

Wilshire



Wilshire Advisors

Monthly Performance Summary

As of August 31, 2022

IMRF Performance Summary

- The Illinois Municipal Retirement Fund (“IMRF”) ended August 2022 with a market value of \$48.8 billion, down for the month by approximately \$1.4 billion. IMRF returned -2.61% during the month, underperforming the Total Fund Benchmark, which returned -2.36%. Global financial markets pulled back in August as interest rate and recession worries increased.
- The broad U.S. Equity market declined in August, with large cap stocks underperforming small cap. The U.S. Equity Portfolio outperformed the benchmark during the month, returning -3.29% versus -3.58%. Investment manager performance in Large Cap Growth was the largest contributor to relative outperformance.
- International Equity markets fell sharply during the month, while the U.S. dollar continued to strengthen against foreign currencies. The International Equity Portfolio underperformed the benchmark during August, returning -3.54% versus -3.22%. Investment manager performance in Large Cap Growth was the largest contributor to relative underperformance.
- U.S. Treasury yields moved significantly higher across the curve in August. The Fixed Income Portfolio outperformed the benchmark during the month, returning -1.98% versus -2.17%. Investment manager performance in Core and Core Plus were the largest contributors to relative outperformance.
- As of August month-end, all underlying asset class allocations in the Portfolio are within the stated four percentage point rebalancing range as outlined by the current Statement of Investment Policy.

Performance referenced above is Net of Fees.

Market Dashboard

Returns though Wednesday August 31, 2022

Portfolio Allocations	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
Global 60/40	(3.34)	5.17	(5.68)	1.65	(11.36)	(14.89)	(13.97)	4.27	4.66
Wilshire Risk Parity (12%)	(5.97)	6.56	(7.41)	0.20	(12.37)	(16.61)	(15.25)	0.14	4.86
Strategic Allocation Themes *	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
Growth ¹	(3.68)	6.98	(8.43)	3.04	(15.66)	(17.75)	(15.88)	8.03	6.97
Defensive Growth ²	(0.94)	4.08	(4.95)	3.10	(11.86)	(12.73)	(11.99)	6.56	7.66
Diversified Credit ³	(1.15)	4.02	(5.81)	2.82	(9.68)	(13.03)	(13.53)	(1.34)	1.09
Real Assets ⁴	(3.57)	6.38	(8.57)	2.58	(11.39)	(3.38)	1.02	8.46	6.97
Defensive ⁵	(2.83)	2.44	(1.57)	(0.45)	(4.69)	(10.75)	(11.52)	(2.00)	0.52
Major Asset Classes	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
FT Wilshire 5000	(3.79)	9.55	(8.36)	5.40	(16.77)	(16.62)	(12.69)	12.33	11.53
MSCI ACWI-ex-USA (Net)	(3.22)	3.42	(8.60)	0.10	(13.73)	(18.34)	(19.52)	2.87	1.67
Bloomberg U.S. Aggregate	(2.83)	2.44	(1.57)	(0.45)	(4.69)	(10.75)	(11.52)	(2.00)	0.52
Bloomberg U.S. Corporate High Yield	(2.30)	5.90	(6.73)	3.46	(9.83)	(11.22)	(10.60)	1.03	2.58
Wilshire Global Real Estate Securities	(6.04)	8.06	(8.66)	1.53	(18.04)	(19.27)	(13.25)	0.96	3.72
Bloomberg Commodity	0.09	4.26	(10.77)	4.35	(5.66)	23.59	27.72	17.15	8.75

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 through Wednesday August 31, 2022

US Equity	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
FT Wilshire 5000	(3.79)	9.55	(8.36)	5.40	(16.77)	(16.62)	(12.69)	12.33	11.53
Standard & Poor's 500	(4.08)	9.22	(8.25)	4.77	(16.10)	(16.14)	(11.23)	12.39	11.82
Wilshire 4500 Completion	(2.19)	10.39	(9.56)	7.97	(19.88)	(19.98)	(21.44)	10.51	9.19
Wilshire US Large Cap	(3.92)	9.50	(8.30)	5.21	(16.76)	(16.66)	(12.34)	12.64	11.94
Wilshire US Large-Cap Growth	(4.98)	12.82	(8.39)	7.20	(21.45)	(22.50)	(18.09)	14.67	13.97
Wilshire US Large-Cap Value	(2.72)	5.97	(8.20)	3.09	(11.16)	(9.05)	(4.94)	10.38	9.78
Wilshire US Small Cap	(2.46)	10.14	(9.19)	7.43	(16.76)	(16.04)	(15.64)	9.37	7.68
Wilshire US Small-Cap Growth	(2.72)	11.21	(8.55)	8.19	(18.19)	(20.65)	(21.93)	7.97	7.91
Wilshire US Small-Cap Value	(2.23)	9.20	(9.75)	6.76	(15.47)	(11.42)	(8.75)	10.71	7.39
Non-US Equity	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
MSCI ACWI-ex-USA (Net)	(3.22)	3.42	(8.60)	0.10	(13.73)	(18.34)	(19.52)	2.87	1.67
MSCI EAFE (Net)	(4.75)	4.98	(9.28)	(0.00)	(14.51)	(19.57)	(19.80)	2.39	1.63
MSCI EM (Net)	0.42	(0.25)	(6.65)	0.17	(11.45)	(17.49)	(21.80)	2.74	0.59
MSCI ACWI-ex-US Small cap (Net)	(2.62)	5.78	(11.04)	3.00	(17.55)	(20.61)	(22.54)	5.21	2.23
Global Equity	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
MSCI ACWI (Net)	(3.68)	6.98	(8.43)	3.04	(15.66)	(17.75)	(15.88)	8.03	6.97
MSCI ACWI Minimum Volatility (Net)	(2.18)	3.01	(4.14)	0.77	(9.27)	(11.34)	(9.11)	2.60	5.33
Fixed Income	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
Bloomberg U.S. Aggregate	(2.83)	2.44	(1.57)	(0.45)	(4.69)	(10.75)	(11.52)	(2.00)	0.52
Bloomberg Long Term Treasury	(4.43)	2.67	(1.47)	(1.88)	(11.93)	(22.73)	(22.64)	(6.76)	(0.42)
Bloomberg U.S. TIPS	(2.66)	4.35	(3.16)	1.58	(6.08)	(7.49)	(5.98)	2.65	3.22
Bloomberg U.S. Corporate High Yield	(2.30)	5.90	(6.73)	3.46	(9.83)	(11.22)	(10.60)	1.03	2.58
Credit Suisse Leveraged Loan	1.53	1.87	(2.06)	3.43	(4.35)	(1.17)	0.18	3.01	3.54
ICE BofA US Convertible Index	0.92	5.69	(6.18)	6.66	(15.65)	(14.90)	(16.35)	12.32	10.93
JPM EMBI Global Diversified	(0.94)	2.89	(6.21)	1.92	(11.43)	(18.78)	(20.82)	(5.24)	(1.33)
Real Assets	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
Wilshire Global Real Estate Securities	(6.04)	8.06	(8.66)	1.53	(18.04)	(19.27)	(13.25)	0.96	3.72
FTSE Global Core Infrastructure 50/50	(1.46)	4.73	(6.08)	3.20	(7.32)	(0.63)	3.20	5.57	6.35
Alerian Midstream Energy	(0.14)	9.99	(12.21)	9.84	(8.64)	24.39	29.08	11.22	7.53
Bloomberg Commodity	0.09	4.26	(10.77)	4.35	(5.66)	23.59	27.72	17.15	8.75
Gold	(3.11)	(2.29)	(1.64)	(5.32)	(6.72)	(6.46)	(5.66)	4.02	5.30
Bitcoin	(15.68)	27.87	(41.07)	7.82	(59.07)	(56.41)	(57.04)	28.02	33.62

Source: Bloomberg, All returns are in USD

Factor/Relative Returns

Returns through Wednesday August 31, 2022

Asset Class Differentials	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
Stocks (ACWI) > Bonds (BB US Aggregate)	(0.86)	4.54	(6.86)	3.49	(10.97)	(7.00)	(4.37)	10.03	6.46
Stocks (ACWI) > Mkt Alts (Equity Hedged))	(1.68)	3.98	(4.28)	2.11	(10.36)	(11.07)	(10.32)	4.15	4.48
Mkt Alts (Relative Value) > Bonds (BB US Aggregate)	1.95	(1.00)	(0.67)	1.01	0.60	4.20	4.10	1.63	(0.17)
Equity & Real Assets Differentials	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
US Small > Large	1.46	0.64	(0.90)	2.22	(0.00)	0.61	(3.30)	(3.28)	(4.26)
US Value > Growth	2.26	(6.84)	0.19	(4.11)	10.29	13.45	13.15	(4.30)	(4.19)
ACWI-ex-US > US	0.57	(6.12)	(0.24)	(5.30)	3.05	(1.72)	(6.83)	(9.47)	(9.86)
EM > EAFE	5.17	(5.23)	2.63	0.17	3.06	2.08	(2.00)	0.34	(1.04)
ACWI-ex-US Currency Impact	(1.97)	(0.17)	(2.59)	(2.20)	(5.40)	(8.46)	(10.36)	(2.79)	(2.74)
EAFE Currency Impact	(2.47)	(0.21)	(2.93)	(2.80)	(6.68)	(10.78)	(13.35)	(3.55)	(3.08)
EM Currency Impact	(0.79)	(0.36)	(2.09)	(1.15)	(3.38)	(4.94)	(6.02)	(2.21)	(2.63)
Global Low Volatility > ACWI	1.51	(3.97)	4.29	(2.28)	6.39	6.42	6.77	(5.43)	(1.65)
Global RE > ACWI	(2.36)	1.08	(0.23)	(1.51)	(2.38)	(1.52)	2.63	(7.08)	(3.26)
Commodities > Global RE	6.13	(3.80)	(2.11)	2.82	12.38	42.86	40.97	16.20	5.03
Commodities > TIPS	2.75	(0.09)	(7.61)	2.78	0.42	31.08	33.69	14.50	5.52
Gold > Commodities	(3.20)	(6.55)	9.14	(9.68)	(1.06)	(30.05)	(33.37)	(13.14)	(3.44)
Fixed Income Differentials	MTD	JUL	JUN	QTD	Q2 2022	YTD	1 Year	3 Year	5 Year
Duration (US Core > US Core 1-3 Years)	(2.02)	1.91	(0.88)	(0.18)	(4.06)	(7.36)	(7.50)	(1.87)	(0.35)
IG Credit > Treasury	(0.45)	1.64	(1.92)	1.14	(3.48)	(4.23)	(4.12)	0.13	0.72
High Yield > IG Credit	0.63	2.67	(3.93)	3.25	(2.57)	2.99	4.32	3.14	1.56
High Yield > Loans	(3.88)	3.79	(4.57)	(0.25)	(5.37)	(10.21)	(10.97)	(2.14)	(0.95)
TIPS > Treasury	1.17	1.29	(2.19)	2.46	(1.62)	4.08	6.70	5.36	2.92
EMD > Dev Hdg	2.00	(0.59)	(3.13)	1.47	(4.71)	(8.03)	(9.00)	(1.06)	(1.50)
EMD > High Yield	1.77	(3.80)	2.16	(1.91)	1.11	(4.63)	(7.08)	(4.46)	(3.00)
Non-US > US Core	(2.17)	(0.52)	(2.93)	(2.72)	(6.32)	(8.38)	(10.53)	(4.35)	(3.62)
Non-US Hdg > US Core	0.29	0.25	0.12	0.54	0.69	2.94	2.83	(0.38)	0.57
FI Currency Impact	(2.45)	(0.77)	(3.05)	(3.25)	(7.01)	(11.31)	(13.36)	(3.97)	(4.19)

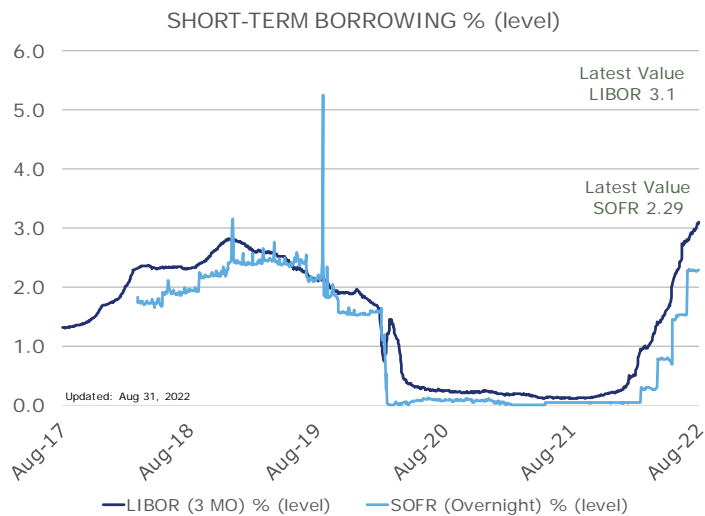
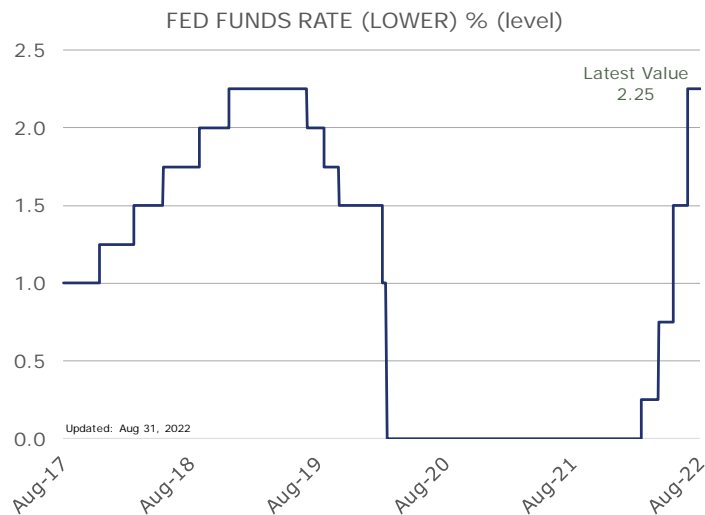
Source: Bloomberg, All returns are in USD

