



## **Summit Strategies Group**

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## **Employees' Retirement System of the City of Norfolk**

Investment Review  
June 30, 2017

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## **Executive Summary**

## HIGHLIGHTS

- **Winners for the recent quarter**

- MSCI EAFE Small +8.1%
- MSCI Emerging (Net) +6.3%
- Russell 1000 Growth +4.7%

- **Losers for the recent quarter**

- Oil -9.0%
- Alerian MLP -2.7%

- **Areas of strength for the recent quarter**

- International Equities
- Domestic Equities

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- **Winners for the trailing year**

- Nasdaq Composite +28.3%
- Russell 2000 +24.6%
- MSCI Emerging (Net) +23.7%
- Barclays High Yield +12.7%

- **Losers for the trailing year**

- Blmbg Barc. Long Treasury -7.2%

- **Areas of strength for the trailing year**

- Domestic Equities
- International Equities
- High Yield

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## COMMENTARY

- Allocation to equities ended the quarter at 58.5%, inside the target range of 45%-65%.
- Market value for the **Total Fund** was up to \$1.044 billion by quarter-end from \$ 1.029 million in the previous quarter. The Total Fund posted a 2.6% return for the trailing quarter and 11.9% for the trailing 12 months. The Total Fund underperformed its Policy Index by 60 bps for the quarter and outperformed its Policy Index by 44 bps over the trailing year. Over the trailing three- and five-year periods, the Total Fund outperformed its Policy Index by 17 and 76 basis points, respectively.
- The **Total Fund** ranked in the 78th percentile of the peer universe for the quarter and in the 58th percentile over the last 12 months.
- The **Global Equity Composite** returned 4.4% for the quarter, outperforming the index by 13 bps and ranking in the 59th percentile versus peers. Over the trailing 12 months, the portfolio posted a 19.5% return, outperforming the benchmark by 50 bps and ranking in the 35th percentile of the peer universe.
- The **Fixed Income Composite** returned 1.6% for the quarter, outperforming the Bloomberg Barclays Aggregate benchmark by 10 bps. Over the trailing 12 months, the composite returned 0.9% and outperformed the Bloomberg Barclays Aggregate by 1.2%. For the past quarter, the composite ranked in the 53rd percentile of the peer universe, and for the trailing 12 months, it ranked in the 60th percentile.
- The **Real Estate Composite** returned 1.2% for the quarter and ranked in the 85th percentile versus other real estate portfolios. For the trailing year, the composite returned 5.9%, ranking in the 90th percentile of the peer universe.
- The **MLP Composite** was down 6.1% for the quarter, but outperformed the index by 23 bps and ranked in the 38th percentile versus peers. For the trailing year, the portfolio posted a return of 3.75%, outperforming the benchmark by 3.35% and ranking in the 48th percentile versus peers. Since inception, the MLP Composite is ahead of its Alerian MLP Index benchmark by 22 bps.

## REBALANCING ACTIVITY FOR THE QUARTER

### ▪ Raise cash for benefit payments:

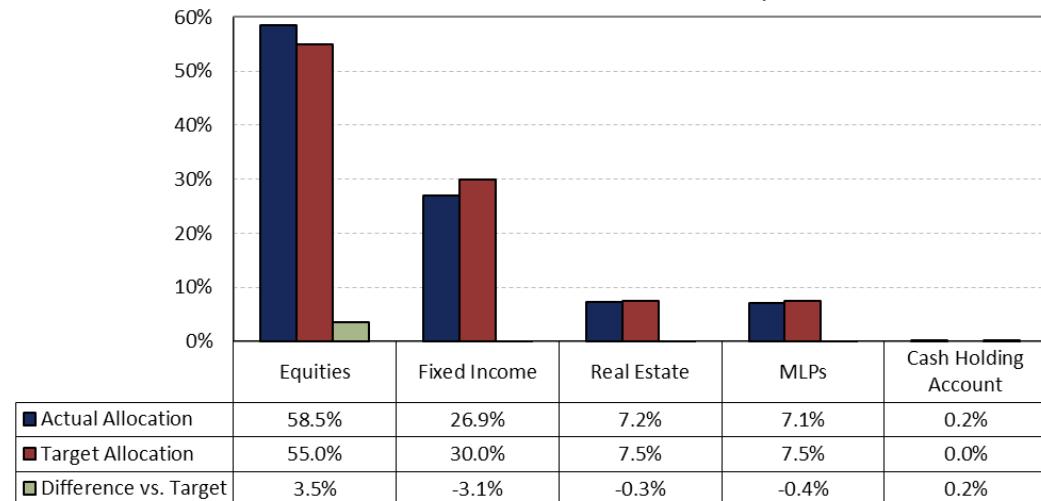
- SSgA MSCI ACWI IMI Index  
To cash \$3,500,000  
4/3/2017
- SSgA MSCI ACWI IMI Index  
To cash \$3,000,000  
5/17/2017
- SSgA MSCI ACWI IMI Index  
To cash \$4,200,000  
6/28/2017

### ▪ Increased allocation to UBS Trumbull Property Fund:

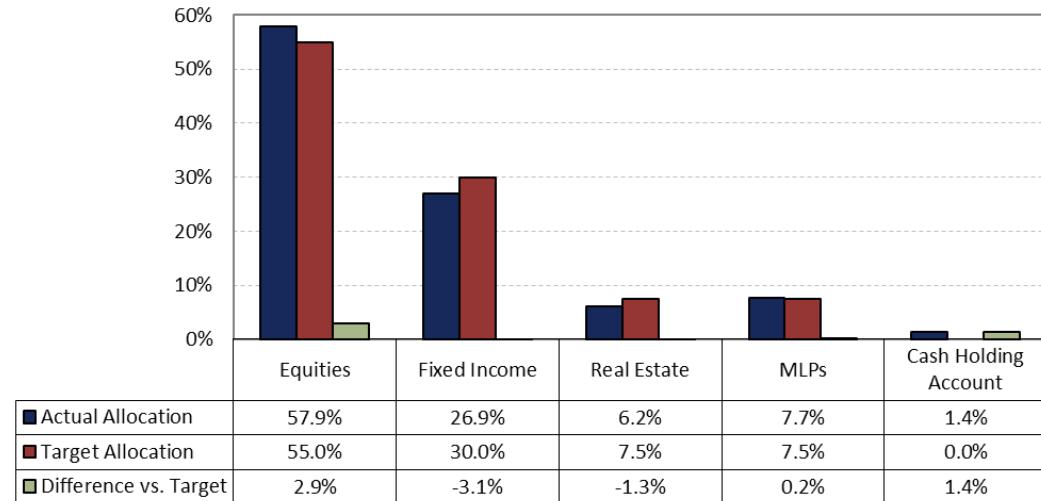
- Cash  
To UBS Trumbull Property Fund \$11,500,000  
4/30/2017

### ▪ Total quarterly transfer from cash to checking account: \$10,700,000

Asset Allocation June 30, 2017



Asset Allocation March 31, 2017



## **Economic Review**

## Economic & Capital Market Highlights

June 30, 2017

### Economy

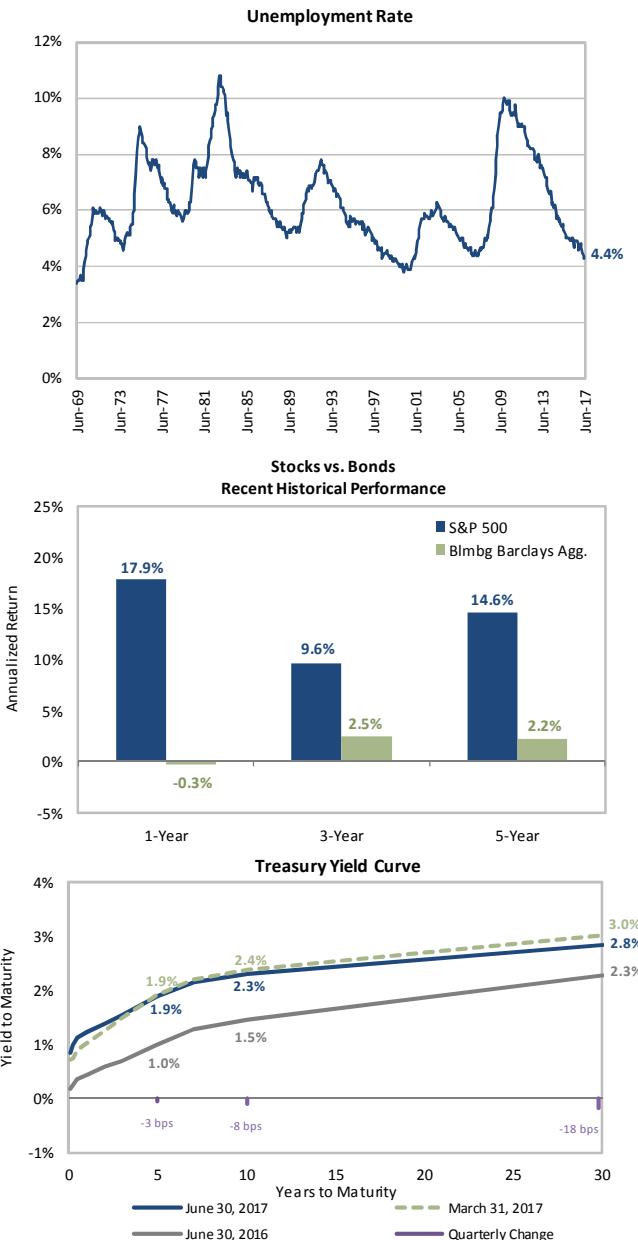
The second quarter of 2017 was characterized by continued economic strength throughout the world. Increased corporate sales and earnings growth, combined with high consumer and business confidence, set the stage for global equity indices to reach new all-time highs. In June, the US Federal Reserve looked past below-expected inflation readings and raised interest rates 25 basis points for the fourth time this cycle, bringing the Federal Funds rate target to 1.00% - 1.25%. The Federal Open Market Committee (FOMC) also announced that it would begin reducing its \$4.5 trillion balance sheet, most likely later in 2017. Continued progress in the labor market supported the interest rate hike, as the unemployment rate reached its lowest level since May 2001 and 194,000 jobs were added per month, above the average of 185,000 per month since 2010.

### Capital Markets

Strong global equity market performance continued, supported by gains across all major markets. Emerging markets were the best-performing equity region (MSCI EM, +6.3%), benefiting from currency appreciation and upward revisions in emerging market growth forecasts. Fixed income markets were supported by expectations for continued accommodative central bank policy, with yields declining modestly across the middle and long end of the curve despite the Federal Reserve rate hike. Within fixed income, credit outperformed treasuries as spreads continued to tighten to their lowest levels since the financial crisis.

### Market Performance (Returns in USD)

		Quarter	1 Year	3 Year	5 Year
MSCI ACWI IMI	Global Equity	4.2%	19.0%	4.9%	10.7%
Russell 3000	US Equity	3.0%	18.5%	9.1%	14.6%
S&P 500	US Large Cap Equity	3.1%	17.9%	9.6%	14.6%
Russell 1000	US Large Cap Equity	3.1%	18.0%	9.3%	14.7%
Russell 1000 Value	US Large Cap Value Equity	1.3%	15.5%	7.4%	13.9%
Russell 1000 Growth	US Large Cap Growth Equity	4.7%	20.4%	11.1%	15.3%
Russell 2000	US Small Cap Core Equity	2.5%	24.6%	7.4%	13.7%
Russell 2000 Value	US Small Cap Value Equity	0.7%	24.9%	7.0%	13.4%
Russell 2000 Growth	US Small Cap Growth Equity	4.4%	24.4%	7.6%	14.0%
MSCI EAFE	Int'l Developed Large Cap Equity	6.1%	20.3%	1.1%	8.7%
MSCI EAFE Small Cap	Int'l Developed Small Cap Equity	8.1%	23.2%	5.6%	12.9%
MSCI Emerging Markets	Emerging Market Equity	6.3%	23.7%	1.1%	4.0%
Alerian MLP	Master Limited Partnerships	-6.4%	0.4%	-11.2%	1.8%
Blmbg Barc. US Aggregate	US Core Fixed Income	1.4%	-0.3%	2.5%	2.2%
Blmbg. Barc. US Treasury	US Treasuries	1.2%	-2.3%	2.0%	1.3%
Blmbg Barc. US Credit	US Corporate Bonds	2.4%	1.8%	3.4%	3.7%
Blmbg Barc. US MBS	US Mortgage Backed Securities	0.9%	-0.1%	2.2%	2.0%
Blmbg. Barc. High Yield	US High Yield Bonds	2.2%	12.7%	4.5%	6.9%



## Relative Performance

June 30, 2017

### CALENDAR YEAR PERFORMANCE COMPARISON

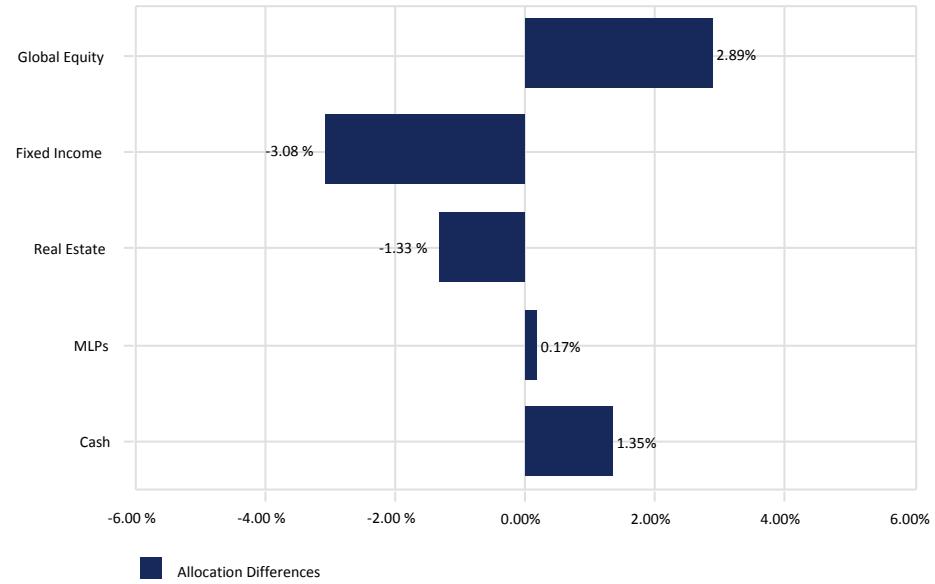
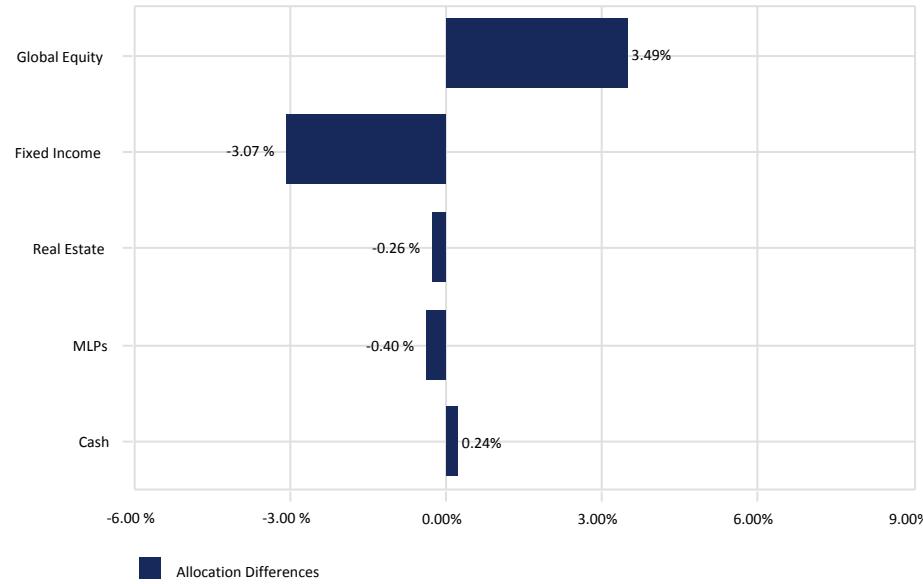
1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	YTD 2017	Q2 2017	10 Yr ROR	20 Yr ROR	
EM 74.8%	EAFFE 8.1%	Large Value 38.4%	Large Growth 23.1%	Large Value 35.2%	Large Growth 38.7%	EM 66.4%	Small Value 22.8%	Small Value 14.0%	Core Bonds 10.3%	EM 55.8%	EM 25.6%	EM 34.1%	EM 32.2%	EM 39.4%	Int. Treas. 11.4%	EM 78.5%	Small Growth 29.1%	Core Bonds 7.8%	EM 18.2%	Small Growth 43.3%	S&P 500 13.7%	Large Growth 5.7%	Small Value 31.7%	EM 18.4%	Best Performing	EM 6.3%	Large Growth 8.9%	Small Value 9.0%
EAFFE 32.9%	Large Growth 2.7%	S&P 500 37.6%	S&P 500 23.0%	S&P 500 33.4%	S&P 500 28.6%	Small Growth 43.1%	Core Bonds 11.6%	Core Bonds 8.4%	Int. Treas. 9.6%	Small Growth 48.5%	Small Value 22.3%	EAFFE 14.0%	EAFFE 26.9%	Large Growth 11.8%	Core Bonds 5.2%	HY Bonds 58.2%	Small Cap 26.9%	Int. Treas. 6.6%	Small Value 18.1%	Small Cap 1.4%	S&P 500 21.3%	Small Cap 21.3%	Large Growth 14.0%	Best Performing	EAFFE 6.1%	Small Growth 7.8%	Small Cap 8.0%	
Small Value 23.8%	S&P 500 1.3%	Large Growth 37.2%	Large Value 21.6%	Small Value 31.8%	EAFFE 20.3%	Large Growth 33.2%	Int. Treas. 10.3%	Int. Treas. 8.2%	HY Bonds -1.4%	Small Cap 47.3%	EAFFE 20.7%	EAFFE 11.6%	HY Bonds -26.2%	Large Growth 37.2%	Small Value 24.5%	HY Bonds 5.0%	Large Value 17.5%	Small Value 34.5%	Large Growth 13.1%	Int. Treas. 1.2%	Large Value 17.3%	EAFFE 13.8%	Large Growth 4.7%	HY Bonds 7.7%	Large Value 7.7%			
Small Cap 18.9%	HY Bonds -1.0%	Small Growth 31.0%	Small Value 21.4%	Large Growth 30.5%	Large Value 15.6%	EAFFE 27.3%	Large Value 7.0%	HY Bonds 5.3%	EM -6.0%	Small Value 46.0%	Small Cap 18.3%	Large Growth 5.3%	Large Value 22.2%	Int. Treas. 8.8%	Small Value -28.9%	Small Growth 34.5%	EM 18.9%	Large Growth 2.6%	EAFFE 17.3%	Large Growth 33.5%	Core Bonds 6.0%	HY Bonds 17.1%	Small Growth 10.0%	Small Growth 4.4%	S&P 500 7.2%	S&P 500 7.2%		
Large Value 18.1%	Small Value -1.5%	Small Cap 28.4%	Small Cap 16.5%	Small Cap 22.4%	Core Bonds 8.7%	Small Cap 21.3%	Small Cap -3.0%	Small Cap 2.5%	EAFFE -11.4%	Large Value 16.5%	S&P 500 4.9%	Small Cap 18.4%	Small Growth 7.1%	Small Cap -33.8%	EAFFE 31.9%	Large Growth 16.7%	S&P 500 2.1%	Small Cap 16.3%	Large Value 32.5%	Small Growth 5.6%	EAFFE -0.8%	S&P 500 12.0%	S&P 500 9.3%	S&P 500 3.1%	Small Cap 6.9%	HY Bonds 7.0%		
HY Bonds 17.1%	Small Cap -1.8%	Small Value 25.8%	HY Bonds 11.4%	Small Growth 12.9%	Int. Treas. 8.6%	S&P 500 21.0%	HY Bonds -5.9%	EM -2.4%	Large Value -15.5%	Large Value 30.0%	Small Growth 14.3%	Small Value 4.7%	S&P 500 15.8%	Core Bonds 7.0%	Large Value -36.9%	Small Cap 27.2%	Large Value 15.5%	Large Value 0.4%	S&P 500 16.0%	S&P 500 32.4%	Small Cap 4.9%	Small Growth -1.4%	Small Growth 11.3%	Small Cap 5.0%	Small Cap 2.5%	Small Value 5.9%	Large Growth 6.6%	
Small Growth 13.4%	Int. Treas. -1.8%	HY Bonds 19.2%	Small Growth 11.3%	HY Bonds 12.7%	HY Bonds 1.9%	Large Value 7.4%	S&P 500 -9.1%	Large Value -5.6%	EAFFE -15.7%	Large Growth 29.8%	HY Bonds 11.1%	Small Cap 4.6%	Small Growth 13.4%	S&P 500 5.5%	S&P 500 -37.0%	S&P 500 26.5%	HY Bonds 15.1%	Small Growth -2.9%	HY Bonds 15.8%	EAFFE 22.8%	Small Value 4.2%	Large Value -3.8%	EM 11.2%	HY Bonds 4.9%	HY Bonds 2.2%	Large Value 5.6%	Small Growth 6.5%	
S&P 500 10.1%	Large Value -2.0%	Core Bonds 18.5%	EAFFE 6.4%	Core Bonds 9.7%	Small Growth 1.2%	HY Bonds 2.4%	EAFFE -14.0%	Small Growth -9.2%	Small Cap -20.5%	HY Bonds 29.0%	S&P 500 10.9%	Small Growth 4.1%	HY Bonds 11.9%	HY Bonds 1.9%	Large Growth -38.4%	Small Value 20.6%	S&P 500 15.1%	Small Cap -4.2%	Large Growth 15.3%	HY Bonds 7.4%	Int. Treas. 2.6%	Small Cap -4.4%	Large Growth 7.1%	Large Value 4.7%	Core Bonds 1.4%	Core Bonds 4.5%	EM 5.5%	
Core Bonds 9.8%	Small Growth -2.4%	Int. Treas. 14.4%	EM 6.0%	Int. Treas. 7.7%	Small Cap -2.5%	Int. Treas. 0.4%	Large Growth -22.4%	S&P 500 -11.9%	S&P 500 -22.1%	S&P 500 28.7%	Large Growth 6.3%	HY Bonds 2.7%	Large Growth 9.1%	Large Value -0.2%	Small Growth -38.5%	Large Value 19.7%	EAFFE 7.8%	Small Value -5.5%	Small Growth 14.6%	Int. Treas. -1.3%	HY Bonds 2.5%	HY Bonds -4.5%	Core Bonds 2.7%	Core Bonds 2.3%	Large Value 1.3%	Int. Treas. 3.5%	Core Bonds 5.2%	
Int. Treas. 8.2%	Core Bonds -2.9%	EAFFE 11.6%	Int. Treas. 4.0%	EAFFE 2.1%	Small Value -6.5%	Core Bonds -0.8%	Small Growth -22.4%	Large Growth -20.4%	Large Growth -27.9%	Core Bonds 4.1%	Core Bonds 2.4%	Core Bonds 4.3%	Core Bonds -1.6%	EAFFE -43.4%	Core Bonds 5.9%	Core Bonds 6.5%	EAFFE -12.1%	Core Bonds 4.2%	Core Bonds -2.0%	EM -2.2%	Small Value -7.5%	Int. Treas. 1.1%	Int. Treas. 1.2%	Small Value 0.7%	EM 1.9%	Int. Treas. 4.3%		
Large Growth 2.9%	EM -7.3%	EM -5.2%	Core Bonds 3.6%	EM -11.6%	EM -25.3%	Small Value -1.5%	EM -30.6%	EAFFE -21.2%	Small Growth -30.3%	Int. Treas. 2.1%	Int. Treas. 2.0%	Int. Treas. 1.6%	Int. Treas. 3.5%	Small Value -9.8%	EM -53.3%	Int. Treas. -1.4%	Int. Treas. 5.3%	Int. Treas. 1.7%	EM -2.6%	EAFFE -4.9%	EM -14.9%	EAFFE 1.0%	Small Value 0.5%	Int. Treas. 0.7%	EAFFE 1.0%	EAFFE 4.3%		

