

INVESTMENT SUMMARY
QUARTER ENDING MARCH 31, 2018



DALLAS POLICE & FIRE
PENSION SYSTEM

June, 2018

Rhett Humphreys, CFA, Partner

Keith Stronkowsky, CFA, Senior Consultant



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

Q1 2018 PERFORMANCE & ASSET ALLOCATION

NEPC, LLC

CALENDAR YEAR INDEX PERFORMANCE

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Jan	Feb	Mar	Q1	YTD
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	5.7%	-3.7%	-2.5%	-0.8%	-0.8%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	5.5%	-3.7%	-2.3%	-0.7%	-0.7%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	2.6%	-3.9%	1.3%	-0.1%	-0.1%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	3.0%	-4.1%	1.0%	-0.2%	-0.2%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	5.0%	-4.5%	-1.8%	-1.5%	-1.5%
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	8.3%	-4.6%	-1.9%	1.4%	1.4%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	5.6%	-4.2%	-2.1%	-1.0%	-1.0%
Private Equity*	13.7%	19.7%	7.9%	12.5%	20.6%	12.7%	9.6%	8.3%	13.7%*	-	-	-	-	-
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-0.9%	-1.0%	1.1%	-0.8%	-0.8%
BC Municipal Bond	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	6.2%	-1.2%	-0.3%	0.4%	-1.1%	-1.1%
BC Muni High Yield	32.7%	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	-0.9%	0.1%	1.5%	0.6%	0.6%
BC US Corp High Yield	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	0.6%	-0.8%	-0.6%	-0.9%	-0.9%
BC US Aggregate	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	4.2%	-1.2%	-0.9%	0.6%	-1.5%	-1.5%
BC Global Aggregate	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	7.4%	1.2%	-0.9%	1.1%	1.4%	1.4%
BC Long Treasuries	-12.9%	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.2%	-3.0%	3.0%	-3.3%	-3.3%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	13.7%	-1.3%	-3.3%	0.7%	-3.8%	-3.8%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	10.7%	-4.2%	-4.6%	4.4%	-4.6%	-4.6%
JPM GBI-EM Glob Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	14.6%	4.5%	-1.0%	1.0%	4.4%	4.4%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	12.2%	0.0%	-2.0%	0.3%	-1.7%	-1.7%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	5.2%	1.1%	0.2%	0.3%	1.6%	1.6%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	2.7%	-2.1%	-	0.5%	0.5%
BBG Commodity	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	0.8%	2.0%	-1.7%	-0.6%	-0.4%	-0.4%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	5.8%	-9.7%	-6.9%	-11.1%	-11.1%
FTSE NAREIT Eq REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	3.5%	-4.2%	-7.7%	3.8%	-8.2%	-8.2%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse, Thomson One
 *Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag



Dallas Police & Fire Pension

TRAILING RETURNS: BY BROAD COMPOSITE

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	7 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
DPFP	2,087,889,452	100.0	0.8	8	5.2	99	0.6	99	0.3	99	1.5	99	1.3	99	6.0	Jun-96
<i>Policy Index</i>			<i>0.1</i>	<i>25</i>	<i>10.5</i>	<i>30</i>	<i>9.2</i>	<i>1</i>	<i>9.1</i>	<i>3</i>	<i>8.5</i>	<i>5</i>	<i>6.7</i>	<i>18</i>	<i>--</i>	<i>Jun-96</i>
Total Equity	723,693,481	34.7	-0.7	--	-6.9	--	-2.9	--	3.0	--	3.8	--	--	--	4.3	Dec-10
<i>Total Equity Policy Index</i>			<i>-0.3</i>	<i>--</i>	<i>17.4</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>Dec-10</i>
Total Fixed Income	344,022,770	16.5	1.4	24	6.2	38	2.6	74	3.0	48	4.9	27	5.5	31	5.7	Jul-06
<i>Total Fixed Income Policy Index</i>			<i>0.9</i>	<i>36</i>	<i>6.5</i>	<i>34</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>Jul-06</i>
Total Real Assets	744,324,106	35.6	2.7	--	13.4	--	1.2	--	-2.8	--	-2.4	--	--	--	-2.4	Dec-10
<i>Total Real Assets Policy Index</i>			<i>-0.4</i>	<i>--</i>	<i>8.8</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>Dec-10</i>
Total GAA	142,255,906	6.8	-1.9	77	3.5	83	3.1	63	4.0	58	5.2	55	4.1	72	3.9	Jul-07
<i>Total GAA Policy Index</i>			<i>0.1</i>	<i>28</i>	<i>9.9</i>	<i>35</i>	<i>7.7</i>	<i>4</i>	<i>7.0</i>	<i>15</i>	<i>7.0</i>	<i>17</i>	<i>6.9</i>	<i>18</i>	<i>7.0</i>	<i>Jul-07</i>
Cash Equivalents	133,593,191	6.4	0.3	--	1.1	--	1.1	--	--	--	--	--	--	--	1.1	Apr-15
<i>91 Day T-Bills</i>			<i>0.4</i>	<i>--</i>	<i>1.2</i>	<i>--</i>	<i>0.5</i>	<i>--</i>	<i>0.3</i>	<i>--</i>	<i>0.3</i>	<i>--</i>	<i>0.3</i>	<i>--</i>	<i>0.5</i>	<i>Apr-15</i>

Policy Indexes are calculated using policy benchmarks and policy weights of the underlying sub composites.

Net of fees returns shown on report are time weighted.



