

2018 Q4 INVESTMENT SUMMARY: BOARD REPORT

MODOT & PATROL EMPLOYEES' RETIREMENT SYSTEM

February, 2019

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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

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NEPC UPDATE

NEPC, LLC

SAVE THE DATE



MAY 7-8, 2019 | BOSTON PARK PLAZA | #NEPC_CONFERENCE



NEPC's 24th Annual Investment Conference

- Gradual or dramatic, the economic and political worlds around us are going through major transition. Whether it be global resources, climate, political power, technology, demographics or personal habits, adapting and advancing through these shifts has become a regularity. Most importantly, as we transition our daily processes, so do we transition our investment approaches. Please join us for **NEPC's 24th Annual Investment Conference on May 7-8, 2019** at the Boston Park Plaza Hotel, as we address the 'Transitions' we are experiencing and what lies ahead.
- Please reach out to Sarah Winrow at swinrow@nepc.com if you have any questions.















MARKET THOUGHTS & EDUCATION

NEPC, LLC

PERFORMANCE OVERVIEW

Q4 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
											
1.1%	13.3	-38 bps	-13.5%	-12.5%	-7.5%	1.6%	-4.5%	-1.2%	-38.0%	7.7%	-6.0%

- **Global equities sold-off during the quarter due to concerns related to fed funds rate increases , fears of a global slowdown, and trade uncertainties**
- **The sharp decline in crude oil prices weighed on commodities overall and US high-yield bonds, which have meaningful portion to the energy sector**
- **The Federal Reserve hiked rates for the fourth time in 2018 with one to two additional rate increases expected for 2019**

Market segment (index representation) as follows: US Dollar (DXY Index), VIX (CBOE Volatility Index), US 10-Year (US 10-Year Treasury Yield), S&P 500 (US Equity), MSCI EAFE Index (International Developed Equity), MSCI Emerging Markets (Emerging Markets Equity), US Agg (Barclays US Aggregate Bond Index), High Yield (Barclays US High Yield Index), Dollar EMD (JPM Emerging Market Bond Index), Crude Oil (WTI Crude Oil Spot), Gold (Gold Price Spot), and REITs (NAREIT Composite Index).



MACRO PERFORMANCE OVERVIEW

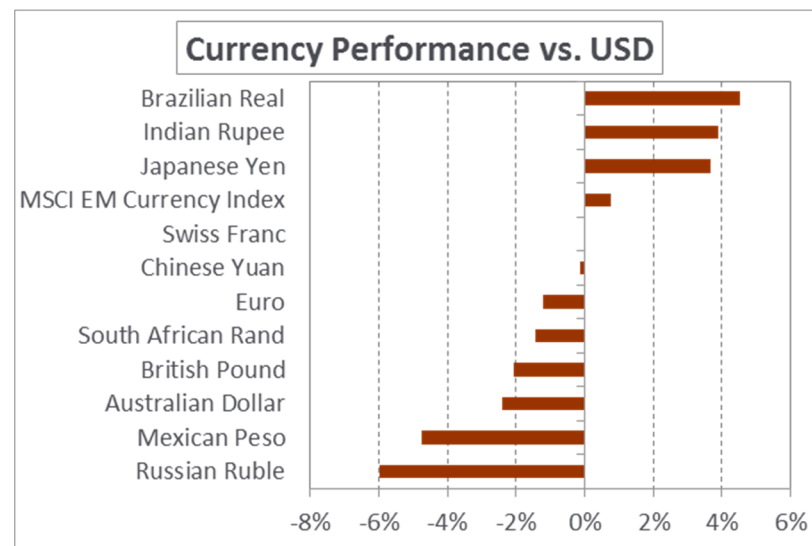
Q4 Macro Market Summary

- **Global growth has been revised lower and the outlook is likely to moderate in 2019**
- **Developed government bond yields decreased as demand for safe haven assets increased**
- **Global liquidity tightened as the Fed raised rates and the ECB ended the expansion of its QE program**

Central Banks	Current Rate	CPI YOY	Notes from the Quarter
Federal Reserve	2.25% - 2.50%	2.2%	The Fed increased its benchmark interest rate 0.25% to 2.25% - 2.50% in December
European Central Bank	0.0%	1.9%	The ECB maintained its current benchmark interest rate, but ended the expansion of its QE bond-buying program
Bank of Japan	-0.1%	0.8%	The BoJ will continue its ultra-easy QE program with inflation remaining well below target

	Yield 09/30/18	Yield 12/31/18	Δ
US 10-Yr	3.06%	2.68%	-0.38%
US 30-Yr	3.21%	3.01%	-0.19%
US Real 10-Yr	0.92%	0.97%	0.05%
German 10-Yr	0.47%	0.24%	-0.23%
Japan 10-Yr	0.13%	0.00%	-0.13%
China 10-Yr	3.63%	3.31%	-0.32%
EM Local Debt	6.62%	6.46%	-0.17%

Source: Bloomberg



Source: Bloomberg



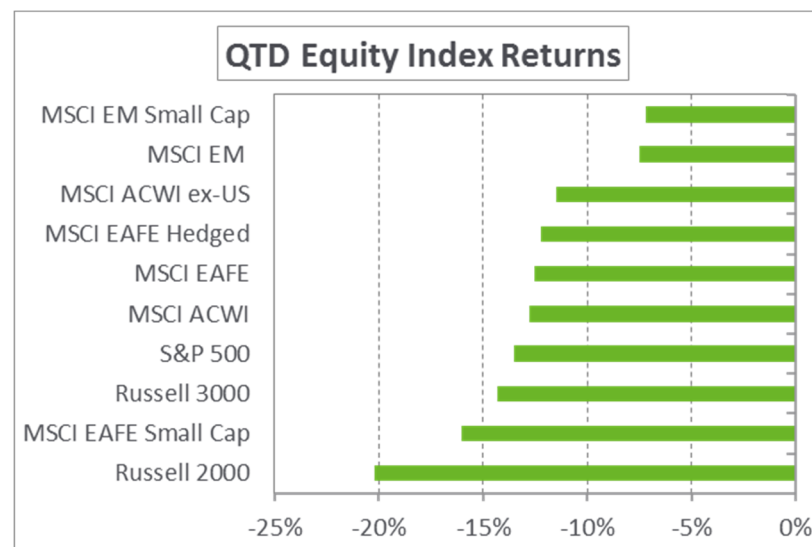
EQUITY PERFORMANCE OVERVIEW

Q4 Equity Market Summary

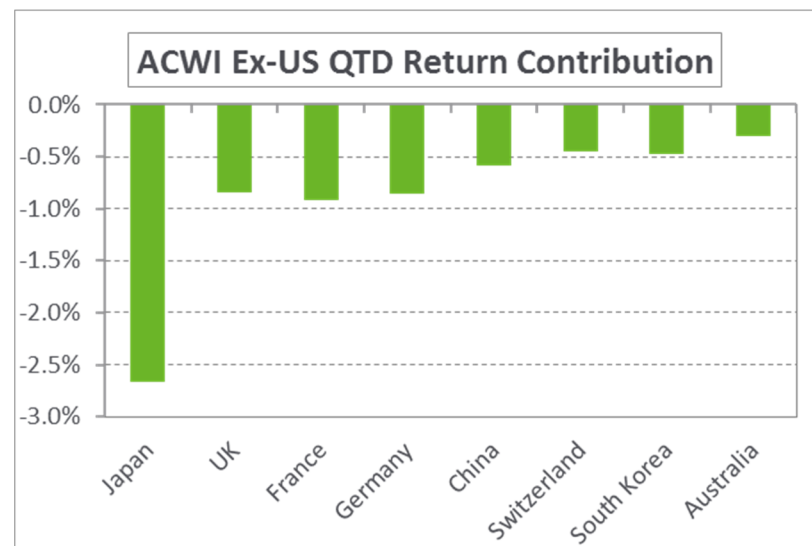
- **US equities led the global equity sell-off and developed market indices moved into a bear market**
- **Equities markets were volatile as ongoing trade concerns and fears of global growth slowdown weighed on investor sentiment**

Russell 3000 QTD Sector Return Contribution	
Information Technology	-3.35%
Consumer Discretionary	-1.80%
Financials	-1.80%
Industrials	-1.82%
Consumer Staples	-0.35%
Energy	-1.42%
Materials	-0.43%
Health Care	-1.52%
Real Estate	-0.22%
Communication Services	-1.64%
Utilities	0.02%