Market Yields & Breakeven Inflation

Market Yields	Previous 3 Month-ends				Previous 2 Quarter-ends		EOY Prior	1 Yr Ago	3 Yrs Ago	5 Yrs Ago
	08/31/22	07/29/22	06/30/22	05/31/22	06/30/22	03/31/22	12/31/21	08/31/21	08/30/19	08/31/17
Govt/Treasury Yields										
Fed Funds Target Rate (Upper)	2.50	2.50	1.75	1.00	1.75	0.50	0.25	0.25	2.25	1.25
2-Year Treasury	3.50	2.89	2.96	2.56	2.96	2.34	0.73	0.21	1.51	1.33
5-Year Treasury	3.35	2.68	3.04	2.82	3.04	2.46	1.26	0.78	1.39	1.70
10-Year Treasury	3.20	2.65	3.02	2.85	3.02	2.34	1.51	1.31	1.50	2.12
30-Year Treasury	3.29	3.01	3.19	3.05	3.19	2.45	1.90	1.93	1.96	2.73
10-Year Real Treasury	0.71	0.10	0.67	0.20	0.67	(0.49)	(1.10)	(1.03)	(0.04)	0.35
Term Spreads										
5 - 2 Year Treasury Spread	(0.14)	(0.21)	0.08	0.26	0.08	0.12	0.53	0.57	(0.12)	0.37
10 - 5 Year Treasury Spread	(0.16)	(0.03)	(0.03)	0.02	(0.03)	(0.13)	0.25	0.53	0.11	0.41
10 - 2 Year Treasury Spread	(0.30)	(0.24)	0.05	0.28	0.05	(0.00)	0.77	1.10	(0.01)	0.79
30 - 10Year Treasury Spread	0.09	0.36	0.16	0.19	0.16	0.10	0.39	0.62	0.46	0.61
30 - 2Year Treasury Spread	(0.20)	0.12	0.22	0.48	0.22	0.11	1.17	1.72	0.45	1.40
Market Yields										
Bloomberg U.S. Treasury YTW	3.42	2.89	3.09	2.80	3.09	2.42	1.23	0.86	1.58	1.77
Bloomberg U.S. Aggregate YTW	3.96	3.42	3.72	3.38	3.72	2.92	1.75	1.42	2.13	2.42
Bloomberg U.S. Long Treasury YTW	3.48	3.19	3.33	3.23	3.33	2.55	1.89	1.86	1.92	2.64
Bloomberg U.S. Long Govt/Credit YTW	4.40	4.06	4.30	4.08	4.30	3.39	2.58	2.52	2.81	3.53
Credit Spreads										
Bloomberg Investment Grade OAS	1.40	1.44	1.55	1.30	1.55	1.16	0.92	0.87	1.20	1.10
Bloomberg High Yield OAS	4.84	4.69	5.69	4.06	5.69	3.25	2.83	2.88	3.93	3.78
Breakeven Inflation Rates										
1-Year Breakeven Inflation	2.12	3.79	4.28	4.65	4.28	5.63	3.43	2.62	1.13	0.73
2-Year Breakeven Inflation	2.39	3.25	3.29	3.86	3.29	4.41	3.22	2.54	1.25	1.33
5-Year Breakeven Inflation	2.64	2.81	2.62	2.96	2.62	3.43	2.91	2.51	1.36	1.65
10-Year Breakeven Inflation	2.48	2.55	2.34	2.65	2.34	2.83	2.59	2.34	1.54	1.77
5-Year 5-Year Forward Breakeven Inflation	2.33	2.40	2.03	2.32	2.03	2.38	2.27	2.19	1.72	1.93

Source: Bloomberg

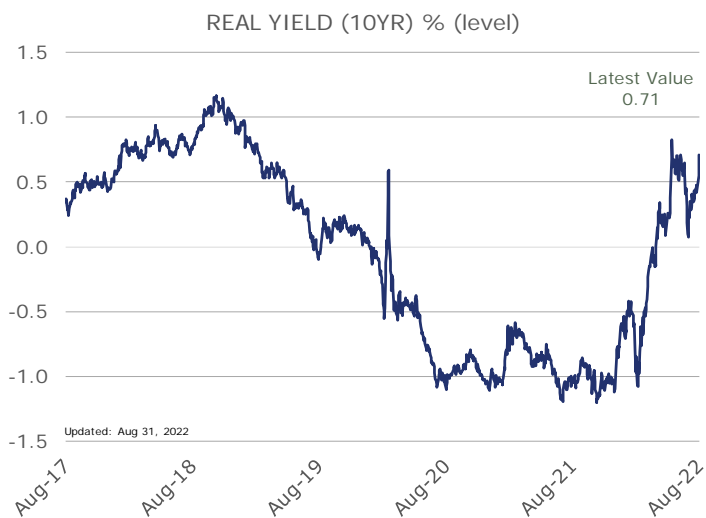
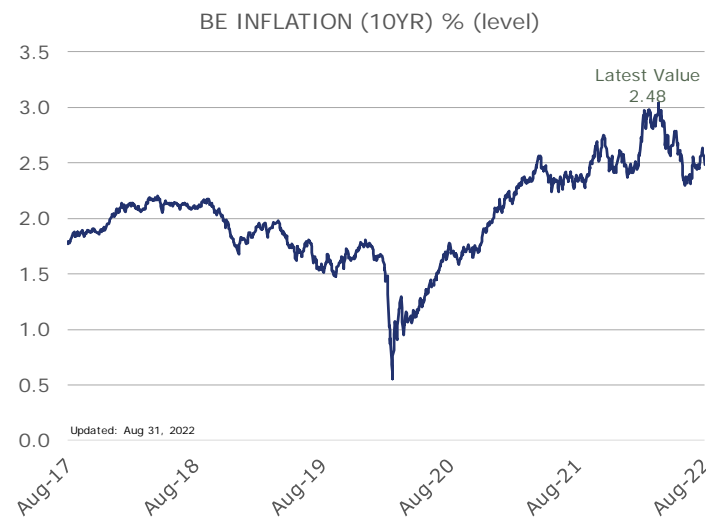
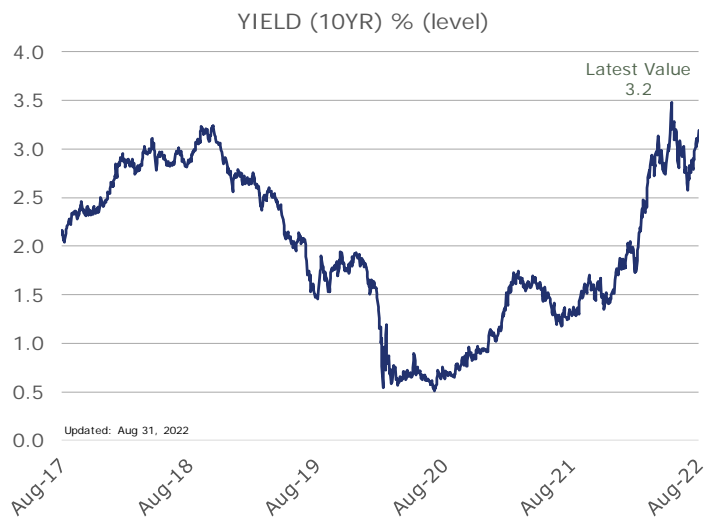
Short Rates



Data Source: Bloomberg

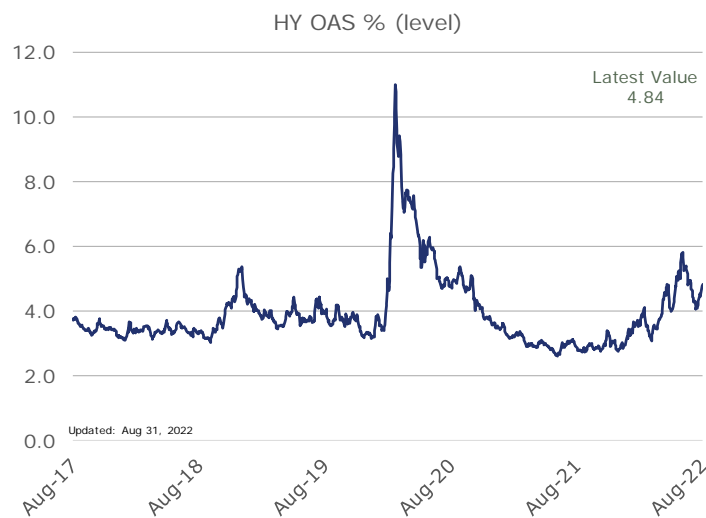
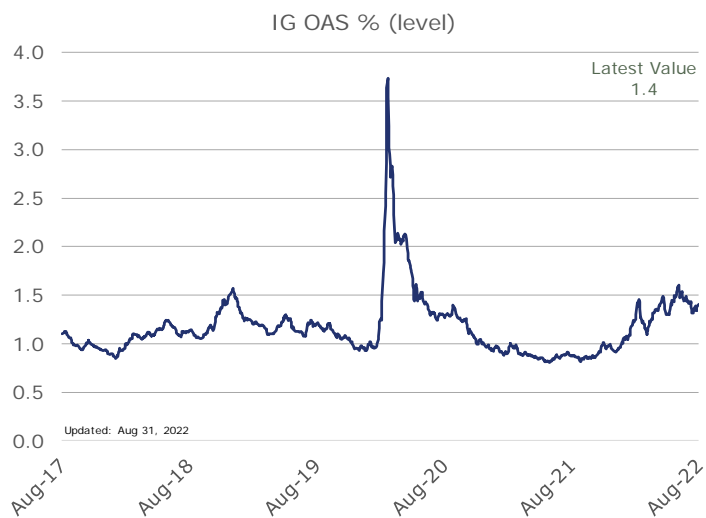
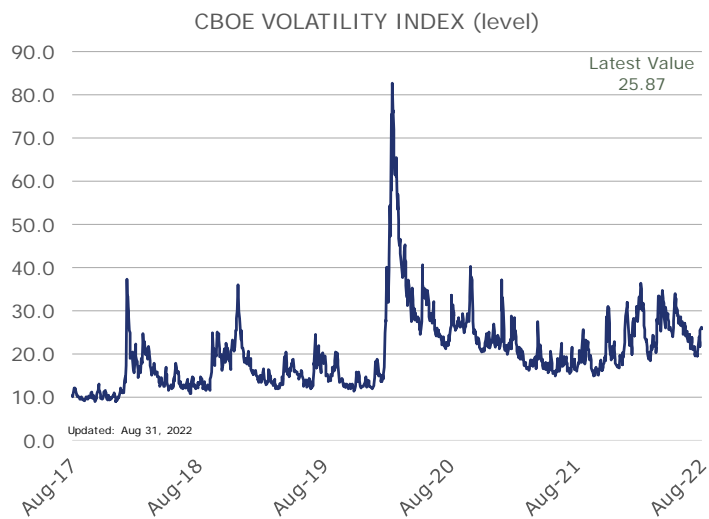
LIBOR: London Inter-bank Offered Rate
SOFR: Federal Reserve Bank NY Secured Overnight Financing Rate

