



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: SEPTEMBER 30, 2017**

Investment Performance Review for

**Western States Office & Professional Employees Pension Fund**

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Capital Markets Update

TAB I

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Investment Performance  
Review

TAB II





**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

SEPTEMBER 2017  
Capital Markets Update



# Market commentary

## ECONOMIC CLIMATE

- As of October 2<sup>nd</sup>, the Q3 Atlanta Fed GDPNow forecast for real U.S. GDP growth was 2.7% (QoQ annualized). The forecast was adjusted downward from the September 1<sup>st</sup> estimate of 3.2% on lower expectations of private fixed investment.
- On September 20<sup>th</sup>, the Federal Reserve announced the fed funds target rate would remain unchanged at 1.00% - 1.25% and confirmed that the balance sheet unwind would begin in October 2017.
- The implied probability of a rate hike in December increased after the September FOMC meeting comments were perceived as relatively hawkish. Additionally, FOMC members have projected three rate hikes to take place in 2018.
- The U.S. dollar continued its downward trend and depreciated by -1.0% in September against a trade weighted basket of currencies. The currency was down -8.7% year-to-date.
- President Trump and Democratic congressional leaders raised the federal debt ceiling. The Bipartisan Policy Center estimated that the legislation effectively pushed the next debt limit deadline to March of 2018.

## DOMESTIC EQUITIES

- Domestic equities provided positive returns in September (S&P 500 +2.1%). Domestic small cap equities outperformed large cap equities by over 4%, as the Russell 2000 returned 6.2% in the month.
- According to FactSet, as of October 6<sup>th</sup>, the estimated Q3 earnings and revenue growth rates of the S&P 500 were 2.8% and 4.9% YoY, respectively.

## DOMESTIC FIXED INCOME

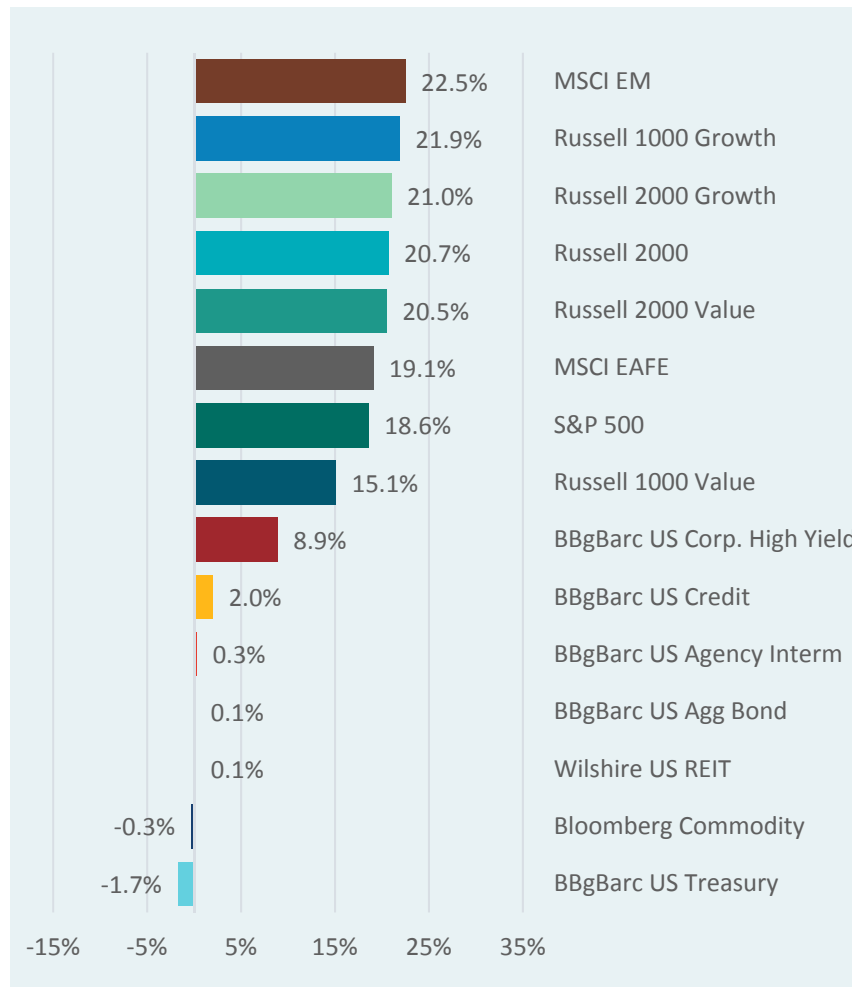
- Domestic fixed income returns were negative in September as the Bloomberg Barclays U.S. Aggregate Index returned -0.5%.
- U.S. Treasury yields broadly increased – 10-year yield rose by 21 bps to 2.33%. The yield curve steepened slightly as the 10-year minus 2-year expanded 7 bps to 0.86%.
- On September 8<sup>th</sup>, U.S. 10-year Treasury Inflation-Indexed yields hit their lowest point since November 2016 (+0.25%) before ending the month at 0.49% (+13 bps month-over-month).

## INTERNATIONAL MARKETS

- Developed international equities underperformed domestic equities (S&P 500 +2.1%) as the MSCI ACWI ex U.S. Index returned 1.9% (+2.2% hedged).
- Eurozone CPI was relatively stable in September and increased by 1.5% YoY, unchanged from August. CPI ex Energy was 1.3% YoY, 10 bps higher than the prior month.
- U.K. manufacturing (PMI 55.9) expanded in September, but at a slightly lower rate than August, while U.K. construction activity contracted (PMI 48.1). Construction was negatively affected by a material decrease in civil engineering activity. PMI readings above 50 indicate a general expansion.
- According to the IMF, the prospects of global economic growth have strengthened. Their global growth projections increased by 10 bps to 3.6% in 2017 and 3.7% in 2018. The U.K. was the only G7 country projected to experience slowing growth.

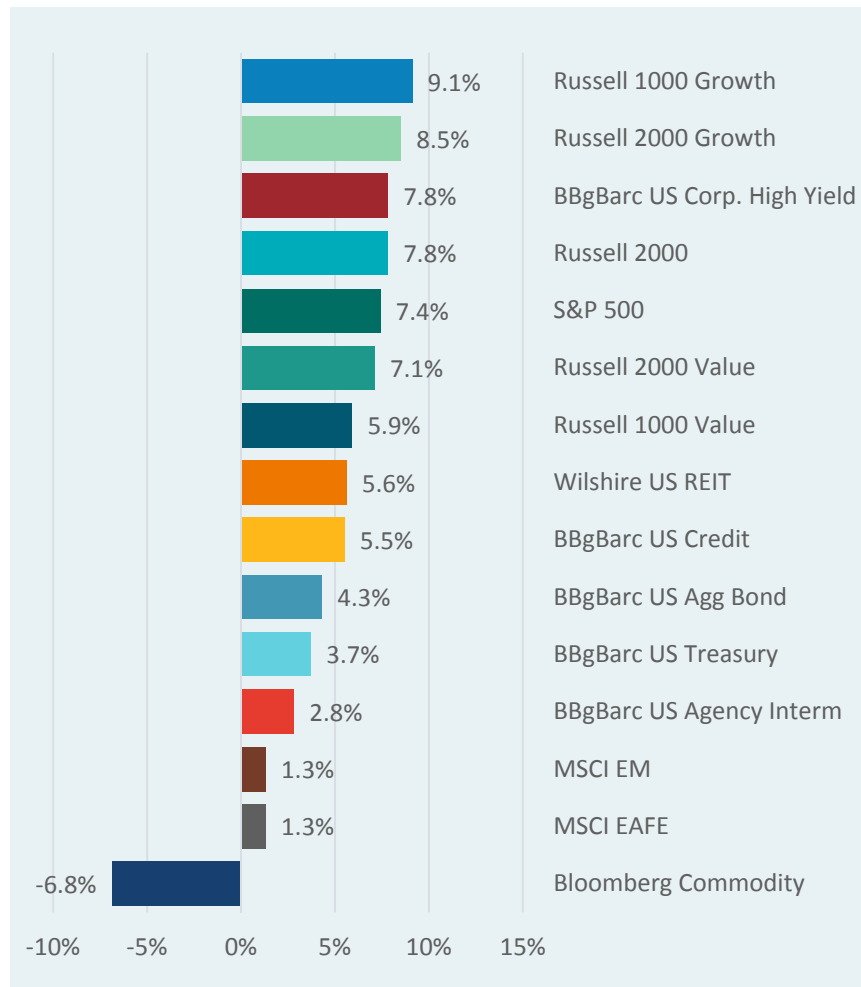
# Major asset class returns

ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/17

TEN YEARS ENDING SEPTEMBER



Source: Morningstar, as of 9/30/17

# U.S. large cap equities

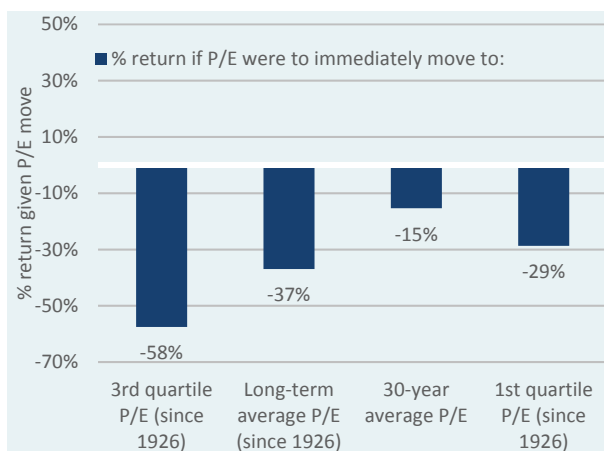
- Large cap equities posted a positive return for an eleventh consecutive month (S&P 500 +2.1%).
- According to FactSet, as of October 6<sup>th</sup>, the estimated Q3 earnings growth rate of the S&P 500 was 2.8% YoY, down from 7.5% on June 30<sup>th</sup>. Hurricane impacts contributed to most of this decline. Q3 earnings estimates for the insurance industry dropped 48% to \$5.1 billion.
- Energy was the best performing sector in September, returning 9.9% during the month (-6.6% year-to-date). The sectors' Q3 bottom-up EPS estimate increased 3.1% during September.
- The Shiller P/E ratio of the S&P 500 rose to 31.2. The cyclically adjusted valuation metric remained above its 10-year average of 23.2. The forward P/E ratio also increased in September to 19.3, above its 10-year average of 15.4.

## U.S. LARGE CAP EQUITIES



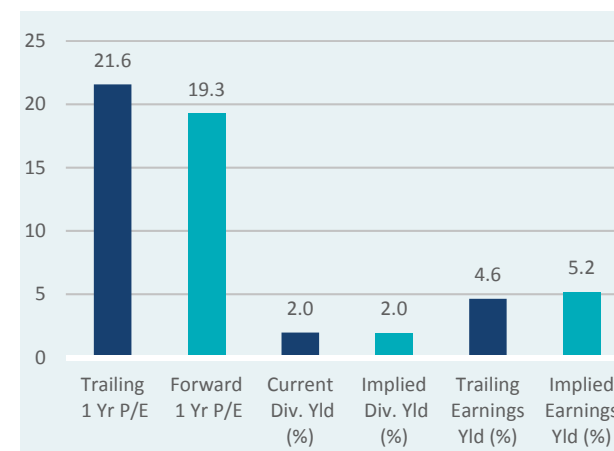
Source: Bloomberg, as of 9/30/17

## RETURNS IF TRAILING P/E MOVED TO HISTORIC LEVEL



Source: Yale/Shiller, Verus, as of 9/30/17

## S&P 500 VALUATION SNAPSHOT

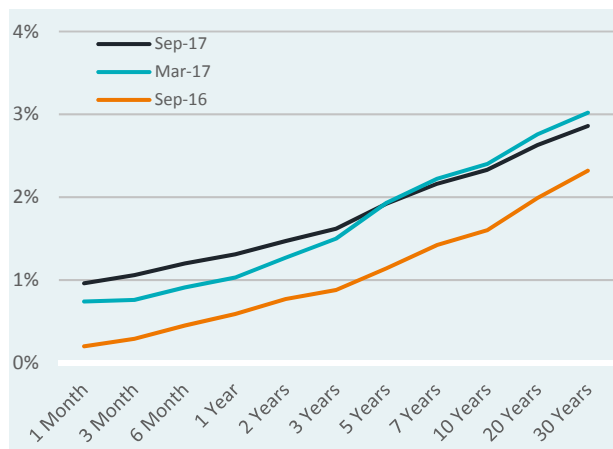


Source: Bloomberg, as of 9/30/17

# Fixed income

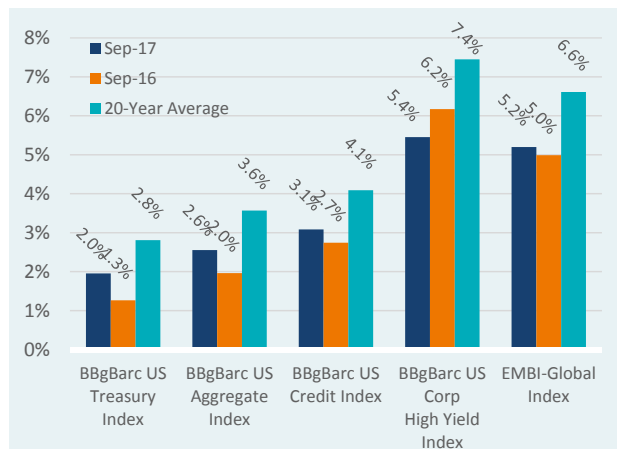
- U.S. Treasury yields rose across all maturities in September. The 10-year yield increased 21 bps to 2.33%. The shorter duration Bloomberg Barclays U.S. Treasury 1-3 Year (-0.2%) outperformed the broad U.S. Treasury Index (-0.9%).
- Market-based implied inflation rose slightly during the month. The 5-year TIPS breakeven rate increased 10 bps to 1.7%, below the recent high in January of 1.9%.
- The Federal Reserve held the fed funds target rate unchanged at 1.00% - 1.25% and confirmed that the balance sheet unwind would begin in October. As planned, \$6 billion in Treasuries (allocated across maturities) and \$4 billion in mortgage-backed securities will be rolled off of the balance sheet, increasing every three months to a limit of \$30 billion and \$20 billion, respectively.

**U.S. TREASURY YIELD CURVE**



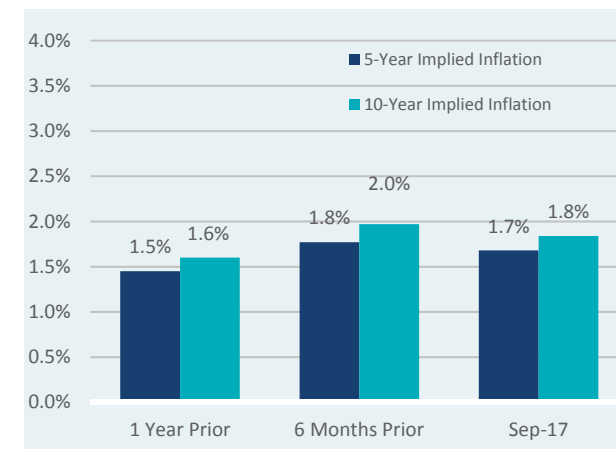
Source: Federal Reserve, as of 9/30/17

**NOMINAL FIXED INCOME YIELDS**



Source: Morningstar, as of 9/30/17

**IMPLIED INFLATION (TIPS BREAKEVEN)**

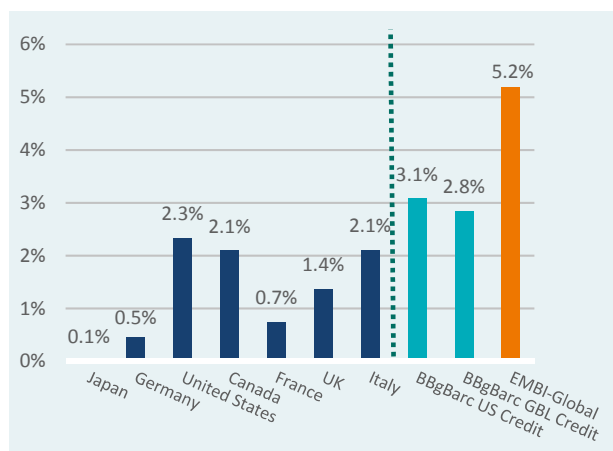


Source: Federal Reserve, as of 9/30/17

# Global markets

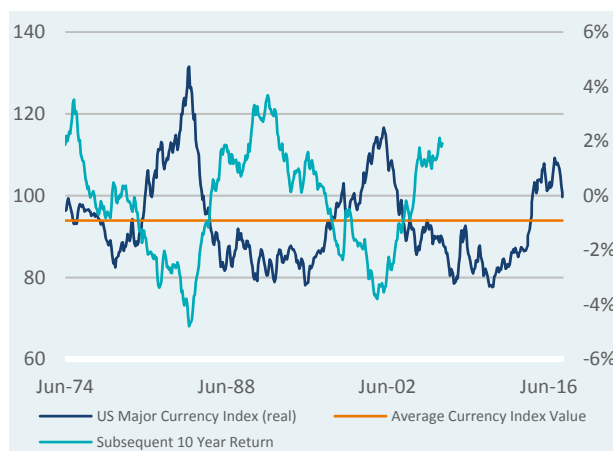
- Global sovereign 10-year bond yields were broadly up in September. U.K. 10-year yields experienced the largest change, increasing by 33 bps to 1.37% following relatively hawkish comments from Bank of England Governor Mark Carney.
- Japanese equities continued upward in September (+2.0% unhedged, +4.3% hedged) after Prime Minister Shinzo Abe's announcement to hold snap elections. The upcoming election will be in December, two years ahead of schedule.
- The Parliament of Catalonia held and passed an independence referendum on October 1<sup>st</sup>. The vote was in defiance of the Constitutional Court of Spain who deemed the vote illegal. Uncertainty remains as to whether Catalonia's leader Puigdemont will officially declare independence. Despite the political turmoil and uncertainty, the unhedged MSCI Euro equity index rose 3.9% in September (+2.9% hedged).

