

2018 Q2 INVESTMENT SUMMARY: BOARD REPORT

MODOT & PATROL EMPLOYEES' RETIREMENT SYSTEM

August, 2018

Kevin Leonard, Partner

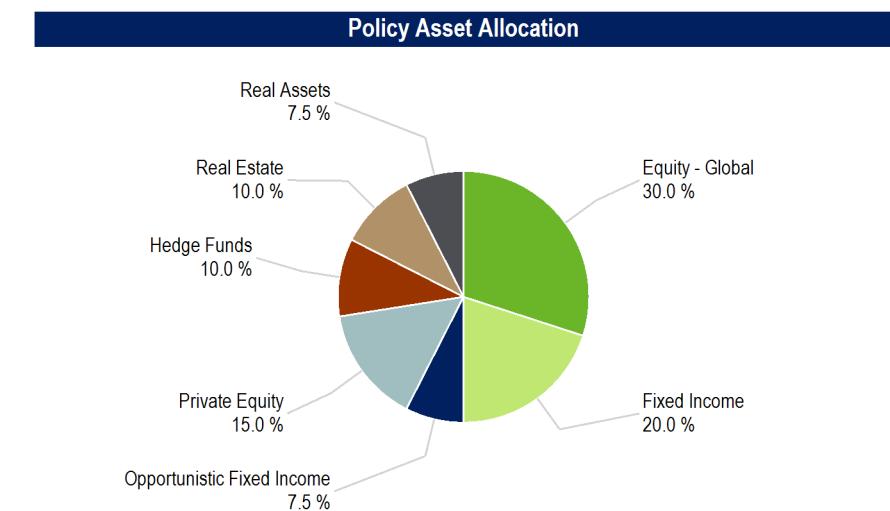
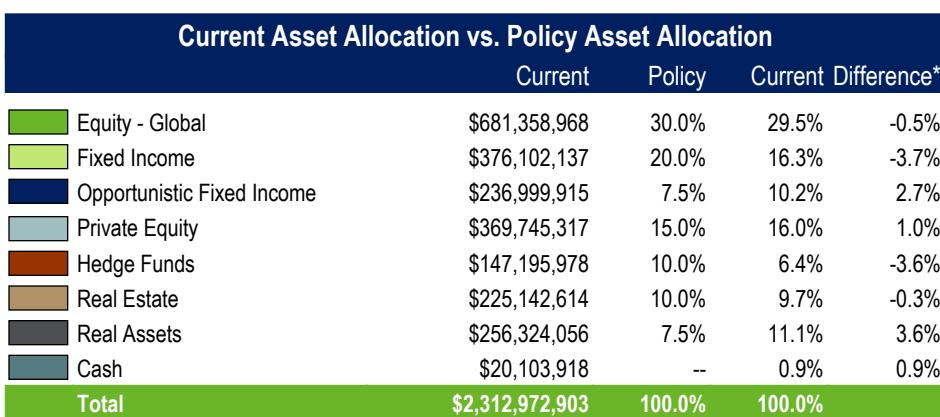
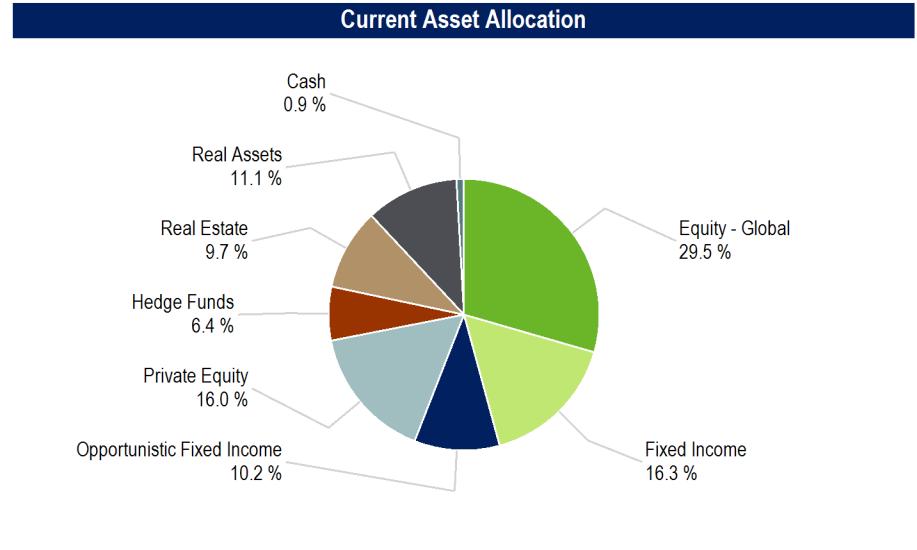
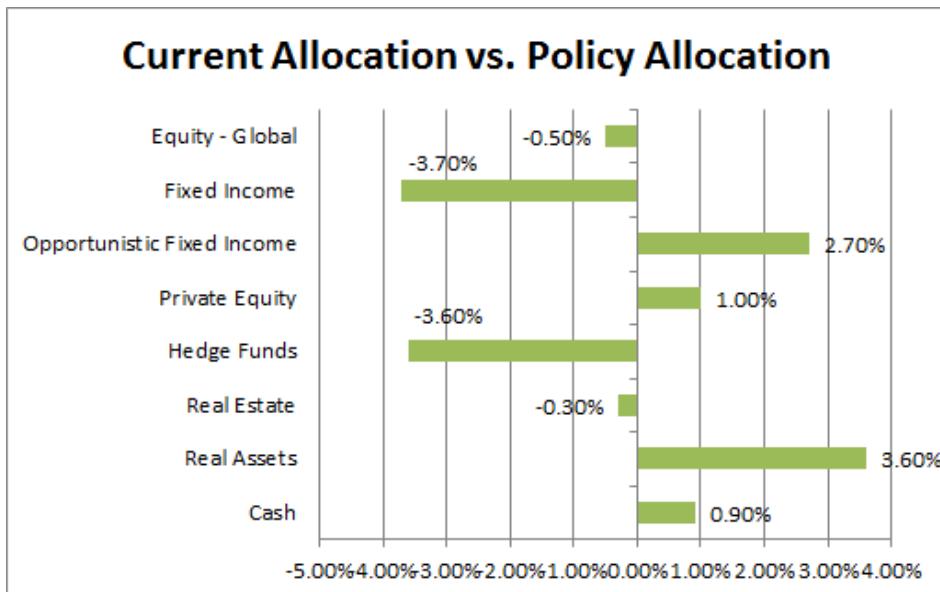
Will Forde, CAIA, Consultant

