

Wilshire



Illinois Municipal Retirement Fund

Monthly Investment Summary

Jul-2023

IMRF Performance Summary

- The Illinois Municipal Retirement Fund (“IMRF”) ended July 2023 with a market value of \$51.8 billion, up for the month by approximately \$1 billion. IMRF returned 2.13% during the month, underperforming the Total Fund Benchmark, which returned 2.22%. Equities and credit sensitive fixed income posted positive returns to begin the new quarter, primarily due to moderating inflation and strong GDP growth.
- The broad U.S. Equity market was positive for the month, with Small Cap stocks outperforming Large Cap. The U.S. Equity Portfolio outperformed its benchmark during July, returning 3.61% versus 3.48%, which was a result of the outperformance from Large Cap managers.
- International Equity markets were positive in July, while Emerging Markets outperformed Developed. The International Equity portfolio underperformed the benchmark during the month, returning 3.87% versus 4.07%. In aggregate, investment manager performance in Large Cap Growth was the largest contributor to relative underperformance.
- Fixed Income markets remained mixed in July, with Core lagging behind Core Plus segments. The Fixed Income Portfolio outperformed the benchmark during the month, returning 0.28% versus 0.24%. Investment manager performance in Core Plus was the largest contributor to relative outperformance.
- As of July month-end, all underlying asset class allocations in the Portfolio are within the stated four percentage point re-balancing range as outlined by the current Statement of Investment Policy.

Performance referenced above is Net of Fees.

Market Dashboard

Returns though Monday July 31, 2023

Portfolio Allocations	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
Global 60/40	2.17	3.34	(1.08)	2.17	3.36	11.47	6.31	4.46	5.52
Wilshire Risk Parity (12%)	0.91	1.80	(3.43)	0.91	(0.20)	9.43	(2.90)	4.07	4.72

Strategic Allocation Themes *	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
Growth ¹	3.66	5.81	(1.07)	3.66	6.18	18.11	12.91	10.41	8.24
Defensive Growth ²	2.06	3.69	(1.56)	2.06	3.23	7.95	5.75	5.94	7.27
Diversified Credit ³	1.59	2.00	(0.65)	1.59	2.14	6.65	6.07	0.21	2.30
Real Assets ⁴	3.54	2.16	(4.39)	3.54	(1.92)	2.46	(7.67)	7.88	5.75
Defensive ⁵	(0.07)	(0.36)	(1.09)	(0.07)	(0.84)	2.02	(3.37)	(4.46)	0.75

Major Asset Classes	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
FT Wilshire 5000	3.58	6.86	0.43	3.58	8.43	20.47	12.55	13.47	11.68
MSCI ACWI-ex-USA (Net)	4.06	4.49	(3.64)	4.06	2.44	13.92	13.41	7.09	3.85
Bloomberg U.S. Aggregate	(0.07)	(0.36)	(1.09)	(0.07)	(0.84)	2.02	(3.37)	(4.46)	0.75
Bloomberg U.S. Corporate High Yield	1.38	1.67	(0.92)	1.38	1.75	6.83	4.41	2.04	3.42
Wilshire Global Real Estate Securities	3.66	4.11	(3.52)	3.66	1.87	8.07	(5.55)	6.58	2.90
Bloomberg Commodity	6.26	4.04	(5.64)	6.26	(2.56)	(2.02)	(7.88)	18.02	6.47

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 Monday July 31, 2023

US Equity	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
FT Wilshire 5000	3.58	6.86	0.43	3.58	8.43	20.47	12.55	13.47	11.68
Standard & Poor's 500	3.21	6.61	0.43	3.21	8.74	20.65	13.02	13.72	12.20
Wilshire US Large Cap	3.41	6.73	0.58	3.41	8.73	21.03	12.97	13.53	12.27
Wilshire US Large-Cap Growth	3.65	7.01	5.27	3.65	14.19	36.92	18.29	13.95	14.96
Wilshire US Large-Cap Value	3.11	6.38	(4.70)	3.11	2.59	5.85	6.98	12.80	9.27
Wilshire US Small Cap	5.64	8.58	(1.40)	5.64	5.10	14.97	8.65	13.64	6.25
Wilshire US Small-Cap Growth	5.63	9.43	(0.70)	5.63	6.74	19.90	13.08	10.29	6.99
Wilshire US Small-Cap Value	5.66	7.76	(2.07)	5.66	3.54	10.52	4.64	17.20	5.53
Non-US Equity	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
MSCI ACWI-ex-USA (Net)	4.06	4.49	(3.64)	4.06	2.44	13.92	13.41	7.09	3.85
MSCI EAFE (Net)	3.24	4.55	(4.23)	3.24	2.95	15.28	16.79	9.25	4.55
MSCI EM (Net)	6.23	3.80	(1.68)	6.23	0.90	11.42	8.35	1.46	1.71
MSCI ACWI-ex-US Small cap (Net)	5.08	3.44	(2.77)	5.08	2.05	12.27	10.19	8.18	3.50
Global Equity	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
MSCI ACWI (Net)	3.66	5.81	(1.07)	3.66	6.18	18.11	12.91	10.41	8.24
MSCI ACWI Minimum Volatility (Net)	1.61	2.69	(3.19)	1.61	2.22	5.46	4.35	4.95	5.12
Fixed Income	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
Bloomberg U.S. Aggregate	(0.07)	(0.36)	(1.09)	(0.07)	(0.84)	2.02	(3.37)	(4.46)	0.75
Bloomberg Long Term Treasury	(2.17)	(0.02)	(2.79)	(2.17)	(2.30)	1.47	(11.21)	(13.92)	(1.02)
Bloomberg U.S. TIPS	0.13	(0.34)	(1.20)	0.13	(1.42)	2.00	(5.39)	(0.84)	2.62
Bloomberg US Treasury Bills	0.44	0.42	0.36	0.44	1.15	2.73	3.96	1.37	1.60
Bloomberg U.S. Corporate High Yield	1.38	1.67	(0.92)	1.38	1.75	6.83	4.41	2.04	3.42
Credit Suisse Leveraged Loan	1.30	2.24	(0.09)	1.30	3.12	7.71	9.49	5.96	4.12
Bloomberg US Convertibles Index	2.86	5.16	0.59	2.86	4.39	12.16	8.10	6.98	10.07
JPM EMBI Global Diversified	1.91	2.23	(0.57)	1.91	2.19	6.08	6.37	(3.67)	0.43
Real Assets	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
Wilshire Global Real Estate Securities	3.66	4.11	(3.52)	3.66	1.87	8.07	(5.55)	6.58	2.90
FTSE Global Core Infrastructure 50/50	2.12	2.93	(5.01)	2.12	(0.10)	2.77	(2.32)	7.14	5.96
Alerian Midstream Energy	3.30	6.97	(5.36)	3.30	3.71	7.96	5.34	25.96	7.46
Bloomberg Commodity	6.26	4.04	(5.64)	6.26	(2.56)	(2.02)	(7.88)	18.02	6.47
Gold	2.38	(2.21)	(1.37)	2.38	(2.54)	7.73	11.28	(0.18)	9.93
Bitcoin	(3.90)	12.07	(7.62)	(3.90)	7.03	76.17	21.94	37.05	30.59

Source: Bloomberg, All returns are in USD

Factor/Relative Returns

Returns though Monday July 31, 2023

Asset Class Differentials	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
Stocks (ACWI) > Bonds (BB US Aggregate)	3.73	6.16	0.02	3.73	7.02	16.08	16.28	14.87	7.49
Stocks (ACWI) > Mkt Alts (Equity Hedged))	2.14	2.86	(0.67)	2.14	2.52	10.30	6.85	3.67	4.64
Mkt Alts (Relative Value) > Bonds (BB US Aggregate)	0.66	0.56	0.28	0.66	0.66	(0.08)	2.81	3.78	(0.37)

Equity & Real Assets Differentials	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
US Small > Large	2.23	1.85	(1.98)	2.23	(3.63)	(6.06)	(4.33)	0.11	(6.02)
US Value > Growth	(0.54)	(0.63)	(9.96)	(0.54)	(11.60)	(31.07)	(11.31)	(1.14)	(5.69)
ACWI-ex-US > US	0.48	(2.37)	(4.07)	0.48	(6.00)	(6.55)	0.86	(6.39)	(7.83)
EM > EAFE	2.99	(0.75)	2.55	2.99	(2.06)	(3.86)	(8.45)	(7.79)	(2.83)
ACWI-ex-US Currency Impact	1.31	0.92	(1.94)	1.31	(0.92)	1.15	1.74	(2.72)	(1.60)
EAFE Currency Impact	1.57	0.95	(2.65)	1.57	(1.33)	1.31	3.23	(3.78)	(1.67)
EM Currency Impact	0.92	0.35	(0.69)	0.92	(0.81)	0.27	(0.29)	(1.53)	(1.98)
Global Low Volatility > ACWI	(2.05)	(3.11)	(2.12)	(2.05)	(3.96)	(12.65)	(8.56)	(5.47)	(3.12)
Global RE > ACWI	(0.00)	(1.70)	(2.45)	(0.00)	(4.31)	(10.03)	(18.46)	(3.83)	(5.34)
Commodities > Global RE	2.60	(0.07)	(2.12)	2.60	(4.43)	(10.09)	(2.33)	11.44	3.57
Commodities > TIPS	6.13	4.38	(4.44)	6.13	(1.14)	(4.01)	(2.49)	18.86	3.85
Gold > Commodities	(3.87)	(6.25)	4.27	(3.87)	0.03	9.75	19.16	(18.21)	3.46

Fixed Income Differentials	MTD	JUN	MAY	QTD	Q2 2023	YTD	1 Year	3 Year	5 Year
Duration (US Core > US Core 1-3 Years)	(0.50)	0.04	(0.79)	(0.50)	(0.48)	0.44	(3.78)	(3.63)	(0.40)
IG Credit > Treasury	0.70	1.16	(0.29)	0.70	1.09	2.34	2.71	0.91	1.22
High Yield > IG Credit	1.03	1.26	0.53	1.03	2.03	3.27	5.70	6.40	1.75
High Yield > Loans	0.09	(0.59)	(0.78)	0.09	(1.40)	(1.04)	(5.42)	(4.04)	(0.83)
TIPS > Treasury	0.74	0.92	0.25	0.74	0.43	1.01	1.14	5.67	2.04
EMD > Dev Hdg	1.11	1.33	(0.90)	1.11	0.39	0.83	5.75	(0.96)	(0.04)
EMD > High Yield	(0.20)	(0.18)	0.16	(0.20)	(0.62)	(2.32)	0.28	(5.36)	(2.49)
Non-US > US Core	1.35	0.62	(1.60)	1.35	(1.32)	0.10	0.92	(2.37)	(3.08)
Non-US Hdg > US Core	0.14	0.52	1.24	0.14	1.58	1.67	2.29	2.10	0.22
FI Currency Impact	1.20	0.09	(2.84)	1.20	(2.89)	(1.57)	(1.38)	(4.48)	(3.30)

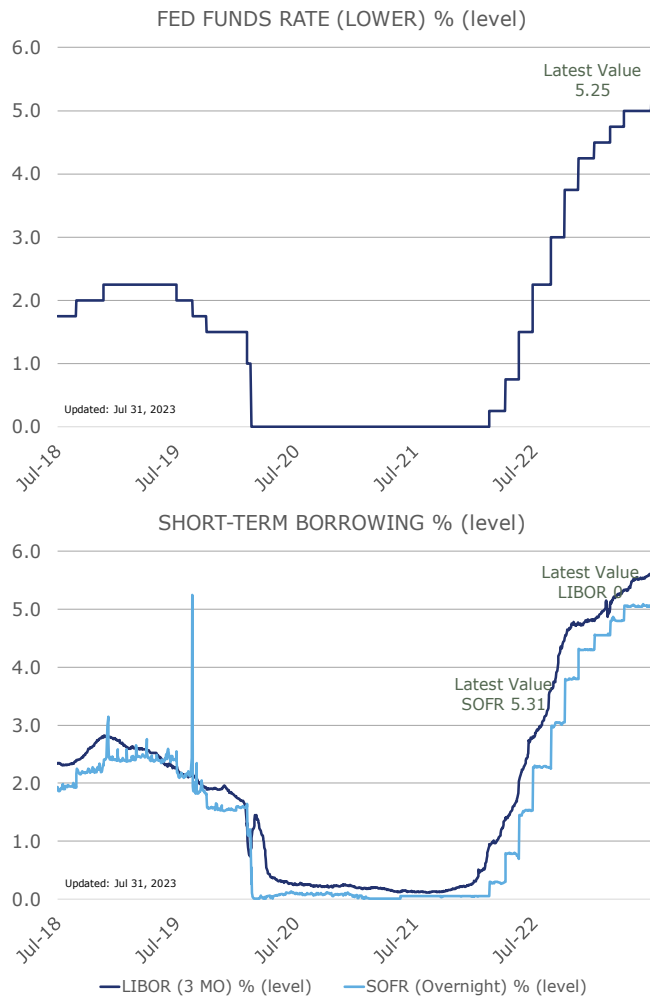
Source: Bloomberg, All returns are in USD