**GLOBAL SOVEREIGN 10 YEAR INDEX YIELDS**



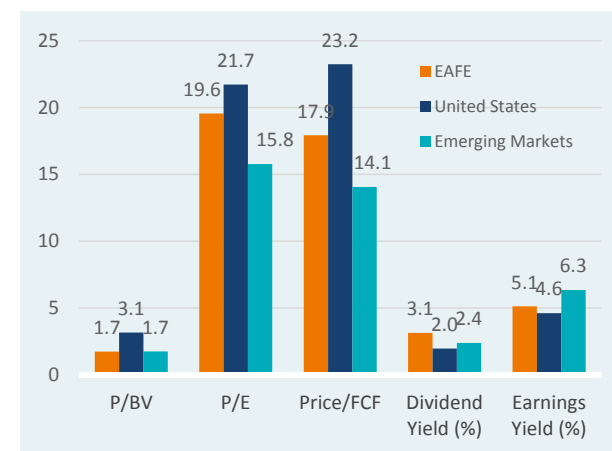
Source: Morningstar, as of 9/30/17

**U.S. DOLLAR MAJOR CURRENCY INDEX**



Source: Federal Reserve, as of 9/30/17

**MSCI VALUATION METRICS (3 MONTH AVERAGE)**



Source: Bloomberg, as of 9/30/17

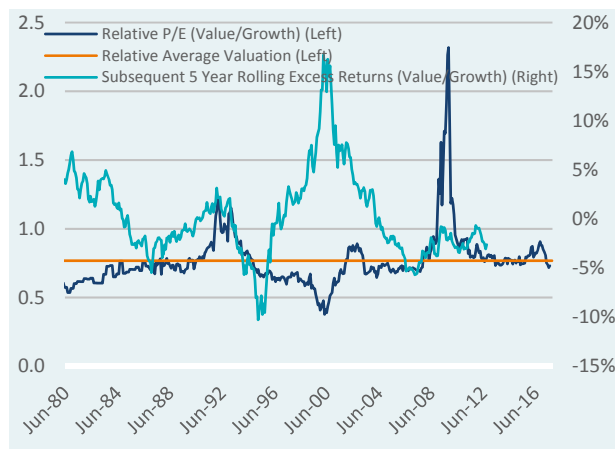


# Style tilts: U.S. large value vs. growth

- Value equities outperformed growth equities in September. The Russell 1000 Value and Russell 1000 Growth returned 3.0% and 1.3%, respectively.
- The relative trailing P/E ratio of value to growth equities remained below the long-term average of 0.77 at 0.73. Both value and growth trailing P/E ratios were above their 10-year highs, and ended September at 19.1 and 26.2, respectively.

- The value index benefitted from a higher relative concentration to Energy and Financial Services. The Russell 1000 Energy sub-index outperformed all of the sectors and returned 10.1% over the month. The Russell 1000 Financial Services sub-index returned 3.5%.

## RELATIVE TRAILING PE RATIO OF U.S. VALUE VS. GROWTH



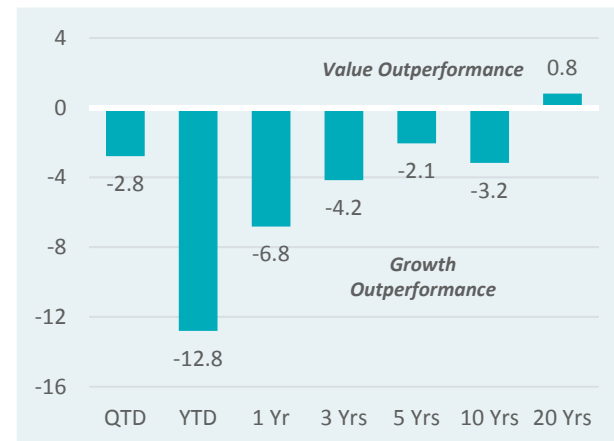
Source: Russell, Bloomberg, as of 9/30/17

## U.S. VALUE VS. GROWTH ABSOLUTE PERFORMANCE

	RUSSELL 1000 VALUE ANNUALIZED RETURN TO DATE %	RUSSELL 1000 GROWTH ANNUALIZED RETURN TO DATE %
QTD	3.1	5.9
YTD	7.9	20.7
1 YEAR	15.1	21.9
3 YEARS	8.5	12.7
5 YEARS	13.2	15.3
10 YEARS	5.9	9.1
20 YEARS	7.3	6.5
	SHARPE RATIO	SHARPE RATIO
3 YEARS	0.65	1.05
5 YEARS	1.29	1.46
10 YEARS	0.42	0.63
20 YEARS	0.41	0.34

Source: Morningstar, as of 9/30/17

## U.S. VALUE VS. GROWTH RELATIVE PERFORMANCE

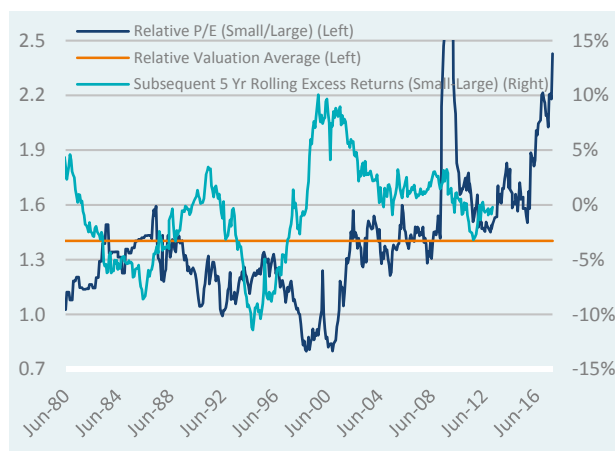


Source: Morningstar, as of 9/30/17

# Style tilts: U.S. large vs. small

- U.S. small cap equities outperformed large cap equities, as the Russell 2000 index and Russell 1000 index returned 6.2% and 2.1%, respectively. Large cap equities have still outperformed year-to-date with an excess return of 3.2%.
- The Consumer Discretionary sector produced the largest performance differential between large and small cap equities. Small cap equities in the sector outperformed large cap equities by 7.1%.
- The relative trailing P/E ratio of small to large cap equities increased in September to a new business cycle high of 2.4, well above the long-term average of 1.4. According to Bloomberg, the trailing P/E ratio of the Russell 2000 index finished the month at 53.6.
- Large cap equities have provided superior risk-adjusted returns (Sharpe Ratio) relative to small cap equities over all time periods examined below.

**RELATIVE TRAILING PE RATIO OF U.S. SMALL VS. LARGE**



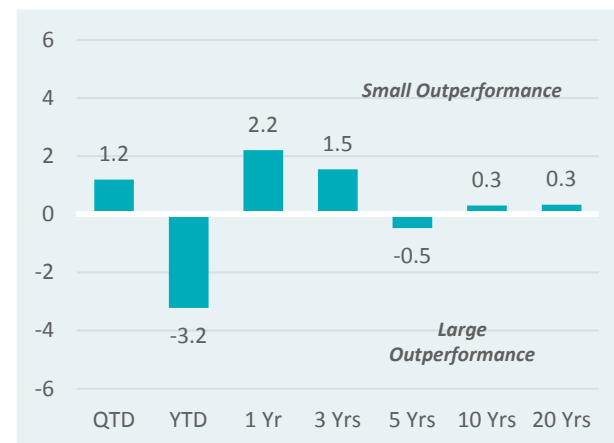
Source: Russell, Bloomberg, as of 9/30/17

**U.S. LARGE VS. SMALL ABSOLUTE PERFORMANCE**

	RUSSELL 1000 INDEX	RUSSELL 2000 INDEX
	ANNUALIZED RETURN TO DATE %	ANNUALIZED RETURN TO DATE %
QTD	4.5	5.7
YTD	14.2	10.9
1 YEAR	18.5	20.7
3 YEARS	10.6	12.2
5 YEARS	14.3	13.8
10 YEARS	7.5	7.8
20 YEARS	7.2	7.5
	SHARPE RATIO	SHARPE RATIO
3 YEARS	0.89	0.55
5 YEARS	1.42	0.95
10 YEARS	0.53	0.44
20 YEARS	0.40	0.36

Source: Morningstar, as of 9/30/17

**U.S. LARGE VS. SMALL RELATIVE PERFORMANCE**



Source: Morningstar, as of 9/30/17

# Commodities

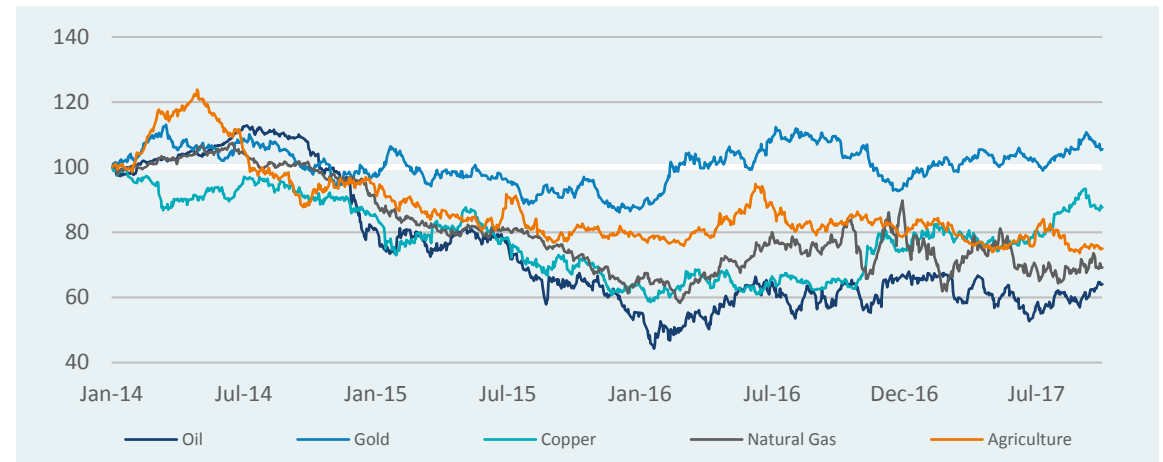
- The broad Bloomberg Commodity Index was flat in September (-0.1%) as gains from energy (3.5%) were offset by losses from industrial metals (-3.8%) and precious metals (-3.3%).
- Crude oil prices increased by 9.4% in September and ended the month at \$51.67 per barrel. U.S. oil inventories were 465 million barrels at month-end, well below the recent high of 535 million barrels in March.
- Precious Metals declined in September, as gold prices fell by -3.1% to \$1,280 per ounce and silver dropped by -5.3% to \$16.66 per ounce. Precious metals were negatively affected by an increase in real rates during the month.
- The recent rally in Industrial Metals took a step back in September – the Bloomberg sub-index fell by -3.8%. The index was negatively effected by decreases in Copper (-4.6%) and Nickel (-11.3%) prices.

## INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(0.1)	2.5	(2.9)	(0.3)	(10.4)	(10.5)	(6.8)
Bloomberg Agriculture	(0.0)	(6.1)	(9.2)	(11.1)	(6.2)	(11.4)	(3.9)
Bloomberg Energy	3.5	9.8	(12.2)	(2.9)	(26.6)	(17.7)	(17.3)
Bloomberg Grains	1.3	(9.5)	(6.8)	(5.5)	(6.2)	(14.0)	(5.7)
Bloomberg Industrial Metals	(3.8)	9.9	16.8	24.0	(1.3)	(4.5)	(5.1)
Bloomberg Livestock	3.6	(7.5)	3.0	24.4	(9.3)	(2.3)	(7.1)
Bloomberg Petroleum	5.8	15.1	(5.8)	2.1	(25.6)	(17.1)	(11.8)
Bloomberg Precious Metals	(3.3)	2.3	8.7	(6.6)	0.4	(8.8)	4.0
Bloomberg Softs	(3.4)	(0.7)	(19.0)	(28.1)	(10.1)	(10.5)	(3.5)

Source: Morningstar, as of 9/30/17

## COMMODITY PERFORMANCE



Source: Bloomberg, as of 9/30/17



# Appendix

# Periodic table of returns

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	YTD	5-Year	10-Year
Emerging Markets Equity	16.6	38.4	23.2	35.2	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	27.8	15.3	9.1
Large Cap Growth	8.1	37.8	23.1	32.9	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	20.7	14.3	8.5
International Equity	6.4	37.2	22.4	31.8	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	20.0	14.3	7.8
Small Cap Growth	4.4	31.0	21.6	30.5	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	16.8	13.8	7.5
Large Cap Equity	3.2	28.5	21.4	22.4	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	14.2	13.3	7.1
60/40 Global Portfolio	2.6	25.7	16.5	16.2	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	12.7	13.2	6.4
Small Cap Equity	0.4	19.6	14.4	13.9	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	10.9	10.5	5.9
Large Cap Value	-1.5	18.5	11.3	12.9	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	7.9	8.4	4.3
Small Cap Value	-1.8	15.2	10.3	10.6	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	5.7	6.3	4.0
Hedge Funds of Funds	-2.0	11.6	9.9	9.7	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	5.5	4.0	1.3
Real Estate	-2.4	11.1	6.4	5.2	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	3.3	3.8	1.3
US Bonds	-2.9	7.5	6.0	2.1	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.1	2.1	1.1
Cash	-3.5	5.7	5.1	-3.4	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	0.6	0.2	0.4
Commodities	-7.3	-5.2	3.6	-11.6	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	-2.9	-10.5	-6.8

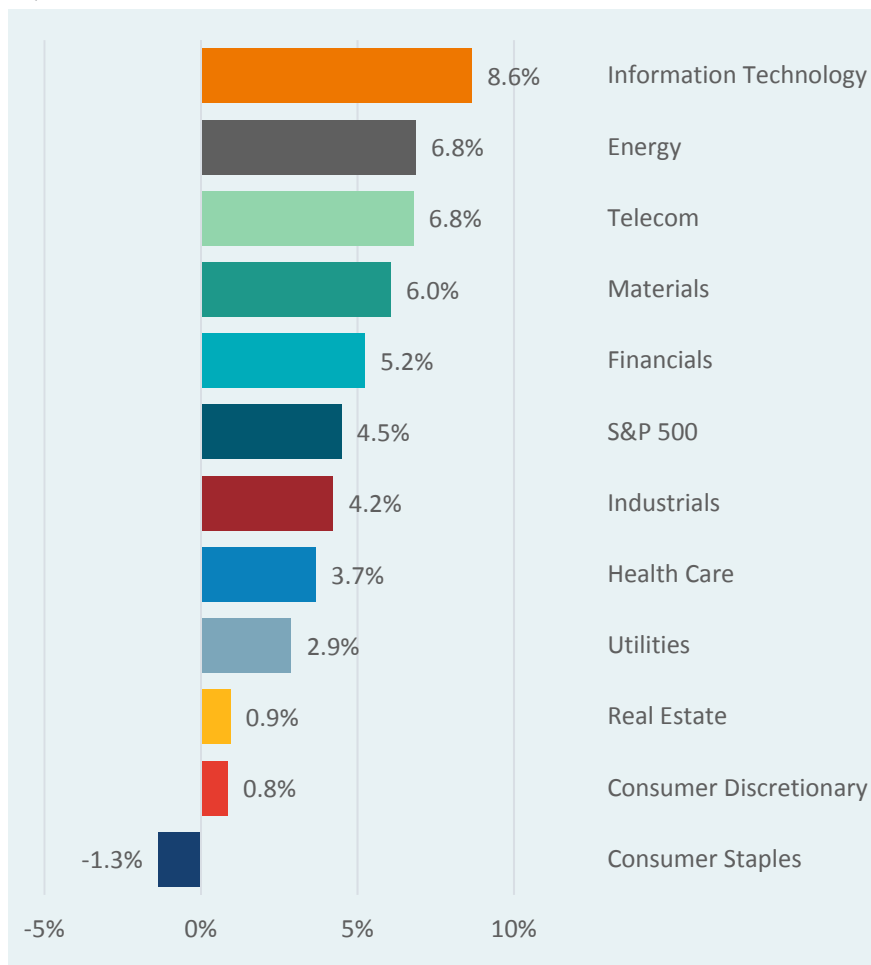
WORST

<span style="color: #ADD8E6;">■</span> Large Cap Equity	<span style="color: #006400;">■</span> Small Cap Growth	<span style="color: #8B4513;">■</span> Commodities
<span style="color: #00008B;">■</span> Large Cap Value	<span style="color: #FFA500;">■</span> International Equity	<span style="color: #4682B4;">■</span> Real Estate
<span style="color: #00008B;">■</span> Large Cap Growth	<span style="color: #FF8C00;">■</span> Emerging Markets Equity	<span style="color: #90EE90;">■</span> Hedge Funds of Funds
<span style="color: #7FFFD4;">■</span> Small Cap Equity	<span style="color: #696969;">■</span> US Bonds	<span style="color: #FF0000;">■</span> 60% MSCI ACWI/40% BBgBarc Global Bond
<span style="color: #008080;">■</span> Small Cap Value	<span style="color: #D3D3D3;">■</span> Cash	

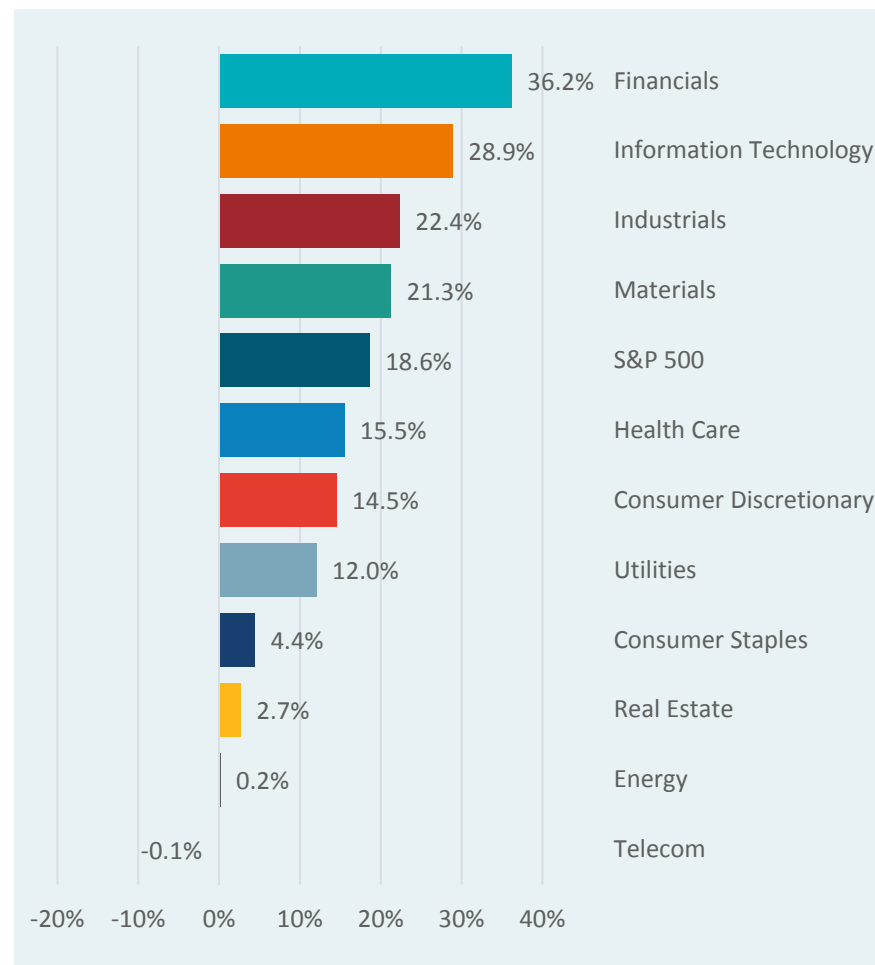
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 6/30/17.

