Western States Office & Professional Employees Pension Fund

Investment Performance Review

Period Ending: September 30, 2019

Verus

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3rd quarter summary

THE ECONOMIC CLIMATE

— Real GDP grew at a 2.3% rate year-over-year in the second quarter (2.0% quarterly annualized rate). U.S. Q2 consumer spending came in stronger than any time since 2014, while weak business inventory investment acted as a slight drag.

— Trade policies and conflict likely weighed on economic progress. Uncertainty regarding the future of U.S.-China trade relations and supply chain disruptions caused by new tariff impositions are expected to hinder growth in the future.

PORTFOLIO IMPACTS

— U.S. equities outperformed international in Q3 (S&P 500 +1.7%, MSCI EAFE -1.1%) as domestic markets continued to lead. Some convergence of U.S. interest rates with the ultra-low rates of international markets likely supported equity prices over the quarter.

— Core inflation has crept up to cycle-highs in 2019, increasing to 2.4% YoY in September. Headline inflation rose 1.7% YoY, dragged down by falling energy prices. Neither the media nor investors appear to be concerned about rising inflation, as of yet. Investors remain focused on deflationary forces in the global economy.

THE INVESTMENT CLIMATE

— The Federal Open Market Committee cut the range for its benchmark interest rate by 0.25% in both its July and September meetings, bringing the new range for federal funds to 1.75-2.00%.

— Global sovereign bonds rallied, encouraged by muted inflation expectations and dovish guidance from global central banks. Central bankers appealed for fiscal action, citing the limited capacity of monetary policy to sustain further economic expansion.

ASSET ALLOCATION ISSUES

— Risk assets were flat over the quarter. Global equities gained 0.0% and U.S. Treasuries gained 2.4% as domestic interest rates fell. Longer duration exposures continued to outperform.

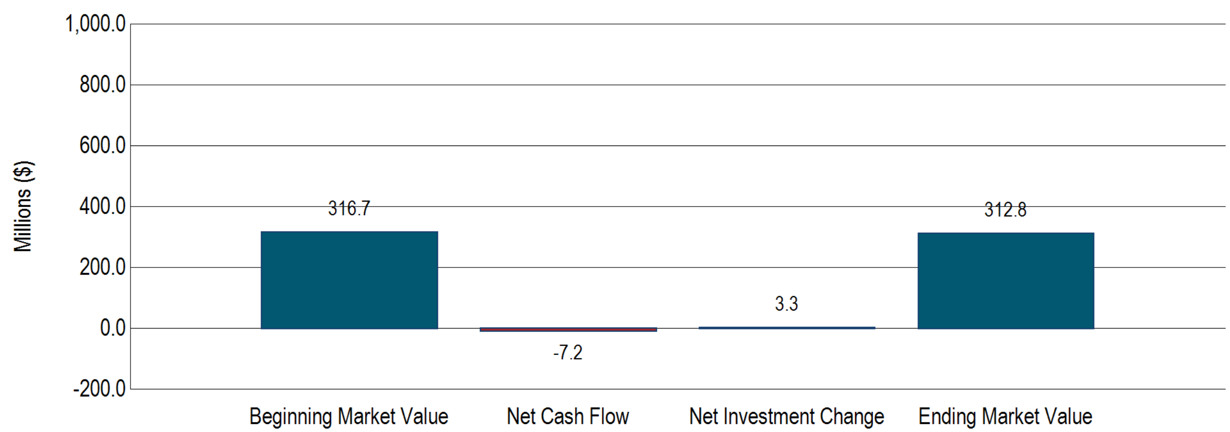
— The U.S. dollar appreciated 2.6% in Q3 relative to a trade-weighted basket of currencies. Dollar volatility has been suppressed so far in 2019, following large swings experienced during years 2014-2018. Emerging market currencies fell -4.0% in Q3 on the back of U.S. dollar strength. These currencies remain depressed relative to history.

A neutral risk stance may be appropriate in today's environment

Portfolio Reconciliation

	Last Three Months	Year-To-Date
Beginning Market Value	$316,669,887	$295,732,840
Net Cash Flow	-$7,178,012	-$18,998,693
Net Investment Change	$3,294,029	$36,051,759
Ending Market Value	$312,785,905	$312,785,905

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

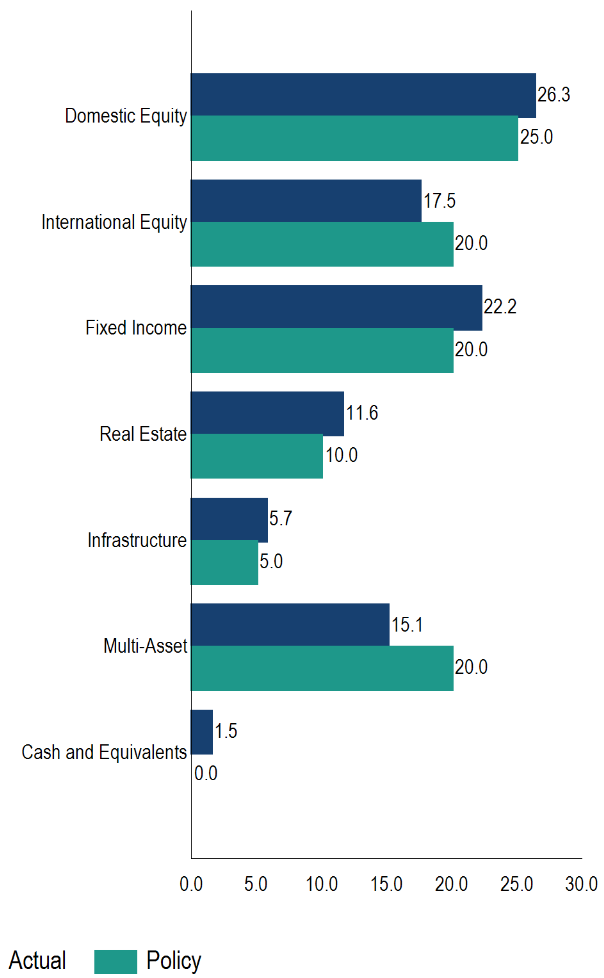
Period Ending: September 30, 2019

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
BlackRock Equity Index NL	$33,391,402	$0	$0	$0	$571,003	$33,962,405
INTECH US Adaptive Volatility	$32,562,476	$0	$0	$0	$1,174,538	$33,737,014
PanAgora US Small Cap Core Stock Selector	$14,848,085	$0	$0	$0	-$195,172	$14,652,913
WCM Focused International Growth Fund, L.P.	$32,734,797	$0	$0	$0	-$146,791	$32,588,006
Causeway International Value Ins	$18,802,658	$3,748,183	$0	$3,748,183	-$299,520	$22,251,322
Brandes International Small Cap Equity	$6,007,275	$0	-$5,766,071	-$5,766,071	-$241,204	--
Loomis Sayles Core Plus	$67,958,757	$0	$0	$0	$1,474,536	$69,433,293
ASB Allegiance Real Estate	$26,563,621	$0	-$5,066,372	-$5,066,372	-$118,567	$21,378,682
Invesco Real Estate II	$42,450	$0	-$41,114	-$41,114	-$1,336	--
JPMorgan Special Situation Property	$14,557,232	$0	-$57,732	-$57,732	$389,478	$14,888,978
IFM Global Infrastructure (US) LP	$9,680,497	$0	$0	$0	$213,398	$9,893,895
JPMorgan IIF ERISA LP	$8,227,723	$0	-$200,299	-$200,299	$46,636	$8,074,060
Invesco Balanced-Risk Allocation	$46,790,261	$0	$0	$0	$427,030	$47,217,291
US Bank Checking Account	$1,926,348	$9,099,918	-$8,904,580	$195,338	$0	$2,121,686
US Bank Clearing Account	$2,576,305	$7,700,746	-$7,690,691	$10,055	$0	$2,586,360
Total	**$316,669,887**	**$20,548,848**	**-$27,726,860**	**-$7,178,012**	**$3,294,029**	**$312,785,905**

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. Grosvenor Institutional liquidated 4/30/2018. Brandes International Small Cap Equity liquidated 8/31/2019. Invesco Real Estate II liquidated 9/1/2019.

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	**312,785,905**	**100.0**	**1.0**	**12.2**	**4.4**	**7.2**	**6.0**	**7.8**
Total Fund Policy Index			*1.0*	*12.9*	*5.0*	*7.0*	*5.7*	*7.2*
Target Asset Allocation Policy Index			*1.0*	*13.1*	*5.0*	*7.7*	*6.7*	*8.0*
InvMetrics Tft-Hrtly DB $250mm-$1B Net Rank			*13*	*29*	*10*	*72*	*66*	*67*
Total Domestic Equity	**82,352,332**	**26.3**	**1.9**	**19.8**	**1.6**	**11.9**	**10.0**	**12.8**
Dow Jones U.S. Total Stock Market			*1.1*	*20.1*	*2.8*	*12.8*	*10.4*	*13.1*
InvMetrics Tft-Hrtly DB US Eq Net Rank			*3*	*45*	*51*	*55*	*35*	*20*
Total International Equity	**54,839,328**	**17.5**	**-1.2**	**15.7**	**0.8**	**7.3**	**3.4**	**3.9**
Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)			*-1.7*	*11.4*	*-1.8*	*6.1*	*3.0*	*4.3*
InvMetrics Tft-Hrtly DB ex-US Eq Net Rank			*17*	*9*	*12*	*11*	*23*	*75*
Total Fixed Income	**69,433,293**	**22.2**	**2.1**	**8.9**	**9.0**	**4.2**	**3.9**	**5.6**
Total Fixed Income Benchmark (BBgBarc Aggregate)			*2.3*	*8.5*	*10.3*	*2.9*	*3.4*	*3.7*
InvMetrics Tft-Hrtly DB US Fix Inc Net Rank			*19*	*19*	*23*	*18*	*19*	*9*
Total Real Estate	**36,267,660**	**11.6**	**0.6**	**3.4**	**5.0**	**5.7**	**8.0**	**10.2**
NCREIF ODCE Net			*1.1*	*3.1*	*4.6*	*6.4*	*8.4*	*9.8*
Total Infrastructure	**17,967,955**	**5.7**	**1.4**	**6.4**	**7.5**	**11.1**	**7.9**	**7.8**
CPI + 5%			*1.5*	*6.0*	*6.8*	*7.2*	*6.6*	*6.8*
Total Multi-Asset	**47,217,291**	**15.1**	**0.8**	**12.0**	**6.4**	**4.9**	**5.1**	**7.0**
60% MSCI ACWI Net/40% FTSE WGBI			*0.4*	*12.4*	*4.4*	*6.4*	*4.9*	*5.9*
eV Global Balanced Net Rank			*52*	*54*	*37*	*91*	*58*	*41*
Total Cash	**4,708,046**	**1.5**	**0.0**	**0.0**	**0.0**	**-0.3**	**-2.0**	**--**

Actual vs Target Allocation (%)



Policy Index: 45% MSCI World, 25% BBgBarc Aggregate, 10% NCREIF-ODCE net, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Data prior to 3Q 2015 is from previous consultant.