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ASSET ALLOCATION VS. CURRENT ALLOCATION



*Difference between Policy and Current Allocation

Allocations may not add to 100% due to rounding.



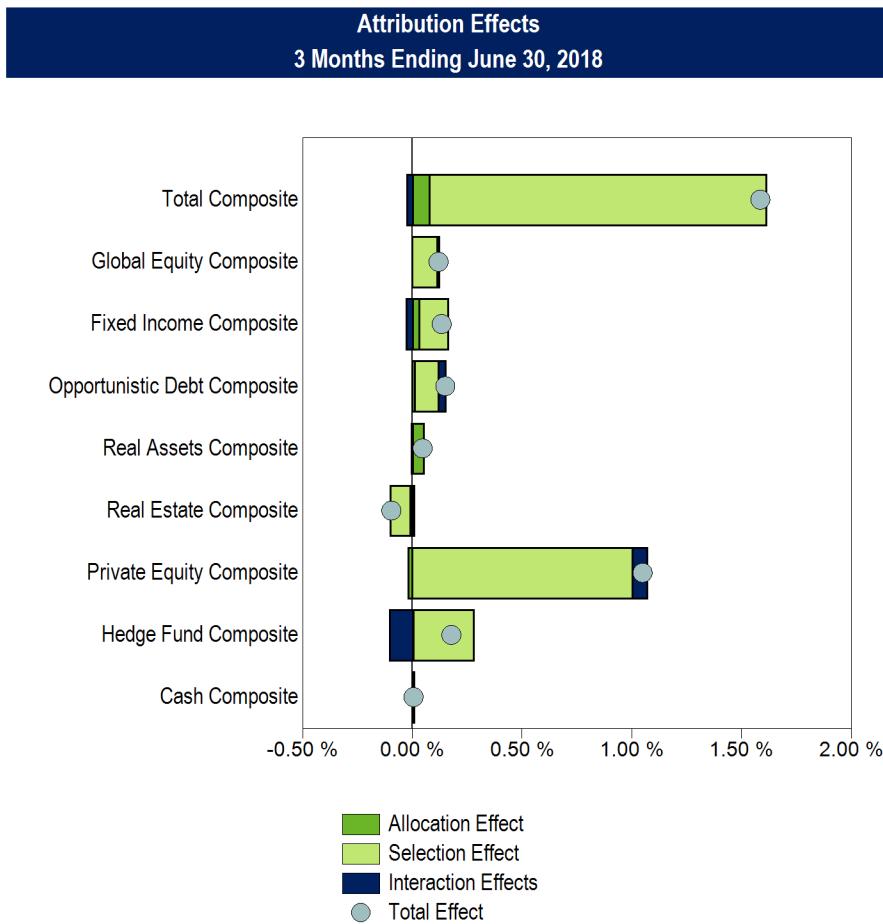
TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Composite	\$2,312,972,904	2.16%	2.78%	9.43%	7.13%	9.04%	6.40%
Policy Index		0.58%	1.45%	7.69%	6.76%	7.94%	6.22%
InvestorForce Public DB Net Median		0.82%	0.54%	7.61%	6.45%	7.43%	6.23%

