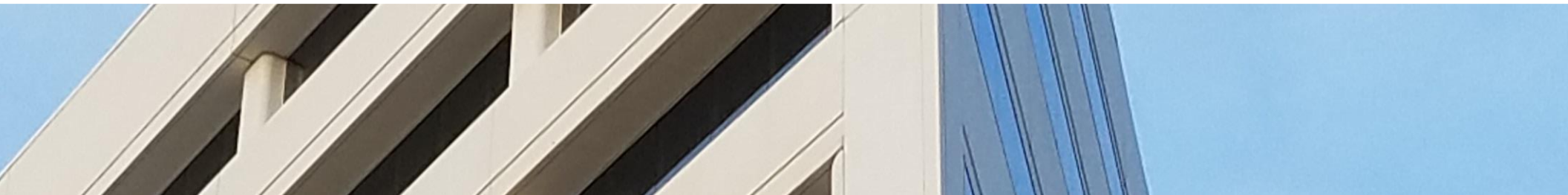




WILSHIRE ASSOCIATES

Wilshire Consulting



Monthly Performance Review

As of October 31, 2020



Capital Market Review

Economic Review

Market Commentary

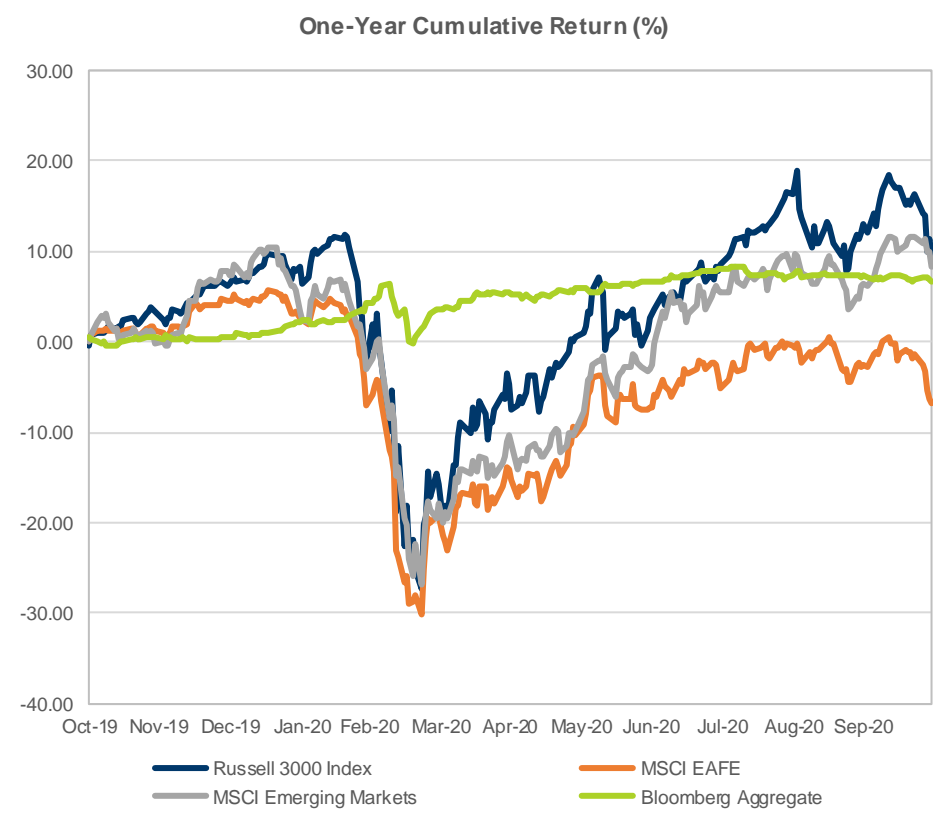
Despite a modest recovery at the beginning of the month, developed markets fell once again in October, marking the second straight month of negative returns. Investors continued to show concern of the large resurgence of COVID-19 cases and hospitalizations in the United States and Europe. By month's end, reported cumulative cases surpassed 46.5 million, with 1.2 million deaths linked to the virus*. The final days of October were also marked by elevated volatility, as hopes of a pre-election stimulus package diminished.

Third Quarter 2020 real GDP in the U.S. rose 33.1% quarter-over-quarter, following the GDP figure ever in the Second Quarter of 2020, -31.4%. Despite a strong recovery, the U.S. economy is still behind by 3.5% year-to-date; however, October figures for consumer sentiment, unemployment and manufacturing suggest continued recovery into the Fourth Quarter 2020.

Unemployment in the United States decreased during October to 6.9% after adding 638,000 jobs. By the end of October, the U.S. has regained 54% of the 22 million jobs lost between February and April.

Manufacturing in the United States, marked by the ISM Manufacturing Index, rose sharply to 59.3, up from 55.4 during September.

Although consumer spending modestly declined in October, consumer sentiment continued to rise. The University of Michigan Consumer Sentiment Index marked a reading of 81.8 during the month, up from 80.4 at the end of September.

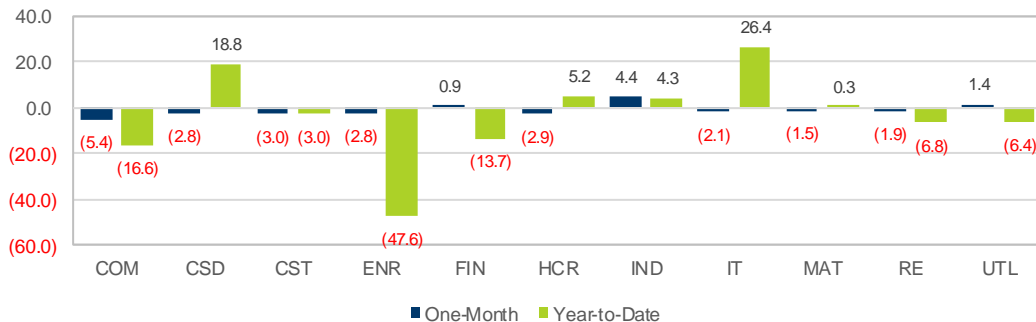


*Source: John Hopkins
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U.S. Equity Market

U.S. Equity Indices (%)	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Russell 3000 Index	(2.16)	(2.16)	3.14	9.76	10.10	11.47	12.79
Standard & Poor's 500 Index	(2.66)	(2.66)	2.77	9.39	10.45	11.70	13.00
Russell 1000 Index	(2.41)	(2.41)	3.83	10.50	10.67	11.77	13.03
Russell 2500 Index	1.81	1.81	(4.11)	1.44	4.76	8.17	10.59
Russell 2000 Index	2.09	2.09	(6.77)	(0.79)	2.45	7.26	9.63
Russell Micro Cap Index	1.29	1.29	(6.75)	2.70	0.68	5.87	9.03
Russell 1000 Index	(2.41)	(2.41)	3.83	10.50	10.67	11.77	13.03
Russell 1000 Growth Index	(3.40)	(3.40)	20.11	28.92	18.84	17.30	16.29
Russell 1000 Value Index	(1.31)	(1.31)	(12.74)	(7.97)	1.95	5.82	9.47
Russell 2000 Index	2.09	2.09	(6.77)	(0.79)	2.45	7.26	9.63
Russell 2000 Growth Index	0.76	0.76	4.67	12.71	8.25	10.35	11.94
Russell 2000 Value Index	3.58	3.58	(8.74)	(14.55)	(3.86)	3.70	7.06
Russell 3000 Index	(2.16)	(2.16)	3.14	9.76	10.10	11.47	12.79
GICS - Communication Services	(5.37)	(5.37)	(16.62)	(13.70)	7.92	8.14	6.92
GICS - Consumer Discretionary	(2.82)	(2.82)	18.76	24.11	17.73	14.24	16.31
GICS - Consumer Staples	(2.95)	(2.95)	(2.98)	1.50	5.31	4.84	10.18
GICS - Energy	(2.80)	(2.80)	(47.59)	(43.54)	(20.72)	(12.61)	(4.71)
GICS - Financials	0.88	0.88	(13.66)	(9.26)	3.07	8.08	10.76
GICS - Health Care	(2.94)	(2.94)	5.23	15.15	11.60	10.48	15.50
GICS - Industrials	4.40	4.40	4.26	6.24	5.67	8.85	12.80
GICS - Information Technology	(2.13)	(2.13)	26.39	38.85	22.89	23.17	18.38
GICS - Materials	(1.53)	(1.53)	0.34	5.20	2.82	8.83	8.83
GICS - Real Estate	(1.87)	(1.87)	(6.78)	7.37	2.85	2.16	5.28
GICS - Utilities	1.44	1.44	(6.42)	(4.99)	6.22	8.57	9.53

Sector Returns (%)



Market Commentary

The U.S. stock market declined for the second straight month in October. Represented by the Russell 3000 Index, U.S. equities were down -2.2% for the month, but remain ahead year-to-date, up +3.1%.

U.S. equities' second straight month of negative returns came as COVID-19 cases continued to grow rapidly across the U.S., with many fearing new lock-down restrictions. Economists warned of a significant economic drop if additional relief packages were not approved by Congress soon. By month's end, U.S. stock market volatility was fueled by diminishing hopes of additional stimulus before the Presidential election.

Large capitalization stocks underperformed small capitalization stocks for the second straight month, as small cap stocks were positive during October. The Russell 2000 Index returned +2.1% versus -2.4% for the Russell 1000 Index. Year-to-date, large cap stocks remain ahead, up +3.8% versus -6.8% for small cap stocks.

Value stocks continued their recovery for the second straight month, outperforming growth stocks once again in October. Small cap value stocks were the highest returners for the month, up +3.6%.

Of the eleven major sectors, three were positive for the month, Financials, Industrials and Utilities. Year-to-date, Information Technology continues to be the highest returning sector, up +26.4% and outperforming the broad market by 23.3%.

Non-U.S. Equity Market

Market Commentary

Equity markets outside of the U.S. performed in line with U.S. stocks during October, down -2.2%. Year-to-date, Non-U.S. Equities as measured by the MSCI ACWI ex U.S. Index remain negative, down -7.5%.

Developed markets again underperformed emerging markets during October, down -4.0% versus +2.1% for emerging markets equities. Year-to-date, emerging markets are well ahead of developed markets, up +0.9% versus -10.8%.

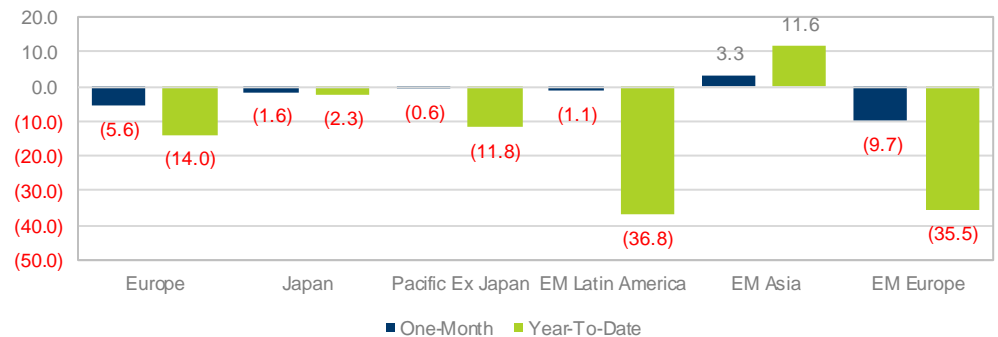
Europe continues to experience rising cases and hospitalizations related to COVID-19, particularly in larger countries of Spain, France and the U.K.s much of Europe led the news for the month. Although hospitalizations remained very low for much of the summer, Spain, France and the U.K. Many regions saw new COVID-19 restrictions during the month including partial lock-downs and nightly curfews.