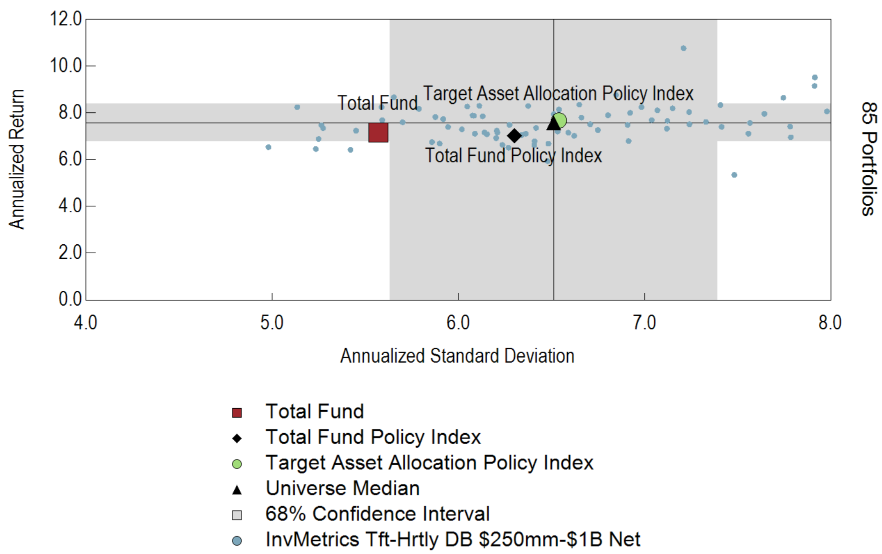
3 Year

	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	5.57%	0.14%	1.07%	0.87	0.96	89.70%	78.80%	0.10	1.38%	1.01
Total Fund Policy Index	6.30%	0.00%	0.00%	1.00	1.00	100.00%	100.00%	--	0.00%	0.87
Target Asset Allocation Policy Index	6.54%	0.65%	0.43%	1.03	0.99	106.54%	100.82%	0.85	0.77%	0.94

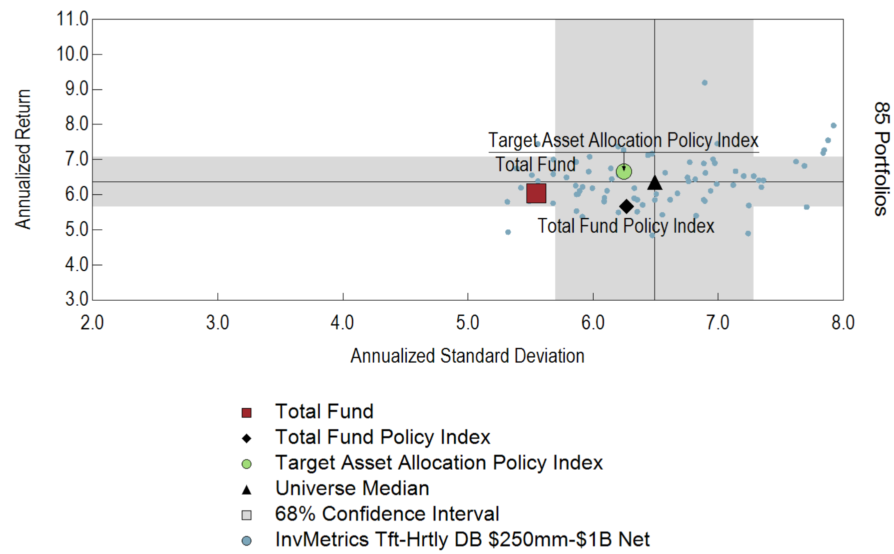
5 Year

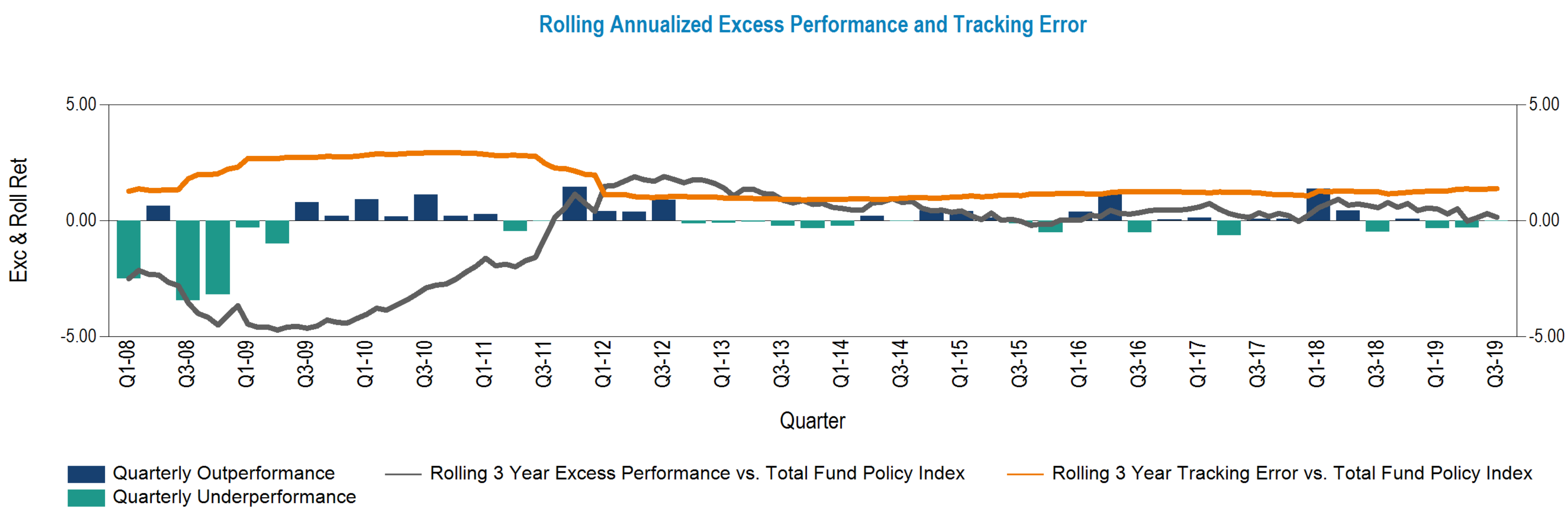
	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	5.55%	0.37%	1.12%	0.87	0.96	90.00%	80.55%	0.27	1.37%	0.91
Total Fund Policy Index	6.27%	0.00%	0.00%	1.00	1.00	100.00%	100.00%	--	0.00%	0.75
Target Asset Allocation Policy Index	6.25%	0.99%	1.06%	0.99	0.98	105.06%	92.05%	1.13	0.88%	0.91

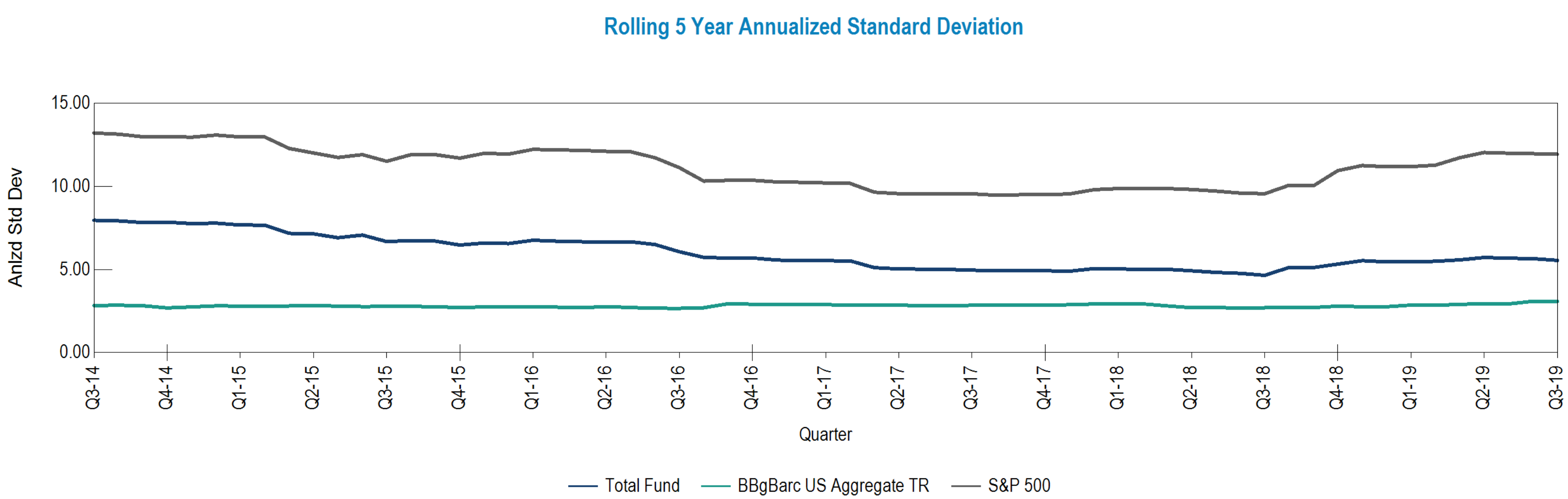
3 Year



5 Year




Rolling Annualized Excess Performance and Tracking Error
Exc & Roll Ret
Track Err
5.00
0.00
-5.00
Q1-08
Q3-08
Q1-09
Q3-09
Q1-10
Q3-10
Q1-11
Q3-11
Q1-12
Q3-12
Q1-13
Q3-13
Q1-14
Q3-14
Q1-15
Q3-15
Q1-16
Q3-16
Q1-17
Q3-17
Q1-18
Q3-18
Q1-19
Q3-19
Quarter
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. Total Fund Policy Index
Rolling 3 Year Tracking Error vs. Total Fund Policy Index


Rolling 5 Year Annualized Standard Deviation
Anlzd Std Dev
15.00
10.00
5.00
0.00
Q3-14
Q4-14
Q1-15
Q2-15
Q3-15
Q4-15
Q1-16
Q2-16
Q3-16
Q4-16
Q1-17
Q2-17
Q3-17
Q4-17
Q1-18
Q2-18
Q3-18
Q4-18
Q1-19
Q2-19
Q3-19
Quarter
Total Fund
BBgBarc US Aggregate TR
S&P 500

Total Fund
Executive Summary (Net of Fees)

