

Wilshire



Wilshire Advisors

Monthly Performance Review

As of September 30, 2021

IMRF Commentary

- The Illinois Municipal Retirement Fund (“IMRF”) ended September 2021 with a market value of \$54.9 billion, down for the month by approximately \$1.4 billion. IMRF returned -2.33% during the month, outperforming the Total Fund Benchmark which returned -2.37%. Total Fund outperformance for the month was driven by strong investment manager results across all underlying asset classes in the Portfolio, while the Portfolio’s overweight to Public Equities was a headwind for outperformance as equity markets sold-off during September.
 - Year-to-date, IMRF has returned +11.76% versus its benchmark of +7.48%.
- The U.S. Equity Portfolio outperformed the Russell 3000 Index during the month, returning -3.98% versus -4.49%. Strong investment manager performance was the leading contributor to relative outperformance during the month. In aggregate, investment managers in Large Cap Growth, Small Cap Growth, and Small Cap Value outperformed their respective benchmarks during September.
 - Year-to-date; the U.S. Equity Portfolio has outperformed the benchmark, returning +16.26% versus +14.99%.
- The Internally Managed Scientific Beta Portfolio modestly underperformed the benchmark during September, returning -4.84% versus -4.77%. Since inception, the strategy has outperformed the benchmark, returning +14.15% versus +13.33%.
- The Internally Managed GSAM-Factor Diversity Portfolio underperformed the benchmark during the month, returning -4.91% versus -4.61%.
- The Public Real Assets Portfolio trailed its benchmark during the month, returning -3.44% versus -3.38%.
- The International Equity Portfolio underperformed the benchmark during September, returning -3.39% versus -3.20%. In aggregate, investment manager performance in Large Cap Growth, Large Cap Core, All Cap and Small Cap underperformed their respective benchmarks.
 - Year-to-date, IMRF’s International Equity Portfolio continues to be very strong, returning +8.88% versus +5.90% for the benchmark.
- The Fixed Income Portfolio outperformed the benchmark during the month, returning -0.81% versus -0.87%. The Portfolio’s dedicated allocations to Bank Loans and High Yield were the largest drivers of relative outperformance during September as the global loan market and high yield bond market returned +0.61% and +0.02%, respectively, compared to -0.87% for the Bloomberg U.S. Aggregate Index.
 - IMRF’s Fixed Income Portfolio has returned -0.51% versus -1.56% for the benchmark, year-to-date.
- As of September month-end, Domestic Equity was 4.4% over its target. The current Statement of Investment Policy states that when actual allocations of the asset class differ by more than four percentage points from the policy target, a recommendation for rebalancing will be made to the Board of Trustees. At this time, IMRF is implementing the rebalancing recommendations approved by the Board at the August 2021 Meeting.

Market Dashboard

Returns though Thursday September 30, 2021

Portfolio Allocations	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Global 60/40	(2.82)	1.43	0.86	(0.59)	5.15	5.94	15.52	10.04	9.27
Wilshire Risk Parity (12%)	(3.46)	(0.04)	4.78	1.12	9.31	9.37	21.35	11.87	9.40
Strategic Allocation Themes *	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Growth ¹	(4.13)	2.50	0.69	(1.05)	7.39	11.12	27.44	12.54	13.20
Defensive Growth ²	(2.80)	2.04	0.69	(0.14)	4.77	7.03	19.45	12.57	12.06
Diversified Credit ³	(0.79)	0.71	0.34	0.25	3.11	2.03	7.90	5.96	5.14
Real Assets ⁴	(1.26)	0.60	3.66	2.96	9.98	16.75	27.58	10.80	6.80
Defensive ⁵	(0.87)	(0.19)	1.12	0.05	1.83	(1.55)	(0.90)	5.34	2.94
Major Asset Classes	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
FT Wilshire 5000	(4.43)	2.94	1.79	0.14	8.42	15.62	32.35	16.13	17.01
MSCI ACWI-ex-USA (Net)	(3.20)	1.90	(1.65)	(2.99)	5.48	5.90	23.91	8.00	8.94
Bloomberg U.S. Aggregate	(0.87)	(0.19)	1.12	0.05	1.83	(1.55)	(0.90)	5.34	2.94
Bloomberg U.S. Corporate High Yield	(0.01)	0.51	0.38	0.89	2.74	4.53	11.28	6.89	6.52
Wilshire Global Real Estate Securities	(5.02)	1.58	4.02	0.37	10.74	18.50	34.35	8.13	6.17
Bloomberg Commodity	4.98	(0.30)	1.84	6.59	13.30	29.13	42.29	6.84	4.54

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 Thursday September 30, 2021

US Equity	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
FT Wilshire 5000	(4.43)	2.94	1.79	0.14	8.42	15.62	32.35	16.13	17.01
Standard & Poor's 500	(4.65)	3.04	2.38	0.58	8.55	15.92	30.01	15.94	16.90
Wilshire 4500 Completion	(3.49)	2.45	(0.65)	(1.77)	6.83	14.05	46.33	16.45	16.95
Wilshire US Large Cap	(4.71)	2.85	2.13	0.10	8.42	14.40	29.04	14.59	15.28
Wilshire US Large-Cap Growth	(5.30)	3.72	2.99	1.15	11.72	15.05	29.53	19.86	21.05
Wilshire US Large-Cap Value	(3.91)	1.73	1.05	(1.23)	4.50	12.66	27.03	8.74	9.19
Wilshire US Small Cap	(3.24)	2.52	(2.63)	(3.41)	4.39	14.13	49.72	9.61	11.56
Wilshire US Small-Cap Growth	(3.36)	1.44	(1.98)	(3.91)	3.05	7.77	39.22	12.05	15.23
Wilshire US Small-Cap Value	(1.97)	2.95	(3.26)	(2.36)	5.75	21.48	59.56	6.53	7.71
Non-US Equity	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
MSCI ACWI-ex-USA (Net)	(3.20)	1.90	(1.65)	(2.99)	5.48	5.90	23.91	8.00	8.94
MSCI EAFE (Net)	(2.90)	1.76	0.75	(0.45)	5.17	8.35	25.73	7.60	8.81
MSCI EM (Net)	(3.97)	2.62	(6.73)	(8.09)	5.05	(1.25)	18.20	8.55	9.23
MSCI ACWI-ex-US Small cap (Net)	(3.04)	2.31	0.80	(0.00)	6.35	12.23	33.06	10.30	10.28
Global Equity	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
MSCI ACWI (Net)	(4.13)	2.50	0.69	(1.05)	7.39	11.12	27.44	12.54	13.20
MSCI ACWI Minimum Volatility (Net)	(3.56)	2.16	1.58	0.08	5.30	7.20	14.08	7.53	8.48
Fixed Income	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Bloomberg U.S. Aggregate	(0.87)	(0.19)	1.12	0.05	1.83	(1.55)	(0.90)	5.34	2.94
Bloomberg Long Term Treasury	(2.86)	(0.21)	3.65	0.47	6.46	(7.49)	(10.27)	9.18	3.31
Bloomberg U.S. TIPS	(0.71)	(0.18)	2.67	1.75	3.25	3.51	5.19	7.42	4.34
Bloomberg U.S. Corporate High Yield	(0.01)	0.51	0.38	0.89	2.74	4.53	11.28	6.89	6.52
Credit Suisse Leveraged Loan	0.65	0.49	(0.00)	1.13	1.44	4.65	8.46	4.07	4.64
ICE BofA US Convertible Index	(1.67)	1.85	(0.64)	(0.49)	3.92	6.37	27.30	20.14	17.37
JPM EMBI Global Diversified	(2.07)	0.98	0.42	(0.70)	4.06	(1.36)	4.36	5.63	3.89
Real Assets	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Wilshire Global Real Estate Securities	(5.02)	1.58	4.02	0.37	10.74	18.50	34.35	8.13	6.17
FTSE Global Core Infrastructure 50/50	(3.59)	2.28	1.34	(0.07)	3.09	7.41	16.72	8.50	7.87
Alerian Midstream Energy	4.14	(1.57)	(3.67)	(1.26)	16.39	38.91	66.90	3.91	2.36
Bloomberg Commodity	4.98	(0.30)	1.84	6.59	13.30	29.13	42.29	6.84	4.54
Gold	(3.12)	(0.03)	2.49	(0.74)	3.65	(7.45)	(6.83)	13.79	5.95
Bitcoin	(7.60)	15.53	17.65	25.59	(41.34)	49.80	305.68	86.60	135.01

Source: Bloomberg, All returns are in USD

Factor/Relative Returns

Returns though Thursday September 30, 2021

Asset Class Differentials	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Stocks (ACWI) > Bonds (BB US Aggregate)	(3.26)	2.69	(0.43)	(1.10)	5.56	12.67	28.33	7.20	10.25
Stocks (ACWI) > Mkt Alts (Equity Hedged)	(2.04)	1.28	(0.05)	(0.89)	3.54	1.93	11.90	8.26	8.80
Mkt Alts (Relative Value) > Bonds (BB US Aggregate)	0.55	0.36	(1.19)	(0.26)	(0.79)	2.60	5.61	(2.29)	(0.51)

Equity & Real Assets Differentials	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
US Small > Large	1.88	(0.62)	(4.81)	(3.42)	(4.03)	(0.23)	20.25	(5.53)	(4.01)
US Value > Growth	1.54	(1.83)	(1.75)	(1.89)	(6.75)	(0.79)	0.09	(8.86)	(9.69)
ACWI-ex-US > US	1.23	(1.04)	(3.44)	(3.13)	(2.95)	(9.72)	(8.44)	(8.13)	(8.07)
EM > EAFE	(1.07)	0.85	(7.48)	(7.65)	(0.12)	(9.59)	(7.53)	0.96	0.42
ACWI-ex-US Currency Impact	(1.37)	(0.29)	(0.03)	(1.69)	0.73	(4.19)	(0.03)	0.14	(0.39)
EAFE Currency Impact	(1.60)	(0.48)	0.36	(1.76)	0.38	(5.89)	(1.47)	0.46	(0.20)
EM Currency Impact	(1.15)	0.36	(0.62)	(1.40)	1.22	(1.97)	1.34	(0.86)	(1.15)
Global Low Volatility > ACWI	0.57	(0.34)	0.89	1.14	(2.10)	(3.92)	(13.36)	(5.01)	(4.72)
Global RE > ACWI	(0.89)	(0.92)	3.33	1.42	3.35	7.38	6.91	(4.40)	(7.03)
Commodities > Global RE	9.99	(1.88)	(2.18)	6.22	2.56	10.62	7.94	(1.29)	(1.63)
Commodities > TIPS	5.69	(0.12)	(0.83)	4.84	10.06	25.62	37.10	(0.58)	0.20
Gold > Commodities	(8.10)	0.26	0.65	(7.33)	(9.65)	(36.58)	(49.12)	6.95	1.42

Fixed Income Differentials	MTD	AUG	JUL	QTD	Q2 2021	YTD	1 Year	3 Year	5 Year
Duration (LT > Int Treasury)	(2.25)	(0.04)	2.87	0.47	5.84	(6.34)	(8.89)	5.20	1.33
IG Credit > Treasury	0.03	(0.13)	0.01	(0.09)	1.80	1.23	5.04	2.54	2.38
High Yield > IG Credit	1.04	0.82	(0.99)	0.89	(0.80)	5.80	9.54	(0.53)	1.90
High Yield > Loans	(0.65)	0.03	0.41	(0.22)	1.27	0.11	2.87	2.75	1.93
TIPS > Treasury	0.87	0.22	0.66	1.77	0.75	6.91	9.85	1.30	1.93
EMD > Dev Hdg	(0.65)	1.21	(1.19)	(0.63)	2.64	0.33	3.85	2.01	1.41
EMD > High Yield	(1.65)	0.46	(0.22)	(1.43)	0.25	(5.67)	(7.96)	(0.97)	(2.39)
Non-US > US Core	(1.59)	(0.42)	0.39	(1.64)	(0.91)	(4.39)	(0.26)	(2.17)	(1.84)
Non-US Hdg > US Core	(0.14)	(0.05)	0.24	0.04	(1.48)	0.09	0.36	(1.42)	(0.23)
FI Currency Impact	(1.44)	(0.37)	0.15	(1.68)	0.57	(4.47)	(0.61)	(0.75)	(1.61)

Source: Bloomberg, All returns are in USD

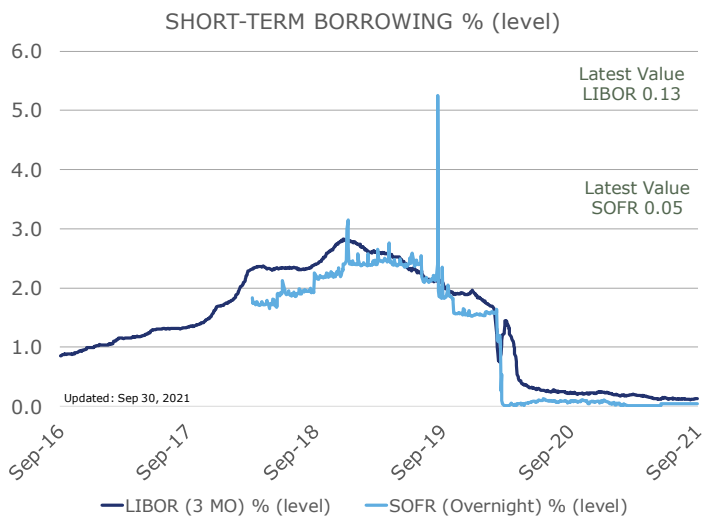
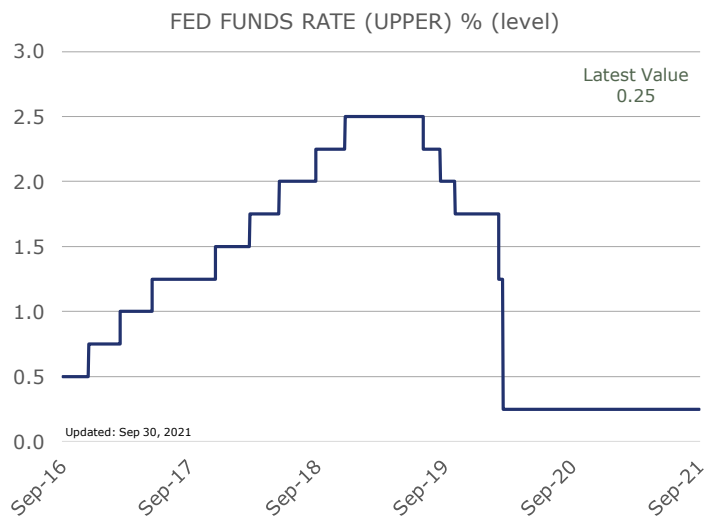
Market Yields & Breakeven Inflation