Dallas Police & Fire Pension

TRAILING RETURNS: BY ASSET CLASS

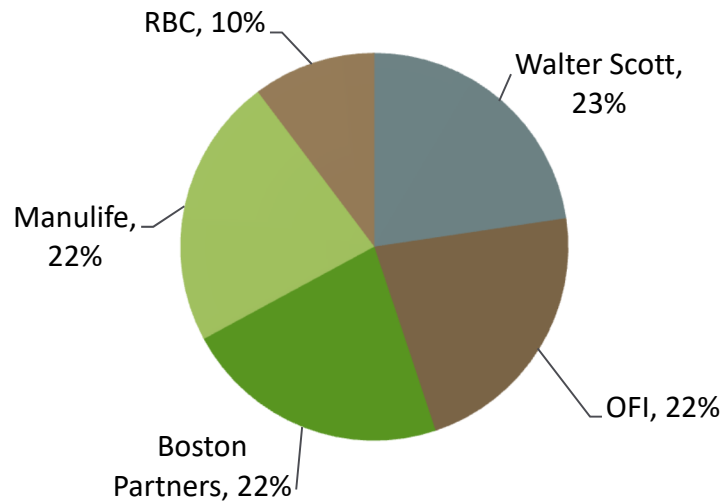
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	7 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
DPFP	2,087,889,452	100.0	0.8	8	5.2	99	0.6	99	0.3	99	1.5	99	1.3	99	6.0	Jun-96
Policy Index			0.1	25	10.5	30	9.2	1	9.1	3	8.5	5	6.7	18	--	Jun-96
Global Equity	437,447,135	21.0	-0.7	43	16.7	34	8.9	32	10.2	38	8.7	48	6.5	48	6.5	Jul-06
MSCI ACWI Gross			-0.8	47	15.4	43	8.7	34	9.8	45	8.5	51	6.1	55	6.6	Jul-06
Emerging Markets Equity	49,784,995	2.4	-0.9	93	--	--	--	--	--	--	--	--	--	--	-0.9	Jan-18
MSCI Emerging Markets Gross			1.5	50	25.4	37	9.2	49	5.4	50	2.8	68	3.4	63	1.5	Jan-18
Private Equity	236,461,351	11.3	-0.8	--	-26.4	--	-10.2	--	-11.0	--	-5.6	--	-4.4	--	-0.7	Oct-05
Russell 3000 + 3%			0.1	--	17.2	--	13.5	--	16.4	--	15.7	--	12.9	--	11.9	Oct-05
Short Term Core Bonds	49,972,880	2.4	-0.3	--	--	--	--	--	--	--	--	--	--	--	-0.1	Jun-17
BBgBarc US Treasury 1-3 Yr TR			-0.2	--	0.0	--	0.4	--	0.5	--	0.7	--	1.1	--	-0.2	Jun-17
Global Bonds	68,938,132	3.3	4.1	3	11.1	5	4.5	23	2.7	54	3.5	58	--	--	3.7	Dec-10
BBgBarc Global Aggregate TR			1.4	26	7.0	28	3.1	55	1.5	80	2.0	82	2.6	84	2.1	Dec-10
High Yield	81,965,612	3.9	0.1	15	5.6	20	5.3	39	4.7	44	6.2	22	--	--	6.9	Dec-10
BBgBarc Global High Yield TR			-0.4	20	6.6	8	6.7	11	5.3	17	6.5	17	8.3	1	6.9	Dec-10
Bank Loans	111,825,508	5.4	1.5	24	5.3	45	4.7	20	--	--	--	--	--	--	4.3	Jan-14
S&P/LSTA Leveraged Loan TR			1.4	24	4.4	59	4.2	28	3.9	27	4.3	35	5.6	30	3.8	Jan-14
Emerging Markets Debt	20,548,625	1.0	1.1	41	8.6	38	7.7	13	2.4	57	3.8	60	--	--	4.3	Dec-10
50% JPM EMBI/50% JPM GBI-EM			1.3	40	8.6	38	5.7	52	1.7	62	3.6	60	--	--	3.8	Dec-10
Private Debt	10,772,012	0.5	4.1	--	1.3	--	--	--	--	--	--	--	--	--	-7.8	Jan-16
Barclays Global High Yield +2%			0.1	--	8.8	--	8.8	--	--	--	--	--	--	--	12.9	Jan-16
Natural Resources	200,726,486	9.6	2.1	--	-1.5	--	2.1	--	4.8	--	4.7	--	--	--	5.7	Dec-10
S&P Global Natural Resources			-1.8	--	16.6	--	6.9	--	1.8	--	-1.2	--	-0.1	--	-0.4	Dec-10
Infrastructure	61,591,601	2.9	1.1	--	69.9	--	17.3	--	11.3	--	--	--	--	--	10.7	Jul-12
S&P Global Infrastructure Index			-5.5	--	5.1	--	4.4	--	6.9	--	6.5	--	3.7	--	8.2	Jul-12
Real Estate	482,006,019	23.1	3.2	--	5.6	--	-3.5	--	-7.1	--	-5.5	--	-5.0	--	3.7	Mar-85
NCREIF Property Index			1.7	--	7.1	--	8.7	--	10.0	--	10.6	--	6.1	--	8.0	Mar-85
Risk Parity	83,810,806	4.0	-1.6	74	8.0	55	3.7	56	3.7	63	6.7	23	--	--	6.9	Dec-10
60% MSCI ACWI/40% Barclays Global Agg			0.0	29	11.7	24	6.2	12	6.2	26	5.7	44	4.6	59	5.9	Dec-10
GTAA	23,685,766	1.1	1.0	9	10.4	31	5.2	29	5.0	48	6.1	37	--	--	6.1	Dec-10
60% MSCI ACWI/40% Barclays Global Agg			0.0	29	11.7	24	6.2	12	6.2	26	5.7	44	4.6	59	5.9	Dec-10
Absolute Return	34,759,334	1.7	-4.3	84	-9.5	93	-2.5	73	5.3	19	--	--	--	--	5.1	Aug-11
HFRX Absolute Return Index			0.3	36	3.0	43	1.7	34	2.1	52	1.1	54	-0.7	85	1.5	Aug-11
Cash Equivalents	133,593,191	6.4	0.3	--	1.1	--	1.1	--	--	--	--	--	--	--	1.1	Apr-15
91 Day T-Bills			0.4	--	1.2	--	0.5	--	0.3	--	0.3	--	0.3	--	0.5	Apr-15



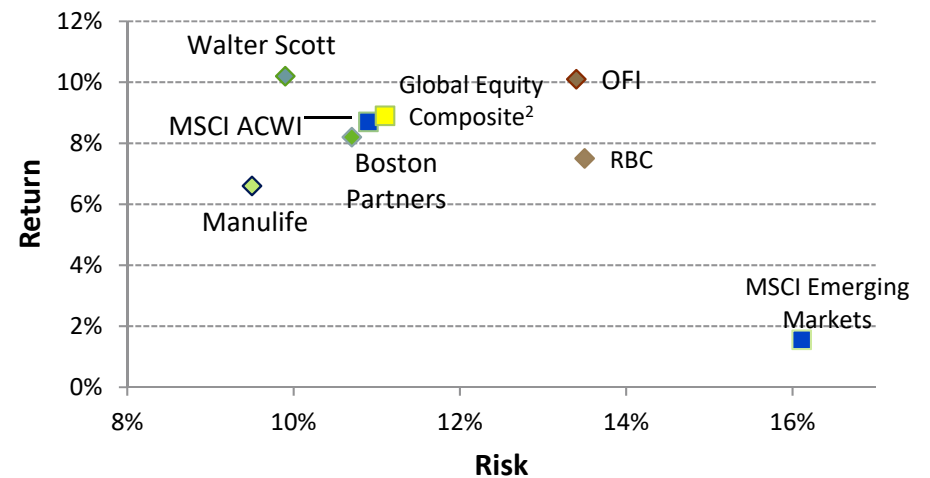
PUBLIC EQUITY: COMPOSITE OVERVIEW

Manager	Benchmark	Asset Class	Descriptions
Boston Partners	MSCI ACWI	Global Equity	Value; Bottom Up
Manulife	MSCI ACWI	Global Equity	Value; Bottom Up
OFI	MSCI ACWI	Global Equity	Growth; Bottom Up
Walter Scott	MSCI ACWI	Global Equity	Growth; Bottom Up
RBC	MSCI Emerging Markets	Emerging Market Equity	Top Down / Bottom up Blend