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
	07/31/23	06/30/23	05/31/23	04/28/23	06/30/23	03/31/23	12/30/22	07/29/22	07/31/20	07/31/18
Govt/Treasury Yields										
Fed Funds Target Rate (Upper)	5.50	5.25	5.25	5.00	5.25	5.00	4.50	2.50	0.25	2.00
2-Year Treasury	4.88	4.90	4.41	4.01	4.90	4.03	4.43	2.89	0.11	2.67
5-Year Treasury	4.18	4.16	3.76	3.49	4.16	3.58	4.01	2.68	0.21	2.85
10-Year Treasury	3.96	3.84	3.65	3.43	3.84	3.47	3.88	2.65	0.53	2.96
30-Year Treasury	4.01	3.86	3.86	3.68	3.86	3.65	3.97	3.01	1.19	3.08
10-Year Real Treasury	1.59	1.62	1.48	1.22	1.62	1.15	1.58	0.10	(1.03)	0.83
Term Spreads										
5 - 2 Year Treasury Spread	(0.70)	(0.75)	(0.65)	(0.53)	(0.75)	(0.46)	(0.43)	(0.21)	0.10	0.17
10 - 5 Year Treasury Spread	(0.22)	(0.32)	(0.12)	(0.06)	(0.32)	(0.11)	(0.13)	(0.03)	0.32	0.11
10 - 2 Year Treasury Spread	(0.92)	(1.06)	(0.76)	(0.59)	(1.06)	(0.56)	(0.56)	(0.24)	0.42	0.29
30 - 10 Year Treasury Spread	0.04	0.02	0.21	0.25	0.02	0.18	0.08	0.36	0.66	0.12
30 - 2 Year Treasury Spread	(0.87)	(1.04)	(0.55)	(0.34)	(1.04)	(0.38)	(0.47)	0.12	1.08	0.41
Market Yields										
Bloomberg U.S. Treasury YTW	4.43	4.37	4.07	3.79	4.37	3.83	4.18	2.89	0.41	2.83
Bloomberg U.S. Aggregate YTW	4.85	4.81	4.59	4.35	4.81	4.40	4.68	3.42	1.05	3.36
Bloomberg U.S. Long Treasury YTW	4.13	3.97	3.95	3.75	3.97	3.77	4.08	3.19	1.10	3.07
Bloomberg U.S. Long Govt/Credit YTW	4.85	4.75	4.78	4.55	4.75	4.58	4.91	4.06	2.10	3.97
Credit Spreads										
Bloomberg Investment Grade OAS	1.12	1.22	1.37	1.35	1.22	1.38	1.30	1.43	1.32	1.09
Bloomberg High Yield OAS	3.68	3.92	4.65	4.47	3.92	4.52	4.68	4.65	4.87	3.36
Breakeven Inflation Rates										
1-Year Breakeven Inflation	1.58	1.83	1.88	2.11	1.83	3.14	2.14	3.79	0.96	0.87
2-Year Breakeven Inflation	2.10	2.11	2.06	2.16	2.11	2.68	2.31	3.25	1.14	1.61
5-Year Breakeven Inflation	2.31	2.19	2.10	2.25	2.19	2.48	2.38	2.81	1.43	2.00
10-Year Breakeven Inflation	2.37	2.23	2.18	2.21	2.23	2.32	2.30	2.55	1.55	2.13
5-Year 5-Year Forward Breakeven Inflation	2.44	2.22	2.24	2.15	2.22	2.21	2.20	2.40	1.70	2.25

Source: Bloomberg

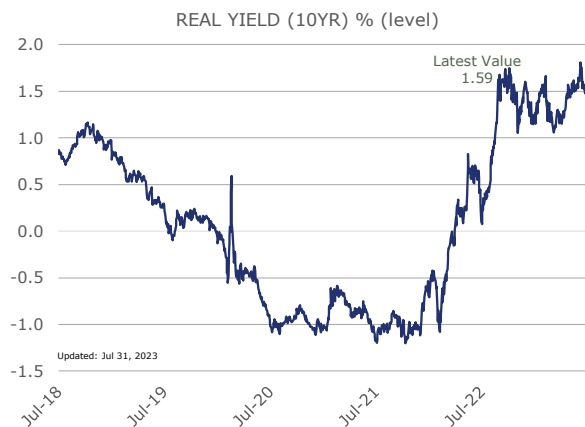
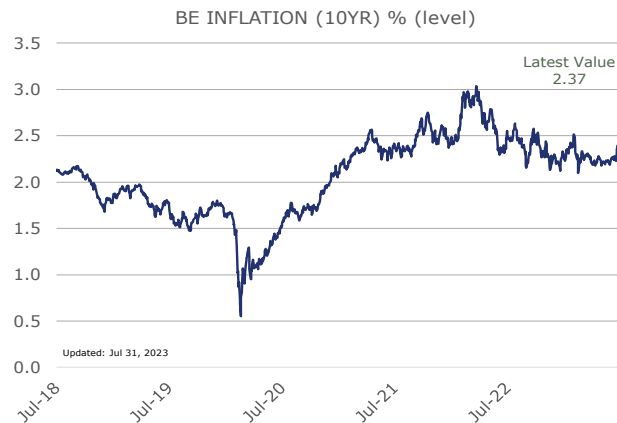
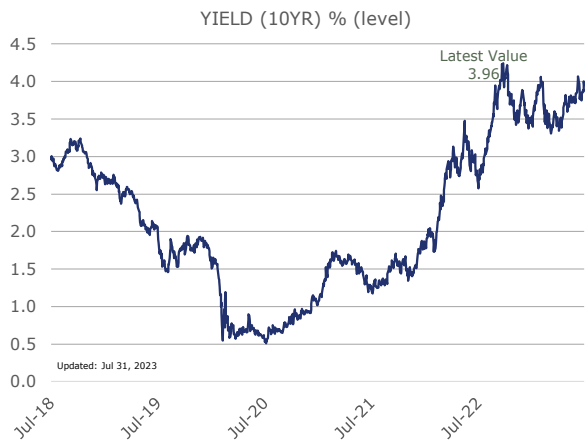
Short Rates



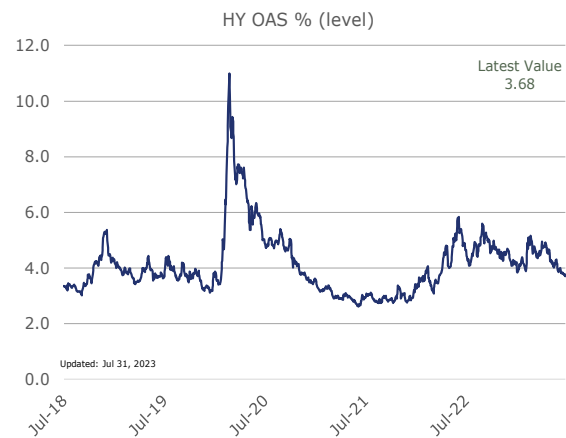
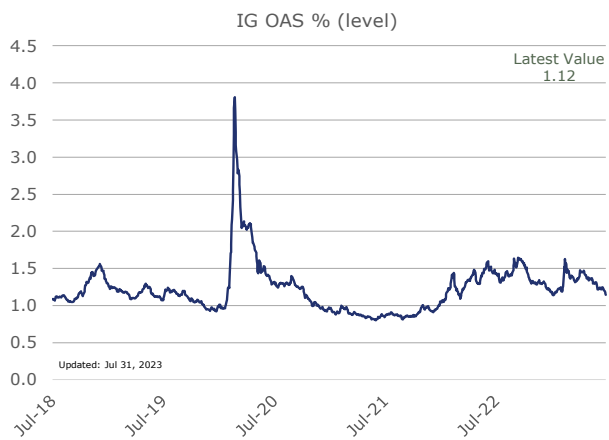
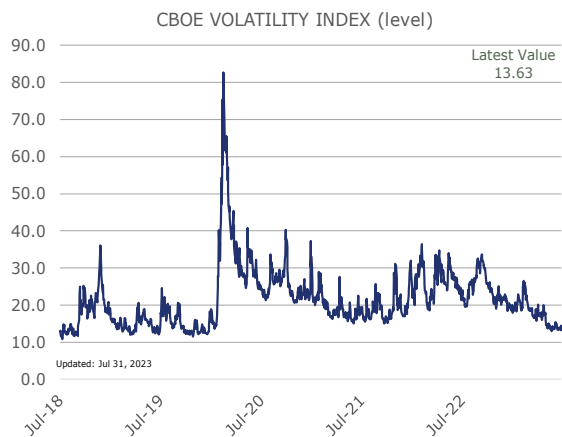
Data Source: Bloomberg

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

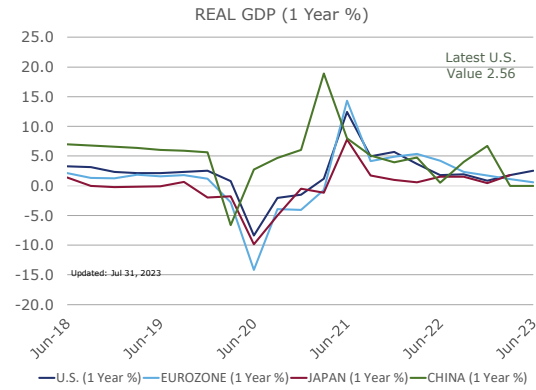
Treasury Rates



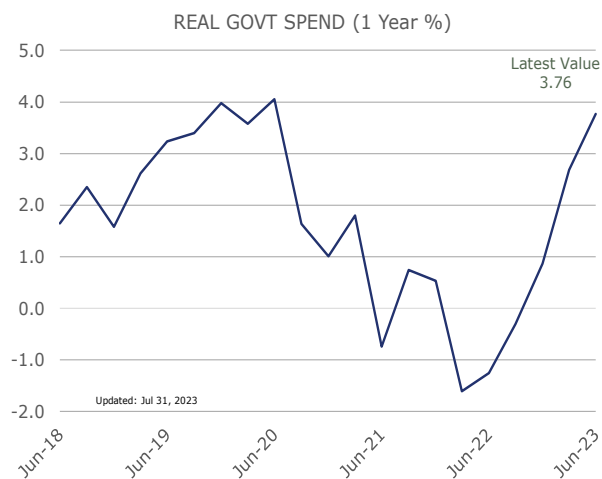
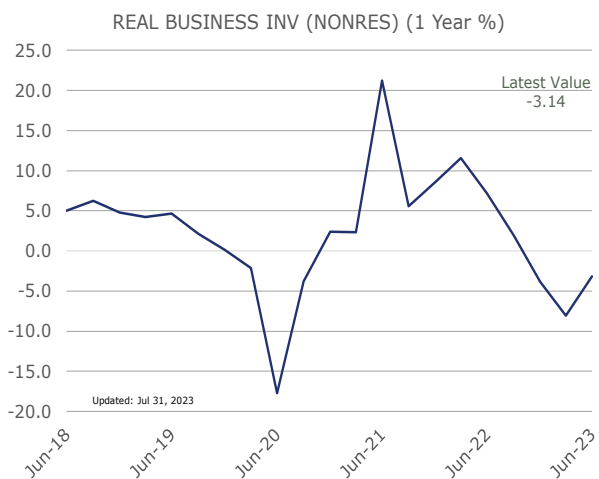
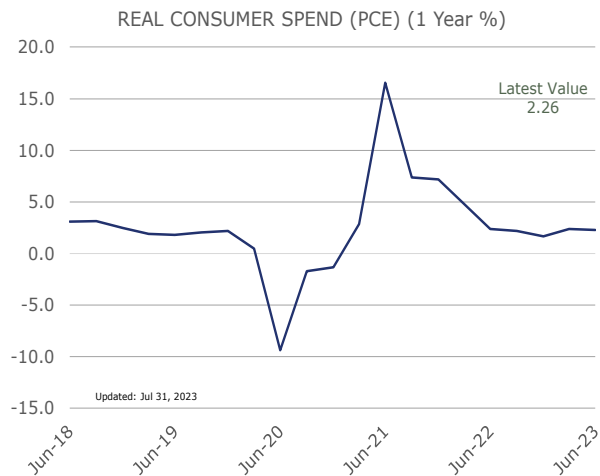
Volatility & Credit Risk