Emerging market performance has been led by emerging Asia, particularly, China, which now makes up over 40% of the Index. China's strong economic recovery has benefited from economic stimulus and increased global trade.

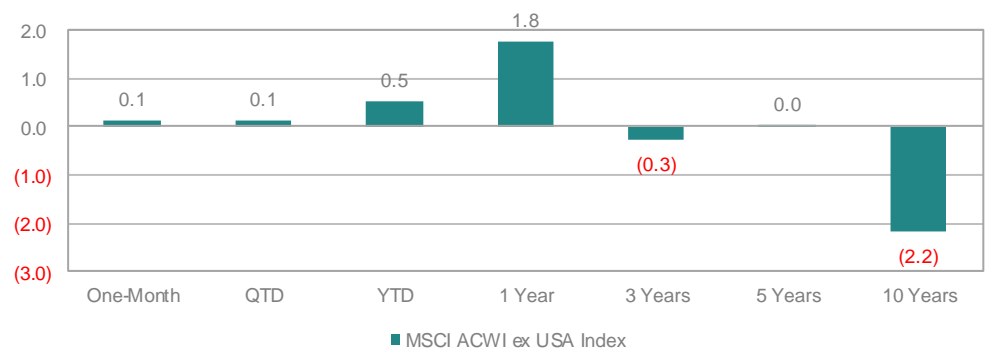
The U.S. Dollar weakened during the month, providing a modest tailwind for U.S.-based investors. Emerging markets, in particular, benefited most from a weakening U.S. Dollar, as the Local Currency Index (MSCI Emerging Markets Index LC) was up +1.5% during October, providing a tailwind of +0.6% for U.S.-based investors during the month.

Non-U.S. Equity (USD %)	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
MSCI AC World ex U.S. Index	(2.15)	(2.15)	(7.47)	(2.54)	(0.14)	4.26	3.43
MSCI EAFE Index	(3.99)	(3.99)	(10.80)	(6.79)	(1.19)	2.84	3.82
MSCI Emerging Markets Index	2.06	2.06	0.87	8.30	2.05	7.91	2.42
MSCI AC World ex U.S. Small Index	(2.66)	(2.66)	(6.20)	0.41	(0.48)	5.01	4.60
<hr/>							
MSCI Europe Index	(5.64)	(5.64)	(13.99)	(9.52)	(2.50)	1.62	3.21
MSCI Japan Index	(1.60)	(1.60)	(2.26)	1.17	1.59	5.12	5.81
MSCI Pacific ex Japan Index	(0.57)	(0.57)	(11.76)	(9.13)	(0.45)	5.15	3.41
MSCI EM Latin America Index	(1.13)	(1.13)	(36.79)	(33.70)	(11.29)	0.62	(6.14)
MSCI EM Asia Index	3.30	3.30	11.57	20.48	5.21	10.35	5.51
MSCI EM Europe Index	(9.73)	(9.73)	(35.50)	(32.02)	(7.45)	0.42	(4.41)
<hr/>							
Local Currency (%)	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
MSCI AC World ex U.S. Index	(2.28)	(2.28)	(7.99)	(4.31)	0.13	4.23	5.62
MSCI EAFE Index	(3.92)	(3.92)	(12.99)	(10.30)	(1.72)	2.42	5.64
MSCI Emerging Markets Index	1.49	1.49	4.20	10.81	4.12	8.80	5.53

Regional Returns (%)



Currency Effect (%)



Fixed Income Market

Market Commentary

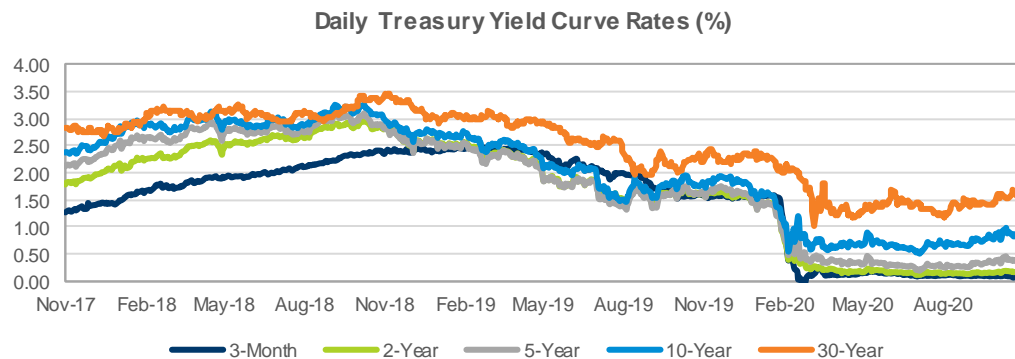
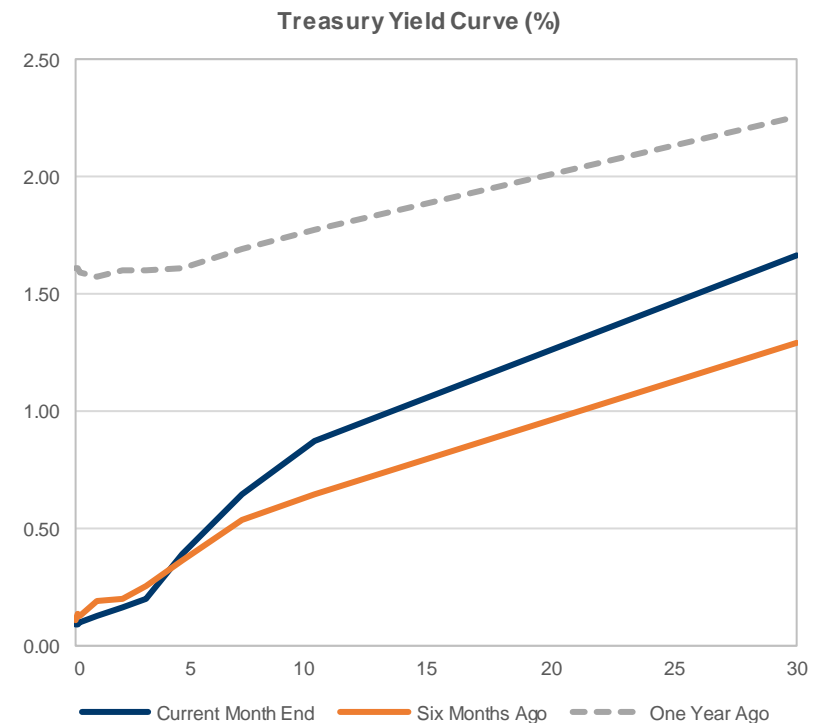
Although the U.S. Treasury yield curve remains depressed, rates rose modestly during the month, with the 10 - and 30-year Treasury yield increasing by 0.17% and 0.19%, respectively. The 10-year Treasury yield ended the month at 0.88%. The long-end of the yield curve (30-years) is now above 1.5% for the first time since February 2020

The Bloomberg U.S. Aggregate returned -0.5% for the month as investment grade fixed income sold-off given the rise in interest rates during the month. Year-to-date; however, the Index remains strong, up +6.3%.

Despite widening credit spreads and an equity market sell-off, high yield fixed income remained resilient returning +0.5% for the month. Year-to-date, high yield bonds are up +1.1%.

U.S. Fixed Income	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Bloomberg Barclays U.S. Aggregate	(0.45)	(0.45)	6.32	6.75	5.05	4.08	3.55
Bloomberg Barclays Long Gov't/Credit	(1.58)	(1.58)	12.39	12.74	9.47	8.33	7.42
Bloomberg Barclays LT Treasury	(3.01)	(3.01)	17.69	15.82	10.80	7.66	7.23
Bloomberg Barclays U.S. TIPS	(0.65)	(0.65)	8.52	9.68	5.49	4.42	3.23
Bloomberg Barclays U.S. Credit	(0.22)	(0.22)	6.15	7.33	5.97	5.59	4.88
Bloomberg Barclays U.S. High Yield	0.51	0.51	1.13	3.34	4.24	6.32	6.25
ICE BofA U.S. High Yield Cash Pay	0.47	0.47	0.23	2.39	3.88	6.13	6.05
S&P LSTA Levered Loan Index	0.19	0.19	(0.47)	1.68	2.96	4.09	4.11
ICE BofA US 3-Month Treasury Bill	0.01	0.01	0.65	0.93	1.66	1.20	0.64

Global Fixed Income	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Bloomberg Barclays Global Aggregate	0.10	0.10	5.82	6.31	4.27	3.90	2.24
Bloomberg Barclays Global Aggregate (Hdg.)	0.01	0.01	4.66	4.74	4.98	4.25	3.92
JPM GB-EM Index	0.39	0.39	(5.70)	(3.70)	0.36	3.19	0.66
JPM EMBI Global Index	(0.03)	(0.03)	0.16	1.88	3.14	5.33	5.01
JPM Corporate EMBI Index	0.29	0.29	3.23	4.54	4.91	6.11	5.62



Real Assets Market

Real Assets	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Wilshire US RESI	(2.47)	(2.47)	(18.91)	(20.79)	(0.10)	2.16	7.34
Wilshire Global RESI	(2.55)	(2.55)	(21.31)	(21.86)	(1.31)	1.25	5.78
Bloomberg Commodity Index	1.41	1.41	(10.85)	(9.16)	(4.39)	(2.73)	(6.35)
S&P GSCI Index	(3.57)	(3.57)	(35.76)	(31.98)	(11.55)	(8.59)	(9.40)
Alerian MLP Index	4.38	4.38	(43.80)	(42.58)	(18.46)	(12.45)	(4.26)
DJ Brookfield Global Infrastructure	(1.55)	(1.55)	(14.09)	(10.40)	1.62	4.67	7.07
FTSE Global 50/50 Infrastructure	(0.67)	(0.67)	(11.65)	(8.71)	2.81	6.55	8.09

Market Commentary

U.S. real estate securities were down again in October, -2.5%. Similarly, global real estate securities were also down, -2.6%. Year-to-date, U.S. and global real estate are down -18.9% and -21.3%, respectively.

Commodities were mixed during the month, with the Bloomberg Commodity Index up +1.4% and the S&P GSCI Index down -3.6%. Crude oil proved to be the biggest headwind for the S&P GSCI Index, as the price of oil ended down for the month by -11.0% to \$35.79 per barrel. Year-to-date the price of oil has declined -41.4%.





IMRF Performance

IMRF Commentary

IMRF Commentary

The Illinois Municipal Retirement Fund (“IMRF”) ended October 2020 with a market value of \$44.5 billion, down for the month by approximately \$0.7 billion. IMRF returned -0.92% during October, outperforming the Total Fund Benchmark which returned -1.26%. Year-to-date, IMRF continues to gain ground relative to its Total Fund Benchmark after trailing during the market decline in the First Quarter 2020, now behind just 0.58% (+2.03% versus 2.61%).

