4.8% | 10.7% | 4.9% | 7.8% | -3.2% | -11.8% |
| BBG US Corporate HY | 15.8% | 7.4% | 2.5% | -4.5% | 17.1% | 7.5% | -2.1% | 14.3% | 7.1% | 5.3% | -6.7% | -14.2% |
| BBG US Agg Bond | 4.2% | -2.0% | 6.0% | 0.5% | 2.6% | 3.5% | 0.0% | 8.7% | 7.5% | -1.5% | -1.6% | -10.3% |
| BBG Global Agg | 4.3% | -2.6% | 0.6% | -3.2% | 2.1% | 7.4% | -1.2% | 6.8% | 9.2% | -4.7% | -3.2% | -13.9% |
| BBG Long Treasuries | 3.6% | -12.7% | 25.1% | -1.2% | 1.3% | 8.5% | -1.8% | 14.8% | 17.7% | -4.6% | -1.5% | -21.3% |
| BBG US Long Credit | 12.7% | -6.6% | 16.4% | -4.6% | 10.2% | 12.2% | -6.8% | 23.4% | 13.3% | -1.2% | -4.2% | -22.4% |
| BBG US STRIPS 20+ Yr | 3.0% | -21.0% | 46.4% | -3.7% | 1.4% | 13.7% | -4.1% | 20.9% | 24.0% | -5.2% | -1.6% | -28.8% |
| JPM GBI-EM Global Div | 16.8% | -9.0% | -5.7% | -14.9% | 9.9% | 15.2% | -6.2% | 13.5% | 2.7% | -8.7% | -4.5% | -14.5% |
| JPM EMBI Glob Div | 17.4% | -5.3% | 7.4% | 1.2% | 10.2% | 10.3% | -4.3% | 15.0% | 5.3% | -1.8% | -6.2% | -20.3% |
| CS Hedge Fund | 7.7% | 9.7% | 4.1% | -0.7% | 1.2% | 7.1% | -3.2% | 9.3% | 6.4% | 8.2% | - | 1.9% |
| BBG Commodity | -1.1% | -9.5% | -17.0% | -24.7% | 11.8% | 1.7% | -11.2% | 7.7% | -3.1% | 27.1% | -10.8% | 18.4% |
| Alerian Midstream | - | - | 16.4% | -37.3% | 33.8% | -2.4% | -13.3% | 24.0% | -23.4% | 38.4% | -12.2% | 13.2% |
| FTSE NAREIT Equity REITs | 18.1% | 2.5% | 30.1% | 3.2% | 8.5% | 5.2% | -4.6% | 26.0% | -8.0% | 43.2% | -7.4% | -20.2% |

*Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag
Source: FactSet, Barclays, Thomson One



TRAILING ANNUAL INDEX PERFORMANCE

| Equity | | | | | | |
|---------------------|--------|--------|--------|-------|-------|-------|
| | Jun-22 | YTD | 1 YR | 3 YR | 5 YR | 10 YR |
| MSCI ACWI | -8.4% | -20.2% | -15.8% | 6.2% | 7.0% | 8.8% |
| S&P 500 | -8.3% | -20.0% | -10.6% | 10.6% | 11.3% | 13.0% |
| Russell 1000 | -8.4% | -20.9% | -13.0% | 10.2% | 11.0% | 12.8% |
| Russell 2000 | -8.2% | -23.4% | -25.2% | 4.2% | 5.2% | 9.4% |
| Russell 2500 | -9.6% | -21.8% | -21.0% | 5.9% | 7.0% | 10.5% |
| MSCI EAFE | -9.3% | -19.6% | -17.8% | 1.1% | 2.2% | 5.4% |
| MSCI EM | -6.6% | -17.6% | -25.3% | 0.6% | 2.2% | 3.1% |

| Credit | | | | | | |
|-------------------------------|--------|--------|--------|-------|-------|-------|
| | Jun-22 | YTD | 1 YR | 3 YR | 5 YR | 10 YR |
| BBG Global Agg | -3.2% | -13.9% | -15.2% | -3.2% | -0.6% | 0.1% |
| BBG US Agg | -1.6% | -10.3% | -10.3% | -0.9% | 0.9% | 1.5% |
| BBG Credit | -2.6% | -13.8% | -13.6% | -1.0% | 1.2% | 2.5% |
| BBG US HY | -6.7% | -14.2% | -12.8% | 0.2% | 2.1% | 4.5% |
| BBG Muni | -1.6% | -9.0% | -8.6% | -0.2% | 1.5% | 2.4% |
| BBG Muni HY | -3.2% | -11.8% | -10.4% | 1.1% | 3.6% | 4.4% |
| BBG TIPS | -3.2% | -8.9% | -5.1% | 3.0% | 3.2% | 1.7% |
| BBG 20+ STRIPS | -1.6% | -28.8% | -24.4% | -4.1% | 0.4% | 2.0% |
| BBG Long Treasuries | -1.5% | -21.3% | -18.5% | -2.9% | 0.5% | 1.6% |
| BBG Long Credit | -4.2% | -22.4% | -21.4% | -2.4% | 1.1% | 3.2% |
| BBG Govt/Credit 1-3 Yr | -0.7% | -3.1% | -3.6% | 0.3% | 1.1% | 1.0% |
| JPM EMBI Glob Div | -6.2% | -20.3% | -21.2% | -5.2% | -1.2% | 2.2% |
| JPM GBI-EM Glob Div | -4.5% | -14.5% | -19.3% | -5.8% | -2.3% | -1.5% |