Period Ending: September 30, 2019

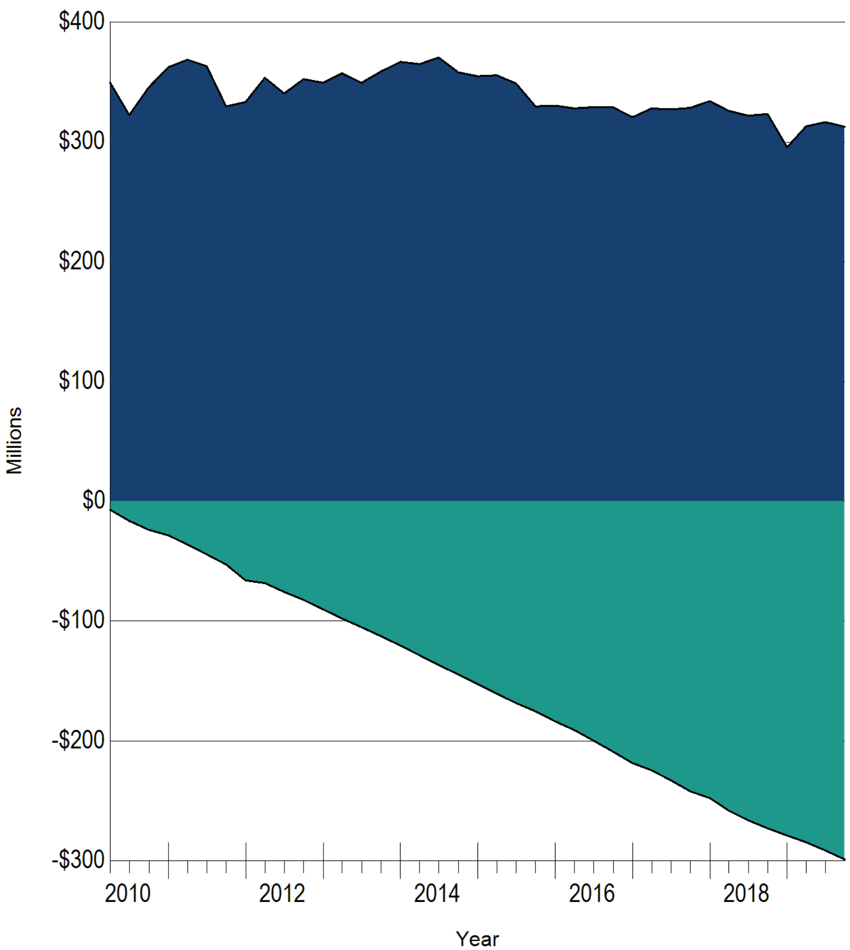
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	**312,785,905**	**100.0**	**1.0**	**12.2**	**4.4**	**7.2**	**6.0**	**7.8**	**-3.2**	**13.0**	**6.9**	**0.9**	**5.1**
Total Fund Policy Index			*1.0*	*12.9*	*5.0*	*7.0*	*5.7*	*7.2*	*-4.5*	*13.5*	*5.8*	*1.1*	*4.7*
Target Asset Allocation Policy Index			*1.0*	*13.1*	*5.0*	*7.7*	*6.7*	*8.0*	*-3.2*	*13.7*	*7.2*	*1.3*	*7.1*
InvMetrics Tft-Hrtly DB $250mm-$1B Net Rank			*13*	*29*	*10*	*72*	*66*	*67*	*45*	*64*	*80*	*38*	*70*
Domestic Equity	**82,352,332**	**26.3**											
BlackRock Equity Index NL	33,962,405	10.9	1.7	20.6	4.3	13.4	10.8	--	-4.4	21.8	11.9	1.3	13.8
S&P 500			*1.7*	*20.6*	*4.3*	*13.4*	*10.8*	*--*	*-4.4*	*21.8*	*12.0*	*1.4*	*13.7*
eV US Large Cap Core Equity Net Rank			*50*	*39*	*40*	*28*	*21*	*--*	*32*	*46*	*21*	*37*	*33*
INTECH US Adaptive Volatility	33,737,014	10.8	3.6	21.1	5.6	--	--	--	--	--	--	--	--
Russell 1000			*1.4*	*20.5*	*3.9*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
eV US Large Cap Core Equity Net Rank			*11*	*34*	*32*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
PanAgora US Small Cap Core Stock Selector	14,652,913	4.7	-1.5	15.2	-10.3	8.0	--	--	-9.2	10.8	20.3	--	--
Russell 2000			*-2.4*	*14.2*	*-8.9*	*8.2*	*--*	*--*	*-11.0*	*14.6*	*21.3*	*--*	*--*
eV US Small Cap Core Equity Net Rank			*53*	*48*	*70*	*53*	*--*	*--*	*36*	*83*	*41*	*--*	*--*
International Equity	**54,839,328**	**17.5**											
WCM Focused International Growth Fund, L.P.	32,588,006	10.4	-0.4	23.6	8.4	11.8	--	--	-7.4	31.1	--	--	--
MSCI ACWI ex USA			*-1.8*	*11.6*	*-1.2*	*6.3*	*--*	*--*	*-14.2*	*27.2*	*--*	*--*	*--*
eV ACWI ex-US All Cap Growth Eq Net Rank			*14*	*2*	*2*	*17*	*--*	*--*	*1*	*71*	*--*	*--*	*--*
Causeway International Value Ins	22,251,322	7.1	-2.3	7.9	-8.0	3.9	--	--	-18.6	27.2	--	--	--
MSCI EAFE			*-1.1*	*12.8*	*-1.3*	*6.5*	*--*	*--*	*-13.8*	*25.0*	*--*	*--*	*--*
Foreign Large Value MStar MF Rank			*72*	*66*	*73*	*58*	*--*	*--*	*91*	*14*	*--*	*--*	*--*
Fixed Income	**69,433,293**	**22.2**											
Loomis Sayles Core Plus	69,433,293	22.2	2.1	8.9	9.0	--	--	--	-0.4	--	--	--	--
BBgBarc US Aggregate TR			*2.3*	*8.5*	*10.3*	*--*	*--*	*--*	*0.0*	*--*	*--*	*--*	*--*
eV US Core Plus Fixed Inc Net Rank			*70*	*65*	*86*	*--*	*--*	*--*	*40*	*--*	*--*	*--*	*--*
Real Estate	**36,267,660**	**11.6**											
ASB Allegiance Real Estate	21,378,682	6.8	-0.6	2.9	4.4	4.8	--	--	7.1	3.9	4.5	--	--
NCREIF ODCE Net			*1.1*	*3.1*	*4.6*	*6.4*	*--*	*--*	*7.4*	*6.7*	*7.8*	*--*	*--*
JPMorgan Special Situation Property	14,888,978	4.8	2.3	3.9	5.9	7.7	--	--	9.6	7.9	8.7	18.9	--
NCREIF-ODCE			*1.3*	*3.8*	*5.6*	*7.3*	*--*	*--*	*8.3*	*7.6*	*8.8*	*15.0*	*--*

Policy Index: 45% MSCI World, 25% BBgBarc Aggregate, 10% NCREIF-ODCE net, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. Grosvenor Institutional liquidated 4/30/2018. Brandes International Small Cap Equity liquidated 8/31/2019. Invesco Real Estate II liquidated 9/1/2019. Data prior to 3Q 2015 is from previous consultant.

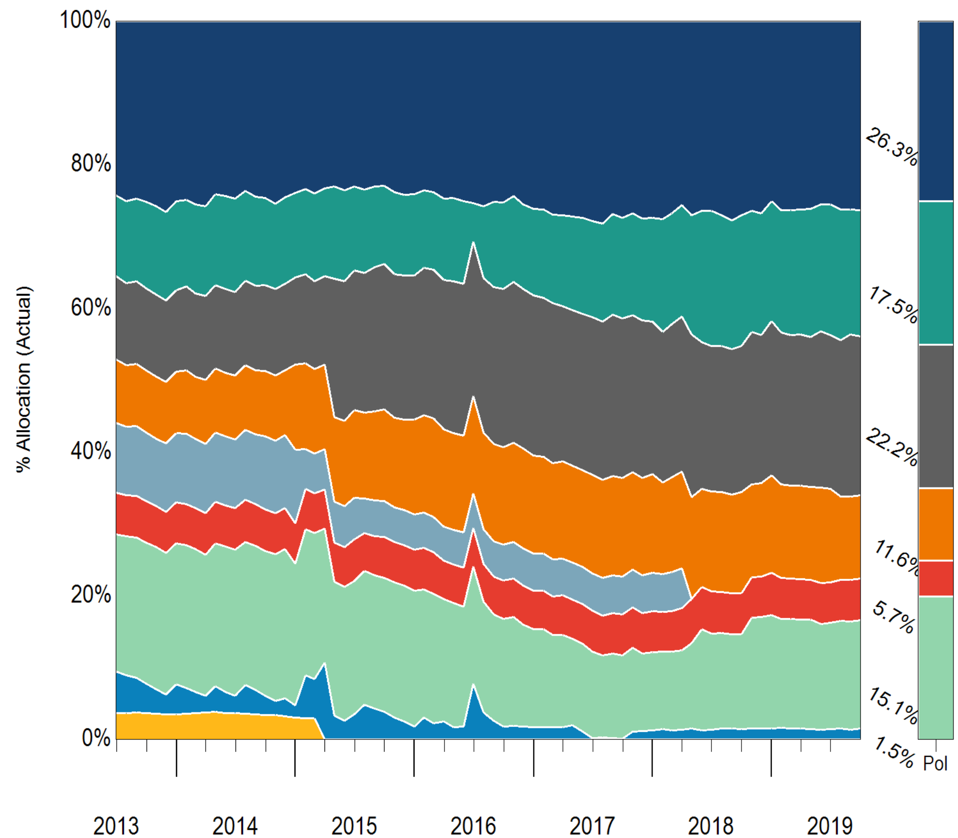
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Infrastructure	**17,967,955**	**5.7**											
IFM Global Infrastructure (US) LP	9,893,895	3.2	2.2	8.9	10.3	15.2	10.8	9.9	15.8	21.1	6.1	5.2	1.3
CPI + 5%			*1.5*	*6.0*	*6.8*	*7.2*	*6.6*	*6.8*	*7.0*	*7.2*	*7.2*	*5.8*	*5.8*
JPMorgan IIF ERISA LP	8,074,060	2.6	0.4	3.5	4.4	6.5	4.6	--	4.2	14.2	1.2	3.4	-1.6
CPI + 5%			*1.5*	*6.0*	*6.8*	*7.2*	*6.6*	*--*	*7.0*	*7.2*	*7.2*	*5.8*	*5.8*
Multi-Asset	**47,217,291**	**15.1**											
Invesco Balanced-Risk Allocation	47,217,291	15.1	0.8	12.0	6.4	4.9	5.2	--	-5.8	10.5	12.2	-3.5	6.3
60% MSCI ACWI Net/40% FTSE WGBI			*0.4*	*12.4*	*4.4*	*6.4*	*4.9*	*--*	*-5.8*	*17.1*	*5.5*	*-2.6*	*2.3*
FTSE 3-Month T-bill +6%			*2.0*	*6.3*	*8.5*	*7.6*	*7.0*	*--*	*8.0*	*6.9*	*6.3*	*6.0*	*6.0*
eV Global Balanced Net Rank			*52*	*54*	*37*	*91*	*55*	*--*	*22*	*99*	*19*	*74*	*37*
Cash and Equivalents	**4,708,046**	**1.5**											
US Bank Checking Account	2,121,686	0.7											
US Bank Clearing Account	2,586,360	0.8											

Policy Index: 45% MSCI World, 25% BBgBarc Aggregate, 10% NCREIF-ODCE, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. Grosvenor Institutional liquidated 4/30/2018. Brandes International Small Cap Equity liquidated 8/31/2019. Invesco Real Estate II liquidated 9/1/2019. Data prior to 3Q 2015 is from previous consultant.

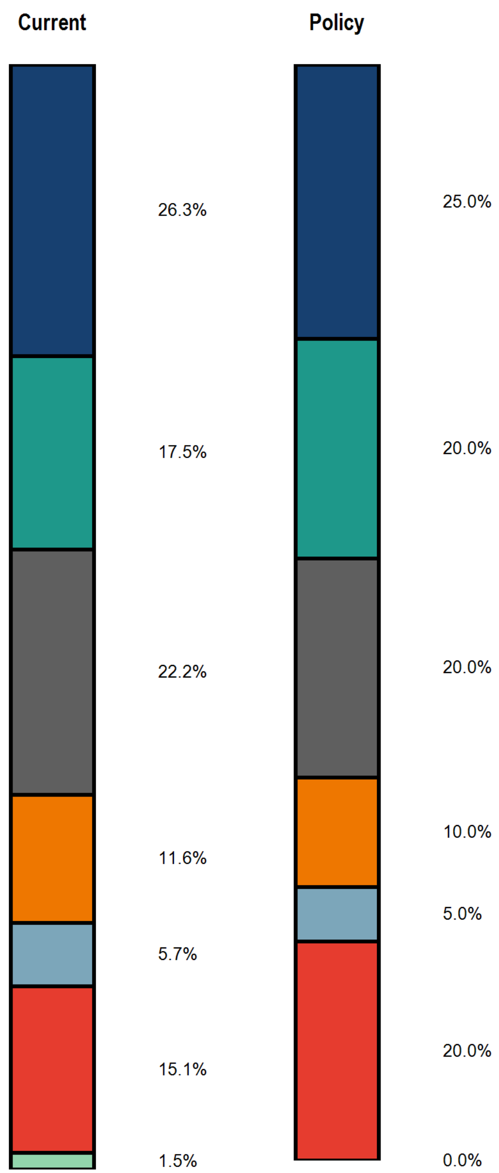
Market Value History



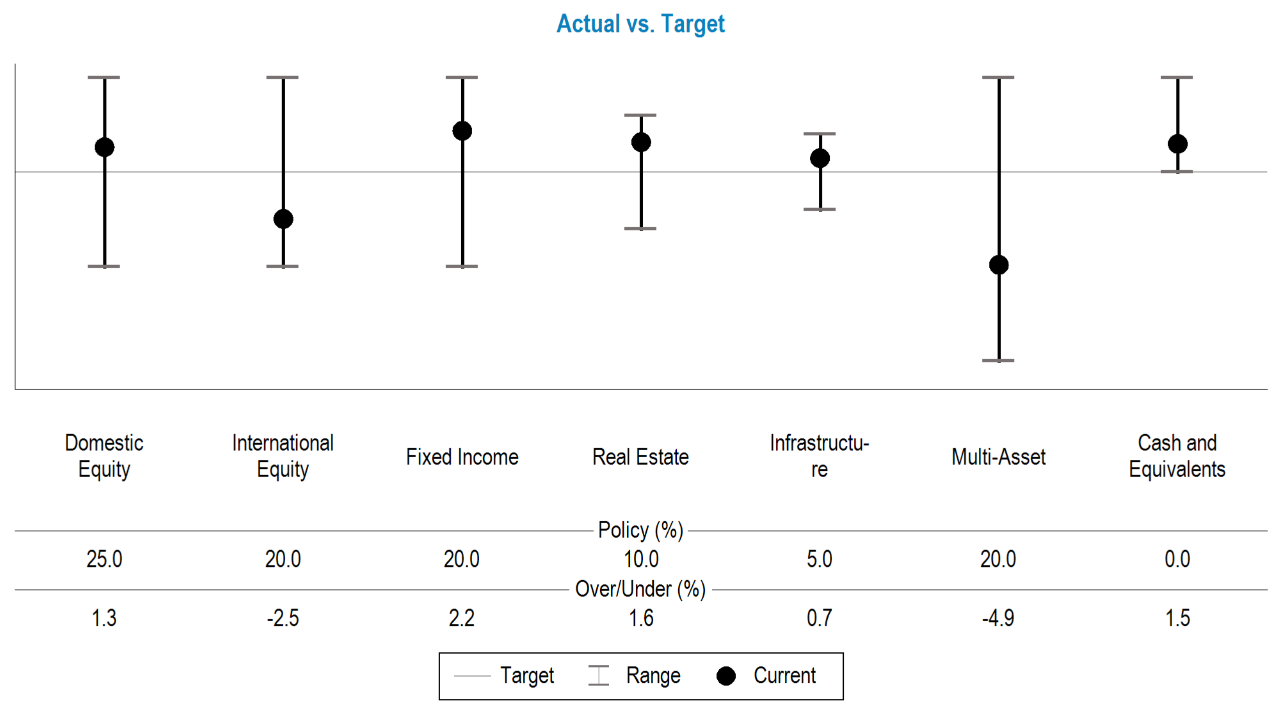
Asset Allocation History



Net cash flow is cumulative.