For the month of October, the U.S. Equity Portfolio again provided strong downside protection, returning -1.35% versus -2.16% for the benchmark. Investment manager outperformance was the largest contributor to relative performance during the month while investment managers in Large Cap Growth, Small Cap Value and Small Cap Growth, in aggregate, outperformed their benchmarks. Additionally, the U.S. Equity Portfolio’s tilt to Small Cap Value added value during the month, as IMRF’s Small Cap Value Portfolio outperformed the broad market by over 6%. Year-to-date, the U.S. Equity Portfolio modestly trails the benchmark +2.77% versus +3.14%, due in-part to the portfolio’s tilt to Small Cap Value as Large Capitalization stocks have dramatically outperformed.

The Internally Managed Scientific Beta Portfolio was in-line with the benchmark during October, returning -1.19% versus -1.14%. Year-to-date and since inception, the strategy has been able to add strong relative value versus its index, returning -4.57% versus -4.85% year-to-date, and +0.69% versus +0.15% since inception.

The Internally Managed GSAM-Factor Diversity Portfolio outperformed its benchmark during October, marking just its second full month of performance history. For the month, the strategy returned -1.69% versus -2.33% for the benchmark.

The Public Real Assets Portfolio outperformed its benchmark for the month and year-to-date returning -0.36% versus -0.91%, and -11.78% versus -14.00%, respectively.

The International Equity Portfolio modestly trailed the return of the benchmark during October, -2.35% versus -2.15%. In aggregate, investment manager performance in Large Cap Value, Large Cap Core, and Emerging Markets was the largest detractor to relative outperformance during the month; however, the Portfolio’s dedicated allocation to Emerging Markets and Small Cap stocks added relative value during the month. Despite a negative month, the International Equity Portfolio continues to outperform the benchmark year-to-date, returning -6.56% versus -7.47%.

The Fixed Income Portfolio’s allocation to credit markets was the largest contributor to outperformance during the month as the Portfolio returned -0.41% versus -0.45%. Investment manager performance in Core Plus also contributed to relative outperformance during the month. Year-to-date, the Fixed Income Portfolio continues to claw back losses suffered during the First Quarter 2020; however, remains behind the benchmark +5.54% versus +6.32%.

As of October month-end, Domestic Equity was 4.5% over its target. The current Statement of Investment Policy states that when actual allocations of the asset classes differ by more than four percentage points from their policy target, a recommendation for rebalancing will be made to the Board of Trustees. The Chief Investment Officer and Consultant do not recommend any rebalancing at this time.



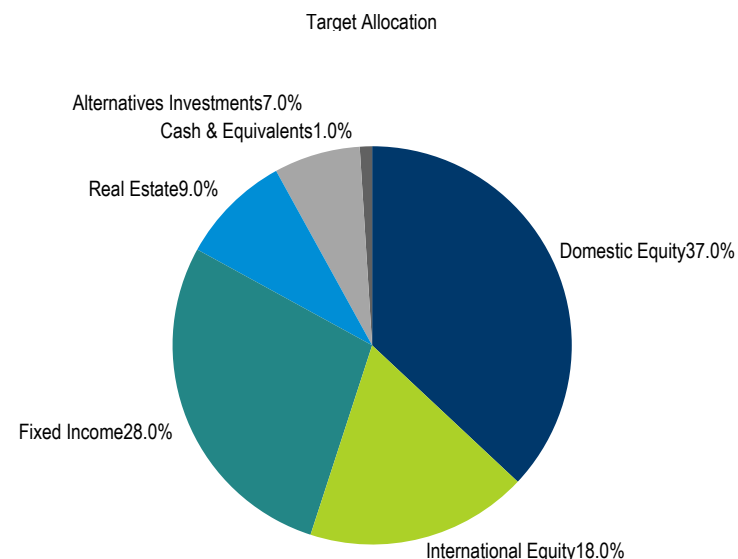
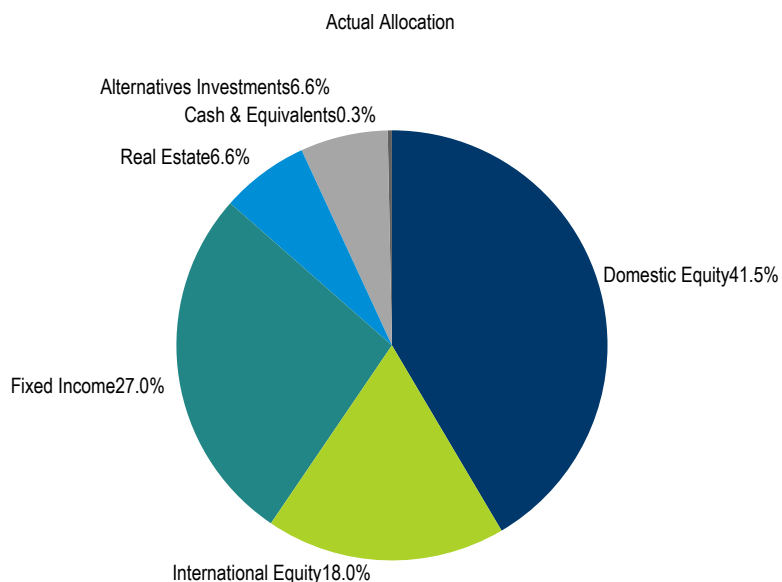
Total Fund

Wilshire Consulting

Asset Allocation

Total Fund

Periods Ended As of October 31, 2020



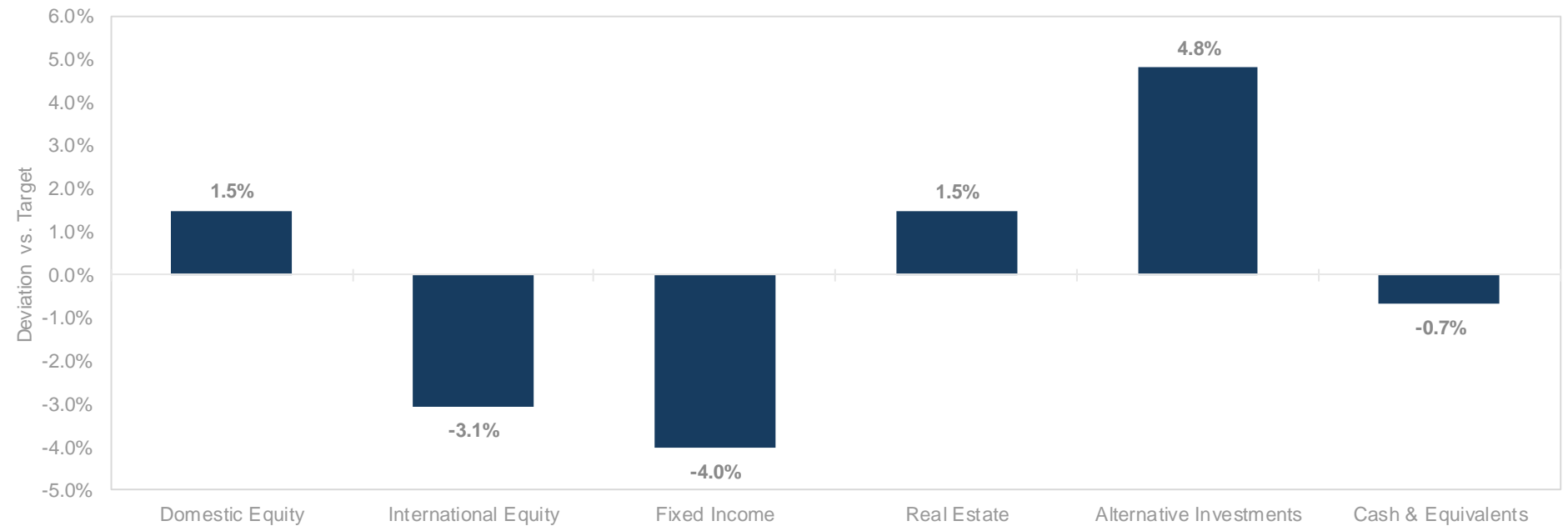
■ Domestic Equity
 ■ International Equity
 ■ Fixed Income
 ■ Real Estate
 ■ Alternatives Investments
 ■ Cash & Equivalents

	Actual Allocation \$Millions	Actual Allocation %	Target Allocation %	Differences %	Differences \$Millions
Total Fund	44,471	100.0	100.0	0.0	
Domestic Equity	18,462	41.5	37.0	4.5	2,007
International Equity	7,996	18.0	18.0	0.0	-9
Fixed Income	12,008	27.0	28.0	-1.0	-444
Real Estate	2,944	6.6	9.0	-2.4	-1,058
Alternatives Investments	2,921	6.6	7.0	-0.4	-192
Cash & Equivalents	141	0.3	1.0	-0.7	-304

