



New York City  
Employees' Retirement System  
Performance Overview as of June 30, 2018

# Total Fund Overview

## New York City Employees' Retirement System

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### **City of New York Employees' Retirement System Second Quarter 2018 Summary**

**General Economic and Market Conditions:** Real GDP growth in the U.S. hit 4.1% in the second quarter of 2018, the strongest quarterly gain since 2014. Many indicators corroborate the story of a thriving American economy: low unemployment, robust consumer spending, elevated business and consumer confidence, and growth in non-residential investment. However, a big contributor to growth was a surge in exports, likely due to stockpiling ahead of tariffs imposed at the end of the quarter, which may not be sustained for long. Global growth is de-synchronizing, with signs of deceleration emerging in Europe, Japan, and China. Oil prices have rebounded from the lows of 2014, and inflationary pressures such as wages are gradually building. The Fed raised interest rates for the second time this year in June, and it is telegraphing two more hikes before the end of 2018 and perhaps three in 2019. While the tax cuts at the end of 2017 (a form of stimulative spending by the federal government) are buoying consumer spending, we may be reaching a peak in the current cycle.

Expansions do not die of “old age”; elapsed time is not an economic variable. In addition, the current expansion has seen one of the slowest rates of GDP growth, an average of just 2.2%, compared to a typical expansion average of 3% or greater. That said, the current expansion is one of the longest on record, and it is the imbalances that can develop during long expansions that ultimately lead to a correction. Diverging global growth, and the resetting of monetary policy in the U.S. to return to “normal” ahead of plans by other countries’ central banks, means higher interest rates in the economy with the strongest growth and upward pressure on the U.S. dollar. A more expensive dollar will make U.S. exports more costly, at a time of increased trade uncertainty following the imposition of tariffs. Higher interest rates mean higher borrowing costs, after a decade of cheap debt for those who could get it. The tight labor market poses another source of imbalance, with unemployment dipping to a generational low of 3.8% in May, employers facing challenges hiring talent, and wage pressures gradually building.

The second quarter was clearly another high point for the U.S. economy in the long rebound since 2009. U.S. exports surged 9.3% in the quarter, accounting for a fourth of total GDP growth. With growth weakening in American trading partners, the increase in exports to them does not likely represent a surge in demand but a shift in timing, which will show up in subsequent quarters. The tax cut represents a potentially large fiscal stimulus, and consumers have certainly responded, driving consumption spending 4% during the quarter and accounting for two-thirds of GDP growth. Business investment of the tax cut is mixed; equipment spending grew more slowly in the first half of the year compared to 2017, while investment in structures surged at an annual rate of more than 13% in each of the first two quarters. One surprise in the quarter was a drop in inventory investment, which actually subtracted 1 percentage point

Through June 30, 2018



from GDP. The upshot is that GDP growth could have been as high as 5%, and the economy now has greater capacity to rebuild inventory, suggesting a boost to future growth.

Another surprise in the GDP report was a drop in residential investment. The housing market has been a bit of a riddle as this long recovery has unfolded. The inventory of existing single-family homes reached its lowest reading on record for the month of May (1.65 million). Inventory levels keep dropping, reaching a supply of 4.1 months in June while a 6-month supply is considered normal. Yet home prices are high and rising everywhere. The FHA reported that home price indices rose year-over-year in the first quarter in all 50 states and in each of the 100 largest metro areas. The number of homes worth less than their mortgage has dropped by 80% since 2011, which should lead to an increase in potential inventory. Three factors have weighed on the inventory of homes for sale. A substantial number of single-family homes were converted to rental units starting in 2006. Second, Americans don't move as much; mobility in 2017 dropped to a post-World War II low. Third, starts have been hindered for 10 years on the supply side, with high timber and construction costs, a shortage of building sites, and restricted access to credit. Demand may be there, but builders have been unable to put up enough homes.

*Please note that all return figures mentioned below are gross of fee.*

**Total Fund Performance:** For the quarter ended June 30, 2018, the Fund returned +0.70%, eighteen basis points above the Policy Target return of +0.52%. Over the trailing year, NYCERS has earned a return of +8.78% versus the Policy Target return of +7.73%. Over three years, the total Fund has returned +7.82% annualized. Over the trailing five years, the Fund has gained 8.69% annualized. The trailing 10-year return is +7.08% annualized.

**Total Fund Assets:** The Fund's assets totaled \$64.8 billion as of the end of the second quarter of 2018.

**U.S. Equity:** The total domestic equity portion of the NYCERS Fund returned +4.12% for the quarter, above the +3.89% return of the Russell 3000 Index. For the trailing year, NYCERS underperformed the index, returning +14.76% versus +14.78% for the index. The Fund is below the benchmark over the trailing three, five, seven, and ten year periods. The active portfolio bested the passive one over the quarter as well as the trailing ten year return period. The passive portfolio performed better over the trailing one, three, five, and seven year return periods.

Through June 30, 2018



In Large Cap, the Fund outperformed the Russell 1000 Index, returning +3.71% versus the Russell 1000's return of +3.57% during the second quarter.

In Small Cap, the Fund returned +8.10%, above the Russell 2000 return of +7.75% for the quarter. The Fund's one year return of +17.63% outperformed the +17.57% return of the Index.

**Developed International:** For the quarter, the Fund's Non-U.S. Developed Equity composite returned -0.43% (excluding NYCERS' non-U.S. Environmental and Activist managers), outperforming the Custom MSCI World ex-US Benchmark by 34 basis points. The Fund returned +11.49% for the trailing one year period, above the return of the benchmark (+7.82%). The Fund is above the benchmark over the trailing three, five, seven, and ten year periods.

**Emerging Markets Equity:** The Fund's emerging markets equity composite returned -10.14% in the quarter, outperforming the -10.28% return of the FTSE NYCERS custom benchmark. The passive portfolio outperformed the active one for the quarter. The one year return for the emerging markets composite is +1.84%, underperforming the +2.30% return for the benchmark. The Fund is below the benchmark over the trailing three and five year periods and ahead of the benchmark over the trailing seven and ten year periods.

**Core Fixed Income:** The composite of the Fund's core program returned -0.07% during the quarter, while the NYCERS Core Plus Five Index returned -0.28%. For the past year, the core composite has returned -0.28%, while the benchmark's return is -0.48%. The Fund is ahead of the benchmark over the trailing three, five, seven, and ten year periods.

**TIPS:** The Fund's TIPS composite delivered a +0.78% return in the quarter, slightly above the +0.77% return for the Bloomberg Barclays Capital US TIPS Index. Over the past year, the Fund's TIPS managers have returned +2.18%, above the benchmark's return of +2.11%. The Fund is ahead of the benchmark over the trailing three, five, seven, and ten year periods.

**High Yield:** In high yield, the Fund's managers returned +0.89% for the quarter, while the FTSE BB&B Index posted a higher return of +0.92%. The Fund underperformed the benchmark over the past year, returning +1.99% as compared to the benchmark's return of +2.42%. The Fund is behind the benchmark over the trailing three year period and ahead of the benchmark over the trailing five, seven, and ten year periods.

Through June 30, 2018



**Bank Loans:** The NYCERS bank loan composite returned +0.77% in the second quarter, below the Credit Suisse Leveraged Loan Index's return of +0.78%. The Fund outperformed the benchmark for the year returning +4.73% versus +4.67% for the benchmark. The Fund has outperformed the benchmark over the trailing three and five year periods.

**Convertibles:** The convertible portfolio returned +0.61% in the quarter, below the +1.56% return of the NYCERS Custom Convertible Bond Index. Over the past year, the convertibles portfolio has returned +7.72%, underperforming the benchmark by 172 basis points. The Fund underperformed the custom benchmark over the trailing three year period and is ahead of the benchmark over the trailing five, seven and ten year periods.

**Opportunistic Fixed Income:** The opportunistic fixed income composite returned +1.72% over the second quarter, outperforming the blended benchmark of 50% JP Morgan Global High Yield / 50% Credit Suisse Leveraged Loan Index - Plus 300 bps (+1.22%). The Fund returned +6.99% for the trailing one year period, above the return of the blended benchmark (+6.72%). The Fund is below the blended benchmark over the trailing three, five, seven, and ten year periods.

**Alternatives:** For the quarter, the Private Equity portfolio had approximately \$4.5 billion in invested capital, representing roughly 6.9% of the Total Fund. The Private Real Estate portfolio had approximately \$3.4 billion invested, accounting for roughly 5.2% of the Total Fund. The Infrastructure portfolio had approximately \$396 million invested, or 0.6%. Hedge Fund investments represented approximately \$67 million, or 0.1%. Performance is reported separately by NYCERS' Private Equity, Real Estate and Hedge Fund consultants.

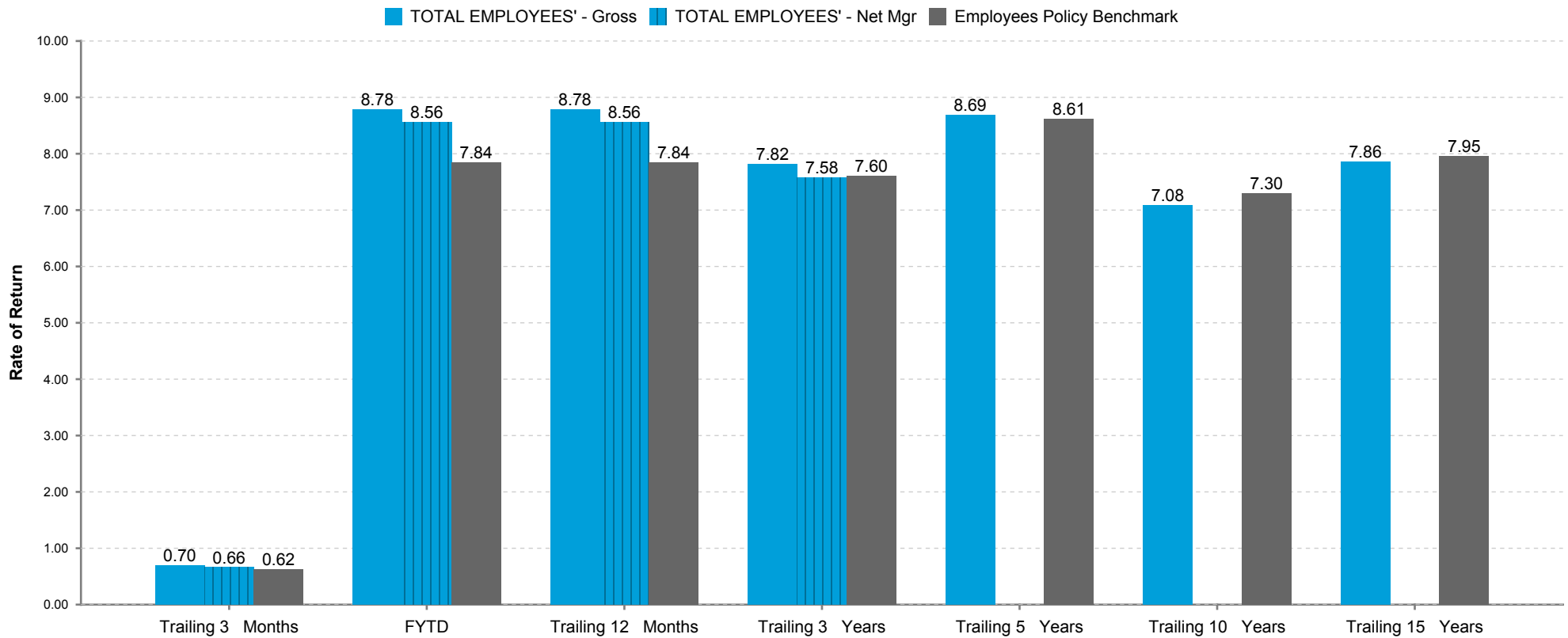
# Total Portfolio Returns: June 30, 2018



**Market Value (Billions)**

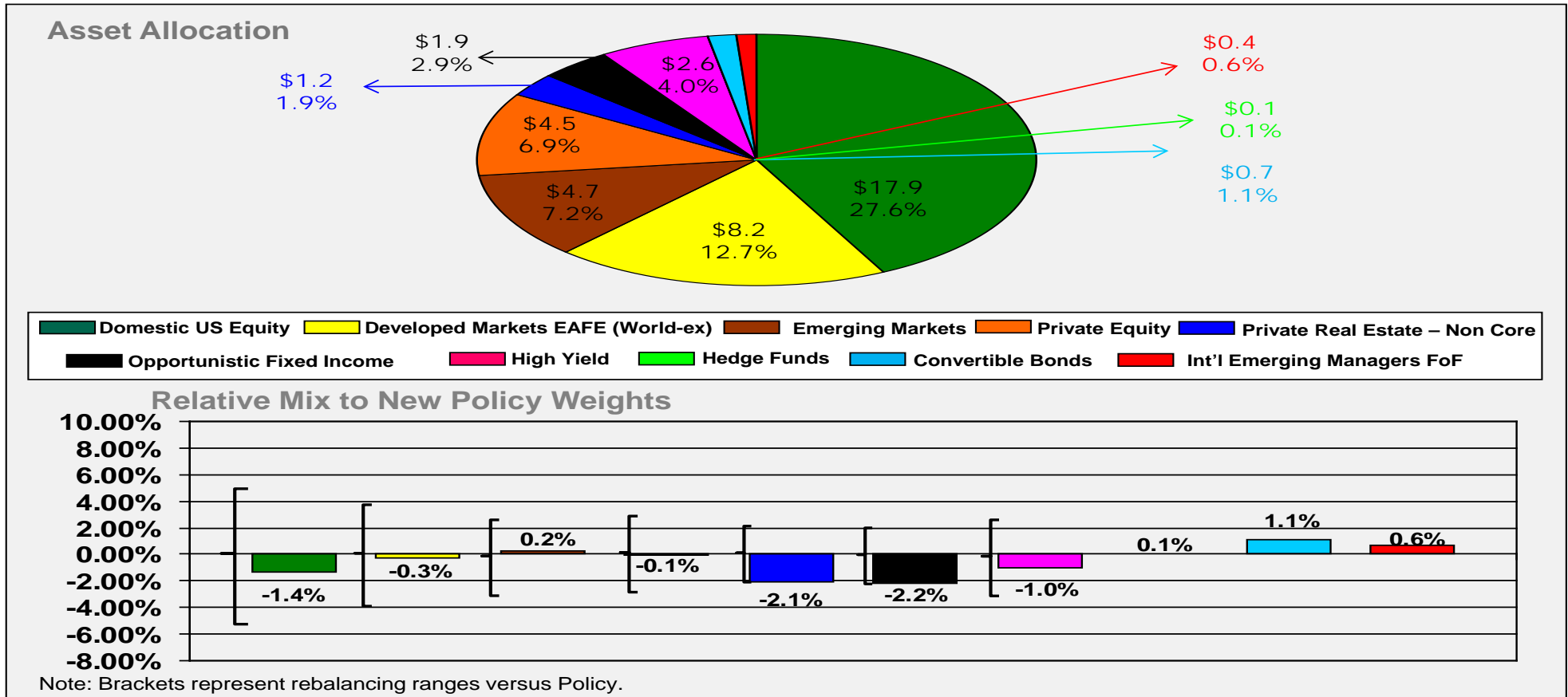
TOTAL EMPLOYEES'

\$64.8



	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 10 Years	Benchmark 10 Years
<b>Standard Deviation</b>						
TOTAL EMPLOYEES'	5.7	5.6	8.7	5.4	9.6	10.4

