

Wilshire



Wilshire Advisors

Monthly Performance Review

As of August 31, 2021

IMRF Commentary

- **The Illinois Municipal Retirement Fund (“IMRF”) ended August 2021 with a market value of \$56.3 billion, up for the month by approximately \$1.5 billion. IMRF returned +2.52% during the month, outperforming the Total Fund Benchmark which returned +1.42%. Total Fund outperformance was primarily driven by strong investment manager results across all underlying asset classes in the Portfolio.**
 - Year-to-date, IMRF has returned +14.43% versus its benchmark of +10.10%.
- **The U.S. Equity Portfolio outperformed the Russell 3000 Index during the month, returning +3.08% versus +2.85%. In aggregate, investment manager performance in Large Cap and Small Cap Growth outperformed the respective benchmarks, while Small Cap Value modestly underperformed during the month.**
 - Year-to-date; the U.S. Equity Portfolio has outperformed the benchmark, returning +21.08% versus +20.39%.
- **The Internally Managed Scientific Beta Portfolio outperformed the benchmark during August, returning +2.72% versus +2.40%. Since inception, the strategy has outperformed the benchmark, returning +17.67% versus +16.74%.**
- **The Internally Managed GSAM-Factor Diversity Portfolio modestly underperformed the benchmark during the month, returning +2.81% versus +2.97%.**
- **The Public Real Assets Portfolio outperformed its benchmark during the month, returning +2.03% versus +1.77%.**
- **The International Equity Portfolio outperformed the benchmark during August, returning +2.32% versus +1.90%. In aggregate, investment manager performance in Large Cap Growth, Large Cap Core, All Cap and Small Cap outperformed the respective benchmarks. Additionally, the Portfolio’s dedicated allocation to small cap stocks contributed to relative outperformance as the small cap market returned +2.31%, outperforming the broad market by +0.41%.**
 - Year-to-date, IMRF’s International Equity Portfolio continues to be very strong, returning +12.70% versus +9.40% for the benchmark.
- **The Fixed Income Portfolio outperformed the benchmark during the month, returning -0.03% versus -0.19%. Relative outperformance was primarily driven by strong active management as investment managers in Core, Core Plus, Emerging Markets and High Yield outperformed the respective benchmarks. Additionally, the Portfolio’s dedicated allocation to Bank Loans, Emerging Markets and High Yield added to relative outperformance during the month, as these markets outpaced the Bloomberg U.S. Aggregate Index.**
 - IMRF’s Fixed Income Portfolio has returned +0.31% versus -0.70% for the benchmark, year-to-date.
- **As of August month-end, Domestic Equity and International Equity were 5.2% and 4.2%, respectively, over their target. The current Statement of Investment Policy states that when actual allocations of the asset class differ by more than four percentage points from the policy target, a recommendation for rebalancing will be made to the Board of Trustees. At this time, IMRF is implementing the rebalancing recommendations approved by the Board at the August 2021 Meeting.**

Market Dashboard

Returns though Tuesday August 31, 2021

Portfolio Allocations	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Global 60/40	0.34	1.43	0.86	1.07	2.30	5.15	9.02	16.55	11.13	9.98
Wilshire Risk Parity (12%)	(0.16)	(0.04)	4.78	0.76	4.74	9.31	13.28	26.43	13.04	10.51

Strategic Allocation Themes *	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Growth ¹	0.56	2.50	0.69	1.32	3.21	7.39	15.91	28.64	14.34	14.29
Defensive Growth ²	0.41	2.04	0.69	1.60	2.75	4.77	10.12	20.81	13.89	12.84
Diversified Credit ³	0.28	0.71	0.34	0.94	1.05	3.11	2.84	7.54	6.61	5.43
Real Assets ⁴	0.25	0.60	3.66	0.70	4.28	9.98	18.24	25.65	11.00	7.32
Defensive ⁵	0.01	(0.19)	1.12	0.70	0.93	1.83	(0.69)	(0.08)	5.43	3.11

Major Asset Classes	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Wilshire 5000 Total Market	0.27	2.94	1.79	2.51	4.79	8.42	20.98	33.31	18.03	18.10
MSCI ACWI-ex-USA (Net)	0.99	1.90	(1.65)	(0.65)	0.22	5.48	9.40	24.87	9.37	9.92
Bloomberg Barclays U.S. Aggregate	0.01	(0.19)	1.12	0.70	0.93	1.83	(0.69)	(0.08)	5.43	3.11
Bloomberg Barclays U.S. Corporate High Yield	0.22	0.51	0.38	1.34	0.90	2.74	4.55	10.14	7.11	6.66
Wilshire Global Real Estate Securities	1.14	1.58	4.02	2.02	5.67	10.74	24.76	36.79	9.18	6.95
Bloomberg Commodity	(0.38)	(0.30)	1.84	1.85	1.54	13.30	23.01	31.00	5.82	4.17

Source: Bloomberg, All returns are in USD

* Strategic Allocations are comprised of the following asset mixes (rebalanced monthly)

¹ Growth : 100% Global Equity

² Defensive Growth : 60% Low Vol Global Equity, 40% US Convertibles

³ Diversified Credit : 42.5% U.S. High Yield, 42.5% EMD, 15% Banks Loans

⁴ Real Assets : 43% Global REITS/GLI, 33% Commodities, 48% TIPS, 9% Gold, -31% Cash

⁵ Defensive : 100% US Core Bonds

Market Returns

Returns though Tuesday August 31, 2021

US Equity	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Wilshire 5000 Total Market	0.27	2.94	1.79	2.51	4.79	8.42	20.98	33.31	18.03	18.10
Standard & Poor's 500	0.31	3.04	2.38	2.33	5.49	8.55	21.58	31.17	18.07	18.02
Wilshire 4500 Completion	(0.19)	2.45	(0.65)	2.68	1.79	6.83	18.18	47.10	17.21	17.97
Wilshire US Large Cap	0.30	2.85	2.13	2.53	5.05	8.42	20.06	30.17	16.72	16.37
Wilshire US Large-Cap Growth	0.73	3.72	2.99	5.30	6.81	11.72	21.50	30.99	22.25	22.48
Wilshire US Large-Cap Value	(0.27)	1.73	1.05	(0.78)	2.80	4.50	17.25	28.27	10.35	9.92
Wilshire US Small Cap	(0.30)	2.52	(2.63)	0.90	(0.18)	4.39	17.95	48.75	9.69	12.39
Wilshire US Small-Cap Growth	(0.27)	1.44	(1.98)	1.89	(0.57)	3.05	11.52	39.55	12.53	16.22
Wilshire US Small-Cap Value	(0.32)	2.95	(3.26)	0.10	(0.40)	5.75	23.92	55.21	6.32	8.13

Non-US Equity	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
MSCI ACWI-ex-USA (Net)	0.99	1.90	(1.65)	(0.65)	0.22	5.48	9.40	24.87	9.37	9.92
MSCI EAFE (Net)	0.31	1.76	0.75	(1.13)	2.53	5.17	11.58	26.12	9.00	9.72
MSCI EM (Net)	2.84	2.62	(6.73)	0.17	(4.29)	5.05	2.84	21.12	9.87	10.40
MSCI ACWI-ex-US Small cap (Net)	1.19	2.31	0.80	(0.62)	3.13	6.35	15.75	35.51	11.02	11.50

Global Equity	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
MSCI ACWI (Net)	0.56	2.50	0.69	1.32	3.21	7.39	15.91	28.64	14.34	14.29
MSCI ACWI Minimum Volatility (Net)	0.65	2.16	1.58	0.64	3.78	5.30	11.16	16.65	9.24	9.32

Fixed Income	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Bloomberg Barclays U.S. Aggregate	0.01	(0.19)	1.12	0.70	0.93	1.83	(0.69)	(0.08)	5.43	3.11
Bloomberg Barclays Long Term Treasury	(0.24)	(0.21)	3.65	3.57	3.43	6.46	(4.77)	(7.27)	9.18	3.57
Bloomberg Barclays U.S. TIPS	(0.24)	(0.18)	2.67	0.61	2.48	3.25	4.26	5.56	7.33	4.60
Bloomberg Barclays U.S. Corporate High Yield	0.22	0.51	0.38	1.34	0.90	2.74	4.55	10.14	7.11	6.66
Credit Suisse Leveraged Loan	0.09	0.49	(0.00)	0.41	0.48	1.44	3.98	8.50	4.10	4.69
ICE BofA US Convertible Index	0.05	1.85	(0.64)	3.04	1.20	3.92	8.19	26.68	20.79	18.03
JPM EMBI Global Diversified	0.39	0.98	0.42	0.73	1.40	4.06	0.73	4.59	6.93	4.41

Real Assets	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Wilshire Global Real Estate Securities	1.14	1.58	4.02	2.02	5.67	10.74	24.76	36.79	9.18	6.95
FTSE Global Core Infrastructure 50/50	0.43	2.28	1.34	(0.97)	3.65	3.09	11.41	19.73	9.71	9.01
Alerian Midstream Energy	(1.12)	(1.57)	(3.67)	3.42	(5.18)	16.39	33.39	43.44	1.87	2.59
Bloomberg Commodity	(0.38)	(0.30)	1.84	1.85	1.54	13.30	23.01	31.00	5.82	4.17
Gold	(0.22)	(0.03)	2.49	(7.17)	2.46	3.65	(4.46)	(7.84)	14.72	6.74
Bitcoin	(3.91)	15.53	17.65	(5.74)	35.92	(41.34)	62.12	302.52	88.27	141.49

Source: Bloomberg, All returns are in USD

Factor/Relative Returns

Returns though Tuesday August 31, 2021

Asset Class Differentials	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Stocks (ACWI) > Bonds (BB US Aggregate)	0.55	2.69	(0.43)	0.61	2.28	5.56	16.60	28.72	8.90	11.18
Stocks (ACWI) > Mkt Alts (Equity Hedged)	0.58	1.28	(0.05)	1.31	1.24	3.54	4.38	12.57	9.26	9.41
Mkt Alts (Relative Value) > Bonds (BB US Aggregate)	0.11	0.36	(1.19)	(0.77)	(0.82)	(0.79)	2.07	4.94	(2.20)	(0.54)

Equity & Real Assets Differentials	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
US Small > Large	(0.59)	(0.62)	(4.81)	(1.55)	(5.55)	(4.03)	(2.58)	17.59	(7.38)	(4.35)
US Value > Growth	(0.98)	(1.83)	(1.75)	(5.94)	(3.67)	(6.75)	(2.77)	(0.15)	(9.63)	(10.40)
ACWI-ex-US > US	0.72	(1.04)	(3.44)	(3.16)	(4.57)	(2.95)	(11.58)	(8.44)	(8.66)	(8.18)
EM > EAFE	2.53	0.85	(7.48)	1.30	(6.82)	(0.12)	(8.74)	(5.00)	0.87	0.68
ACWI-ex-US Currency Impact	0.24	(0.29)	(0.03)	(1.94)	(0.32)	0.73	(2.74)	0.25	0.59	0.10
EAFE Currency Impact	0.10	(0.48)	0.36	(2.50)	(0.12)	0.38	(4.16)	(1.48)	0.85	0.36
EM Currency Impact	0.64	0.36	(0.62)	(0.66)	(0.31)	1.22	(0.81)	2.85	(0.20)	(0.71)
Global Low Volatility > ACWI	0.09	(0.34)	0.89	(0.67)	0.57	(2.10)	(4.75)	(11.99)	(5.09)	(4.98)
Global RE > ACWI	0.58	(0.92)	3.33	0.71	2.46	3.35	8.86	8.15	(5.16)	(7.34)
Commodities > Global RE	(1.51)	(1.88)	(2.18)	(0.17)	(4.13)	2.56	(1.76)	(5.79)	(3.36)	(2.79)
Commodities > TIPS	(0.14)	(0.12)	(0.83)	1.25	(0.95)	10.06	18.75	25.45	(1.51)	(0.43)
Gold > Commodities	0.16	0.26	0.65	(9.02)	0.92	(9.65)	(27.47)	(38.84)	8.91	2.57

Fixed Income Differentials	WTD	MTD	JUL	JUN	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Duration (LT > Int Treasury)	(0.31)	(0.04)	2.87	3.65	2.82	5.84	(4.22)	(6.57)	5.15	1.43
IG Credit > Treasury	0.01	(0.13)	0.01	0.99	(0.12)	1.80	1.21	4.64	2.75	2.35
High Yield > IG Credit	0.21	0.82	(0.99)	(0.29)	(0.17)	(0.80)	4.76	7.62	(0.59)	1.88
High Yield > Loans	0.14	0.03	0.41	0.97	0.44	1.27	0.79	1.75	2.95	2.03
TIPS > Treasury	(0.28)	0.22	0.66	(0.25)	0.89	0.75	6.09	8.44	1.08	1.86
EMD > Dev Hdg	0.32	1.21	(1.19)	0.39	0.03	2.64	1.00	2.58	2.79	1.59
EMD > High Yield	(0.02)	0.46	(0.22)	(0.62)	0.24	0.25	(4.01)	(6.41)	(0.11)	(2.14)
Non-US > US Core	0.05	(0.42)	0.39	(2.72)	(0.04)	(0.91)	(2.88)	0.83	(1.78)	(1.30)
Non-US Hdg > US Core	(0.13)	(0.05)	0.24	(0.38)	0.18	(1.48)	0.23	1.24	(1.23)	(0.19)
FI Currency Impact	0.18	(0.37)	0.15	(2.34)	(0.23)	0.57	(3.11)	(0.41)	(0.55)	(1.11)