Market Yields

	Previous 3 Month-ends				Previous 2 Quarter-ends		EOY Prior	1 Yr Ago	3 Yrs Ago	5 Yrs Ago
Govt/Treasury Yields	09/30/21	08/31/21	07/30/21	06/30/21	06/30/21	03/31/21	12/31/20	09/30/20	09/28/18	09/30/16
Fed Funds Target Rate (Upper)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.25	0.50
2-Year Treasury	0.28	0.21	0.19	0.25	0.25	0.16	0.12	0.13	2.82	0.76
5-Year Treasury	0.97	0.78	0.69	0.89	0.89	0.94	0.36	0.28	2.95	1.15
10-Year Treasury	1.49	1.31	1.22	1.47	1.47	1.74	0.92	0.69	3.06	1.60
30-Year Treasury	2.05	1.93	1.89	2.09	2.09	2.41	1.65	1.46	3.21	2.32
10-Year Real Treasury	(0.89)	(1.03)	(1.18)	(0.88)	(0.88)	(0.63)	(1.09)	(0.95)	0.92	(0.01)
Term Spreads	09/30/21	08/31/21	07/30/21	06/30/21	06/30/21	03/31/21	12/31/20	09/30/20	09/28/18	09/30/16
5 - 2 Year Treasury Spread	0.69	0.57	0.50	0.64	0.64	0.78	0.24	0.15	0.13	0.38
10 - 5 Year Treasury Spread	0.52	0.53	0.53	0.58	0.58	0.80	0.55	0.41	0.11	0.45
10 - 2 Year Treasury Spread	1.21	1.10	1.03	1.22	1.22	1.58	0.79	0.55	0.24	0.83
30 - 10Year Treasury Spread	0.56	0.62	0.67	0.62	0.62	0.67	0.73	0.77	0.14	0.72
30 - 2Year Treasury Spread	1.77	1.72	1.70	1.84	1.84	2.25	1.52	1.32	0.38	1.55
Market Yields	09/30/21	08/31/21	07/30/21	06/30/21	06/30/21	03/31/21	12/31/20	09/30/20	09/28/18	09/30/16
Bloomberg U.S. Treasury YTW	1.01	0.86	0.81	0.95	0.95	1.00	0.57	0.48	2.95	1.26
Bloomberg U.S. Aggregate YTW	1.56	1.42	1.36	1.50	1.50	1.61	1.12	1.18	3.46	1.96
Bloomberg U.S. Long Treasury YTW	2.03	1.86	1.84	2.03	2.03	2.34	1.51	1.32	3.18	2.22
Bloomberg U.S. Long Govt/Credit YTW	2.68	2.52	2.48	2.66	2.66	3.02	2.28	2.35	4.06	3.32
Credit Spreads	09/30/21	08/31/21	07/30/21	06/30/21	06/30/21	03/31/21	12/31/20	09/30/20	09/28/18	09/30/16
Bloomberg Investment Grade OAS	0.84	0.87	0.86	0.80	0.80	0.91	0.96	1.36	1.06	1.38
Bloomberg High Yield OAS	2.89	2.88	2.94	2.68	2.68	3.10	3.60	5.17	3.16	4.80
Breakeven Inflation Rates	09/30/21	08/31/21	07/30/21	06/30/21	06/30/21	03/31/21	12/31/20	09/30/20	09/28/18	09/30/16
1-Year Breakeven Inflation	2.54	2.62	3.29	3.17	3.17	2.69	2.02	0.69	1.18	0.95
2-Year Breakeven Inflation	2.53	2.54	2.83	2.72	2.72	2.66	2.01	1.14	1.81	1.34
5-Year Breakeven Inflation	2.53	2.51	2.62	2.50	2.50	2.60	1.97	1.49	2.03	1.49
10-Year Breakeven Inflation	2.38	2.34	2.40	2.34	2.34	2.37	1.99	1.63	2.14	1.61
5-Year 5-Year Forward Breakeven Inflation	2.24	2.19	2.27	2.18	2.18	2.27	1.97	1.74	2.22	1.76

Source: Bloomberg

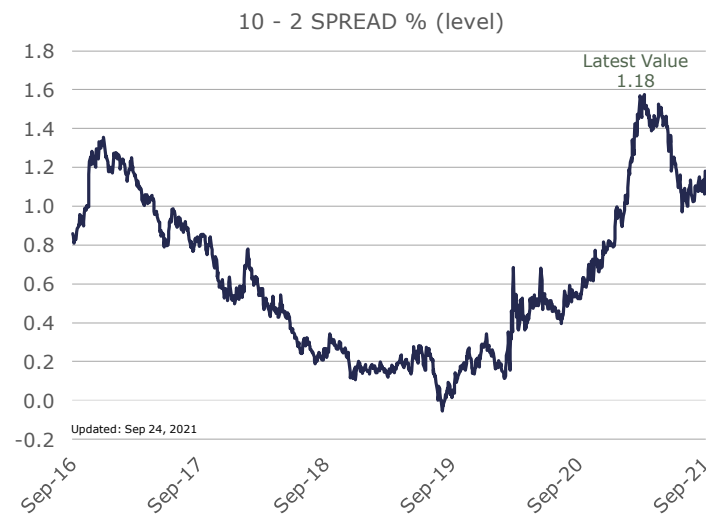
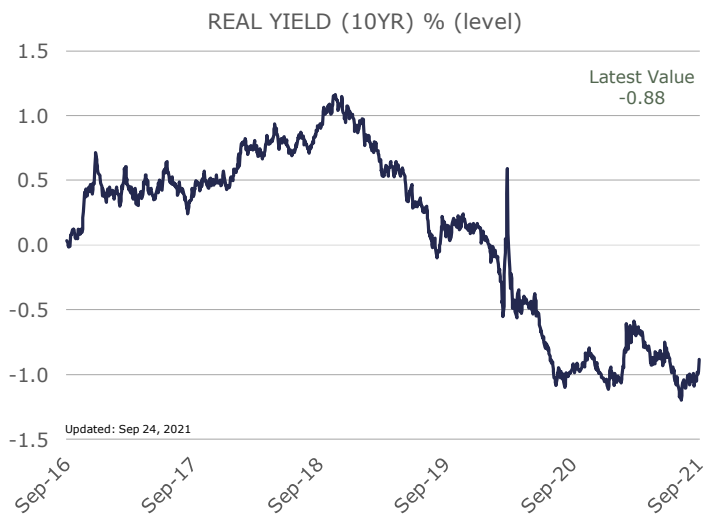
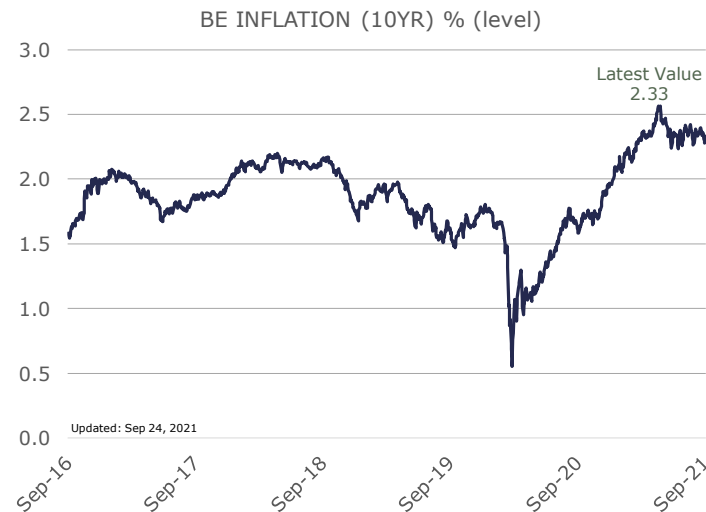
Short Rates



Data Source: Bloomberg

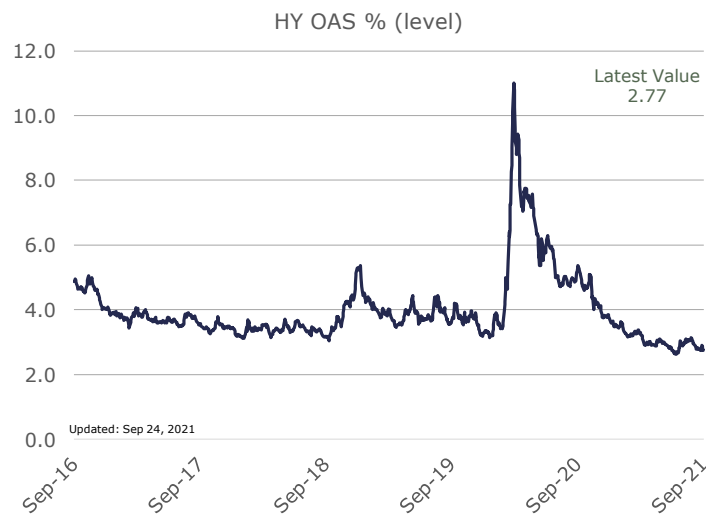
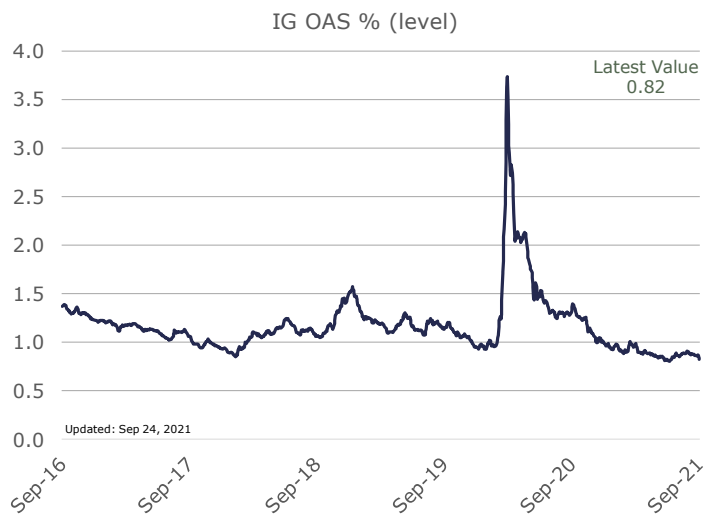
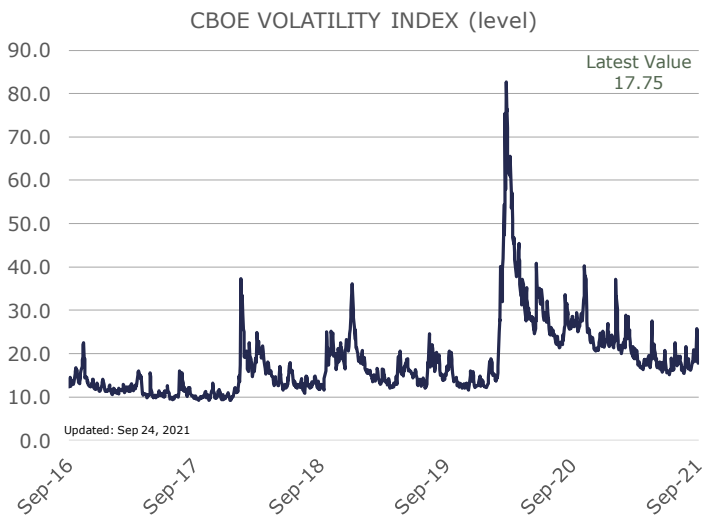
LIBOR: London Inter-bank Offered Rate
 SOFR: Federal Reserve Bank NY Secured Overnight Financing Rate