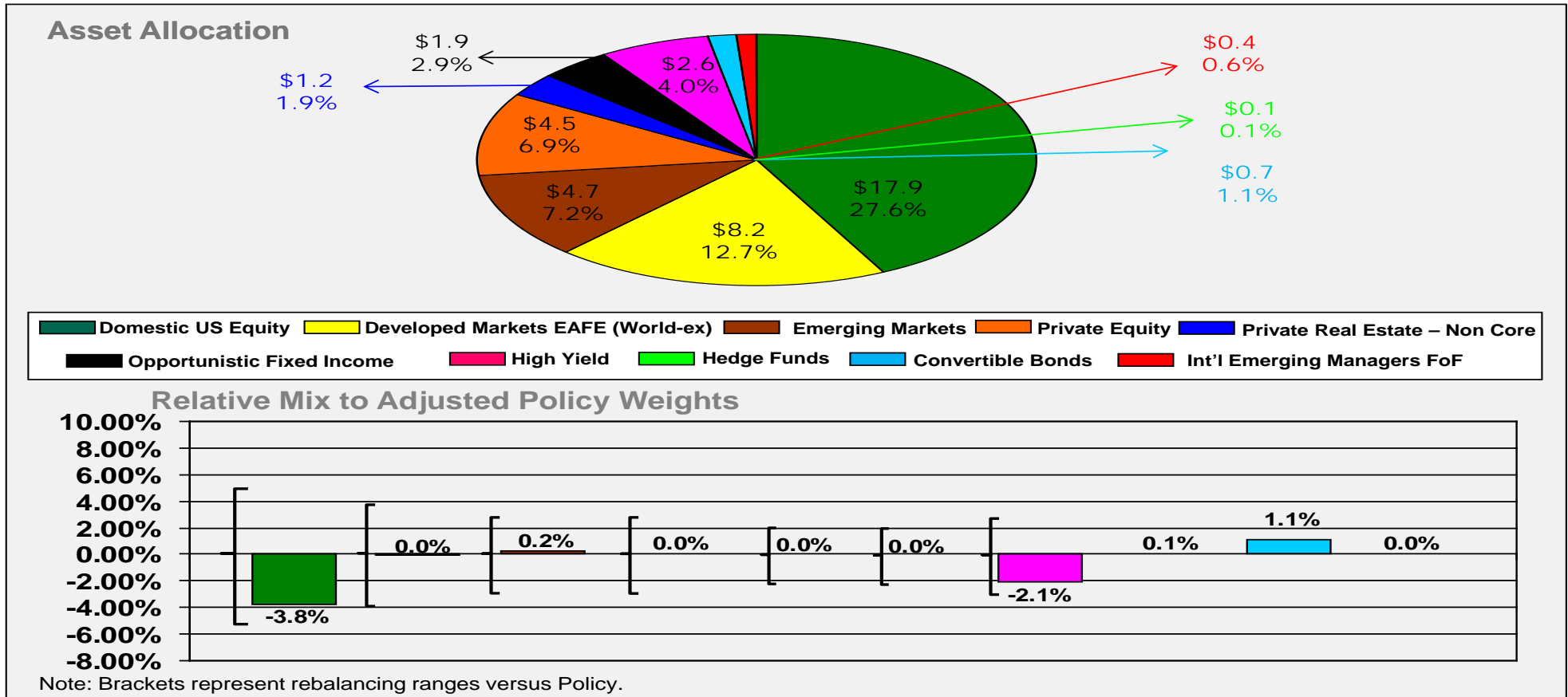
## Portfolio Asset Allocation – Growth





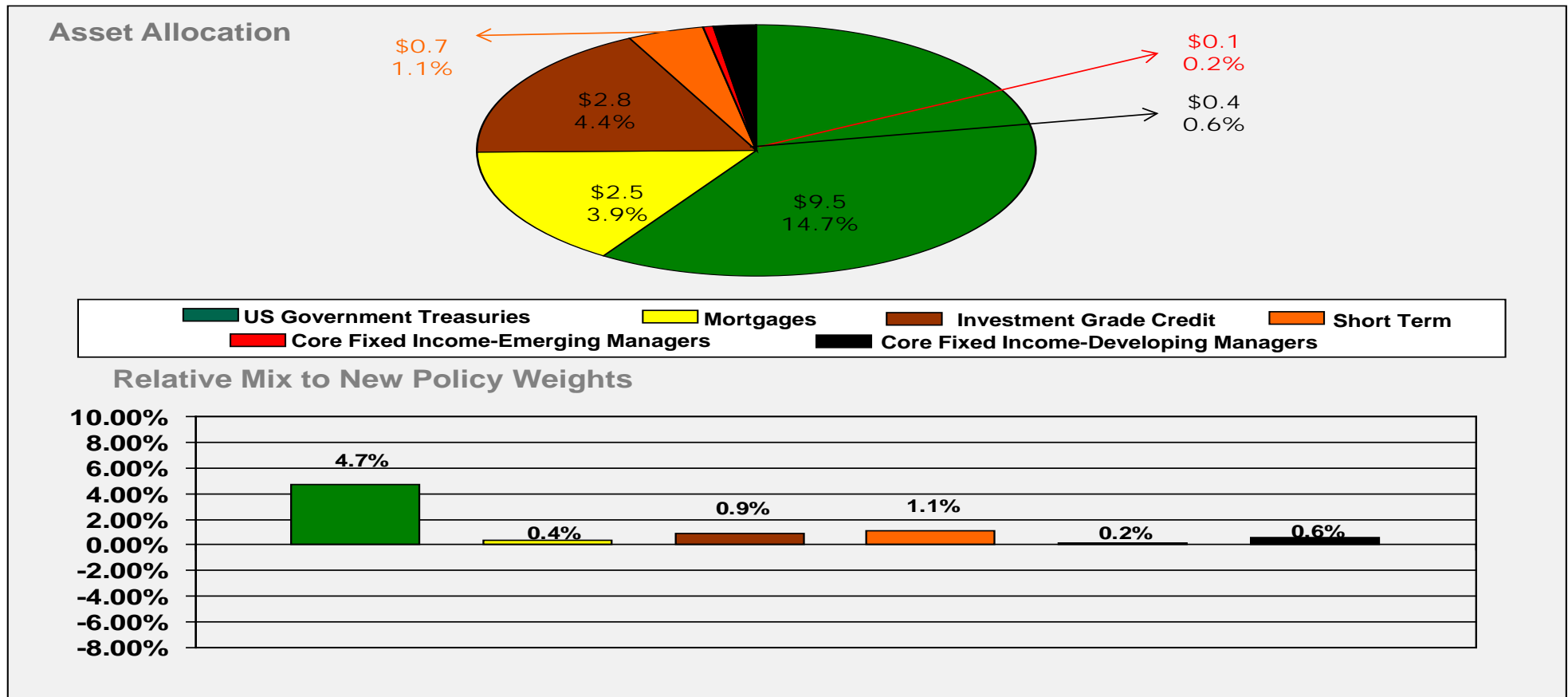


**Portfolio Asset Allocation – Growth**

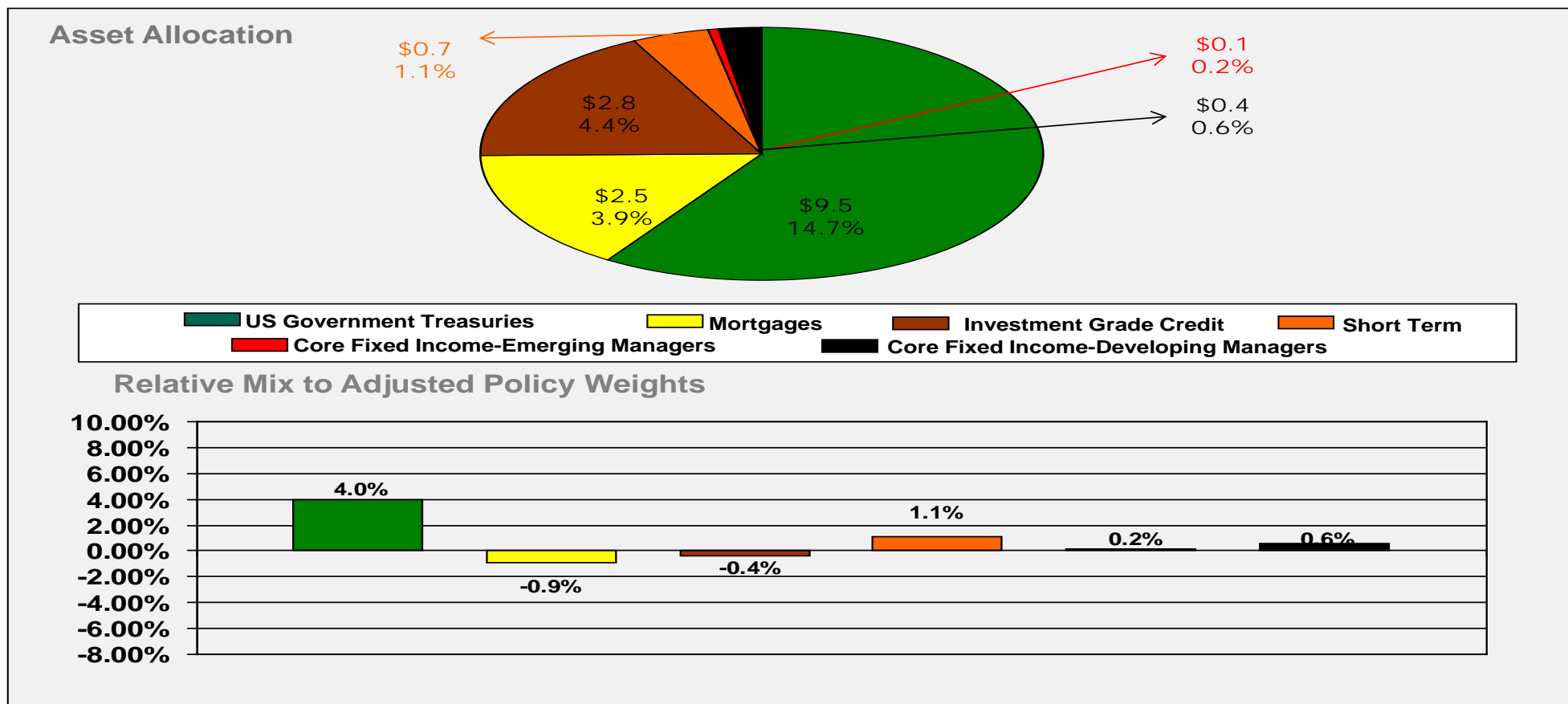


Note: On June 29, 2018 NYCERS' combined Fixed Income and Cash portfolios have a duration of 5.4 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

## Portfolio Asset Allocation – Deflation Protection

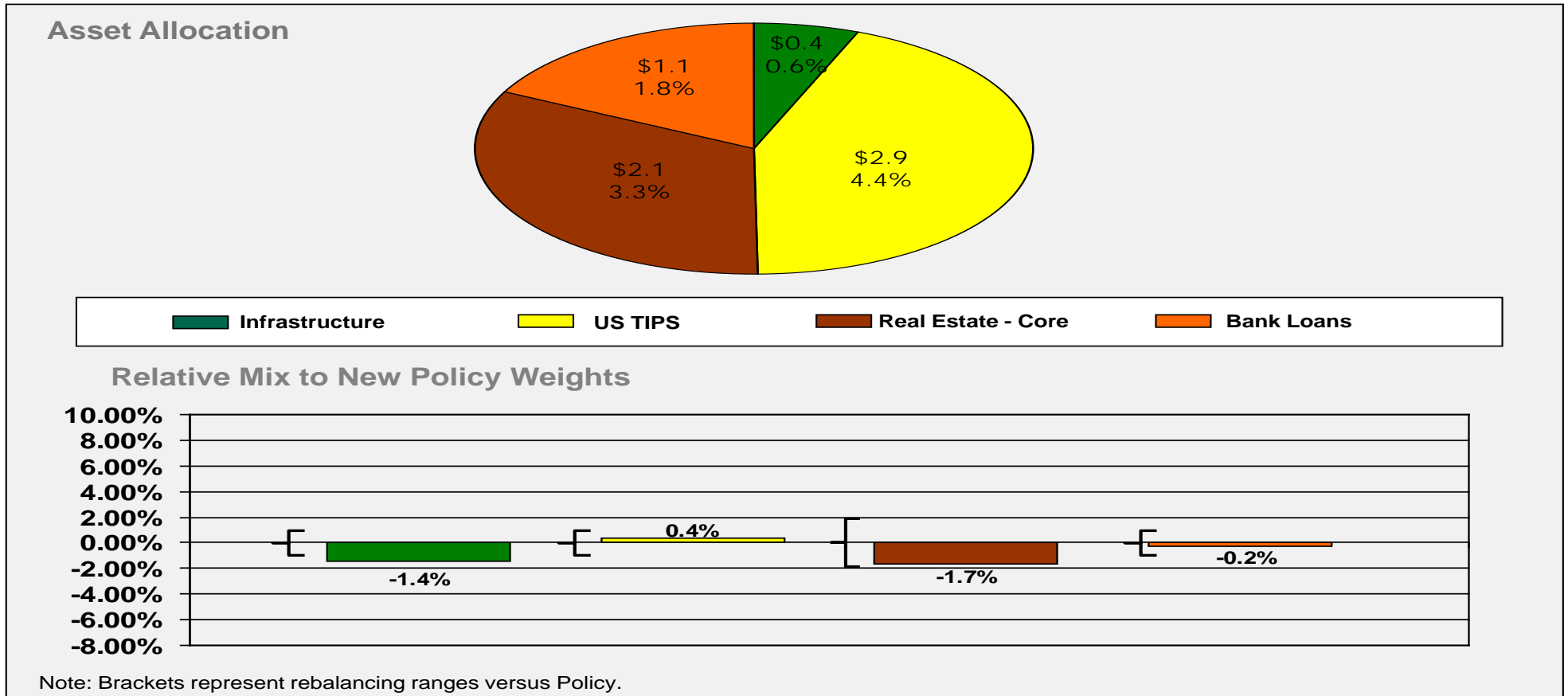


## Portfolio Asset Allocation – Deflation Protection

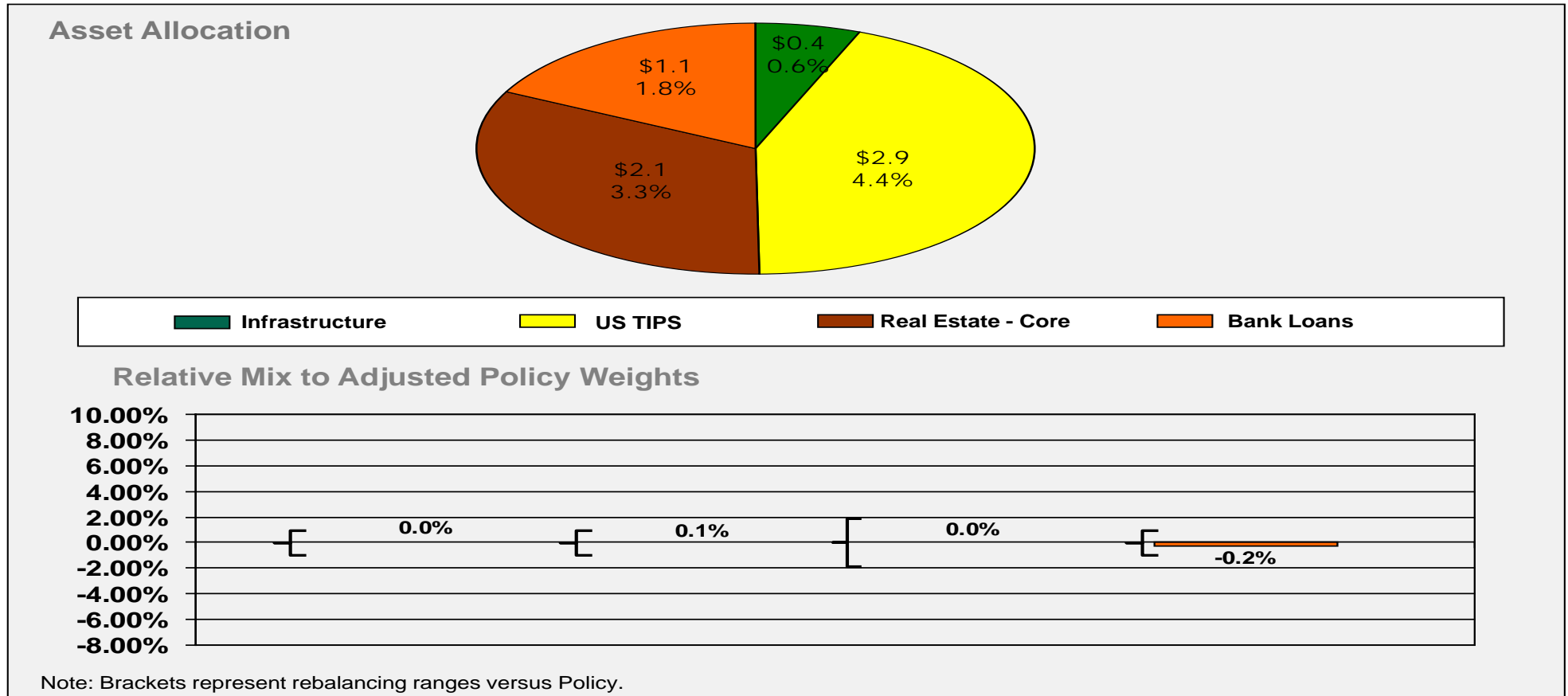


Note: On June 29, 2018 NYCERS' combined Fixed Income and Cash portfolios have a duration of 5.4 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

## Portfolio Asset Allocation – Inflation Protection

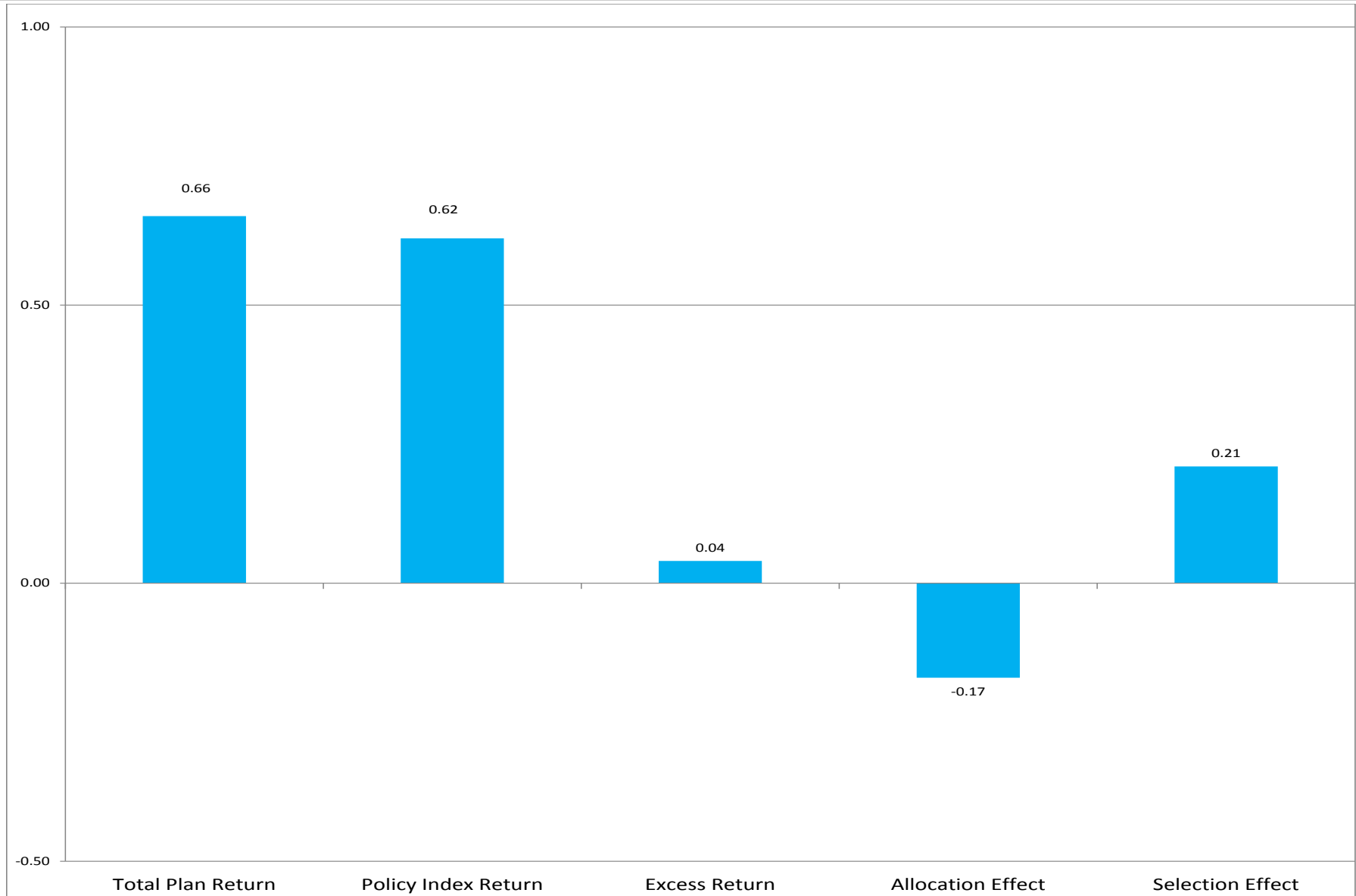


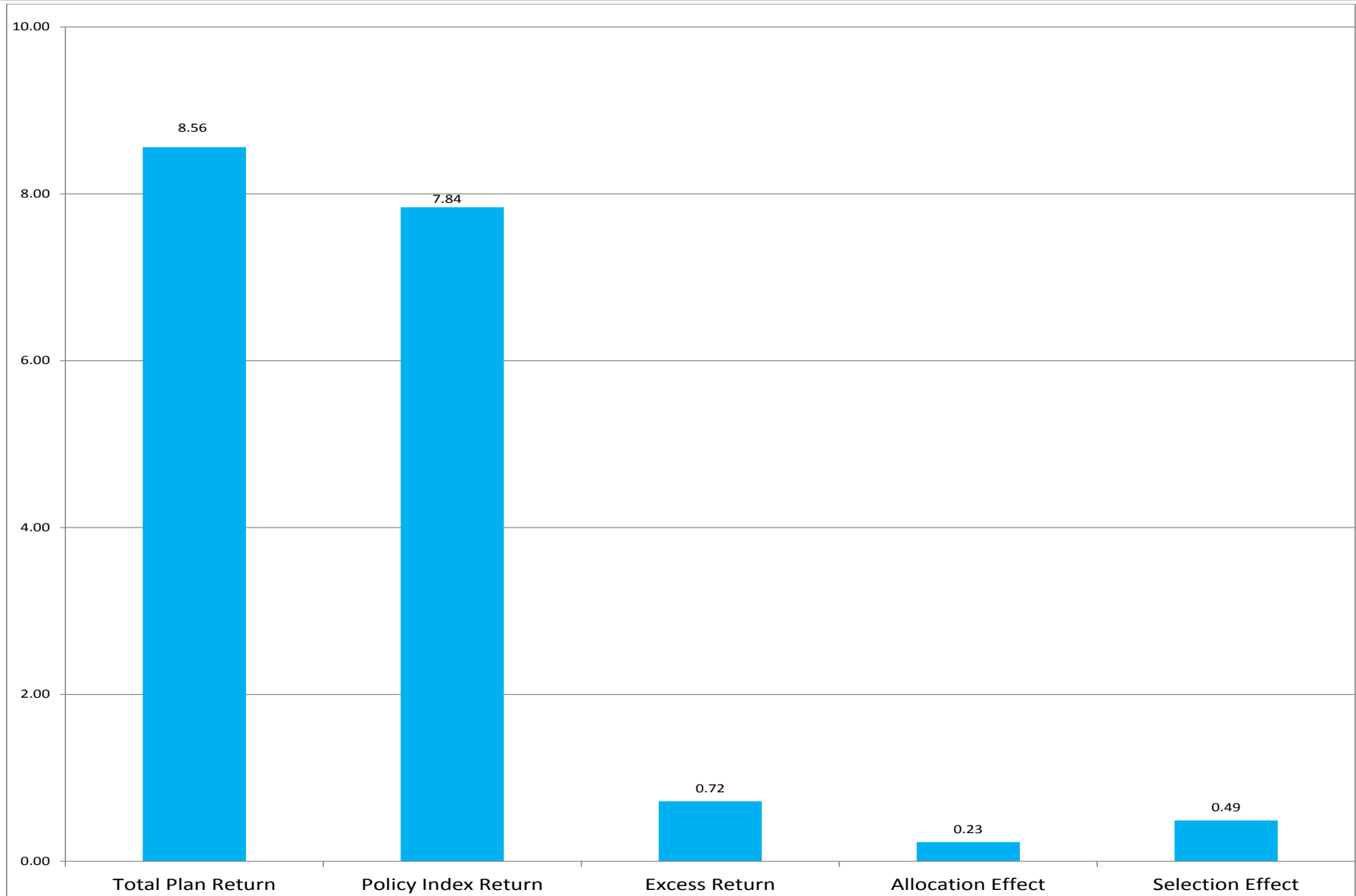
**Portfolio Asset Allocation – Inflation Protection**