	Current	%	Policy	Difference	Policy Range	Within Range
Domestic Equity	$82,352,332	26.3%	25.0%	$4,155,856	20.0% - 30.0%	Yes
International Equity	$54,839,328	17.5%	20.0%	-$7,717,853	15.0% - 25.0%	Yes
Fixed Income	$69,433,293	22.2%	20.0%	$6,876,112	15.0% - 25.0%	Yes
Real Estate	$36,267,660	11.6%	10.0%	$4,989,070	7.0% - 13.0%	Yes
Infrastructure	$17,967,955	5.7%	5.0%	$2,328,660	3.0% - 7.0%	Yes
Multi-Asset	$47,217,291	15.1%	20.0%	-$15,339,890	10.0% - 25.0%	Yes
Cash and Equivalents	$4,708,046	1.5%	0.0%	$4,708,046	0.0% - 5.0%	Yes
Total	**$312,785,905**	**100.0%**	**100.0%**			



Investment Fund Fee Analysis

Period Ending: September 30, 2019

Name	Asset Class	Fee Schedule	Market Value	% of Portfolio	Estimated Fee Value	Estimated Fee
BlackRock Equity Index NL	Domestic Equity	0.03% of Assets	$33,962,405	10.9%	$10,189	0.03%
INTECH US Adaptive Volatility	Domestic Equity	0.40% of Assets	$33,737,014	10.8%	$134,948	0.40%
PanAgora US Small Cap Core Stock Selector	Domestic Equity	0.85% of Assets	$14,652,913	4.7%	$124,550	0.85%
WCM Focused International Growth Fund, L.P.	International Equity	0.75% of Assets	$32,588,006	10.4%	$244,410	0.75%
Causeway International Value Ins	International Equity	0.88% of Assets	$22,251,322	7.1%	$195,812	0.88%
Loomis Sayles Core Plus	Fixed Income	0.35% of First 20.0 Mil, 0.25% Thereafter	$69,433,293	22.2%	$193,583	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	$21,378,682	6.8%	$219,908	1.03%
JPMorgan Special Situation Property	Real Estate	1.60% of Assets	$14,888,978	4.8%	$238,224	1.60%
IFM Global Infrastructure (US) LP	Infrastructure	0.77% of Assets	$9,893,895	3.2%	$76,183	0.77%
JPMorgan IIF ERISA LP	Infrastructure	1.25% of First 50.0 Mil, 1.15% of Next 50.0 Mil, 1.05% Thereafter	$8,074,060	2.6%	$100,926	1.25%
Invesco Balanced-Risk Allocation	Multi-Asset	0.38% of First 250.0 Mil, 0.35% of Next 500.0 Mil, 0.33% of Next 250.0 Mil, 0.30% Thereafter	$47,217,291	15.1%	$177,065	0.38%
US Bank Checking Account	Cash and Equivalents		$2,121,686	0.7%		
US Bank Clearing Account	Cash and Equivalents		$2,586,360	0.8%		
Total			**$312,785,905**	**100.0%**	**$1,715,797**	**0.55%**

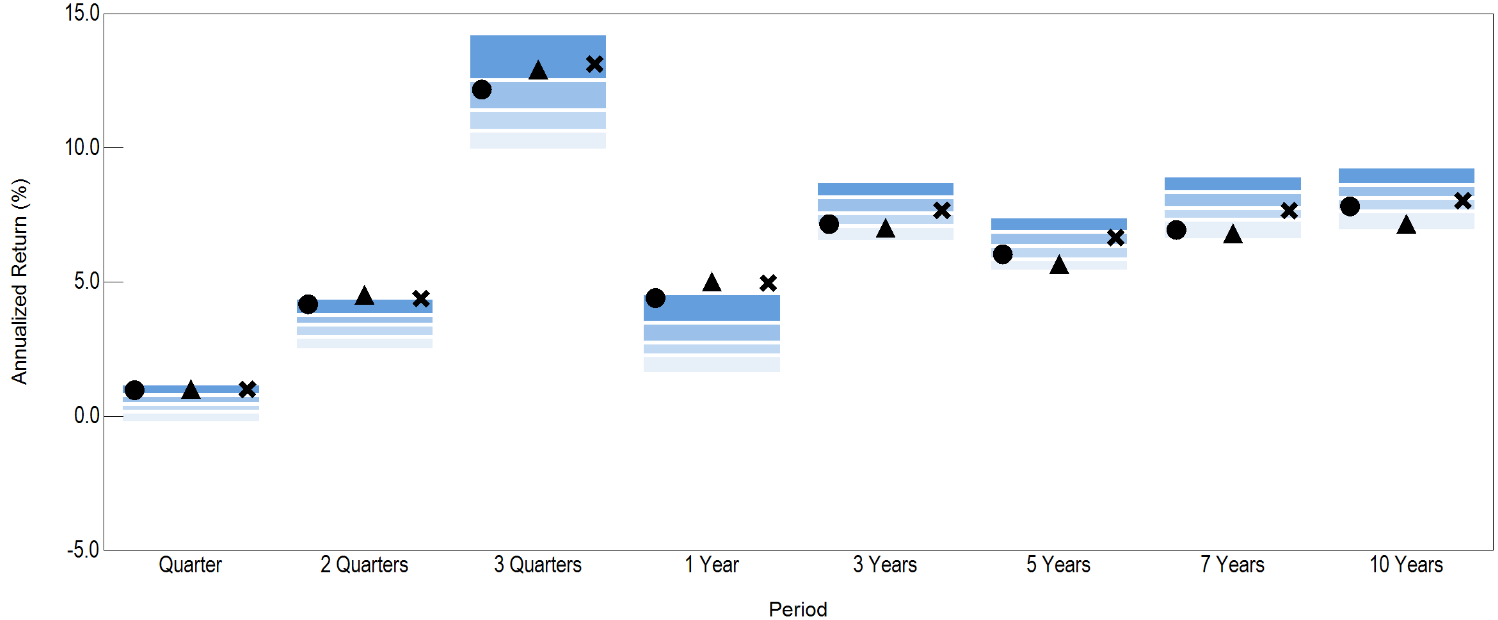
Total Fund
Watch List (Net of Fees)

Period Ending: September 30, 2019

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 Adaptive Volatility	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	⚑	⚑	--	--	--	--
Loomis Sayles Core Plus	Fixed Income	No Issues	--	--	--	--	--	--
ASB Allegiance Real Estate	Real Estate	No Issues	⚑	--	--	--	--	--
JPMorgan Special Situation Property	Real Estate	No Issues	✓	--	--	--	--	--
IFM Global Infrastructure (US) LP	Infrastructure	No Issues	✓	--	✓	--	--	--
JPMorgan IIF ERISA LP	Infrastructure	No Issues	⚑	--	⚑	--	--	--
Invesco Balanced-Risk Allocation	Multi-Asset	No Issues	⚑	⚑	✓	⚑	--	--

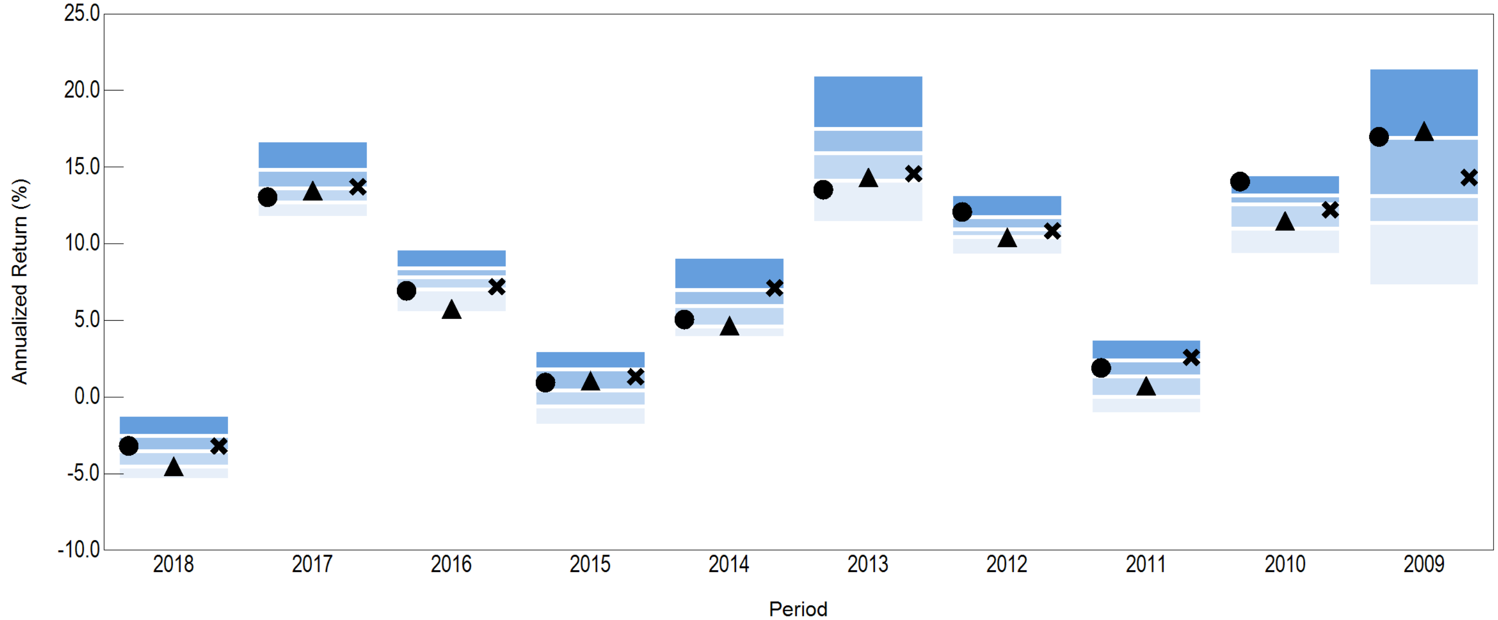
Rule 1 - Manager has underperformed the benchmark index for the three year period.
Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the three year period.
Rule 3 - Manager has underperformed the benchmark index for the five year period.
Rule 4 - Manager has 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.