## **Total Fund**

# Employees' Retirement System of the City of Norfolk

## Asset Allocation vs. Target Allocation

June 30, 2017



June 30, 2017

	Market Value (\$)	Allocation (%)	Target (%)
Global Equity	610,606,985	58.49	55.00
Fixed Income	281,162,955	26.93	30.00
Real Estate	75,583,285	7.24	7.50
MLPs	74,083,383	7.10	7.50
Cash	2,496,689	0.24	0.00
Total Fund	1,043,933,297	100.00	100.00

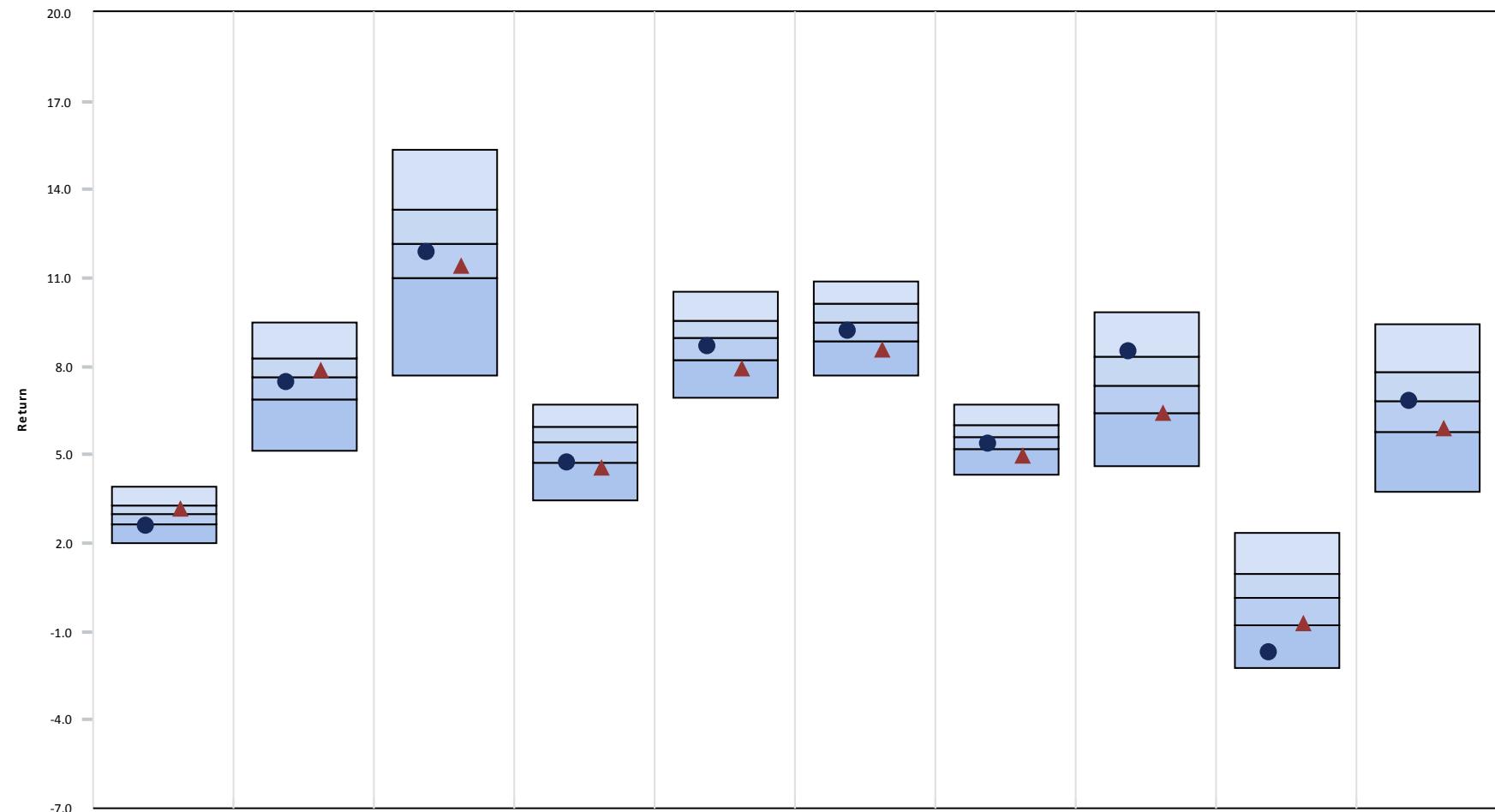
March 31, 2017

	Market Value (\$)	Allocation (%)	Target (%)
Global Equity	595,471,640	57.89	55.00
Fixed Income	276,872,650	26.92	30.00
Real Estate	63,418,615	6.17	7.50
MLPs	78,905,455	7.67	7.50
Cash	13,885,816	1.35	0.00
Total Fund	1,028,554,176	100.00	100.00

# Employees' Retirement System of the City of Norfolk

## Plan Sponsor Peer Group Analysis - All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

June 30, 2017



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
● Total Fund Composite	2.59 (78)	7.43 (59)	11.86 (58)	4.75 (75)	8.67 (61)	9.18 (62)	5.35 (66)	8.48 (21)	-1.70 (90)	6.80 (51)
▲ Total Fund Policy	3.19 (34)	7.86 (42)	11.42 (68)	4.58 (81)	7.91 (83)	8.54 (84)	4.94 (84)	6.39 (76)	-0.74 (75)	5.92 (73)
5th Percentile	3.94	9.46	15.34	6.72	10.55	10.90	6.72	9.85	2.37	9.44
1st Quartile	3.30	8.29	13.31	5.94	9.57	10.10	5.99	8.32	0.98	7.81
<b>Median</b>	<b>2.97</b>	<b>7.61</b>	<b>12.13</b>	<b>5.42</b>	<b>8.97</b>	<b>9.52</b>	<b>5.58</b>	<b>7.34</b>	<b>0.17</b>	<b>6.81</b>
3rd Quartile	2.63	6.89	10.99	4.73	8.23	8.83	5.18	6.39	-0.77	5.77
95th Percentile	1.97	5.13	7.71	3.45	6.93	7.68	4.34	4.61	-2.26	3.76

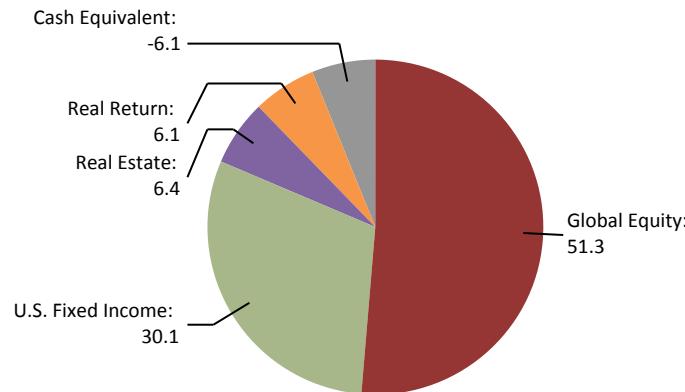
Parentheses contain percentile rankings.

# Employees' Retirement System of the City of Norfolk

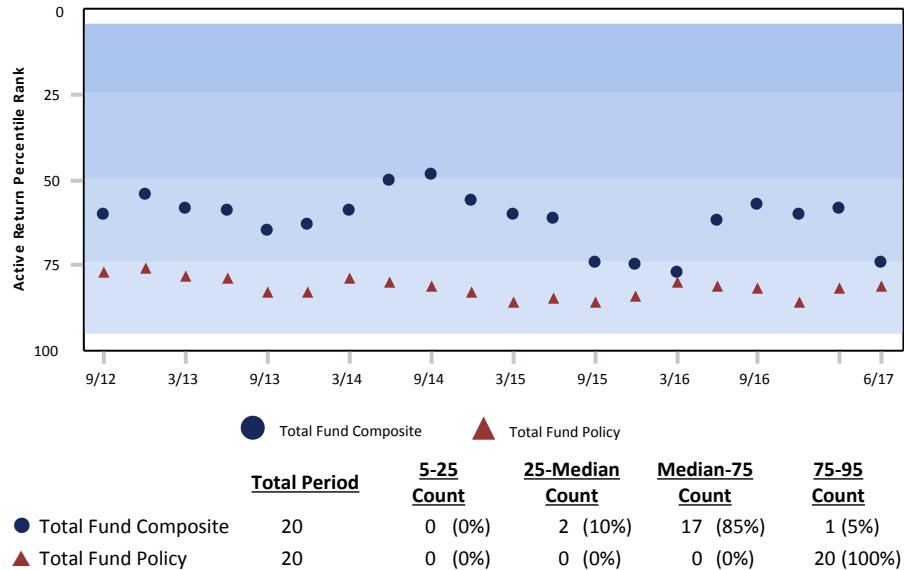
Total Fund Composite

June 30, 2017

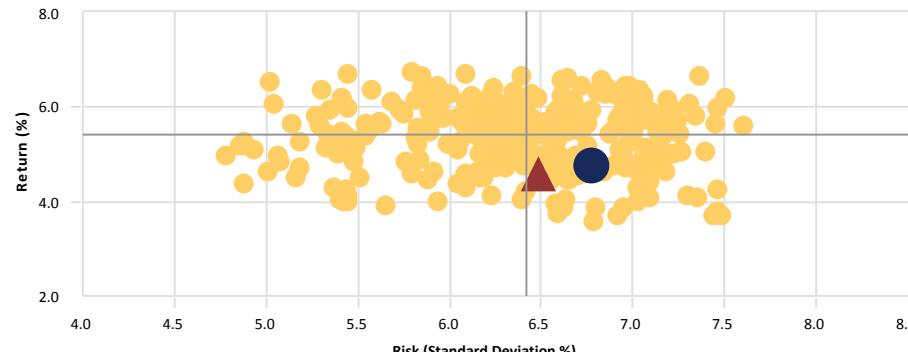
## Asset Allocation by Segment



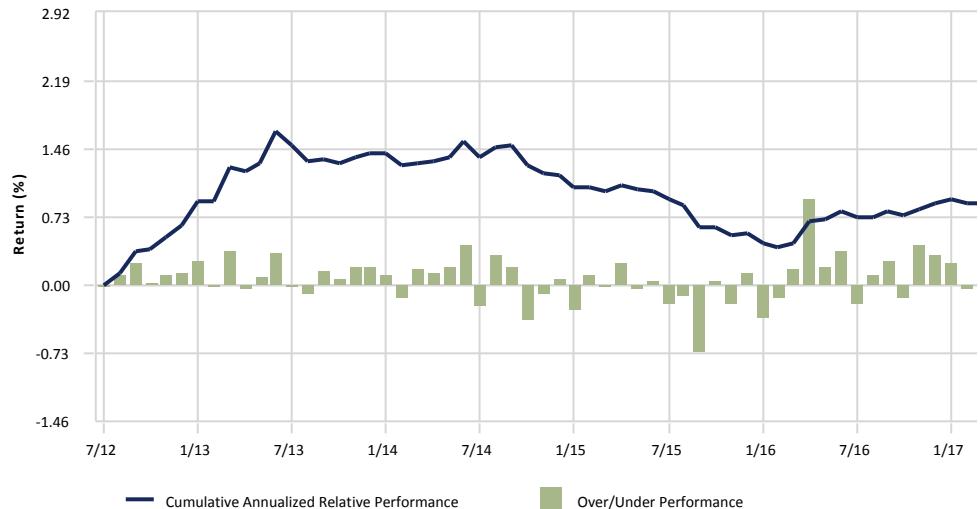
## 3 Year Rolling Return Rank



## Risk vs. Return (07/01/14 - 06/30/17)



## Relative Performance vs. Total Fund Policy



Note: Cash Equivalent allocation includes manager cash.

## **Global Equity**

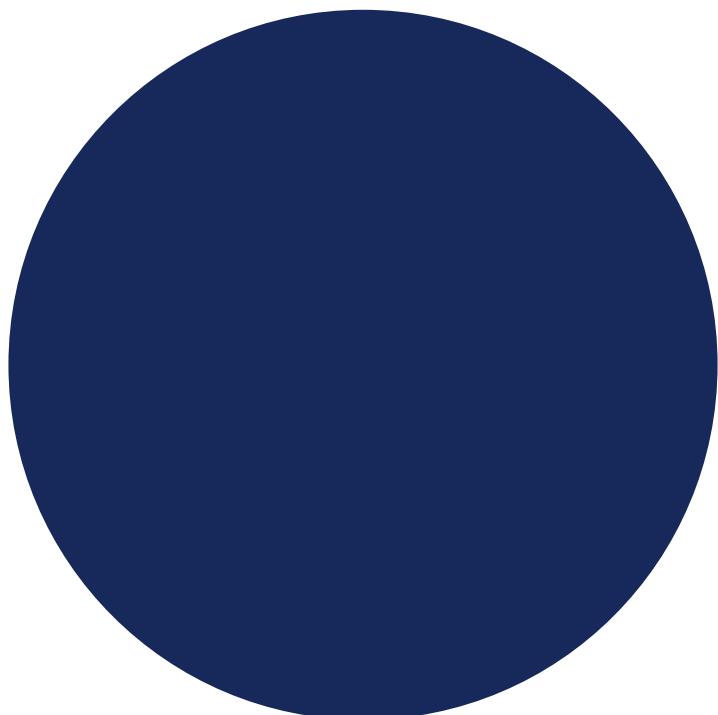
# Employees' Retirement System of the City of Norfolk

Global Equity Composite vs. MSCI AC World IMI (Net)

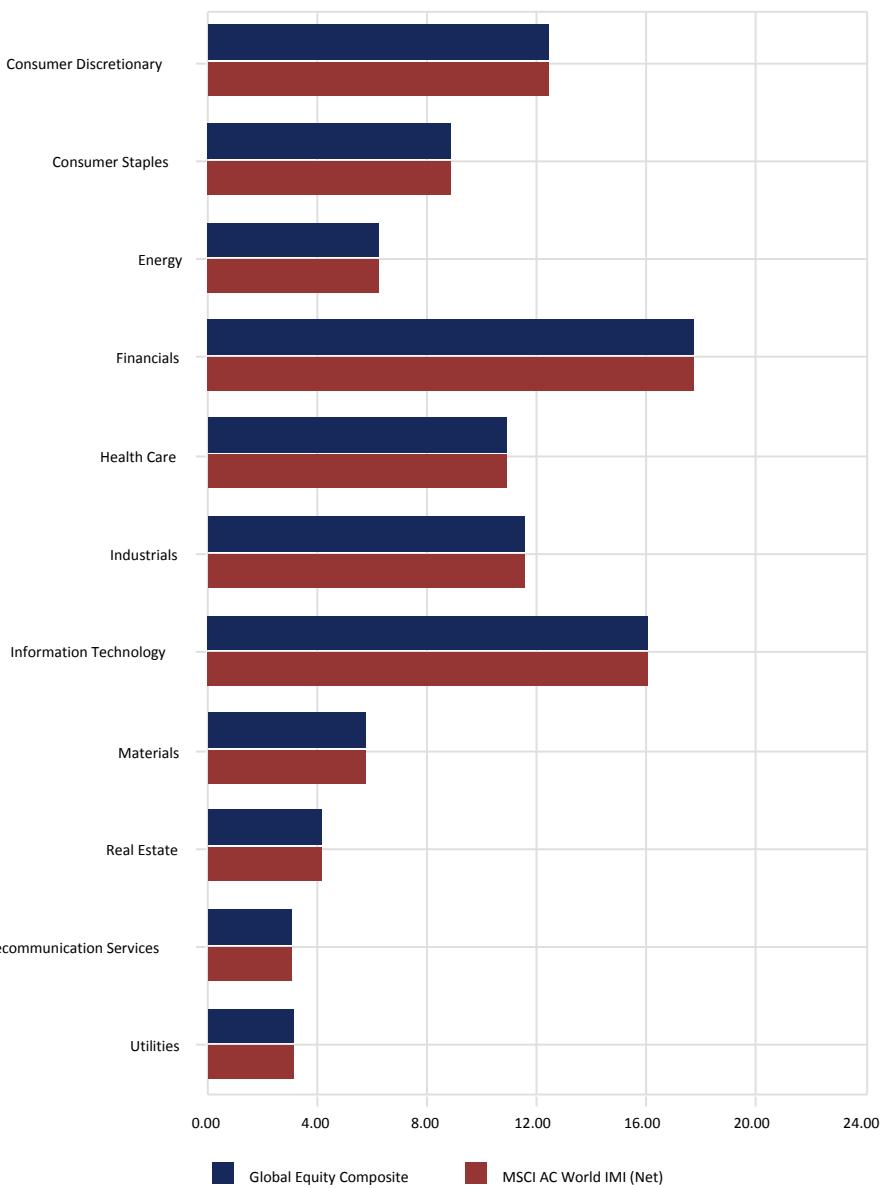
June 30, 2017

## Manager Allocation

June 30, 2017 : \$610,606,985



## Sector Allocation - Holdings Based



■ SSgA MSCI ACWI IMI Index Fund

	Market Value (\$)	Allocation (%)
SSgA MSCI ACWI IMI Index Fund	610,606,985	100.00