Treasury Rates



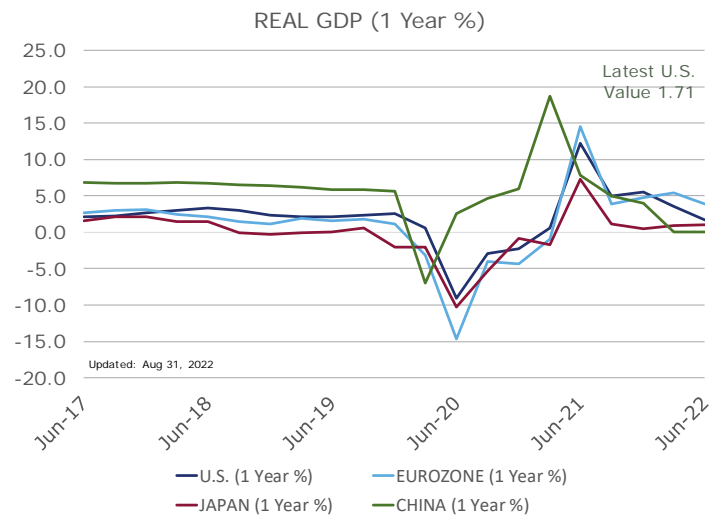
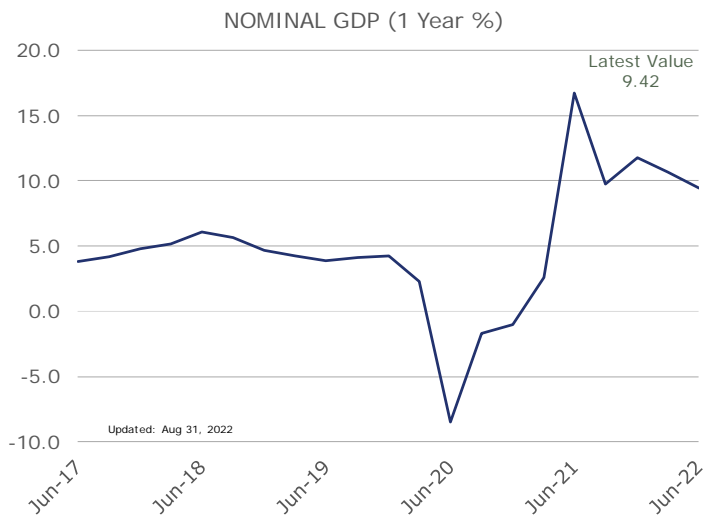
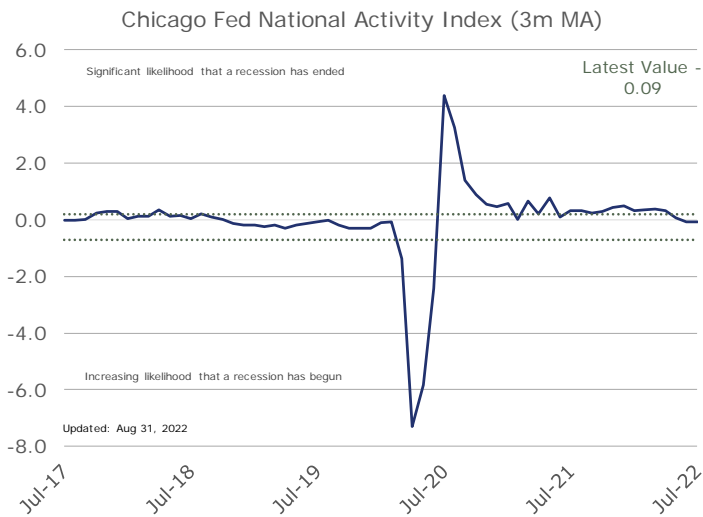
Data Sources: Bloomberg

Volatility & Credit Risk



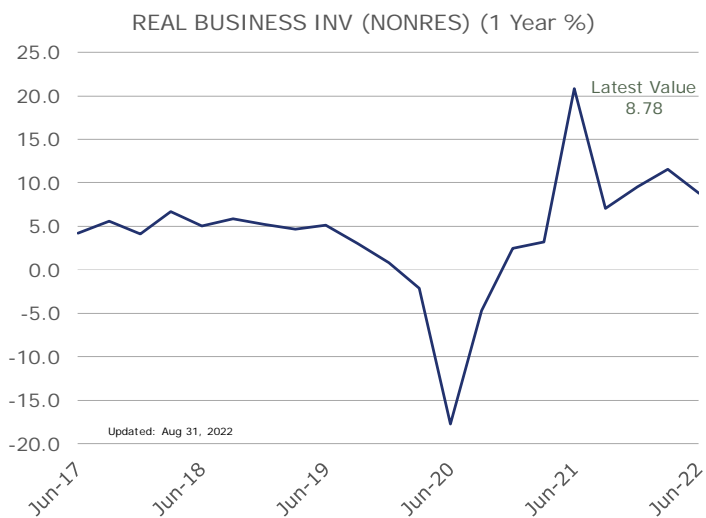
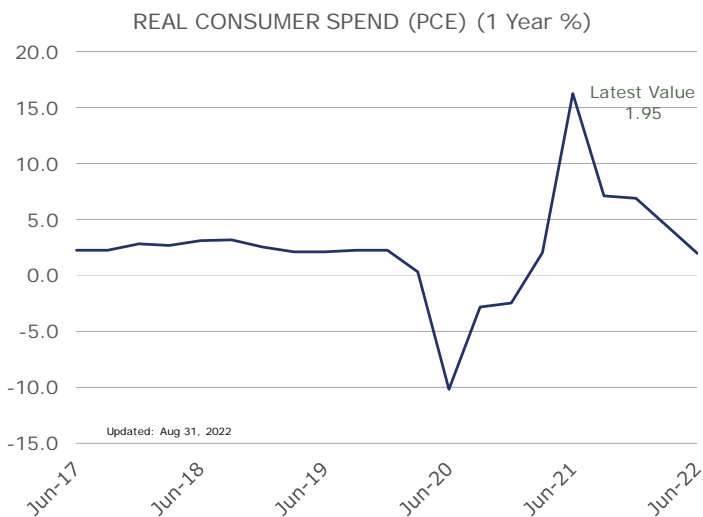
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Economic Growth



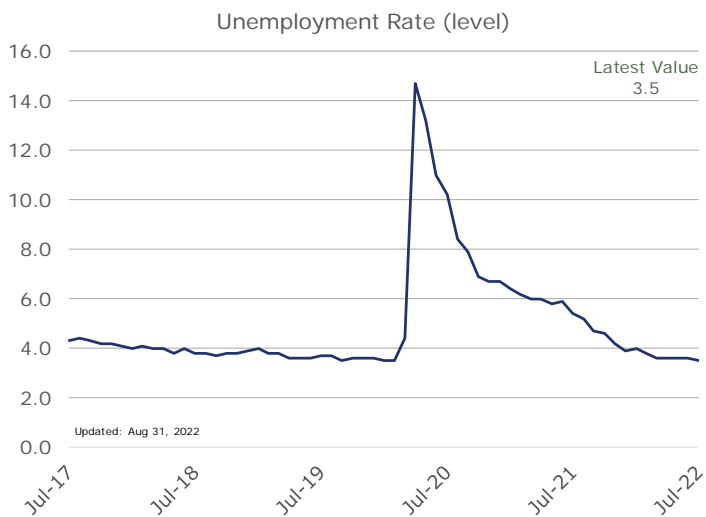
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Economic Growth

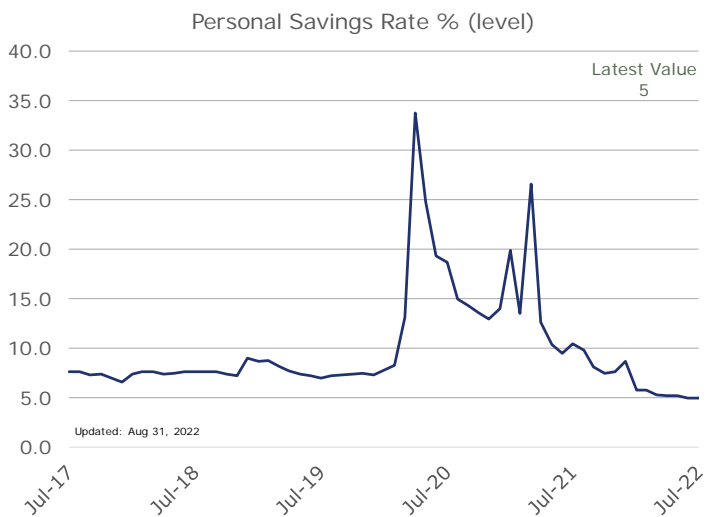


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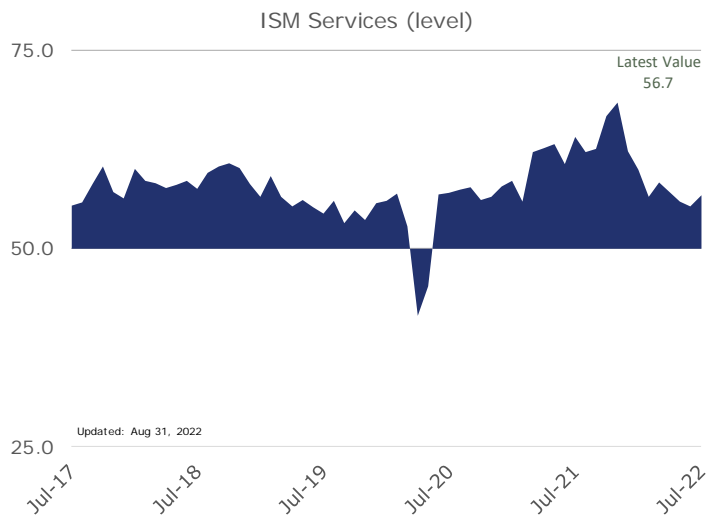
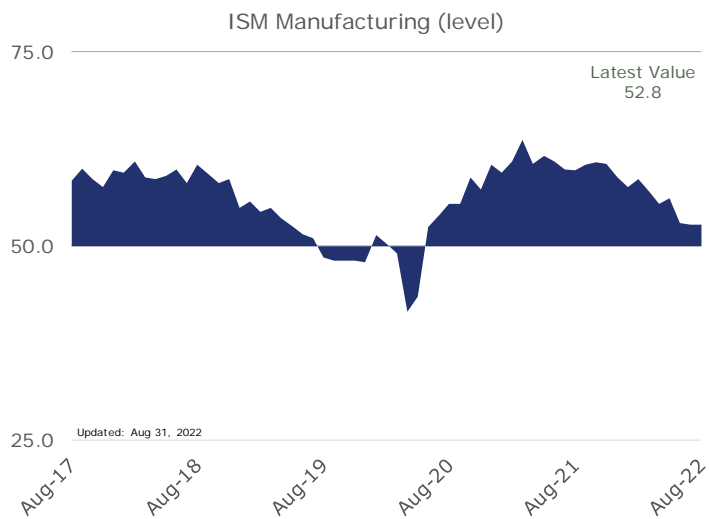
Consumers & Employment



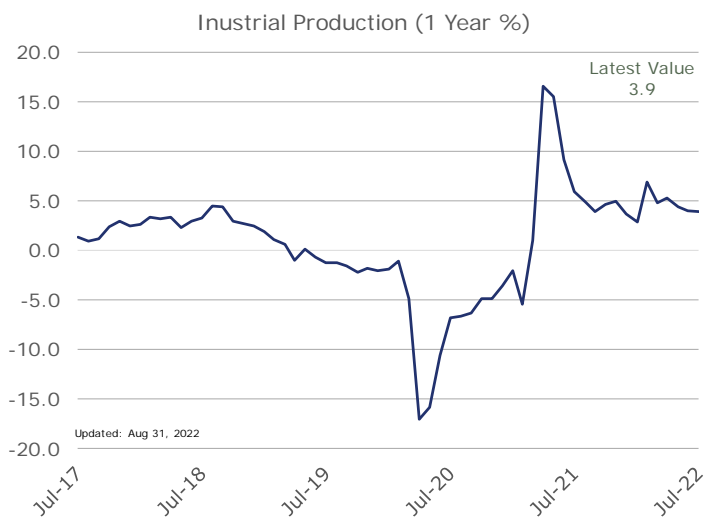
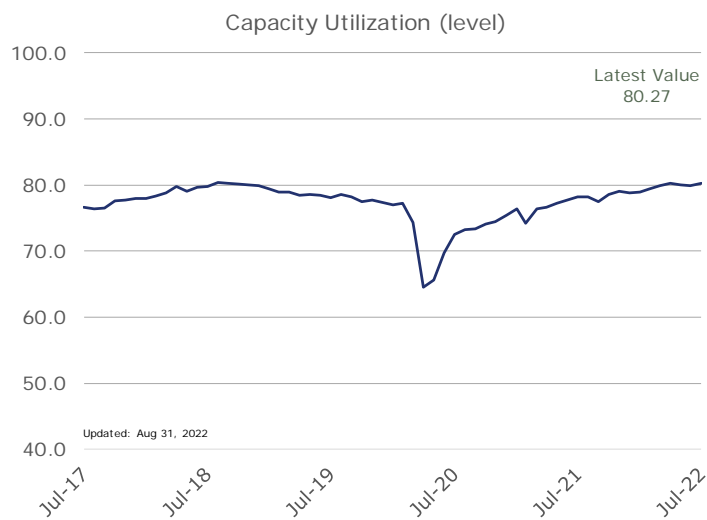
Income & Spending



