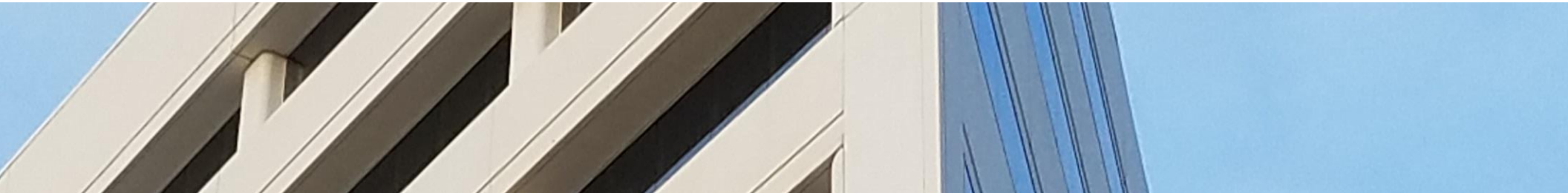




WILSHIRE ASSOCIATES

Wilshire Consulting



Monthly Performance Review

As of November 30, 2020



Capital Market Review

Market Commentary

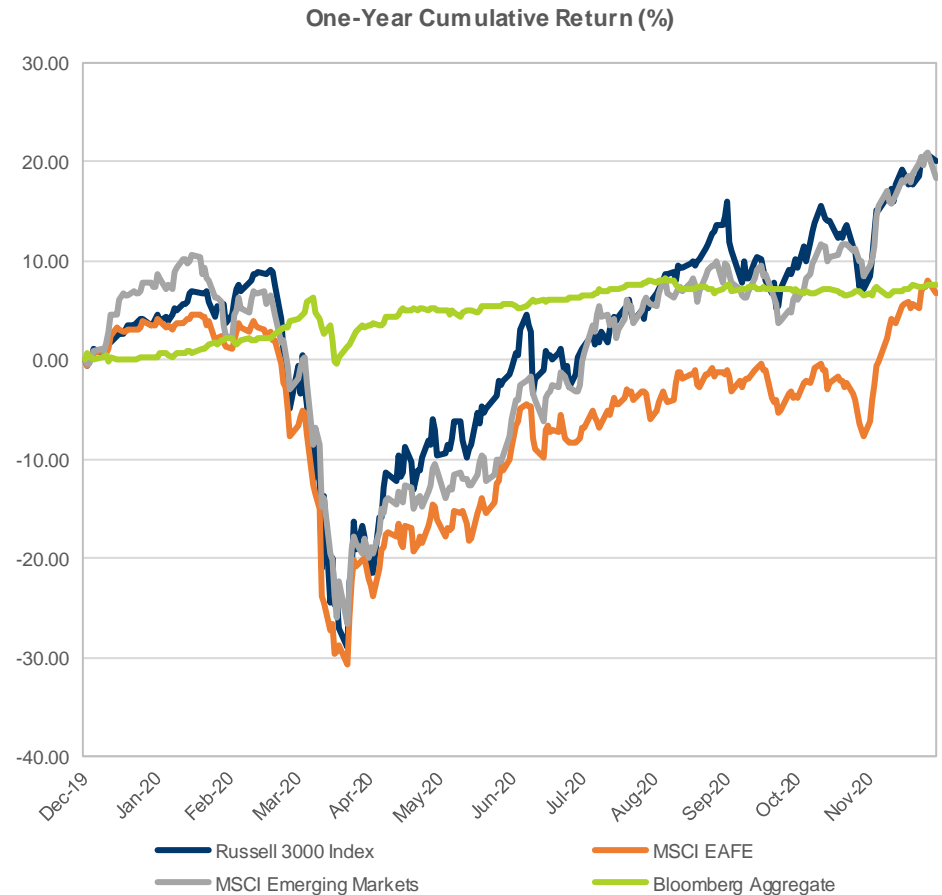
Global markets saw a sharp recovery during November as markets rose on the news of several successful COVID-19 vaccine trials. Pfizer/BioNTech, Moderna and AstraZeneca/Oxford all announced that their vaccines had been shown to be effective in reducing symptoms associated with COVID-19; however, the world continues to watch closely as to how soon these vaccines can be approved and distributed to the masses.

Within the United States, former Vice President, Joe Biden, was elected the country's 46th President, despite ongoing legal battles from the Trump Campaign. Additionally, Democrats retained control of the House of Representatives, while attention is now on the January 5, 2021 special run-off Senate elections in Georgia to decide who controls the Senate.

Despite growing COVID-19 cases, and new restrictions introduced across the United States, unemployment in the U.S. declined modestly during November to 6.7%, having added 245,000 jobs during the month.

Manufacturing in the United States, marked by the ISM Manufacturing Index declined to 57.5 in November, down from 59.3 at the end of October, but remains in expansionary territory.

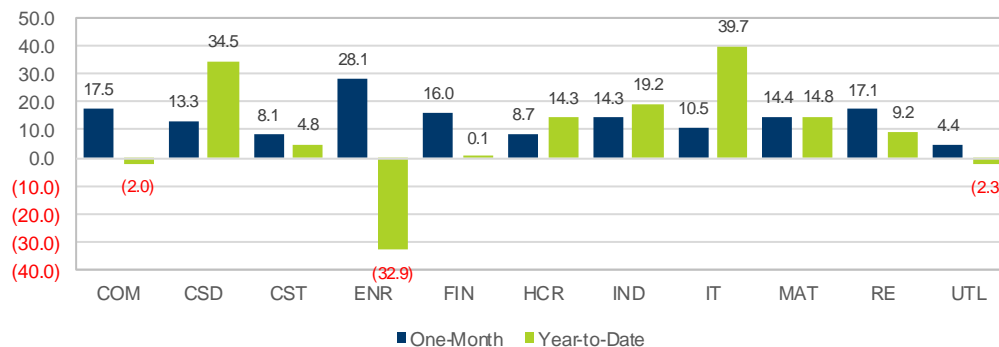
Consumer sentiment in the United States fell during the month, as the University of Michigan Consumer Sentiment Index marked a reading of 76.9 during the month, down from 81.8 at the end of October.



U.S. Equity Market

U.S. Equity Indices (%)	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Russell 3000 Index	12.17	9.74	15.68	19.02	13.19	13.93	14.03
Standard & Poor's 500 Index	10.95	8.00	14.02	17.46	13.16	13.97	14.18
Russell 1000 Index	11.78	9.08	16.06	19.41	13.65	14.21	14.26
Russell 2500 Index	16.29	18.40	11.51	13.86	8.75	11.04	11.96
Russell 2000 Index	18.43	20.91	10.41	13.59	7.09	10.24	11.12
Russell Micro Cap Index	20.44	21.99	12.31	18.72	5.95	9.07	10.70
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Russell 1000 Index	11.78	9.08	16.06	19.41	13.65	14.21	14.26
Russell 1000 Growth Index	10.24	6.50	32.40	36.40	21.45	19.54	17.29
Russell 1000 Value Index	13.45	11.96	(1.00)	1.72	5.25	8.43	10.92
Russell 2000 Index	18.43	20.91	10.41	13.59	7.09	10.24	11.12
Russell 2000 Growth Index	17.63	18.53	23.12	25.95	12.82	13.18	13.29
Russell 2000 Value Index	19.31	23.57	(3.05)	0.35	0.80	6.82	8.69
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Russell 3000 Index	12.17	9.74	15.68	19.02	13.19	13.93	14.03
GICS - Communication Services	17.49	11.18	(2.04)	2.72	9.73	13.48	9.30
GICS - Consumer Discretionary	13.27	10.08	34.52	37.58	20.61	17.18	17.42
GICS - Consumer Staples	8.08	4.88	4.85	7.76	6.13	6.80	11.18
GICS - Energy	28.10	24.52	(32.86)	(28.25)	(14.63)	(8.11)	(2.92)
GICS - Financials	15.95	16.98	0.11	2.06	7.16	10.93	12.48
GICS - Health Care	8.67	5.47	14.35	18.21	13.61	12.18	16.72
GICS - Industrials	14.30	19.33	19.17	20.52	9.91	11.68	14.19
GICS - Information Technology	10.51	8.15	39.67	45.67	26.40	25.37	19.67
GICS - Materials	14.38	12.63	14.77	17.73	6.88	11.55	10.12
GICS - Real Estate	17.14	14.95	9.20	17.27	6.75	5.49	7.08
GICS - Utilities	4.42	5.92	(2.28)	0.80	6.36	9.90	10.23

Sector Returns (%)



Market Commentary

The U.S. stock market recorded one of its highest monthly gains on record during November. Represented by the Russell 3000 Index, U.S. equities were up +12.2% during the month, bringing the year-to-date return to +15.7%.

U.S. equities surged during November as positive news of several successful COVID-19 vaccine trials came from three pharmaceutical companies throughout the month. Investors remain hopeful that a return to economic normalcy is near.

Markets seemed to be largely unphased by the Presidential election at the beginning of the month; Joe Biden was elected the 46th President of the United States. At the same time, Democrats retained control of the House of Representatives, while control of the Senate will be decided following a special run-off election in Georgia during January.

Small capitalization stocks continued their rally versus large capitalization stocks, now outperforming for three straight months. The Russell 2000 Index returned +18.4% versus +11.8% for the Russell 1000 Index. Year-to-date, large cap stocks remain ahead; however, up +16.1% versus +10.4% for small cap stocks.

Value stocks again led growth stocks during November. Small cap value stocks was among the highest returners for the month, up +19.3%.

Of the eleven major sectors in the index, all were positive for the month. Year-to-date, Information Technology continues to lead, up +39.7%.

Non-U.S. Equity Market

Market Commentary

Equity markets outside of the United States outpaced U.S. stocks during November, up +13.5%. Year-to-date, Non-U.S. equities as measured by the MSCI ACWI ex U.S. Index are now positive following a strong November, up +5.0%.

Developed markets outperformed emerging markets during November, up +15.5% versus +9.3% for emerging markets equities. Year-to-date, emerging markets remain ahead of developed markets, up +10.2% versus +3.0%.

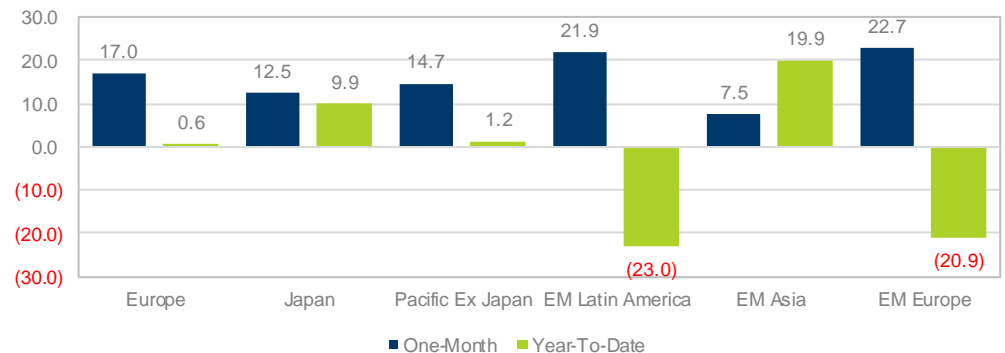
Despite the ongoing outbreak of COVID-19 across much of Europe, European stocks were strong for the month given the promising news of the successful vaccine trials. The U.K. in particular, which has lagged much of the year, outperformed in-part to the positive vaccine news, as well as hopes that a “no-deal” Brexit might be avoided. The transition arrangement with the EU-UK Withdrawal Agreement ends at the end of the year.