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



	Return (Rank)															
5th Percentile	1.2		4.4		14.3		4.6		8.7		7.4		9.0		9.3	
25th Percentile	0.8		3.8		12.5		3.5		8.2		6.9		8.4		8.6	
Median	0.5		3.4		11.4		2.8		7.6		6.4		7.8		8.2	
75th Percentile	0.2		3.0		10.7		2.3		7.1		5.9		7.3		7.6	
95th Percentile	-0.2		2.5		9.9		1.6		6.5		5.4		6.6		6.9	
# of Portfolios	88		88		88		88		85		85		83		73	
● Total Fund	1.0	(13)	4.2	(10)	12.2	(29)	4.4	(10)	7.2	(72)	6.0	(66)	6.9	(87)	7.8	(67)
▲ Total Fund Policy Index	1.0	(12)	4.5	(2)	12.9	(16)	5.0	(2)	7.0	(81)	5.7	(88)	6.8	(90)	7.2	(91)
✕ Target Asset Allocation Policy Index	1.0	(12)	4.4	(6)	13.1	(13)	5.0	(2)	7.7	(46)	6.7	(31)	7.7	(60)	8.0	(54)

Total Fund Consecutive Periods vs. InvMetrics Tft-Hrtly DB $250mm-$1B Net



Return (Rank)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
5th Percentile	-1.2	16.7	9.7	3.0	9.1	21.0	13.2	3.8	14.5	21.5
25th Percentile	-2.5	14.9	8.4	1.8	7.0	17.5	11.8	2.4	13.2	16.9
Median	-3.5	13.6	7.8	0.4	6.0	15.9	11.0	1.4	12.6	13.1
75th Percentile	-4.5	12.7	7.0	-0.6	4.6	14.2	10.4	0.0	11.0	11.4
95th Percentile	-5.4	11.7	5.5	-1.9	3.9	11.4	9.3	-1.1	9.3	7.2
# of Portfolios	84	69	56	58	55	49	37	34	32	31
● Total Fund	-3.2 (45)	13.0 (64)	6.9 (80)	0.9 (38)	5.1 (70)	13.5 (79)	12.1 (20)	1.9 (40)	14.1 (10)	17.0 (25)
▲ Total Fund Policy Index	-4.5 (75)	13.5 (51)	5.8 (93)	1.1 (37)	4.7 (75)	14.3 (70)	10.4 (79)	0.7 (60)	11.5 (66)	17.4 (24)
✕ Target Asset Allocation Policy Index	-3.2 (45)	13.7 (46)	7.2 (69)	1.3 (36)	7.1 (21)	14.6 (66)	10.8 (63)	2.6 (20)	12.2 (58)	14.3 (44)

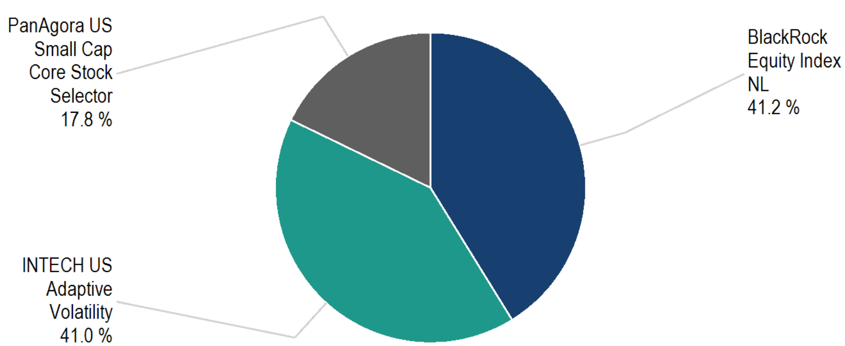
Domestic Equity

Total Domestic Equity
Performance Summary (Net of Fees)

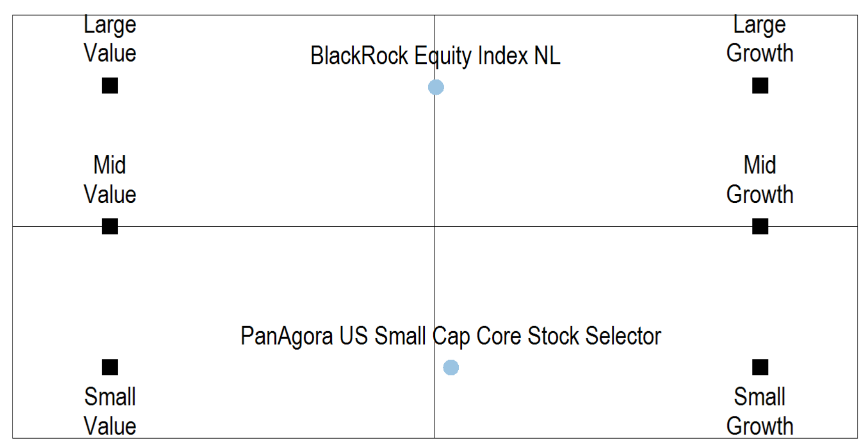
Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	**82,352,332**	**100.0**	**1.9**	**19.8**	**1.6**	**11.9**	**10.0**	**12.8**	**-5.9**	**19.4**	**11.5**	**0.7**	**12.5**
Dow Jones U.S. Total Stock Market			*1.1*	*20.1*	*2.8*	*12.8*	*10.4*	*13.1*	*-5.3*	*21.2*	*12.6*	*0.4*	*12.5*
InvMetrics Tft-Hrtly DB US Eq Net Rank			*3*	*45*	*51*	*55*	*35*	*20*	*34*	*71*	*61*	*30*	*10*
Domestic Equity	**82,352,332**	**100.0**											
BlackRock Equity Index NL	33,962,405	41.2	1.7	20.6	4.3	13.4	10.8	--	-4.4	21.8	11.9	1.3	13.8
S&P 500			*1.7*	*20.6*	*4.3*	*13.4*	*10.8*	*--*	*-4.4*	*21.8*	*12.0*	*1.4*	*13.7*
eV US Large Cap Core Equity Net Rank			*50*	*39*	*40*	*28*	*21*	*--*	*32*	*46*	*21*	*37*	*33*
INTECH US Adaptive Volatility	33,737,014	41.0	3.6	21.1	5.6	--	--	--	--	--	--	--	--
Russell 1000			*1.4*	*20.5*	*3.9*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
eV US Large Cap Core Equity Net Rank			*11*	*34*	*32*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
PanAgora US Small Cap Core Stock Selector	14,652,913	17.8	-1.5	15.2	-10.3	8.0	--	--	-9.2	10.8	20.3	--	--
Russell 2000			*-2.4*	*14.2*	*-8.9*	*8.2*	*--*	*--*	*-11.0*	*14.6*	*21.3*	*--*	*--*
eV US Small Cap Core Equity Net Rank			*53*	*48*	*70*	*53*	*--*	*--*	*36*	*83*	*41*	*--*	*--*

Total Domestic Equity
Current Allocation

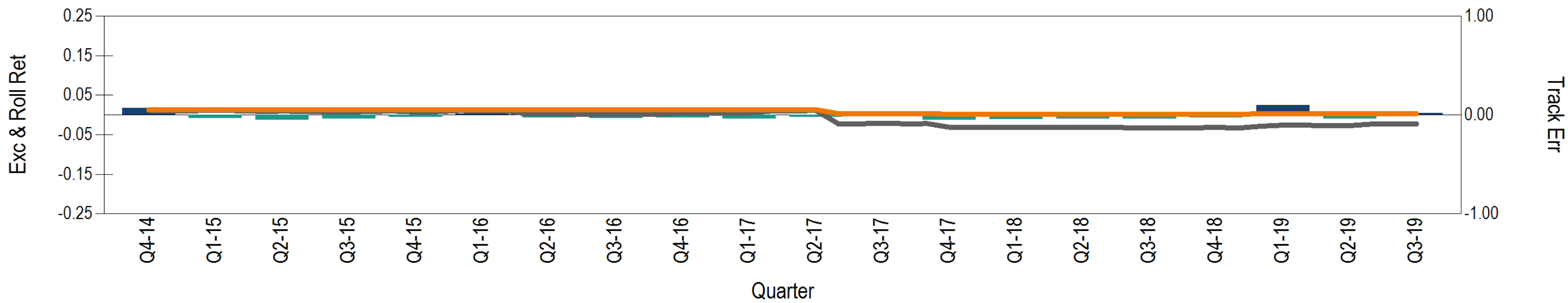


Domestic Effective Style Map
3 Years

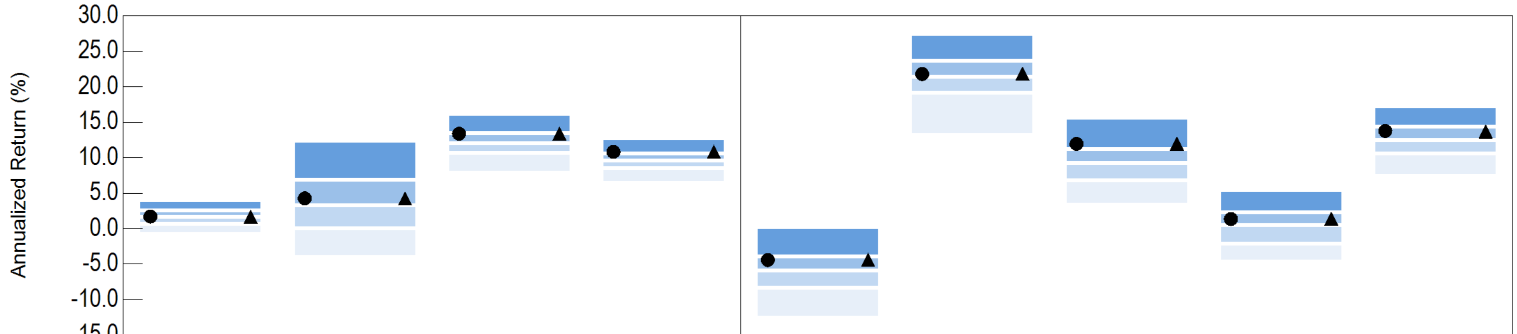


Style map requires 3 years of returns. INTECH US Adaptive Volatility replaced INTECH US Managed Volatility on 8/3/2018.

Rolling Annualized Excess Performance and Tracking Error

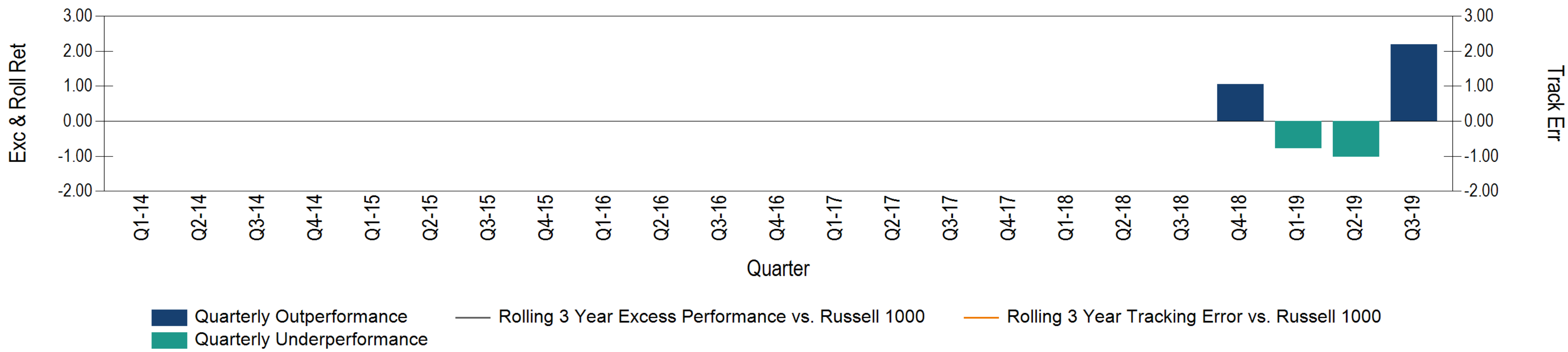


BlackRock Equity Index NL vs. eV US Large Cap Core Equity Net Universe

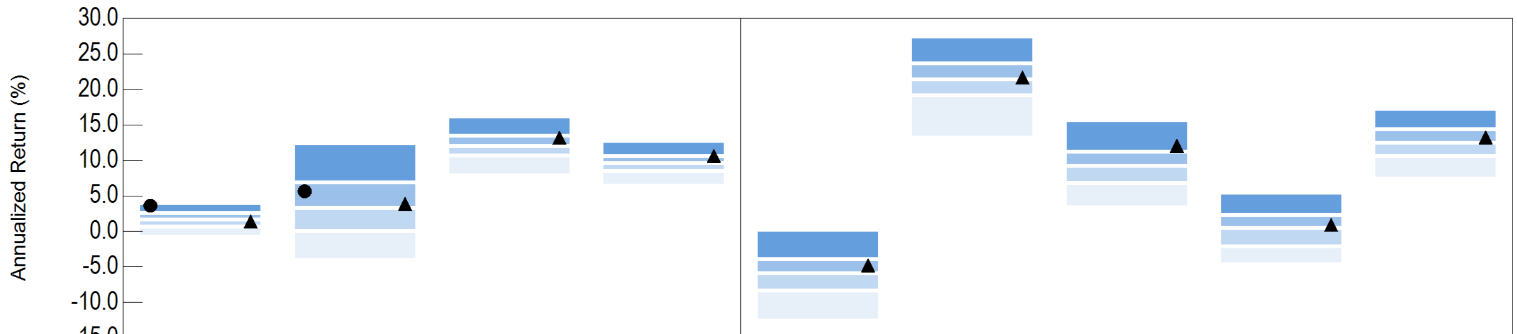


Return (Rank)	Quarter		1 Year		3 Years		5 Years		2018		2017		2016		2015		2014	
5th Percentile	3.9		12.3		16.1		12.7		0.1		27.4		15.6		5.4		17.2	
25th Percentile	2.6		6.9		13.5		10.6		-3.8		23.7		11.3		2.4		14.4	
Median	1.7		3.3		12.1		9.7		-5.8		21.4		9.3		0.6		12.5	
75th Percentile	0.7		0.1		10.7		8.5		-8.3		19.2		6.9		-2.0		10.6	
95th Percentile	-0.8		-4.0		8.0		6.5		-12.5		13.2		3.4		-4.6		7.5	
# of Portfolios	191		190		183		168		189		188		177		142		140	
● BlackRock Equity Index NL	1.7	(50)	4.3	(40)	13.4	(28)	10.8	(21)	-4.4	(32)	21.8	(46)	11.9	(21)	1.3	(37)	13.8	(33)
▲ S&P 500	1.7	(51)	4.3	(40)	13.4	(28)	10.8	(21)	-4.4	(32)	21.8	(46)	12.0	(21)	1.4	(37)	13.7	(33)