ISM Surveys

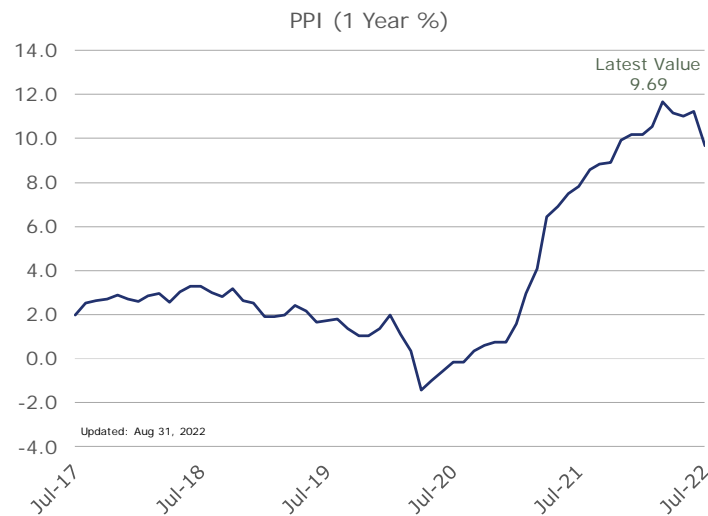
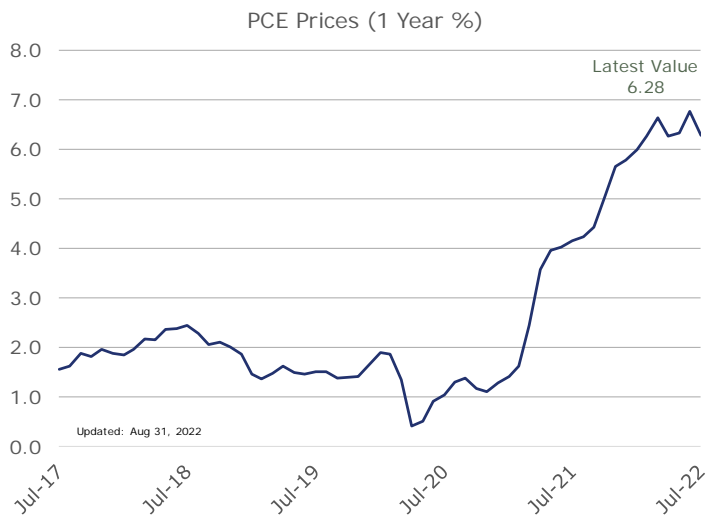
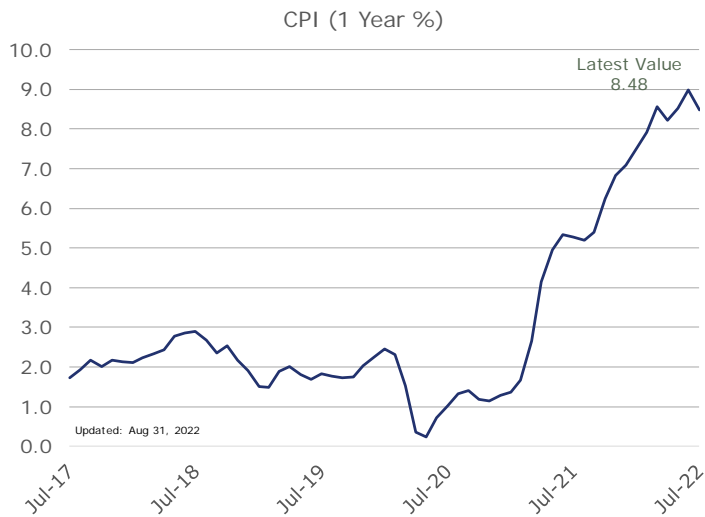


Manufacturing Activity



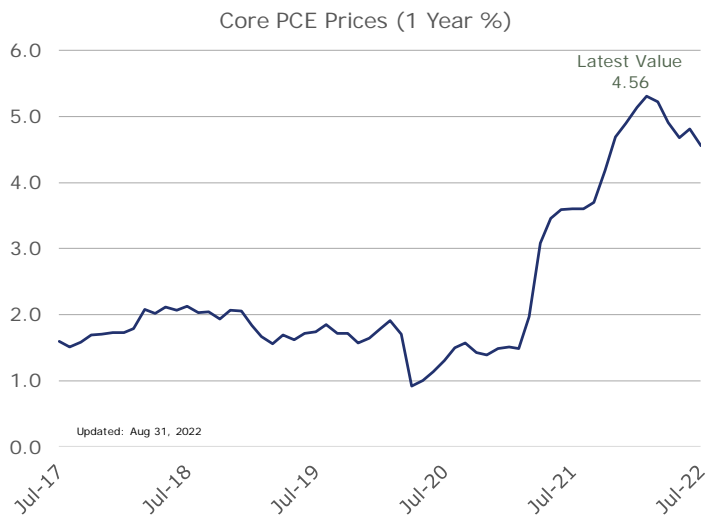
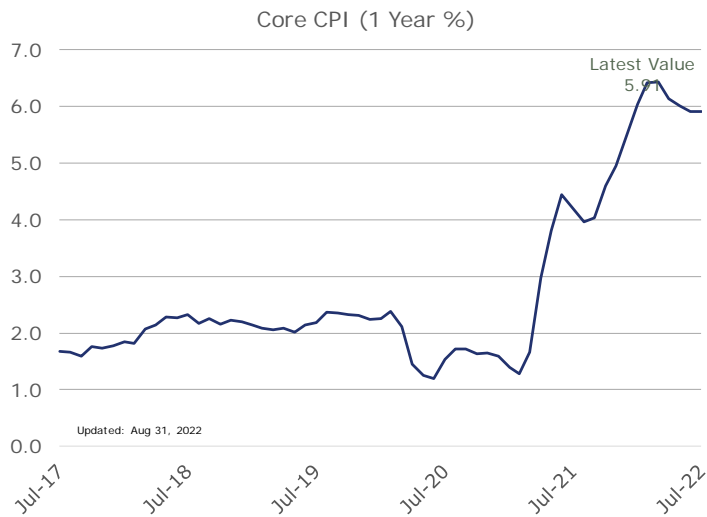
Data Sources: Bloomberg

Price Indexes



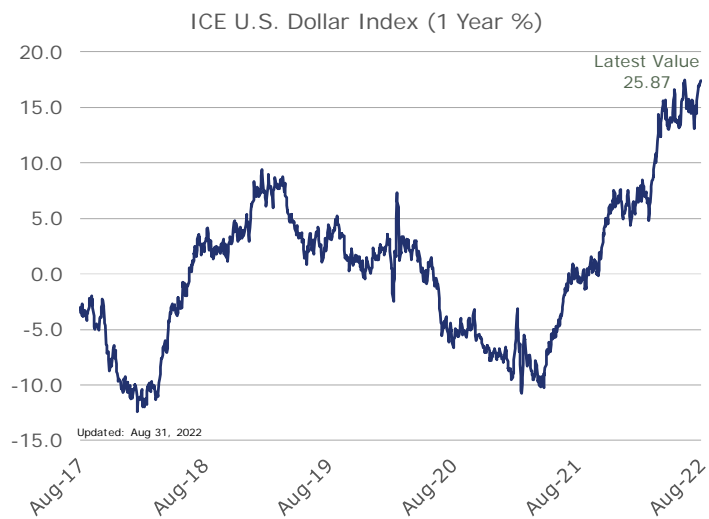
Data Sources: Bloomberg

Core Price Indexes



Data Sources: Bloomberg

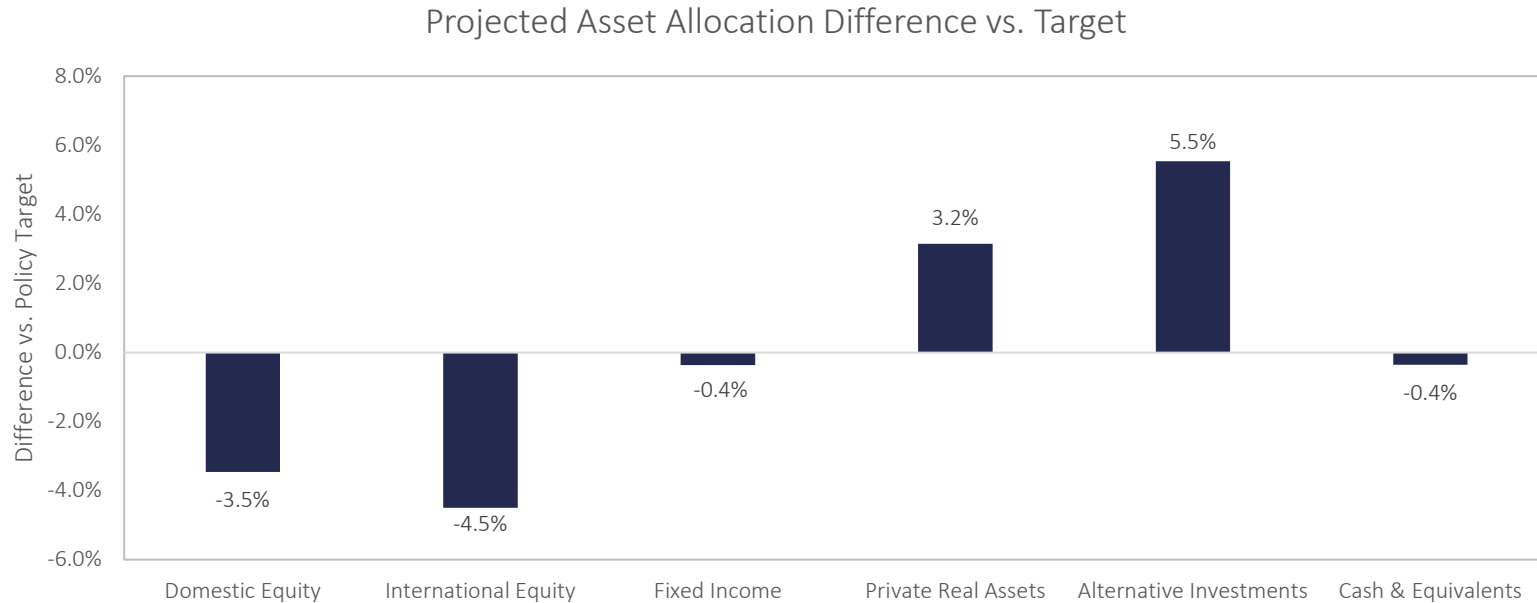
U.S. Dollar



IMRF Performance

Projected Deviations from the Benchmark

As of August 31, 2022



- Includes committed, but unfunded amounts for Real Assets (\$1.94 billion) and Alternatives (\$2.37 billion). Assumes Real Assets and Alternatives allocations are fully funded as of month-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.

Alternatives Proxy: 60% Domestic Equity, 40% International Equity

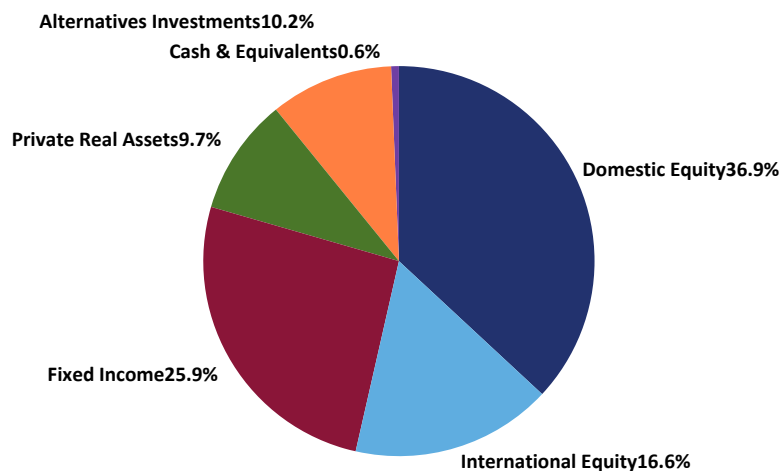
Real Assets Proxy: 50% Domestic Equity, 30% International Equity, 20% Fixed Income

Asset Allocation

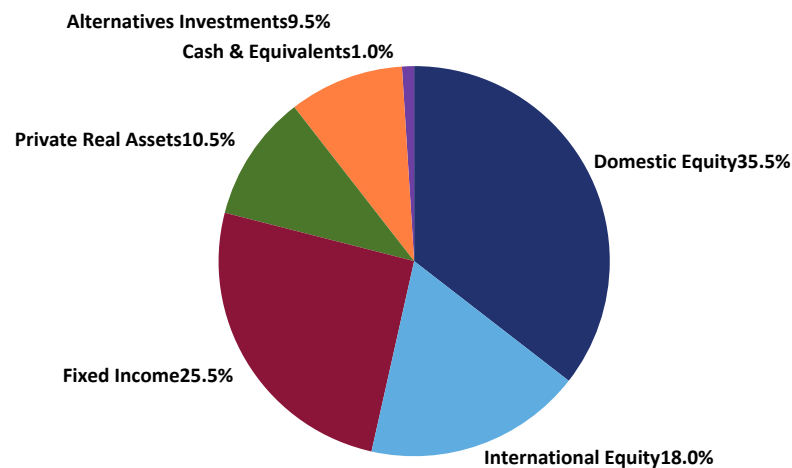
Total Fund

Periods Ended As of August 31, 2022

Actual Allocation



Target Allocation



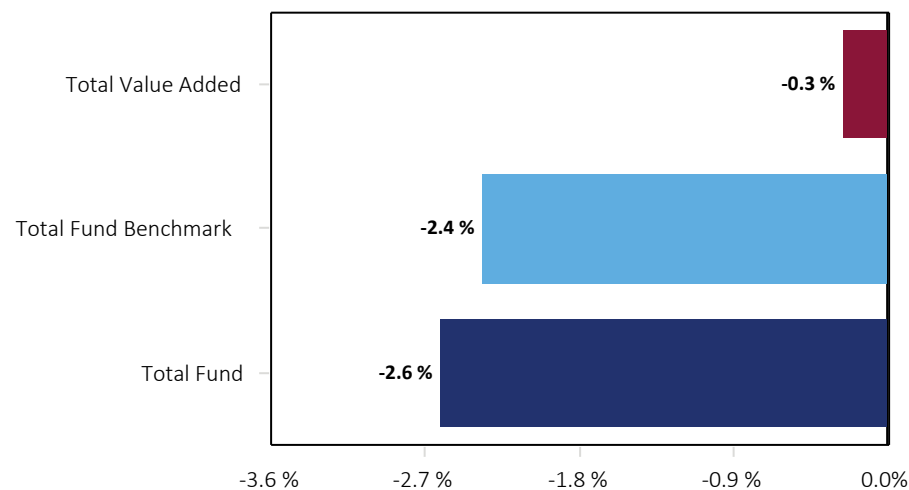
	Actual Allocation \$Millions	Actual Allocation %	Target Allocation %	Differences %	Differences \$Millions
Total Fund	48,815	100.0	100.0	0.0	
Domestic Equity	18,026	36.9	35.5	1.4	696
International Equity	8,118	16.6	18.0	-1.4	-669
Fixed Income	12,658	25.9	25.5	0.4	210
Private Real Assets	4,727	9.7	10.5	-0.8	-398
Alternatives Investments	4,973	10.2	9.5	0.7	336
Cash & Equivalents	312	0.6	1.0	-0.4	-176