# S&P 500 sector returns

QTD



ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/17

Source: Morningstar, as of 9/30/17



# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	2.1	4.5	14.2	18.6	10.8	14.2	7.4
S&P 500 Equal Weighted	2.9	3.6	11.9	16.2	10.1	15.0	8.9
DJ Industrial Average	2.2	5.6	15.5	25.5	12.3	13.6	7.7
Russell Top 200	1.9	4.9	15.1	19.8	11.1	14.3	7.3
Russell 1000	2.1	4.5	14.2	18.5	10.6	14.3	7.5
Russell 2000	6.2	5.7	10.9	20.7	12.2	13.8	7.8
Russell 3000	2.4	4.6	13.9	18.7	10.7	14.2	7.6
Russell Mid Cap	2.8	3.5	11.7	15.3	9.5	14.3	8.1
<b>Style Index</b>							
Russell 1000 Growth	1.3	5.9	20.7	21.9	12.7	15.3	9.1
Russell 1000 Value	3.0	3.1	7.9	15.1	8.5	13.2	5.9
Russell 2000 Growth	5.4	6.2	16.8	21.0	12.2	14.3	8.5
Russell 2000 Value	7.1	5.1	5.7	20.5	12.1	13.3	7.1

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI ACWI	1.9	5.2	17.3	18.6	7.4	10.2	3.9
MSCI ACWI ex US	1.9	6.2	21.1	19.6	4.7	7.0	1.3
MSCI EAFE	2.5	5.4	20.0	19.1	5.0	8.4	1.3
MSCI EM	(0.4)	7.9	27.8	22.5	4.9	4.0	1.3
MSCI EAFE Small Cap	2.9	7.5	25.4	21.8	11.1	12.8	4.6
<b>Style Index</b>							
MSCI EAFE Growth	1.9	4.9	22.4	15.7	6.5	8.9	2.1
MSCI EAFE Value	3.1	5.9	17.6	22.5	3.5	7.8	0.5
<b>Regional Index</b>							
MSCI UK	3.3	5.2	15.7	14.6	0.8	4.9	0.7
MSCI Japan	2.0	4.0	14.3	14.1	7.7	10.6	1.7
MSCI Euro	3.9	8.0	25.9	28.4	5.6	9.9	(0.0)
MSCI EM Asia	(0.0)	7.0	31.8	23.8	8.0	7.4	2.7
MSCI EM Latin American	1.6	15.1	26.7	25.6	(0.3)	(1.9)	(0.8)

Source: Morningstar, as of 9/30/17

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
BBgBarc US Treasury US TIPS	(0.6)	0.9	1.7	(0.7)	1.6	0.0	3.9
BBgBarc US Treasury Bills	0.1	0.3	0.6	0.6	0.3	0.2	0.5
BBgBarc US Agg Bond	(0.5)	0.8	3.1	0.1	2.7	2.1	4.3
<b>Duration</b>							
BBgBarc US Treasury 1-3 Yr	(0.2)	0.2	0.7	0.2	0.8	0.6	1.7
BBgBarc US Treasury Long	(2.2)	0.6	6.0	(6.4)	4.9	2.8	6.9
BBgBarc US Treasury	(0.9)	0.4	2.3	(1.7)	2.0	1.2	3.7
<b>Issuer</b>							
BBgBarc US MBS	(0.2)	1.0	2.3	0.3	2.4	2.0	4.1
BBgBarc US Corp. High Yield	0.9	2.0	7.0	8.9	5.8	6.4	7.8
BBgBarc US Agency Interm	(0.3)	0.3	1.4	0.3	1.5	1.1	2.8
BBgBarc US Credit	(0.2)	1.3	5.1	2.0	3.9	3.2	5.5

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	(0.1)	2.5	(2.9)	(0.3)	(10.4)	(10.5)	(6.8)
Wilshire US REIT	(0.1)	0.6	2.4	0.1	9.7	9.5	5.6
CS Leveraged Loans	0.4	1.1	3.0	5.4	4.0	4.4	4.4
<b>Regional Index</b>							
JPM EMBI Global Div	0.0	2.6	9.0	4.6	6.5	4.9	7.5
JPM GBI-EM Global Div	(0.3)	3.6	14.3	7.3	0.3	(0.9)	3.8
<b>Hedge Funds</b>							
HFRI Composite	0.5	2.1	5.7	6.9	3.3	4.7	3.1
HFRI FOF Composite	0.4	2.2	5.5	6.4	2.2	3.8	1.1
<b>Currency (Spot)</b>							
Euro	(0.6)	3.7	12.1	5.2	(2.2)	(1.7)	(1.8)
Pound	4.1	3.3	8.6	3.3	(6.1)	(3.6)	(4.1)
Yen	(2.2)	(0.2)	3.6	(10.0)	(0.9)	(7.1)	0.2

# Definitions

**IHS Markit/CIPS UK Construction PMI** - The Purchasing Managers' Survey is based on data compiled from monthly replies to questionnaires sent to purchasing executives in over 170 construction companies. The panel is stratified geographically and by Standard Industrial Classification (SIC) group, based on the regional and industry contribution to GDP. IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and expertise to forge solutions for the major industries and markets that drive economies worldwide. ([www.ihsmarket.com](http://www.ihsmarket.com))

**IHS Markit/CIPS UK Manufacturing PMI** - The IHS Markit/CIPS UK Manufacturing PMI® is based on data compiled from monthly replies to questionnaires sent to purchasing executives in over 600 industrial companies. The panel is stratified by Standard Industrial Classification (SIC) group and company workforce size, based on the industry and company size contributions to GDP. IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and expertise to forge solutions for the major industries and markets that drive economies worldwide. ([www.ihsmarket.com](http://www.ihsmarket.com))

# Notices & disclosures

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# Western States Office & Professional Employees Pension Fund

Investment Performance Review  
Period Ending: September 30, 2017



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[VERUSINVESTMENTS.COM](http://VERUSINVESTMENTS.COM)

SEATTLE 206-622-3700

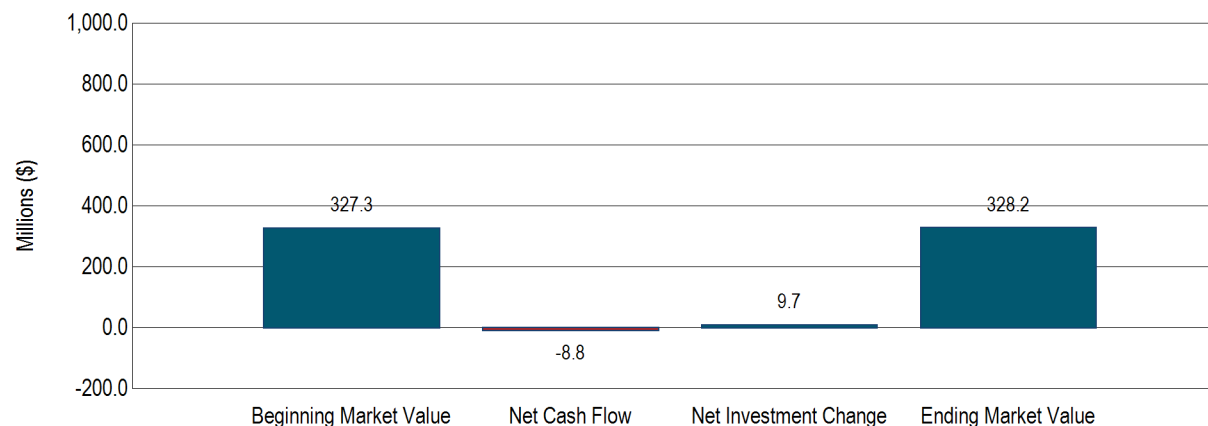
LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

Portfolio Reconciliation

	Last Three Months	Year-To-Date
Beginning Market Value	\$327,275,768	\$320,787,221
Net Cash Flow	-\$8,819,730	-\$22,386,323
Net Investment Change	\$9,739,244	\$29,794,384
Ending Market Value	\$328,195,281	\$328,195,281

Change in Market Value  
Last Three Months



Contributions and withdrawals may include intra-account transfers between managers/funds.

# Total Fund

## Cash Flow by Manager - Last Three Months

Period Ending: September 30, 2017

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
BlackRock Equity Index NL	\$45,403,022	\$0	-\$5,500,000	-\$5,500,000	\$1,899,896	\$41,802,918
INTECH US Managed Volatility LLC	\$28,590,921	\$0	\$0	\$0	\$1,536,231	\$30,127,152
PanAgora US Small Cap Core Stock Selector	\$17,026,902	\$0	\$0	\$0	\$1,009,213	\$18,036,115
WCM Focused International Growth Fund, L.P.	\$23,234,913	\$0	\$0	\$0	\$1,030,833	\$24,265,746
Causeway International Value Ins	\$13,998,106	\$0	\$0	\$0	\$962,927	\$14,961,033
Brandes International Small Cap Equity	\$6,775,911	\$0	\$0	\$0	\$86,193	\$6,862,104
Loomis Sayles Core Plus	\$71,857,982	\$0	\$0	\$0	\$1,050,848	\$72,908,830
ASB Allegiance Real Estate	\$32,184,440	\$0	\$0	\$0	\$173,365	\$32,357,805
Invesco Real Estate II	\$45,174	\$0	\$0	\$0	\$0	\$45,174
JPMorgan Special Situation Property	\$12,574,456	\$51,295	\$0	\$51,295	\$342,905	\$12,968,656
Grosvenor Institutional Partners LP	\$16,993,616	\$0	\$0	\$0	\$256,053	\$17,249,669
IFM Global Infrastructure (US) LP	\$10,248,116	\$0	-\$449,663	-\$449,663	\$354,048	\$10,152,501
JPMorgan IIF ERISA LP	\$8,412,280	\$0	-\$152,284	-\$152,284	\$0	\$8,259,997
Invesco Balanced-Risk Allocation	\$39,514,566	\$37,841	-\$2,700,000	-\$2,662,159	\$1,036,732	\$37,889,139
US Bank Checking Account	\$415,363	\$264,231	-\$371,150	-\$106,919	\$0	\$308,444
US Bank Clearing Account	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$327,275,768</b>	<b>\$353,367</b>	<b>-\$9,173,097</b>	<b>-\$8,819,730</b>	<b>\$9,739,244</b>	<b>\$328,195,281</b>

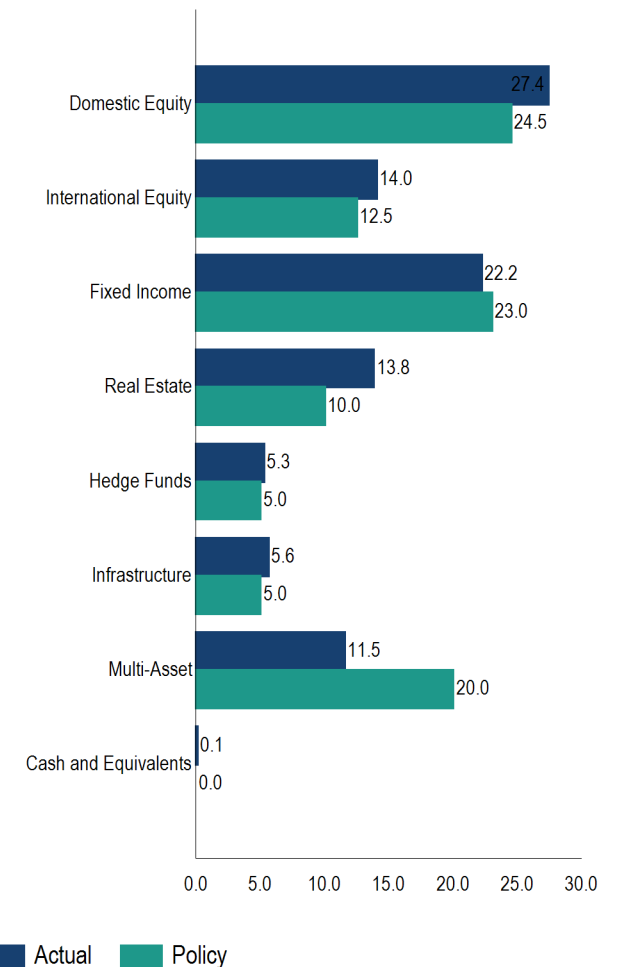
BlackRock MSCI ACWI ex US IMI liquidated 7/21/2016. WCM Focused International Growth Fund funded 7/1/2016. Causeway International Value Fund funded 7/27/2016. Brandes International Small Cap II funded 8/1/2016. Loomis Sayles Full Discretion liquidated 3/21/2017. Loomis Sayles Core Plus funded 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. JPMorgan IFF as of 6/30/2017 adjusted for cashflows. Invesco Real Estate as of 6/30/2017.

# Total Fund Executive Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>Total Fund</b>	<b>328,195,281</b>	<b>100.0</b>	<b>3.0</b>	<b>9.4</b>	<b>9.7</b>	<b>6.2</b>	<b>7.4</b>	<b>3.6</b>
<i>Total Fund Policy Index</i>			3.1	9.9	10.1	5.8	7.3	4.3
<i>Target Asset Allocation Policy Index</i>			3.1	9.9	10.2	6.8	8.1	5.4
<i>InvestorForce Tft-Hrtly DB \$250mm-\$1B Net Rank</i>			79	87	99	82	89	94
<b>Total Domestic Equity</b>	<b>89,966,185</b>	<b>27.4</b>	<b>5.1</b>	<b>13.8</b>	<b>18.3</b>	<b>10.8</b>	<b>14.0</b>	<b>7.3</b>
<i>Dow Jones U.S. Total Stock Market</i>			4.6	14.0	18.7	10.7	14.2	7.6
<i>InvestorForce Tft-Hrtly DB US Eq Net Rank</i>			16	45	57	23	44	50
<b>Total International Equity</b>	<b>46,088,882</b>	<b>14.0</b>	<b>4.7</b>	<b>21.0</b>	<b>17.0</b>	<b>4.1</b>	<b>6.7</b>	<b>-0.6</b>
<i>Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)</i>			6.3	21.5	19.6	5.2	7.3	0.9
<i>InvestorForce Tft-Hrtly DB ex-US Eq Net Rank</i>			97	87	87	75	88	97
<b>Total Fixed Income</b>	<b>72,908,830</b>	<b>22.2</b>	<b>1.4</b>	<b>5.2</b>	<b>3.8</b>	<b>3.6</b>	<b>3.7</b>	<b>5.3</b>
<i>Total Fixed Income Benchmark (BBgBarc Aggregate)</i>			0.8	3.1	0.1	2.7	2.1	4.3
<i>InvestorForce Tft-Hrtly DB US Fix Inc Net Rank</i>			14	16	31	28	19	24
<b>Total Real Estate</b>	<b>45,371,634</b>	<b>13.8</b>	<b>1.2</b>	<b>3.2</b>	<b>4.2</b>	<b>9.0</b>	<b>10.3</b>	<b>4.5</b>
<i>NCREIF-ODCE</i>			1.9	5.4	7.6	10.8	11.6	5.0
<b>Total Hedge Funds</b>	<b>17,249,669</b>	<b>5.3</b>	<b>1.5</b>	<b>3.6</b>	<b>5.8</b>	<b>2.2</b>	<b>3.8</b>	<b>--</b>
<i>HFRI Fund of Funds Composite Index</i>			2.3	5.6	6.5	2.2	3.9	--
<b>Total Infrastructure</b>	<b>18,412,498</b>	<b>5.6</b>	<b>2.0</b>	<b>11.2</b>	<b>10.3</b>	<b>5.5</b>	<b>5.6</b>	<b>--</b>
<i>CPI + 5%</i>			2.0	6.0	7.3	6.3	6.4	--
<b>Total Multi-Asset</b>	<b>37,889,139</b>	<b>11.5</b>	<b>2.7</b>	<b>5.7</b>	<b>4.6</b>	<b>5.0</b>	<b>5.3</b>	<b>3.4</b>
<i>60% MSCI ACWI Net/40% CITI WGBI</i>			3.8	12.8	9.7	4.9	6.0	3.9
<i>eA Global Balanced Net Rank</i>			96	99	99	58	99	99
<b>Total Cash</b>	<b>308,444</b>	<b>0.1</b>	<b>0.0</b>	<b>3.9</b>	<b>-0.8</b>	<b>-3.0</b>	<b>-1.6</b>	<b>--</b>

Actual vs Target Allocation (%)



Policy Index: 51% MSCI World, 34% BBcBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite. Target Asset Allocation Policy Index: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Data prior to 3Q 2015 is from previous consultant.