Public Equity Managers



3-Year Risk/Return¹



¹Boston Partners and Manulife 3-year risk/reward obtained from manager separate account composites. RBC 3-year risk/reward obtained from eVestment separate account composite.

²Global Equity Composite consists of Boston Partners, Manulife, OFI, and Walter Scott performance.



*May not add to 100% due to rounding.

Dallas Police & Fire Pension

PUBLIC EQUITY: TRAILING MANAGER RETURNS

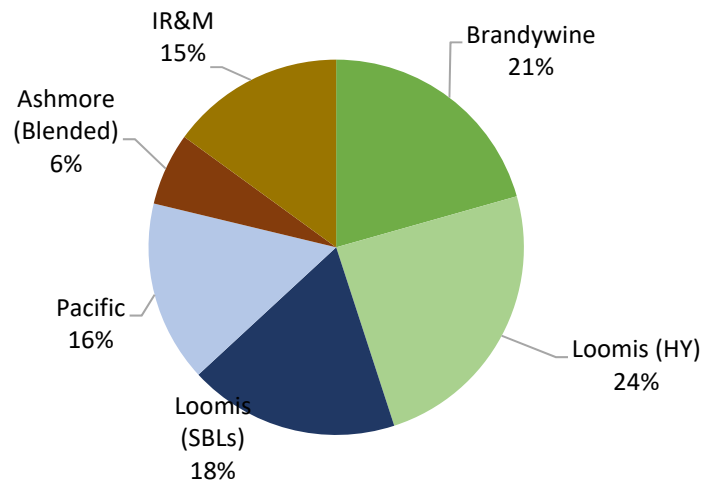
	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	2,087,889,452	100.0	0.8	5.2	0.6	0.3	1.5	1.3	6.0	Jun-96
Policy Index			0.2	10.5	9.2	9.1	8.5	6.7	--	Jun-96
InvestorForce Public DB Net Rank			8	99	99	99	99	99	77	Jun-96
Public Equity	487,232,130	23.3	-0.7	16.7	8.8	10.2	8.7	6.5	6.5	Jul-06
Public Equity Weighted Index			-0.6	15.7	8.2	9.6	8.4	6.5	6.5	Jul-06
Global Equity	437,447,135	21.0	-0.7	16.7	8.9	10.2	8.7	6.5	6.5	Jul-06
MSCI ACWI Gross			-0.8	15.4	8.7	9.8	8.5	6.1	6.6	Jul-06
eV All Global Equity Net Rank			43	34	32	38	48	48	41	Jul-06
Boston Partners Global Investors Inc	107,571,477	5.2	-1.3	--	--	--	--	--	8.6	Jul-17
MSCI ACWI Gross			-0.8	15.4	8.7	9.8	8.5	6.1	10.5	Jul-17
eV Global Large Cap Value Eq Net Rank			48	--	--	--	--	--	36	Jul-17
Manulife Asset Management LLC	111,137,843	5.3	-3.1	--	--	--	--	--	2.8	Jul-17
MSCI ACWI Gross			-0.8	15.4	8.7	9.8	8.5	6.1	10.5	Jul-17
eV Global Large Cap Value Eq Net Rank			88	--	--	--	--	--	96	Jul-17
OFI	108,614,838	5.2	0.5	23.8	10.1	11.8	10.2	8.5	6.5	Oct-07
MSCI ACWI Gross			-0.8	15.4	8.7	9.8	8.5	6.1	4.7	Oct-07
eV Global Large Cap Growth Eq Net Rank			70	44	54	50	48	29	43	Oct-07
Walter Scott	110,122,976	5.3	1.2	17.6	10.2	9.6	9.5	--	9.5	Dec-09
MSCI ACWI Gross			-0.8	15.4	8.7	9.8	8.5	6.1	9.6	Dec-09
eV Global Large Cap Growth Eq Net Rank			60	81	51	89	72	--	75	Dec-09
Emerging Markets Equity	49,784,995	2.4	-0.9	--	--	--	--	--	-0.9	Jan-18
MSCI Emerging Markets Gross			1.5	25.4	9.2	5.4	2.8	3.4	1.5	Jan-18
eV Emg Mkts Equity Net Rank			93	--	--	--	--	--	93	Jan-18
RBC	49,784,995	2.4	-0.9	--	--	--	--	--	-0.9	Jan-18
MSCI Emerging Markets			1.4	24.9	8.8	5.0	2.5	3.0	1.4	Jan-18
eV Emg Mkts Equity Net Rank			93	--	--	--	--	--	93	Jan-18