Source: Russell, Bloomberg



Source: MSCI, Russell, S&P, Bloomberg



Source: MSCI, Bloomberg. QTD top country contributors to index return



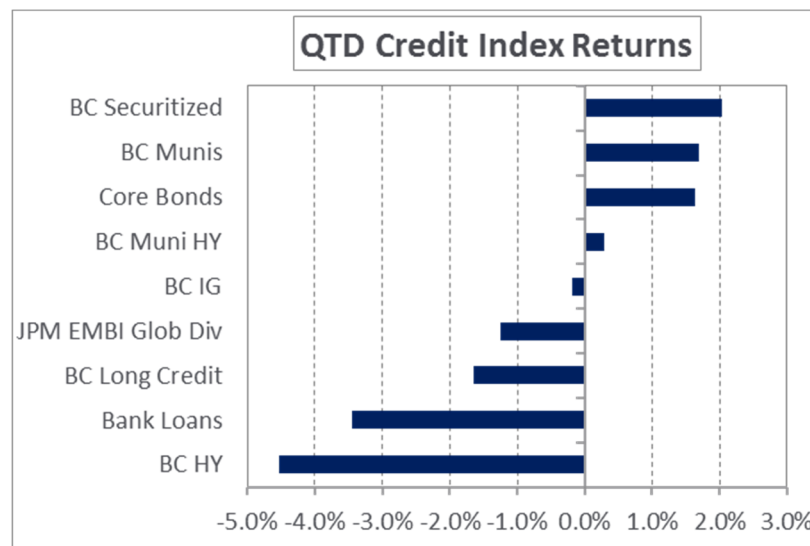
CREDIT PERFORMANCE OVERVIEW

Q4 Credit Market Summary

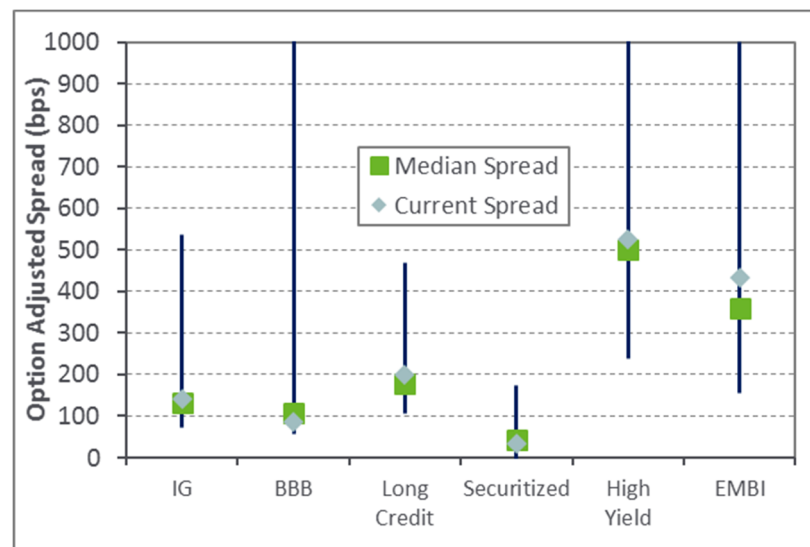
- **Credit spreads broadly increased across most areas of the market**
- **Riskier assets underperformed as demand for high quality and safe-haven assets increased**
- **Bank loans declined by 3.4% as market outflows weighed on asset prices**

Credit Spread (Basis Points)	09/30/18	12/31/18	Δ
BC IG Credit	100	143	43
BC Long Credit	153	200	47
BC Securitized	28	35	7
BC High Yield	316	526	210
Muni HY	184	236	52
JPM EMBI	362	435	73
Bank Loans - Libor	281	414	133

Source: Barclays, Merrill Lynch, JPM, Bloomberg, NEPC



Source: Barclays, JPM, S&P, Bloomberg



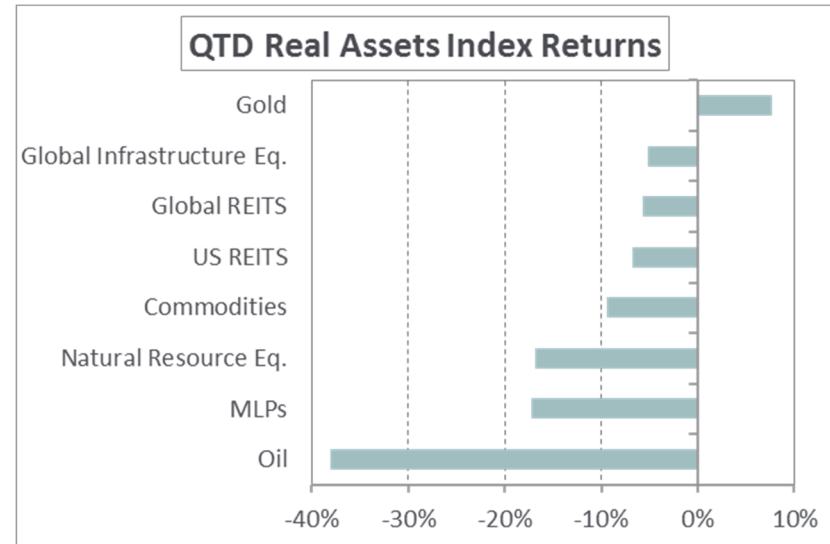
Source: Barclays, JPM, S&P, Bloomberg; as of 01/31/2000



REAL ASSETS PERFORMANCE OVERVIEW

Q4 Real Assets Market Summary

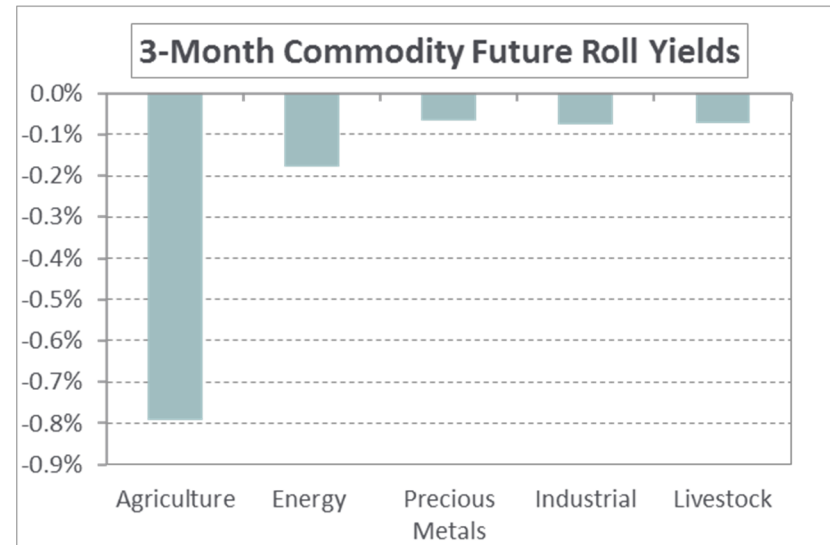
- **Oil declined 38% for the quarter due to an increase in supply led by US shale production**
- **MLPs decreased 17.3% under pressure from falling energy prices and investor outflows**
- **Commodities declined overall due to the substantial decline in oil markets**



Source: S&P, NAREIT, Alerian, Bloomberg

Real Asset Yields	09/30/18	12/31/18
MLPs	8.0%	9.0%
Core Real Estate	4.4%	4.5%
US REITs	4.2%	4.6%
Global REITs	3.7%	3.9%
Global Infrastructure Equities	4.5%	4.6%
Natural Resource Equities	3.5%	4.5%
US 10-Yr Breakeven Inflation	2.1%	1.7%
Commodity Index Roll Yield	-1.2%	-6.1%

Source: NCREIF, Alerian, NAREIT, S&P, Bloomberg



Source: Bloomberg, NEPC Calculated as of 09/28/2018

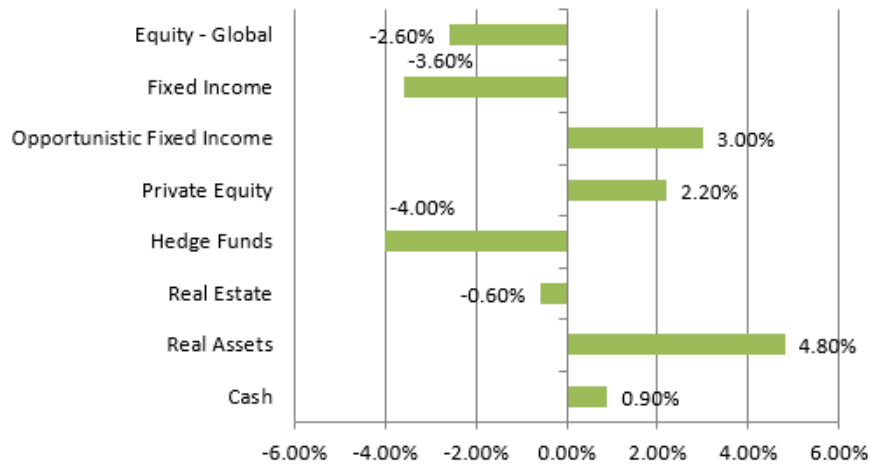


EXECUTIVE SUMMARY

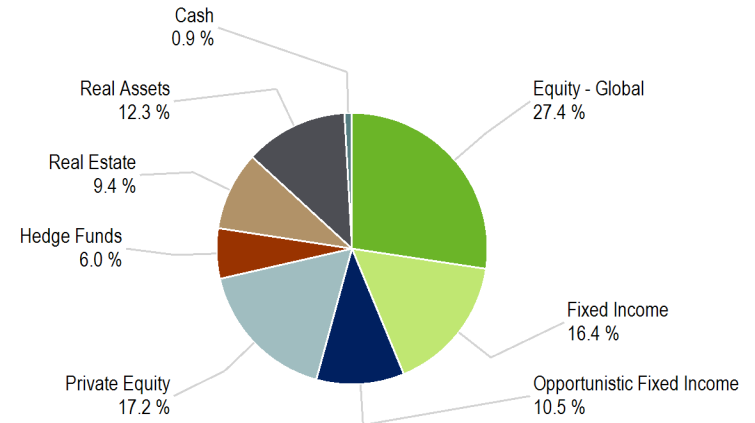
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ASSET ALLOCATION VS. CURRENT ALLOCATION