# Total Fund

## Risk Analysis - 3 & 5 Year (Net of Fees)

Period Ending: September 30, 2017

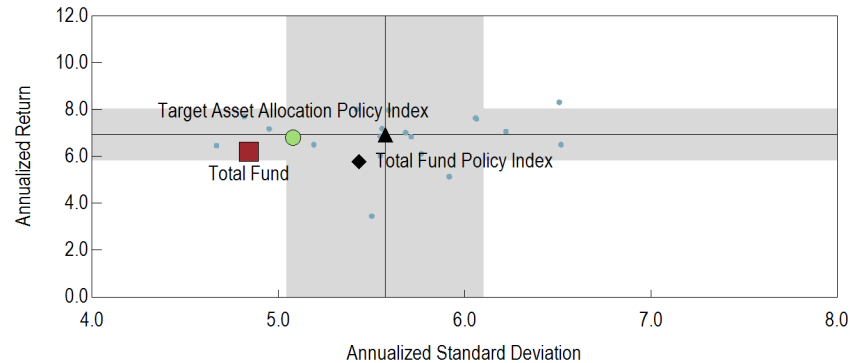
### 3 Year

	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	4.84%	0.42%	1.15%	0.87	0.96	94.10%	80.78%	0.34	1.22%	1.21
Total Fund Policy Index	5.43%	0.00%	0.00%	1.00	1.00	100.00%	100.00%	--	0.00%	1.01
Target Asset Allocation Policy Index	5.08%	1.02%	1.47%	0.92	0.97	99.55%	78.91%	1.08	0.94%	1.28

### 5 Year

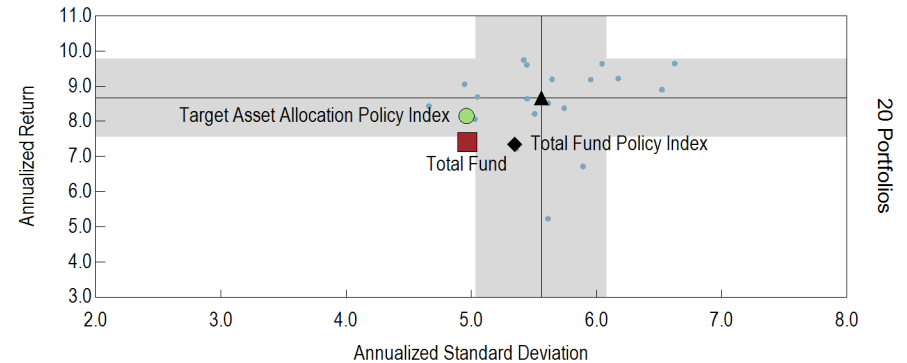
	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	4.97%	0.06%	0.71%	0.91	0.96	94.76%	89.02%	0.06	1.06%	1.45
Total Fund Policy Index	5.35%	0.00%	0.00%	1.00	1.00	100.00%	100.00%	--	0.00%	1.33
Target Asset Allocation Policy Index	4.96%	0.81%	1.43%	0.91	0.97	98.94%	82.10%	0.84	0.95%	1.60

### 3 Year



- Total Fund
- ◆ Total Fund Policy Index
- Target Asset Allocation Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Tft-Hrtly DB \$250mm-\$1B Net

### 5 Year

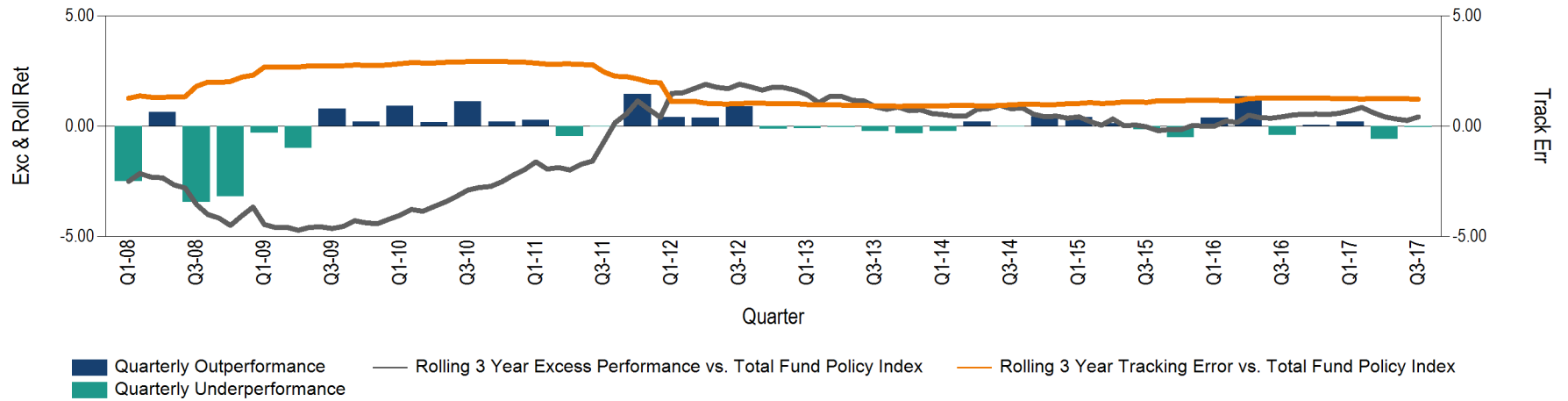


- Total Fund
- ◆ Total Fund Policy Index
- Target Asset Allocation Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Tft-Hrtly DB \$250mm-\$1B Net

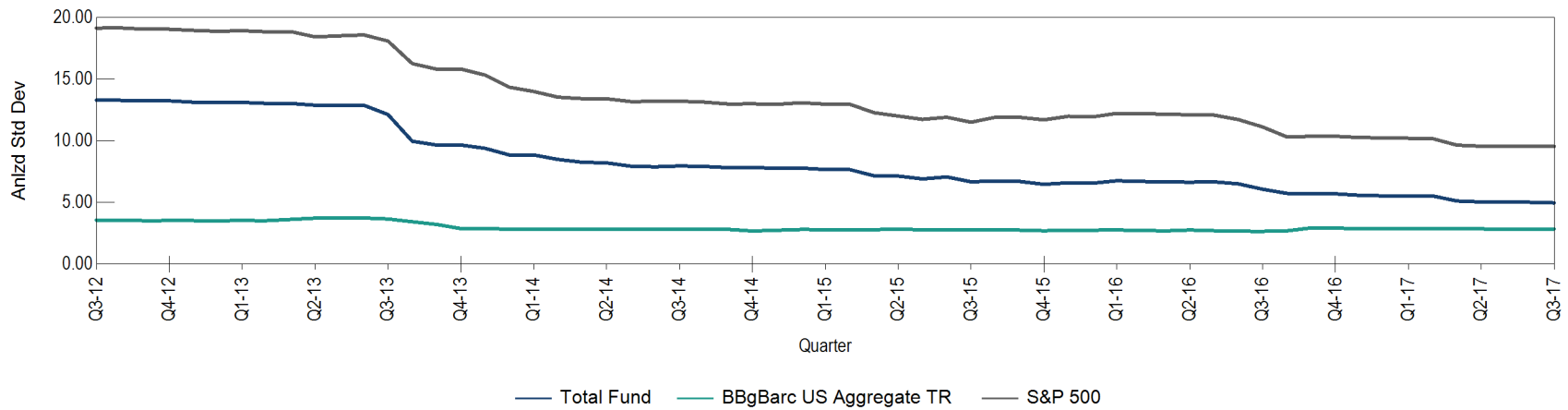
Total Fund  
Rolling Performance Relative to Policy (Net of Fees)

Period Ending: September 30, 2017

Rolling Annualized Excess Performance and Tracking Error



Rolling 5 Year Annualized Standard Deviation





# Total Fund

## Executive Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Fund</b>	<b>328,195,281</b>	<b>100.0</b>	<b>3.0</b>	<b>9.4</b>	<b>9.7</b>	<b>6.2</b>	<b>7.4</b>	<b>3.6</b>	<b>7.2</b>	<b>0.9</b>	<b>5.1</b>	<b>13.5</b>	<b>12.1</b>
<i>Total Fund Policy Index</i>			3.1	9.9	10.1	5.8	7.3	4.3	5.8	1.1	4.7	14.3	10.4
<i>Target Asset Allocation Policy Index</i>			3.1	9.9	10.2	6.8	8.1	5.4	7.2	1.3	7.1	14.6	10.8
<i>InvestorForce Tft-Hrtly DB \$250mm-\$1B Net Rank</i>			79	87	99	82	89	94	69	39	70	79	20
<b>Domestic Equity</b>	<b>89,966,185</b>	<b>27.4</b>											
BlackRock Equity Index NL	41,802,918	12.7	4.5	14.2	18.6	10.8	14.2	--	11.9	1.3	13.8	32.4	16.0
S&P 500			4.5	14.2	18.6	10.8	14.2	--	12.0	1.4	13.7	32.4	16.0
<i>eA US Large Cap Core Equity Net Rank</i>			53	47	45	21	25	--	21	37	33	43	31
INTECH US Managed Volatility LLC	30,127,152	9.2	5.4	16.6	18.3	10.9	--	--	5.7	3.2	15.5	--	--
Russell 1000			4.5	14.2	18.5	10.6	--	--	12.1	0.9	13.2	--	--
<i>eA US Large Cap Core Equity Net Rank</i>			29	18	48	18	--	--	84	18	14	--	--
PanAgora US Small Cap Core Stock Selector	18,036,115	5.5	5.7	8.0	17.5	--	--	--	20.3	--	--	--	--
Russell 2000			5.7	10.9	20.7	--	--	--	21.3	--	--	--	--
<i>eA US Small Cap Core Equity Net Rank</i>			44	74	75	--	--	--	41	--	--	--	--
<b>International Equity</b>	<b>46,088,882</b>	<b>14.0</b>											
WCM Focused International Growth Fund, L.P.	24,265,746	7.4	4.4	24.5	15.8	--	--	--	--	--	--	--	--
MSCI ACWI ex USA			6.2	21.1	19.6	--	--	--	--	--	--	--	--
<i>eA ACWI ex-US All Cap Growth Eq Net Rank</i>			91	65	85	--	--	--	--	--	--	--	--
Causeway International Value Ins	14,961,033	4.6	6.9	21.0	21.5	--	--	--	--	--	--	--	--
MSCI EAFE			5.4	20.0	19.1	--	--	--	--	--	--	--	--
<i>Foreign Large Value MStar MF Rank</i>			25	22	39	--	--	--	--	--	--	--	--
Brandes International Small Cap Equity	6,862,104	2.1	1.3	10.2	12.1	--	--	--	--	--	--	--	--
S&P Developed Ex-U.S. SmallCap			7.0	24.6	20.7	--	--	--	--	--	--	--	--
<i>eA ACWI ex-US Small Cap Equity Net Rank</i>			99	98	91	--	--	--	--	--	--	--	--
<b>Fixed Income</b>	<b>72,908,830</b>	<b>22.2</b>											
Loomis Sayles Core Plus	72,908,830	22.2	1.4	--	--	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR			0.8	--	--	--	--	--	--	--	--	--	--
<i>eA US Core Plus Fixed Inc Net Rank</i>			14	--	--	--	--	--	--	--	--	--	--

Policy Index: 51% MSCI World, 34% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite. Target Asset Allocation Policy Index: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). BlackRock MSCI ACWI ex US IMI terminated 7/21/2016. WCM Focused International Growth Fund funded 7/1/2016. Causeway International Value Fund funded 7/27/2016. Brandes International Small Cap II funded 8/1/2016. Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. JP Morgan IIF as of 6/30/2017 adjusted for current cashflows. Data prior to 3Q 2015 is from previous consultant.

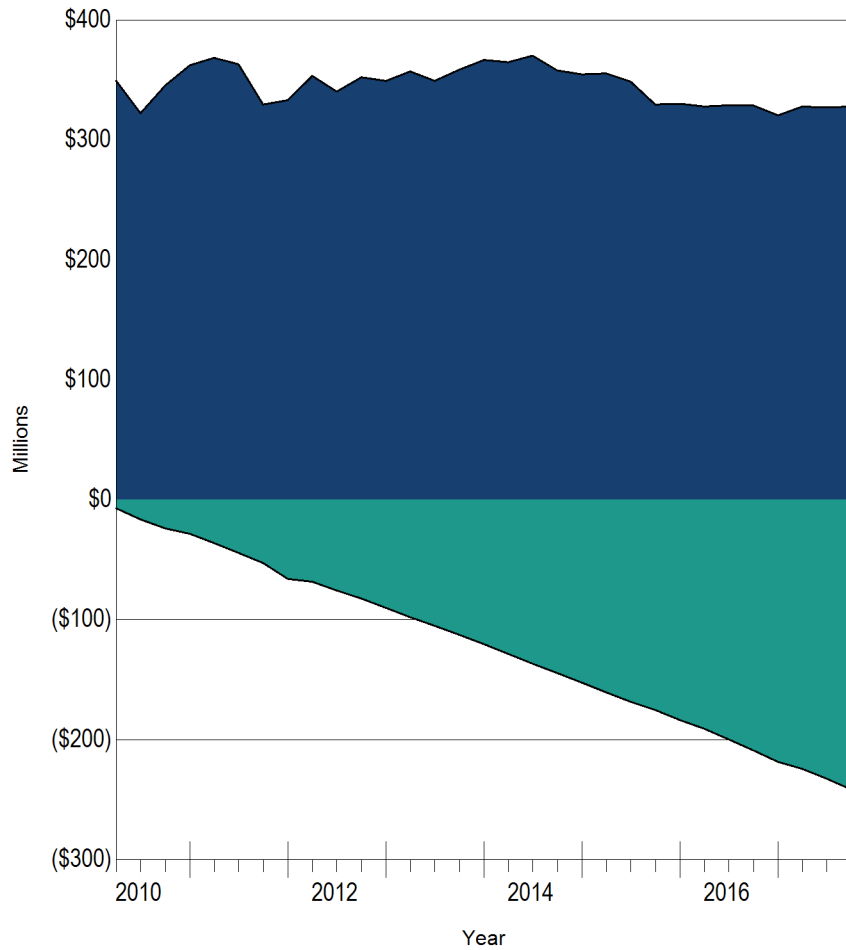
Total Fund  
Executive Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Real Estate</b>	<b>45,371,634</b>	<b>13.8</b>											
ASB Allegiance Real Estate	32,357,805	9.9	0.5	2.0	2.6	--	--	--	4.5	--	--	--	--
NCREIF-ODCE			1.9	5.4	7.6	--	--	--	8.8	--	--	--	--
Invesco Real Estate II	45,174	0.0	0.0	3.3	4.6	3.4	8.5	--	1.2	6.1	11.5	23.1	16.2
NCREIF-ODCE			1.9	5.4	7.6	10.8	11.6	--	8.8	15.0	12.5	13.9	10.9
JPMorgan Special Situation Property	12,968,656	4.0	2.7	6.4	8.3	--	--	--	8.7	18.9	--	--	--
NCREIF-ODCE			1.9	5.4	7.6	--	--	--	8.8	15.0	--	--	--
<b>Hedge Funds</b>	<b>17,249,669</b>	<b>5.3</b>											
Grosvenor Institutional Partners LP	17,249,669	5.3	1.5	3.6	5.8	2.0	5.1	--	2.3	-0.3	3.2	15.0	8.4
HFRI FOF Diversified Index			2.4	4.7	5.9	2.0	3.7	--	0.4	-0.2	3.4	9.0	4.8
<b>Infrastructure</b>	<b>18,412,498</b>	<b>5.6</b>											
IFM Global Infrastructure (US) LP	10,152,501	3.1	3.6	15.8	16.0	8.2	7.2	--	6.1	5.1	1.3	6.7	11.4
CPI + 5%			2.0	6.0	7.3	6.3	6.4	--	7.2	5.8	5.8	6.6	6.8
JPMorgan IIF ERISA LP	8,259,997	2.5	0.0	5.9	4.0	2.6	3.8	--	1.2	3.4	-1.6	6.8	10.3
CPI + 5%			2.0	6.0	7.3	6.3	6.4	--	7.2	5.8	5.8	6.6	6.8
<b>Multi-Asset</b>	<b>37,889,139</b>	<b>11.5</b>											
Invesco Balanced-Risk Allocation	37,889,139	11.5	2.7	5.2	4.2	5.1	4.4	--	12.2	-3.5	6.3	2.3	11.8
60% MSCI ACWI Net/40% CITI WGBI			3.8	12.8	9.7	4.9	6.0	--	5.5	-2.6	2.3	11.4	10.3
Citi 3-Month T-bill +6%			1.7	5.0	6.7	6.3	6.2	--	6.3	6.0	6.0	6.1	6.1
eA Global Balanced Net Rank			96	99	99	52	99	--	19	74	37	97	49
<b>Cash and Equivalents</b>	<b>308,444</b>	<b>0.1</b>											
US Bank Checking Account	308,444	0.1											

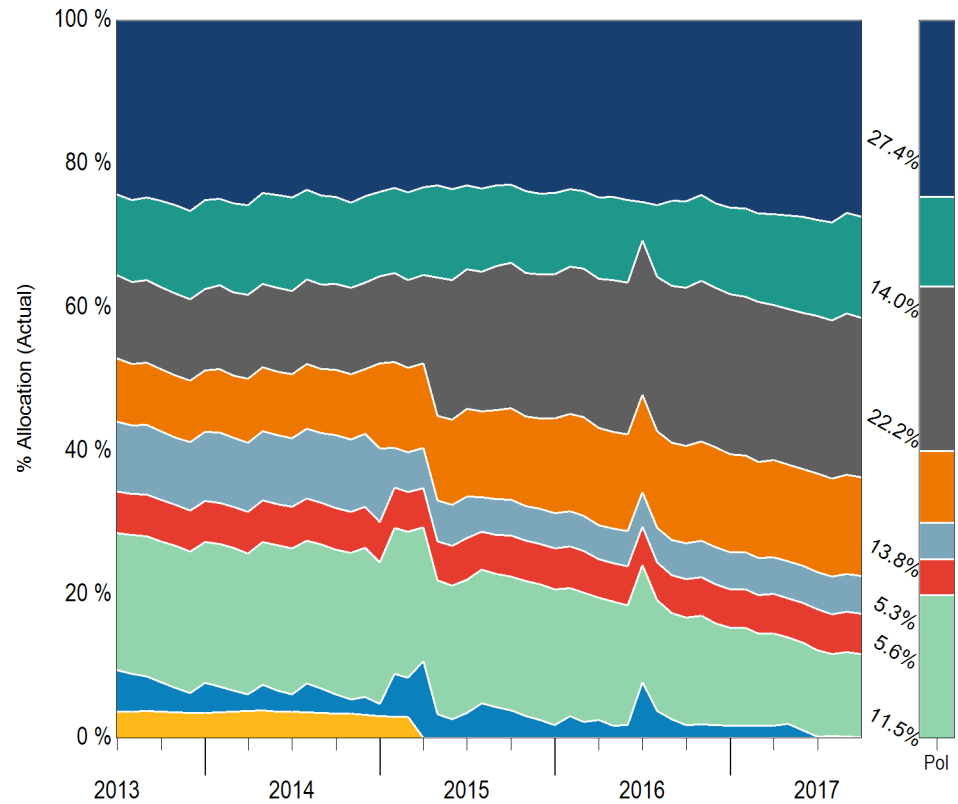
Policy Index: 51% MSCI World, 34% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite. Target Asset Allocation Policy Index: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). BlackRock MSCI ACWI ex US IMI terminated 7/21/2016. WCM Focused International Growth Fund funded 7/1/2016. Causeway International Value Fund funded 7/27/2016. Brandes International Small Cap II funded 8/1/2016. Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. JP Morgan IIF as of 6/30/2017 adjusted for current cashflows. Invesco Real Estate as of 6/30/2017. Data prior to 3Q 2015 is from previous consultant.