Quarterly and Cumulative Excess Performance



TOTAL FUND ATTRIBUTION ANALYSIS



Attribution Summary
3 Months Ending June 30, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Global Equity Composite	0.9%	0.5%	0.4%	0.1%	0.0%	0.0%	0.1%
Fixed Income Composite	0.3%	-0.3%	0.6%	0.1%	0.0%	0.0%	0.1%
Opportunistic Debt Composite	2.4%	1.0%	1.4%	0.1%	0.0%	0.0%	0.2%
Real Assets Composite	1.9%	2.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Real Estate Composite	1.0%	1.9%	-0.9%	-0.1%	0.0%	0.0%	-0.1%
Private Equity Composite	7.0%	0.0%	7.0%	1.0%	0.0%	0.1%	1.0%
Hedge Fund Composite	3.1%	0.4%	2.7%	0.3%	0.0%	-0.1%	0.2%
Cash Composite	0.4%	0.5%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total	2.2%	0.6%	1.6%	1.5%	0.1%	0.0%	1.6%

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated return shown on the performance summary.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark return.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite.

May not add due to rounding

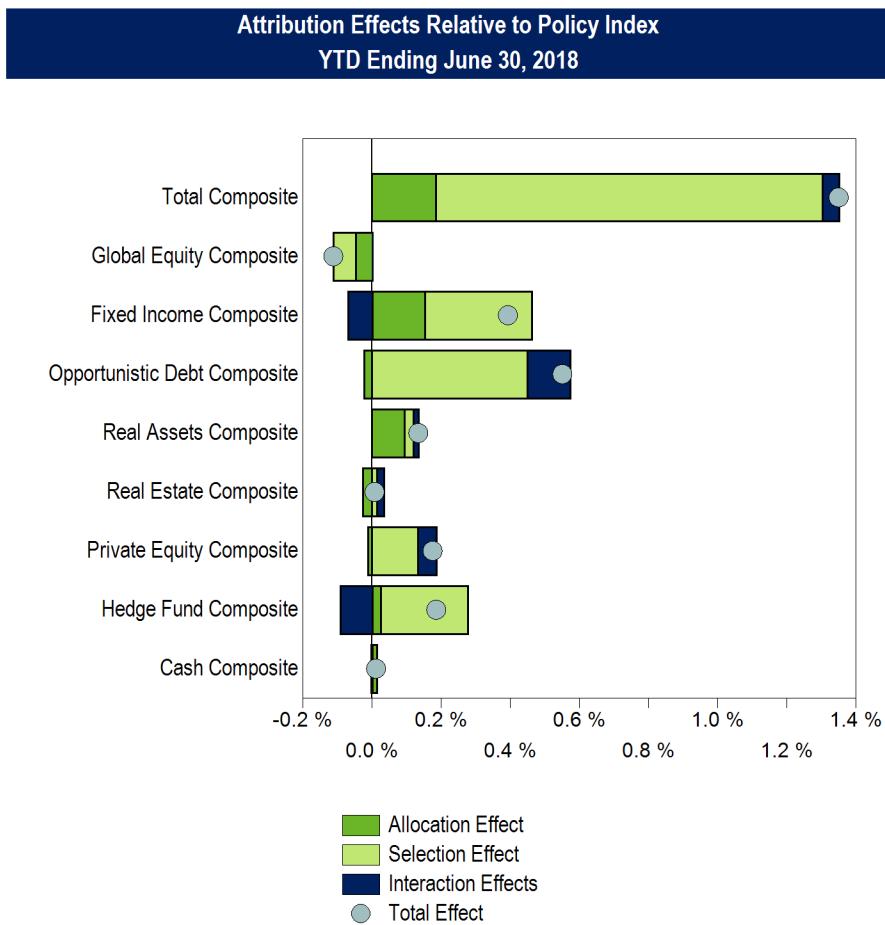
Allocation Effect - The return attributable to the asset allocation of the portfolio