Emerging markets also saw a strong return during November, albeit, trailing developed markets for the month. Latin America and Europe outperformed Asia, as Greece, Poland and Hungary were among the best performers. Emerging markets continue to remain hopeful that AstraZeneca/Oxford’s more affordable vaccine will bring COVID-19 relief to their regions.

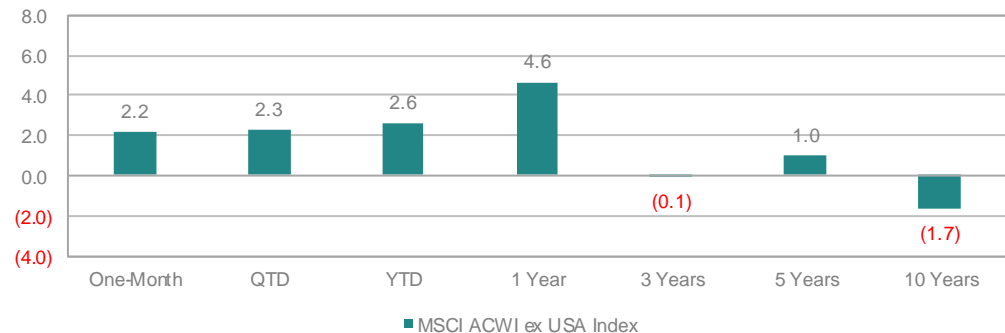
The U.S. Dollar weakened during the month, providing a strong tailwind for U.S.-based investors of +2.2%. Year-to-date, the weakening U.S. Dollar has provided U.S.-based investors with an additional return of +2.6%.

Non-U.S. Equity (USD %)	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
MSCI AC World ex U.S. Index	13.45	11.01	4.98	9.52	3.82	7.37	5.15
MSCI EAFE Index	15.50	10.89	3.03	6.37	3.26	6.18	5.85
MSCI Emerging Markets Index	9.25	11.50	10.20	18.43	4.91	10.71	3.60
MSCI AC World ex U.S. Small Index	13.84	10.81	6.78	12.04	3.29	7.91	6.23
MSCI Europe Index	17.01	10.41	0.64	4.58	2.49	5.24	5.68
MSCI Japan Index	12.49	10.70	9.95	12.24	4.88	7.84	6.84
MSCI Pacific ex Japan Index	14.70	14.05	1.21	3.72	3.68	8.30	5.06
MSCI EM Latin America Index	21.86	20.48	(22.96)	(15.01)	(4.06)	5.58	(3.93)
MSCI EM Asia Index	7.49	11.03	19.92	28.45	7.50	12.70	6.48
MSCI EM Europe Index	22.69	10.76	(20.86)	(15.64)	(0.97)	5.43	(1.98)
Local Currency (%)	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
MSCI AC World ex U.S. Index	11.29	8.75	2.40	4.89	3.90	6.40	6.84
MSCI EAFE Index	13.10	8.67	(1.58)	(0.27)	2.55	4.70	7.05
MSCI Emerging Markets Index	7.77	9.38	12.30	18.74	6.93	11.04	6.44

Regional Returns (%)



Currency Effect (%)



Fixed Income Market

Market Commentary

Government bond yields were volatile throughout much of the month and saw large swings around the Presidential Election and continued news of COVID-19 vaccines. The 10-year Treasury yield ended the month at 0.84%, down 4 basis points from the end of October.

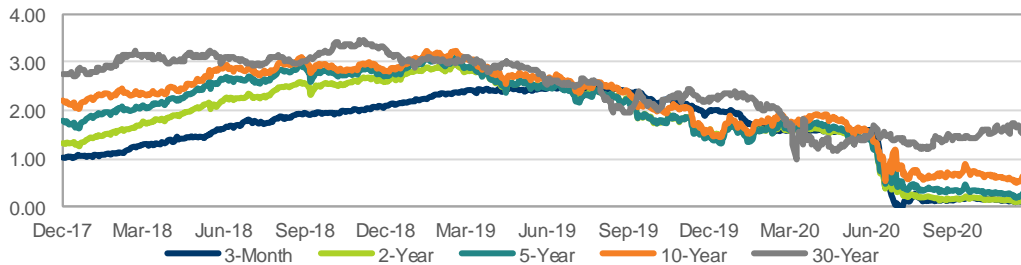
The 10-year Treasury breakeven rate increased 10 basis points to 1.77% during the month given the expectation for additional fiscal stimulus, and higher inflation into the future.

Corporate bonds performed well during November as credit spreads tightened throughout the month. Below-investment grade fixed income or high yield bonds, were one of the strongest performers in November, up +4.0% for the month and now up year-to-date +4.2%. Emerging markets were also strong during November, returning +5.5%.

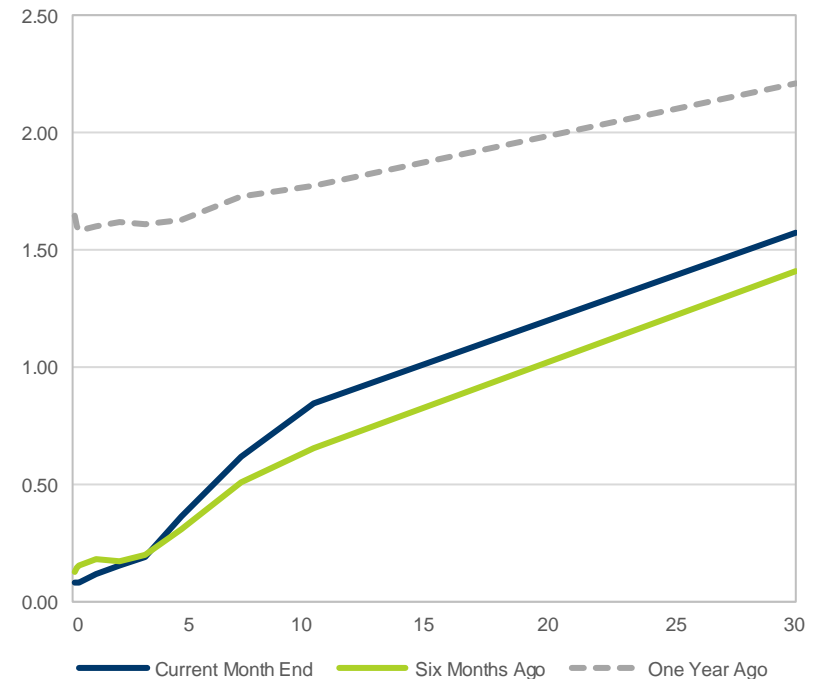
U.S. Fixed Income	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Bloomberg Barclays U.S. Aggregate	0.98	0.53	7.36	7.28	5.45	4.33	3.71
Bloomberg Barclays Long Gov't/Credit	3.52	1.88	16.35	15.03	10.55	9.21	7.94
Bloomberg Barclays LT Treasury	1.20	(1.85)	19.11	15.78	10.93	8.09	7.51
Bloomberg Barclays U.S. TIPS	1.12	0.47	9.73	10.15	5.83	4.67	3.53
Bloomberg Barclays U.S. Credit	2.55	2.32	8.85	9.17	6.91	6.17	5.24
Bloomberg Barclays U.S. High Yield	3.96	4.48	5.13	7.24	5.68	7.63	6.79
ICE BofA U.S. High Yield Cash Pay	3.97	4.46	4.21	6.37	5.32	7.44	6.59
S&P LSTA Levered Loan Index	2.23	2.43	1.76	3.38	3.68	4.73	4.31
ICE BofA US 3-Month Treasury Bill	0.01	0.02	0.66	0.80	1.64	1.20	0.64

Global Fixed Income	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Bloomberg Barclays Global Aggregate	1.82	1.92	7.75	8.38	4.50	4.62	2.82
Bloomberg Barclays Global Aggregate (Hdg.)	0.57	0.58	5.26	5.04	5.12	4.36	4.09
JPM GBI-EM Index	5.53	3.69	(0.48)	2.99	1.63	4.82	1.73
JPM EMBI Global Index	3.86	1.91	4.03	5.98	4.55	6.15	5.75
JPM Corporate EMBI Index	2.67	2.41	5.99	6.95	5.84	6.81	6.04

Daily Treasury Yield Curve Rates (%)



Treasury Yield Curve (%)



Real Assets Market

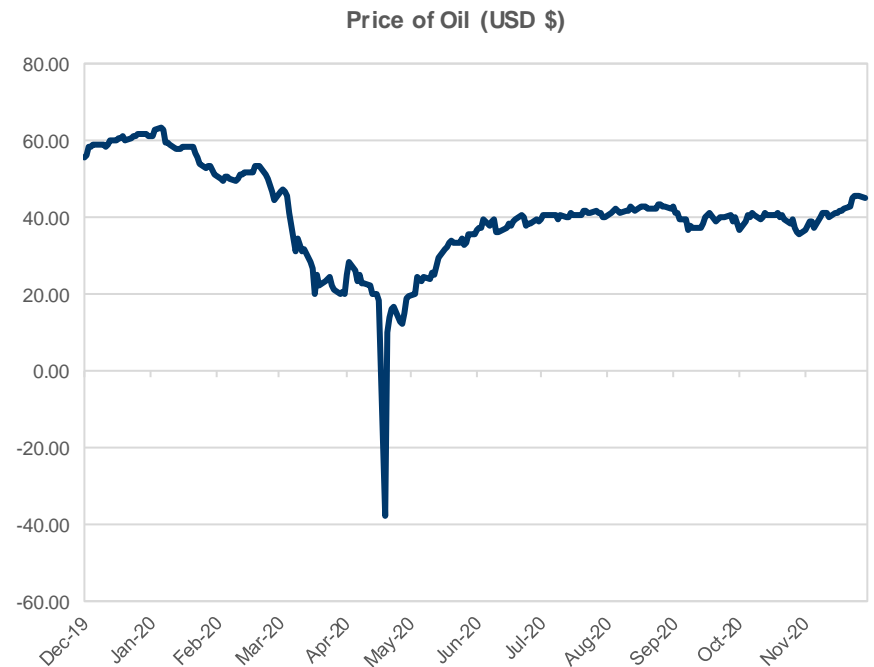
Real Assets	MTD	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Wilshire US RESI	10.42	7.69	(10.46)	(11.04)	2.30	4.28	8.58
Wilshire Global RESI	12.37	9.50	(11.58)	(11.16)	1.65	4.00	7.42
Bloomberg Commodity Index	3.51	4.97	(7.71)	(3.06)	(3.15)	(0.57)	(6.00)
S&P GSCI Index	12.04	8.04	(28.02)	(22.99)	(8.66)	(4.71)	(8.46)
Alerian MLP Index	23.78	29.20	(30.44)	(24.50)	(12.05)	(7.08)	(2.38)
DJ Brookfield Global Infrastructure	9.32	7.62	(6.08)	(0.97)	3.87	7.53	8.49
FTSE Global 50/50 Infrastructure	7.87	7.14	(4.69)	(0.55)	4.75	8.91	9.17

Market Commentary

U.S. and global real estate securities recovered during November, up +10.4% and +12.4%, respectively. Year-to-date, U.S. and global real estate remain negative; however, down -10.5% and -11.6%, respectively.