Projected Deviation From Benchmark

Period Ending October 31, 2020

Projected Asset Allocation Differences vs. Target

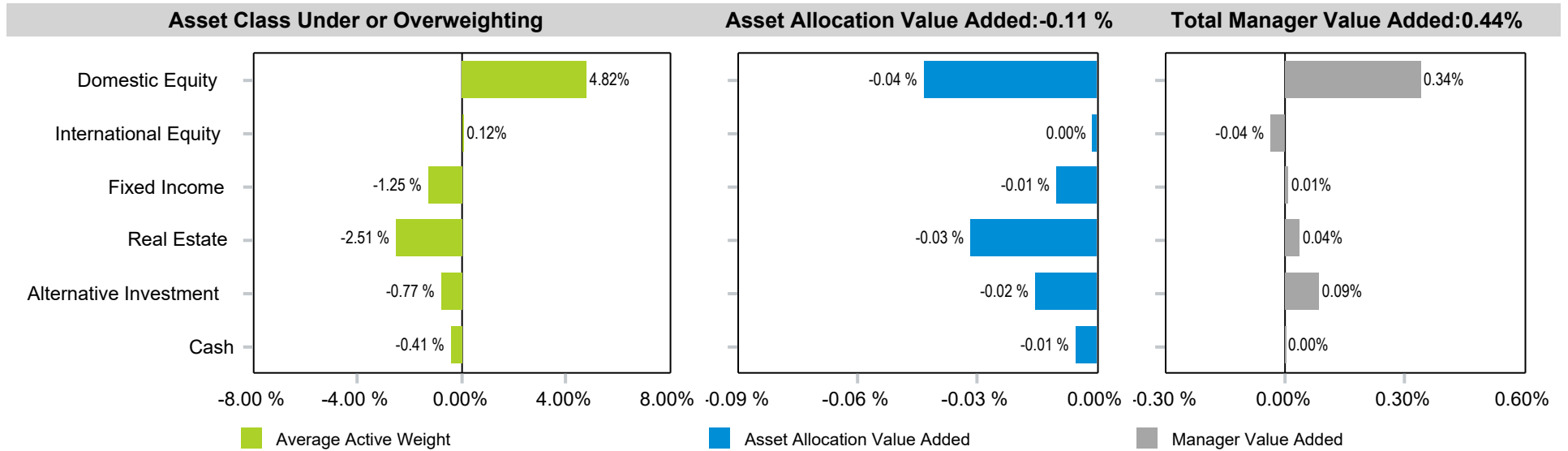
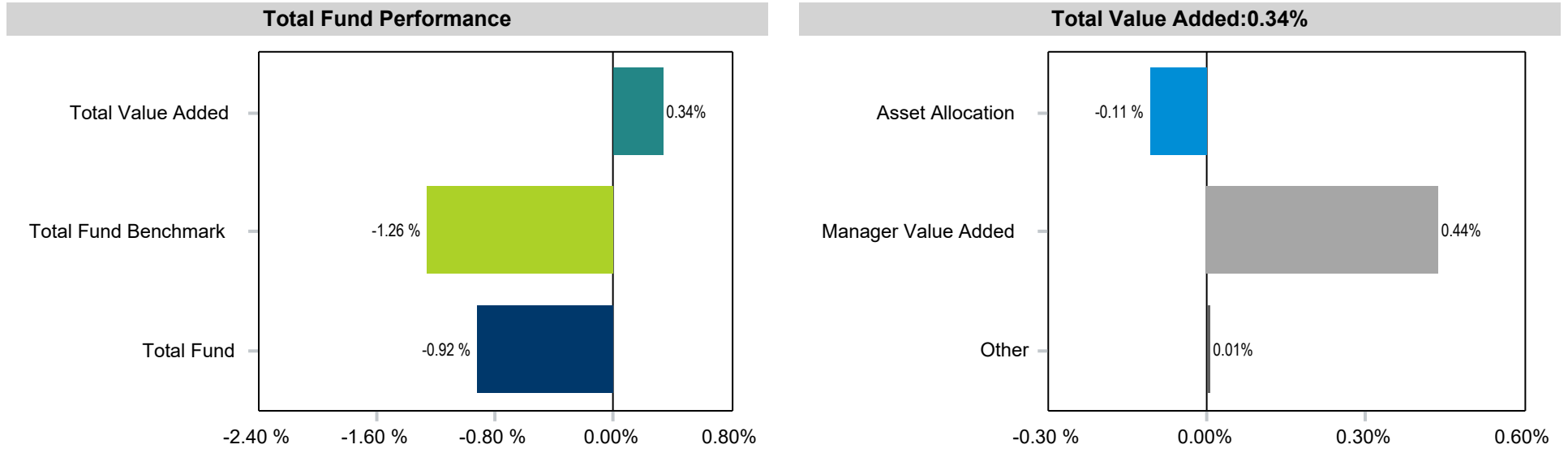


- Includes committed, but unfunded amounts for real estate (\$1,715.6 million) and alternatives (\$2,327.4 million). Assumes real estate and alternatives allocations are fully funded as of quarter end.
- Assumes that outstanding commitments are funded equally from the public markets asset classes (one-third from U.S. Equity, one-third from International Equity, and one-third from Fixed Income).

Total Fund Attribution

Total Fund

1 Month Ending October 31, 2020



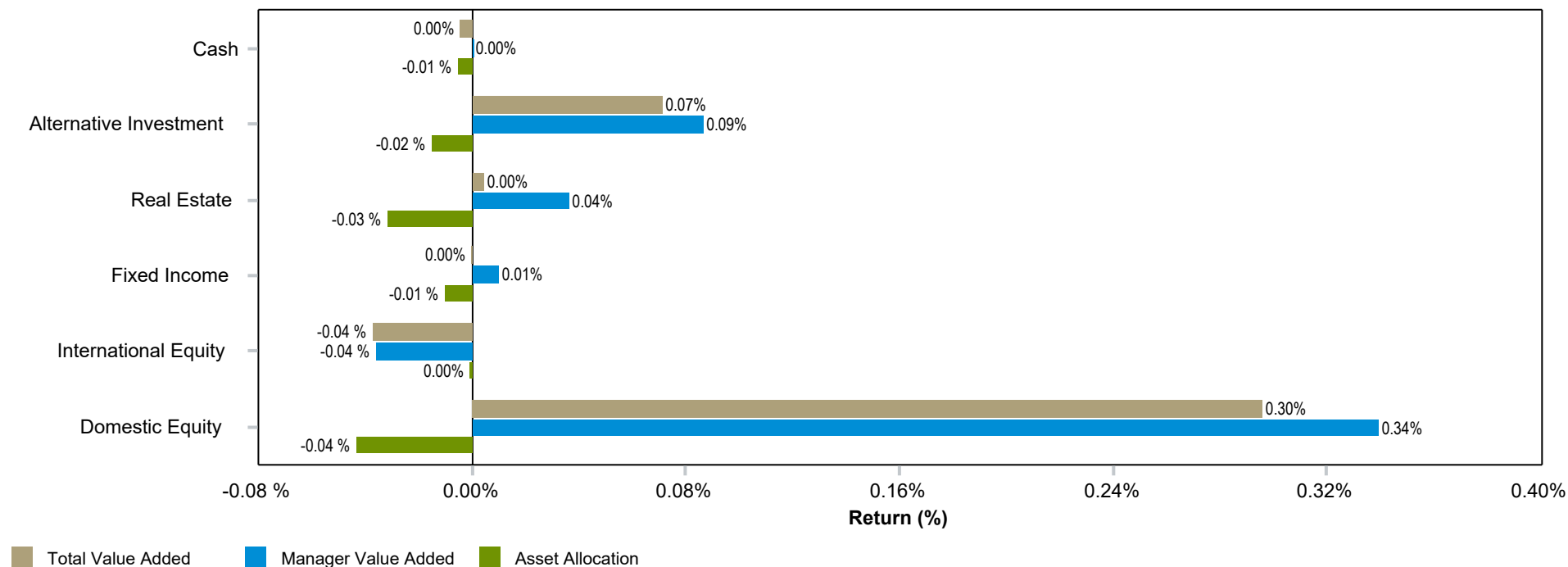
Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Total Fund Attribution

Total Fund

1 Month Ending October 31, 2020

Relative Attribution by Asset Class



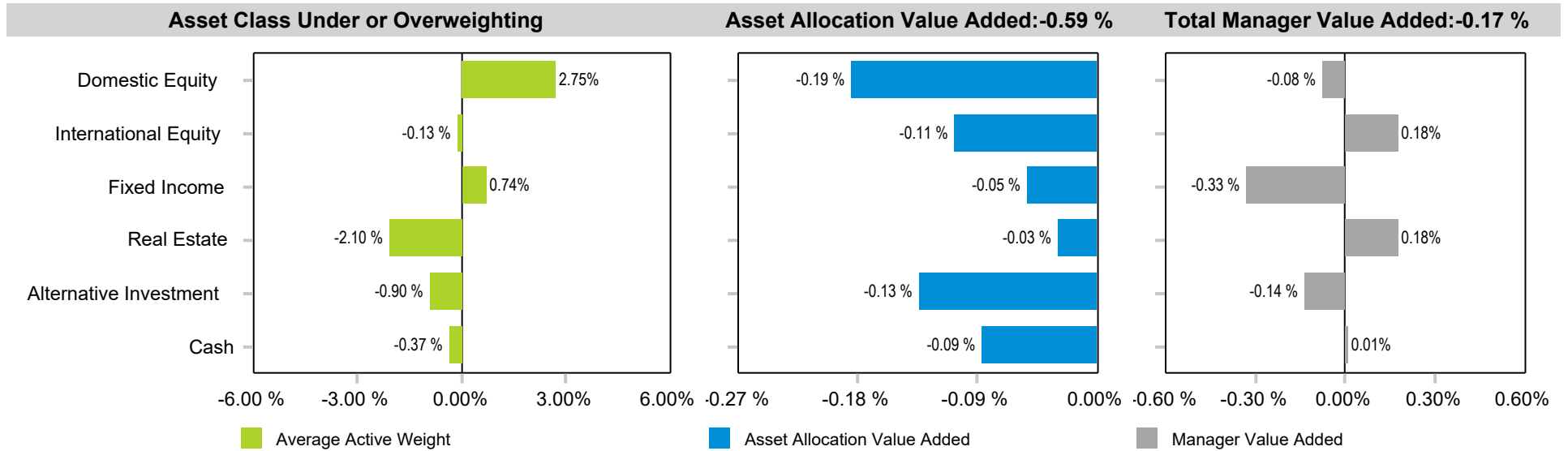
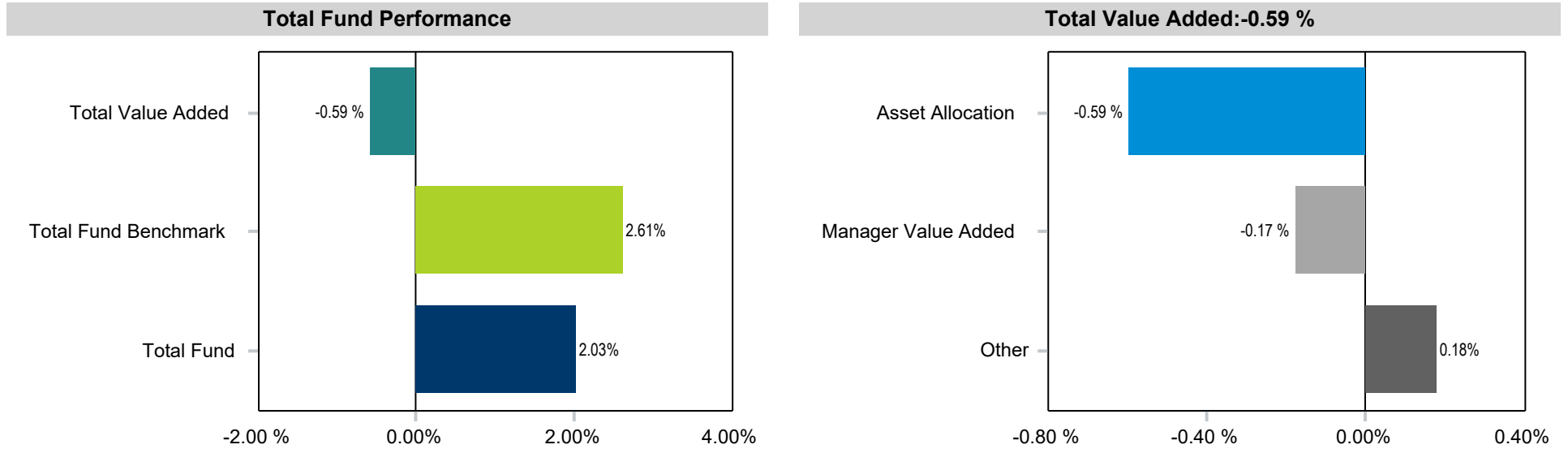
Relative Attribution Effects							
	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	41.8	37.0	-1.35	-2.16	0.34	-0.04	0.30
International Equity	18.1	18.0	-2.35	-2.15	-0.04	0.00	-0.04
Fixed Income	26.8	28.0	-0.41	-0.45	0.01	-0.01	0.00
Real Estate	6.5	9.0	0.56	0.00	0.04	-0.03	0.00
Alternative Investment	6.2	7.0	2.11	0.72	0.09	-0.02	0.07
Cash	0.6	1.0	0.08	0.01	0.00	-0.01	0.00
Total Fund	100.0	100.0	-0.92	-1.26	0.44	-0.11	0.34

Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Total Fund Attribution

Total Fund

Year To Date Ending October 31, 2020



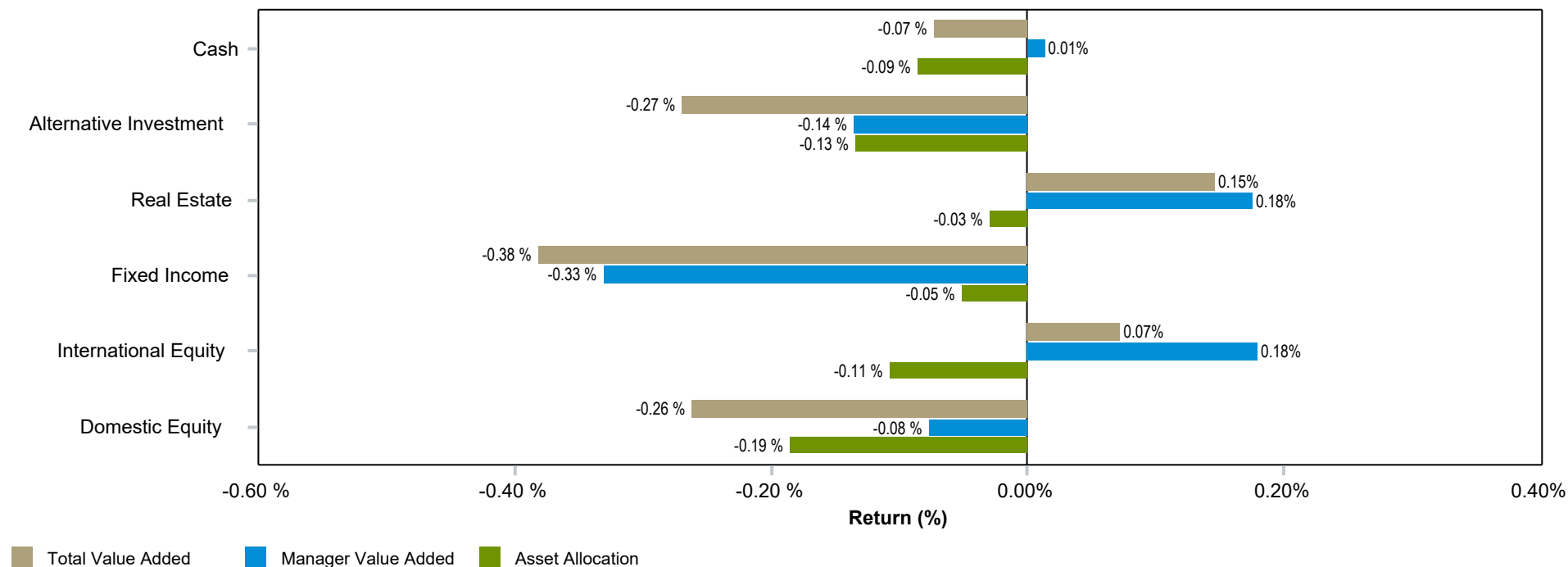
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Total Fund Attribution

Total Fund

Year To Date Ending October 31, 2020

Relative Attribution by Asset Class



Relative Attribution Effects							
	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	39.8	37.0	2.77	3.14	-0.08	-0.19	-0.26
International Equity	17.9	18.0	-6.56	-7.47	0.18	-0.11	0.07
Fixed Income	28.7	28.0	5.54	6.32	-0.33	-0.05	-0.38
Real Estate	6.9	9.0	1.85	-0.74	0.18	-0.03	0.15
Alternative Investment	6.1	7.0	5.24	7.45	-0.14	-0.13	-0.27
Cash	0.6	1.0	2.34	0.65	0.01	-0.09	-0.07
Total Fund	100.0	100.0	2.03	2.61	-0.17	-0.59	-0.59

Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Asset Class Returns

Periods Ended October 31, 2020

	Performance (%)									
	1 Month	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Total Fund	-0.91	2.17	6.28	6.32	7.70	8.30	6.49	8.74	9.74	1/1/1982
Total Fund - Net	-0.92	2.03	6.11	6.13	7.49	8.08				
Total Fund Benchmark	-1.26	2.61	6.30	6.49	7.56	8.00				
Domestic Equity	-1.33	2.93	9.93	8.99	10.67	12.39	6.74	11.18	11.49	1/1/1982
Domestic Equity - Net	-1.35	2.77	9.74	8.79	10.44	12.14				
Blended Benchmark (U.S. Equity)	-2.16	3.14	10.15	10.04	11.48	12.80	6.70	10.70		
U.S. Equity IMRF Custom Benchmark	-1.83	0.41	6.99	7.98	10.23					
International Equity	-2.33	-6.30	-0.98	0.85	5.10	5.00	5.45	6.85	7.46	9/1/1986
International Equity - Net	-2.35	-6.56	-1.31	0.53	4.75	4.67				
MSCI AC World ex USA (Net)	-2.15	-7.47	-2.61	-0.19	4.26	3.43	4.22			
International Equity IMRF Custom Benchmark	-2.00	-7.01	-2.00	-0.11	4.35					
Fixed Income	-0.40	5.63	5.91	5.06	4.65	4.35	5.62	6.65	8.17	1/1/1982
Fixed Income - Net	-0.41	5.54	5.79	4.93	4.51	4.20				
Blmbg. Barc. U.S. Aggregate	-0.45	6.32	6.19	5.07	4.08	3.55	4.96	5.95	7.67	
Fixed Income IMRF Custom Benchmark	-0.35	5.55	5.72	4.92	4.26					
Real Estate	0.58	1.88	3.57	7.48	8.22	10.20	7.52	5.11	5.48	5/1/1985
Real Estate - Net	0.56	1.85	3.53	7.45	8.18	10.18				
Blended Benchmark (Real Estate)	0.00	-0.74	0.52	4.04	5.47	9.30	7.01	7.21	7.48	
Alternatives Investments	2.11	5.27	6.82	11.72	10.04	9.52	5.97	11.63	10.75	2/1/1986
Alternatives Investments - Net	2.11	5.24	6.78	11.62	9.87	9.27				
Alternatives Custom Benchmark	0.72	7.45	9.00	9.00	9.00	9.00	10.81	12.19	12.57	
Private Equity	2.36	6.62	8.33	14.49	12.46	12.31	7.24	14.24	12.96	2/1/1986
Alternatives Custom Benchmark	0.72	7.45	9.00	9.00	9.00	9.00	10.81	12.19	12.57	
Agriculture	2.50	4.05	3.99	-0.65	1.10	8.98	7.30		6.89	10/1/1997
NCREIF Farmland Index	0.00	1.47	3.84	5.33	6.13	10.85	12.14		11.43	

Benchmark definitions on next page.

Asset Class Returns

Periods Ended October 31, 2020

	Performance (%)									
	1 Month	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Timberland	0.05	5.26	5.00	1.77	0.41	3.14	3.47		7.31	10/1/1992
NCREIF Timberland Index	0.00	0.23	0.19	2.09	2.56	4.40	5.63		8.36	
Unlisted Infrastructure	0.00	6.89	9.96						9.61	4/1/2018
Alternatives Custom Benchmark	0.72	7.45	9.00						9.00	
Cash	0.08	2.34	3.40	2.93	2.15	1.16	1.78	3.20	3.80	7/1/1986
90 Day US Treasury Bill	0.01	0.65	0.92	1.66	1.18	0.62	1.52	2.67	3.23	

Benchmark Definitions

Account Name	From Date	To Date	Benchmark
Domestic Equity Blended	1/1/2015	Present	100% Russell 3000 Index
Benchmark	1/1/1982	12/31/2014	100% Dow Jones US Total Stock Market Index
Real Estate Blended	1/1/2013	Present	100% NCREIF Fund Index-ODCE (VW) (Net)** 100%
Benchmark	1/1/2007	12/31/2012	100% NPI + 1%
	1/1/2005	12/31/2016	100% Consumer Price Index + 5%
Alternatives Custom	7/1/2010	Present	100% Annualized rate of 9.0%
Benchmark	1/1/2004	6/30/2010	100% Annualized rate of 12.0%
	1/1/2003	12/31/2003	100% Annualized rate of 13.0%
	2/1/1986	12/31/2002	100% Annualized rate of 15.0%
U.S. Equity IMRF Custom Benchmark			Blend of the U.S. Equity Style benchmarks returns, dollar weighted by the actual allocation at pervious month end.
International Equity IMRF Custom Benchmark			Blend of the the International Equity Style benchmarks returns, dollar weighted by the actual allocation at previous month end.
Fixed Income IMRF Custom Benchmark			Blend of the the Fixed Income Style benchmarks returns, dollar weighted by the actual allocation at previous month end.

**ODCE returns are updated quarterly.

Benchmark Definitions

Account Name	From Date	To Date	Benchmark
Total Fund Benchmark			<p>The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset class, currently:</p> <p>37% Russell 3000 Index, 28% Blmbg. Barc. U.S. Aggregate, 18% MSCI AC World ex USA (Net), 9% NCREIF Fund Index-ODCE (VW) (Net), 7% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.</p>

Investment Manager Asset Allocation

Periods Ended October 31, 2020

	Sep-2020		Oct-2020	
	\$	%	\$	%
Domestic Equity	18,895,106,985	41.82	18,461,597,145	41.51
Large Cap Growth	7,889,181,328	17.46	7,702,120,369	17.32
NTGI S&P 500 Growth	2,917,163,969	6.46	2,827,473,621	6.36
Sands Capital	3,241,338,813	7.17	3,202,543,160	7.20
Xponance Russell 1000 G	1,730,678,547	3.83	1,672,103,589	3.76
Large Cap Value	4,386,448,201	9.71	4,311,667,815	9.70
Dodge & Cox	1,224,325,502	2.71	1,199,741,196	2.70
BMO	769,965,276	1.70	760,151,306	1.71
LSV Asset	1,040,464,150	2.30	1,027,196,198	2.31
NTGI S&P 500 Value	1,351,693,275	2.99	1,324,579,116	2.98
Large Cap Pass. Core	2,828,824,944	6.26	2,624,238,682	5.90
NTGI MarketCap Idx.	2,828,824,944	6.26	2,624,238,682	5.90
Factor Diversity Strategies	501,364,933	1.11	492,942,760	1.11
U.S. Large Cap FDP-GSAM	501,364,933	1.11	492,942,760	1.11
Quantitative Factor Strategies	255,625,949	0.57	252,647,307	0.57
Quantitative US Equity - SciBeta	255,625,949	0.57	252,647,307	0.57
Small Cap Growth	837,324,603	1.85	845,921,218	1.90
Frontier Capital	665,299,875	1.47	669,842,349	1.51
FIAM Small Cap	172,024,728	0.38	176,078,869	0.40
Small Cap Value	1,259,986,862	2.79	1,310,614,821	2.95
Channing	209,645,374	0.46	218,796,414	0.49
DFA Small Cap Val.	466,279,900	1.03	485,546,176	1.09
Inv. Couns. Maryland	584,061,589	1.29	606,272,231	1.36