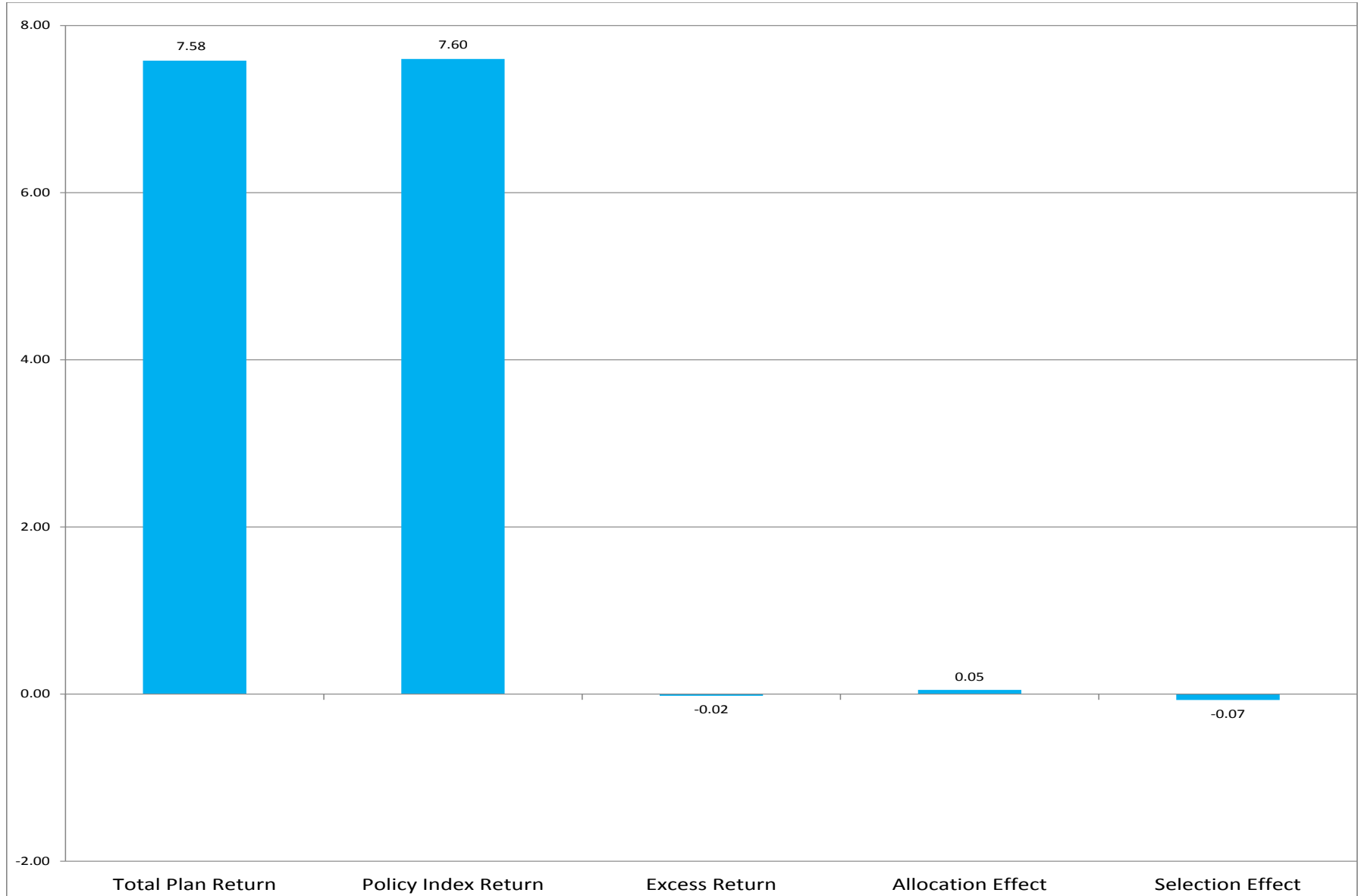
Note: On June 29, 2018 NYCERS' combined Fixed Income and Cash portfolios have a duration of 5.4 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

# Performance Attribution: Total Plan - Quarter Ending: June 30, 2018





# Performance Attribution: Total Plan - 3 Years Ending: June 30, 2018







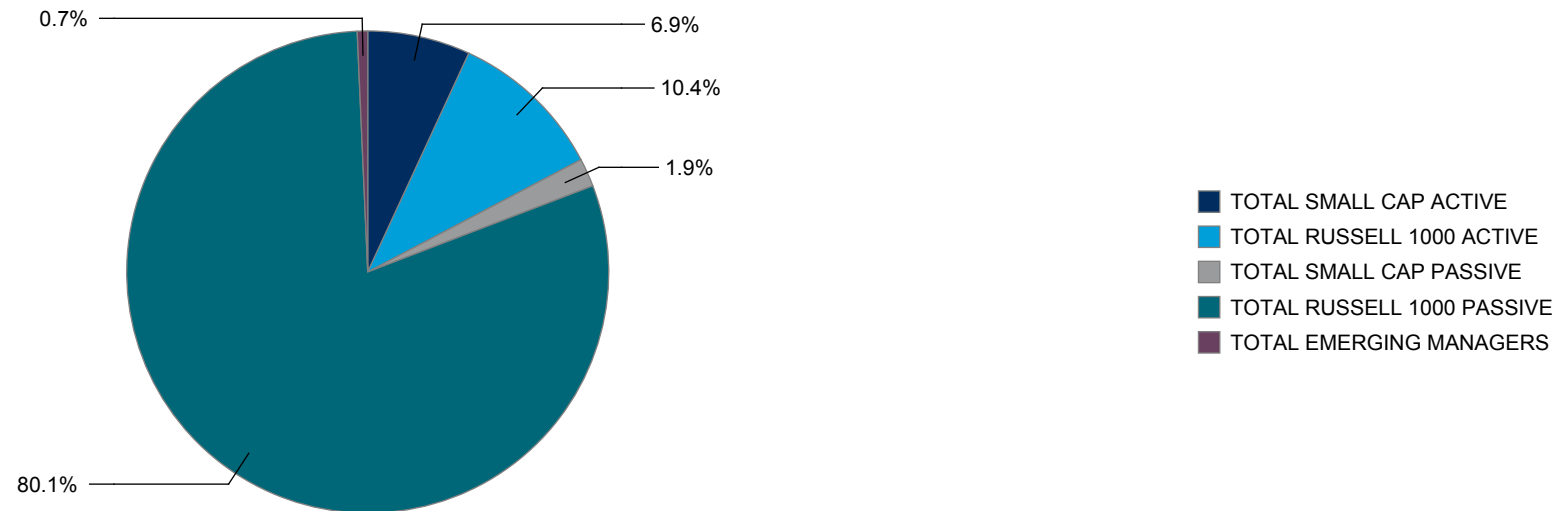
Allocation Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL EMPLOYEES'	-0.17	0.23	0.05	Employees Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.09	-0.04	-0.03	RUSSELL 3000
TOTAL DEVELOPED EQUITY	-0.01	0.00	-0.03	MSCI World ex USA IMI Net
TOTAL EMERGING MARKETS	-0.10	-0.06	-0.03	FTSE Custom NYCERS Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	NYC Blended Custom Benchmark for FoF
TOTAL HEDGE FUNDS	0.00	0.00	-0.01	HFRI Fund of Funds Composite Index plus 1%
TOTAL PRIVATE EQUITY	0.00	0.01	0.00	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.00	0.00	-0.01	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.00	0.01	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	-0.02	-0.07	-0.11	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.00	-0.03	-0.02	FTSE USBIG Treasury/Agency 1-10 y
TOTAL ACTIVE GOVERNMENT	0.02	0.32	0.30	NYC - Treasury Agency Plus Five
TOTAL INVESTMENT GRADE CREDIT	0.00	-0.03	-0.05	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	0.06	0.04	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.00	-0.06	-0.04	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.00	-0.02	-0.01	BBG BARC Agg
TOTAL HIGH YIELD	-0.01	0.11	0.06	FTSE BB&B
TOTAL BANK LOANS	0.00	0.01	0.01	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	0.01	0.00	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CONVERTIBLE BONDS	0.04	0.06	0.02	Merrill All US Converts
TOTAL OPPORTUNISTIC FIXED	0.00	0.00	0.00	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	-0.05	-0.08	

Selection Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL EMPLOYEES'	0.21	0.49	-0.07	Employees Policy Benchmark
TOTAL DOMESTIC EQUITY	0.06	-0.03	-0.11	RUSSELL 3000
TOTAL DEVELOPED EQUITY	0.04	0.47	0.30	MSCI World ex USA IMI Net
TOTAL EMERGING MARKETS	0.01	-0.06	-0.06	FTSE Custom NYCERS Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.01	0.00	NYC Blended Custom Benchmark for FoF
TOTAL HEDGE FUNDS	0.01	0.00	-0.10	HFRI Fund of Funds Composite Index plus 1%
TOTAL PRIVATE EQUITY	0.12	-0.02	-0.09	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.01	0.03	0.01	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.13	0.04	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.04	0.03	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.00	0.00	0.00	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.00	0.04	0.01	FTSE USBIG Treasury/Agency 1-10 y
TOTAL ACTIVE GOVERNMENT	0.00	0.00	0.00	NYC - Treasury Agency Plus Five
TOTAL INVESTMENT GRADE CREDIT	0.00	0.01	0.01	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	0.00	0.00	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	-0.02	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.00	0.00	0.00	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.00	0.00	0.00	BBG BARC Agg
TOTAL HIGH YIELD	0.00	-0.03	-0.02	FTSE BB&B
TOTAL BANK LOANS	0.00	-0.01	0.00	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	0.00	0.00	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CONVERTIBLE BONDS	-0.04	-0.07	-0.04	Merrill All US Converts
TOTAL OPPORTUNISTIC FIXED	0.01	0.00	-0.11	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	0.00	0.00	

# Total Domestic Equity Asset Allocations: Quarter Ending June 30, 2018



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL DOMESTIC EQUITY	\$17.9	27.6

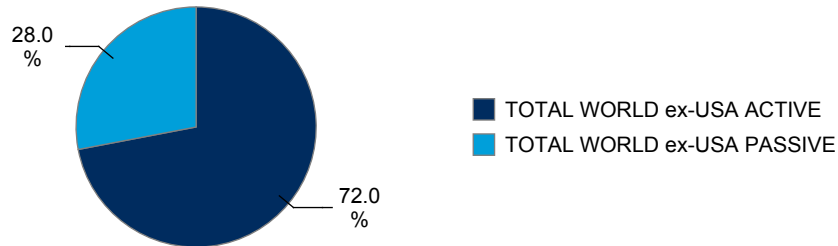


	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL SMALL CAP ACTIVE	4.9	6.9	2.0	8.3	7.8	0.5
TOTAL RUSSELL 1000 ACTIVE	18.0	10.4	(7.6)	2.7	3.6	(0.9)
TOTAL SMALL CAP PASSIVE	2.2	1.9	(0.3)	7.5	7.8	(0.3)
TOTAL RUSSELL 1000 PASSIVE	74.3	80.2	5.9	3.8	3.6	0.3
TOTAL EMERGING MANAGERS	0.6	0.7	0.1	8.0	7.8	0.2

# World ex-USA Equity Asset Allocation: June 30, 2018



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL WORLD ex-USA	\$8.2	12.7

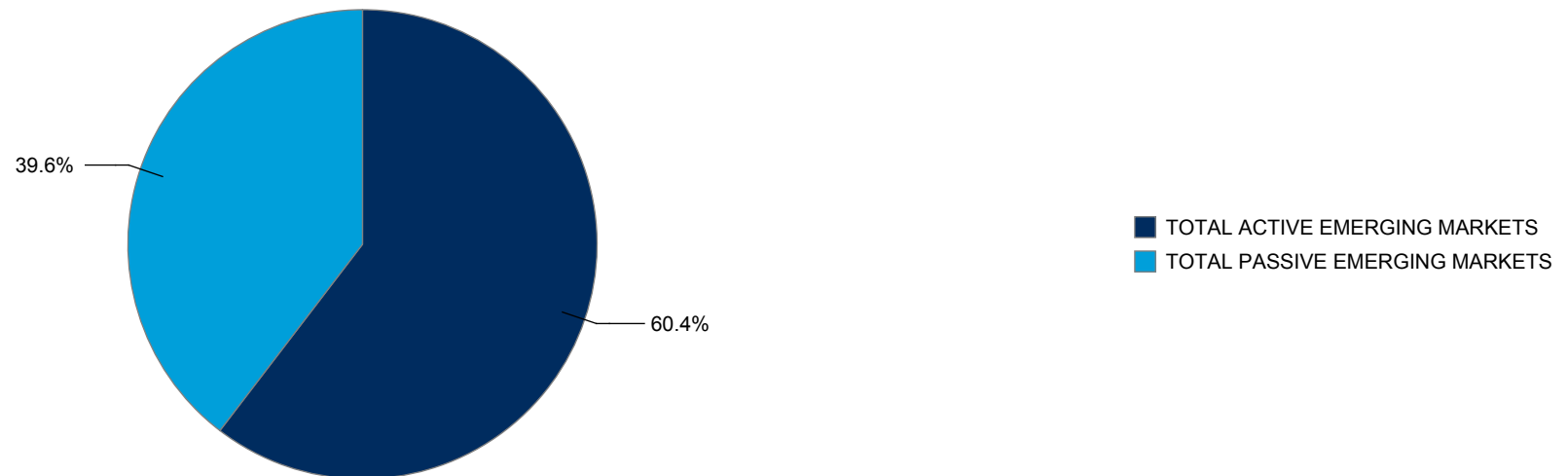


	<u>Asset Class Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL WORLD ex-USA LARGE & MID ACTIVE	62.69	(0.01)	(0.75)	0.74
TOTAL WORLD ex-USA SMALL CAP ACTIVE	9.26	(3.18)	(1.84)	(1.34)
TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE	22.03	(0.57)	(0.75)	0.17
TOTAL WORLD ex-USA SMALL CAP PASSIVE	5.99	(0.80)	(0.94)	0.14
TOTAL WORLD ex-USA	100.00	(0.52)	(0.77)	0.25

## Emerging Markets Equity Asset Allocation: June 30, 2018



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL EMERGING MARKETS	\$4.7	7.2

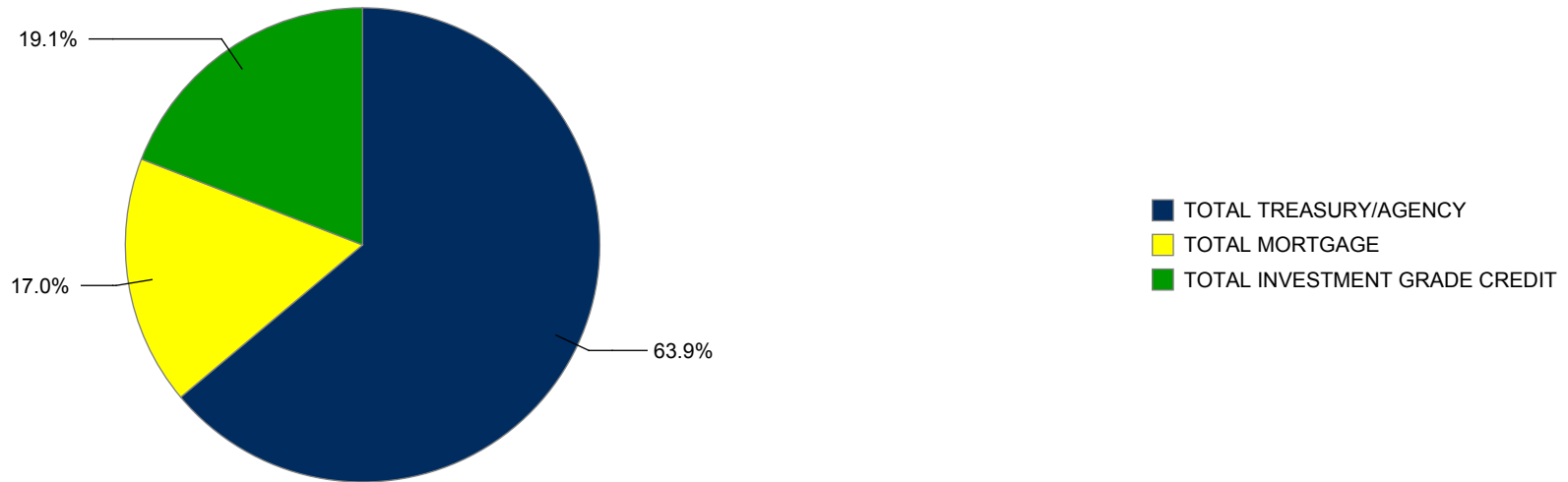


	<u>Asset Class Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL ACTIVE EMERGING MARKETS	60.39	(10.37)	(10.28)	(0.09)
TOTAL PASSIVE EMERGING MARKETS	39.61	(9.96)	(10.04)	0.08
TOTAL EMERGING MARKETS	100.00	(10.20)	(10.28)	0.07

# Structured Fixed Income Asset Allocation: June 30, 2018



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL STRUCTURED + ETI	\$14.9	22.9

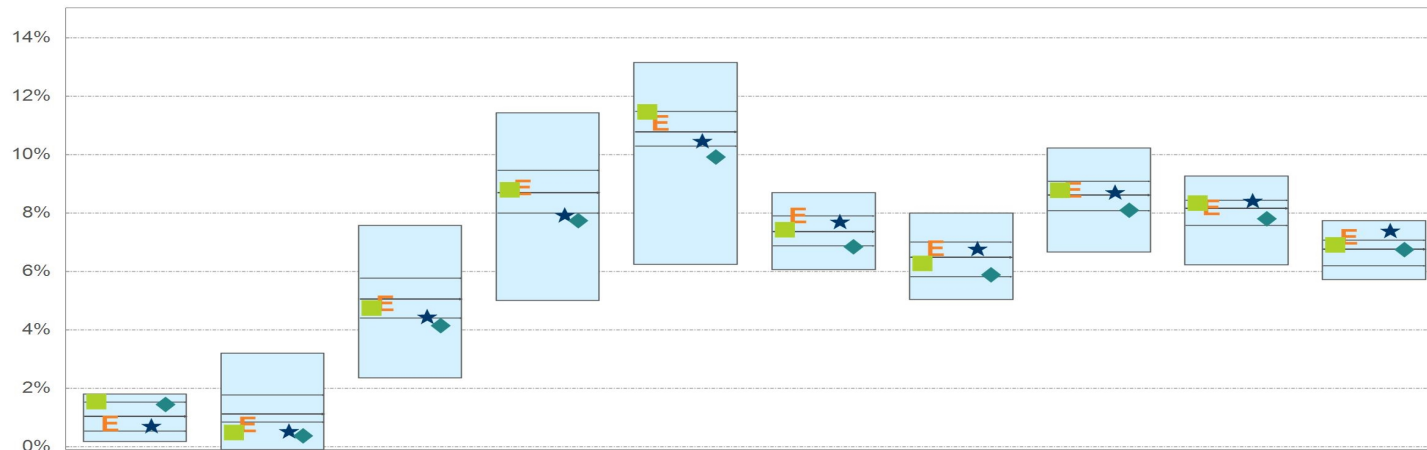


	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL TREASURY/AGENCY	58.82	63.90	5.08	0.13	0.09	0.04
TOTAL MORTGAGE	20.59	16.99	(3.60)	0.16	0.26	(0.10)
TOTAL INVESTMENT GRADE CREDIT	20.59	19.12	(1.47)	(0.85)	(0.88)	0.03



### City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$10 Billion  
Cumulative Periods Ending : June 30, 2018



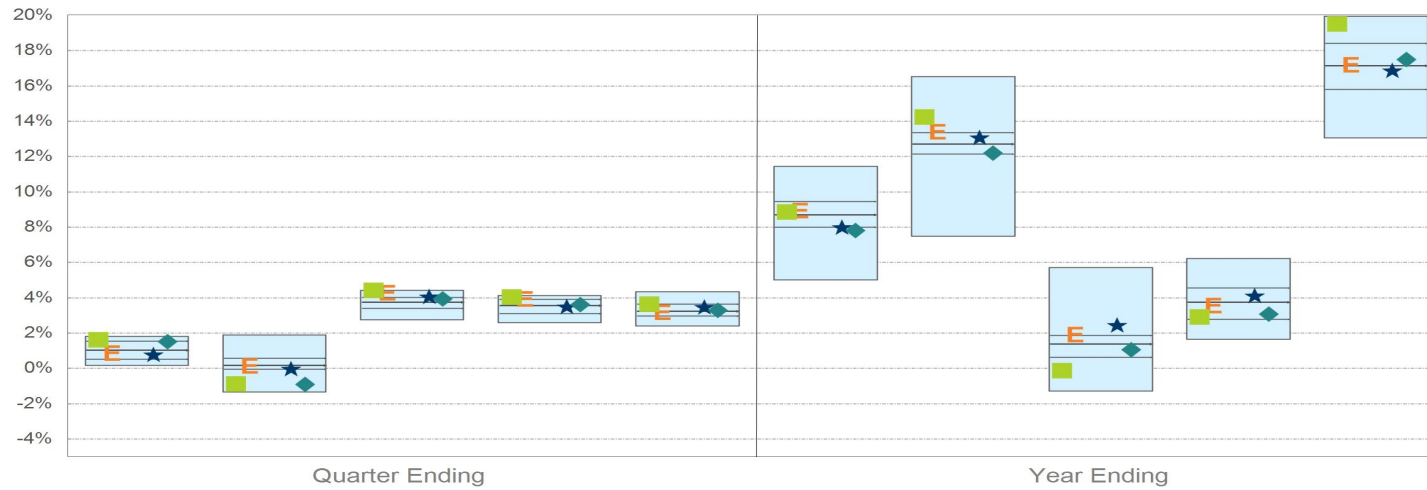
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	1.80	3.20	7.58	11.43	13.14	8.70	8.00	10.22	9.27	7.74
25th	1.53	1.77	5.77	9.45	11.47	7.90	7.01	9.08	8.44	7.06
50th	1.03	1.12	5.06	8.70	10.78	7.36	6.49	8.61	8.15	6.76
75th	0.53	0.85	4.40	7.99	10.29	6.87	5.82	8.07	7.57	6.19
95th	0.17	-0.10	2.36	5.00	6.24	6.06	5.04	6.66	6.22	5.72
No. Of Obs	41	41	41	41	41	41	41	41	41	37
<b>E</b> Total System - Employee	0.70 (67)	0.67 (77)	4.81 (57)	8.78 (45)	10.99 (40)	7.82 (27)	6.70 (37)	8.69 (42)	8.10 (52)	7.08 (22)
<b>★</b> Employees Policy Bench	0.62 (70)	0.43 (83)	4.35 (75)	7.84 (77)	10.36 (72)	7.60 (37)	6.67 (40)	8.61 (50)	8.32 (35)	7.30 (15)
<b>■</b> Public Mkt Equiv 25	1.45 (27)	0.39 (83)	4.65 (60)	8.70 (50)	11.36 (25)	7.33 (52)	6.17 (67)	8.68 (42)	8.24 (45)	6.81 (44)
<b>◆</b> Public Mkt Equiv 35	1.35 (27)	0.27 (91)	4.05 (88)	7.64 (80)	9.82 (80)	6.75 (83)	5.78 (80)	8.00 (75)	7.70 (65)	6.64 (52)

