



Quarterly Investment Performance Analysis

Vermont State Employees' Retirement System

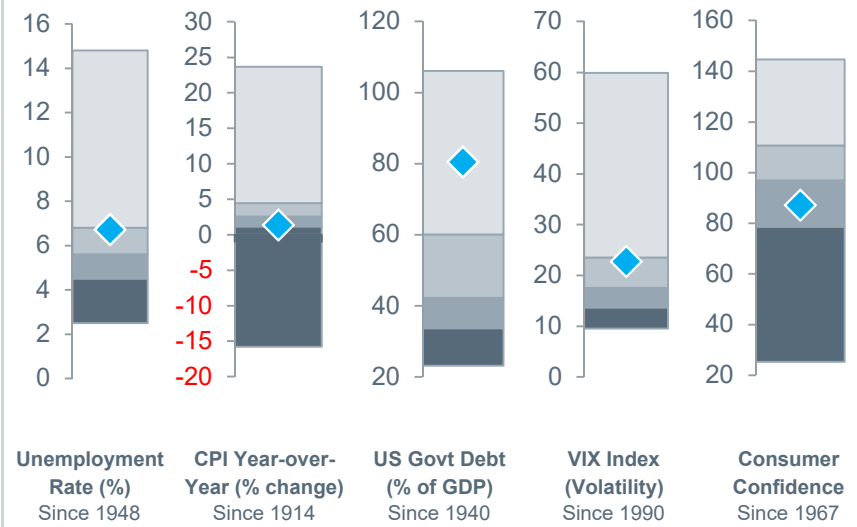
Period Ended: December 31, 2020



Fourth Quarter Economic Environment

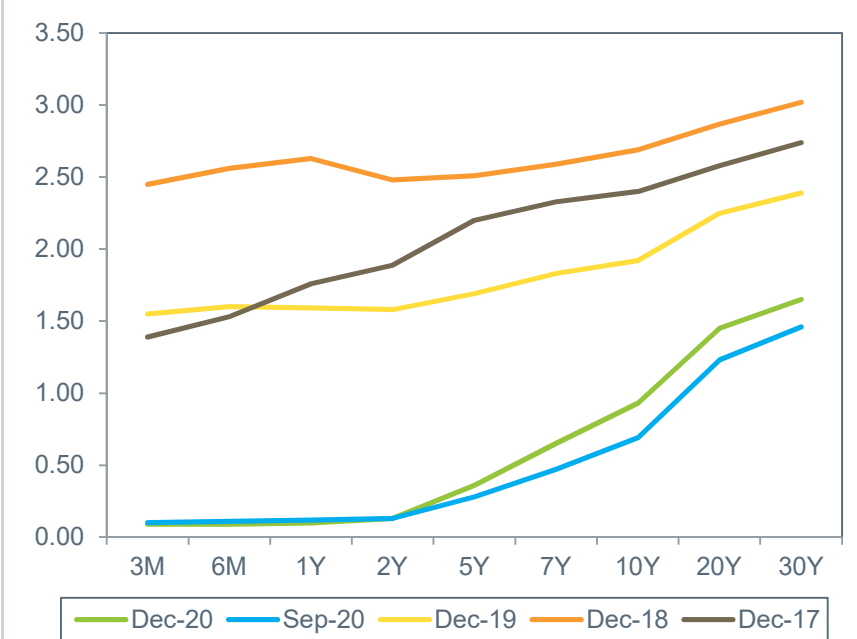
In Q4, multiple fundamental developments reinforced market sentiment and kept many investors positioned to add incremental risk despite the relatively weak economic environment and worsening global pandemic. Importantly, two closely watched coronavirus vaccine trials from Pfizer/BioNTech and Moderna released promising efficacy results leading to emergency use authorizations from the FDA, allowing market participants to pull forward expectations for normalized economic activity for much of the developed world in 2021. Investors also reacted favorably to completed negotiations around new fiscal stimulus following the November US elections, which culminated in a \$900B package being signed into law under a larger omnibus spending bill. The package included new supplemental unemployment benefits of \$300 per week for the 6.7% of unemployed Americans, as well as another one-time round of stimulus checks in the amount of \$600 for most individuals. The Fed reiterated its commitment to maintain monthly asset purchases, currently at \$120B, and zero interest rates until the economy makes significant progress toward its goal of full employment. Given the backdrop of supportive monetary and fiscal policies, risk assets posted another quarter of stellar returns. Though financial markets have rebounded from the sharp drawdown in early 2020, global economic activity remains well off its pre-pandemic peak.

Key Economic Indicators



| Economic Indicators | Dec-20 | Sep-20 | Dec-19 | Dec-17 | 20 Yr |
|-------------------------------|----------|--------|--------|--------|--------|
| Federal Funds Rate (%) | 0.09 | 0.09 | 1.55 | 1.33 | 1.49 |
| Breakeven Infl. - 5 Yr (%) | 1.97 ▲ | 1.49 | 1.70 | 1.88 | 1.82 |
| Breakeven Infl. - 10 Yr (%) | 1.99 ▲ | 1.63 | 1.79 | 1.98 | 2.01 |
| CPI YoY (Headline) (%) | 1.4 | 1.4 | 2.3 | 2.1 | 2.1 |
| Unemployment Rate (%) | 6.7 ▼ | 7.8 | 3.6 | 4.1 | 6.1 |
| Real GDP YoY (%) | -2.5 ▲ | -2.8 | 2.3 | 2.7 | 1.7 |
| PMI - Manufacturing | 60.5 ▲ | 55.7 | 47.7 | 59.2 | 52.6 |
| USD Total Wtd Idx | 111.65 ▼ | 117.35 | 114.72 | 110.07 | 103.24 |
| WTI Crude Oil per Barrel (\$) | 48.5 ▲ | 40.2 | 61.1 | 60.4 | 62.4 |
| Gold Spot per Oz (\$) | 1,898 ▲ | 1,886 | 1,517 | 1,303 | 1,009 |

Treasury Yield Curve (%)



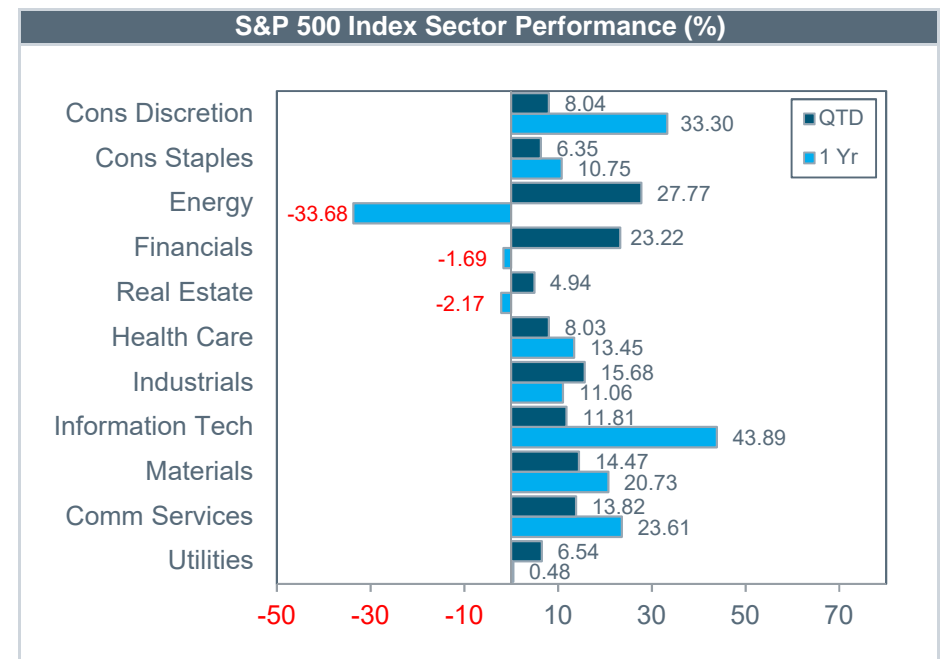
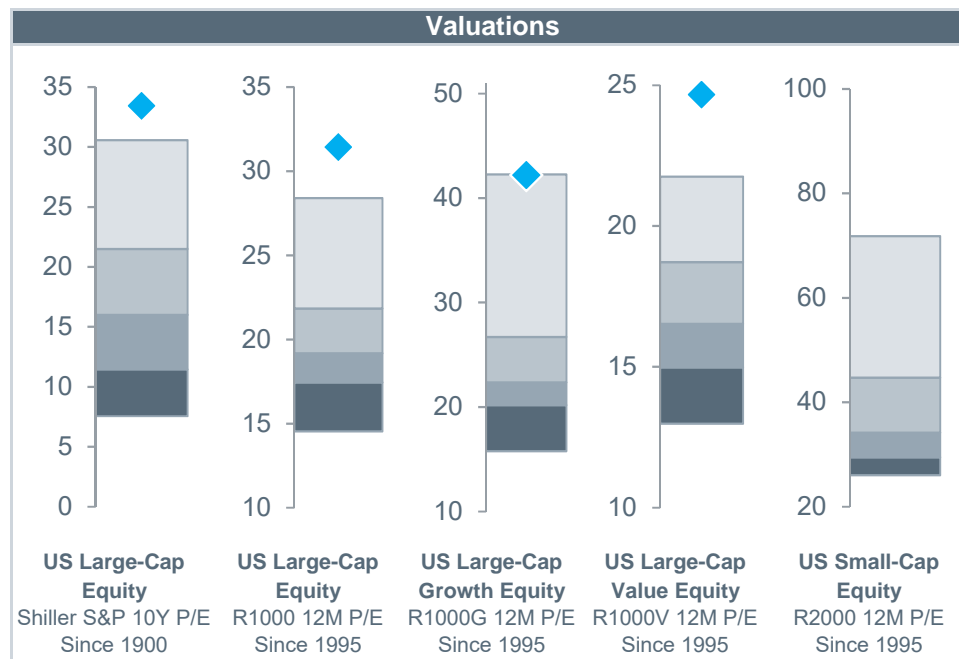
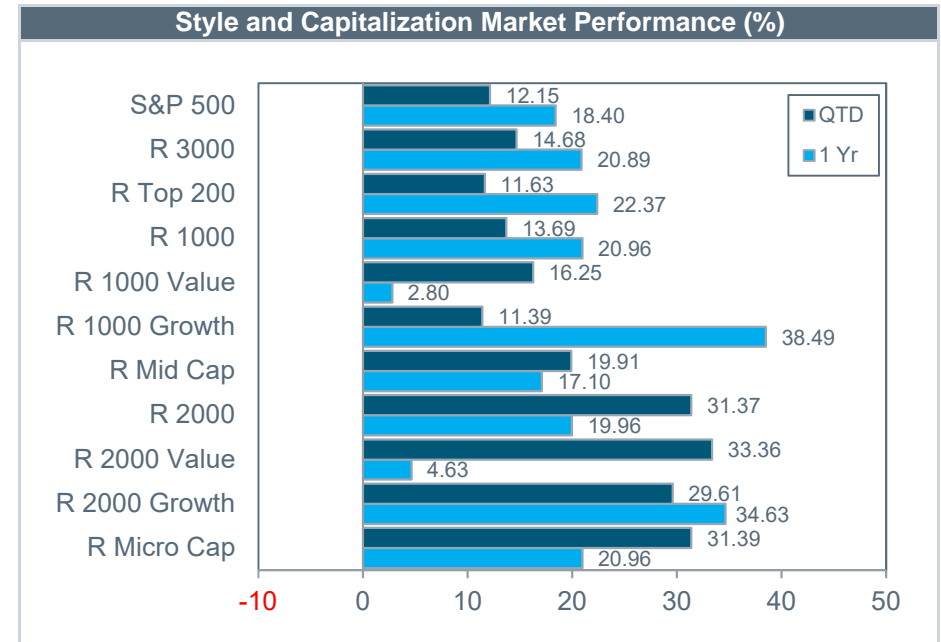
| Market Performance (%) | QTD | CYTD | 1 Yr | 5 Yr | 10 Yr |
|---------------------------|-------|-------|-------|-------|-------|
| S&P 500 (Cap Wtd) | 12.15 | 18.40 | 18.40 | 15.22 | 13.88 |
| Russell 2000 | 31.37 | 19.96 | 19.96 | 13.26 | 11.20 |
| MSCI EAFE (Net) | 16.05 | 7.82 | 7.82 | 7.45 | 5.51 |
| MSCI EAFE SC (Net) | 17.27 | 12.34 | 12.34 | 9.40 | 7.85 |
| MSCI Emg Mkts (Net) | 19.70 | 18.31 | 18.31 | 12.81 | 3.63 |
| Bloomberg US Agg Bond | 0.67 | 7.51 | 7.51 | 4.44 | 3.84 |
| ICE BofAML 3 Mo US T-Bill | 0.03 | 0.67 | 0.67 | 1.20 | 0.63 |
| NCREIF ODCE (Gross) | 1.30 | 1.19 | 1.19 | 6.21 | 9.88 |
| FTSE NAREIT Eq REIT (TR) | 11.57 | -8.00 | -8.00 | 4.77 | 8.31 |
| HFRI FOF Comp | 8.05 | 10.82 | 10.82 | 4.55 | 3.32 |
| Bloomberg Cmnty (TR) | 10.19 | -3.12 | -3.12 | 1.03 | -6.50 |

Fourth Quarter Review

Broad Market
 US equity markets finished strong in Q4 following a period of heightened volatility earlier in the quarter. Negotiations around another US fiscal stimulus package stalled in October and spikes in coronavirus infections contributed to the S&P 500 Index returning -2.7% for the month. In the latter half of the quarter, optimism around vaccine authorization, the announcement of additional stimulus in December, and the prospect of further fiscal support drove positive investor sentiment.

Market Cap
 Additionally, small-cap stocks fared best in Q4, a reversal of what was seen in Q3. The prospect of lockdowns easing in 2021 also contributed to strong performance for small-cap stocks, with the Russell 2000 Index up 31.4% relative to the S&P 500 Index returning 12.1%.

Style and Sector
 This quarter marked the end of a consistent string of growth-led quarters, with value stocks outperforming their growth counterparts.



Valuation data courtesy of Bloomberg Professional Service and Robert J. Shiller, Irrational Exuberance, Second Edition. P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers. Current R2000 P/E is unavailable due to negative earnings per share as of 12/31/2020.



Fourth Quarter Review

Developed Markets

Developed international markets had another strong quarter of returns. Value stocks outperformed growth, while small stocks beat their larger counterparts. Nearly all developed market countries saw double digit positive returns for the quarter. Active management saw split results during the quarter, with a majority of small-cap developed international equity managers beating their benchmarks while the majority of large-cap managers underperformed.

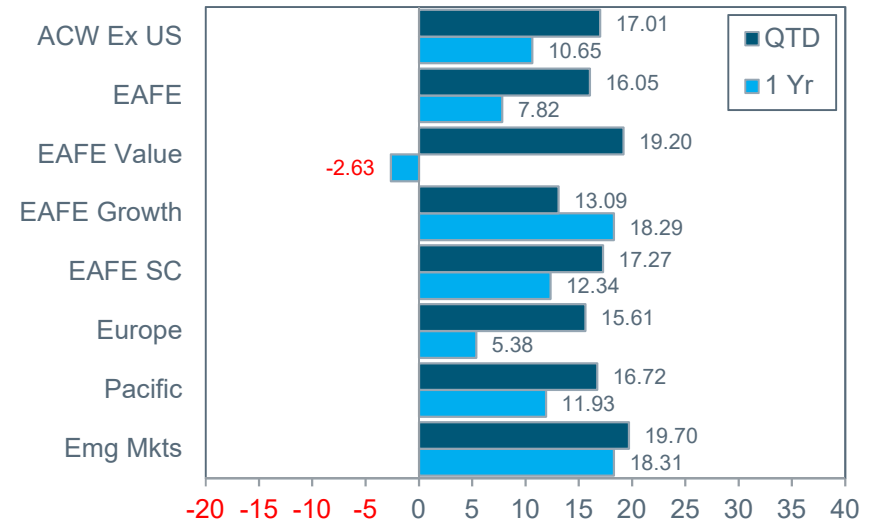
Emerging Markets

Emerging markets outpaced developed during the quarter continuing the trend for the third quarter in a row. Emerging market value stocks outperformed growth, while small stocks continued their outperformance of large since Q2. All sectors posted positive performance for the quarter led by technology, but more value-oriented sectors were not far behind.

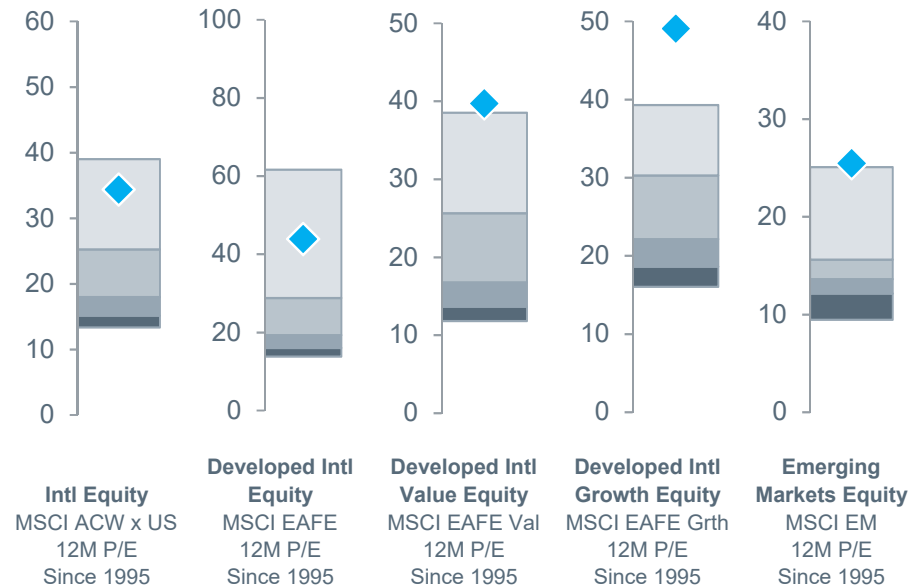
Market Cap & Style

In both developed international markets and emerging markets, value stocks outperformed growth, while small-cap stocks outperformed large-cap.

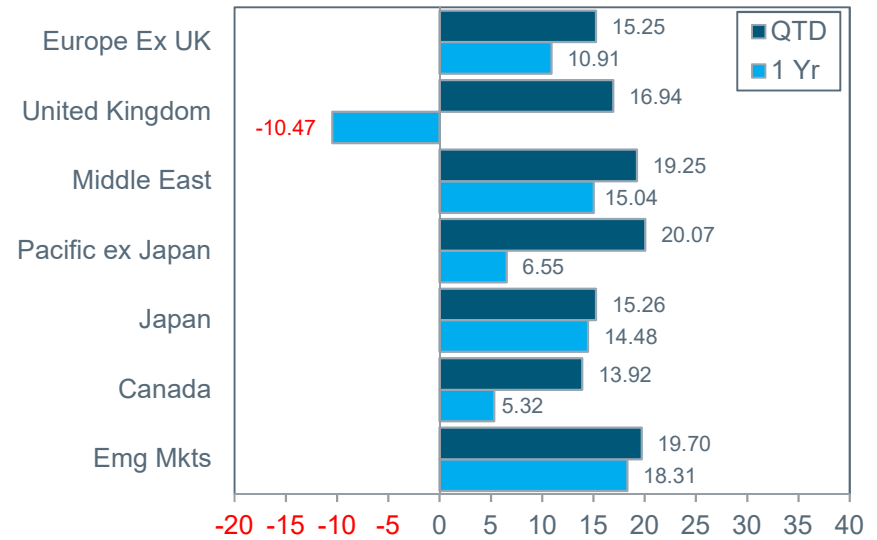
MSCI Style and Capitalization Market Performance (%)



Valuations



MSCI Region Performance (%)



Valuation data courtesy of Bloomberg Professional Service.

P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers.

All returns are shown net of foreign taxes on dividends.



Fourth Quarter Review

Broad Market

The Bloomberg US Aggregate Index returned a modest 0.7% in Q4, capping off a 7.5% YTD return and an overall strong year for US fixed income, supported by record fiscal and monetary stimulus. In Q4, the Treasury yield curve steepened as front end rates remained anchored near zero, a sign of the Federal Reserve’s continued support, while yields for intermediate- and long-dated maturities increased over Q4.

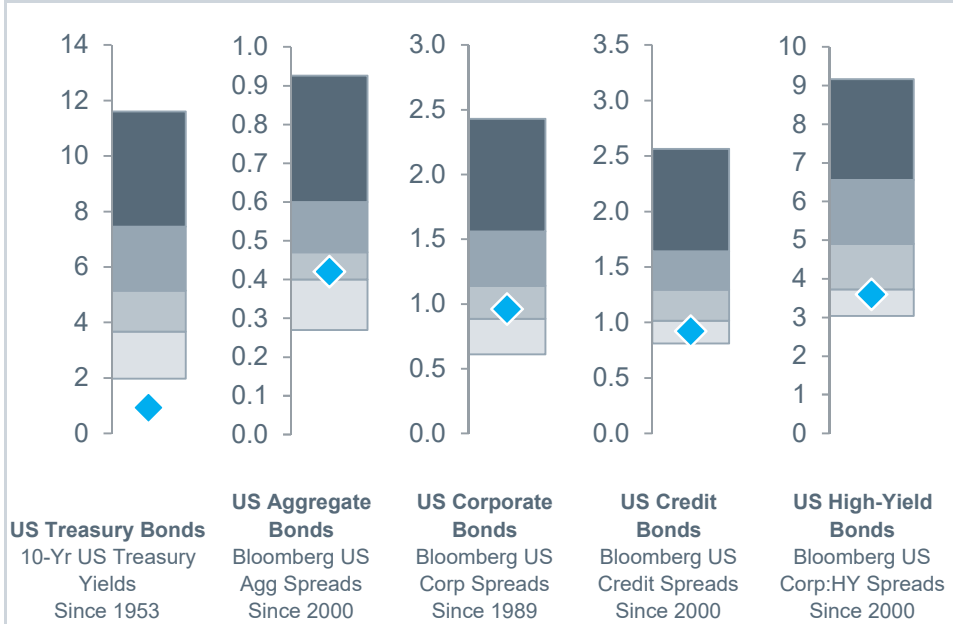
Credit Market

The Bloomberg US Credit Index returned 2.8% for Q4 2020, outperforming the broader fixed income market. Despite record-setting new issuance, credit spreads continued to tighten, compressing to 92 bps.

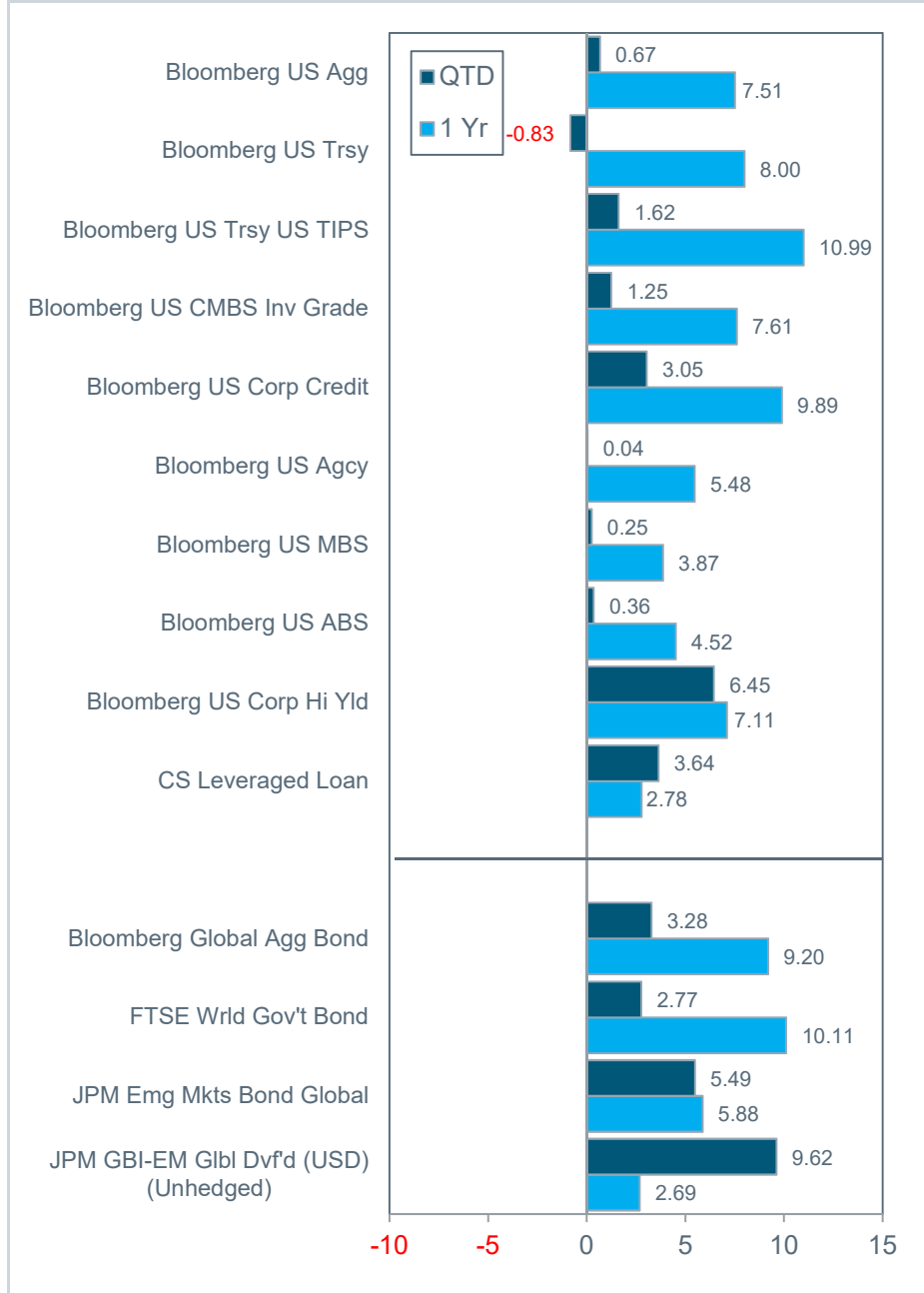
Emerging Market Debt

Emerging market debt also ended the year on a high note, with the JPM EMBI Global Diversified Index returning 5.8% for the quarter. However, the hard currency index was overshadowed by its local currency counterpart.

Valuations



Fixed Income Performance (%)



Valuation data courtesy of Bloomberg Professional Service. Valuations shown represent the 5th through 95th percentiles to minimize the effect of outliers.



Fourth Quarter Review - Absolute Return

General Market - Hedge Funds

The hedge fund industry posted double digit gains in back to back years for the first time since 2009-2010 as the HFRI Fund Weighted Composite Index returned 10.7% in Q4, bringing YTD returns to 11.6%. Equity Long/Short (“ELS”) managers led the way, reporting a Q4 return of 14.5% and a full-year return of 17.5% in one of the best alpha-generating years for fundamental equity managers in recent memory.

General Market - Global Tactical Asset Allocation (GTAA)

Performance across GTAA strategies RVK follows closely generated positive absolute returns during the quarter ranging from mid-single digits to low double-digits. Long-biased strategies reported mixed performance versus a static and less diversified blend of 60% US equity and 40% US fixed income. Broadly speaking, strategies that have kept higher levels of risk and equity exposure have tended to outperform peers that opted to keep equity allocations relatively muted.

Fourth Quarter Review - Real Assets

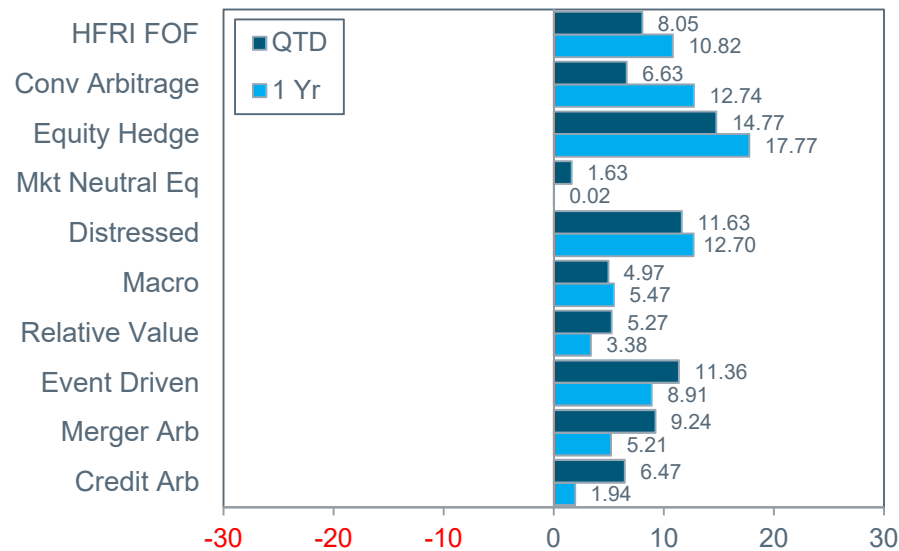
General Market - Diversified Inflation Strategies (DIS)

Performance for DIS managers that RVK follows closely largely generated positive absolute performance during Q4, while producing mix results for the full year. For the quarter, most traditionally inflation-sensitive asset classes were drivers of positive returns. In Q4, strategies with relatively larger allocations to segments with higher historical volatility, such as REITs, listed infrastructure and global natural resources, generated stronger relative returns versus peers.

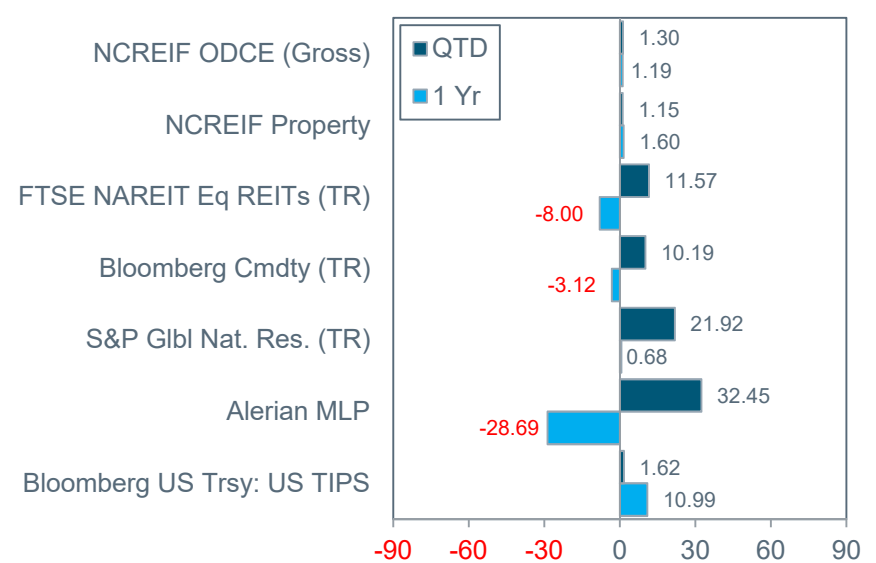
General Market - Real Estate

Core private real estate returned 1.3% in Q4, as reported by the NFI-ODCE Index, with the total return comprised of 0.9% income and 0.4% price appreciation. While the income component remained relatively healthy and in-line with historical levels, price appreciation rebounded meaningfully from a negative return in Q3. Investors in publicly traded real estate outperformed their private market counterparts by a meaningful margin.