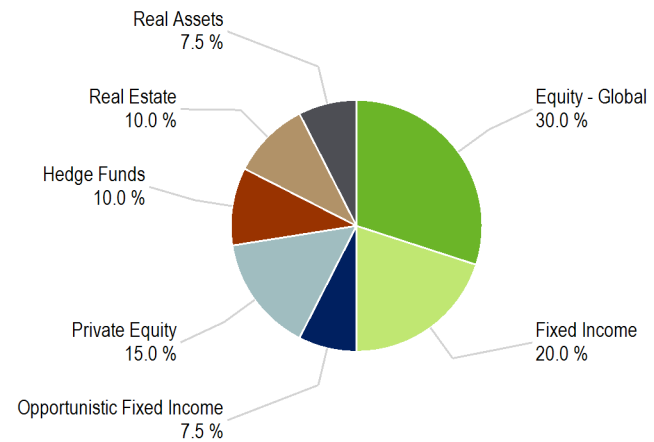
Current Allocation vs. Policy Allocation



Current Asset Allocation



Policy Asset Allocation



Current Asset Allocation vs. Policy Asset Allocation

	Current	Policy	Current Difference*	
Equity - Global	\$625,981,708	30.0%	27.4%	-2.6%
Fixed Income	\$373,732,645	20.0%	16.4%	-3.6%
Opportunistic Fixed Income	\$240,172,401	7.5%	10.5%	3.0%
Private Equity	\$393,508,297	15.0%	17.2%	2.2%
Hedge Funds	\$136,538,190	10.0%	6.0%	-4.0%
Real Estate	\$213,915,699	10.0%	9.4%	-0.6%
Real Assets	\$279,773,273	7.5%	12.3%	4.8%
Cash	\$19,607,029	--	0.9%	0.9%
Total	\$2,283,229,242	100.0%	100.0%	

*Difference between Policy and Current Allocation

Allocations may not add to 100% due to rounding.

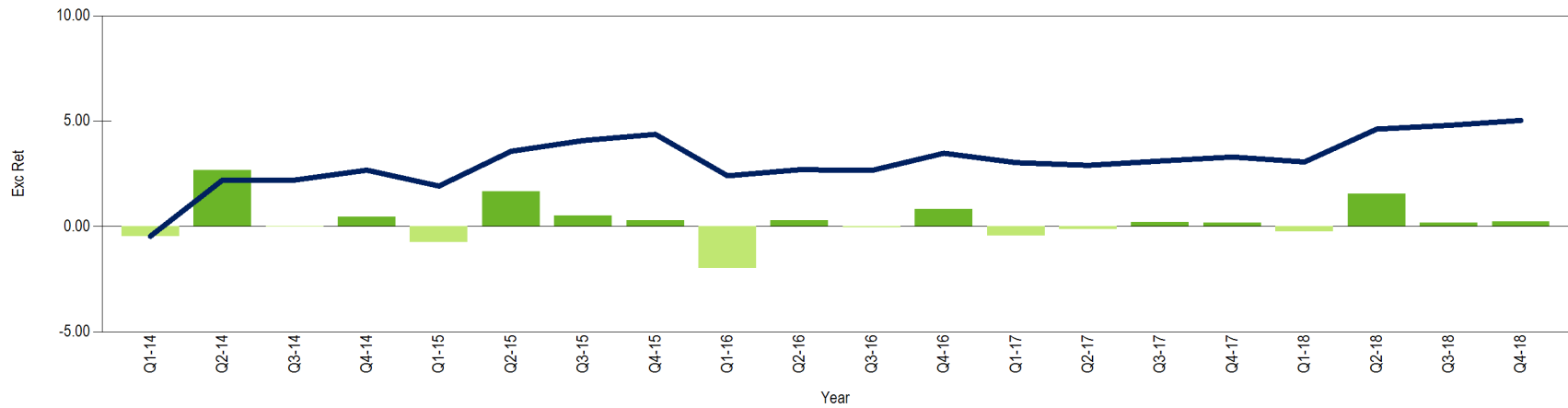


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TOTAL FUND PERFORMANCE SUMMARY

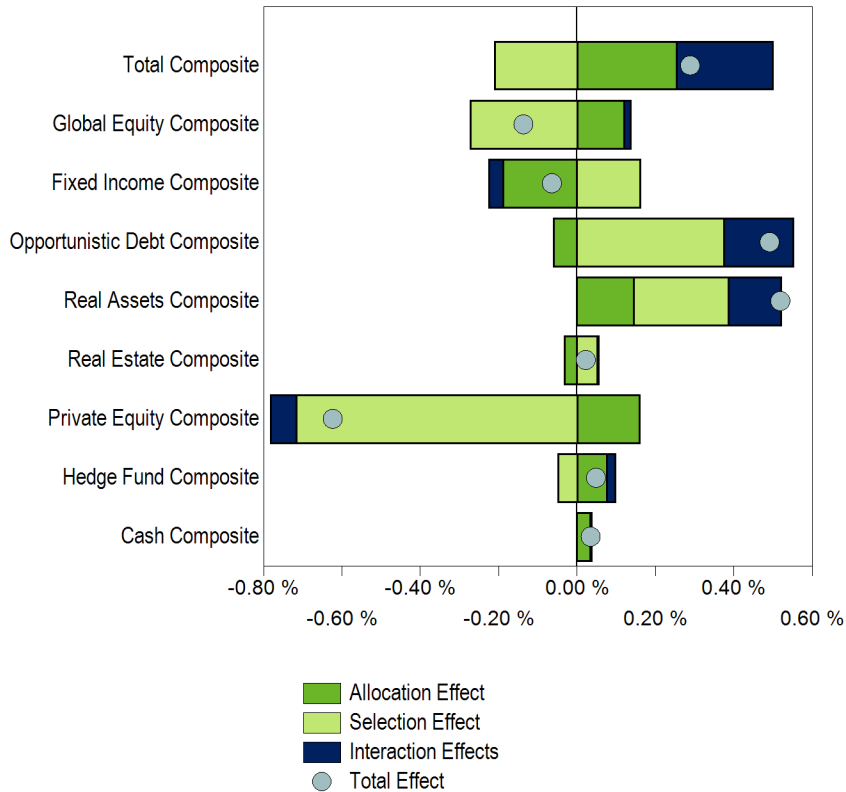
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Composite	\$2,283,229,302	-2.81%	2.49%	7.37%	7.21%	9.58%
<i>Policy Index</i>		-3.04%	0.74%	7.14%	6.16%	8.32%
<i>InvestorForce Public DB Net Median</i>		-7.98%	-4.50%	5.62%	4.46%	7.97%

Quarterly and Cumulative Excess Performance



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
3 Months Ending December 31, 2018



Attribution Summary
3 Months Ending December 31, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Global Equity Composite	-13.6%	-12.8%	-0.9%	-0.3%	0.1%	0.0%	-0.1%
Fixed Income Composite	2.3%	1.5%	0.8%	0.2%	-0.2%	0.0%	-0.1%
Opportunistic Debt Composite	0.5%	-4.5%	5.1%	0.4%	-0.1%	0.2%	0.5%
Real Assets Composite	3.8%	0.5%	3.3%	0.2%	0.1%	0.1%	0.5%
Real Estate Composite	1.9%	1.4%	0.6%	0.1%	0.0%	0.0%	0.0%
Private Equity Composite	3.4%	8.5%	-5.1%	-0.7%	0.2%	-0.1%	-0.6%
Hedge Fund Composite	-5.5%	-5.0%	-0.5%	0.0%	0.1%	0.0%	0.0%
Cash Composite	0.6%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	-2.8%	-3.0%	0.3%	-0.2%	0.3%	0.2%	0.3%