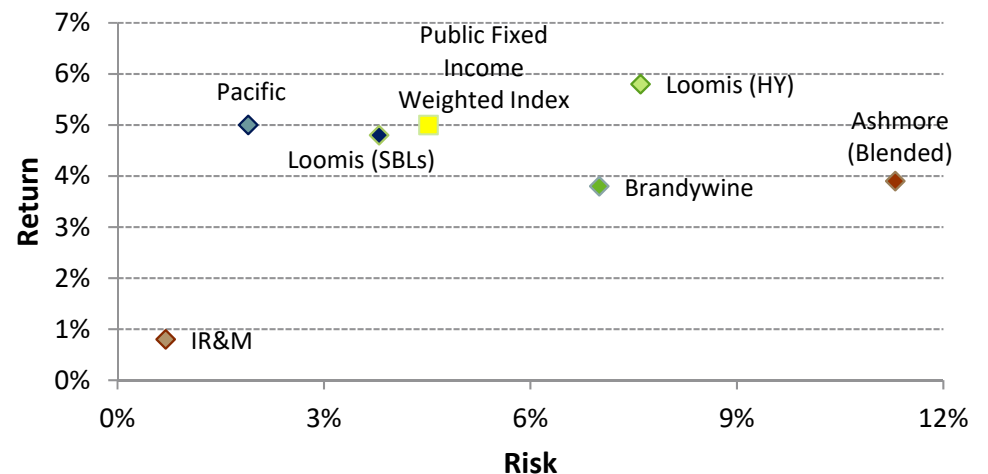
PUBLIC FIXED INCOME: COMPOSITE OVERVIEW

Manager	Benchmark	Asset Class	Descriptions
Brandywine	Barclays Global Aggregate	Global Bonds	Aggressive, but diversified
Loomis (HY)	Barclays Global High Yield	High Yield	Aggressive
Loomis (BLs)	S&P/LSTA US Levered	Bank Loans	Bank Loans (min 65% of portfolio)
Pacific Asset Management	Credit Suisse Leveraged Loan	Bank Loans	Focus on largest, most liquid credits
Ashmore (Blended Currency)	50% JPM EMBI GD/25% JPM ELMI+/25% JPM GBI EM GD	Emerging Market Debt	Blended Currency EMD
IR&M	Barclays 1-3 Yr treasury	Short Term Core Bonds	Short Term Liquidity

Public Fixed Income Managers



3-Year Risk/Return*



*Pacific Asset Management and IR&M 3-year risk/return obtained from manager composites.



Dallas Police & Fire Pension

PUBLIC FIXED INCOME: TRAILING MANAGER

	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	2,087,889,452	100.0	0.8	5.2	0.6	0.3	1.5	1.3	6.0	Jun-96
Policy Index			0.1	10.5	9.2	9.1	8.5	6.7	--	Jun-96
InvestorForce Public DB Net Rank			8	99	99	99	99	99	77	Jun-96
Public Fixed Income	333,250,757	16.0	1.4	6.6	5.1	3.7	5.3	--	5.8	Dec-10
Public Fixed Income Weighted Index			0.7	5.9	5.0	4.0	5.1	--	5.3	Dec-10
Short Term Core Bonds	49,972,880	2.4	-0.3	--	--	--	--	--	-0.1	Jun-17
BBgBarc US Treasury 1-3 Yr TR			-0.2	0.0	0.4	0.5	0.7	1.1	-0.2	Jun-17
IR&M	49,972,880	2.4	-0.3	--	--	--	--	--	-0.1	Jul-17
BBgBarc US Treasury 1-3 Yr TR			-0.2	0.0	0.4	0.5	0.7	1.1	-0.2	Jul-17
eV US Short Duration Fixed Inc Net Rank			52	--	--	--	--	--	72	Jul-17
Global Bonds	68,938,132	3.3	4.1	11.1	4.5	2.7	3.5	--	3.7	Dec-10
BBgBarc Global Aggregate TR			1.4	7.0	3.1	1.5	2.0	2.6	2.1	Dec-10
eV All Global Fixed Inc Net Rank			3	5	23	54	58	--	57	Dec-10
Brandywine	68,938,132	3.3	4.1	11.1	3.8	2.5	4.4	5.5	5.3	Oct-04
BBgBarc Global Aggregate TR			1.4	7.0	3.1	1.5	2.0	2.6	3.7	Oct-04
eV All Global Fixed Inc Net Rank			3	5	36	57	35	31	43	Oct-04
High Yield	81,965,612	3.9	0.1	5.6	5.3	4.7	6.2	--	6.9	Dec-10
BBgBarc Global High Yield TR			-0.4	6.6	6.7	5.3	6.5	8.3	6.9	Dec-10
eV Global High Yield Fixed Inc Net Rank			15	20	39	44	22	--	5	Dec-10
Loomis Sayles	81,965,612	3.9	0.1	5.6	5.8	5.7	6.3	8.8	9.8	Oct-98
BBgBarc Global High Yield TR			-0.4	6.6	6.7	5.3	6.5	8.3	8.6	Oct-98
eV Global High Yield Fixed Inc Net Rank			15	20	26	14	20	1	1	Oct-98



Dallas Police & Fire Pension

PUBLIC FIXED INCOME: TRAILING MANAGER

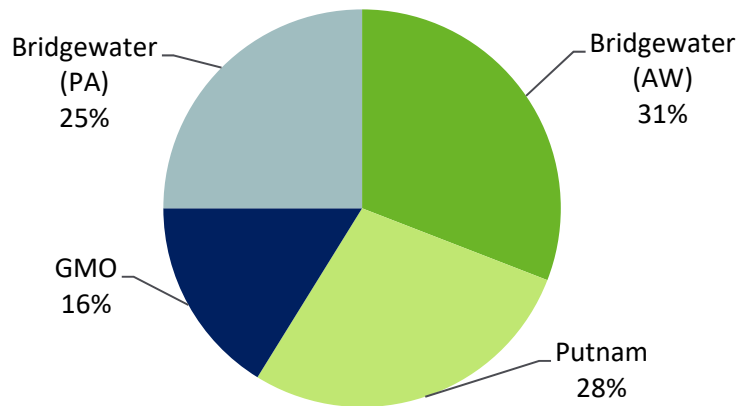
	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Bank Loans	111,825,508	5.4	1.5	5.3	4.7	--	--	--	4.3	Jan-14
<i>S&P/LSTA Leveraged Loan TR</i>			1.4	4.4	4.2	3.9	4.3	5.6	3.8	Jan-14
<i>eV All Global Fixed Inc Net Rank</i>			24	45	20	--	--	--	26	Jan-14
Loomis Sayles Senior Rate and Fixed Income	60,239,104	2.9	1.6	5.6	4.8	--	--	--	4.4	Jan-14
<i>S&P/LSTA Leveraged Loan TR</i>			1.4	4.4	4.2	3.9	4.3	5.6	3.8	Jan-14
<i>eV US Float-Rate Bank Loan Fixed Inc Net Rank</i>			14	6	19	--	--	--	16	Jan-14
Pacific Asset Management	51,586,404	2.5	1.3	--	--	--	--	--	3.2	Aug-17
<i>Credit Suisse Leveraged Loan</i>			1.6	4.6	4.3	4.2	4.5	5.4	3.1	Aug-17
<i>eV US Float-Rate Bank Loan Fixed Inc Net Rank</i>			36	--	--	--	--	--	18	Aug-17
Emerging Markets Debt	20,548,625	1.0	1.1	8.6	7.7	2.4	3.8	--	4.3	Dec-10
<i>50% JPM EMBI/50% JPM GBI-EM</i>			1.3	8.6	5.7	1.7	3.6	--	3.8	Dec-10
<i>eV All Emg Mkts Fixed Inc Net Rank</i>			41	38	13	57	60	--	54	Dec-10
Ashmore EM Blended Debt	20,548,625	1.0	1.1	--	--	--	--	--	2.8	Dec-17
<i>Ashmore Blended Debt Benchmark</i>			0.8	7.5	--	--	--	--	1.9	Dec-17
<i>eV All Emg Mkts Fixed Inc Net Rank</i>			41	--	--	--	--	--	38	Dec-17