HFRI Hedge Fund Performance (%)



Real Asset Performance (%)



Annual Asset Class Performance

As of December 31, 2020

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | CYTD |
|-------|-------|------------------------|-----------------------|------------------------------|-------------------------------|--------------------------------|---------------------------|--------------------------------|-------------------------------|---------------------------------|-----------------------------------|---------------------------------|---------------------------|-------------------------------|-------------------------------------|
| Best | 35.03 | 39.38 | 8.44 | 78.51 | 27.94 | 22.49 | 20.00 | 38.82 | 30.14 | 15.02 | 21.31 | 37.28 | 8.35 | 31.49 | 19.96 |
| | 32.18 | 16.23 | 5.24 | 58.21 | 26.85 | 15.99 | 18.23 | 32.39 | 19.31 | 9.59 | 17.13 | 33.01 | 1.87 | 26.00 | 18.40 |
| | 26.34 | 15.97 | 2.06 | 46.78 | 22.04 | 13.56 | 18.06 | 29.30 | 13.69 | 3.20 | 11.96 | 25.03 | 0.01 | 25.53 | 18.31 |
| | 19.31 | 11.63 | -2.35 | 31.78 | 18.88 | 8.29 | 17.32 | 22.78 | 12.50 | 1.38 | 11.77 | 21.83 | -1.26 | 24.96 | 16.12 |
| | 18.37 | 11.17 | -10.01 | 28.01 | 16.83 | 7.84 | 16.35 | 13.94 | 5.97 | 0.55 | 11.19 | 14.65 | -2.08 | 22.01 | 13.08 |
| | 16.32 | 10.25 | -21.37 | 27.17 | 16.36 | 4.98 | 16.00 | 8.96 | 4.89 | 0.05 | 9.29 | 14.02 | -3.38 | 19.59 | 12.34 |
| | 15.79 | 6.97 | -26.16 | 26.89 | 15.12 | 2.11 | 15.81 | 8.19 | 4.06 | -0.27 | 8.77 | 10.71 | -4.02 | 18.44 | 10.99 |
| | 14.37 | 6.60 | -29.87 | 26.46 | 15.06 | 1.81 | 12.66 | 7.44 | 3.64 | -0.81 | 8.52 | 7.77 | -4.38 | 17.08 | 10.82 |
| | 11.86 | 5.94 | -33.79 | 18.91 | 14.41 | 0.10 | 10.94 | 2.47 | 3.37 | -1.44 | 6.67 | 7.62 | -4.62 | 14.32 | 7.82 |
| | 10.39 | 5.49 | -35.65 | 11.47 | 10.16 | -4.18 | 8.78 | 0.07 | 2.45 | -2.29 | 4.68 | 7.50 | -4.68 | 8.72 | 7.51 |
| | 4.85 | 5.00 | -37.00 | 11.41 | 7.75 | -5.72 | 6.98 | -2.02 | 0.04 | -3.30 | 2.65 | 5.23 | -11.01 | 8.43 | 7.11 |
| | 4.34 | 1.87 | -37.74 | 5.93 | 6.54 | -12.14 | 4.79 | -2.60 | -2.19 | -4.41 | 2.18 | 3.54 | -11.25 | 8.39 | 1.19 |
| | 2.72 | 1.45 | -43.38 | 1.92 | 6.31 | -13.32 | 4.21 | -8.61 | -4.90 | -4.47 | 1.00 | 3.01 | -13.79 | 7.69 | 0.67 |
| | 2.07 | -1.57 | -47.01 | 0.21 | 5.70 | -15.94 | 0.11 | -8.83 | -4.95 | -14.92 | 0.51 | 1.70 | -14.58 | 5.34 | -3.12 |
| Worst | 0.49 | -15.70 | -53.33 | -29.76 | 0.13 | -18.42 | -1.06 | -9.52 | -17.01 | -24.66 | 0.33 | 0.86 | -17.89 | 2.28 | -8.00 |
| | VSERS | S&P 500 - US Large Cap | R 2000 - US Small Cap | MSCI EAFE (Net) - Int'l Dev. | MSCI EAFE SC (Net) - Int'l SC | MSCI EM (Net) - Int'l Emg Mkts | Bloombrg US Agg Bond - FI | Bloombrg US Corp Hi Yield - FI | Bloombrg US Trsy US TIPS - FI | Bloombrg US Gov Credit Lng - FI | NCREIF ODCE (Gross) - Real Estate | FTSE NAREIT Eq REITs Index (TR) | HFRI FOF Comp Index - ARS | Bloombrg Cmdty (TR) - Commod. | ICE BofAML 3 Mo T-Bill - Cash Equiv |

NCREIF ODCE (Gross) performance is reported quarterly; performance is shown N/A in interim-quarter months.



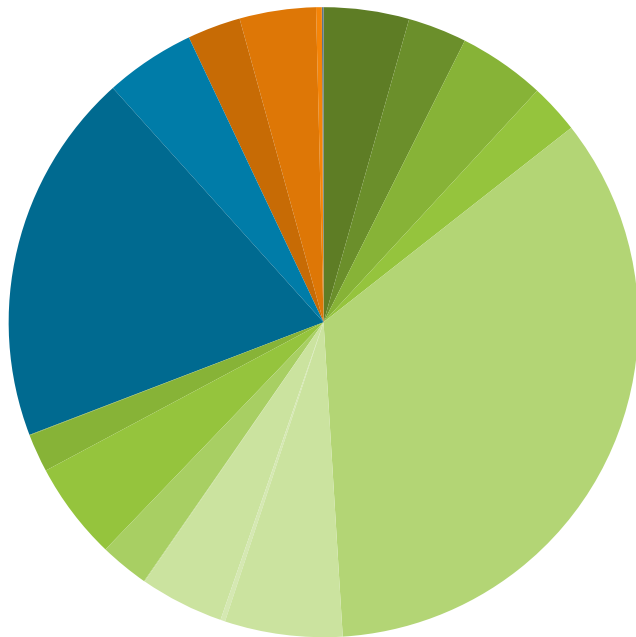
VSERS



Vermont State Employees' Retirement System
Asset Allocation By Manager

As of December 31, 2020

December 31, 2020 : \$2,223,064,799



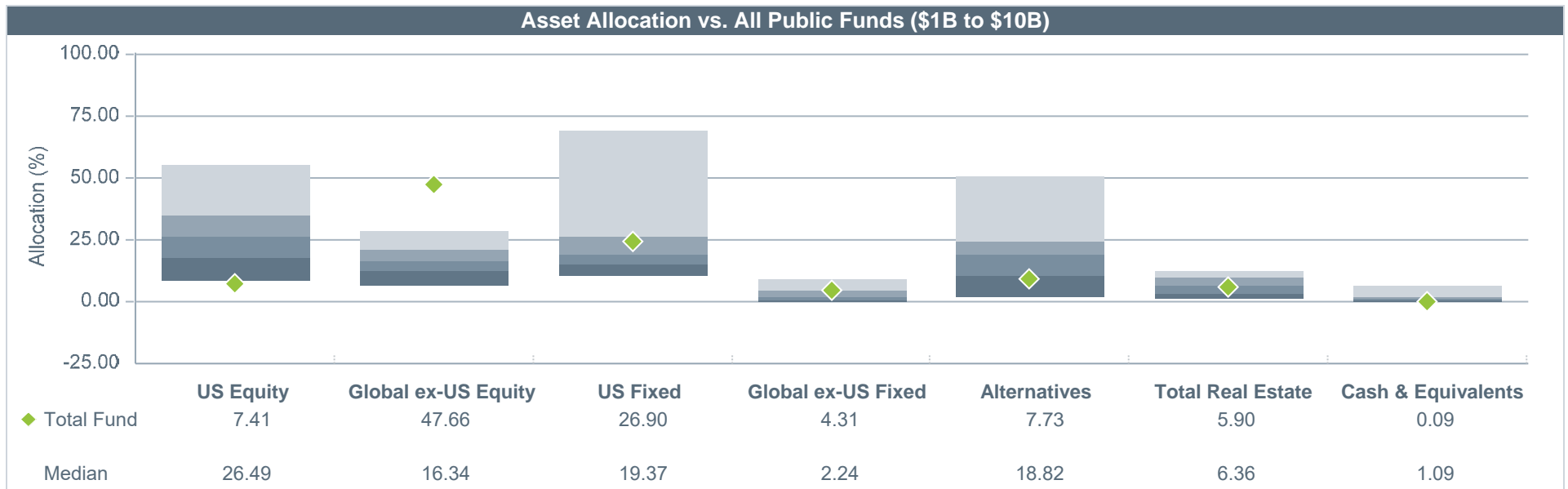
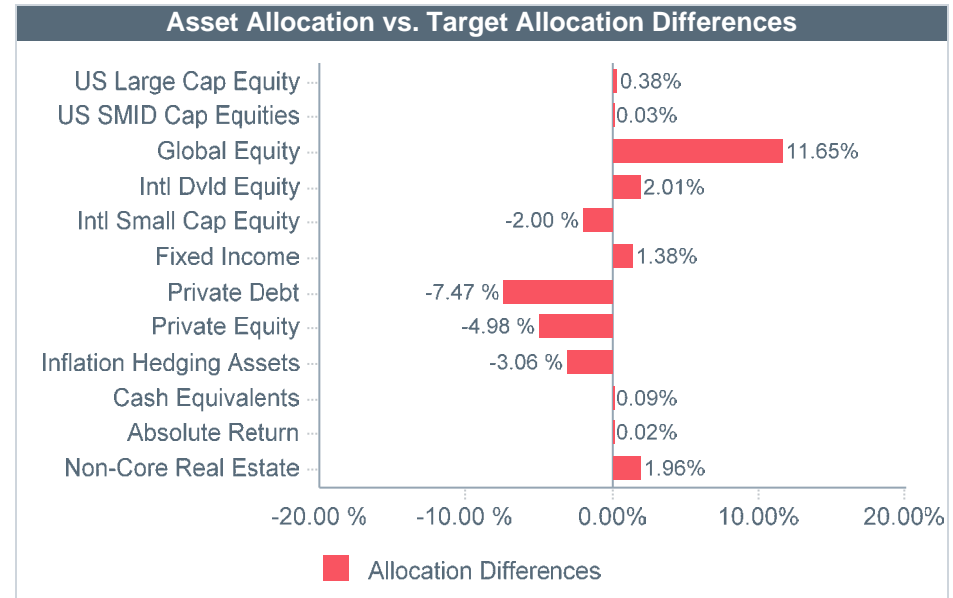
| | Market Value (\$) | Allocation (%) |
|--|-------------------|----------------|
| Blackrock S&P 500 (EqI Wtd) (CF) | 97,391,212 | 4.38 |
| Champlain US Mid Cap Core (SA) | 67,258,892 | 3.03 |
| SSgA Russell 2000 Growth (Ex Tobacco) (SA) | 3,693 | 0.00 |
| Acadian International All Cap (SA) | 99,171,622 | 4.46 |
| Mondrian International (SA) | 56,640,998 | 2.55 |
| Wellington Small Cap Value (SA) | 1,271 | 0.00 |
| SGA International Small Cap (CF) | - | 0.00 |
| BlackRock MSCI ACW IMI (CF) | 769,394,984 | 34.61 |
| Artisan Global Opportunities (CF) | 134,314,466 | 6.04 |
| PIMCO Liquidation (SA) | 5,225,160 | 0.24 |
| Wellington Opportunistic EMD (CF) | 95,848,230 | 4.31 |
| PIMCO Unconstrained (SA) | 785,043 | 0.04 |
| Private Debt | 56,206,318 | 2.53 |
| Private Equity | 111,542,105 | 5.02 |
| Non-Core Real Estate | 43,521,061 | 1.96 |
| Pinnacle Natural Resources (CF) | 469,130 | 0.02 |
| BlackRock US Agg (CF) | 425,967,852 | 19.16 |
| PIMCO Core Plus (SA) | 102,989,751 | 4.63 |
| BlackRock TIPS (CF) | 60,781,311 | 2.73 |
| UBS Trumbull Properties (CF) | 87,058,349 | 3.92 |
| Private Infrastructure/Land | 6,545,433 | 0.29 |
| JPM Cash Account (CF) | 379 | 0.00 |
| Vermont Cash (SA) | 1,943,660 | 0.09 |
| BlackRock Transition (SA) | 3,882 | 0.00 |

Allocations shown may not sum up to 100% exactly due to rounding. Market values for SGA International Small Cap (CF), Wellington Small Cap Value (SA), SSgA Russell 2000 Growth (SA), Pinnacle Natural Resources (CF) and PIMCO Unconstrained (SA) represent residual assets after liquidation.

Total Fund

Asset Allocation vs. Target and Plan Sponsor Peer Group

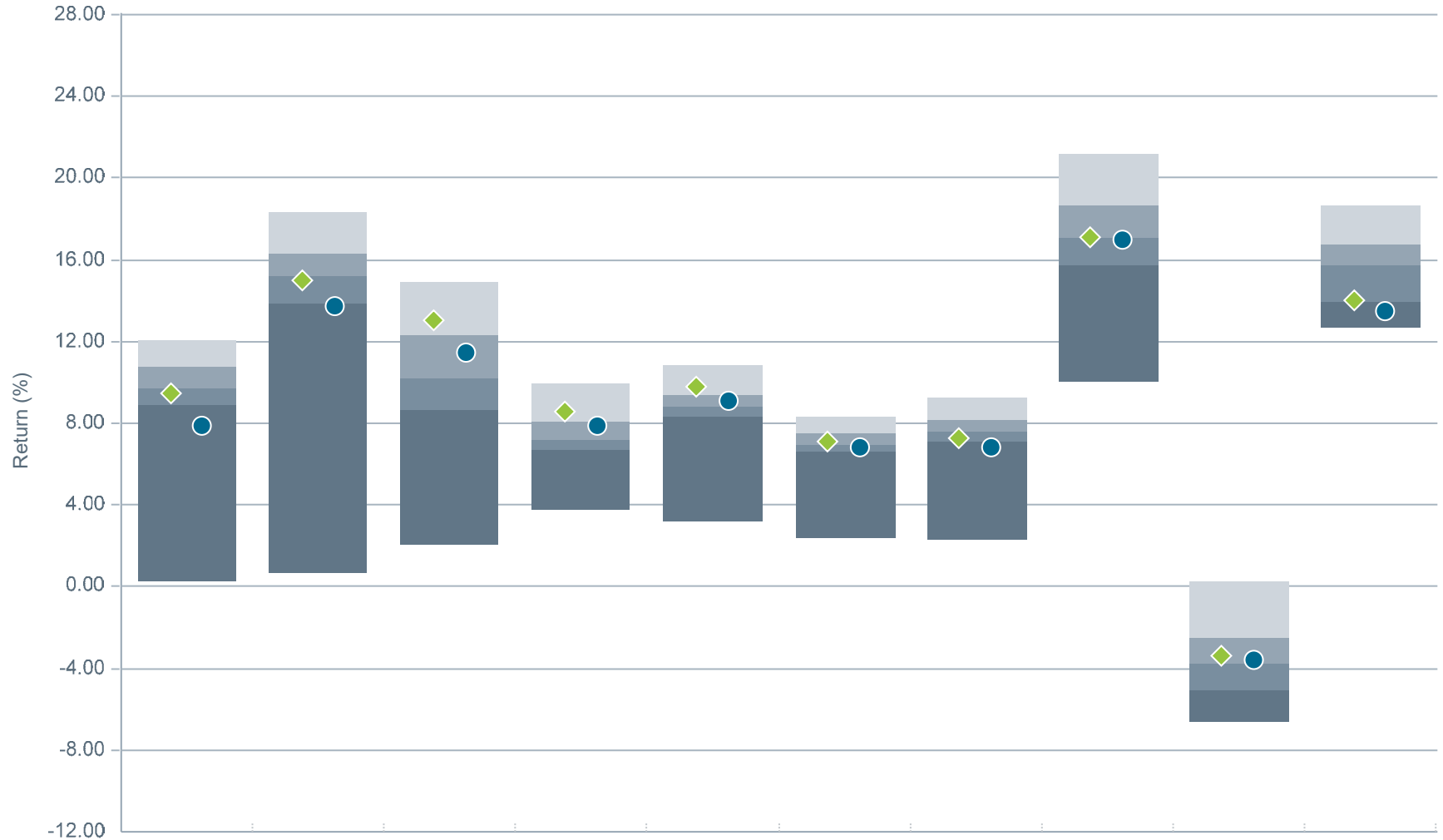
| Asset Allocation vs. Target Allocation | | | |
|--|----------------------|----------------|---------------|
| | Market Value (\$) | Allocation (%) | Target (%) |
| US Large Cap Equity | 97,391,212 | 4.38 | 4.00 |
| US SMID Cap Equities | 67,263,856 | 3.03 | 3.00 |
| Global Equity | 903,709,449 | 40.65 | 29.00 |
| Intl Dvld Equity | 155,812,619 | 7.01 | 5.00 |
| Intl Small Cap Equity | - | 0.00 | 2.00 |
| Fixed Income | 630,816,036 | 28.38 | 27.00 |
| Private Debt | 56,206,318 | 2.53 | 10.00 |
| Private Equity | 111,542,105 | 5.02 | 10.00 |
| Inflation Hedging Assets | 154,385,471 | 6.94 | 10.00 |
| Cash Equivalents | 1,947,542 | 0.09 | 0.00 |
| Absolute Return | 469,130 | 0.02 | 0.00 |
| Non-Core Real Estate | 43,521,061 | 1.96 | 0.00 |
| Total Fund | 2,223,064,799 | 100.00 | 100.00 |



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Global Ex-US Equity may contain some US securities.

Vermont State Employees' Retirement System
 All Public Plans (\$1B to \$10B) (Custom PG)
 Plan Sponsor Peer Group Analysis

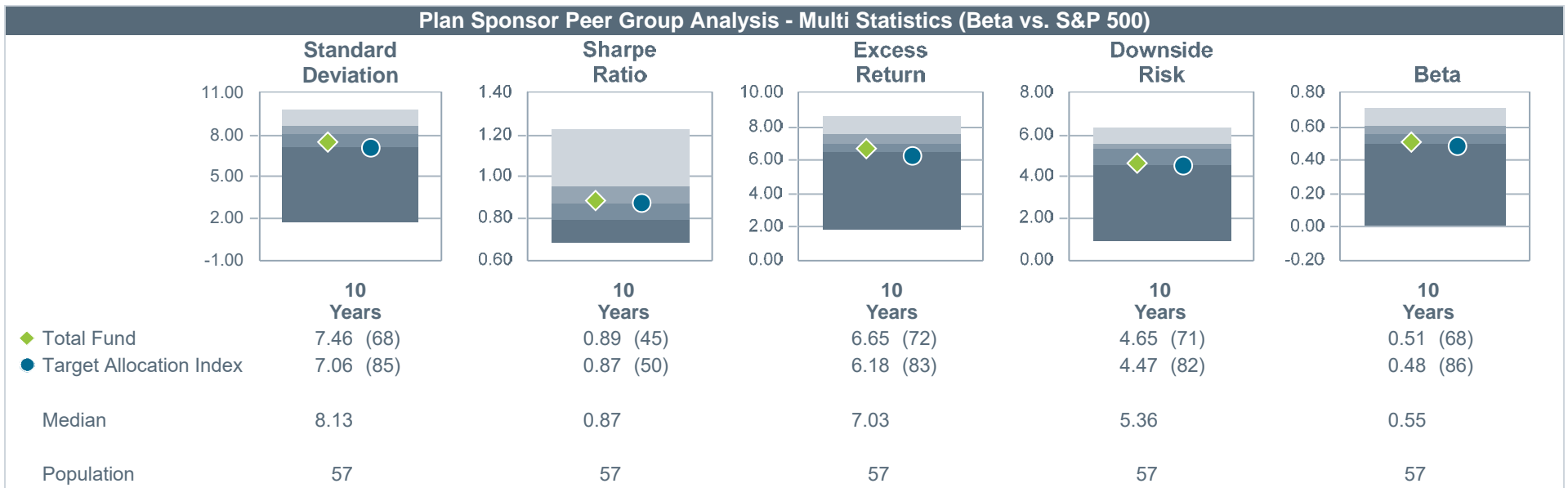
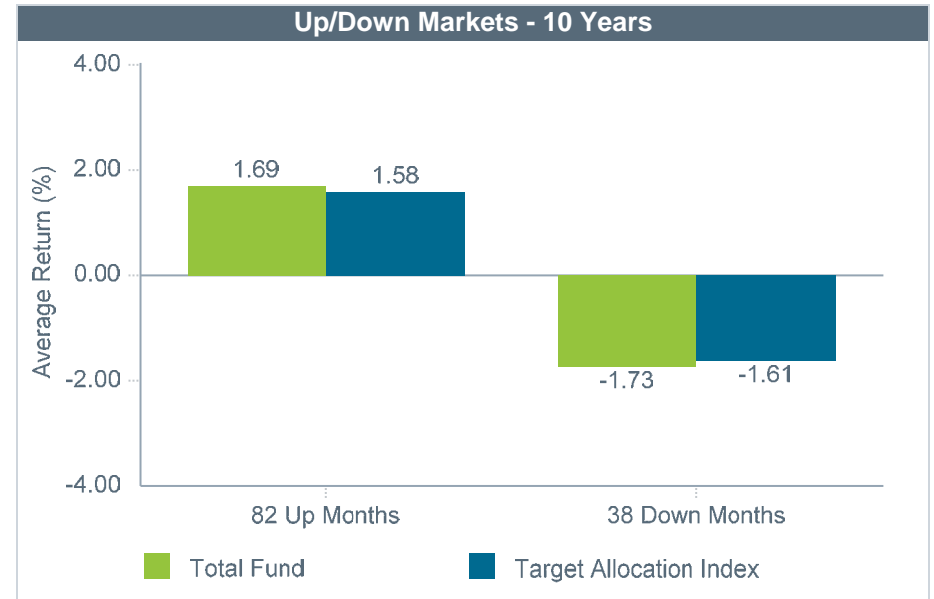
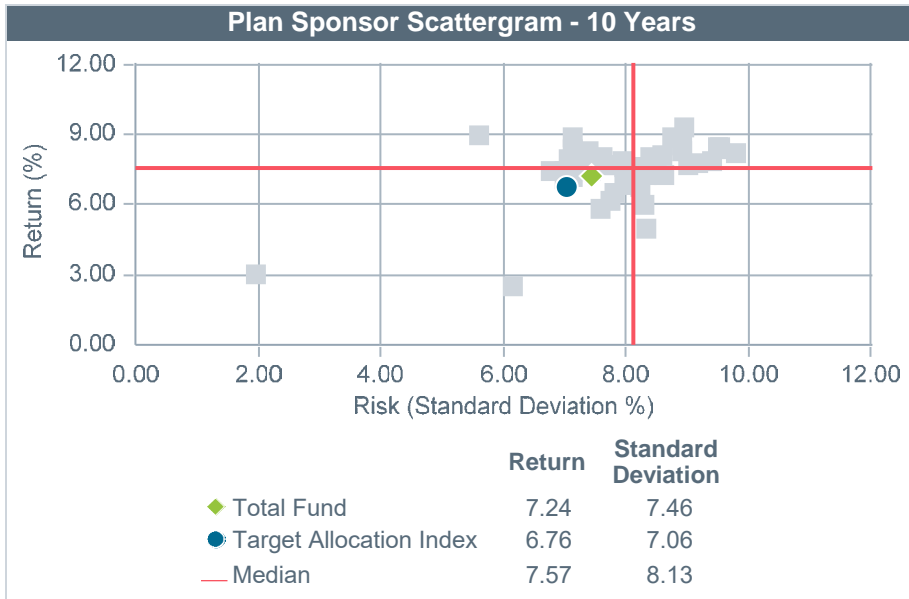
As of December 31, 2020



| | QTD | FYTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 |
|---------------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|------------|------------|------------|
| ◆ Total Fund | 9.44 (59) | 14.98 (58) | 13.08 (20) | 8.55 (18) | 9.77 (20) | 7.14 (35) | 7.24 (69) | 17.08 (52) | -3.38 (41) | 14.02 (75) |
| ● Target Allocation Index | 7.86 (91) | 13.65 (79) | 11.41 (33) | 7.87 (32) | 9.06 (38) | 6.75 (68) | 6.76 (81) | 16.91 (53) | -3.63 (47) | 13.43 (85) |
| Median | 9.73 | 15.22 | 10.18 | 7.22 | 8.80 | 6.93 | 7.57 | 17.09 | -3.80 | 15.73 |
| Population | 70 | 70 | 70 | 63 | 62 | 62 | 57 | 74 | 50 | 17 |

Performance shown is net of fees. Parentheses contain percentile ranks.





Performance shown is net of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Vermont State Employees' Retirement System
Asset Allocation & Performance - Net of Fees

As of December 31, 2020

| | Allocation | | Performance (%) | | | | | | | | | |
|---------------------------------|----------------------|---------------|-----------------|--------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------------|
| | Market Value (\$) | Actual (%) | QTD | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | 15 Years | 2019 | Since Incep. | Inception Date |
| Total Fund | 2,223,064,799 | 100.00 | 9.44 | 14.98 | 13.08 | 8.55 | 9.77 | 7.24 | 6.24 | 17.08 | 6.41 | 07/01/2005 |
| Target Allocation Index | | | 7.86 | 13.65 | 11.41 | 7.87 | 9.06 | 6.76 | 6.16 | 16.91 | 6.35 | |
| Difference | | | 1.58 | 1.33 | 1.67 | 0.68 | 0.71 | 0.48 | 0.08 | 0.17 | 0.06 | |
| Actual Allocation Index | | | 9.40 | 14.63 | 11.16 | 7.41 | 8.94 | 6.64 | 6.05 | 17.04 | 6.21 | |
| Difference | | | 0.04 | 0.35 | 1.92 | 1.14 | 0.83 | 0.60 | 0.19 | 0.04 | 0.20 | |
| Growth Assets | 1,537,774,184 | 69.17 | 13.86 | - | - | - | - | - | - | - | 12.21 | 09/01/2020 |
| MSCI ACW IM Index (USD) (Net) | | | 15.70 | 25.08 | 16.25 | 9.72 | 12.15 | 9.09 | 7.32 | 26.35 | 12.11 | |
| Difference | | | -1.84 | - | - | - | - | - | - | - | 0.10 | |
| Downturn Hedging Assets | 528,957,603 | 23.79 | 0.79 | - | - | - | - | - | - | - | 0.79 | 09/01/2020 |
| Bloomberg US Agg Bond Index | | | 0.67 | 1.29 | 7.51 | 5.34 | 4.44 | 3.84 | 4.49 | 8.72 | 0.61 | |
| Difference | | | 0.12 | - | - | - | - | - | - | - | 0.18 | |
| Inflation Hedging Assets | 154,385,471 | 6.94 | 0.53 | - | - | - | - | - | - | - | 0.39 | 09/01/2020 |
| Consumer Price Index+2.5% | | | 0.69 | 2.29 | 3.90 | 4.40 | 4.50 | 4.28 | 4.43 | 4.84 | 1.04 | |
| Difference | | | -0.16 | - | - | - | - | - | - | - | -0.65 | |

Performance shown is net of fees. Allocations shown may not sum up to 100% exactly due to rounding. Manager inception dates shown represent the first full month of available performance. Fiscal year ends 6/30. Please see addendum for custom benchmark definitions. Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. Interim periods assume a 0% return.



Vermont State Employees' Retirement System
Asset Allocation & Performance - Net of Fees

As of December 31, 2020

| | Allocation | | | Performance (%) | | | | | | | | | |
|--|----------------------|---------------|---------------|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------------|
| | Market Value (\$) | Actual (%) | Policy (%) | QTD | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | 15 Years | 2019 | Since Incep. | Inception Date |
| Total Fund | 2,223,064,799 | 100.00 | 100.00 | 9.44 | 14.98 | 13.08 | 8.55 | 9.77 | 7.24 | 6.24 | 17.08 | 6.41 | 07/01/2005 |
| Target Allocation Index | | | | 7.86 | 13.65 | 11.41 | 7.87 | 9.06 | 6.76 | 6.16 | 16.91 | 6.35 | |
| Difference | | | | 1.58 | 1.33 | 1.67 | 0.68 | 0.71 | 0.48 | 0.08 | 0.17 | 0.06 | |
| Actual Allocation Index | | | | 9.40 | 14.63 | 11.16 | 7.41 | 8.94 | 6.64 | 6.05 | 17.04 | 6.21 | |
| Difference | | | | 0.04 | 0.35 | 1.92 | 1.14 | 0.83 | 0.60 | 0.19 | 0.04 | 0.20 | |
| All Public Plans (\$1B to \$10B) | | | | 9.73 | 15.22 | 10.18 | 7.22 | 8.80 | 7.57 | 6.41 | 17.09 | 6.56 | |
| Rank | | | | 59 | 58 | 20 | 18 | 20 | 69 | 62 | 52 | 62 | |
| Domestic Equity | 164,655,068 | 7.41 | 7.00 | 19.82 | 28.02 | 18.83 | 12.19 | 13.87 | 12.96 | - | 24.15 | 12.96 | 01/01/2011 |
| Russell 3000 Index | | | | 14.68 | 25.24 | 20.89 | 14.49 | 15.43 | 13.79 | 9.98 | 31.02 | 13.79 | |
| Difference | | | | 5.14 | 2.78 | -2.06 | -2.30 | -1.56 | -0.83 | - | -6.87 | -0.83 | |
| US Large Cap Equity | 97,391,212 | 4.38 | 4.00 | 18.50 | 26.52 | 13.03 | 9.57 | 12.44 | 12.43 | 9.41 | 22.55 | 9.55 | 07/01/2005 |
| S&P 500 Index (Cap Wtd) | | | | 12.15 | 22.16 | 18.40 | 14.18 | 15.22 | 13.88 | 9.88 | 31.49 | 9.94 | |
| Difference | | | | 6.35 | 4.36 | -5.37 | -4.61 | -2.78 | -1.45 | -0.47 | -8.94 | -0.39 | |
| Blackrock S&P 500 (Eq Wtd) (CF) | 97,391,212 | 4.38 | - | 18.50 | 26.52 | 13.03 | - | - | - | - | - | 15.07 | 06/01/2019 |
| S&P 500 Index (Eq Wtd) | | | | 18.46 | 26.45 | 12.83 | 10.44 | 12.95 | 12.66 | 9.97 | 29.24 | 18.92 | |
| Difference | | | | 0.04 | 0.07 | 0.20 | - | - | - | - | - | -3.85 | |
| IM U.S. Large Cap Equity (MF) Median | | | | 12.38 | 22.45 | 18.34 | 13.51 | 14.15 | 12.73 | 9.28 | 30.00 | 23.10 | |
| Rank | | | | 9 | 16 | 64 | - | - | - | - | - | 74 | |
| US SMID Cap Equities | 67,263,856 | 3.03 | 3.00 | 21.72 | 30.17 | 27.32 | 17.66 | 16.36 | 13.80 | 10.53 | 27.30 | 10.63 | 07/01/2005 |
| Russell 2500 Index | | | | 27.41 | 34.90 | 19.99 | 11.33 | 13.64 | 11.97 | 9.55 | 27.77 | 9.69 | |
| Difference | | | | -5.69 | -4.73 | 7.33 | 6.33 | 2.72 | 1.83 | 0.98 | -0.47 | 0.94 | |
| Champlain US Mid Cap Core (SA) | 67,258,892 | 3.03 | - | 21.72 | 30.17 | 27.32 | 17.65 | 17.90 | 14.85 | - | 27.29 | 15.72 | 10/01/2009 |
| Custom SMID Cap Equity Index | | | | 29.38 | 36.38 | 19.99 | 10.79 | 13.87 | 11.86 | 9.48 | 26.65 | 13.33 | |
| Difference | | | | -7.66 | -6.21 | 7.33 | 6.86 | 4.03 | 2.99 | - | 0.64 | 2.39 | |
| IM U.S. SMID Cap Equity (MF) Median | | | | 24.40 | 32.72 | 20.27 | 11.40 | 13.60 | 11.77 | 9.36 | 27.58 | 13.25 | |
| Rank | | | | 80 | 67 | 41 | 32 | 30 | 23 | - | 54 | 30 | |
| Global Equity | 903,709,449 | 40.65 | 29.00 | 15.00 | 25.44 | 19.96 | - | - | - | - | 26.63 | 6.77 | 02/01/2018 |
| MSCI ACW IM Index (USD) (Net) | | | | 15.70 | 25.08 | 16.25 | 9.72 | 12.15 | 9.09 | 7.32 | 26.35 | 8.05 | |
| Difference | | | | -0.70 | 0.36 | 3.71 | - | - | - | - | 0.28 | -1.28 | |

Performance shown is net of fees. Allocations shown may not sum up to 100% exactly due to rounding. Manager inception dates shown represent the first full month of available performance. Fiscal year ends 6/30. Please see addendum for custom benchmark definitions. Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. Interim periods assume a 0% return.