■ Global Equity Composite

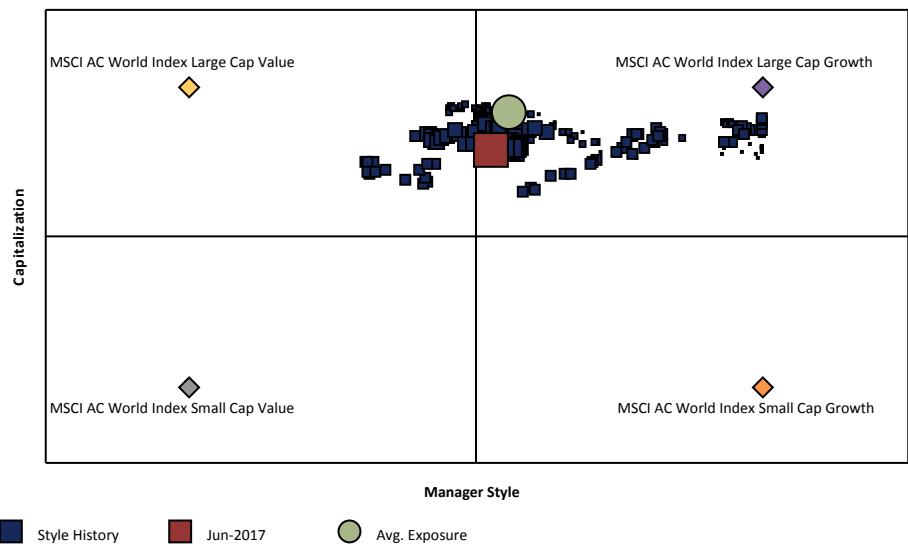
■ MSCI AC World IMI (Net)

# Employees' Retirement System of the City of Norfolk

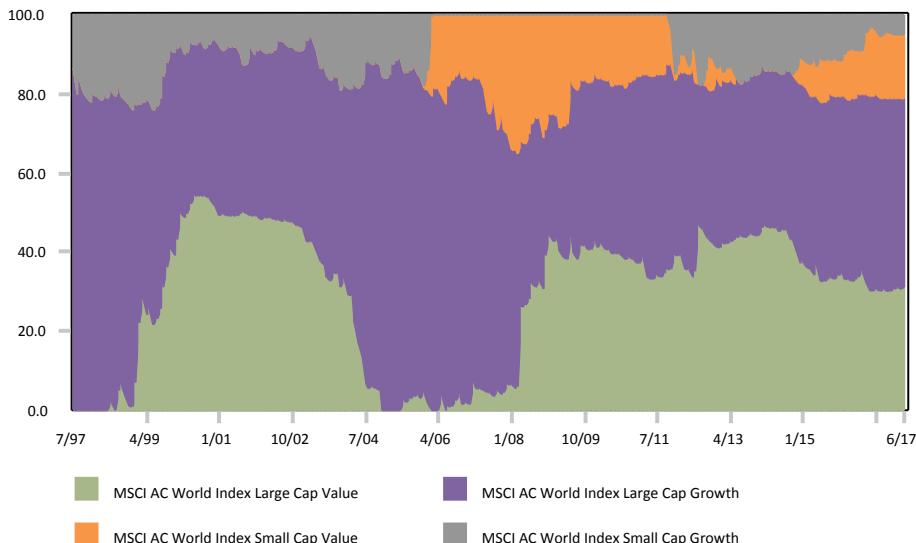
Global Equity Composite vs. MSCI AC World IMI (Net)

June 30, 2017

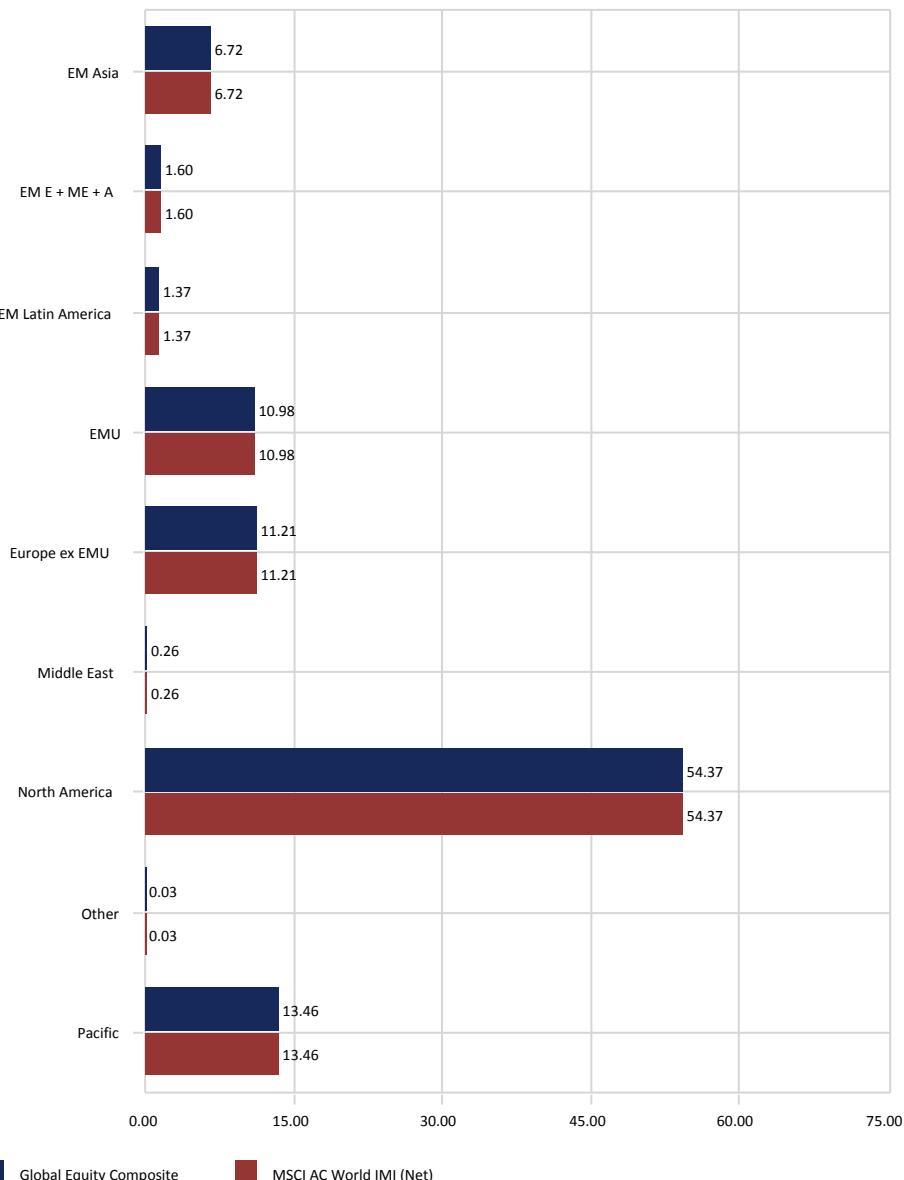
## Style Analysis - Returns Based



## 3 Year Style Analysis



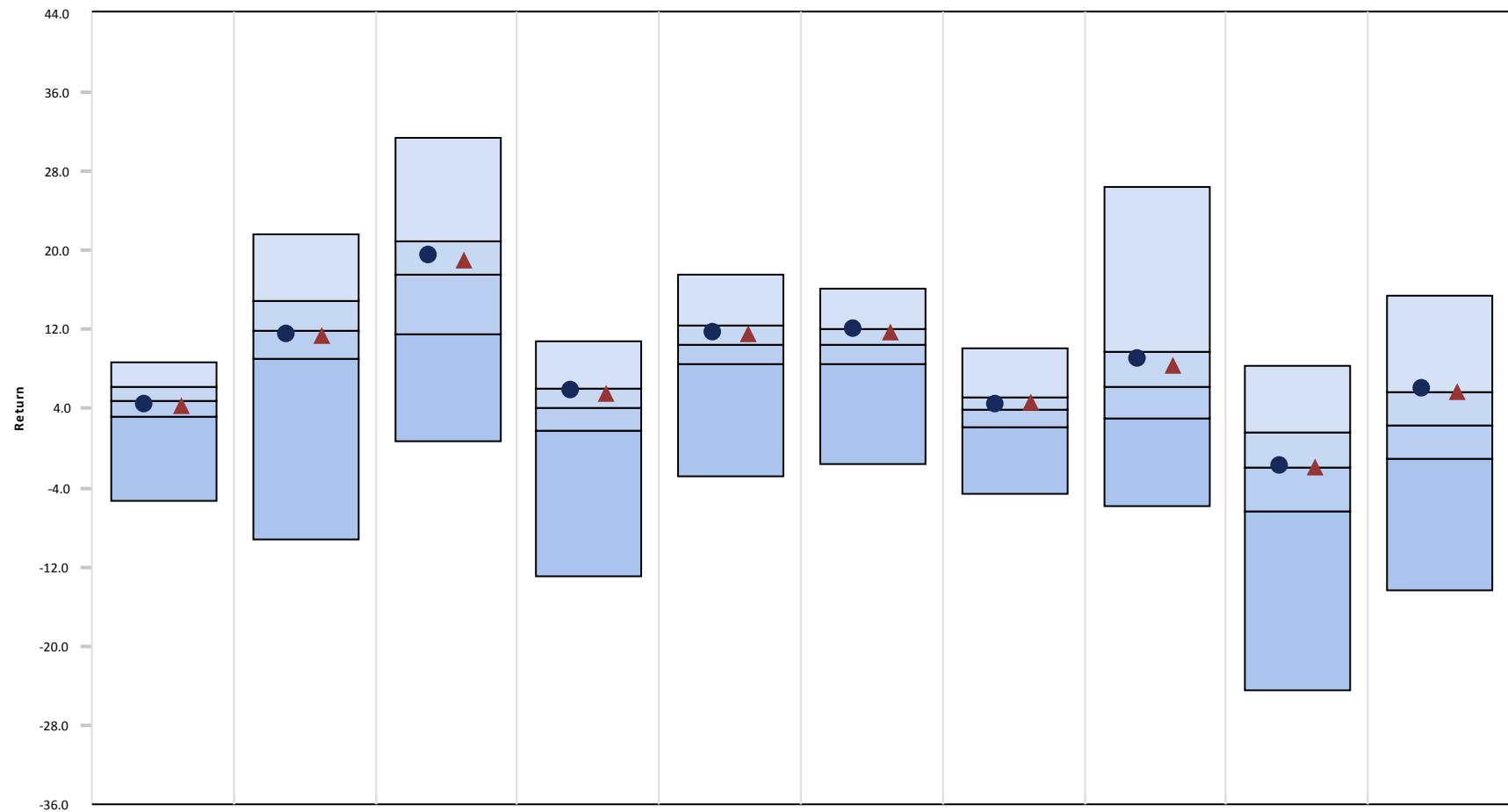
## Region Allocation - Holdings Based



# Employees' Retirement System of the City of Norfolk

Global Equity Composite vs. IM Global Equity (MF)

June 30, 2017



	3 Month	CYTD	1 Year	3 Year	5 Year	7 Year	10 Year	2016	2015	2014
● Global Equity Composite	4.38 (59)	11.58 (53)	19.51 (35)	5.93 (28)	11.78 (31)	12.02 (26)	4.49 (38)	8.99 (28)	-1.83 (49)	6.05 (24)
▲ Global Equity Policy	4.25 (61)	11.32 (55)	19.01 (40)	5.53 (34)	11.50 (34)	11.75 (29)	4.60 (37)	8.34 (33)	-1.96 (51)	5.75 (25)
5th Percentile	8.75	21.74	31.35	10.75	17.53	16.09	10.07	26.38	8.32	15.49
1st Quartile	6.19	14.98	20.91	6.10	12.34	12.04	5.22	9.77	1.68	5.71
<b>Median</b>	<b>4.81</b>	<b>11.93</b>	<b>17.64</b>	<b>4.18</b>	<b>10.55</b>	<b>10.53</b>	<b>3.85</b>	<b>6.30</b>	<b>-1.91</b>	<b>2.37</b>
3rd Quartile	3.19	9.09	11.56	1.77	8.59	8.51	2.17	3.03	-6.46	-1.08
95th Percentile	-5.22	-9.17	0.72	-12.89	-2.77	-1.52	-4.59	-5.90	-24.38	-14.35

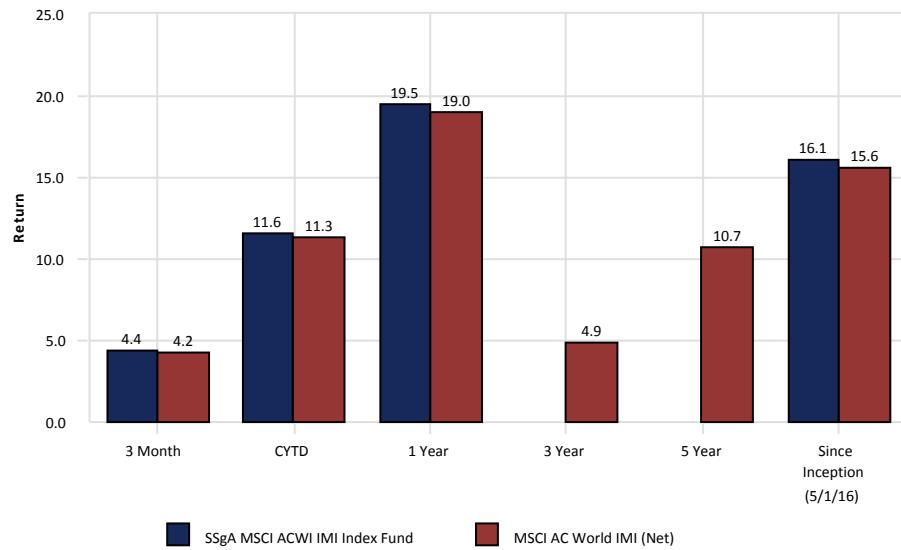
gross of fees

# Employees' Retirement System of the City of Norfolk

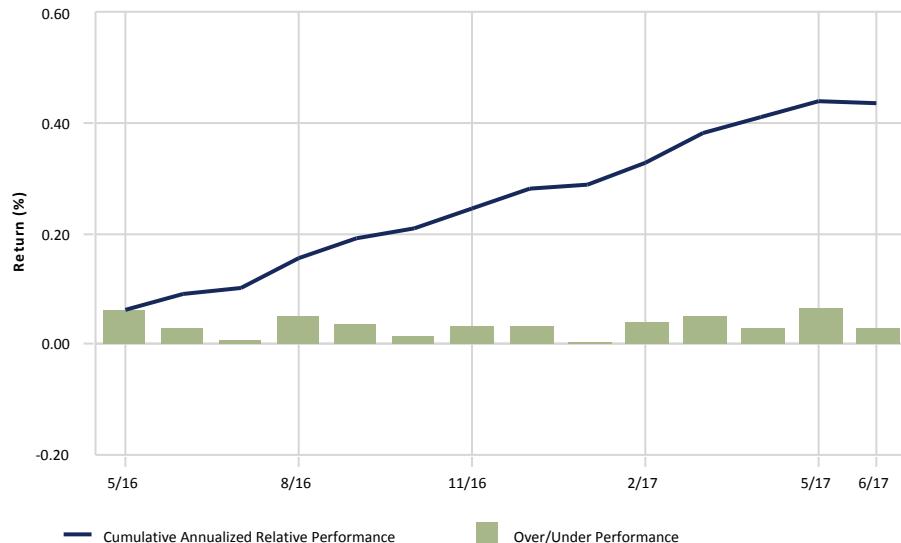
SSgA MSCI ACWI IMI Index Fund vs. IM Global Equity (SA+CF)

June 30, 2017

## Comparative Performance

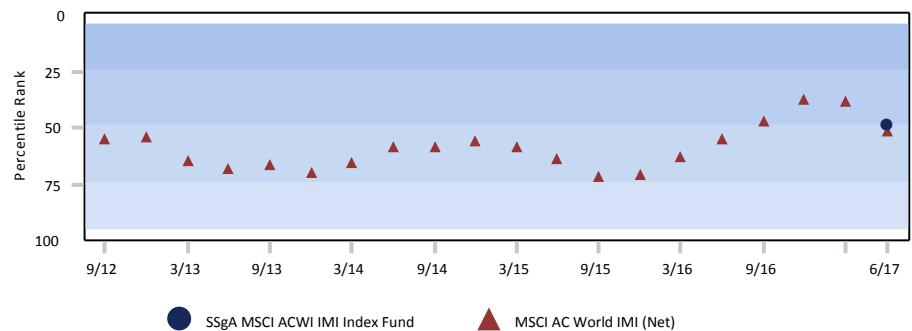


## Relative Performance vs MSCI AC World IMI (Net)

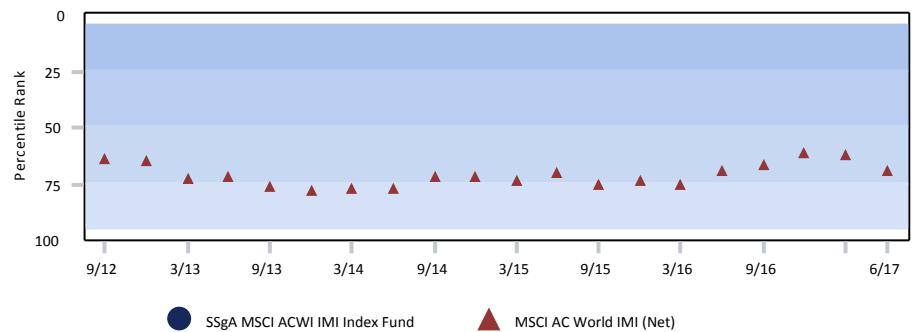


gross of fees

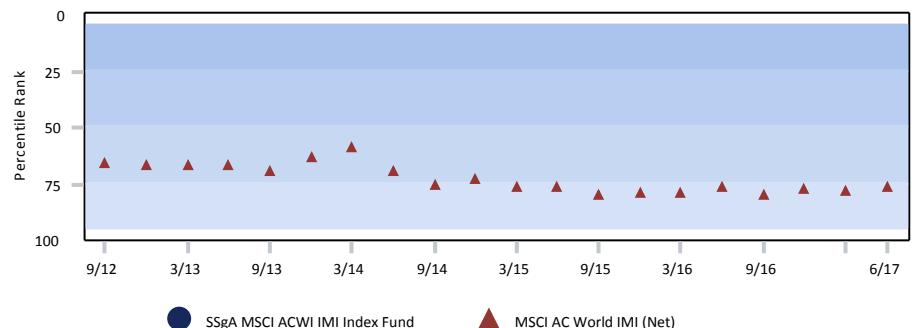
## 1 Year Rolling Percentile Ranking



## 3 Year Rolling Percentile Ranking



## 5 Year Rolling Percentile Ranking



# Employees' Retirement System of the City of Norfolk

SSgA MSCI ACWI IMI vs. MSCI AC World IMI (Net)

June 30, 2017

## Portfolio Characteristics

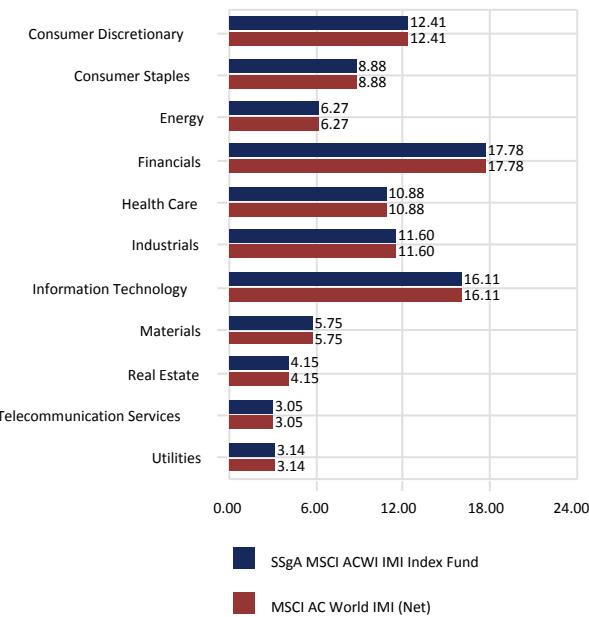
	Portfolio
Wtd. Avg. Mkt. Cap (\$000)	96,225,806
Median Mkt. Cap (\$000)	1,652,438
Price/Earnings ratio	18.96
Price/Book ratio	2.69
5 Yr. EPS Growth Rate (%)	9.26
Current Yield (%)	2.37
Beta	-
Number of Stocks	8,610