Rolling Annualized Excess Performance and Tracking Error

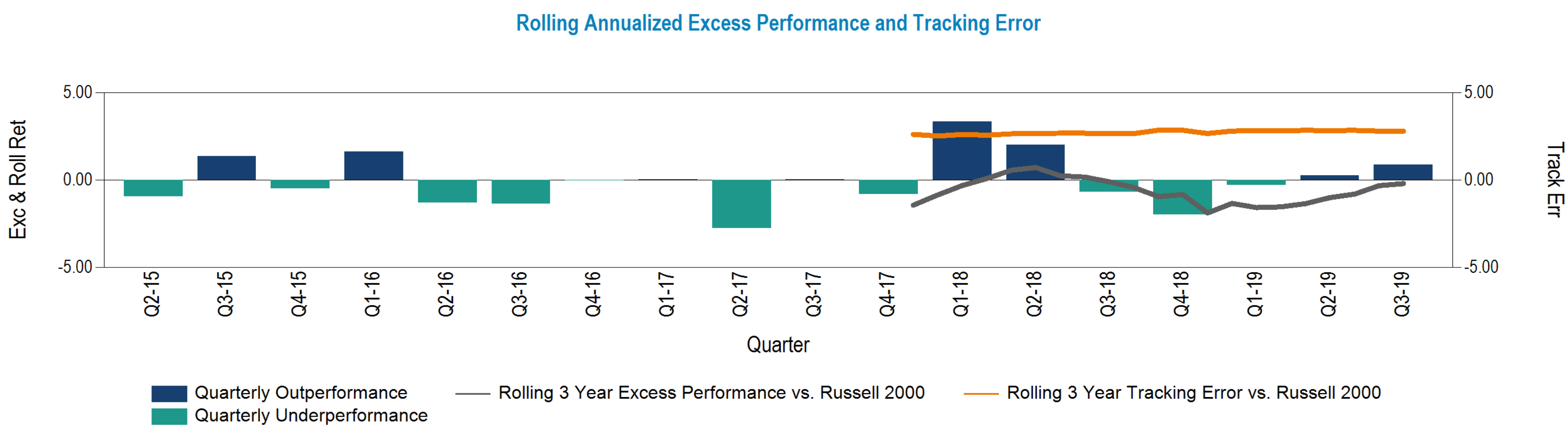


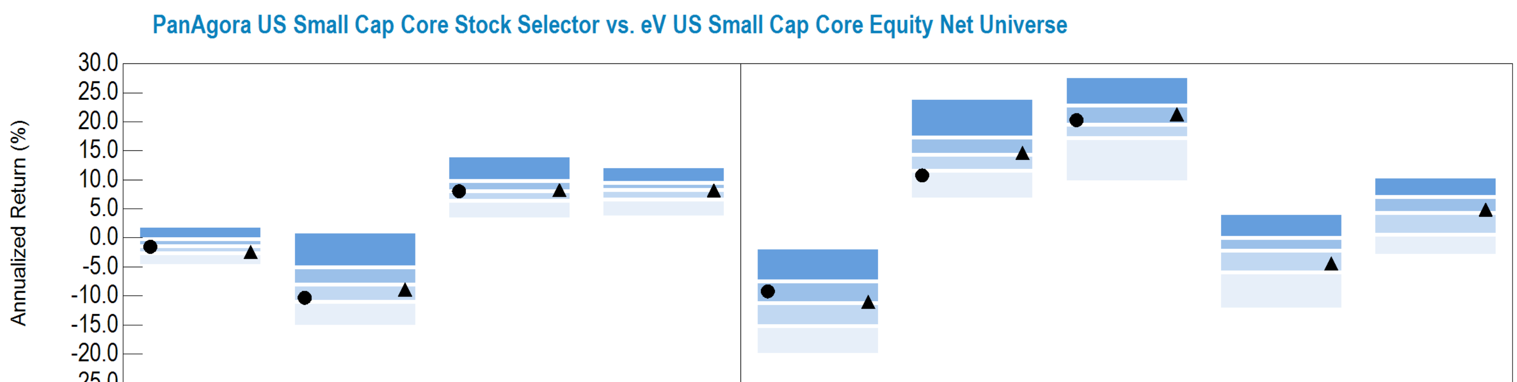
INTECH US Adaptive Volatility vs. eV US Large Cap Core Equity Net Universe



	Quarter		1 Year		3 Years		5 Years		2018		2017		2016		2015		2014	
	Return (Rank)																	
5th Percentile	3.9		12.3		16.1		12.7		0.1		27.4		15.6		5.4		17.2	
25th Percentile	2.6		6.9		13.5		10.6		-3.8		23.7		11.3		2.4		14.4	
Median	1.7		3.3		12.1		9.7		-5.8		21.4		9.3		0.6		12.5	
75th Percentile	0.7		0.1		10.7		8.5		-8.3		19.2		6.9		-2.0		10.6	
95th Percentile	-0.8		-4.0		8.0		6.5		-12.5		13.2		3.4		-4.6		7.5	
# of Portfolios	191		190		183		168		189		188		177		142		140	
● **INTECH US Adaptive Volatility**	3.6	(11)	5.6	(32)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ **Russell 1000**	1.4	(59)	3.9	(45)	13.2	(29)	10.6	(26)	-4.8	(37)	21.7	(47)	12.1	(20)	0.9	(47)	13.2	(39)

INTECH US Adaptive Volatility replaced INTECH US Managed Volatility on 8/3/2018.





Return (Rank)	Quarter		1 Year		3 Years		5 Years		2018		2017		2016		2015		2014	
5th Percentile	2.0		1.1		14.1		12.2		-1.8		24.1		27.8		4.2		10.5	
25th Percentile	-0.2		-5.0		9.8		9.5		-7.5		17.3		22.8		0.1		7.2	
Median	-1.4		-8.0		8.1		8.3		-11.1		14.4		19.5		-2.1		4.4	
75th Percentile	-2.6		-10.9		6.4		6.7		-15.1		11.6		17.3		-5.9		0.6	
95th Percentile	-4.8		-15.2		3.2		3.5		-20.1		6.7		9.7		-12.3		-3.1	
# of Portfolios	107		107		101		98		113		106		99		88		77	
● PanAgora US Small Cap Core Stock Selector	-1.5	(53)	-10.3	(70)	8.0	(53)	--	(--)	-9.2	(36)	10.8	(83)	20.3	(41)	--	(--)	--	(--)
▲ Russell 2000	-2.4	(72)	-8.9	(59)	8.2	(47)	8.2	(52)	-11.0	(50)	14.6	(46)	21.3	(34)	-4.4	(71)	4.9	(47)

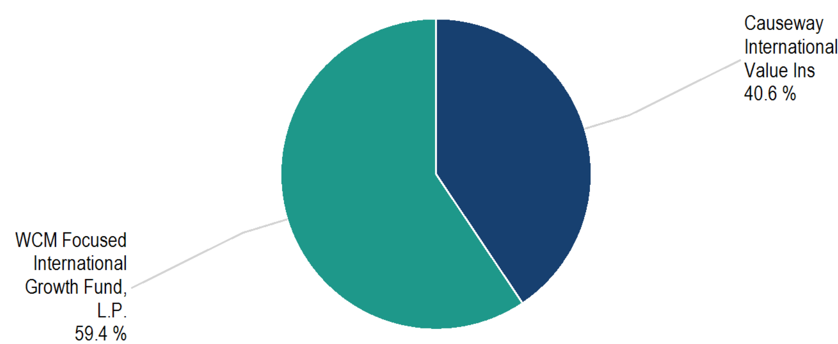
International Equity

Total International Equity
Performance Summary (Net of Fees)

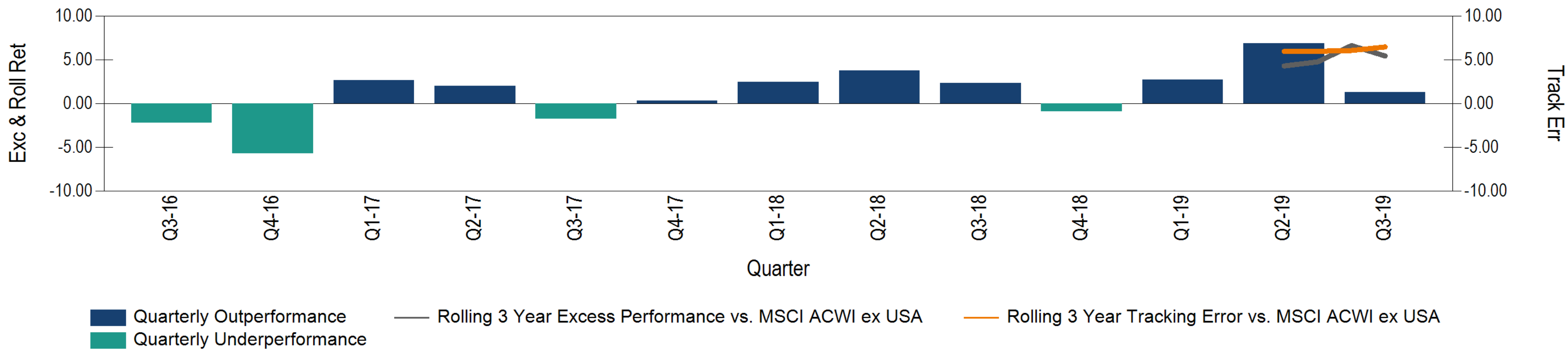
Period Ending: September 30, 2019

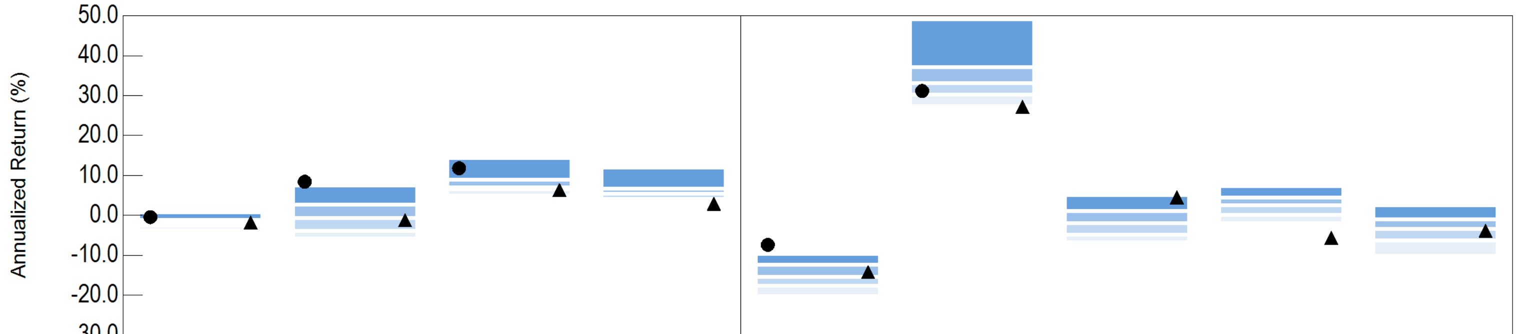
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	**54,839,328**	**100.0**	**-1.2**	**15.7**	**0.8**	**7.3**	**3.4**	**3.9**	**-13.0**	**26.6**	**0.9**	**-4.5**	**-3.8**
Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)			*-1.7*	*11.4*	*-1.8*	*6.1*	*3.0*	*4.3*	*-14.8*	*27.8*	*4.4*	*-4.6*	*-3.9*
InvMetrics Tft-Hrtly DB ex-US Eq Net Rank			*17*	*9*	*12*	*11*	*23*	*75*	*14*	*71*	*82*	*51*	*59*
International Equity	**54,839,328**	**100.0**											
WCM Focused International Growth Fund, L.P.	32,588,006	59.4	-0.4	23.6	8.4	11.8	--	--	-7.4	31.1	--	--	--
MSCI ACWI ex USA			*-1.8*	*11.6*	*-1.2*	*6.3*	*--*	*--*	*-14.2*	*27.2*	*--*	*--*	*--*
eV ACWI ex-US All Cap Growth Eq Net Rank			*14*	*2*	*2*	*17*	*--*	*--*	*1*	*71*	*--*	*--*	*--*
Causeway International Value Ins	22,251,322	40.6	-2.3	7.9	-8.0	3.9	--	--	-18.6	27.2	--	--	--
MSCI EAFE			*-1.1*	*12.8*	*-1.3*	*6.5*	*--*	*--*	*-13.8*	*25.0*	*--*	*--*	*--*
Foreign Large Value MStar MF Rank			*72*	*66*	*73*	*58*	*--*	*--*	*91*	*14*	*--*	*--*	*--*