Treasury Rates



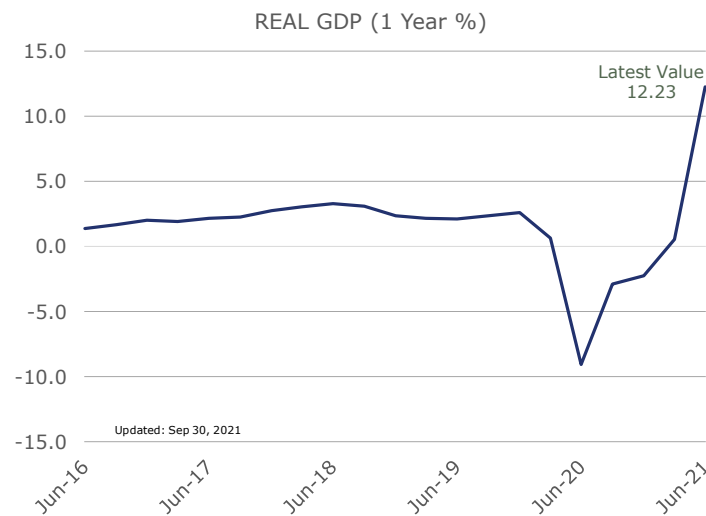
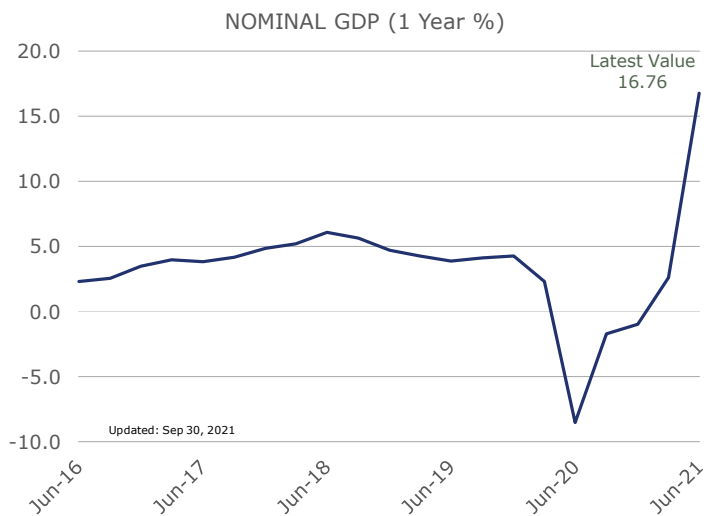
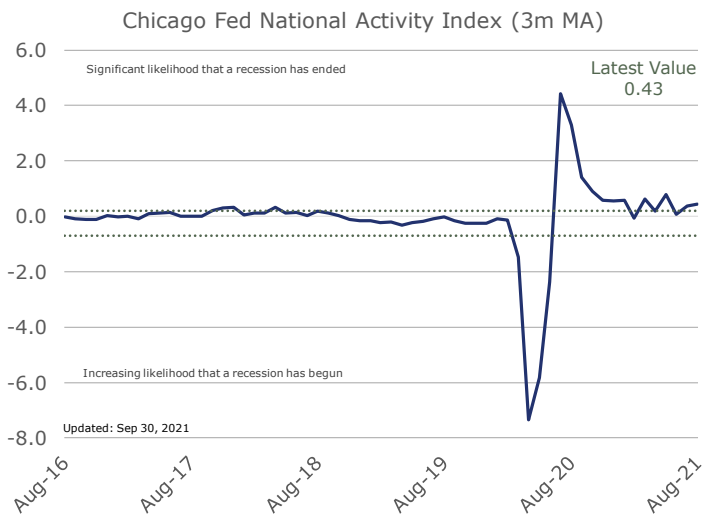
Data Sources: Bloomberg

Volatility & Credit Risk



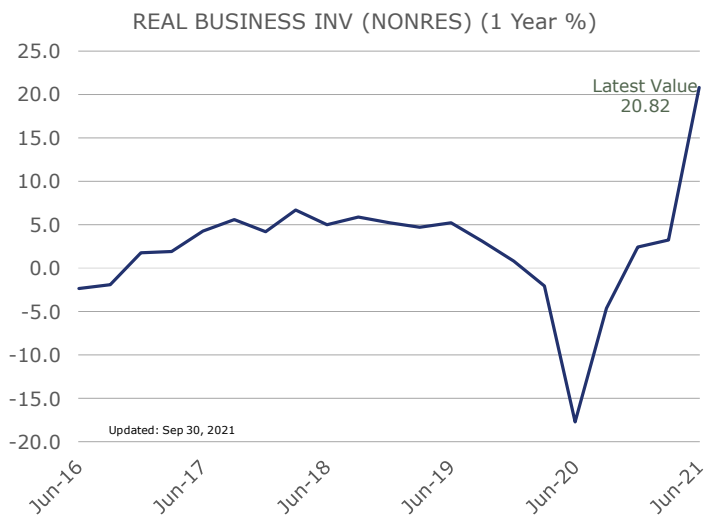
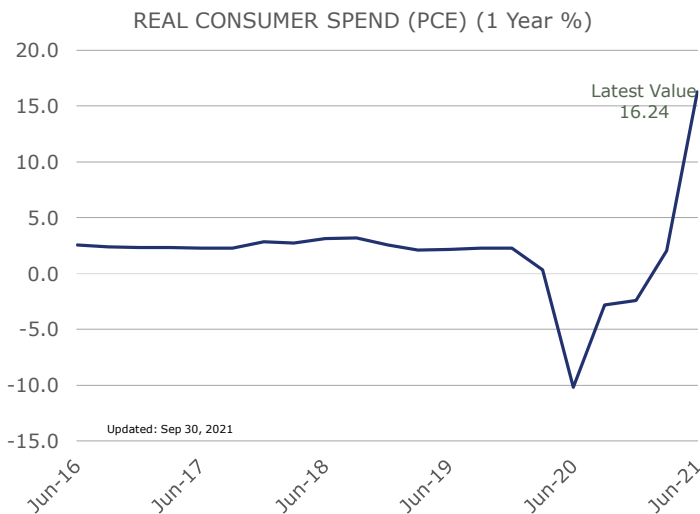
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Economic Growth



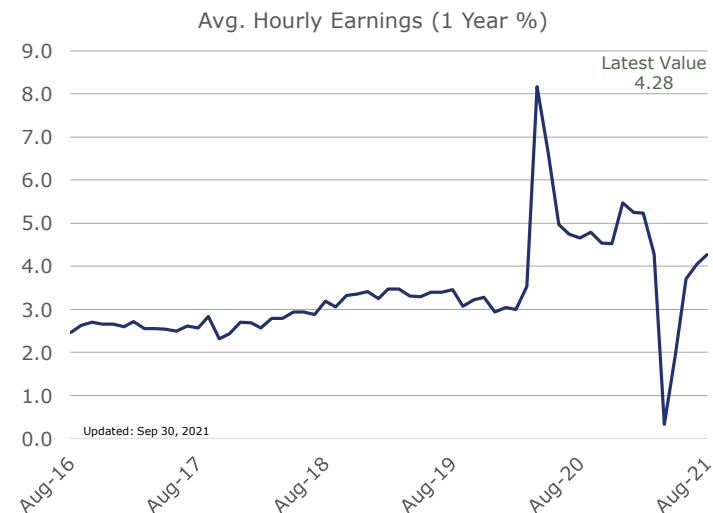
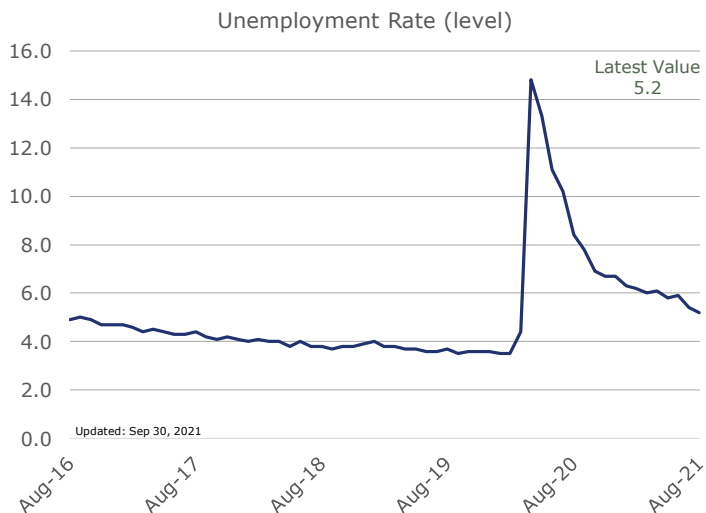
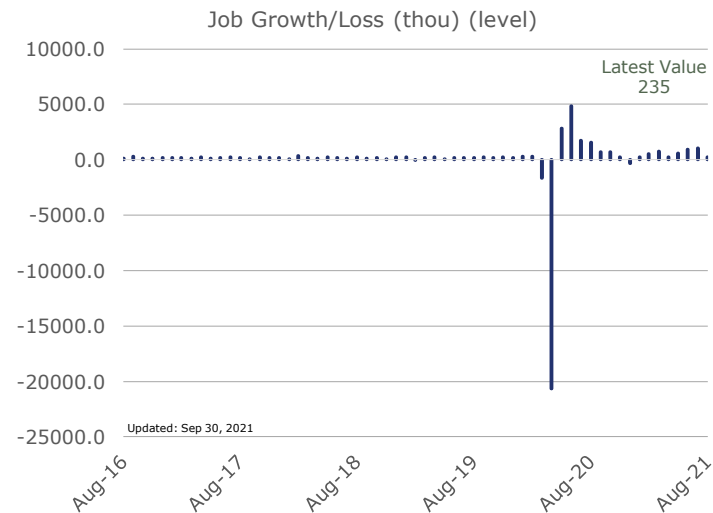
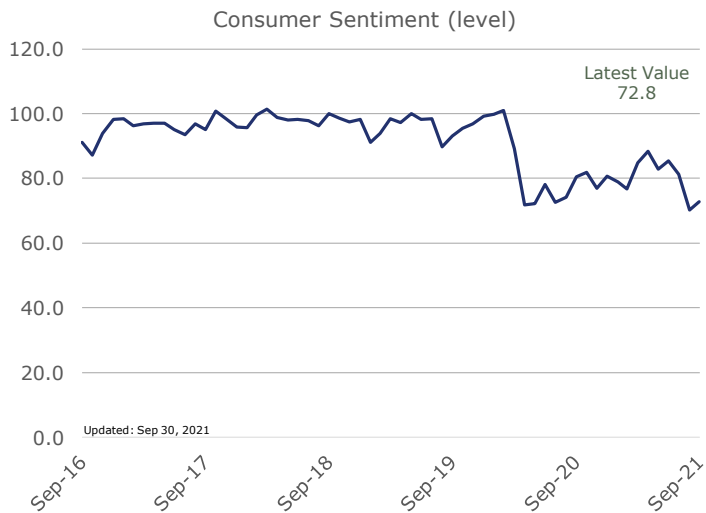
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Economic Growth



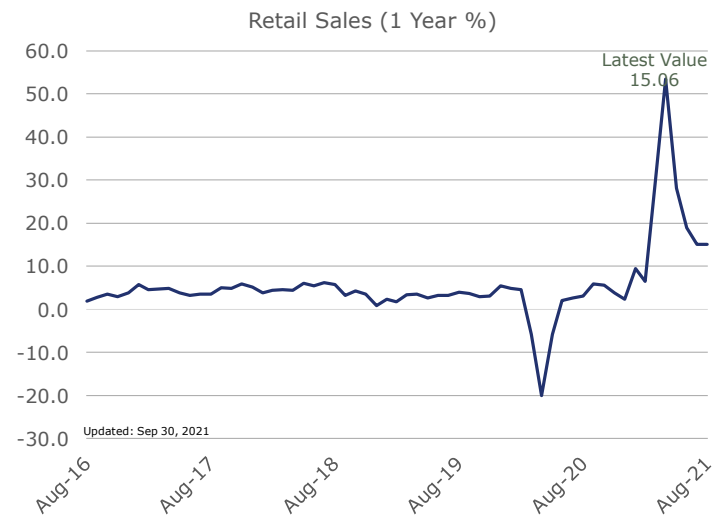
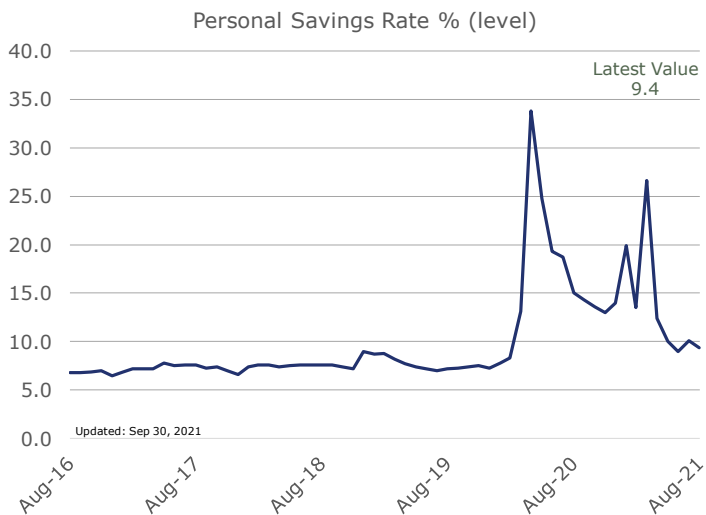
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Consumers & Employment



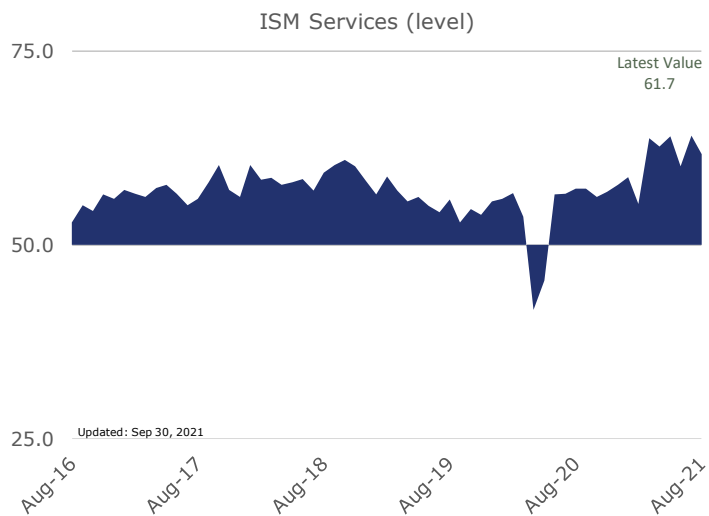
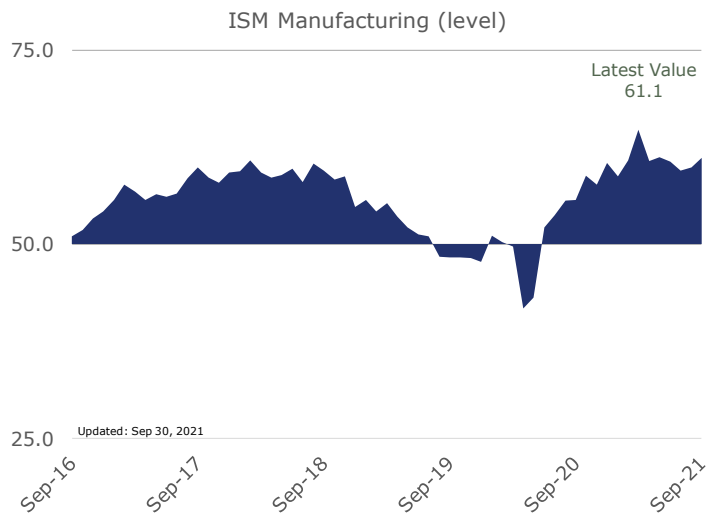
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Income & Spending