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

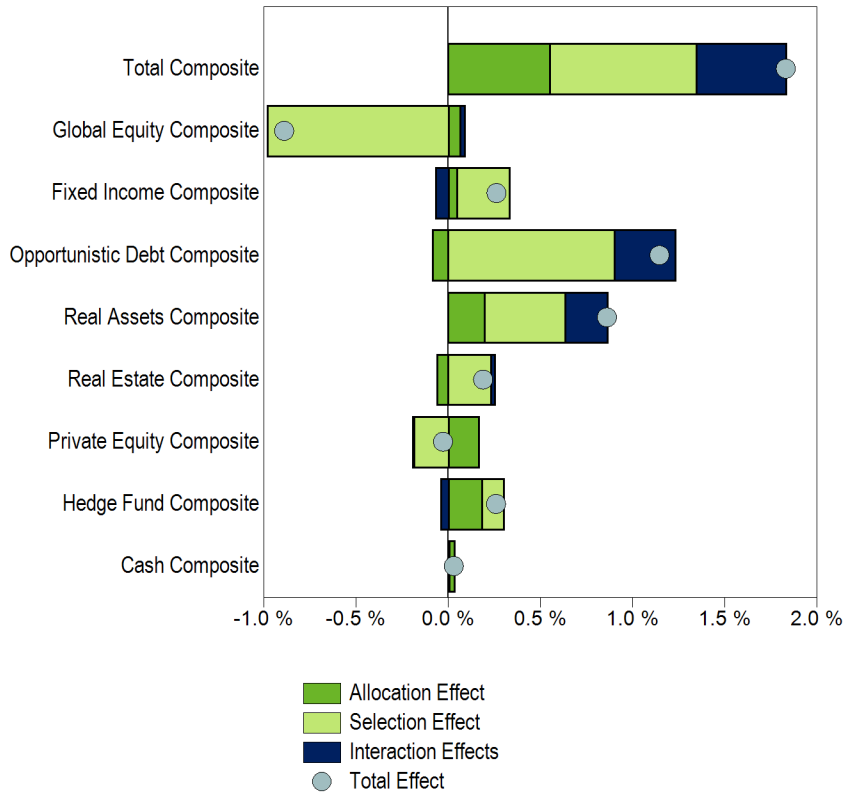
Selection Effect - The return attributable to the managers' security selection

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



TOTAL FUND ATTRIBUTION ANALYSIS

**Attribution Effects Relative to Policy Index
1 Year Ending December 31, 2018**



Attribution Summary 1 Year Ending December 31, 2018							
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Global Equity Composite	-12.3%	-9.4%	-2.9%	-1.0%	0.1%	0.0%	-0.9%
Fixed Income Composite	0.9%	-0.4%	1.3%	0.3%	0.1%	-0.1%	0.3%
Opportunistic Debt Composite	10.2%	-2.1%	12.3%	0.9%	-0.1%	0.3%	1.1%
Real Assets Composite	12.1%	6.0%	6.1%	0.4%	0.2%	0.2%	0.9%
Real Estate Composite	9.8%	7.3%	2.5%	0.2%	-0.1%	0.0%	0.2%
Private Equity Composite	20.2%	21.4%	-1.2%	-0.2%	0.2%	0.0%	0.0%
Hedge Fund Composite	-3.0%	-4.1%	1.1%	0.1%	0.2%	0.0%	0.3%
Cash Composite	1.8%	1.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total	2.5%	0.7%	1.8%	0.8%	0.6%	0.5%	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.

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



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TOTAL COMPOSITE

	Policy %	% of Portfolio	Market Value (\$)	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Composite	100.00	100.00	2,283,229,302	-2.81	1	2.49	1	7.37	3	7.21	1	9.58	3
<i>Policy Index</i>				-3.04	1	0.74	1	7.14	3	6.16	2	8.32	32
Global Equity Composite	30.00	27.42	625,981,768	-13.61	46	-12.28	67	5.93	46	4.27	36	10.43	33
<i>MSCI ACWI</i>				-12.75	36	-9.42	47	6.60	31	4.26	37	9.46	50
Fixed Income Composite	20.00	16.37	373,732,645	2.27	3	0.91	11	4.22	32	5.54	1	8.42	17
<i>Fixed Income Custom Benchmark</i>				1.46	10	-0.42	23	2.48	74	2.67	40	4.03	58
Opportunistic Debt Composite	7.50	10.52	240,172,401	0.52	1	10.23	1	--	--	--	--	--	--
<i>BBgBarc US High Yield TR</i>				-4.53	59	-2.08	47	7.23	13	3.83	25	11.12	11
Real Assets Composite	7.50	12.25	279,773,273	3.82	--	12.11	--	6.85	--	5.83	--	--	--
<i>CPI + 4% (Unadjusted)</i>				0.50	--	5.98	--	6.11	--	5.57	--	5.86	--
Real Estate Composite	10.00	9.37	213,915,699	1.94	--	9.79	--	9.61	--	11.47	--	7.10	--
<i>NFI-ODCE Eq Wtd Net Non Lag</i>				1.39	--	7.31	--	7.53	--	9.60	--	5.91	--
Private Equity Composite	15.00	17.23	393,508,297	3.40	--	20.20	--	13.33	--	14.23	--	11.12	--
<i>MO Hwy Priv. Equ. Index - Lagged</i>				8.49	--	21.40	--	20.78	--	17.33	--	15.46	--
Hedge Fund Composite	10.00	5.98	136,538,190	-5.47	--	-3.00	--	2.38	--	2.03	--	4.94	--
<i>HFRI Fund of Funds Composite Index</i>				-5.00	--	-4.08	--	1.29	--	1.38	--	3.11	--
Cash Composite	0.00	0.86	19,607,029	0.57	--	1.75	--	0.90	--	0.58	--	0.32	--
<i>91 Day T-Bills</i>				0.55	--	1.89	--	1.04	--	0.63	--	0.36	--

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

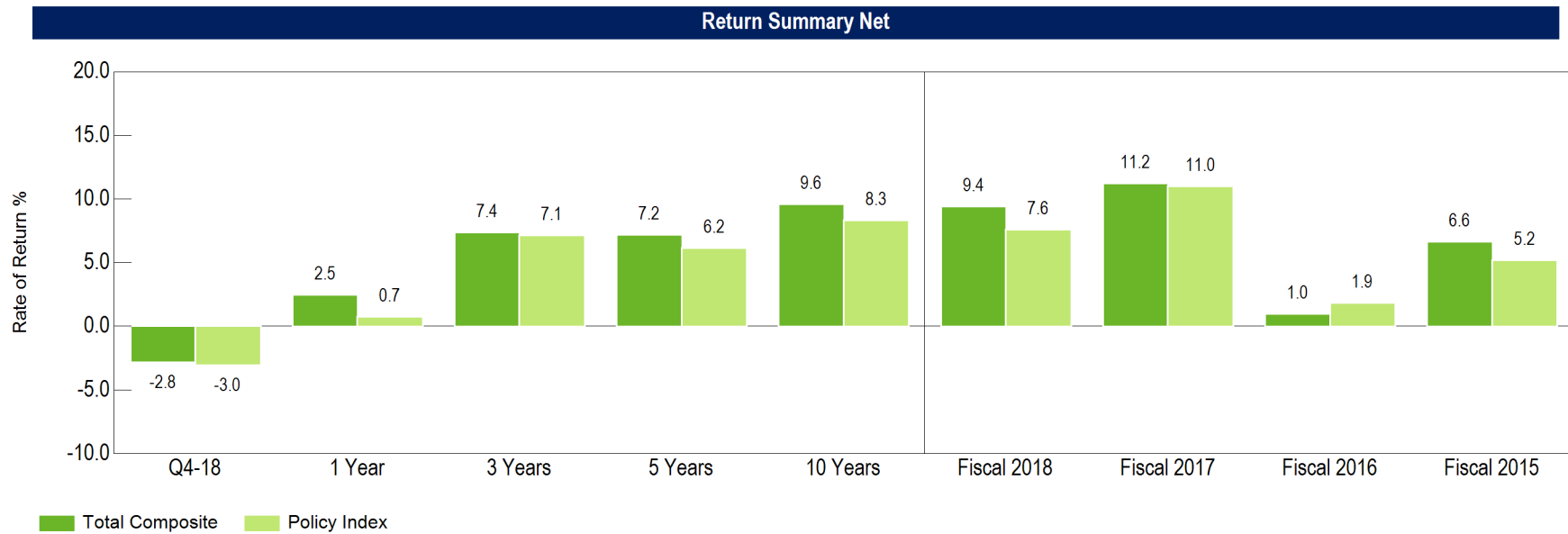
Fixed Income Composite is ranked in the eV All Global Fixed Inc Net Universe