Commodities were strong returners during the month as energy rebounded from its lows during October. The Bloomberg Commodity Index was up +3.5% while the S&P GSCI Index was up +12.0%.

The price of oil rose during the month by +26.7%, ending November at \$45.34 per barrel. Year-to-date the price of oil remains down -25.7%.





IMRF Performance

IMRF Commentary

IMRF Commentary

The Illinois Municipal Retirement Fund (“IMRF”) ended November 2020 with a market value of \$48.3 billion, up for the month by approximately \$3.9 billion. IMRF returned +8.46% during November, outperforming the Total Fund Benchmark which returned +7.25%. Year-to-date, IMRF is now ahead of its Total Fund Benchmark for the first time this year after a strong rebound following early 2020 underperformance. The IMRF Total Fund has returned +10.66% versus +10.05% for the benchmark, year-to-date.

During November, U.S. Equity was the largest contributor to Total Fund outperformance, returning +12.80% versus +12.17% for the benchmark. The Total Fund Portfolio’s overweight to U.S. Equity, as well as investment manager outperformance contributed to relative outperformance for the Total Fund. Within the U.S. Equity Portfolio, investment manager performance in Large Cap and Small Cap Growth contributed to relative outperformance versus the benchmark, as did the Portfolio’s tilt to Small Cap Value. Year-to-date, the U.S. Equity Portfolio has outperformed the benchmark +15.92% versus +15.68%.

The Internally Managed Scientific Beta Portfolio modestly trailed the benchmark during November, returning +10.25% versus +10.58%. Year-to-date, the strategy has performed in-line with the benchmark, returning +5.21% versus +5.22%. Since inception; however, the strategy has outperformed the benchmark, returning +8.82% versus +8.53%.

The Internally Managed GSAM-Factor Diversity Portfolio underperformed its benchmark during November, returning +11.66% versus +11.80%.

The Public Real Assets Portfolio underperformed its benchmark during the month returning +7.36% versus +8.51%. Year-to-date; however, the Public Real Assets Portfolio remains ahead of the benchmark, -5.29% versus -6.68%.

The International Equity Portfolio outpaced the benchmark during November, returning +13.74% versus +13.45%. In aggregate, investment manager outperformance in Large Cap Value, Large Cap Growth and Emerging Markets contributed to relative outperformance during the month. Year-to-date, the International Equity Portfolio continues to outperform its benchmark, +6.28% versus +4.98%.

The Fixed Income Portfolio was able to outperform the benchmark during the month despite a volatile yield environment. The Portfolio’s allocation to credit markets benefited relative performance as credit spreads narrowed in both investment grade and below-investment grade fixed income. For the month, the Fixed Income Portfolio returned +1.54% versus +0.98% for the benchmark. Investment manager performance in Core, Core Plus, Bank Loans and Emerging Markets 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 just behind the benchmark +7.17% versus +7.36%.

As of November month-end, Domestic Equity was 6.0% 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 Interim Chief Investment Officer and Consultant do not recommend any rebalancing at this time.



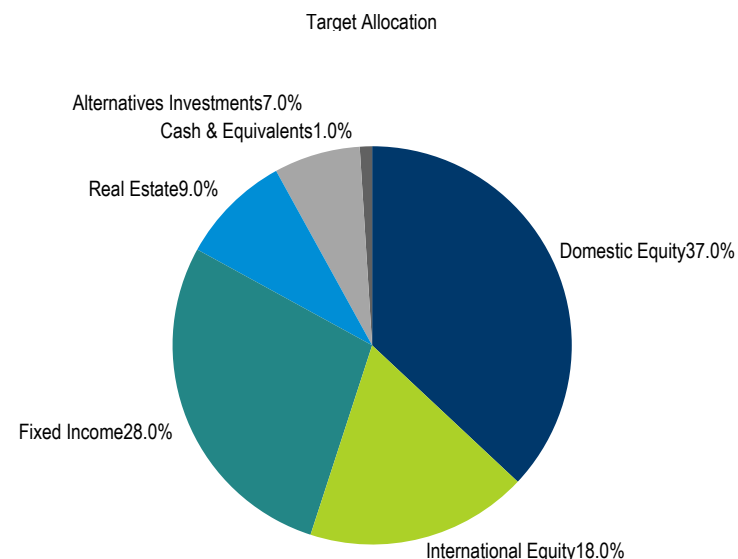
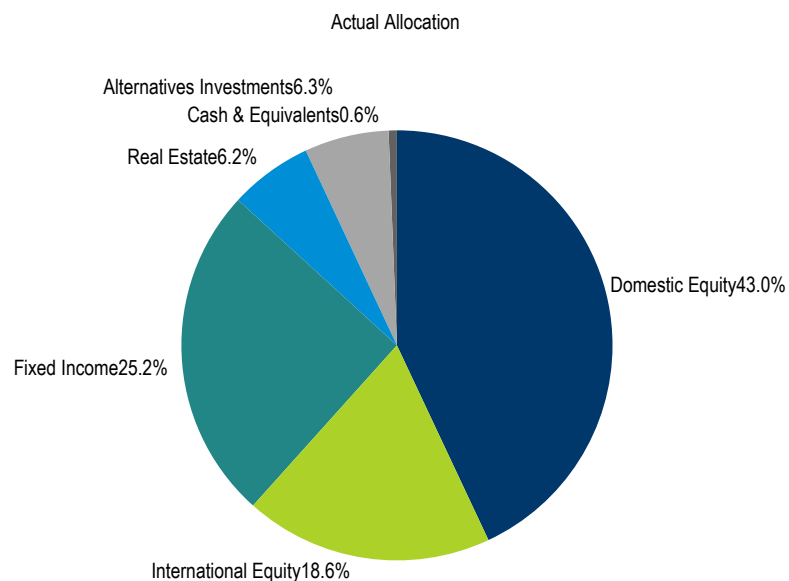
Total Fund

Wilshire Consulting

Asset Allocation

Total Fund

Periods Ended As of November 30, 2020



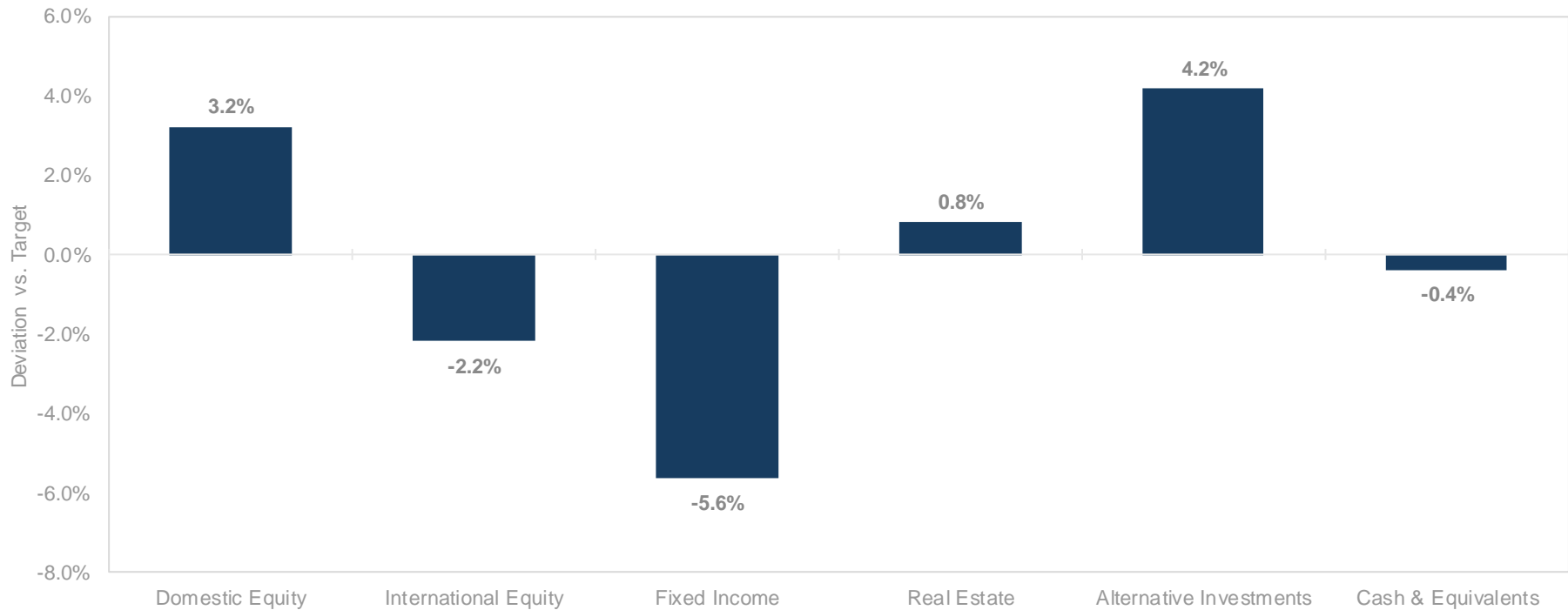
■ Domestic Equity
 ■ International Equity
 ■ Fixed Income
 ■ Real Estate
 ■ Alternatives Investments
 ■ Cash & Equivalents

	Actual Allocation \$Millions	Actual Allocation %	Target Allocation %	Differences %	Differences \$Millions
Total Fund	48,343	100.0	100.0	0.0	
Domestic Equity	20,797	43.0	37.0	6.0	2,910
International Equity	9,000	18.6	18.0	0.6	298
Fixed Income	12,173	25.2	28.0	-2.8	-1,363
Real Estate	3,011	6.2	9.0	-2.8	-1,340
Alternatives Investments	3,062	6.3	7.0	-0.7	-322
Cash & Equivalents	300	0.6	1.0	-0.4	-183

Projected Deviation From Benchmark

Period Ending November 30, 2020

Projected Asset Allocation Differences vs. Target



- Includes committed, but unfunded amounts for real estate (\$1,732.6 million) and alternatives (\$2,334.1 million). Assumes real estate and alternatives allocations are fully funded as of month's 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).