Total Fund Attribution

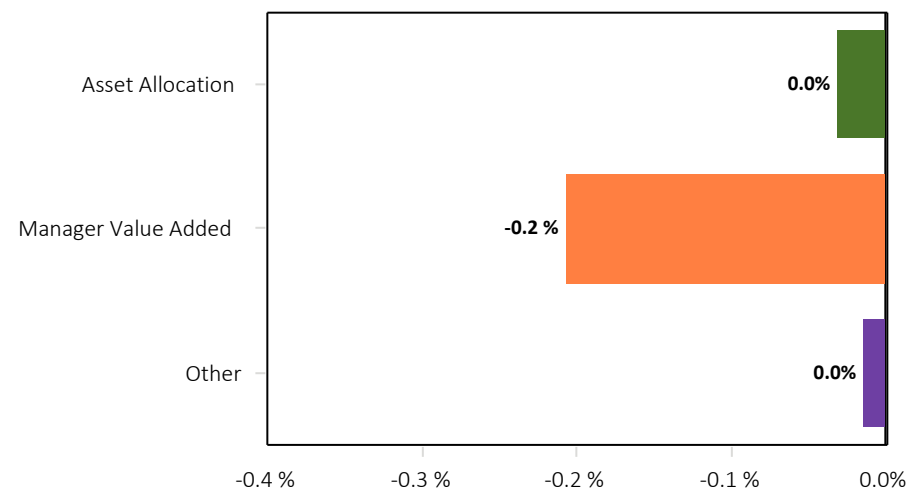
Total Fund

1 Month Ending August 31, 2022

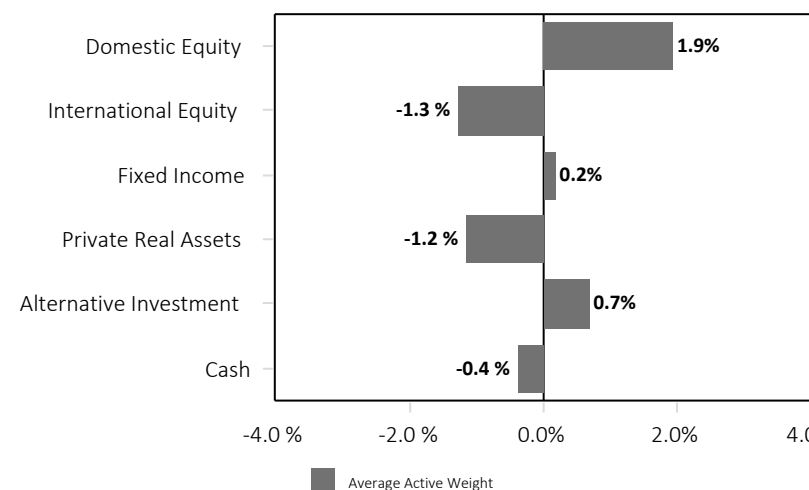
Total Fund Performance



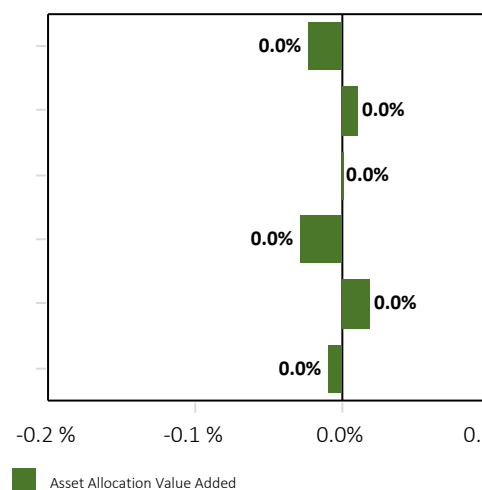
Total Value Added: -0.3 %



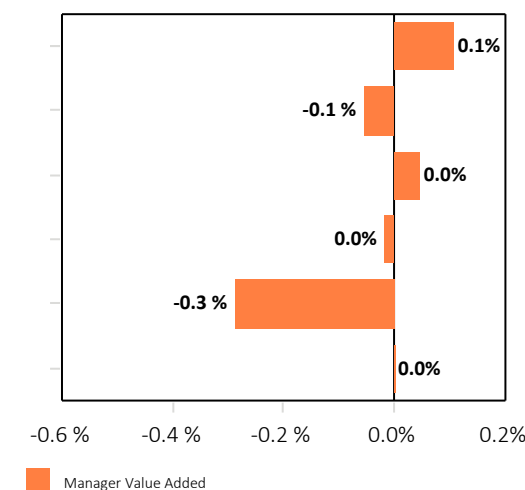
Asset Class Under or Overweighting



Asset Allocation Value Added: 0.0%



Total Manager Value Added: -0.2 %



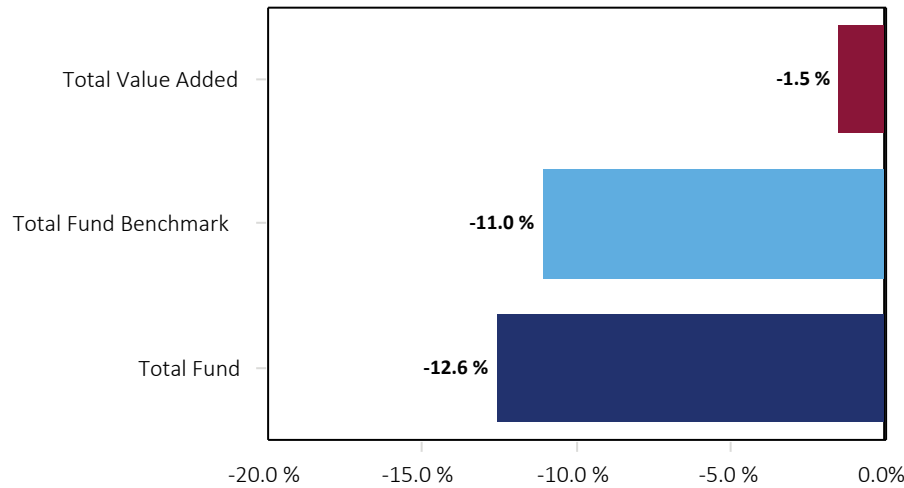
Total Fund Benchmark = 35.5% Domestic Equity Custom Benchmark, 25.5% Fixed Income Custom Benchmark, 18.0% MSCI AC World ex USA (Net), 10.5% Private Real Assets Custom Benchmark, 9.5% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.

Total Fund Attribution

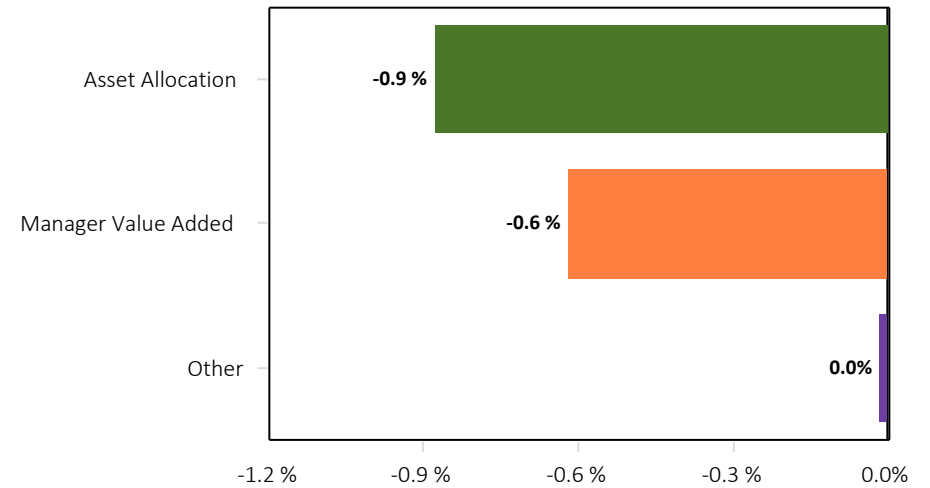
Total Fund

Year To Date Ending August 31, 2022

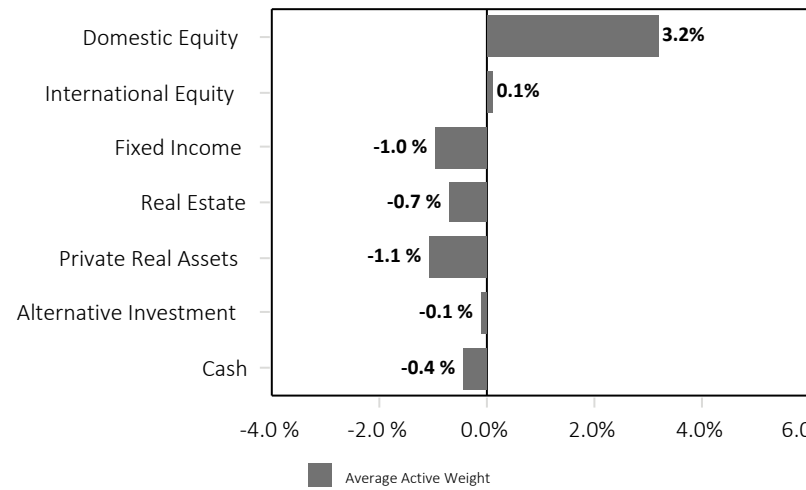
Total Fund Performance



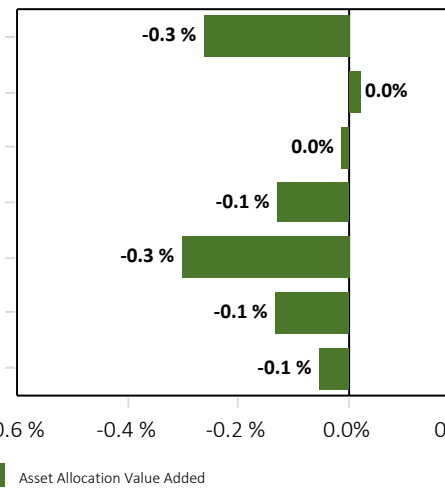
Total Value Added: -1.5 %



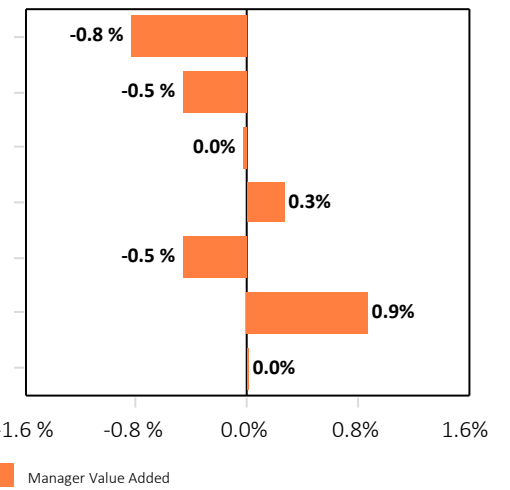
Asset Class Under or Overweighting



Asset Allocation Value Added: -0.9 %



Total Manager Value Added: -0.6 %



Total Fund Benchmark = 35.5% Domestic Equity Custom Benchmark, 25.5% Fixed Income Custom Benchmark, 18.0% MSCI AC World ex USA (Net), 10.5% Private Real Assets Custom Benchmark, 9.5% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.