Investment Manager Asset Allocation

Periods Ended October 31, 2020

	Sep-2020		Oct-2020	
	\$	%	\$	%
Micro Cap	305,710,884	0.68	293,098,812	0.66
DFA Micro Cap (9-10)	305,710,884	0.68	293,098,812	0.66
Public Real Assets	630,639,281	1.40	628,345,360	1.41
Brookfield	145,053,167	0.32	143,531,836	0.32
Cohen & Steers	485,586,113	1.07	484,813,524	1.09
International Equity	8,186,708,910	18.12	7,995,504,152	17.98
Intl Large Cap Growth	1,389,068,145	3.07	1,369,130,312	3.08
EARNEST Part. Intl	427,644,407	0.95	422,355,690	0.95
William Blair	961,423,737	2.13	946,774,622	2.13
Intl Large Cap Value	1,134,626,374	2.51	1,099,400,103	2.47
Brandes Investment	522,640,473	1.16	500,660,934	1.13
Mondrian	496,390,083	1.10	486,540,170	1.09
Lazard	115,595,818	0.26	112,198,998	0.25
Intl Large Cap Core	3,764,605,864	8.33	3,637,567,925	8.18
Arrowstreet Capital	755,361,131	1.67	737,286,052	1.66
Brown Capital	554,706,127	1.23	534,207,485	1.20
GlobeFlex Capital	648,849,468	1.44	629,226,026	1.41
NTGI MSCI EAFE	1,804,662,815	3.99	1,735,832,513	3.90
Progress Intl Equity	903,533	0.00	893,059	0.00
Transition Account	122,790	0.00	122,790	0.00
Intl All Cap Developed	139,424,997	0.31	132,903,600	0.30
Ativo International	139,424,997	0.31	132,903,600	0.30

Investment Manager Asset Allocation

Periods Ended October 31, 2020

	Sep-2020		Oct-2020	
	\$	%	\$	%
International Small Cap	548,486,170	1.21	534,267,603	1.20
Franklin Templeton	199,320,049	0.44	194,409,447	0.44
William Blair IntSC	349,166,120	0.77	339,858,156	0.76
Emerging Mkt Equity	1,210,497,361	2.68	1,222,234,609	2.75
Genesis Asset Mngrs.	1,210,497,361	2.68	1,222,234,609	2.75

Investment Manager Asset Allocation

Periods Ended October 31, 2020

	Sep-2020		Oct-2020	
	\$	%	\$	%
Fixed Income	12,086,120,629	26.75	12,008,165,617	27.00
Domestic Fixed Core	3,800,625,773	8.41	3,769,854,976	8.48
Brandes FI Core	384,746,925	0.85	381,822,658	0.86
EARNEST Partners	1,047,701,590	2.32	1,038,669,000	2.34
Xponance Yield Advantage Agg.	1,117,920,778	2.47	1,108,053,006	2.49
Garcia Hamilton	1,118,905,764	2.48	1,110,964,149	2.50
Ramirez Asset Management	131,350,717	0.29	130,346,164	0.29
Domestic Fixed Passive Core	3,787,148,175	8.38	3,770,427,951	8.48
NTGI Blmbg Agg.	1,932,771,883	4.28	1,924,103,772	4.33
BlackRock US Debt I	1,854,376,292	4.10	1,846,324,178	4.15
Domestic Fixed Core Plus	2,954,042,528	6.54	2,936,853,132	6.60
LM Capital Group FI	974,155,367	2.16	969,567,656	2.18
Progress Inv. FI	3,700	0.00	3,723	0.00
BMO - TCH	663,844,479	1.47	659,629,762	1.48
Western Asset	1,133,291,450	2.51	1,125,259,201	2.53
Longfellow Core Plus	182,747,532	0.40	182,392,790	0.41
Bank Loans	541,293,227	1.20	537,104,613	1.21
Barings Global Loan Fund	541,293,227	1.20	537,104,613	1.21
Emerging Markets Debt	216,885,366	0.48	217,729,002	0.49
Standish-Mellon EMD	216,885,366	0.48	217,729,002	0.49
High Yield	786,125,560	1.74	776,195,943	1.75
MacKay Shields	786,097,017	1.74	776,167,235	1.75
FIAM High Yield	28,543	0.00	28,708	0.00

Investment Manager Asset Allocation

Periods Ended October 31, 2020

	Sep-2020		Oct-2020	
	\$	%	\$	%
Real Estate	2,931,690,651	6.49	2,944,023,557	6.62
Real Estate Core Cmp	1,560,907,617	3.45	1,562,152,850	3.51
TA Assoc. Buckhead	586,042,640	1.30	586,042,640	1.32
Barings Core Property		0.00		0.00
Barings Euro Core Property	134,213,306	0.30	133,320,567	0.30
Blackstone Property Euro	141,602,089	0.31	140,660,203	0.32
INVESCO Core Real Estate	203,018,548	0.45	200,824,885	0.45
INVESCO European real estate	58,327,483	0.13	57,459,126	0.13
AEW Core Property Tr	232,592,669	0.51	232,998,029	0.52
CBRE Core Partners	205,110,882	0.45	210,847,401	0.47
RE Non-Core Cmp	1,370,783,034	3.03	1,381,870,707	3.11
Artemis MWBE Spruce	220,088,526	0.49	219,976,154	0.49
Franklin T. EMREFF	5,378,057	0.01	5,378,057	0.01
Security Capital	53,065,585	0.12	50,916,443	0.11
Dune II	19,935,889	0.04	19,935,889	0.04
Non-Core Real Estate Funds	921,381,607	2.04	923,514,690	2.08
Non-Core Intl Real Estate	150,739,511	0.33	161,957,569	0.36
Rockwood Fund VIII	61,273	0.00	59,319	0.00
Almanac ARS V	132,586	0.00	132,586	0.00
TA Assoc. - Fund IX		0.00		0.00
Alternatives Investments	2,813,944,850	6.23	2,921,404,894	6.57
Absolute Return	262,168	0.00	224,740	0.00
Aurora Investment	262,168	0.00	224,740	0.00

Investment Manager Asset Allocation

Periods Ended October 31, 2020

	Sep-2020		Oct-2020	
	\$	%	\$	%
Private Equity	2,327,565,327	5.15	2,424,649,873	5.45
Abbott S/A Comp.	382,260,962	0.85	377,654,065	0.85
Muller Monroe MPEFF	4,707,209	0.01	4,707,209	0.01
Pantheon S/A Comp.	247,341,852	0.55	245,168,550	0.55
Private Equity Fund - Domestic	1,324,410,427	2.93	1,424,245,767	3.20
Private Equity Fund - International	348,049,166	0.77	350,690,110	0.79
Oakbrook Opportunities Fund	20,795,710	0.05	22,184,173	0.05
Private Credit	143,598,103	0.32	148,698,662	0.33
Private Credit Fund - Domestic	143,598,103	0.32	148,698,662	0.33
Agriculture	210,733,027	0.47	216,009,434	0.49
Premiere Partners IV	210,733,027	0.47	216,009,434	0.49
Timberland	76,694,130	0.17	76,730,090	0.17
Forest Investment	76,694,130	0.17	76,730,090	0.17
Unlisted Infrastructure	55,092,095	0.12	55,092,095	0.12
Unlisted Infrastructure Funds	55,092,095	0.12	55,092,095	0.12
Cash & Equivalents	265,617,801	0.59	140,689,787	0.32
Total Fund	45,179,189,826	100.00	44,471,385,153	100.00

Wilshire Consulting Performance



Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	44,471,385,153	-0.91	2.17	6.28	6.32	7.70	8.30	9.74	1/1/1982
Total Fund - Net		-0.92	2.03	6.11	6.13	7.49	8.08		
Total Fund Benchmark		-1.26	2.61	6.30	6.49	7.56	8.00		
Domestic Equity	18,461,597,145	-1.33	2.93	9.93	8.99	10.67	12.39	11.49	1/1/1982
Domestic Equity - Net		-1.35	2.77	9.74	8.79	10.44	12.14		
Blended Benchmark		-2.16	3.14	10.15	10.04	11.48	12.80		
Russell 3000 Index		-2.16	3.14	10.15	10.04	11.48	12.80	11.42	
U.S. Equity IMRF Custom Benchmark		-1.83	0.41	6.99	7.98	10.23			
Large Cap Equity	15,130,969,627	-2.04	6.40	13.85	10.92	11.82	13.20	11.27	1/1/1982
Large Cap Equity - Net		-2.05	6.32	13.75	10.81	11.70	13.06		
Russell 1000 Index		-2.41	3.83	10.87	10.63	11.79	13.05	11.57	
Large Cap Growth	7,702,120,369	-2.37	27.32	36.74	21.33	17.68	16.37	12.47	1/1/1982
Large Cap Growth - Net		-2.37	27.24	36.63	21.22	17.56	16.20		
LCG Blended Benchmark		-3.40	20.11	29.22	18.77	17.32	16.31		
Russell 1000 Growth Index		-3.40	20.11	29.22	18.77	17.32	16.31	11.59	
NTGI S&P 500 Growth	2,827,473,621	-3.07	16.76	24.31	16.54	15.50	15.59	8.76	8/1/2001
NTGI S&P 500 Growth - Net		-3.08	16.75	24.31	16.53	15.50	15.58		
S&P 500 Growth		-3.08	16.89	24.45	16.59	15.54	15.60	8.74	
Xponance Russell 1000 G	1,672,103,589	-3.38	20.11	29.21				16.62	10/1/2018
Xponance Russell 1000 G - Net		-3.39	20.09	29.18				16.60	
Russell 1000 Growth Index		-3.40	20.11	29.22				16.63	
Sands Capital	3,202,543,160	-1.20	42.97	55.05	27.19	20.83	19.26	14.19	11/1/2003
Sands Capital - Net		-1.20	42.76	54.74	26.93	20.58	19.00		
LCG Blended Benchmark		-3.40	20.11	29.22	18.77	17.32	16.31	11.03	
Russell 1000 Growth Index		-3.40	20.11	29.22	18.77	17.32	16.31	11.08	