Vermont State Employees' Retirement System
Asset Allocation & Performance - Net of Fees

As of December 31, 2020

| | Allocation | | | Performance (%) | | | | | | | | | |
|---|--------------------|--------------|--------------|-----------------|--------------|--------------|-------------|--------------|-------------|-------------|--------------|--------------|-------------------|
| | Market Value (\$) | Actual (%) | Policy (%) | QTD | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | 15 Years | 2019 | Since Incep. | Inception Date |
| BlackRock MSCI ACW IMI (CF) | 769,394,984 | 34.61 | - | 15.82 | 25.27 | 16.77 | - | - | - | - | - | 17.46 | 07/01/2019 |
| MSCI ACW IM Index (USD) (Net) | | | | 15.70 | 25.08 | 16.25 | 9.72 | 12.15 | 9.09 | 7.32 | 26.35 | 16.99 | |
| Difference | | | | 0.12 | 0.19 | 0.52 | - | - | - | - | - | 0.47 | |
| IM Global Equity (MF) Median | | | | 15.08 | 24.33 | 15.25 | 8.91 | 10.63 | 8.90 | 7.10 | 26.37 | 16.13 | |
| Rank | | | | 44 | 44 | 44 | - | - | - | - | - | 45 | |
| Artisan Global Opportunities (CF) | 134,314,466 | 6.04 | - | 10.54 | 26.20 | 40.50 | - | - | - | - | 36.05 | 21.46 | 06/01/2018 |
| MSCI ACW IM Index (USD) (Net) | | | | 15.70 | 25.08 | 16.25 | 9.72 | 12.15 | 9.09 | 7.32 | 26.35 | 11.19 | |
| Difference | | | | -5.16 | 1.12 | 24.25 | - | - | - | - | 9.70 | 10.27 | |
| IM Global Equity (MF) Median | | | | 15.08 | 24.33 | 15.25 | 8.91 | 10.63 | 8.90 | 7.10 | 26.37 | 10.25 | |
| Rank | | | | 82 | 40 | 14 | - | - | - | - | 6 | 9 | |
| International Equity | 155,812,620 | 7.01 | 7.00 | 15.74 | 22.69 | 4.62 | 2.34 | 8.41 | - | - | 19.30 | 6.65 | 12/01/2011 |
| MSCI EAFE Index (USD) (Net) | | | | 16.05 | 21.61 | 7.82 | 4.28 | 7.45 | 5.51 | 4.48 | 22.01 | 7.49 | |
| Difference | | | | -0.31 | 1.08 | -3.20 | -1.94 | 0.96 | - | - | -2.71 | -0.84 | |
| Acadian International All Cap (SA) | 99,171,622 | 4.46 | - | 14.54 | 24.78 | 12.37 | 3.77 | 10.43 | 7.59 | 5.55 | 18.22 | 6.05 | 11/01/2005 |
| MSCI EAFE IM Index (USD) (Net) | | | | 16.23 | 22.69 | 8.47 | 4.36 | 7.72 | 5.82 | 4.76 | 22.44 | 5.21 | |
| Difference | | | | -1.69 | 2.09 | 3.90 | -0.59 | 2.71 | 1.77 | 0.79 | -4.22 | 0.84 | |
| IM All EAFE (MF) Median | | | | 15.47 | 21.58 | 8.17 | 4.16 | 7.14 | 5.29 | 4.34 | 21.59 | 4.85 | |
| Rank | | | | 62 | 24 | 33 | 55 | 11 | 13 | 22 | 78 | 21 | |
| Mondrian International (SA) | 56,640,998 | 2.55 | - | 17.89 | 19.17 | -4.01 | 0.39 | 5.21 | 4.71 | 4.19 | 19.29 | 4.77 | 07/01/2005 |
| MSCI EAFE Index (USD) (Net) | | | | 16.05 | 21.61 | 7.82 | 4.28 | 7.45 | 5.51 | 4.48 | 22.01 | 5.27 | |
| Difference | | | | 1.84 | -2.44 | -11.83 | -3.89 | -2.24 | -0.80 | -0.29 | -2.72 | -0.50 | |
| IM All EAFE (MF) Median | | | | 15.47 | 21.58 | 8.17 | 4.16 | 7.14 | 5.29 | 4.34 | 21.59 | 5.27 | |
| Rank | | | | 24 | 83 | 98 | 83 | 77 | 67 | 57 | 69 | 64 | |
| Fixed Income | 630,816,036 | 28.38 | 32.00 | 1.67 | 2.94 | 8.14 | 5.35 | 5.84 | 4.80 | - | 9.21 | 4.80 | 01/01/2011 |
| Bloomberg US Agg Bond Index | | | | 0.67 | 1.29 | 7.51 | 5.34 | 4.44 | 3.84 | 4.49 | 8.72 | 3.84 | |
| Difference | | | | 1.00 | 1.65 | 0.63 | 0.01 | 1.40 | 0.96 | - | 0.49 | 0.96 | |
| Core/Core Plus Fixed Income | 528,957,603 | 23.79 | 0.00 | 0.79 | - | - | - | - | - | - | - | 0.79 | 09/01/2020 |
| Bloomberg US Agg Bond Index | | | | 0.67 | 1.29 | 7.51 | 5.34 | 4.44 | 3.84 | 4.49 | 8.72 | 0.61 | |
| Difference | | | | 0.12 | - | - | - | - | - | - | - | 0.18 | |

Performance shown is net of fees. Allocations shown may not sum up to 100% exactly due to rounding. Manager inception dates shown represent the first full month of available performance. Fiscal year ends 6/30. Please see addendum for custom benchmark definitions. Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. Interim periods assume a 0% return.

Vermont State Employees' Retirement System
Asset Allocation & Performance - Net of Fees

As of December 31, 2020

| | Allocation | | | Performance (%) | | | | | | | | | |
|--|--------------------|--------------|-------------|-----------------|--------------|-------------|-------------|-------------|-------------|----------|--------------|--------------|-------------------|
| | Market Value (\$) | Actual (%) | Policy (%) | QTD | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | 15 Years | 2019 | Since Incep. | Inception Date |
| BlackRock US Agg (CF) | 425,967,852 | 19.16 | - | 0.71 | 1.34 | 7.54 | - | - | - | - | - | 6.91 | 06/01/2019 |
| Bloomberg US Agg Bond Index | | | | 0.67 | 1.29 | 7.51 | 5.34 | 4.44 | 3.84 | 4.49 | 8.72 | 7.13 | |
| Difference | | | | 0.04 | 0.05 | 0.03 | - | - | - | - | - | -0.22 | |
| IM U.S. Broad Mkt Core FI (MF) | | | | 1.36 | 2.57 | 8.19 | 5.38 | 4.56 | 3.91 | 4.41 | 8.76 | 7.55 | |
| Rank | | | | 84 | 86 | 71 | - | - | - | - | - | 75 | |
| PIMCO Core Plus (SA) | 102,989,751 | 4.63 | - | 1.14 | - | - | - | - | - | - | - | 1.27 | 09/01/2020 |
| Bloomberg US Agg Bond Index | | | | 0.67 | 1.29 | 7.51 | 5.34 | 4.44 | 3.84 | 4.49 | 8.72 | 0.61 | |
| Difference | | | | 0.47 | - | - | - | - | - | - | - | 0.66 | |
| IM U.S. Broad Mkt Core+ FI (MF) | | | | 2.03 | 3.65 | 8.54 | 5.59 | 5.11 | 4.36 | 4.98 | 9.32 | 1.91 | |
| Rank | | | | 85 | - | - | - | - | - | - | - | 83 | |
| Emerging Markets Debt | 95,848,230 | 4.31 | 0.00 | 6.61 | - | - | - | - | - | - | - | 4.65 | 09/01/2020 |
| JPM Emg Mkts Bond Gbl Index (USD) | | | | 5.49 | 7.89 | 5.88 | 4.94 | 6.84 | 5.97 | 6.76 | 14.42 | 3.74 | |
| Difference | | | | 1.12 | - | - | - | - | - | - | - | 0.91 | |
| Wellington Opportunistic EMD (CF) | 95,848,230 | 4.31 | - | 6.61 | 9.26 | 7.69 | 5.53 | 7.96 | 6.45 | - | 15.84 | 6.98 | 12/01/2009 |
| JPM Emg Mkts Bond Gbl Index (USD) | | | | 5.49 | 7.89 | 5.88 | 4.94 | 6.84 | 5.97 | 6.76 | 14.42 | 6.49 | |
| Difference | | | | 1.12 | 1.37 | 1.81 | 0.59 | 1.12 | 0.48 | - | 1.42 | 0.49 | |
| IM Emerging Markets Debt (MF) Median | | | | 7.36 | 10.19 | 5.57 | 4.30 | 6.76 | 4.93 | 5.91 | 13.58 | 5.59 | |
| Rank | | | | 70 | 67 | 15 | 10 | 10 | 3 | - | 9 | 4 | |
| High Yield Fixed Income | 5,225,160 | 0.24 | 0.00 | 6.11 | 12.15 | 3.27 | 1.71 | 5.21 | 5.19 | - | 6.30 | 6.02 | 06/01/2006 |
| Bloomberg US Corp Hi Yld Index | | | | 6.45 | 11.34 | 7.11 | 6.24 | 8.59 | 6.80 | 7.50 | 14.32 | 7.47 | |
| Difference | | | | -0.34 | 0.81 | -3.84 | -4.53 | -3.38 | -1.61 | - | -8.02 | -1.45 | |
| PIMCO Liquidation (SA) | 5,225,160 | 0.24 | - | 6.11 | 12.15 | 3.26 | - | - | - | - | 6.30 | 1.77 | 08/01/2018 |
| Bloomberg US Corp Hi Yld Index | | | | 6.45 | 11.34 | 7.11 | 6.24 | 8.59 | 6.80 | 7.50 | 14.32 | 7.25 | |
| Difference | | | | -0.34 | 0.81 | -3.85 | - | - | - | - | -8.02 | -5.48 | |
| IM U.S. High Yield Bonds (MF) Median | | | | 6.02 | 10.83 | 5.28 | 4.96 | 7.04 | 5.61 | 6.16 | 13.51 | 5.97 | |
| Rank | | | | 49 | 25 | 81 | - | - | - | - | 99 | 99 | |
| Private Debt | 56,206,318 | 2.53 | 5.00 | 0.96 | 7.94 | 2.22 | 4.72 | - | - | - | 7.55 | 4.72 | 01/01/2018 |
| S&P/LSTA Lvg'd Loan Index | | | | 3.81 | 8.11 | 3.12 | 4.01 | 5.24 | 4.32 | 4.62 | 8.64 | 4.01 | |
| Difference | | | | -2.85 | -0.17 | -0.90 | 0.71 | - | - | - | -1.09 | 0.71 | |

Performance shown is net of fees. Allocations shown may not sum up to 100% exactly due to rounding. Manager inception dates shown represent the first full month of available performance. Fiscal year ends 6/30. Please see addendum for custom benchmark definitions. Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. Interim periods assume a 0% return.

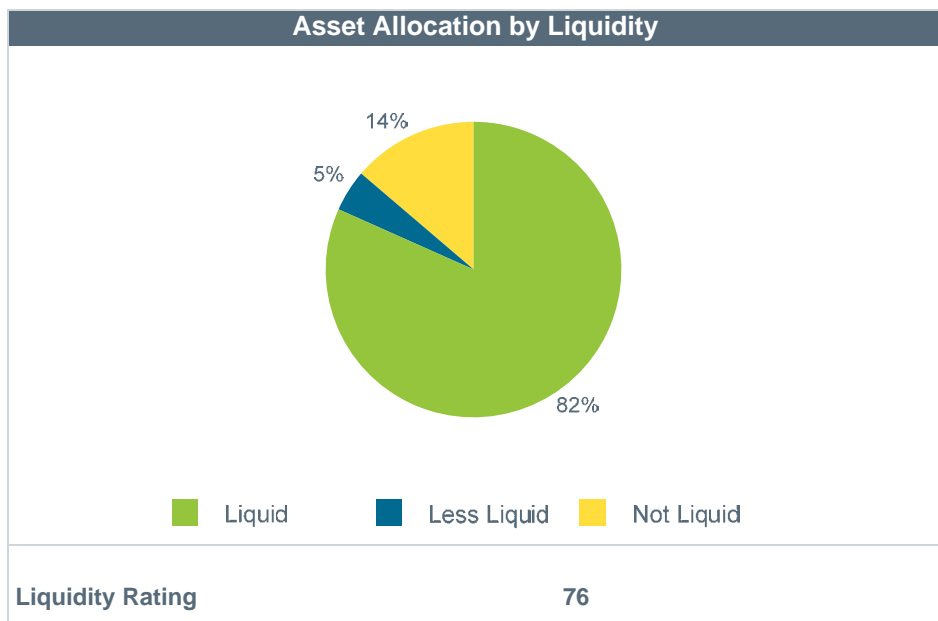
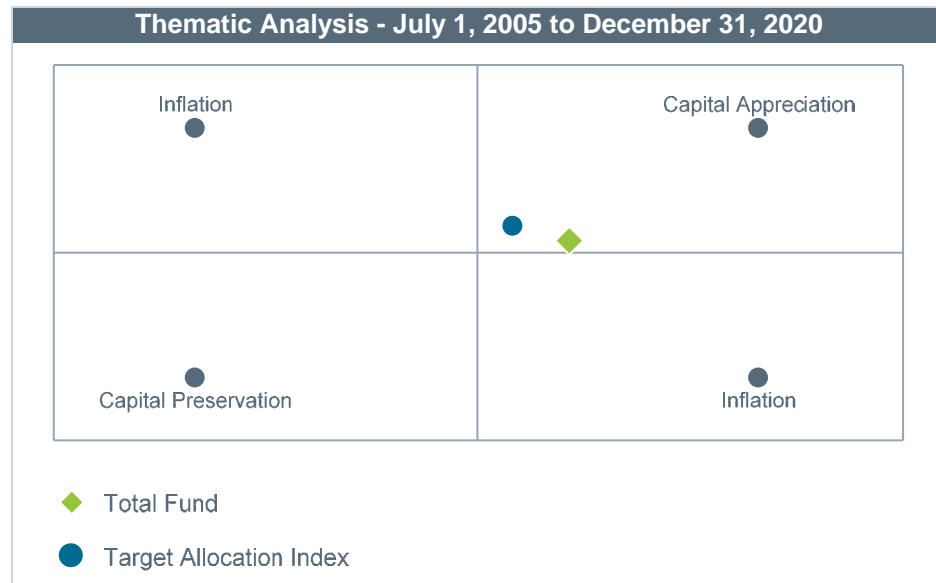
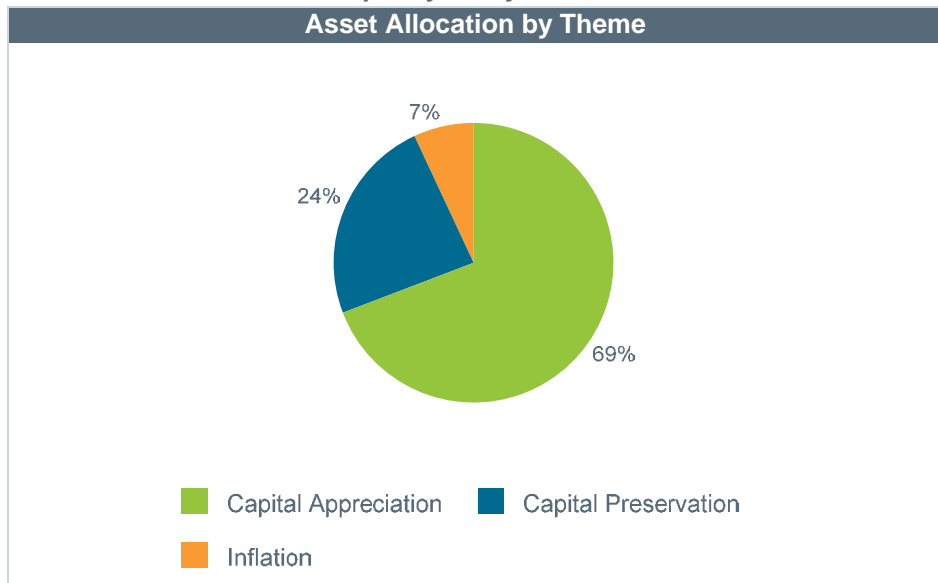
Vermont State Employees' Retirement System
Asset Allocation & Performance - Net of Fees

As of December 31, 2020

| | Allocation | | | Performance (%) | | | | | | | | | |
|-------------------------------------|--------------------|-------------|--------------|-----------------|--------------|--------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------------|
| | Market Value (\$) | Actual (%) | Policy (%) | QTD | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | 15 Years | 2019 | Since Incep. | Inception Date |
| Private Equity | 111,542,105 | 5.02 | 10.00 | 11.33 | 25.71 | 17.25 | 20.82 | 18.18 | - | - | 22.30 | 17.39 | 01/01/2013 |
| Cambridge US Prvt Eq Index | | | | 0.00 | 11.78 | 9.98 | 11.32 | 13.03 | 12.77 | 11.93 | 13.85 | 12.88 | |
| Difference | | | | 11.33 | 13.93 | 7.27 | 9.50 | 5.15 | - | - | 8.45 | 4.51 | |
| Non-Core Real Estate | 43,521,061 | 1.96 | 0.00 | 4.50 | -0.80 | -1.80 | 3.75 | 7.93 | - | - | 0.82 | 8.42 | 09/01/2014 |
| NCREIF Property Index | | | | 1.15 | 1.89 | 1.60 | 4.89 | 5.91 | 9.00 | 7.14 | 6.42 | 7.67 | |
| Difference | | | | 3.35 | -2.69 | -3.40 | -1.14 | 2.02 | - | - | -5.60 | 0.75 | |
| Inflation Hedging Assets | 154,385,471 | 6.94 | 10.00 | 0.53 | -2.78 | -2.75 | 0.84 | 3.50 | 8.84 | - | -1.82 | 8.84 | 01/01/2011 |
| CPI+2.5% (Spliced) | | | | 0.69 | 1.04 | 0.75 | 4.59 | 5.73 | 8.91 | 7.08 | 6.42 | 8.91 | |
| Difference | | | | -0.16 | -3.82 | -3.50 | -3.75 | -2.23 | -0.07 | - | -8.24 | -0.07 | |
| TIPS | 60,781,311 | 2.73 | 0.00 | 1.64 | - | - | - | - | - | - | - | 1.27 | 09/01/2020 |
| Bloomberg US Trsy US TIPS Index | | | | 1.62 | 4.70 | 10.99 | 5.92 | 5.08 | 3.81 | 4.32 | 8.43 | 1.25 | |
| Difference | | | | 0.02 | - | - | - | - | - | - | - | 0.02 | |
| BlackRock TIPS (CF) | 60,781,311 | 2.73 | - | 1.64 | 4.73 | 10.96 | 5.84 | 5.03 | 3.73 | - | 8.33 | 3.75 | 12/01/2009 |
| Bloomberg US Trsy US TIPS Index | | | | 1.62 | 4.70 | 10.99 | 5.92 | 5.08 | 3.81 | 4.32 | 8.43 | 3.79 | |
| Difference | | | | 0.02 | 0.03 | -0.03 | -0.08 | -0.05 | -0.08 | - | -0.10 | -0.04 | |
| IM U.S. TIPS (MF) Median | | | | 1.78 | 4.81 | 9.64 | 5.10 | 4.44 | 3.04 | 3.60 | 7.53 | 3.12 | |
| Rank | | | | 61 | 56 | 26 | 20 | 23 | 10 | - | 25 | 11 | |
| Core Real Estate | 87,058,728 | 3.92 | 0.00 | -0.18 | -2.61 | -2.13 | 0.40 | 2.76 | 8.54 | - | -2.62 | 8.54 | 01/01/2011 |
| NCREIF ODCE Index (AWA) (Net) | | | | 1.10 | 1.37 | 0.34 | 3.99 | 5.27 | 8.87 | 5.46 | 4.39 | 8.87 | |
| Difference | | | | -1.28 | -3.98 | -2.47 | -3.59 | -2.51 | -0.33 | - | -7.01 | -0.33 | |
| UBS Trumbull Properties (CF) | 87,058,349 | 3.92 | - | -0.18 | -2.61 | -2.13 | 0.44 | 2.52 | 6.54 | 4.93 | -2.51 | 5.30 | 07/01/2005 |
| NCREIF ODCE Index (AWA) (Net) | | | | 1.10 | 1.37 | 0.34 | 3.99 | 5.27 | 8.87 | 5.46 | 4.39 | 5.91 | |
| Difference | | | | -1.28 | -3.98 | -2.47 | -3.55 | -2.75 | -2.33 | -0.53 | -6.90 | -0.61 | |
| Private Infrastructure/Land | 6,545,433 | 0.29 | 0.00 | -0.19 | - | - | - | - | - | - | - | -0.19 | 08/01/2020 |
| NCREIF Farmland Index (TR) | | | | 1.59 | 2.57 | 3.08 | 4.87 | 5.57 | 10.41 | 11.42 | 4.81 | 2.57 | |
| Difference | | | | -1.78 | - | - | - | - | - | - | - | -2.76 | |
| Cash Equivalents | 1,947,542 | 0.09 | 0.00 | 0.05 | 0.06 | 0.37 | 0.47 | 0.28 | 0.16 | - | 0.91 | 0.16 | 01/01/2011 |
| ICE BofAML 3 Mo US T-Bill Index | | | | 0.03 | 0.07 | 0.67 | 1.61 | 1.20 | 0.63 | 1.23 | 2.28 | 0.63 | |
| Difference | | | | 0.02 | -0.01 | -0.30 | -1.14 | -0.92 | -0.47 | - | -1.37 | -0.47 | |

Performance shown is net of fees. Allocations shown may not sum up to 100% exactly due to rounding. Manager inception dates shown represent the first full month of available performance. Fiscal year ends 6/30. Please see addendum for custom benchmark definitions. Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. Interim periods assume a 0% return.





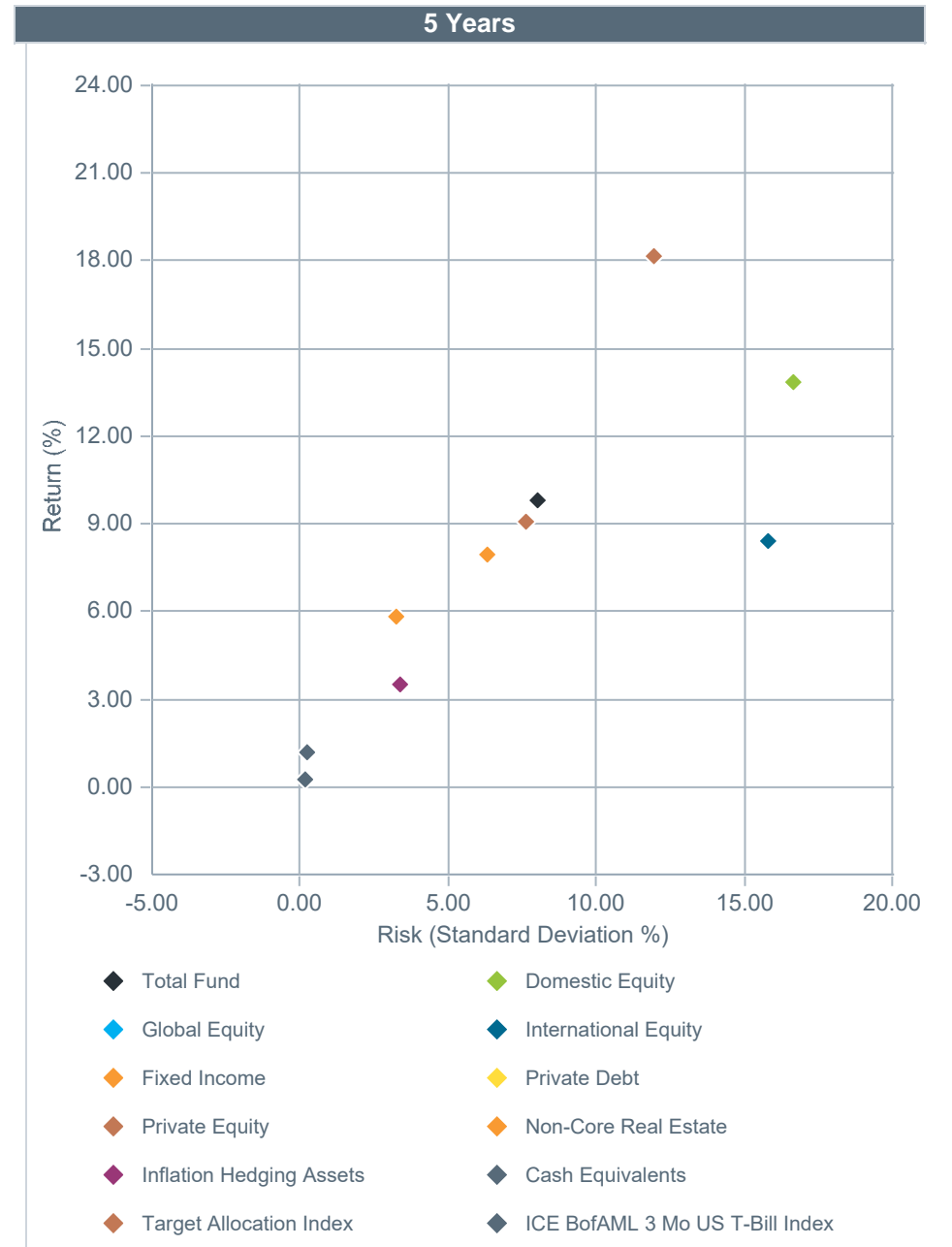
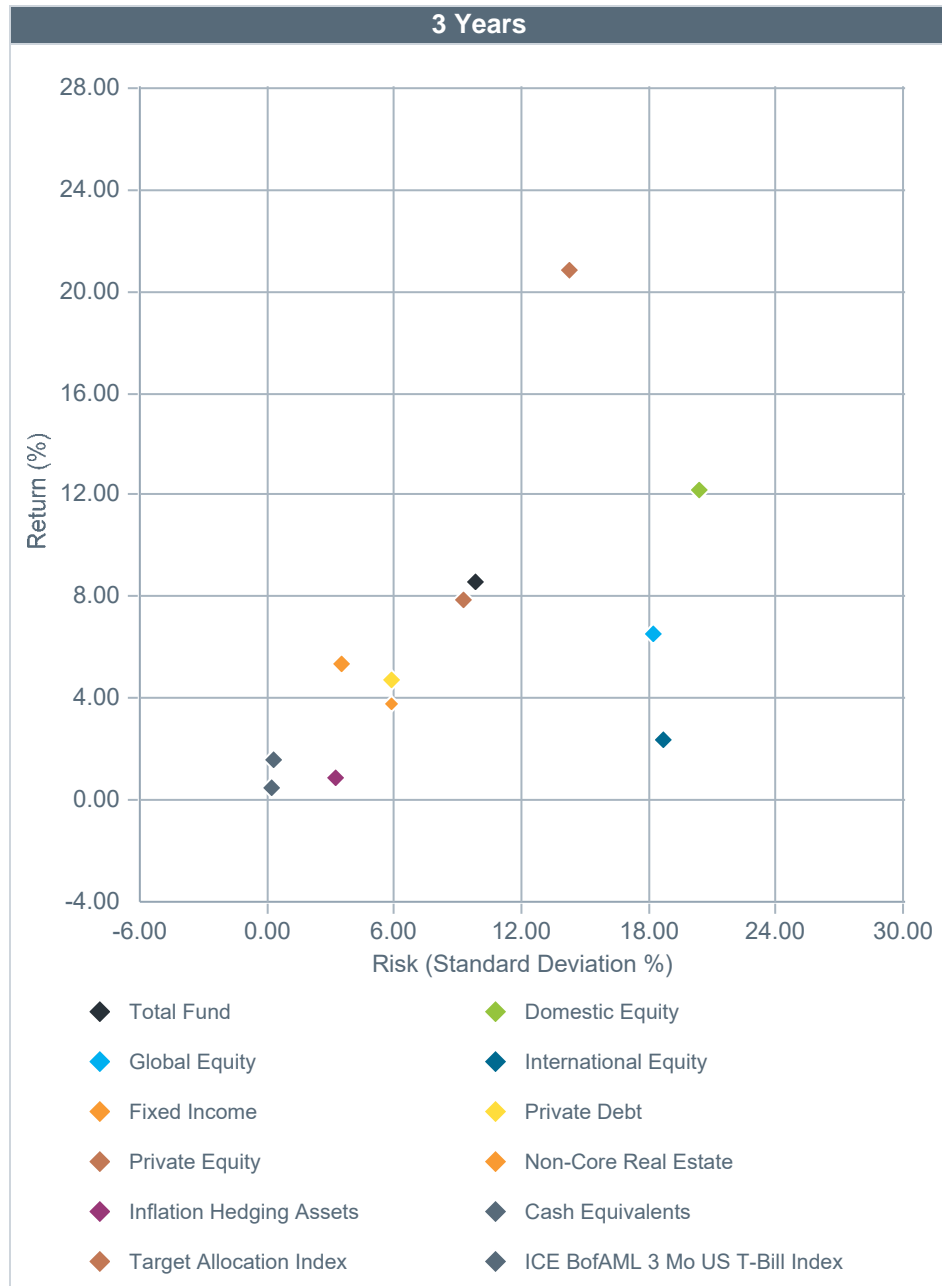
Correlation Matrix - 10 Years

| | A | B | C | D |
|---|-------|-------|-------|------|
| A | 1.00 | | | |
| B | 0.71 | 1.00 | | |
| C | -0.26 | -0.39 | 1.00 | |
| D | 0.61 | 0.79 | -0.10 | 1.00 |

A = HFRI EH: Equity Market Neutral Index (Alpha)
 B = MSCI ACW Index (USD) (Gross) (Capital Appreciation)
 C = Bloomberg US Gov't Bond Index (Capital Preservation)
 D = Real Return Custom Index (Inflation)

Asset Allocation by Theme is based on dedicated manager allocations; as such, thematic allocations are approximations. The RVK Liquidity Rating is calculated using beginning of month investment weights applied to each corresponding asset class liquidity rating. Please see the Glossary for additional information regarding liquidity, thematic, and custom index descriptions. Allocations may not sum to 100% due to rounding.

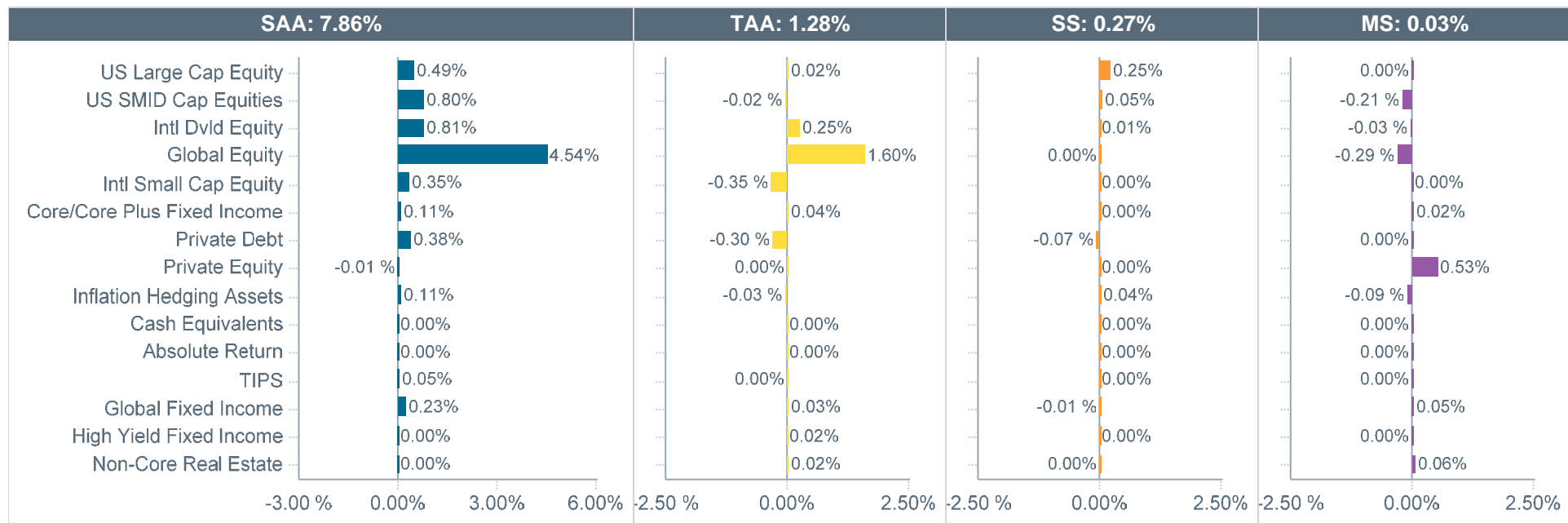
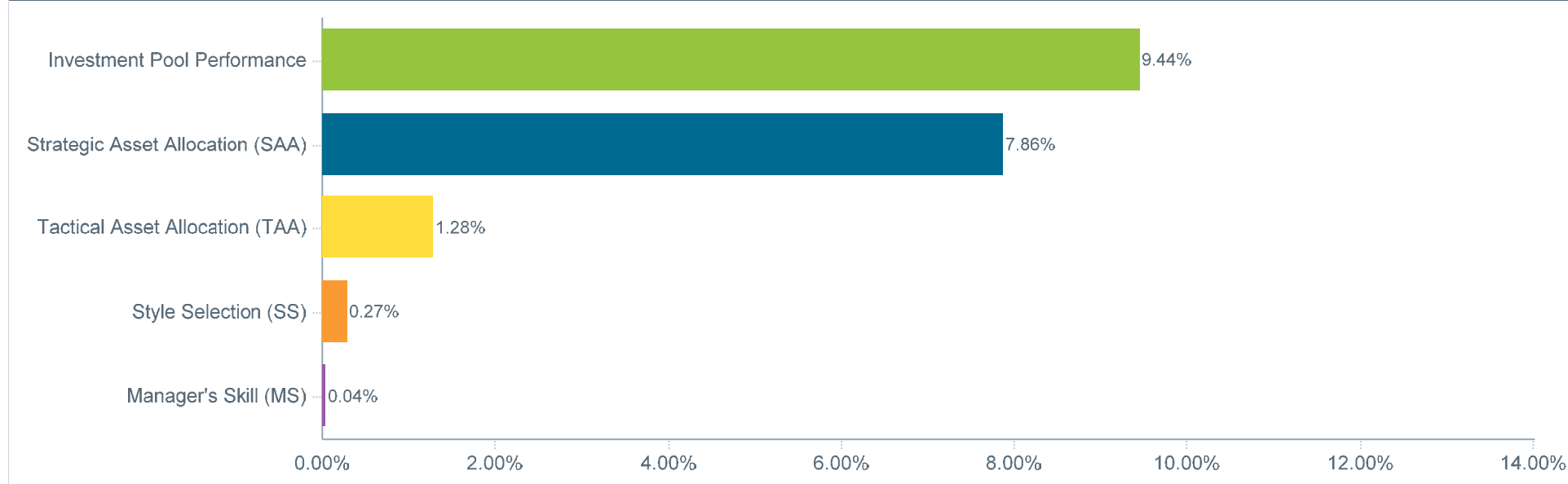




Performance shown is net of fees. Calculation is based on monthly periodicity. Funds or composites with less history than the specified time period will not appear in the chart.