	Benchmark
	96,659,287
	1,607,276
	18.85
	2.69
	9.31
	2.37
	1.00
	8,668

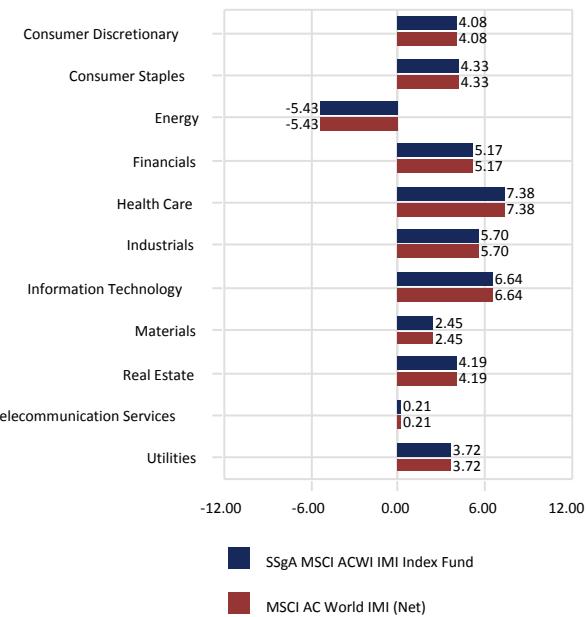
## Top Ten Equity Holdings

Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
1.57	1.58	-0.01	0.66
1.17	0.58	0.59	9.66
1.05	1.06	-0.01	5.25
0.81	0.82	-0.01	9.19
0.74	0.75	-0.01	6.91
0.74	0.74	0.00	6.29
0.69	0.70	-0.01	-0.64
0.68	0.68	0.00	4.65
0.56	0.57	-0.01	16.92
0.55	0.55	0.00	0.24
% of Portfolio		8.56	8.03

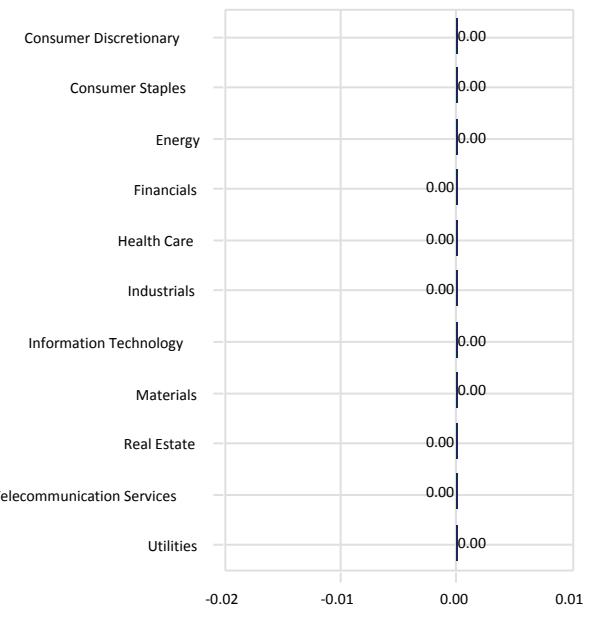
## Sector Allocation



## Sector Performance



## Total Sector Attribution

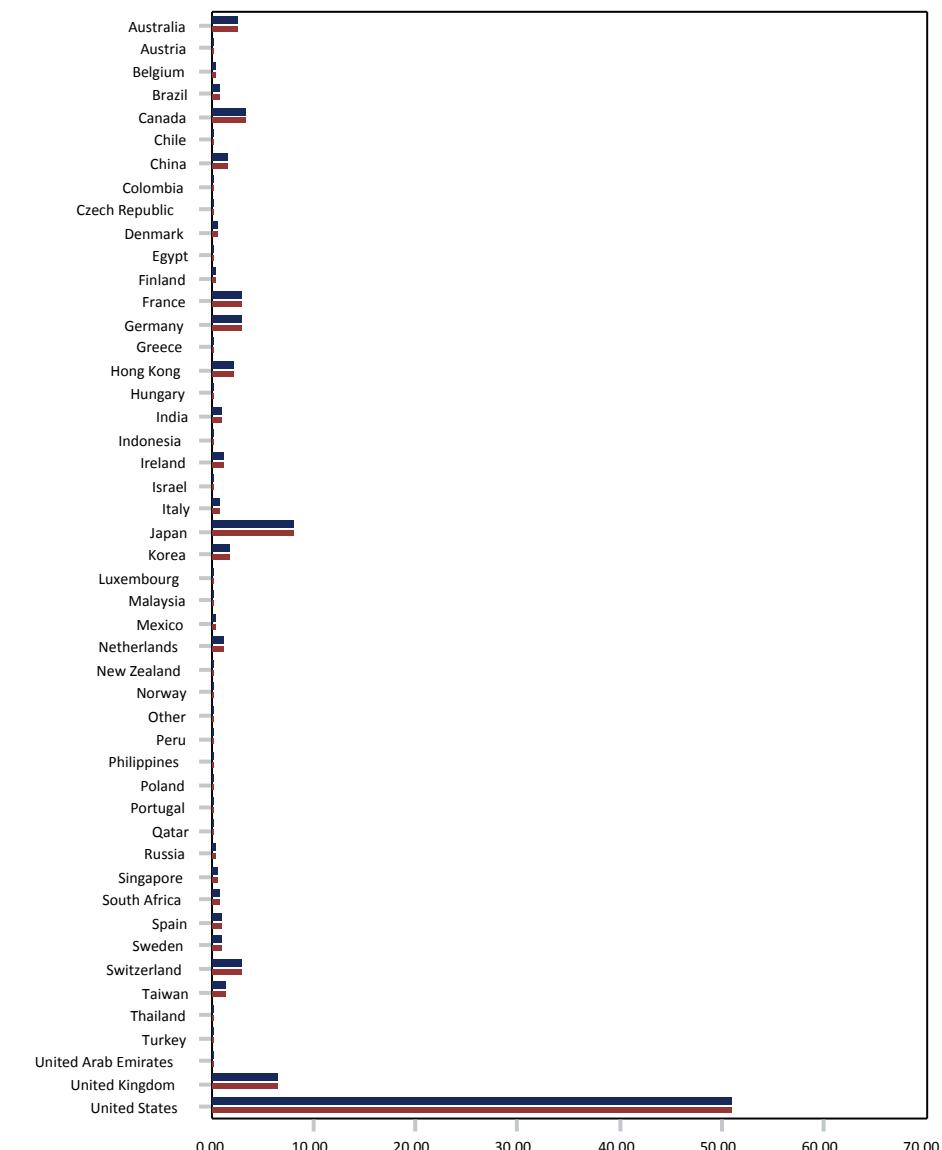


# Employees' Retirement System of the City of Norfolk

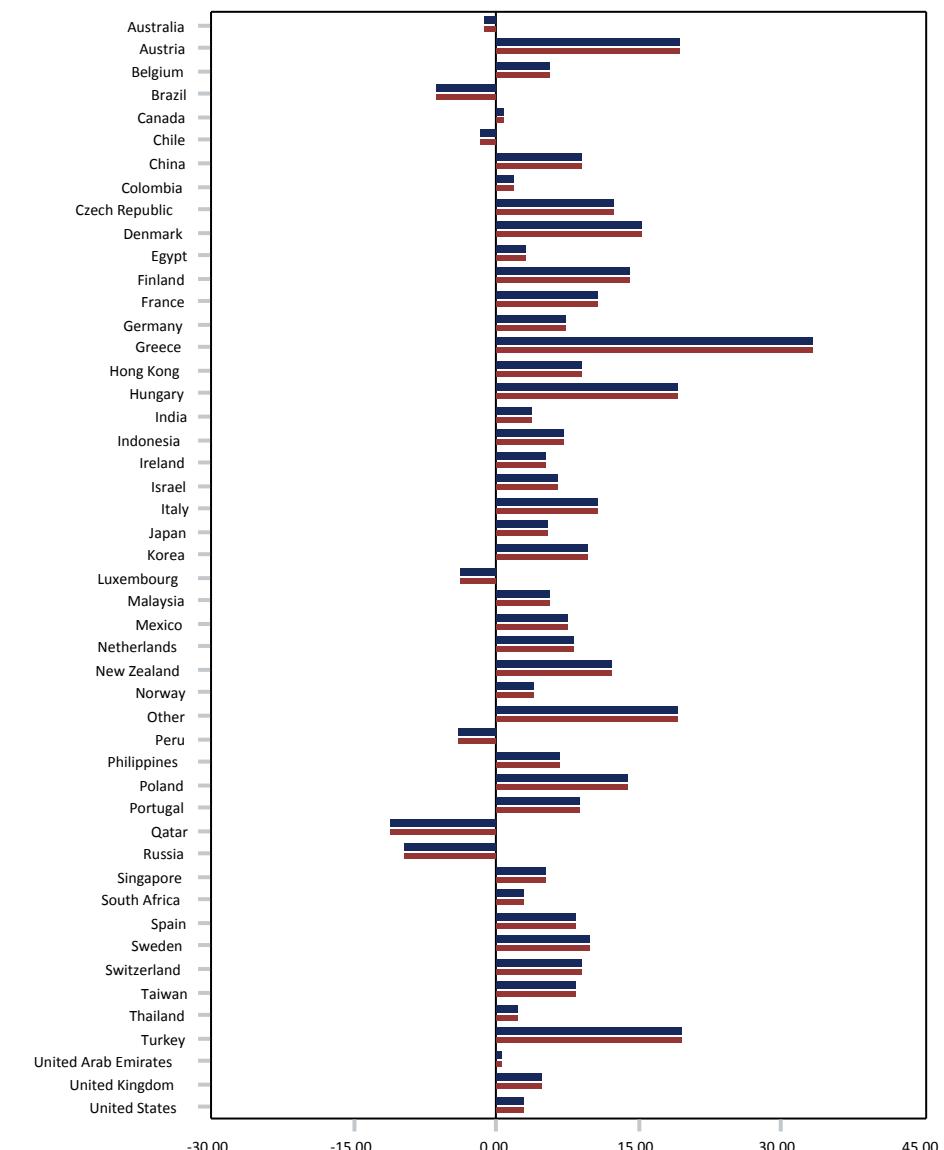
SSgA MSCI ACWI IMI vs. MSCI AC World IMI (Net)

June 30, 2017

## Country Allocation



## Country Performance



SSgA MSCI ACWI IMI

MSCI AC World IMI (Net)

SSgA MSCI ACWI IMI

MSCI AC World IMI (Net)

## **Fixed Income**

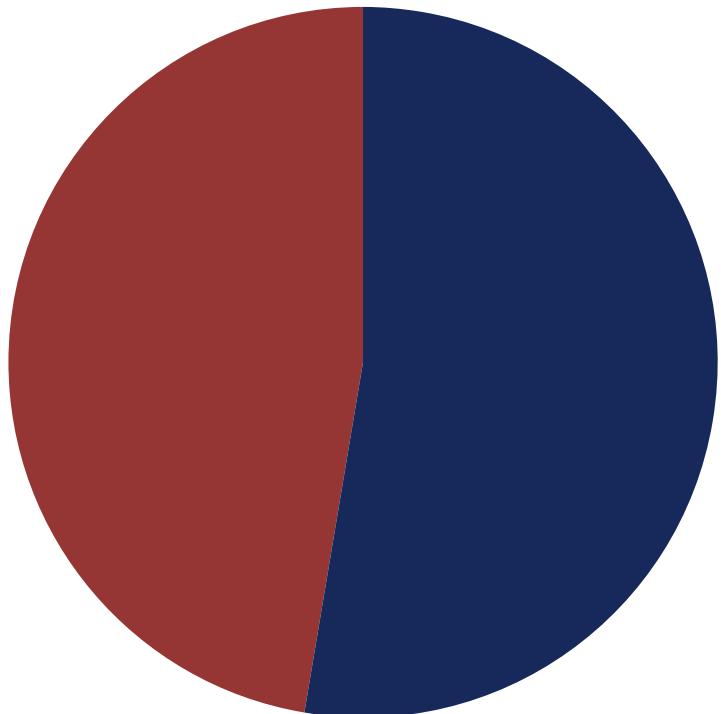
# Employees' Retirement System of the City of Norfolk

Total Fixed Income Composite

June 30, 2017

## Manager Allocation

June 30, 2017 : \$281,162,955

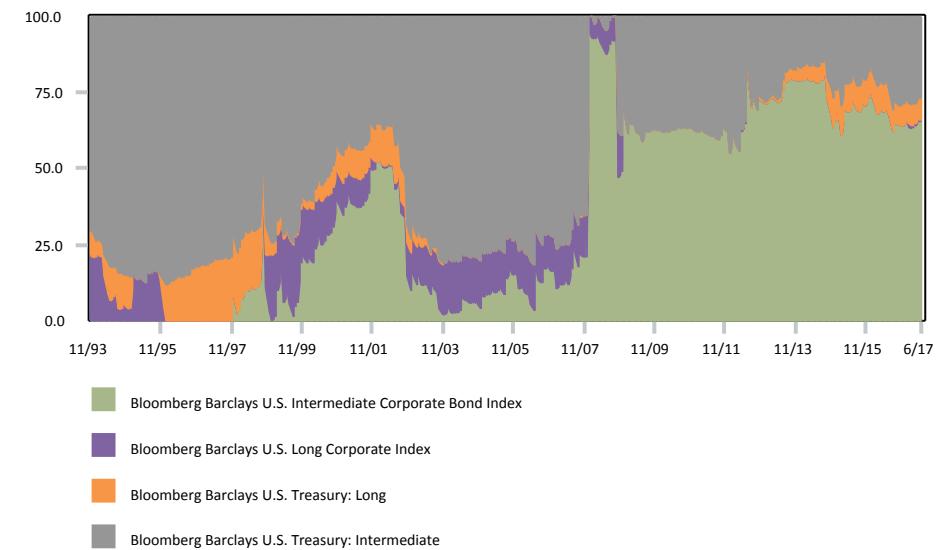


	Market Value (\$)	Allocation (%)
PIMCO Total Return	148,029,084	52.65
SSgA Bond Market Index	133,133,871	47.35

## Style Analysis - Returns Based



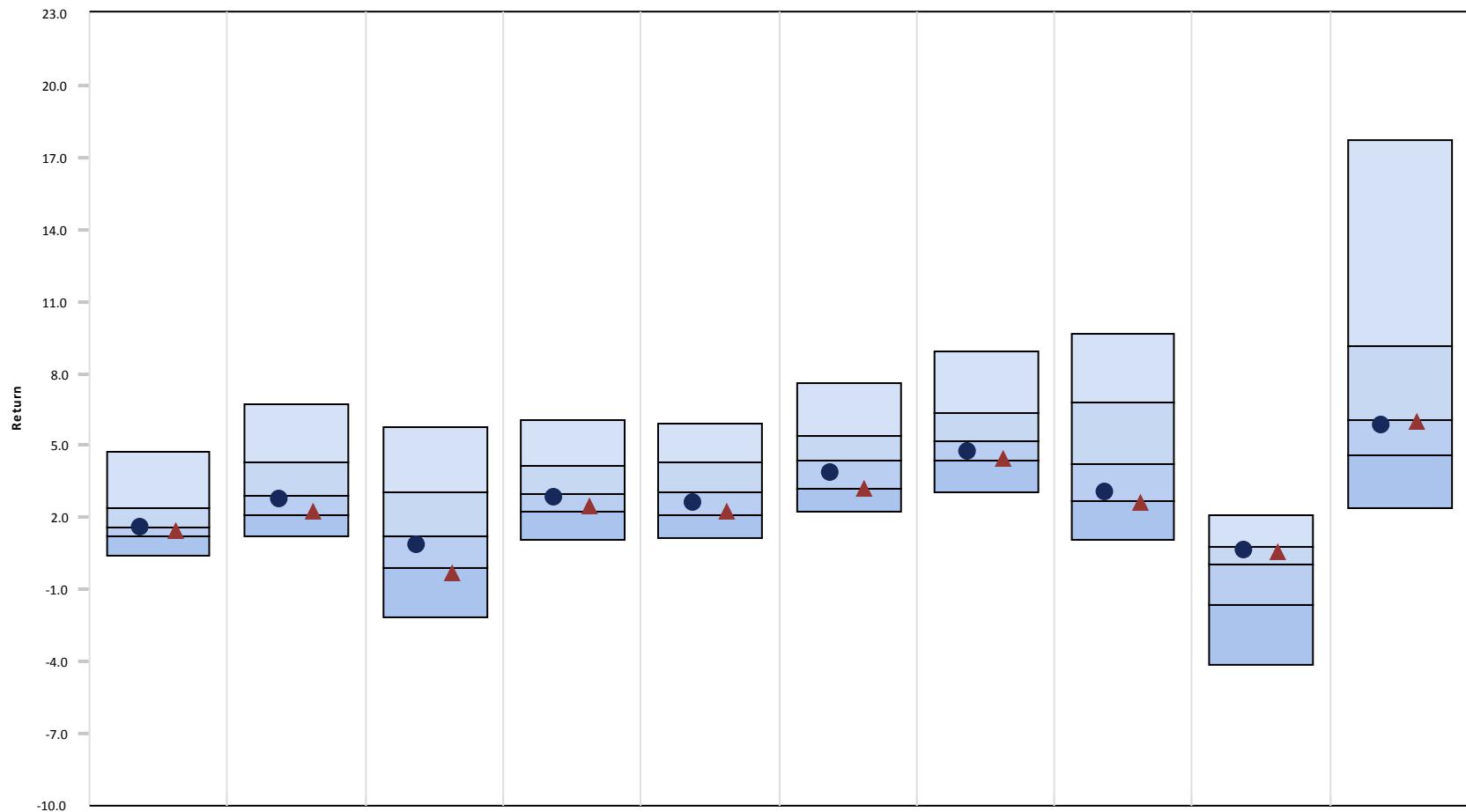
## 3 Year Style Analysis



# Employees' Retirement System of the City of Norfolk

Plan Sponsor Peer Group Analysis - All Master Trust-US Fixed Income Segment

June 30, 2017



	<b>3 Month</b>	<b>CYTD</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>	<b>7 Year</b>	<b>10 Year</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
● Total Fixed Income Composite	1.55 (53)	2.75 (55)	0.85 (60)	2.83 (53)	2.60 (62)	3.88 (57)	4.71 (66)	3.05 (69)	0.66 (29)	5.84 (54)
▲ Blmbg. Barc. U.S. Aggregate	1.45 (59)	2.27 (70)	-0.31 (82)	2.48 (66)	2.21 (71)	3.19 (76)	4.48 (72)	2.65 (77)	0.55 (33)	5.97 (53)
5th Percentile	4.77	6.76	5.75	6.08	5.89	7.59	8.89	9.64	2.07	17.70
1st Quartile	2.39	4.29	3.07	4.16	4.27	5.42	6.32	6.81	0.80	9.13
<b>Median</b>	<b>1.59</b>	<b>2.92</b>	<b>1.22</b>	<b>2.97</b>	<b>3.07</b>	<b>4.35</b>	<b>5.15</b>	<b>4.24</b>	<b>0.02</b>	<b>6.04</b>
3rd Quartile	1.18	2.12	-0.06	2.28	2.07	3.20	4.34	2.70	-1.68	4.59
95th Percentile	0.39	1.22	-2.15	1.05	1.16	2.22	3.06	1.11	-4.14	2.42

**gross of fees**

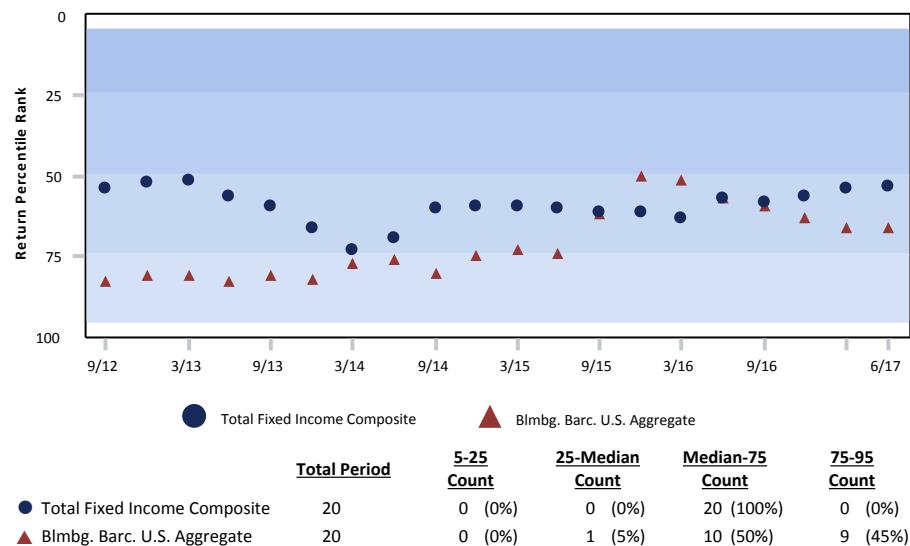
Parentheses contain percentile rankings.