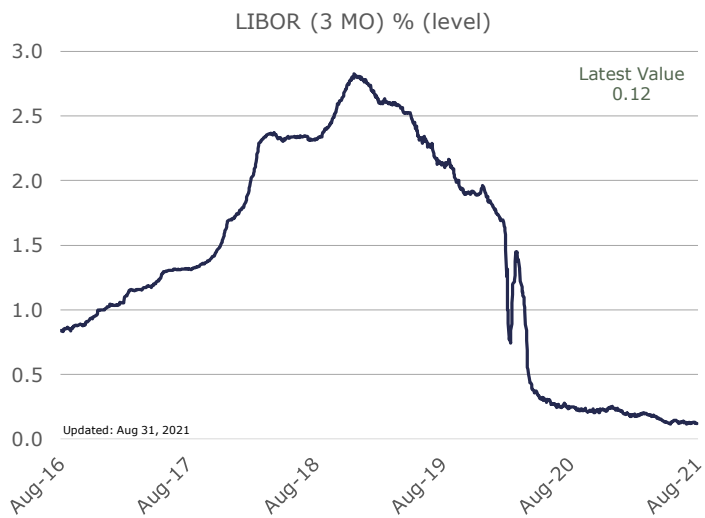
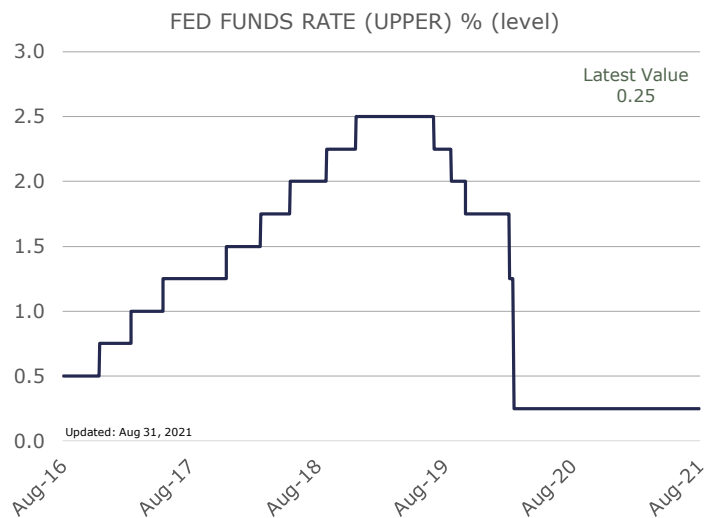
Source: Bloomberg, All returns are in USD

Market Yields & Breakeven Inflation

	08/31/21	Previous 3 Month-ends			Previous 2 Quarter-ends		EOY Prior	1 Yr Ago	3 Yrs Ago	5 Yrs Ago
Govt/Treasury Yields	08/31/21	07/30/21	06/30/21	05/31/21	06/30/21	03/31/21	12/31/20	08/31/20	08/31/18	08/31/16
Fed Funds Target Rate (Upper)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.00	0.50
2-Year Treasury	0.21	0.19	0.25	0.14	0.25	0.16	0.12	0.13	2.63	0.81
5-Year Treasury	0.78	0.69	0.89	0.80	0.89	0.94	0.36	0.27	2.74	1.20
10-Year Treasury	1.31	1.22	1.47	1.60	1.47	1.74	0.92	0.71	2.86	1.58
30-Year Treasury	1.93	1.89	2.09	2.28	2.09	2.41	1.65	1.48	3.02	2.23
10-Year Real Treasury	(1.03)	(1.18)	(0.88)	(0.86)	(0.88)	(0.63)	(1.09)	(1.10)	0.77	0.11
Term Spreads	08/31/21	07/30/21	06/30/21	05/31/21	06/30/21	03/31/21	12/31/20	08/31/20	08/31/18	08/31/16
5 - 2 Year Treasury Spread	0.57	0.50	0.64	0.65	0.64	0.78	0.24	0.13	0.11	0.39
10 - 5 Year Treasury Spread	0.53	0.53	0.58	0.79	0.58	0.80	0.55	0.44	0.12	0.38
10 - 2 Year Treasury Spread	1.10	1.03	1.22	1.45	1.22	1.58	0.79	0.57	0.23	0.77
30 - 10Year Treasury Spread	0.62	0.67	0.62	0.68	0.62	0.67	0.73	0.77	0.16	0.65
30 - 2Year Treasury Spread	1.72	1.70	1.84	2.14	1.84	2.25	1.52	1.34	0.39	1.42
Market Yields	08/31/21	07/30/21	06/30/21	05/31/21	06/30/21	03/31/21	12/31/20	08/31/20	08/31/18	08/31/16
Bloomberg Barclays U.S. Treasury YTW	0.86	0.81	0.95	0.91	0.95	1.00	0.57	0.49	2.75	1.26
Bloomberg Barclays U.S. Aggregate YTW	1.42	1.36	1.50	1.50	1.50	1.61	1.12	1.15	3.30	1.95
Bloomberg Barclays U.S. Long Treasury YTW	1.86	1.84	2.03	2.21	2.03	2.34	1.51	1.34	2.99	2.11
Bloomberg Barclays U.S. Long Govt/Credit YTW	2.52	2.48	2.66	2.87	2.66	3.02	2.28	2.34	3.93	3.24
Credit Spreads	08/31/21	07/30/21	06/30/21	05/31/21	06/30/21	03/31/21	12/31/20	08/31/20	08/31/18	08/31/16
Bloomberg Investment Grade OAS	0.87	0.86	0.80	0.84	0.80	0.91	0.96	1.29	1.14	1.35
Bloomberg High Yield OAS	2.88	2.94	2.68	2.96	2.68	3.10	3.60	4.77	3.38	4.90
Breakeven Inflation Rates	08/31/21	07/30/21	06/30/21	05/31/21	06/30/21	03/31/21	12/31/20	08/31/20	08/31/18	08/31/16
1-Year Breakeven Inflation	2.62	3.29	3.17	3.32	3.17	2.69	2.02	1.30	0.99	0.19
2-Year Breakeven Inflation	2.54	2.83	2.72	2.83	2.72	2.66	2.01	1.39	1.67	0.96
5-Year Breakeven Inflation	2.51	2.62	2.50	2.60	2.50	2.60	1.97	1.70	1.99	1.29
10-Year Breakeven Inflation	2.34	2.40	2.34	2.45	2.34	2.37	1.99	1.80	2.09	1.47
5-Year 5-Year Forward Breakeven Inflation	2.19	2.27	2.18	2.31	2.18	2.27	1.97	1.89	2.18	1.69

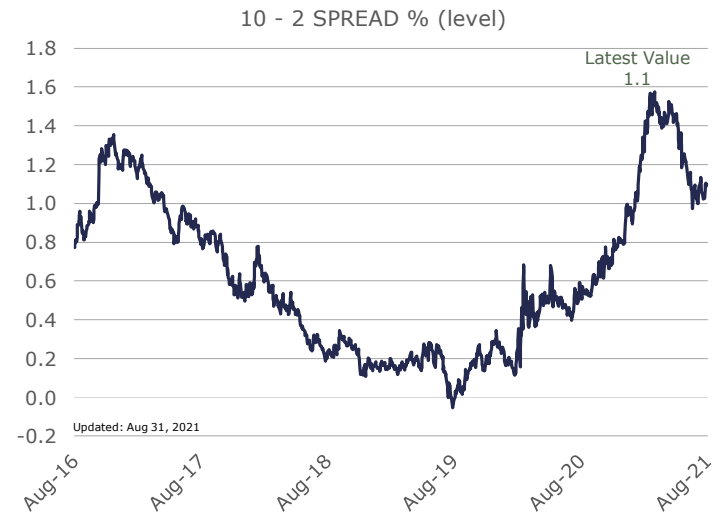
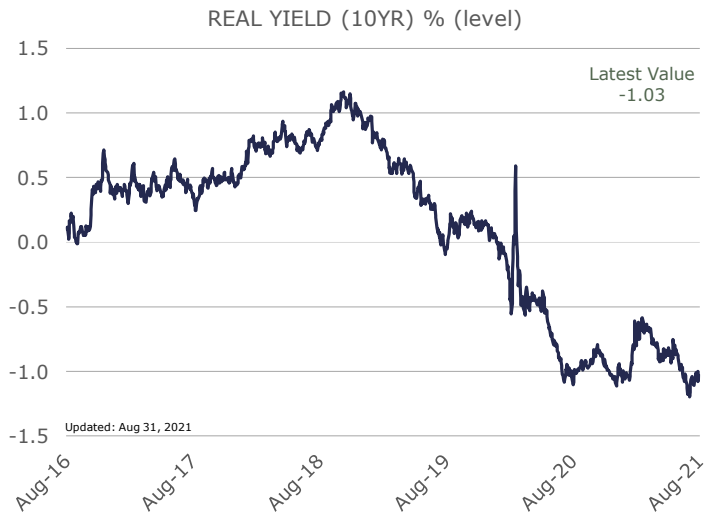
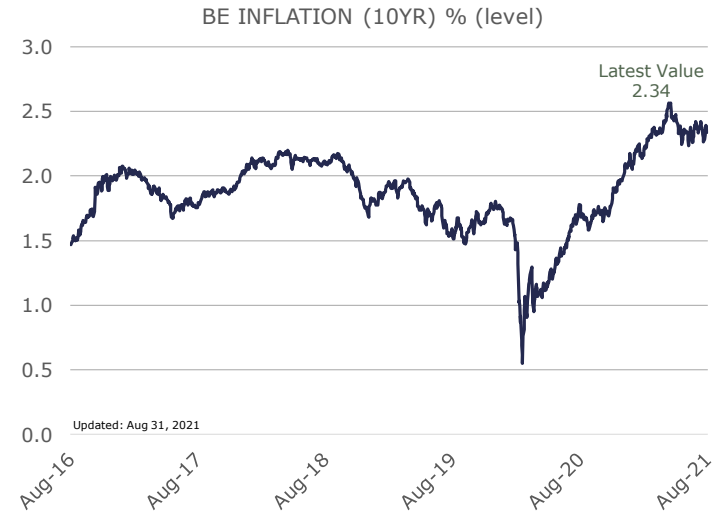
Source: Bloomberg

Short Rates



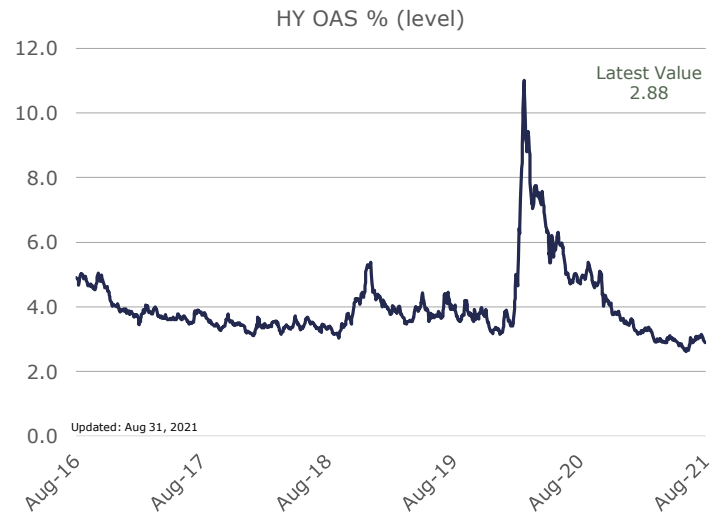
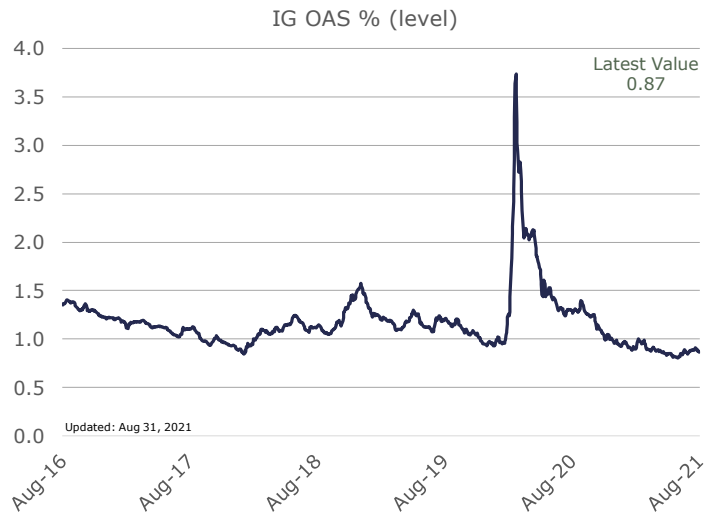
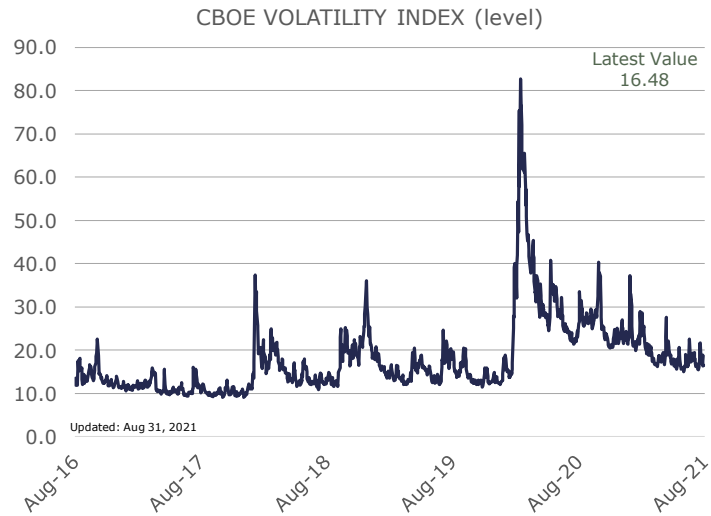
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Treasury Rates