Wilshire Trust Universe Comparison Service® (TUCS®)



### City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$10 Billion  
Consecutive Time Periods: June 30, 2018



Percentile Rankings	Jun 18	Mar 18	Dec 17	Sep 17	Jun 17	Jun 18	Jun 17	Jun 16	Jun 15	Jun 14
5th	1.80	1.90	4.43	4.13	4.35	11.43	16.54	5.71	6.23	19.94
25th	1.53	0.58	4.02	3.91	3.63	9.45	13.34	1.86	4.56	18.40
50th	1.03	0.18	3.74	3.56	3.24	8.70	12.71	1.38	3.74	17.15
75th	0.53	-0.05	3.40	3.10	2.97	7.99	12.15	0.62	2.77	15.79
95th	0.17	-1.33	2.74	2.58	2.41	5.00	7.49	-1.28	1.66	13.06
No. Of Obs	41	41	41	41	41	41	41	41	41	41
■ Total System - Employee	0.70 (67)	-0.03 (72)	4.11 (16)	3.78 (30)	3.02 (70)	8.78 (45)	13.24 (30)	1.76 (27)	3.40 (55)	17.03 (52)
★ Employees Policy Bench	0.62 (70)	-0.19 (85)	3.90 (45)	3.34 (67)	3.31 (40)	7.84 (77)	12.93 (45)	2.28 (16)	3.95 (45)	16.72 (65)
■ Public Mkt Equiv 25	1.45 (27)	-1.05 (93)	4.25 (10)	3.87 (30)	3.49 (30)	8.70 (50)	14.09 (18)	-0.30 (85)	2.74 (77)	19.36 (5)
◆ Public Mkt Equiv 35	1.35 (27)	-1.06 (93)	3.77 (45)	3.45 (62)	3.14 (57)	7.64 (80)	12.03 (77)	0.89 (60)	2.91 (72)	17.33 (45)

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# Actual and Estimated Fees



	Actual 2017					Estimates 2018				
	Avg. MV FY 2017 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS
Passive Russell 3000	1,885.80	127.03	0.67	-	-	127.03	0.67	2,156.75	141.97	0.66
Passive S&P 500	5,119.80	152.63	0.30	-	-	152.63	0.30	5,868.30	172.31	0.29
<b>Total US Passive Equities</b>	<b>14,377.41</b>	<b>614.48</b>	<b>0.43</b>	<b>-</b>	<b>-</b>	<b>614.48</b>	<b>0.43</b>	<b>16,485.48</b>	<b>658.92</b>	<b>0.40</b>
<b>Total International Equities</b>	<b>11,752.73</b>	<b>29,272.27</b>	<b>24.91</b>	<b>1,138.44</b>	<b>0.97</b>	<b>30,410.71</b>	<b>25.88</b>	<b>14,106.65</b>	<b>34,945.43</b>	<b>24.77</b>
<b>Active EAFE Equities</b>	<b>4,969.96</b>	<b>15,104.38</b>	<b>30.39</b>	<b>-</b>	<b>-</b>	<b>15,104.38</b>	<b>30.39</b>	<b>5,896.51</b>	<b>17,904.03</b>	<b>30.36</b>
Developed Growth	2,147.16	5,808.88	27.05	-	-	5,808.88	27.05	2,520.68	6,925.85	27.48
Developed Value	2,054.64	5,618.26	27.34	-	-	5,618.26	27.34	2,546.16	7,066.48	27.75
Developed Small Cap	731.21	3,398.62	46.48	-	-	3,398.62	46.48	829.51	3,911.69	47.16
Developed Core	0.68	-	-	-	-	-	-	0.15	-	-
Total Progress Intl.	36.26	278.62	76.83	-	-	278.62	76.83	-	-	-
NON-U.S. Environmental Managers	249.04	1,343.24	53.94	1,138.44	45.71	2,481.67	99.65	200.12	707.13	35.34
Active Emerging Markets	2,553.09	11,275.00	44.16	-	-	11,275.00	44.16	3,024.34	13,391.64	44.28
Total Active Int'l Fund of Funds	285.80	292.88	10.25	-	-	292.88	10.25	302.03	1,570.56	52.00
<b>Total Active International Equities</b>	<b>8,057.89</b>	<b>28,015.49</b>	<b>34.77</b>	<b>1,138.44</b>	<b>45.71</b>	<b>29,153.93</b>	<b>36.18</b>	<b>9,422.99</b>	<b>33,573.36</b>	<b>35.63</b>
<b>Int'l Passive Equities</b>										
Developed Passive	1,951.54	358.18	1.84	-	-	358.18	1.84	2,647.63	343.76	1.30
Passive Global	0.04	-	-	-	-	-	-	0.01	-	-
Passive Emerging Markets	1,743.26	898.59	5.15	-	-	898.59	5.15	2,036.01	1,028.31	5.05
Total Int'l Passive Equities	3,694.84	1,256.78	3.40	-	-	1,256.78	3.40	4,683.65	1,372.07	2.93
<b>REITS Active Equities</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

# Actual and Estimated Fees



INVESTMENT STYLE (FIXED INCOME)	Actual 2017						Estimates 2018				
	Avg. MV FY 2017 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	
<b>Fixed Income</b>	<b>18,787.87</b>	<b>21,894.55</b>	<b>11.65</b>	<b>118.03</b>	<b>0.06</b>	<b>22,012.58</b>	<b>11.72</b>	<b>19,215.54</b>	<b>24,286.08</b>	<b>12.64</b>	
Structured Program	10,044.49	5,724.84	5.70	118.03	0.12	5,842.87	5.82	10,482.72	6,268.15	5.98	
Government Treas/Agency Sector	3,934.79	773.91	1.97	-	-	773.91	1.97	5,506.25	1,924.36	3.49	
Long Duration Treasury	-	-	-	-	-	-	-	-	-	-	
Mortgage Sector	2,073.06	1,416.79	6.83	118.03	0.57	1,534.82	7.40	1,723.51	1,100.73	6.39	
Investment Grade Credit Sector	4,036.65	3,534.14	8.76	-	-	3,534.14	8.76	3,252.96	3,243.06	9.97	
Global Fixed Income	396.90	590.51	14.88	-	-	590.51	14.88	405.72	715.81	17.64	
Progress Fixed Emerging Managers	116.61	399.24	34.24	-	-	399.24	34.24	119.29	407.04	34.12	
TIPS	2,452.47	424.62	1.73	-	-	424.62	1.73	2,566.24	446.21	1.74	
Active TIPS Managers	601.40	333.47	5.54	-	-	333.47	5.54	629.58	349.84	5.56	
Passive TIPS Managers	1,851.07	91.15	0.49	-	-	91.15	0.49	1,936.66	96.37	0.50	
High Yield	2,363.58	7,480.24	31.65	-	-	7,480.24	31.65	2,602.12	8,648.66	33.24	
Bank Loans	1,072.12	3,456.59	32.24	-	-	3,456.59	32.24	1,108.53	3,581.04	32.30	
Convertible Bonds	567.58	2,358.32	41.55	-	-	2,358.32	41.55	718.13	2,756.85	38.39	
ETI - Access - RBC	105.74	248.25	23.48	-	-	248.25	23.48	140.76	261.50	18.58	
ETI - AFL-CIO HIT	303.63	1,211.94	39.92	-	-	1,211.94	39.92	308.26	1,200.81	38.96	
<b>Total Public Markets (Externally managed)</b>	<b>48,116.43</b>	<b>64,499.51</b>	<b>13.40</b>	<b>1,256.47</b>	<b>0.26</b>	<b>65,755.98</b>	<b>13.67</b>	<b>52,792.76</b>	<b>67,711.20</b>	<b>12.83</b>	
Other ETI Programs	344.87	-	-	-	-	-	-	364.33	-	-	
In-House Short Term	1,019.89	-	-	-	-	-	-	399.43	-	-	
<b>Total Public Markets</b>	<b>49,481.18</b>	<b>64,499.51</b>	<b>13.04</b>	<b>1,256.47</b>	<b>0.25</b>	<b>65,755.98</b>	<b>13.29</b>	<b>53,556.52</b>	<b>67,711.20</b>	<b>12.64</b>	

# Actual and Estimated Fees



	Actual 2017							Estimates 2018		
	Avg. MV FY 2017 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS
<b>INVESTMENT STYLE (PRIVATE MARKETS)</b>										
Hedge Funds	678.49	5,656.36	83.37	1,303.28	19.21	6,959.64	102.58	82.75	-	-
Private Equity	4,226.75	76,476.31	180.93	70,877.60	167.69	147,353.91	348.62	4,381.90	78,523.42	179.20
Private Real Estate	3,097.35	36,191.61	116.85	29,085.50	93.90	65,277.10	210.75	3,314.52	34,094.63	102.86
Infrastructure	220.03	6,657.22	101.74	-	-	6,657.22	101.74	285.46	7,577.58	84.57
Opportunistic Fixed Income	1,565.26	16,761.14	107.08	4,684.74	29.93	21,445.88	137.01	1,729.97	14,923.59	86.26
Total Private Markets	9,787.88	141,742.64	144.81	105,951.11	108.25	247,693.75	253.06	9,794.61	135,119.22	137.95
<b>Total Overall</b>	<b>59,269.06</b>	<b>206,242.15</b>	<b>34.80</b>	<b>107,207.57</b>	<b>18.09</b>	<b>313,449.73</b>	<b>52.89</b>	<b>63,351.13</b>	<b>202,830.42</b>	<b>32.02</b>

The overall carried interest and incentive fees paid by NYCERS in Fiscal Year 2017: 18.09 BPS

**General Footnotes:**

- 1) Private Markets data reflect: carried interest realized and/or Incentive fees as stated by its corresponding partnership. Management fees reported are inclusive of partnership expenses associated with the partnership for the stated fiscal year.
- 2) Infrastructure's expense data is based off the total committed amounts rather than current market value due to its early fund life juncture.
- 3) Estimated Fees for the Public Markets data does not take into account major rebalancing shifts and is calculated at a fixed NAV. Estimates fees for the Private Markets data is based solely off gross management fee data and is not inclusive of any offsets. Both estimates are considered to be equitably conservative and should be construed as such. Estimates for FY 2018 for Private Equity is provided by the consultant.

# Securities Lending Income

Through June 30, 2018



## NYC EMPLOYEES' RETIREMENT SYSTEM SECURITIES LENDING INCOME

June 30, 2018

	U. S. FIXED INCOME	U. S. EQUITY	INTERNATIONAL EQUITY	TOTAL
1989	-	-	-	-
1990	256,000	-	-	256,000
1991	754,000	48,000	-	802,000
1992	1,467,000	654,000	367,000	2,488,000
1993	3,445,000	1,308,000	732,000	5,485,000
1994	4,261,000	2,744,000	1,082,000	8,087,000
1995	3,727,000	3,191,000	745,000	7,663,000
1996	3,608,000	3,592,000	1,258,000	8,458,000
1997	3,924,000	5,921,000	1,533,000	11,378,000
1998	6,374,000	7,337,000	1,952,000	15,663,000
1999	6,643,000	6,718,000	2,175,000	15,536,000
2000	6,552,000	7,669,000	3,049,000	17,270,000
2001	10,335,000	10,394,000	4,435,000	25,164,000
2002	5,906,000	7,780,000	3,510,000	17,196,000
2003	2,442,000	4,766,000	3,603,000	10,811,000
2004	3,502,000	5,844,000	3,825,000	13,171,000
2005	5,229,000	8,264,000	4,471,000	17,964,000
2006	4,626,000	10,012,000	4,163,000	18,801,000
2007	9,445,000	15,100,000	4,510,000	29,055,000
2008	25,936,000	26,696,000	6,878,000	59,510,000
2009	8,149,000	16,388,000	4,305,000	28,842,000
2010	3,714,000	10,256,000	3,125,000	17,095,000
2011	4,834,000	12,861,000	5,163,000	22,858,000
2012	6,691,000	16,287,000	4,116,000	27,094,000
2013	5,051,000	17,973,000	3,014,000	26,038,000
2014	5,194,000	14,847,000	5,272,000	25,313,000
2015	5,010,000	16,300,000	6,124,000	27,434,000
2016	6,545,000	19,856,000	5,097,000	31,498,000
2017	9,452,000	16,246,000	4,295,000	29,993,000
2018 (6 months)	7,218,692	5,209,200	3,436,320	15,864,212
Since Inception	<u>170,290,692</u>	<u>274,261,200</u>	<u>92,235,320</u>	<u>536,787,212</u>

**New York City  
Employees' Retirement System**

# **Appendix A**

## **Consolidated Performance Report**

# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
<b>SYSTEM RETURN SUMMARY</b>																
5	NYCERS-TOTAL PORTFOLIO - GROSS	64,838	100.00	0.70	8.78	0.67	16.51	9.57	(0.17)	7.34	15.73	7.82	8.69	7.08	8.76	07/01/1987
	ESTIMATED INVESTMENT FEES			(0.04)	(0.22)	(0.09)	(0.26)	(0.24)	(0.27)	(0.27)		(0.24)				
	EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.03)	(0.10)	(0.05)	(0.11)	(0.12)	(0.12)	(0.13)		(0.11)				
	EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.01)	(0.12)	(0.04)	(0.15)	(0.12)	(0.15)	(0.14)		(0.13)				
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	NYCERS-TOTAL PORTFOLIO - NET MGR			0.66	8.56	0.58	16.25	9.33	(0.44)	7.07		7.58				
	NYCERS POLICY BENCHMARK			0.62	7.84	0.43	15.98	9.43	0.17	8.15	15.33	7.60	8.61	7.30		
	EXCESS RETURN			0.04	0.72	0.15	0.27	(0.09)	(0.62)	(1.09)	0.40	(0.01)	0.08	(0.22)		
<b>EQUITY RETURN DETAIL</b>																
18	NYCERS-TOTAL EQUITY (INCL PE & RA) - GROSS	39,567	61.02	0.89	12.50	1.16	22.77	11.39	(0.17)	7.85	22.95	10.20	11.10	7.77	7.98	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.05)	(0.28)	(0.11)	(0.34)	(0.29)	(0.35)	(0.33)		(0.30)				
	EST MANAGEMENT FEES			(0.05)	(0.28)	(0.11)	(0.34)	(0.29)	(0.35)	(0.33)						
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	NYCERS-TOTAL EQUITY (INCL PE & RA) - NET MGR			0.84	12.22	1.05	22.43	11.10	(0.52)	7.52		9.91				
26	NYCERS-TOTAL DOMESTIC EQUITY - GROSS	17,922	27.64	4.12	14.76	3.06	20.07	14.34	(0.67)	11.35	34.39	11.34	12.92	10.14	11.35	08/01/1979
	ESTIMATED INVESTMENT FEES			(0.01)	(0.05)	(0.02)	(0.06)	(0.10)	(0.09)	(0.11)		(0.07)				
	NYCERS-TOTAL DOMESTIC EQUITY - NET MGR			4.11	14.71	3.04	20.01	14.24	(0.76)	11.24		11.26				
	RUSSELL 3000 (DAILY)			3.89	14.78	3.22	21.13	12.74	0.48	12.56	33.55	11.58	13.29	10.23	11.69	
	EXCESS RETURN			0.22	(0.06)	(0.18)	(1.12)	1.51	(1.24)	(1.31)	0.84	(0.32)	(0.37)	(0.09)	(0.33)	
36	NYCERS-TOTAL SMALL CAP - GROSS	1,580	2.44	8.10	17.63	6.64	12.91	25.30	(5.96)	4.40	41.99	11.21	12.41	11.54	9.19	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.08)	(0.34)	(0.15)	(0.33)	(0.32)	(0.27)	(0.31)		(0.31)				
	NYCERS-TOTAL SMALL CAP - NET MGR			8.02	17.29	6.48	12.58	24.97	(6.24)	4.09		10.90				
	RUSSELL 2000 (DAILY)			7.75	17.57	7.66	14.65	21.31	(4.41)	4.89	38.82	10.96	12.46	10.60	8.89	
	EXCESS RETURN			0.27	(0.28)	(1.18)	(2.07)	3.67	(1.82)	(0.80)	3.17	(0.07)	(0.05)	0.94	0.29	
46	NYCERS-TOTAL RUSSELL 1000 - GROSS	16,224	25.02	3.71											3.71	04/01/2018
	ESTIMATED INVESTMENT FEES			(0.00)											(0.00)	
	NYCERS-TOTAL RUSSELL 1000 - NET MGR			3.71											3.71	
	RUSSELL 1000 (DAILY)			3.57											3.57	
	EXCESS RETURN			0.14											0.15	

# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date
56 NYCERS-TOTAL FUND OF FUNDS - GROSS	118	0.18	8.14	15.21	7.32									13.57	05/01/2017
ESTIMATED INVESTMENT FEES			(0.14)	(0.57)	(0.27)									(0.51)	
NYCERS-TOTAL FUND OF FUNDS - NET MGR			8.00	14.63	7.05									13.07	
RUSSELL 2000 (DAILY)			7.75	17.57	7.66									16.20	
EXCESS RETURN			0.25	(2.93)	(0.61)									(3.14)	

# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
<b>EQUITY RETURN DETAIL</b>																
68	NYCERS-TOTAL WORLD ex-USA - GROSS	8,225	12.69	(0.47)	11.40	(0.93)	29.77	4.50	(0.82)	(4.09)	22.56	8.15	8.67	4.05	6.51	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.06)	(0.25)	(0.11)	(0.32)	(0.28)	(0.28)	(0.27)		(0.28)				
	NYCERS-TOTAL WORLD ex-USA - NET MGR			(0.52)	11.15	(1.04)	29.45	4.22	(1.09)	(4.36)		7.87				
	WORLD EX USA CUSTOM BM			(0.77)	7.82	(2.57)	26.40	1.15	0.49	(4.90)	23.54	5.67	7.12	3.35	5.95	
	EXCESS RETURN			0.25	3.32	1.54	3.05	3.06	(1.59)	0.54	(0.97)	2.20	1.56	0.70	0.56	
78	NYCERS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - GROSS	5,156	7.95	0.07	12.86	(0.20)	31.04	5.17	(3.97)	(4.44)		8.26			5.65	11/01/2013
	ESTIMATED INVESTMENT FEES			(0.07)	(0.31)	(0.14)	(0.36)	(0.30)	(0.27)	(0.27)		(0.30)			(0.30)	
	NYCERS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - NET MGR			(0.01)	12.55	(0.34)	30.68	4.88	(4.24)	(4.71)		7.96			5.35	
	NYC CUSTOM WORLD EX-USA LG & MID ACT INDEX			(0.75)	6.95	(2.77)	25.18	1.00	(0.81)	(4.90)		4.94			3.72	
	EXCESS RETURN			0.74	5.60	2.43	5.49	3.88	(3.43)	0.20		3.02			1.63	
88	NYCERS-TOTAL WORLD ex-USA SMALL CAP ACTIVE- GROSS	762	1.18	(3.07)	12.22	(1.59)	34.86	2.67	10.72	(3.78)		11.02	12.11		10.56	05/01/2013
	ESTIMATED INVESTMENT FEES			(0.11)	(0.52)	(0.22)	(0.62)	(0.50)	(0.55)	(0.48)		(0.53)				
	NYCERS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - NET MGR			(3.18)	11.70	(1.81)	34.24	2.17	10.18	(4.26)		10.49				
	S&P EPAC SMALL CAP USD NET			(1.84)	11.27	(2.14)	33.47	1.34	8.58	(3.43)		9.23	11.05		9.44	
	EXCESS RETURN			(1.34)	0.42	0.32	0.78	0.83	1.59	(0.83)		1.27	1.06		1.12	
98	NYCERS-TOTAL WORLD ex-USA LARGE CAP PASSIVE - GROSS	1,812	2.79	(0.57)	7.50	(2.41)	24.54	1.30	(0.41)	(4.98)	23.02	5.01	6.57		5.17	02/01/2011
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)		(0.02)				
	NYCERS-TOTAL WORLD ex-USA LARGE CAP PASSIVE - NET MGR			(0.57)	7.49	(2.42)	24.53	1.28	(0.42)	(5.00)		5.00				
	NYC CUSTOM WORLD EX US INDEX			(0.75)	7.04	(2.77)	24.12	1.00	(0.81)	(4.90)	22.78	4.64	6.28		4.86	
	EXCESS RETURN			0.17	0.45	0.35	0.41	0.28	0.39	(0.10)	0.24	0.36	0.29		0.31	
108	NYCERS-TOTAL WORLD ex-USA SMALL CAP PASSIVE - GROSS	492	0.76	(0.79)	12.94	(1.19)	33.74	2.53	9.99			10.49			8.75	02/01/2014
	ESTIMATED INVESTMENT FEES			(0.01)	(0.06)	(0.02)	(0.08)	(0.02)	(0.02)			(0.04)			(0.03)	
	NYCERS-TOTAL WORLD ex-USA SMALL CAP PASSIVE - NET MGR			(0.80)	12.88	(1.22)	33.66	2.52	9.97			10.45			8.71	
	WORLD EX USA SC PASSIVE CUSTOM BM			(0.94)	12.58	(1.44)	33.31	2.18	9.59			10.13			8.28	
	EXCESS RETURN			0.14	0.31	0.22	0.35	0.33	0.39			0.31			0.43	



# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
<b>EQUITY RETURN DETAIL</b>																
120	NYCERS-TOTAL ACTIVE EMERGING MARKETS - GROSS	2,825	4.36	(10.28)	1.63	(10.23)	36.08	12.59	(17.85)	1.02	(0.20)	4.58	4.20	2.90	7.68	11/01/2005
	ESTIMATED INVESTMENT FEES			(0.09)	(0.42)	(0.18)	(0.60)	(0.52)	(0.41)	(0.50)		(0.47)				
	NYCERS-TOTAL ACTIVE EMERGING MARKETS - NET MGR			(10.37)	1.21	(10.40)	35.48	12.07	(18.25)	0.52		4.11				
	FTSE CUSTOM NYCERS ALL EMERGING INDEX			(10.28)	2.30	(9.72)	34.18	13.66	(16.80)	(0.07)	(4.22)	4.88	3.85	2.29	7.02	
	EXCESS RETURN			(0.09)	(1.10)	(0.68)	1.30	(1.59)	(1.45)	0.60	4.03	(0.77)	0.36	0.61	0.66	
130	NYCERS-TOTAL PASSIVE EMERGING MARKETS - GROSS	1,853	2.86	(9.94)	2.16	(9.04)	32.97	12.55	(17.87)	(1.29)	(4.24)	4.06	2.99		(0.11)	04/01/2011
	ESTIMATED INVESTMENT FEES			(0.01)	(0.05)	(0.02)	(0.07)	(0.06)	(0.05)	(0.06)		(0.06)				
	NYCERS-TOTAL PASSIVE EMERGING MARKETS - NET MGR			(9.96)	2.11	(9.06)	32.90	12.49	(17.92)	(1.35)		4.01				
	MSCI CUSTOM NYCERS EMERGING MARKETS (NET)			(10.04)	2.20	(9.29)	33.03	12.68	(17.71)			4.19				
	EXCESS RETURN			0.08	(0.10)	0.23	(0.13)	(0.19)	(0.21)			(0.18)				
140	NYCERS-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	413	0.64	(2.24)	8.61	(2.26)								10.31	05/01/2017	
	ESTIMATED INVESTMENT FEES			(0.13)	(0.56)	(0.25)								(0.57)		
	NYCERS-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR			(2.37)	8.05	(2.51)								9.74		
	NYC BLENDED CUSTOM BENCHMARK FOR FOF (ERS)			(2.20)	6.94	(3.59)								9.03		
	EXCESS RETURN			(0.17)	1.11	1.08								0.71		

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	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date
<b>EQUITY RETURN DETAIL</b>															
158	NYCERS-TOTAL HEDGE FUND* - NET MGR	67	0.10	6.43	8.43	4.58	3.97	2.24	(1.88)	5.56	4.96	2.33	3.53	3.39	07/01/2011
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			0.66	6.18	1.18	8.84	1.52	0.73	4.40	10.04	2.95	4.49	3.83	
	EXCESS RETURN			5.77	2.25	3.39	(4.87)	0.72	(2.61)	1.16	(5.08)	(0.62)	(0.95)	(0.44)	
168	NYCERS-TOTAL DIRECT HEDGE FUNDS* - NET MGR	67	0.10	6.43	9.24	4.58	4.30	2.79	(1.56)	6.02	4.24	2.68	3.86	4.55	01/01/2012
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			0.66	6.18	1.18	8.84	1.52	0.73	4.40	10.04	2.95	4.49	4.96	
	EXCESS RETURN			5.77	3.06	3.39	(4.54)	1.27	(2.29)	1.62	(5.80)	(0.27)	(0.63)	(0.41)	
178	NYCERS-TOTAL PERMAL HEDGE FUNDS* - NET MGR														
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%														
	EXCESS RETURN														

\* INFORMATION PROVIDED BY ALPHA FRONTIER

# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
<b>EQUITY RETURN DETAIL</b>																
187	NYCERS-TOTAL PRIVATE EQUITY (TIME WEIGHTED)	4,470	6.89	2.17	17.83	6.81	19.65	10.84	10.61	13.99	8.08	13.43	13.54	9.67	12.38	04/01/2004
	NYC R3000 +3% LAGGED			0.09	17.19	7.21	22.22	18.37	2.49	21.24	24.53	13.51	16.21	13.73	13.10	
	EXCESS RETURN			2.08	0.64	(0.40)	(2.57)	(7.53)	8.11	(7.26)	(16.45)	(0.08)	(2.67)	(4.06)	(0.72)	
197	NYCERS-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED)	3,396	5.24	2.34	12.19	5.76	11.58	10.84	16.06	15.44	12.61	11.79	12.91	4.53	9.50	04/01/2004
	NCREIF NFI-ODCE NET + 100 BP			2.06	8.54	4.33	7.72	8.86	15.08	12.56	14.02	9.45	11.12			
	EXCESS RETURN			0.28	3.65	1.43	3.85	1.98	0.98	2.88	(1.41)	2.33	1.79			
207	NYCERS-TOTAL INFRASTRUCTURE (TIME WEIGHTED)	396	0.61	2.39	18.48	7.88	19.07	9.87	15.14	20.16		14.05		15.73	12/01/2013	
	CPI + 4%			1.55	6.91	3.19	6.20	6.17	4.69	4.69		5.90		5.58		
	EXCESS RETURN			0.84	11.58	4.69	12.88	3.70	10.45	15.47		8.16		10.15		

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Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
<b>FIXED INCOME RETURN DETAIL</b>																
219	NYCERS-TOTAL FIXED INCOME (DOM & GLOBAL) - GROSS	25,270	38.97	0.33	1.42	(0.61)	4.93	6.00	(0.37)	6.18	1.19	3.03	3.65	5.35	8.20	02/01/1980
	ESTIMATED INVESTMENT FEES			(0.03)	(0.13)	(0.06)	(0.13)	(0.14)	(0.13)	(0.15)		(0.13)				
	EST MANAGEMENT FEES			(0.03)	(0.13)	(0.06)	(0.13)	(0.14)	(0.13)	(0.15)						
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	NYCERS-TOTAL FIXED INCOME (DOM & GLOBAL) - NET MGR			0.30	1.29	(0.67)	4.80	5.86	(0.50)	6.03		2.90				
227	NYCERS-TOTAL STRUCTURED FIXED INCOME - GROSS	14,057	21.68	(0.07)	(0.28)	(1.94)	4.39	3.87	0.28	7.69	(1.73)	2.20	3.02	4.88	7.59	01/01/1985
	ESTIMATED INVESTMENT FEES			(0.01)	(0.05)	(0.02)	(0.06)	(0.07)	(0.09)	(0.09)		(0.06)				
	NYCERS-TOTAL STRUCTURED FIXED INCOME - NET MGR			(0.09)	(0.34)	(1.97)	4.33	3.79	0.21	7.60		2.14				
	NYC - CORE PLUS FIVE			(0.28)	(0.48)	(2.08)	4.51	3.20	0.41	7.66	(2.79)	2.10	2.77	4.38		
	EXCESS RETURN			0.19	0.14	0.11	(0.17)	0.60	(0.20)	(0.06)	1.06	0.04	0.25	0.50		
237	NYCERS-TOTAL CORE FI- DEVELOPING MGRS - GROSS	399	0.61	(0.35)	(0.49)	(1.85)	4.16	3.80	1.04	5.84	(1.54)	2.15	2.74		4.50	05/01/2009
	ESTIMATED INVESTMENT FEES			(0.05)	(0.18)	(0.09)	(0.18)	(0.19)	(0.18)	(0.17)		(0.18)				
	NYCERS-TOTAL CORE FI- DEVELOPING MGRS - NET MGR			(0.39)	(0.67)	(1.94)	3.98	3.61	0.86	5.67		1.97				
	BBG BARC AGG (DLY)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97	(2.02)	1.72	2.27		3.55	
	EXCESS RETURN			(0.23)	(0.27)	(0.32)	0.44	0.96	0.31	(0.30)	0.49	0.25	0.46		0.96	
247	NYCERS-TOTAL CORE FI- EMERGING MGRS - GROSS	118	0.18	(0.06)	0.51	(1.29)	4.66	2.87	0.90	6.18	(1.76)	2.37	2.72	4.54	5.72	01/01/1992
	ESTIMATED INVESTMENT FEES			(0.09)	(0.34)	(0.17)	(0.41)	(0.30)	(0.35)	(0.36)		(0.35)				
	NYCERS-TOTAL CORE FI- EMERGING MGRS - NET MGR			(0.14)	0.17	(1.46)	4.25	2.58	0.56	5.82		2.03				
	BBG BARC AGG (DLY)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97	(2.02)	1.72	2.27	3.72	5.38	
	EXCESS RETURN			0.01	0.57	0.16	0.71	(0.07)	0.01	(0.15)	0.26	0.31	0.45	0.82	0.34	
257	NYCERS-TOTAL TIPS - GROSS	2,858	4.41	0.78	2.18	0.02	3.06	4.74	(1.18)	3.50	(8.42)	1.96	1.76	3.17	3.78	06/01/2005
	ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.07)		(0.02)				
	NYCERS-TOTAL TIPS - NET MGR			0.77	2.17	0.01	3.04	4.72	(1.21)	3.42		1.94				
	BBG BARC GBL INF-LK: US TIPS (DLY)			0.77	2.11	(0.02)	3.01	4.68	(1.44)	3.64	(8.61)	1.93	1.68	3.03	3.63	
	EXCESS RETURN			(0.00)	0.05	0.03	0.03	0.04	0.23	(0.21)	0.19	0.02	0.08	0.14	0.15	
267	NYCERS-TOTAL HIGH YIELD - GROSS	2,602	4.01	0.89	1.99	(0.23)	7.00	15.32	(3.82)	2.94	8.31	4.75	5.32	7.70	7.70	10/01/1994
	ESTIMATED INVESTMENT FEES			(0.09)	(0.34)	(0.17)	(0.35)	(0.39)	(0.33)	(0.36)		(0.35)				
	NYCERS-TOTAL HIGH YIELD - NET MGR			0.81	1.65	(0.39)	6.65	14.93	(4.15)	2.58		4.40				
	FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78	6.17	4.80	5.07	6.62	6.88	
	EXCESS RETURN			(0.11)	(0.77)	(0.29)	(0.38)	(0.55)	0.06	(0.20)	2.14	(0.41)	0.25	1.08	0.82	

# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date
277 NYCERS- TOTAL BANK LOANS - GROSS	1,139	1.76	0.77	4.73	2.20	4.52	9.17	1.18	2.58	6.41	4.54	4.67		4.72	12/01/2012
ESTIMATED INVESTMENT FEES			(0.08)	(0.34)	(0.16)	(0.34)	(0.36)	(0.33)	(0.34)		(0.34)				
NYCERS-TOTAL BANK LOANS - NET MGR			0.68	4.39	2.03	4.18	8.81	0.85	2.24		4.20				
CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06	6.15	4.33	4.24		4.45	
EXCESS RETURN			(0.10)	(0.28)	(0.35)	(0.07)	(1.06)	1.23	0.18	0.26	(0.12)	0.43		0.27	

# Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
<b>FIXED INCOME RETURN DETAIL</b>																
289	NYCERS- TOTAL CONVERTIBLE BONDS - GROSS	740	1.14	0.61	7.72	1.95	13.11	7.47	(0.85)	8.42	16.33	6.29	7.62	6.97	6.58	06/01/2008
	ESTIMATED INVESTMENT FEES			(0.10)	(0.43)	(0.20)	(0.46)	(0.46)	(0.43)	(0.47)		(0.44)				
	NYCERS-TOTAL CONVERTIBLE BONDS - NET MGR			0.51	7.29	1.74	12.65	7.01	(1.28)	7.95		5.85				
	BOFAML ALL CONVERTIBLE EX M AI (DAILY)			3.69	13.41	6.60	15.70	11.71	(2.75)	9.33	25.00	8.91	10.78	9.15	8.62	
	EXCESS RETURN			(3.18)	(6.12)	(4.86)	(3.05)	(4.70)	1.47	(1.38)	(8.68)	(3.06)	(3.16)	(2.19)	(2.05)	
299	NYCERS-TOTAL OPPORTUNISTIC FIXED INCOME	1,851	2.85	1.72	6.99	4.00	7.69	8.75	(2.18)	8.15	17.55	5.43	6.65	9.70	7.78	10/01/2007
	OPPORTUNISTIC FIXED INCOME JPMGHY / CSFB 50/50 BLEND PLUS 300			1.22	6.72	2.42	9.42	17.40	0.63	4.93	9.99	8.18	8.10	9.84	9.16	
	EXCESS RETURN			0.50	0.27	1.58	(1.73)	(8.66)	(2.81)	3.22	7.56	(2.75)	(1.45)	(0.14)	(1.38)	
309	NYCERS-TOTAL TARGETED INVESTMENTS (NO CASH) - GROSS	819	1.26	(0.13)	(0.69)	(1.70)	4.08	2.97	4.33	8.26	2.35	3.37	3.98	5.24	7.83	12/01/1984
	ESTIMATED INVESTMENT FEES			(0.05)	(0.19)	(0.09)	(0.20)	(0.21)	(0.21)	(0.22)	(0.22)	(0.20)	(0.21)	(0.22)	(0.10)	
	NYCERS-TOTAL TARGETED INVESTMENTS (NO CASH) - NET MGR			(0.17)	(0.88)	(1.79)	3.88	2.76	4.12	8.03	2.12	3.17	3.78	5.01	7.73	
	EMPLOYEES CUSTOM BENCHMARK (NO CASH)			0.20	0.25	(0.99)	3.10	2.38	1.42	6.03	(1.64)	1.86	2.49	3.79		
	EXCESS RETURN			(0.37)	(1.13)	(0.80)	0.78	0.38	2.70	2.00	3.76	1.31	1.28	1.23		
<b>CASH SUMMARY</b>																
321	EMPLOYEES' SHORT TERM - GROSS	687	1.06	0.46	1.48	0.86	1.09	0.76	0.31	0.36	0.19	0.91	0.69	0.85		04/01/1982
	ESTIMATED INVESTMENT FEES			0.00	0.00	0.00	0.00	0.00	(0.00)	0.00	0.00	0.00	0.00	0.00		
	EMPLOYEES' SHORT TERM - NET MGR			0.46	1.48	0.86	1.09	0.76	0.31	0.36	0.19	0.91	0.69	0.85		
325	CASH ACCOUNTS	-	-													
327	SECURITY LENDING	1	-													

**New York City  
Employees' Retirement System**

# **Appendix B**

## **Public Markets Manager Performance Detail**

# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
<b>EQUITY SUMMARY</b>									
<b>US EQUITY</b>									
Blackrock Inst R 2000 Growth	289	0.45	7.25	22.00	9.73	22.32	11.29	(1.54)	5.70
RUSSELL 2000 GROWTH DAILY			7.23	21.86	9.70	22.17	11.32	(1.38)	5.60
Excess			0.02	0.13	0.03	0.15	(0.03)	(0.16)	0.10
Blackrock Inst R 2000 Value	45	0.07	8.27	13.06	5.40	7.95	31.61	(7.49)	4.90
RUSSELL 2000 VALUE DAILY			8.30	13.10	5.44	7.84	31.74	(7.47)	4.22
Excess			(0.03)	(0.04)	(0.04)	0.11	(0.13)	(0.02)	0.68
RAFI - SC Fundamental	780	1.20	8.59	16.84	6.46	9.63	27.57	(7.09)	4.56
RUSSELL 2000 (DAILY)			7.75	17.57	7.66	14.65	21.31	(4.41)	4.89
Excess			0.84	(0.73)	(1.20)	(5.01)	6.26	(2.68)	(0.34)
Ceredex SCV	235	0.36	8.18	16.20	4.16	10.59	29.34	(4.74)	2.58
RUSSELL 2000 VALUE DAILY			8.30	13.10	5.44	7.84	31.74	(7.47)	4.22
Excess			(0.12)	3.10	(1.28)	2.75	(2.40)	2.73	(1.64)
Wellington Small Core	230	0.35	6.59	15.82	5.51	19.90	19.25	(2.79)	9.89
RUSSELL 2000 (DAILY)			7.75	17.57	7.66	14.65	21.31	(4.41)	4.89
Excess			(1.17)	(1.75)	(2.15)	5.25	(2.05)	1.63	4.99
State Street GA S&P 400	0	0.00				16.68	20.65	(2.31)	9.97
S&P 400 MIDCAP INDEX (DAILY)						16.24	20.74	(2.18)	9.77
Excess						0.43	(0.09)	(0.13)	0.20
Blackrock Inst R 1000 Growth	4	0.01				30.22	7.04	5.58	12.90
RUSSELL 1000 GROWTH - DAILY						30.21	7.08	5.67	13.05
Excess						0.00	(0.04)	(0.09)	(0.15)

1 Name changed from SSGA MSCI EAFE Small Cap Index to SSGA World ex USA Small Cap 12.2017  
2 Assets were in transition as of 9/29/17



# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
Blackrock Inst R 1000 Value	6	0.01				13.53	17.36	(3.94)	13.51
RUSSELL 1000 VALUE (DAILY)						13.66	17.34	(3.83)	13.45
Excess						(0.13)	0.02	(0.11)	0.06
NYC ERS BLACKROCK R1000 CORE	14,359	22.15	3.84						
RUSSELL 1000 (DAILY)			3.57						
Excess			0.27						
VTL S&P 500 Fundamental	1	0.00				20.19	12.68	(1.25)	13.81
S&P 500 INDEX (DAILY)						21.83	11.96	1.38	13.69
Excess						(1.64)	0.72	(2.63)	0.12
RAFI - LC Fundamental	1,855	2.86	2.67	13.34	1.15	16.94	15.71	(3.17)	12.15
RUSSELL 1000 (DAILY)			3.57	14.54	2.85	21.69	12.05	0.92	13.24
Excess			(0.90)	(1.20)	(1.70)	(4.74)	3.66	(4.09)	(1.09)
<b>FUND OF FUNDS</b>									
NYCERS-TOTAL FUND OF FUNDS	118	0.18	8.00	14.63	7.05				
RUSSELL 2000 (DAILY)			7.75	17.57	7.66				
Excess			0.25	(2.93)	(0.61)				
NYCERS-TOTAL LEGATO	118	0.18	8.00	14.75	7.12				
RUSSELL 2000 (DAILY)			7.75	17.57	7.66				
Excess			0.25	(2.81)	(0.54)				
<b>NON - US EQUITY</b>									
ERS-Causeway	1,253	1.93	(1.96)	6.17	(5.73)	27.94	0.69	(2.41)	(4.94)
NYC Developed Value Benchmark			(0.75)	7.43	(2.77)	22.77	5.02	(5.68)	(5.39)
Excess			(1.22)	(1.25)	(2.96)	5.18	(4.33)	3.28	0.45
ERS-Sprucegrove	1,275	1.97	(1.82)	10.30	(3.78)	27.61	11.10	(9.77)	(3.69)
NYC Developed Value Benchmark			(0.75)	7.43	(2.77)	22.77	5.02	(5.68)	(5.39)
Excess			(1.07)	2.87	(1.01)	4.85	6.08	(4.08)	1.70

# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
ERS-Baillie Gifford	1,369	2.11	2.86	23.85	8.81	39.40	2.12	(4.67)	(6.81)
NYC Developed Growth Benchmark			(0.75)	6.47	(2.77)	27.77	(3.04)	4.09	(4.43)
Excess			3.60	17.38	11.58	11.63	5.16	(8.76)	(2.38)
ERS-Walter Scott	1,259	1.94	0.83	10.42	(0.16)	27.94	5.26	0.04	(3.43)
NYC Developed Growth Benchmark			(0.75)	6.47	(2.77)	27.77	(3.04)	4.09	(4.43)
Excess			1.58	3.96	2.61	0.17	8.31	(4.05)	1.00
ERS-Acadian	447	0.69	(4.20)	13.10	(2.45)	37.50	5.15	8.71	(3.02)
S&P EPAC Small Cap USD NET			(1.84)	11.27	(2.14)	33.47	1.34	8.58	(3.43)
Excess			(2.36)	1.82	(0.31)	4.03	3.82	0.13	0.41
ERS-Pyramis	315	0.49	(1.73)	10.85	(0.83)	31.22	(0.81)	11.68	(5.51)
S&P EPAC Small Cap USD NET			(1.84)	11.27	(2.14)	33.47	1.34	8.58	(3.43)
Excess			0.11	(0.42)	1.31	(2.25)	(2.15)	3.09	(2.08)
ERS-SSGA	1,812	2.79	(0.57)	7.49	(2.42)	24.53	1.28	(0.42)	(5.00)
NYC Custom World ex US Index			(0.75)	7.04	(2.77)	24.12	1.00	(0.81)	(4.90)
Excess			0.17	0.45	0.35	0.41	0.28	0.39	(0.10)
ERS-SSGA World ex USA Small Cap <sup>1</sup>	492	0.76	(0.80)	12.88	(1.22)	33.66	2.52	9.97	
World ex USA SC PASSIVE CUSTOM BM			(0.94)	12.58	(1.44)	33.31	2.18	9.59	
Excess			0.14	0.31	0.22	0.35	0.33	0.39	
Generation GE MTA	3	0.00					9.93	7.04	11.39
MSCI World Index							7.51	(0.87)	4.94
Excess							2.42	7.91	6.45
<b>EMERGING MARKETS</b>									
ERS-BAILLIE GIFFORD EM	759	1.17	(8.33)	3.00	(9.84)	41.25	4.20	(13.67)	4.53
FTSE Custom NYCERS All Emerging Index			(10.28)	2.30	(9.72)	34.18	13.66	(16.80)	(0.07)
Excess			1.95	0.70	(0.12)	7.07	(9.46)	3.14	4.60

<sup>1</sup> Name changed from SSGA MSCI EAFE Small Cap Index to SSGA World ex USA Small Cap 12.2017  
<sup>2</sup> Assets were in transition as of 9/29/17

# Public Markets Manager Performance Detail



## Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
ERS-ACADIAN EM	717	1.11	(12.39)	(1.11)	(11.74)	36.05	12.66	(18.25)	3.09
FTSE Custom NYCERS All Emerging Index			(10.28)	2.30	(9.72)	34.18	13.66	(16.80)	(0.07)
Excess			(2.11)	(3.41)	(2.02)	1.86	(1.00)	(1.45)	3.16
ERS-PARAMETRIC EM	603	0.93	(9.99)	0.28	(9.94)	30.24	11.58	(19.39)	(1.55)
FTSE Custom NYCERS All Emerging Index			(10.28)	2.30	(9.72)	34.18	13.66	(16.80)	(0.07)
Excess			0.28	(2.02)	(0.22)	(3.95)	(2.09)	(2.59)	(1.48)
ERS-DFA	746	1.15	(10.71)	2.48	(10.04)	34.27	20.31	(22.06)	(4.16)
FTSE Custom NYCERS All Emerging Index			(10.28)	2.30	(9.72)	34.18	13.66	(16.80)	(0.07)
Excess			(0.44)	0.18	(0.32)	0.09	6.65	(5.26)	(4.09)
ERS-Blackrock EM	1,853	2.86	(9.96)	2.11	(9.06)	32.90	12.49	(17.92)	(1.52)
MSCI CUSTOM NYCERS EMERGING MARKETS (NET)			(10.04)	2.20	(9.29)	33.03	12.68	(17.71)	
Excess			0.08	(0.10)	0.23	(0.13)	(0.19)	(0.21)	
INTERNATIONAL FOF									
NYCERS-TOTAL INTERNATIONAL FOF	413	0.64	(2.37)	8.05	(2.51)				
NYC Blended Custom Benchmark for FoF (ERS)			(2.20)	6.94	(3.59)				
Excess			(0.17)	1.11	1.08				
NYCERS-TOTAL INTERNATIONAL BIVIUM	135	0.21	(3.34)	6.72	(3.47)				
NYC Blended Custom Benchmark for FoF (ERS)			(2.20)	6.94	(3.59)				
Excess			(1.13)	(0.22)	0.11				
NYCERS-TOTAL INTERNATIONAL FIS	137	0.21	(2.20)	7.74	(2.74)				
NYC Blended Custom Benchmark for FoF (ERS)			(2.20)	6.94	(3.59)				
Excess			0.00	0.80	0.85				
NYCERS-TOTAL INTERNATIONAL LEADING EDGE	141	0.22	(1.56)	9.78	(1.25)				
NYC Blended Custom Benchmark for FoF (ERS)			(2.20)	6.94	(3.59)				
Excess			0.65	2.84	2.33				

# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
<b>FIXED INCOME SUMMARY</b>									
<b>STRUCTURED FIXED INCOME</b>									
Neuberger Berman - Mortgage	512	0.79	0.19	(0.01)	(1.05)	2.43	1.50	1.42	6.99
FTSE MORTGAGE INDEX			0.26	0.11	(0.97)	2.47	1.59	1.56	6.12
Excess			(0.07)	(0.12)	(0.07)	(0.04)	(0.09)	(0.14)	0.86
Blackrock - Mortgage	856	1.32	0.26	0.06	(0.92)	2.69	2.17	1.67	6.75
FTSE MORTGAGE INDEX			0.26	0.11	(0.97)	2.47	1.59	1.56	6.12
Excess			(0.00)	(0.05)	0.05	0.22	0.58	0.11	0.62
Amundi Smith Breeden - Mortgage	339	0.52	0.15	(0.12)	(1.02)	2.24	2.06	1.73	6.36
FTSE MORTGAGE INDEX			0.26	0.11	(0.97)	2.47	1.59	1.56	6.12
Excess			(0.11)	(0.23)	(0.05)	(0.23)	0.47	0.16	0.23
Prudential - Corp - Credit	903	1.39	(0.78)	(0.39)	(2.83)	6.17	5.89	(0.32)	7.54
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			0.10	0.33	0.09	0.13	0.33	0.33	0.50
T. Rowe Price - Credit	889	1.37	(0.77)	(0.81)	(3.29)	6.85	6.00	0.13	7.91
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			0.11	(0.09)	(0.37)	0.81	0.44	0.78	0.87
Blackrock - Credit	330	0.51	(0.70)	(0.51)	(2.72)	6.38	5.50	(0.83)	7.48
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			0.18	0.21	0.20	0.35	(0.06)	(0.18)	0.44
Taplin Canida Habacht - Credit	340	0.52	(0.99)	(0.11)	(2.95)	6.91	9.51	(4.37)	7.83
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			(0.11)	0.61	(0.03)	0.87	3.95	(3.73)	0.79

1 Name changed from SSGA MSCI EAFE Small Cap Index to SSGA World ex USA Small Cap 12.2017  
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# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
Barrow Hanley - Credit	382	0.59	(0.98)	(0.93)	(3.20)	6.06	5.88	(0.09)	7.47
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			(0.10)	(0.21)	(0.28)	0.02	0.32	0.56	0.42
Blackrock - Gov't	2,186	3.37	0.06	(0.97)	(2.16)	4.76	1.24	0.69	11.98
NYC - Treasury Agency Plus Five			0.09	(0.96)	(2.13)	4.66	1.21	0.72	12.38
Excess			(0.02)	(0.01)	(0.03)	0.10	0.02	(0.03)	(0.40)
State Street - Gov't	2,301	3.55	0.05	(0.95)	(2.14)	4.93	1.57	0.46	12.10
NYC - Treasury Agency Plus Five			0.09	(0.96)	(2.13)	4.66	1.21	0.72	12.38
Excess			(0.04)	0.01	(0.01)	0.28	0.36	(0.26)	(0.28)
SSGA 1-3 Treasury Index	5,017	7.74	0.22	0.02	0.04	0.40			
FTSE USBIG Treasury 1-3 Y Index			0.22	0.06	0.08	0.42			
Excess			(0.00)	(0.04)	(0.04)	(0.02)			
SSGA Int Gov Bond Index <sup>2</sup>	1	0.00	0.49	6.19	0.90				
FTSE USBIG Treasury/Agency 1-10 y			0.06	(0.71)	(0.65)				
Excess			0.43	6.90	1.55				
91 DAY TREASURY BILL (DAILY)			0.45	1.36	0.81				
Excess			0.04	4.83	0.09				
<b>HIGH YIELD</b>									
Loomis, Sayles - High Yield	21	0.03	1.57	2.20	0.32	7.57	21.61	(7.67)	4.89
NYC-Loomis (BoA MLMSTII 7-03/BB&B PRIOR)			1.00	2.53	0.08	7.48	17.49	(4.64)	2.50
Excess			0.58	(0.33)	0.24	0.09	4.13	(3.02)	2.38
Oaktree - High Yield	379	0.58	0.58	0.66	(0.83)	5.78	14.91	(4.77)	1.52
BofAML HYM CONSTRAINED (DAILY)			1.00	2.54	0.08	7.48	17.49	(4.61)	2.51
Excess			(0.42)	(1.88)	(0.90)	(1.70)	(2.58)	(0.16)	(0.98)
NEUBERGER BERMAN - HIGH YIELD	406	0.63	1.03	1.77	(0.07)	5.78	14.70	(4.00)	2.14
BofAML HIGH YIELD MASTER II (DAILY)			1.00	2.53	0.08	7.48	17.49	(4.64)	2.50
Excess			0.03	(0.76)	(0.14)	(1.71)	(2.79)	0.64	(0.36)

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# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
Stone Harbor - High Yield	233	0.36	0.98	1.51	(0.43)	5.85	12.98	(4.54)	0.97
BofAML HIGH YIELD MASTER II (DAILY)			1.00	2.53	0.08	7.48	17.49	(4.64)	2.50
Excess			(0.01)	(1.02)	(0.51)	(1.64)	(4.51)	0.11	(1.54)
T. Rowe Price - High Yield	600	0.93	0.56	1.55	(0.89)	7.03	12.32	(1.28)	2.96
FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78
Excess			(0.36)	(0.87)	(0.79)	(0.00)	(3.15)	2.93	0.18
Shenkman - High Yield	203	0.31	0.59	2.46	(0.11)	6.79	11.86	(2.24)	2.93
FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78
Excess			(0.33)	0.04	(0.01)	(0.24)	(3.61)	1.97	0.14
Penn Capital Mgt	17	0.03	1.12	2.83	0.77	6.61	11.97	(1.26)	0.84
FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78
Excess			0.20	0.41	0.86	(0.42)	(3.51)	2.95	(1.95)
Fort Washington	0	0.00	1.37	2.76	0.38	7.57	12.55	(4.43)	2.18
FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78
Excess			0.45	0.34	0.48	0.54	(2.93)	(0.22)	(0.60)
High Yield Transition	742	1.14							
<b>BANK LOANS</b>									
Babson BL	311	0.48	0.78	4.85	2.11	4.47	8.46	0.12	1.99
CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06
Excess			(0.01)	0.18	(0.27)	0.22	(1.42)	0.50	(0.07)
Credit Suisse BL	320	0.49	0.70	4.49	2.06	4.66	8.95	2.57	2.67
CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06
Excess			(0.09)	(0.18)	(0.31)	0.41	(0.92)	2.96	0.61

# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
Guggenheim BL	201	0.31	0.65	4.26	1.99	3.82	7.84	2.07	2.88
CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06
Excess			(0.13)	(0.41)	(0.39)	(0.43)	(2.03)	2.45	0.83
ERS-Invesco BL	307	0.47	0.59	3.90	1.95	3.64	9.68	(0.91)	1.65
CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06
Excess			(0.19)	(0.77)	(0.43)	(0.61)	(0.20)	(0.53)	(0.41)
<b>TIPS</b>									
State Street TIPS MTA	2,155	3.32	0.77	2.15	(0.02)	3.06	4.73	(1.35)	3.57
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			0.77	2.11	(0.02)	3.01	4.68	(1.44)	3.64
Excess			(0.00)	0.04	0.00	0.05	0.04	0.09	(0.07)
Blackrock TIPS MTA	703	1.08	0.78	2.21	0.10	2.98	4.71	(1.24)	3.74
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			0.77	2.11	(0.02)	3.01	4.68	(1.44)	3.64
Excess			0.01	0.09	0.13	(0.02)	0.02	0.20	0.10
<b>CONVERTIBLE BONDS</b>									
Advent Conv Bonds	433	0.67	1.45	3.93	1.10	7.75	7.35	(1.92)	4.68
BofA ML U.S. Convertible Yield Alternative			2.59	6.58	3.50	9.45	9.96	(8.77)	2.75
Excess			(1.14)	(2.65)	(2.41)	(1.69)	(2.61)	6.85	1.93
Victory - Conv Bonds	307	0.47	(0.78)	12.42	2.67	20.54	6.47	(0.24)	13.76
BofA Merrill Lynch US Investment Grade Convertible Bond Index			(0.38)	14.84	4.18	20.99	14.23	1.68	15.69
Excess			(0.40)	(2.43)	(1.52)	(0.45)	(7.77)	(1.92)	(1.93)
<b>CORE FI - EMERGING MANAGERS</b>									
New Century Adv LLC (Core)	27	0.04	(0.14)	0.18	(1.31)	4.24	1.98	(0.04)	6.09
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97
Excess			0.01	0.57	0.30	0.70	(0.67)	(0.59)	0.12

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# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
Hillswick	10	0.02	(0.28)	(1.06)	(1.77)	2.56			
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54			
Excess			(0.12)	(0.66)	(0.16)	(0.98)			
Integrity	12	0.02	(0.26)	0.04	(1.51)	3.92			
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54			
Excess			(0.10)	0.44	0.11	0.38			
Pugh Capital Mgmt Inc (Core)	30	0.05	(0.15)	(0.26)	(1.76)	4.25	3.13	0.69	6.05
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97
Excess			0.01	0.13	(0.14)	0.71	0.49	0.14	0.08
Ramirez Asset	39	0.06	(0.07)	0.87	(1.23)	4.80	3.47	0.94	
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	
Excess			0.09	1.27	0.39	1.25	0.82	0.39	
CORE FI - DEVELOPING MANAGERS									
ERS-LM Capital	292	0.45	(0.43)	(0.80)	(2.07)	3.85	3.47	0.83	5.67
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97
Excess			(0.27)	(0.40)	(0.46)	0.31	0.82	0.28	(0.30)
GIA	106	0.16	(0.29)	(0.30)	(1.57)	4.35	4.00		
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65		
Excess			(0.13)	0.09	0.05	0.80	1.35		
ECONOMICALLY TARGETED INVESTMENTS									
AFL-CIO HOUSING INV TRUST	304	0.47	(0.30)	(0.59)	(1.58)	3.17	1.94	1.13	6.10
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97
Excess			(0.14)	(0.20)	0.04	(0.38)	(0.71)	0.58	0.14

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# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
ACCESS RBC	161	0.25	0.10	(0.37)	(1.37)	2.64	1.61	1.83	6.66
Access RBC Benchmark			0.23	(0.12)	(0.79)	1.96	1.52	1.40	5.08
Excess			(0.13)	(0.25)	(0.58)	0.69	0.09	0.43	1.58
CPC CONST FACILITY	8	0.01	0.75	5.43	2.05	6.07	(3.95)	12.90	
CPC CONST BENCHMARK			0.97	3.66	1.90	3.34	3.03	2.90	
Excess			(0.23)	1.78	0.15	2.73	(6.99)	10.00	
BOA-PPAR (FNMA)	22	0.03	0.88	(1.09)	(1.51)	5.21	4.07	42.03	13.31
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			0.41	(2.13)	(0.97)	1.60	1.69	39.53	6.19
BOA-PPAR (GNMA)	15	0.02	0.74	(1.23)	(1.34)	4.08	3.13	8.04	15.61
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			0.26	(1.89)	(0.69)	1.56	0.85	6.03	8.96
CCD-PPAR (FNMA)	12	0.02	(0.05)	(0.83)	(2.19)	5.26	3.71	6.69	25.71
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.52)	(1.86)	(1.65)	1.65	1.33	4.20	18.58
CCD-PPAR (GNMA)	6	0.01	(0.73)	(2.20)	(2.53)	3.10	2.78	5.08	15.37
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.22)	(2.86)	(1.88)	0.57	0.50	3.06	8.72
CFSB-PPAR (GNMA)	2	0.00	(0.76)	(2.62)	(2.88)	3.83	3.21	5.90	15.34
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.24)	(3.28)	(2.23)	1.30	0.93	3.88	8.69
CPC-PPAR (FNMA)	87	0.13	0.19	(0.39)	(2.05)	5.06	6.15	8.96	13.91
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.27)	(1.43)	(1.51)	1.45	3.77	6.46	6.78

# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
CPC - PPAR (GNMA)	83	0.13	(1.15)	(2.81)	(2.96)	2.58	2.86	5.08	8.41
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.64)	(3.47)	(2.31)	0.05	0.58	3.07	1.76
JPMC-PPAR (FNMA)	68	0.10	(0.05)	(1.18)	(2.30)	9.96	7.94	6.18	12.06
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.51)	(2.21)	(1.76)	6.35	5.56	3.68	4.93
JPMC - PPAR (GNMA)	32	0.05	(0.58)	(1.95)	(2.12)	2.63	2.99	6.04	13.75
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.07)	(2.61)	(1.46)	0.11	0.72	4.03	7.10
LIIF-PPAR (FNMA)	10	0.01	(0.10)	(1.35)	(2.33)	9.55	5.03	6.29	38.12
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.56)	(2.39)	(1.79)	5.94	2.65	3.79	30.99
LIIF-PPAR (GNMA)	3	0.00	0.17	(0.63)	(0.93)	2.52	3.88	3.92	9.74
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(0.31)	(1.28)	(0.28)	(0.01)	1.61	1.91	3.09
NCBCI PPAR (FNMA)	0	0.00	(1.25)	(1.43)	(2.87)	1.75	3.46	4.97	14.93
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(1.72)	(2.47)	(2.33)	(1.86)	1.07	2.47	7.81
NCBCI-PPAR (GNMA)	2	0.00	(0.89)	(2.27)	(2.69)	3.01	3.51	5.53	16.66
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.37)	(2.93)	(2.04)	0.48	1.23	3.52	10.01
NHS-PPAR (GNMA)	1	0.00	(0.99)	(2.40)	(2.79)	(2.93)	3.58	4.90	13.73
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.48)	(3.06)	(2.14)	(5.46)	1.30	2.89	7.08

1 Name changed from SSGA MSCI EAFE Small Cap Index to SSGA World ex USA Small Cap 12.2017  
2 Assets were in transition as of 9/29/17

# Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
WELLS FARGO-PPAR MTA 2013 (FNMA)	3	0.01							
FNMA Plus 85bps									
Excess									
<b>CASH</b>									
EMPLOYEES' SHORT TERM	687	1.06	0.46	1.48	0.86	1.09	0.76	0.31	0.36
91 DAY T-BILL			0.45	1.36	0.81	0.86	0.33	0.05	0.02
Excess			0.00	0.12	0.05	0.23	0.44	0.27	0.34
Cash Accounts	0	0.00							
SECURITY LENDING	1	0.00							