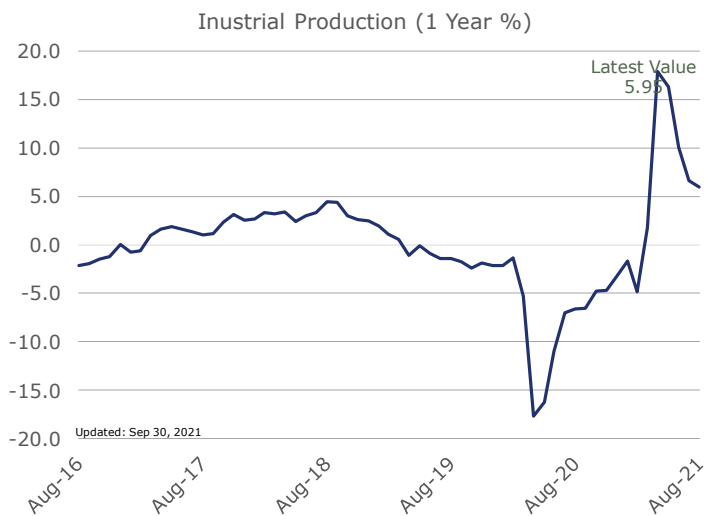
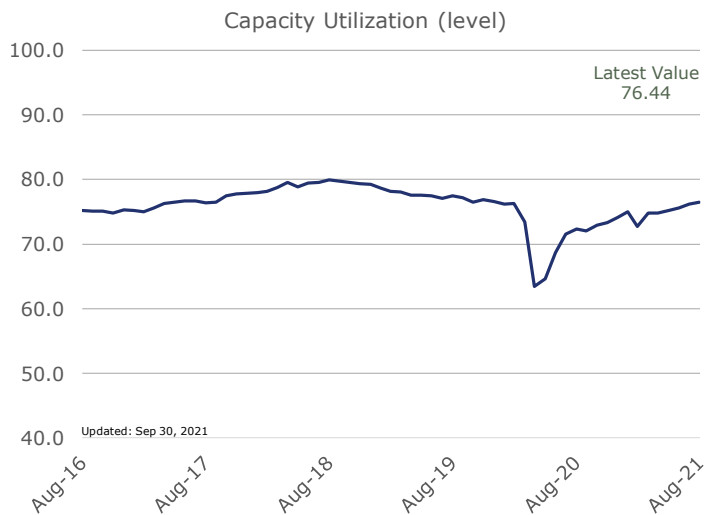


Data Sources: Bloomberg

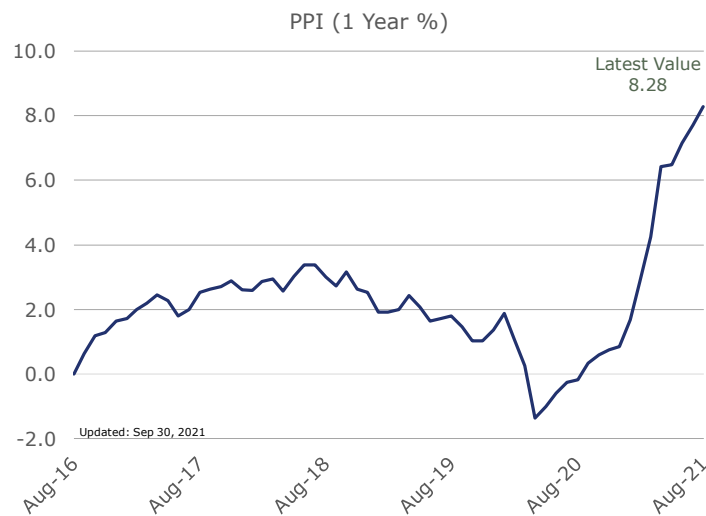
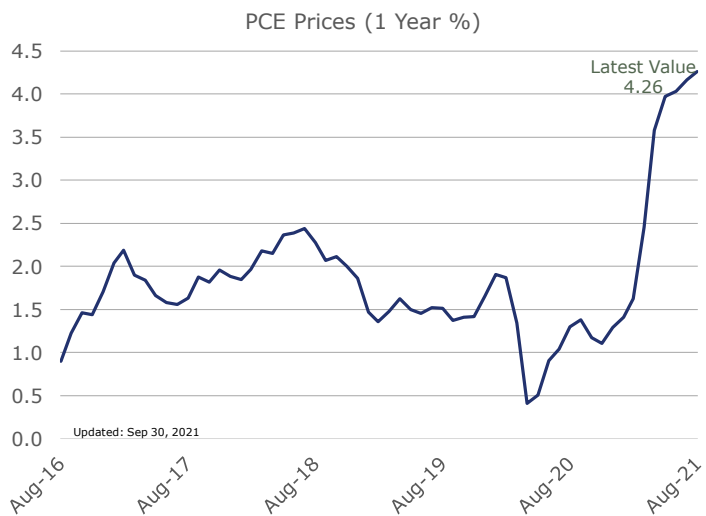
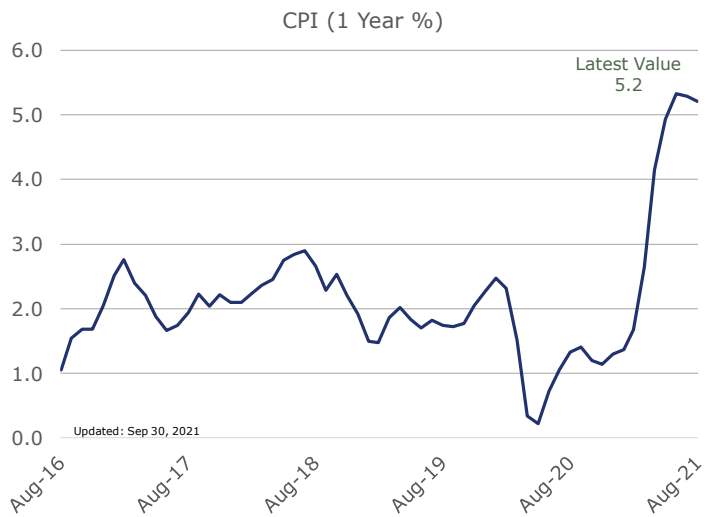
ISM Surveys



Manufacturing Activity

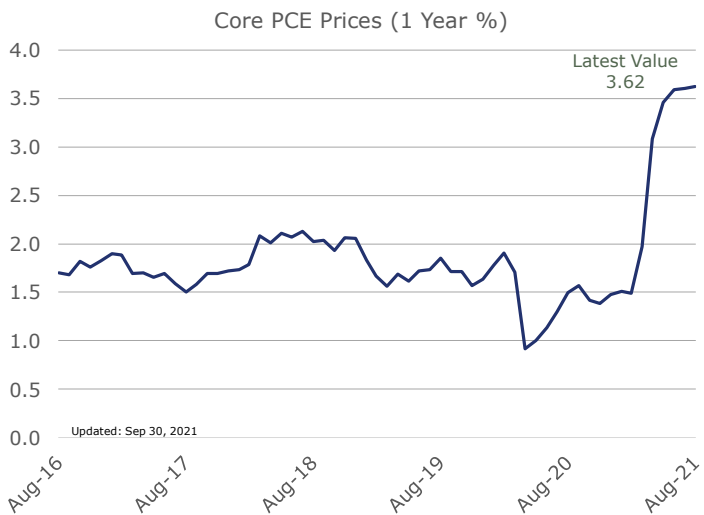
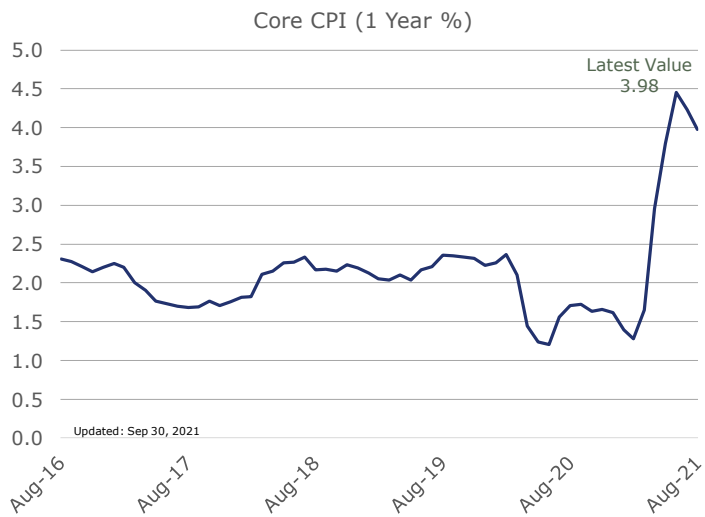


Price Indexes



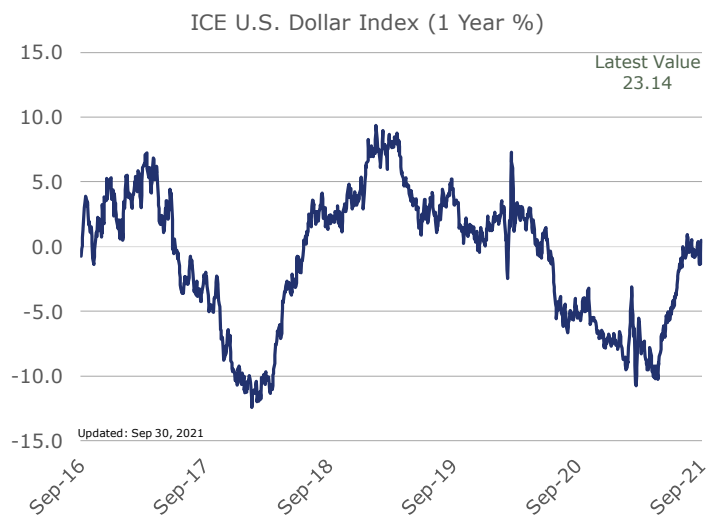
Data Sources: Bloomberg

Core Price Indexes



Data Sources: Bloomberg

U.S. Dollar



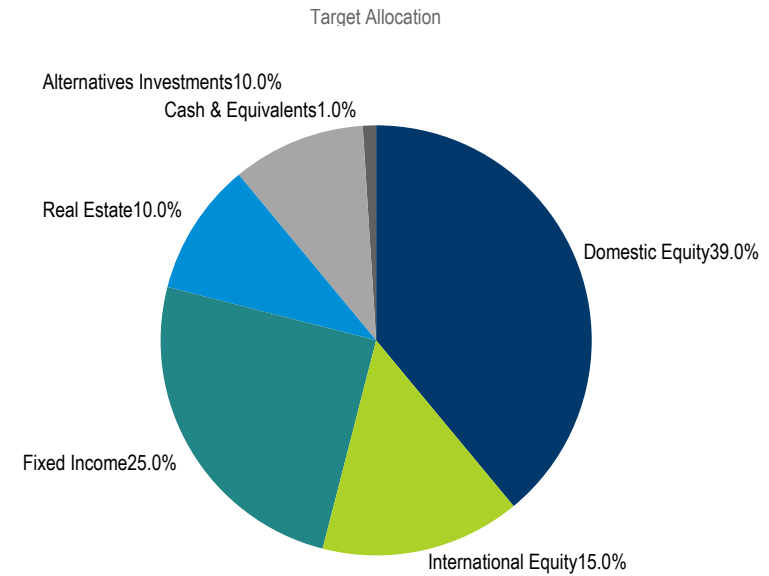
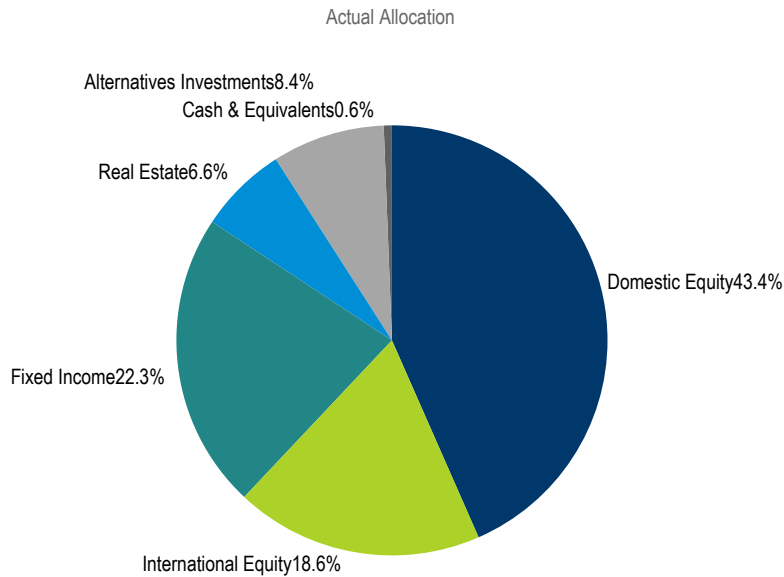
IMRF Performance