# Employees' Retirement System of the City of Norfolk

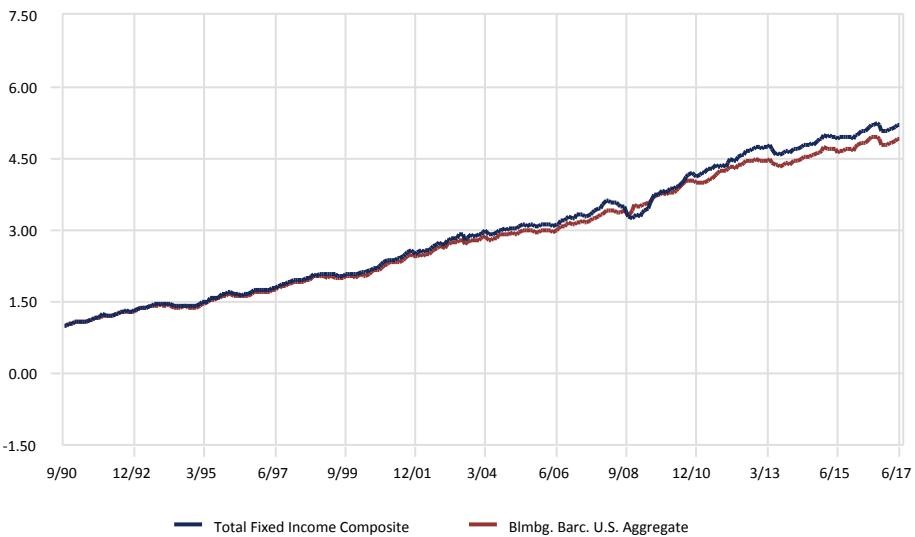
## Total Fixed Income Composite

June 30, 2017

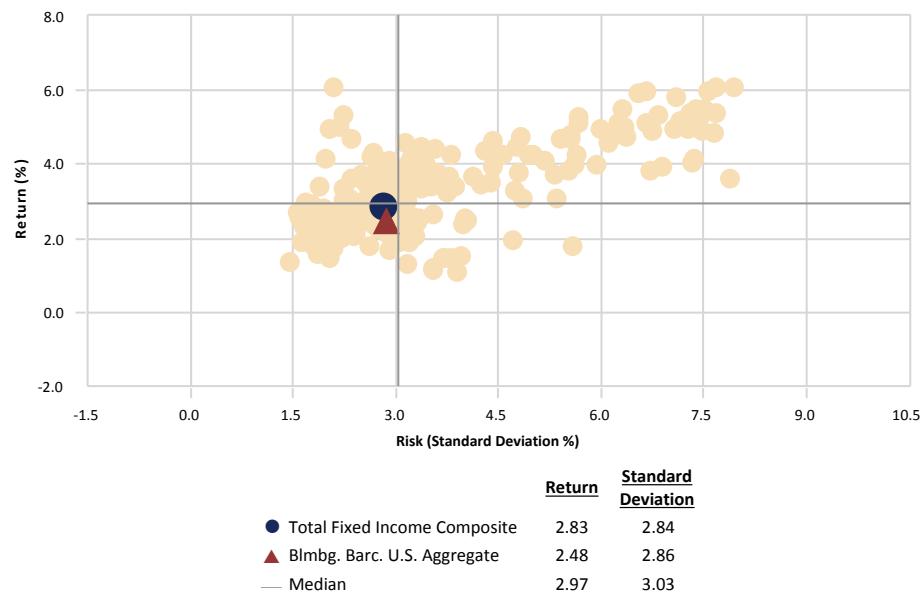
### 3 Year Rolling Return Rank



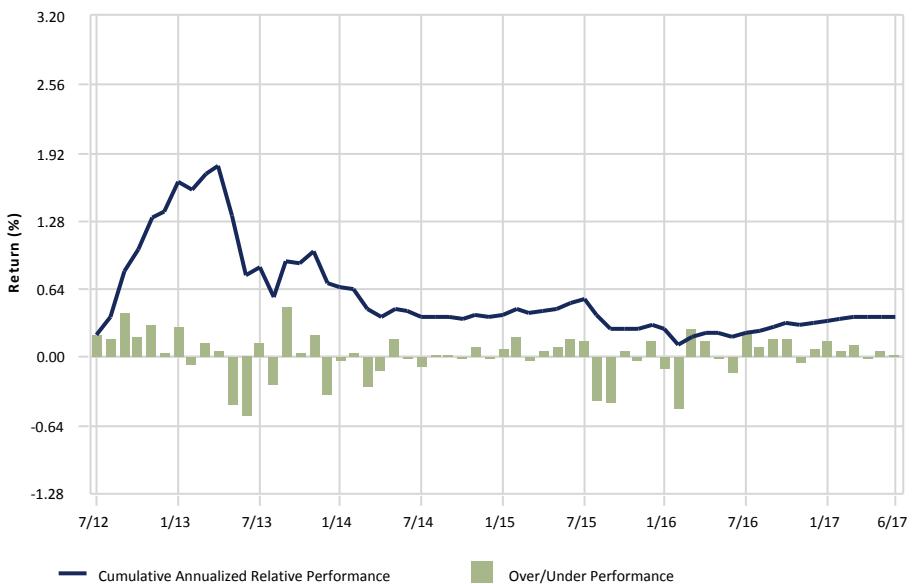
### Growth of \$1 - Since Inception (10/01/90)



### Risk vs. Return (07/01/14 - 06/30/17)



### Relative Performance vs. Blmbg. Barc. U.S. Aggregate

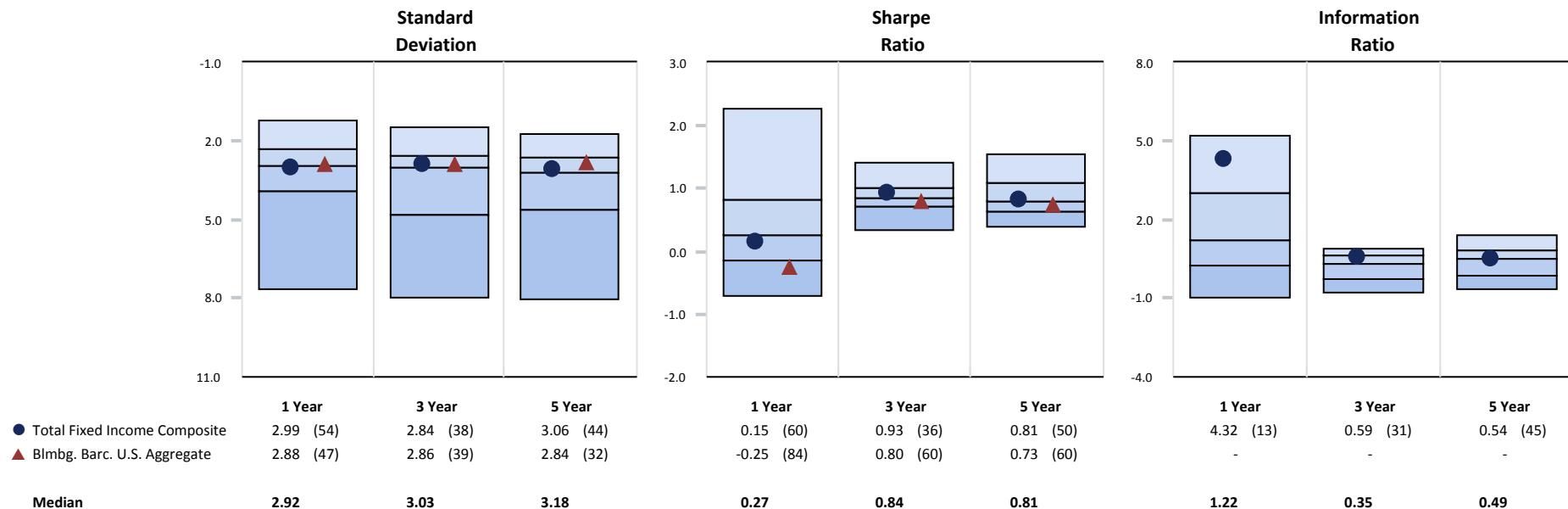


# Employees' Retirement System of the City of Norfolk

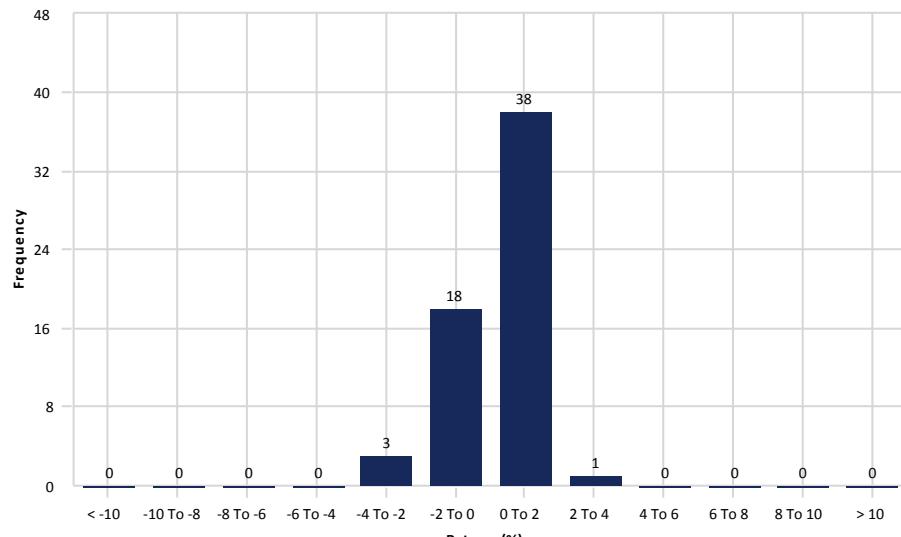
Total Fixed Income Composite

June 30, 2017

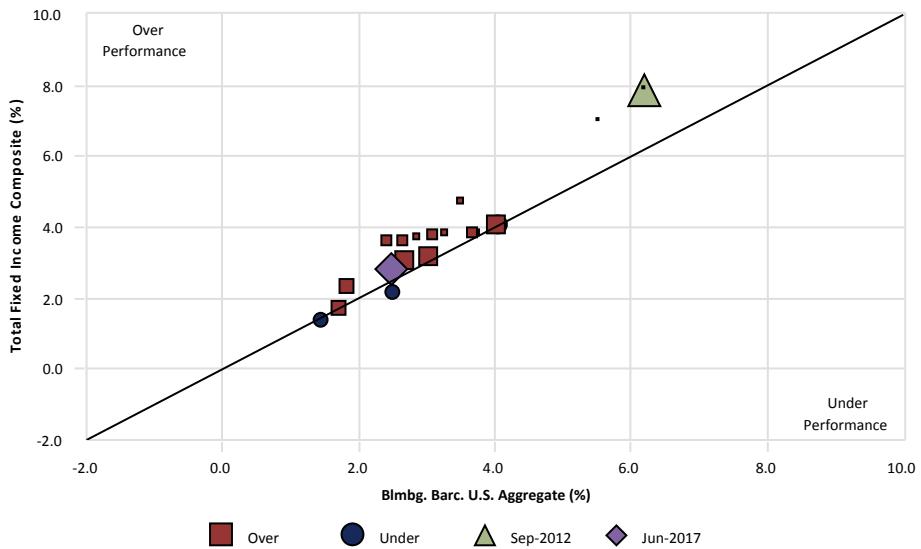
## Peer Group Analysis: All Master Trust-US Fixed Income Segment



## Monthly Distribution of Returns



## 3 Year Rolling Under/Over Performance

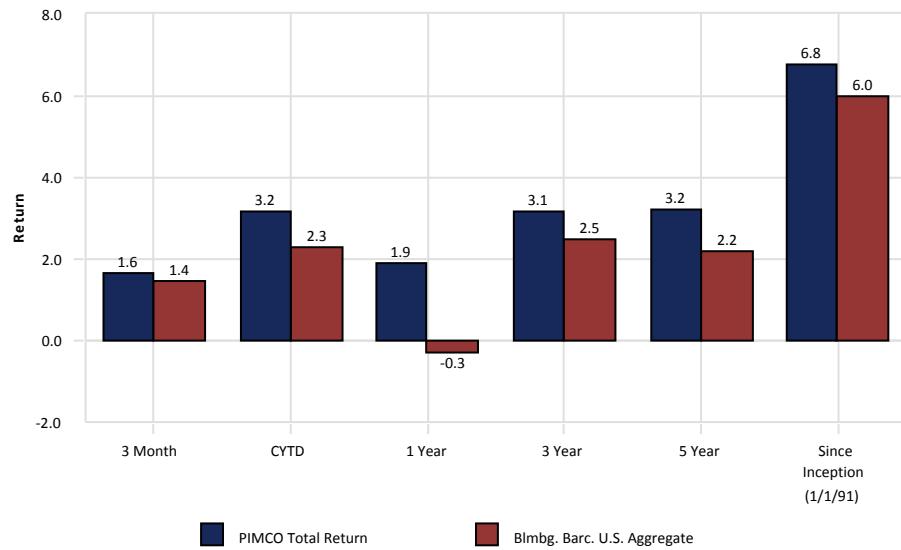


# Employees' Retirement System of the City of Norfolk

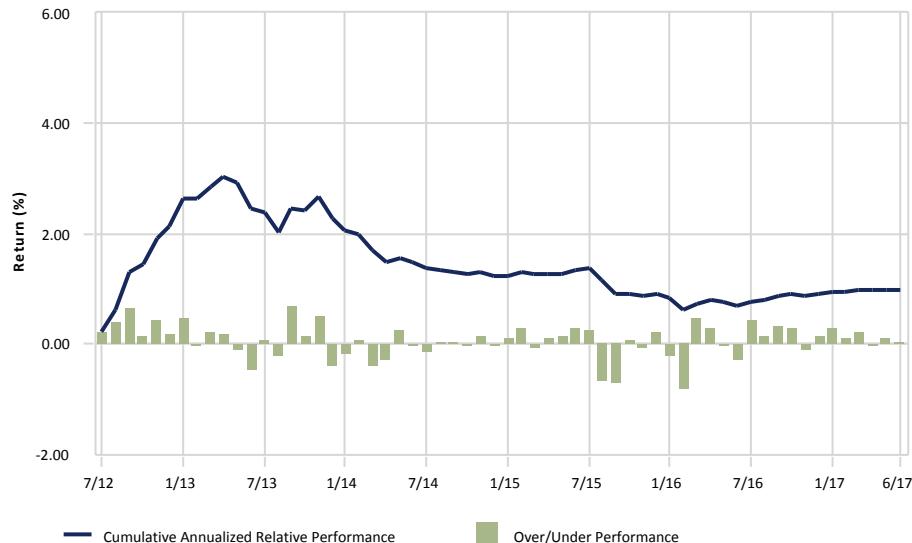
PIMCO Total Return vs. IM U.S. Broad Market Core Fixed Income (SA+CF)

June 30, 2017

## Comparative Performance

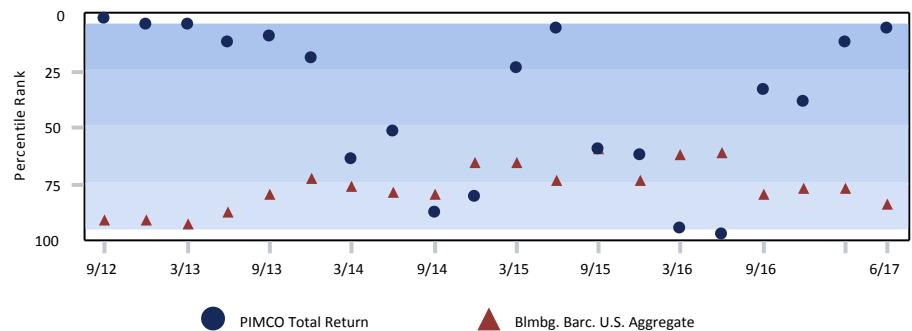


## Relative Performance vs Blmbg. Barc. U.S. Aggregate

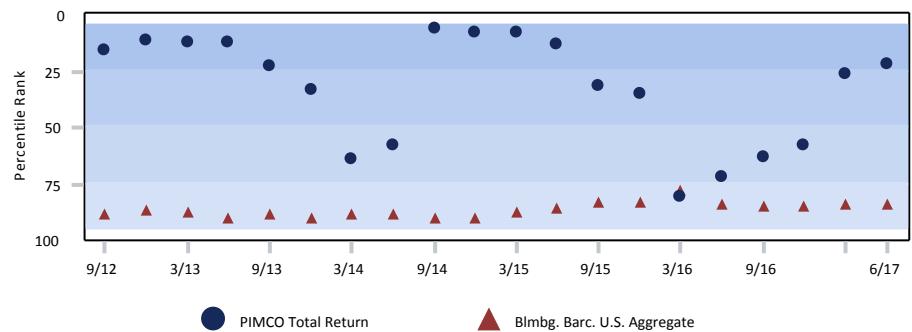


gross of fees

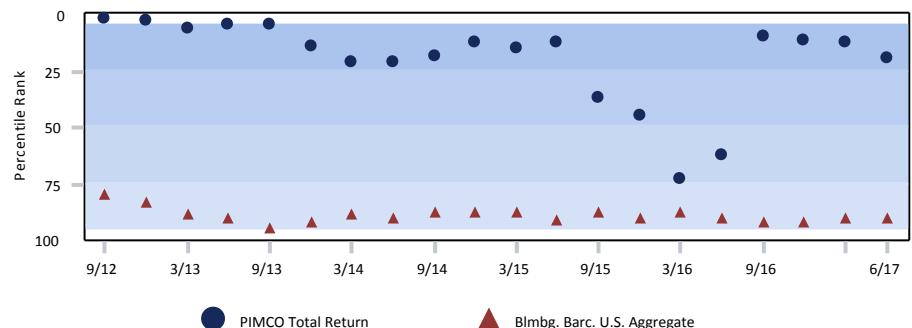
## 1 Year Rolling Percentile Ranking



## 3 Year Rolling Percentile Ranking



## 5 Year Rolling Percentile Ranking



# Employees' Retirement System of the City of Norfolk

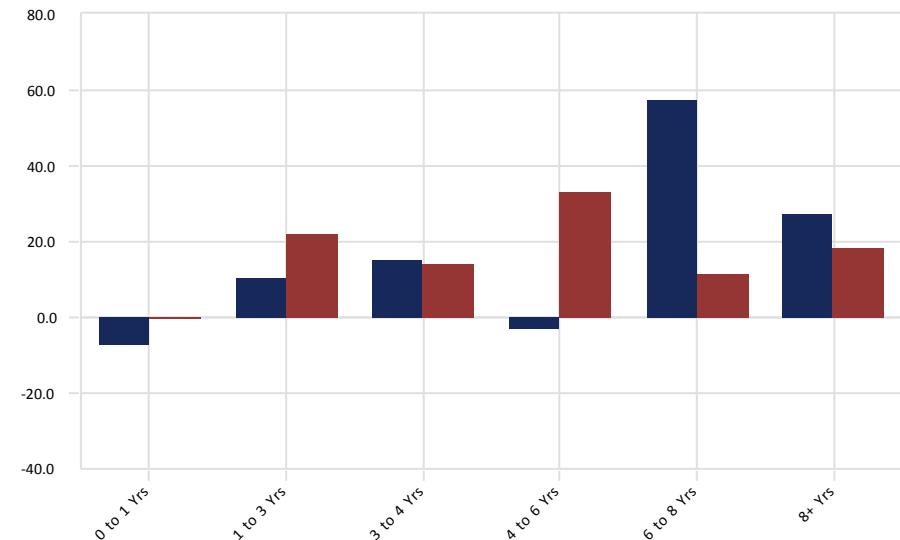
PIMCO Total Return vs. Blmbg. Barc. U.S. Aggregate

June 30, 2017

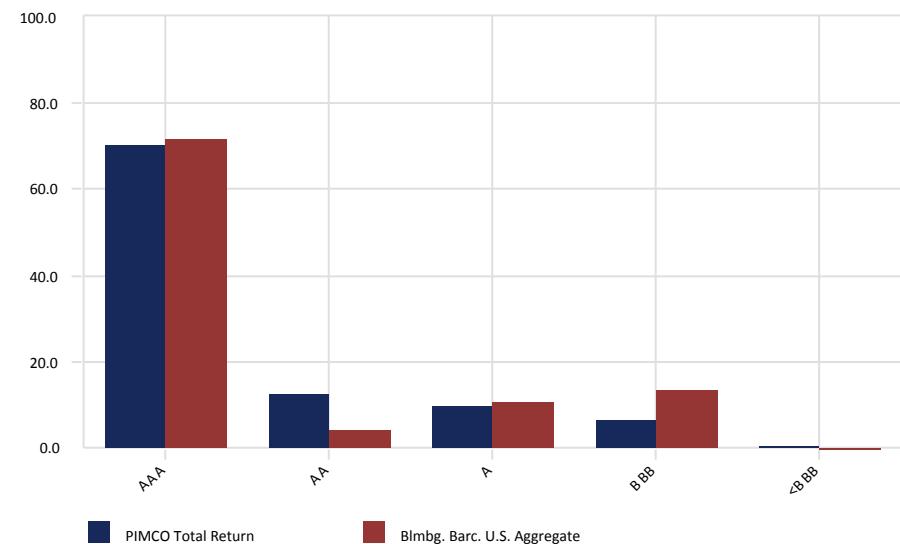
## Portfolio Characteristics

	<u>Portfolio</u>	<u>Benchmark</u>
Avg. Maturity	8.01	8.27
Avg. Quality	AA+	AA1/AA
Coupon Rate (%)	3.00	3.06
Convexity	-1.36	0.16
Effective Duration	5.24	5.94