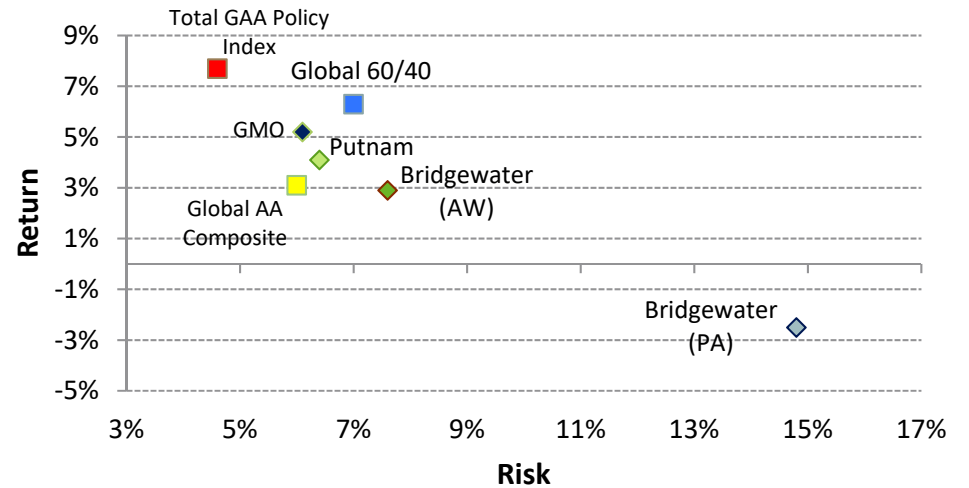
GLOBAL ASSET ALLOCATION: COMPOSITE OVERVIEW

Manager	Benchmark	Asset Class	Descriptions
Bridgewater (All Weather)	91 Day T-bill +7%	Risk Parity	Passive approach
Bridgewater (PAMM)	HFRX Absolute Return	Absolute Return	Global Macro Hedge Fund
GMO	CPI +5%	GTAA	Unconstrained
Putnam	Global 60/40	Risk Parity	Active approach

GAA Managers



3-Year Risk/Return



Dallas Police & Fire Pension

GLOBAL ASSET ALLOCATION: TRAILING RETURNS

	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	2,087,889,452	100.0	0.8	5.2	0.6	0.3	1.5	1.3	6.0	Jun-96
Policy Index			0.1	10.5	9.2	9.1	8.5	6.7	--	Jun-96
InvestorForce Public DB Net Rank			8	99	99	99	99	99	77	Jun-96
Total GAA	142,255,906	6.8	-1.9	3.5	3.1	4.0	5.2	4.1	3.9	Jul-07
Total GAA Policy Index			0.1	9.9	7.7	7.0	7.0	6.9	7.0	Jul-07
eV All Global Balanced / TAA Net Rank			77	83	63	58	55	72	69	Jul-07
Risk Parity	83,810,806	4.0	-1.6	8.0	3.7	3.7	6.7	--	6.9	Dec-10
60% MSCI ACWI/40% Barclays Global Agg			0.0	11.7	6.2	6.2	5.7	4.6	5.9	Dec-10
eV All Global Balanced / TAA Net Rank			74	55	56	63	23	--	22	Dec-10
Bridgewater All Weather	44,138,547	2.1	-1.6	7.4	2.9	3.2	7.0	4.9	5.8	Sep-07
91 Day T-Bill + 7%			2.1	8.2	7.6	7.4	7.3	7.3	7.5	Sep-07
eV All Global Balanced / TAA Net Rank			74	59	65	67	17	56	21	Sep-07
Putnam	39,672,259	1.9	-1.6	8.6	4.1	3.6	4.7	--	6.1	Dec-09
60% MSCI World (Net) / 40% CITI WGBI			0.3	11.6	6.3	6.4	5.9	4.6	6.4	Dec-09
eV All Global Balanced / TAA Net Rank			74	46	46	64	61	--	47	Dec-09
GTAA	23,685,766	1.1	1.0	10.4	5.2	5.0	6.1	--	6.1	Dec-10
60% MSCI ACWI/40% Barclays Global Agg			0.0	11.7	6.2	6.2	5.7	4.6	5.9	Dec-10
eV All Global Balanced / TAA Net Rank			9	31	29	48	37	--	38	Dec-10
GMO	23,685,766	1.1	1.0	10.4	5.2	5.0	6.1	5.2	5.0	Sep-07
CPI + 5% (Seasonally Adjusted)			1.9	7.5	7.0	6.5	6.7	6.6	6.8	Sep-07
eV All Global Balanced / TAA Net Rank			9	31	29	48	37	51	41	Sep-07
Absolute Return	34,759,334	1.7	-4.3	-9.5	-2.5	5.3	--	--	5.1	Aug-11
HFRX Absolute Return Index			0.3	3.0	1.7	2.1	1.1	-0.7	1.5	Aug-11
eV All Macro Rank			84	93	73	19	--	--	20	Aug-11
Bridgewater Pure Alpha	34,759,334	1.7	-4.3	-9.5	-2.5	5.3	--	--	5.1	Aug-11
HFRX Absolute Return Index			0.3	3.0	1.7	2.1	1.1	-0.7	1.5	Aug-11
eV All Macro Rank			84	93	73	19	--	--	20	Aug-11



RISK/RETURN & COMPLIANCE ANALYSIS

NEPC, LLC

Dallas Police & Fire Pension

TOTAL FUND RISK/RETURN

3 Years Ending March 31, 2018

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
DPFP	0.6%	99	4.9%	6
Policy Index	9.2%	1	4.4%	3
60 MSCI ACWI/40 BC Global Agg	6.2%	45	7.3%	93
InvestorForce Public DB Net Median	6.2%	--	6.1%	--