Asset Class Returns

Periods Ended August 31, 2022

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Total Fund	-2.59	1.57	-12.47	-10.74	7.95	7.33	8.48	8.17	8.29	9.66	1/1/1982
Total Fund - Net	-2.61	1.54	-12.56	-10.88	7.77	7.14	8.27				
Total Fund Benchmark	-2.36	1.35	-11.05	-8.32	6.70	6.61	7.77	7.59			
Domestic Equity	-3.26	4.76	-18.04	-15.56	11.58	10.57	12.38	10.02	10.27	11.47	1/1/1982
Domestic Equity - Net	-3.29	4.73	-18.13	-15.70	11.40	10.37	12.14				
Custom Benchmark (U.S. Equity)	-3.58	5.15	-16.17	-12.51	12.23	11.48	12.84	10.05	10.02		
U.S. Equity IMRF Custom Benchmark	-3.38	4.89	-16.66	-12.90	11.10	10.17					
International Equity	-3.47	0.04	-20.52	-22.75	3.59	2.38	5.81	7.28	7.04	7.24	9/1/1986
International Equity - Net	-3.54	-0.03	-20.71	-23.06	3.21	2.02	5.45				
MSCI AC World ex USA (Net)	-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	6.33			
International Equity IMRF Custom Benchmark	-2.77	0.29	-18.38	-19.95	2.97	1.64					
Fixed Income	-1.96	0.65	-9.91	-10.64	-1.04	1.19	2.22	4.39	5.29	7.55	1/1/1982
Fixed Income - Net	-1.98	0.63	-9.97	-10.72	-1.13	1.07	2.08				
Custom Benchmark (Fixed Income)	-2.17	0.45	-9.83	-10.60	-1.66	0.73	1.46	3.45	4.73	7.03	
Fixed Income IMRF Custom Benchmark	-2.22	0.40	-10.23	-10.86	-1.51	0.83					
Private Real Assets	-0.19	-1.26								5.52	3/1/2022
Private Real Assets - Net	-0.19	-1.28								5.48	
Custom Benchmark (Private Real Assets)	0.01	0.03								11.73	
Real Estate	-0.15	-1.37	10.57	18.19	12.99	11.57	11.31	8.23	6.79	6.12	5/1/1985
Real Estate - Net	-0.15	-1.39	10.52	18.12	12.93	11.53	11.28				
Blended Benchmark (Real Estate)	0.00	0.00	12.00	28.31	11.40	9.31	10.05	8.05	7.84	8.01	
Agriculture	0.00	0.00	1.24	9.04	1.64	-0.27	7.34	7.25		6.56	10/1/1997
NCREIF Farmland Index	0.00	0.00	4.11	9.71	6.14	6.13	9.47	12.48		11.13	
Timberland	0.26	3.56	1.87	7.87	1.36	0.93	2.52	2.89		6.79	10/1/1992
NCREIF Timberland Index	0.00	0.00	5.13	12.01	5.03	4.32	5.73	6.66		8.35	
Unlisted Infrastructure	-1.92	-1.92	6.80	8.72	12.38					11.84	4/1/2018
Blended Benchmark (Unlisted Infrastructure)	0.29	0.61	8.00	11.14	9.71					9.48	

Benchmark definitions on next page.

Private Equity and Blended Benchmark (Private Equity) returns are 1 quarter lagged.

Asset Class Returns

Periods Ended August 31, 2022

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Alternatives Investments	-2.47	-1.76	4.58	17.27	20.77	18.27	13.54	10.49	13.04	11.68	2/1/1986
Alternatives Investments - Net	-2.47	-1.76	4.57	17.26	20.75	18.20	13.33				
Custom Benchmark (Alternative Investments)	0.37	-7.17	-6.13	-3.40	4.70	6.40	7.69	9.60	11.37	12.01	
Private Equity	-2.31	-1.56	5.42	19.23	24.29	21.85	16.23	12.87	15.79	13.99	2/1/1986
Blended Benchmark (Private Equity)	0.32	-7.78	-6.56	-3.84	4.54	6.30	7.64	9.57			
Cash	0.20	0.39	1.99	2.95	2.84	2.74	1.58	1.37	3.00	3.73	7/1/1986
90 Day US Treasury Bill	0.16	0.21	0.36	0.37	0.57	1.12	0.65	1.21	2.34	3.07	

Benchmark definitions on next page.

Private Equity and Blended Benchmark (Private Equity) returns are 1 quarter lagged.

Benchmark Definitions

Account Name	From Date	To Date	Benchmark
Domestic Equity Custom	3/1/2022	Present	93% Russell 3000 Index, 7% FTSE Global Core Infrastructure 50/50 Index (Net)
Benchmark	1/1/2015	2/28/2022	100% Russell 3000 Index
	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)**
Benchmark	1/1/2007	12/31/2012	100% NPI + 1%
	1/1/2005	12/31/2016	100% Consumer Price Index + 5%
Alternatives Custom	3/1/2022	Present	95% MSCI World World Index (Net) 1 Qtr Lagged +3%, 5% S&P LSTA Leveraged Loan 100 Index +2%
Benchmark	7/1/2010	2/28/2022	100% Annualized rate of 9.0%
	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
Fixed Income Custom Benchmark	3/1/2022	Present	78% Bloomberg U.S. Aggregate, 14% Custom Barings Global Loan Benchmark, 8% ICE BofAML U.S. High Yield Cash Pay Index
	1/1/1976	2/28/2022	100% Bloomberg U.S. Aggregate
Private Real Assets Custom Benchmark	3/1/2022	Present	95% NCREIF Fund Index-ODCE (VW) (Net)**, 5% Consumer Price Index +4%
Unlisted Infrastructure Blended Benchmark	3/1/2022	Present	100% Consumer Price Index +4%
	4/1/2018	2/28/2022	100% Alternatives Custom Benchmark
Private Equity Blended Benchmark	3/1/2022	Present	100% MSCI World World Index (Net) 1 Qtr Lagged +3%
	2/1/1996	2/28/2022	100% Alternatives Custom Benchmark

**ODCE returns are updated quarterly.

Benchmark Definitions

Account Name	From Date	To Date	Benchmark
Total Fund Benchmark			The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset class:
	3/1/2022	Present	35.5% Domestic Equity Custom Benchmark, 25.5% Fixed Income Custom Benchmark, 18% MSCI AC World ex USA (Net), 10.5% Private Real Assets Custom Benchmark, 9.5% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.
	1/1/2021	2/28/2022	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, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
Domestic Equity	18,815,896,083	37.44	18,025,974,116	36.93
Large Cap Growth	3,342,018,206	6.65	3,211,760,046	6.58
Sands Capital	1,360,361,500	2.71	1,322,334,371	2.71
Xponance Russell 1000 G	1,981,656,706	3.94	1,889,425,675	3.87
Large Cap Value	4,645,378,678	9.24	4,511,089,739	9.24
Dodge & Cox	1,743,729,238	3.47	1,698,810,541	3.48
LSV Asset	1,415,914,727	2.82	1,370,859,135	2.81
NTGI S&P 500 Value	1,485,734,712	2.96	1,441,420,063	2.95
Large Cap Pass. Core	2,577,146,195	5.13	2,308,044,011	4.73
NTGI MarketCap Idx.	2,577,146,195	5.13	2,308,044,011	4.73
Factor Diversity Strategies	2,454,393,415	4.88	2,360,540,214	4.84
U.S. Large Cap FDP-GSAM	2,454,393,415	4.88	2,360,540,214	4.84
Quantitative Factor Strategies	2,182,620,009	4.34	2,115,045,350	4.33
Quantitative US Equity - SciBeta	2,182,620,009	4.34	2,115,045,350	4.33
Small Cap Growth	725,035,432	1.44	713,997,484	1.46
Frontier Capital	725,035,432	1.44	713,997,484	1.46
Small Cap Value	1,443,473,951	2.87	1,391,160,401	2.85
Channing	305,112,499	0.61	293,970,070	0.60
DFA Small Cap Val.	526,605,132	1.05	515,265,070	1.06
William Blair Small Cap Value	611,756,320	1.22	581,925,262	1.19
Public Real Assets	1,445,830,197	2.88	1,414,336,871	2.90
Brookfield	403,045,527	0.80	395,124,087	0.81
Cohen & Steers	1,042,784,669	2.07	1,019,212,784	2.09

Investment Manager Asset Allocation

Periods Ended August 31, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
International Equity	8,411,127,314	16.74	8,118,224,255	16.63
Intl Large Cap Growth	1,425,664,989	2.84	1,363,882,635	2.79
EARNEST Part. Intl	566,930,622	1.13	550,567,983	1.13
William Blair	858,734,367	1.71	813,314,652	1.67
Intl Large Cap Value	1,245,317,906	2.48	1,190,478,090	2.44
Brandes Investment	546,826,303	1.09	522,487,851	1.07
Mondrian	574,360,159	1.14	548,591,823	1.12
Lazard	124,131,444	0.25	119,398,415	0.24
Intl Large Cap Core	4,033,098,956	8.02	3,900,259,070	7.99
Arrowstreet Capital	956,016,145	1.90	944,557,864	1.93
Brown Capital	492,204,362	0.98	469,022,925	0.96
GlobeFlex Capital	783,384,204	1.56	761,371,902	1.56
Xponance Intl EQ	87,850,076	0.17	83,718,904	0.17
Progress Intl Equity	603,031	0.00	591,418	0.00
Transition Account	187,615	0.00	187,744	0.00
NTGI ACWI ex US Index Fund	1,712,853,523	3.41	1,640,808,313	3.36
Intl All Cap Developed	147,923,337	0.29	139,223,594	0.29
Ativo International	147,923,337	0.29	139,223,594	0.29
International Small Cap	518,024,323	1.03	490,617,004	1.01
Franklin Templeton	204,952,457	0.41	193,728,547	0.40
William Blair IntSC	313,071,866	0.62	296,888,457	0.61

Investment Manager Asset Allocation

Periods Ended August 31, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
Emerging Mkt Equity	1,041,097,804	2.07	1,033,763,862	2.12
Genesis Investment Management, LLP.	1,041,097,804	2.07	1,033,763,862	2.12

Investment Manager Asset Allocation

Periods Ended August 31, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
Fixed Income	12,911,894,964	25.69	12,658,325,041	25.93
Global Bonds Transition	79,515	0.00	14	0.00
Domestic Fixed Core	3,974,716,410	7.91	3,873,208,618	7.93
Attucks Fixed Income	91,050,215	0.18	88,740,231	0.18
Brandes FI Core	350,874,448	0.70	340,815,325	0.70
EARNEST Partners	944,877,343	1.88	922,664,405	1.89
Garcia Hamilton	1,021,162,246	2.03	989,255,375	2.03
Ramirez Asset Management	549,507,588	1.09	535,956,999	1.10
Xponance Yield Advantage Agg.	1,017,244,570	2.02	995,776,283	2.04
Domestic Fixed Passive Core	3,121,989,937	6.21	3,034,527,964	6.22
NTGI Blmbg Agg.	1,431,577,297	2.85	1,391,765,095	2.85
BlackRock US Debt I	1,690,412,640	3.36	1,642,762,869	3.37
Domestic Fixed Core Plus	3,083,471,746	6.14	3,008,937,389	6.16
LM Capital Group FI	884,354,388	1.76	862,938,738	1.77
Progress Inv. FI	1,042	0.00	1,029	0.00
Loop Capital Management	598,229,728	1.19	584,337,910	1.20
Western Asset	1,003,975,961	2.00	978,864,552	2.01
Longfellow Core Plus	596,910,626	1.19	582,795,160	1.19
Bank Loans	1,633,201,600	3.25	1,665,312,293	3.41
Barings Global Loan Fund	1,633,201,600	3.25	1,665,312,293	3.41
Emerging Markets Debt	2,436,493	0.00	2,455,663	0.01
Standish-Mellon EMD	2,436,493	0.00	2,455,663	0.01

Investment Manager Asset Allocation

Periods Ended August 31, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
High Yield	1,095,999,264	2.18	1,073,883,101	2.20
MacKay Shields	1,095,999,264	2.18	1,073,883,101	2.20

Investment Manager Asset Allocation

Periods Ended August 31, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
Private Real Assets	4,691,471,140	9.33	4,727,269,350	9.68
Real Estate	4,278,368,635	8.51	4,317,062,848	8.84
Real Estate Core Cmp	2,336,984,565	4.65	2,336,740,696	4.79
TA Assoc. Buckhead	890,447,166	1.77	890,447,166	1.82
Barings Euro Core Property	136,576,133	0.27	134,929,927	0.28
Blackstone Property Euro	165,298,638	0.33	169,723,568	0.35
INVESCO Core Real Estate	263,692,402	0.52	263,692,402	0.54
INVESCO European real estate	56,776,227	0.11	55,984,144	0.11
AEW Core Property Tr	302,310,122	0.60	300,079,612	0.61
CBRE Core Partners	328,560,056	0.65	328,560,056	0.67
JPM Strategic Property Fund	193,323,821	0.38	193,323,821	0.40
RE Non-Core Cmp	1,941,384,070	3.86	1,980,322,152	4.06
Artemis MWBE Spruce	305,020,189	0.61	306,385,967	0.63
Franklin T. EMREFF	4,439,375	0.01	4,000,464	0.01
Security Capital	53,833,425	0.11	100,320,342	0.21
Dune II	7,378,667	0.01	8,031,504	0.02
Non-Core Real Estate Funds	1,343,135,639	2.67	1,333,664,848	2.73
Non-Core Intl Real Estate	227,493,785	0.45	227,837,203	0.47
Almanac ARS V	82,990	0.00	81,825	0.00
Agriculture	235,046,869	0.47	235,046,869	0.48
Premiere Partners IV	235,046,869	0.47	235,046,869	0.48
Timberland	58,672,512	0.12	58,825,355	0.12
Forest Investment	58,672,512	0.12	58,825,355	0.12
Unlisted Infrastructure	119,383,124	0.24	116,334,278	0.24
Unlisted Infrastructure Funds	119,383,124	0.24	116,334,278	0.24