Wilshire Consulting

Asset Allocation

Total Fund

Periods Ended As of September 30, 2021

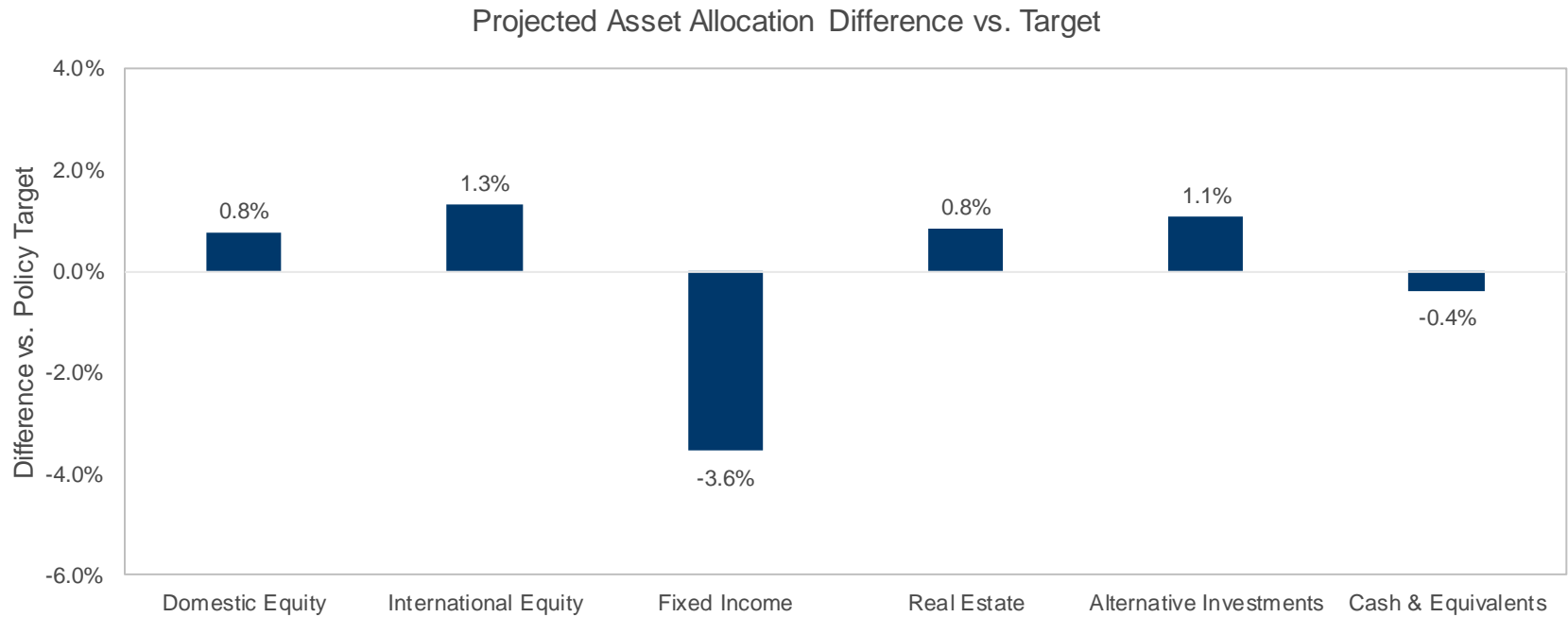


■ Domestic Equity
 ■ International Equity
 ■ Fixed Income
 ■ Real Estate
 ■ Alternatives Investments
 ■ Cash & Equivalents

	Actual Allocation \$Millions	Actual Allocation %	Target Allocation %	Differences %	Differences \$Millions
Total Fund	54,874	100.0	100.0	0.0	
Domestic Equity	23,824	43.4	39.0	4.4	2,423
International Equity	10,206	18.6	15.0	3.6	1,975
Fixed Income	12,226	22.3	25.0	-2.7	-1,492
Real Estate	3,645	6.6	10.0	-3.4	-1,842
Alternatives Investments	4,636	8.4	10.0	-1.6	-851
Cash & Equivalents	337	0.6	1.0	-0.4	-212

Projected Deviation From Benchmark

Period Ending September 30, 2021



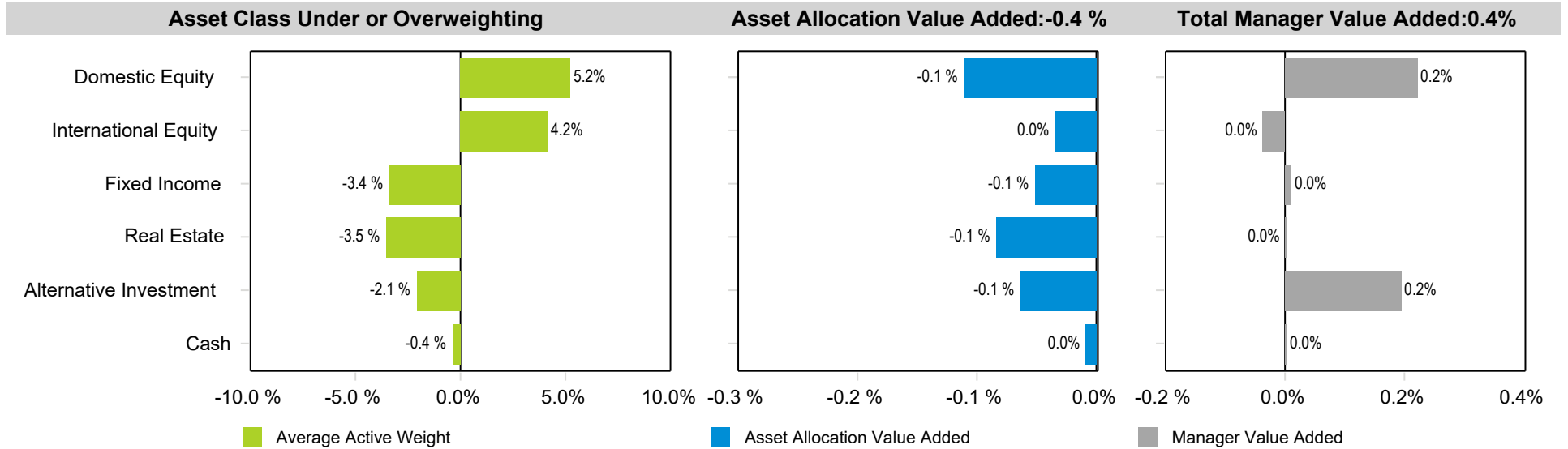
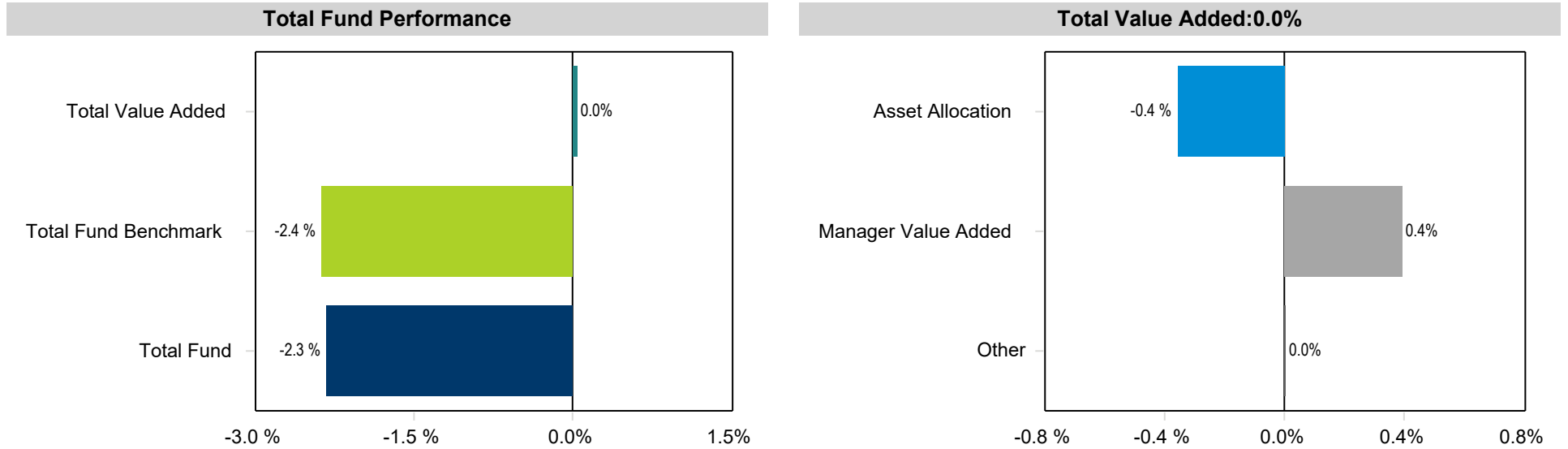
- Includes committed, but unfunded amounts for real estate (\$1.43 billion) and alternatives (\$2.30 billion). Assumes real estate and alternatives allocations are fully funded as of month's end.
- Assumes that outstanding commitments are funded from a basket of public markets asset classes (domestic equity, international equity and/or fixed income) that best reflects the expectations of risk, yield and regional allocations of the asset class

Private Equity Proxy: 60% domestic equity, 40% international equity
Real Estate Proxy: 50% domestic equity, 30% international equity, 20% fixed income
©2021 Wilshire.

Total Fund Attribution

Total Fund

1 Month Ending September 30, 2021

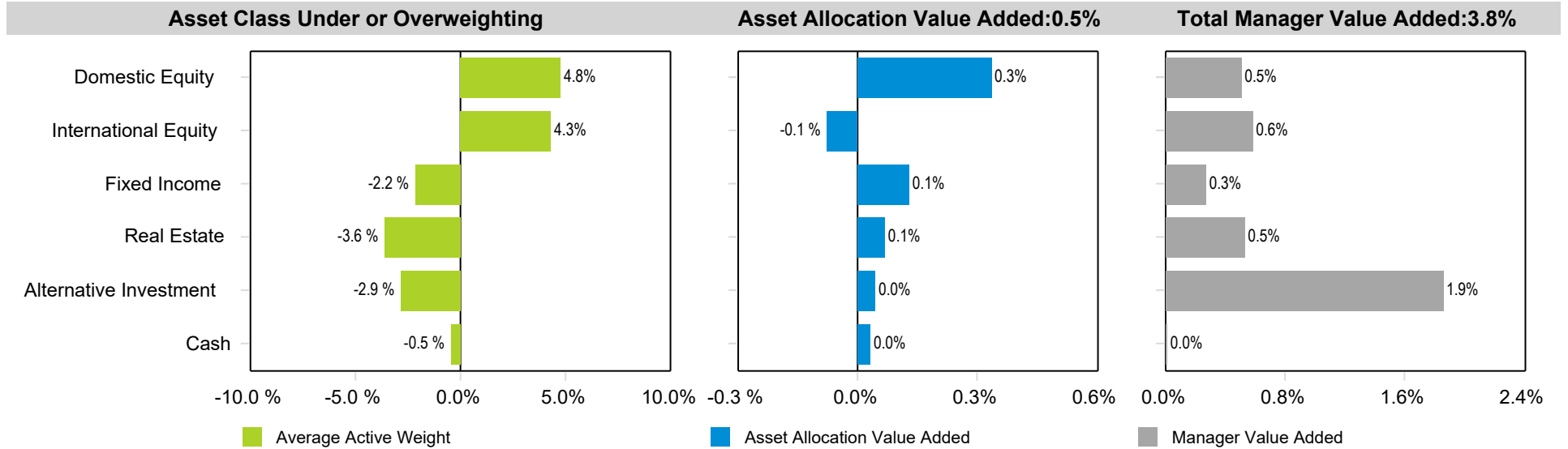
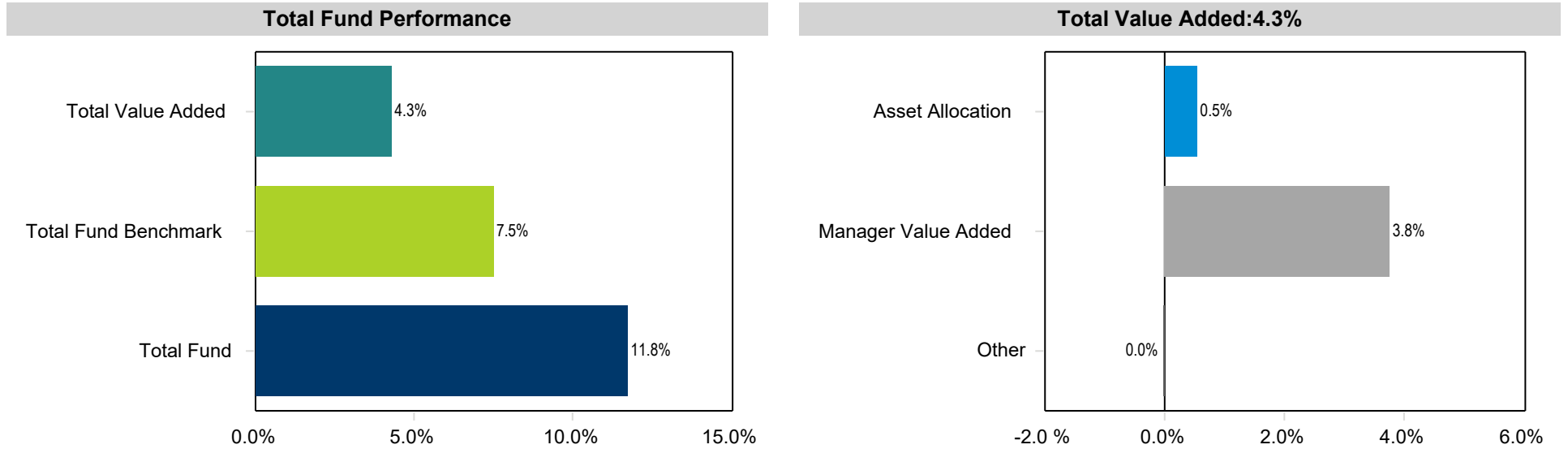


Total Fund Benchmark = 39.0% Russell 3000 Index, 25.0% Blmbg Aggregate, 15.0% MSCI ACWI ex US, 10.0% NCREIF NFI-ODCE Val Wt Nt, 10.0% 9% Annually and 1.0% 3-month Treasury Bill.