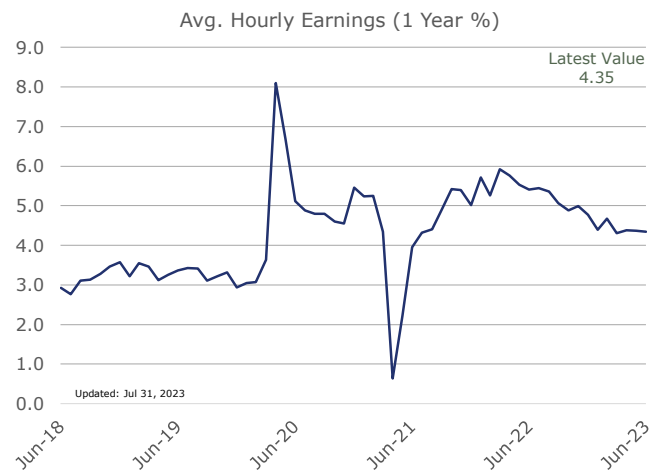
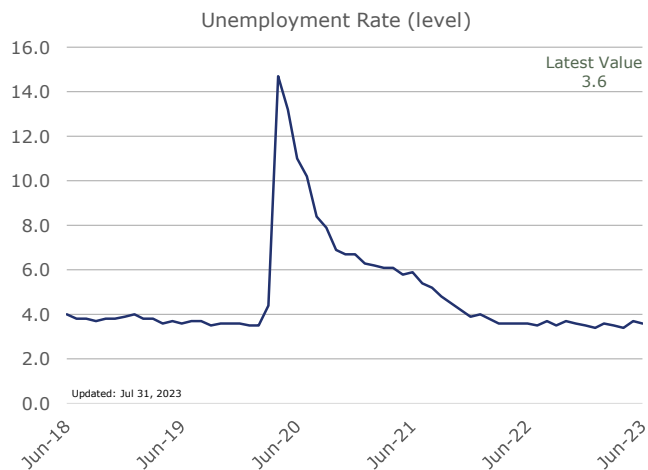
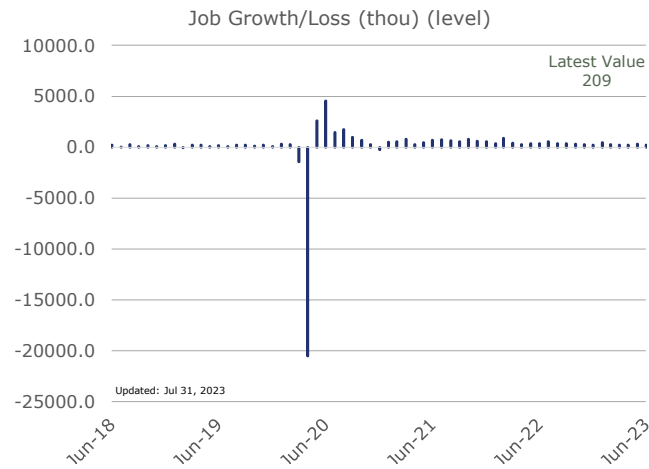
Economic Growth



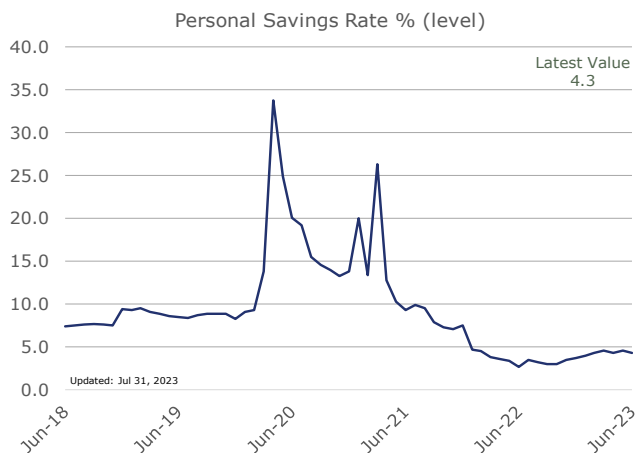
Economic Growth



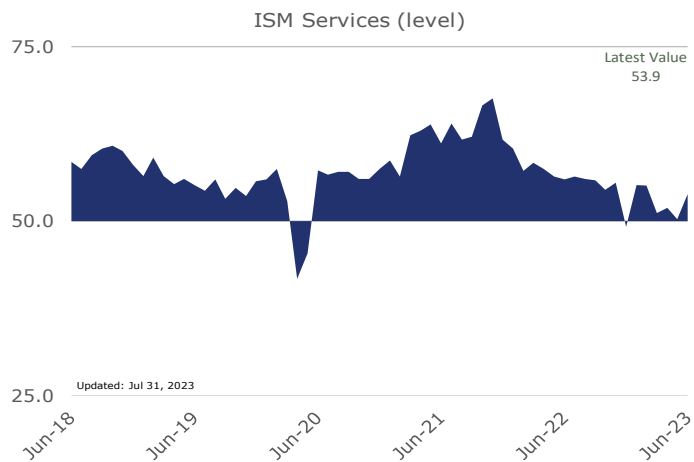
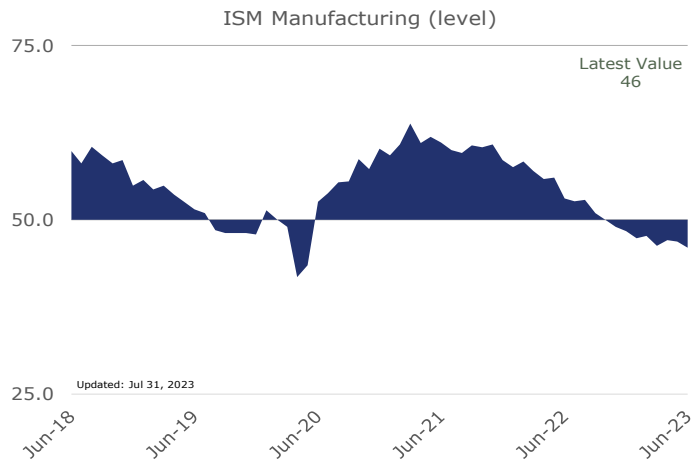
Consumers & Employment



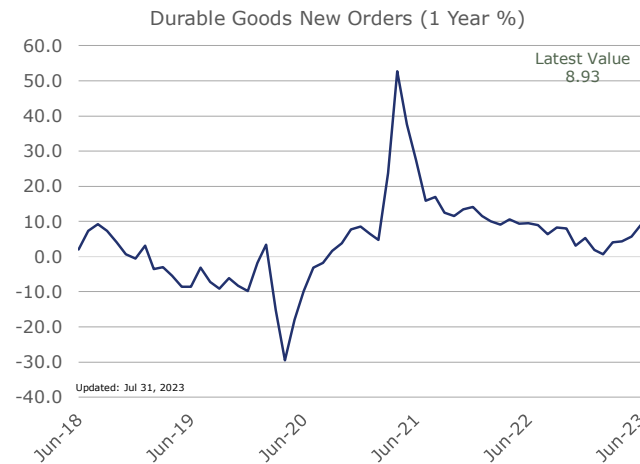
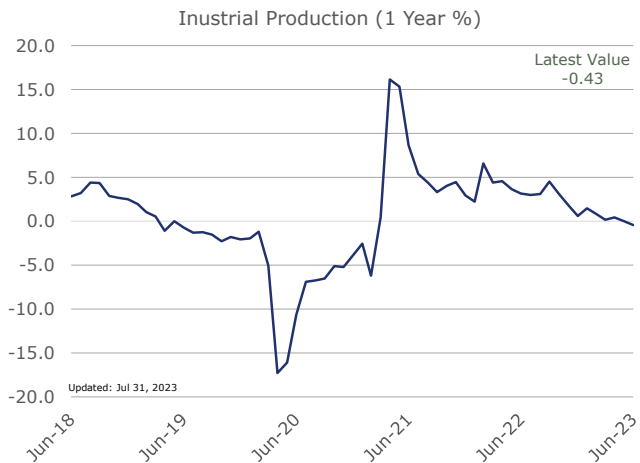
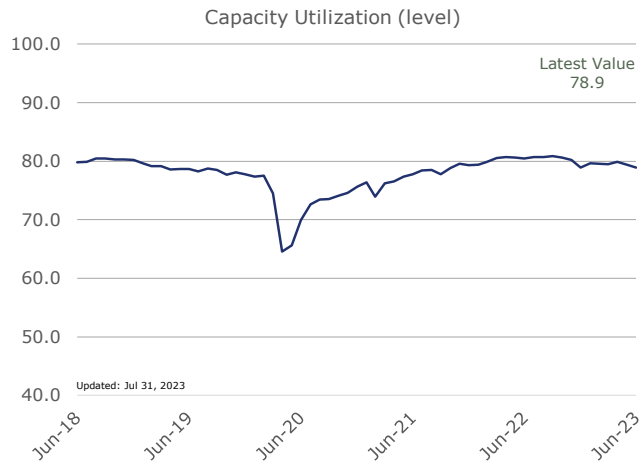
Income & Spending



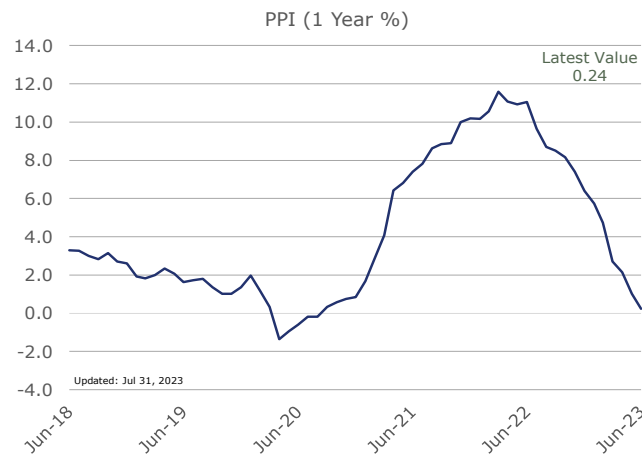
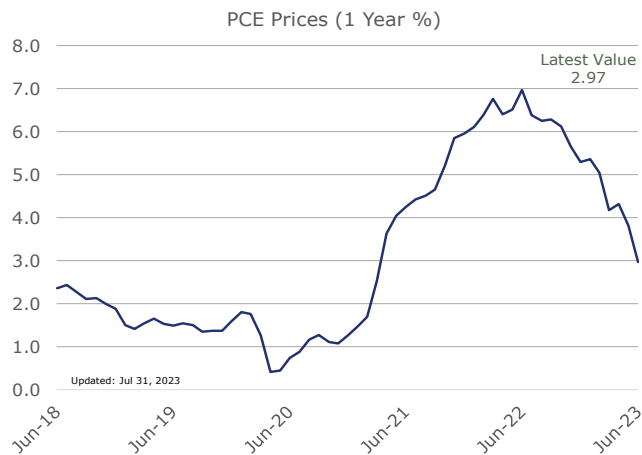
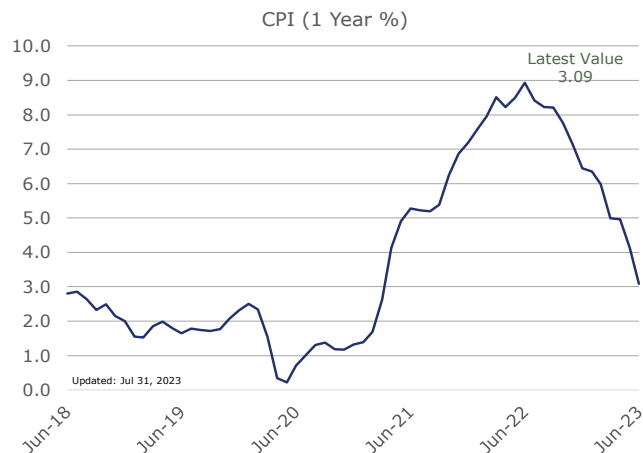
ISM Surveys