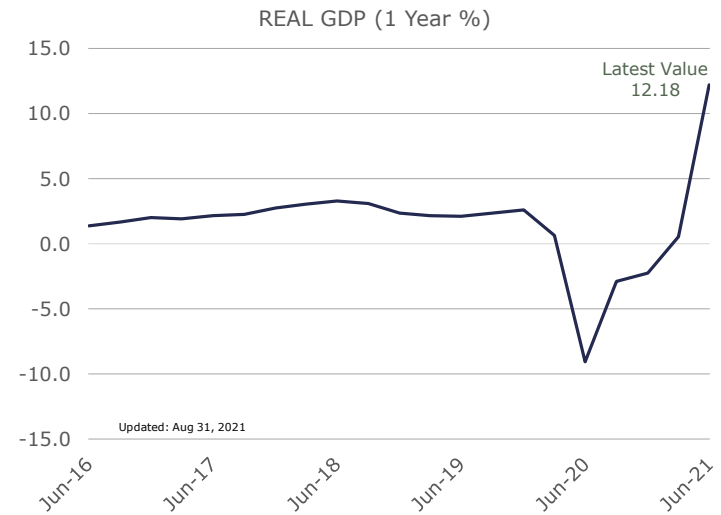
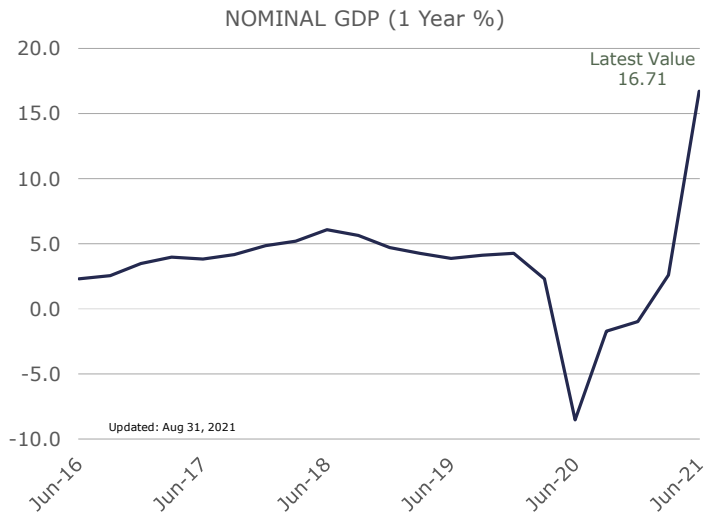
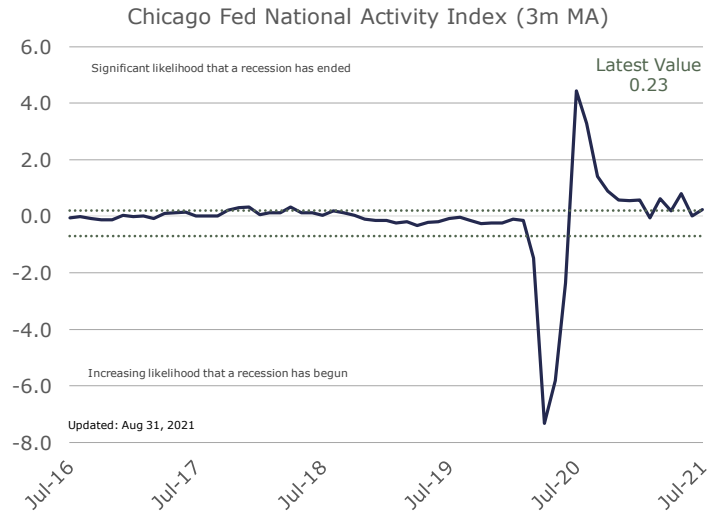
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Volatility & Credit Risk



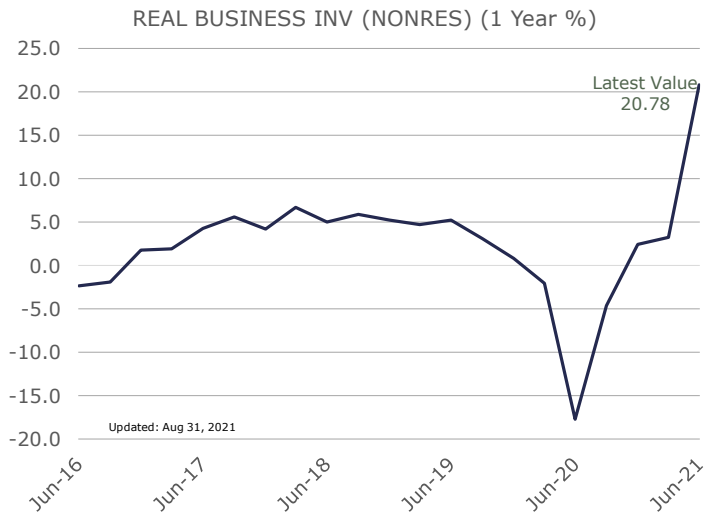
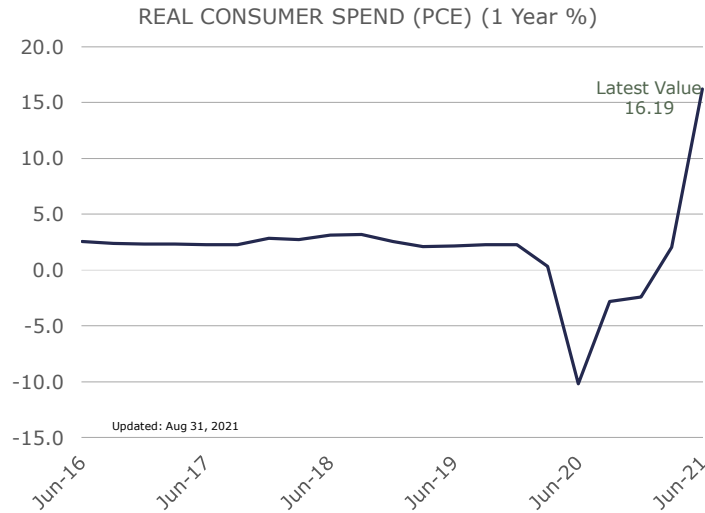
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Economic Growth



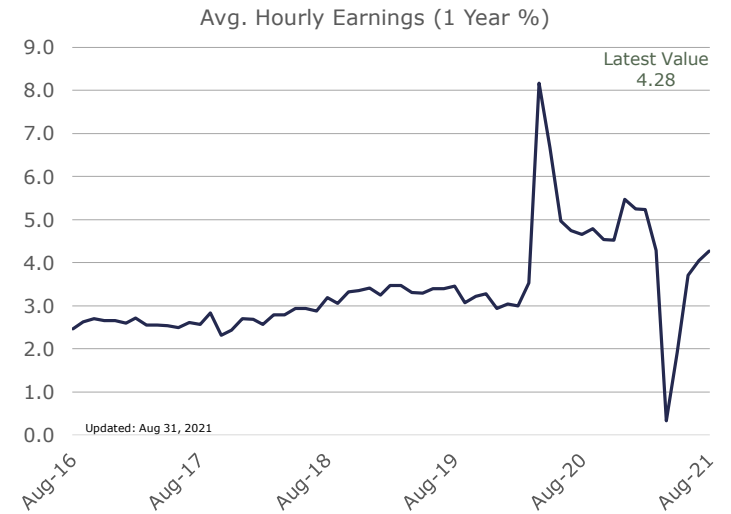
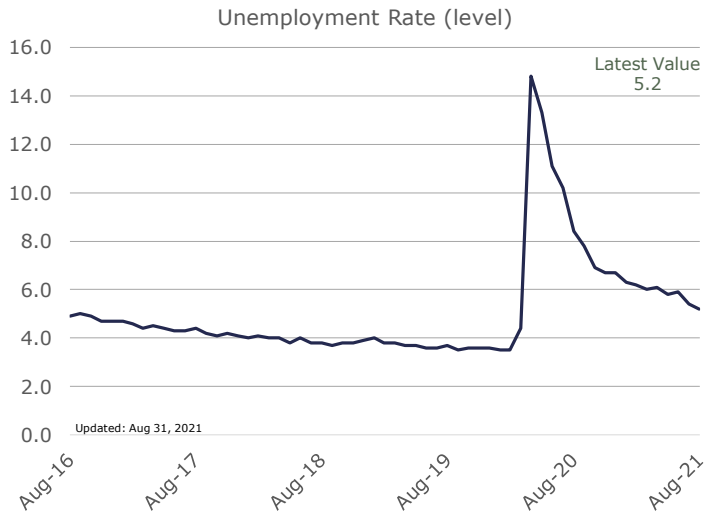
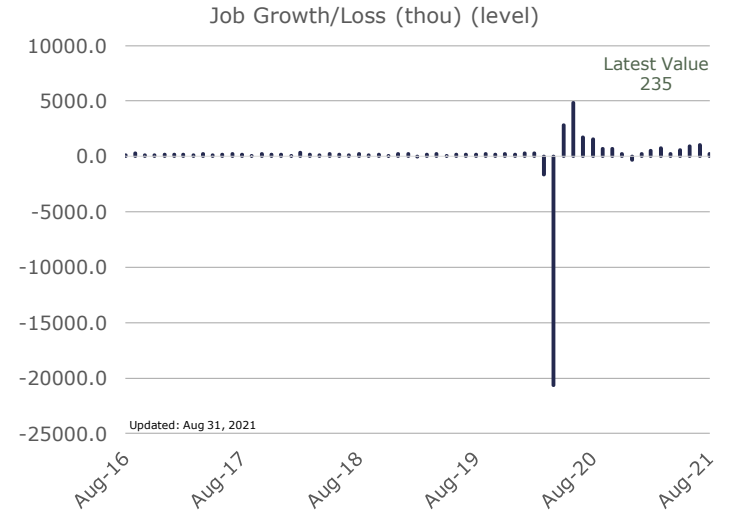
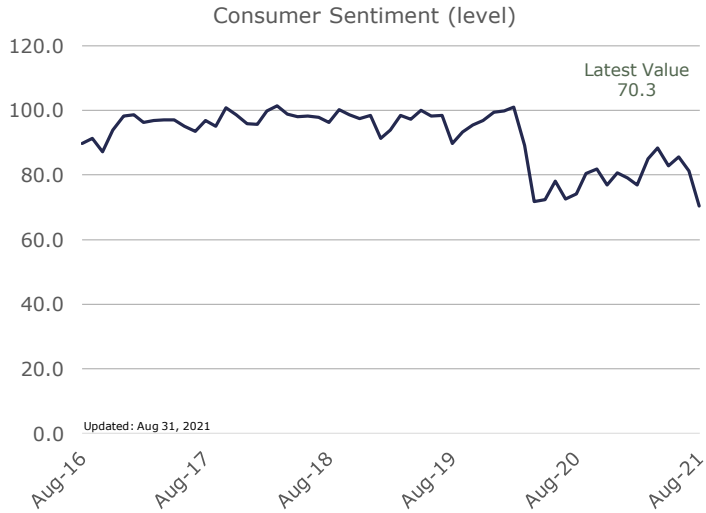
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Economic Growth