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



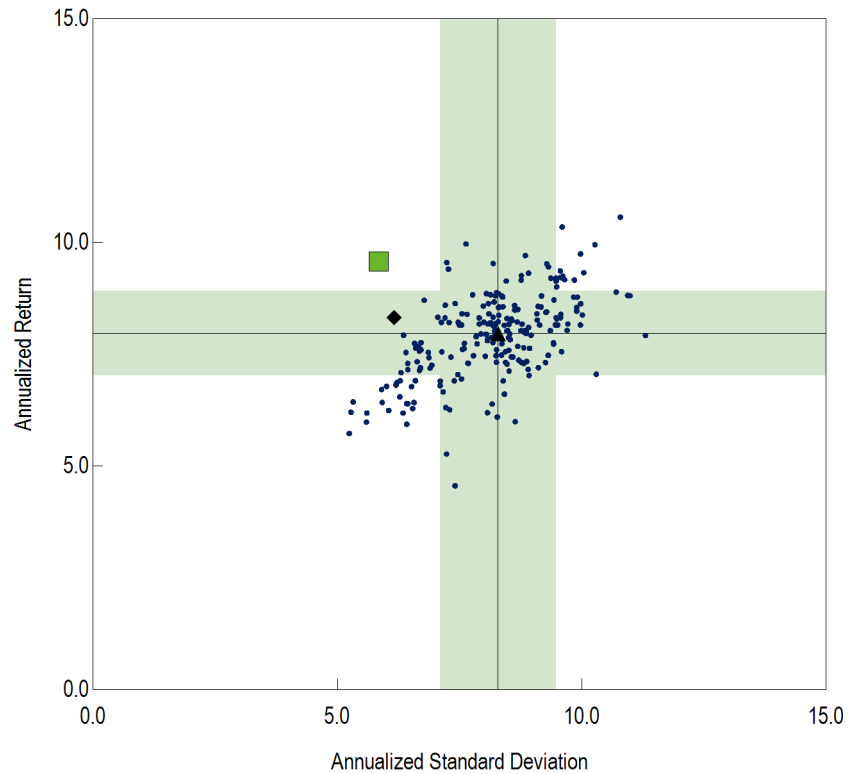
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TOTAL FUND RETURN SUMMARY



TOTAL FUND RISK/RETURN - 10 YEARS

10 Years Ending December 31, 2018



- Total Composite
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

221 Portfolios

Statistics Summary				
10 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Composite	9.58%	3	5.84%	3
Policy Index	8.32%	32	6.16%	4

Statistics Summary		
10 Years Ending December 31, 2018		
	Sharpe Ratio	Rank
Total Composite	1.58	1
Policy Index	1.29	1



TOTAL FUND PERFORMANCE

NEPC, LLC

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TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Composite	2,283,229,302	100.00	100.00	-2.81	2.49	7.37	7.21	9.58
<i>Policy Index</i>				-3.04	0.74	7.14	6.16	8.32
Global Equity Composite	625,981,768	27.42	30.00	-13.61	-12.28	5.93	4.27	10.43
<i>MSCI ACWI</i>				-12.75	-9.42	6.60	4.26	9.46
Tortoise	59,572,154	2.61		-16.39	-13.40	-1.60	-4.20	--
<i>Alerian MLP Index</i>				-17.30	-12.42	-1.06	-7.31	9.58
Domestic Equity Composite	355,981,063	15.59	--	-13.92	-9.10	7.84	7.13	13.73
<i>Russell 3000</i>				-14.30	-5.24	8.97	7.91	13.18
Large Cap Composite	302,843,535	13.26	--	-13.23	-8.10	8.21	7.90	12.92
Cash/S&P Futures	302,843,535	13.26		-13.23	-8.10	8.57	7.28	--
<i>S&P 500</i>				-13.52	-4.38	9.26	8.49	13.12
Small/Mid Cap Composite	53,137,528	2.33	--	-17.47	-14.25	6.49	4.78	13.42
Kennedy Capital	28,423,925	1.24		-15.61	-10.46	9.19	--	--
<i>Russell Microcap</i>				-22.14	-13.08	5.79	3.08	11.71
Kennedy Small-Cap Banking	24,713,543	1.08		-19.53	-14.82	--	--	--
<i>Russell 2500</i>				-18.49	-10.00	7.32	5.15	13.15
International Equity Composite	210,428,551	9.22	--	-12.22	-16.50	5.44	2.58	7.51
<i>MSCI ACWI ex USA</i>				-11.46	-14.20	4.48	0.68	6.57
Silchester	125,471,325	5.50		-10.95	-14.28	5.48	3.27	9.38
Acadian Int'l Small Cap	36,471,996	1.60		-17.50	-19.25	4.58	4.03	--
<i>MSCI EAFE</i>				-12.54	-13.79	2.87	0.53	6.32
GMO EM	21,321,089	0.93		-5.44	-20.41	4.41	0.69	--
<i>MSCI Emerging Markets</i>				-7.47	-14.58	9.25	1.65	8.02
Acadian Non-US Microcap	26,764,890	1.17		-15.51	-19.57	--	--	--
<i>MSCI EAFE Small Cap</i>				-16.05	-17.89	3.73	3.06	10.51
Transition Account	399,251	0.02						



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TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Fixed Income Composite	373,732,645	16.37	20.00	2.27	0.91	4.22	5.54	8.42
<i>Fixed Income Custom Benchmark</i>				1.46	-0.42	2.48	2.67	4.03
Core Fixed Income Composite	151,736,286	6.65	10.00	1.17	2.05	2.57	3.64	7.05
Aberdeen	12,518,167	0.55		-0.39	3.43	6.06	5.83	8.10
<i>BBgBarc US Aggregate TR</i>				1.64	0.01	2.06	2.52	3.48
Internal Fixed - Core	101,453,466	4.44		2.44	2.15	1.37	3.09	--
<i>BBgBarc US Govt/Credit TR</i>				1.46	-0.42	2.19	2.53	3.46
Octagon Senior Debt	27,318,749	1.20		-2.80	-1.13	2.92	--	--
<i>BBgBarc US Aggregate TR</i>				1.64	0.01	2.06	2.52	3.48
Principal CMBS Fixed	10,445,904	0.46		1.76	6.90	4.59	4.30	--
<i>BBgBarc US CMBS ERISA Eligible TR</i>				1.72	0.78	2.48	2.45	7.36
Long Duration Composite	186,625,442	8.17	5.00	3.85	0.34	3.73	5.86	--
Internal Fixed - Long Duration	186,625,442	8.17		3.85	0.34	3.73	5.86	6.04
<i>BBgBarc US Govt/Credit Long TR</i>				0.78	-4.68	4.03	5.37	5.88
Inflation Protection Securities Composite	35,370,917	1.55	5.00	-1.04	-2.32	2.20	2.05	--
Internal US TIPS	35,370,917	1.55		-1.04	-2.32	2.20	2.05	--
<i>BBgBarc US TIPS TR</i>				-0.42	-1.26	2.11	1.69	3.64
Opportunistic Debt Composite	240,172,401	10.52	7.50	0.52	10.23	--	--	--
<i>BBgBarc US High Yield TR</i>				-4.53	-2.08	7.23	3.83	11.12
ABRY ASF	135,347	0.01		-24.18	-25.75	-5.87	6.93	15.41
Anchorage Capital III	1,971,303	0.09		-4.54	17.37	6.97	10.14	--
Anchorage Illiquid Opps V	15,020,866	0.66		-1.38	10.10	9.78	--	--
Audax Mezzanine II	597	0.00		-11.63	-9.42	-14.23	-2.75	3.02
CVI Credit Value	859,262	0.04		1.64	9.52	12.05	15.38	--
CVI Credit Value Fund III	15,752,620	0.69		-2.42	3.24	10.68	--	--
CVI Global Value	1,158,605	0.05		3.83	5.86	3.81	5.53	10.71
GOLUB Capital	27,059,966	1.19		2.51	11.12	10.56	8.52	--
GSO Credit Alpha Fund	13,242,109	0.58		-0.69	3.45	10.79	--	--
GSO Energy II	0	0.00		0.00	--	--	--	--
GSO Energy Select Opps	5,974,007	0.26		5.17	10.91	18.61	--	--
GSO I	312,043	0.01		-13.87	-23.14	-15.24	-5.31	7.02
GSO II	3,849,185	0.17		-5.08	7.29	6.18	9.79	--
GSO III	8,609,386	0.38		2.85	12.61	--	--	--

Fixed Income Custom Benchmark was BBgBarc US Universal TR preceding 01/01/2017. As of 01/01/2017 the benchmark is BBgBarc US Agg Govt/Credit.