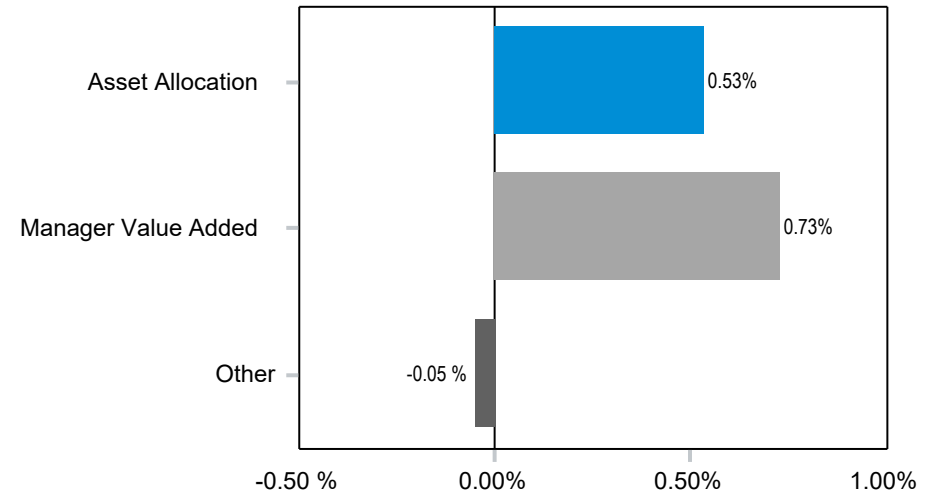
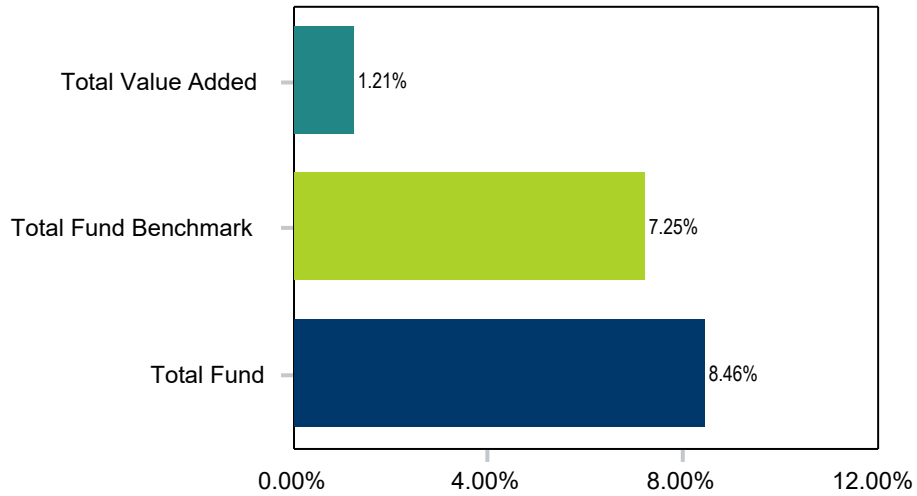
Total Fund Attribution

Total Fund

1 Month Ending November 30, 2020

Total Fund Performance

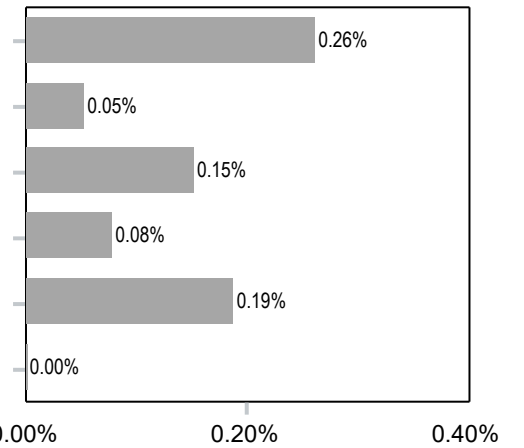
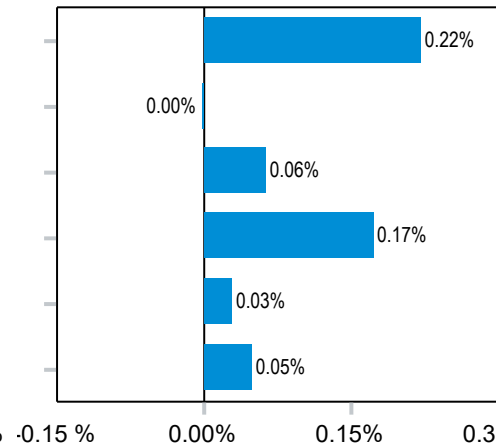
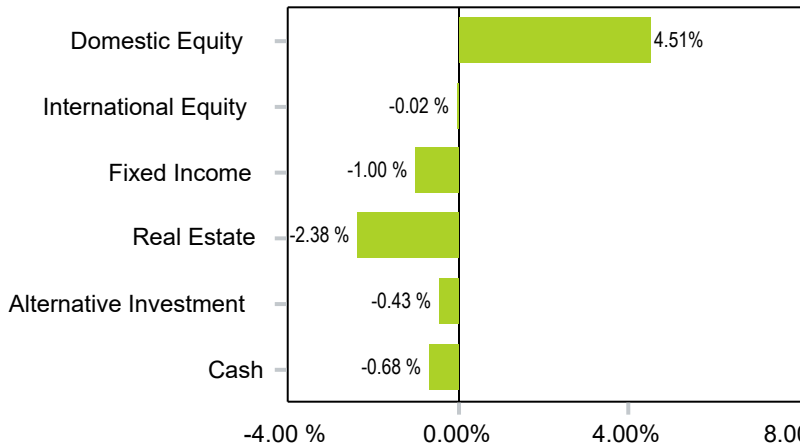
Total Value Added: 1.21%



Asset Class Under or Overweighting

Asset Allocation Value Added: 0.53%

Total Manager Value Added: 0.73%



■ Average Active Weight

■ Asset Allocation Value Added

■ Manager Value Added

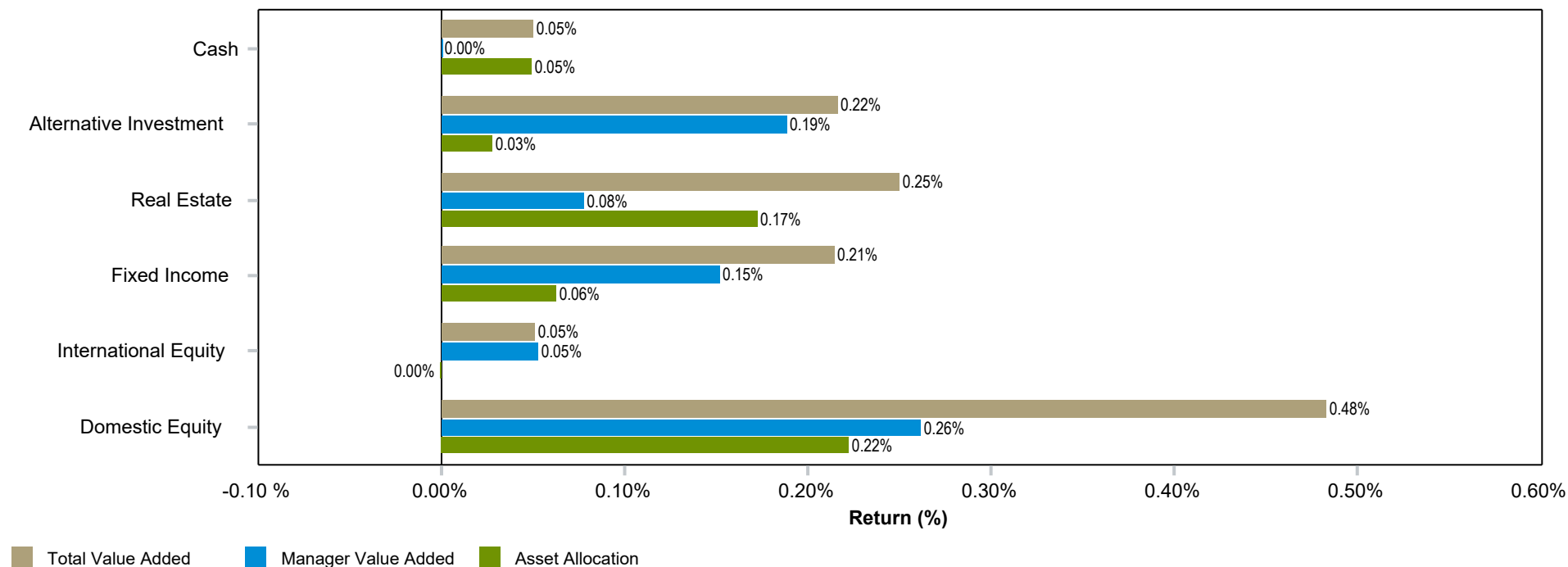
Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Total Fund Attribution