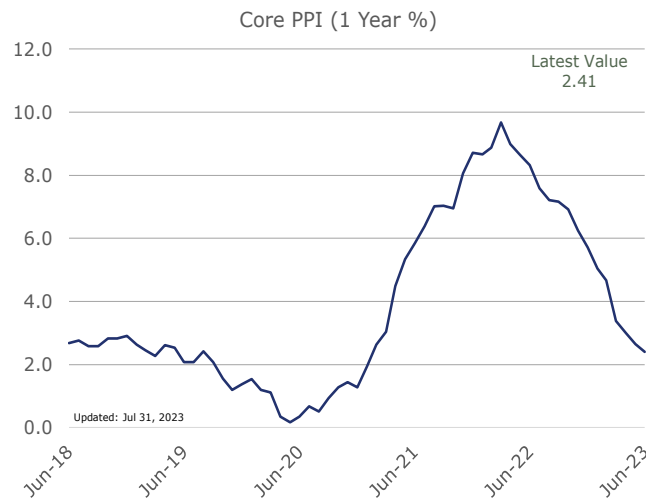
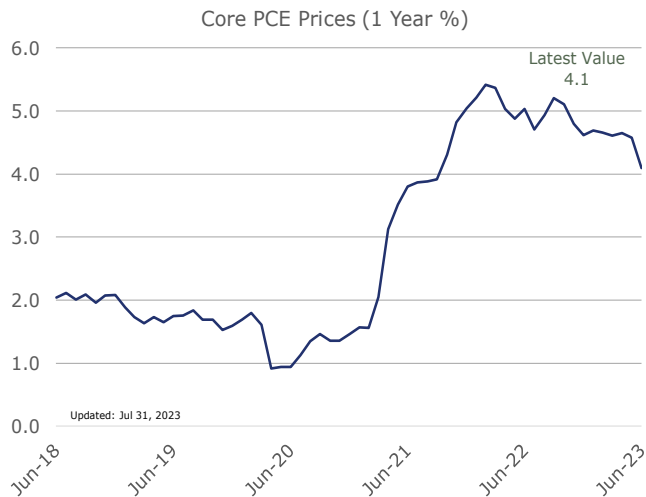
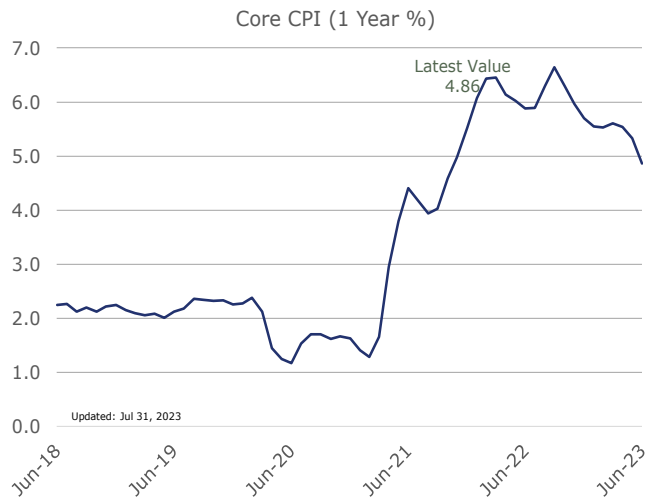
Manufacturing Activity



Price Indexes

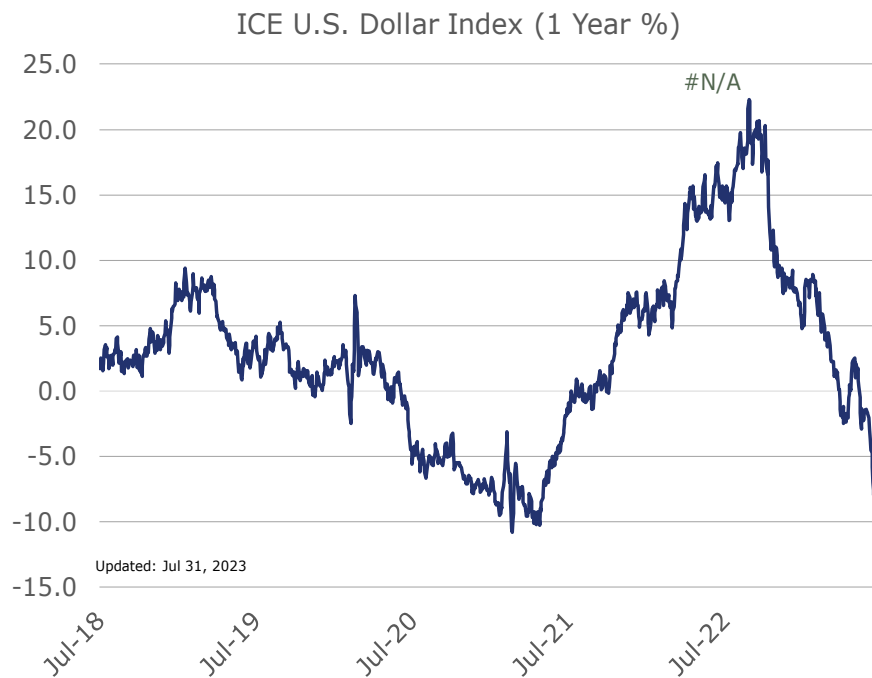


Core Price Indexes



Data Sources: Bloomberg

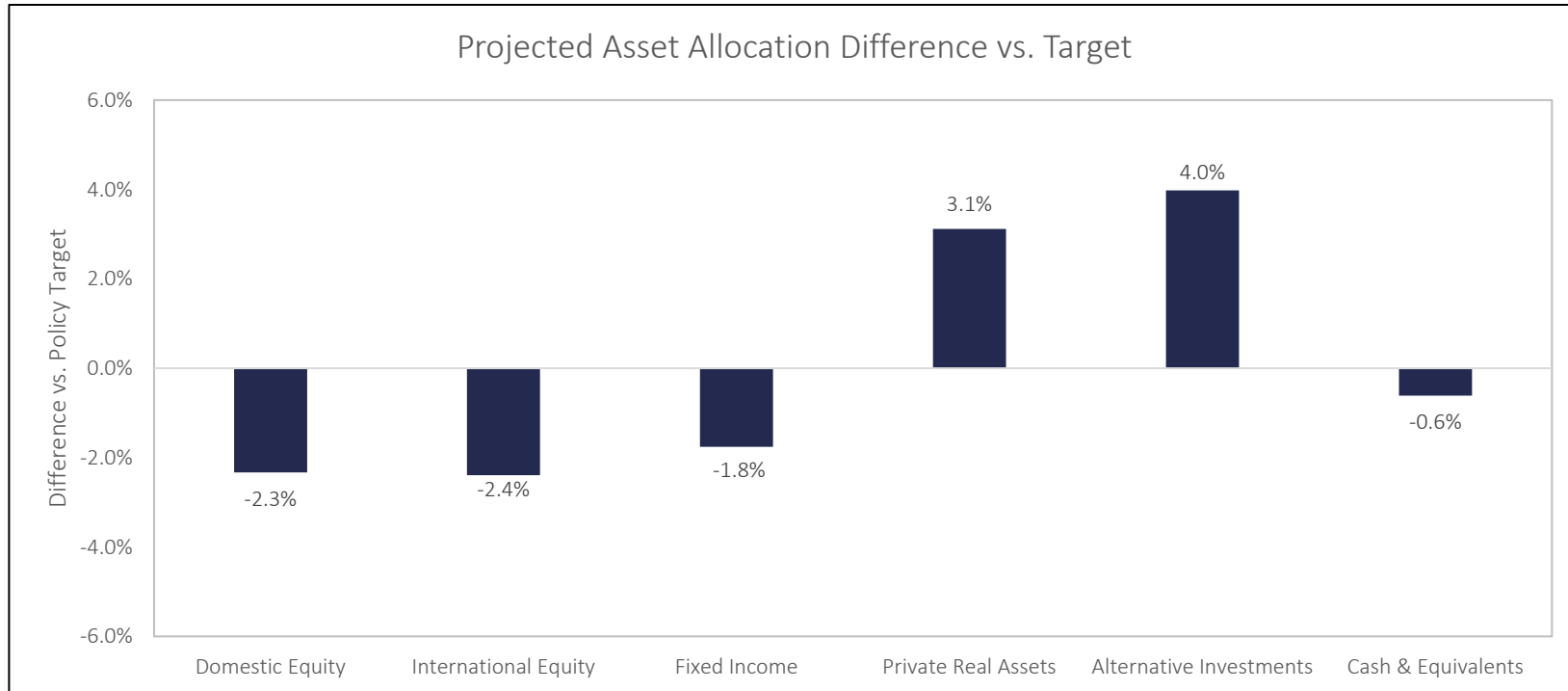
U.S. Dollar



IMRF Performance

Projected Deviations from the Benchmark

As of July 31, 2023



- Includes committed, but unfunded amounts for Real Assets (\$2.09 billion) and Alternatives (\$2.65 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

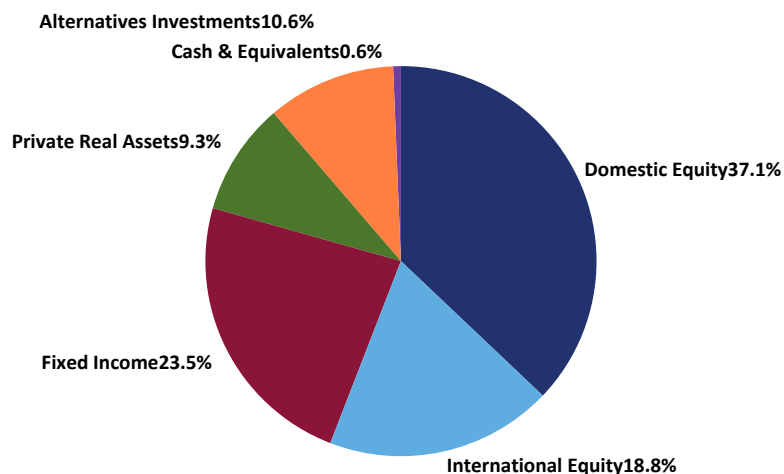
Real Assets Proxy: 50% Domestic Equity, 30% International Equity, 20% Fixed Income