Market Value History



Market Value Net Cash Flow

Asset Allocation History

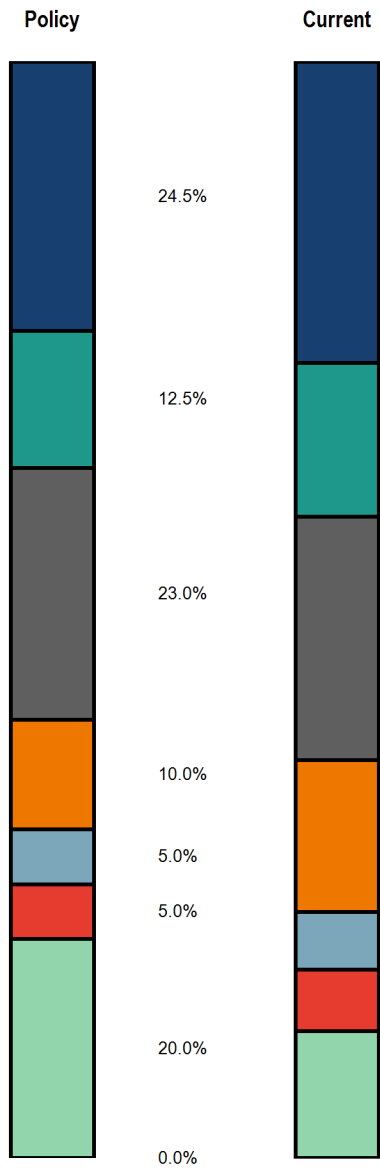


Total Domestic Equity Total Real Estate Total Multi-Asset  
 Total International Equity Total Hedge Funds Total Cash  
 Total Fixed Income Total Infrastructure (closed) Total Commodities

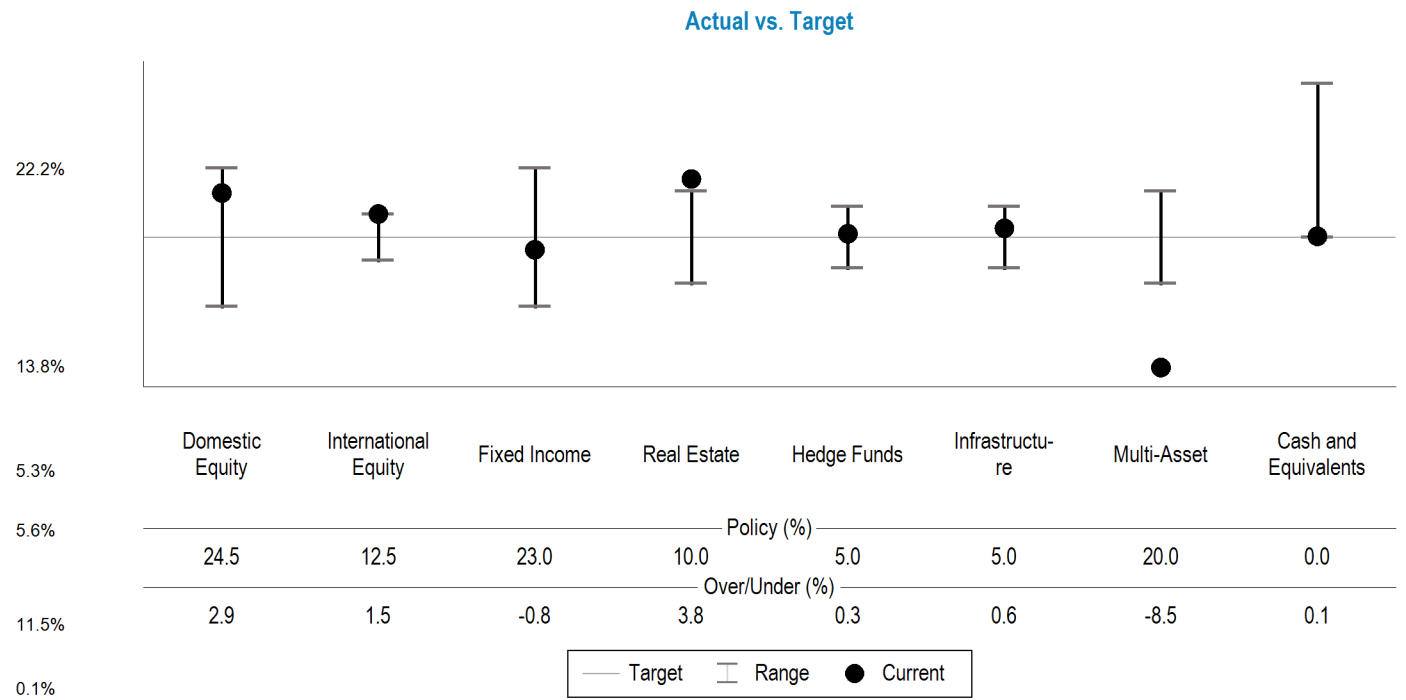
Net cash flow is cumulative.

Total Fund  
Asset Allocation vs. Policy

Period Ending: September 30, 2017



	Current	%	Policy	Difference	Policy Range	Within Range
Domestic Equity	\$89,966,185	27.4%	24.5%	\$9,558,341	20.0% - 29.0%	Yes
International Equity	\$46,088,882	14.0%	12.5%	\$5,064,472	11.0% - 14.0%	No
Fixed Income	\$72,908,830	22.2%	23.0%	-\$2,576,085	18.5% - 27.5%	Yes
Real Estate	\$45,371,634	13.8%	10.0%	\$12,552,106	7.0% - 13.0%	No
Hedge Funds	\$17,249,669	5.3%	5.0%	\$839,905	3.0% - 7.0%	Yes
Infrastructure	\$18,412,498	5.6%	5.0%	\$2,002,734	3.0% - 7.0%	Yes
Multi-Asset	\$37,889,139	11.5%	20.0%	-\$27,749,917	17.0% - 23.0%	No
Cash and Equivalents	\$308,444	0.1%	0.0%	\$308,444	0.0% - 10.0%	Yes
<b>Total</b>	<b>\$328,195,281</b>	<b>100.0%</b>	<b>100.0%</b>			



Total Fund  
Investment Fund Fee Analysis

Period Ending: September 30, 2017

Name	Asset Class	Fee Schedule	Market Value	% of Portfolio	Estimated Fee Value	Estimated Fee
BlackRock Equity Index NL	Domestic Equity	0.03% of Assets	\$41,802,918	12.7%	\$12,541	0.03%
INTECH US Managed Volatility LLC	Domestic Equity	0.47% of First \$50.0 Mil, 0.44% of Next \$50.0 Mil, 0.40% of Next \$100.0 Mil, 0.36% Thereafter	\$30,127,152	9.2%	\$141,598	0.47%
PanAgora US Small Cap Core Stock Selector	Domestic Equity	0.85% of Assets	\$18,036,115	5.5%	\$153,307	0.85%
WCM Focused International Growth Fund, L.P.	International Equity	0.75% of Assets	\$24,265,746	7.4%	\$181,993	0.75%
Causeway International Value Ins	International Equity	0.90% of Assets	\$14,961,033	4.6%	\$134,649	0.90%
Brandes International Small Cap Equity	International Equity	0.90% of Assets	\$6,862,104	2.1%	\$61,759	0.90%
Loomis Sayles Core Plus	Fixed Income	0.35% of First \$20.0 Mil, 0.25% Thereafter	\$72,908,830	22.2%	\$202,272	0.28%
ASB Allegiance Real Estate	Real Estate	1.25% of First \$5.0 Mil, 1.00% of Next \$10.0 Mil, 0.90% of Next \$60.0 Mil, 0.75% Thereafter	\$32,357,805	9.9%	\$318,720	0.98%
Invesco Real Estate II	Real Estate	0.67% of Assets	\$45,174	0.0%	\$303	0.67%
JPMorgan Special Situation Property	Real Estate	1.60% of Assets	\$12,968,656	4.0%	\$207,498	1.60%
Grosvenor Institutional Partners LP	Hedge Funds	1.15% of First \$25.0 Mil, 1.00% of Next \$25.0 Mil, 0.80% of Next \$50.0 Mil, 0.60% Thereafter	\$17,249,669	5.3%	\$198,371	1.15%
IFM Global Infrastructure (US) LP	Infrastructure	0.97% of Assets	\$10,152,501	3.1%	\$98,479	0.97%
JPMorgan IIF ERISA LP	Infrastructure	1.25% of First \$50.0 Mil, 1.15% of Next \$50.0 Mil, 1.05% Thereafter	\$8,259,997	2.5%	\$103,250	1.25%
Invesco Balanced-Risk Allocation	Multi-Asset	0.40% of First \$100.0 Mil, 0.35% Thereafter	\$37,889,139	11.5%	\$151,557	0.40%
US Bank Checking Account	Cash and Equivalents		\$308,444	0.1%		
<b>Total</b>			<b>\$328,195,281</b>	<b>100.0%</b>	<b>\$1,966,297</b>	<b>0.60%</b>

# Total Fund Watch List (Net of Fees)

Period Ending: September 30, 2017

Name	Allocation Group	Status	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5	Rule 6
BlackRock Equity Index NL	Domestic Equity	No Issues	--	--	--	--	--	✓
INTECH US Managed Volatility LLC	Domestic Equity	No Issues	✓	✓	--	--	✓	--
PanAgora US Small Cap Core Stock Selector	Domestic Equity	No Issues	--	--	--	--	✓	--
WCM Focused International Growth Fund, L.P.	International Equity	No Issues	--	--	--	--	✓	--
Causeway International Value Ins	International Equity	No Issues	--	--	--	--	✓	--
Brandes International Small Cap Equity	International Equity	No Issues	--	--	--	--	R	--
Loomis Sayles Core Plus	Fixed Income	No Issues	--	--	--	--	✓	--
ASB Allegiance Real Estate	Real Estate	No Issues	--	--	--	--	✓	--
Invesco Real Estate II	Real Estate	No Issues	R	--	R	--	✓	--
JPMorgan Special Situation Property	Real Estate	No Issues	--	--	--	--	✓	--
Grosvenor Institutional Partners LP	Hedge Funds	No Issues	✓	--	✓	--	✓	--
IFM Global Infrastructure (US) LP	Infrastructure	No Issues	✓	--	✓	--	✓	--
JPMorgan IIF ERISA LP	Infrastructure	No Issues	R	--	R	--	✓	--
Invesco Balanced-Risk Allocation	Multi-Asset	No Issues	✓	R	R	R	✓	--

Rule 1 - Manager has underperformed the benchmark index for the three year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the three year period.

Rule 3 - Manager has underperformed the benchmark index for the five year period.

Rule 4 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 5 - Fund experiences non-performance related issues including personnel turnover, changes in investment philosophy or drift, excessive asset growth, change in ownership and any other reason that raises concern.

Rule 6 - Index Fund Tracking Error exceeds 0.25% of the appropriate benchmark over the one year period.

Brandes: Making mid and back office cuts. They were discrete about profitability, but seem to be prepared to trim their non-investment personnel.

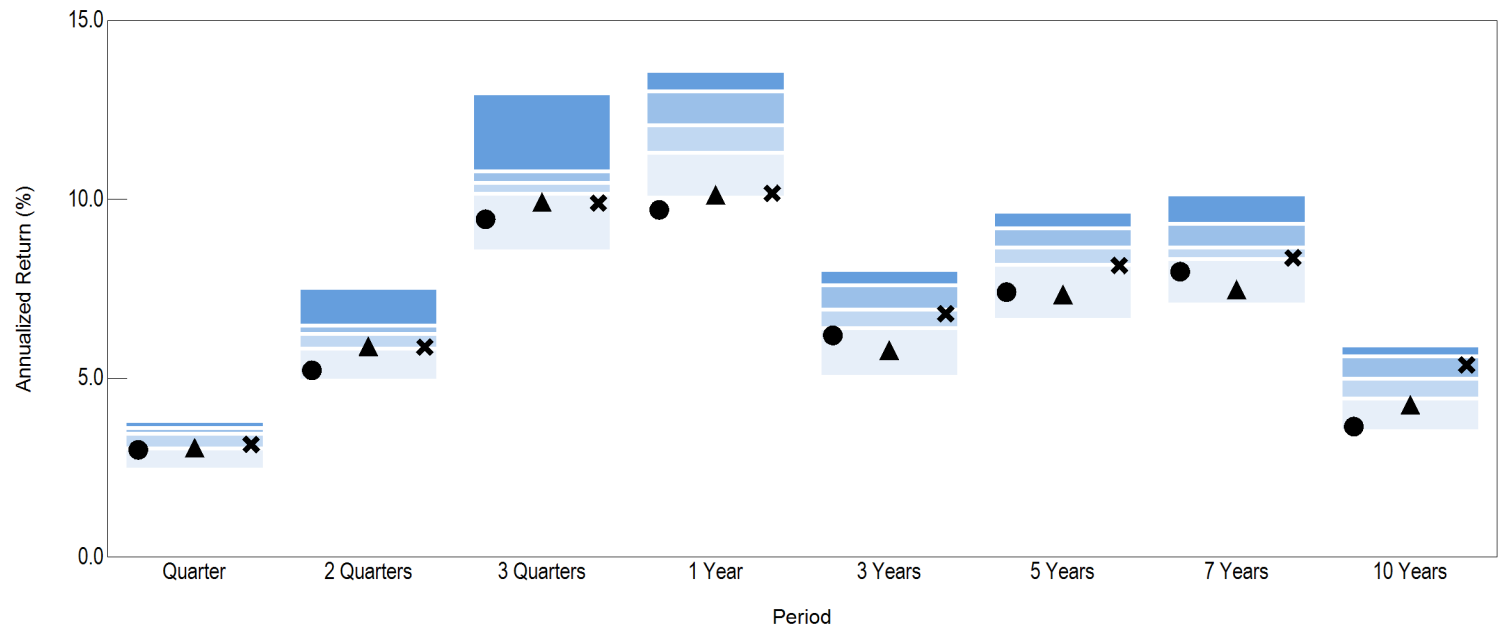


Total Fund

Peer Universe Comparison: Cumulative Performance (Net of Fees)

Period Ending: September 30, 2017

Total Fund Cumulative Performance vs. InvestorForce Tft-Hrtly DB \$250mm-\$1B Net

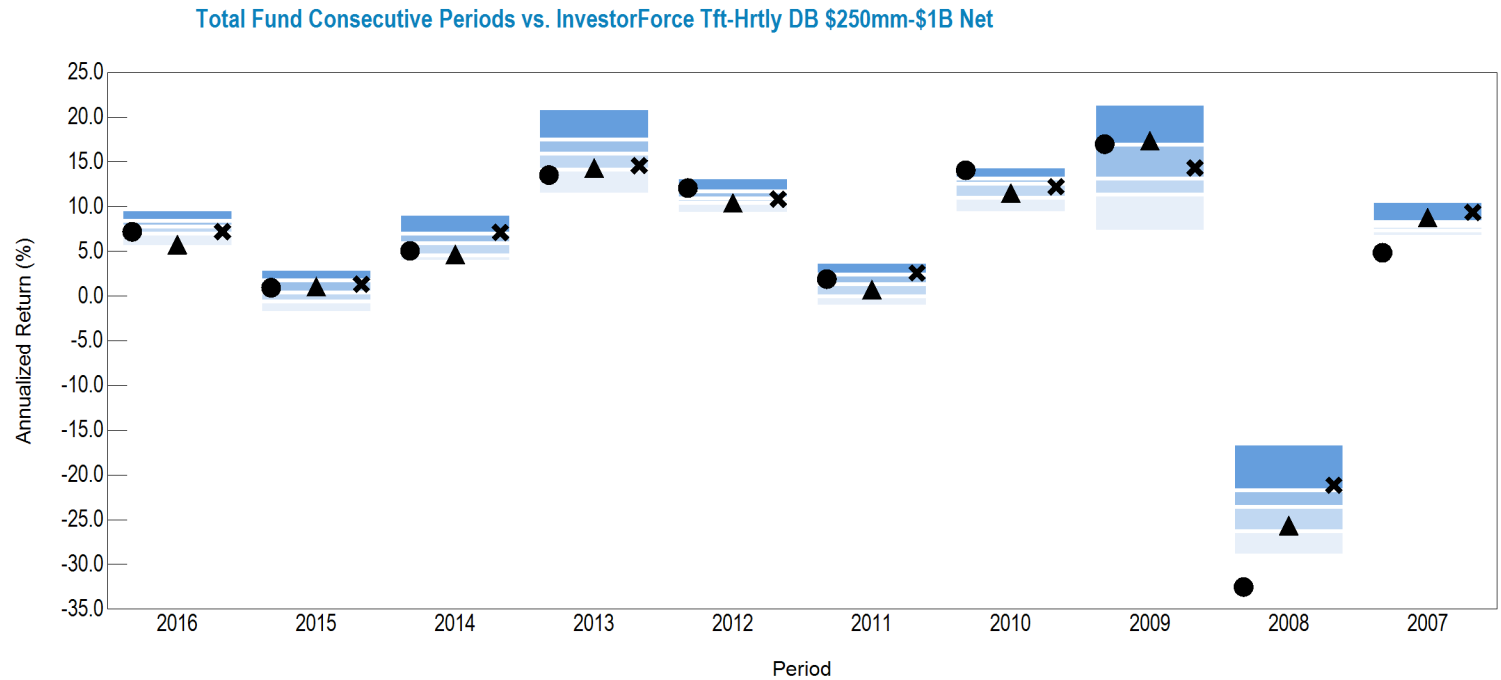


	Return (Rank)															
	Quarter		2 Quarters		3 Quarters		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	3.8	7.5	13.0	13.6	8.0	9.6	10.1	5.9								
25th Percentile	3.6	6.5	10.8	13.0	7.6	9.2	9.3	5.6								
Median	3.5	6.3	10.5	12.1	6.9	8.7	8.7	5.0								
75th Percentile	3.0	5.8	10.2	11.3	6.4	8.2	8.3	4.4								
95th Percentile	2.5	4.9	8.6	10.1	5.1	6.6	7.1	3.5								
# of Portfolios	20	20	20	20	20	20	19	16								
● Total Fund	3.0	(79)	5.2	(91)	9.4	(87)	9.7	(99)	6.2	(82)	7.4	(89)	8.0	(90)	3.6	(94)
▲ Total Fund Policy Index	3.1	(74)	5.9	(71)	9.9	(78)	10.1	(95)	5.8	(91)	7.3	(89)	7.5	(93)	4.3	(81)
✕ Target Asset Allocation Policy Index	3.1	(71)	5.9	(73)	9.9	(79)	10.2	(94)	6.8	(59)	8.1	(78)	8.4	(73)	5.4	(33)