5 Years Ending March 31, 2018

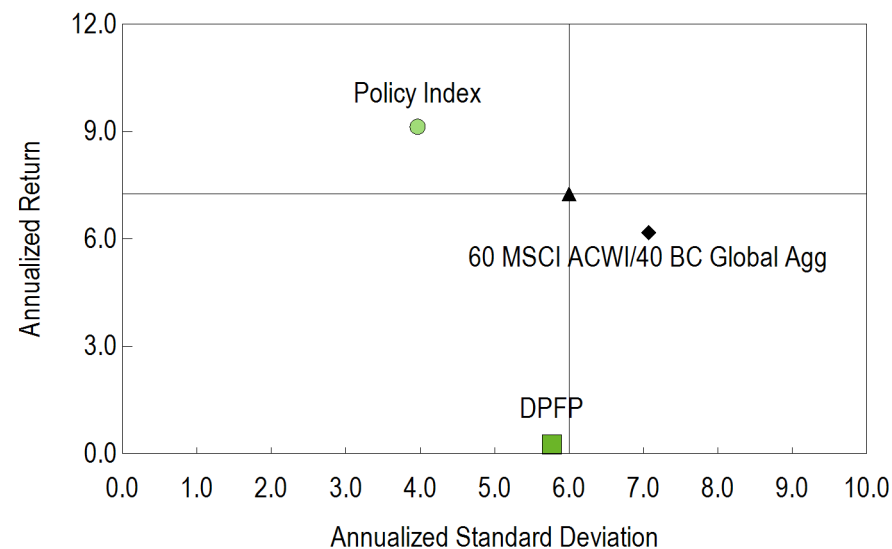
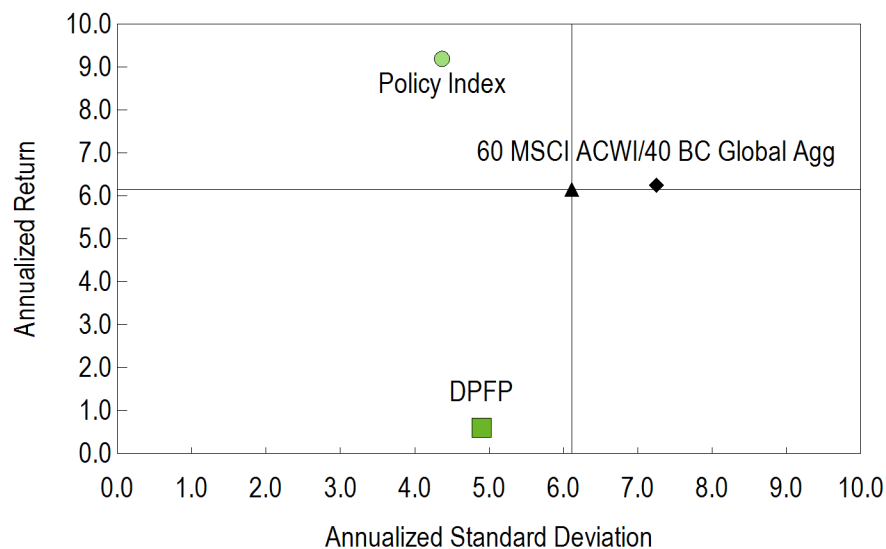
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
DPFP	0.3%	99	5.8%	38
Policy Index	9.1%	3	4.0%	2
60 MSCI ACWI/40 BC Global Agg	6.2%	88	7.1%	91
InvestorForce Public DB Net Median	7.3%	--	6.0%	--

Sharpe Ratio Rank Sortino Ratio RF Rank

	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
DPFP	0.0	99	0.0	99
Policy Index	2.0	1	3.3	1
60 MSCI ACWI/40 BC Global Agg	0.8	82	1.4	37
InvestorForce Public DB Net Median	0.9	--	1.3	--

Sharpe Ratio Rank Sortino Ratio RF Rank

	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
DPFP	0.0	99	0.0	99
Policy Index	2.2	1	4.1	1
60 MSCI ACWI/40 BC Global Agg	0.8	95	1.7	70
InvestorForce Public DB Net Median	1.2	--	1.9	--



POLICY COMPLIANCE TEST: TRADITIONAL MANAGERS

3 Year Rolling Excess Return Violations:

Manager	Return Rank	NEPC Recommendation
Global Equity		
OFI	54	HOLD
Walter Scott	51	HOLD
GAA		
Bridgewater AW	65	HOLD
Bridgewater PA	73	HOLD

3 Year Rolling Risk-Adjusted Excess Return Violations:

Manager	Sharpe Ratio Rank	NEPC Recommendation
Public Fixed Income		
IR&M	55	HOLD
Brandywine	70	HOLD
Loomis Sayles HY	96	HOLD
Loomis Sayles SBL	82	HOLD
GAA		
Bridgewater AW	71	HOLD
Bridgewater PA	64	HOLD

Qualitative Concerns:

Manager	NEPC Status
N/A	N/A

Note: 'N/A' denotes that the Board has voted to terminate the manager in question. However, market exposure will be maintained with managers that have previously been approved for liquidation and to rebalance if additional cash is needed.



ASSET ALLOCATION

NEPC, LLC

ASSET ALLOCATION: BROAD COMPOSITES

	Market Value \$	% of Portfolio	Policy %
Total Equity	723,693,481	34.7%	30%
Total Fixed Income	344,022,770	16.5%	33%
Total Real Assets	744,324,106	35.6%	25%
Total GAA	142,255,906	6.8%	10%
Cash	133,593,191	6.4%	2%
Total DFPF	2,087,889,452	100%	100%



ASSET ALLOCATION: BY ASSET CLASS

	Current Allocation \$	Current Allocation %	Policy %
Global Equity	437,447,135	21.0%	20%
Emerging Market Equity	49,784,995	2.4%	5%
Private Equity	236,461,351	11.3%	5%
<i>Total Equity</i>	723,693,481	34.7%	30%
Short-Term Core Bonds	49,972,880	2.4%	2%
High Yield	81,965,612	3.9%	5%
Bank Loans	111,825,508	5.4%	6%
Emerging Market Debt	20,548,625	1.0%	6%
Global Bonds	68,938,132	3.3%	3%
Structured & AR Credit	--	0.0%	6%
Private Debt	10,772,012	0.5%	5%
<i>Total Fixed Income</i>	344,022,770	16.5%	33%
Natural Resources	200,726,486	9.6%	5%
Infrastructure	61,591,601	2.9%	5%
Real Estate	482,006,019	23.1%	12%
Real Assets – Liquid	--	0.0%	3%
<i>Total Real Assets</i>	744,324,106	35.6%	25%
Risk Parity	83,810,806	4.0%	5%
GTAA	23,685,766	1.1%	3%
Absolute Return	34,759,334	1.7%	2%
<i>Total GAA</i>	142,255,906	6.8%	10%
Cash	133,593,191	6.4%	2%
Total	2,087,889,452	100%	100%