| Real Assets | | | | | | |
|--------------------------------|--------|--------|-------|-------|------|-------|
| | Jun-22 | YTD | 1 YR | 3 YR | 5 YR | 10 YR |
| BBG Commodity | -10.8% | 18.4% | 24.3% | 14.3% | 8.4% | -0.8% |
| Alerian Midstream Index | -12.2% | 13.2% | 11.4% | 6.4% | 5.2% | - |
| NAREIT Composite Index | -7.2% | -19.2% | -6.7% | 4.7% | 6.3% | 8.0% |



Source: S&P, MSCI, Russell, Bloomberg, JPM, Alerian, FTSE, FactSet

City of Fresno Retirement Systems

TOTAL FUND PERFORMANCE NOTES

Policy Index consists of 15.8% Russell 1000, 3.6% Russell 2000 Growth, 3.6% Russell 2000 Value, 19% MSCI ACWI ex USA Gross, 6% MSCI Emerging Markets Gross, 10% BBgBarc US Aggregate TR, 5% BBgBarc US High Yield TR, 8% 50% BBgBarc US Agg / 50% BBgBarc US High Yield + 1%, 11% NCREIF ODCE Net, 4% NCREIF ODCE + 1%, 5% Alerian Midstream Energy Index, 5% Private Equity Index, 4% CPI + 4% (Unadjusted).

Domestic Equity Index consists of 15.65% Russell 2000 Value, 15.65% Russell 2000 Growth, 68.7% Russell 1000.

Large Cap Equity Index consists of 100% Russell 1000.

International Equity Index consists of 73.08% MSCI ACWI ex USA Gross and 26.92% MSCI Emerging Markets Gross.

Fixed Income Index consists of 64.71% BBgBarc US Aggregate TR and 35.29% BBgBarc US High Yield TR.

Alternatives Index consists of 36.4% 50% BBgBarc US Agg / 50% BBgBarc US High Yield + 1%, 22.7% Private Equity Index, 22.7% Alerian Midstream Energy Index, 18.4% CPI + 4% (Unadjusted).

Private Credit Index consists of 100% 50% BBgBarc US Agg / 50% BBgBarc US High Yield + 1%.

Private Equity Index consists of ACWI IMI + 150 quarter lag.



GLOSSARY OF INVESTMENT TERMINOLOGY— RISK STATISTICS

- **Alpha**
 - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.
- **Alpha Jensen**
 - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.
- **Annualized Excess Return over Benchmark**
 - Annualized fund return minus the annualized benchmark return for the calculated return.
- **Annualized Return**
 - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.
- **Beta**
 - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.
- **Information Ratio**
 - A measure of the risk adjusted return of a financial security, asset, or portfolio.
Formula:
(Annualized Return of Portfolio - Annualized Return of Benchmark) / Annualized Standard Deviation (Period Portfolio Return - Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.
- **R-Squared**
 - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.
- **Sharpe Ratio**
 - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.
Formula:
(Annualized Return of Portfolio - Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)
- **Sortino Ratio**
 - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.
Formula:
*Calculation Average (X-Y) / Downside Deviation (X-Y) * 2*
Where X = Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)
- **Standard Deviation**
 - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.
Formula:
(Annualized Return of Portfolio - Annualized Arithmetic Average of the Portfolio Returns) Squared / The number of periods - 1)



Source: InvestorForce

GLOSSARY OF INVESTMENT TERMINOLOGY— RISK STATISTICS

▪ Tracking Error

- Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

Formula:

*Tracking Error = Standard Deviation (X-Y) * $\sqrt{\text{# of periods per year}}$*
Where X = periods portfolio return and Y = the period's BM return
For monthly returns, the periods per year = 12
For quarterly returns, the periods per year = 4

▪ Treynor Ratio

- A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

Formula:

(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta

▪ Up/Down Capture Ratio

- A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

Upside Capture:

Total Return (Fund Returns) / Total Returns (BM Return) when Period Benchmark Return is $> = 0$

Downside Capture:

Total Return (Fund Returns) / Total Returns (BM Return) when Benchmark Return < 0

Source: InvestorForce



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A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.

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Source of private fund performance benchmark data: Cambridge Associates, via Refinitiv