Selection Effect - The return attributable to the managers' security selection

Interaction Effect - The return attributable to the interaction between the Allocation and Selection Effects



TOTAL FUND ATTRIBUTION ANALYSIS



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Global Equity Composite	-0.6%	-0.4%	-0.2%	-0.1%	0.0%	0.0%	-0.1%
Fixed Income Composite	-0.4%	-1.9%	1.5%	0.3%	0.2%	-0.1%	0.4%
Opportunistic Debt Composite	6.2%	0.2%	6.0%	0.4%	0.0%	0.1%	0.6%
Real Assets Composite	4.6%	4.2%	0.3%	0.0%	0.1%	0.0%	0.1%
Real Estate Composite	4.0%	3.9%	0.2%	0.0%	0.0%	0.0%	0.0%
Private Equity Composite	8.6%	7.4%	1.2%	0.1%	0.0%	0.1%	0.2%
Hedge Fund Composite	3.2%	0.7%	2.5%	0.2%	0.0%	-0.1%	0.2%
Cash Composite	0.7%	0.8%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total	2.8%	1.4%	1.3%	1.1%	0.2%	0.0%	1.3%

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May not add due to rounding

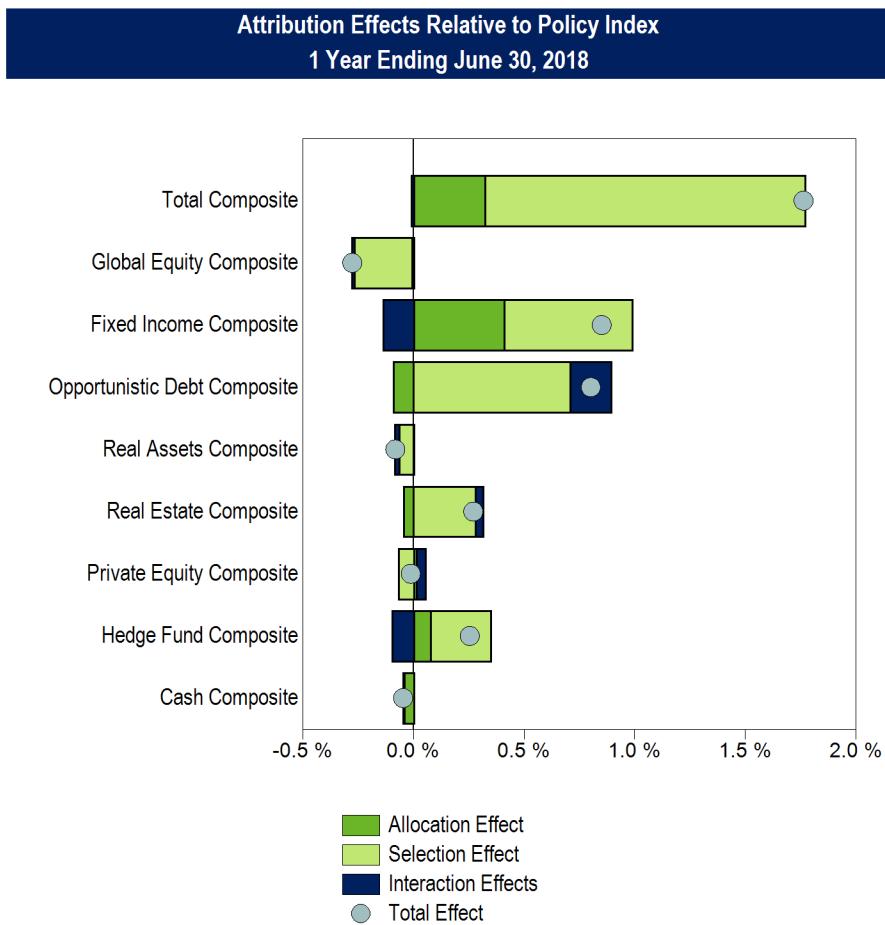
Allocation Effect - The return attributable to the asset allocation of the portfolio