Performance Attribution



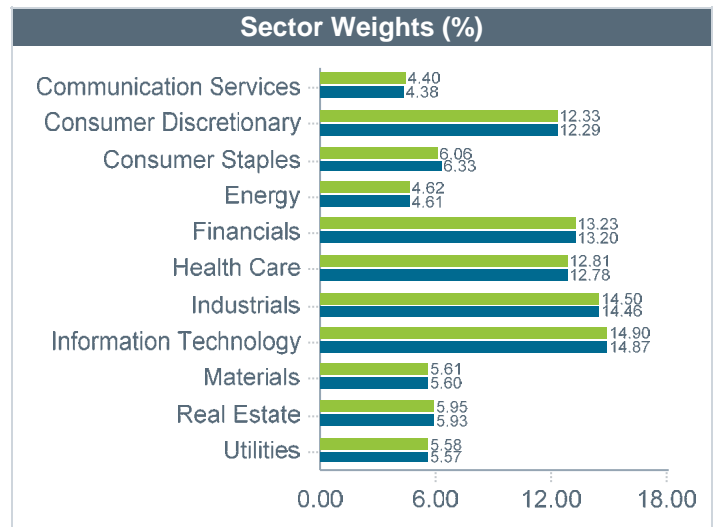
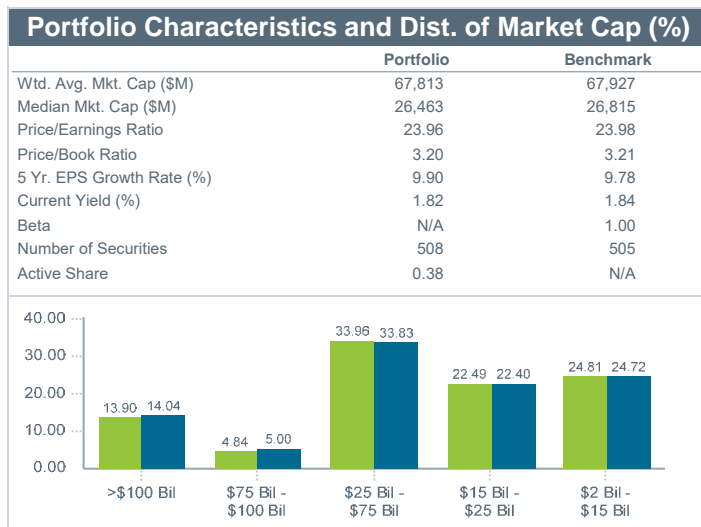
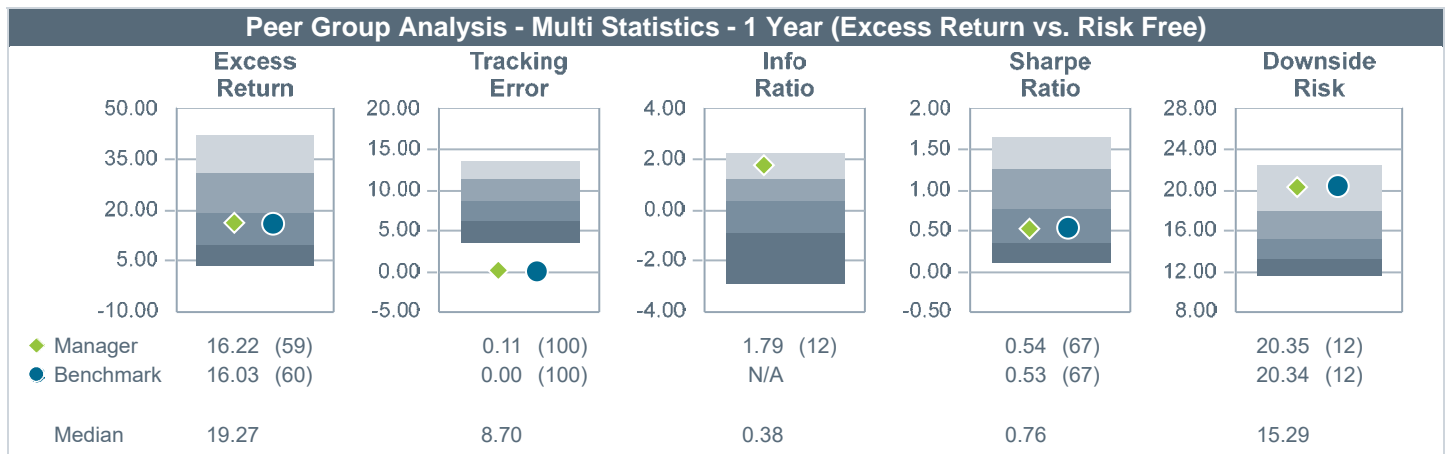
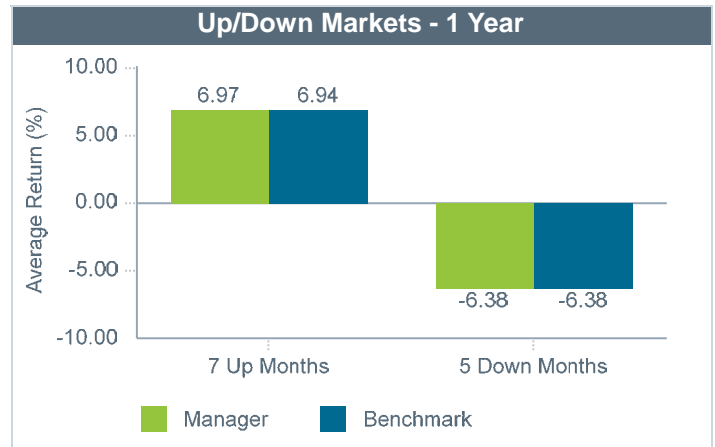
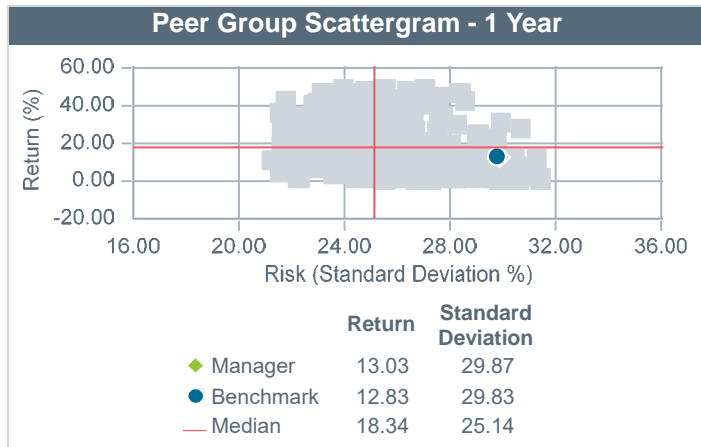
Performance shown is net of fees. Calculation is based on monthly. Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. RVK cautions that the interpretation of time-weighted data on non-marketable investments, such as Private Equity, is imperfect at best and can potentially be misleading. See Glossary for additional information regarding the Total Fund Attribution - IDP calculation.



Investment Manager Profiles

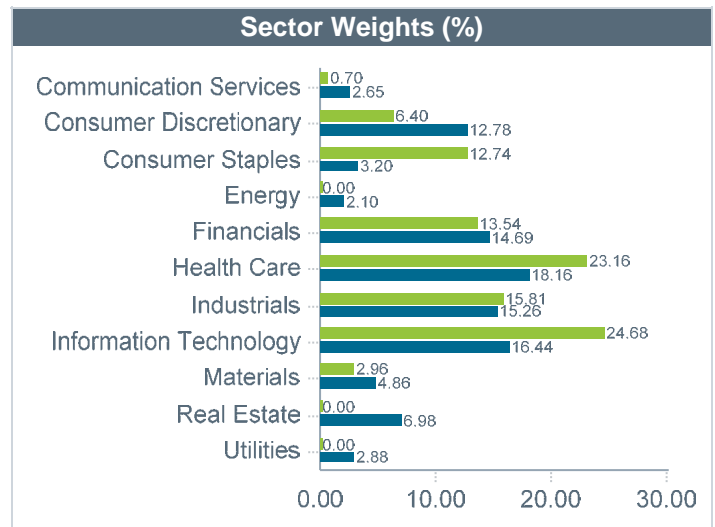
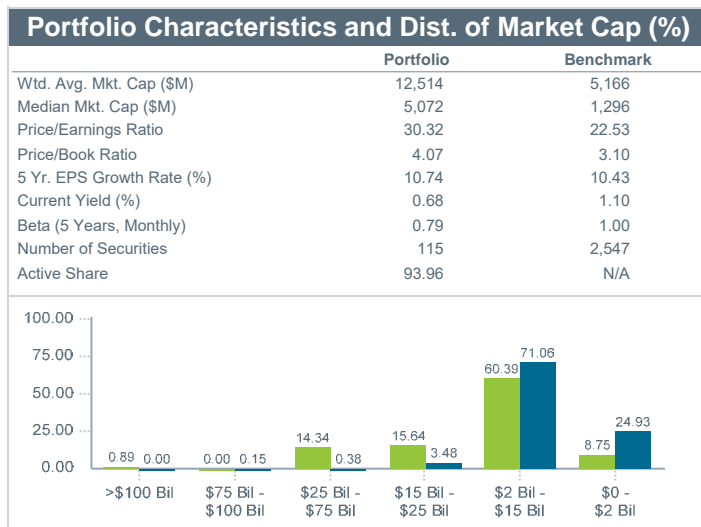
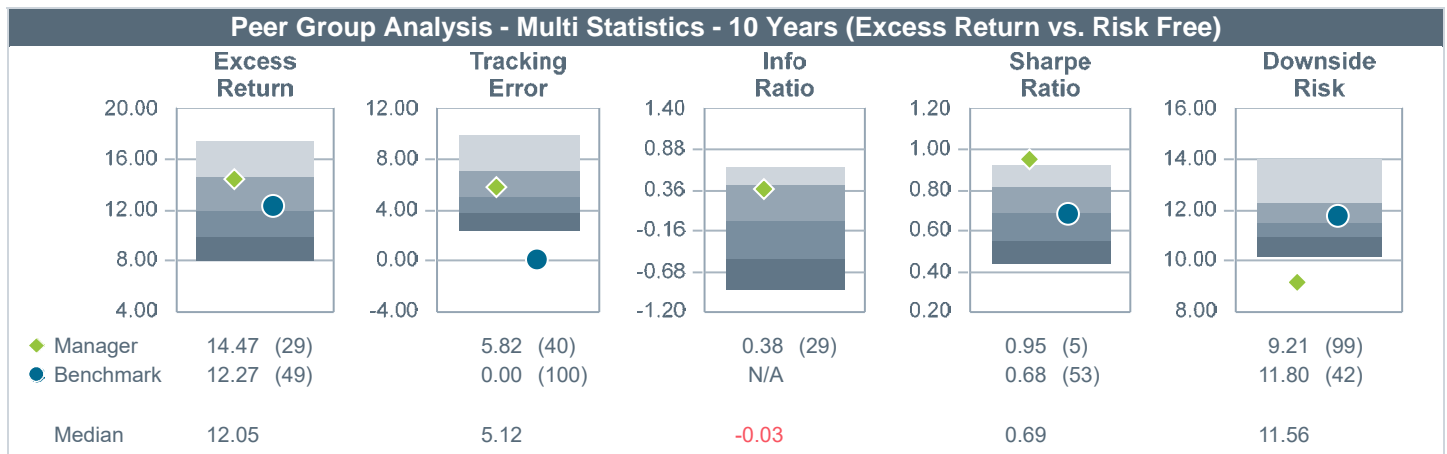
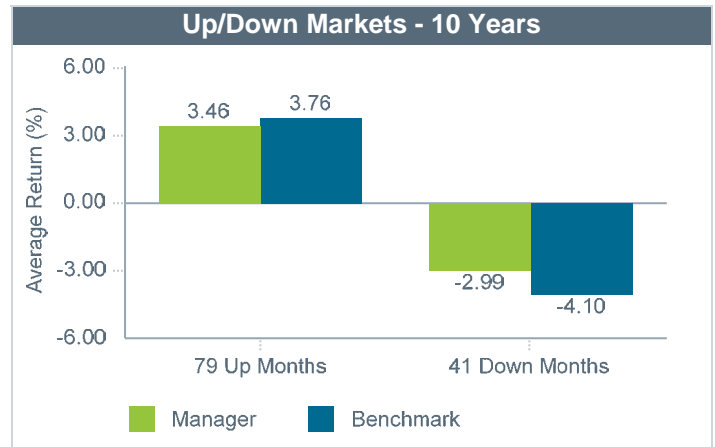
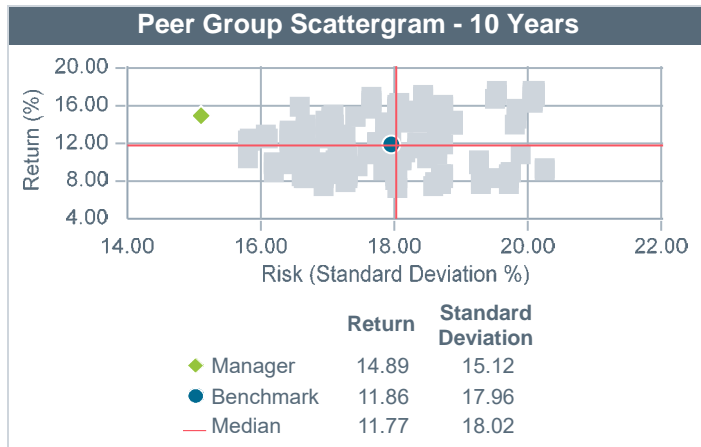


| Performance | | | | | | | | | | | |
|-------------------|-------|--------|---------|---------|---------|----------|-------|-------|-------|-------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 18.50 | 13.03 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Benchmark | 18.46 | 12.83 | 10.44 | 12.95 | 10.86 | 12.66 | 29.24 | -7.64 | 18.90 | 14.80 | -2.20 |
| Difference | 0.04 | 0.20 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Peer Group Median | 12.38 | 18.34 | 13.51 | 14.15 | 11.78 | 12.73 | 30.00 | -5.04 | 21.88 | 9.05 | 0.79 |
| Rank | 9 | 64 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Population | 1,936 | 1,874 | 1,701 | 1,522 | 1,348 | 1,175 | 1,853 | 1,867 | 1,796 | 1,711 | 1,579 |



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

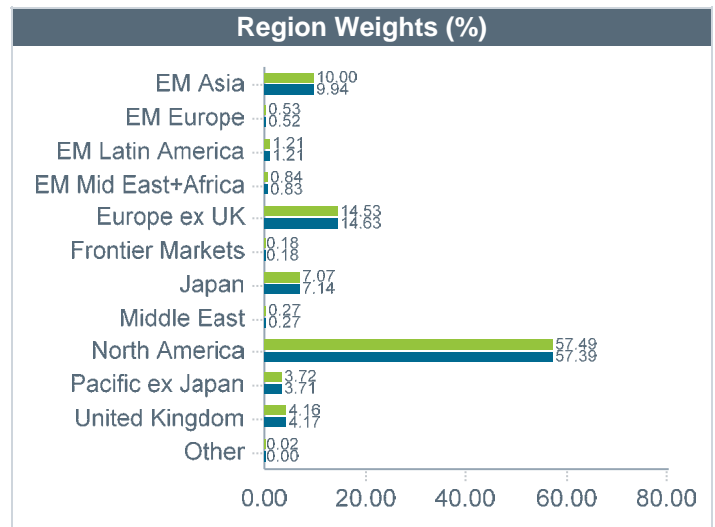
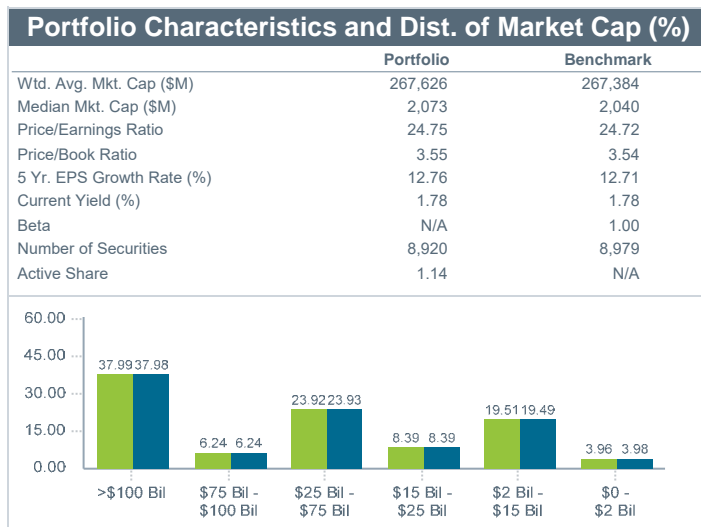
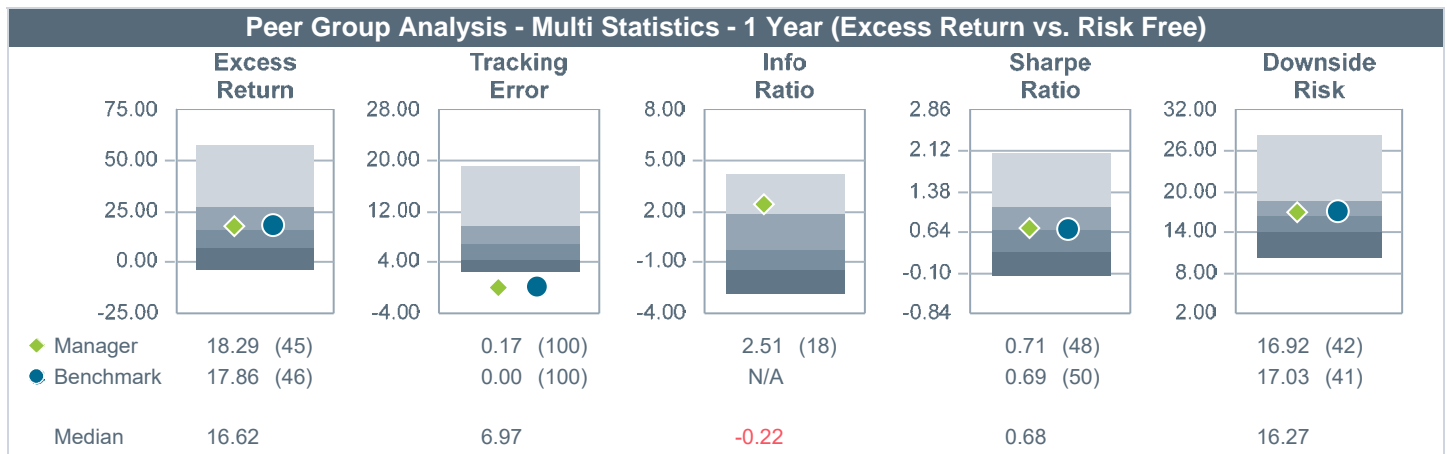
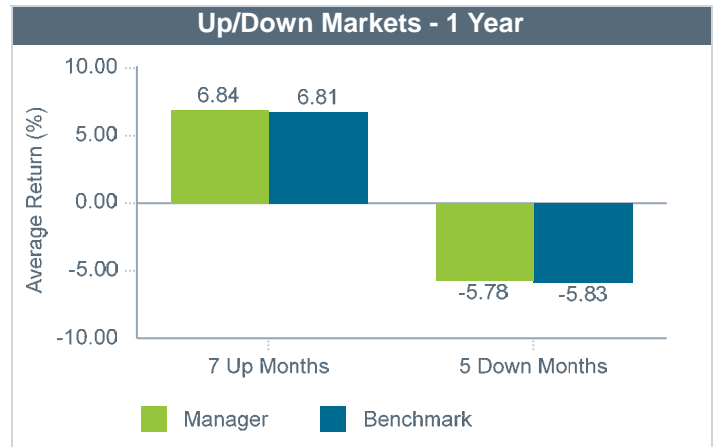
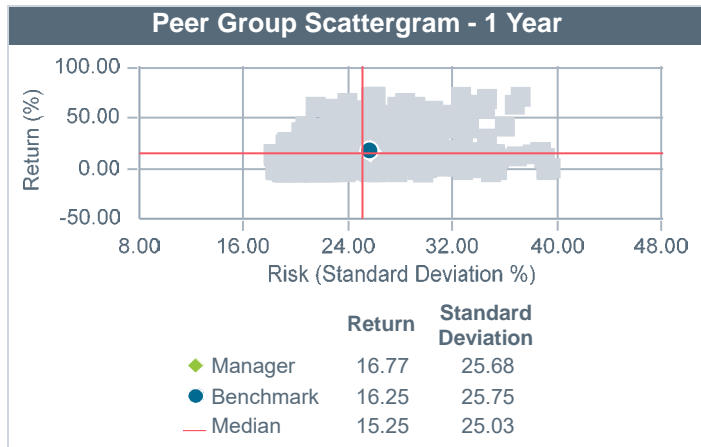
| Performance | | | | | | | | | | | |
|-------------------|-------|--------|---------|---------|---------|----------|-------|--------|-------|-------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 21.72 | 27.32 | 17.65 | 17.88 | 14.07 | 14.89 | 27.29 | 0.47 | 17.33 | 19.16 | 1.76 |
| Benchmark | 29.38 | 19.99 | 10.79 | 13.87 | 10.03 | 11.86 | 26.65 | -10.50 | 14.67 | 22.77 | -4.50 |
| Difference | -7.66 | 7.33 | 6.86 | 4.01 | 4.04 | 3.03 | 0.64 | 10.97 | 2.66 | -3.61 | 6.26 |
| Peer Group Median | 24.40 | 20.27 | 11.40 | 13.60 | 10.33 | 11.77 | 27.58 | -10.14 | 17.95 | 14.60 | -2.81 |
| Rank | 80 | 41 | 32 | 30 | 21 | 22 | 54 | 10 | 53 | 25 | 9 |
| Population | 478 | 468 | 438 | 381 | 337 | 284 | 492 | 491 | 464 | 427 | 399 |



Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



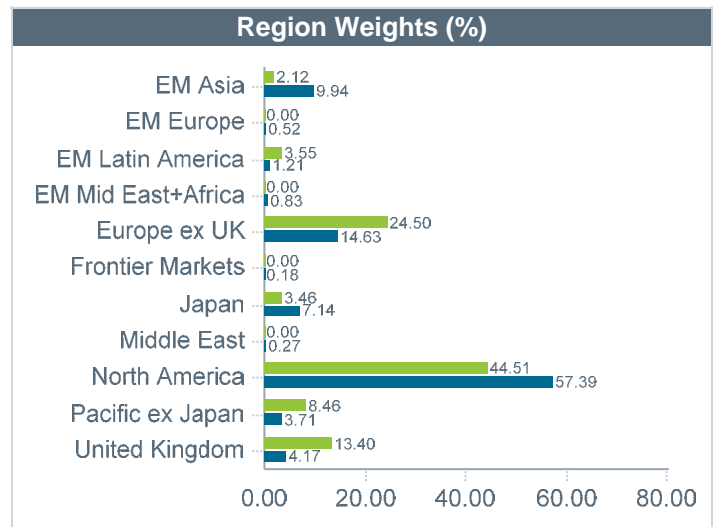
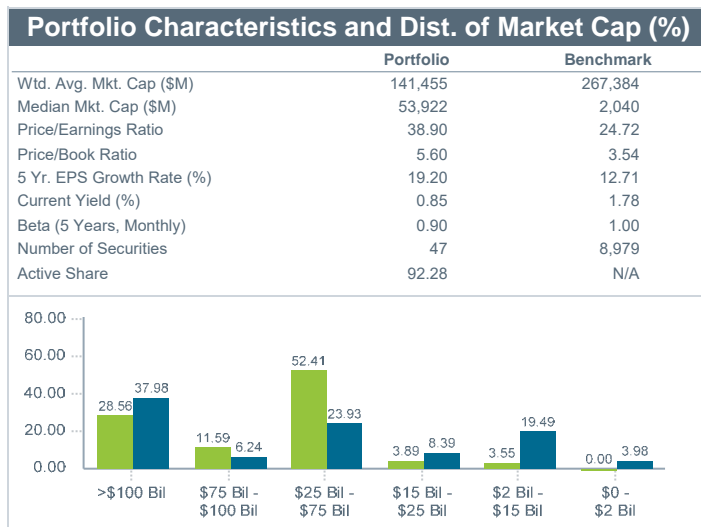
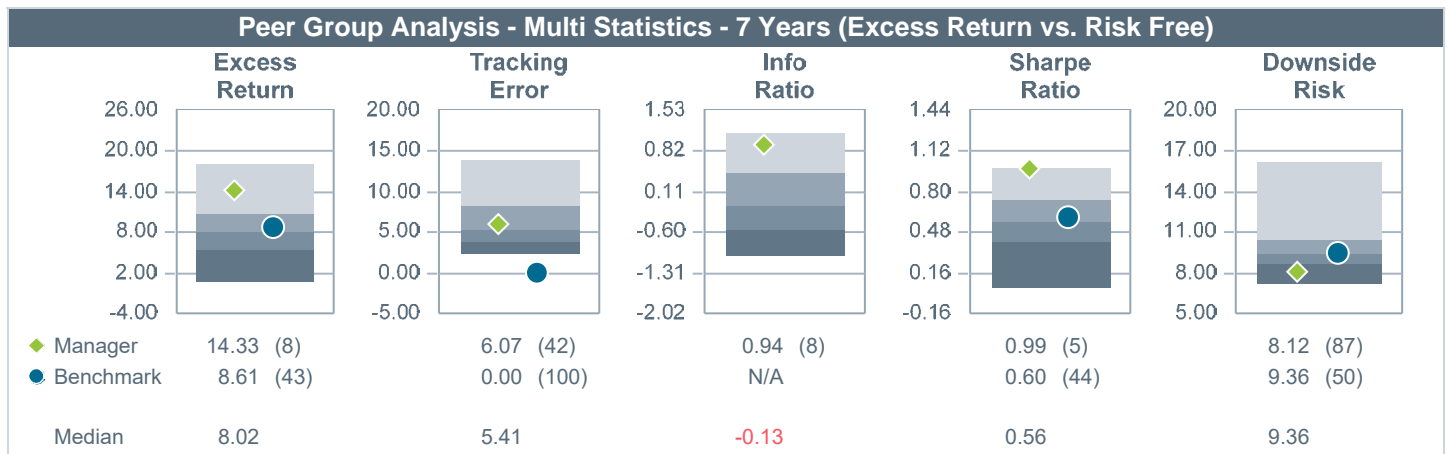
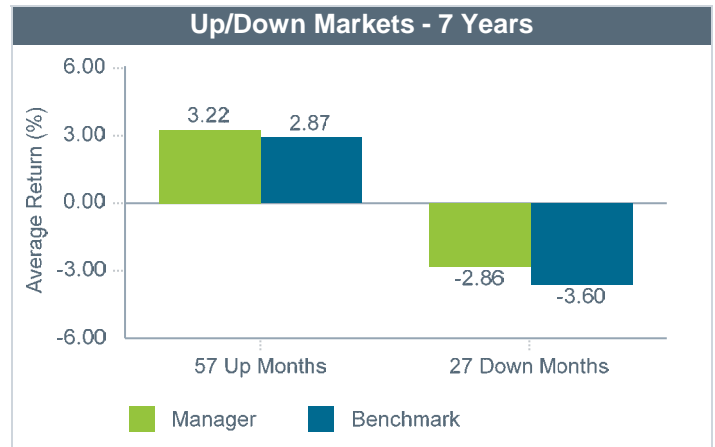
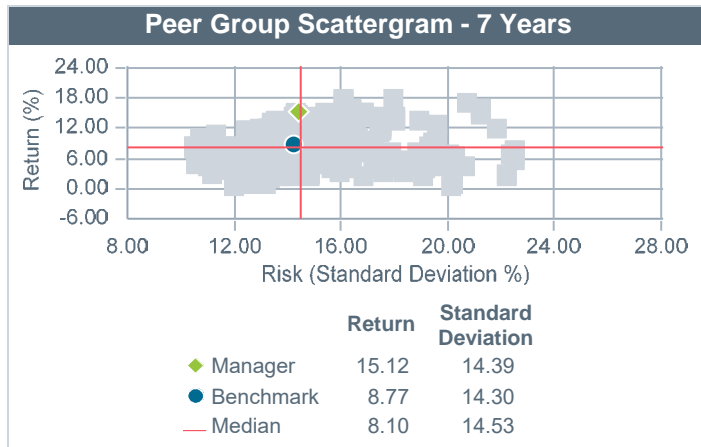
| Performance | | | | | | | | | | | |
|-------------------|--------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 15.82 | 16.77 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Benchmark | 15.70 | 16.25 | 9.72 | 12.15 | 8.77 | 9.09 | 26.35 | -10.08 | 23.95 | 8.36 | -2.19 |
| Difference | 0.12 | 0.52 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Peer Group Median | 15.08 | 15.25 | 8.91 | 10.63 | 8.10 | 8.90 | 26.37 | -9.72 | 22.33 | 6.34 | -1.65 |
| Rank | 44 | 44 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Population | 1,425 | 1,363 | 1,180 | 961 | 835 | 612 | 1,403 | 1,402 | 1,314 | 1,197 | 1,098 |



Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

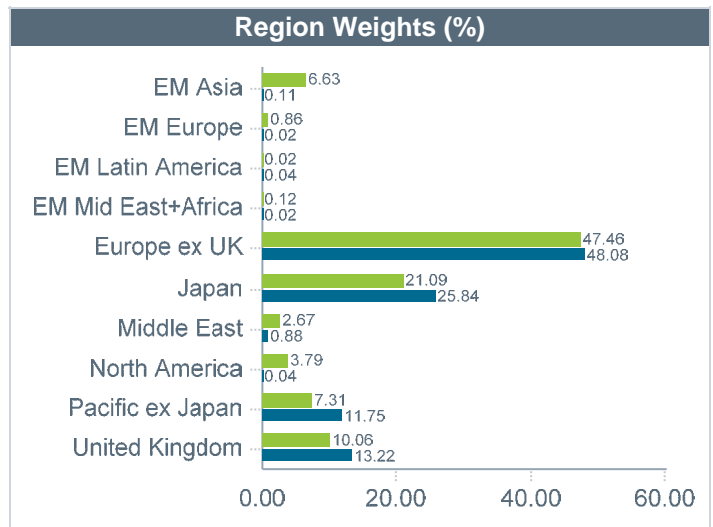
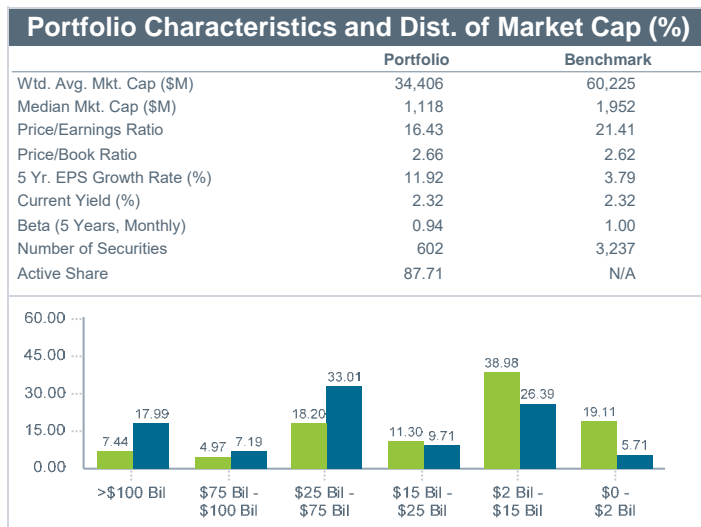
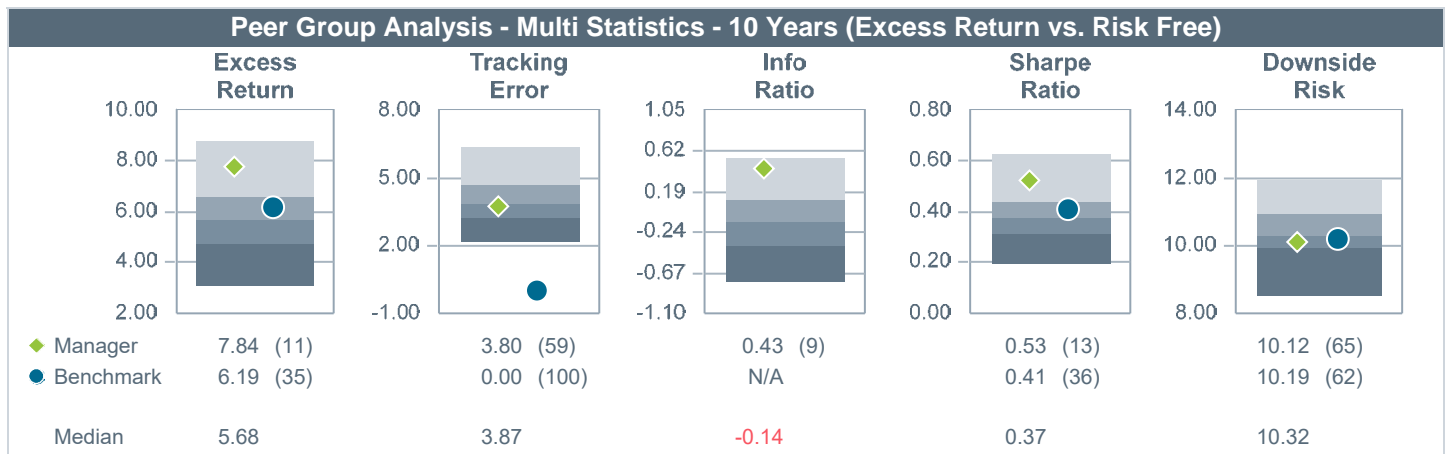
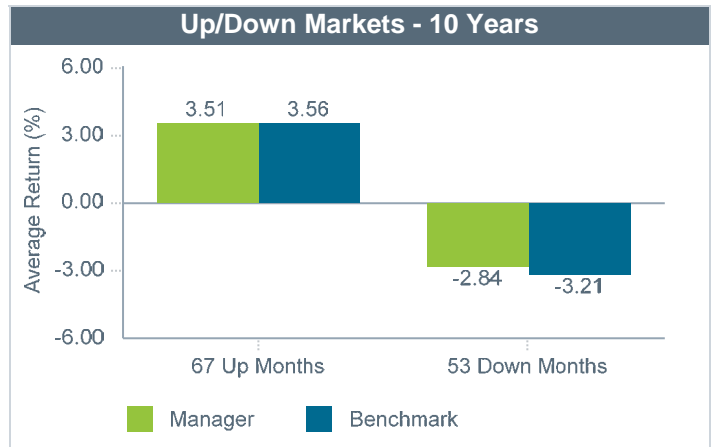
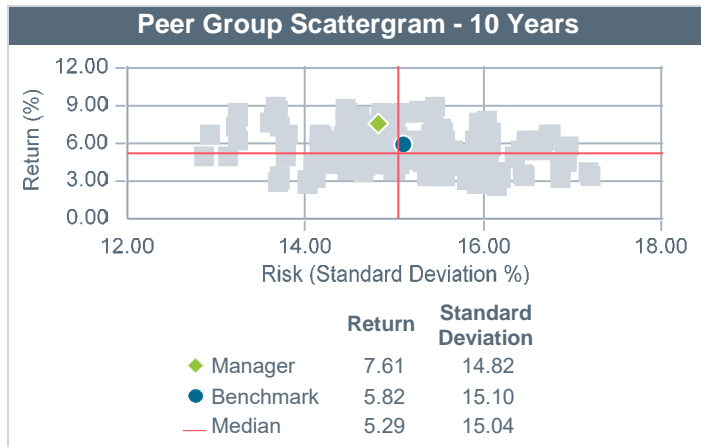


| Performance | | | | | | | | | | | |
|-------------------|-------|--------|---------|---------|---------|----------|-------|--------|-------|-------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 10.49 | 40.32 | 20.31 | 19.16 | 15.12 | N/A | 35.89 | -8.68 | 31.69 | 4.77 | 8.27 |
| Benchmark | 15.70 | 16.25 | 9.72 | 12.15 | 8.77 | 9.09 | 26.35 | -10.08 | 23.95 | 8.36 | -2.19 |
| Difference | -5.21 | 24.07 | 10.59 | 7.01 | 6.35 | N/A | 9.54 | 1.40 | 7.74 | -3.59 | 10.46 |
| Peer Group Median | 15.08 | 15.25 | 8.91 | 10.63 | 8.10 | 8.90 | 26.37 | -9.72 | 22.33 | 6.34 | -1.65 |
| Rank | 82 | 14 | 9 | 7 | 7 | N/A | 6 | 38 | 12 | 64 | 6 |
| Population | 1,425 | 1,363 | 1,180 | 961 | 835 | 612 | 1,403 | 1,402 | 1,314 | 1,197 | 1,098 |



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

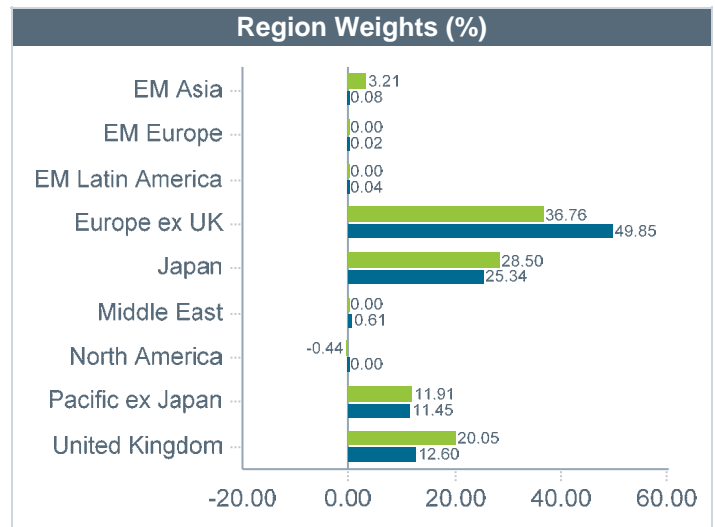
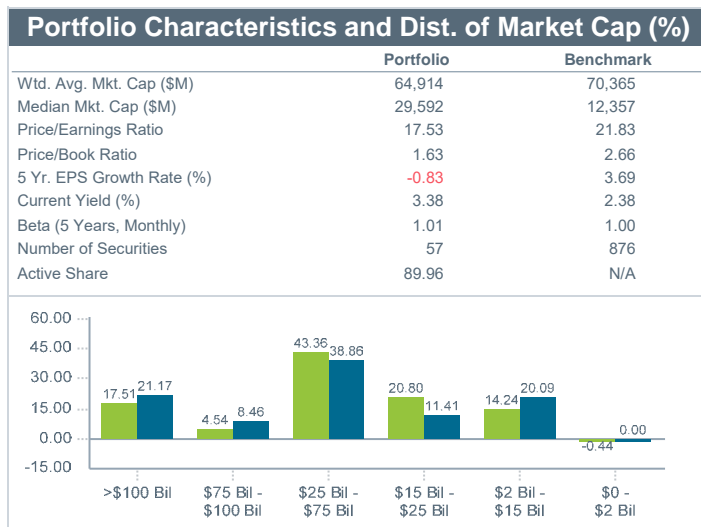
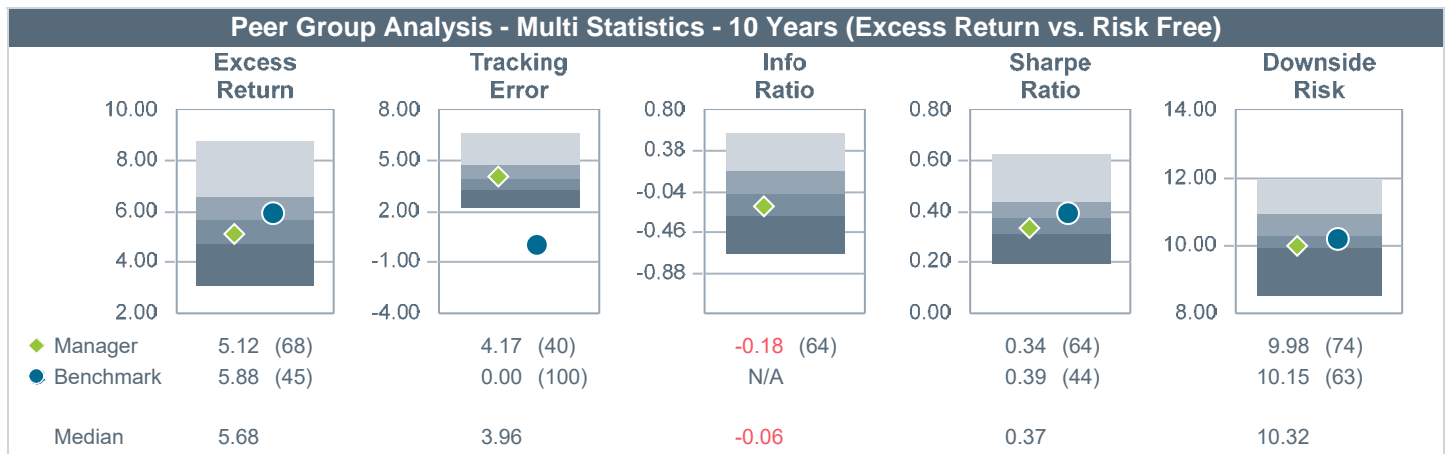
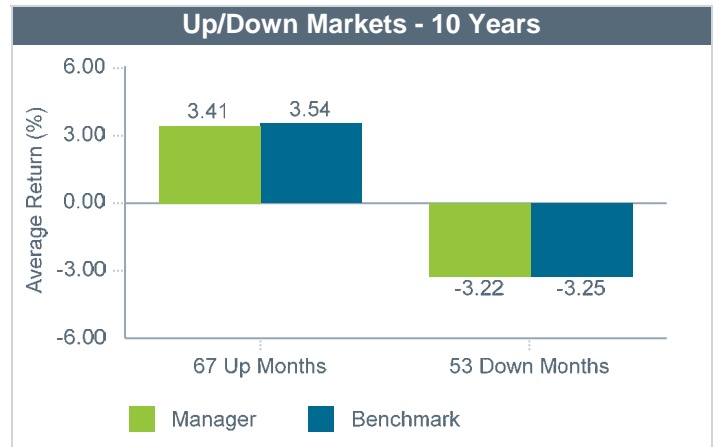
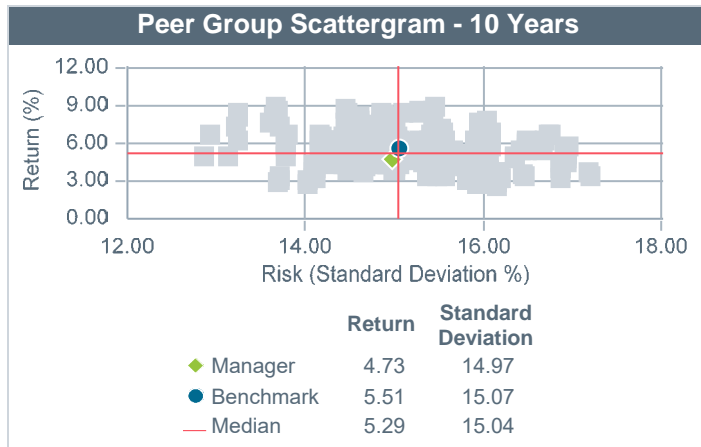
| Performance | | | | | | | | | | | |
|-------------------|-------|--------|---------|---------|---------|----------|-------|--------|-------|------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 14.54 | 12.37 | 3.77 | 10.43 | 7.27 | 7.61 | 18.22 | -15.89 | 36.78 | 7.45 | 2.75 |
| Benchmark | 16.23 | 8.47 | 4.36 | 7.72 | 4.78 | 5.82 | 22.44 | -14.40 | 26.16 | 1.15 | 0.49 |
| Difference | -1.69 | 3.90 | -0.59 | 2.71 | 2.49 | 1.79 | -4.22 | -1.49 | 10.62 | 6.30 | 2.26 |
| Peer Group Median | 15.47 | 8.17 | 4.16 | 7.14 | 4.16 | 5.29 | 21.59 | -15.90 | 25.26 | 0.09 | -0.17 |
| Rank | 62 | 33 | 55 | 11 | 10 | 12 | 78 | 50 | 3 | 4 | 18 |
| Population | 597 | 597 | 597 | 574 | 484 | 405 | 643 | 672 | 699 | 670 | 600 |



Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

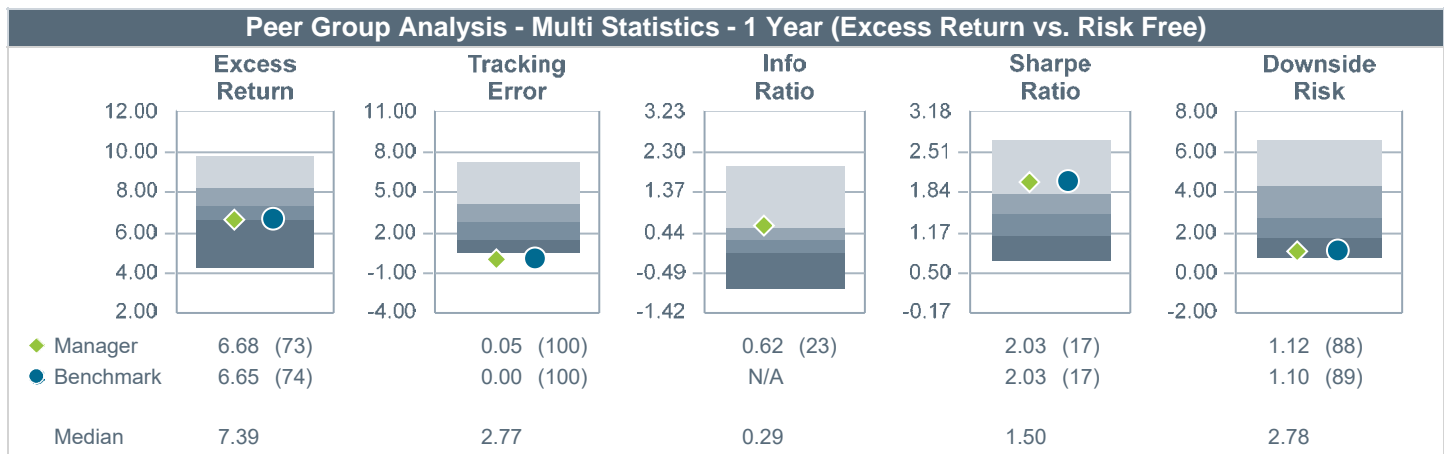
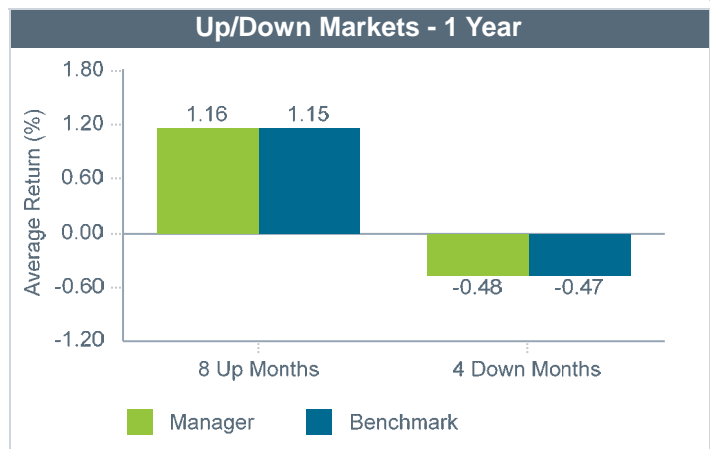
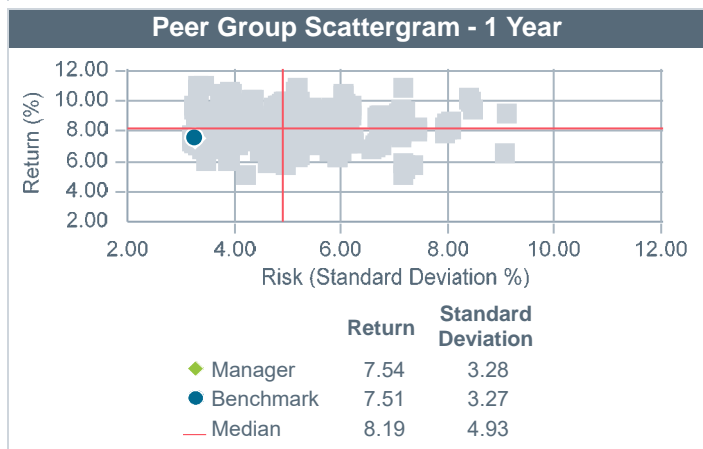


| Performance | | | | | | | | | | | |
|-------------------|-------|--------|---------|---------|---------|----------|-------|--------|-------|------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 17.89 | -4.01 | 0.39 | 5.21 | 2.93 | 4.73 | 19.29 | -11.66 | 22.08 | 4.37 | -3.17 |
| Benchmark | 16.05 | 7.82 | 4.28 | 7.45 | 4.39 | 5.51 | 22.01 | -13.79 | 25.03 | 1.00 | -0.81 |
| Difference | 1.84 | -11.83 | -3.89 | -2.24 | -1.46 | -0.78 | -2.72 | 2.13 | -2.95 | 3.37 | -2.36 |
| Peer Group Median | 15.47 | 8.17 | 4.16 | 7.14 | 4.16 | 5.29 | 21.59 | -15.90 | 25.26 | 0.09 | -0.17 |
| Rank | 24 | 98 | 83 | 77 | 76 | 66 | 69 | 14 | 85 | 8 | 86 |
| Population | 597 | 597 | 597 | 574 | 484 | 405 | 643 | 672 | 699 | 670 | 600 |



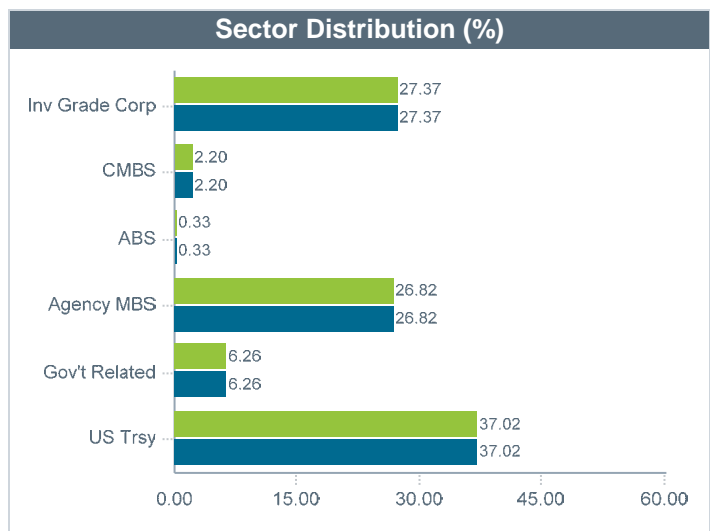
Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

| Performance | | | | | | | | | | | |
|-------------------|------|--------|---------|---------|---------|----------|------|-------|------|------|------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 0.71 | 7.54 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Benchmark | 0.67 | 7.51 | 5.34 | 4.44 | 4.09 | 3.84 | 8.72 | 0.01 | 3.54 | 2.65 | 0.55 |
| Difference | 0.04 | 0.03 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Peer Group Median | 1.36 | 8.19 | 5.38 | 4.56 | 4.05 | 3.91 | 8.76 | -0.63 | 3.59 | 2.86 | 0.09 |
| Rank | 84 | 71 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Population | 500 | 488 | 459 | 402 | 342 | 296 | 511 | 506 | 498 | 469 | 433 |



Portfolio Characteristics

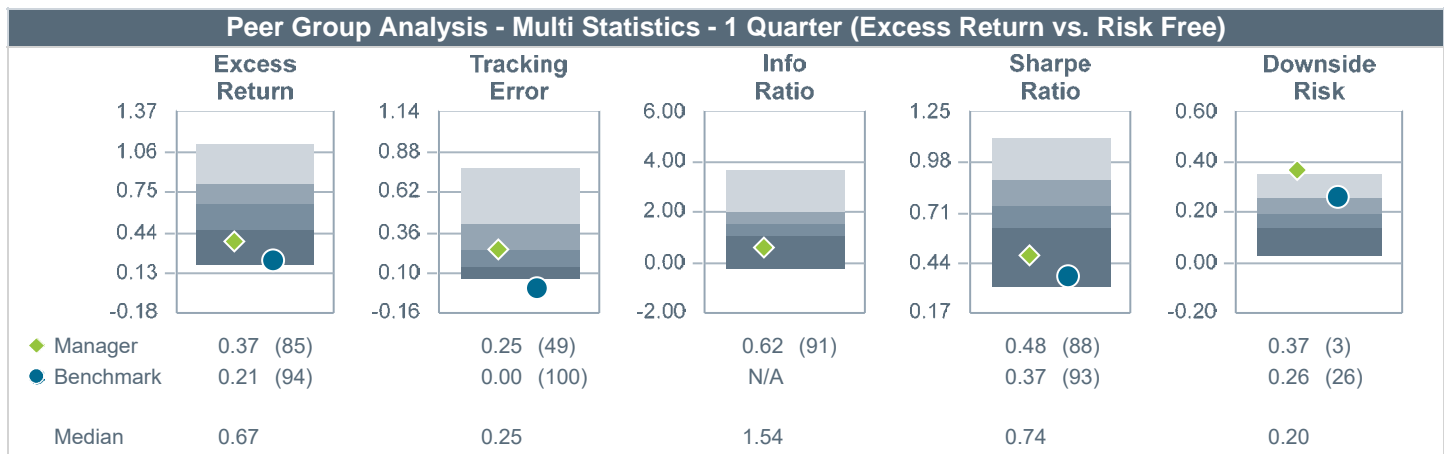
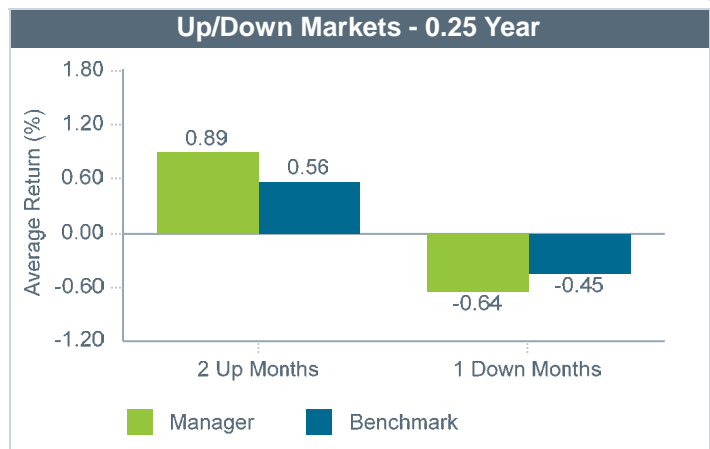
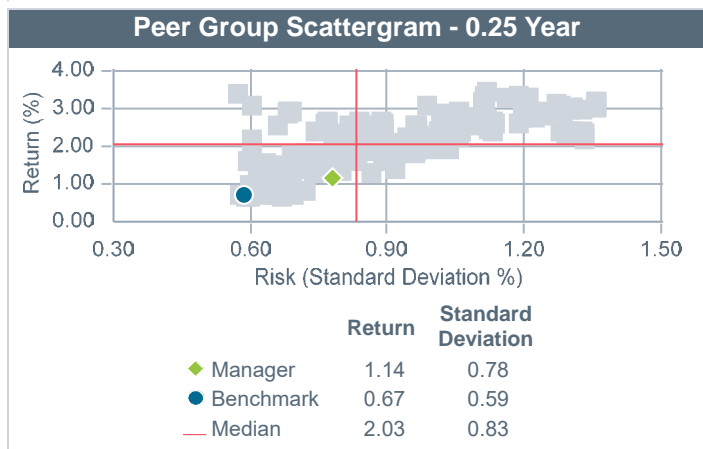
| | Portfolio | Benchmark |
|-----------------------|-----------|-----------|
| Effective Duration | 6.22 | 6.22 |
| Spread Duration | 6.44 | 6.44 |
| Avg. Maturity | 8.28 | 8.28 |
| Avg. Quality | Aa1/Aa2 | Aa1/Aa2 |
| Yield To Maturity (%) | 1.14 | 1.14 |
| Coupon Rate (%) | 2.76 | 2.76 |
| Current Yield (%) | N/A | N/A |
| Holdings Count | 11,984 | 11,984 |



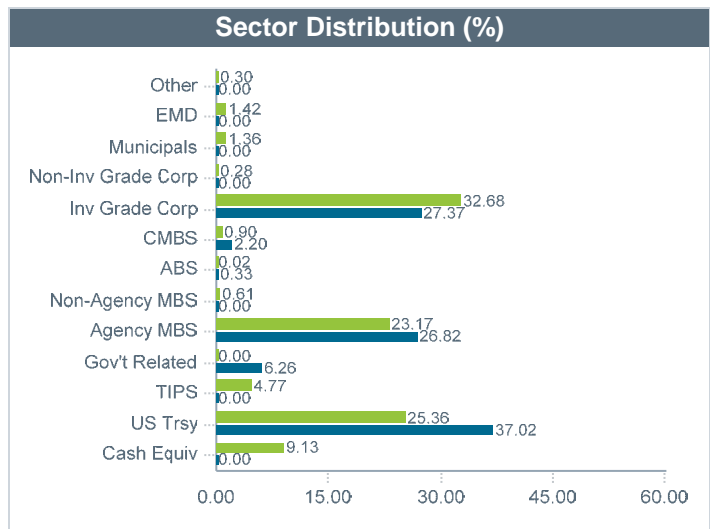
Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Portfolio characteristics are proxied using benchmark statistics.



| Performance | | | | | | | | | | | |
|-------------------|------|--------|---------|---------|---------|----------|------|-------|------|------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 1.14 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Benchmark | 0.67 | 7.51 | 5.34 | 4.44 | 4.09 | 3.84 | 8.72 | 0.01 | 3.54 | 2.65 | 0.55 |
| Difference | 0.47 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Peer Group Median | 2.03 | 8.54 | 5.59 | 5.11 | 4.27 | 4.36 | 9.32 | -0.94 | 4.49 | 4.19 | -0.26 |
| Rank | 85 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Population | 317 | 310 | 265 | 213 | 185 | 152 | 308 | 284 | 266 | 229 | 206 |



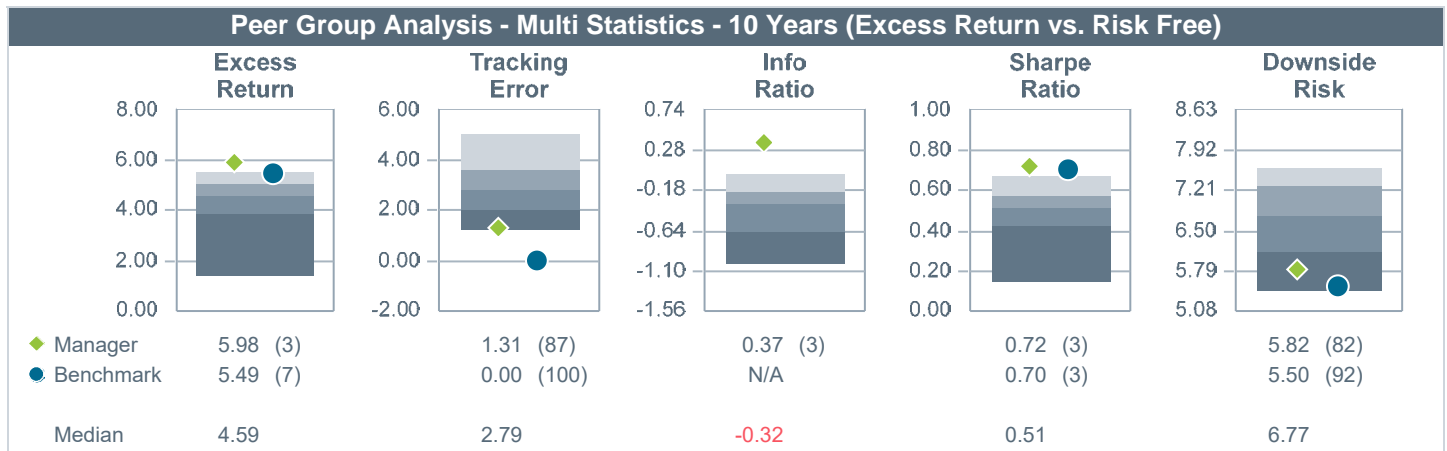
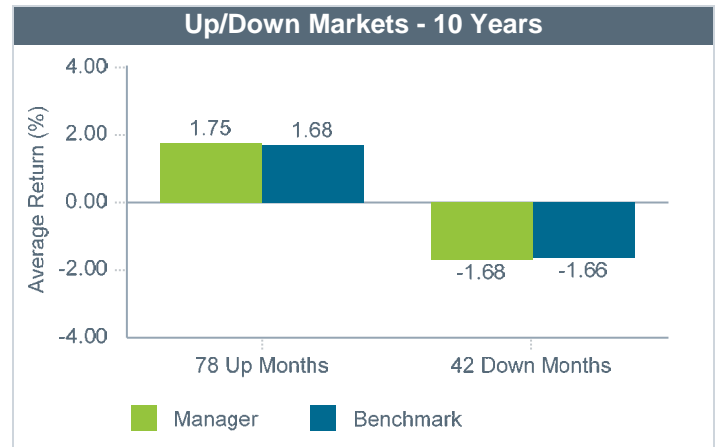
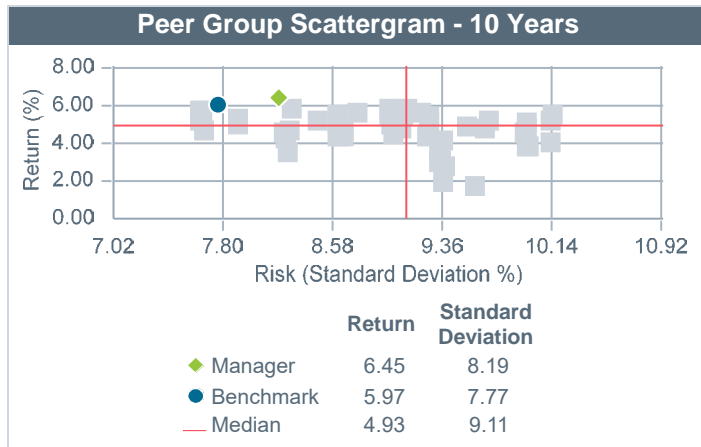
| Portfolio Characteristics | | |
|---------------------------|-----------|-----------|
| | Portfolio | Benchmark |
| Effective Duration | 5.92 | 6.22 |
| Spread Duration | 4.67 | 6.44 |
| Avg. Maturity | 7.39 | 8.28 |
| Avg. Quality | Aa2 | Aa1/Aa2 |
| Yield To Maturity (%) | 1.14 | 1.14 |
| Coupon Rate (%) | 2.06 | 2.76 |
| Current Yield (%) | 1.90 | N/A |
| Holdings Count | 244 | 11,984 |



Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Allocation to "other" consists of Euro/Yankees.