Total Fund

1 Month Ending November 30, 2020

Relative Attribution by Asset Class



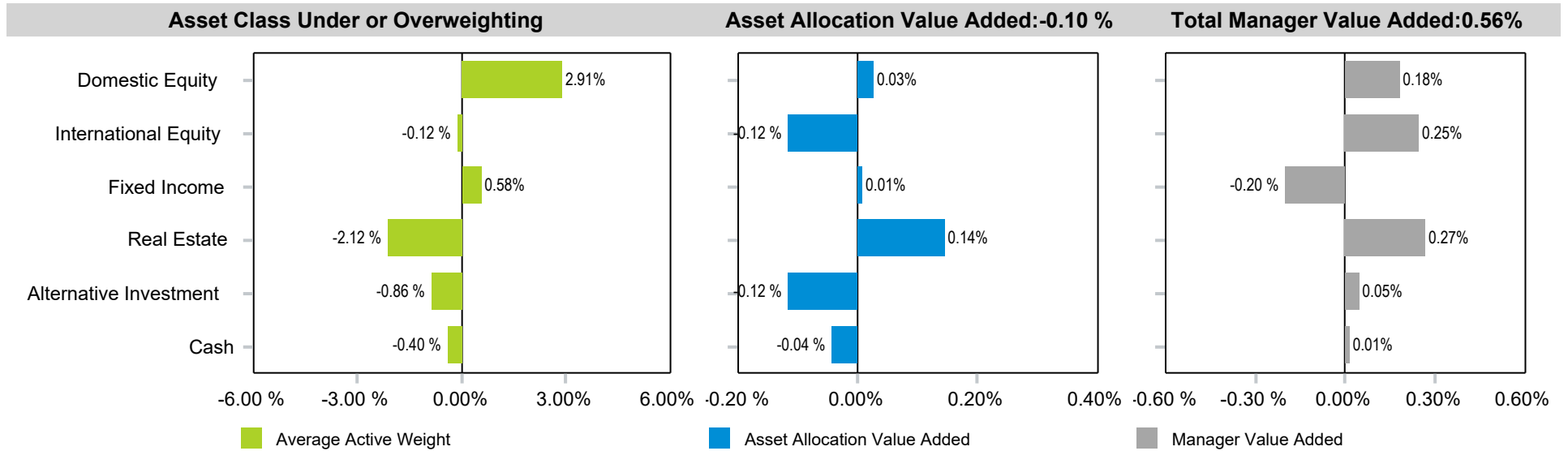
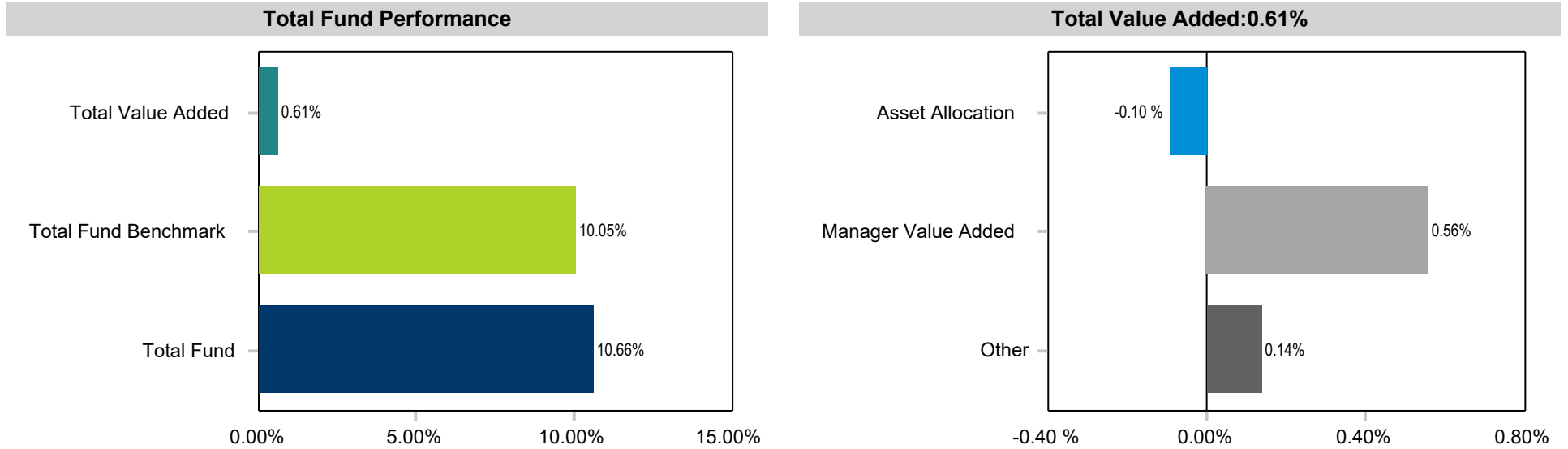
Relative Attribution Effects							
	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	41.5	37.0	12.80	12.17	0.26	0.22	0.48
International Equity	18.0	18.0	13.74	13.45	0.05	0.00	0.05
Fixed Income	27.0	28.0	1.54	0.98	0.15	0.06	0.21
Real Estate	6.6	9.0	1.17	0.00	0.08	0.17	0.25
Alternative Investment	6.6	7.0	3.58	0.72	0.19	0.03	0.22
Cash	0.3	1.0	0.10	0.01	0.00	0.05	0.05
Total Fund	100.0	100.0	8.46	7.25	0.73	0.53	1.21

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 November 30, 2020



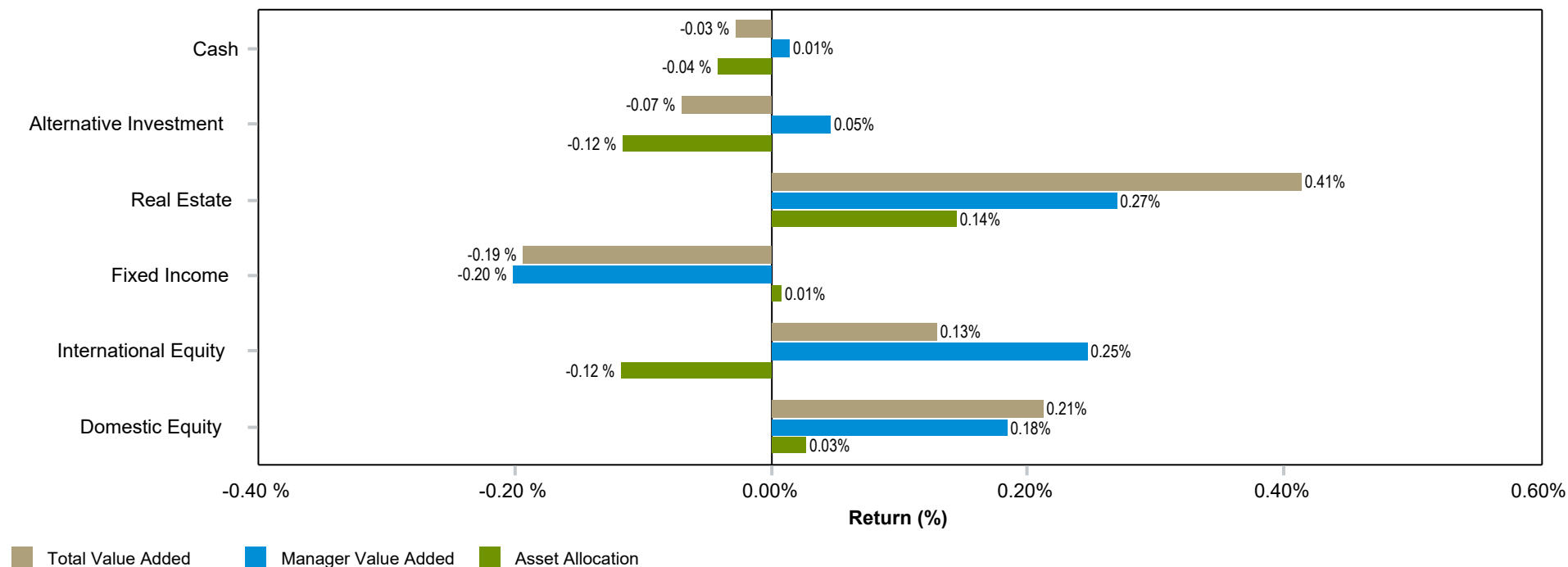
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Total Fund Attribution

Total Fund

Year To Date Ending November 30, 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	39.9	37.0	15.92	15.68	0.18	0.03	0.21
International Equity	17.9	18.0	6.28	4.98	0.25	-0.12	0.13
Fixed Income	28.6	28.0	7.17	7.36	-0.20	0.01	-0.19
Real Estate	6.9	9.0	3.04	-0.74	0.27	0.14	0.41
Alternative Investment	6.1	7.0	9.01	8.22	0.05	-0.12	-0.07
Cash	0.6	1.0	2.43	0.66	0.01	-0.04	-0.03
Total Fund	100.0	100.0	10.66	10.05	0.56	-0.10	0.61

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 November 30, 2020

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Total Fund	8.49	7.50	10.85	13.12	8.73	9.44	9.23	7.20	8.93	9.94	1/1/1982
Total Fund - Net	8.46	7.46	10.66	12.93	8.54	9.23	9.01				
Total Fund Benchmark	7.25	5.90	10.05	12.16	8.51	9.09	8.82				
Domestic Equity	12.82	11.32	16.12	19.50	12.43	13.10	13.60	7.99	11.38	11.81	1/1/1982
Domestic Equity - Net	12.80	11.28	15.92	19.29	12.22	12.88	13.34				
Blended Benchmark (U.S. Equity)	12.17	9.74	15.68	19.02	13.20	13.95	14.03	7.88	10.88		
U.S. Equity IMRF Custom Benchmark	12.25	10.19	12.71	16.08	11.13	12.56					
International Equity	13.85	11.20	6.68	11.03	5.06	8.18	6.83	6.31	7.53	7.85	9/1/1986
International Equity - Net	13.74	11.07	6.28	10.61	4.71	7.82	6.48				
MSCI AC World ex USA (Net)	13.45	11.01	4.98	9.52	3.82	7.38	5.16	5.13			
International Equity IMRF Custom Benchmark	13.31	11.05	5.37	10.09	3.84	7.43					
Fixed Income	1.55	1.15	7.27	7.54	5.61	5.06	4.57	5.65	6.61	8.19	1/1/1982
Fixed Income - Net	1.54	1.13	7.17	7.42	5.48	4.92	4.42				
Blmbg. Barc. U.S. Aggregate	0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.92	5.91	7.68	
Fixed Income IMRF Custom Benchmark	1.30	0.95	6.91	7.11	5.41	4.62					
Real Estate	1.17	1.75	3.08	3.39	7.43	8.31	10.22	7.60	5.13	5.50	5/1/1985
Real Estate - Net	1.17	1.74	3.04	3.35	7.40	8.29	10.20				
Blended Benchmark (Real Estate)	0.00	0.00	-0.74	0.52	3.82	5.26	9.13	6.98	7.19	7.47	
Alternatives Investments	3.59	5.78	9.05	9.65	12.59	10.78	9.63	6.02	11.75	10.84	2/1/1986
Alternatives Investments - Net	3.58	5.77	9.01	9.61	12.50	10.63	9.39				
Alternatives Custom Benchmark	0.72	1.45	8.22	9.00	9.00	9.00	9.00	10.78	12.17	12.56	
Private Equity	3.80	6.25	10.67	11.44	15.35	13.23	12.18	7.28	14.37	13.04	2/1/1986
Alternatives Custom Benchmark	0.72	1.45	8.22	9.00	9.00	9.00	9.00	10.78	12.17	12.56	
Agriculture	-0.02	2.48	4.03	4.03	-0.66	1.10	8.98	7.30		6.86	10/1/1997
NCREIF Farmland Index	0.00	0.00	1.47	3.84	5.33	6.13	10.85	12.14		11.39	
Timberland	0.09	0.14	5.35	5.35	1.88	0.43	3.15	3.29		7.29	10/1/1992
NCREIF Timberland Index	0.00	0.00	0.23	0.19	2.09	2.56	4.40	5.63		8.34	

Benchmark definitions on next page.