Selection Effect - The return attributable to the managers' security selection

Interaction Effect - The return attributable to the interaction between the Allocation and Selection Effects



TOTAL FUND ATTRIBUTION ANALYSIS



Attribution Summary
1 Year Ending June 30, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Global Equity Composite	9.9%	10.7%	-0.8%	-0.3%	0.0%	0.0%	-0.3%
Fixed Income Composite	2.0%	-0.6%	2.6%	0.6%	0.4%	-0.1%	0.9%
Opportunistic Debt Composite	12.0%	2.6%	9.3%	0.7%	-0.1%	0.2%	0.8%
Real Assets Composite	6.1%	7.0%	-0.9%	-0.1%	0.0%	0.0%	-0.1%
Real Estate Composite	10.5%	7.7%	2.9%	0.3%	0.0%	0.0%	0.3%
Private Equity Composite	17.1%	17.4%	-0.3%	-0.1%	0.0%	0.0%	0.0%
Hedge Fund Composite	7.8%	5.1%	2.7%	0.3%	0.1%	-0.1%	0.3%
Cash Composite	1.1%	1.4%	-0.3%	0.0%	0.0%	0.0%	0.0%
Total	9.4%	7.7%	1.8%	1.4%	0.3%	0.0%	1.8%

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated return shown on the performance summary.

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The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite.

May not add due to rounding

Allocation Effect - The return attributable to the asset allocation of the portfolio

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Interaction Effect - The return attributable to the interaction between the Allocation and Selection Effects



TOTAL COMPOSITE

	Policy %	% of Portfolio	Market Value (\$)	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Composite	100.00	100.00	2,312,972,904	2.16	4	2.78	2	9.43	8	7.13	18	9.04	3	6.40	40
<i>Policy Index</i>				0.58	65	1.45	16	7.69	47	6.76	33	7.94	26	6.22	51
Global Equity Composite	30.00	29.46	681,358,968	0.89	48	-0.60	54	9.88	48	8.31	36	9.96	33	6.61	49
<i>MSCI ACWI</i>				0.53	54	-0.43	49	10.73	42	8.19	39	9.41	45	5.80	60
Fixed Income Composite	20.00	16.26	376,102,137	0.31	15	-0.43	25	2.01	31	4.40	17	5.54	9	5.89	24
<i>Fixed Income Custom Benchmark</i>				-0.33	26	-1.90	55	-0.63	83	2.01	79	2.56	58	4.03	51
Opportunistic Debt Composite	7.50	10.25	236,999,915	2.44	2	6.20	1	11.95	1	--	--	--	--	--	--
<i>BBgBarc US High Yield TR</i>				1.03	21	0.16	37	2.62	35	5.53	21	5.51	21	8.19	12
Real Assets Composite	7.50	11.08	256,324,056	1.93	--	4.58	--	6.12	--	3.18	--	5.93	--	--	--
<i>CPI + 4% (Unadjusted)</i>				1.97	--	4.23	--	6.98	--	5.90	--	5.59	--	5.47	--
Real Estate Composite	10.00	9.73	225,142,614	1.01	--	4.05	--	10.54	--	9.29	--	11.57	--	5.14	--
<i>NFI-ODCE Eq Wtd Net Non Lag</i>				1.89	--	3.89	--	7.68	--	8.70	--	10.21	--	4.17	--
Private Equity Composite	15.00	15.99	369,745,317	6.98	--	8.58	--	17.11	--	10.52	--	14.12	--	8.45	--
<i>MO Hwy Priv. Equ. Index - Lagged</i>				-0.02	--	7.40	--	17.37	--	14.07	--	16.67	--	12.98	--
Hedge Fund Composite	10.00	6.36	147,195,979	3.12	--	3.16	--	7.77	--	2.79	--	4.55	--	3.94	--
<i>HFRI Fund of Funds Composite Index</i>				0.40	--	0.67	--	5.12	--	1.93	--	3.45	--	1.40	--
Cash Composite	0.00	0.87	20,103,918	0.40	--	0.70	--	1.15	--	0.56	--	0.37	--	0.30	--
<i>91 Day T-Bills</i>				0.46	--	0.84	--	1.40	--	0.70	--	0.43	--	0.30	--