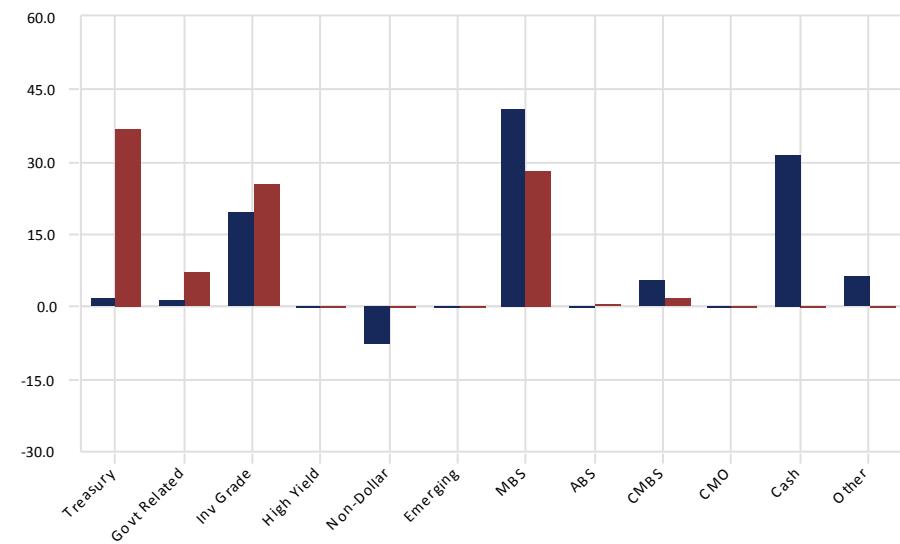
## Duration Distribution (%)



## Credit Quality Distribution (%)



## Sector Distribution (%)

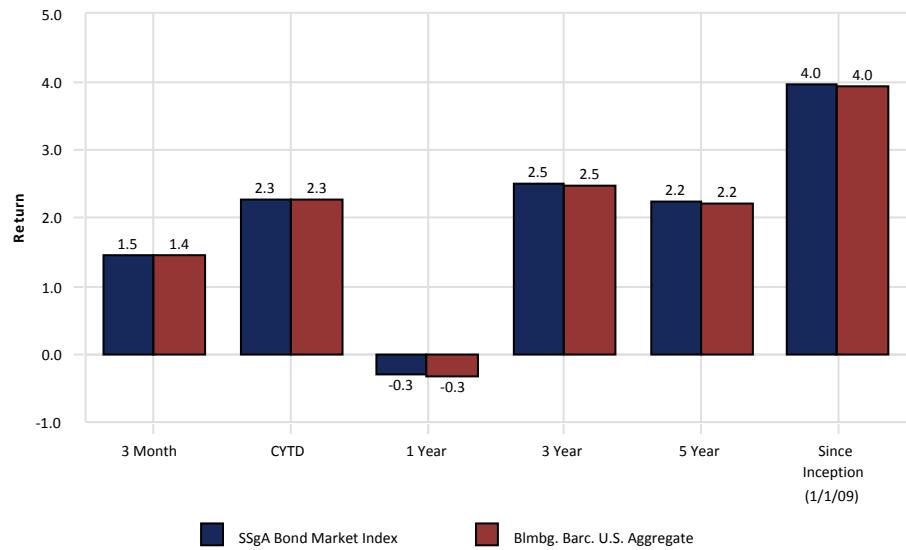


# Employees' Retirement System of the City of Norfolk

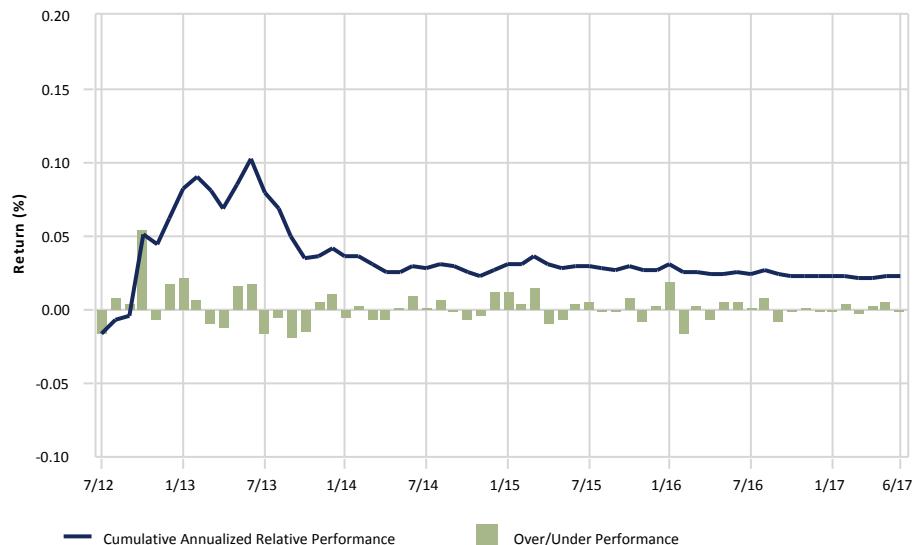
SSgA Bond Market Index vs. IM U.S. Broad Market Core Fixed Income (SA+CF)

June 30, 2017

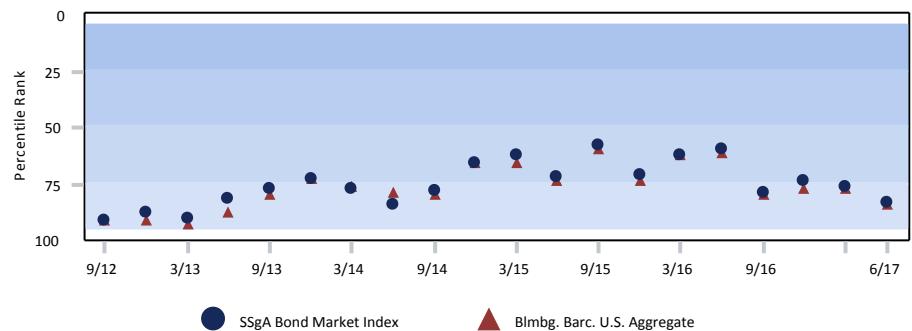
## Comparative Performance



## Relative Performance vs Blmbg. Barc. U.S. Aggregate



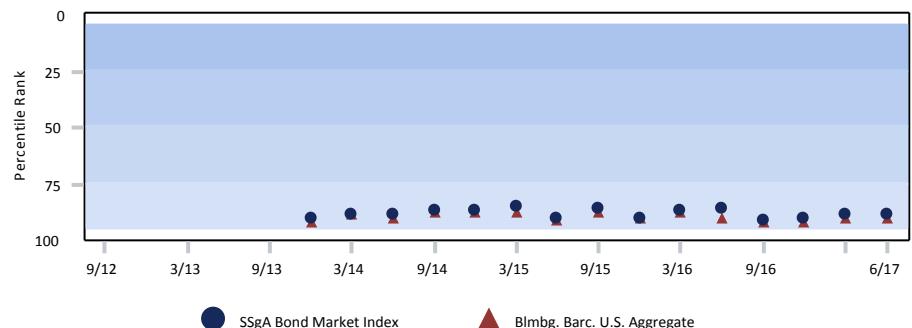
## 1 Year Rolling Percentile Ranking



## 3 Year Rolling Percentile Ranking



## 5 Year Rolling Percentile Ranking



# Employees' Retirement System of the City of Norfolk

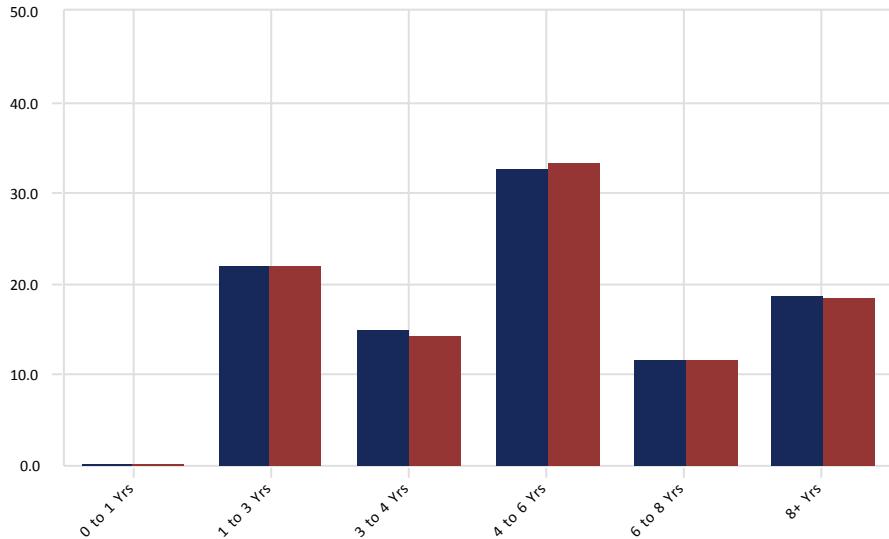
SSgA Bond Market Index vs. Blmbg. Barc. U.S. Aggregate

June 30, 2017

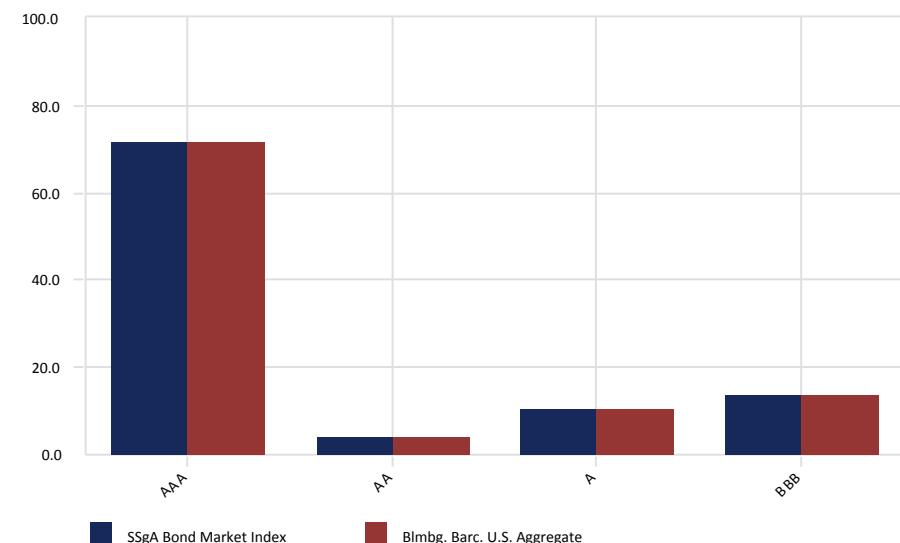
## Portfolio Characteristics

	<u>Portfolio</u>	<u>Benchmark</u>
Avg. Maturity	8.28	8.27
Avg. Quality	AA2	AA1/AA
Yield To Maturity (%)	2.56	2.56
Modified Duration	6.02	6.01
Convexity	0.17	0.16

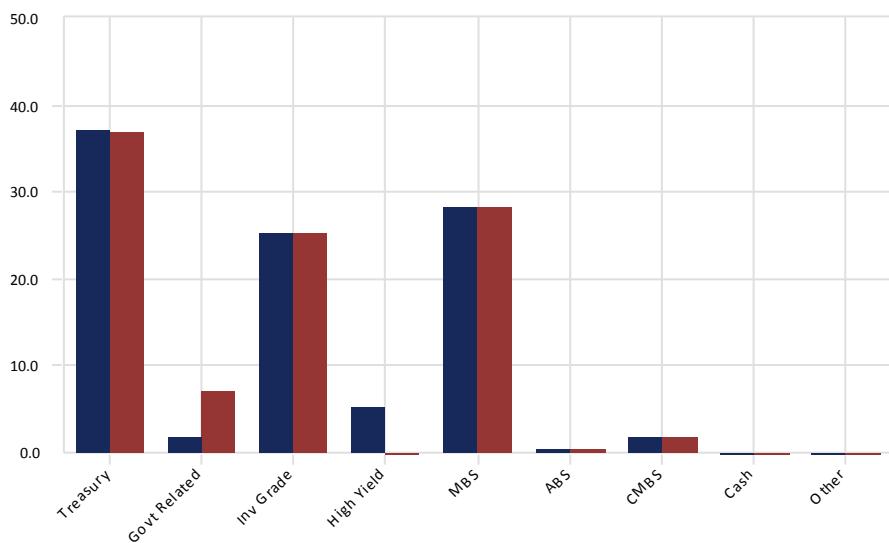
## Duration Distribution (%)



## Credit Quality Distribution (%)



## Sector Distribution (%)



## Real Estate

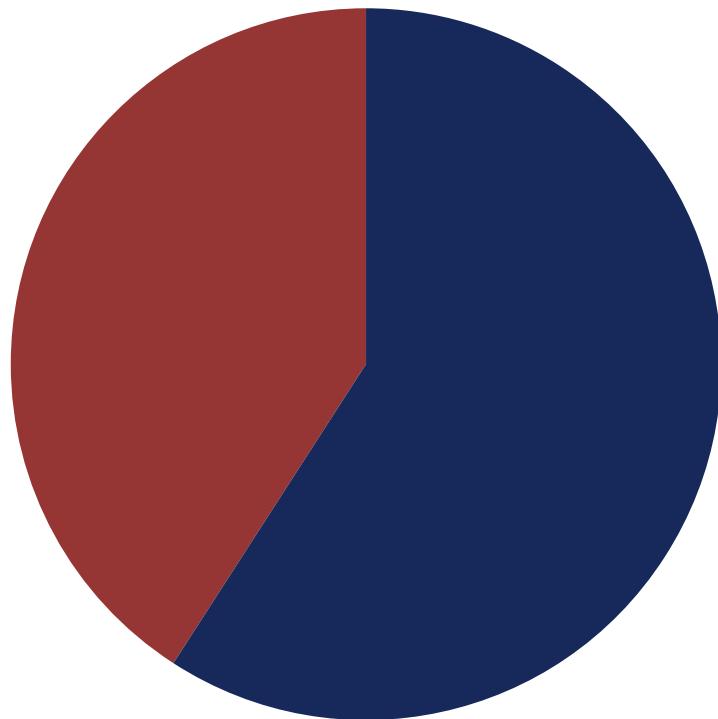
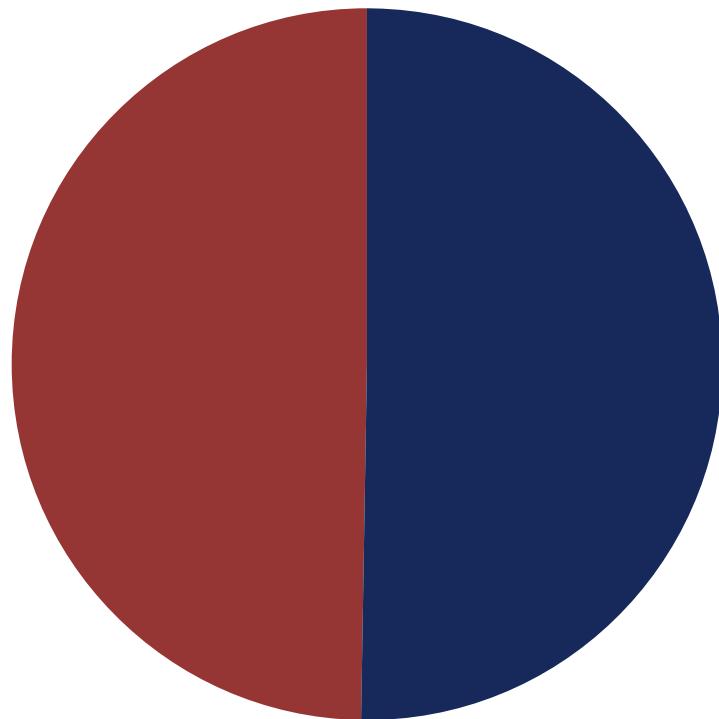
## Employees' Retirement System of the City of Norfolk

Asset Allocation By Manager - Real Estate Composite

June 30, 2017

June 30, 2017 : \$75,583,285

March 31, 2017 : \$63,418,615



■ JP Morgan Asset Management Strategic Property Fund  
■ UBS Trumbull Property Fund

	Market Value (\$)	Allocation (%)
JP Morgan Asset Management Strategic Property Fund	37,992,650	50.27
UBS Trumbull Property Fund	37,590,635	49.73

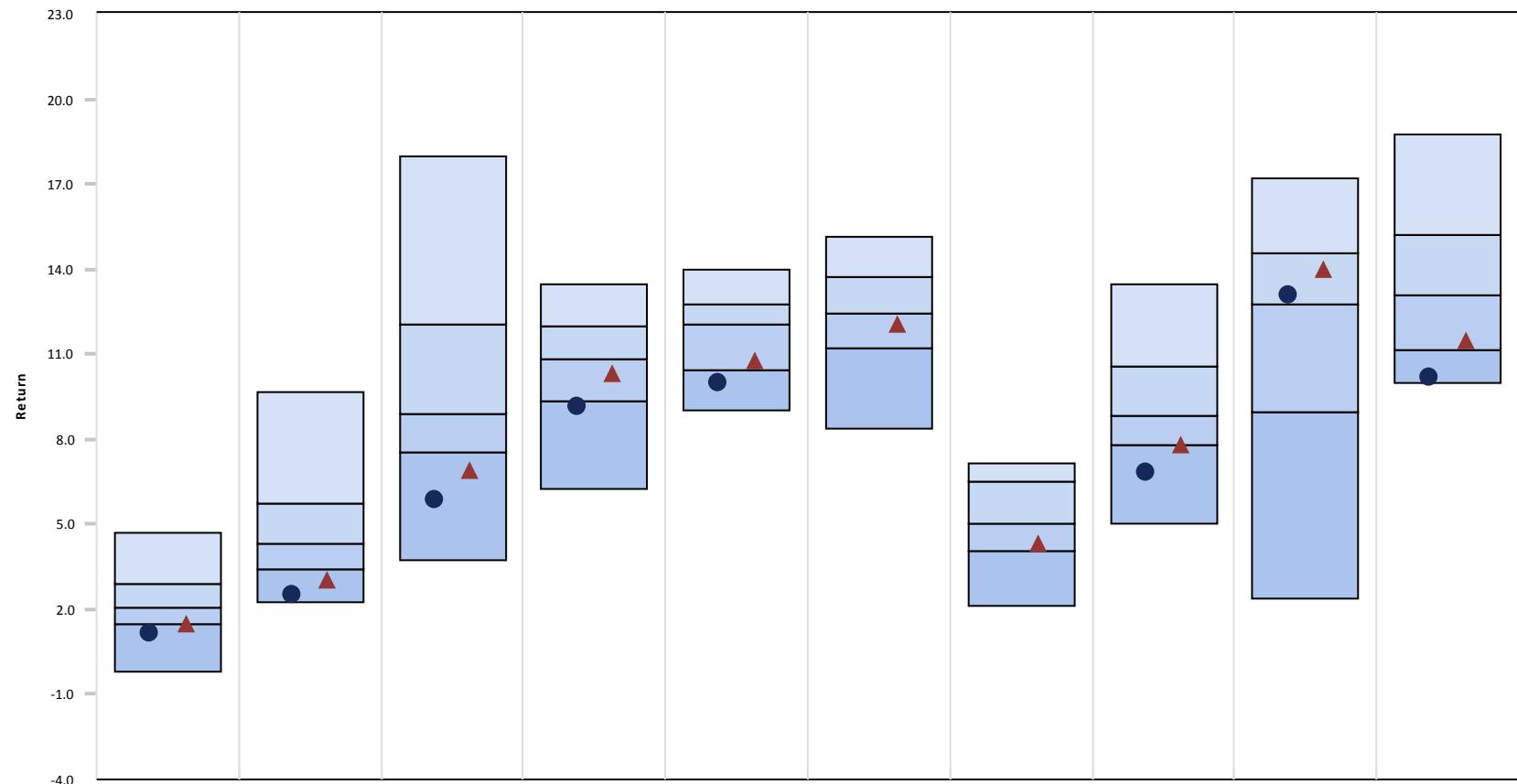
■ JP Morgan Asset Management Strategic Property Fund  
■ UBS Trumbull Property Fund

	Market Value (\$)	Allocation (%)
JP Morgan Asset Management Strategic Property Fund	37,495,588	59.12
UBS Trumbull Property Fund	25,923,027	40.88

# Employees' Retirement System of the City of Norfolk

Plan Sponsor Peer Group Analysis - All Master Trust-Real Estate Segment

June 30, 2017



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
● Real Estate Composite	1.16 (85)	2.53 (92)	5.89 (90)	9.17 (77)	9.95 (83)	-	-	6.79 (86)	13.08 (44)	10.19 (94)
▲ NCREIF Fund Index-ODCE (Net)	1.47 (75)	3.04 (87)	6.90 (83)	10.33 (71)	10.76 (66)	12.03 (58)	4.28 (72)	7.79 (75)	13.95 (30)	11.46 (74)
5th Percentile	4.67	9.67	17.97	13.44	13.99	15.15	7.13	13.44	17.20	18.73
1st Quartile	2.92	5.73	12.07	11.96	12.75	13.70	6.47	10.58	14.56	15.20
<b>Median</b>	<b>2.04</b>	<b>4.33</b>	<b>8.86</b>	<b>10.80</b>	<b>12.07</b>	<b>12.40</b>	<b>5.01</b>	<b>8.85</b>	<b>12.73</b>	<b>13.06</b>
3rd Quartile	1.46	3.41	7.53	9.37	10.45	11.19	4.07	7.76	8.96	11.14
95th Percentile	-0.22	2.25	3.70	6.28	9.03	8.39	2.12	5.04	2.36	9.96
Population	157	128	106	68	48	34	22	105	75	37

net of fees

Parentheses contain percentile rankings.