Total International Equity
Current Allocation



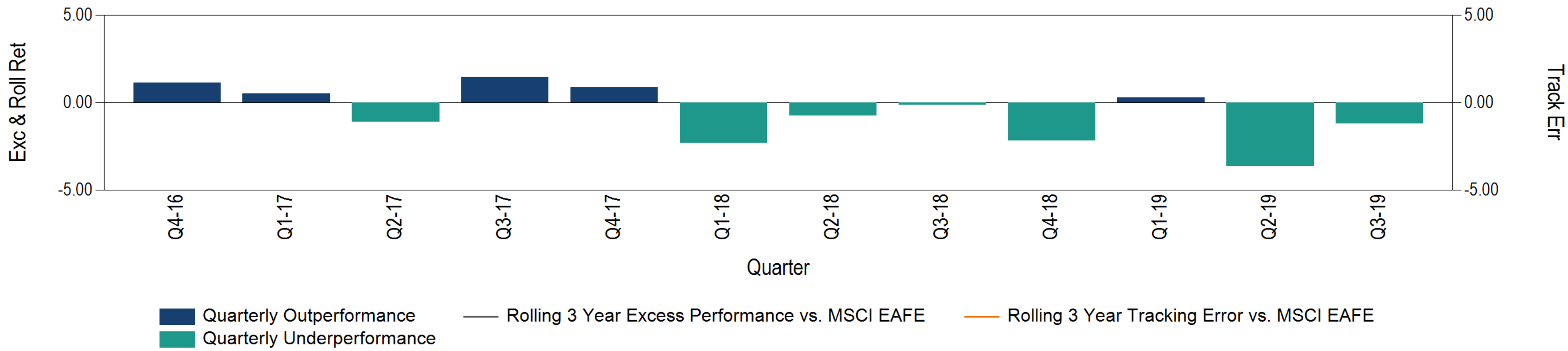
Invesco Real Estate II liquidated 9/1/2019.



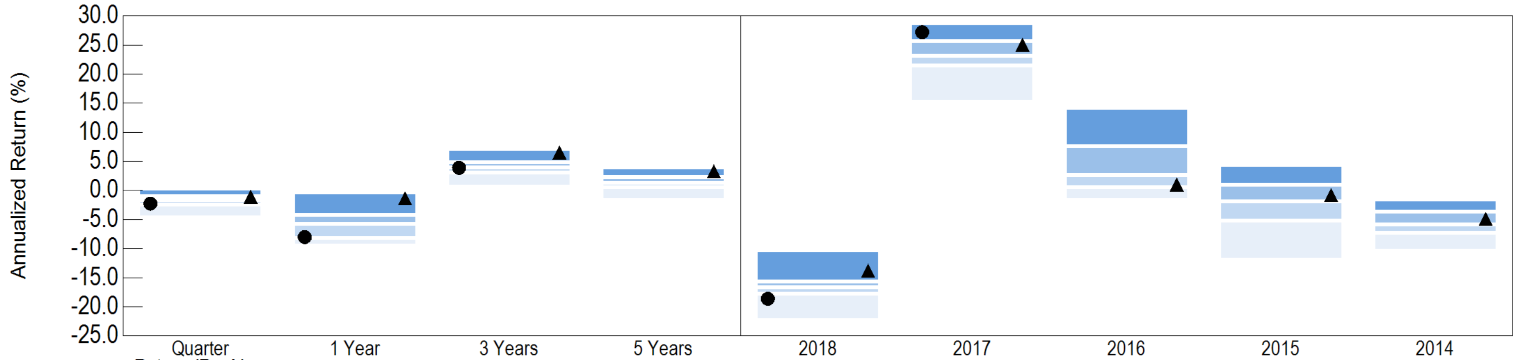


	Quarter		1 Year		3 Years		5 Years		2018		2017		2016		2015		2014	
	Return (Rank)																	
5th Percentile	0.7		7.5		14.3		11.9		-9.7		49.1		5.0		7.2		2.5	
25th Percentile	-1.1		2.8		9.0		6.8		-12.3		37.2		1.2		4.5		-0.9	
Median	-1.9		-0.6		7.1		5.5		-15.3		33.2		-2.0		2.5		-3.4	
75th Percentile	-2.6		-3.8		6.6		4.1		-17.5		30.4		-4.7		0.2		-6.3	
95th Percentile	-3.6		-5.7		5.0		3.7		-20.2		27.5		-6.6		-1.9		-10.1	
# of Portfolios	28		28		26		25		26		27		25		18		16	
● WCM Focused International Growth Fund, L.P	-0.4	(14)	8.4	(2)	11.8	(17)	--	(--)	-7.4	(1)	31.1	(71)	--	(--)	--	(--)	--	(--)
▲ MSCI ACWI ex USA	-1.8	(46)	-1.2	(61)	6.3	(83)	2.9	(97)	-14.2	(49)	27.2	(96)	4.5	(8)	-5.7	(99)	-3.9	(57)

Rolling Annualized Excess Performance and Tracking Error



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

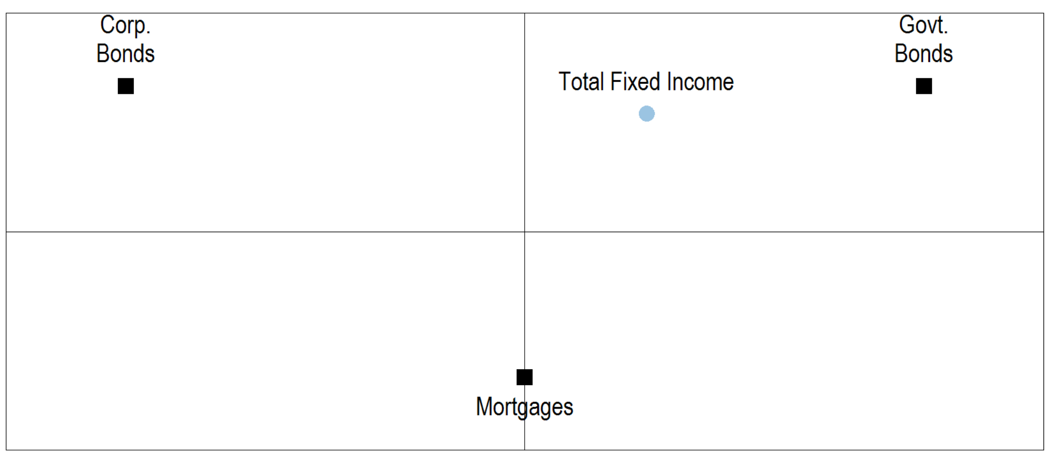


	Quarter		1 Year		3 Years		5 Years		2018		2017		2016		2015		2014	
	Return (Rank)																	
5th Percentile	0.2		-0.4		7.1		4.0		-10.4		28.7		14.1		4.4		-1.5	
25th Percentile	-0.9		-4.2		4.9		2.3		-15.6		25.7		7.7		1.1		-3.6	
Median	-1.6		-5.7		4.0		1.4		-16.5		23.2		2.7		-1.8		-5.7	
75th Percentile	-2.4		-8.2		3.1		0.6		-17.7		21.5		0.6		-5.1		-7.2	
95th Percentile	-4.5		-9.4		0.8		-1.6		-22.2		15.3		-1.6		-11.9		-10.3	
# of Portfolios	85		84		79		71		74		74		78		76		73	
● Causeway International Value Ins	-2.3	(72)	-8.0	(73)	3.9	(58)	--	(--)	-18.6	(91)	27.2	(14)	--	(--)	--	(--)	--	(--)
▲ MSCI EAFE	-1.1	(28)	-1.3	(11)	6.5	(9)	3.3	(14)	-13.8	(17)	25.0	(30)	1.0	(69)	-0.8	(43)	-4.9	(36)

Domestic Fixed Income

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	**69,433,293**	**100.0**	**2.1**	**8.9**	**9.0**	**4.2**	**3.9**	**5.6**	**-0.4**	**5.6**	**7.5**	**-2.1**	**5.9**
Total Fixed Income Benchmark (BBgBarc Aggregate)			*2.3*	*8.5*	*10.3*	*2.9*	*3.4*	*3.7*	*0.0*	*3.5*	*2.6*	*0.5*	*6.0*
InvMetrics Tft-Hrtly DB US Fix Inc Net Rank			*19*	*19*	*23*	*18*	*19*	*9*	*75*	*18*	*9*	*93*	*10*
Fixed Income	**69,433,293**	**100.0**											
Loomis Sayles Core Plus	69,433,293	100.0	2.1	8.9	9.0	--	--	--	-0.4	--	--	--	--
BBgBarc US Aggregate TR			*2.3*	*8.5*	*10.3*	--	--	--	*0.0*	--	--	--	--
eV US Core Plus Fixed Inc Net Rank			*70*	*65*	*86*	--	--	--	*40*	--	--	--	--

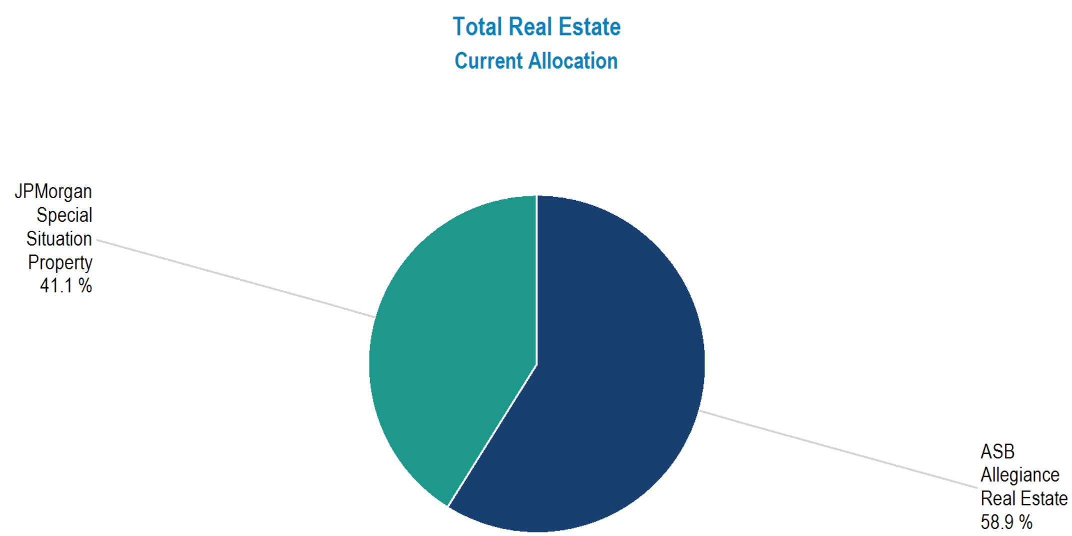
Fixed Income Style Map
3 Years



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

Alternatives

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Real Estate	**36,267,660**	**100.0**	**0.6**	**3.4**	**5.0**	**5.7**	**8.0**	**10.2**	**7.8**	**5.0**	**5.4**	**16.9**	**11.2**
NCREIF ODCE Net			*1.1*	*3.1*	*4.6*	*6.4*	*8.4*	*9.8*	*7.4*	*6.7*	*7.8*	*13.9*	*11.5*
Real Estate	**36,267,660**	**100.0**											
ASB Allegiance Real Estate	21,378,682	58.9	-0.6	2.9	4.4	4.8	--	--	7.1	3.9	4.5	--	--
NCREIF ODCE Net			*1.1*	*3.1*	*4.6*	*6.4*	*--*	*--*	*7.4*	*6.7*	*7.8*	*--*	*--*
JPMorgan Special Situation Property	14,888,978	41.1	2.3	3.9	5.9	7.7	--	--	9.6	7.9	8.7	18.9	--
NCREIF-ODCE			*1.3*	*3.8*	*5.6*	*7.3*	*--*	*--*	*8.3*	*7.6*	*8.8*	*15.0*	*--*