Asset Class Returns

Periods Ended November 30, 2020

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Unlisted Infrastructure	8.43	8.43	15.90	15.90						12.66	4/1/2018
Alternatives Custom Benchmark	0.72	1.45	8.22	9.00						9.00	
Cash	0.11	0.19	2.45	2.79	2.91	2.14	1.17	1.75	3.18	3.79	7/1/1986
90 Day US Treasury Bill	0.01	0.02	0.66	0.80	1.64	1.19	0.62	1.50	2.64	3.22	

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 November 30, 2020

	Oct-2020		Nov-2020	
	\$	%	\$	%
Domestic Equity	18,461,597,145	41.51	20,796,727,666	43.02
Large Cap Growth	7,702,120,369	17.32	8,534,469,384	17.65
NTGI S&P 500 Growth	2,827,473,621	6.36	3,102,177,709	6.42
Sands Capital	3,202,543,160	7.20	3,589,142,438	7.42
Xponance Russell 1000 G	1,672,103,589	3.76	1,843,149,237	3.81
Large Cap Value	4,311,667,815	9.70	4,687,129,818	9.70
Dodge & Cox	1,199,741,196	2.70	1,408,389,861	2.91
BMO	760,151,306	1.71	853,224,847	1.76
LSV Asset	1,027,196,198	2.31	1,179,967,526	2.44
NTGI S&P 500 Value	1,324,579,116	2.98	1,245,547,585	2.58
Large Cap Pass. Core	2,624,238,682	5.90	2,944,617,332	6.09
NTGI MarketCap Idx.	2,624,238,682	5.90	2,944,617,332	6.09
Factor Diversity Strategies	492,942,760	1.11	804,361,347	1.66
U.S. Large Cap FDP-GSAM	492,942,760	1.11	804,361,347	1.66
Quantitative Factor Strategies	252,647,307	0.57	278,637,998	0.58
Quantitative US Equity - SciBeta	252,647,307	0.57	278,637,998	0.58
Small Cap Growth	845,921,218	1.90	1,004,782,633	2.08
Frontier Capital	669,842,349	1.51	798,569,745	1.65
FIAM Small Cap	176,078,869	0.40	206,212,888	0.43
Small Cap Value	1,310,614,821	2.95	1,549,241,870	3.20
Channing	218,796,414	0.49	262,530,394	0.54
DFA Small Cap Val.	485,546,176	1.09	575,874,118	1.19
Inv. Couns. Maryland	606,272,231	1.36	710,837,358	1.47

Investment Manager Asset Allocation

Periods Ended November 30, 2020

	Oct-2020		Nov-2020	
	\$	%	\$	%
Micro Cap	293,098,812	0.66	318,195,169	0.66
DFA Micro Cap (9-10)	293,098,812	0.66	318,195,169	0.66
Public Real Assets	628,345,360	1.41	675,292,117	1.40
Brookfield	143,531,836	0.32	159,114,002	0.33
Cohen & Steers	484,813,524	1.09	516,178,115	1.07
International Equity	7,995,504,152	17.98	9,000,173,262	18.62
Intl Large Cap Growth	1,369,130,312	3.08	1,559,815,227	3.23
EARNEST Part. Intl	422,355,690	0.95	506,354,848	1.05
William Blair	946,774,622	2.13	1,053,460,379	2.18
Intl Large Cap Value	1,099,400,103	2.47	1,193,173,705	2.47
Brandes Investment	500,660,934	1.13	502,410,918	1.04
Mondrian	486,540,170	1.09	562,408,450	1.16
Lazard	112,198,998	0.25	128,354,336	0.27
Intl Large Cap Core	3,637,567,925	8.18	4,149,745,088	8.58
Arrowstreet Capital	737,286,052	1.66	855,125,340	1.77
Brown Capital	534,207,485	1.20	592,936,864	1.23
GlobeFlex Capital	629,226,026	1.41	704,526,360	1.46
NTGI MSCI EAFE	1,735,832,513	3.90	1,996,135,853	4.13
Progress Intl Equity	893,059	0.00	900,950	0.00
Transition Account	122,790	0.00	119,721	0.00
Intl All Cap Developed	132,903,600	0.30	147,654,825	0.31
Ativo International	132,903,600	0.30	147,654,825	0.31

Investment Manager Asset Allocation

Periods Ended November 30, 2020

	Oct-2020		Nov-2020	
	\$	%	\$	%
International Small Cap	534,267,603	1.20	597,901,993	1.24
Franklin Templeton	194,409,447	0.44	218,294,796	0.45
William Blair IntSC	339,858,156	0.76	379,607,197	0.79
Emerging Mkt Equity	1,222,234,609	2.75	1,351,882,425	2.80
Genesis Asset Mngrs.	1,222,234,609	2.75	1,351,882,425	2.80

Investment Manager Asset Allocation

Periods Ended November 30, 2020

	Oct-2020		Nov-2020	
	\$	%	\$	%
Fixed Income	12,008,165,617	27.00	12,173,471,460	25.18
Domestic Fixed Core	3,769,854,976	8.48	3,800,903,589	7.86
Brandes FI Core	381,822,658	0.86	383,296,470	0.79
EARNEST Partners	1,038,669,000	2.34	1,044,794,615	2.16
Xponance Yield Advantage Agg.	1,108,053,006	2.49	1,122,214,274	2.32
Garcia Hamilton	1,110,964,149	2.50	1,118,378,429	2.31
Ramirez Asset Management	130,346,164	0.29	132,219,801	0.27
Domestic Fixed Passive Core	3,770,427,951	8.48	3,808,160,267	7.88
NTGI Blmbg Agg.	1,924,103,772	4.33	1,943,452,233	4.02
BlackRock US Debt I	1,846,324,178	4.15	1,864,708,035	3.86
Domestic Fixed Core Plus	2,936,853,132	6.60	2,988,188,944	6.18
LM Capital Group FI	969,567,656	2.18	981,955,966	2.03
Progress Inv. FI	3,723	0.00	3,723	0.00
BMO - TCH	659,629,762	1.48	669,413,536	1.38
Western Asset	1,125,259,201	2.53	1,151,444,273	2.38
Longfellow Core Plus	182,392,790	0.41	185,371,446	0.38
Bank Loans	537,104,613	1.21	551,789,286	1.14
Barings Global Loan Fund	537,104,613	1.21	551,789,286	1.14
Emerging Markets Debt	217,729,002	0.49	229,923,868	0.48
Standish-Mellon EMD	217,729,002	0.49	229,923,868	0.48
High Yield	776,195,943	1.75	794,505,505	1.64
MacKay Shields	776,167,235	1.75	794,461,571	1.64
FIAM High Yield	28,708	0.00	43,934	0.00

Investment Manager Asset Allocation

Periods Ended November 30, 2020

	Oct-2020		Nov-2020	
	\$	%	\$	%
Real Estate	2,944,023,557	6.62	3,010,515,320	6.23
Real Estate Core Cmp	1,562,152,850	3.51	1,592,580,652	3.29
TA Assoc. Buckhead	586,042,640	1.32	606,281,136	1.25
Barings Core Property		0.00		0.00
Barings Euro Core Property	133,320,567	0.30	138,965,201	0.29
Blackstone Property Euro	140,660,203	0.32	148,350,441	0.31
INVESCO Core Real Estate	200,824,885	0.45	200,824,885	0.42
INVESCO European real estate	57,459,126	0.13	58,998,151	0.12
AEW Core Property Tr	232,998,029	0.52	230,973,443	0.48
CBRE Core Partners	210,847,401	0.47	208,187,395	0.43
RE Non-Core Cmp	1,381,870,707	3.11	1,417,934,668	2.93
Artemis MWBE Spruce	219,976,154	0.49	220,958,737	0.46
Franklin T. EMREFF	5,378,057	0.01	6,569,896	0.01
Security Capital	50,916,443	0.11	49,769,668	0.10
Dune II	19,935,889	0.04	19,434,746	0.04
Non-Core Real Estate Funds	923,514,690	2.08	955,831,326	1.98
Non-Core Intl Real Estate	161,957,569	0.36	165,188,703	0.34
Rockwood Fund VIII	59,319	0.00	59,319	0.00
Almanac ARS V	132,586	0.00	122,274	0.00
Alternatives Investments	2,921,404,894	6.57	3,061,841,493	6.33
Absolute Return	224,740	0.00	223,491	0.00
Aurora Investment	224,740	0.00	223,491	0.00
Private Equity	2,424,649,873	5.45	2,550,480,990	5.28

Investment Manager Asset Allocation

Periods Ended November 30, 2020

	Oct-2020		Nov-2020	
	\$	%	\$	%
Abbott S/A Comp.	377,654,065	0.85	381,319,280	0.79
Muller Monroe MPEFF	4,707,209	0.01	4,707,209	0.01
Pantheon S/A Comp.	245,168,550	0.55	245,163,993	0.51
Private Equity Fund - Domestic	1,424,245,767	3.20	1,514,631,989	3.13
Private Equity Fund - International	350,690,110	0.79	379,456,207	0.78
Oakbrook Opportunities Fund	22,184,173	0.05	25,202,312	0.05
Private Credit	148,698,662	0.33	157,395,769	0.33
Private Credit Fund - Domestic	148,698,662	0.33	157,395,769	0.33
Agriculture	216,009,434	0.49	215,962,216	0.45
Premiere Partners IV	216,009,434	0.49	215,962,216	0.45
Timberland	76,730,090	0.17	76,799,608	0.16
Forest Investment	76,730,090	0.17	76,799,608	0.16
Unlisted Infrastructure	55,092,095	0.12	60,979,419	0.13
Unlisted Infrastructure Funds	55,092,095	0.12	60,979,419	0.13
Cash & Equivalents	140,689,787	0.32	300,248,059	0.62
Total Fund	44,471,385,153	100.00	48,342,977,261	100.00

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	48,342,977,261	8.49	7.50	10.85	13.12	8.73	9.44	9.23	9.94	1/1/1982
Total Fund - Net		8.46	7.46	10.66	12.93	8.54	9.23	9.01		
Total Fund Benchmark		7.25	5.90	10.05	12.16	8.51	9.09	8.82		
Domestic Equity	20,796,727,666	12.82	11.32	16.12	19.50	12.43	13.10	13.60	11.81	1/1/1982
Domestic Equity - Net		12.80	11.28	15.92	19.29	12.22	12.88	13.34		
Blended Benchmark		12.17	9.74	15.68	19.02	13.20	13.95	14.03		
Russell 3000 Index		12.17	9.74	15.68	19.02	13.20	13.95	14.04	11.72	
U.S. Equity IMRF Custom Benchmark		12.25	10.19	12.71	16.08	11.13	12.56			
Large Cap Equity	16,970,577,881	12.20	9.91	19.38	22.86	14.18	14.35	14.43	11.57	1/1/1982
Large Cap Equity - Net		12.19	9.89	19.28	22.75	14.07	14.23	14.29		
Russell 1000 Index		11.78	9.08	16.06	19.41	13.66	14.23	14.27	11.87	
Large Cap Growth	8,534,469,384	10.81	8.18	41.08	45.26	24.87	20.05	17.38	12.74	1/1/1982
Large Cap Growth - Net		10.78	8.16	40.97	45.14	24.76	19.92	17.21		
LCG Blended Benchmark		10.24	6.50	32.40	36.40	21.47	19.56	17.31		
Russell 1000 Growth Index		10.24	6.50	32.40	36.40	21.47	19.56	17.31	11.85	
NTGI S&P 500 Growth	3,102,177,709	9.72	6.34	28.11	31.86	19.09	17.64	16.61	9.24	8/1/2001
NTGI S&P 500 Growth - Net		9.72	6.34	28.10	31.85	19.08	17.63	16.60		
S&P 500 Growth		9.70	6.32	28.24	32.00	19.14	17.67	16.62	9.22	
Xponance Russell 1000 G	1,843,149,237	10.23	6.50	32.39	36.38				21.26	10/1/2018
Xponance Russell 1000 G - Net		10.23	6.49	32.37	36.35				21.24	
Russell 1000 Growth Index		10.24	6.50	32.40	36.40				21.28	
Sands Capital	3,589,142,438	12.07	10.73	60.22	64.98	31.94	23.25	20.03	14.88	11/1/2003
Sands Capital - Net		12.02	10.68	59.92	64.67	31.66	22.98	19.77		
LCG Blended Benchmark		10.24	6.50	32.40	36.40	21.47	19.56	17.31	11.61	
Russell 1000 Growth Index		10.24	6.50	32.40	36.40	21.47	19.56	17.31	11.66	
Large Cap Value	4,687,129,818	14.61	12.83	-1.60	1.23	4.61	8.75	11.68	10.12	10/1/1982
Large Cap Value - Net		14.61	12.79	-1.74	1.08	4.45	8.57	11.50		
LCV Blended Benchmark		13.45	11.96	-1.00	1.72	5.25	8.44	10.93		
Russell 1000 Value Index		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	11.60	