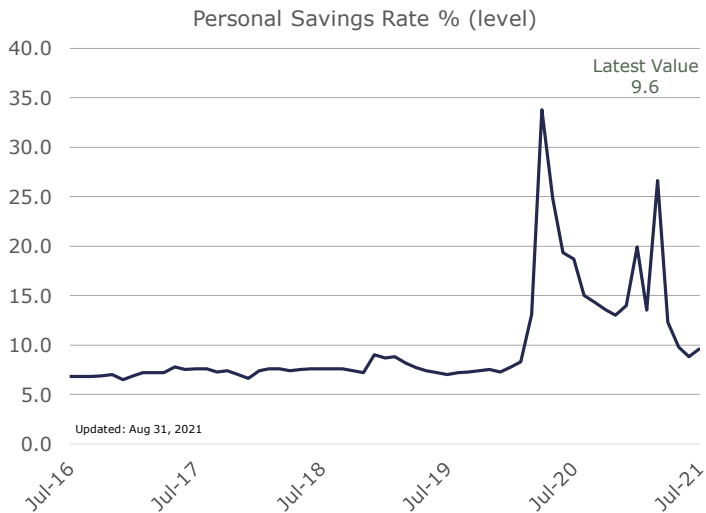
Data Sources: Bloomberg

Consumers & Employment



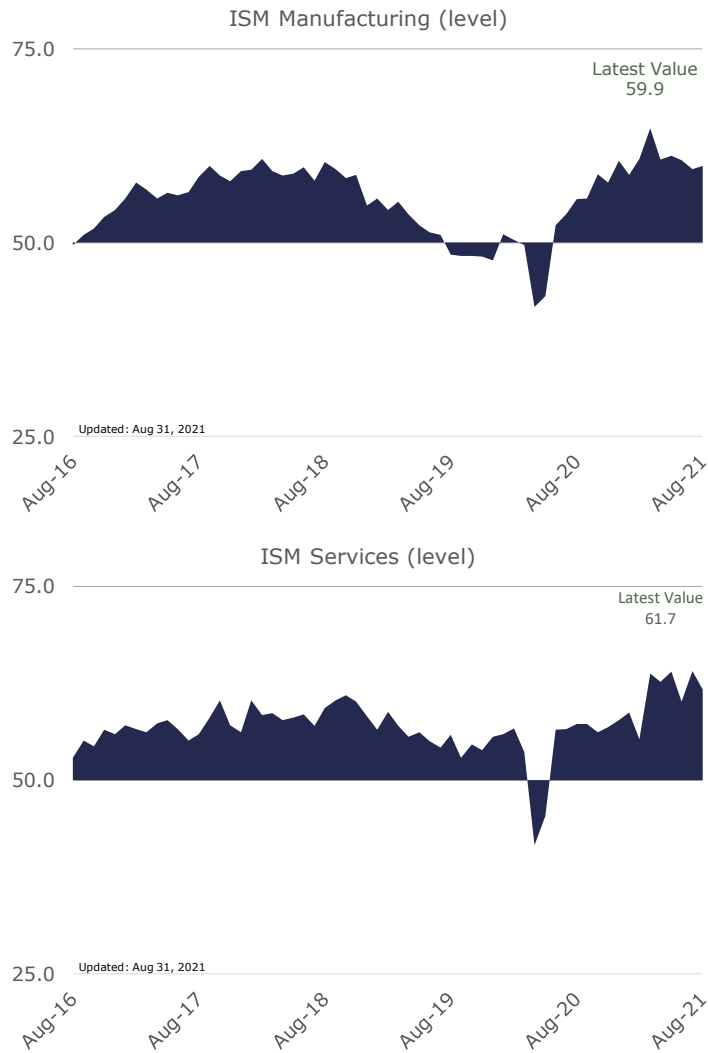
Data Sources: Bloomberg

Income & Spending



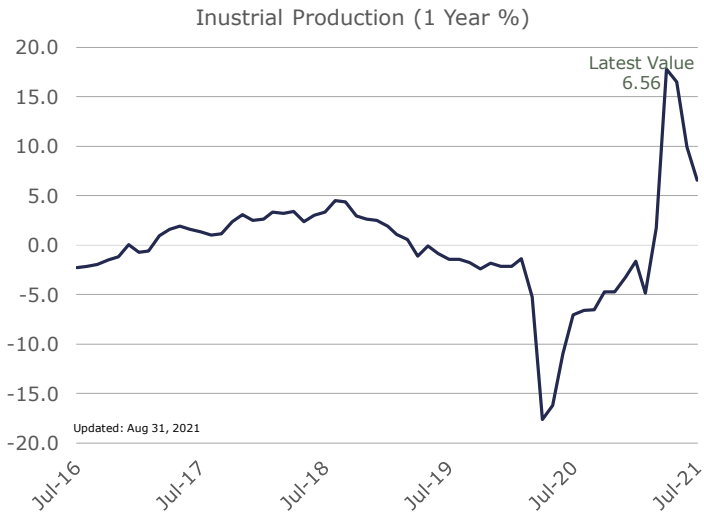
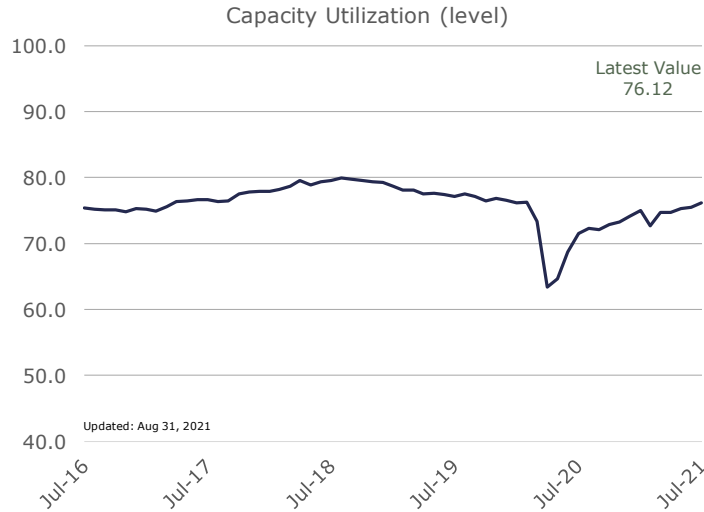
Data Sources: Bloomberg

ISM Surveys



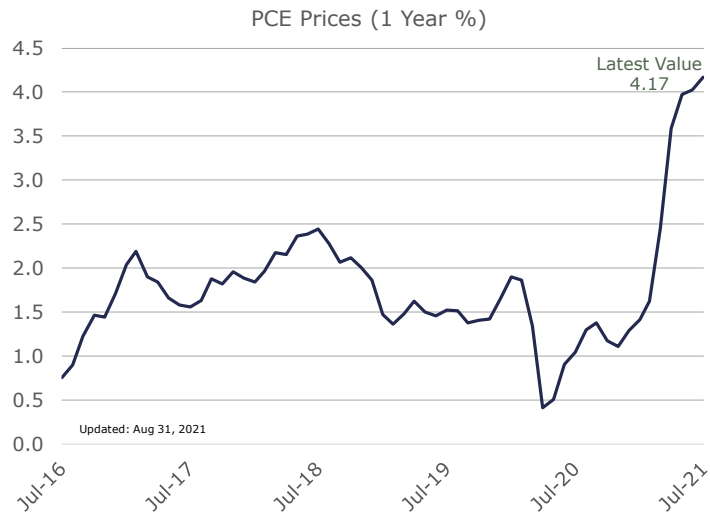
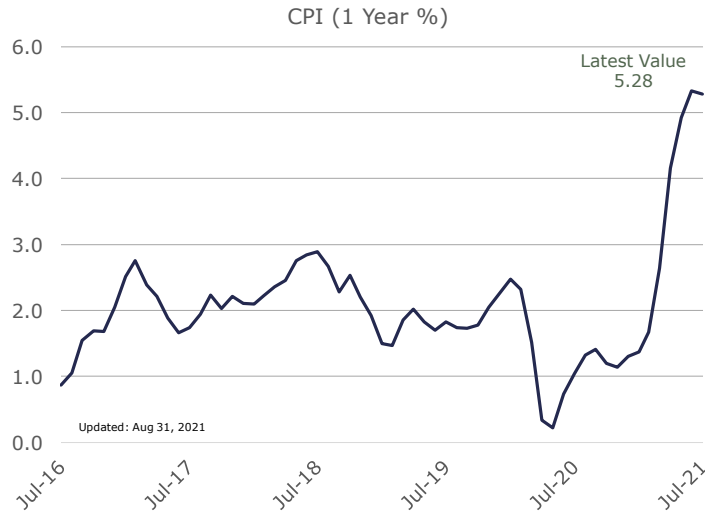
Data Source: Bloomberg

Manufacturing Activity



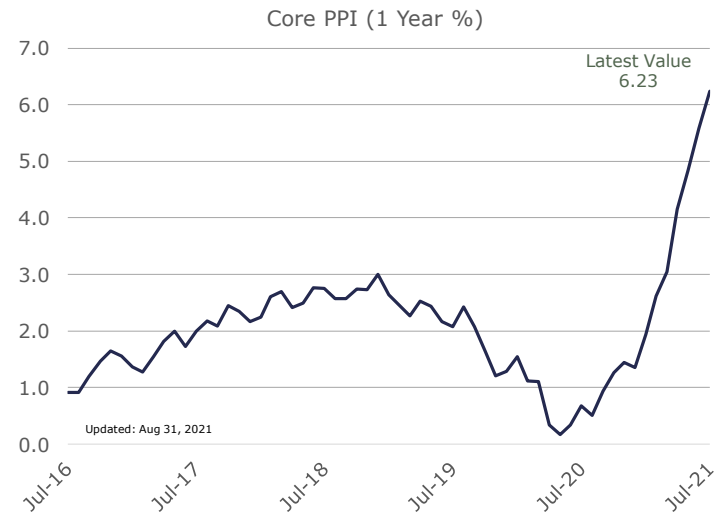
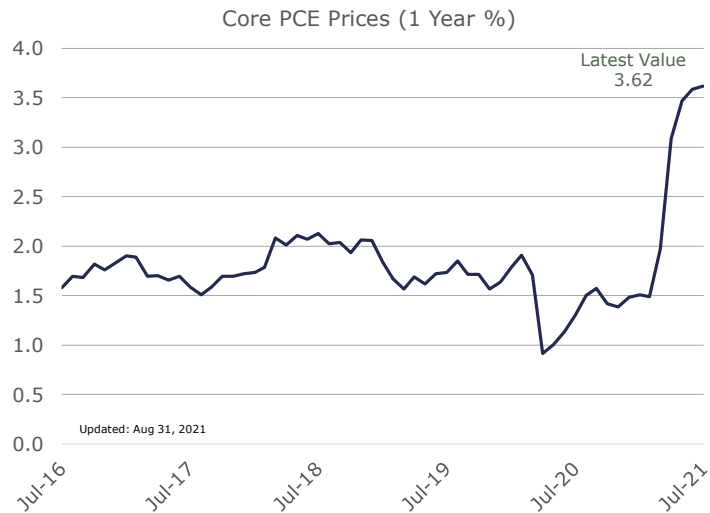
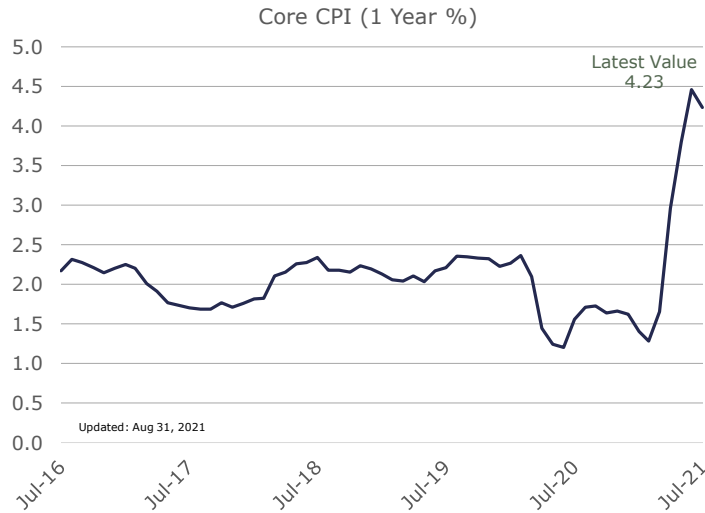
Data Sources: Bloomberg

Price Indexes



Data Sources: Bloomberg

Core Price Indexes



Data Sources: Bloomberg

U.S. Dollar



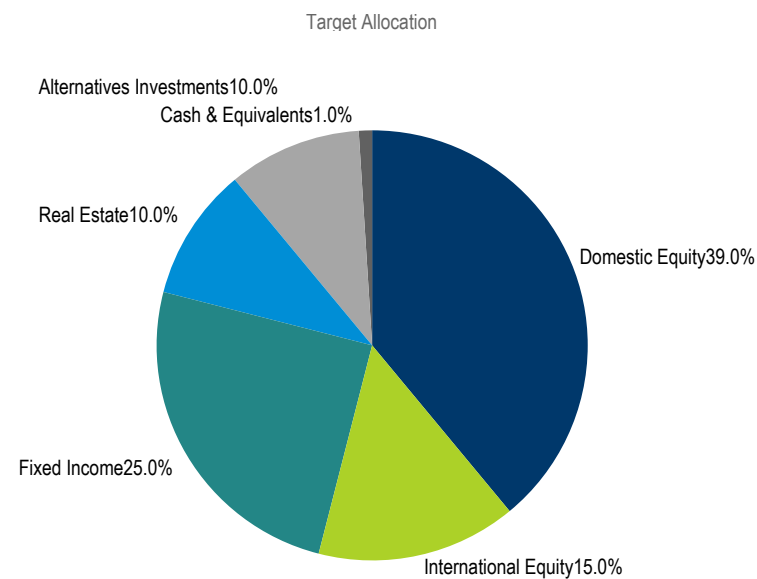
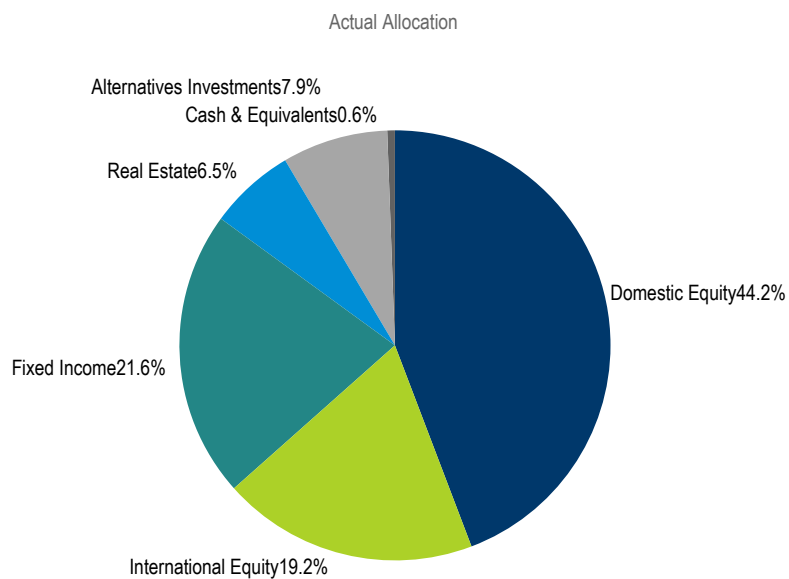
IMRF Performance