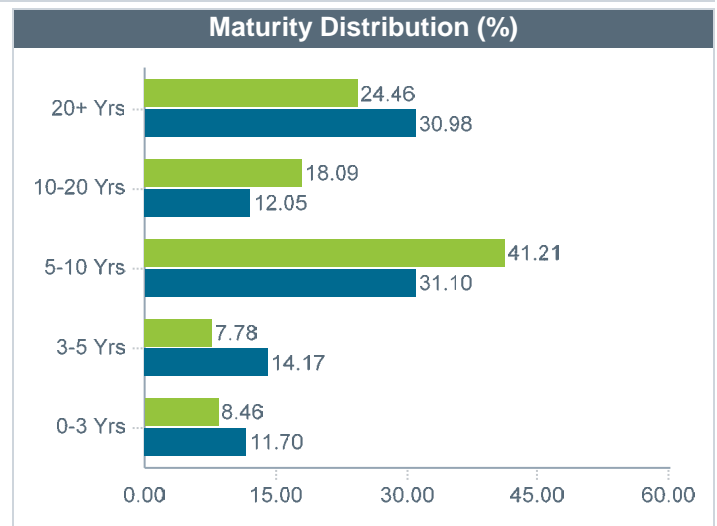


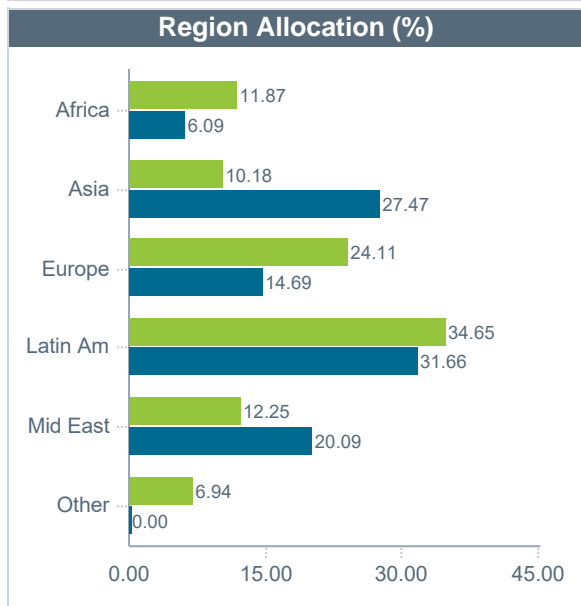
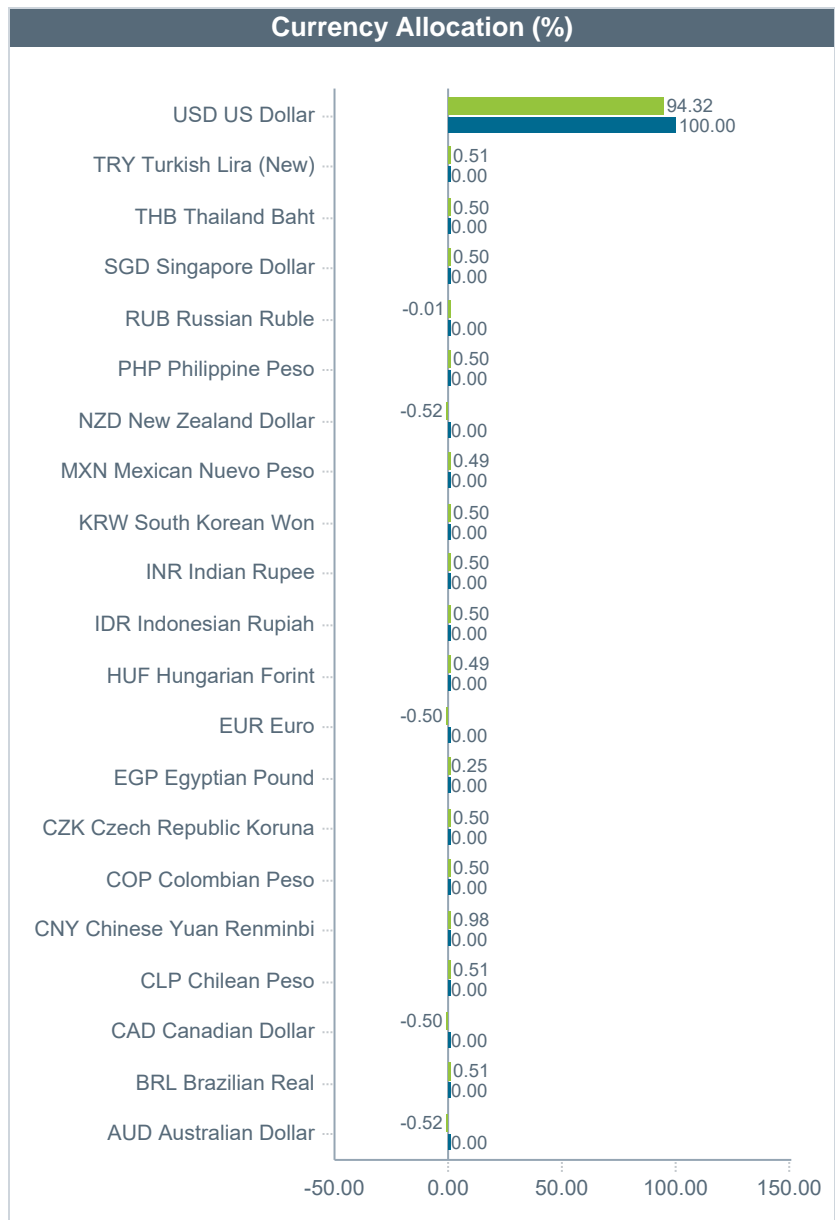
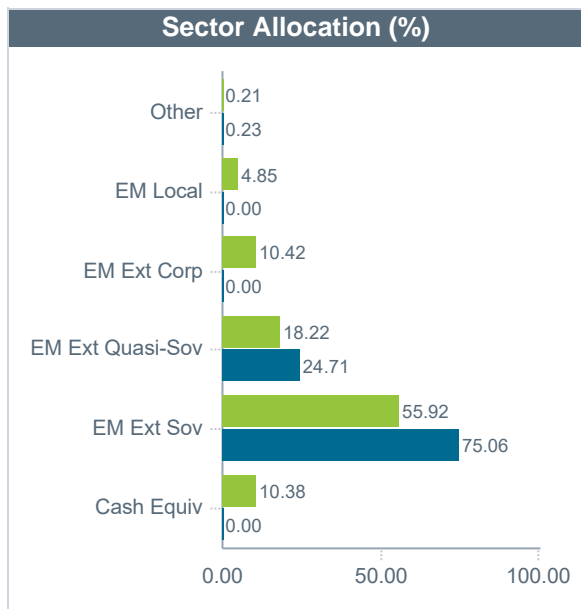
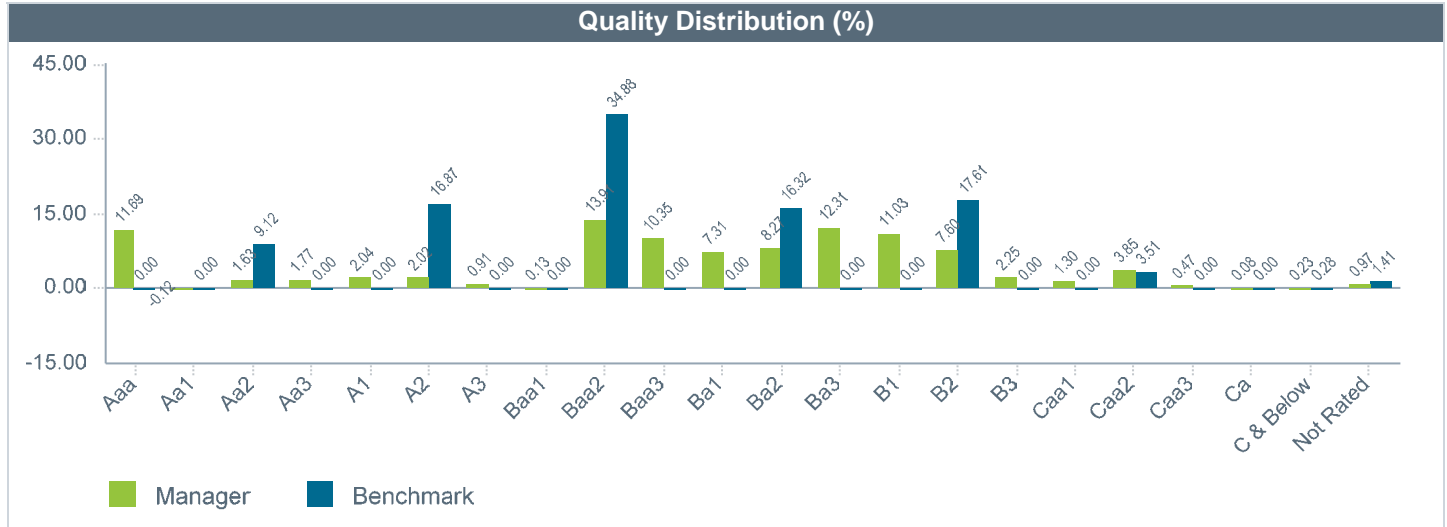
| Performance | | | | | | | | | | | |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 6.61 | 7.69 | 5.53 | 7.96 | 6.37 | 6.45 | 15.84 | -5.78 | 10.56 | 12.85 | -0.97 |
| Benchmark | 5.49 | 5.88 | 4.94 | 6.84 | 5.83 | 5.97 | 14.42 | -4.61 | 9.32 | 10.19 | 1.23 |
| Difference | 1.12 | 1.81 | 0.59 | 1.12 | 0.54 | 0.48 | 1.42 | -1.17 | 1.24 | 2.66 | -2.20 |
| Peer Group Median | 7.36 | 5.57 | 4.30 | 6.76 | 4.76 | 4.93 | 13.58 | -5.92 | 10.49 | 10.42 | -2.57 |
| Rank | 70 | 15 | 10 | 10 | 3 | 3 | 9 | 48 | 50 | 28 | 32 |
| Population | 272 | 262 | 245 | 197 | 152 | 68 | 274 | 275 | 265 | 233 | 210 |



Portfolio Characteristics (%)

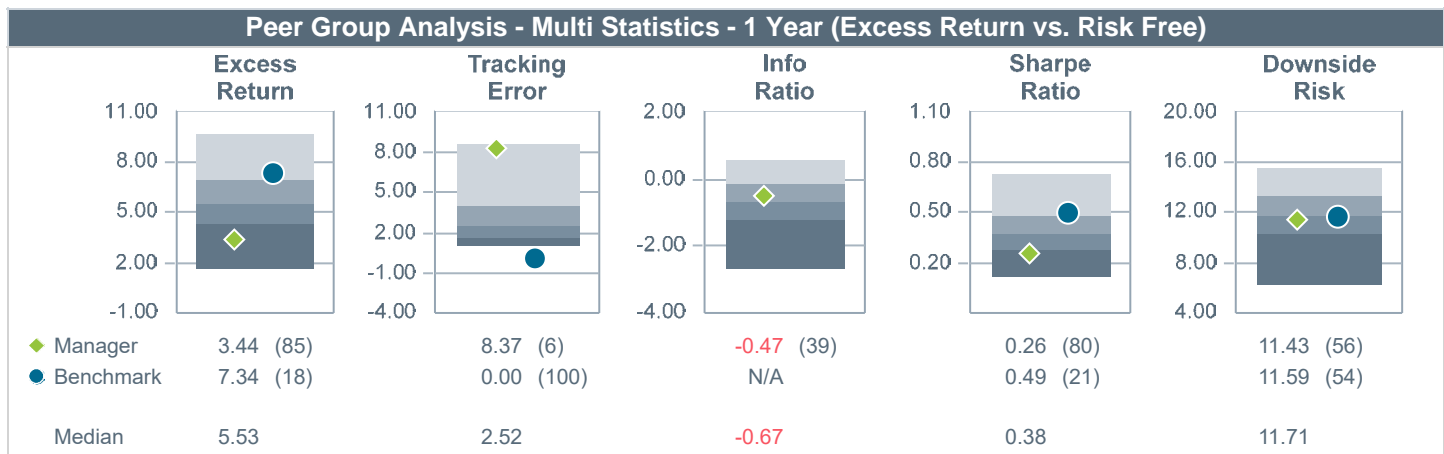
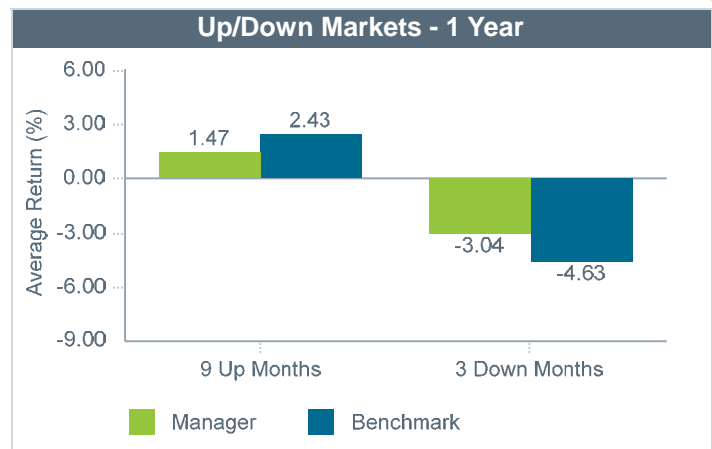
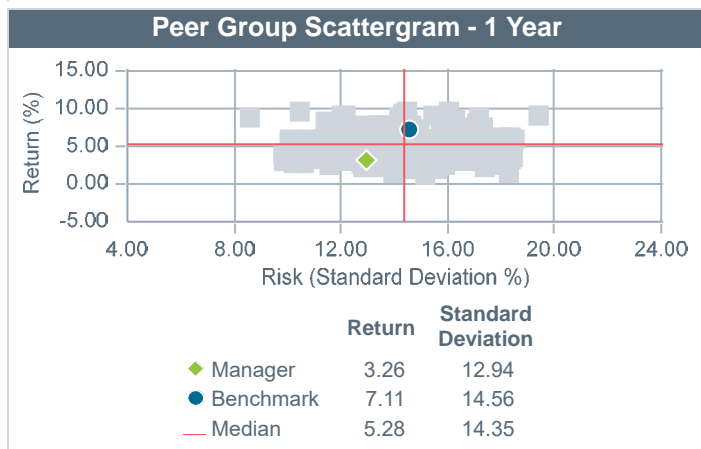
| | Portfolio | Benchmark |
|-----------------------|-----------|-----------|
| Effective Duration | 8.44 | 8.46 |
| Spread Duration | 7.85 | 8.22 |
| Avg. Maturity | 13.12 | 13.75 |
| Avg. Quality | Ba1 | Baa3 |
| Yield To Maturity (%) | 4.31 | 4.31 |
| Coupon Rate (%) | 4.51 | 4.77 |
| Current Yield (%) | 4.73 | 4.47 |
| Holdings Count | 406 | 861 |





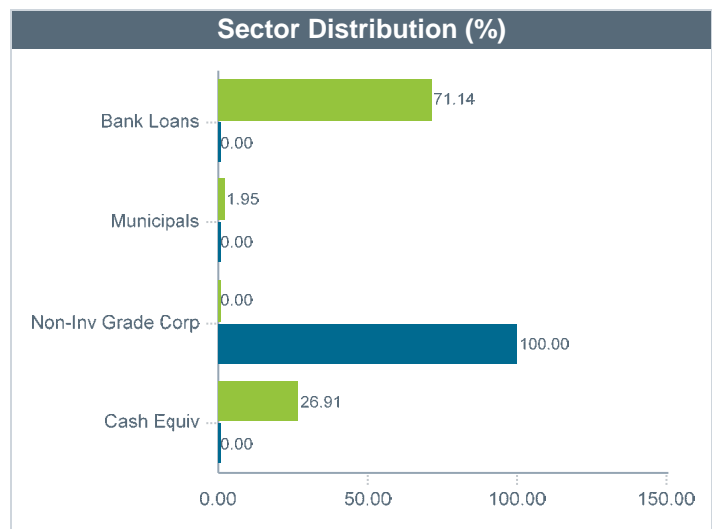
Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

| Performance | | | | | | | | | | | |
|-------------------|-------|--------|---------|---------|---------|----------|-------|-------|------|-------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 6.11 | 3.26 | N/A | N/A | N/A | N/A | 6.30 | N/A | N/A | N/A | N/A |
| Benchmark | 6.45 | 7.11 | 6.24 | 8.59 | 5.74 | 6.80 | 14.32 | -2.08 | 7.50 | 17.13 | -4.47 |
| Difference | -0.34 | -3.85 | N/A | N/A | N/A | N/A | -8.02 | N/A | N/A | N/A | N/A |
| Peer Group Median | 6.02 | 5.28 | 4.96 | 7.04 | 4.45 | 5.61 | 13.51 | -2.91 | 6.65 | 13.49 | -3.85 |
| Rank | 49 | 81 | N/A | N/A | N/A | N/A | 99 | N/A | N/A | N/A | N/A |
| Population | 671 | 663 | 613 | 539 | 460 | 339 | 686 | 673 | 630 | 598 | 548 |



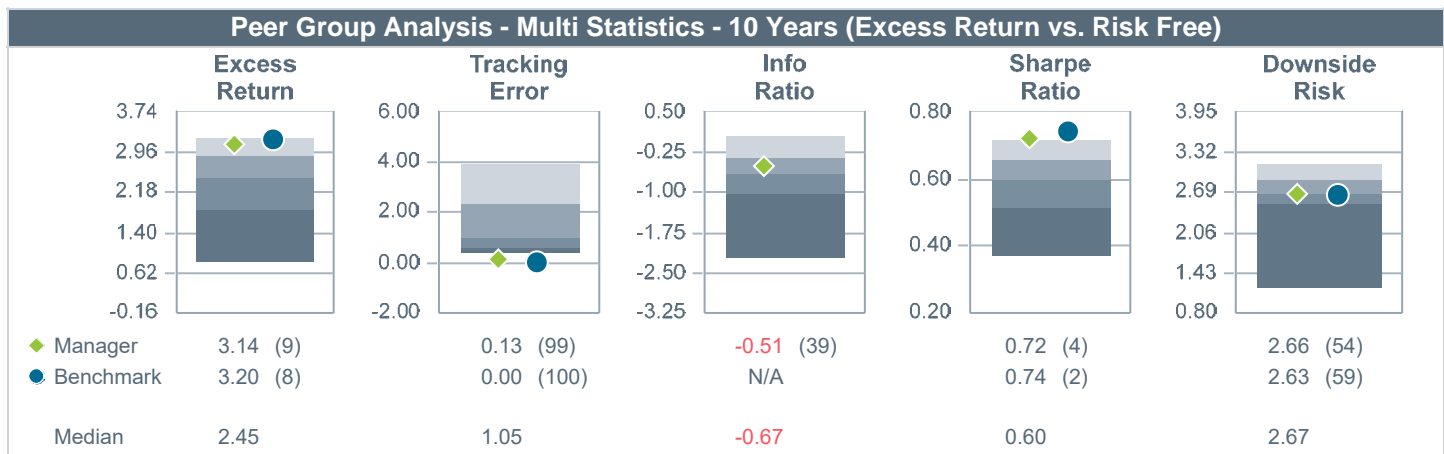
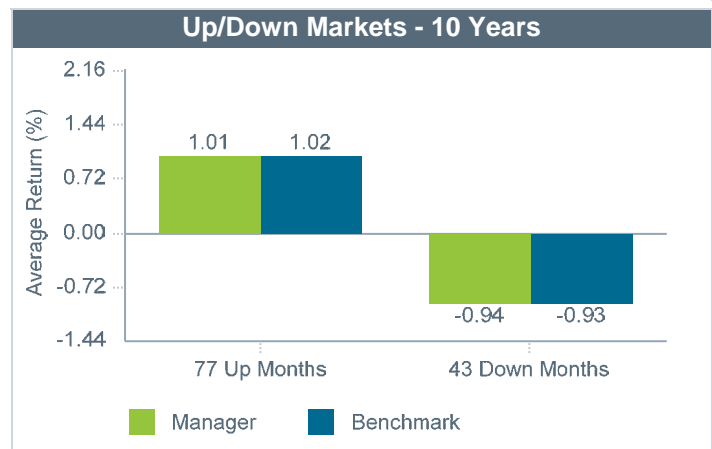
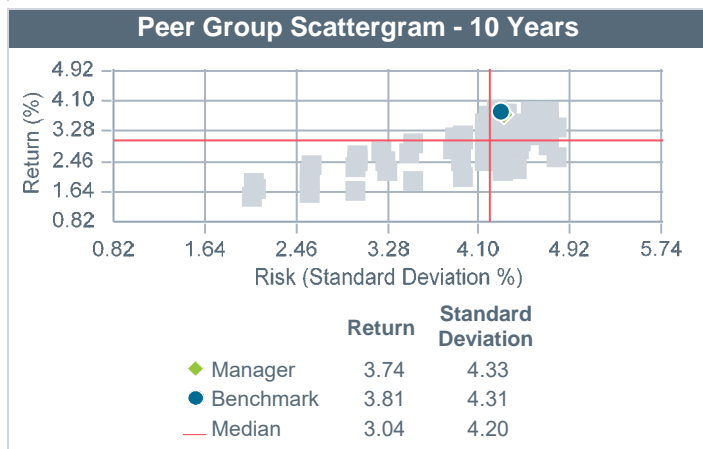
Portfolio Characteristics

| | Portfolio | Benchmark |
|-----------------------|-----------|-----------|
| Effective Duration | 0.88 | 3.58 |
| Spread Duration | 17.93 | 3.56 |
| Avg. Maturity | 2.54 | 6.46 |
| Avg. Quality | Ba2 | Ba3/B1 |
| Yield To Maturity (%) | 6.46 | 4.97 |
| Coupon Rate (%) | 4.37 | 5.99 |
| Current Yield (%) | 4.68 | N/A |
| Holdings Count | 28 | 2,164 |



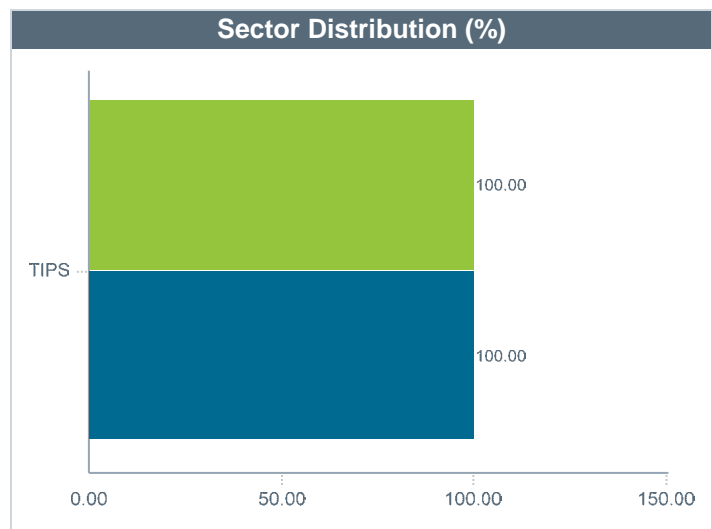
Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

| Performance | | | | | | | | | | | |
|-------------------|------|--------|---------|---------|---------|----------|-------|-------|-------|-------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | 1.64 | 10.97 | 5.85 | 5.03 | 3.86 | 3.74 | 8.33 | -1.36 | 2.98 | 4.67 | -1.39 |
| Benchmark | 1.62 | 10.99 | 5.92 | 5.08 | 3.92 | 3.81 | 8.43 | -1.26 | 3.01 | 4.68 | -1.44 |
| Difference | 0.02 | -0.02 | -0.07 | -0.05 | -0.06 | -0.07 | -0.10 | -0.10 | -0.03 | -0.01 | 0.05 |
| Peer Group Median | 1.78 | 9.64 | 5.10 | 4.44 | 3.00 | 3.04 | 7.53 | -1.57 | 2.62 | 4.39 | -2.13 |
| Rank | 61 | 26 | 19 | 22 | 13 | 9 | 25 | 42 | 31 | 38 | 26 |
| Population | 208 | 206 | 196 | 172 | 141 | 112 | 221 | 227 | 228 | 220 | 197 |



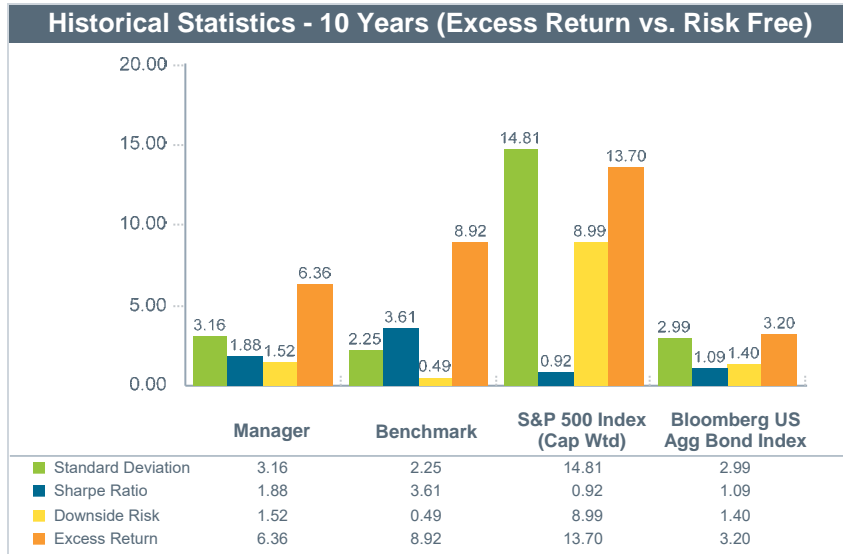
Portfolio Characteristics

| | Portfolio | Benchmark |
|-----------------------|-----------|-----------|
| Effective Duration | 3.43 | 3.43 |
| Spread Duration | 3.43 | 3.43 |
| Avg. Maturity | 8.05 | 8.05 |
| Avg. Quality | Aaa | Aaa |
| Yield To Maturity (%) | N/A | 0.69 |
| Coupon Rate (%) | 0.66 | 0.66 |
| Current Yield (%) | N/A | N/A |
| Holdings Count | 43 | 43 |



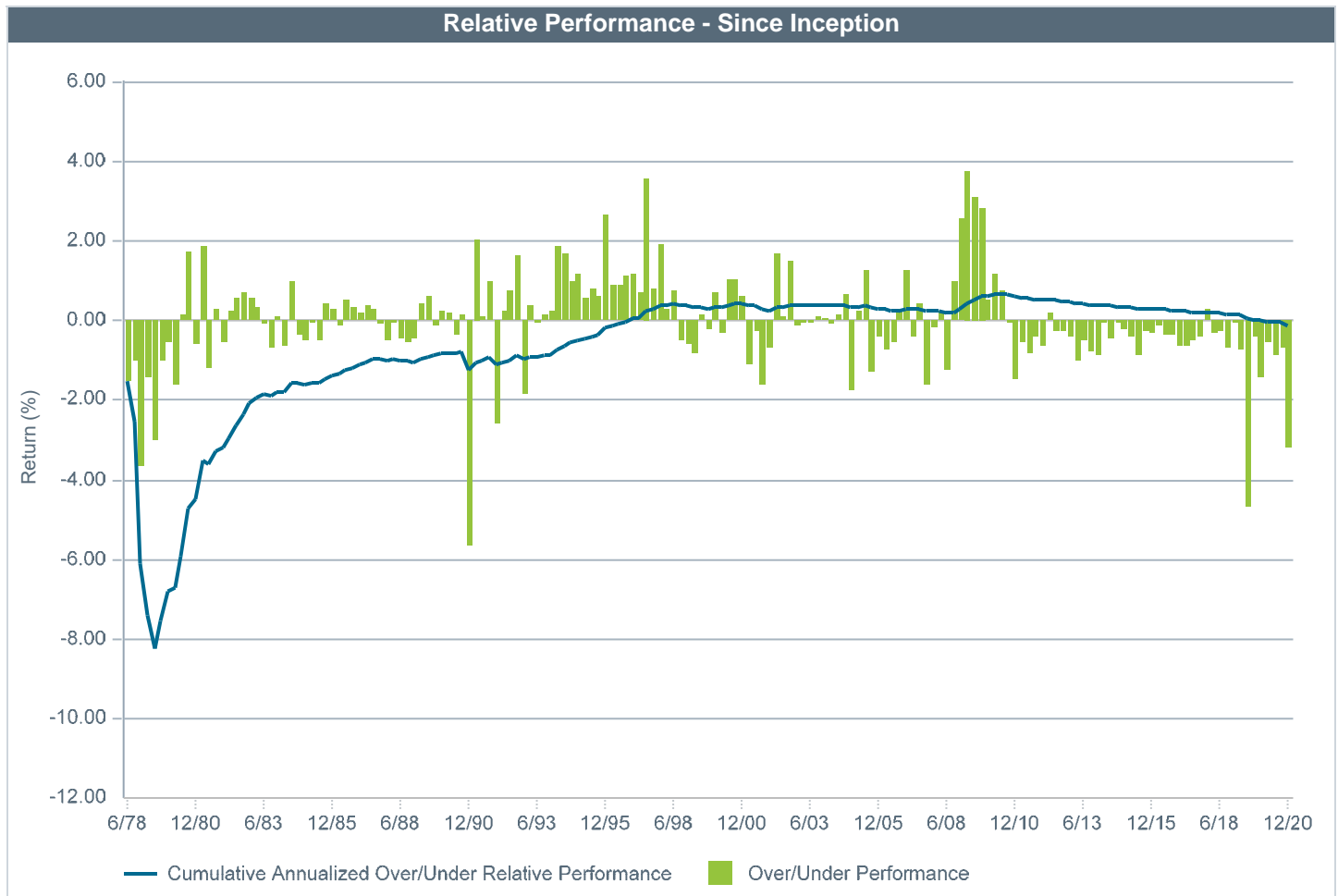
Performance shown is net of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Portfolio characteristics are proxied using benchmark statistics.

| Performance | | | | | | | | | | | |
|-------------|-------|--------|---------|---------|---------|----------|-------|-------|-------|-------|-------|
| | QTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | 2019 | 2018 | 2017 | 2016 | 2015 |
| Manager | -1.90 | -4.04 | 0.17 | 2.75 | 5.40 | 7.12 | -2.10 | 6.99 | 6.30 | 7.21 | 12.94 |
| Benchmark | 1.30 | 1.19 | 4.92 | 6.21 | 8.32 | 9.88 | 5.34 | 8.35 | 7.62 | 8.77 | 15.02 |
| Difference | -3.20 | -5.23 | -4.75 | -3.46 | -2.92 | -2.76 | -7.44 | -1.36 | -1.32 | -1.56 | -2.08 |



Actual Correlation - 10 Years

| | Actual Correlation |
|---------------------------------|--------------------|
| NCREIF ODCE Index (AWA) (Gross) | 0.86 |
| S&P 500 Index (Cap Wtd) | -0.29 |
| Russell 2000 Index | -0.31 |
| MSCI EAFE Index (USD) (Net) | -0.30 |
| MSCI Emg Mkts Index (USD) (Net) | -0.36 |
| Bloomberg US Agg Bond Index | -0.25 |
| Bloomberg US Trsy US TIPS Index | -0.29 |
| Wilshire US REIT Index | -0.05 |
| HFRI FOF Comp Index | -0.39 |
| Bloomberg Cmdty Index (TR) | -0.30 |
| ICE BofAML 3 Mo US T-Bill Index | -0.47 |
| Cons Price Index (Unadjusted) | 0.01 |



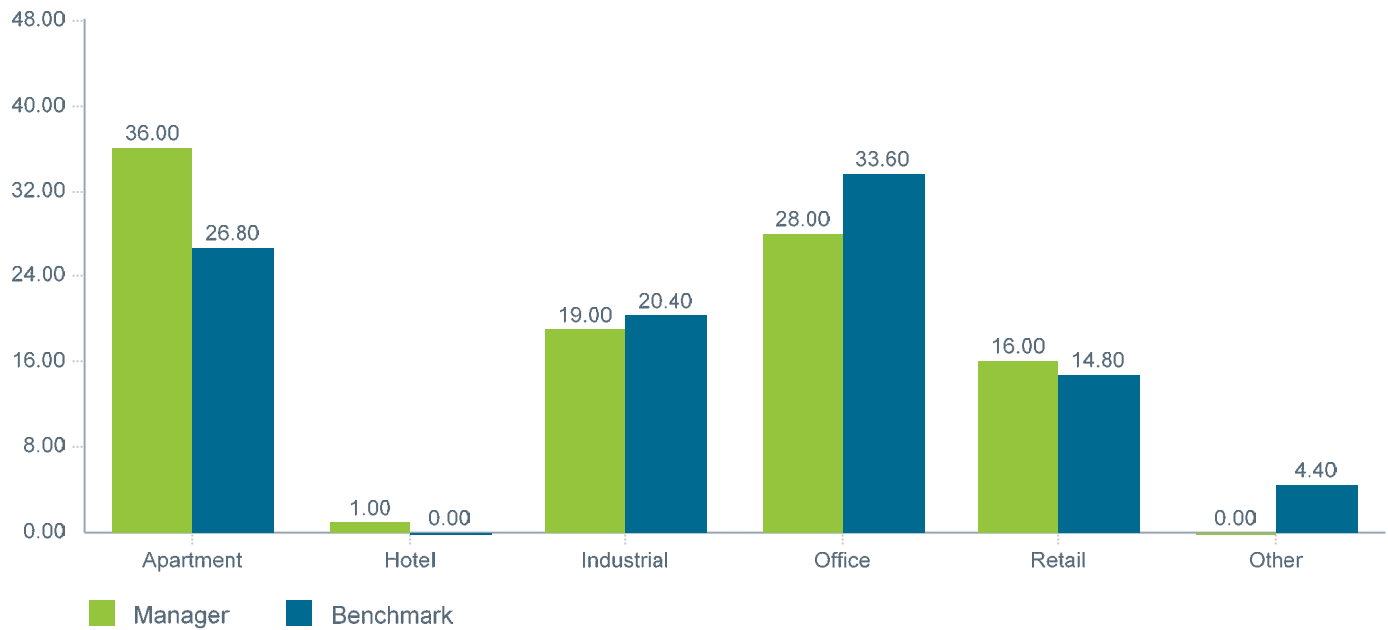
Investment Strategy

The Fund pursues a diversified core real estate strategy that seeks to produce attractive risk-adjusted returns by focusing on selective acquisitions, diversification, active portfolio management, and asset management. The Fund invests in well-leased, stabilized assets in major US metropolitan markets and receives the majority of its return from the income component. Diversification for the Fund is consistently pursued on many levels, including geographic region, property type, and economic sector. The Fund has historically maintained a leverage ratio significantly lower than the NCREIF ODCE Index and invests 5-15% of its gross assets in value-added type real estate investment opportunities.