# Employees' Retirement System of the City of Norfolk

Real Estate Manager Summary

June 30, 2017

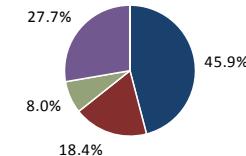
## JP MORGAN FLEMING: Strategic Property Fund

Quarter Ending: June 30, 2017

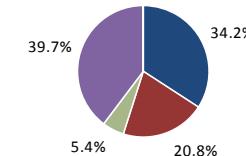
General Fund Information	
Structure	Commingled Pension Fund
Inception Date	1/1/1998
Termination Date	Infinite Life
L/T Return Objective	1.0% over NFI-ODCE
Eligible Property Types	Office, Residential, Industrial, Retail, Land
# of Investors	428
Maximum Leverage	Portfolio 35%; Asset Specific 65%

## Fund Diversification

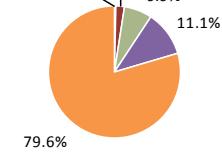
### Property Type



### Geographic Region



### Property Size



Fund Characteristics	
# of Investments / Assets	162
Fund NAV (\$)	\$31.4 billion
Fund GAV (\$)	\$42.1 billion
Cash & Equivalents (% of NAV)	7%
Portfolio Leverage (%)	25%
Occupancy %	92%
# of Metro Areas Invested	50
Wtd Avg Cost of Debt	4.1%
% Debt that is Fixed	86%
Net Investor Flows this Qtr (\$)	-\$67.9 million
Size of Contribution Queue (\$)	\$212.4 million

Performance (%, gross of fees)						
Quarter	Fund			NFI ODCE		
	Income	Apprec	Total	Income	Apprec	Total
Quarter	1.0%	0.5%	1.6%	1.1%	0.6%	1.7%
YTD	2.1%	1.4%	3.5%	2.2%	1.4%	3.5%
1-Year	4.3%	3.5%	7.9%	4.4%	3.4%	7.9%
3-Years	4.7%	5.9%	10.8%	4.6%	6.5%	11.4%
5-Years	4.9%	7.0%	12.1%	4.9%	6.7%	11.8%

Top Six MSAs	
MSA	% of GMV
New York-No. NJ	15.5%
Boston, MA	10.3%
Dallas, TX	9.6%
Los Angeles, CA	9.5%
San Francisco, CA	5.9%
Houston, TX	5.1%

Contact Information	
Portfolio Manager	Kimberly Adams
PM Tenure	July 2012
Address	270 Park Avenue, 7th Floor New York, NY 10017
Phone	212-648-2176
Email	kimberly.a.adams@jpmorgan.com

General Firm Information	
Year Founded	1871 (Firm); 1970 (Real Estate)
AUM (\$)	\$1.9 trillion

Ten Largest Investments (GMV)				
Investment Name	GMV (\$)	MSA	Type	%
Edens	\$1,868,356,228	Various	Retail	4.4%
Donahue Schriber	\$1,588,867,938	Various	Retail	3.8%
1345 Ave. Americas	\$1,096,580,047	New York-No. NJ	Office	2.6%
Century Plaza Towers	\$989,025,636	Los Angeles, CA	Office	2.4%
200 Fifth Avenue	\$984,078,348	New York-No. NJ	Office	2.3%
Valley Fair Mall	\$947,858,944	San Jose, CA	Retail	2.3%
North Park Ctr.	\$921,647,053	Dallas, TX	Retail	2.2%
Alliance Texas	\$898,081,500	Dallas, TX	Industrial	2.1%
Royal Hawaiian Ctr.	\$893,684,902	Honolulu, HI	Retail	2.1%
China Basin	\$789,349,123	San Francisco, CA	Office	1.9%

Quarterly Fund Activity		
Acquisitions	# of Investments	0
	Total GMV (\$)	\$0
Dispositions	# of Investments	4
	Total GMV (\$)	\$583.7 million
Marked to Market	# Written Up	61
	# Written Down	31

# Employees' Retirement System of the City of Norfolk

Real Estate Manager Summary

June 30, 2017

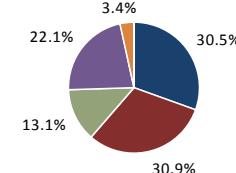
## UBS REALTY INVESTORS: Trumbull Property Fund

Quarter Ending: June 30, 2017

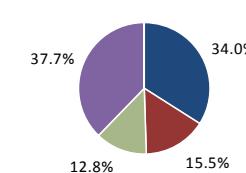
General Fund Information	
Structure	Limited Partnership
Inception Date	1/31/1978
Termination Date	Infinite Life
L/T Return Objective	5% Real Return
Eligible Property Types	Office, Residential, Retail, Hotel, Multi-Family
# of Investors	461
Maximum Leverage	20%

## Fund Diversification

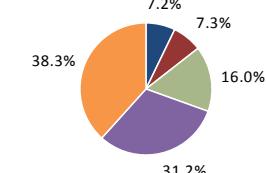
### Property Type



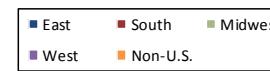
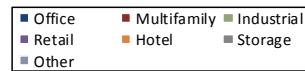
### Geographic Region



### Property Size



Fund Characteristics	
# of Investments / Assets	222
Fund NAV (\$)	\$19.6 billion
Fund GAV (\$)	\$23.5 billion
Cash & Equivalents (% of NAV)	4%
Portfolio Leverage (%)	15%
Occupancy %	92%
# of Metro Areas Invested	88
Wtd Avg Cost of Debt	3.4%
% Debt that is Fixed	96%
Size of Contribution Queue (\$)	\$264.0 million
Size of Redemption Queue (\$)	\$0



## Performance (% gross of fees)

Quarter	Fund			NFI ODCE		
	Income	Apprec	Total	Income	Apprec	Total
Quarter	1.2%	0.0%	1.2%	1.1%	0.6%	1.7%
YTD	2.3%	0.1%	2.3%	2.2%	1.3%	3.5%
1-Year	4.5%	1.0%	5.6%	4.4%	3.3%	7.9%
3-Years	4.9%	4.6%	9.6%	4.7%	6.5%	11.4%
5-Years	5.0%	4.7%	9.8%	4.9%	6.7%	11.8%

## Top Six MSAs

MSA	% of GMV
New York, NY	14.2%
Chicago, IL	10.6%
Los Angeles, CA	9.7%
San Francisco, CA	7.8%
Boston, MA	7.0%
Washington, D.C.	6.6%

## Ten Largest Investments (GMV)

Investment Name	GMV (\$)	MSA	Type	%
53 State Street	\$776,940,000	Boston, MA	Office	3.4%
Cambridge Side	\$619,340,000	Boston, MA	Retail	2.7%
135 West 50th St.	\$615,000,000	New York, NY	Office	2.7%
Galleria Dallas	\$601,000,000	Dallas, TX	Retail	2.7%
120 Broadway	\$524,580,000	New York, NY	Office	2.3%
Liberty Green-Luxe	\$523,000,000	New York, NY	MF	2.3%
35 West Wacker	\$520,230,000	Chicago, IL	Office	2.3%
Water Tower Place	\$482,090,000	Chicago, IL	Retail	2.1%
1177 Ave. Americas	\$473,670,000	New York, NY	Office	2.1%
US Bancorp Tower	\$449,240,000	Portland, OR	Office	2.0%

## Quarterly Fund Activity

Acquisitions	
# of Investments	13
Total GMV (\$)	\$108.0 million
Dispositions	
# of Investments	8
Total GMV (\$)	\$402.8 million
Marked to Market	
# Written Up	186
# Written Down	136

Contact Information	
Portfolio Manager	Kevin Crean
PM Tenure	February 1984
Address	10 State House Square, 15th Floor Hartford, CT 06103
Phone	860-616-9039
Email	kevin.crean@ubs.com

General Firm Information	
Year Founded	1978
AUM (\$)	\$32.1 billion

## **Master Limited Partnerships**

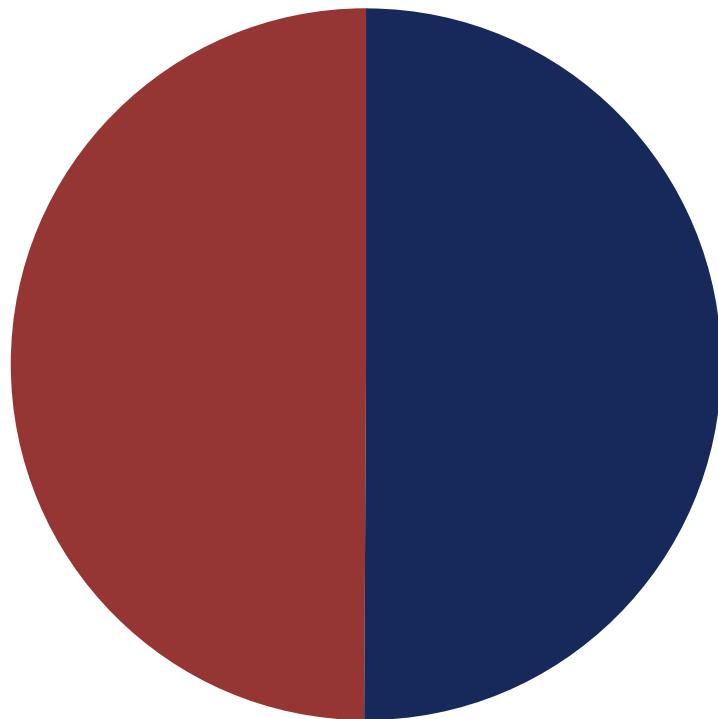
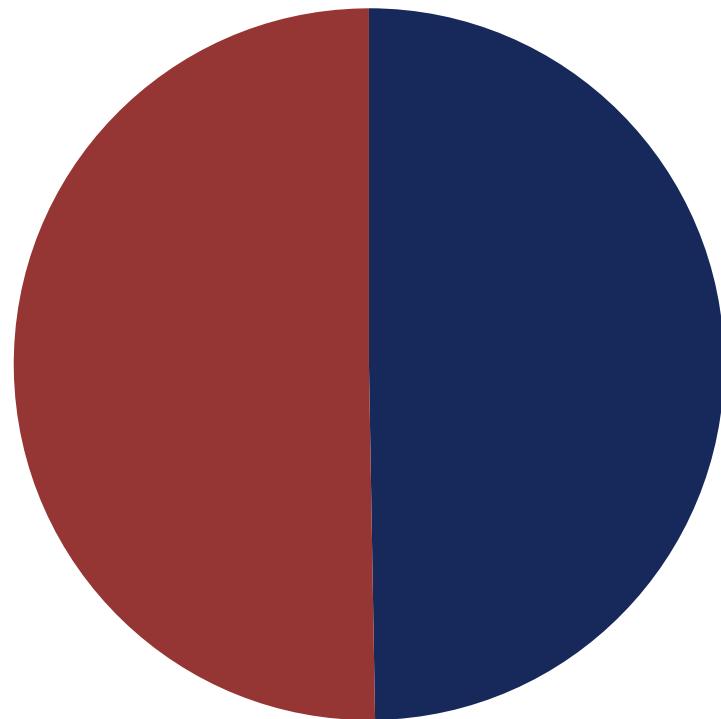
## Employees' Retirement System of the City of Norfolk

Asset Allocation By Manager - MLP Composite

June 30, 2017

June 30, 2017 : \$74,083,383

March 31, 2017 : \$78,905,455



Market Value  
(\$)

Allocation  
(%)

■ Harvest MLP

36,841,665

49.73

■ Tortoise Capital Advisors

37,241,717

50.27

Market Value  
(\$)

Allocation  
(%)

■ Harvest MLP

39,521,015

50.09

■ Tortoise Capital Advisors

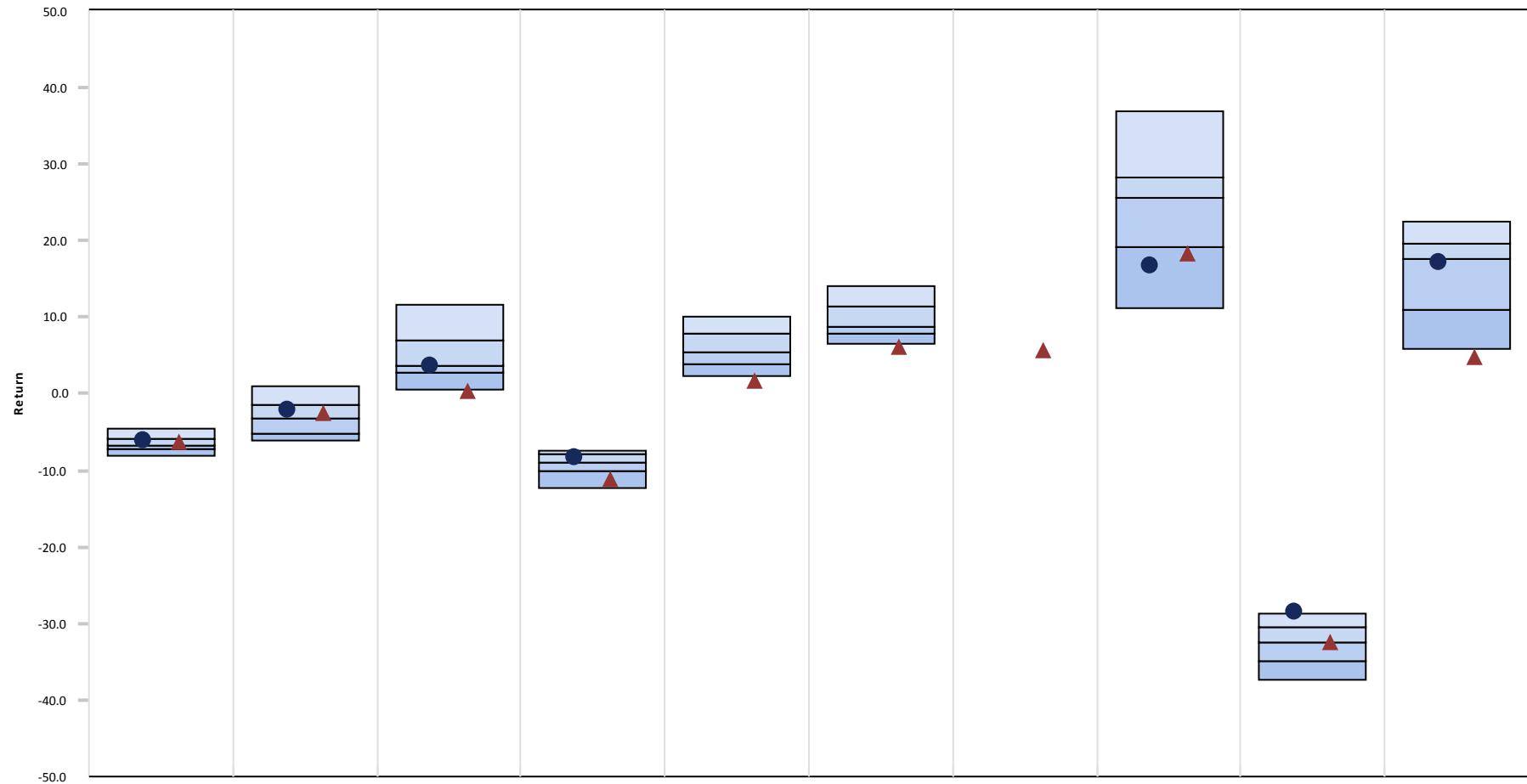
39,384,440

49.91

# Employees' Retirement System of the City of Norfolk

MLP Composite vs. Master Limited Partnerships (SA+CF)

June 30, 2017



	3 Month	CYTD	1 Year	3 Year	5 Year	7 Year	10 Year	2016	2015	2014
● MLP Composite	-6.11 (38)	-2.00 (32)	3.75 (48)	-8.42 (43)	-	-	-	16.68 (85)	-28.47 (5)	17.15 (51)
▲ Alerian MLP	-6.35 (42)	-2.66 (36)	0.40 (96)	-11.23 (92)	1.77 (98)	6.02 (99)	5.74 (-)	18.31 (79)	-32.59 (51)	4.80 (100)
5th Percentile	-4.44	0.91	11.67	-7.41	10.10	14.08	-	37.03	-28.73	22.46
1st Quartile	-5.80	-1.42	6.90	-7.84	7.84	11.35	-	28.24	-30.54	19.54
<b>Median</b>	<b>-6.68</b>	<b>-3.19</b>	<b>3.67</b>	<b>-8.92</b>	<b>5.38</b>	<b>8.75</b>	-	<b>25.56</b>	<b>-32.44</b>	<b>17.54</b>
3rd Quartile	-7.28	-5.30	2.80	-10.01	3.90	7.85	-	19.24	-35.01	10.97
95th Percentile	-8.18	-6.05	0.51	-12.20	2.38	6.58	-	11.22	-37.37	5.82