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Large Cap Value	4,311,667,815	-1.55	-14.15	-8.38	1.11	5.86	10.13	9.75	10/1/1982
Large Cap Value - Net		-1.58	-14.26	-8.52	0.94	5.69	9.95		
LCV Blended Benchmark		-1.31	-12.74	-7.57	1.94	5.82	9.48		
Russell 1000 Value Index		-1.31	-12.74	-7.57	1.94	5.82	9.48	11.26	
Dodge & Cox	1,199,741,196	-1.77	-12.39	-5.97	2.12	7.21	10.69	8.44	9/1/2003
Dodge & Cox - Net		-1.83	-12.58	-6.17	1.89	6.99	10.46		
LCV Blended Benchmark		-1.31	-12.74	-7.57	1.94	5.82	9.48	7.35	
Russell 1000 Value Index		-1.31	-12.74	-7.57	1.94	5.82	9.48	7.50	
BMO	760,151,306	-1.11	-11.91	-6.72	0.11	4.71	9.96	7.09	2/1/2001
BMO - Net		-1.11	-11.93	-6.79	-0.06	4.51	9.74		
LCV Blended Benchmark		-1.31	-12.74	-7.57	1.94	5.82	9.48	5.07	
Russell 1000 Value Index		-1.31	-12.74	-7.57	1.94	5.82	9.48	6.00	
LSV Asset	1,027,196,198	-1.02	-18.18	-12.96	-0.99	4.85	9.91	9.39	2/1/2003
LSV Asset - Net		-1.09	-18.39	-13.19	-1.24	4.60	9.63		
LCV Blended Benchmark		-1.31	-12.74	-7.57	1.94	5.82	9.48	8.24	
Russell 1000 Value Index		-1.31	-12.74	-7.57	1.94	5.82	9.48	8.24	
NTGI S&P 500 Value	1,324,579,116	-2.01	-13.00	-6.84	3.19	6.99	9.94	5.39	8/1/1999
NTGI S&P 500 Value - Net		-2.01	-13.01	-6.85	3.19	6.99	9.93		
S&P 500 Value		-2.00	-13.24	-7.09	3.09	6.88	9.85	5.35	
Large Cap Pass. Core	2,624,238,682	-2.12	3.00	9.98	9.98	11.49	12.83	11.10	1/1/1985
Large Cap Pass. Core - Net		-2.12	2.99	9.97	9.97	11.48	12.82		
Dow Jones US Total Stock Market Index		-2.13	3.01	9.99	9.95	11.41	12.75		
NTGI MarketCap Idx.	2,624,238,682	-2.12	3.00	9.98	9.98	11.49	12.83	10.89	2/1/1985
NTGI MarketCap Idx. - Net		-2.12	2.99	9.97	9.97	11.48	12.82		
Dow Jones US Total Stock Market Index		-2.13	3.01	9.99	9.95	11.41	12.75		
Factor Diversity Strategies	492,942,760	-1.68						-2.58	8/18/2020

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							Inception Date
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
U.S. Large Cap FDP-GSAM	492,942,760	-1.68						-2.58	8/18/2020
U.S. Large Cap FDP-GSAM - Net		-1.69						-2.61	
Solactive GBS U.S. 1000 Index		-2.33						-2.63	
GSAM Active Beta US. Large Cap FDC Index		-1.66						-2.56	
Quantitative Factor Strategies	252,647,307	-1.17	-4.18	0.58				1.05	9/17/2019
Quantitative US Equity - SciBeta	252,647,307	-1.17	-4.18	0.58				1.05	9/17/2019
Quantitative US Equity - SciBeta - Net		-1.19	-4.57	0.17				0.69	
SciBeta US Hi-Fctr-Intst Div Multi-Beta Multi-Strat Index		-1.14	-4.85	-0.10				0.15	
Small Cap	2,449,634,851	2.99	-10.00	-3.86	1.44	6.08	9.54	11.43	7/1/1988
Small Cap Composite - Net		2.96	-10.48	-4.44	0.89	5.50	8.95		
Russell 2000 Index		2.09	-6.77	-0.14	2.19	7.27	9.64	8.99	
Small Cap Growth	845,921,218	1.03	5.15	14.08	10.94	10.66	12.33	12.88	7/1/1988
Small Cap Growth - Net		0.93	4.26	13.11	10.25	10.00	11.69		
Russell 2000 Growth Index		0.76	4.67	13.37	7.90	10.36	11.95	8.19	
Frontier Capital	669,842,349	0.68	8.44	17.50	14.98	14.48	13.09	13.27	8/1/1988
Frontier Capital - Net		0.56	7.29	16.25	14.09	13.69	12.37		
Russell 2000 Growth Index		0.76	4.67	13.37	7.90	10.36	11.95	8.27	
FIAM Small Cap	176,078,869	2.36	-5.74	2.71	5.71	6.90	11.37	12.98	8/1/1988
FIAM Small Cap - Net		2.36	-5.85	2.58	5.37	6.45	10.84		
Russell 2000 Index		2.09	-6.77	-0.14	2.19	7.27	9.64	9.05	
Russell 2000 Growth Index		0.76	4.67	13.37	7.90	10.36	11.95	8.27	
Small Cap Value	1,310,614,821	4.02	-16.66	-11.69	-3.43	4.14	8.39	10.75	9/1/1989
Small Cap Value - Net		4.02	-17.01	-12.14	-3.92	3.59	7.86		
Russell 2000 Value Index		3.58	-18.74	-13.92	-4.05	3.71	7.06	9.03	

Benchmark definitions in glossary.

Wilshire Consulting Performance



Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Channing	218,796,414	4.37	-9.69	-3.54	-1.31	4.75		8.19	7/1/2011
Channing - Net		4.37	-10.03	-3.91	-1.76	4.22		7.62	
Russell 2000 Value Index		3.58	-18.74	-13.92	-4.05	3.71		5.96	
DFA Small Cap Val.	485,546,176	4.13	-19.46	-13.74	-5.90	1.97	7.64	10.42	2/1/1996
DFA Small Cap Val. - Net		4.13	-19.75	-14.16	-6.37	1.45	7.12		
Russell 2000 Value Index		3.58	-18.74	-13.92	-4.05	3.71	7.06	8.30	
Inv. Couns. Maryland	606,272,231	3.80	-16.68	-12.69	-2.05	6.29	9.27	10.15	5/1/1999
Inv. Couns. Maryland - Net		3.80	-17.07	-13.18	-2.57	5.71	8.76		
Russell 2000 Value Index		3.58	-18.74	-13.92	-4.05	3.71	7.06	7.68	
Micro Cap	293,098,812	3.61	-14.19	-8.26	-2.58	3.55	7.62	10.72	7/1/1984
Micro Cap - Net		3.61	-14.51	-8.72	-3.07	2.95	6.96		
Russell Microcap Index		1.29	-6.75	3.15	0.39	5.88	9.04		
DFA Micro Cap (9-10)	293,098,812	3.61	-14.19	-8.26	-1.77	5.47	9.66	10.32	8/1/1987
DFA Micro Cap (9-10) - Net		3.61	-14.51	-8.72	-2.25	4.95	9.12		
Russell 2000 Index		2.09	-6.77	-0.14	2.19	7.27	9.64	8.43	
Public Real Assets	628,345,360	-0.36	-11.50	-8.88	3.29			3.25	8/1/2017
Public Real Assets - Net		-0.36	-11.78	-9.26	2.83			2.83	
Public Real Assets Benchmark		-0.91	-14.00	-11.30	0.89			0.98	
Brookfield	143,531,836	-1.05	-18.57	-15.66	-0.82			-1.26	8/1/2017
Brookfield - Net		-1.05	-18.91	-16.12	-1.34			-1.73	
Dow Jones Brookfield Global Infrastructure Composite Index		-1.35	-17.64	-14.60	-1.22			-1.57	
Cohen & Steers	484,813,524	-0.16	-8.60	-6.13	5.03			5.23	8/1/2017
Cohen & Steers - Net		-0.16	-8.85	-6.49	4.61			4.84	
FTSE Global Core Infrastructure 50/50 Index (Net)		-0.70	-12.16	-9.65	1.93			2.25	

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
International Equity	7,995,504,152	-2.33	-6.30	-0.98	0.85	5.10	5.00	7.46	9/1/1986
International Equity - Net		-2.35	-6.56	-1.31	0.53	4.75	4.67		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43		
International Equity IMRF Custom Benchmark		-2.00	-7.01	-2.00	-0.11	4.35			
Intl LargeCap Equity	6,106,098,340	-2.90	-7.87	-2.92	0.10	4.42	4.84	7.39	9/1/1986
Intl LargeCap Equity - Net		-2.91	-8.06	-3.17	-0.16	4.13	4.56		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43		
Intl Large Cap Grwth	1,369,130,312	-1.43	1.86	8.52	3.53	7.25	5.84	8.30	9/1/2002
Intl Large Cap Grwth - Net		-1.45	1.62	8.21	3.29	6.96	5.51		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	6.69	
MSCI AC World ex USA Growth (Net)		-1.75	5.39	11.43	5.85	8.18	5.86	7.75	
EARNEST Part. Intl	422,355,690	-1.24	-16.15	-11.03	-4.26	3.15	2.86	7.47	10/1/2004
EARNEST Part. Intl - Net		-1.29	-16.33	-11.22	-4.42	2.96	2.59		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	5.32	
MSCI AC World ex USA Growth (Net)		-1.75	5.39	11.43	5.85	8.18	5.86	6.89	
William Blair	946,774,622	-1.52	13.05	20.79	8.44	9.53	8.00	10.18	10/1/2002
William Blair - Net		-1.52	12.76	20.38	8.09	9.14	7.60		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	7.39	
MSCI AC World ex USA Growth (Net)		-1.75	5.39	11.43	5.85	8.18	5.86	8.34	
Intl Large Cap Val.	1,099,400,103	-3.10	-18.74	-14.19	-3.98	1.08	2.61	7.58	10/1/1995
Intl Large Cap Val. - Net		-3.13	-18.95	-14.42	-4.29	0.73	2.26		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	4.89	
MSCI AC World ex USA Value		-2.57	-19.31	-15.45	-5.76	0.78	1.46		
Brandes Investment	500,660,934	-4.21	-22.61	-17.78	-5.58	-0.19	2.26	7.48	1/1/1996
Brandes Investment - Net		-4.26	-22.78	-17.96	-5.79	-0.42	2.02		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	4.79	
MSCI AC World ex USA Value		-2.57	-19.31	-15.45	-5.76	0.78	1.46		

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Mondrian	486,540,170	-1.98	-16.45	-12.26	-3.01	1.94		3.34	4/1/2012
Mondrian - Net		-1.98	-16.71	-12.54	-3.46	1.45		2.85	
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26		4.07	
MSCI AC World ex USA Value		-2.57	-19.31	-15.45	-5.76	0.78		1.79	
Lazard	112,198,998	-2.94	-9.30	-4.78	0.00	3.64		4.99	4/1/2012
Lazard - Net		-2.94	-9.47	-4.96	-0.23	3.29		4.50	
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26		4.07	
MSCI AC World ex USA Value		-2.57	-19.31	-15.45	-5.76	0.78		1.79	
Intl Large Cap Active Core	1,901,735,412	-2.97	-4.96	0.35	1.21	5.91	6.30	4.49	2/1/2008
Intl Large Cap Active Core - Net		-2.97	-5.32	-0.15	0.73	5.37	5.77		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	1.97	
Arrowstreet Capital	737,286,052	-2.39	-2.81	3.20	2.50	7.16	6.82	4.93	3/1/2008
Arrowstreet Capital - Net		-2.39	-3.15	2.73	2.03	6.66	6.32	4.44	
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	1.75	
Brown Capital	534,207,485	-3.69	8.82	14.83	7.17	7.59	8.27	8.24	10/1/2004
Brown Capital - Net		-3.69	8.62	14.51	6.69	6.79	7.50		
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	5.32	
GlobeFlex Capital	629,226,026	-3.02	-11.85	-8.00	-3.66	3.36	4.91	3.89	3/1/2006
GlobeFlex Capital - Net		-3.02	-12.15	-8.41	-4.05	2.95	4.49	3.45	
MSCI AC World ex USA (Net)		-2.15	-7.47	-2.61	-0.19	4.26	3.43	3.27	
Progress Intl Equity	893,059								
Intl Large Cap Passive Core	1,735,832,513	-3.81	-10.13	-6.36	-0.79	3.30	4.25	3.35	2/1/2000
Intl Large Cap Passive Core - Net		-3.82	-10.14	-6.36	-0.79	3.29	4.25		
MSCI EAFE Index (Net)		-3.99	-10.80	-6.86	-1.24	2.85	3.82	2.95	