Total Fund Attribution

Total Fund

Year To Date Ending September 30, 2021



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

Wilshire Consulting

Asset Class Returns

Periods Ended September 30, 2021

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Total Fund	-2.33	1.08	11.89	24.78	12.11	11.72	11.12	8.61	8.86	10.14	1/1/1982
Total Fund - Net	-2.33	1.04	11.76	24.57	11.93	11.51	10.89				
Total Fund Benchmark	-2.37	-0.23	7.48	17.04	10.43	10.05	9.97				
Domestic Equity	-3.98	0.34	16.40	36.22	15.80	16.87	16.61	10.37	11.07	12.11	1/1/1982
Domestic Equity - Net	-3.98	0.30	16.26	36.00	15.60	16.66	16.36				
Blended Benchmark (U.S. Equity)	-4.49	-0.10	14.99	31.88	16.00	16.85	16.58	10.05	10.67		
U.S. Equity IMRF Custom Benchmark	-4.49	-0.24	14.86	32.51	14.45	15.38					
International Equity	-3.39	-1.63	9.13	29.14	10.34	10.65	9.46	8.32	7.73	8.12	9/1/1986
International Equity - Net	-3.39	-1.71	8.88	28.68	9.97	10.28	9.10				
MSCI AC World ex USA (Net)	-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	7.15			
International Equity IMRF Custom Benchmark	-3.22	-2.93	5.88	24.20	8.14	9.04					
Fixed Income	-0.80	0.16	-0.43	1.27	5.82	3.77	4.09	5.25	6.13	8.01	1/1/1982
Fixed Income - Net	-0.81	0.13	-0.51	1.16	5.71	3.63	3.94				
Blmbg. U.S. Aggregate	-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.33	5.46	7.47	
Fixed Income IMRF Custom Benchmark	-0.77	0.12	-0.92	0.37	5.43	3.28					
Real Estate	0.00	7.10	14.08	17.35	10.16	9.84	10.78	7.74	5.58	5.79	5/1/1985
Real Estate - Net	0.00	7.09	14.03	17.27	10.11	9.81	10.76				
Blended Benchmark (Real Estate)	0.00	0.00	5.64	6.80	3.95	5.24	8.47	7.00	7.20	7.48	
Alternatives Investments	3.17	9.87	34.75	46.80	20.90	17.59	12.45	9.01	12.93	11.59	2/1/1986
Alternatives Investments - Net	3.17	9.87	34.73	46.76	20.85	17.48	12.22				
Alternatives Custom Benchmark	0.72	2.18	6.68	9.00	9.00	9.00	9.00	10.53	12.00	12.47	
Private Equity	3.44	11.13	40.97	54.97	24.72	21.27	14.70	10.79	15.71	13.92	2/1/1986
Alternatives Custom Benchmark	0.72	2.18	6.68	9.00	9.00	9.00	9.00	10.53	12.00	12.47	
Agriculture	2.89	-0.02	-1.90	1.18	0.28	-1.29	8.01	6.96		6.56	10/1/1997
NCREIF Farmland Index	0.00	0.00	2.34	3.97	4.38	5.22	10.02	12.09		11.15	
Timberland	2.49	1.65	-5.84	-6.46	-0.40	0.34	1.74	3.13		6.82	10/1/1992
NCREIF Timberland Index	0.00	0.00	2.47	3.06	1.78	2.52	4.69	5.74		8.20	

Benchmark definitions on next page.

Wilshire Consulting

Asset Class Returns

Periods Ended September 30, 2021

	Performance (%)										
	1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
Unlisted Infrastructure	0.00	2.86	9.70	18.95	12.12					12.45	4/1/2018
Alternatives Custom Benchmark	0.72	2.18	6.68	9.00	9.00					9.00	
Cash	0.30	0.81	1.79	2.09	2.87	2.44	1.34	1.47	3.05	3.75	7/1/1986
90 Day US Treasury Bill	0.01	0.02	0.04	0.07	1.18	1.15	0.61	1.28	2.46	3.15	

Benchmark Definitions

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

**ODCE returns are updated quarterly.

Benchmark Definitions

Account Name	From Date	To Date	Benchmark
Total Fund Benchmark	1/1/2021	Present	The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset class: 39% Russell 3000 Index, 25% Blmbg. Barc. U.S. Aggregate, 15% MSCI AC World ex USA (Net), 10% NCREIF Fund Index-ODCE (VW) (Net), 10% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.
	3/1/2018	12/31/2020	37% Russell 3000 Index, 28% Blmbg. Barc. U.S. Aggregate, 18% MSCI AC World ex USA (Net), 9% NCREIF Fund Index-ODCE (VW) (Net), 7% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.

Investment Manager Asset Allocation

Periods Ended September 30, 2021

	Aug-2021		Sep-2021	
	\$	%	\$	%
Domestic Equity	24,897,921,349	44.22	23,823,936,761	43.42
Large Cap Growth	9,793,641,647	17.40	9,097,310,568	16.58
NTGI S&P 500 Growth	3,989,892,292	7.09	3,759,065,046	6.85
Sands Capital	3,469,796,664	6.16	3,134,975,842	5.71
Xponance Russell 1000 G	2,333,952,692	4.15	2,203,269,679	4.02
Large Cap Value	4,924,516,813	8.75	4,741,665,170	8.64
Dodge & Cox	1,866,596,977	3.32	1,797,754,542	3.28
LSV Asset	1,520,812,352	2.70	1,457,680,469	2.66
NTGI S&P 500 Value	1,537,107,484	2.73	1,486,230,159	2.71
Large Cap Pass. Core	3,439,449,323	6.11	3,125,171,219	5.70
NTGI MarketCap Idx.	3,439,449,323	6.11	3,125,171,219	5.70
Factor Diversity Strategies	1,319,936,713	2.34	1,255,128,306	2.29
U.S. Large Cap FDP-GSAM	1,319,936,713	2.34	1,255,128,306	2.29
Quantitative Factor Strategies	1,266,000,235	2.25	1,470,400,831	2.68
Quantitative US Equity - SciBeta	1,266,000,235	2.25	1,470,400,831	2.68
Small Cap Growth	1,147,258,604	2.04	1,039,742,351	1.89
Frontier Capital	943,534,049	1.68	838,557,020	1.53
FIAM Small Cap	203,724,555	0.36	201,185,331	0.37
Small Cap Value	2,109,531,700	3.75	2,075,333,670	3.78
Channing	336,183,194	0.60	326,073,284	0.59
DFA Small Cap Val.	826,796,229	1.47	822,130,374	1.50
Inv. Couns. Maryland	946,552,277	1.68	927,130,011	1.69

Investment Manager Asset Allocation

Periods Ended September 30, 2021

	Aug-2021		Sep-2021	
	\$	%	\$	%
Micro Cap	121,734,787	0.22	70,013,054	0.13
DFA Micro Cap (9-10)	121,734,787	0.22	70,013,054	0.13
Public Real Assets	775,851,527	1.38	949,171,592	1.73
Brookfield	184,001,820	0.33	181,361,077	0.33
Cohen & Steers	591,849,707	1.05	767,810,515	1.40
International Equity	10,811,365,735	19.20	10,206,160,855	18.60
Intl Large Cap Growth	1,928,796,822	3.43	1,806,557,256	3.29
EARNEST Part. Intl	639,161,351	1.14	626,468,256	1.14
William Blair	1,289,635,472	2.29	1,180,088,999	2.15
Intl Large Cap Value	1,414,883,597	2.51	1,383,392,712	2.52
Brandes Investment	620,730,573	1.10	606,476,291	1.11
Mondrian	647,851,610	1.15	634,645,890	1.16
Lazard	146,301,414	0.26	142,270,532	0.26
Intl Large Cap Core	5,066,223,794	9.00	4,702,338,776	8.57
Arrowstreet Capital	1,128,015,717	2.00	1,092,980,252	1.99
Brown Capital	694,074,435	1.23	659,844,686	1.20
GlobeFlex Capital	902,339,666	1.60	872,450,610	1.59
Xponance Intl EQ	110,881,271	0.20	106,599,287	0.19
Progress Intl Equity	847,178	0.00	740,326	0.00
Transition Account	119,717	0.00	119,717	0.00
NTGI MSCI EAFE	2,229,945,811	3.96		0.00
NTGI ACWI ex US Index Fund		0.00	1,969,603,898	3.59
Intl All Cap Developed	176,795,227	0.31	169,525,470	0.31

Investment Manager Asset Allocation

Periods Ended September 30, 2021

	Aug-2021		Sep-2021	
	\$	%	\$	%
Ativo International	176,795,227	0.31	169,525,470	0.31
International Small Cap	754,808,040	1.34	721,812,535	1.32
Franklin Templeton	266,191,148	0.47	255,537,841	0.47
William Blair IntSC	488,616,892	0.87	466,274,694	0.85
Emerging Mkt Equity	1,469,858,254	2.61	1,422,534,105	2.59
Genesis Asset Mngrs.	1,469,858,254	2.61	1,422,534,105	2.59

Investment Manager Asset Allocation

Periods Ended September 30, 2021

	Aug-2021		Sep-2021	
	\$	%	\$	%
Fixed Income	12,164,188,800	21.61	12,226,422,984	22.28
Domestic Fixed Core	3,865,727,047	6.87	3,829,440,865	6.98
Attucks Fixed Income	100,642,942	0.18	99,754,469	0.18
Brandes FI Core	377,797,249	0.67	374,691,783	0.68
EARNEST Partners	1,035,897,927	1.84	1,024,056,560	1.87
Garcia Hamilton	1,097,281,169	1.95	1,086,780,228	1.98
Ramirez Asset Management	134,145,341	0.24	133,079,345	0.24
Xponance Yield Advantage Agg.	1,119,962,419	1.99	1,111,078,480	2.02
Domestic Fixed Passive Core	3,687,934,768	6.55	3,656,423,449	6.66
NTGI Blmbg Agg.	1,833,100,986	3.26	1,817,507,000	3.31
BlackRock US Debt I	1,854,833,782	3.29	1,838,916,449	3.35
Domestic Fixed Core Plus	2,970,893,338	5.28	2,940,543,448	5.36
LM Capital Group FI	972,343,569	1.73	960,213,087	1.75
Progress Inv. FI	1,713	0.00	1,668	0.00
BMO - TCH	667,347,459	1.19	662,419,279	1.21
Western Asset	1,143,483,867	2.03	1,131,457,873	2.06
Longfellow Core Plus	187,716,731	0.33	186,451,541	0.34
Bank Loans	571,361,547	1.01	735,502,538	1.34
Barings Global Loan Fund	571,361,547	1.01	735,502,538	1.34
Emerging Markets Debt	234,526,230	0.42	228,557,725	0.42
Standish-Mellon EMD	234,526,230	0.42	228,557,725	0.42
High Yield	833,745,869	1.48	835,954,960	1.52
MacKay Shields	833,729,967	1.48	835,939,057	1.52
FIAM High Yield	15,903	0.00	15,903	0.00

Investment Manager Asset Allocation

Periods Ended September 30, 2021

	Aug-2021		Sep-2021	
	\$	%	\$	%
Real Estate	3,638,773,431	6.46	3,645,191,985	6.64
Real Estate Core Cmp	1,970,477,761	3.50	1,961,523,098	3.57
TA Assoc. Buckhead	756,018,917	1.34	743,116,202	1.35
Barings Euro Core Property	148,494,451	0.26	145,789,868	0.27
Blackstone Property Euro	164,273,821	0.29	161,281,845	0.29
INVESCO Core Real Estate	213,718,886	0.38	212,036,109	0.39
INVESCO European real estate	59,018,115	0.10	57,943,196	0.11
AEW Core Property Tr	243,116,484	0.43	243,116,484	0.44
CBRE Core Partners	229,724,994	0.41	229,724,994	0.42
JPM Strategic Property Fund	156,112,094	0.28	168,514,400	0.31
RE Non-Core Cmp	1,668,295,670	2.96	1,683,668,887	3.07
Artemis MWBE Spruce	275,427,336	0.49	295,920,495	0.54
Franklin T. EMREFF	6,865,209	0.01	6,865,209	0.01
Security Capital	69,640,085	0.12	70,192,975	0.13
Dune II	10,567,951	0.02	10,567,951	0.02
Non-Core Real Estate Funds	1,077,126,817	1.91	1,072,091,930	1.95
Non-Core Intl Real Estate	228,581,224	0.41	227,943,279	0.42
Almanac ARS V	87,048	0.00	87,048	0.00
Alternatives Investments	4,463,278,531	7.93	4,636,171,451	8.45
Absolute Return	116,135	0.00	117,832	0.00
Aurora Investment	116,135	0.00	117,832	0.00
Private Equity	3,896,060,074	6.92	4,061,245,044	7.40
Abbott S/A Comp.	487,787,277	0.87	521,595,639	0.95