Asset Allocation

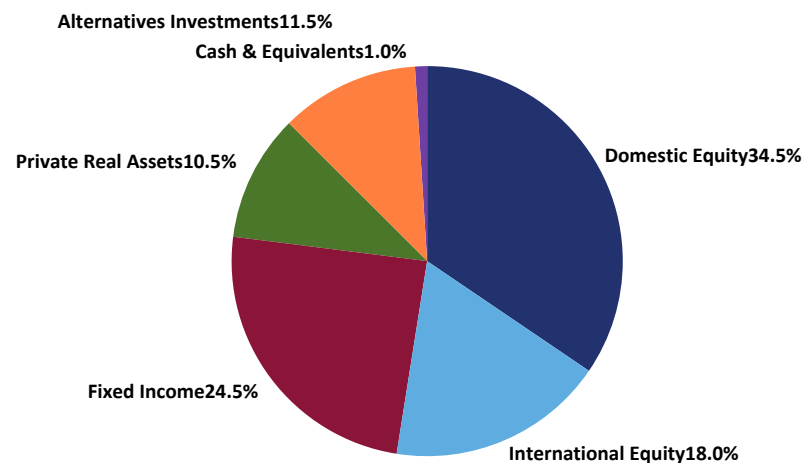
Total Fund

Periods Ended As of July 31, 2023

Actual Allocation



Target Allocation



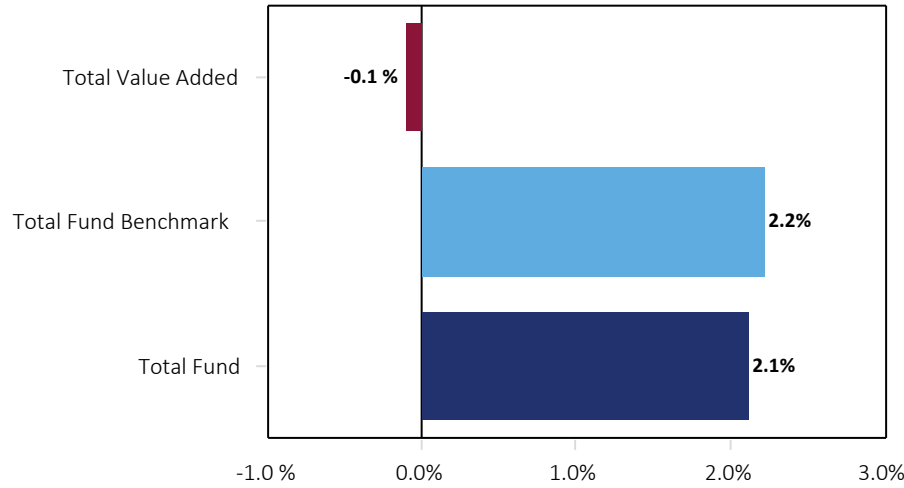
	Actual Allocation \$Millions	Actual Allocation %	Target Allocation %	Differences %	Differences \$Millions
Total Fund	51,808	100.0	100.0	0.0	
Domestic Equity	19,222	37.1	34.5	2.6	1,348
International Equity	9,729	18.8	18.0	0.8	404
Fixed Income	12,175	23.5	24.5	-1.0	-518
Private Real Assets	4,838	9.3	10.5	-1.2	-602
Alternatives Investments	5,512	10.6	11.5	-0.9	-446
Cash & Equivalents	332	0.6	1.0	-0.4	-186

Total Fund Attribution

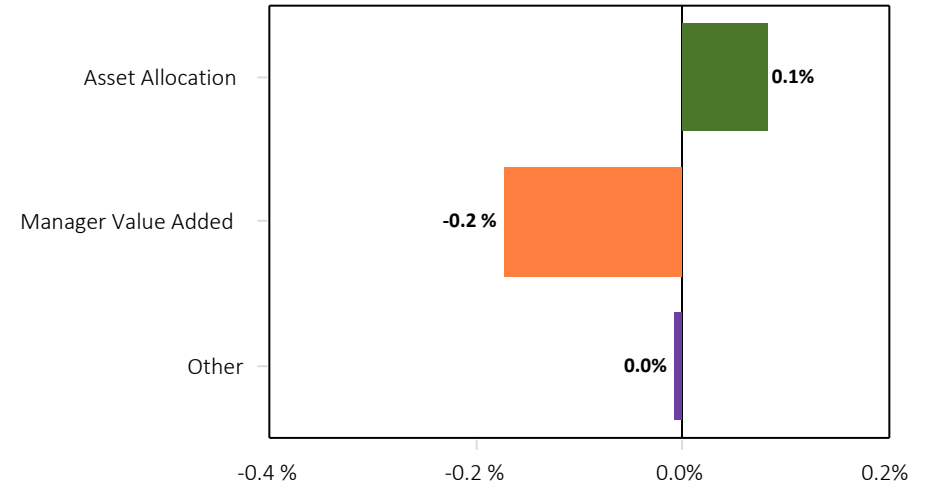
Total Fund

1 Month Ending July 31, 2023

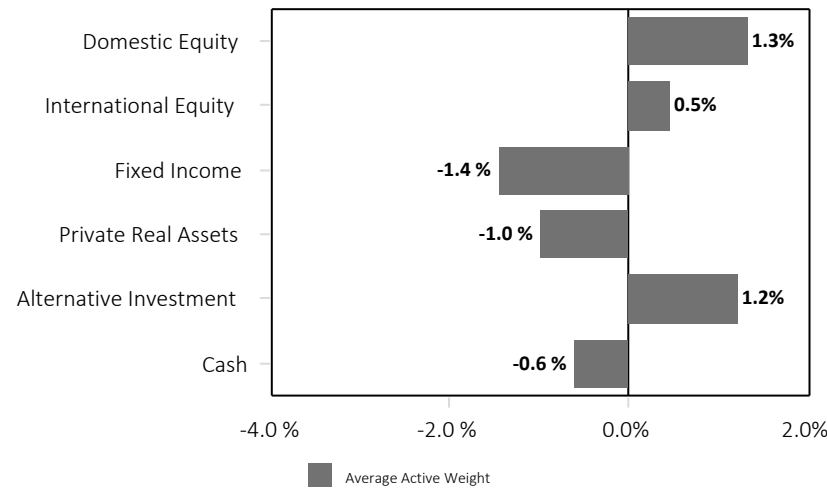
Total Fund Performance



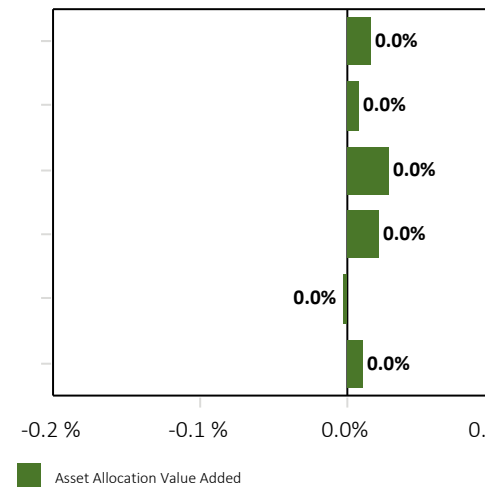
Total Value Added:-0.1 %



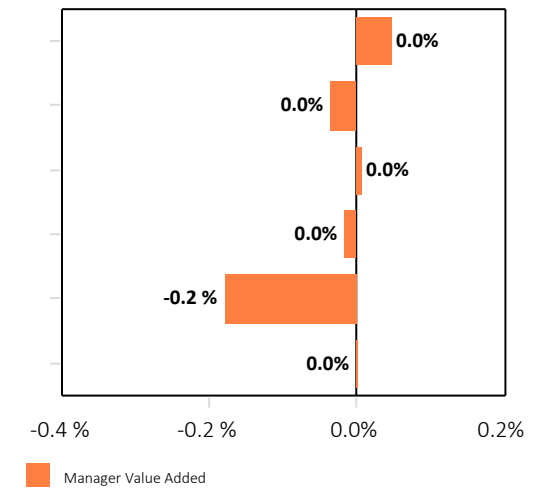
Asset Class Under or Overweighting



Asset Allocation Value Added:0.1%



Total Manager Value Added:-0.2 %



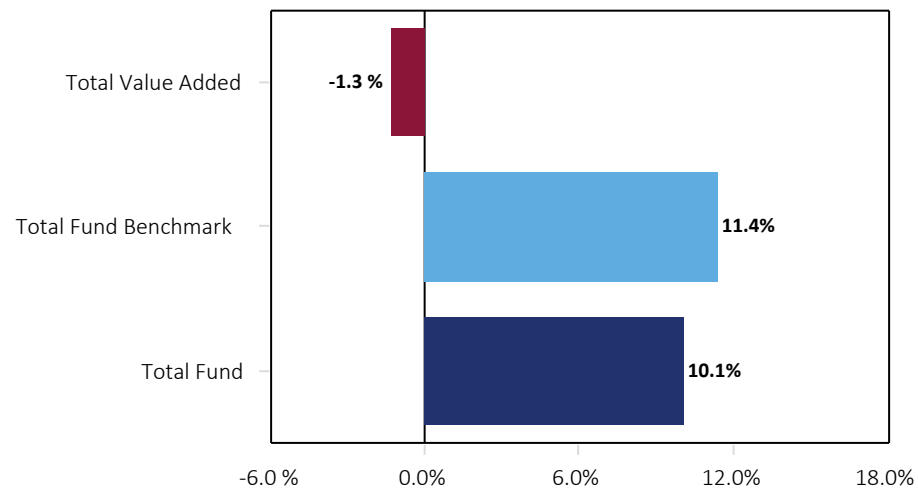
Total Fund Benchmark = 35.5% Domestic Equity Custom Benchmark, 25.5% Fixed Income Custom Benchmark, 18.0% MSCI AC World ex USA (Net), 10.5% Private Real Assets Custom Benchmark, 9.5% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.