MPERS

TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Internal Fixed - Nonrated	11,071,421	0.48		2.96	5.16	6.31	--	--
M&G III	3,924,945	0.17		-0.64	1.89	2.76	-9.97	--
MGG	9,187,070	0.40		1.15	--	--	--	--
Northern Shipping II	8,990,688	0.39		0.22	11.62	7.90	--	--
Northern Shipping III	9,917,595	0.43		2.03	9.75	--	--	--
Och-Ziff Struct Products II	2,048,589	0.09		-4.58	30.46	25.57	18.33	--
OCP Asia	26,340,206	1.15		1.65	15.20	15.00	15.09	--
Octagon Opportunistic	24,073,827	1.05		-7.42	-2.18	10.37	--	--
Owl Rock	20,481,260	0.90		1.40	6.85	--	--	--
Riverstone Credit Partners	16,159,250	0.71		3.65	15.86	14.88	--	--
Riverstone Credit Partners II	8,508,399	0.37		8.72	--	--	--	--
Siguler Guff Sec Opps	4,151,629	0.18		18.31	85.35	--	--	--
Varde Asia Credit Fund	1,372,226	0.06		-5.95	--	--	--	--
<i>BBgBarc US High Yield TR</i>				-4.53	-2.08	7.23	3.83	11.12
Real Assets Composite	279,773,273	12.25	7.50	3.82	12.11	6.85	5.83	--
<i>CPI + 4% (Unadjusted)</i>				0.50	5.98	6.11	5.57	5.86
American Infrastructure I MLP	15,433,600	0.68		1.23	5.94	6.71	3.29	--
American Infrastructure II MLP	8,531,523	0.37		4.16	32.85	7.06	-5.52	--
Apollo Aviation III	5,105,929	0.22		6.51	21.43	13.59	--	--
Ares Energy	1,000,063	0.04		--	--	--	--	--
Blue Road	7,081,072	0.31		9.21	15.24	10.02	--	--
CIM INFRA FUND II	3,923,865	0.17		4.74	--	--	--	--
Corrum Capital Aviation	8,639,586	0.38		1.64	9.26	--	--	--
EIF - US Power III	3,566,554	0.16		1.13	-4.55	0.08	7.09	--
EMG I	5,854,099	0.26		0.53	0.88	-6.93	-4.92	--
EMG II	11,861,740	0.52		5.28	12.18	7.35	17.12	--
EMG III	22,016,441	0.96		11.39	8.01	0.07	--	--
EMG IV	21,960,207	0.96		15.81	37.98	22.58	--	--
Grey Rock Energy Fund II	10,197,060	0.45		7.67	13.21	--	--	--
Grey Rock Energy Fund III	3,676,920	0.16		-1.73	--	--	--	--
NGP IX	242,634	0.01		18.10	206.12	39.29	22.59	--
NGP X	6,086,685	0.27		-3.68	15.87	12.78	5.80	--
NGP XI	15,172,415	0.66		2.48	18.12	20.64	--	--
Orion II	10,436,493	0.46		0.00	-2.84	--	--	--



MPERS

TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Orion Mine Finance Fund I	11,140,645	0.49		-3.79	-5.85	14.63	--	--
Quantum VII	6,034,691	0.26		1.71	2.35	--	--	--
Ridgewood Energy	12,241,245	0.54		10.07	39.32	16.72	1.89	--
Ridgewood III	3,296,783	0.14		-0.74	46.77	-12.85	--	--
Sciens Marine Investments	4,399,853	0.19		3.95	24.17	-4.03	--	--
<i>CPI + 4% (Unadjusted)</i>				<i>0.50</i>	<i>5.98</i>	<i>6.11</i>	<i>5.57</i>	<i>5.86</i>
Timber Composite	81,873,170	3.59	--	1.05	8.58	3.23	2.31	--
RMK - Timberland	0	0.00		0.00	--	--	--	--
MP Timber	37,152,596	1.63		2.39	10.38	--	--	--
MPATC	29,381,408	1.29		0.00	-1.47	--	--	--
MPCTT	5,681,170	0.25		-0.17	56.52	--	--	--
MPMCB	8,632,803	0.38		-0.23	-0.04	--	--	--
RUSSELLVILLE LAND TIMBER	1,025,193	0.04		0.00	-0.93	--	--	--
<i>NCREIF Timberland 1 Qtr. Lag</i>				<i>1.02</i>	<i>4.00</i>	<i>3.55</i>	<i>6.02</i>	<i>4.02</i>
Real Estate Composite	213,915,699	9.37	10.00	1.94	9.79	9.61	11.47	7.10
<i>NFI-ODCE Eq Wtd Net Non Lag</i>				<i>1.39</i>	<i>7.31</i>	<i>7.53</i>	<i>9.60</i>	<i>5.91</i>
Core Real Estate Composite	113,210,504	4.96	--	2.95	10.71	9.65	12.21	6.74
<i>NCREIF Property Index</i>				<i>1.37</i>	<i>6.71</i>	<i>7.22</i>	<i>9.33</i>	<i>7.49</i>
Clarion Partners Lion Prop Fd	25,218,010	1.10		1.76	11.04	8.99	11.11	5.41
Principal CMBS	5,293,784	0.23		29.06	32.55	13.89	13.90	26.08
Principal Enhanced Property	54,455,637	2.39		1.55	9.47	10.85	13.68	4.81
<i>NCREIF Property Index</i>				<i>1.37</i>	<i>6.71</i>	<i>7.22</i>	<i>9.33</i>	<i>7.49</i>
Principal U.S. Property Fund	28,243,073	1.24		1.25	8.10	8.38	10.26	6.61
<i>NCREIF ODCE</i>				<i>1.76</i>	<i>8.35</i>	<i>8.24</i>	<i>10.41</i>	<i>6.99</i>
Non-Core Real Estate Composite	85,339,659	3.74	--	2.13	11.82	11.27	11.53	5.20
Apollo European III	255,833	0.01		-38.64	-62.78	-27.44	-16.91	-8.96
Apollo Real Estate	4,308,314	0.19		9.76	21.45	11.32	13.97	2.95
Centersquare III	22,421,557	0.98		0.00	16.85	--	--	--
Clarion Part Lion Mexico Fund	1,306,101	0.06		-1.15	-11.11	-22.07	-15.95	-10.72
Colony Capital VIII	240,200	0.01		-0.21	20.50	1.14	-0.58	-6.52
M&G II	5,146,955	0.23		-0.04	4.61	4.92	2.84	--
Oak Street IV	3,724,141	0.16		2.68	4.96	--	--	--
Och Ziff RE Credit FD LP	2,290,458	0.10		0.94	9.09	--	--	--
Och-Ziff	1,738,011	0.08		34.55	79.54	53.59	37.68	29.11



MPERS

TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Och-Ziff RE III	3,734,883	0.16		2.69	31.29	20.15	--	--
Torchlight Debt Opp II	892,299	0.04		57.39	49.44	17.47	--	--
Torchlight Debt Opp III	46,396	0.00		-0.92	-4.44	3.83	--	--
Torchlight Debt Opps V	10,709,222	0.47		4.28	18.44	12.90	--	--
Tristan EPI SO	2,394,779	0.10		-14.22	-20.67	-0.29	4.04	3.67
Tristan EPI SO 3	8,354,632	0.37		2.01	6.07	23.60	--	--
Tristan EPI SO 4	12,050,530	0.53		1.66	4.72	4.46	--	--
New Mountain	3,843,744	0.17		2.19	--	--	--	--
Centersquare IV	1,846,331	0.08		0.10	--	--	--	--
<i>NCREIF Property Index</i>				1.37	6.71	7.22	9.33	7.49
REITS Composite	15,365,536	0.67	--	-6.13	-7.69	0.17	1.91	9.00
CBRE Investors	15,365,536	0.67		-6.13	-7.69	0.17	1.91	9.00
<i>FTSE NAREIT Developed</i>				-5.69	-5.63	2.72	4.34	9.65
Private Equity Composite	393,508,297	17.23	15.00	3.40	20.20	13.33	14.23	11.12
<i>MO Hwy Priv. Equ. Index - Lagged</i>				8.49	21.40	20.78	17.33	15.46
Abry Partners VI	176,996	0.01		-3.29	71.47	51.88	41.93	30.87
Abry Partners VII	1,800,825	0.08		-7.33	0.09	11.06	13.53	--
Capital Partners II	14,040,561	0.61		5.05	26.31	21.28	23.21	--
DC Capital Partners	2,352,272	0.10		-1.23	26.06	--	--	--
Grove Street - MP Ventures	83,893,767	3.67		7.87	21.26	9.08	10.45	9.01
Grove Street - MP Ventures II	193,384,553	8.47		1.66	17.75	14.32	16.35	5.59
KPS IV	4,083,222	0.18		7.22	19.87	--	--	--
Longford II	4,789,332	0.21		18.44	10.80	--	--	--
Monomoy Capital Partners III	1,586,372	0.07		-23.33	-17.69	--	--	--
Newquest Fund	5,592,282	0.24		25.21	20.59	--	--	--
Opengate Capital Partners	8,942,797	0.39		8.31	28.50	--	--	--
Pfingsten Fund V	3,807,443	0.17		-4.88	-8.78	--	--	--
Shore Capital Partners GP I LP	8,280,956	0.36		-0.10	65.04	40.46	--	--
Shoreline China Valu III	4,052,120	0.18		-0.85	0.47	7.45	--	--
Turnbridge Capital Partners I	10,909,676	0.48		-2.43	33.95	1.80	--	--
Vectis H & L II	8,540,301	0.37		7.36	26.08	27.51	22.28	--