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Dodge & Cox	1,408,389,861	17.49	15.41	2.93	6.37	6.86	10.80	12.59	9.42	9/1/2003
Dodge & Cox - Net		17.49	15.34	2.71	6.14	6.63	10.57	12.35		
LCV Blended Benchmark		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	8.10	
Russell 1000 Value Index		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	8.25	
BMO	853,224,847	12.43	11.18	-0.96	1.46	2.74	7.17	11.16	7.69	2/1/2001
BMO - Net		12.40	11.16	-1.00	1.36	2.57	6.97	10.94		
LCV Blended Benchmark		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	5.72	
Russell 1000 Value Index		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	6.65	
LSV Asset	1,179,967,526	15.13	13.96	-5.80	-3.43	2.46	7.73	11.60	10.21	2/1/2003
LSV Asset - Net		15.13	13.88	-6.05	-3.68	2.19	7.47	11.33		
LCV Blended Benchmark		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	8.96	
Russell 1000 Value Index		13.45	11.96	-1.00	1.72	5.25	8.44	10.93	8.97	
NTGI S&P 500 Value	1,245,547,585	12.85	10.59	-1.83	1.23	6.25	9.49	11.33	5.97	8/1/1999
NTGI S&P 500 Value - Net		12.85	10.58	-1.83	1.22	6.24	9.49	11.32		
S&P 500 Value		12.88	10.62	-2.07	0.99	6.15	9.39	11.24	5.93	
Large Cap Pass. Core	2,944,617,332	12.21	9.83	15.58	18.91	13.15	13.95	14.07	11.43	1/1/1985
Large Cap Pass. Core - Net		12.21	9.83	15.57	18.90	13.14	13.95	14.06		
Dow Jones US Total Stock Market Index		12.22	9.83	15.60	18.93	13.12	13.89	13.99		
NTGI MarketCap Idx.	2,944,617,332	12.21	9.83	15.58	18.91	13.15	13.95	14.07	11.22	2/1/1985
NTGI MarketCap Idx. - Net		12.21	9.83	15.57	18.90	13.14	13.95	14.06		
Dow Jones US Total Stock Market Index		12.22	9.83	15.60	18.93	13.12	13.89	13.99		
Factor Diversity Strategies	804,361,347	11.66	9.79						8.78	8/18/2020
U.S. Large Cap FDP-GSAM	804,361,347	11.66	9.79						8.78	8/18/2020
U.S. Large Cap FDP-GSAM - Net		11.66	9.77						8.74	
Solactive GBS U.S. 1000 Index		11.80	9.20						8.87	
GSAM Active Beta US. Large Cap FDC Index		11.49	9.64						8.63	
Quantitative Factor Strategies	278,637,998	10.29	9.00	5.68	8.44				9.20	9/17/2019

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Quantitative US Equity - SciBeta	278,637,998	10.29	9.00	5.68	8.44				9.20	9/17/2019
Quantitative US Equity - SciBeta - Net		10.25	8.93	5.21	7.96				8.82	
SciBeta US Hi-Fctr-Intst Div Multi-Beta Multi-Strat Index		10.58	9.32	5.22	7.93				8.53	
Small Cap	2,872,219,671	18.30	21.84	6.48	9.28	6.39	8.92	10.94	11.98	7/1/1988
Small Cap Composite - Net		18.22	21.72	5.83	8.62	5.81	8.34	10.34		
Russell 2000 Index		18.43	20.91	10.41	13.59	7.09	10.25	11.13	9.54	
Small Cap Growth	1,004,782,633	18.78	20.00	24.90	27.04	16.65	13.58	13.77	13.44	7/1/1988
Small Cap Growth - Net		18.78	19.89	23.84	25.97	15.92	12.95	13.14		
Russell 2000 Growth Index		17.63	18.53	23.12	25.95	12.83	13.19	13.30	8.71	
Frontier Capital	798,569,745	19.22	20.03	29.28	30.84	21.57	17.48	14.54	13.85	8/1/1988
Frontier Capital - Net		19.22	19.89	27.90	29.45	20.63	16.67	13.81		
Russell 2000 Growth Index		17.63	18.53	23.12	25.95	12.83	13.19	13.30	8.79	
FIAM Small Cap	206,212,888	17.11	19.87	10.40	14.22	10.43	9.48	12.69	13.50	8/1/1988
FIAM Small Cap - Net		17.11	19.87	10.26	14.08	10.08	9.09	12.18		
Russell 2000 Index		18.43	20.91	10.41	13.59	7.09	10.25	11.13	9.60	
Russell 2000 Growth Index		17.63	18.53	23.12	25.95	12.83	13.19	13.30	8.79	
Small Cap Value	1,549,241,870	18.21	22.96	-1.49	1.26	1.06	7.01	9.80	11.31	9/1/1989
Small Cap Value - Net		18.09	22.83	-2.00	0.74	0.54	6.45	9.27		
Russell 2000 Value Index		19.31	23.57	-3.05	0.35	0.80	6.83	8.70	9.62	
Channing	262,530,394	19.99	25.23	8.36	11.62	3.54	8.05		10.23	7/1/2011
Channing - Net		19.85	25.08	7.83	11.07	3.02	7.51		9.63	
Russell 2000 Value Index		19.31	23.57	-3.05	0.35	0.80	6.83		7.91	
DFA Small Cap Val.	575,874,118	18.60	23.50	-4.47	-0.64	-1.10	4.87	8.99	11.14	2/1/1996
DFA Small Cap Val. - Net		18.48	23.37	-4.92	-1.11	-1.58	4.34	8.46		
Russell 2000 Value Index		19.31	23.57	-3.05	0.35	0.80	6.83	8.70	9.04	
Inv. Couns. Maryland	710,837,358	17.25	21.71	-2.31	-0.60	2.02	8.89	10.65	10.92	5/1/1999
Inv. Couns. Maryland - Net		17.14	21.59	-2.86	-1.16	1.48	8.29	10.13		
Russell 2000 Value Index		19.31	23.57	-3.05	0.35	0.80	6.83	8.70	8.53	

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Micro Cap	318,195,169	17.22	21.45	0.58	4.33	2.06	6.19	8.90	11.18	7/1/1984
Micro Cap - Net		17.06	21.29	0.07	3.80	1.53	5.59	8.22		
Russell Microcap Index		20.44	21.99	12.31	18.72	5.96	9.08	10.71		
DFA Micro Cap (9-10)	318,195,169	17.22	21.45	0.58	4.33	2.67	8.26	11.00	10.82	8/1/1987
DFA Micro Cap (9-10) - Net		17.06	21.29	0.07	3.80	2.16	7.72	10.45		
Russell 2000 Index		18.43	20.91	10.41	13.59	7.09	10.25	11.13	8.96	
Public Real Assets	675,292,117	7.47	7.08	-4.89	-0.54	4.93			5.42	8/1/2017
Public Real Assets - Net		7.36	6.97	-5.29	-0.95	4.47			4.97	
Public Real Assets Benchmark		8.51	7.52	-6.68	-2.33	3.13			3.46	
Brookfield	159,114,002	10.86	9.69	-9.73	-4.63	2.12			1.88	8/1/2017
Brookfield - Net		10.71	9.55	-10.22	-5.15	1.58			1.36	
Dow Jones Brookfield Global Infrastructure Composite Index		9.96	8.48	-9.43	-4.48	1.53			1.32	
Cohen & Steers	516,178,115	6.47	6.30	-2.68	1.30	6.22			7.09	8/1/2017
Cohen & Steers - Net		6.37	6.20	-3.04	0.93	5.79			6.67	
FTSE Global Core Infrastructure 50/50 Index (Net)		7.79	7.04	-5.32	-1.30	3.91			4.52	

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
International Equity	9,000,173,262	13.85	11.20	6.68	11.03	5.06	8.18	6.83	7.85	9/1/1986
International Equity - Net		13.74	11.07	6.28	10.61	4.71	7.82	6.48		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16		
International Equity IMRF Custom Benchmark		13.31	11.05	5.37	10.09	3.84	7.43			
Intl LargeCap Equity	6,902,734,020	14.72	11.40	5.69	9.68	4.54	7.61	6.76	7.81	9/1/1986
Intl LargeCap Equity - Net		14.60	11.27	5.36	9.34	4.26	7.31	6.47		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16		
Intl Large Cap Grwth	1,559,815,227	13.93	12.29	16.04	21.14	7.90	10.31	7.57	9.04	9/1/2002
Intl Large Cap Grwth - Net		13.85	12.20	15.69	20.76	7.63	10.01	7.23		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	7.40	
MSCI AC World ex USA Growth (Net)		10.17	8.23	16.10	20.92	8.93	10.54	7.18	8.29	
EARNEST Part. Intl	506,354,848	19.89	18.41	0.52	5.39	1.77	7.27	5.06	8.64	10/1/2004
EARNEST Part. Intl - Net		19.83	18.29	0.26	5.12	1.58	7.07	4.77		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	6.11	
MSCI AC World ex USA Growth (Net)		10.17	8.23	16.10	20.92	8.93	10.54	7.18	7.50	
William Blair	1,053,460,379	11.27	9.57	25.79	30.89	11.86	12.04	9.49	10.78	10/1/2002
William Blair - Net		11.18	9.48	25.36	30.45	11.47	11.65	9.09		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	8.10	
MSCI AC World ex USA Growth (Net)		10.17	8.23	16.10	20.92	8.93	10.54	7.18	8.88	
Intl Large Cap Val.	1,193,173,705	17.33	13.69	-4.66	-0.62	0.93	4.76	4.90	8.24	10/1/1995
Intl Large Cap Val. - Net		17.27	13.60	-4.96	-0.92	0.61	4.40	4.54		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	5.40	
MSCI AC World ex USA Value		17.13	14.12	-5.49	-1.19	-0.84	4.67	3.61		
Brandes Investment	502,410,918	19.67	14.64	-7.39	-3.65	-0.05	3.79	4.75	8.23	1/1/1996
Brandes Investment - Net		19.67	14.57	-7.59	-3.86	-0.27	3.56	4.51		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	5.31	
MSCI AC World ex USA Value		17.13	14.12	-5.49	-1.19	-0.84	4.67	3.61		