Wilshire Consulting

Asset Allocation

Total Fund

Periods Ended As of August 31, 2021



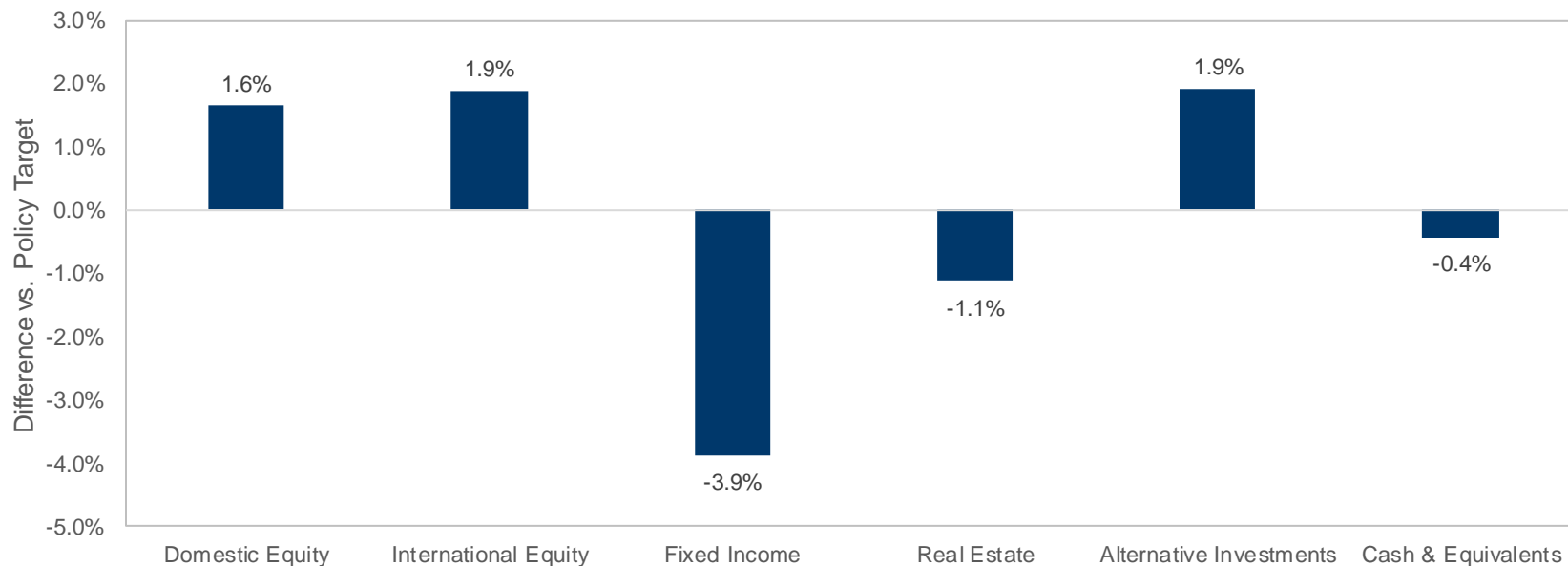
■ Domestic Equity
 ■ International Equity
 ■ Fixed Income
 ■ Real Estate
 ■ Alternatives Investments
 ■ Cash & Equivalents

	Actual Allocation \$Millions	Actual Allocation %	Target Allocation %	Differences %	Differences \$Millions
Total Fund	56,300	100.0	100.0	0.0	
Domestic Equity	24,898	44.2	39.0	5.2	2,941
International Equity	10,811	19.2	15.0	4.2	2,366
Fixed Income	12,164	21.6	25.0	-3.4	-1,911
Real Estate	3,639	6.5	10.0	-3.5	-1,991
Alternatives Investments	4,463	7.9	10.0	-2.1	-1,167
Cash & Equivalents	324	0.6	1.0	-0.4	-239

Projected Deviation From Benchmark

Period Ending August 31, 2021

Projected Asset Allocation Difference vs. Target



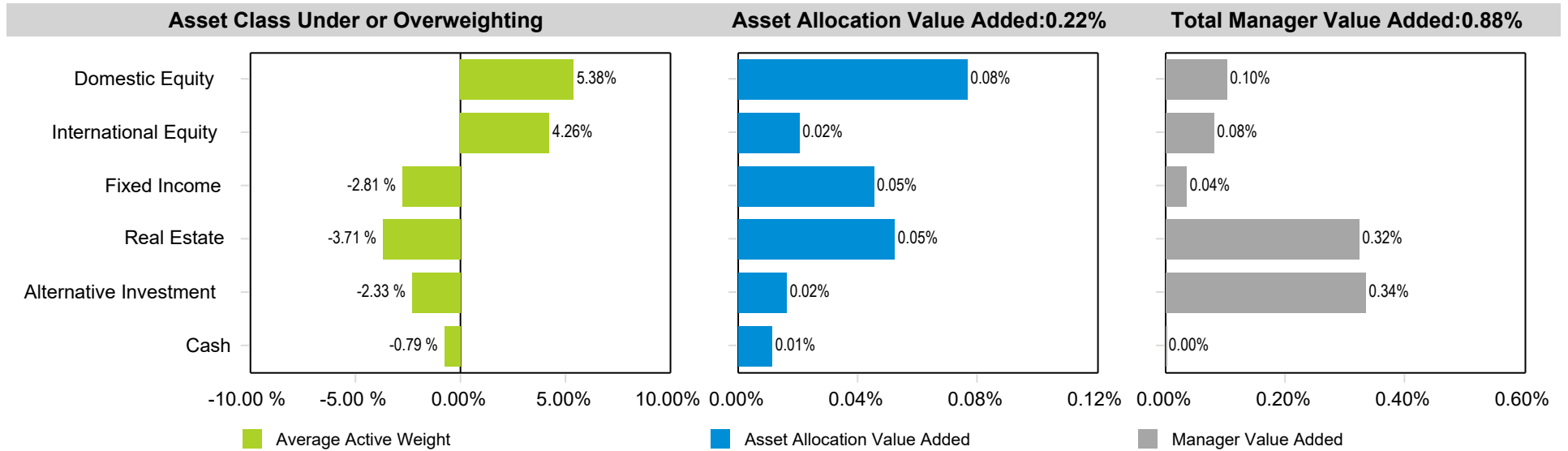
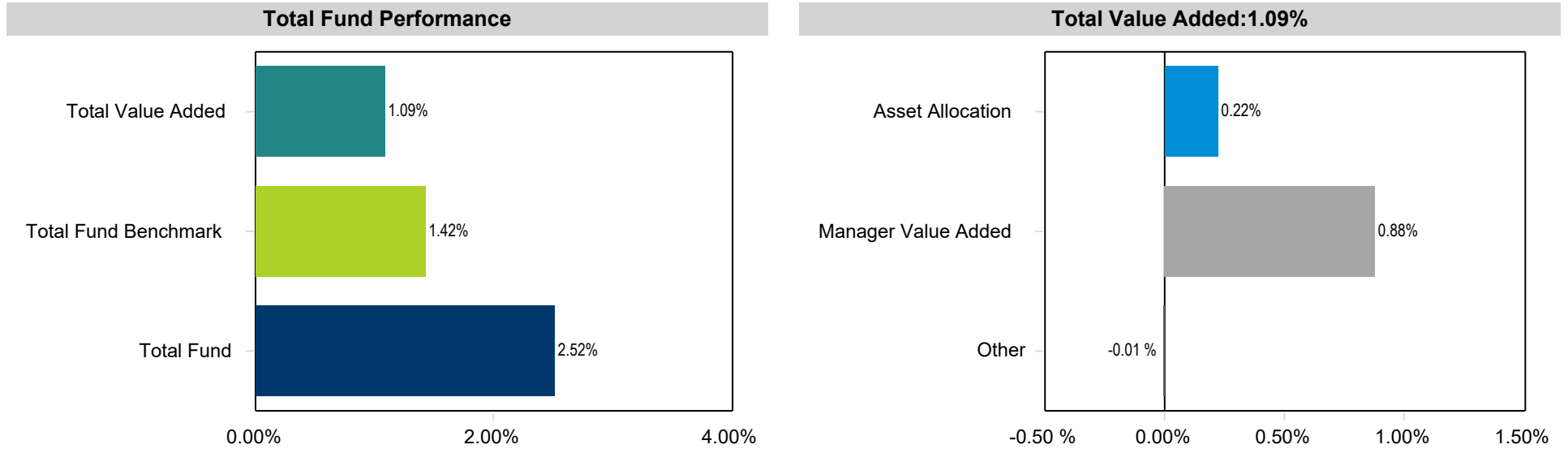
- Includes committed, but unfunded amounts for real estate (\$1.43 billion) and alternatives (\$2.23 billion). Assumes real estate and alternatives allocations are fully funded as of month’s end.
- Assumes that outstanding commitments are funded from a basket of public markets asset classes (domestic equity, international equity and/or fixed income) that best reflects the expectations of risk, yield and regional allocations of the asset class.

Private Equity Proxy: 60% domestic equity, 40% international equity
 Real Estate Proxy: 50% domestic equity, 30% international equity, 20% fixed income

Total Fund Attribution

Total Fund

1 Month Ending August 31, 2021



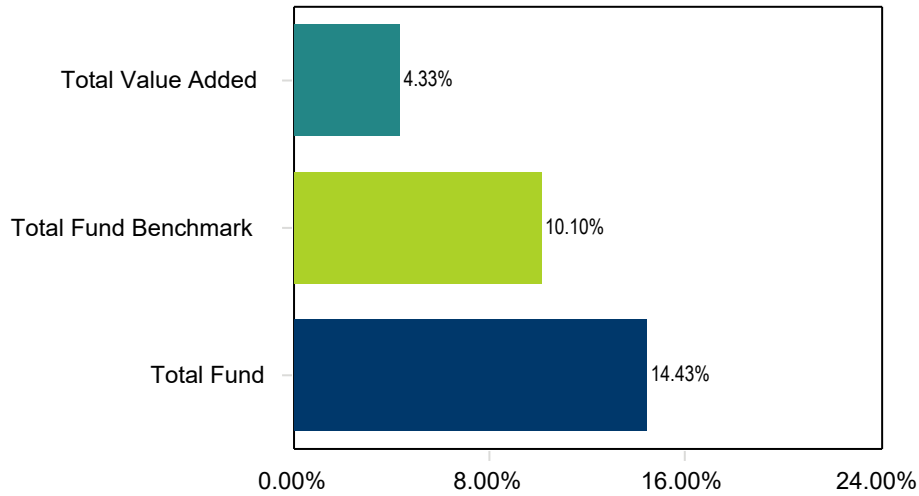
Total Fund Benchmark = 39.0% Russell 3000 Index, 25.0% Blmbg Aggregate, 15.0% MSCI ACWI ex US, 10.0% NCREIF NFI-ODCE Val Wt Nt, 10.0% 9% Annually and 1.0% 3-month Treasury Bill.

Total Fund Attribution

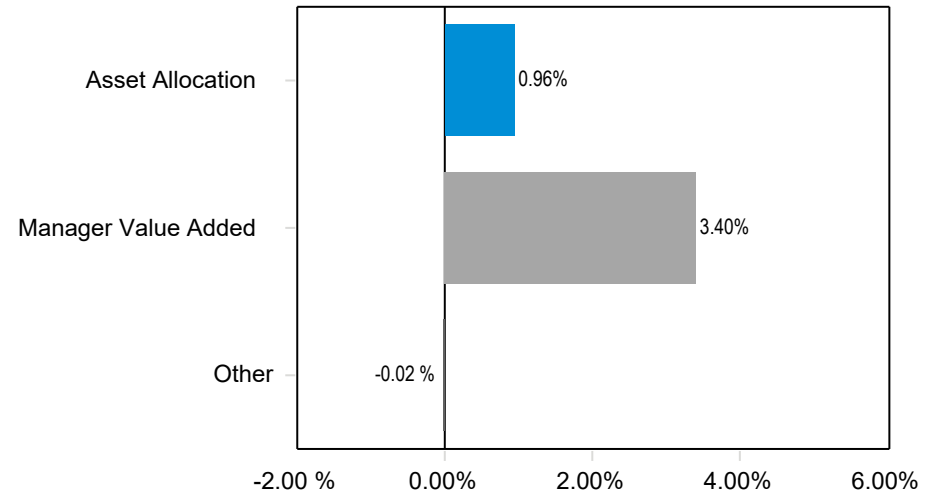
Total Fund

Year To Date Ending August 31, 2021

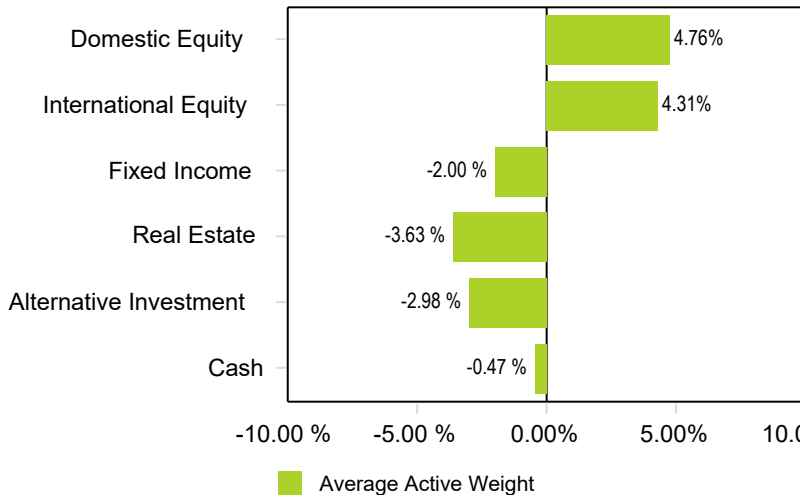
Total Fund Performance



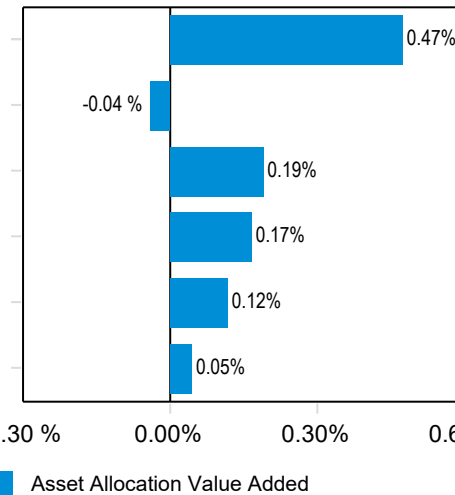
Total Value Added:4.33%



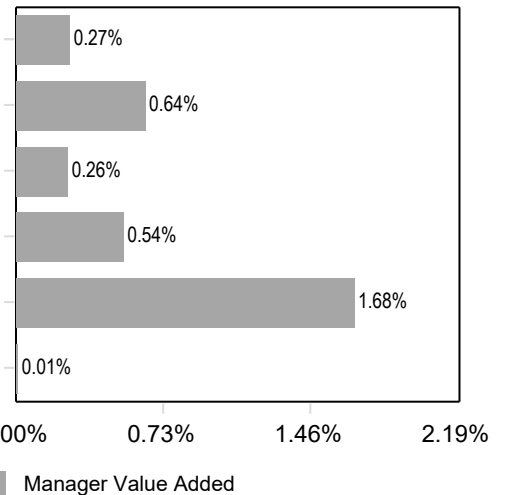
Asset Class Under or Overweighting



Asset Allocation Value Added:0.96%



Total Manager Value Added:3.40%



Total Fund Benchmark = 39.0% Russell 3000 Index, 25.0% Blmbg Aggregate, 15.0% MSCI ACWI ex US, 10.0% NCREIF NFI-ODCE Val Wt Nt, 10.0% 9% Annually and 1.0% 3-month Treasury Bill.