MPERS

TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Aisling	7,347,353	0.32		2.03	13.06	--	--	--
Arrowroot Capital III	12,790,848	0.56		-0.30	54.49	--	--	--
Arrowroot Capital IV	1,200,000	0.05		--	--	--	--	--
Long Ridge II	8,196,232	0.36		6.71	31.18	--	--	--
BLACKSTONE ASIA	824,485	0.04						
DYAL IV	1,000,000	0.04		-2.39	--	--	--	--
Capital Partners III	4,825,183	0.21		1.73	-11.59	--	--	--
Nexus	1,090,721	0.05		-26.43	--	--	--	--
Hedge Fund Composite	136,538,190	5.98	10.00	-5.47	-3.00	2.38	2.03	4.94
<i>HFRI Fund of Funds Composite Index</i>				-5.00	-4.08	1.29	1.38	3.11
Alpstone Capital	11,474,014	0.50		3.45	11.33	--	--	--
Alyeska Fund	0	0.00		0.00	-5.47	-1.31	--	--
BlueTrend	8,534,609	0.37		-2.54	-10.85	-6.86	-1.19	--
Bridgewater Pure Alpha	21,175,589	0.93		11.80	14.66	6.07	5.34	9.82
Cevian	13,136,344	0.58		-17.21	-15.07	4.90	2.76	--
Indus Pacific Opp. Fund	11,534,398	0.51		-18.43	-22.90	-0.01	--	--
Luxor Capital	769,387	0.03		2.93	-3.82	-2.50	-5.77	3.21
Metacapital	11,815,998	0.52		-3.05	8.00	3.22	3.90	--
Millenium USA LP	20,787,821	0.91		-3.66	5.86	6.07	--	--
Miravast ILS Credit Opp	10,995,339	0.48		-4.71	--	--	--	--
Pentwater	13,344,207	0.58		-1.11	6.80	12.59	--	--
PFM	0	0.00		0.00	0.00	-2.00	0.86	--
Shepherd International Fund	157,316	0.01		-4.68	-3.02	-7.33	-5.07	-2.66
ValueAct	12,813,168	0.56		-20.16	-12.31	2.05	3.22	--
<i>HFRI Fund of Funds Composite Index</i>				-5.00	-4.08	1.29	1.38	3.11
Cash Composite	19,607,029	0.86	0.00	0.57	1.75	0.90	0.58	0.32
<i>91 Day T-Bills</i>				0.55	1.89	1.04	0.63	0.36

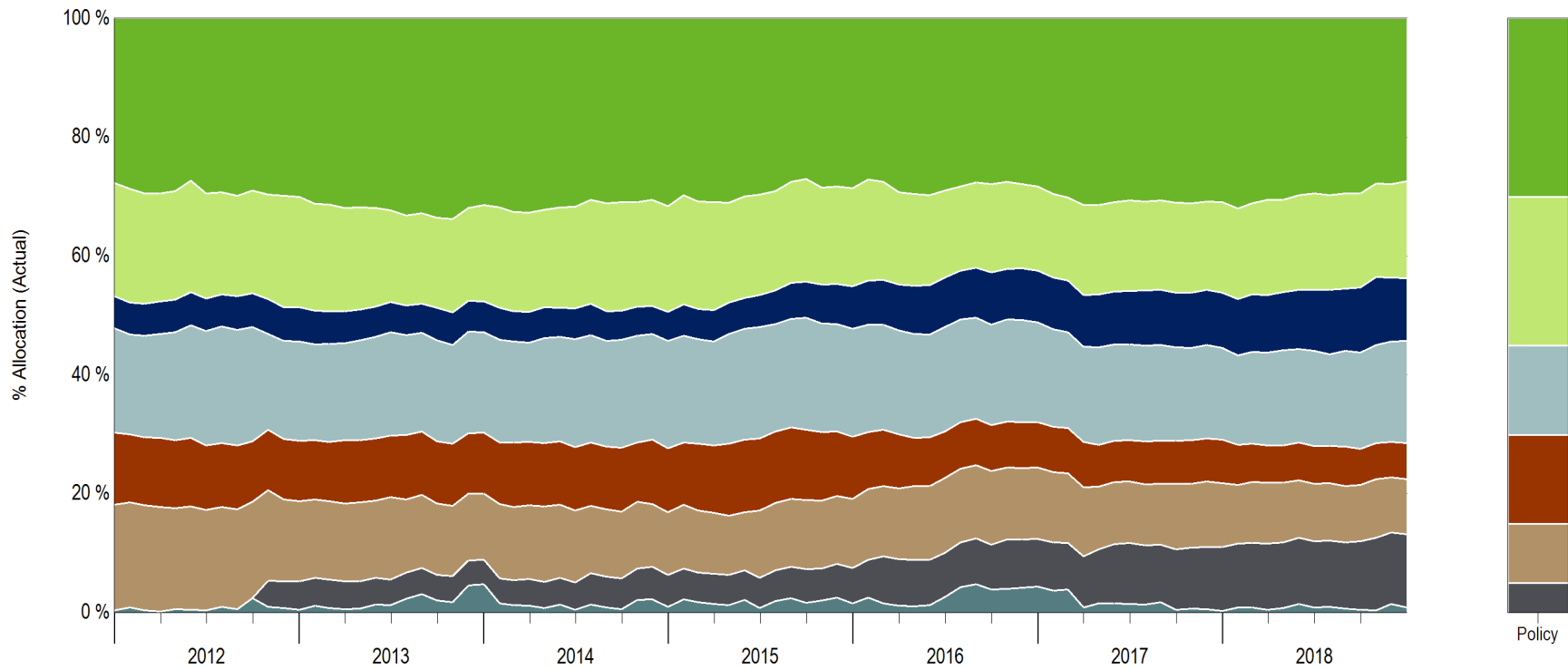


APPENDIX

NEPC, LLC

TOTAL FUND ASSET ALLOCATION HISTORY

Asset Allocation History

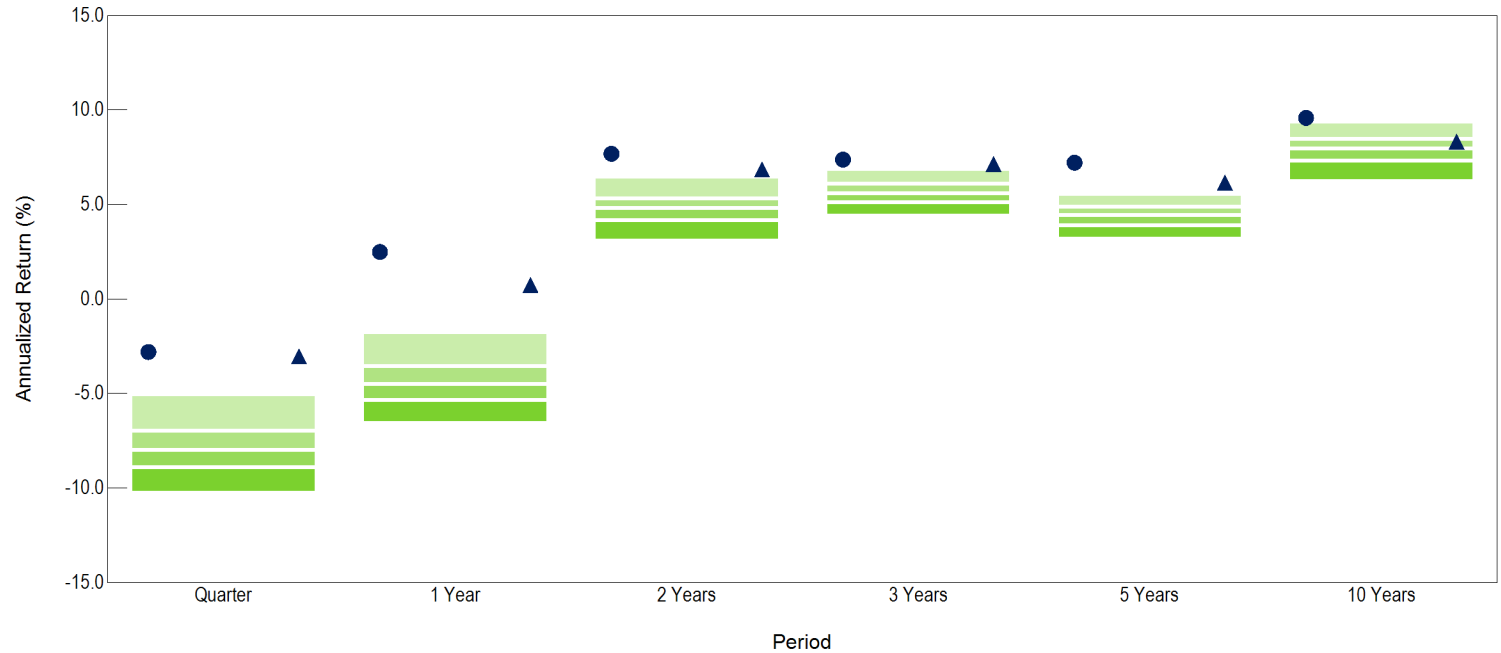


- Equity - Global
- Fixed Income
- Opportunistic Fixed Income
- Private Equity
- Hedge Funds
- Real Estate
- Real Assets
- Cash



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Composite vs. InvestorForce Public DB Net