ASSET ALLOCATION: PORTFOLIO LOOKTHROUGH

	Lookthrough %	Actual %	Policy %
US Equity	10.2%	--	--
International Equity	10.0%	--	--
Emerging Markets Eq	3.7%	2.4%	5%
Global Equity	--	21.0%	20%
Private Equity	11.3%	11.3%	5%
<i>Total Equity</i>	35.2%	34.7%	30%
Short-Term Core Bonds	2.4%	2.4%	2%
High Yield	3.9%	3.9%	5%
Bank Loans	5.4%	5.4%	6%
Emerging Market Debt	1.2%	1.0%	6%
Global Bonds	5.6%	3.3%	3%
Structured & AR Credit	--	--	6%
Private Debt	0.5%	0.5%	5%
<i>Total Fixed Income</i>	19.0%	16.5%	33.0%

	Lookthrough %	Actual %	Policy %
Natural Resources	9.6%	9.6%	5%
Infrastructure	3.0%	3.0%	5%
Real Estate	23.1%	23.7%	12%
Real Assets – Liquid	--	--	3%
<i>Total Real Assets</i>	35.0%	35.6%	25%
Risk Parity	--	4.0%	5%
GTAA	--	1.1%	3%
Absolute Return	--	1.7%	2%
Hedge Funds*	2.6%	--	--
<i>Total GAA</i>	2.6%	6.8%	10%
Cash	6.4%	6.5%	2%

*Hedge Fund lookthrough exposure due to GMO and Bridgewater Pure Alpha Major Markets allocations.



ATTRIBUTION*

- **Selection Effect**

- Contribution to excess return due to the over/under weighting of managers within asset classes
 - The Selection Effect of **0.037%** is due to the outperformance of the DPFP Global Equity return vs. the Global Equity Index return. Based on policy, DPFP selected outperforming managers vs. the index.
 - $\text{Policy Weight} * (\text{Global Equity Return} - \text{Global Equity Index}) = \text{Selection Effect}$

- **Allocation Effect**

- Contribution to excess return due to the over/under weighting of asset classes
 - The Allocation Effect of **-0.029%** is due to the overweighting of the Global Equity allocation vs. the Global Equity Policy Allocation and also the underperformance of the Global Equity Index, -0.841% vs. the Total Plan Index, 1.150%. DPFP was overweight to an underperforming sector resulting in a negative Allocation Effect for the quarter.
 - $(\text{Current Allocation} - \text{Policy Allocation}) * (\text{Global Equity Index} - \text{Total Policy Index}) = \text{Allocation Index}$

- **Interaction Effect**

- Is the resulting combination of the allocation and selection effects
 - $(\text{Global Equity Weight} - \text{Policy Weight}) * (\text{Global Equity Return} - \text{Global Equity Index Return}) = \text{Interaction Effect}$



*The attribution effects shown are for the quarter. To get the quarterly attribution effects the effects are first calculated monthly then linked using the Mencharo linking method to get the quarterly effects.

ATTRIBUTION ANALYSIS: BY ASSET CLASS – 3 MONTHS ENDING MARCH 31, 2018

	Portfolio Weights		Returns		Attribution Effects By			
	DPPF	Policy	DPPF	Index	Selection	Allocation	Interaction	Total*
Global Equity	21.0%	20.0%	-0.668%	-0.841%	0.037%	-0.029%	0.000%	0.008%
Emerging Markets Equity	2.4%	5.0%	-0.918%	1.466%	-0.124%	-0.043%	0.064%	-0.103%
Private Equity	11.3%	5.0%	-0.804%	0.095%	-0.048%	-0.021%	-0.022%	-0.091%
Short Term Core Bonds	2.4%	2.0%	-0.266%	-0.156%	-0.002%	-0.002%	0.000%	-0.005%
Global Bonds	3.3%	3.0%	4.069%	1.362%	0.080%	0.005%	0.004%	0.089%
High Yield	3.9%	5.0%	0.086%	-0.360%	0.022%	0.006%	-0.005%	0.023%
Bank Loans	5.4%	6.0%	1.456%	1.448%	0.000%	-0.010%	0.000%	-0.009%
Structured & A/R Credit	0.0%	6.0%	0.000%	1.505%	-0.090%	-0.082%	0.090%	-0.082%
Emerging Markets Debt	1.0%	6.0%	1.113%	1.329%	-0.013%	-0.059%	0.011%	-0.061%
Private Debt	0.5%	5.0%	4.063%	0.136%	0.195%	0.000%	-0.174%	0.021%
Natural Resources	9.6%	5.0%	2.055%	-1.781%	0.192%	-0.086%	0.182%	0.287%
Infrastructure	2.9%	5.0%	1.145%	-5.514%	0.337%	0.122%	-0.144%	0.314%
Real Estate	23.1%	12.0%	3.188%	1.700%	0.178%	0.161%	0.180%	0.519%
Liquid Real Assets	0.0%	3.0%	0.000%	1.858%	-0.056%	-0.052%	0.056%	-0.052%
Risk Parity	4.0%	5.0%	-1.614%	0.010%	-0.082%	0.001%	0.015%	-0.066%
GTAA	1.1%	3.0%	1.015%	0.010%	0.030%	0.002%	-0.018%	0.013%
Absolute Return	1.7%	2.0%	-4.291%	0.299%	-0.091%	-0.001%	0.010%	-0.082%
Cash Equivalents	6.4%	2.0%	0.346%	0.384%	-0.001%	-0.007%	-0.001%	-0.009%
Total*	100.0%	100.0%	0.865%	0.150%	0.565%	-0.095%	0.245%	0.716%

*Total column may not add up due to rounding.