Asset Class Returns

Periods Ended August 31, 2021

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Total Fund	2.54	3.49	14.56	25.60	12.94	12.37	10.74	8.38	8.98	10.23	1/1/1982
Total Fund - Net	2.52	3.45	14.43	25.39	12.76	12.17	10.52				
Total Fund Benchmark	1.42	2.20	10.10	17.81	11.34	10.66	9.69				
Domestic Equity	3.10	4.50	21.23	37.32	17.25	17.95	16.03	9.98	11.19	12.25	1/1/1982
Domestic Equity - Net	3.08	4.46	21.08	37.09	17.04	17.73	15.78				
Blended Benchmark (U.S. Equity)	2.85	4.59	20.39	33.04	17.85	17.97	16.18	9.79	10.79		
U.S. Equity IMRF Custom Benchmark	2.97	4.44	20.26	33.57	16.11	16.52					
International Equity	2.37	1.82	12.96	31.45	11.78	11.74	8.67	7.91	8.01	8.25	9/1/1986
International Equity - Net	2.32	1.74	12.70	30.98	11.41	11.37	8.31				
MSCI AC World ex USA (Net)	1.90	0.22	9.40	24.87	9.37	9.92	6.57	6.73			
International Equity IMRF Custom Benchmark	2.00	0.30	9.40	25.39	9.46	10.04					
Fixed Income	-0.02	0.97	0.37	1.98	5.98	3.95	4.17	5.29	6.24	8.05	1/1/1982
Fixed Income - Net	-0.03	0.95	0.31	1.88	5.87	3.82	4.03				
Blmbg. U.S. Aggregate	-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.44	5.56	7.51	
Fixed Income IMRF Custom Benchmark	-0.09	0.90	-0.15	1.03	5.54	3.45					
Real Estate	5.16	7.11	14.08	16.91	10.18	9.85	10.81	7.77	5.56	5.80	5/1/1985
Real Estate - Net	5.16	7.09	14.03	16.84	10.13	9.82	10.79				
Blended Benchmark (Real Estate)	0.00	0.00	5.64	7.09	4.17	5.37	8.59	7.05	7.23	7.50	
Alternatives Investments	5.09	6.50	30.61	42.39	19.93	17.09	12.04	8.84	12.83	11.52	2/1/1986
Alternatives Investments - Net	5.09	6.50	30.59	42.35	19.87	16.98	11.81				
Alternatives Custom Benchmark	0.72	1.45	5.91	9.00	9.00	9.00	9.00	10.56	12.02	12.48	
Private Equity	5.79	7.43	36.29	50.34	23.75	20.89	14.47	10.60	15.61	13.85	2/1/1986
Alternatives Custom Benchmark	0.72	1.45	5.91	9.00	9.00	9.00	9.00	10.56	12.02	12.48	
Agriculture	-2.81	-2.83	-4.66	-4.43	-0.93	-2.27	7.72	6.81		6.45	10/1/1997
NCREIF Farmland Index	0.00	0.00	2.34	4.97	4.82	5.51	10.24	12.09		11.19	
Timberland	-0.68	-0.82	-8.12	-8.73	-1.80	-0.03	1.71	2.92		6.75	10/1/1992
NCREIF Timberland Index	0.00	0.00	2.47	3.10	2.12	2.65	4.66	5.78		8.22	

Benchmark definitions on next page.

Asset Class Returns

Periods Ended August 31, 2021

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Unlisted Infrastructure	2.86	2.86	9.70	18.85	12.12					12.77	4/1/2018
Alternatives Custom Benchmark	0.72	1.45	5.91	9.00	9.00					9.00	
Cash	0.21	0.50	1.48	1.85	2.82	2.40	1.31	1.47	3.06	3.75	7/1/1986
90 Day US Treasury Bill	0.00	0.01	0.03	0.07	1.23	1.16	0.61	1.30	2.48	3.15	

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	1/1/2021	Present	The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset class: 39% Russell 3000 Index, 25% Blmbg. Barc. U.S. Aggregate, 15% MSCI AC World ex USA (Net), 10% NCREIF Fund Index-ODCE (VW) (Net), 10% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.
	3/1/2018	12/31/2020	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.

Investment Manager Asset Allocation

Periods Ended August 31, 2021

	Jul-2021		Aug-2021	
	\$	%	\$	%
Domestic Equity	24,338,829,856	44.38	24,897,921,349	44.22
Large Cap Growth	9,413,085,044	17.16	9,793,641,647	17.40
NTGI S&P 500 Growth	3,830,016,284	6.98	3,989,892,292	7.09
Sands Capital	3,333,152,318	6.08	3,469,796,664	6.16
Xponance Russell 1000 G	2,249,916,442	4.10	2,333,952,692	4.15
Large Cap Value	4,808,325,238	8.77	4,924,516,813	8.75
Dodge & Cox	1,813,414,505	3.31	1,866,596,977	3.32
LSV Asset	1,484,102,163	2.71	1,520,812,352	2.70
NTGI S&P 500 Value	1,510,808,570	2.75	1,537,107,484	2.73
Large Cap Pass. Core	3,457,019,579	6.30	3,439,449,323	6.11
NTGI MarketCap Idx.	3,457,019,579	6.30	3,439,449,323	6.11
Factor Diversity Strategies	1,283,832,335	2.34	1,319,936,713	2.34
U.S. Large Cap FDP-GSAM	1,283,832,335	2.34	1,319,936,713	2.34
Quantitative Factor Strategies	1,232,319,450	2.25	1,266,000,235	2.25
Quantitative US Equity - SciBeta	1,232,319,450	2.25	1,266,000,235	2.25
Small Cap Growth	1,143,542,749	2.09	1,147,258,604	2.04
Frontier Capital	947,704,860	1.73	943,534,049	1.68
FIAM Small Cap	195,837,889	0.36	203,724,555	0.36
Small Cap Value	2,071,217,793	3.78	2,109,531,700	3.75
Channing	332,416,875	0.61	336,183,194	0.60
DFA Small Cap Val.	808,944,990	1.48	826,796,229	1.47
Inv. Couns. Maryland	929,855,928	1.70	946,552,277	1.68

Investment Manager Asset Allocation

Periods Ended August 31, 2021

	Jul-2021		Aug-2021	
	\$	%	\$	%
Micro Cap	169,770,110	0.31	121,734,787	0.22
DFA Micro Cap (9-10)	169,770,110	0.31	121,734,787	0.22
Public Real Assets	759,717,558	1.39	775,851,527	1.38
Brookfield	182,056,278	0.33	184,001,820	0.33
Cohen & Steers	577,661,280	1.05	591,849,707	1.05
International Equity	10,561,394,227	19.26	10,811,365,735	19.20
Intl Large Cap Growth	1,864,710,609	3.40	1,928,796,822	3.43
EARNEST Part. Intl	627,834,067	1.14	639,161,351	1.14
William Blair	1,236,876,542	2.26	1,289,635,472	2.29
Intl Large Cap Value	1,389,787,648	2.53	1,414,883,597	2.51
Brandes Investment	605,743,474	1.10	620,730,573	1.10
Mondrian	640,119,093	1.17	647,851,610	1.15
Lazard	143,925,081	0.26	146,301,414	0.26
Intl Large Cap Core	4,968,537,377	9.06	5,066,223,794	9.00
Arrowstreet Capital	1,111,676,661	2.03	1,128,015,717	2.00
Brown Capital	671,797,677	1.23	694,074,435	1.23
GlobeFlex Capital	884,264,711	1.61	902,339,666	1.60
Xponance Intl EQ	107,935,908	0.20	110,881,271	0.20
Progress Intl Equity	851,008	0.00	847,178	0.00
Transition Account	119,718	0.00	119,717	0.00
NTGI MSCI EAFE	2,191,891,695	4.00	2,229,945,811	3.96
Intl All Cap Developed	173,540,660	0.32	176,795,227	0.31
Ativo International	173,540,660	0.32	176,795,227	0.31

Investment Manager Asset Allocation

Periods Ended August 31, 2021

	Jul-2021		Aug-2021	
	\$	%	\$	%
International Small Cap	724,961,936	1.32	754,808,040	1.34
Franklin Templeton	261,365,944	0.48	266,191,148	0.47
William Blair IntSC	463,595,993	0.85	488,616,892	0.87
Emerging Mkt Equity	1,439,855,997	2.63	1,469,858,254	2.61
Genesis Asset Mngrs.	1,439,855,997	2.63	1,469,858,254	2.61

Investment Manager Asset Allocation

Periods Ended August 31, 2021

	Jul-2021		Aug-2021	
	\$	%	\$	%
Fixed Income	12,167,412,856	22.19	12,164,188,800	21.61
Domestic Fixed Core	3,872,014,622	7.06	3,865,727,047	6.87
Attucks Fixed Income	100,886,810	0.18	100,642,942	0.18
Brandes FI Core	377,915,055	0.69	377,797,249	0.67
EARNEST Partners	1,038,211,109	1.89	1,035,897,927	1.84
Garcia Hamilton	1,098,994,899	2.00	1,097,281,169	1.95
Ramirez Asset Management	134,406,783	0.25	134,145,341	0.24
Xponance Yield Advantage Agg.	1,121,599,967	2.05	1,119,962,419	1.99
Domestic Fixed Passive Core	3,694,659,160	6.74	3,687,934,768	6.55
NTGI Blmbg Agg.	1,836,448,848	3.35	1,833,100,986	3.26
BlackRock US Debt I	1,858,210,313	3.39	1,854,833,782	3.29
Domestic Fixed Core Plus	2,971,675,160	5.42	2,970,893,338	5.28
LM Capital Group FI	972,934,204	1.77	972,343,569	1.73
Progress Inv. FI	1,707	0.00	1,713	0.00
BMO - TCH	667,710,942	1.22	667,347,459	1.19
Western Asset	1,143,264,607	2.08	1,143,483,867	2.03
Longfellow Core Plus	187,763,701	0.34	187,716,731	0.33
Bank Loans	568,622,865	1.04	571,361,547	1.01
Barings Global Loan Fund	568,622,865	1.04	571,361,547	1.01
Emerging Markets Debt	232,360,920	0.42	234,526,230	0.42
Standish-Mellon EMD	232,360,920	0.42	234,526,230	0.42
High Yield	828,080,128	1.51	833,745,869	1.48
MacKay Shields	828,059,396	1.51	833,729,967	1.48
FIAM High Yield	20,733	0.00	15,903	0.00

Investment Manager Asset Allocation

Periods Ended August 31, 2021

	Jul-2021		Aug-2021	
	\$	%	\$	%
Real Estate	3,451,866,751	6.29	3,638,773,431	6.46
Real Estate Core Cmp	1,863,618,431	3.40	1,970,477,761	3.50
TA Assoc. Buckhead	659,233,580	1.20	756,018,917	1.34
Barings Euro Core Property	141,701,927	0.26	148,494,451	0.26
Blackstone Property Euro	158,713,394	0.29	164,273,821	0.29
INVESCO Core Real Estate	213,718,886	0.39	213,718,886	0.38
INVESCO European real estate	59,292,913	0.11	59,018,115	0.10
AEW Core Property Tr	245,120,642	0.45	243,116,484	0.43
CBRE Core Partners	229,724,994	0.42	229,724,994	0.41
JPM Strategic Property Fund	156,112,094	0.28	156,112,094	0.28
RE Non-Core Cmp	1,588,248,320	2.90	1,668,295,670	2.96
Artemis MWBE Spruce	241,681,714	0.44	275,427,336	0.49
Franklin T. EMREFF	6,865,209	0.01	6,865,209	0.01
Security Capital	69,640,085	0.13	69,640,085	0.12
Dune II	8,810,759	0.02	10,567,951	0.02
Non-Core Real Estate Funds	1,047,743,685	1.91	1,077,126,817	1.91
Non-Core Intl Real Estate	213,408,943	0.39	228,581,224	0.41
Almanac ARS V	97,925	0.00	87,048	0.00
Alternatives Investments	4,206,721,294	7.67	4,463,278,531	7.93
Absolute Return	112,300	0.00	116,135	0.00
Aurora Investment	112,300	0.00	116,135	0.00
Private Equity	3,645,201,462	6.65	3,896,060,074	6.92
Abbott S/A Comp.	496,513,891	0.91	487,787,277	0.87