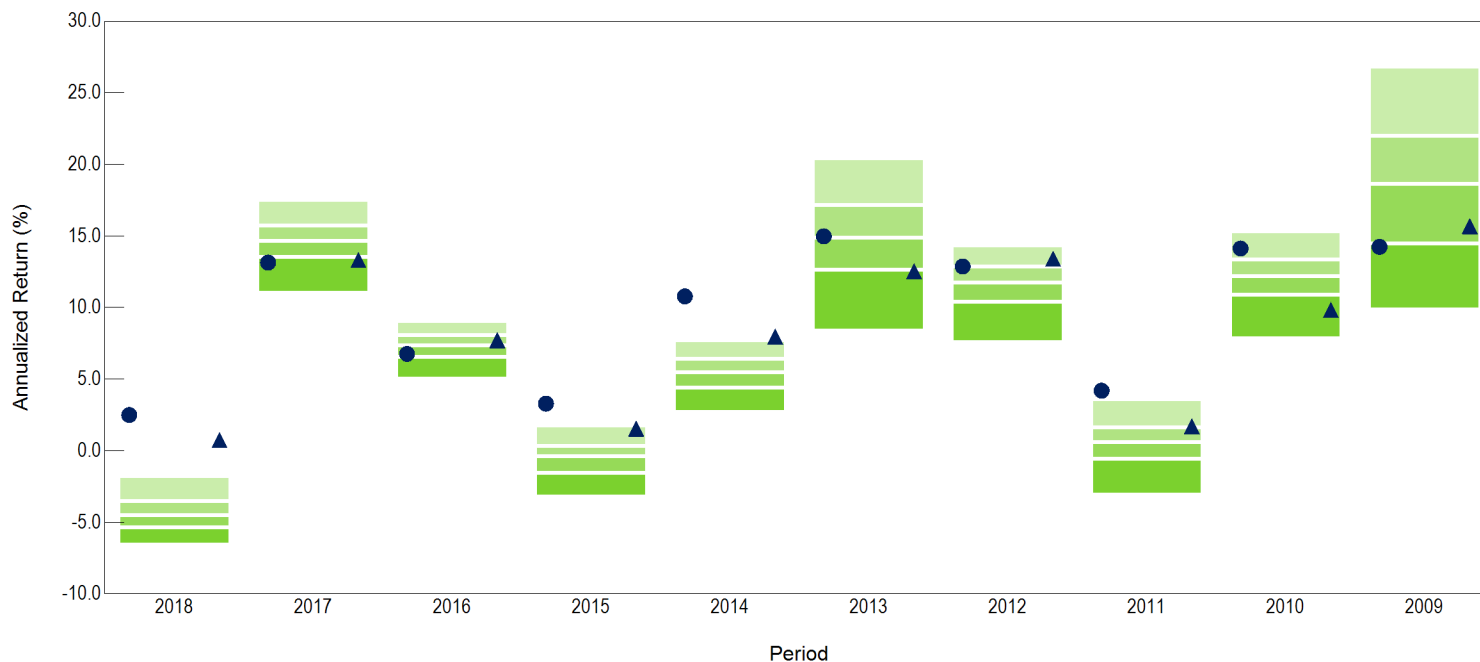


	Return (Rank)											
5th Percentile	-5.0	-1.8	6.5	6.9	5.5	9.4						
25th Percentile	-7.0	-3.5	5.3	6.1	4.9	8.5						
Median	-8.0	-4.5	4.8	5.6	4.5	8.0						
75th Percentile	-8.9	-5.3	4.2	5.1	3.9	7.3						
95th Percentile	-10.2	-6.5	3.1	4.4	3.2	6.2						
# of Portfolios	317	316	309	304	284	221						
● Total Composite	-2.8	(1)	2.5	(1)	7.7	(1)	7.4	(3)	7.2	(1)	9.6	(3)
▲ Policy Index	-3.0	(1)	0.7	(1)	6.8	(3)	7.1	(3)	6.2	(2)	8.3	(32)



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Composite vs. InvestorForce Public DB Net



	Return (Rank)																			
5th Percentile	-1.8	17.5	9.0	1.7	7.7	20.4	14.3	3.6	15.3	26.8										
25th Percentile	-3.5	15.8	8.1	0.4	6.4	17.2	12.9	1.6	13.4	22.0										
Median	-4.5	14.7	7.4	-0.4	5.5	14.9	11.8	0.6	12.2	18.6										
75th Percentile	-5.3	13.6	6.6	-1.5	4.4	12.7	10.4	-0.5	10.9	14.5										
95th Percentile	-6.5	11.1	5.0	-3.2	2.7	8.4	7.6	-3.1	7.9	9.9										
# of Portfolios	316	269	269	262	210	191	159	137	131	128										
● Total Composite	2.5	(1)	13.1	(83)	6.8	(70)	3.3	(1)	10.8	(1)	15.0	(49)	12.9	(26)	4.2	(3)	14.1	(14)	14.2	(77)
▲ Policy Index	0.7	(1)	13.3	(81)	7.7	(39)	1.5	(7)	8.0	(4)	12.5	(76)	13.4	(15)	1.7	(24)	9.8	(88)	15.7	(68)



GLOSSARY OF INVESTMENT TERMINOLOGY

Alpha - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

Alpha Jensen - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

Annualized Excess Return over Benchmark - Annualized fund return minus the annualized benchmark return for the calculated return.

Annualized Return - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

Beta - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

Information Ratio - A measure of the risk adjusted return of a financial security, asset, or portfolio.

Formula:
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Benchmark}) / \text{Annualized Standard Deviation}(\text{Period Portfolio Return} - \text{Period Benchmark Return})$. To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

R-Squared - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

Sharpe Ratio - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

Sortino Ratio - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

Formula:
 $\text{Calculation Average } (X-Y) / \text{Downside Deviation } (X-Y) * 2$
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)

Standard Deviation - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

Formula:
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Risk Free}) / \text{Annualized Standard Deviation (Portfolio Returns)}$

Tracking Error - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

Formula:
 $\text{Tracking Error} = \text{Standard Deviation } (X-Y) * \sqrt{\text{\# of periods per year}}$
Where X = periods portfolio return and Y = the period's benchmark return
For monthly returns, the periods per year = 12
For quarterly returns, the periods per year = 4

Treynor Ratio - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

Formula:
 $(\text{Portfolio Average Return} - \text{Average Return of Risk-Free Rate}) / \text{Portfolio Beta}$

Up/Down Capture Ratio - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

$\text{Upside Capture} = \text{Total Return}(\text{Fund Returns}) / \text{Total Returns}(\text{BM Return})$ when Period Benchmark Return is $> = 0$

$\text{Downside Capture} = \text{Total Return}(\text{Fund Returns}) / \text{Total Returns}(\text{BM Return})$ when Benchmark < 0

Data Source: InvestorForce



GLOSSARY OF INVESTMENT TERMINOLOGY

Of Portfolios/Observations¹ – The total number of data points that make up a specified universe

Allocation Index³ - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

Asset Allocation Effect² - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

Agency Bonds (Agencies)³ - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

Asset Backed Securities (ABS)³ - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

Attribution³ - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

Average Effective Maturity⁴ - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

Batting Average¹ - A measurement representing an investment manager's ability to meet or beat an index.

Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.

Brinson Fachler (BF) Attribution¹ - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

Brinson Hood Beebower (BHB) Attribution¹ - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

Corporate Bond (Corp)⁴ - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

Correlation¹ - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: ¹InvestorForce, ²Interaction Effect Performance Attribution, ³NEPC, LLC, ⁴Investopedia, ⁵Hedgeco.net



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Coupon⁴ – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

Currency Effect¹ - Is the effect that changes in currency exchange rates over time affect excess performance.

Derivative Instrument³ - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

Downside Deviation¹ - Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

Formula:

Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.

Duration³ - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

Equity/Debt/Cash Ratio¹ – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

Foreign Bond³ - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle⁵ – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark⁴ - The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

Hurdle Rate⁴ - The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

Interaction Effects² - The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

Median³ - The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

Modified Duration³ - The percentage change in the price of a fixed income security that results from a change in yield.

Mortgage Backed Securities (MBS)³ - Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

Municipal Bond (Muni)⁴ - A debt security issued by a state, municipality or county to finance its capital expenditures.

Net Investment Change¹ – Is the change in an investment after accounting for all Net Cash Flows.

Performance Fee⁴ - A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

Data Source: ¹InvestorForce, ²Interaction Effect Performance Attribution, ³NEPC, LLC, ⁴Investopedia, ⁵Hedgeco.net



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Policy Index³ - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

Price to Book (P/B)⁴ - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

Price to Earnings (P/E)³ - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

Price to Sales (P/S)⁴ - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

Return on Equity (ROE)⁴ - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

Selection (or Manager) Effect² - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

Soft Hurdle rate⁵ - is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

Tiered Fee¹ - A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first \$10M invested, 0.90% on the next \$10M, and 0.80% on the remaining balance).

Total Effects² - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

Total Return¹ - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe³ - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation¹ - Standard Deviation of Positive Returns

Weighted Avg. Market Cap.⁴ - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

Yield (%)³ - The current yield of a security is the current indicated annual dividend rate divided by current price.

Yield to Maturity³ - The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: ¹InvestorForce, ²Interaction Effect Performance Attribution, ³NEPC, LLC, ⁴Investopedia, ⁵Hedgeco.net



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- 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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