Investment Manager Asset Allocation

Periods Ended September 30, 2021

	Aug-2021		Sep-2021	
	\$	%	\$	%
Muller Monroe MPEFF	522,930	0.00	522,930	0.00
Pantheon S/A Comp.	333,617,341	0.59	396,576,222	0.72
Private Equity Fund - Domestic	2,449,280,777	4.35	2,507,130,404	4.57
Private Equity Fund - International	549,651,849	0.98	544,426,113	0.99
Oakbrook Opportunities Fund	75,199,899	0.13	90,993,736	0.17
Private Credit	201,339,759	0.36	190,976,623	0.35
Private Credit Fund - Domestic	201,339,759	0.36	190,976,623	0.35
Agriculture	211,888,780	0.38	218,013,625	0.40
Premiere Partners IV	211,888,780	0.38	218,013,625	0.40
Timberland	66,915,390	0.12	67,577,675	0.12
Forest Investment	66,915,390	0.12	67,577,675	0.12
Unlisted Infrastructure	86,958,393	0.15	98,240,652	0.18
Unlisted Infrastructure Funds	86,958,393	0.15	98,240,652	0.18
Cash & Equivalents	324,316,743	0.58	336,529,831	0.61
Total Fund	56,299,844,590	100.00	54,874,413,867	100.00

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	54,874,413,867	-2.33	1.08	11.89	24.78	12.11	11.72	11.12	10.14	1/1/1982
Total Fund - Net		-2.33	1.04	11.76	24.57	11.93	11.51	10.89		
Total Fund Benchmark		-2.37	-0.23	7.48	17.04	10.43	10.05	9.97		
Domestic Equity	23,823,936,761	-3.98	0.34	16.40	36.22	15.80	16.87	16.61	12.11	1/1/1982
Domestic Equity - Net		-3.98	0.30	16.26	36.00	15.60	16.66	16.36		
Blended Benchmark		-4.49	-0.10	14.99	31.88	16.00	16.85	16.58		
Russell 3000 Index		-4.49	-0.10	14.99	31.88	16.00	16.85	16.60	11.98	
U.S. Equity IMRF Custom Benchmark		-4.49	-0.24	14.86	32.51	14.45	15.38			
Large Cap Equity	18,219,275,264	-4.26	0.86	15.98	33.63	17.18	17.94	17.17	11.86	1/1/1982
Large Cap Equity - Net		-4.26	0.84	15.91	33.51	17.07	17.83	17.03		
Russell 1000 Index		-4.59	0.21	15.19	30.96	16.43	17.11	16.76	12.12	
Large Cap Growth	9,097,310,568	-4.42	2.49	14.49	30.44	23.81	24.14	19.90	12.99	1/1/1982
Large Cap Growth - Net		-4.42	2.47	14.41	30.32	23.70	24.01	19.74		
LCG Blended Benchmark		-5.60	1.16	14.30	27.32	22.00	22.84	19.68		
Russell 1000 Growth Index		-5.60	1.16	14.30	27.32	22.00	22.84	19.68	12.09	
NTGI S&P 500 Growth	3,759,065,046	-5.79	1.86	16.43	28.86	20.21	21.11	18.95	9.89	8/1/2001
NTGI S&P 500 Growth - Net		-5.79	1.86	16.43	28.85	20.20	21.10	18.94		
S&P 500 Growth		-5.79	1.87	16.44	28.86	20.23	21.15	18.96	9.87	
Xponance Russell 1000 G	2,203,269,679	-5.60	1.15	14.28	27.31	21.98			21.98	10/1/2018
Xponance Russell 1000 G - Net		-5.60	1.15	14.27	27.28	21.96			21.96	
Russell 1000 Growth Index		-5.60	1.16	14.30	27.32	22.00			22.00	
Sands Capital	3,134,975,842	-1.87	4.31	13.14	33.75	28.68	28.36	22.61	15.35	11/1/2003
Sands Capital - Net		-1.87	4.26	12.97	33.48	28.41	28.09	22.34		
LCG Blended Benchmark		-5.60	1.16	14.30	27.32	22.00	22.84	19.68	12.16	
Russell 1000 Growth Index		-5.60	1.16	14.30	27.32	22.00	22.84	19.68	12.20	
Large Cap Value	4,741,665,170	-3.59	-1.33	20.54	41.71	10.69	12.75	14.86	10.54	10/1/1982
Large Cap Value - Net		-3.59	-1.37	20.41	41.50	10.53	12.58	14.67		
LCV Blended Benchmark		-3.48	-0.78	16.14	35.01	10.07	10.94	13.51		
Russell 1000 Value Index		-3.48	-0.78	16.14	35.01	10.07	10.94	13.51	11.87	

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Dodge & Cox	1,797,754,542	-3.56	-1.21	24.62	49.67	12.86	15.16	16.33	10.54	9/1/2003
Dodge & Cox - Net		-3.56	-1.26	24.44	49.37	12.62	14.92	16.09		
LCV Blended Benchmark		-3.48	-0.78	16.14	35.01	10.07	10.94	13.51	8.84	
Russell 1000 Value Index		-3.48	-0.78	16.14	35.01	10.07	10.94	13.51	8.98	
LSV Asset	1,457,680,469	-3.92	-1.98	20.94	43.85	9.20	11.85	14.89	11.11	2/1/2003
LSV Asset - Net		-3.92	-2.04	20.73	43.50	8.94	11.59	14.62		
LCV Blended Benchmark		-3.48	-0.78	16.14	35.01	10.07	10.94	13.51	9.64	
Russell 1000 Value Index		-3.48	-0.78	16.14	35.01	10.07	10.94	13.51	9.65	
NTGI S&P 500 Value	1,486,230,159	-3.31	-0.83	15.29	31.96	10.77	11.79	13.85	6.58	8/1/1999
NTGI S&P 500 Value - Net		-3.31	-0.83	15.28	31.95	10.76	11.79	13.84		
S&P 500 Value		-3.29	-0.85	15.31	32.02	10.69	11.70	13.77	6.55	
Large Cap Pass. Core	3,125,171,219	-4.53	-0.12	15.14	32.13	15.98	16.86	16.63	11.72	1/1/1985
Large Cap Pass. Core - Net		-4.53	-0.12	15.14	32.12	15.97	16.85	16.62		
Dow Jones US Total Stock Market Index		-4.54	-0.12	15.13	32.13	15.95	16.82	16.56		
NTGI MarketCap Idx.	3,125,171,219	-4.53	-0.12	15.14	32.13	15.98	16.86	16.63	11.51	2/1/1985
NTGI MarketCap Idx. - Net		-4.53	-0.12	15.14	32.12	15.97	16.85	16.62		
Dow Jones US Total Stock Market Index		-4.54	-0.12	15.13	32.13	15.95	16.82	16.56		
Factor Diversity Strategies	1,255,128,306	-4.91	-0.07	14.30	31.25				25.26	8/18/2020
U.S. Large Cap FDP-GSAM	1,255,128,306	-4.91	-0.07	14.30	31.25				25.26	8/18/2020
U.S. Large Cap FDP-GSAM - Net		-4.91	-0.08	14.25	31.17				25.18	
Solactive GBS U.S. 1000 Index		-4.61	0.33	15.23	31.21				25.89	
GSAM Active Beta US. Large Cap FDC Index		-4.95	-0.02	14.37	31.16				25.18	
Quantitative Factor Strategies	1,470,400,831	-4.84	-0.43	15.15	29.29				14.43	9/17/2019
Quantitative US Equity - SciBeta	1,470,400,831	-4.84	-0.43	15.15	29.29				14.43	9/17/2019
Quantitative US Equity - SciBeta - Net		-4.84	-0.45	15.10	29.14				14.15	
SciBeta US Hi-Fctr-Intst Div Multi-Beta Multi-Strat Index		-4.77	-0.90	13.80	28.07				13.33	

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Small Cap	3,185,089,075	-2.05	-1.91	20.74	58.91	12.14	14.18	15.30	12.56	7/1/1988
Small Cap Composite - Net		-2.05	-2.03	20.20	58.04	11.51	13.57	14.68		
Russell 2000 Index		-2.95	-4.36	12.41	47.68	10.54	13.45	14.63	9.95	
Small Cap Growth	1,039,742,351	-2.93	-1.92	14.09	48.31	18.76	18.67	17.57	13.81	7/1/1988
Small Cap Growth - Net		-2.94	-2.07	13.28	47.11	17.90	17.94	16.89		
Russell 2000 Growth Index		-3.83	-5.65	2.82	33.27	11.70	15.34	15.74	8.86	
Frontier Capital	838,557,020	-3.30	-2.93	13.23	47.36	19.42	22.24	18.31	14.18	8/1/1988
Frontier Capital - Net		-3.30	-3.06	12.38	46.08	18.34	21.32	17.55		
Russell 2000 Growth Index		-3.83	-5.65	2.82	33.27	11.70	15.34	15.74	8.95	
FIAM Small Cap	201,185,331	-1.25	2.94	18.09	52.79	15.28	15.27	16.86	13.97	8/1/1988
FIAM Small Cap - Net		-1.35	2.72	17.47	51.99	14.88	14.83	16.32		
Russell 2000 Index		-2.95	-4.36	12.41	47.68	10.54	13.45	14.63	10.01	
Russell 2000 Growth Index		-3.83	-5.65	2.82	33.27	11.70	15.34	15.74	8.95	
Small Cap Value	2,075,333,670	-1.62	-1.87	24.38	64.71	9.15	12.16	14.44	12.02	9/1/1989
Small Cap Value - Net		-1.62	-1.97	24.02	64.07	8.63	11.61	13.88		
Russell 2000 Value Index		-2.00	-2.98	22.92	63.92	8.58	11.03	13.22	10.33	
Channing	326,073,284	-3.01	-2.10	14.62	55.54	9.84	11.93	14.73	11.70	7/1/2011
Channing - Net		-3.01	-2.22	14.24	54.84	9.30	11.38	14.12	11.11	
Russell 2000 Value Index		-2.00	-2.98	22.92	63.92	8.58	11.03	13.22	10.24	
DFA Small Cap Val.	822,130,374	-0.56	-0.67	31.80	76.32	9.14	11.44	14.42	12.31	2/1/1996
DFA Small Cap Val. - Net		-0.56	-0.76	31.40	75.59	8.64	10.90	13.87		
Russell 2000 Value Index		-2.00	-2.98	22.92	63.92	8.58	11.03	13.22	9.94	
Inv. Couns. Maryland	927,130,011	-2.05	-2.84	21.94	58.74	8.93	13.00	14.93	11.82	5/1/1999
Inv. Couns. Maryland - Net		-2.05	-2.93	21.62	58.18	8.40	12.44	14.40		
Russell 2000 Value Index		-2.00	-2.98	22.92	63.92	8.58	11.03	13.22	9.58	
Micro Cap	70,013,054	-1.41	-1.93	24.26	63.89	9.56	11.70	13.69	11.81	7/1/1984
Micro Cap - Net		-1.41	-2.14	23.65	62.86	8.96	11.07	12.98		
Russell Microcap Index		-2.92	-4.98	22.59	61.07	12.23	14.47	15.42		

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
DFA Micro Cap (9-10)	70,013,054	-1.41	-1.93	24.26	63.89	9.67	13.51	15.35	11.52	8/1/1987
DFA Micro Cap (9-10) - Net		-1.41	-2.14	23.65	62.86	9.08	12.92	14.77		
Russell 2000 Index		-2.95	-4.36	12.41	47.68	10.54	13.45	14.63	9.37	
Public Real Assets	949,171,592	-3.44	-0.05	9.60	18.80	8.51			6.95	8/1/2017
Public Real Assets - Net		-3.44	-0.15	9.28	18.33	8.05			6.51	
Public Real Assets Benchmark		-3.38	-0.65	8.76	17.95	7.19			5.07	
Brookfield	181,361,077	-1.44	-0.32	13.27	25.03	6.57			4.74	8/1/2017
Brookfield - Net		-1.44	-0.45	12.84	24.40	6.01			4.21	
Dow Jones Brookfield Global Infrastructure Composite Index		-2.84	-1.45	12.68	22.13	6.10			3.97	
Cohen & Steers	767,810,515	-4.06	0.04	8.48	16.93	9.53			8.08	8/1/2017
Cohen & Steers - Net		-4.06	-0.05	8.19	16.52	9.11			7.67	
FTSE Global Core Infrastructure 50/50 Index (Net)		-3.66	-0.25	6.83	15.87	7.70			5.59	