Investment Manager Asset Allocation

Periods Ended August 31, 2022

	Jul-2022		Aug-2022	
	\$	%	\$	%
Alternatives Investments	5,116,109,722	10.18	4,973,330,377	10.19
Absolute Return	89,260	0.00	114,416	0.00
Aurora Investment	89,260	0.00	114,416	0.00
Private Equity	4,928,103,753	9.81	4,802,908,047	9.84
Abbott S/A Comp.	554,814,880	1.10	547,464,865	1.12
Muller Monroe MPEFF	552,890	0.00	1	0.00
Pantheon S/A Comp.	446,617,785	0.89	446,621,795	0.91
Private Equity Fund - Domestic	3,216,854,491	6.40	3,128,693,754	6.41
Private Equity Fund - International	516,687,846	1.03	482,093,098	0.99
Oakbrook Opportunities Fund	192,575,861	0.38	198,034,534	0.41
Private Credit	187,916,709	0.37	170,307,914	0.35
Private Credit Fund - Domestic	187,916,709	0.37	170,307,914	0.35
Cash & Equivalents	312,423,332	0.62	312,324,956	0.64
Total Fund	50,258,922,556	100.00	48,815,448,094	100.00

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	48,815,448,094	-2.59	1.57	-12.47	-10.74	7.95	7.33	8.48	9.66	1/1/1982
Total Fund - Net		-2.61	1.54	-12.56	-10.88	7.77	7.14	8.27		
Total Fund Benchmark		-2.36	1.35	-11.05	-8.32	6.70	6.61	7.77		
Domestic Equity	18,025,974,116	-3.26	4.76	-18.04	-15.56	11.58	10.57	12.38	11.47	1/1/1982
Domestic Equity - Net		-3.29	4.73	-18.13	-15.70	11.40	10.37	12.14		
Custom Benchmark (U.S. Equity)		-3.58	5.15	-16.17	-12.51	12.23	11.48	12.84		
Russell 3000 Index		-3.73	5.30	-16.92	-13.28	11.90	11.29	12.77	11.43	
U.S. Equity IMRF Custom Benchmark		-3.38	4.89	-16.66	-12.90	11.10	10.17			
Large Cap Equity	12,391,434,009	-3.46	4.80	-20.32	-18.03	11.34	10.79	12.63	11.16	1/1/1982
Large Cap Equity - Net		-3.48	4.78	-20.37	-18.10	11.26	10.69	12.50		
Russell 1000 Index		-3.84	5.12	-16.90	-12.96	12.14	11.61	12.98	11.58	
Large Cap Growth	3,211,760,046	-3.90	7.53	-28.67	-27.28	11.96	13.46	13.96	11.92	1/1/1982
Large Cap Growth - Net		-3.92	7.51	-28.72	-27.35	11.86	13.35	13.82		
LCG Blended Benchmark		-4.66	6.78	-23.19	-19.06	14.51	14.78	15.09		
Russell 1000 Growth Index		-4.66	6.78	-23.19	-19.06	14.51	14.78	15.09	11.38	
Xponance Russell 1000 G	1,889,425,675	-4.65	6.78	-23.18	-19.05	14.50			11.96	10/1/2018
Xponance Russell 1000 G - Net		-4.66	6.78	-23.19	-19.06	14.48			11.94	
Russell 1000 Growth Index		-4.66	6.78	-23.19	-19.06	14.51			11.97	
Sands Capital	1,322,334,371	-2.80	8.63	-43.78	-48.71	2.68	8.37	11.73	10.67	11/1/2003
Sands Capital - Net		-2.85	8.56	-43.90	-48.85	2.45	8.13	11.48		
LCG Blended Benchmark		-4.66	6.78	-23.19	-19.06	14.51	14.78	15.09	10.62	
Russell 1000 Growth Index		-4.66	6.78	-23.19	-19.06	14.51	14.78	15.09	10.67	
Large Cap Value	4,511,089,739	-2.77	2.64	-9.23	-6.39	10.91	8.79	11.73	10.20	10/1/1982
Large Cap Value - Net		-2.81	2.60	-9.33	-6.54	10.75	8.62	11.54		
LCV Blended Benchmark		-2.98	3.45	-9.85	-6.23	8.87	7.86	10.52		
Russell 1000 Value Index		-2.98	3.45	-9.85	-6.23	8.87	7.86	10.52	11.50	

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Dodge & Cox	1,698,810,541	-2.51	2.57	-9.22	-7.12	13.36	10.37	12.96	9.79	9/1/2003
Dodge & Cox - Net		-2.56	2.51	-9.36	-7.32	13.12	10.14	12.73		
LCV Blended Benchmark		-2.98	3.45	-9.85	-6.23	8.87	7.86	10.52	8.23	
Russell 1000 Value Index		-2.98	3.45	-9.85	-6.23	8.87	7.86	10.52	8.37	
LSV Asset	1,370,859,135	-3.02	2.42	-9.55	-7.32	10.00	7.76	11.66	10.36	2/1/2003
LSV Asset - Net		-3.07	2.36	-9.71	-7.54	9.73	7.51	11.40		
LCV Blended Benchmark		-2.98	3.45	-9.85	-6.23	8.87	7.86	10.52	9.01	
Russell 1000 Value Index		-2.98	3.45	-9.85	-6.23	8.87	7.86	10.52	9.02	
NTGI S&P 500 Value	1,441,420,063	-2.85	2.92	-8.93	-4.60	9.63	8.81	11.03	6.25	8/1/1999
NTGI S&P 500 Value - Net		-2.85	2.92	-8.93	-4.60	9.62	8.80	11.02		
S&P 500 Value		-2.84	2.90	-8.84	-4.51	9.59	8.77	10.95	6.22	
Large Cap Pass. Core	2,308,044,011	-3.78	5.25	-17.18	-13.68	11.73	11.19	12.73	11.12	1/1/1985
Large Cap Pass. Core - Net		-3.78	5.25	-17.18	-13.68	11.72	11.19	12.73		
Dow Jones US Total Stock Market Index		-3.78	5.25	-17.20	-13.73	11.71	11.16	12.66		
NTGI MarketCap Idx.	2,308,044,011	-3.78	5.25	-17.18	-13.68	11.73	11.19	12.73	10.91	2/1/1985
NTGI MarketCap Idx. - Net		-3.78	5.25	-17.18	-13.68	11.72	11.19	12.73		
Dow Jones US Total Stock Market Index		-3.78	5.25	-17.20	-13.73	11.71	11.16	12.66		
Factor Diversity Strategies	2,360,540,214	-3.82	5.00	-16.97	-13.17				8.60	8/18/2020
U.S. Large Cap FDP-GSAM	2,360,540,214	-3.82	5.00	-16.97	-13.17				8.60	8/18/2020
U.S. Large Cap FDP-GSAM - Net		-3.83	5.00	-16.99	-13.21				8.54	
Solactive GBS U.S. 1000 Index		-3.80	5.25	-17.21	-13.51				8.53	
GSAM Active Beta US. Large Cap FDC Index		-3.84	4.99	-16.94	-13.18				8.58	
Quantitative Factor Strategies	2,115,045,350	-3.10	3.74	-12.70	-9.06	8.16			8.16	9/17/2019
Quantitative US Equity - SciBeta	2,115,045,350	-3.10	3.74	-12.70	-9.06	8.16			8.16	9/17/2019
Quantitative US Equity - SciBeta - Net		-3.10	3.74	-12.72	-9.10	7.97			7.97	
SciBeta US Hi-Fctr-Intst Div Multi-Beta Multi-Strat Index		-3.25	3.60	-13.50	-9.66	7.18			7.18	

Benchmark definitions in glossary.

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Small Cap	2,105,157,886	-2.92	6.60	-12.00	-9.53	13.38	9.84	11.61	11.94	7/1/1988
Small Cap Composite - Net		-3.02	6.49	-12.50	-10.20	12.66	9.20	10.99		
Russell 2000 Index		-2.05	8.18	-17.16	-17.88	8.59	6.95	10.01	9.14	
Small Cap Growth	713,997,484	-1.52	8.87	-17.00	-17.27	14.02	12.39	13.17	12.88	7/1/1988
Small Cap Growth - Net		-1.64	8.74	-17.90	-18.35	12.90	11.52	12.44		
Russell 2000 Growth Index		-0.94	10.15	-22.29	-25.26	5.93	6.69	10.16	7.82	
Frontier Capital	713,997,484	-1.52	8.87	-17.00	-17.66	14.99	15.06	14.08	13.24	8/1/1988
Frontier Capital - Net		-1.64	8.74	-17.90	-18.67	13.78	14.05	13.27		
Russell 2000 Growth Index		-0.94	10.15	-22.29	-25.26	5.93	6.69	10.16	7.90	
Small Cap Value	1,391,160,401	-3.62	5.46	-9.19	-5.01	13.28	8.56	11.15	11.55	9/1/1989
Small Cap Value - Net		-3.71	5.37	-9.46	-5.43	12.77	8.05	10.61		
Russell 2000 Value Index		-3.16	6.21	-12.17	-10.18	10.37	6.56	9.49	9.74	
Channing	293,970,070	-3.65	2.61	-14.26	-12.55	10.66	6.73	10.89	9.66	7/1/2011
Channing - Net		-3.78	2.47	-14.59	-13.00	10.12	6.20	10.33	9.08	
Russell 2000 Value Index		-3.16	6.21	-12.17	-10.18	10.37	6.56	9.49	8.52	
DFA Small Cap Val.	515,265,070	-2.15	7.26	-4.78	1.00	17.09	9.35	11.59	11.93	2/1/1996
DFA Small Cap Val. - Net		-2.22	7.19	-5.02	0.61	16.59	8.85	11.06		
Russell 2000 Value Index		-3.16	6.21	-12.17	-10.18	10.37	6.56	9.49	9.22	
William Blair Small Cap Value	581,925,262	-4.88	5.38	-10.20	-6.10	11.50	8.82	11.61	11.12	5/1/1999
Inv. Couns. Maryland - Net		-4.97	5.28	-10.46	-6.51	11.00	8.30	11.09		
Russell 2000 Value Index		-3.16	6.21	-12.17	-10.18	10.37	6.56	9.49	8.78	
Public Real Assets	1,414,336,871	-2.18	3.27	-0.64	3.53	5.58	6.88		7.12	8/1/2017
Public Real Assets - Net		-2.25	3.19	-0.87	3.21	5.19	6.45		6.69	
Public Real Assets Benchmark		-2.14	2.85	-1.03	2.56	4.58	5.16		5.37	
Brookfield	395,124,087	-1.97	4.58	2.62	8.10	5.42	5.79		5.77	8/1/2017
Brookfield - Net		-2.06	4.48	2.31	7.64	4.90	5.26		5.25	
Dow Jones Brookfield Global Infrastructure Composite Index		-3.35	2.34	-0.90	2.75	4.08	4.37		4.38	

Benchmark definitions in glossary.

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Cohen & Steers	1,019,212,784	-2.26	2.77	-1.27	2.45	5.98	7.60		7.96	8/1/2017
Cohen & Steers - Net		-2.32	2.71	-1.47	2.17	5.63	7.20		7.57	
FTSE Global Core Infrastructure 50/50 Index (Net)		-1.53	3.09	-1.11	2.45	4.80	5.53		5.83	

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
International Equity	8,118,224,255	-3.47	0.04	-20.52	-22.75	3.59	2.38	5.81	7.24	9/1/1986
International Equity - Net		-3.54	-0.03	-20.71	-23.06	3.21	2.02	5.45		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48		
International Equity IMRF Custom Benchmark		-2.77	0.29	-18.38	-19.95	2.97	1.64			
Intl LargeCap Equity	6,454,619,795	-3.72	0.06	-18.92	-20.47	4.73	2.95	6.18	7.32	9/1/1986
Intl LargeCap Equity - Net		-3.78	0.00	-19.08	-20.73	4.41	2.66	5.88		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48		
Intl Large Cap Grwth	1,363,882,635	-4.33	2.55	-23.19	-25.71	6.13	3.86	6.45	7.76	9/1/2002
Intl Large Cap Grwth - Net		-4.40	2.47	-23.37	-25.98	5.79	3.56	6.13		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	6.33	
MSCI AC World ex USA Growth (Net)		-3.90	1.39	-23.75	-25.30	2.78	2.81	5.49	6.63	
EARNEST Part. Intl	550,567,983	-2.89	1.96	-13.05	-13.85	7.04	3.51	5.96	8.27	10/1/2004
EARNEST Part. Intl - Net		-2.94	1.91	-13.18	-14.03	6.81	3.31	5.71		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	5.06	
MSCI AC World ex USA Growth (Net)		-3.90	1.39	-23.75	-25.30	2.78	2.81	5.49	5.73	
William Blair	813,314,652	-5.29	2.94	-28.81	-32.00	5.46	4.25	6.93	8.79	10/1/2002
William Blair - Net		-5.37	2.85	-29.01	-32.31	5.07	3.87	6.54		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	6.96	
MSCI AC World ex USA Growth (Net)		-3.90	1.39	-23.75	-25.30	2.78	2.81	5.49	7.15	
Intl Large Cap Val.	1,190,478,090	-4.40	-3.45	-14.41	-15.84	2.68	1.32	4.80	7.67	10/1/1995
Intl Large Cap Val. - Net		-4.48	-3.53	-14.61	-16.10	2.37	1.00	4.43		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	4.75	
MSCI AC World ex USA Value		-2.47	-1.11	-12.39	-12.94	3.11	0.83	3.88		
Brandes Investment	522,487,851	-4.45	-3.88	-13.89	-15.82	3.24	1.32	5.21	7.83	1/1/1996
Brandes Investment - Net		-4.50	-3.94	-14.03	-16.00	3.02	1.11	4.97		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	4.66	
MSCI AC World ex USA Value		-2.47	-1.11	-12.39	-12.94	3.11	0.83	3.88		