Investment Manager Asset Allocation

Periods Ended August 31, 2021

	Jul-2021		Aug-2021	
	\$	%	\$	%
Muller Monroe MPEFF	522,930	0.00	522,930	0.00
Pantheon S/A Comp.	333,813,683	0.61	333,617,341	0.59
Private Equity Fund - Domestic	2,214,267,370	4.04	2,449,280,777	4.35
Private Equity Fund - International	531,008,164	0.97	549,651,849	0.98
Oakbrook Opportunities Fund	69,075,423	0.13	75,199,899	0.13
Private Credit	197,492,408	0.36	201,339,759	0.36
Private Credit Fund - Domestic	197,492,408	0.36	201,339,759	0.36
Agriculture	211,999,925	0.39	211,888,780	0.38
Premiere Partners IV	211,999,925	0.39	211,888,780	0.38
Timberland	67,372,317	0.12	66,915,390	0.12
Forest Investment	67,372,317	0.12	66,915,390	0.12
Unlisted Infrastructure	84,542,882	0.15	86,958,393	0.15
Unlisted Infrastructure Funds	84,542,882	0.15	86,958,393	0.15
Cash & Equivalents	113,617,449	0.21	324,316,743	0.58
Total Fund	54,839,842,433	100.00	56,299,844,590	100.00

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	56,299,844,590	2.54	3.49	14.56	25.60	12.94	12.37	10.74	10.23	1/1/1982
Total Fund - Net		2.52	3.45	14.43	25.39	12.76	12.17	10.52		
Total Fund Benchmark		1.42	2.20	10.10	17.81	11.34	10.66	9.69		
Domestic Equity	24,897,921,349	3.10	4.50	21.23	37.32	17.25	17.95	16.03	12.25	1/1/1982
Domestic Equity - Net		3.08	4.46	21.08	37.09	17.04	17.73	15.78		
Blended Benchmark		2.85	4.59	20.39	33.04	17.85	17.97	16.18		
Russell 3000 Index		2.85	4.59	20.39	33.04	17.85	17.97	16.20	12.13	
U.S. Equity IMRF Custom Benchmark		2.97	4.44	20.26	33.57	16.11	16.52			
Large Cap Equity	19,477,544,496	3.35	5.35	21.15	34.84	18.94	19.06	16.73	12.01	1/1/1982
Large Cap Equity - Net		3.34	5.33	21.07	34.73	18.84	18.94	16.59		
Russell 1000 Index		2.89	5.03	20.74	32.25	18.42	18.24	16.40	12.28	
Large Cap Growth	9,793,641,647	4.04	7.23	19.78	31.25	25.89	25.52	19.53	13.15	1/1/1982
Large Cap Growth - Net		4.02	7.21	19.71	31.14	25.78	25.40	19.37		
LCG Blended Benchmark		3.74	7.16	21.08	28.53	24.60	24.35	19.45		
Russell 1000 Growth Index		3.74	7.16	21.08	28.53	24.60	24.35	19.45	12.28	
NTGI S&P 500 Growth	3,989,892,292	4.17	8.11	23.58	30.39	22.92	22.65	18.85	10.25	8/1/2001
NTGI S&P 500 Growth - Net		4.17	8.11	23.58	30.38	22.91	22.65	18.84		
S&P 500 Growth		4.18	8.13	23.60	30.38	22.95	22.70	18.85	10.24	
Xponance Russell 1000 G	2,333,952,692	3.74	7.15	21.06	28.51				25.13	10/1/2018
Xponance Russell 1000 G - Net		3.74	7.15	21.05	28.49				25.10	
Russell 1000 Growth Index		3.74	7.16	21.08	28.53				25.15	
Sands Capital	3,469,796,664	4.10	6.29	15.30	32.80	29.62	29.39	21.78	15.55	11/1/2003
Sands Capital - Net		4.05	6.24	15.12	32.53	29.34	29.12	21.52		
LCG Blended Benchmark		3.74	7.16	21.08	28.53	24.60	24.35	19.45	12.58	
Russell 1000 Growth Index		3.74	7.16	21.08	28.53	24.60	24.35	19.45	12.62	
Large Cap Value	4,924,516,813	2.50	2.35	25.03	43.27	11.98	13.57	14.30	10.67	10/1/1982
Large Cap Value - Net		2.50	2.31	24.89	43.06	11.81	13.39	14.12		
LCV Blended Benchmark		1.98	2.80	20.32	36.44	11.45	11.68	13.03		
Russell 1000 Value Index		1.98	2.80	20.32	36.44	11.45	11.68	13.03	12.00	

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Dodge & Cox	1,866,596,977	3.01	2.44	29.22	50.49	14.28	16.28	15.68	10.82	9/1/2003
Dodge & Cox - Net		3.01	2.39	29.04	50.19	14.04	16.04	15.44		
LCV Blended Benchmark		1.98	2.80	20.32	36.44	11.45	11.68	13.03	9.09	
Russell 1000 Value Index		1.98	2.80	20.32	36.44	11.45	11.68	13.03	9.24	
LSV Asset	1,520,812,352	2.65	2.02	25.87	46.05	10.40	12.75	14.30	11.40	2/1/2003
LSV Asset - Net		2.65	1.96	25.65	45.69	10.13	12.48	14.02		
LCV Blended Benchmark		1.98	2.80	20.32	36.44	11.45	11.68	13.03	9.90	
Russell 1000 Value Index		1.98	2.80	20.32	36.44	11.45	11.68	13.03	9.90	
NTGI S&P 500 Value	1,537,107,484	1.74	2.56	19.23	33.17	12.16	12.47	13.35	6.77	8/1/1999
NTGI S&P 500 Value - Net		1.74	2.56	19.23	33.16	12.15	12.46	13.34		
S&P 500 Value		1.72	2.53	19.24	33.24	12.08	12.36	13.26	6.73	
Large Cap Pass. Core	3,439,449,323	2.86	4.63	20.61	33.31	17.85	18.00	16.23	11.89	1/1/1985
Large Cap Pass. Core - Net		2.86	4.63	20.60	33.30	17.84	17.99	16.22		
Dow Jones US Total Stock Market Index		2.86	4.63	20.61	33.32	17.83	17.95	16.16		
NTGI MarketCap Idx.	3,439,449,323	2.86	4.63	20.61	33.31	17.85	18.00	16.23	11.68	2/1/1985
NTGI MarketCap Idx. - Net		2.86	4.63	20.60	33.30	17.84	17.99	16.22		
Dow Jones US Total Stock Market Index		2.86	4.63	20.61	33.32	17.83	17.95	16.16		
Factor Diversity Strategies	1,319,936,713	2.81	5.09	20.20	33.06				33.51	8/18/2020
U.S. Large Cap FDP-GSAM	1,319,936,713	2.81	5.09	20.20	33.06				33.51	8/18/2020
U.S. Large Cap FDP-GSAM - Net		2.81	5.08	20.15	32.97				33.42	
Solactive GBS U.S. 1000 Index		2.97	5.18	20.79	32.57				33.84	
GSAM Active Beta US. Large Cap FDC Index		2.91	5.18	20.32	32.99				33.47	
Quantitative Factor Strategies	1,266,000,235	2.73	4.63	21.01	32.66				17.96	9/17/2019
Quantitative US Equity - SciBeta	1,266,000,235	2.73	4.63	21.01	32.66				17.96	9/17/2019
Quantitative US Equity - SciBeta - Net		2.72	4.61	20.95	32.47				17.67	
SciBeta US Hi-Fctr-Intst Div Multi-Beta Multi-Strat Index		2.40	4.06	19.50	31.73				16.74	

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Small Cap	3,378,525,091	2.06	0.14	23.27	58.18	12.07	14.88	14.17	12.66	7/1/1988
Small Cap Composite - Net		1.98	0.03	22.72	57.32	11.45	14.27	13.56		
Russell 2000 Index		2.24	-1.45	15.83	47.08	10.75	14.38	13.62	10.08	
Small Cap Growth	1,147,258,604	2.51	1.03	17.53	55.06	19.30	19.48	16.50	13.95	7/1/1988
Small Cap Growth - Net		2.51	0.90	16.71	53.83	18.44	18.74	15.83		
Russell 2000 Growth Index		1.82	-1.89	6.92	35.61	12.27	16.58	14.78	9.01	
Frontier Capital	943,534,049	2.20	0.38	17.10	56.19	20.12	23.29	17.50	14.34	8/1/1988
Frontier Capital - Net		2.20	0.25	16.22	54.84	19.03	22.36	16.75		
Russell 2000 Growth Index		1.82	-1.89	6.92	35.61	12.27	16.58	14.78	9.10	
FIAM Small Cap	203,724,555	4.03	4.24	19.58	51.31	15.14	15.63	15.39	14.05	8/1/1988
FIAM Small Cap - Net		4.03	4.13	19.08	50.68	14.78	15.21	14.87		
Russell 2000 Index		2.24	-1.45	15.83	47.08	10.75	14.38	13.62	10.13	
Russell 2000 Growth Index		1.82	-1.89	6.92	35.61	12.27	16.58	14.78	9.10	
Small Cap Value	2,109,531,700	1.85	-0.25	26.43	59.81	8.70	12.70	13.24	12.11	9/1/1989
Small Cap Value - Net		1.75	-0.35	26.06	59.19	8.18	12.14	12.69		
Russell 2000 Value Index		2.68	-1.00	25.43	59.49	8.41	11.66	12.14	10.43	
Channing	336,183,194	1.13	0.94	18.17	54.57	10.28	12.60	13.72	12.13	7/1/2011
Channing - Net		1.01	0.81	17.78	53.88	9.74	12.05	13.11	11.54	
Russell 2000 Value Index		2.68	-1.00	25.43	59.49	8.41	11.66	12.14	10.55	
DFA Small Cap Val.	826,796,229	2.21	-0.10	32.55	68.88	8.23	11.93	13.01	12.38	2/1/1996
DFA Small Cap Val. - Net		2.11	-0.20	32.15	68.19	7.73	11.38	12.47		
Russell 2000 Value Index		2.68	-1.00	25.43	59.49	8.41	11.66	12.14	10.06	
Inv. Couns. Maryland	946,552,277	1.80	-0.80	24.49	54.43	8.57	13.47	13.82	11.97	5/1/1999
Inv. Couns. Maryland - Net		1.70	-0.90	24.17	53.89	8.05	12.90	13.29		
Russell 2000 Value Index		2.68	-1.00	25.43	59.49	8.41	11.66	12.14	9.71	
Micro Cap	121,734,787	1.91	-0.52	26.04	59.39	9.20	12.63	12.62	11.88	7/1/1984
Micro Cap - Net		1.69	-0.74	25.42	58.39	8.60	11.99	11.92		
Russell Microcap Index		3.59	-2.13	26.27	60.65	12.10	15.82	14.41		

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
DFA Micro Cap (9-10)	121,734,787	1.91	-0.52	26.04	59.39	9.27	14.05	14.36	11.59	8/1/1987
DFA Micro Cap (9-10) - Net		1.69	-0.74	25.42	58.39	8.68	13.45	13.78		
Russell 2000 Index		2.24	-1.45	15.83	47.08	10.75	14.38	13.62	9.49	
Public Real Assets	775,851,527	2.12	3.51	13.50	20.85	9.72			8.01	8/1/2017
Public Real Assets - Net		2.03	3.41	13.17	20.38	9.25			7.56	
Public Real Assets Benchmark		1.77	2.83	12.57	19.61	8.15			6.07	
Brookfield	184,001,820	1.07	1.13	14.92	22.22	6.72			5.21	8/1/2017
Brookfield - Net		0.94	1.00	14.49	21.60	6.16			4.67	
Dow Jones Brookfield Global Infrastructure Composite Index		0.89	1.42	15.97	21.04	6.65			4.79	
Cohen & Steers	591,849,707	2.46	4.27	13.07	20.43	11.13			9.36	8/1/2017
Cohen & Steers - Net		2.37	4.18	12.77	20.01	10.70			8.94	
FTSE Global Core Infrastructure 50/50 Index (Net)		2.20	3.54	10.88	18.86	8.87			6.68	

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
International Equity	10,811,365,735	2.37	1.82	12.96	31.45	11.78	11.74	8.67	8.25	9/1/1986
International Equity - Net		2.32	1.74	12.70	30.98	11.41	11.37	8.31		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57		
International Equity IMRF Custom Benchmark		2.00	0.30	9.40	25.39	9.46	10.04			
Intl LargeCap Equity	8,409,904,214	2.27	2.59	14.79	33.18	11.53	11.67	8.73	8.24	9/1/1986
Intl LargeCap Equity - Net		2.23	2.53	14.60	32.79	11.23	11.37	8.43		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57		
Intl Large Cap Grwth	1,928,796,822	3.44	4.89	15.42	36.80	15.65	14.68	9.75	9.89	9/1/2002
Intl Large Cap Grwth - Net		3.38	4.82	15.18	36.40	15.36	14.37	9.41		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	7.90	
MSCI AC World ex USA Growth (Net)		2.26	0.71	7.27	21.13	13.28	12.54	8.35	8.64	
EARNEST Part. Intl	639,161,351	1.81	1.81	15.61	44.77	10.26	11.34	7.18	9.74	10/1/2004
EARNEST Part. Intl - Net		1.81	1.76	15.45	44.43	10.06	11.13	6.89		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	6.73	
MSCI AC World ex USA Growth (Net)		2.26	0.71	7.27	21.13	13.28	12.54	8.35	7.93	
William Blair	1,289,635,472	4.27	6.49	15.32	33.17	19.11	16.81	11.86	11.52	10/1/2002
William Blair - Net		4.18	6.40	15.05	32.74	18.71	16.41	11.46		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	8.58	
MSCI AC World ex USA Growth (Net)		2.26	0.71	7.27	21.13	13.28	12.54	8.35	9.21	
Intl Large Cap Val.	1,414,883,597	1.81	-0.01	12.51	30.12	6.88	7.80	6.72	8.70	10/1/1995
Intl Large Cap Val. - Net		1.80	-0.08	12.26	29.73	6.54	7.45	6.35		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	5.82	
MSCI AC World ex USA Value		1.55	-0.20	11.83	29.26	5.76	7.68	5.24		
Brandes Investment	620,730,573	2.48	0.93	16.95	36.33	6.16	7.88	7.01	8.87	1/1/1996
Brandes Investment - Net		2.48	0.88	16.77	36.03	5.93	7.63	6.76		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	5.73	
MSCI AC World ex USA Value		1.55	-0.20	11.83	29.26	5.76	7.68	5.24		