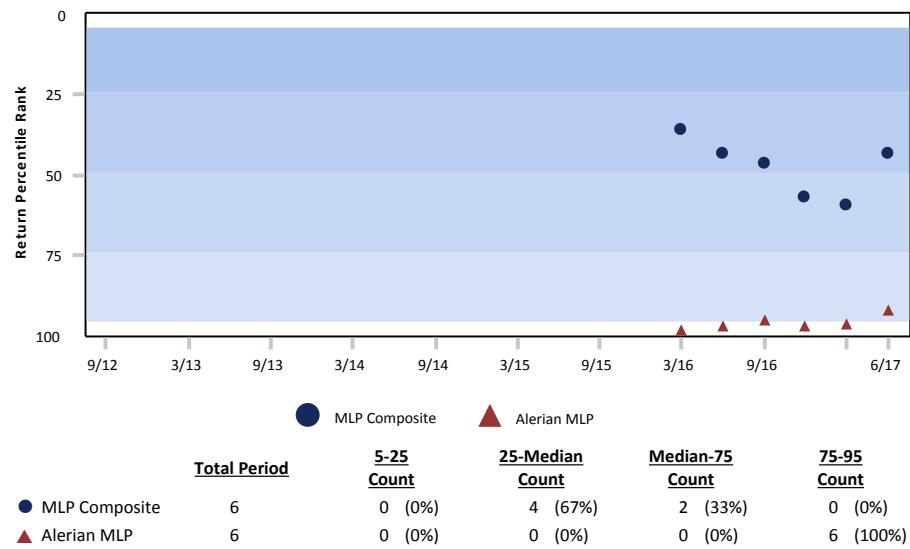
gross of fees

# Employees' Retirement System of the City of Norfolk

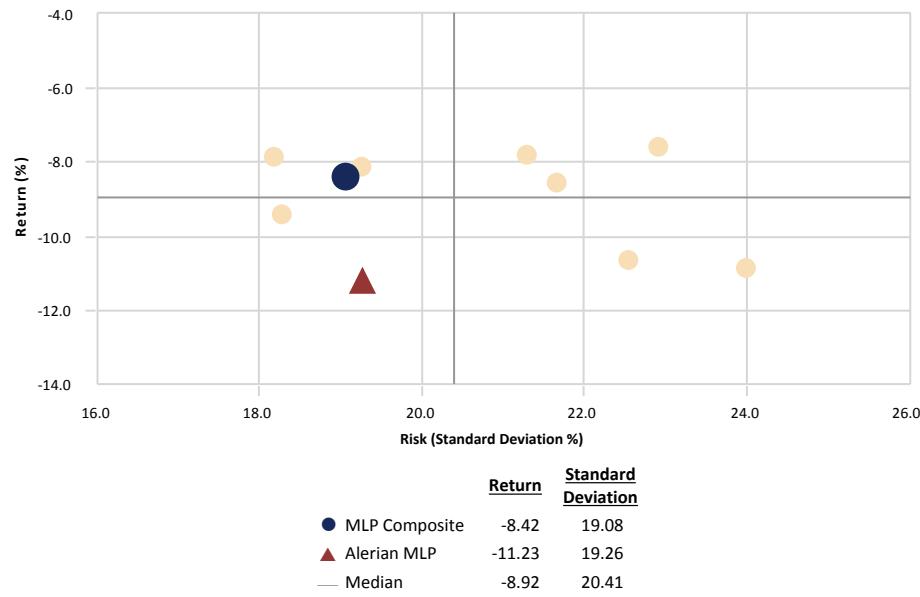
MLP Composite

June 30, 2017

## 3 Year Rolling Return Rank



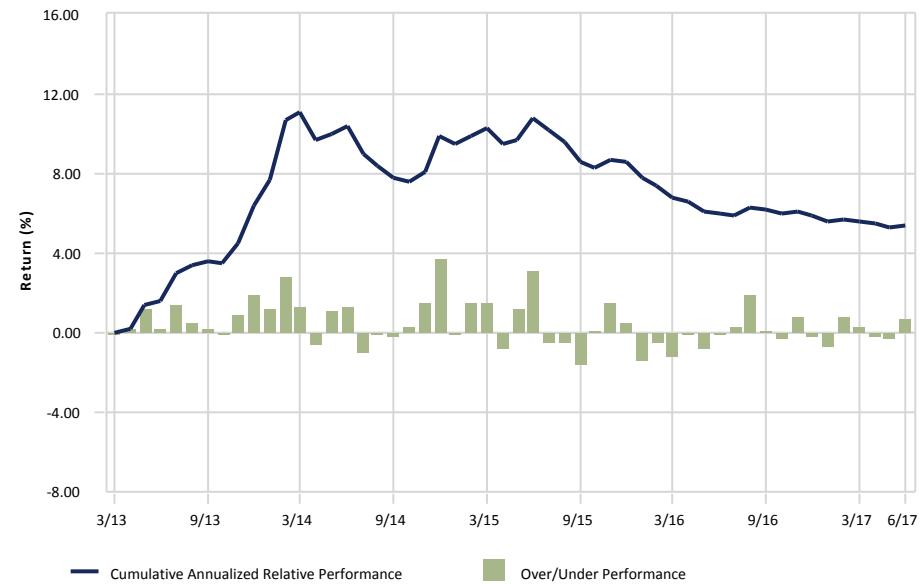
## Risk vs. Return (07/01/14 - 06/30/17)



## Growth of \$1 - Since Inception (03/01/13)



## Relative Performance vs. Alerian MLP

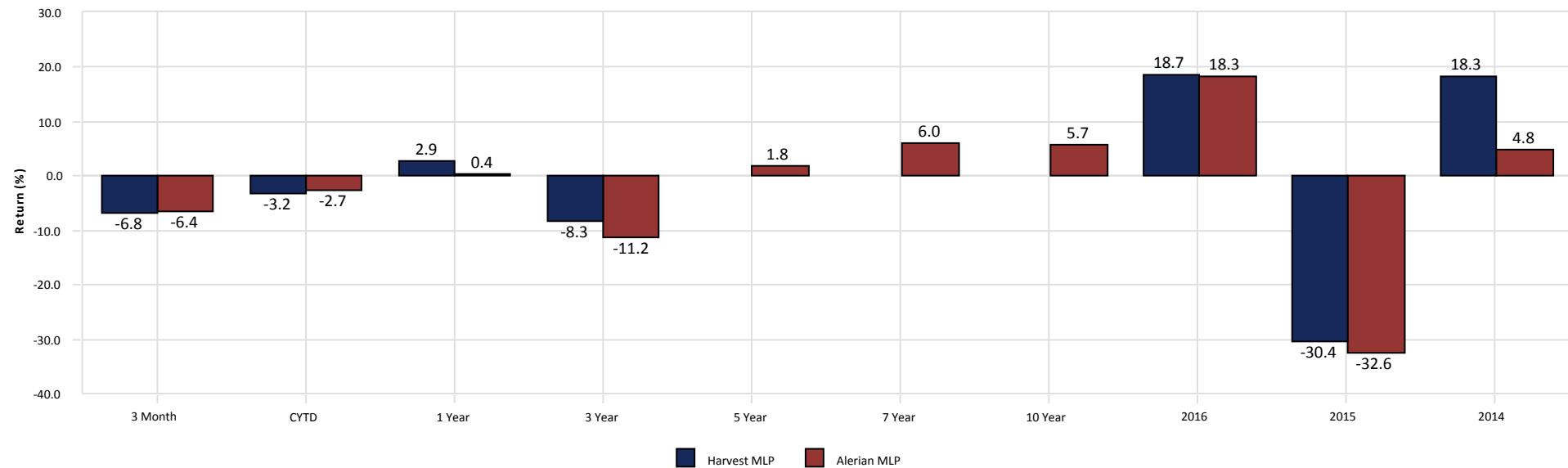


# Employees' Retirement System of the City of Norfolk

Harvest MLP

June 30, 2017

## Comparative Performance



## Growth of \$1 - Since Inception (03/01/13)



gross of fees

## Relative Performance vs. Alerian MLP

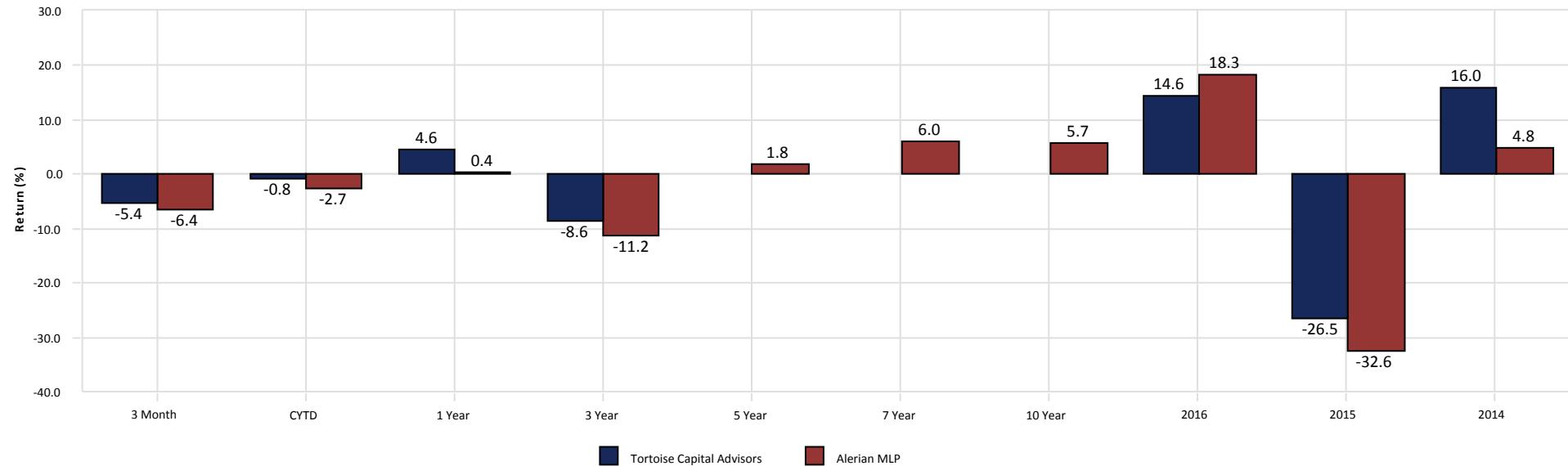


# Employees' Retirement System of the City of Norfolk

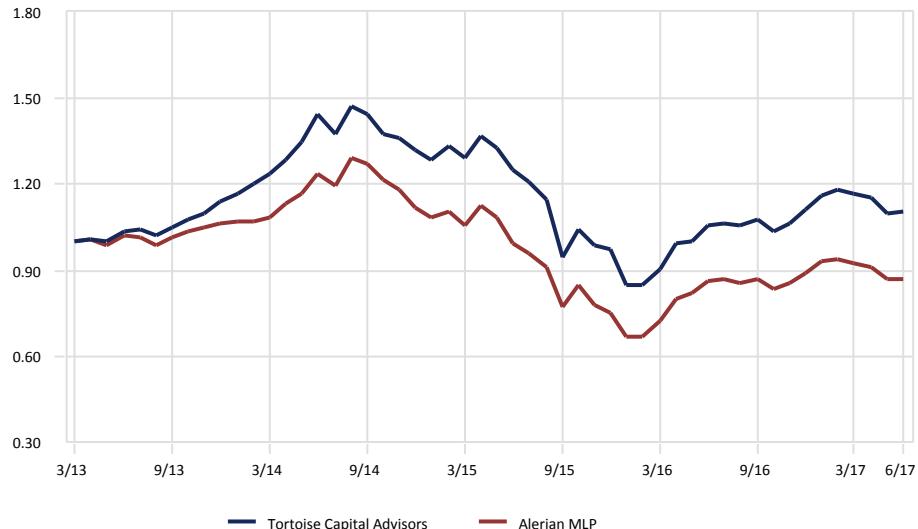
Tortoise Capital Advisors

June 30, 2017

## Comparative Performance

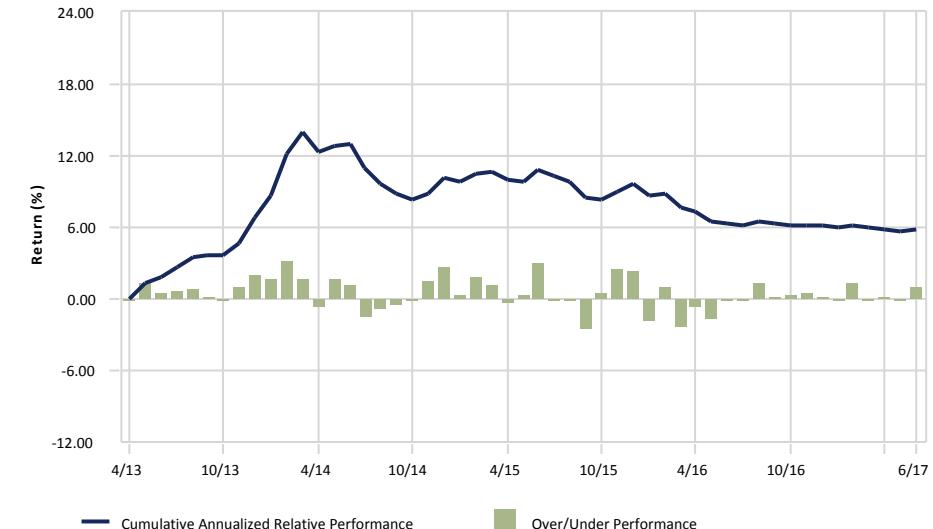


## Growth of \$1 - Since Inception (04/01/13)



gross of fees

## Relative Performance vs. Alerian MLP



## Appendix

## Employees' Retirement System of the City of Norfolk - Performance Gross of Fees

Asset Allocation & Performance (gross of fees)

June 30, 2017

	Asset \$	Asset %	Performance(%) and Percentile Rank										Since Inception	Inception Date			
			3 Month	CYTD	1 Year	2 Year	3 Year	5 Year									
Total Fund Composite	1,043,933,297	100.00	2.59	78	7.43	59	11.86	58	6.09	58	4.75	75	8.67	61	8.38	69	Oct-1990
Total Fund Policy			3.19		7.86		11.42		5.82		4.58		7.91		8.25		
Excess Return			-0.60		-0.43		0.44		0.27		0.17		0.76		0.13		
Total Fund Composite	1,043,933,297	100.00	2.59		7.43		11.86		6.09		4.75		8.67		8.38		Oct-1990
Total Fund Strategy Index			2.38		6.86		10.62		5.68		4.28		7.95		8.27		
Excess Return			0.21		0.57		1.24		0.41		0.47		0.72		0.11		
Global Equity Composite	610,606,985	58.49	4.38	59	11.58	53	19.51	35	7.77	26	5.93	28	11.78	31	5.99	42	Jun-2006
Global Equity Policy			4.25		11.32		19.01		7.24		5.53		11.50		6.07		
Excess Return			0.13		0.26		0.50		0.53		0.40		0.28		-0.08		
Total Fixed Income Composite	281,162,955	26.93	1.55	53	2.75	55	0.85	60	3.00	65	2.83	53	2.60	62	6.38	61	Oct-1990
Blmbg. Barc. U.S. Aggregate			1.45		2.27		-0.31		2.79		2.48		2.21		6.13		
Excess Return			0.10		0.48		1.16		0.21		0.35		0.39		0.25		
Real Estate Composite*	75,583,285	7.24	1.16	85	2.53	92	5.89	90	7.82	83	9.17	77	9.95	83	10.59	70	Apr-2011
NCREIF Fund Index-ODCE (Net)			1.47		3.04		6.90		8.83		10.33		10.76		11.16		
Excess Return			-0.31		-0.51		-1.01		-1.01		-1.16		-0.81		-0.57		
MLP Composite	74,083,383	7.10	-6.11	38	-2.00	32	3.75	48	-7.19	37	-8.42	43	-	-	3.18	40	Mar-2013
Alerian MLP			-6.35		-2.66		0.40		-6.60		-11.23		-		-2.07		
Excess Return			0.24		0.66		3.35		-0.59		2.81		-		5.25		
Cash	2,496,689	0.24	0.17		0.34		0.60		0.47		0.34		0.28		1.43		Jul-2003
Citigroup 3 Month T-Bill			0.18		0.30		0.46		0.30		0.20		0.15		1.21		
Excess Return			-0.01		0.04		0.14		0.17		0.14		0.13		0.22		

\*Returns are Net of Fees.

## Employees' Retirement System of the City of Norfolk - Performance Gross of Fees

Asset Allocation & Performance (gross of fees)

June 30, 2017

	Asset \$	Asset %	3 Month	CYTD	Performance(%) and Percentile Rank								Since Inception	Inception Date
					1 Year	2 Year	3 Year	5 Year						
<b>Global Equity</b>														
SSgA MSCI ACWI IMI Index Fund	610,606,985	58.49	4.38	63	11.58	54	19.51	49	-	-	-	-	16.08	45 May-2016
MSCI AC World IMI (Net)			4.25		11.32		19.01		-	-	-	-	15.58	
Excess Return				0.13	0.26		0.50		-	-	-	-	0.50	
<b>Fixed Income</b>														
PIMCO Total Return	148,029,084	14.18	1.64	32	3.17	7	1.88	6	3.27	40	3.15	22	3.23	19 6.79 8 Jan-1991
Blmbg. Barc. U.S. Aggregate			1.45		2.27		-0.31		2.79		2.48		2.21	5.99
Excess Return				0.19	0.90		2.19		0.48		0.67		1.02	0.80
SSgA Bond Market Index	133,133,871	12.75	1.45	74	2.28	81	-0.30	83	2.81	80	2.50	82	2.24	89 3.97 90 Jan-2009
Blmbg. Barc. U.S. Aggregate			1.45		2.27		-0.31		2.79		2.48		2.21	3.95
Excess Return				0.00	0.01		0.01		0.02		0.02		0.03	0.02
<b>Total Real Assets</b>														
JP Morgan Asset Management Strategic Property Fund*	37,992,650	3.64	1.33	88	3.02	89	6.89	83	8.44	98	9.71	94	11.06	81 11.52 83 Apr-2011
NCREIF Fund Index-ODCE (Net)			1.47		3.04		6.90		8.83		10.33		10.76	11.16
Excess Return				-0.14	-0.02		-0.01		-0.39		-0.62		0.30	0.36
UBS Trumbull Property Fund*	37,590,635	3.60	0.99	100	1.91	100	4.56	100	6.97	100	8.42	100	8.58	100 8.69 100 Jan-2012
NCREIF Fund Index-ODCE (Net)			1.47		3.04		6.90		8.83		10.33		10.76	10.69
Excess Return				-0.48	-1.13		-2.34		-1.86		-1.91		-2.18	-2.00
<b>MLPs</b>														
Harvest MLP	36,841,665	3.53	-6.78	60	-3.16	46	2.88	72	-8.31	46	-8.27	40	-	2.83 42 Mar-2013
Alerian MLP			-6.35		-2.66		0.40		-6.60		-11.23		-	-2.07
Excess Return				-0.43	-0.50		2.48		-1.71		2.96		-	4.90
Tortoise Capital Advisors	37,241,717	3.57	-5.44	9	-0.83	13	4.61	40	-6.14	23	-8.59	46	-	2.34 28 Apr-2013
Alerian MLP			-6.35		-2.66		0.40		-6.60		-11.23		-	-3.31
Excess Return				0.91	1.83		4.21		0.46		2.64		-	5.65

\*Returns are Net of Fees.

## Employees' Retirement System of the City of Norfolk

Historical Hybrid Composition

June 30, 2017

	<u>(%)</u>		<u>(%)</u>
<b>Total Fund Policy : May-2016</b>		<b>Total Fund Strategy Index : Jul-2016</b>	
MSCI AC World IMI (Net)	62.50	MSCI AC World IMI (Net)	55.00
Bloomberg Barc. U.S. Aggregate	37.50	Bloomberg Barc. U.S. Aggregate	30.00
		NCREIF Fund Index-ODCE (VW) (Net)	7.50
		Alerian MLP	7.50

Strategy Index is comprised of the returns of the various broad market benchmarks assigned to each manager and weighted to reflect the System's target asset allocation.

**Summit** Strategies Group

# Employees' Retirement System of the City of Norfolk

## Historical Hybrid Composition

June 30, 2017

### Global Equity Policy

	(%)
<b>May-2016</b>	
MSCI AC World IMI (Net)	100.00
<b>Sep-2009</b>	
Russell 3000 Index	60.00
MSCI AC World ex USA (Net)	40.00
<b>Jun-2009</b>	
Russell 3000 Index	70.00
MSCI AC World ex USA (Net)	30.00
<b>Jun-2006</b>	
Russell 3000 Index	70.00
MSCI EAFE Index	30.00
<b>Oct-1990</b>	
S&P 500	100.00

## Glossary

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<u>Term</u>	<u>Description</u>
Simple Alpha (Excess or Relative Return)	The arithmetic difference between the portfolio's return and the benchmark's return.
Alpha	A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market, or a portfolio's non-systematic return.
Asset Allocation Effect	In attribution analysis, the incremental return attributable to diverging from the target weights of the policy benchmark holding all other factors constant.
Beta	Also called systematic risk or non-diversifiable risk, beta measures the sensitivity of asset returns to the market (benchmark). In isolation a lower beta is considered less risky but does not distinguish between upside and downside risk.
Consistency	The percentage of periods that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.
Down Market Capture	The ratio of average portfolio return over the benchmark during periods of negative benchmark return. Lower values indicate better product performance.
Excess Risk	A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	Measured by dividing the active rate of return by the tracking error. The higher the Information Ratio, the more value-added contribution by the manager. Negative Information Ratios are difficult to interpret.
Manager Value-Added (Selection Effect)	In attribution analysis, the incremental return attributable to active management; the result of diverging from the benchmark allocation within a given asset class.
Market Timing / Other	In attribution analysis, represents the impact of intra-period shifts in asset allocation. For example a rapidly appreciating asset could have markedly different weights throughout the analysis period (which looks at fixed points in time).

## Glossary

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R-Squared	The percentage of portfolio performance explained by the performance of its benchmark; measured on a scale of 0 to 100, with 100 indicating that the portfolio's performance is entirely determined by the benchmark.
Sharpe Ratio	Also called the reward-to-variability ratio, Sharpe Ratio measures the absolute rate of return per unit of risk and is calculated as the Excess Return vs. the Risk Free Rate divided by the standard deviation of the Excess Return. Investors prefer higher Sharpe Ratios (more return per unit of risk).
Standard Deviation	Typically referred to as Volatility or Risk, standard deviation measures the dispersion of actual returns around their average.
Tracking Error	A measure of the standard deviation of a portfolio's performance relative to the performance of an appropriate market benchmark.
Treynor Ratio	Similar to Sharpe ratio, but focuses on beta rather than excess risk (standard deviation). Represents the excess rate of return over the risk free rate divided by the beta. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.
Up Market Capture	The ratio of average portfolio return over the benchmark during periods of positive benchmark return. Higher values indicate better product performance.

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