# Total Fund

## Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: September 30, 2017



	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
<b>5th Percentile</b>	9.7	3.0	9.1	21.0	13.2	3.8	14.5	21.5	-16.5	10.6
<b>25th Percentile</b>	8.4	1.8	7.0	17.5	11.8	2.4	13.2	16.9	-21.7	8.3
<b>Median</b>	7.8	0.4	6.0	15.9	11.0	1.4	12.6	13.1	-23.6	7.9
<b>75th Percentile</b>	7.0	-0.6	4.6	14.2	10.4	0.0	11.0	11.4	-26.3	7.4
<b>95th Percentile</b>	5.5	-1.9	3.9	11.4	9.3	-1.1	9.3	7.2	-28.9	6.6
<b># of Portfolios</b>	56	58	55	49	37	34	32	31	30	27
<b>● Total Fund</b>	7.2 (69)	0.9 (39)	5.1 (70)	13.5 (79)	12.1 (20)	1.9 (40)	14.1 (10)	17.0 (25)	-32.5 (99)	4.8 (99)
<b>▲ Total Fund Policy Index</b>	5.8 (93)	1.1 (37)	4.7 (75)	14.3 (70)	10.4 (79)	0.7 (60)	11.5 (66)	17.4 (24)	-25.7 (71)	8.8 (14)
<b>× Target Asset Allocation Policy Index</b>	7.2 (69)	1.3 (36)	7.1 (21)	14.6 (66)	10.8 (63)	2.6 (20)	12.2 (58)	14.3 (44)	-21.2 (21)	9.4 (11)

## Domestic Equity

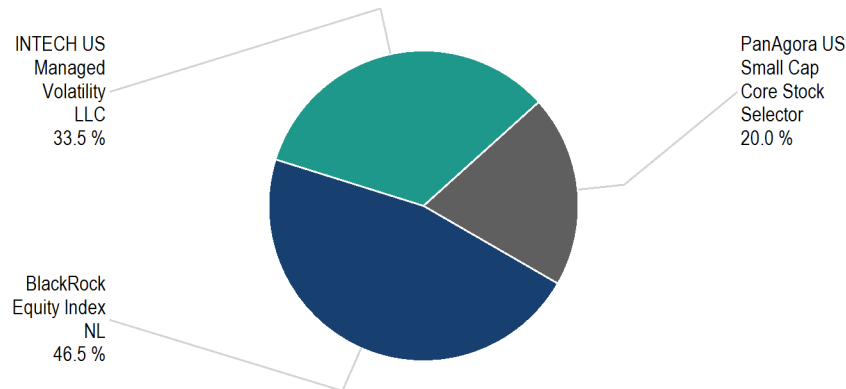
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# Total Domestic Equity Performance Summary (Net of Fees)

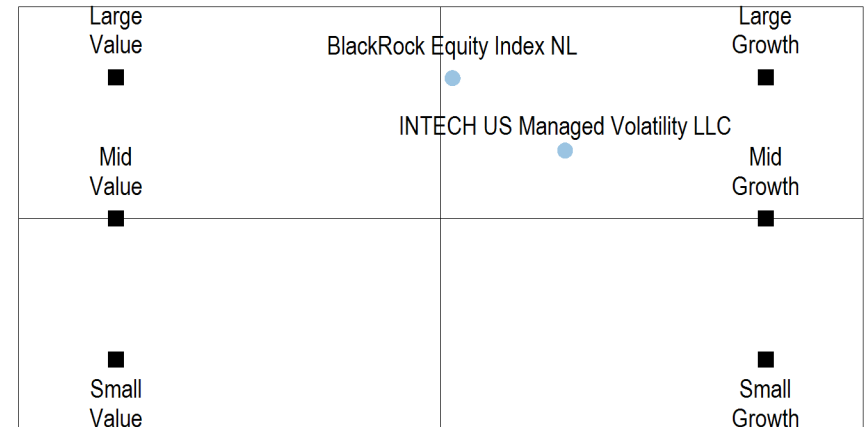
Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Domestic Equity</b>	<b>89,966,185</b>	<b>100.0</b>	<b>5.1</b>	<b>13.8</b>	<b>18.3</b>	<b>10.8</b>	<b>14.0</b>	<b>7.3</b>	<b>11.5</b>	<b>0.7</b>	<b>12.5</b>	<b>33.5</b>	<b>16.7</b>
<i>Dow Jones U.S. Total Stock Market</i>			4.6	14.0	18.7	10.7	14.2	7.6	12.6	0.4	12.5	33.5	16.4
<i>InvestorForce Tft-Hrtly DB US Eq Net Rank</i>			16	45	57	23	44	50	62	30	10	66	23
<b>Domestic Equity</b>	<b>89,966,185</b>	<b>100.0</b>											
BlackRock Equity Index NL	41,802,918	46.5	4.5	14.2	18.6	10.8	14.2	--	11.9	1.3	13.8	32.4	16.0
<i>S&amp;P 500</i>			4.5	14.2	18.6	10.8	14.2	--	12.0	1.4	13.7	32.4	16.0
<i>eA US Large Cap Core Equity Net Rank</i>			53	47	45	21	25	--	21	37	33	43	31
INTECH US Managed Volatility LLC	30,127,152	33.5	5.4	16.6	18.3	10.9	--	--	5.7	3.2	15.5	--	--
<i>Russell 1000</i>			4.5	14.2	18.5	10.6	--	--	12.1	0.9	13.2	--	--
<i>eA US Large Cap Core Equity Net Rank</i>			29	18	48	18	--	--	84	18	14	--	--
PanAgora US Small Cap Core Stock Selector	18,036,115	20.0	5.7	8.0	17.5	--	--	--	20.3	--	--	--	--
<i>Russell 2000</i>			5.7	10.9	20.7	--	--	--	21.3	--	--	--	--
<i>eA US Small Cap Core Equity Net Rank</i>			44	74	75	--	--	--	41	--	--	--	--

Total Domestic Equity  
Current Allocation

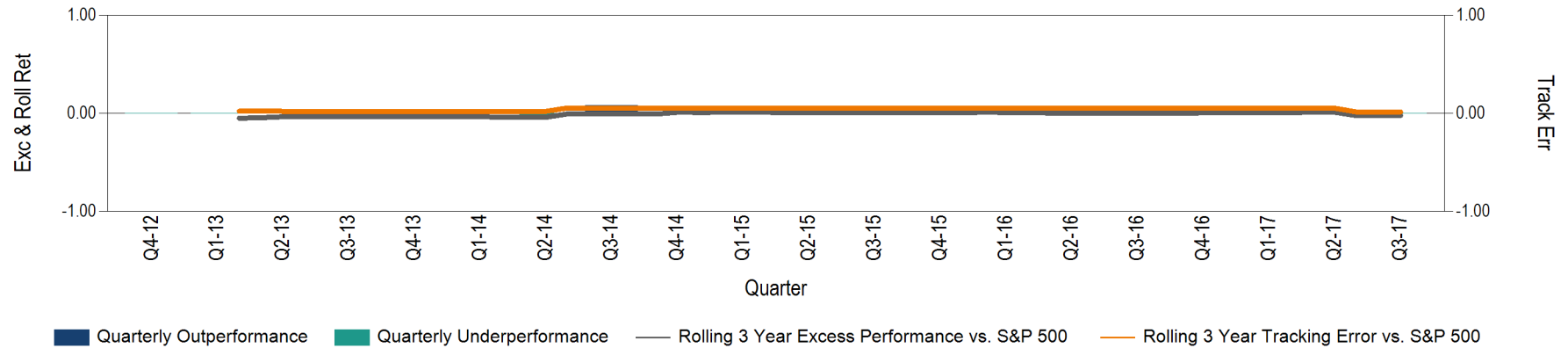


Domestic Effective Style Map  
3 Years

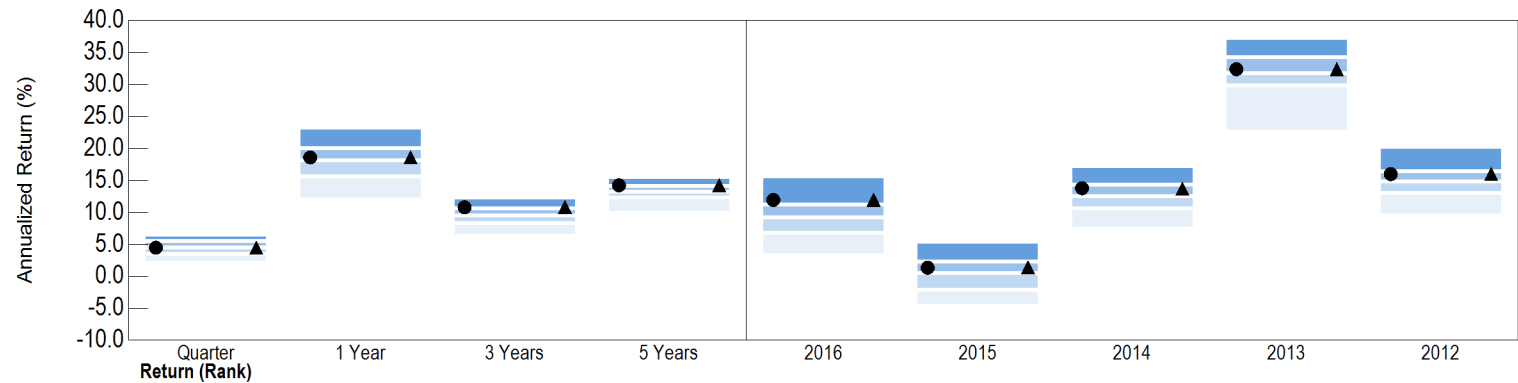


Style map requires 3 years of returns.

Rolling Annualized Excess Performance and Tracking Error

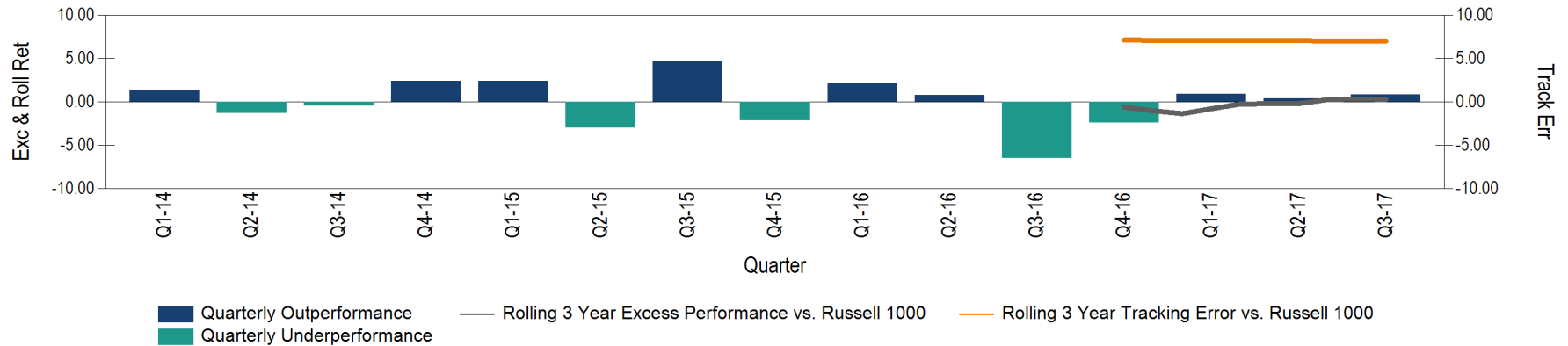


BlackRock Equity Index NL vs. eA US Large Cap Core Equity Net Universe

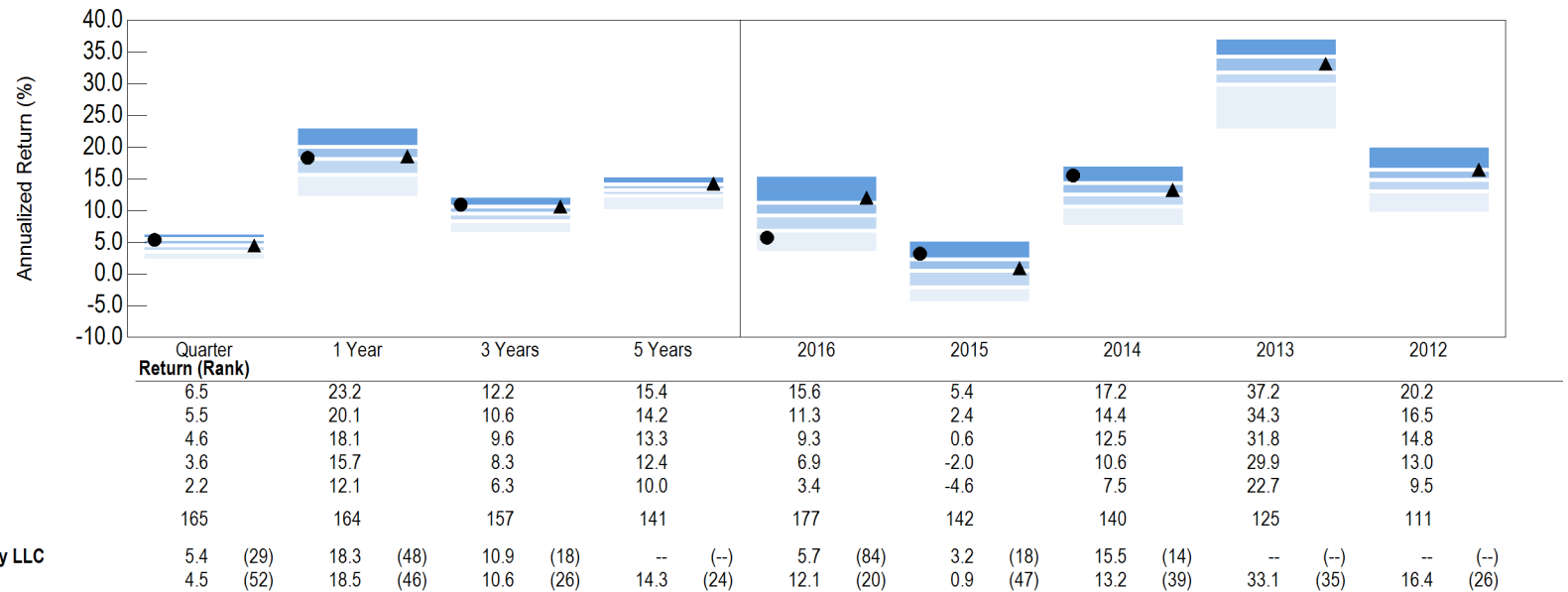


	Quarter	1 Year	3 Years	5 Years	2016	2015	2014	2013	2012
<b>5th Percentile</b>	6.5	23.2	12.2	15.4	15.6	5.4	17.2	37.2	20.2
<b>25th Percentile</b>	5.5	20.1	10.6	14.2	11.3	2.4	14.4	34.3	16.5
<b>Median</b>	4.6	18.1	9.6	13.3	9.3	0.6	12.5	31.8	14.8
<b>75th Percentile</b>	3.6	15.7	8.3	12.4	6.9	-2.0	10.6	29.9	13.0
<b>95th Percentile</b>	2.2	12.1	6.3	10.0	3.4	-4.6	7.5	22.7	9.5
<b># of Portfolios</b>	165	164	157	141	177	142	140	125	111
● BlackRock Equity Index NL	4.5 (53)	18.6 (45)	10.8 (21)	14.2 (25)	11.9 (21)	1.3 (37)	13.8 (33)	32.4 (43)	16.0 (31)
▲ S&P 500	4.5 (52)	18.6 (45)	10.8 (20)	14.2 (25)	12.0 (21)	1.4 (37)	13.7 (33)	32.4 (43)	16.0 (30)

Rolling Annualized Excess Performance and Tracking Error



INTECH US Managed Volatility LLC vs. eA US Large Cap Core Equity Net Universe

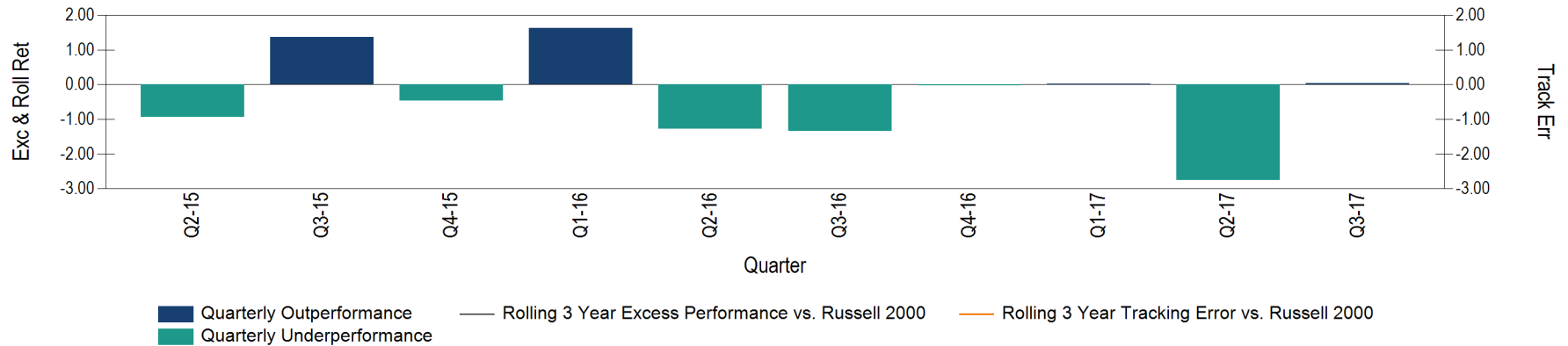




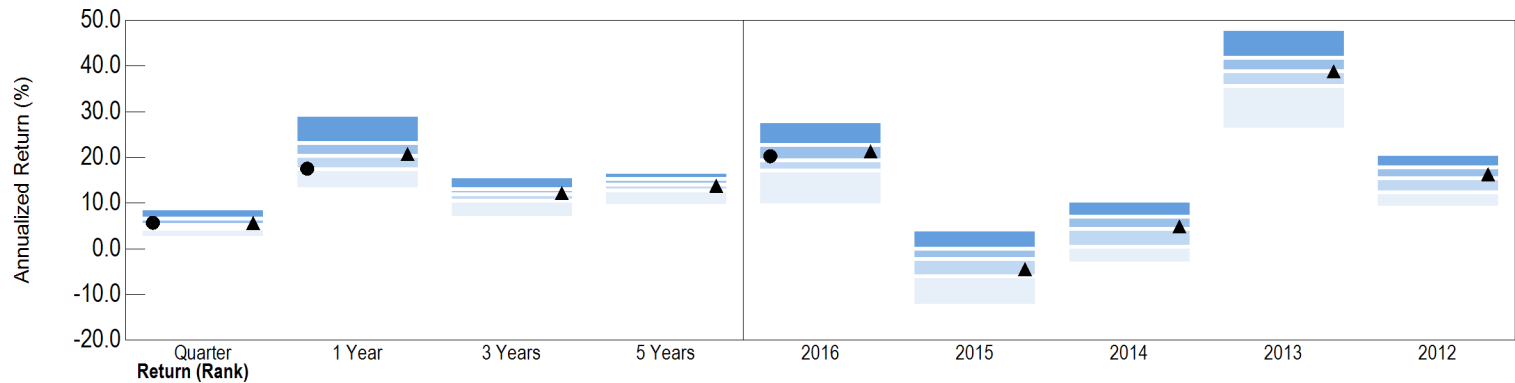
# PanAgora US Small Cap Core Stock Selector Performance Summary (Net of Fees)