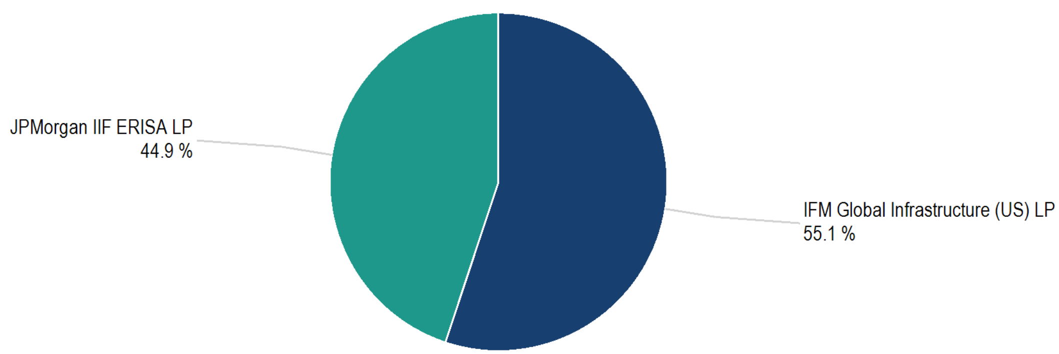
Invesco Real Estate II liquidated 9/1/2019.

Total Infrastructure
Performance Summary (Net of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Infrastructure	**17,967,955**	**100.0**	**1.4**	**6.4**	**7.5**	**11.1**	**7.9**	**7.8**	**10.2**	**17.9**	**3.8**	**4.2**	**-0.3**
CPI + 5%			*1.5*	*6.0*	*6.8*	*7.2*	*6.6*	*6.8*	*7.0*	*7.2*	*7.2*	*5.8*	*5.8*
Infrastructure	**17,967,955**	**100.0**											
IFM Global Infrastructure (US) LP	9,893,895	55.1	2.2	8.9	10.3	15.2	10.8	9.9	15.8	21.1	6.1	5.2	1.3
CPI + 5%			*1.5*	*6.0*	*6.8*	*7.2*	*6.6*	*6.8*	*7.0*	*7.2*	*7.2*	*5.8*	*5.8*
JPMorgan IIF ERISA LP	8,074,060	44.9	0.4	3.5	4.4	6.5	4.6	--	4.2	14.2	1.2	3.4	-1.6
CPI + 5%			*1.5*	*6.0*	*6.8*	*7.2*	*6.6*	*--*	*7.0*	*7.2*	*7.2*	*5.8*	*5.8*

Total Infrastructure
Current Allocation



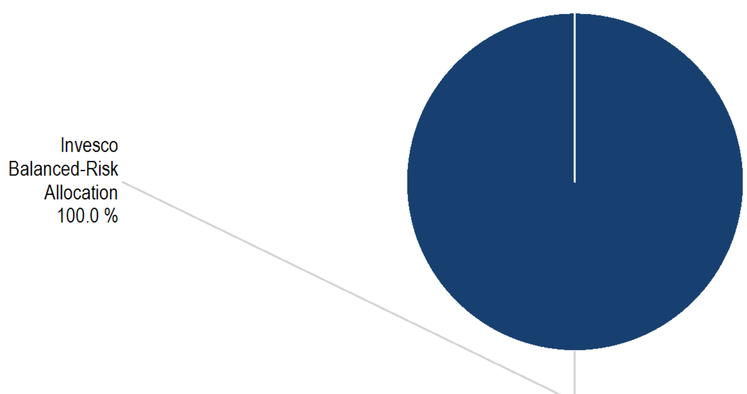
JP Morgan IIF ERISA market value as of 3/31/2018.

Total Multi-Asset
Performance Summary (Net of Fees)

Period Ending: September 30, 2019

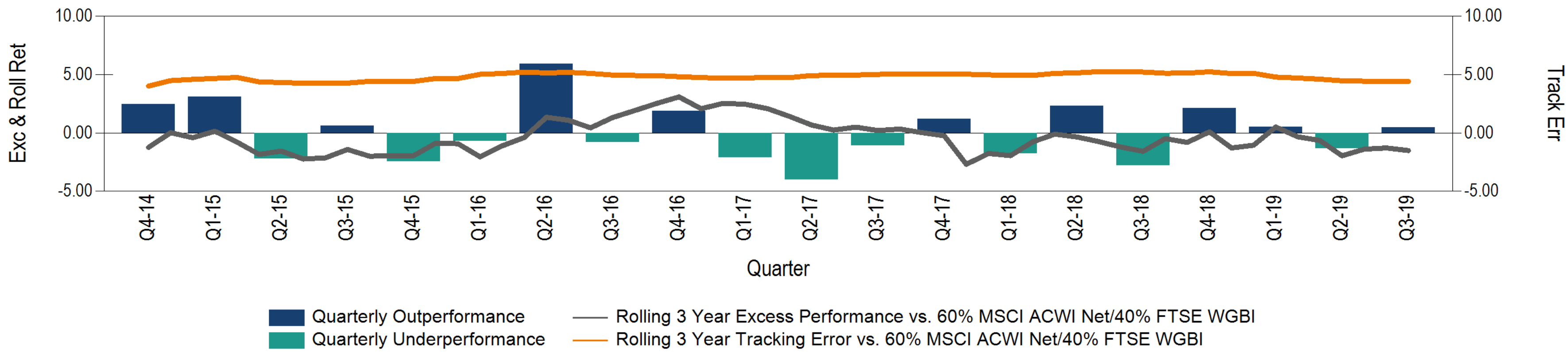
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Multi-Asset	**47,217,291**	**100.0**	**0.8**	**12.0**	**6.4**	**4.9**	**5.1**	**7.0**	**-5.8**	**10.6**	**7.4**	**-1.0**	**6.7**
60% MSCI ACWI Net/40% FTSE WGBI			*0.4*	*12.4*	*4.4*	*6.4*	*4.9*	*5.9*	*-5.8*	*17.1*	*5.5*	*-2.6*	*2.3*
eV Global Balanced Net Rank			*52*	*54*	*37*	*91*	*58*	*41*	*22*	*99*	*54*	*38*	*31*
Multi-Asset	**47,217,291**	**100.0**											
Invesco Balanced-Risk Allocation	47,217,291	100.0	0.8	12.0	6.4	4.9	5.2	--	-5.8	10.5	12.2	-3.5	6.3
60% MSCI ACWI Net/40% FTSE WGBI			*0.4*	*12.4*	*4.4*	*6.4*	*4.9*	*--*	*-5.8*	*17.1*	*5.5*	*-2.6*	*2.3*
FTSE 3-Month T-bill +6%			*2.0*	*6.3*	*8.5*	*7.6*	*7.0*	*--*	*8.0*	*6.9*	*6.3*	*6.0*	*6.0*
eV Global Balanced Net Rank			*52*	*54*	*37*	*91*	*55*	*--*	*22*	*99*	*19*	*74*	*37*

Total Multi-Asset
Current Allocation

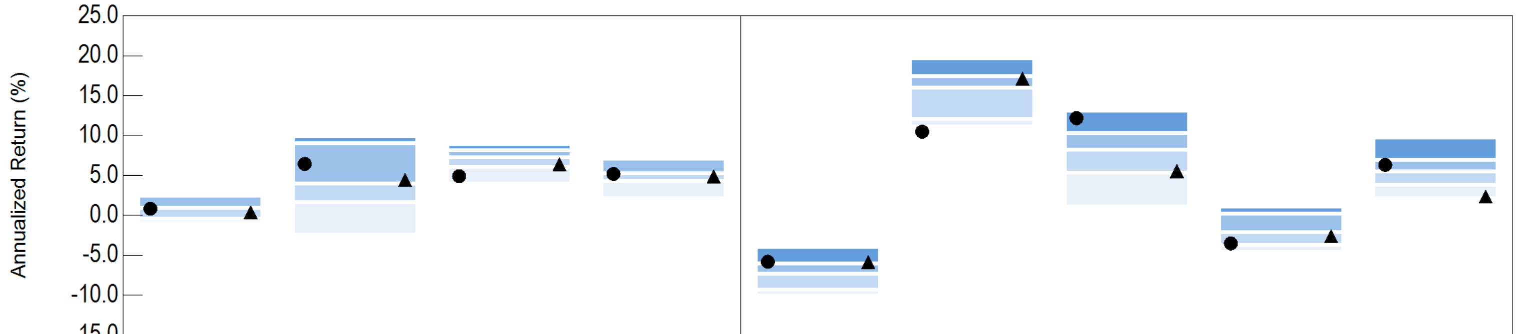


Mellon Dynamic liquidated 5/5/2017.

Rolling Annualized Excess Performance and Tracking Error



Invesco Balanced-Risk Allocation vs. eV Global Balanced Net Universe



Return (Rank)	Quarter		1 Year		3 Years		5 Years		2018		2017		2016		2015		2014	
5th Percentile	2.5		9.9		8.9		7.5		-4.0		19.6		13.1		1.1		9.7	
25th Percentile	2.5		9.0		8.2		7.2		-6.0		17.5		10.3		0.2		7.0	
Median	1.0		4.0		7.3		5.3		-7.3		16.1		8.2		-2.0		5.6	
75th Percentile	-0.4		1.7		6.1		4.4		-9.3		12.2		5.4		-3.7		3.9	
95th Percentile	-0.9		-2.4		4.0		2.2		-10.0		11.1		1.1		-4.6		2.2	
# of Portfolios	8		8		8		8		10		9		13		13		14	
● Invesco Balanced-Risk Allocation	0.8	(52)	6.4	(37)	4.9	(91)	5.2	(55)	-5.8	(22)	10.5	(99)	12.2	(19)	-3.5	(74)	6.3	(37)
▲ 60% MSCI ACWI Net/40% FTSE WGBI	0.4	(55)	4.4	(45)	6.4	(68)	4.9	(63)	-5.8	(22)	17.1	(29)	5.5	(68)	-2.6	(64)	2.3	(94)

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

Manager	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
BlackRock Equity Index NL	4/30/2010	BlackRock	JPMorgan SSP	12/31/2014	JP Morgan
INTECH US Adaptive Volatility	8/3/2018	INTECH	IFM Global Infrastructure (US) LP	1/31/2009	IFM
PanAgora US Small Cap	1/31/2015	PanAgora	JPMorgan IIF ERISA LP	9/30/2010	JP Morgan
WCM Focused International Growth	7/1/2016	WCM	Invesco Balanced-Risk Allocation	1/31/2010	Invesco
Causeway International Value	7/27/2016	US Bank	US Bank Checking Account	N/A	US Bank
Loomis Sayles Core Plus	3/21/2017	Loomis Sayles	US Bank Clearing Account	N/A	US Bank
ASB Allegiance Real Estate	3/31/2015	ASB			

Policy & Custom Index Composition

Policy Index:	45% MSCI World, 25% BBgBarc Aggregate, 10% NCREIF-ODCE Net, 20% (60%MSCI ACWI Net/40% CITI WGBI)
Target Asset Allocation Policy:	25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60%MSCI ACWI Net/40% CITI WGBI).

Glossary

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: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - 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: excess return divided by 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: Portfolio Excess Return / 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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