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Mondrian	548,591,823	-4.49	-3.65	-14.53	-15.29	2.47	1.37	4.44	3.94	4/1/2012
Mondrian - Net		-4.59	-3.75	-14.71	-15.56	2.08	0.95	3.96	3.46	
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	3.85	
MSCI AC World ex USA Value		-2.47	-1.11	-12.39	-12.94	3.11	0.83	3.88	3.30	
Lazard	119,398,415	-3.81	-0.56	-16.15	-18.36	1.93	1.92	5.00	4.72	4/1/2012
Lazard - Net		-3.88	-0.62	-16.25	-18.52	1.70	1.68	4.54	4.27	
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	3.85	
MSCI AC World ex USA Value		-2.47	-1.11	-12.39	-12.94	3.11	0.83	3.88	3.30	
Intl Large Cap Active Core	2,259,450,758	-2.62	1.06	-18.74	-20.48	6.58	4.06	7.69	4.83	2/1/2008
Intl Large Cap Active Core - Net		-2.72	0.96	-18.98	-20.93	6.01	3.54	7.14		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	2.08	
Arrowstreet Capital	944,557,864	-1.19	0.49	-15.25	-16.71	11.99	7.43	9.54	6.05	3/1/2008
Arrowstreet Capital - Net		-1.31	0.37	-15.55	-17.11	11.47	6.94	9.03	5.56	
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	1.89	
Brown Capital	469,022,925	-4.71	2.59	-29.75	-32.42	1.11	2.20	7.09	6.59	10/1/2004
Brown Capital - Net		-4.77	2.52	-29.90	-33.07	0.40	1.56	6.23		
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	5.06	
GlobeFlex Capital	761,371,902	-2.81	0.97	-14.28	-15.50	6.05	2.18	6.65	4.66	3/1/2006
GlobeFlex Capital - Net		-2.90	0.87	-14.49	-15.78	5.65	1.80	6.23	4.22	
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34	-19.52	2.87	1.67	4.48	3.23	
Xponance Intl EQ	83,718,904	-4.70	0.01	-23.16	-24.54				-8.26	2/1/2021
Xponance Intl EQ - Net		-4.86	-0.15	-23.54	-25.03				-8.81	
MSCI EAFE Index (Net)		-4.75	0.00	-19.57	-19.80				-6.14	
Progress Intl Equity	591,418									
Intl Large Cap Passive Core	1,640,808,313	-4.21	-0.67	-18.52	-18.96	3.01	2.13	5.46	3.48	2/1/2000
Intl Large Cap Passive Core - Net		-4.21	-0.67	-18.53	-18.96	3.00	2.12	5.45		
International Large Cap Passive Core Benchmark		-3.22	0.10	-18.34	-19.27	2.62	1.76	5.07	3.10	

Benchmark definitions in glossary.

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
NTGI ACWI ex US Index	1,640,808,313	-4.21	-0.67	-18.52					-16.69	10/1/2021
NTGI ACWI ex US Index - Net		-4.21	-0.67	-18.53					-16.70	
MSCI AC World ex USA (Net)		-3.22	0.10	-18.34					-16.86	
Intl All Cap Developed	139,223,594	-5.87	-0.21	-22.12	-21.25	0.78			2.15	2/1/2019
Intl All Cap Developed - Net		-6.00	-0.35	-22.42	-21.65	0.28			1.67	
MSCI EAFE + Canada (Net)		-4.67	0.07	-18.70	-18.56	2.98			3.37	
Ativo International	139,223,594	-5.88	-0.22	-22.12	-21.25	0.78			2.15	2/1/2019
Ativo International - Net		-6.00	-0.35	-22.42	-21.65	0.28			1.67	
MSCI EAFE + Canada (Net)		-4.67	0.07	-18.70	-18.56	2.98			3.37	
Intl Small Cap Eqty	490,617,004	-5.27	2.48	-31.97	-34.95	2.69	1.08	6.16	4.04	12/1/2005
Intl Small Cap Eqty - Net		-5.46	2.28	-32.39	-35.47	1.92	0.32	5.37		
MSCI AC World ex USA Small Cap (Net)		-2.62	3.00	-20.61	-22.54	5.21	2.23	6.19	5.45	
Custom Benchmark (Intl Small Cap)		-2.62	3.00	-20.61	-22.54	5.21	2.23	6.19	4.84	
Franklin Templeton	193,728,547	-5.48	-0.80	-24.64	-27.22	1.72	0.77	5.86	4.49	8/1/2011
Franklin Templeton - Net		-5.65	-0.98	-25.07	-27.76	0.99	0.03	5.09	3.73	
MSCI AC World ex USA Small Cap (Net)		-2.62	3.00	-20.61	-22.54	5.21	2.23	6.19	4.18	
William Blair IntSC	296,888,457	-5.15	4.73	-36.03	-39.17	3.34	1.26	6.38	7.07	9/1/2010
William Blair IntSC - Net		-5.33	4.52	-36.44	-39.68	2.55	0.48	5.57	6.25	
MSCI AC World ex USA Small Cap (Net)		-2.62	3.00	-20.61	-22.54	5.21	2.23	6.19	5.90	
Custom Benchmark (Intl Small Cap)		-2.62	3.00	-20.61	-22.54	5.21	2.23	6.19	6.14	
Emerging Mkt Equity	1,033,763,862	-0.66	-1.14	-23.57	-29.28	-1.90	0.20	3.17	7.82	2/1/1992
Emerging Mkt Equity - Net		-0.70	-1.24	-23.85	-29.67	-2.46	-0.37	2.58		
MSCI Emerging Markets Index		0.46	0.29	-17.23	-21.48	3.10	0.96	3.29	6.41	
Genesis Investment Management, LLP.	1,033,763,862	-0.66	-1.14	-23.57	-29.28	-1.90	0.20	3.17	8.73	5/1/2004
Genesis Investment Management, LLP. - Net		-0.70	-1.24	-23.85	-29.67	-2.46	-0.37	2.58		
MSCI Emerging Markets Index		0.46	0.29	-17.23	-21.48	3.10	0.96	3.29	7.44	

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	12,658,325,041	-1.96	0.65	-9.91	-10.64	-1.04	1.19	2.22	7.55	1/1/1982
Fixed Income - Net		-1.98	0.63	-9.97	-10.72	-1.13	1.07	2.08		
Custom Benchmark (Fixed Income)		-2.17	0.45	-9.83	-10.60	-1.66	0.73	1.46	7.03	
Fixed Income IMRF Custom Benchmark		-2.22	0.40	-10.23	-10.86	-1.51	0.83			
Active Fixed Core	3,873,208,618	-2.55	-0.17	-9.92	-10.72	-1.40	0.99	1.88	3.83	4/1/2001
ActiveCore Fixed Inc - Net		-2.58	-0.20	-10.00	-10.82	-1.50	0.89	1.74		
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	3.73	
Attucks Fixed Income	88,740,231	-2.54	-0.18	-11.06	-11.82				-7.23	2/1/2021
Attucks Fixed Income - Net		-2.62	-0.26	-11.28	-12.11				-7.52	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52				-7.42	
Brandes FI Core	340,815,325	-2.87	0.11	-8.96	-9.79	-1.33	0.69		1.13	3/1/2016
Brandes FI Core - Net		-2.87	0.10	-8.98	-9.82	-1.34	0.68		1.12	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52		1.04	
EARNEST Partners	922,664,405	-2.35	0.05	-9.90	-10.93	-1.52	0.99	1.91	3.66	5/1/2005
EARNEST Partners - Net		-2.38	0.02	-9.99	-11.05	-1.65	0.86	1.74	3.47	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	3.19	
Garcia Hamilton	989,255,375	-3.12	-0.36	-9.09	-9.84	-1.43	1.07		1.66	6/1/2015
Garcia Hamilton - Net		-3.14	-0.38	-9.14	-9.91	-1.51	0.99		1.58	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52		1.15	
Ramirez Asset Management	535,956,999	-2.47	-0.40	-10.75	-11.68				-2.32	5/1/2020
Ramirez Asset Management - Net		-2.50	-0.43	-10.84	-11.77				-2.46	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52				-4.42	
Xponance Yield Advantage Agg.	995,776,283	-2.11	-0.15	-10.55	-11.09	-1.21	0.98	1.89	3.51	6/1/2005
Xponance Yield Advantage Agg. - Net		-2.14	-0.19	-10.64	-11.20	-1.33	0.85	1.74	3.33	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	3.14	
Pass. Core Fixed Inc	3,034,527,964	-2.80	-0.44	-10.65	-11.45	-1.94	0.58	1.40	5.25	1/1/1990
Pass. Core Fixed Inc - Net		-2.80	-0.44	-10.65	-11.45	-1.94	0.57	1.39		
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	5.23	

Benchmark definitions in glossary.

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
BlackRock US Debt I	1,642,762,869	-2.82	-0.45	-10.62	-11.43	-1.91	0.61		1.81	10/1/2013
BlackRock US Debt I - Net		-2.82	-0.45	-10.63	-11.44	-1.91	0.60		1.80	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52		1.69	
NTGI Blmbg Agg.	1,391,765,095	-2.78	-0.42	-10.67	-11.45	-1.97	0.55	1.38	5.30	2/1/1990
NTGI Blmbg Agg. - Net		-2.78	-0.42	-10.67	-11.46	-1.97	0.54	1.37		
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	5.28	
Core Plus Fixed Income	3,008,937,389	-2.41	0.33	-11.68	-12.62	-1.26	1.05	2.16	7.40	1/1/1982
Core Plus Fixed Inc. - Net		-2.43	0.30	-11.77	-12.75	-1.41	0.88	1.99		
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	7.00	
LM Capital Group FI	862,938,738	-2.42	-0.12	-10.02	-11.25	-0.64	1.26	2.12	4.00	5/1/2005
LM Capital Group FI - Net		-2.46	-0.16	-10.13	-11.39	-0.80	1.10	1.96	3.84	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	3.19	
Progress Inv. FI	1,029									
Loop Capital Management	584,337,910	-2.32	0.57	-11.73	-12.44	-1.52	0.94	2.30	3.97	5/1/2005
Loop Capital Management - Net		-2.35	0.54	-11.82	-12.56	-1.65	0.80	2.17	3.84	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	3.19	
Western Asset	978,864,552	-2.48	0.87	-13.43	-14.39	-1.75	0.83	2.36	4.51	11/1/2001
Western Asset - Net		-2.48	0.87	-13.50	-14.51	-1.88	0.71	2.23		
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52	-2.00	0.52	1.35	3.48	
Longfellow Core Plus	582,795,160	-2.36	-0.16	-11.06	-11.38				-2.45	5/1/2020
Longfellow Core Plus - Net		-2.40	-0.20	-11.16	-11.49				-2.60	
Blmbg. U.S. Aggregate		-2.83	-0.45	-10.75	-11.52				-4.42	
Bank Loans	1,665,312,293	1.54	3.73	-2.18	-0.76	2.89	3.44		3.90	8/1/2014
Bank Loans - Net		1.54	3.58	-2.31	-0.88	2.85	3.23		3.54	
Custom Benchmark		1.66	3.70	-1.31	0.07	3.06	3.66		3.73	

Performance

Periods Ended August 31, 2022

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Barings Global Loan Fund	1,665,312,293	1.54	3.73	-2.18	-0.76	2.89	3.44		3.90	8/1/2014
Barings Global Loan Fund - Net		1.54	3.76	-2.14	-0.71	2.91	3.27		3.57	
Custom Benchmark		1.66	3.70	-1.31	0.07	3.06	3.66		3.73	
Emerging Markets Debt	2,455,663									
Standish-Mellon EMD	2,455,663									
High Yield	1,073,883,101	-2.02	3.17	-7.93	-7.25	2.72	3.93	5.39	8.97	4/1/1986
High Yield - Net		-2.02	3.17	-8.07	-7.54	2.40	3.61	5.05		
ICE BofAML US High Yield, Cash Pay Index		-2.43	3.45	-11.04	-10.41	0.78	2.41	4.41	7.67	
MackKay Shields	1,073,883,101	-2.02	3.17	-7.91	-7.25	2.73	3.93	5.45	7.99	11/1/2000
MackKay Shields - Net		-2.02	3.17	-8.05	-7.53	2.40	3.61	5.09		
ICE BofAML US High Yield, Cash Pay Index		-2.43	3.45	-11.04	-10.41	0.78	2.41	4.41	6.62	

Benchmark History

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:
	3/1/2022	Present	35.5% Domestic Equity Custom Benchmark, 25.5% Fixed Income Custom Benchmark, 18% MSCI AC World ex USA (Net), 10.5% Private Real Assets Custom Benchmark, 9.5% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.
	1/1/2021	2/28/2022	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	3/1/2022	Present	93% Russell 3000 Index, 7% FTSE Global Core Infrastructure 50/50 Index (Net)
	1/1/2015	2/28/2022	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 Composite, 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.