Total Composite is ranked in the IFx Public DB (peer) Net + Universe

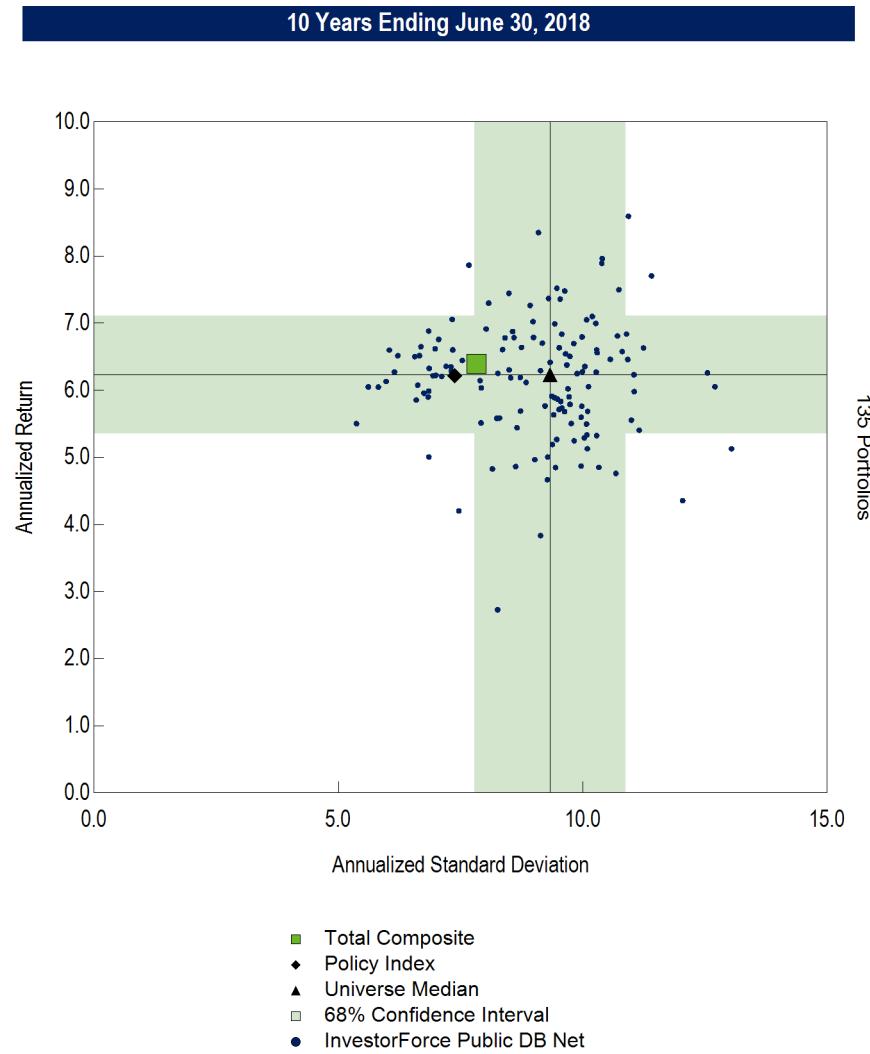
Global Equity Composite is ranked in the eV Global All Cap Equity Net Universe

Fixed Income Composite is ranked in the eV All Global Fixed Inc Net Universe

Opportunistic Debt Composite is ranked in the eV US High Yield Fixed Inc Net Universe



TOTAL FUND RISK/RETURN - 10 YEARS



Statistics Summary				
10 Years Ending June 30, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Composite	6.40%	40	7.82%	23
Policy Index	6.22%	51	7.38%	21

Statistics Summary		
10 Years Ending June 30, 2018		
	Sharpe Ratio	Rank
Total Composite	0.78	25
Policy Index	0.80	25

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- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
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- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
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