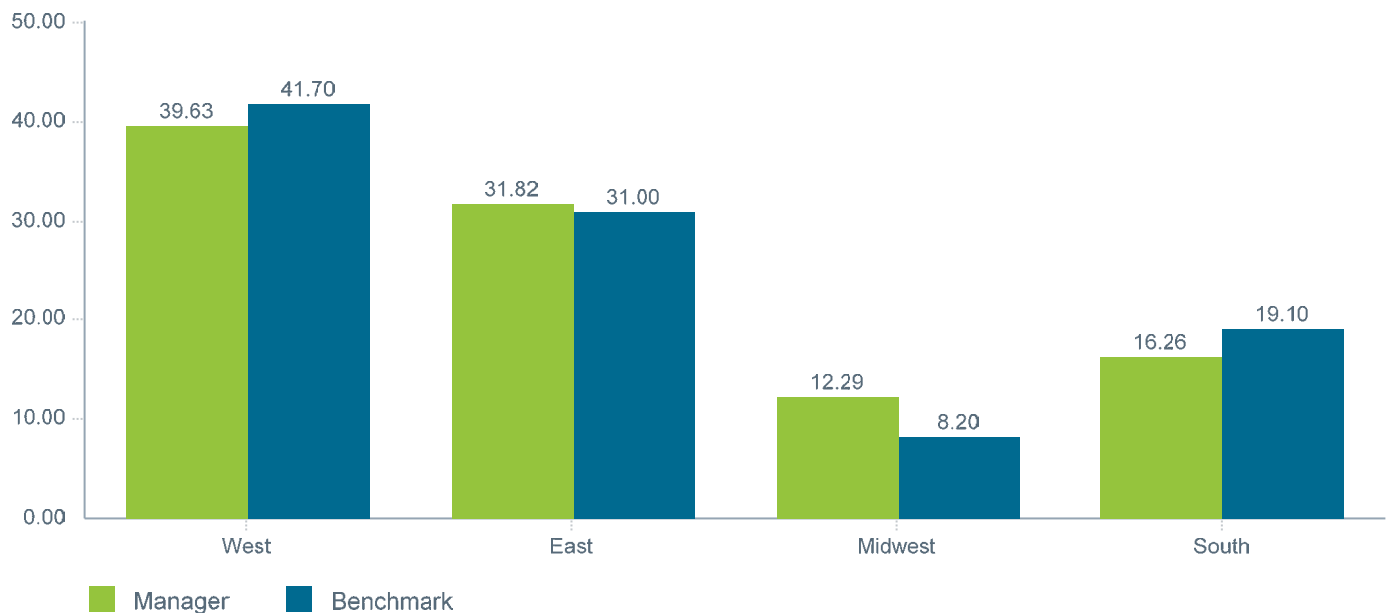
Investment Profile

| | |
|--------------------------------|----------|
| Fund Inception | 1978 |
| Legal Structure | LP |
| Fund Structure | Open-End |
| Gross Real Estate Assets (\$M) | 18,723 |
| Fund Leverage % | 18.80 |
| Portfolio Occupancy % | 91.00 |
| Cash Reserve % | 1.50 |
| Number of Investments | 184 |
| Number of Limited Partners | 445 |

Property Type Allocation (%)



Geographic Allocation (%)



Performance shown is gross of fees and product specific. Calculation is based on quarterly periodicity. Investment profile data shown is provided by the investment manager and is as of the most recently available quarter end. Allocation data shown is based on NAV. Benchmark allocation to "Other" consists of entertainment (theaters, golf courses, bowling alleys), healthcare (hospitals, clinics), manufactured homes, parking lots, self-storage units, senior living, and undeveloped land.



General Comments

- Through this reporting period, Vermont Pension Investment Committee has committed a total of \$1,155,000,000 to 26 non-marketable alternative investments.
- The average age of active investments (based upon vintage year and weighted by commitment) was 2.78 years.
- A total of \$447,542,188 has been called or otherwise contributed to date.
- Distributions have totaled \$134,829,277 since plan inception.
- The residual estimated value of interests in these partnerships/investments is \$453,976,780.
- Since inception net performance for the investments are as follows:
 - Annualized since-inception estimated Internal Rate of Return (IRR) of 14.80%.
 - Were an investment into the benchmark index (MSCI ACW IM Index (USD) (Net)) ("Index IRR") made with the identical cash-flow pattern, the resulting return would be equal to 8.54% indicating roughly 625 basis points of annualized out-performance.
 - For every \$1 paid into the portfolio, \$1.32 has been returned as a distribution or is held in residual value (multiple on invested capital = 1.32x).

Private Credit - Direct Lending

- Private Credit - Direct Lending funds account for 22.94% of commitments, 25.20% of contributed funds, 17.08% of distributed funds, and 22.44% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 5.65%
 - MSCI ACW IM Index (USD) (Net) IRR of 7.38%
 - A multiple on invested capital of 1.11x.

Private Equity - Buyout

- Private Equity - Buyout funds account for 22.25% of commitments, 18.49% of contributed funds, 18.31% of distributed funds, and 21.08% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 21.67%
 - MSCI ACW IM Index (USD) (Net) IRR of 11.21%
 - A multiple on invested capital of 1.45x.

Private Equity - Fund of Funds

- Private Equity - Fund of Funds funds account for 5.54% of commitments, 4.54% of contributed funds, 2.83% of distributed funds, and 4.95% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 15.85%
 - MSCI ACW IM Index (USD) (Net) IRR of 7.93%
 - A multiple on invested capital of 1.29x.

Private Equity - Natural Resources

- Private Equity - Natural Resources funds account for 11.26% of commitments, 3.94% of contributed funds, 0.00% of distributed funds, and 3.73% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR - Not Material
 - MSCI ACW IM Index (USD) (Net) IRR - Not Material
 - A multiple on invested capital of 0.96x.

Private Equity - Non-US Private Equity

- Private Equity - Non-US Private Equity funds account for 1.30% of commitments, 2.62% of contributed funds, 1.76% of distributed funds, and 3.40% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 15.66%
 - MSCI ACW IM Index (USD) (Net) IRR of 8.62%
 - A multiple on invested capital of 1.52x.

Private Equity - Secondaries

- Private Equity - Secondaries funds account for 14.29% of commitments, 14.38% of contributed funds, 30.17% of distributed funds, and 12.85% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 24.27%
 - MSCI ACW IM Index (USD) (Net) IRR of 8.21%
 - A multiple on invested capital of 1.54x.

Private Equity - Venture

- Private Equity - Venture funds account for 5.97% of commitments, 7.92% of contributed funds, 8.89% of distributed funds, and 11.73% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 23.65%
 - MSCI ACW IM Index (USD) (Net) IRR of 8.58%
 - A multiple on invested capital of 1.84x.

Real Estate - Opportunistic

- Real Estate - Opportunistic funds account for 13.42% of commitments, 19.94% of contributed funds, 20.97% of distributed funds, and 16.99% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR of 6.88%
 - MSCI ACW IM Index (USD) (Net) IRR of 7.87%
 - A multiple on invested capital of 1.18x.

Real Estate - Value Added

- Real Estate - Value Added funds account for 3.03% of commitments, 2.97% of contributed funds, 0.00% of distributed funds, and 2.82% of reported residual value.
- Pooled portfolio since inception performance is as follows:
 - Annualized since-inception IRR - Not Material
 - MSCI ACW IM Index (USD) (Net) IRR - Not Material
 - A multiple on invested capital of 0.96x.



Vermont Pension Investment Committee
Alternative Investment Private Equity Fund Performance Listing

As of September 30, 2020

| Fund Name | Vintage | Asset Class | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Fund IRR (%) | Quartile | Index IRR (%) | Fund Multiple |
|--|---------|--|-----------------|----------------------|--------------------|----------------|--------------|----------|---------------|---------------|
| HarbourVest Partners IX - Buyout, LP | 2011 | Private Equity - Buyout | 24,000,000 | 20,507,188 | 17,320,284 | 20,095,493 | 18.07 | 1st | 8.31 | 1.82 |
| HarbourVest Partners IX - Credit Opportunities Fund, LP | 2011 | Private Equity - Fund of Funds | 4,000,000 | 3,210,265 | 2,047,385 | 2,624,079 | 11.91 | 2nd | 8.74 | 1.46 |
| HarbourVest Partners IX - Venture, LP | 2011 | Private Equity - Venture | 12,000,000 | 11,437,671 | 9,977,226 | 18,358,608 | 21.50 | 1st | 7.87 | 2.48 |
| Dover Street VIII, LP (HarbourVest) | 2012 | Private Equity - Secondaries | 25,000,000 | 22,750,000 | 27,904,697 | 9,187,270 | 20.01 | 2nd | 8.62 | 1.63 |
| HarbourVest International Private Equity Partners VII Partnership, LP | 2014 | Private Equity - Non-US Private Equity | 15,000,000 | 11,737,500 | 2,377,172 | 15,445,532 | 15.66 | 2nd | 8.62 | 1.52 |
| HarbourVest International Private Equity Partners VIII Partnership, LP | 2014 | Private Equity - Fund of Funds | 60,000,000 | 17,100,000 | 1,765,903 | 19,835,239 | 18.66 | 2nd | 7.46 | 1.26 |
| HarbourVest Partners X - Buyout, LP | 2015 | Private Equity - Buyout | 45,500,000 | 23,662,787 | 6,611,085 | 28,422,115 | 23.34 | 1st | 9.18 | 1.48 |
| HarbourVest Partners X - Venture, LP | 2015 | Private Equity - Venture | 19,500,000 | 13,115,422 | 1,753,900 | 21,841,187 | 27.57 | 1st | 7.69 | 1.80 |
| Dover Street IX, LP (HarbourVest) | 2016 | Private Equity - Secondaries | 40,000,000 | 31,600,000 | 12,772,113 | 33,431,595 | 26.83 | 1st | 7.45 | 1.46 |
| Dover Street X, LP (HarbourVest) | 2018 | Private Equity - Secondaries | 100,000,000 | 10,000,000 | 0 | 15,707,847 | N/M | N/A | N/M | 1.57 |
| HarbourVest Partners XI - Buyout Fund, LP | 2018 | Private Equity - Buyout | 75,000,000 | 15,375,000 | 506,715 | 18,067,955 | 37.05 | 1st | 26.34 | 1.21 |
| HarbourVest Partners XI - Micro Buyout Fund, LP | 2018 | Private Equity - Buyout | 12,500,000 | 2,062,500 | 97,107 | 2,204,025 | 24.90 | 1st | 43.06 | 1.12 |
| HarbourVest Partners Co-Investment Fund V, LP | 2019 | Private Equity - Buyout | 25,000,000 | 11,250,000 | 0 | 16,198,217 | 71.83 | N/A | 15.04 | 1.44 |
| HarbourVest Partners XI - Venture Fund, LP | 2019 | Private Equity - Venture | 37,500,000 | 10,875,000 | 250,370 | 13,068,556 | 45.90 | N/A | 22.76 | 1.22 |
| Nuveen Global Farmland Fund, LP | 2019 | Private Equity - Natural Resources | 100,000,000 | 15,514,687 | 0 | 15,485,851 | N/M | N/A | N/M | 1.00 |
| Pontifax Global Food and Agriculture Technology Fund II, LP | 2019 | Private Equity - Natural Resources | 30,000,000 | 2,103,598 | 0 | 1,469,163 | N/M | N/A | N/M | 0.70 |
| Siguler Guff Small Buyout Opportunities Fund IV | 2019 | Private Equity - Buyout | 50,000,000 | 8,400,000 | 150,395 | 9,203,294 | N/M | N/A | N/M | 1.11 |

Certain valuations (marked with a **) are preliminary estimates of valuation as of the date of reporting and reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Index IRR represents the dollar-weighted returns calculated using the MSCI ACW IM Index (USD) (Net) assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Fund IRR is the annualized since-inception net internal rate for the indicated fund or composite. Fund Multiple is the since inception sum of distributions and valuation divided by paid in capital. Quartile data is based on information provided by Preqin.



Vermont Pension Investment Committee
 Alternative Investment Private Equity Fund Performance Listing

As of September 30, 2020

| Fund Name | Vintage | Asset Class | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Fund IRR (%) | Quartile | Index IRR (%) | Fund Multiple |
|---|---------|-------------------------|--------------------|----------------------|--------------------|--------------------|--------------|----------|---------------|---------------|
| NB Strategic Co-Investment Partners IV LP | 2020 | Private Equity - Buyout | 25,000,000 | 1,498,452 | 0 | 1,515,654 | N/M | N/A | N/M | 1.01 |
| | | | 700,000,000 | 232,200,070 | 83,534,352 | 262,161,680 | 21.92 | | 9.38 | 1.49 |

Certain valuations (marked with a **) are preliminary estimates of valuation as of the date of reporting and reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Index IRR represents the dollar-weighted returns calculated using the MSCI ACW IM Index (USD) (Net) assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Fund IRR is the annualized since-inception net internal rate for the indicated fund or composite. Fund Multiple is the since inception sum of distributions and valuation divided by paid in capital. Quartile data is based on information provided by Preqin.



Vermont Pension Investment Committee
Alternative Investment Real Estate Fund Performance Listing

As of September 30, 2020

| Fund Name | Vintage | Asset Class | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Fund IRR (%) | Quartile | Index IRR (%) | Fund Multiple |
|---|---------|-----------------------------|--------------------|----------------------|--------------------|-------------------|--------------|----------|---------------|---------------|
| Siguler Guff Distressed Real Estate Opportunities Fund II | 2013 | Real Estate - Opportunistic | 40,000,000 | 35,272,308 | 22,269,497 | 26,218,806 | 8.47 | 4th | 7.06 | 1.37 |
| Siguler Guff DREOF II Co-Investment Fund | 2016 | Real Estate - Opportunistic | 15,000,000 | 12,669,146 | 5,864,010 | 10,148,583 | 7.86 | 4th | 4.99 | 1.26 |
| Blue Vista Real Estate Partners V | 2018 | Real Estate - Value Added | 35,000,000 | 13,300,000 | 0 | 12,803,757 | N/M | N/A | N/M | 0.96 |
| Brookfield Strategic Real Estate Partners III | 2019 | Real Estate - Opportunistic | 100,000,000 | 41,309,877 | 135,218 | 40,751,869 | -0.99 | N/A | 0.87 | 0.99 |
| | | | 190,000,000 | 102,551,331 | 28,268,725 | 89,923,015 | 6.59 | | 5.61 | 1.15 |

Certain valuations (marked with a **) are preliminary estimates of valuation as of the date of reporting and reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Index IRR represents the dollar-weighted returns calculated using the NCREIF ODCE Index (AWA)(Net) assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Fund IRR is the annualized since-inception net internal rate for the indicated fund or composite. Fund Multiple is the since inception sum of distributions and valuation divided by paid in capital. Quartile data is based on information provided by Prequin.



Vermont Pension Investment Committee
 Alternative Investment Private Credit Fund Performance Listing

As of September 30, 2020

| Fund Name | Vintage | Asset Class | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Fund IRR (%) | Quartile | Index IRR (%) | Fund Multiple |
|---|---------|---------------------------------|--------------------|----------------------|--------------------|--------------------|--------------|----------|---------------|---------------|
| Benefit Street Partners Senior Secured Opportunities Fund | 2016 | Private Credit - Direct Lending | 70,000,000 | 70,000,000 | 15,056,970 | 62,171,634 | 4.22 | 4th | 3.34 | 1.10 |
| (Arcmont) Direct Lending Fund III (USD-L) SLP | 2018 | Private Credit - Direct Lending | 70,000,000 | 26,930,071 | 7,969,231 | 22,412,162 | 8.84 | 2nd | 1.52 | 1.13 |
| Benefit Street Partners Senior Secured Opportunities Fund II (Levered US) | 2019 | Private Credit - Direct Lending | 75,000,000 | 4,610,716 | 0 | 5,718,078 | N/M | N/A | N/M | 1.24 |
| AG Direct Lending Fund IV, LP | 2020 | Private Credit - Direct Lending | 50,000,000 | 11,250,000 | 0 | 11,590,211 | N/M | N/A | N/M | 1.03 |
| | | | 265,000,000 | 112,790,787 | 23,026,201 | 101,892,085 | 5.65 | | 3.07 | 1.11 |

Certain valuations (marked with a **) are preliminary estimates of valuation as of the date of reporting and reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Index IRR represents the dollar-weighted returns calculated using the S&P/LSTA Lvg'd Loan Index assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Fund IRR is the annualized since-inception net internal rate for the indicated fund or composite. Fund Multiple is the since inception sum of distributions and valuation divided by paid in capital. Quartile data is based on information provided by Preqin.



Average Commitment-weighted Active Investment Age (in years): 2.89

| Vintage Year | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Vintage Year IRR (%) | Index IRR (%) | Vintage Year Multiple | Cumulative Multiple |
|--------------|--------------------|----------------------|--------------------|--------------------|----------------------|---------------|-----------------------|---------------------|
| 2011 | 40,000,000 | 35,155,124 | 29,344,895 | 41,078,180 | 19.08 | 8.18 | 2.00 | 2.00 |
| 2012 | 25,000,000 | 22,750,000 | 27,904,697 | 9,187,270 | 20.01 | 8.62 | 1.63 | 1.86 |
| 2014 | 75,000,000 | 28,837,500 | 4,143,075 | 35,280,771 | 16.71 | 8.19 | 1.37 | 1.69 |
| 2015 | 65,000,000 | 36,778,209 | 8,364,985 | 50,263,302 | 25.17 | 8.54 | 1.59 | 1.66 |
| 2016 | 40,000,000 | 31,600,000 | 12,772,113 | 33,431,595 | 26.83 | 7.45 | 1.46 | 1.62 |
| 2018 | 187,500,000 | 27,437,500 | 603,822 | 35,979,827 | 68.48 | 22.67 | 1.33 | 1.58 |
| 2019 | 242,500,000 | 48,143,285 | 400,765 | 55,425,081 | 39.59 | 24.62 | 1.16 | 1.49 |
| 2020 | 25,000,000 | 1,498,452 | 0 | 1,515,654 | N/M | N/M | 1.01 | 1.49 |
| TOTAL | 700,000,000 | 232,200,070 | 83,534,352 | 262,161,680 | 21.92 | 9.38 | | 1.49 |

Index IRR represents the dollar-weighted returns calculated using the MSCI ACW IM Index (USD) (Net) assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Vintage Year IRR is the annualized since-inception net internal rate for the indicated fund or composite. This report may contain valuations for investments that are preliminary estimates of valuation as of the date of reporting which reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Vintage Year Multiple is the since inception sum of distributions and valuation divided by paid in capital. Cumulative Multiple is the since inception sum of distributions and valuation divided by paid in capital for all investments through the indicated vintage year.



Average Commitment-weighted Active Investment Age (in years): 3.23

| Vintage Year | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Vintage Year IRR (%) | Index IRR (%) | Vintage Year Multiple | Cumulative Multiple |
|--------------|--------------------|----------------------|--------------------|-------------------|----------------------|---------------|-----------------------|---------------------|
| 2013 | 40,000,000 | 35,272,308 | 22,269,497 | 26,218,806 | 8.47 | 7.06 | 1.37 | 1.37 |
| 2016 | 15,000,000 | 12,669,146 | 5,864,010 | 10,148,583 | 7.86 | 4.99 | 1.26 | 1.35 |
| 2018 | 35,000,000 | 13,300,000 | 0 | 12,803,757 | N/M | N/M | 0.96 | 1.26 |
| 2019 | 100,000,000 | 41,309,877 | 135,218 | 40,751,869 | -0.99 | 0.87 | 0.99 | 1.15 |
| TOTAL | 190,000,000 | 102,551,331 | 28,268,725 | 89,923,015 | 6.59 | 5.61 | | 1.15 |

Index IRR represents the dollar-weighted returns calculated using the NCREIF ODCE Index (AWA)(Net) assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Vintage Year IRR is the annualized since-inception net internal rate for the indicated fund or composite. This report may contain valuations for investments that are preliminary estimates of valuation as of the date of reporting which reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Vintage Year Multiple is the since inception sum of distributions and valuation divided by paid in capital. Cumulative Multiple is the since inception sum of distributions and valuation divided by paid in capital for all investments through the indicated vintage year.

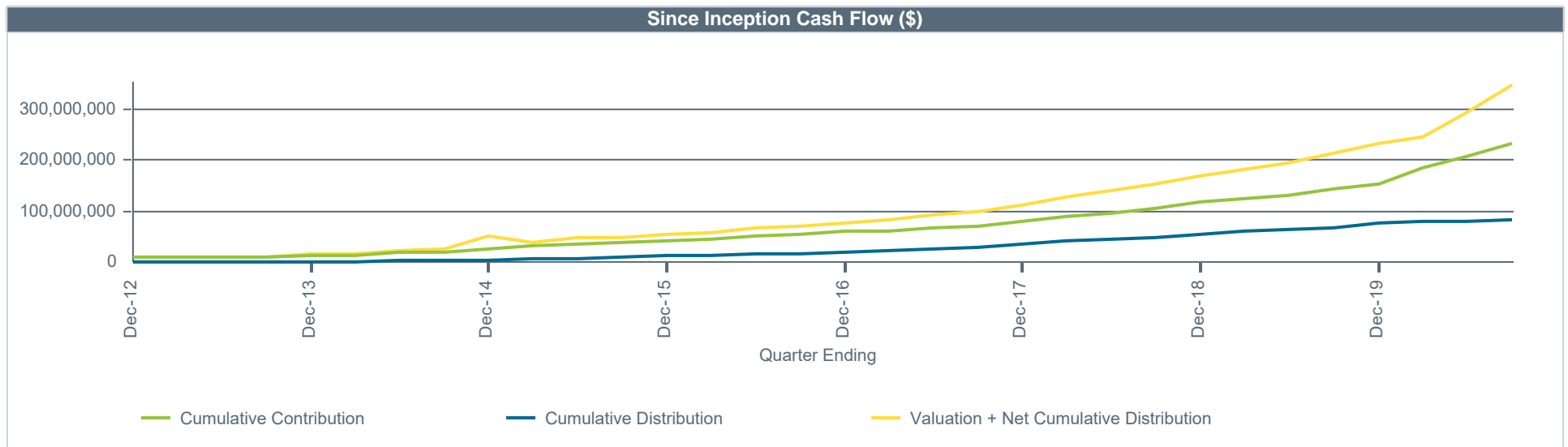
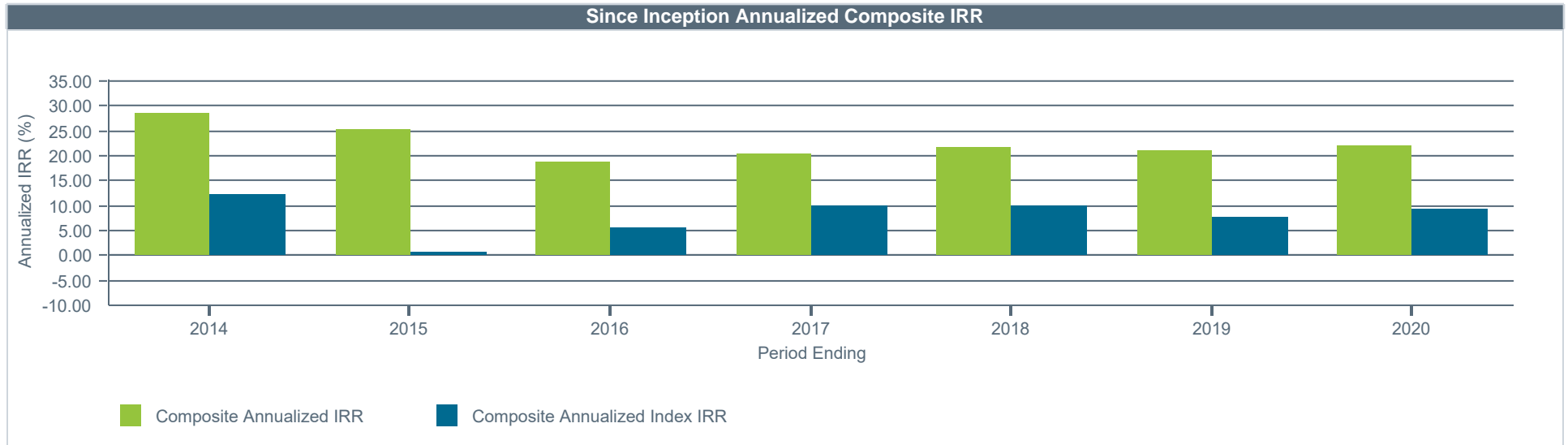


Average Commitment-weighted Active Investment Age (in years): 2.17

| Vintage Year | Commitment (\$) | Paid In Capital (\$) | Distributions (\$) | Valuation (\$) | Vintage Year IRR (%) | Index IRR (%) | Vintage Year Multiple | Cumulative Multiple |
|--------------|--------------------|----------------------|--------------------|--------------------|----------------------|---------------|-----------------------|---------------------|
| 2016 | 70,000,000 | 70,000,000 | 15,056,970 | 62,171,634 | 4.22 | 3.34 | 1.10 | 1.10 |
| 2018 | 70,000,000 | 26,930,071 | 7,969,231 | 22,412,162 | 8.84 | 1.52 | 1.13 | 1.11 |
| 2019 | 75,000,000 | 4,610,716 | 0 | 5,718,078 | N/M | N/M | 1.24 | 1.12 |
| 2020 | 50,000,000 | 11,250,000 | 0 | 11,590,211 | N/M | N/M | 1.03 | 1.11 |
| TOTAL | 265,000,000 | 112,790,787 | 23,026,201 | 101,892,085 | 5.65 | 3.07 | | 1.11 |

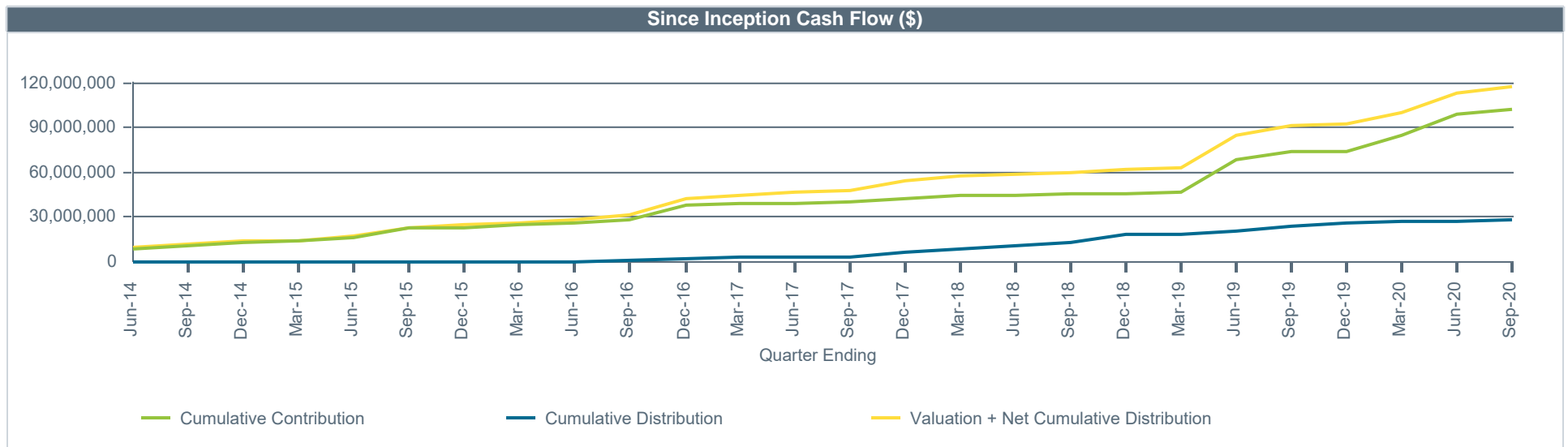
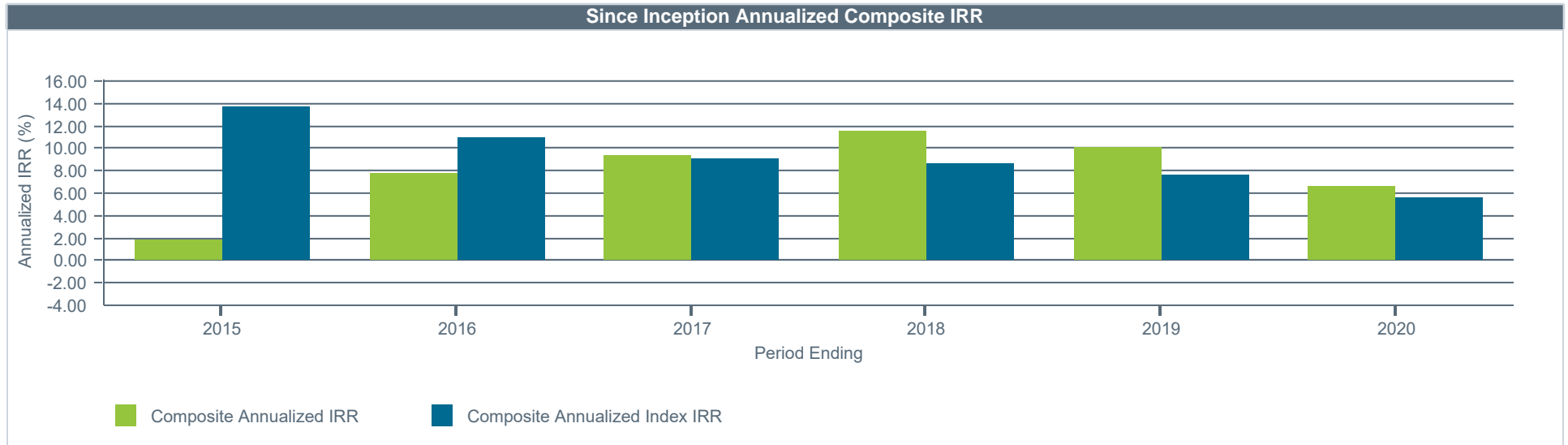
Index IRR represents the dollar-weighted returns calculated using the S&P/LSTA Lvg'd Loan Index assuming an index investment with the same cash flow timing. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated. Applicable IRRs are marked with 'N/M' for not material. Vintage Year IRR is the annualized since-inception net internal rate for the indicated fund or composite. This report may contain valuations for investments that are preliminary estimates of valuation as of the date of reporting which reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. Vintage Year Multiple is the since inception sum of distributions and valuation divided by paid in capital. Cumulative Multiple is the since inception sum of distributions and valuation divided by paid in capital for all investments through the indicated vintage year.