**Global Equity attribution is compared to the MSCI ACWI Index.



ATTRIBUTION ANALYSIS: BY ASSET CLASS – 12 MONTHS ENDING MARCH 31, 2018

	Portfolio Weights		Returns		Attribution Effects By			
	DPFP	Policy	DPFP	Index	Selection	Allocation	Interaction	Total*
Global Equity	16.3%	20.00%	16.719%	15.440%	0.247%	-0.340%	-0.232%	-0.325%
Emerging Markets Equity	0.0%	5.00%	20.918%	25.371%	-0.204%	-0.670%	0.139%	-0.735%
Private Equity	10.9%	5.00%	-26.397%	17.191%	-2.290%	0.386%	-3.695%	-5.599%
Short Term Core Bonds	2.4%	2.00%	-0.099%	-0.003%	-0.002%	0.028%	0.005%	0.031%
Global Bonds	3.1%	3.00%	11.104%	6.974%	0.126%	-0.001%	0.001%	0.127%
High Yield	3.9%	5.00%	5.610%	6.649%	-0.052%	0.043%	0.014%	0.005%
Bank Loans	5.2%	6.00%	5.294%	4.430%	0.053%	0.147%	-0.019%	0.181%
Structured & A/R Credit	0.0%	6.00%	0.000%	6.224%	-0.388%	0.259%	0.388%	0.259%
Emerging Markets Debt	0.9%	6.00%	8.580%	8.609%	0.003%	0.096%	-0.002%	0.097%
Private Debt	0.8%	5.00%	1.272%	8.771%	-0.368%	0.072%	0.307%	0.010%
Natural Resources	11.3%	5.00%	-1.547%	16.582%	-0.926%	0.363%	-1.203%	-1.766%
Infrastructure	2.9%	5.00%	69.886%	5.149%	3.360%	0.213%	0.747%	4.320%
Real Estate	25.5%	12.00%	5.614%	7.133%	-0.171%	-0.430%	-0.227%	-0.828%
Liquid Real Assets	0.0%	3.00%	0.000%	7.465%	-0.232%	0.092%	0.232%	0.092%
Risk Parity	3.9%	5.00%	7.965%	11.709%	-0.185%	-0.017%	0.046%	-0.156%
GTAA	1.0%	3.00%	10.419%	11.709%	-0.038%	-0.024%	0.026%	-0.037%
Absolute Return	1.7%	2.00%	-9.461%	3.025%	-0.266%	0.024%	0.037%	-0.205%
Cash Equivalents	10.3%	2.00%	1.099%	1.164%	-0.001%	-0.754%	-0.001%	-0.756%
Total*	100.0%	100.00%	5.233%	10.518%	-1.335%	-0.513%	-3.437%	-5.285%

*Total column may not add up due to rounding.

**Global Equity attribution is compared to the MSCI ACWI Index.



APPENDIX

NEPC, LLC

FOOTNOTES

1. **Sustainable Asset Management** was included in the Global Natural Resources composite from 11/1/2008 to 3/31/2015 and included in the Global Equity composite from 4/1/2015 to present.
2. **Hudson Clean Energy** was included in the Global Natural Resources composite from 1/1/2010 to 3/31/2015 and included in the Private Markets composite from 4/1/2015 to 12/31/2015 and the Private Equity composite from 1/1/2016 to present.
3. **RREEF** was included in the Real Estate composite from 2/1/1999 to 12/31/2009 and included in the Global Equity composite from 1/1/2010 to present.
4. **Highland Crusader** was included in the Global Fixed Income composite from 7/1/2003 to 12/31/2015 and included in the Private Credit composite from 1/1/2016 to present.
5. **Highland Capital Management** was included in the Global Fixed Income composite from 1/1/2007 to 12/31/2015 and included in the Private Credit composite from 1/1/2016 to present.
6. **Oaktree Fund IV** was included in the Global Fixed Income composite from 1/1/2002 to 3/31/2015 and included in the Private Markets composite from 4/1/2015 to 12/31/2015 and included in the Private Credit composite from 1/1/2016 to present.
7. **Global Infrastructure composite** was included in the Private Markets composite history until 6/30/2012.
8. **Private Equity composite** includes Private Credit managers until 12/31/2015. From 01/01/2016 to present the Private Equity and Credit managers are now in separate composites.
9. **Policy index** changed on 4/1/2016 from 20% MSCI ACWI, 15% S&P 500+2%, 10% Global Natural Resources Benchmark, 15% Barclays Global Agg, 20% CPI+5%, 10% CPI +5%, 15% NCREIF PI to 20% MSCI ACWI (gross), 5% MSCI EM Equity (gross), 5% Russell 3000 +3%, 2% Barclays UST 1-3 Yr, 3% Barclays Global Agg, 5% Barclays Global HY, 6% S&P Leveraged Loan Index, 6% HFRI RV: FI (50/50- Abs/Corp), 6%50% JPM EMBI/50% JPM GBI-EM, 5% Barclays Global HY +2%, 5% S&P Global Nat Res, 5% S&P Global Infra, 12% NCREIF, 3% CPI +5%, 5% 60% MSCI ACWI/40% Barclays Global Agg, 3% 60% MSCI ACWI/40% Barclays Global Agg, 2% HFRX Abs Ret Index, 2% 90 Day T-Bill.
10. **Natural Resources** benchmark changed from the Global Natural Resources benchmark from 12/1/2010 to 12/31/2015 to the S&P Global Natural Resources benchmark 1/1/2016 to present.
11. **Infrastructure benchmark** changed from CPI +5% from 7/1/2012 to 12/31/2015 to S&P Global Infrastructure benchmark 1/1/2016 to present.
12. **Total Asset Allocation benchmark** changed from CPI+ 5% from 7/1/2007 to 12/31/2015 to 80% 60/40 MSCI ACWI & Barclays Global Agg and 20% HFRX Absolute Return Index 1/1/2016 to present.
13. **Global Equity Index and Public Equity Index** are both allocation indexes, consisting of the manager's weighting in the composite multiplied by the manager's benchmark).
14. **Global Equity Composite data** consists of Boston Partners, Manulife, OFI, and Walter Scott performance.



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



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



Source: InvestorForce

GLOSSARY OF INVESTMENT TERMINOLOGY

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



Source: InvestorForce

GLOSSARY OF INVESTMENT TERMINOLOGY

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



Source: InvestorForce

INFORMATION DISCLOSURE

- **Past performance is no guarantee of future results.**
- **NEPC uses, as its data source, the plan's custodian bank or fund service company, and NEPC relies on those sources for security pricing, calculation of accruals, and all transactions, including income payments, splits, and distributions. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **The Investment Performance Analysis (IPA) is provided as a management aid for the client's internal use only. Portfolio performance reported in the IPA does not constitute a recommendation by NEPC.**
- **Information in this report on market indices and security characteristics is received from sources external to NEPC. While efforts are made to ensure that this external data is accurate, NEPC cannot accept responsibility for errors that may occur.**
- **This report may contain confidential or proprietary information and may not be copied or redistributed.**