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Mondrian	562,408,450	15.59	13.30	-3.42	0.89	1.47	5.46		5.05	4/1/2012
Mondrian - Net		15.47	13.18	-3.83	0.47	1.01	4.96		4.54	
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38		5.55	
MSCI AC World ex USA Value		17.13	14.12	-5.49	-1.19	-0.84	4.67		3.65	
Lazard	128,354,336	14.40	11.04	3.76	8.21	3.83	6.56		6.58	4/1/2012
Lazard - Net		14.33	10.97	3.50	7.94	3.57	6.20		6.08	
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38		5.55	
MSCI AC World ex USA Value		17.13	14.12	-5.49	-1.19	-0.84	4.67		3.65	
Intl Large Cap Active Core	2,153,609,235	13.24	9.88	7.63	11.64	5.42	8.74	8.16	5.48	2/1/2008
Intl Large Cap Active Core - Net		12.95	9.60	6.95	10.94	4.90	8.19	7.61		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	2.96	
Arrowstreet Capital	855,125,340	15.98	13.21	12.73	17.82	7.79	10.44	8.96	6.12	3/1/2008
Arrowstreet Capital - Net		15.85	13.08	12.21	17.28	7.29	9.93	8.45	5.62	
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	2.75	
Brown Capital	592,936,864	10.99	6.89	20.78	22.99	10.49	9.62	9.81	8.89	10/1/2004
Brown Capital - Net		10.25	6.18	19.76	21.95	9.98	8.86	8.99		
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	6.11	
GlobeFlex Capital	704,526,360	11.97	8.58	-1.30	2.31	0.07	6.18	6.52	4.66	3/1/2006
GlobeFlex Capital - Net		11.86	8.48	-1.73	1.87	-0.34	5.76	6.09	4.22	
MSCI AC World ex USA (Net)		13.45	11.01	4.98	9.52	3.82	7.38	5.16	4.14	
Progress Intl Equity	900,950									
Intl Large Cap Passive Core	1,996,135,853	15.00	10.61	3.34	6.53	3.60	6.55	6.24	4.04	2/1/2000
Intl Large Cap Passive Core - Net		15.00	10.61	3.34	6.52	3.59	6.54	6.24		
MSCI EAFE Index (Net)		15.50	10.89	3.03	6.37	3.26	6.19	5.85	3.65	
NTGI MSCI EAFE	1,996,135,853	15.00	10.61	3.34	6.53	3.60	6.55	6.24	4.03	2/1/2000
NTGI MSCI EAFE - Net		15.00	10.61	3.34	6.52	3.59	6.54	6.24		
MSCI EAFE Index (Net)		15.50	10.89	3.03	6.37	3.26	6.19	5.85	3.65	

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Intl All Cap Developed	147,654,825	11.10	5.90	-0.67	1.98				7.63	2/1/2019
Intl All Cap Developed - Net		11.10	5.78	-1.15	1.48				7.15	
MSCI EAFE + Canada (Net)		15.34	10.81	2.91	6.19				9.27	
Ativo International	147,654,825	11.10	5.90	-0.67	1.98				7.63	2/1/2019
Ativo International - Net		11.10	5.78	-1.15	1.48				7.15	
MSCI EAFE + Canada (Net)		15.34	10.81	2.91	6.19				9.27	
Intl Small Cap Eqty	597,901,993	11.91	9.01	14.75	20.23	6.80	9.54	8.90	5.90	12/1/2005
Intl Small Cap Eqty - Net		11.78	8.81	13.88	19.24	6.00	8.72	8.10		
MSCI AC World ex USA Small Cap (Net)		13.84	10.81	6.78	12.04	3.29	7.92	6.24	6.39	
Custom Benchmark (Intl Small Cap)		13.84	10.81	6.78	12.04	3.29	7.92	6.63	5.71	
Franklin Templeton	218,294,796	12.29	9.52	5.55	10.30	3.39	7.92		6.71	8/1/2011
Franklin Templeton - Net		12.29	9.32	4.76	9.29	2.62	7.13		5.94	
MSCI AC World ex USA Small Cap (Net)		13.84	10.81	6.78	12.04	3.29	7.92		5.45	
William Blair IntSC	379,607,197	11.70	8.72	20.80	26.80	8.98	10.45	9.78	10.94	9/1/2010
William Blair IntSC - Net		11.49	8.52	19.88	25.83	8.15	9.61	8.93	10.09	
MSCI AC World ex USA Small Cap (Net)		13.84	10.81	6.78	12.04	3.29	7.92	6.24	7.38	
Custom Benchmark (Intl Small Cap)		13.84	10.81	6.78	12.04	3.29	7.92	6.63	7.67	
Emerging Mkt Equity	1,351,882,425	10.66	11.78	9.52	16.00	7.99	12.35	5.79	9.29	2/1/1992
Emerging Mkt Equity - Net		10.61	11.68	8.88	15.32	7.37	11.68	5.18		
MSCI Emerging Markets Index		9.25	11.52	10.51	18.83	5.31	11.13	3.97	7.33	
Genesis Asset Mngrs.	1,351,882,425	10.66	11.78	9.52	16.00	7.99	12.35	5.79	11.42	5/1/2004
Genesis Asset Mngrs. - Net		10.61	11.68	8.88	15.32	7.37	11.68	5.18		
MSCI Emerging Markets Index		9.25	11.52	10.51	18.83	5.31	11.13	3.97	9.18	

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	12,173,471,460	1.55	1.15	7.27	7.54	5.61	5.06	4.57	8.19	1/1/1982
Fixed Income - Net		1.54	1.13	7.17	7.42	5.48	4.92	4.42		
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	7.68	
Fixed Income IMRF Custom Benchmark		1.30	0.95	6.91	7.11	5.41	4.62			
Active Fixed Core	3,800,903,589	1.06	0.52	7.88	7.56	5.56	4.62	4.24	4.76	4/1/2001
ActiveCore Fixed Inc - Net		1.05	0.49	7.77	7.46	5.47	4.50	4.09		
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.75	
Brandes FI Core	383,296,470	0.66	-0.03	7.57	7.50	5.10			3.84	3/1/2016
Brandes FI Core - Net		0.66	-0.03	7.57	7.50	5.10			3.84	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45			4.19	
EARNEST Partners	1,044,794,615	0.84	0.30	7.11	6.75	5.47	4.40	4.23	4.78	5/1/2005
EARNEST Partners - Net		0.84	0.27	6.97	6.61	5.33	4.24	4.05	4.59	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.41	
Xponance Yield Advantage Agg.	1,122,214,274	1.54	0.91	8.18	7.87	5.50	4.75	4.19	4.63	6/1/2005
Xponance Yield Advantage Agg. - Net		1.54	0.88	8.04	7.73	5.36	4.60	4.04	4.45	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.36	
Garcia Hamilton	1,118,378,429	0.88	0.50	8.11	7.75	5.72	4.76		4.34	6/1/2015
Garcia Hamilton - Net		0.86	0.48	8.02	7.67	5.63	4.66		4.25	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34		3.91	
Ramirez Asset Management	132,219,801	1.44	0.66						5.64	5/1/2020
Ramirez Asset Management - Net		1.44	0.62						5.56	
Blmbg. Barc. U.S. Aggregate		0.98	0.53						2.26	
Pass. Core Fixed Inc	3,808,160,267	1.00	0.55	7.47	7.39	5.53	4.40	3.76	5.99	1/1/1990
Pass. Core Fixed Inc - Net		1.00	0.55	7.46	7.38	5.52	4.40	3.75		
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	5.97	
BlackRock US Debt I	1,864,708,035	1.00	0.56	7.52	7.44	5.56	4.45		4.08	10/1/2013
BlackRock US Debt I - Net		1.00	0.56	7.51	7.44	5.55	4.44		4.08	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34		3.95	

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
NTGI Blmbg Agg.	1,943,452,233	1.01	0.55	7.42	7.34	5.50	4.36	3.74	6.04	2/1/1990
NTGI Blmbg Agg. - Net		1.01	0.55	7.42	7.33	5.49	4.36	3.73		
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	6.03	
Core Plus Fixed Income	2,988,188,944	2.02	1.72	9.12	9.46	6.28	5.45	4.82	8.10	1/1/1982
Core Plus Fixed Inc. - Net		1.99	1.69	8.93	9.26	6.09	5.27	4.63		
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	7.68	
LM Capital Group FI	981,955,966	1.68	1.57	10.05	10.37	6.20	5.15	4.60	5.24	5/1/2005
LM Capital Group FI - Net		1.68	1.52	9.88	10.19	6.03	4.98	4.44	5.07	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.41	
Progress Inv. FI	3,723									
BMO - TCH	669,413,536	1.67	1.32	8.15	8.34	5.83	5.77	5.03	5.26	5/1/2005
BMO - TCH - Net		1.63	1.28	8.00	8.19	5.68	5.63	4.89	5.13	
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.41	
Western Asset	1,151,444,273	2.57	2.14	8.84	9.55	6.66	6.01	5.30	5.76	11/1/2001
Western Asset - Net		2.54	2.11	8.70	9.40	6.54	5.88	5.17		
Blmbg. Barc. U.S. Aggregate		0.98	0.53	7.36	7.28	5.45	4.34	3.71	4.51	
Longfellow Core Plus	185,371,446	1.63	1.44						5.16	5/1/2020
Longfellow Core Plus - Net		1.63	1.44						5.12	
Blmbg. Barc. U.S. Aggregate		0.98	0.53						2.26	
Bank Loans	551,789,286	2.73	3.00	0.41	2.29	3.34	4.92		4.07	8/1/2014
Bank Loans - Net		2.73	3.00	0.41	2.29	3.08	4.52		3.64	
Custom Benchmark		2.28	2.48	1.82	3.33	3.95	4.89		3.93	
Barings Global Loan Fund	551,789,286	2.73	3.00	0.41	2.29	3.34	4.92		4.07	8/1/2014
Barings Global Loan Fund - Net		2.73	3.00	0.41	2.29	3.08	4.52		3.64	
Custom Benchmark		2.28	2.48	1.82	3.33	3.95	4.89		3.93	
Emerging Markets Debt	229,923,868	5.60	6.03	1.93	5.52	3.44	6.36		3.32	8/1/2014
Emerging Markets Debt - Net		5.51	5.94	1.59	5.16	3.09	5.99		2.97	
Custom Benchmark		4.54	4.77	2.28	5.08	4.00	6.14		2.81	

Benchmark definitions in glossary.

Periods Ended November 30, 2020

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Standish-Mellon EMD	229,923,868	5.60	6.03	1.93	5.52	3.44	6.36		3.32	8/1/2014
Standish EM MRK - Net		5.51	5.94	1.59	5.16	3.09	5.99		2.97	
Custom Benchmark		4.54	4.77	2.28	5.08	4.00	6.14		2.81	
High Yield	794,505,505	2.91	2.25	4.89	6.66	6.25	7.76	7.15	9.45	4/1/1986
High Yield - Net		2.91	2.25	4.64	6.32	5.90	7.39	6.78		
ICE BofAML US High Yield, Cash Pay Index		3.97	4.46	4.21	6.37	5.33	7.45	6.59	8.22	
MacKay Shields	794,461,571	2.91	2.25	4.90	6.68	6.25	7.96	7.33	8.72	11/1/2000
MacKay Shields - Net		2.91	2.25	4.65	6.33	5.90	7.59	6.97		
ICE BofAML US High Yield, Cash Pay Index		3.97	4.46	4.21	6.37	5.33	7.45	6.59	7.47	

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