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
International Equity	10,206,160,855	-3.39	-1.63	9.13	29.14	10.34	10.65	9.46	8.12	9/1/1986
International Equity - Net		-3.39	-1.71	8.88	28.68	9.97	10.28	9.10		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48		
International Equity IMRF Custom Benchmark		-3.22	-2.93	5.88	24.20	8.14	9.04			
Intl LargeCap Equity	7,892,288,744	-3.32	-0.82	10.98	31.23	10.06	10.59	9.49	8.12	9/1/1986
Intl LargeCap Equity - Net		-3.32	-0.88	10.79	30.85	9.77	10.29	9.20		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48		
Intl Large Cap Grwth	1,806,557,256	-4.33	0.35	10.42	32.86	14.17	13.21	10.59	9.59	9/1/2002
Intl Large Cap Grwth - Net		-4.33	0.28	10.20	32.47	13.88	12.91	10.25		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	7.68	
MSCI AC World ex USA Growth (Net)		-4.30	-3.62	2.66	16.95	11.94	11.22	9.32	8.35	
EARNEST Part. Intl	626,468,256	-1.98	-0.21	13.32	46.51	9.56	10.54	8.33	9.56	10/1/2004
EARNEST Part. Intl - Net		-1.98	-0.26	13.16	46.16	9.36	10.33	8.03		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	6.49	
MSCI AC World ex USA Growth (Net)		-4.30	-3.62	2.66	16.95	11.94	11.22	9.32	7.61	
William Blair	1,180,088,999	-5.51	0.62	8.96	26.75	17.24	14.95	12.41	11.14	10/1/2002
William Blair - Net		-5.51	0.54	8.71	26.34	16.85	14.55	12.01		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	8.36	
MSCI AC World ex USA Growth (Net)		-4.30	-3.62	2.66	16.95	11.94	11.22	9.32	8.92	
Intl Large Cap Val.	1,383,392,712	-2.23	-2.23	10.01	31.82	5.63	7.13	7.17	8.58	10/1/1995
Intl Large Cap Val. - Net		-2.23	-2.31	9.76	31.42	5.30	6.77	6.79		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	5.67	
MSCI AC World ex USA Value		-1.94	-2.14	9.66	32.15	4.43	7.06	6.11		
Brandes Investment	606,476,291	-2.30	-1.39	14.27	38.39	4.74	7.19	7.45	8.75	1/1/1996
Brandes Investment - Net		-2.30	-1.44	14.09	38.09	4.52	6.94	7.21		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	5.58	
MSCI AC World ex USA Value		-1.94	-2.14	9.66	32.15	4.43	7.06	6.11		

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Mondrian	634,645,890	-2.04	-3.19	7.39	27.86	6.42	7.03		5.93	4/1/2012
Mondrian - Net		-2.04	-3.29	7.08	27.35	5.97	6.55		5.44	
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94		6.28	
MSCI AC World ex USA Value		-1.94	-2.14	9.66	32.15	4.43	7.06		4.93	
Lazard	142,270,532	-2.75	-1.48	4.73	23.09	7.96	8.16		7.14	4/1/2012
Lazard - Net		-2.75	-1.54	4.54	22.80	7.69	7.89		6.66	
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94		6.28	
MSCI AC World ex USA Value		-1.94	-2.14	9.66	32.15	4.43	7.06		4.93	
Intl Large Cap Active Core	2,732,734,878	-3.65	-1.31	13.73	33.65	11.73	12.19	11.26	6.65	2/1/2008
Intl Large Cap Active Core - Net		-3.65	-1.40	13.43	32.95	11.20	11.63	10.70		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	3.61	
Arrowstreet Capital	1,092,980,252	-3.11	-2.86	16.57	44.71	15.91	14.99	12.46	7.66	3/1/2008
Arrowstreet Capital - Net		-3.11	-2.97	16.19	44.09	15.38	14.47	11.94	7.17	
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	3.42	
Brown Capital	659,844,686	-4.93	1.43	7.63	18.96	12.70	12.15	12.37	9.12	10/1/2004
Brown Capital - Net		-4.93	1.37	7.44	17.95	12.18	11.38	11.52		
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	6.49	
GlobeFlex Capital	872,450,610	-3.31	-1.38	16.13	34.47	7.75	9.79	9.77	5.85	3/1/2006
GlobeFlex Capital - Net		-3.31	-1.47	15.84	34.00	7.32	9.37	9.33	5.41	
MSCI AC World ex USA (Net)		-3.20	-2.99	5.90	23.92	8.03	8.94	7.48	4.65	
Xponance Intl EQ	106,599,287	-3.86	-0.82						11.13	2/1/2021
Xponance Intl EQ - Net		-3.86	-0.97						10.82	
MSCI EAFE Index (Net)		-2.90	-0.45						9.51	
Progress Intl Equity	740,326									
Intl Large Cap Passive Core	1,969,603,898	-2.73	-0.27	8.73	26.19	8.08	9.24	8.52	4.51	2/1/2000
Intl Large Cap Passive Core - Net		-2.73	-0.27	8.73	26.18	8.07	9.23	8.52		
MSCI EAFE Index (Net)		-2.90	-0.45	8.35	25.73	7.62	8.81	8.10	4.11	

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								Inception Date
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
NTGI ACWI ex US Index NTGI ACWI ex US Index - Net MSCI AC World ex USA (Net)	1,969,603,898									10/1/2021
Intl All Cap Developed Intl All Cap Developed - Net MSCI EAFE + Canada (Net)	169,525,470	-4.11	-0.29	10.31	21.59				10.78	2/1/2019
Ativo International Ativo International - Net MSCI EAFE + Canada (Net)	169,525,470	-4.11	-0.29	10.31	21.59				10.78	2/1/2019
Intl Small Cap Eqty Intl Small Cap Eqty - Net MSCI AC World ex USA Small Cap (Net) Custom Benchmark (Intl Small Cap)	721,812,535	-4.37	2.16	13.00	31.61	14.58	12.81	11.96	6.85	12/1/2005
Franklin Templeton Franklin Templeton - Net MSCI AC World ex USA Small Cap (Net)	255,537,841	-4.00	-1.60	12.05	28.21	9.44	10.51	10.63	7.80	8/1/2011
William Blair IntSC William Blair IntSC - Net MSCI AC World ex USA Small Cap (Net) Custom Benchmark (Intl Small Cap)	466,274,694	-4.57	4.35	13.53	33.55	17.88	14.09	12.75	12.14	9/1/2010
Emerging Mkt Equity Emerging Mkt Equity - Net MSCI Emerging Markets Index	1,422,534,105	-3.17	-7.84	-2.00	18.16	11.69	10.73	7.88	9.22	2/1/1992
Genesis Asset Mngrs. Genesis Asset Mngrs. - Net MSCI Emerging Markets Index	1,422,534,105	-3.17	-7.84	-2.00	18.16	11.69	10.73	7.88	11.20	5/1/2004

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	12,226,422,984	-0.80	0.16	-0.43	1.27	5.82	3.77	4.09	8.01	1/1/1982
Fixed Income - Net		-0.81	0.13	-0.51	1.16	5.71	3.63	3.94		
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	7.47	
Fixed Income IMRF Custom Benchmark		-0.77	0.12	-0.92	0.37	5.43	3.28			
Active Fixed Core	3,829,440,865	-0.94	0.05	-0.96	-0.10	5.59	3.36	3.63	4.53	4/1/2001
ActiveCore Fixed Inc - Net		-0.94	0.03	-1.04	-0.21	5.48	3.25	3.49		
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.48	
Attucks Fixed Income	99,754,469	-0.88	0.11						-0.19	2/1/2021
Attucks Fixed Income - Net		-0.88	0.03						-0.34	
Blmbg. U.S. Aggregate		-0.87	0.05						-0.84	
Brandes FI Core	374,691,783	-0.82	0.27	-1.19	-1.16	4.97	2.79		3.04	3/1/2016
Brandes FI Core - Net		-0.82	0.27	-1.19	-1.16	4.97	2.79		3.04	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94		3.29	
EARNEST Partners	1,024,056,560	-1.14	-0.10	-0.50	0.21	5.74	3.36	3.63	4.53	5/1/2005
EARNEST Partners - Net		-1.14	-0.13	-0.60	0.08	5.60	3.21	3.46	4.34	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.09	
Garcia Hamilton	1,086,780,228	-0.96	-0.02	-2.14	-1.49	5.00	3.16		3.43	6/1/2015
Garcia Hamilton - Net		-0.96	-0.04	-2.19	-1.57	4.92	3.07		3.34	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94		3.16	
Ramirez Asset Management	133,079,345	-0.79	0.22	0.10	1.32				4.43	5/1/2020
Ramirez Asset Management - Net		-0.79	0.17	-0.04	1.13				4.27	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90				0.57	
Xponance Yield Advantage Agg.	1,111,078,480	-0.79	0.16	-0.33	1.14	6.04	3.55	3.73	4.40	6/1/2005
Xponance Yield Advantage Agg. - Net		-0.79	0.13	-0.42	1.01	5.91	3.41	3.58	4.23	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.04	
Pass. Core Fixed Inc	3,656,423,449	-0.85	0.08	-1.54	-0.85	5.42	3.00	3.06	5.78	1/1/1990
Pass. Core Fixed Inc - Net		-0.85	0.08	-1.54	-0.86	5.41	2.99	3.06		
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	5.76	

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
BlackRock US Debt I	1,838,916,449	-0.86	0.08	-1.52	-0.83	5.45	3.04		3.47	10/1/2013
BlackRock US Debt I - Net		-0.86	0.08	-1.53	-0.84	5.44	3.03		3.46	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94		3.35	
NTGI Blmbg Agg.	1,817,507,000	-0.85	0.07	-1.56	-0.87	5.40	2.96	3.04	5.83	2/1/1990
NTGI Blmbg Agg. - Net		-0.85	0.07	-1.56	-0.88	5.39	2.95	3.04	5.82	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	5.82	
Core Plus Fixed Income	2,940,543,448	-1.02	0.04	-0.98	1.35	6.49	4.04	4.25	7.92	1/1/1982
Core Plus Fixed Inc. - Net		-1.03	-0.01	-1.09	1.20	6.31	3.86	4.06	7.47	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	7.47	
LM Capital Group FI	960,213,087	-1.25	-0.41	-1.38	0.73	6.32	3.76	4.01	4.91	5/1/2005
LM Capital Group FI - Net		-1.25	-0.45	-1.50	0.57	6.15	3.60	3.84	4.74	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.09	
Progress Inv. FI	1,668									
BMO - TCH	662,419,279	-0.74	0.30	-0.35	1.37	5.92	4.09	4.52	4.99	5/1/2005
BMO - TCH - Net		-0.74	0.27	-0.45	1.24	5.78	3.96	4.38	4.86	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.09	
Western Asset	1,131,457,873	-1.05	0.21	-1.20	1.74	7.14	4.46	4.69	5.49	11/1/2001
Western Asset - Net		-1.08	0.14	-1.30	1.60	7.02	4.33	4.55	4.24	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90	5.35	2.94	3.01	4.24	
Longfellow Core Plus	186,451,541	-0.67	0.37	0.14	2.03				4.04	5/1/2020
Longfellow Core Plus - Net		-0.67	0.32	-0.01	1.82				3.87	
Blmbg. U.S. Aggregate		-0.87	0.05	-1.56	-0.90				0.57	
Bank Loans	735,502,538	0.69	1.14	5.79	10.55	4.23	4.99		4.62	8/1/2014
Bank Loans - Net		0.69	1.14	5.79	10.55	4.12	4.69		4.23	
Custom Benchmark		0.61	1.13	4.62	8.47	4.31	4.80		4.29	
Barings Global Loan Fund	735,502,538	0.69	1.14	5.79	10.55	4.23	4.99		4.62	8/1/2014
Barings Global Loan Fund - Net		0.69	1.14	5.79	10.55	4.12	4.69		4.23	
Custom Benchmark		0.61	1.13	4.62	8.47	4.31	4.80		4.29	

Benchmark definitions in glossary.

Wilshire Consulting Performance

Periods Ended September 30, 2021

	Market Value \$	Performance (%)								
		1 Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Emerging Markets Debt	228,557,725	-2.54	-1.76	-3.83	5.42	5.37	3.67		2.85	8/1/2014
Emerging Markets Debt - Net		-2.62	-1.84	-4.08	5.06	5.01	3.31		2.50	
Custom Benchmark		-2.64	-2.05	-3.93	3.33	4.98	3.24		2.28	
Standish-Mellon EMD	228,557,725	-2.54	-1.76	-3.83	5.42	5.37	3.67		2.85	8/1/2014
Standish EM MRK - Net		-2.62	-1.84	-4.08	5.06	5.01	3.31		2.50	
Custom Benchmark		-2.64	-2.05	-3.93	3.33	4.98	3.24		2.28	
High Yield	835,954,960	0.27	1.33	6.03	10.35	8.00	7.12	7.76	9.45	4/1/1986
High Yield - Net		0.18	1.17	5.77	10.00	7.65	6.77	7.39		
ICE BofAML US High Yield, Cash Pay Index		0.02	0.94	4.55	11.30	6.60	6.33	7.26	8.21	
MacKay Shields	835,939,057	0.27	1.33	6.03	10.35	8.01	7.18	7.84	8.75	11/1/2000
MacKay Shields - Net		0.18	1.17	5.77	10.00	7.66	6.83	7.46		
ICE BofAML US High Yield, Cash Pay Index		0.02	0.94	4.55	11.30	6.60	6.33	7.26	7.49	

Benchmark definitions in glossary.

Wilshire Consulting

Benchmark History

Periods Ended January 31, 2021

Account Name	From Date	To Date	Benchmark
Total Fund			The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset classes:
	1/1/2021	Present	39% Russell 3000 Index, 25% Blmbg. Barc. U.S. Aggregate, 15% MSCI AC World ex USA (Net), 10% NCREIF Fund Index-ODCE (VW) (Net), 10% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill
	3/1/2018	12/31/2020	37% Russell 3000 Index, 28% Blmbg. Barc. U.S. Aggregate, 18% MSCI AC World ex USA (Net), 9% NCREIF Fund Index-ODCE (VW) (Net), 7% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill
Domestic Equity	1/1/2015	Present	100% Russell 3000 Index
	1/1/1982	12/31/2014	100% Dow Jones US Total Stock Market Index
Large Cap Growth	1/1/2006	Present	100% Russell 1000 Growth Index
	11/1/2003	12/13/2005	100% S&P 500 Growth
Large Cap Value	1/1/2006	Present	100% Russell 1000 Value Index
	2/1/2001	12/31/2005	100% S&P 500 Value
Public Real Assets	8/1/2017	Present	33.3% Dow Jones Brookfield Global Infrastructure Composi, 66.7% FTSE GLOBAL CORE INFRASTRUCTURE 50/50 INDEX (Net)

Benchmark History

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