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							Inception Date
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
NTGI MSCI EAFE	1,735,832,513	-3.81	-10.13	-6.36	-0.79	3.30	4.25	3.35	2/1/2000
NTGI MSCI EAFE - Net		-3.82	-10.14	-6.36	-0.79	3.29	4.25		
MSCI EAFE Index (Net)		-3.99	-10.80	-6.86	-1.24	2.85	3.82	2.95	
Intl All Cap Developed	132,903,600	-4.68	-10.59	-6.61				1.71	2/1/2019
Intl All Cap Developed - Net		-4.79	-11.03	-7.07				1.23	
MSCI EAFE + Canada (Net)		-3.93	-10.78	-6.79				1.14	
Ativo International	132,903,600	-4.68	-10.59	-6.61				1.71	2/1/2019
Ativo International - Net		-4.79	-11.03	-7.07				1.23	
MSCI EAFE + Canada (Net)		-3.93	-10.78	-6.79				1.14	
Intl Small Cap Eqty	534,267,603	-2.59	2.53	11.07	3.12	7.10	7.52	5.14	12/1/2005
Intl Small Cap Eqty - Net		-2.66	1.88	10.16	2.35	6.28	6.73		
MSCI AC World ex USA Small Cap (Net)		-2.66	-6.20	0.07	-0.58	5.01	4.61	5.51	
Custom Benchmark (Intl Small Cap)		-2.66	-6.20	0.07	-0.58	5.01	4.91	4.83	
Franklin Templeton	194,409,447	-2.46	-6.00	0.26	-0.34	5.12		5.44	8/1/2011
Franklin Templeton - Net		-2.64	-6.70	-0.66	-1.14	4.31		4.67	
MSCI AC World ex USA Small Cap (Net)		-2.66	-6.20	0.07	-0.58	5.01		4.03	
William Blair IntSC	339,858,156	-2.66	8.15	18.37	5.33	8.31	8.41	9.83	9/1/2010
William Blair IntSC - Net		-2.66	7.53	17.47	4.59	7.48	7.58	9.01	
MSCI AC World ex USA Small Cap (Net)		-2.66	-6.20	0.07	-0.58	5.01	4.61	6.08	
Custom Benchmark (Intl Small Cap)		-2.66	-6.20	0.07	-0.58	5.01	4.91	6.37	
Emerging Mkt Equity	1,222,234,609	1.02	-1.03	5.44	4.69	9.14	4.38	8.93	2/1/1992
Emerging Mkt Equity - Net		0.97	-1.56	4.83	4.08	8.50	3.77		
MSCI Emerging Markets Index		2.08	1.15	8.62	2.32	8.31	2.78	7.02	
Genesis Asset Mngrs.	1,222,234,609	1.02	-1.03	5.44	4.69	9.14	4.38	10.80	5/1/2004
Genesis Asset Mngrs. - Net		0.97	-1.56	4.83	4.08	8.50	3.77		
MSCI Emerging Markets Index		2.08	1.15	8.62	2.32	8.31	2.78	8.65	

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	12,008,165,617	-0.40	5.63	5.91	5.06	4.65	4.35	8.17	1/1/1982
Fixed Income - Net		-0.41	5.54	5.79	4.93	4.51	4.20		
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	7.67	
Fixed Income IMRF Custom Benchmark		-0.35	5.55	5.72	4.92	4.26			
Active Fixed Core	3,769,854,976	-0.54	6.75	6.36	5.21	4.36	4.10	4.73	4/1/2001
ActiveCore Fixed Inc - Net		-0.56	6.65	6.25	5.11	4.25	3.94		
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	4.72	
Brandes FI Core	381,822,658	-0.69	6.86	6.54	4.78			3.76	3/1/2016
Brandes FI Core - Net		-0.69	6.86	6.54	4.78			3.76	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07			4.05	
EARNEST Partners	1,038,669,000	-0.53	6.21	5.74	5.18	4.21	4.10	4.75	5/1/2005
EARNEST Partners - Net		-0.56	6.08	5.61	5.04	4.05	3.92	4.56	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	4.37	
Xponance Yield Advantage Agg.	1,108,053,006	-0.62	6.54	6.12	4.93	4.40	4.00	4.55	6/1/2005
Xponance Yield Advantage Agg. - Net		-0.65	6.41	5.95	4.78	4.25	3.84	4.37	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	4.32	
Garcia Hamilton	1,110,964,149	-0.38	7.16	6.86	5.52	4.48		4.24	6/1/2015
Garcia Hamilton - Net		-0.38	7.10	6.80	5.43	4.38		4.15	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08		3.79	
Ramirez Asset Management	130,346,164	-0.76						4.14	5/1/2020
Ramirez Asset Management - Net		-0.81						4.06	
Blmbg. Barc. U.S. Aggregate		-0.45						1.27	
Pass. Core Fixed Inc	3,770,427,951	-0.44	6.40	6.28	5.13	4.14	3.60	5.98	1/1/1990
Pass. Core Fixed Inc - Net		-0.44	6.40	6.27	5.12	4.14	3.59		
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	5.96	

Benchmark definitions in glossary.

Wilshire Consulting Performance



Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
BlackRock US Debt I	1,846,324,178	-0.43	6.46	6.34	5.17	4.19		3.98	10/1/2013
BlackRock US Debt I - Net		-0.43	6.45	6.34	5.16	4.18		3.98	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08		3.86	
NTGI Blmbg Agg.	1,924,103,772	-0.45	6.35	6.22	5.10	4.10	3.58	6.03	2/1/1990
NTGI Blmbg Agg. - Net		-0.45	6.35	6.21	5.09	4.09	3.57		
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	6.01	
Core Plus Fixed Income	2,936,853,132	-0.29	6.96	7.24	5.55	4.96	4.56	8.06	1/1/1982
Core Plus Fixed Inc. - Net		-0.30	6.80	7.04	5.36	4.77	4.37		
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	7.67	
LM Capital Group FI	969,567,656	-0.11	8.24	8.39	5.54	4.77	4.34	5.15	5/1/2005
LM Capital Group FI - Net		-0.15	8.06	8.22	5.37	4.59	4.17	4.98	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	4.37	
Progress Inv. FI	3,723								
BMO - TCH	659,629,762	-0.34	6.37	6.72	5.21	5.25	4.81	5.18	5/1/2005
BMO - TCH - Net		-0.34	6.27	6.61	5.07	5.11	4.67	5.05	
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	4.37	
Western Asset	1,125,259,201	-0.42	6.11	6.57	5.77	5.41	5.01	5.64	11/1/2001
Western Asset - Net		-0.42	6.01	6.43	5.65	5.28	4.87		
Blmbg. Barc. U.S. Aggregate		-0.45	6.32	6.19	5.07	4.08	3.55	4.47	
Longfellow Core Plus	182,392,790	-0.19						3.47	5/1/2020
Longfellow Core Plus - Net		-0.19						3.43	
Blmbg. Barc. U.S. Aggregate		-0.45						1.27	
Bank Loans	537,104,613	0.25	-2.26	0.34	2.46	4.16		3.68	8/1/2014
Bank Loans - Net		0.25	-2.26	0.34	2.19	3.76		3.24	
Custom Benchmark		0.20	-0.45	1.59	3.22	4.27		3.61	

Benchmark definitions in glossary.

Periods Ended October 31, 2020

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Barings Global Loan Fund	537,104,613	0.25	-2.26	0.34	2.46	4.16		3.68	8/1/2014
Barings Global Loan Fund - Net		0.25	-2.26	0.34	2.19	3.76		3.24	
Custom Benchmark		0.20	-0.45	1.59	3.22	4.27		3.61	
Emerging Markets Debt	217,729,002	0.41	-3.47	-1.24	1.96	5.01		2.47	8/1/2014
Emerging Markets Debt - Net		0.41	-3.72	-1.58	1.60	4.64		2.13	
Custom Benchmark		0.22	-2.16	-0.35	2.73	4.94		2.12	
Standish-Mellon EMD	217,729,002	0.41	-3.47	-1.24	1.96	5.01		2.47	8/1/2014
Standish EM MRK - Net		0.41	-3.72	-1.58	1.60	4.64		2.13	
Custom Benchmark		0.22	-2.16	-0.35	2.73	4.94		2.12	
High Yield	776,195,943	-0.64	1.92	4.43	5.27	6.85	6.74	9.38	4/1/1986
High Yield - Net		-0.64	1.68	4.09	4.92	6.49	6.36		
ICE BofAML US High Yield, Cash Pay Index		0.47	0.24	2.59	3.88	6.14	6.06	8.12	
MacKay Shields	776,167,235	-0.64	1.94	4.44	5.27	7.05	6.96	8.60	11/1/2000
MacKay Shields - Net		-0.64	1.69	4.11	4.92	6.68	6.59		
ICE BofAML US High Yield, Cash Pay Index		0.47	0.24	2.59	3.88	6.14	6.06	7.29	

Benchmark definitions in glossary.

Benchmark History

Account Name	From Date	To Date	Benchmark
Total Fund			<p>The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset class, currently:</p> <p>37% Russell 3000 Index, 28% Blmbg. Barc. U.S. Aggregate, 18% MSCI AC World ex USA (Net), 9% NCREIF Fund Index-ODCE (VW) (Net), 7% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.</p>
Domestic Equity	1/1/2015	Present	100% Russell 3000 Index
	1/1/1982	12/31/2014	100% Dow Jones US Total Stock Market Index
Large Cap Growth	1/1/2006	Present	100% Russell 1000 Growth Index
	11/1/2003	12/31/2005	100% S&P 500 Growth
Large Cap Value	1/1/2006	Present	100% Russell 1000 Value Index
	2/1/2001	12/31/2005	100% S&P 500 Value
Public Real Assets	8/1/2017	Present	33.3% Dow Jones Brookfield Global Infrastructure Composi, 66.7% FTSE GLOBAL CORE INFRASTRUCTURE 50/50 INDEX (Net)

Benchmark History

Account Name	From Date	To Date	Benchmark
Intl Small Cap Eqty	6/1/2011	Present	100% MSCI AC World ex USA Small Cap (Net)
	12/1/2005	5/31/2011	100% S&P Developed Ex-U.S. SmallCap (Net)
Barings Global Loan Fund	8/1/2014	Present	Comprised of the Credit Suisse US Leveraged Loan Index and the Credit Suisse Western European Leveraged Loan Index, weighted by the portfolio's market value to each sector.
Standish Emerging Markets	4/1/2020	Present	50% JPM GBI-EM Global Diversified ex-CNY, 25% JPM EMBI Global (USD), 25% JPM CEMBI Broad Index
	8/1/2014	3/31/2020	50% JPM GBI-EM Global Diversified, 25% JPM EMBI Global (USD), 25% JPM CEMBI Broad Index