Total Fund Attribution

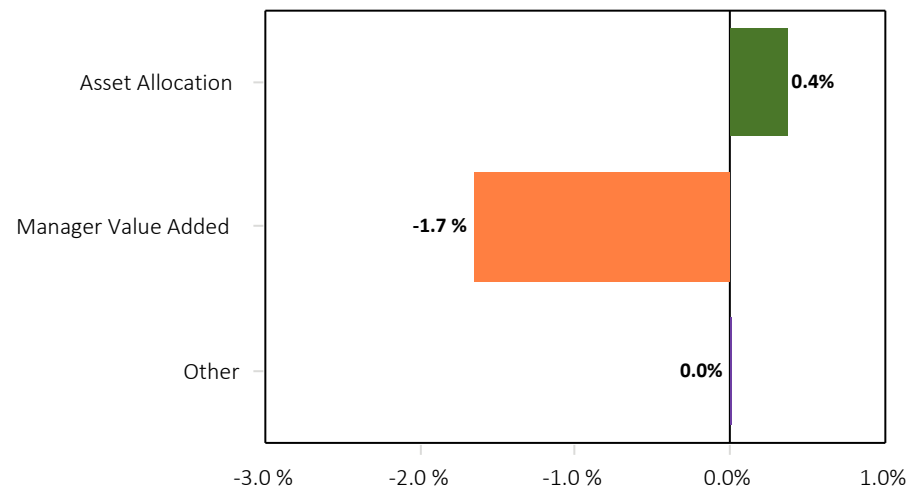
Total Fund

Year To Date Ending July 31, 2023

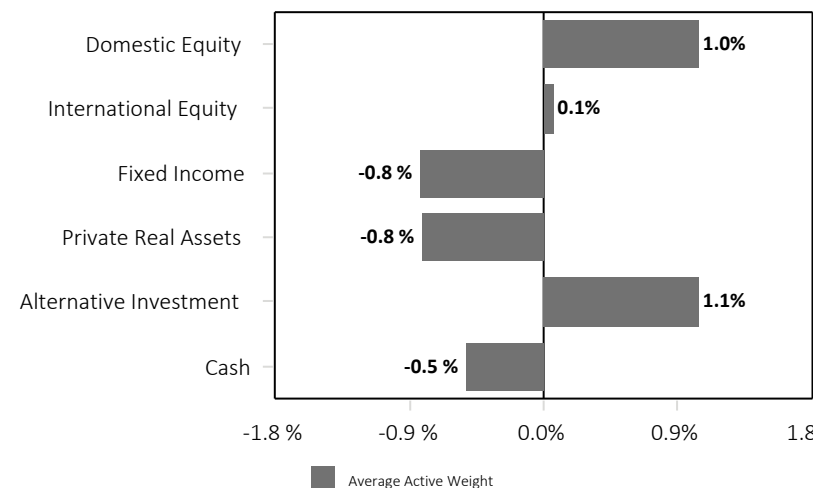
Total Fund Performance



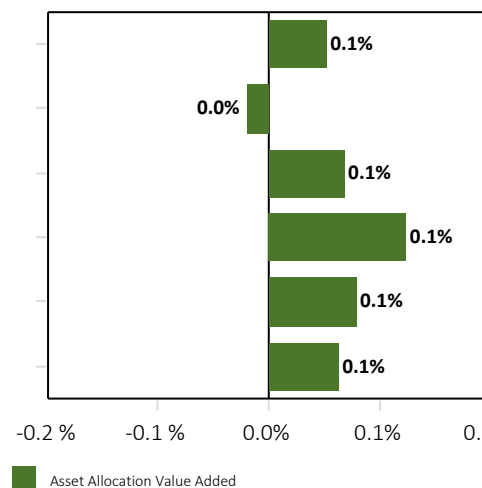
Total Value Added:-1.3 %



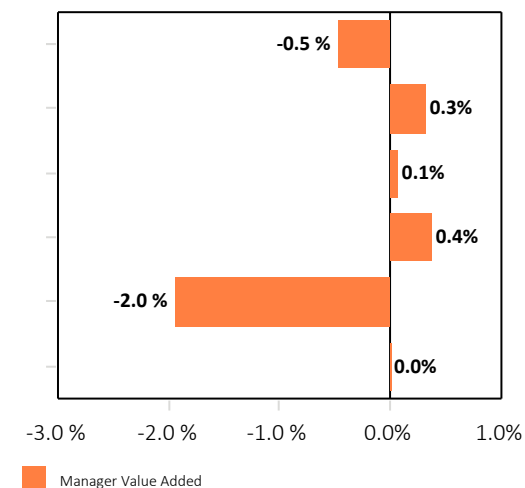
Asset Class Under or Overweighting



Asset Allocation Value Added:0.4%



Total Manager Value Added:-1.7 %



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 July 31, 2023

	Performance (%)									
	1 Month	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Total Fund	2.13	10.22	7.00	8.50	7.46	7.97	8.21	8.26	9.68	1/1/1982
Total Fund - Net	2.13	10.13	6.84	8.33	7.29	7.76				
Total Fund Benchmark	2.22	11.42	6.09	6.62	6.83	7.42	7.58			
Domestic Equity	3.61	17.72	12.39	12.91	10.31	11.43	10.21	10.32	11.61	1/1/1982
Domestic Equity - Net	3.61	17.61	12.20	12.73	10.12	11.20				
Custom Benchmark (U.S. Equity)	3.48	19.00	11.51	13.02	11.38	12.08	10.22	10.08		
U.S. Equity IMRF Custom Benchmark	3.54	16.45	10.43	12.46	9.95					
International Equity	3.88	16.04	15.74	8.33	4.88	5.92	7.76	7.20	7.58	9/1/1986
International Equity - Net	3.87	15.84	15.37	7.95	4.52	5.57				
MSCI AC World ex USA (Net)	4.07	13.92	13.42	7.09	3.85	4.72	6.74			
International Equity IMRF Custom Benchmark	4.36	13.55	12.68	6.67	3.57					
Fixed Income	0.27	3.55	-0.64	-2.72	1.61	2.37	4.13	4.98	7.41	1/1/1982
Fixed Income - Net	0.28	3.51	-0.72	-2.80	1.50	2.24				
Custom Benchmark (Fixed Income)	0.24	3.25	-0.95	-3.56	1.32	1.78	3.33	4.47	6.90	
Fixed Income IMRF Custom Benchmark	0.25	3.24	-1.03	-3.23	1.30					
Private Real Assets	-0.12	-1.98	-0.84						3.39	3/1/2022
Private Real Assets - Net	-0.14	-2.03	-0.91						3.31	
Custom Benchmark (Private Real Assets)	0.03	-5.61	-9.90						0.46	
Real Estate	-0.18	-2.56	-1.65	11.00	9.73	10.14	7.96	7.07	5.92	5/1/1985
Real Estate - Net	-0.20	-2.61	-1.72	10.92	9.68	10.10				
Blended Benchmark (Real Estate)	0.00	-6.16	-10.74	7.04	5.43	7.65	7.11	7.20	7.49	
Agriculture	0.00	1.77	4.53	2.90	2.06	5.18	7.72		6.50	10/1/1997
NCREIF Farmland Index	0.00	2.90	8.36	7.66	6.49	8.35	12.52		11.06	
Timberland	3.20	3.39	13.90	3.80	2.97	3.51	3.69	6.66	7.02	10/1/1992
NCREIF Timberland Index	0.00	3.49	11.13	8.67	5.80	5.90	7.04	7.33	8.46	

Benchmark definitions on next page.

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

Asset Class Returns

Periods Ended July 31, 2023

	Performance (%)									
	1 Month	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Unlisted Infrastructure	0.00	9.19	12.07	17.13	13.06				12.49	4/1/2018
Blended Benchmark (Unlisted Infrastructure)	0.52	5.38	7.30	9.29	9.18				9.16	
Alternatives Investments	0.30	3.40	0.66	21.26	16.56	13.03	10.70	12.87	11.47	2/1/1986
Alternatives Investments - Net	0.30	3.40	0.66	21.24	16.52	12.84				
Custom Benchmark (Alternative Investments)	1.97	21.73	6.63	4.05	6.01	7.49	9.28	11.12	11.88	
Private Equity	0.30	3.40	0.96	24.18	19.34	15.78	13.58	15.56	13.73	2/1/1986
Blended Benchmark (Private Equity)	2.00	22.42	6.27	3.80	5.85	7.41	9.24			
Cash	0.40	2.86	4.27	2.99	3.15	1.97	1.29	3.04	3.75	7/1/1986
90 Day U.S. Treasury Bill	0.40	2.66	3.95	1.40	1.60	1.01	1.33	2.37	3.10	

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.

Investment Manager Asset Allocation

Periods Ended July 31, 2023

	Jun-2023		Jul-2023	
	\$	%	\$	%
Domestic Equity	18,683,849,328	36.84	19,222,255,531	37.10
Large Cap Growth	3,864,743,678	7.62	4,027,103,681	7.77
Sands Capital	1,615,952,204	3.19	1,702,563,153	3.29
Xponance Russell 1000 G	2,248,791,474	4.43	2,324,540,529	4.49
Large Cap Value	4,206,310,344	8.29	4,250,239,731	8.20
Dodge & Cox	1,730,066,491	3.41	1,688,502,523	3.26
LSV Asset	1,026,226,539	2.02	1,064,513,502	2.05
NTGI S&P 500 Value	1,450,017,314	2.86	1,497,223,707	2.89
Large Cap Pass. Core	1,898,287,871	3.74	1,966,658,809	3.80
NTGI MarketCap Idx.	1,898,287,871	3.74	1,966,658,809	3.80
Factor Diversity Strategies	2,685,295,892	5.29	2,769,503,840	5.35
U.S. Large Cap FDP-GSAM	2,685,295,892	5.29	2,769,503,840	5.35
Quantitative Factor Strategies	2,303,432,474	4.54	2,367,271,050	4.57
Quantitative US Equity - SciBeta	2,303,432,474	4.54	2,367,271,050	4.57
Small Cap Growth	841,722,901	1.66	861,872,876	1.66
Frontier Capital	841,722,901	1.66	861,872,876	1.66
Small Cap Value	919,436,545	1.81	968,655,503	1.87
Channing	323,425,737	0.64	338,795,405	0.65
DFA Small Cap Val.		0.00	117	0.00
William Blair Small Cap Value	596,010,808	1.18	629,859,980	1.22
Domestic Equity Transition	1,681,344	0.00	11,271	0.00
Transition Account	556,475,648	1.10	582,314,908	1.12

Investment Manager Asset Allocation

Periods Ended July 31, 2023

	Jun-2023		Jul-2023	
	\$	%	\$	%
Public Real Assets	1,406,462,630	2.77	1,428,623,861	2.76
Brookfield	402,971,883	0.79	409,104,251	0.79
Cohen & Steers	1,003,490,748	1.98	1,019,519,610	1.97
International Equity	9,366,888,441	18.47	9,729,475,206	18.78
Intl Large Cap Growth	1,570,803,569	3.10	1,607,049,126	3.10
EARNEST Part. Intl	643,728,886	1.27	669,305,155	1.29
William Blair	927,074,683	1.83	937,743,971	1.81
Intl Large Cap Value	1,456,479,296	2.87	1,518,627,041	2.93
Brandes Investment	667,750,681	1.32	702,161,365	1.36
Mondrian	647,367,602	1.28	671,523,300	1.30
Lazard	141,361,012	0.28	144,942,377	0.28
Intl Large Cap Core	4,520,150,178	8.91	4,699,435,726	9.07
Arrowstreet Capital	1,137,120,203	2.24	1,183,683,250	2.28
Brown Capital	541,566,173	1.07	563,810,142	1.09
GlobeFlex Capital	877,970,542	1.73	909,716,682	1.76
Xponance Intl EQ	99,961,857	0.20	103,323,507	0.20
Progress Intl Equity	417,579	0.00	420,867	0.00
NTGI ACWI ex US Index Fund	1,863,113,824	3.67	1,938,481,277	3.74
Intl All Cap Developed	160,502,792	0.32	166,037,179	0.32
Ativo International	160,502,792	0.32	166,037,179	0.32
Internationall Small Cap	554,388,486	1.09	570,315,493	1.10
Franklin Templeton	218,968,176	0.43	227,300,379	0.44

Investment Manager Asset Allocation

Periods Ended July 31, 2023

	Jun-2023		Jul-2023	
	\$	%	\$	%
William Blair IntSC	335,420,310	0.66	343,015,113	0.66
Emerging Mkt Equity	1,104,564,120	2.18	1,168,010,641	2.25
Genesis Investment Management, LLP.	684,671,757	1.35	719,789,873	1.39
Arrowstreet EME	419,892,363	0.83	448,220,768	0.87

Investment Manager Asset Allocation

Periods Ended July 31, 2023

	Jun-2023		Jul-2023	
	\$	%	\$	%
Fixed Income	12,200,296,740	24.06	12,174,912,671	23.50
Domestic Fixed Core	3,761,428,343	7.42	3,746,044,214	7.23
Attucks Fixed Income	88,621,992	0.17	88,483,945	0.17
Brandes FI Core	333,709,384	0.66	333,190,923	0.64
EARNEST Partners	890,826,944	1.76	886,569,731	1.71
Garcia Hamilton	962,097,146	1.90	956,551,387	1.85
Ramirez Asset Management	520,168,547	1.03	517,383,678	1.00
Xponance Yield Advantage Agg.	966,004,331	1.90	963,864,549	1.86
Domestic Fixed Passive Core	2,759,494,500	5.44	2,757,589,678	5.32
NTGI Blmbg Agg.	1,123,647,953	2.22	1,122,810,614	2.17
BlackRock US Debt I	1,635,846,547	3.23	1,634,779,064	3.16
Domestic Fixed Core Plus	2,932,218,665	5.78	2,927,208,242	5.65
LM Capital Group FI	840,319,035	1.66	838,241,084	1.62
Progress Inv. FI	1,189	0.00	1,209	0.00
Loop Capital Management	573,018,580	1.13	573,439,156	1.11
Western Asset	951,852,303	1.88	950,800,604	1.84
Longfellow Core Plus	567,027,559	1.12	564,726,190	1.09
Bank Loans	1,658,891,642	3.27	1,646,224,257	3.18
Barings Global Loan Fund	1,658,891,642	3.27	1,646,224,257	3.18
Emerging Markets Debt	330,600	0.00	325,955	0.00
Standish-Mellon EMD	330,600	0.00	325,955	0.00
High Yield	1,087,932,989	2.15	1,097,520,316	2.12
MacKay Shields	1,087,932,989	2.15	1,097,520,316	2.12