**New York City  
Employees' Retirement System**

# Appendix C

## Alternative Assets Manager Performance Detail

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
<b>TOTAL PRIVATE EQUITY</b>		10,274,171,610	8,615,530,663	7,686,308,236	4,597,557,041	1.43	9.8%
<b>TOTAL LIQUIDATED</b>		641,308,646	743,504,806	897,954,404	-	1.21	5.7%
<b>TOTAL ACTIVE</b>		9,632,862,964	7,872,025,857	6,788,353,831	4,597,557,041	1.45	10.2%
<b>TOTAL ACTIVE</b>							
Cypress Merchant Banking Partners II, L.P.	1999	45,172,972	53,944,269	50,584,154	28,517	0.94	-1.2%
FdG Capital Partners LLC	1999	25,000,000	28,858,104	52,797,326	356,926	1.84	15.2%
Lincolnshire Equity Fund II, L.P.	1999	18,397,347	19,261,466	37,375,300	685,095	1.98	24.6%
Solera Partners, L.P.	2000	19,999,779	26,539,069	41,635,156	644,404	1.59	7.6%
SCP Private Equity Partners II, L.P.	2000	27,442,463	30,827,225	10,819,873	2,008,750	0.42	-11.4%
Apollo Investment Fund V, L.P.	2001	40,000,000	62,528,643	123,248,630	657,955	1.98	38.6%
RRE Ventures III, L.P.	2001	19,999,999	26,323,260	34,078,940	1,292,451	1.34	5.5%
Thomas, McNerney & Partners, L.P.	2002	20,000,000	20,000,000	10,058,105	2,021,421	0.60	-8.4%
Landmark Equity Partners XI, L.P.	2002	55,000,000	52,284,778	80,358,502	130,802	1.54	23.3%
FS Equity Partners V, L.P.	2003	25,000,000	21,419,958	41,861,469	1,551,618	2.03	15.4%
Blackstone Capital Partners IV, L.P.	2003	34,418,762	38,818,072	98,629,819	483,671	2.55	39.7%
Ares Corporate Opportunities Fund, L.P.	2003	45,000,000	53,984,770	80,476,920	2,466,739	1.54	13.4%
Markstone Capital Partners, LP	2004	40,000,000	46,899,103	19,822,611	272,215	0.43	-50.6%
FdG Capital Partners II LP	2004	35,000,000	37,624,231	42,499,038	2,531,138	1.20	3.5%
Paladin Homeland Security Fund (NY City), L.P.	2004	15,000,000	16,513,285	6,211,471	116,884	0.38	-14.2%
Lincolnshire Equity Fund III, L.P.	2004	55,000,000	54,695,080	77,732,618	21,419,412	1.81	29.0%
Yucaipa American Alliance Fund I, LP	2004	90,000,000	114,094,892	95,624,614	35,577,629	1.15	3.2%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 1	2004	32,000,000	32,862,069	29,751,189	8,214,389	1.16	2.5%
Aurora Equity Partners III L.P.	2004	50,000,000	54,126,788	87,435,881	1,711,819	1.65	13.7%
Trilantic Capital Partners III L.P.	2004	45,088,848	40,126,836	59,174,224	1,102,075	1.50	12.4%
Palladium Equity Partners III, L.P.	2005	35,000,000	36,318,404	52,510,797	20,744,363	2.02	16.8%
New Mountain Partners II, L.P.	2005	46,451,615	42,071,397	81,045,604	1,455,459	1.96	13.8%
VSS Communications Partners IV, L.P.	2005	24,690,337	28,434,380	20,877,872	178,326	0.74	-5.1%
Prism Venture Partners V-A, L.P.	2005	30,000,000	30,762,722	18,807,061	687,655	0.63	-8.9%
NB New York City Growth Fund	2005	34,819,694	34,819,694	36,646,515	-	1.05	-0.7%
Snow Phipps Group, L.P.	2005	20,000,000	23,827,483	20,892,466	8,773,126	1.25	5.3%
GI Partners Fund II L.P.	2005	35,000,000	35,453,490	56,981,934	54,133	1.61	7.7%
Blackstone Mezzanine Partners II, L.P.	2005	21,346,698	23,488,553	31,752,958	291,544	1.36	8.0%
Psilos Group Partners III, L.P.	2005	35,000,000	37,205,819	17,948,760	22,606,787	1.09	1.5%
USPF II Institutional Fund, L.P.	2005	65,000,000	85,734,194	71,008,711	38,943,276	1.28	4.4%
JP Morgan Fleming (Tranche A)	2005	43,000,000	42,451,465	38,162,482	17,592,641	1.31	5.3%

Information provided by the New York City Employees' Retirement System Consultants

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Aisling Capital II, LP	2006	6,680,102	7,853,301	6,821,024	1,053,040	1.00	0.1%
InterMedia Partners VII, L.P.	2006	25,000,000	29,198,197	29,591,747	1,821,082	1.08	1.1%
Terra Firma Capital Partners III, L.P.	2006	52,788,147	53,450,811	12,567,361	10,907,455	0.44	-10.6%
BDCM Opportunity Fund II, L.P.	2006	25,000,000	36,943,486	57,816,758	28,599,064	2.34	17.7%
Blackstone Capital Partners V, L.P.	2006	121,624,827	129,313,761	198,345,756	12,622,753	1.63	8.1%
Avista Capital Partners, L.P.	2006	45,000,000	59,145,223	70,025,528	1,891,452	1.22	4.2%
GSC Recovery III, L.P.	2006	25,000,000	28,228,414	33,208,011	202,608	1.18	4.2%
Apollo Investment Fund VI, L.P.	2006	90,000,000	115,838,240	155,713,859	19,977,156	1.52	8.9%
Landmark Equity Partners XIII, L.P.	2006	50,000,000	47,997,218	48,995,613	12,645,507	1.28	5.2%
Ares Corporate Opportunities Fund II, L.P.	2006	50,000,000	54,760,870	88,267,769	3,935,395	1.68	13.2%
Fairview Ventures Fund III, L.P.	2006	25,000,000	26,284,335	29,323,151	21,506,048	1.93	13.7%
Ampersand 2006	2006	25,000,000	25,000,000	41,455,039	20,035,164	2.46	15.6%
CCMP Capital Investors II, L.P.	2006	30,000,000	32,911,805	56,364,117	304,909	1.72	13.5%
CLP 2014 (fka Perseus Partners VII)	2006	30,000,000	35,099,499	13,800,530	(34,373)	0.39	-20.8%
Thomas, McNerney & Partners II, L.P.	2006	25,000,000	25,349,167	48,944,019	5,674,543	2.15	16.3%
Catterton Partners VI, L.P.	2006	45,000,000	51,243,868	72,559,948	21,081,108	1.83	11.8%
First Reserve Fund XI, L.P.	2006	45,000,000	47,820,682	29,053,614	2,404,482	0.66	-9.6%
Arsenal Capital Partners II, LP	2006	22,500,000	27,276,973	36,293,108	10,890,315	1.73	10.9%
RRE Ventures IV, L.P.	2006	35,000,000	44,063,397	24,528,820	41,208,810	1.49	6.4%
MidOcean Partners III, L.P.	2006	58,234,777	69,234,270	100,844,482	37,396,973	2.00	12.8%
GF Capital Private Equity Fund, L.P.	2006	20,000,000	20,716,299	26,087,171	12,169,268	1.85	13.7%
The Fourth Cinven Fund	2006	69,543,038	72,910,838	105,001,759	101,900	1.44	7.3%
Pegasus Partners IV, L.P.	2007	30,000,000	36,171,711	23,854,519	10,555,652	0.95	-1.0%
FTVentures III, LP	2007	24,201,990	26,802,873	46,944,173	9,413,273	2.10	15.9%
Co-Investment Partners Europe, L.P.	2007	39,820,599	42,500,117	49,511,763	4,885,123	1.28	4.8%
Montreux Equity Partners IV, L.P.	2007	20,000,000	20,000,000	11,044,696	17,669,745	1.44	6.1%
Quaker BioVentures II, L.P.	2007	20,000,000	18,858,740	15,700,278	6,031,222	1.15	3.4%
SCP Vitalife Partners II Fund	2007	20,000,000	20,099,698	1,579	12,160,144	0.61	-7.0%
Craton Equity Investors I, L.P.	2007	20,000,000	20,089,805	2,153,907	284,100	0.12	-30.5%
Nautic Partners VI, L.P.	2007	30,000,000	33,409,029	67,923,631	11,071,850	2.36	19.1%
Constellation Venture Capital III, L.P.	2007	25,000,000	28,575,035	13,995,719	7,883,156	0.77	-4.7%
United States Power Fund III, L.P.	2007	65,000,000	76,903,642	64,967,721	34,635,785	1.30	4.8%
Halyard Capital Fund II, L.P.	2007	25,000,000	21,485,533	25,829,763	5,021,516	1.44	6.7%
Carlyle Partners V, L.P.	2007	70,000,000	72,142,215	113,223,382	14,040,934	1.76	13.8%
PCG Clean Energy & Technology Fund (East), LLC	2007	90,000,000	81,429,594	14,013,084	25,165,073	0.48	-11.1%
GSO Capital Opportunities Fund LP	2007	45,000,000	67,377,298	95,627,284	1,237,074	1.44	17.5%

Information provided by the New York City Employees' Retirement System Consultants

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
StarVest Partners II, L.P.	2007	25,000,000	25,051,830	5,254,221	16,544,781	0.87	-2.4%
New Mountain Partners III, L.P.	2007	100,000,000	101,334,889	128,687,302	68,665,115	1.95	13.5%
Vista Equity Partners Fund III, L.P.	2007	30,000,000	32,008,969	73,920,673	8,241,102	2.57	27.5%
Trilantic Capital Partners IV L.P.	2007	69,028,637	72,022,699	106,245,500	9,724,279	1.61	14.2%
RLJ Equity Partners Fund I, L.P.	2007	20,000,000	21,774,503	22,531,306	16,384,925	1.79	13.2%
Pine Brook Capital Partners, L.P.	2007	30,000,000	33,720,023	37,830,672	7,062,961	1.33	7.9%
Paladin III (NY City), L.P.	2008	30,000,000	39,223,849	28,093,425	27,236,336	1.41	7.9%
Relativity Fund, L.P.	2008	10,877,829	10,773,614	5,272,425	127,897	0.50	-10.8%
Apollo Investment Fund VII, L.P.	2008	100,000,000	120,427,987	186,581,538	24,069,942	1.75	23.5%
NGN BioMed Opportunity II, L.P.	2008	20,000,000	19,151,821	7,946,209	11,667,575	1.02	0.4%
Carpenter Community BancFund-A, L.P.	2008	20,000,000	19,569,498	29,600,992	4,265,972	1.73	8.7%
Riverstone/Carlyle Global Energy & Power Fund IV, L.P.	2008	45,000,000	50,684,861	37,678,320	23,401,431	1.21	5.1%
Yucaipa American Alliance Fund II, LP	2008	120,000,000	163,744,290	97,293,704	145,700,110	1.48	8.5%
Levine Leichtman Capital Partners IV, L.P.	2008	35,000,000	37,384,126	52,756,843	13,457,352	1.77	19.8%
Lee Equity Partners Fund, L.P.	2008	36,779,895	50,519,026	61,415,282	211,294	1.22	6.3%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 2	2008	45,000,000	44,397,265	36,288,530	38,080,957	1.68	13.7%
Yucaipa Corporate Initiatives Fund II, LP	2008	42,092,788	41,094,236	12,669,673	26,054,021	0.94	-1.0%
Leeds Equity Partners V, L.P.	2008	60,000,000	57,806,856	57,265,930	55,575,424	1.95	17.5%
GI Partners Fund III L.P.	2008	45,000,000	48,592,079	70,014,239	6,657,663	1.58	13.2%
Ares Corporate Opportunities Fund III, L.P.	2008	75,000,000	90,265,061	118,687,023	80,402,090	2.21	22.4%
GCM Grosvenor NYCERS Emerging Manager Fund, L.P.	2008	116,737,374	136,219,577	111,082,751	77,469,147	1.38	10.5%
First Reserve Fund XII, L.P.	2008	45,000,000	49,154,760	24,517,527	9,975,754	0.70	-8.3%
Landmark Equity Partners XIV, L.P.	2008	109,120,000	105,349,164	107,771,925	29,635,274	1.30	10.0%
Crestview Partners II, L.P.	2008	50,000,000	56,212,339	65,438,059	35,892,566	1.80	15.2%
Avista Capital Partners II, L.P.	2008	75,000,000	96,633,216	144,092,432	26,865,147	1.77	16.2%
Blue Wolf Capital Fund II, L.P.	2008	25,000,000	27,167,904	27,909,784	9,363,261	1.37	7.8%
Bridgepoint Europe IV	2008	26,669,649	26,766,098	27,050,911	15,569,579	1.59	11.7%
Aisling Capital III, LP	2008	14,000,000	15,761,491	20,489,652	11,023,916	2.00	23.9%
Onex Partners III LP	2008	75,000,000	81,578,819	100,362,756	42,924,924	1.76	14.4%
Welsh, Carson, Anderson & Stowe XI, L.P.	2009	40,000,000	40,000,000	44,396,071	20,740,006	1.63	12.9%
FS Equity Partners VI, L.P.	2009	32,500,000	31,872,160	51,262,870	50,221,588	3.18	26.6%
Lincolnshire Equity Fund IV, L.P.	2009	27,500,000	28,925,801	18,842,222	21,976,190	1.41	9.3%
Lexington Capital Partners VII, L.P.	2009	50,000,000	44,200,303	50,723,163	17,888,062	1.55	14.6%
Snow Phipps II, L.P.	2010	30,000,000	32,423,883	23,881,598	19,207,127	1.33	9.7%
JP Morgan Fleming (Tranche B)	2010	35,000,000	35,131,012	19,992,330	29,194,534	1.40	8.8%
Trident V, L.P.	2010	110,000,000	125,353,811	82,835,503	107,383,904	1.52	10.9%

Information provided by the New York City Employees' Retirement System Consultants

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Blackstone Capital Partners VI, L.P.	2011	120,000,000	122,786,915	63,556,912	121,430,619	1.51	13.8%
Ampersand 2011	2011	25,000,000	25,000,000	29,457,057	28,952,567	2.34	20.0%
BDCM Opportunity Fund III, L.P.	2011	45,000,000	60,142,246	20,728,277	59,183,892	1.33	9.2%
AXA Secondary Fund V B L.P.	2011	120,000,000	97,917,940	134,870,478	23,920,761	1.62	16.5%
Wellspring Capital Partners V, L.P.	2011	40,000,000	40,305,719	43,924,315	17,514,439	1.52	16.2%
EQT VI, L.P.	2011	105,906,373	109,735,801	93,895,592	88,518,778	1.66	15.1%
Pegasus Partners V, L.P.	2011	20,789,916	23,386,819	6,722,956	32,784,341	1.69	15.5%
BC European Capital IX	2011	130,897,602	140,711,317	88,086,537	116,540,827	1.45	12.9%
American Securities Partners VI, L.P.	2011	80,000,000	85,737,419	122,338,343	38,833,466	1.88	22.5%
Vista Equity Partners Fund IV, L.P.	2011	100,000,000	103,049,618	117,335,988	79,683,156	1.91	19.1%
Warburg Pincus Private Equity XI, L.P.	2012	110,000,000	113,843,488	68,593,752	101,298,496	1.49	14.4%
Trilantic Capital Partners V L.P.	2012	70,000,000	70,399,807	43,378,945	57,620,642	1.43	18.8%
Palladium Equity Partners IV, L.P.	2012	55,000,000	44,190,588	18,421,248	45,248,754	1.44	15.2%
Ares Corporate Opportunities Fund IV, L.P.	2012	125,000,000	124,410,910	66,081,616	114,929,135	1.45	15.1%
Green Equity Investors VI, L.P.	2012	120,000,000	128,300,416	63,698,230	122,310,037	1.45	14.7%
Platinum Equity Capital Partners III, L.P.	2012	100,000,000	82,104,117	85,689,852	70,872,715	1.91	42.5%
<u>NYCERS - 2012 Emerging Manager Program</u>	2012	<u>139,600,000</u>	<u>117,524,272</u>	<u>31,359,077</u>	<u>130,219,965</u>	<u>1.37</u>	<u>14.9%</u>
Carlyle Partners VI, L.P.	2013	75,000,000	71,989,241	15,870,850	75,121,400	1.26	12.9%
Carlyle Partners VI, L.P. (Side Car)	2014	7,625,000	5,237,162	-	5,490,559	1.05	1.9%
Landmark Equity Partners XV, L.P.	2013	75,000,000	48,368,992	26,810,959	33,613,557	1.25	14.5%
Apollo Investment Fund VIII, L.P.	2013	140,000,000	111,976,830	29,364,019	118,690,480	1.32	16.3%
Landmark - NYC Fund I, L.P.	2013	25,000,000	20,043,953	8,671,101	18,814,396	1.37	18.5%
CVC Capital Partners VI, L.P.	2014	124,798,611	108,052,090	17,547,544	112,737,407	1.21	13.0%
Crestview Partners III, L.P.	2013	66,000,000	25,256,509	422,885	28,919,397	1.16	7.8%
Crestview Partners III (Co-Investment B), L.P.	2013	22,000,000	13,477,948	301,332	14,226,744	1.08	4.3%
Olympus Growth Fund VI, L.P.	2014	75,000,000	53,009,662	17,430,727	52,186,087	1.31	17.6%
ASF VI B L.P.	2014	83,000,000	53,182,415	19,177,460	54,294,405	1.38	14.5%
ASF VI B NYC Co-Invest L.P.	2014	27,000,000	19,744,244	11,990,157	16,178,307	1.43	15.8%
Vista Equity Partners Fund V, L.P.	2014	125,000,000	126,855,788	28,038,003	163,219,541	1.51	18.8%
Lexington Capital Partners VIII, L.P.	2014	110,000,000	59,214,451	23,721,678	60,260,740	1.42	31.8%
Siris Partners III, L.P.	2015	31,000,000	21,644,122	1,343,052	23,745,336	1.16	11.7%
Centerbridge Capital Partners III, L.P.	2015	23,700,000	12,906,821	2,307,336	12,963,403	1.18	12.1%
Welsh, Carson, Anderson & Stowe XII, L.P.	2015	78,500,000	32,671,854	7,400,146	38,761,200	1.41	20.4%
Warburg Pincus Private Equity XII, L.P.	2015	205,500,000	108,948,922	1,582,350	120,833,208	1.12	12.6%
ASF VII B L.P.	2015	94,500,000	27,818,932	462,593	33,358,411	1.22	25.0%
ASF VII B NYC Co-Invest L.P.	2015	46,000,000	22,308,913	-	31,799,587	1.43	153.1%

Information provided by the New York City Employees' Retirement System Consultants



# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
EQT VII, L.P.	2015	166,534,637	106,205,368	8,077,726	121,603,945	1.22	18.9%
American Securities Partners VII, L.P.	2015	80,000,000	39,926,280	1,133,185	45,389,722	1.17	15.9%
Bridgepoint Europe V L.P.	2015	63,180,891	43,521,348	5,959,601	47,115,311	1.22	21.3%
Bridgepoint Europe V Co-Invest	2015	18,587,704	14,453,317	-	16,960,053	1.17	NM
<i>NYCERS - 2015 Emerging Manager Program</i>	2015	<u>190,400,000</u>	<u>20,628,377</u>	<u>1,822,711</u>	<u>23,097,107</u>	<u>1.21</u>	<u>25.7%</u>
Vista Equity Partners Fund VI, L.P.	2016	158,000,000	114,994,346	378,662	124,751,327	1.09	NM
Platinum Equity Capital Partners IV, L.P.	2016	111,000,000	48,267,212	5,745,609	43,765,797	1.03	NM
Apax IX USD, L.P.	2016	127,000,000	56,233,233	632,208	60,430,565	1.09	NM
Green Equity Investors VII, L.P.	2017	95,000,000	29,056,451	127,722	27,621,863	0.96	NM
Ares Corporate Opportunities Fund V, L.P.	2017	95,000,000	27,805,571	-	26,677,810	0.96	NM
KKR Americas Fund XII, L.P.	2017	158,000,000	18,232,676	-	17,497,190	0.96	NM
BC European Capital X	2017	95,103,298	22,141,443	-	21,037,751	0.95	NM
BCEC X Co-Investment	2017	37,804,118	10,715,583	-	10,794,107	1.01	NM
Warburg Pincus Financial Sector, L.P.	2017	104,000,000	16,505,156	-	15,825,004	0.96	NM
EQT VIII, L.P.	2018	120,118,050	-	-	-	-	N/A
Apollo Investment Fund IX, L.P.	2018	256,000,000	-	-	-	-	N/A
Bridgepoint Europe VI	2018	131,205,870	-	-	-	-	N/A
Bridgepoint Europe VI Co-Invest	2018	32,801,468	-	-	-	-	N/A
CVC Capital Partners VII, L.P.	2018	168,781,260	-	-	-	-	N/A
Siris Partners IV, L.P.	2018	89,000,000	-	-	-	-	N/A

Information provided by the New York City Employees' Retirement System Consultants