Period Ending: September 30, 2017

### Rolling Annualized Excess Performance and Tracking Error



### PanAgora US Small Cap Core Stock Selector vs. eA US Small Cap Core Equity Net Universe



	Quarter	1 Year	3 Years	5 Years	2016	2015	2014	2013	2012
<b>5th Percentile</b>	8.8	29.3	15.8	16.8	27.8	4.2	10.5	48.0	20.7
<b>25th Percentile</b>	6.7	23.3	13.2	15.4	22.8	0.1	7.2	41.8	17.9
<b>Median</b>	5.2	20.5	12.0	14.1	19.5	-2.1	4.4	38.9	15.6
<b>75th Percentile</b>	4.5	17.5	10.7	12.8	17.3	-5.9	0.6	35.8	12.5
<b>95th Percentile</b>	2.5	13.1	6.9	9.6	9.7	-12.3	-3.1	26.1	9.1
<b># of Portfolios</b>	93	92	89	83	99	88	77	73	60
● PanAgora US Small Cap Core Stock Selector	5.7 (44)	17.5 (75)	-- (--)	-- (--)	20.3 (41)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 2000	5.7 (44)	20.7 (48)	12.2 (47)	13.8 (60)	21.3 (34)	-4.4 (71)	4.9 (47)	38.8 (51)	16.3 (42)

## International Equity

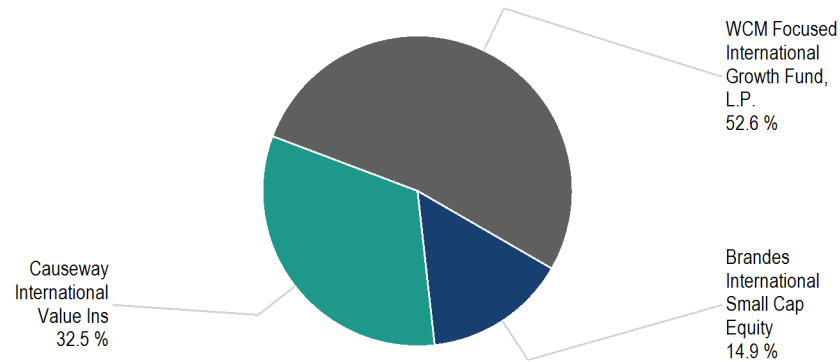
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# Total International Equity Performance Summary (Net of Fees)

Period Ending: September 30, 2017

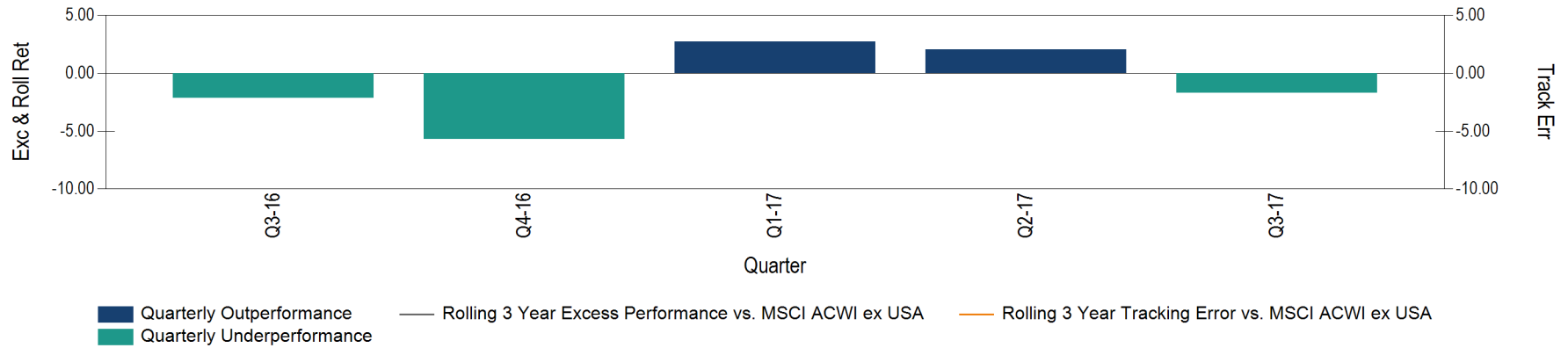
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total International Equity</b>	<b>46,088,882</b>	<b>100.0</b>	<b>4.7</b>	<b>21.0</b>	<b>17.0</b>	<b>4.1</b>	<b>6.7</b>	<b>-0.6</b>	<b>1.7</b>	<b>-4.5</b>	<b>-3.8</b>	<b>16.0</b>	<b>17.1</b>
<i>Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)</i>			6.3	21.5	19.6	5.2	7.3	0.9	4.4	-4.6	-3.9	15.8	17.0
<i>InvestorForce Tft-Hrtly DB ex-US Eq Net Rank</i>			97	87	87	75	88	97	74	51	59	68	71
<b>International Equity</b>	<b>46,088,882</b>	<b>100.0</b>											
WCM Focused International Growth Fund, L.P.	24,265,746	52.6	4.4	24.5	15.8	--	--	--	--	--	--	--	--
<i>MSCI ACWI ex USA</i>			6.2	21.1	19.6	--	--	--	--	--	--	--	--
<i>eA ACWI ex-US All Cap Growth Eq Net Rank</i>			91	65	85	--	--	--	--	--	--	--	--
Causeway International Value Ins	14,961,033	32.5	6.9	21.0	21.5	--	--	--	--	--	--	--	--
<i>MSCI EAFE</i>			5.4	20.0	19.1	--	--	--	--	--	--	--	--
<i>Foreign Large Value MStar MF Rank</i>			25	22	39	--	--	--	--	--	--	--	--
Brandes International Small Cap Equity	6,862,104	14.9	1.3	10.2	12.1	--	--	--	--	--	--	--	--
<i>S&amp;P Developed Ex-U.S. SmallCap</i>			7.0	24.6	20.7	--	--	--	--	--	--	--	--
<i>eA ACWI ex-US Small Cap Equity Net Rank</i>			99	98	91	--	--	--	--	--	--	--	--

Total International Equity  
Current Allocation



BlackRock MSCI ACWI ex US IMI terminated 7/21/2016. WCM Focused International Growth Fund funded 7/1/2016. Causeway International Value Fund funded 7/27/2016. Brandes International Small Cap II funded 8/1/2016.

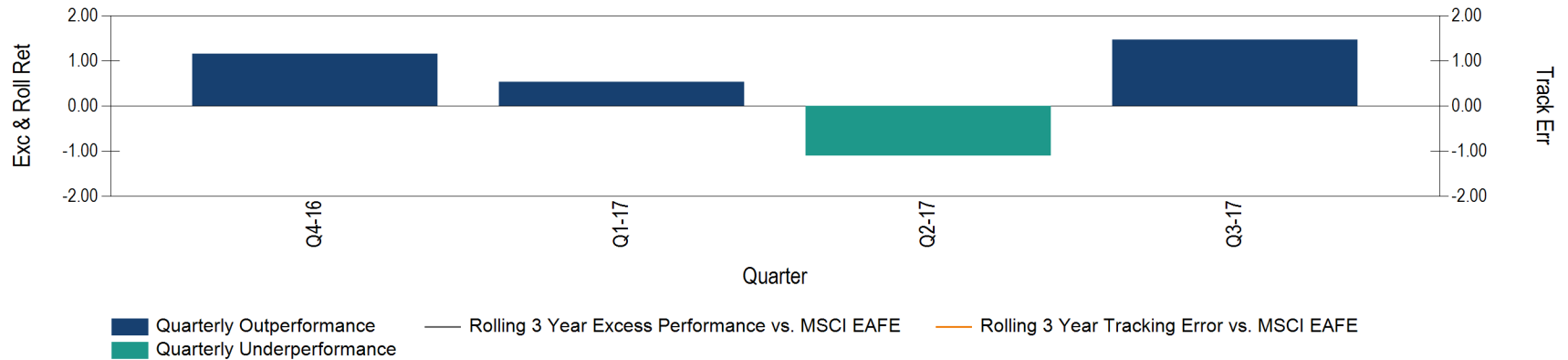
Rolling Annualized Excess Performance and Tracking Error



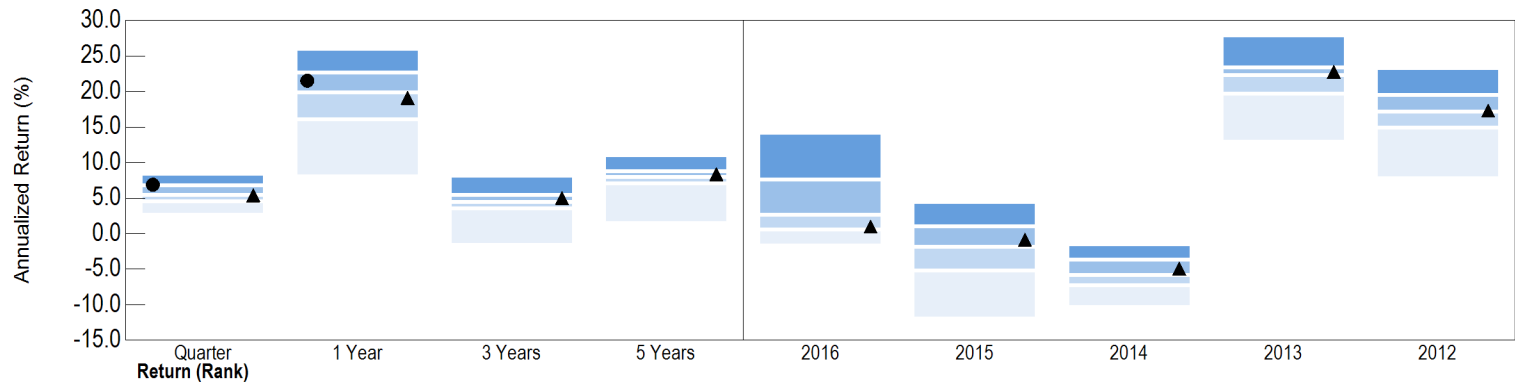
WCM Focused International Growth Fund, L.P. vs. eA ACWI ex-US All Cap Growth Eq Net Universe



Rolling Annualized Excess Performance and Tracking Error



Causeway International Value Ins vs. Foreign Large Value MStar MF Universe

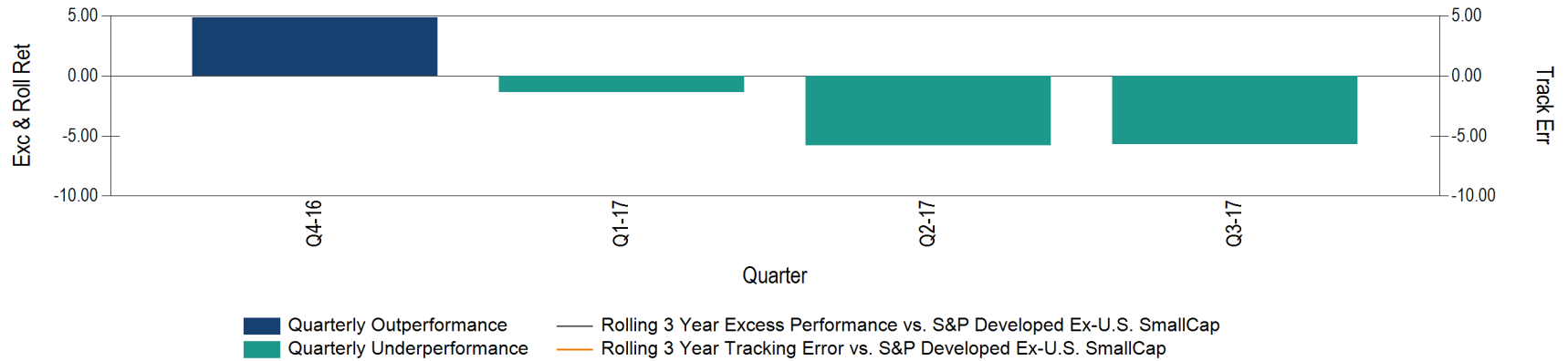


	Quarter	1 Year	3 Years	5 Years	2016	2015	2014	2013	2012
<b>5th Percentile</b>	8.4	26.0	8.1	11.0	14.1	4.4	-1.5	27.8	23.2
<b>25th Percentile</b>	6.8	22.8	5.5	8.9	7.7	1.1	-3.6	23.5	19.5
<b>Median</b>	5.5	19.9	4.5	8.0	2.7	-1.8	-5.7	22.3	17.2
<b>75th Percentile</b>	4.6	16.1	3.6	7.1	0.6	-5.1	-7.2	19.7	14.9
<b>95th Percentile</b>	2.7	8.1	-1.6	1.5	-1.6	-11.9	-10.3	13.0	7.9
<b># of Portfolios</b>	74	74	66	61	78	76	73	69	82
● Causeway International Value Ins	6.9 (25)	21.5 (39)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ MSCI EAFE	5.4 (53)	19.1 (54)	5.0 (33)	8.4 (36)	1.0 (69)	-0.8 (43)	-4.9 (36)	22.8 (40)	17.3 (49)

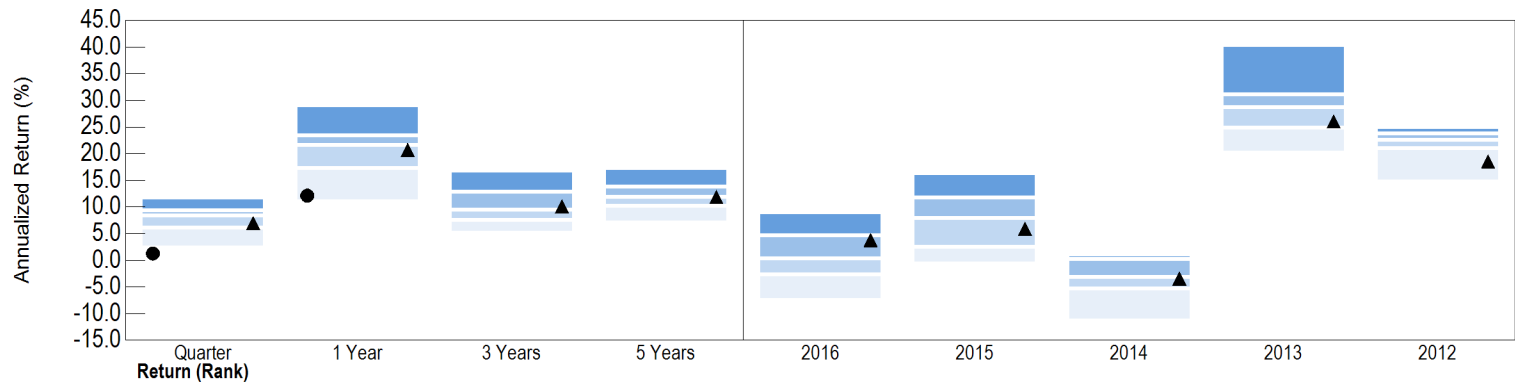
# Brandes International Small Cap Equity Performance Summary (Net of Fees)

Period Ending: September 30, 2017

### Rolling Annualized Excess Performance and Tracking Error



### Brandes International Small Cap Equity vs. eA ACWI ex-US Small Cap Equity Net Universe



	Quarter	1 Year	3 Years	5 Years	2016	2015	2014	2013	2012
<b>5th Percentile</b>	11.7	29.0	16.8	17.3	9.0	16.3	1.0	40.3	25.0
<b>25th Percentile</b>	9.5	23.5	12.9	13.9	4.7	11.8	0.3	31.2	23.8
<b>Median</b>	8.4	21.7	9.5	12.0	0.4	8.0	-3.0	28.8	22.6
<b>75th Percentile</b>	6.1	17.3	7.7	10.2	-2.6	2.6	-5.2	25.0	21.1
<b>95th Percentile</b>	2.5	11.1	5.2	7.1	-7.4	-0.5	-11.2	20.3	14.8
<b># of Portfolios</b>	42	42	31	24	42	27	16	13	8
● Brandes International Small Cap Equity	1.3 (99)	12.1 (91)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ S&P Developed Ex-U.S. SmallCap	7.0 (64)	20.7 (56)	10.1 (45)	11.9 (53)	3.8 (29)	5.9 (57)	-3.4 (62)	26.1 (71)	18.6 (88)



## Domestic Fixed Income

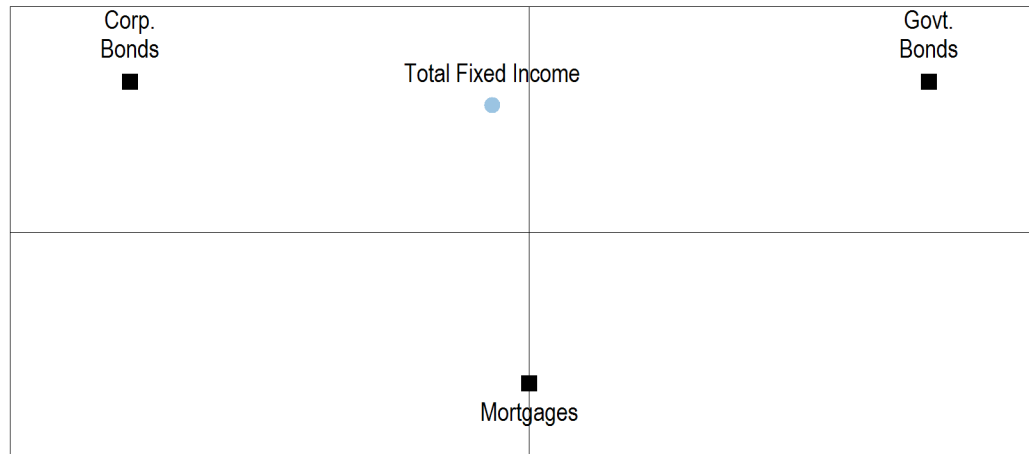
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Total Fixed Income  
Performance Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Fixed Income</b>	<b>72,908,830</b>	<b>100.0</b>	<b>1.4</b>	<b>5.2</b>	<b>3.8</b>	<b>3.6</b>	<b>3.7</b>	<b>5.3</b>	<b>7.5</b>	<b>-2.1</b>	<b>5.9</b>	<b>0.2</b>	<b>10.5</b>
<i>Total Fixed Income Benchmark (BBgBarc Aggregate)</i>			0.8	3.1	0.1	2.7	2.1	4.3	2.6	0.5	6.0	-2.0	4.2
<i>InvestorForce Tft-Hrtly DB US Fix Inc Net Rank</i>			14	16	31	28	19	24	9	93	10	40	9
<b>Fixed Income</b>	<b>72,908,830</b>	<b>100.0</b>											
Loomis Sayles Core Plus	72,908,830	100.0	1.4	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>			0.8	--	--	--	--	--	--	--	--	--	--
<i>eA US Core Plus Fixed Inc Net Rank</i>			14	--	--	--	--	--	--	--	--	--	--

Fixed Income Style Map  
3 Years



Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017.