Investment Manager Asset Allocation

Periods Ended July 31, 2023

	Jun-2023		Jul-2023	
	\$	%	\$	%
Private Real Assets	4,822,355,614	9.51	4,838,175,181	9.34
Real Estate	4,386,441,398	8.65	4,395,230,821	8.48
Real Estate Core Cmp	2,249,700,843	4.44	2,232,581,792	4.31
TA Assoc. Buckhead	877,663,980	1.73	884,351,255	1.71
Barings Euro Core Property	136,375,105	0.27	137,818,851	0.27
Blackstone Property Euro	183,444,472	0.36	185,386,520	0.36
INVESCO Core Real Estate	236,783,349	0.47	229,091,981	0.44
INVESCO European real estate	57,564,421	0.11	58,007,673	0.11
AEW Core Property Tr	272,808,442	0.54	260,736,803	0.50
CBRE Core Partners	299,839,946	0.59	299,094,514	0.58
JPM Strategic Property Fund	185,221,128	0.37	178,094,196	0.34
RE Non-Core Cmp	2,136,740,555	4.21	2,162,649,029	4.17
Artemis MWBE Spruce	330,009,659	0.65	336,502,374	0.65
Franklin T. EMREFF	2,544,173	0.01	2,544,173	0.00
Security Capital	94,596,250	0.19	96,759,535	0.19
Dune II	8,033,790	0.02	8,033,790	0.02
Non-Core Real Estate Funds	1,434,160,459	2.83	1,442,027,956	2.78
Non-Core Intl Real Estate	267,322,776	0.53	276,707,753	0.53
Almanac ARS V	73,448	0.00	73,448	0.00
Agriculture	251,973,313	0.50	256,973,313	0.50
Premiere Partners IV	251,973,313	0.50	256,973,313	0.50
Timberland	63,362,832	0.12	65,392,976	0.13
Forest Investment	63,362,832	0.12	65,392,976	0.13
Unlisted Infrastructure	120,578,071	0.24	120,578,071	0.23
Unlisted Infrastructure Funds	120,578,071	0.24	120,578,071	0.23

Investment Manager Asset Allocation

Periods Ended July 31, 2023

	Jun-2023		Jul-2023	
	\$	%	\$	%
Alternatives Investments	5,444,594,844	10.74	5,511,685,423	10.64
Absolute Return	74,710	0.00	77,452	0.00
Aurora Investment	74,710	0.00	77,452	0.00
Private Equity	5,268,512,743	10.39	5,335,749,015	10.30
Abbott S/A Comp.	500,413,456	0.99	499,081,264	0.96
Muller Monroe MPEFF	1	0.00		0.00
Pantheon S/A Comp.	411,522,829	0.81	418,033,309	0.81
Private Equity Fund - Domestic	3,429,742,005	6.76	3,454,275,860	6.67
Private Equity Fund - International	685,928,531	1.35	719,761,288	1.39
Oakbrook Opportunities Fund	240,905,921	0.47	244,597,294	0.47
Private Credit	176,007,391	0.35	175,858,956	0.34
Private Credit Fund - Domestic	176,007,391	0.35	175,858,956	0.34
Cash & Equivalents	199,418,748	0.39	331,866,969	0.64
Total Fund	50,717,403,714	100.00	51,808,370,981	100.00

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	51,808,370,981	2.13	10.22	7.00	8.50	7.46	7.97	9.68	1/1/1982
Total Fund - Net		2.13	10.13	6.84	8.33	7.29	7.76		
Total Fund Benchmark		2.22	11.42	6.09	6.62	6.83	7.42		
Domestic Equity	19,222,255,531	3.61	17.72	12.39	12.91	10.31	11.43	11.61	1/1/1982
Domestic Equity - Net		3.61	17.61	12.20	12.73	10.12	11.20		
Custom Benchmark (U.S. Equity)		3.48	19.00	11.51	13.02	11.38	12.08		
Russell 3000 Index		3.58	20.33	12.65	13.13	11.45	12.14	11.58	
U.S. Equity IMRF Custom Benchmark		3.54	16.45	10.43	12.46	9.95			
Large Cap Equity	13,013,506,062	3.88	21.41	15.18	12.34	11.18	12.19	11.37	1/1/1982
Large Cap Equity - Net		3.88	21.36	15.09	12.25	11.09	12.07		
Russell 1000 Index		3.44	20.69	12.95	13.22	11.92	12.44	11.74	
Large Cap Growth	4,027,103,681	4.20	36.78	20.50	9.48	13.89	14.60	12.26	1/1/1982
Large Cap Growth - Net		4.20	36.71	20.38	9.38	13.79	14.46		
LCG Blended Benchmark		3.37	33.36	17.31	12.19	15.23	15.53		
Russell 1000 Growth Index		3.37	33.36	17.31	12.19	15.23	15.53	11.67	
Xponance Russell 1000 G	2,324,540,529	3.37	33.34	17.30	12.19			14.39	10/1/2018
Xponance Russell 1000 G - Net		3.37	33.33	17.28	12.16			14.37	
Russell 1000 Growth Index		3.37	33.36	17.31	12.19			14.40	
Sands Capital	1,702,563,153	5.36	41.76	25.16	-1.38	8.76	12.45	11.57	11/1/2003
Sands Capital - Net		5.36	41.61	24.88	-1.60	8.52	12.21		
LCG Blended Benchmark		3.37	33.36	17.31	12.19	15.23	15.53	11.27	
Russell 1000 Growth Index		3.37	33.36	17.31	12.19	15.23	15.53	11.31	

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							Inception Date
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
Large Cap Value	4,250,239,731	4.18	12.67	13.49	17.75	9.28	10.52	10.38	10/1/1982
Large Cap Value - Net		4.18	12.60	13.33	17.59	9.12	10.34		
LCV Blended Benchmark		3.52	8.82	8.28	14.14	8.01	9.02		
Russell 1000 Value Index		3.52	8.82	8.28	14.14	8.01	9.02	11.53	
Dodge & Cox	1,688,502,523	4.96	12.56	12.50	19.23	10.22	11.54	10.11	9/1/2003
Dodge & Cox - Net		4.96	12.44	12.27	19.01	9.99	11.32		
LCV Blended Benchmark		3.52	8.82	8.28	14.14	8.01	9.02	8.43	
Russell 1000 Value Index		3.52	8.82	8.28	14.14	8.01	9.02	8.56	
LSV Asset	1,064,513,502	3.95	9.30	10.92	17.23	7.60	9.86	10.60	2/1/2003
LSV Asset - Net		3.95	9.22	10.70	16.99	7.37	9.60		
LCV Blended Benchmark		3.52	8.82	8.28	14.14	8.01	9.02	9.17	
Russell 1000 Value Index		3.52	8.82	8.28	14.14	8.01	9.02	9.18	
NTGI S&P 500 Value	1,497,223,707	3.41	16.03	17.12	16.64	10.47	10.39	6.84	8/1/1999
NTGI S&P 500 Value - Net		3.41	16.03	17.12	16.64	10.46	10.39		
S&P 500 Value		3.41	15.98	17.16	16.69	10.44	10.33	6.81	
Large Cap Pass. Core	1,966,658,809	3.60	20.43	12.63	13.02	11.34	12.10	11.30	1/1/1985
Large Cap Pass. Core - Net		3.60	20.43	12.63	13.02	11.34	12.10		
Dow Jones U.S. Total Stock Market Index		3.60	20.43	12.62	13.00	11.31	12.04		
NTGI MarketCap Idx.	1,966,658,809	3.60	20.43	12.63	13.02	11.34	12.10	11.09	2/1/1985
NTGI MarketCap Idx. - Net		3.60	20.43	12.63	13.02	11.34	12.10		
Dow Jones U.S. Total Stock Market Index		3.60	20.43	12.62	13.00	11.31	12.04		
Factor Diversity Strategies	2,769,503,840	3.14	19.48	12.84	11.69			11.69	8/18/2020

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
U.S. Large Cap FDP-GSAM	2,769,503,840	3.14	19.48	12.84	11.69			11.69	8/18/2020
U.S. Large Cap FDP-GSAM - Net		3.14	19.46	12.80	11.64			11.64	
Solactive GBS U.S. 1000 Index		3.44	20.87	12.96	11.67			11.67	
GSAM Active Beta US. Large Cap FDC Index		3.15	19.51	12.81	11.67			11.67	
Quantitative Factor Strategies	2,367,271,050	2.77	9.84	8.46	11.76			9.29	9/17/2019
Quantitative US Equity - SciBeta	2,367,271,050	2.77	9.84	8.46	11.76			9.29	9/17/2019
Quantitative US Equity - SciBeta - Net		2.77	9.81	8.40	11.66			9.13	
SciBeta US Hi-Fctr-Intst Div Multi-Beta Multi-Strat Index		2.89	9.08	7.40	10.86			8.30	
Small Cap	1,830,528,379	3.94	17.16	12.34	20.28	8.94	9.99	12.08	7/1/1988
Small Cap Composite - Net		3.94	16.70	11.63	19.50	8.27	9.37		
Russell 2000 Index		6.12	14.70	7.91	12.01	5.09	8.17	9.19	
Small Cap Growth	861,872,876	2.39	26.90	18.87	17.66	12.38	12.15	13.13	7/1/1988
Small Cap Growth - Net		2.39	25.85	17.60	16.45	11.38	11.36		
Russell 2000 Growth Index		4.68	18.86	11.58	6.52	4.82	8.54	7.97	
Frontier Capital	861,872,876	2.39	26.90	18.87	17.73	13.49	13.02	13.48	8/1/1988
Frontier Capital - Net		2.39	25.85	17.60	16.54	12.38	12.16		
Russell 2000 Growth Index		4.68	18.86	11.58	6.52	4.82	8.54	8.05	
Small Cap Value	968,655,503	5.35	12.97	9.57	21.97	7.32	9.33	11.64	9/1/1989
Small Cap Value - Net		5.35	12.76	9.12	21.43	6.82	8.82		
Russell 2000 Value Index		7.55	10.24	3.94	17.46	4.69	7.40	9.69	
Channing	338,795,405	4.75	18.50	11.04	16.94	6.55	8.84	10.19	7/1/2011
Channing - Net		4.75	18.21	10.49	16.37	6.05	8.33	9.61	
Russell 2000 Value Index		7.55	10.24	3.94	17.46	4.69	7.40	8.48	
DFA Small Cap Val.	117								

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
William Blair Small Cap Value	629,859,980	5.68	8.29	2.96	18.37	6.03	9.56	11.04	5/1/1999
Inv. Couns. Maryland - Net		5.68	8.08	2.46	17.80	5.50	9.03		
Russell 2000 Value Index		7.55	10.24	3.94	17.46	4.69	7.40	8.75	
Public Real Assets	1,428,623,861	1.58	3.90	-1.19	8.07	6.57		6.18	8/1/2017
Public Real Assets - Net		1.58	3.74	-1.49	7.70	6.16		5.78	
Public Real Assets Benchmark		1.84	2.89	-3.21	6.70	4.86		4.34	
Brookfield	409,104,251	1.52	6.38	1.51	11.14	6.28		5.48	8/1/2017
Brookfield - Net		1.52	6.16	1.10	10.63	5.77		4.98	
Dow Jones Brookfield Global Infrastructure Composite Index		1.36	4.05	-3.50	7.38	4.25		3.67	
Cohen & Steers	1,019,519,610	1.60	2.94	-2.23	7.17	6.95		6.71	8/1/2017
Cohen & Steers - Net		1.60	2.80	-2.49	6.84	6.58		6.35	
FTSE Global Core Infrastructure 50/50 Index (Net)		2.09	2.29	-3.10	6.33	5.14		4.64	

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							Inception Date
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
International Equity	9,729,475,206	3.88	16.04	15.74	8.33	4.88	5.92	7.58	9/1/1986
International Equity - Net		3.87	15.84	15.37	7.95	4.52	5.57		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72		
International Equity IMRF Custom Benchmark		4.36	13.55	12.68	6.67	3.57			
Intl LargeCap Equity	7,825,111,893	3.68	16.65	16.73	10.32	5.62	6.33	7.69	9/1/1986
Intl LargeCap Equity - Net		3.68	16.51	16.44	10.00	5.33	6.04		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72		
Intl Large Cap Grwth	1,607,049,126	2.31	15.45	12.73	7.99	6.05	6.45	8.25	9/1/2002
Intl Large Cap Grwth - Net		2.31	15.29	12.41	7.66	5.76	6.15		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	6.85	
MSCI AC World ex USA Growth (Net)		3.12	14.15	10.70	2.75	4.34	5.55	7.05	
EARNEST Part. Intl	669,305,155	3.98	17.83	18.07	16.44	6.62	6.37	8.98	10/1/2004
EARNEST Part. Intl - Net		3.98	17.72	17.84	16.21	6.43	6.16		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	5.70	
MSCI AC World ex USA Growth (Net)		3.12	14.15	10.70	2.75	4.34	5.55	6.24	
William Blair	937,743,971	1.15	13.82	9.20	3.32	5.76	6.64	9.13	10/1/2002
William Blair - Net		1.15	13.62	8.83	2.94	5.37	6.25		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	7.46	
MSCI AC World ex USA Growth (Net)		3.12	14.15	10.70	2.75	4.34	5.55	7.55	
Intl Large Cap Val.	1,518,627,041	4.27	19.83	21.95	13.35	4.98	5.69	8.36	10/1/1995
Intl Large Cap Val. - Net		4.27	19.66	21.59	13.02	4.66	5.33		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	5.18	
MSCI AC World ex USA Value		5.11	14.35	17.17	12.21	3.70	4.32		