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Mondrian	647,851,610	1.21	-1.18	9.62	25.85	7.44	7.62		6.22	4/1/2012
Mondrian - Net		1.21	-1.28	9.31	25.35	6.98	7.13		5.72	
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92		6.70	
MSCI AC World ex USA Value		1.55	-0.20	11.83	29.26	5.76	7.68		5.19	
Lazard	146,301,414	1.65	1.31	7.70	24.23	9.35	9.21		7.53	4/1/2012
Lazard - Net		1.59	1.25	7.50	23.93	9.08	8.95		7.04	
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92		6.70	
MSCI AC World ex USA Value		1.55	-0.20	11.83	29.26	5.76	7.68		5.19	
Intl Large Cap Active Core	2,836,277,983	2.15	2.43	18.04	37.72	13.29	13.46	10.40	6.99	2/1/2008
Intl Large Cap Active Core - Net		2.05	2.34	17.73	37.00	12.74	12.89	9.85		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	3.88	
Arrowstreet Capital	1,128,015,717	1.47	0.25	20.30	47.56	17.79	16.28	11.76	7.96	3/1/2008
Arrowstreet Capital - Net		1.36	0.14	19.92	46.93	17.25	15.76	11.25	7.46	
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	3.69	
Brown Capital	694,074,435	3.32	6.69	13.21	26.63	14.10	13.54	11.46	9.50	10/1/2004
Brown Capital - Net		3.26	6.63	13.01	25.56	13.58	12.77	10.63		
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	6.73	
GlobeFlex Capital	902,339,666	2.04	1.99	20.11	36.85	9.09	10.85	8.74	6.11	3/1/2006
GlobeFlex Capital - Net		1.96	1.91	19.81	36.38	8.65	10.43	8.30	5.66	
MSCI AC World ex USA (Net)		1.90	0.22	9.40	24.87	9.37	9.92	6.57	4.90	
Xponance Intl EQ	110,881,271	2.73	3.16						15.60	2/1/2021
Xponance Intl EQ - Net		2.57	3.01						15.27	
MSCI EAFE Index (Net)		1.76	2.53						12.79	
Progress Intl Equity	847,178									
Intl Large Cap Passive Core	2,229,945,811	1.74	2.53	11.78	26.63	9.47	10.12	7.75	4.66	2/1/2000
Intl Large Cap Passive Core - Net		1.74	2.53	11.78	26.62	9.46	10.12	7.74		
MSCI EAFE Index (Net)		1.76	2.53	11.58	26.12	9.00	9.72	7.34	4.27	

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
NTGI MSCI EAFE	2,229,945,811	1.74	2.53	11.78	26.63	9.47	10.12	7.75	4.66	2/1/2000
NTGI MSCI EAFE - Net		1.74	2.53	11.78	26.62	9.46	10.12	7.74		
MSCI EAFE Index (Net)		1.76	2.53	11.58	26.12	9.00	9.72	7.34	4.27	
Intl All Cap Developed	176,795,227	1.88	3.99	15.04	24.60				12.97	2/1/2019
Intl All Cap Developed - Net		1.88	3.86	14.63	24.01				12.45	
MSCI EAFE + Canada (Net)		1.61	2.28	12.42	26.57				13.37	
Ativo International	176,795,227	1.88	3.99	15.04	24.60				12.97	2/1/2019
Ativo International - Net		1.88	3.86	14.63	24.01				12.45	
MSCI EAFE + Canada (Net)		1.61	2.28	12.42	26.57				13.37	
Intl Small Cap Eqty	754,808,040	4.12	6.83	18.17	38.46	15.88	14.36	11.13	7.19	12/1/2005
Intl Small Cap Eqty - Net		4.00	6.65	17.56	37.50	15.03	13.52	10.30		
MSCI AC World ex USA Small Cap (Net)		2.31	3.13	15.75	35.51	11.02	11.50	8.32	7.53	
Custom Benchmark (Intl Small Cap)		2.31	3.13	15.75	35.51	11.02	11.50	8.32	6.88	
Franklin Templeton	266,191,148	1.85	2.50	16.72	35.00	10.68	11.81	9.81	8.30	8/1/2011
Franklin Templeton - Net		1.85	2.32	16.14	34.09	9.88	11.01	9.01	7.52	
MSCI AC World ex USA Small Cap (Net)		2.31	3.13	15.75	35.51	11.02	11.50	8.32	7.28	
William Blair IntSC	488,616,892	5.40	9.35	18.97	40.42	19.19	15.83	11.90	12.72	9/1/2010
William Blair IntSC - Net		5.22	9.16	18.35	39.43	18.30	14.96	11.04	11.86	
MSCI AC World ex USA Small Cap (Net)		2.31	3.13	15.75	35.51	11.02	11.50	8.32	8.96	
Custom Benchmark (Intl Small Cap)		2.31	3.13	15.75	35.51	11.02	11.50	8.32	9.23	
Emerging Mkt Equity	1,469,858,254	2.13	-4.82	1.21	20.25	12.93	11.56	6.83	9.37	2/1/1992
Emerging Mkt Equity - Net		2.08	-4.91	0.84	19.59	12.30	10.91	6.21		
MSCI Emerging Markets Index		2.65	-4.20	3.07	21.49	10.25	10.80	5.22	7.51	
Genesis Asset Mngrs.	1,469,858,254	2.13	-4.82	1.21	20.25	12.93	11.56	6.83	11.46	5/1/2004
Genesis Asset Mngrs. - Net		2.08	-4.91	0.84	19.59	12.30	10.91	6.21		
MSCI Emerging Markets Index		2.65	-4.20	3.07	21.49	10.25	10.80	5.22	9.41	

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	12,164,188,800	-0.02	0.97	0.37	1.98	5.98	3.95	4.17	8.05	1/1/1982
Fixed Income - Net		-0.03	0.95	0.31	1.88	5.87	3.82	4.03		
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	7.51	
Fixed Income IMRF Custom Benchmark		-0.09	0.90	-0.15	1.03	5.54	3.45			
Active Fixed Core	3,865,727,047	-0.16	1.00	-0.02	0.89	5.68	3.53	3.77	4.60	4/1/2001
ActiveCore Fixed Inc - Net		-0.17	0.97	-0.10	0.78	5.57	3.42	3.62		
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.54	
Attucks Fixed Income	100,642,942	-0.24	1.00						0.70	2/1/2021
Attucks Fixed Income - Net		-0.32	0.92						0.54	
Blmbg. U.S. Aggregate		-0.19	0.93						0.02	
Brandes FI Core	377,797,249	-0.03	1.10	-0.38	-0.25	5.02	2.97		3.25	3/1/2016
Brandes FI Core - Net		-0.03	1.10	-0.38	-0.25	5.02	2.97		3.25	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11		3.50	
EARNEST Partners	1,035,897,927	-0.22	1.06	0.65	1.66	5.88	3.59	3.85	4.63	5/1/2005
EARNEST Partners - Net		-0.22	1.03	0.55	1.53	5.75	3.45	3.67	4.44	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.17	
Garcia Hamilton	1,097,281,169	-0.16	0.95	-1.19	-0.61	5.09	3.30		3.64	6/1/2015
Garcia Hamilton - Net		-0.16	0.93	-1.25	-0.69	5.00	3.21		3.55	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11		3.34	
Ramirez Asset Management	134,145,341	-0.19	1.02	0.90	2.18				5.34	5/1/2020
Ramirez Asset Management - Net		-0.24	0.97	0.76	1.99				5.17	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09				1.27	
Xponance Yield Advantage Agg.	1,119,962,419	-0.15	0.96	0.47	1.87	6.11	3.73	3.79	4.48	6/1/2005
Xponance Yield Advantage Agg. - Net		-0.15	0.93	0.37	1.74	5.98	3.59	3.64	4.30	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.12	
Pass. Core Fixed Inc	3,687,934,768	-0.18	0.94	-0.69	-0.04	5.50	3.16	3.23	5.83	1/1/1990
Pass. Core Fixed Inc - Net		-0.18	0.94	-0.70	-0.04	5.49	3.16	3.22		
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	5.81	

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
BlackRock US Debt I	1,854,833,782	-0.18	0.95	-0.67	-0.01	5.53	3.21		3.62	10/1/2013
BlackRock US Debt I - Net		-0.18	0.95	-0.67	-0.02	5.52	3.20		3.61	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11		3.50	
NTGI Blmbg Agg.	1,833,100,986	-0.18	0.93	-0.71	-0.06	5.47	3.12	3.21	5.88	2/1/1990
NTGI Blmbg Agg. - Net		-0.18	0.93	-0.72	-0.07	5.46	3.12	3.20		
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	5.87	
Core Plus Fixed Income	2,970,893,338	-0.02	1.07	0.04	2.18	6.74	4.26	4.37	7.96	1/1/1982
Core Plus Fixed Inc. - Net		-0.03	1.03	-0.06	2.04	6.57	4.08	4.19		
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	7.51	
LM Capital Group FI	972,343,569	-0.06	0.85	-0.13	2.14	6.68	4.05	4.09	5.02	5/1/2005
LM Capital Group FI - Net		-0.06	0.81	-0.25	1.98	6.51	3.88	3.92	4.85	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.17	
Progress Inv. FI	1,713									
BMO - TCH	667,347,459	-0.05	1.05	0.39	1.82	6.08	4.24	4.56	5.07	5/1/2005
BMO - TCH - Net		-0.09	1.01	0.30	1.69	5.94	4.11	4.43	4.93	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.17	
Western Asset	1,143,483,867	0.04	1.27	-0.16	2.32	7.42	4.70	4.84	5.57	11/1/2001
Western Asset - Net		0.04	1.24	-0.22	2.22	7.31	4.57	4.71		
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09	5.43	3.11	3.18	4.30	
Longfellow Core Plus	187,716,731	-0.03	1.05	0.82	2.72				4.83	5/1/2020
Longfellow Core Plus - Net		-0.07	1.00	0.67	2.48				4.64	
Blmbg. U.S. Aggregate		-0.19	0.93	-0.70	-0.09				1.27	
Bank Loans	571,361,547	0.48	0.45	5.07	10.65	4.23	5.06		4.58	8/1/2014
Bank Loans - Net		0.48	0.45	5.07	10.65	4.11	4.75		4.18	
Custom Benchmark		0.50	0.52	3.98	8.58	4.35	4.85		4.25	
Barings Global Loan Fund	571,361,547	0.48	0.45	5.07	10.65	4.23	5.06		4.58	8/1/2014
Barings Global Loan Fund - Net		0.48	0.45	5.07	10.65	4.11	4.75		4.18	
Custom Benchmark		0.50	0.52	3.98	8.58	4.35	4.85		4.25	

Benchmark definitions in glossary.

Periods Ended August 31, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Emerging Markets Debt	234,526,230	0.93	0.80	-1.32	5.61	7.07	4.47		3.26	8/1/2014
Emerging Markets Debt - Net		0.93	0.80	-1.49	5.34	6.73	4.12		2.92	
Custom Benchmark		0.79	0.61	-1.33	4.40	6.60	4.02		2.69	
Standish-Mellon EMD	234,526,230	0.93	0.80	-1.32	5.61	7.07	4.47		3.26	8/1/2014
Standish EM MRK - Net		0.93	0.80	-1.49	5.34	6.73	4.12		2.92	
Custom Benchmark		0.79	0.61	-1.33	4.40	6.60	4.02		2.69	
High Yield	833,745,869	0.69	1.06	5.75	9.35	7.95	7.25	7.44	9.47	4/1/1986
High Yield - Net		0.69	0.98	5.58	9.00	7.63	6.91	7.07		
ICE BofAML US High Yield, Cash Pay Index		0.55	0.92	4.53	10.13	6.80	6.46	6.87	8.23	
MacKay Shields	833,729,967	0.69	1.06	5.75	9.35	7.95	7.33	7.63	8.78	11/1/2000
MacKay Shields - Net		0.69	0.98	5.58	9.00	7.63	6.99	7.26		
ICE BofAML US High Yield, Cash Pay Index		0.55	0.92	4.53	10.13	6.80	6.46	6.87	7.52	

Benchmark History

Periods Ended January 31, 2021

Account Name	From Date	To Date	Benchmark
Total Fund			The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset classes:
	1/1/2021	Present	39% Russell 3000 Index, 25% Blmbg. Barc. U.S. Aggregate, 15% MSCI AC World ex USA (Net), 10% NCREIF Fund Index-ODCE (VW) (Net), 10% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill
	3/1/2018	12/31/2020	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
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	12/13/2005	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-Mellon EMD	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