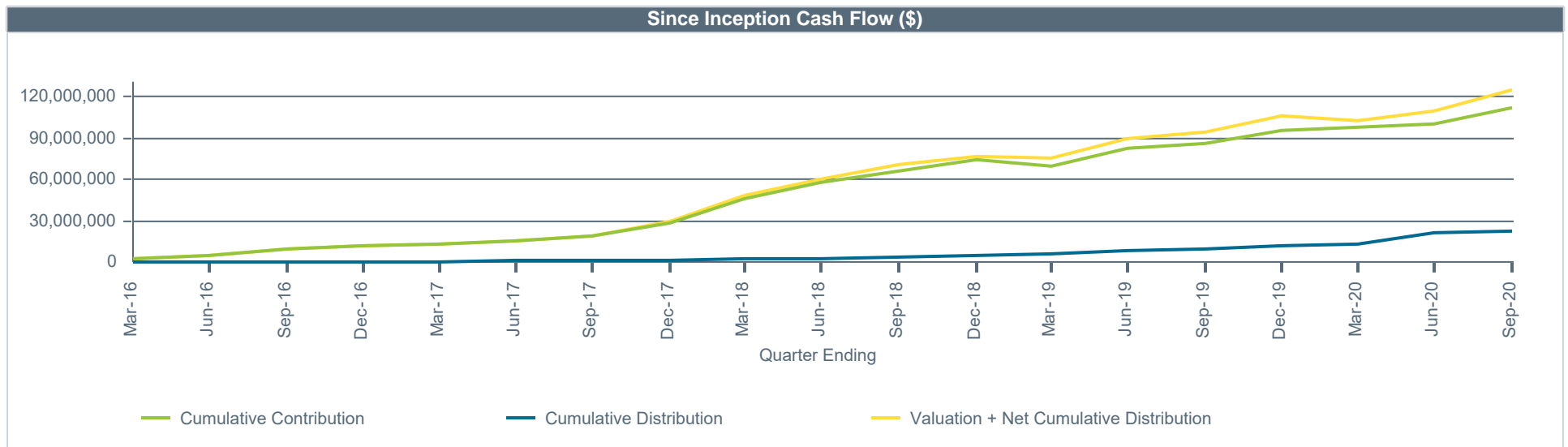
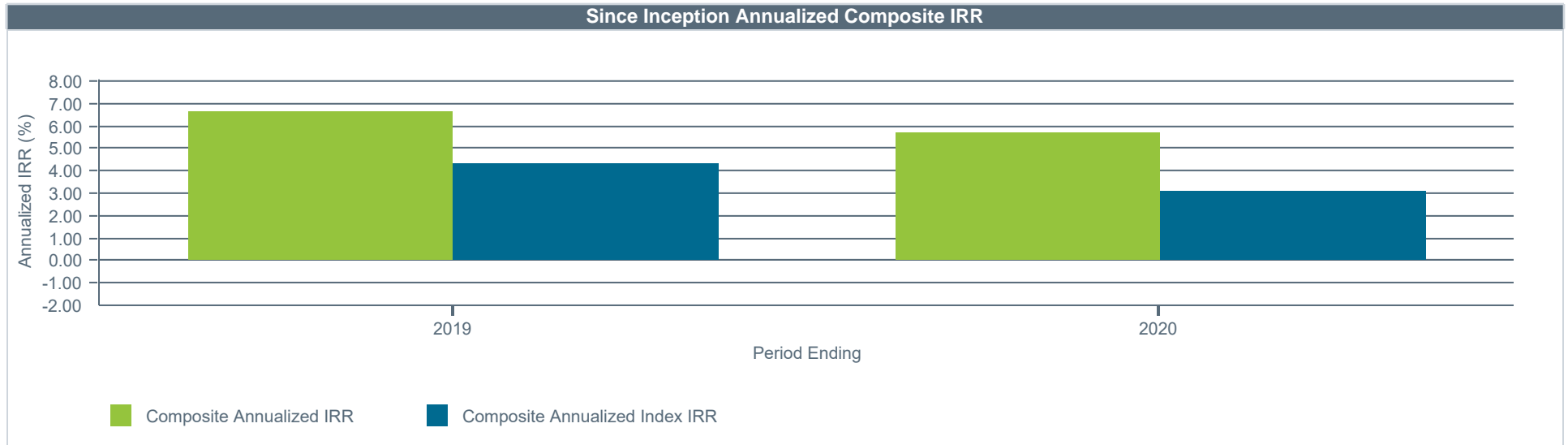
Index IRR represents the dollar-weighted returns calculated using the MSCI ACW IM Index (USD) (Net) assuming an index investment with the same cash flow timing. This report may contain valuations for investments that are preliminary estimates of valuation as of the date of reporting which reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated.





Index IRR represents the dollar-weighted returns calculated using the NCREIF ODCE Index (AWA)(Net) assuming an index investment with the same cash flow timing. This report may contain valuations for investments that are preliminary estimates of valuation as of the date of reporting which reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated.





Index IRR represents the dollar-weighted returns calculated using the S&P/LSTA Lvg'd Loan Index assuming an index investment with the same cash flow timing. This report may contain valuations for investments that are preliminary estimates of valuation as of the date of reporting which reflect the estimated impact of subsequent net cash contributions/distributions. These figures may be used in calculations contained in this report. IRRs are shown only for investments with one year or more of cash flows and for which an accurate IRR could be calculated.



Addendum & Glossary



**Vermont State Employees' Retirement System
Fee Schedule**

As of December 31, 2020

| | Fee Schedule | Market Value As of 12/31/2020 (\$) | Estimated Annual Fee (\$) | Estimated Annual Fee (%) |
|------------------------------------|--|---|--|---|
| Blackrock S&P 500 (EqI Wtd) (CF) | 0.020 % of Assets | 97,391,212 | 19,478 | 0.020 |
| Champlain US Mid Cap Core (SA) | 0.850 % of First \$50 M 0.750 % of Next \$50 M 0.650 % Thereafter | 67,258,892 | 554,442 | 0.824 |
| BlackRock MSCI ACW IMI (CF) | 0.025 % of Assets | 769,394,984 | 192,349 | 0.025 |
| Artisan Global Opportunities (CF) | 0.750 % of Assets | 134,314,466 | 1,007,358 | 0.750 |
| Acadian International All Cap (SA) | 0.700 % of First \$25 M 0.600 % of Next \$25 M 0.500 % of Next \$25 M 0.300 % Thereafter | 99,171,622 | 522,515 | 0.527 |
| Mondrian International (SA) | 0.500 % of First \$50 M 0.350 % of Next \$50 M 0.300 % Thereafter | 56,640,998 | 273,243 | 0.482 |
| BlackRock US Agg (CF) | 0.030 % of Assets | 425,967,852 | 127,790 | 0.030 |
| PIMCO Core Plus (SA) | 0.190 % of Assets | 102,989,751 | 195,681 | 0.190 |
| Wellington Opportunistic EMD (CF) | 0.550 % of Assets | 95,848,230 | 527,165 | 0.550 |
| PIMCO Liquidation (SA) | 0.300 % of Assets | 5,225,160 | 15,675 | 0.300 |
| BlackRock TIPS (CF) | 0.025 % of Assets | 60,781,311 | 15,195 | 0.025 |
| UBS Trumbull Properties (CF) | 0.955 % of First \$10 M 0.825 % of Next \$15 M 0.805 % of Next \$25 M 0.790 % of Next \$50 M 0.670 % of Next \$150 M 0.600 % of Next \$150 M 0.560 % of Next \$200 M 0.520 % Thereafter | 87,058,349 | 713,261 | 0.819 |
| Total Fund | | 2,223,064,799 | 4,164,153 | 0.187 |

Mutual Fund fees are sourced from Morningstar and/or the investment manager. UBS also has a variable fee ranging from 0.00% to 0.25%. The variable fee has been suspended from 4/01/2018 to 3/31/2022. Total fund fee shown excludes fees on Private Assets.



Performance Related Comments

- RVK began monitoring the plan's assets as of 9/2020. Prior data was provided by the previous consultant.
- Performance shown is net of fees.
- Inception dates shown represent the first full month of available performance.
- Fiscal year ends 6/30.
- Private Asset market values, performance and benchmarks are valued quarterly and shown as of most recently available quarter end, adjusted for subsequent cash flows. Interim periods assume a 0% return.
- Inception dates for allocation buckets are when RVK started calculating performance in 09/2020.
- PIMCO Liquidation (SA) consists of residual assets from Vermont Pension's High Yield allocation.
- During 12/2020, the Real Assets composite consisting of Core Real Estate, Non-Core Real Estate, and Private Infrastructure/Land was replaced by the Inflation Hedging Assets composite consisting of TIPS, Core Real Estate, and Private Infrastructure/Land. A new Non-Core Real Estate composite was created.

Decisions Made by the Committee Over the Last 18 Months

Manager Additions

- Blackrock S&P 500 (EqI Wtd) (CF), BlackRock MSCI ACW IMI (CF), BlackRock US Agg (CF), Nuveen Global Agriculture (CF), Angelo Gordan Direct Lending, Harbourvest Dover X, Harbourvest XI Funds, Siguer Guff SBOF IV, Neuberger Berman, Benefit Street Partners II, Blue Vista Real Estate Partners.

Manager Liquidations

- SGA International Small Cap (CF), Pinnacle Natural Resources, KDP High Yield, Allianz Structured Alpha, Guggenheim High Yield, PIMCO Unconstrained Bond Fund, Grosvenor Hedge Fund of Funds, Aberdeen International Equities, Hosking Partners Global Equity Fund.

Policy Changes

- During 01/2021, the board approved an updated target allocation index and fund level benchmarks. Benchmark changes will be reflected starting 01/2021.

Historical Transition Comments

- SGA International Small Cap (CF) was liquidated during 09/2020. Remaining market value represents residual assets.
- Angelo Gordon Direct Lending IV was funded during 09/2020.
- Wellington Small Cap Value (SA), SSgA Russell 2000 Growth (SA), Pinnacle Natural Resources (CF) and PIMCO Unconstrained (SA) were liquidated prior to 09/2020. Remaining market values represent residual assets.

Benchmark Comments

- The Target Allocation Index consists of 4% S&P 500 Index (Cap Wtd), 3% Russell 2500 Index, 5% MSCI EAFE Index, 29% MSCI ACW IM Index (USD) (Net), 2% MSCI EAFE Small Cap Index, 20% Bloomberg US Aggregate Bond Index, 3% Bloomberg US Treasury US TIPS Index (TR), 4% JP Morgan Emerging Mkts Bond Gbl Index, 10% S&P/LSTA Leveraged Loan Index (TR), 10% Cambridge US PE Index and 10% NCREIF Property Index.
- The Actual Allocation Indices are calculated monthly using beginning of month investment weights applied to each corresponding benchmark return.
- The Custom SMID Cap Equity Index consists of 50% Russell 2500 index and 50% Russell 2000 index.
- The CPI+2.5% (Spliced) index consists of the NCREIF Property Index prior to 09/01/2020 and the Consumer Price Index+2.5% thereafter.

Glossary

Active Return - The difference between the investment manager/composite performance relative to the performance of an appropriate market benchmark.

Active Share - Measures the degree to which the holdings of a fund differ from the holdings of the benchmark. Active share is calculated by taking the sum of the absolute value of the differences of the weight of each holding in the fund versus the weight of each holding in the benchmark and dividing by two.

Alpha - A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market or a portfolio's non-systematic return.

Alpha Ratio - A measure of a portfolio's non-systematic return per unit of downside risk. It is measured by dividing the alpha of a portfolio by the downside risk. The non-systematic return is a measure of a portfolio's historical performance not explained by movements of the market.

Average Quality - Bond quality ratings are reported using the investment managers' and the index providers' preferred rating agency. *Average Quality for managers unable to provide this statistic is instead provided by Morningstar; if unavailable on Morningstar, it has been estimated using a credit quality distribution provided by the manager.* There are two primary rating agencies in the US. *Moody's* assigns ratings on a system that employs up to four symbols (consisting of letters and numbers), such as, Aaa, Aa2, etc., with Aaa being the highest or safest rating. *Standard & Poor's (S&P)* employs a system that uses + and - along with letters, such as AAA, AA+, etc. The two rating agencies' systems are summarized below:

| <u>S&P</u> | <u>Moody's</u> | <u>Explanation</u> | <u>S&P</u> | <u>Moody's</u> | <u>Explanation</u> |
|---|----------------|------------------------------|--|----------------|---------------------------------|
| Higher Credit Quality – Investment Grade | | | Lower Credit Quality – Below Investment Grade | | |
| AAA | Aaa | Prime/Highest credit quality | BB+ | Ba1 | Speculative/Low credit quality |
| AA+ | Aa1 | High credit quality | BB | Ba2 | |
| AA | Aa2 | | BB- | Ba3 | |
| AA- | Aa3 | | B+ | B1 | Highly speculative |
| A+ | A1 | Upper-medium credit quality | B | B2 | |
| A | A2 | | B- | B3 | |
| A- | A3 | | CCC+ | Caa1 | Substantial credit/default risk |
| BBB+ | Baa1 | Lower-medium credit quality | CCC | Caa2 | Extremely speculative |
| BBB | Baa2 | | CCC- | Caa3 | |
| BBB- | Baa3 | | CC | Ca | Vulnerable to default |
| | | | C | Ca | |
| | | | D | C | In default |

Benchmark Effect - The difference between the blended return of each respective managers' benchmark within a composite and the composite's benchmark return.

Beta - A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk.

Box Plots - A graphical representation of the distribution of observations. From top to bottom, the four boxes represent the spread between the maximum value and the minimum value in each quartile. A quartile represents the values that divide the observations into four quarters (i.e., 1st quartile, 2nd quartile, 3rd quartile, and 4th quartile). The median observation is where the 2nd quartile and 3rd quartile meet.

Buy and Hold Attribution - At the beginning of the time period under analysis, the manager and benchmark portfolios are broken down into segments (i.e., styles, sectors, countries, and regions) based on the desired type of attribution. The formula assumes zero turn-over to the manager and benchmark portfolios throughout the period and calculates the segment returns ("buy and hold returns") to arrive at performance attribution. Due to portfolio turnover, buy and hold attribution may not accurately represent quarterly performance relative to the benchmark. Country, region, sector, and style allocations are as of the date one quarter prior to the reporting date, and the returns shown are for those segments throughout the quarter reported. Due to disclosure guidelines set by each investment manager, equity characteristics shown are as of the most recent date available. The following is the methodology for segment classification:

Sector - Attribution is calculated using the Global Industry Classification Standard (GICS), which is a detailed and comprehensive structure for sector and industry analysis. Stocks are classified by their primary sector as defined by S&P Capital IQ data.

Country/Region - Attribution is calculated using the Morgan Stanley Capital International (MSCI) region standards. Stocks are classified by their domicile country/region, as defined by S&P Capital IQ data, and thus may differ from the classification of the investment manager and/or index provider.

Style - Stocks are classified into the following style boxes: large/mid/small vs. growth/neutral/value. Stocks are classified along large/mid/small categories at the time of the Russell index rebalancing, using the index market cap boundaries as cutoff points. Stocks are classified along growth/neutral/value categories at the time of the Russell index rebalancing, using the price/book ratio as supplied by S&P Capital IQ. Stocks in the Russell 3000 Index portfolio are sorted by price/book ratio; names with the highest price/book ratio that make up 1/3 of the total market capitalization are assigned to the growth category, and names that make up the subsequent 1/3 of the total market capitalization are assigned to the neutral category, while the balance of the names are assigned to the value category. Stocks are unclassified when there is not enough data to determine a size and style metric.

Portfolio Characteristics and Buy and Hold Attribution reports utilize product-specific data for all mutual funds and commingled funds.

Capital Markets Review -

Breakeven Inflation - Measures the expected inflation rate at each stated maturity by taking the difference between the real yield of the inflation-linked maturity curve and the yield of the closest nominal Treasury maturity.

Consumer Confidence - Measures domestic consumer confidence as defined by the degree of optimism on the state of the economy that consumers express through saving and spending.

Consumer Price Index (CPI) - Measures the change in the price level of consumer goods and services.

Glossary

- Federal Funds Rate** - The interest rate at which a depository institution lends funds maintained at the Federal Reserve to another depository institution overnight. It is one of the most influential interest rates in the US economy, since it affects monetary and financial conditions, which in turn have a bearing on key aspects of the broad economy including employment, growth and inflation.
- Option-Adjusted Spread** - Measures the flat spread of an index or bond to the Treasury yield curve after removing the effect of any embedded options.
- Purchasing Managers Index (PMI)** - Measures economic activity by surveying purchasing managers on a monthly basis as to whether business conditions have improved, worsened, or stayed the same.
- Real Gross Domestic Product (Real GDP)** - An inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year.
- Unemployment Rate** - The percentage of the total labor force that is unemployed but actively seeking employment.
- US Dollar Total Weighted Index** - Measures the value of the US Dollar relative to a basket of other world currencies. It is calculated as the weighted geometric mean of the dollar's value versus the EUR, GBP, CAD, SEK, CHF, and JPY.
- VIX** - Measures the implied volatility of S&P 500 Index options by looking at the market's expectation of the S&P 500 Index volatility over the next 30 day period. Commonly referred to as the "fear index" or the "fear gauge."
- Cash Flow Effect** - The composite's active return minus the sum of each managers' active return minus the benchmark effect.
- Consistency** - The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.
- Convexity** - A measure of the shape of the curve that describes the relationship between bond prices and bond yields.
- Correlation** - A statistical measure of the relationship between asset class returns. A value of 1.00 is a perfect correlation; that is, the asset classes always move in the same direction. A value of -1.00 indicates a perfect negative correlation, in which the asset classes always move in opposite directions of each other. A value of 0 indicates there is no relationship between the direction of returns of the two asset classes. Correlation calculations only consider the direction of changes relative to two variables and not the magnitude of those changes.
- Coupon Rate** - The percentage rate of interest paid on a bond or fixed income security; it is typically paid twice per year.
- Current Yield** - The annual income of a security divided by the security's current price.
- Down Market Capture** - Down market by definition is negative benchmark return and down market capture represents the ratio in % terms of the average portfolios return over the benchmark during the down market period. The lower the value of the down market capture the better the product's performance.
- Downside Risk** - A measure similar to standard deviation that focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative returns for the selected periodicity. The higher the factor, the riskier the product.
- Earnings Per Share** - It is backward looking, calculated using the one year current EPS divided by the one year EPS five years ago.
- Effective Duration** - The approximate percentage change in a bond's price for a 100 basis point change in yield.
- Excess Return vs. Market** - Average of the monthly arithmetic difference between the manager's return and the benchmark return over a specified time period, shown on an annualized basis.
- Excess Return vs. Risk Free** - Average of the monthly arithmetic difference between the manager's return and the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) over a specified time period, shown on an annualized basis.
- Excess Risk** - A measure of the standard deviation of a portfolio's performance relative to the risk-free return.
- Expense Ratios** - Morningstar is the source for mutual fund expense ratios.
- Gain/Loss** - The net increase or decrease in the market value of a portfolio excluding its Net Cash Flow for a given period.
- Indices** - All indices and related information are considered intellectual property and are licensed by each index provider. The indices may not be copied, used, or distributed without the index provider's prior written approval. Index providers make no warranties and bear no liability with respect to the indices, any related data, their quality, accuracy, suitability, and/or completeness.
- Information Ratio** - Measured by dividing the active rate of return by the tracking error. The higher the information ratio, the more value-added contribution by the manager.
- Liability Driven Investing (LDI)** - A method to optimally structure asset investments relative to liabilities. The change in liabilities is estimated by the Ryan Labs Generic PPA Index of appropriate duration for that Plan. This benchmark is based on generic data and is therefore an approximation. RVK is not an actuarial firm, and does not have actuarial expertise.
- Estimated Funded Status** - The estimated ratio of a Plan's assets relative to its future liabilities. This is calculated by dividing the Plan's asset market value by the estimated present value of its liabilities. The higher the estimated funded status, the better the Plan's ability to cover its projected benefit obligations. An estimated funded status of 100% indicates a Plan that is fully funded.
- Estimated PV of Liabilities** - An estimate of a Plan's future liabilities in present value terms. The beginning of the period liability is provided by the Plan's actuary. The period-end present value liability estimate provided in this report is derived by applying the estimated percentage change generated using the Ryan Labs Generic PPA Index with duration similar to that reported on the most recent actuarial valuation report.
- Duration of Liabilities** - The sensitivity of the value of a Plan's liabilities to changes in interest rates, as calculated by the Plan's actuary.
- Duration of Assets** - The dollar-weighted average duration of all the individual Plan assets.
- Estimated Plan Hedge Ratio** - The estimate of how well a Plan's investment portfolio is hedged against changes in interest rates - a primary driver of funded status movements. This is calculated by dividing the dollar-weighted values of both the Plan asset duration by the liability duration and

Glossary

multiplying by the estimated funded status. An estimated plan hedge ratio of zero indicates that the Plan's liabilities have not been hedged, whereas a value of one indicates fully hedged.

Modified Duration - The approximate percentage change in a bond's price for a 100 basis point change in yield, assuming the bonds' expected cash flows do not change.

Mutual Fund Performance - Whenever possible, manager performance is extended for any share class that does not have 10 years of history. Using Morningstar's methodology, a single ticker within the same fund family (often the oldest share class) is chosen to append historical performance.

Net Cash Flow - The sum, in dollars, of a portfolio's contributions and withdrawals. This includes all management fees and expenses only when performance shown is gross of fees.

Peer Groups -

Plan Sponsor Peer Groups - RVK utilizes the Mellon Analytical Solutions Trust Universe along with the Investment Metrics Plan Sponsor Universe. The combined Mellon Analytical Solutions Trust Universe and Investment Metrics Plan Sponsor Universe is used for comparison of total fund composite results and utilizes actual client performance compiled from consultant and custodian data. The Plan Sponsor Peer Group database includes performance and other quantitative data for over 2,100 plans which include corporate, endowment, foundation, public, and Taft Hartley plans. Plan Sponsor Peer Groups are gross of fees.

Investment Manager Peer Groups - RVK utilizes Investment Metrics' Peer Groups for investment manager peer comparison and ranking. The Investment Metrics Peer Group database includes performance and other quantitative data for over 840 investment management firms and 29,000 investments products, across more than 160 standard peer groups. Mutual Fund Peer Groups are net of fees.

Percentile Rankings - Percentile rank compares an individual fund's performance with those of other funds within a defined peer group of managers possessing a similar investment style. Percentile rank identifies the percentage of a fund's peer group that has a higher return (or other comparative measurement) than the fund being ranked. Conversely, 100 minus the individual fund's ranking will identify the percentage of funds within the peer group that have a lower return than the fund being ranked.

1 - Highest Statistical Value 100 - Lowest Statistical Value

Example: American Funds AMCP;R-4 (RAFEX) is ranked in the 4th percentile within the IM US Equity Large-Cap Growth Funds (MF) Peer Group for the Sharpe Ratio. Within the IM US Equity Large-Cap Growth Funds peer group, 4% of the other funds performed better than American Funds AMCP;R-4 (RAFEX), while 96% of the funds performed worse.

Performance Methodology - RVK calculates performance for investment managers and composites using different methodologies.

Investment Managers - Performance is calculated for interim periods between all large external cash flows for a given month and geometrically linked to calculate period returns. An external cash flow is defined as cash, securities, or assets that enter or exit a portfolio. RVK defines a "large cash flow" as a net aggregate cash flow of $\geq 10\%$ of the beginning-period portfolio market value or any cash flow that causes RVK calculated performance to deviate from manager/custodian reported performance in excess of 5 basis points for a given month.

Composites - The Modified Dietz methodology is utilized to calculate asset class, sub-asset class, and total fund composite performance. The Modified Dietz method calculates a time-weighted total rate of return that considers the timing of external cash flows; however, it does not utilize interim period performance to mitigate the impact of significant cash in- and outflows to the composite.

RVK calculates performance beginning with the first full month following inception. Since inception performance may vary from manager reported performance due to RVK using the first full month of returns as the inception date. Performance for both managers and composites is annualized for periods greater than one year.

Portfolio Characteristics - Due to disclosure guidelines set by each investment manager, portfolio characteristics shown are as of the most recent date available.

Price to Earnings Ratio - The ratio valuing a company's current share price relative to its trailing 12-month per-share earnings (EPS).

Private Equity Quartile Ranks - Private Equity quartile ranks are generated using vintage year peer group data provided by Thomson Reuters, and are based on each fund's annualized, since inception internal rate of return (IRR). Three Private Equity peer groups are available via Thomson Reuters: Buyout, Venture, and All Private Equity. Ranks are available quarterly, at a one-quarter lag.

R-Squared - The percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio's performance to the appropriate benchmark.

Return - Compounded rate of return for the period.

% Return - The time-weighted rate of return of a portfolio for a given period.

Risk Free Benchmark - ICE BofAML 3 Mo US T-Bill Index unless specified otherwise.

Glossary

RVK Liquidity Rating - A qualitative method for determining the relative amount of liquidity in a portfolio. The characteristics considered when determining relative liquidity include trading volume, gates for redemption, leverage, nature of transactions, and pricing mechanisms. The RVK Liquidity Rating is calculated using beginning of month investment weights applied to each corresponding asset class liquidity rating.

| <u>Asset Class</u> | <u>RVK Liquidity Rating</u> | <u>Asset Class</u> | <u>RVK Liquidity Rating</u> |
|-------------------------------------|-----------------------------|---------------------------------------|-----------------------------|
| <u>Liquid Investments</u> | | <u>Less Liquid Investments</u> | |
| T-Bills and Treasuries | 100 | Fixed Income Plus Sector | 50 |
| Cash Equivalents | 98 | Stable Value (Plan Sponsor Directed) | 50 |
| TIPS | 95 | Hedge Funds of Funds | 35 |
| US Large Cap Equity | 95 | | |
| Diversified Real Return | 93 | | |
| Stable Value (Participant Directed) | 91 | | |
| Global Equity | 90 | <u>Not Liquid Investments</u> | |
| Non-US Large Cap Equity | 90 | Core Real Estate | 25 |
| Global Tactical Asset Allocation | 88 | Core Plus Real Estate | 15 |
| MLPs | 85 | Non-Core Real Estate | 5 |
| US Mid Cap Equity | 85 | Private Equity Funds of Funds | 5 |
| US SMid Cap Equity | 85 | | |
| US Small Cap Equity | 85 | | |
| REITs | 85 | | |
| Non-US Small Cap Equity | 85 | | |
| Emerging Markets Equity | 85 | | |
| Core Fixed Income | 85 | | |
| Core Plus Fixed Income | 80 | | |

Sector Allocation - Negative fixed income sector allocation reflects manager's use of derivatives, short selling, or interest rate swaps.

Sharpe Ratio - Represents the excess rate of return over the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise), divided by the standard deviation of the excess return to the risk free asset. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.

Simple Alpha - The difference between the manager's return and the benchmark's return.

Spread Duration - The approximate percentage change in a bond's price for a 100 basis point change in its spread over a Treasury of the same maturity.

Standard Deviation - A statistical measure of the range of a portfolio's performance. The variability of a return around its average return over a specified time period.

Thematic Classification - Represents dedicated manager allocations; as such, thematic allocations are approximations. RVK categorizes the following asset classes as Alpha, Capital Appreciation, Capital Preservation, and Inflation:

| <u>Alpha</u> | <u>Capital Appreciation</u> | <u>Capital Preservation</u> | <u>Inflation</u> |
|----------------------------|------------------------------|--------------------------------------|------------------|
| Absolute Return Strategies | Public Equity | Core Fixed Income | TIPS |
| Currency Overlay | Private Equity | CMBS Fixed Income | Bank Loans |
| | Preferred Securities | Asset Backed Fixed Income | Core Real Estate |
| | High Yield | Domestic Core Plus Fixed Income | Real Return |
| | Convertible Fixed Income | Mortgage Backed Fixed Income | Inflation Hedges |
| | TALF Funds | International Developed Fixed Income | REITs |
| | Distressed Debt | Cash Equivalents | Commodities |
| | Emerging Market Fixed Income | Stable Value | |
| | Value Added Real Estate | | |
| | Opportunistic Real Estate | | |

Time Period Abbreviations - **QTD** - Quarter-to-Date. **CYTD** - Calendar Year-to-Date. **FYTD** - Fiscal Year-to-Date. **YOY** - Year Over Year.

Total Fund Attribution - The Investment Decision Process (IDP) model provides an approach to evaluating investment performance that applies to all asset classes and investment styles. The IDP model is based on a top-down hierarchy framework of investment decisions, with each decision contributing to the overall profit or loss. The IDP approach starts from the strategic asset allocation and follows the flow of the investments down to the manager's skill.

Strategic Asset Allocation (SAA) - The percentage return gained or lost from the long-term strategic asset allocation decision, the most significant determinant of long-term performance. SAA is the product of the target asset allocation multiplied by the corresponding benchmark returns.

Tactical Asset Allocation (TAA) - The percentage return gained or lost from not having been precisely allocated at the target asset allocation mix, whether by deviations that are tactical in nature or a by-product of moving towards the target mix. TAA is the product of the actual asset allocation multiplied by the broad asset class benchmarks, less the SAA.

Style Selection (SS) - The percentage return gained or lost from intentional style biases within each asset class (e.g. value rather than core or overweight to emerging markets relative to benchmark). SS is the product of the actual manager allocation within each asset class multiplied by their specific benchmark, less TAA.

Manager's Skill (MS) - The percentage return gained or lost from manager value added relative to their specific benchmark. MS is the product of the actual manager allocation multiplied by their achieved excess return.

Total Fund Beta - Total Fund Beta is calculated using the S&P 500 as the benchmark. It represents a measure of the sensitivity of the total fund to movements in the S&P 500 and is a measure of the Total Fund's non-diversifiable or systematic risk.

Glossary

Tracking Error - A measure of the standard deviation of a portfolio's performance relative to the performance of an appropriate market benchmark.

Treynor Ratio - Similar to Sharpe ratio, but focuses on beta rather than excess risk (standard deviation). Treynor ratio represents the excess rate of return over the risk-free rate (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) divided by the beta. The result is the absolute rate of return per unit of risk. The higher the value, the better historical risk-adjusted performance.

Unit Value - The dollar value of a portfolio, assuming an initial nominal investment of \$100, growing at the compounded rate of %Return for a given period.

Up Market Capture - Up market by definition is positive benchmark return and up market capture represents the ratio in % terms of the average portfolio's return over the benchmark during the up market period. The higher the value of the up market capture the better the product's performance.

Yield to Maturity - The rate of return achieved on a bond or other fixed income security assuming the security is bought and held to maturity and that the coupon interest paid over the life of the bond will be reinvested at the same rate of return. The 30-Day SEC Yield is similar to the Yield to Maturity and is reported for mutual funds.

Yield to Worst - The bond yield calculated by using the worst possible yield taking into consideration all call, put, and optional sink dates.

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