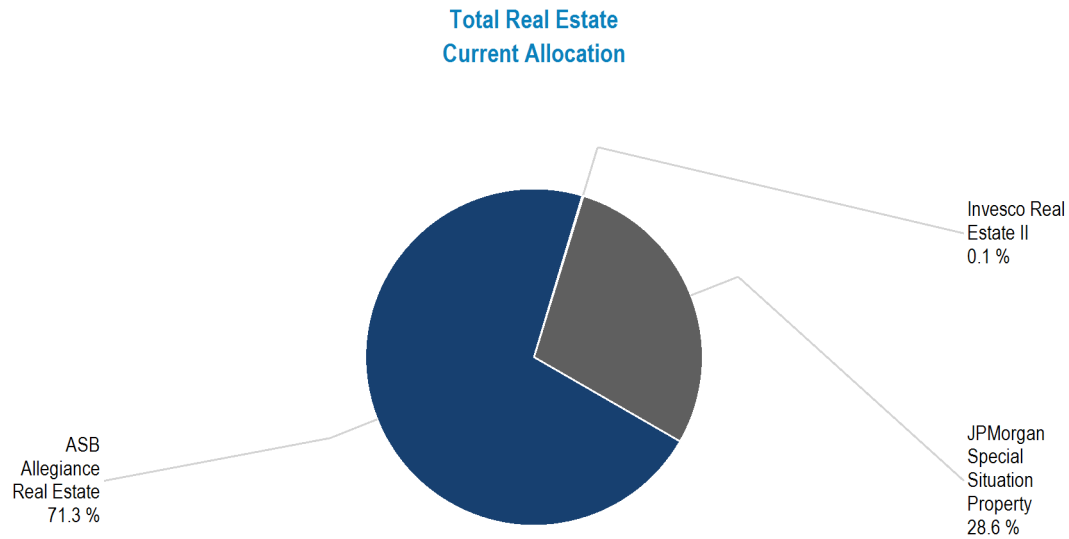
## Alternatives

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Total Real Estate  
Performance Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Real Estate</b>	<b>45,371,634</b>	<b>100.0</b>	<b>1.2</b>	<b>3.2</b>	<b>4.2</b>	<b>9.0</b>	<b>10.3</b>	<b>4.5</b>	<b>5.4</b>	<b>16.9</b>	<b>11.2</b>	<b>14.1</b>	<b>11.6</b>
<i>NCREIF-ODCE</i>			1.9	5.4	7.6	10.8	11.6	5.0	8.8	15.0	12.5	13.9	10.9
<b>Real Estate</b>	<b>45,371,634</b>	<b>100.0</b>											
ASB Allegiance Real Estate	32,357,805	71.3	0.5	2.0	2.6	--	--	--	4.5	--	--	--	--
<i>NCREIF-ODCE</i>			1.9	5.4	7.6	--	--	--	8.8	--	--	--	--
Invesco Real Estate II	45,174	0.1	0.0	3.3	4.6	3.4	8.5	--	1.2	6.1	11.5	23.1	16.2
<i>NCREIF-ODCE</i>			1.9	5.4	7.6	10.8	11.6	--	8.8	15.0	12.5	13.9	10.9
JPMorgan Special Situation Property	12,968,656	28.6	2.7	6.4	8.3	--	--	--	8.7	18.9	--	--	--
<i>NCREIF-ODCE</i>			1.9	5.4	7.6	--	--	--	8.8	15.0	--	--	--



Invesco Real Estate as of 6/30/2017.

Total Hedge Funds  
Performance Summary (Net of Fees)

Period Ending: September 30, 2017

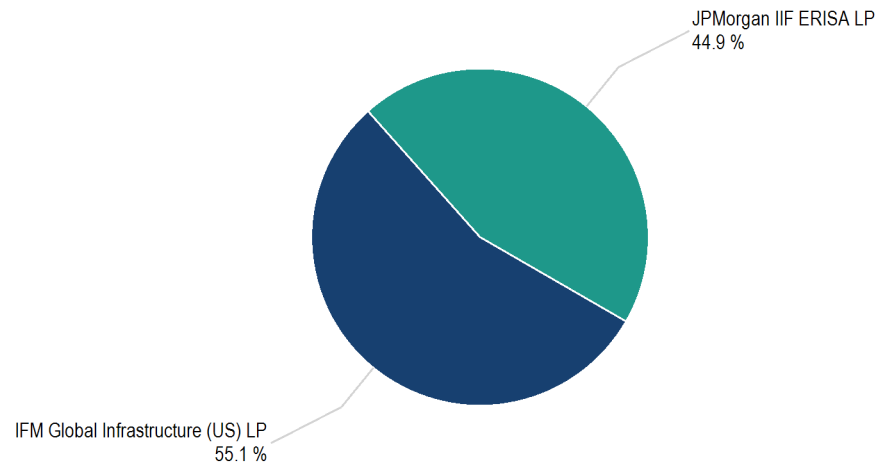
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Hedge Funds</b>	<b>17,249,669</b>	<b>100.0</b>	<b>1.5</b>	<b>3.6</b>	<b>5.8</b>	<b>2.2</b>	<b>3.8</b>	<b>--</b>	<b>2.3</b>	<b>-0.3</b>	<b>3.9</b>	<b>7.7</b>	<b>5.9</b>
<i>HFRI Fund of Funds Composite Index</i>			2.3	5.6	6.5	2.2	3.9	--	0.5	-0.3	3.4	9.0	4.8
<b>Hedge Funds</b>	<b>17,249,669</b>	<b>100.0</b>											
Grosvenor Institutional Partners LP	17,249,669	100.0	1.5	3.6	5.8	2.0	5.1	--	2.3	-0.3	3.2	15.0	8.4
<i>HFRI FOF Diversified Index</i>			2.4	4.7	5.9	2.0	3.7	--	0.4	-0.2	3.4	9.0	4.8

# Total Infrastructure Performance Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Infrastructure</b>	<b>18,412,498</b>	<b>100.0</b>	<b>2.0</b>	<b>11.2</b>	<b>10.3</b>	<b>5.5</b>	<b>5.6</b>	<b>--</b>	<b>3.8</b>	<b>4.2</b>	<b>-0.3</b>	<b>6.7</b>	<b>11.0</b>
<i>CPI + 5%</i>			2.0	6.0	7.3	6.3	6.4	--	7.2	5.8	5.8	6.6	6.8
<b>Infrastructure</b>	<b>18,412,498</b>	<b>100.0</b>											
IFM Global Infrastructure (US) LP	10,152,501	55.1	3.6	15.8	16.0	8.2	7.2	--	6.1	5.1	1.3	6.7	11.4
<i>CPI + 5%</i>			2.0	6.0	7.3	6.3	6.4	--	7.2	5.8	5.8	6.6	6.8
JPMorgan IIF ERISA LP	8,259,997	44.9	0.0	5.9	4.0	2.6	3.8	--	1.2	3.4	-1.6	6.8	10.3
<i>CPI + 5%</i>			2.0	6.0	7.3	6.3	6.4	--	7.2	5.8	5.8	6.6	6.8

Total Infrastructure  
Current Allocation



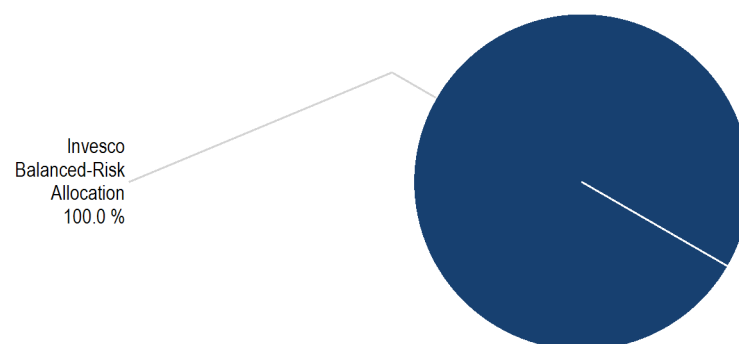
JP Morgan IIF as of 6/30/2017 adjusted for current cashflows.

# Total Multi-Asset Performance Summary (Net of Fees)

Period Ending: September 30, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Multi-Asset</b>	<b>37,889,139</b>	<b>100.0</b>	<b>2.7</b>	<b>5.7</b>	<b>4.6</b>	<b>5.0</b>	<b>5.3</b>	<b>3.4</b>	<b>7.1</b>	<b>-1.0</b>	<b>6.7</b>	<b>7.9</b>	<b>11.1</b>
60% MSCI ACWI Net/40% CITI WGBI			3.8	12.8	9.7	4.9	6.0	3.9	5.5	-2.6	2.3	11.4	10.3
eA Global Balanced Net Rank			96	99	99	58	99	99	55	38	31	94	54
<b>Multi-Asset</b>	<b>37,889,139</b>	<b>100.0</b>											
Invesco Balanced-Risk Allocation	37,889,139	100.0	2.7	5.2	4.2	5.1	4.4	--	12.2	-3.5	6.3	2.3	11.8
60% MSCI ACWI Net/40% CITI WGBI			3.8	12.8	9.7	4.9	6.0	--	5.5	-2.6	2.3	11.4	10.3
Citi 3-Month T-bill +6%			1.7	5.0	6.7	6.3	6.2	--	6.3	6.0	6.0	6.1	6.1
eA Global Balanced Net Rank			96	99	99	52	99	--	19	74	37	97	49

Total Multi-Asset  
Current Allocation

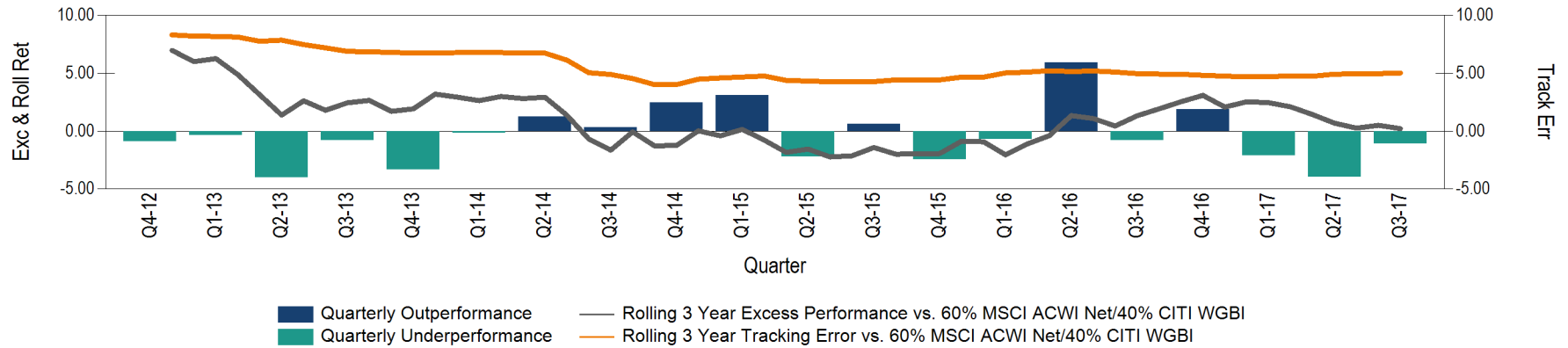


Mellon Dynamic liquidated 5/5/2017.

# Invesco Balanced-Risk Allocation Performance Summary (Net of Fees)

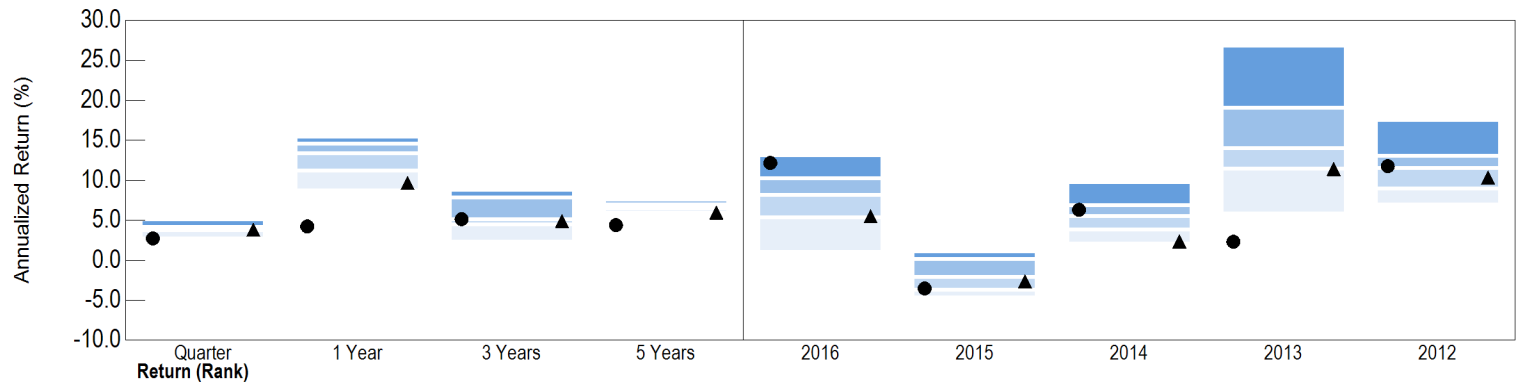
Period Ending: September 30, 2017

### Rolling Annualized Excess Performance and Tracking Error



■ Quarterly Outperformance     — Rolling 3 Year Excess Performance vs. 60% MSCI ACWI Net/40% CITI WGBI  
■ Quarterly Underperformance     — Rolling 3 Year Tracking Error vs. 60% MSCI ACWI Net/40% CITI WGBI

### Invesco Balanced-Risk Allocation vs. eA Global Balanced Net Universe



	Quarter	1 Year	3 Years	5 Years	2016	2015	2014	2013	2012
<b>5th Percentile</b>	5.1	15.5	8.8	8.1	13.1	1.1	9.7	26.8	17.5
<b>25th Percentile</b>	4.2	14.6	7.9	7.6	10.3	0.2	7.0	19.1	13.1
<b>Median</b>	4.0	13.4	5.2	7.0	8.2	-2.0	5.6	14.1	11.6
<b>75th Percentile</b>	3.8	11.2	4.5	6.6	5.4	-3.7	3.9	11.5	9.1
<b>95th Percentile</b>	2.8	8.8	2.4	6.0	1.1	-4.6	2.2	5.9	7.0
<b># of Portfolios</b>	10	10	10	6	13	13	14	14	14
● Invesco Balanced-Risk Allocation	2.7 (96)	4.2 (99)	5.1 (52)	4.4 (99)	12.2 (19)	-3.5 (74)	6.3 (37)	2.3 (97)	11.8 (49)
▲ 60% MSCI ACWI Net/40% CITI WGBI	3.8 (74)	9.7 (90)	4.9 (62)	6.0 (96)	5.5 (68)	-2.6 (64)	2.3 (94)	11.4 (78)	10.3 (65)



**Performance Return Calculations**

Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

**Data Source**

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

**Illiquid Alternatives**

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

**Manager Line Up**

<b>Manager</b>	<b>Fund Incepted</b>	<b>Data Source</b>	<b>Manager</b>	<b>Fund Incepted</b>	<b>Data Source</b>
BlackRock Equity Index NL	4/30/2010	BlackRock	Invesco Real Estate II	6/30/2008	Invesco
INTECH US Managed Volatility	12/31/2013	INTECH	JPMorgan SSP	12/31/2014	JP Morgan
PanAgora US Small Cap	1/31/2015	PanAgora	Grosvenor Instl Partners LP	10/31/2009	Grosvenor
WCM Focused International Growth	7/1/2016	WCM	IFM Global Infrastructure (US) LP	1/31/2009	IFM
Causeway International Value	7/27/2016	US Bank	JPMorgan IIF ERISA LP	9/30/2010	JP Morgan
Brandes International Small Cap II	8/1/2016	Brandes	Invesco Balanced-Risk Allocation	1/31/2010	Invesco
Loomis Sayles Core Plus	3/21/2017	Loomis Sayles	US Bank Checking Account	N/A	US Bank
ASB Allegiance Real Estate	3/31/2015	ASB	US Bank Clearing Account	N/A	US Bank

**Policy & Custom Index Composition**

Policy Index: 51% MSCI World, 34% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite.

Target Asset Allocation Policy: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60%MSCI ACWI Net/40% CITI WGBI).

# Glossary

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**Allocation Effect:** An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

**Alpha:** The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as:  $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$ .

**Benchmark R-squared:** Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

**Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

**Book-to-Market:** The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

**Capture Ratio:** A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

**Correlation:** A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

**Excess Return:** A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

**Information Ratio:** A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as:  $\text{excess return} / \text{tracking error}$ .

**Interaction Effect:** An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

**Portfolio Turnover:** The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

**Price-to-Earnings Ratio (P/E):** Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

**R-Squared:** Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

**Selection Effect:** An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as:  $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$ .

**Sortino Ratio:** Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

**Standard Deviation:** A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

**Style Analysis:** A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

**Style Map:** A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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