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							Inception Date
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
Brandes Investment	702,161,365	5.15	22.92	28.41	17.47	5.54	6.36	8.72	1/1/1996
Brandes Investment - Net		5.15	22.81	28.15	17.25	5.33	6.12		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	5.10	
MSCI AC World ex USA Value		5.11	14.35	17.17	12.21	3.70	4.32		
Mondrian	671,523,300	3.73	17.36	16.92	10.47	4.69	5.22	5.48	4/1/2012
Mondrian - Net		3.73	17.14	16.46	10.07	4.27	4.74	5.01	
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	4.99	
MSCI AC World ex USA Value		5.11	14.35	17.17	12.21	3.70	4.32	4.71	
Lazard	144,942,377	2.54	16.96	16.77	8.70	4.92	5.31	6.13	4/1/2012
Lazard - Net		2.54	16.82	16.49	8.45	4.67	4.94	5.70	
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	4.99	
MSCI AC World ex USA Value		5.11	14.35	17.17	12.21	3.70	4.32	4.71	
Intl Large Cap Active Core	2,760,954,448	3.91	17.67	19.02	11.42	6.92	7.84	5.90	2/1/2008
Intl Large Cap Active Core - Net		3.91	17.46	18.57	10.88	6.41	7.30		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	3.00	
Arrowstreet Capital	1,183,683,250	4.10	18.08	23.83	16.73	11.04	9.99	7.24	3/1/2008
Arrowstreet Capital - Net		4.10	17.82	23.27	16.20	10.53	9.48	6.75	
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	2.83	
Brown Capital	563,810,142	4.11	21.49	14.56	2.01	3.98	6.46	7.30	10/1/2004
Brown Capital - Net		4.11	21.35	14.28	1.31	3.44	5.64		
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	5.70	
GlobeFlex Capital	909,716,682	3.62	15.09	16.15	12.72	5.05	6.83	5.48	3/1/2006
GlobeFlex Capital - Net		3.62	14.91	15.76	12.33	4.66	6.42	5.05	
MSCI AC World ex USA (Net)		4.07	13.92	13.42	7.09	3.85	4.72	4.00	

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							Inception Date
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
Xponance Intl EQ	103,323,507	3.36	16.55	17.62				3.00	2/1/2021
Xponance Intl EQ - Net		3.36	16.20	16.89				2.42	
MSCI EAFE (Net)		3.24	15.28	16.79				4.23	
Progress Intl Equity	420,867								
Intl Large Cap Passive Core	1,938,481,277	4.05	13.85	13.17	8.48	4.21	5.23	4.08	2/1/2000
Intl Large Cap Passive Core - Net		4.05	13.85	13.17	8.48	4.20	5.22		
International Large Cap Passive Core Benchmark		4.07	13.92	13.42	7.85	3.74	4.80	3.67	
NTGI ACWI ex US Index	1,938,481,277	4.05	13.85	13.17				-0.87	10/1/2021
NTGI ACWI ex US Index - Net		4.05	13.85	13.17				-0.87	
MSCI AC World ex USA (Net)		4.07	13.92	13.42				-1.41	
Intl All Cap Developed	166,037,179	3.45	14.93	12.25	6.81			5.77	2/1/2019
Intl All Cap Developed - Net		3.45	14.65	11.68	6.33			5.28	
MSCI EAFE + Canada (Net)		3.24	14.89	15.47	9.50			7.15	
Ativo International	166,037,179	3.45	14.93	12.25	6.81			5.77	2/1/2019
Ativo International - Net		3.45	14.65	11.68	6.33			5.28	
MSCI EAFE + Canada (Net)		3.24	14.89	15.47	9.50			7.15	
Intl Small Cap Eqty	570,315,493	2.90	13.50	10.15	3.49	3.01	5.51	4.72	12/1/2005
Intl Small Cap Eqty - Net		2.90	13.10	9.34	2.75	2.24	4.73		
MSCI AC World ex USA Small Cap (Net)		5.08	12.27	10.19	8.18	3.50	5.76	5.89	
Custom Benchmark (Intl Small Cap)		5.08	12.27	10.19	8.18	3.50	5.76	5.32	
Franklin Templeton	227,300,379	3.81	13.89	10.91	7.27	2.67	5.43	5.54	8/1/2011
Franklin Templeton - Net		3.81	13.50	10.14	6.58	1.92	4.69	4.79	
MSCI AC World ex USA Small Cap (Net)		5.08	12.27	10.19	8.18	3.50	5.76	4.93	

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
William Blair IntSC	343,015,113	2.31	13.24	9.64	1.26	3.25	5.56	7.75	9/1/2010
William Blair IntSC - Net		2.31	12.83	8.82	0.50	2.46	4.75	6.94	
MSCI AC World ex USA Small Cap (Net)		5.08	12.27	10.19	8.18	3.50	5.76	6.49	
Custom Benchmark (Intl Small Cap)		5.08	12.27	10.19	8.18	3.50	5.76	6.71	
Emerging Mkt Equity	1,168,010,641	5.77	12.98	12.19	-0.33	2.05	3.75	8.00	2/1/1992
Emerging Mkt Equity - Net		5.74	12.54	11.51	-0.90	1.47	3.15		
MSCI Emerging Markets Index		6.29	11.71	8.83	1.85	2.10	3.85	6.49	
Genesis Investment Management, LLP.	719,789,873	5.17	10.75	9.97	-0.99	1.64	3.54	8.87	5/1/2004
Genesis Investment Management, LLP. - Net		5.13	10.22	9.21	-1.59	1.04	2.94		
MSCI Emerging Markets Index		6.29	11.71	8.83	1.85	2.10	3.85	7.52	
Arrowstreet EME	448,220,768	6.75						12.70	3/1/2023
Arrowstreet EME - Net		6.75						12.70	
MSCI Emerging Markets IMI (Net)		6.27						10.95	

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	12,174,912,671	0.27	3.55	-0.64	-2.72	1.61	2.37	7.41	1/1/1982
Fixed Income - Net		0.28	3.51	-0.72	-2.80	1.50	2.24		
Custom Benchmark (Fixed Income)		0.24	3.25	-0.95	-3.56	1.32	1.78	6.90	
Fixed Income IMRF Custom Benchmark		0.25	3.24	-1.03	-3.23	1.30			
Active Fixed Core	3,746,044,214	-0.16	2.18	-3.04	-3.73	1.07	1.92	3.65	4/1/2001
ActiveCore Fixed Inc - Net		-0.16	2.12	-3.15	-3.83	0.97	1.80		
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	3.55	
Attucks Fixed Income	88,483,945	-0.16	2.69	-2.82				-4.75	2/1/2021
Attucks Fixed Income - Net		-0.16	2.53	-3.14				-5.03	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37				-4.98	
Brandes FI Core	333,190,923	-0.02	2.28	-2.45	-3.41	1.13		1.04	3/1/2016
Brandes FI Core - Net		-0.02	2.26	-2.48	-3.43	1.12		1.04	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75		0.83	
EARNEST Partners	886,569,731	-0.19	1.89	-3.25	-3.81	1.09	1.91	3.42	5/1/2005
EARNEST Partners - Net		-0.19	1.82	-3.38	-3.93	0.97	1.75	3.24	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	3.00	
Garcia Hamilton	956,551,387	-0.39	1.99	-3.94	-4.00	0.89		1.37	6/1/2015
Garcia Hamilton - Net		-0.39	1.95	-4.02	-4.07	0.81		1.29	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75		0.96	
Ramirez Asset Management	517,383,678	-0.16	2.54	-2.32	-3.42			-1.63	5/1/2020
Ramirez Asset Management - Net		-0.16	2.47	-2.45	-3.56			-1.76	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46			-3.36	
Xponance Yield Advantage Agg.	963,864,549	0.05	2.38	-2.55	-3.47	1.17	1.94	3.30	6/1/2005
Xponance Yield Advantage Agg. - Net		0.05	2.31	-2.68	-3.59	1.04	1.80	3.13	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	2.95	

Benchmark definitions in glossary.

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Pass. Core Fixed Inc	2,757,589,678	-0.07	2.15	-3.29	-4.40	0.81	1.56	5.09	1/1/1990
Pass. Core Fixed Inc - Net		-0.07	2.15	-3.29	-4.41	0.81	1.55		
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	5.07	
BlackRock US Debt I	1,634,779,064	-0.07	2.25	-3.29	-4.38	0.84		1.59	10/1/2013
BlackRock US Debt I - Net		-0.07	2.25	-3.30	-4.39	0.83		1.58	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75		1.48	
NTGI Blmbg Agg.	1,122,810,614	-0.07	2.01	-3.29	-4.43	0.79	1.53	5.13	2/1/1990
NTGI Blmbg Agg. - Net		-0.07	2.01	-3.30	-4.44	0.78	1.53		
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	5.12	
Core Plus Fixed Income	2,927,208,242	0.14	3.02	-1.83	-3.64	1.42	2.30	7.25	1/1/1982
Core Plus Fixed Inc. - Net		0.14	2.95	-1.98	-3.78	1.25	2.13		
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	6.82	
LM Capital Group FI	838,241,084	0.10	2.67	-1.83	-3.08	1.69	2.29	3.83	5/1/2005
LM Capital Group FI - Net		0.10	2.59	-1.99	-3.23	1.54	2.13	3.67	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	3.00	
Progress Inv. FI	1,209								
Loop Capital Management	573,439,156	0.31	3.34	-1.01	-3.51	1.26	2.50	3.84	5/1/2005
Loop Capital Management - Net		0.31	3.28	-1.14	-3.64	1.13	2.36	3.71	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	3.00	
Western Asset	950,800,604	0.20	3.47	-2.00	-4.28	1.30	2.47	4.34	11/1/2001
Western Asset - Net		0.20	3.39	-2.14	-4.42	1.17	2.33		
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46	0.75	1.50	3.31	
Longfellow Core Plus	564,726,190	-0.07	2.48	-2.39	-3.21			-1.77	5/1/2020
Longfellow Core Plus - Net		-0.07	2.40	-2.54	-3.36			-1.92	
Blmbg. U.S. Aggregate Index		-0.07	2.02	-3.37	-4.46			-3.36	

Benchmark definitions in glossary.

Performance

Periods Ended July 31, 2023

	Market Value \$	Performance (%)							
		1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Bank Loans	1,646,224,257	1.37	8.06	7.94	6.07	3.72		4.20	8/1/2014
Bank Loans - Net		1.41	8.16	8.12	6.15	3.69		3.92	
Custom Benchmark		1.31	8.08	10.10	6.08	4.34		4.26	
Barings Global Loan Fund	1,646,224,257	1.37	8.06	7.94	6.07	3.72		4.20	8/1/2014
Barings Global Loan Fund - Net		1.41	8.16	8.12	6.15	3.69		3.92	
Custom Benchmark		1.31	8.08	10.10	6.08	4.34		4.26	
Emerging Markets Debt	325,955								
Standish-Mellon EMD	325,955								
High Yield	1,097,520,316	1.32	6.79	5.40	3.32	4.83	5.39	8.95	4/1/1986
High Yield - Net		1.32	6.63	5.08	3.00	4.50	5.04		
ICE BofA U.S. High Yield, Cash Pay Index		1.43	6.85	4.15	2.09	3.26	4.29	7.67	
MacKay Shields	1,097,520,316	1.32	6.79	5.40	3.33	4.83	5.48	8.00	11/1/2000
MacKay Shields - Net		1.32	6.63	5.08	3.01	4.50	5.13		
ICE BofA U.S. High Yield, Cash Pay Index		1.43	6.85	4.15	2.09	3.26	4.29	6.65	

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.

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.