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
<b>TOTAL PRIVATE REAL ESTATE</b>			4,928,877,109	4,404,305,843	2,857,822,767	3,387,558,452	1.46	8.1%
<b>TOTAL PRIVATE REAL ESTATE</b>								
Colony Realty Partners II	2006	Core Portfolio	20,000,000	24,666,122	8,957,737	-	0.26	-13.3%
JP Morgan Strategic Property Fund	2006	Core Portfolio	136,000,000	240,255,078	89,500,431	290,845,990	1.93	7.2%
PRISA SA	2006	Core Portfolio	86,000,000	92,673,389	30,907,573	118,093,018	1.61	4.7%
Prologis Targeted U.S. Logistics Fund	2006	Core Portfolio	25,000,000	34,039,524	9,635,740	41,734,764	1.51	4.7%
RREEF America REIT II	2006	Core Portfolio	86,000,000	113,537,802	54,737,104	119,678,924	1.54	5.1%
UBS Trumbull Property Fund	2006	Core Portfolio	156,000,000	240,317,896	70,226,009	298,029,588	1.75	6.4%
Heitman HART	2007	Core Portfolio	115,000,000	174,597,584	59,597,584	241,909,798	2.10	8.1%
JP Morgan Special Situation Property Fund	2007	Core Portfolio	90,000,000	139,124,732	68,879,127	123,422,596	1.52	4.5%
PRISA II	2007	Core Portfolio	141,518,761	150,922,667	40,696,151	206,677,117	1.64	5.7%
RREEF America REIT III - 1410	2007	Core Portfolio	90,000,000	90,000,000	51,156,568	-	0.57	-7.5%
LaSalle Property Fund	2010	Core Portfolio	50,000,000	50,000,000	15,909,295	70,385,082	1.73	11.3%
NYC Asset Investor #2 LLC (Related)	2013	Core Portfolio	75,000,000	71,982,093	10,141,542	100,779,239	1.54	16.0%
MetLife Core Property Fund	2014	Core Portfolio	50,000,000	50,000,000	7,062,790	60,943,898	1.36	10.3%
Almanac Realty Securities VII	2015	Core Portfolio	65,000,000	42,610,531	9,081,514	41,341,053	1.17	13.8%
Almanac Realty Securities VII (Sidecar IV)	2015	Core Portfolio	20,000,000	9,483,929	491,740	10,923,056	1.20	18.0%
USAA Eagle Real Estate Fund	2015	Core Portfolio	60,000,000	57,074,285	3,871,707	62,057,737	1.17	8.4%
Brookfield Premier Real Estate Partners	2016	Core Portfolio	91,000,000	94,018,953	3,018,953	104,456,682	1.15	12.7%
Exeter Industrial Core Club Fund II	2016	Core Portfolio	28,000,000	13,888,000	1,179,425	14,831,670	1.14	14.0%
Jamestown Premier Property Fund	2016	Core Portfolio	48,721,196	42,435,162	16,314,185	33,986,503	1.19	11.0%
NYCRS Artemis Co-Investment	2016	Core Portfolio	53,000,000	29,285,303	16,214,491	20,576,733	1.26	28.7%
Carlyle Property Investors	2017	Core Portfolio	91,000,000	91,991,645	991,645	93,068,039	N/M	N/M
Lion Industrial Trust - 2007	2017	Core Portfolio	60,000,000	62,636,049	2,636,049	69,511,916	1.16	13.3%
Heitman Core Real Estate Debt Income Trust	2018	Core Portfolio	45,000,000	-	-	-	N/A	N/A
Canyon-Johnson Urban	2002	Non-Core Portfolio	15,000,000	13,742,215	16,418,450	-	1.20	11.1%
Blackstone Fund IV	2004	Non-Core Portfolio	30,000,000	38,393,533	48,700,943	5,228,792	1.41	10.2%
The City Investment Fund I	2004	Non-Core Portfolio	225,000,000	221,883,300	224,384,800	343,280	1.01	0.3%
Tishman Speyer Citigroup Alt Inv V&VI NYC	2004	Non-Core Portfolio	100,000,000	71,066,452	261,908,690	-	3.72	63.2%
Canyon Johnson Urban Fund II	2005	Non-Core Portfolio	40,000,000	35,954,815	15,898,610	135,610	0.45	-10.5%
AREA Real Estate Investment Fund V, LP	2006	Non-Core Portfolio	25,000,000	25,000,000	16,095,820	8,887,748	1.00	0.0%
American Value Partners Fund I	2007	Non-Core Portfolio	55,000,000	39,320,163	37,401,606	9,271,147	1.19	3.6%
Blackstone Real Estate Partners VI	2007	Non-Core Portfolio	110,000,000	123,381,730	226,830,854	17,878,345	1.99	13.3%
Carlyle Realty Partners V	2007	Non-Core Portfolio	20,000,000	25,687,702	29,494,723	6,290,210	1.57	8.3%
Metropolitan Workforce Housing Fund	2007	Non-Core Portfolio	14,000,000	14,013,027	16,469,642	555,097	1.21	3.9%
Thor Urban Property Fund II	2007	Non-Core Portfolio	40,000,000	53,539,330	54,781,253	18,563,422	1.37	9.1%
UrbanAmerica II 1	2007	Non-Core Portfolio	25,000,000	23,222,798	2,626,813	-	0.11	-25.0%
Westbrook Real Estate Fund VII	2007	Non-Core Portfolio	40,000,000	43,720,326	40,290,913	12,379,067	1.20	3.3%
AREA European Real Estate Fund III, LP	2008	Non-Core Portfolio	30,000,000	30,487,500	32,477,500	2,493,387	1.15	3.5%
Blackstone Real Estate Partners Europe III	2008	Non-Core Portfolio	50,000,000	51,804,807	61,458,009	19,881,325	1.57	12.8%
Capri Urban Investors	2008	Non-Core Portfolio	60,000,000	60,000,000	27,538,270	17,121,667	0.74	-4.4%
JPM Urban REN PTY FD	2008	Non-Core Portfolio	16,360,625	4,206,523	4,206,523	-	1.00	0.0%
PRISA III	2008	Non-Core Portfolio	50,000,000	108,966,417	48,567,918	149,062,411	2.47	12.4%
Silverpeak Legacy Partners III	2008	Non-Core Portfolio	50,000,000	23,434,621	3,213,833	5,209,228	0.32	-12.2%

Information provided by the New York City Retirement Systems Consultants. Interim returns are subject to change and may differ due to differences in accounting and performance methodologies.

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Stockbridge Real Estate Fund III	2008	Non-Core Portfolio	27,000,000	26,998,145	16,829,753	14,617,738	1.16	2.4%
BlackRock Carbon Capital III Co-Investments	2009	Non-Core Portfolio	40,000,000	43,757,162	53,189,633	-	1.24	8.9%
Walton Street Real Estate Fund VI	2009	Non-Core Portfolio	50,000,000	44,323,933	47,860,267	20,090,904	1.53	9.2%
Westbrook Real Estate Fund VIII	2009	Non-Core Portfolio	50,000,000	59,496,663	67,851,469	10,572,516	1.32	11.8%
Canyon Johnson Urban Fund III	2010	Non-Core Portfolio	30,000,000	29,971,216	40,371,580	36,427	1.34	11.9%
Carlyle Realty Partners VI	2011	Non-Core Portfolio	70,000,000	75,492,160	101,204,863	14,508,347	1.54	21.9%
H/2 Special Opportunities Fund II	2011	Non-Core Portfolio	40,000,000	39,999,999	46,343,790	14,844,666	1.50	14.9%
Blackstone Real Estate Partners VII	2012	Non-Core Portfolio	170,000,000	207,793,846	197,214,435	141,732,456	1.67	18.8%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	100,000,000	118,076,518	106,321,602	108,989,307	1.91	22.1%
Taconic New York City Investment Fund LP	2012	Non-Core Portfolio	70,000,000	28,954,546	46,945,824	3,277,460	1.73	15.7%
Blackstone Real Estate Partners Europe IV	2013	Non-Core Portfolio	169,000,000	162,363,069	129,542,515	114,086,837	1.51	17.7%
KTR Industrial Fund III	2013	Non-Core Portfolio	40,000,000	18,186,884	28,372,400	-	1.56	40.5%
Lone Star Real Estate Fund III	2013	Non-Core Portfolio	100,000,000	93,741,548	92,500,181	35,829,782	1.33	16.5%
NYC Asset Investor #1 LLC (Vanbarton)	2013	Non-Core Portfolio	50,000,000	55,554,792	10,074,440	61,125,137	1.28	8.9%
NYC Asset Investor #3 LLC (Hudson)	2013	Non-Core Portfolio	50,000,000	30,327,480	5,232,494	33,392,185	1.27	12.1%
Carlyle Realty Partners VII	2014	Non-Core Portfolio	80,000,000	64,040,488	18,193,206	62,482,623	1.29	14.6%
Divco West Fund IV	2014	Non-Core Portfolio	23,000,000	22,334,462	32,028,057	4,726,892	1.65	26.7%
H/2 Special Opportunities Fund III	2014	Non-Core Portfolio	65,000,000	65,000,000	22,756,872	57,814,738	1.23	13.3%
Avanath Affordable Housing Fund II	2015	Non-Core Portfolio	8,000,000	7,873,753	190,326	10,607,558	1.37	13.2%
Blackstone Real Estate Partners VIII	2015	Non-Core Portfolio	151,000,000	94,154,935	32,312,518	86,419,325	1.26	17.8%
European Property Investors Special Opp IV	2015	Non-Core Portfolio	49,178,496	23,083,852	2,093,622	24,582,485	1.16	14.5%
Divco West Fund V	2016	Non-Core Portfolio	60,000,000	17,619,831	43,068	17,800,745	1.01	1.6%
Exeter Industrial Value Fund IV	2016	Non-Core Portfolio	30,000,000	6,000,000	-	6,351,273	N/M	N/M
H/2 Special Opportunities Fund IV	2016	Non-Core Portfolio	91,000,000	10,632,041	740,287	9,109,359	0.93	-6.8%
Pramerica Real Estate Capital VI	2016	Non-Core Portfolio	61,649,200	24,322,419	8,978,510	19,780,612	1.27	33.7%
PW Real Estate Fund III LP	2016	Non-Core Portfolio	46,748,831	18,995,083	3,696,926	28,885,629	1.72	62.2%
Westbrook Real Estate Fund X Co-Investment	2016	Non-Core Portfolio	36,000,000	12,379,964	1,326,315	12,072,649	1.08	10.6%
Basis Investment Group Real Estate Fund I	2017	Non-Core Portfolio	17,000,000	3,436,276	260,851	3,462,450	N/M	N/M
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	49,000,000	17,921,330	3,320,890	17,031,674	1.14	22.4%
DRA Growth and Income Fund IX Co-investment	2017	Non-Core Portfolio	17,000,000	-	-	-	N/A	N/A
NYCRS-KKR CMBS Retention Partners	2017	Non-Core Portfolio	122,000,000	55,073,495	2,053,544	54,372,323	N/M	N/M
Brookfield Strategic Real Estate Partners III	2018	Non-Core Portfolio	170,000,000	-	-	-	N/A	N/A
KKR Real Estate Partners Americas II	2018	Non-Core Portfolio	118,700,000	3,033,950	-	2,400,218	N/M	N/M

Information provided by the New York City Retirement Systems Consultants. Interim returns are subject to change and may differ due to differences in accounting and performance methodologies.

# Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year	Original Commitment	Total Contributions	Total Disturbutions	Market Value	Total Value Multiple	Net IRR%
<b>TOTAL INFRASTRUCTURE</b>		896,435,059	349,036,177	61,946,622	366,278,074	1.23	13.4%
<b>TOTAL INFRASTRUCTURE INVESTMENTS</b>							
Brookfield Infrastructure Fund II, L.P.	2013	75,000,000	59,326,594	11,786,357	70,397,215	1.39	13.1%
KKR Global Infrastructure Investors II L.P.	2014	77,000,000	65,111,822	5,890,594	67,526,500	1.13	11.5%
IFM Global Infrastructure Fund	2014	75,000,000	90,942,097	15,942,097	107,262,172	1.35	13.2%
Global Energy & Power Infrastructure Fund II	2014	45,000,000	27,741,040	20,457,091	20,402,997	1.47	47.9%
Global Infrastructure Partners III-A/B, L.P.	2016	106,000,000	42,048,862	1,511,172	38,150,738	94.3%	-7.2%
Brookfield Infrastructure Fund III, L.P.	2016	91,000,000	17,598,806	1,745,141	19,671,862	NM	NM
Actis Energy 4	2016	64,300,000	19,055,674	3,346	18,307,000	NM	NM
NYCRS EIG Energy Partners, L.P.	2017	65,880,000	3,163,545	-	3,208,044	NM	NM
EQT Infrastructure III (No.2) SCSp	2017	58,777,038	19,298,621	2,337,792	18,020,881	NM	NM
Axiom Infrastructure North America	2017	68,508,021	224,963	-	4,844	NM	NM
ASF VII Infrastructure L.P.	2017	66,000,000	4,524,154	2,273,032	3,325,821	NM	NM
NYCRS EIG Energy Partners Co-Investment, L.P.	2018	16,470,000	-	-	-	NM	NM
KKR Global Infrastructure Investors III L.P.	2018	87,500,000	-	-	-	NM	NM

Information provided by the New York City Employees' Retirement System Consultants

# Alternative Assets Manager Performance Detail

Through June 30, 2018



	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
<b>TOTAL OPPORTUNISTIC FIXED INCOME</b>		2,530,587,091	2,377,030,821	1,142,914,857.85	1,871,594,346	2.39%	7.92%
Avenue Special Situations Fund V, L.P.	2007	75,784,973	76,951,175	100,600,875.00	-		NM
Avenue Europe Special Sit. Fund, L.P.	2008	32,104,624	27,839,090	53,703,162.08	-		NM
PIMCO DiSCO Fund, L.P.	2008	150,000,000	150,427,750	204,457,598.81	-		11.23%
Alliance Bernstein PPIP Fund, L.P.	2009	41,697,493	41,697,493	57,295,571.07	-		15.51%
AG GECC PPIP Fund, L.P.	2010	27,000,000	27,052,129	41,724,862.00	-		20.19%
Avenue Special Situations Fund VI (A), L.P.	2011	70,000,000	71,766,544	70,762,921.00	5,622,690.00	3.80%	1.47%
GoldenTree Managed Account	2011	140,000,000	131,253,192	-	198,983,608.20	-0.26%	7.30%
Marathon Centre Street Partnership, L.P. - Asset Class	2011	218,750,000	271,250,000	70,000,000.00	297,290,522.47	1.21%	7.33%
AG Centre Street Partnership, L.P. - CC Asset Class	2012	180,000,000	142,200,000	47,626,130.00	141,303,594.00	5.46%	6.24%
Apollo Centre Street Partnership, L.P.	2012	268,750,000	329,468,982	156,224,593.00	219,097,194.86	3.35%	4.76%
FCO MA Centre Street L.P.	2012	140,000,000	231,404,937	143,623,310.56	138,353,057.00	1.67%	9.23%
OHA Centre Street Partnership, L.P.	2012	175,000,000	213,384,986	56,311,815.12	224,207,866.90	1.95%	8.16%
Contrarian Centre Street Partnership, L.P. - Asset Class	2013	90,000,000	90,000,000	-	109,989,510.07	3.75%	6.19%
Lone Star Fund VIII (U.S.), L.P.	2013	100,000,000	98,438,980	91,740,448.64	31,575,007.37	1.53%	14.67%
Oaktree Opportunities Fund IX, L.P.	2013	100,000,000	100,000,000	32,895,430.47	80,123,797.00	3.53%	3.22%
Ares Centre Street Partnership, L.P.	2014	140,000,000	128,117,072	-	167,905,366.40	2.19%	10.04%
Brightwood Capital Fund III, L.P.	2015	35,000,000	28,403,806	8,481,969.60	24,186,075.00	2.72%	5.51%
Torchlight Debt Opportunity Fund V, LP	2015	67,000,000	40,200,000	2,374,573.00	47,795,774.00	5.39%	15.82%
Brightwood Capital Fund IV, LP	2016	87,500,000	17,500,000	2,001,599.00	17,913,383.00	0.29%	12.00%
ICG Centre Street Partnership, L.P.	2017	120,000,000	88,274,685	3,089,998.50	88,415,686.39	1.04%	6.92%
KKR OFI SMA	2017	272,000,000	71,400,000	-	78,831,213.13	5.25%	39.69%

Information provided by Alpha Frontier  
Above data is not final and subject to change

# Alternative Assets Manager Performance Detail

Through June 30, 2018



	Market Value	MTD Return%	3 Month Return%	FYTD Return%	YTD Return%	1 Year Return%	3 Year Return%	ITD Return%	ITD Cumulative Return%
<b>TOTAL HEDGE FUNDS</b>	66,577,288	-0.50%	6.43%	8.43%	4.58%	8.43%	2.33%	3.39%	26.28%
<b>TOTAL DIRECT HEDGE FUNDS</b>	66,577,288	-0.50%	6.43%	9.24%	4.58%	9.24%	2.68%	4.55%	33.50%
<b>FUND OF FUNDS HEDGE FUNDS</b>	-	0.00%		0.79%	0.00%	0.79%	-0.53%	1.83%	12.03%
<b>TOTAL DIRECT HEDGE FUNDS</b>									
Brevan Howard L.P.	56,933,945	-0.57%	7.41%	8.67%	8.03%	8.67%	1.62%	1.91%	12.91%
Tactical Trading	56,933,945	-0.57%	7.41%	8.67%	8.03%	8.67%	3.27%	2.15%	14.63%
Luxor Capital Partners Liquidating SPV, LLC.	2,490,245	4.35%	4.08%	20.55%	-0.41%	20.55%		13.86%	29.65%
Perry Partners L.P.	7,153,098	-1.47%	-0.01%	-1.11%	-10.03%	-1.11%	-4.55%	-2.75%	-13.21%
Event Driven	9,643,343	-0.03%	1.01%	4.66%	-9.06%	4.66%	-2.24%	0.52%	2.87%
<b>FUND OF FUNDS HEDGE FUNDS</b>									
Fund of Funds Hedge Funds	-	0.00%		0.79%	0.00%	0.79%	-0.53%	1.83%	12.03%

Information provided by Alpha Frontier

**New York City  
Employees' Retirement System**

# Appendix D

## Footnotes

Through June 30, 2018



- The Barclays Capital Aggregate (then known as the Lehman Brothers Aggregate) was used prior to 1/1/89. Effective 1/1/89, in the Government Sector, maturities of less than 5 years were dropped from the Salomon and Lehman indices. From that date until 7/1/99 the benchmark was the NYC Core + 5, from Lehman.
- Effective 7/1/94, the NYC Core + 5 Index includes BBB rated securities.
- Effective 7/1/99, the basis of the NYC Index was changed from Lehman Brothers to Salomon. Also effective 7/1/99, only Salomon indices have been used to compare all fixed income managers.
- Effective 4/1/03, the name of the benchmark provider was changed from Salomon to Citigroup.
- Effective 7/1/03 the “NYC-Loomis” benchmark index for the Loomis Sayles Enhanced Yield portfolio reflects a change from the Citigroup BB&B Index to the more appropriate Merrill Lynch High Yield Master II Index.
- Effective 7/1/09, the Core+5 program was restructured.
  - The U.S. Gov’t sector benchmark Index was changed from the Citigroup Core+5 Treasury/Gov’t Sponsored Index to the Citigroup Core+5 Treasury/Agency Index.
  - The Corporate and Yankee sectors were combined to form the new Investment Grade Credit sector. The benchmark for the new combined sector is the customized Citigroup Credit Index. For historical performance purposes, the old Corporate sector Index is linked to the new Credit sector Index.
  - There were no changes to the Mortgage sector Index.
  - The total Core+5 results and benchmark returns combine the three sectors. Historical total Core+5 returns continue to include the old Corporate and Yankee sector returns.
- Effective 11/1/10 The NCREIF NPI policy index was replaced with the NCREIF NFI ODEC net Index retroactively.
- Effective 6/1/11 The Opportunistic Fixed NYC-CORE PLUS 5 + 200BPS policy index was replaced with the NYC-10% ANNUAL RETURN primary and JP MORGAN GLOBAL HIGH YIELD PLUS 3% secondary indices retroactively.
- Effective 8/1/11 The Hedge Funds Primary benchmark is the 1 YEAR TREASURY BILL YIELD + 4% and the secondary benchmark is the HFRI FUND OF FUNDS COMPOSITE INDEX + 1%.



## General Notes

- Estimated management fees for public market investments are calculated on an accrual basis without adjustment for management fee caps. Alternative investment fees are recorded on a cash basis. Since not all alternative managers currently provide detailed fee disclosure, the alternative investment fees noted here are not comprehensive.
- Public Market returns are Net of Manager Fees for periods after January 2014 and Gross of investment advisory fees for other periods unless otherwise indicated.
- Public market excess returns for periods prior to 2014 are based on Gross performance.

## Page Specific

### Pages 8 - 13 - Portfolio Asset Allocation

- Rebalancing Ranges: the minimum and maximum weights that actual Asset Allocation may reach before rebalancing between Asset Classes is necessary.

### Pages 14 -16 - Performance Attribution: Total Plan

- Plan Return at Policy Weights: the return of the Total Plan assuming actual Asset Class results were maintained at target (Adjusted Policy) weights. *Figure = (Return of Asset Class 1\* Target Weight) plus (Return Of Asset Class 2\* Target Weight) plus (.....)*
- **Allocation Effect** = Total Plan Return minus Plan Return at Adjusted Policy Weights. Allocation is the Contribution to Performance resulting from an overweight or underweight to an asset class. E.g. an underweight to an Asset Class that under-performs results in a positive Allocation Effect and vice versa.
- **Selection Effect** = Equal to the Custom Benchmark (Adjusted Policy Index) Return minus Plan Return at Adjusted Policy Weights. This illustrates how the Managers have added or removed value based on their Security Selection decisions, e.g., *If the manager's Actual Returns are higher than the Implied Return there will be a positive Selection Effect.*
- **Policy Index = Custom Benchmark**  
*The "policy index" is a custom benchmark representing the weighted average return of the weighted benchmark indexes for each major investment program. Weights may reflect an adjustment of actual policy for outstanding commitments for new or revised programs, such as for private market programs, which are invested gradually, or for any new or updated program requiring the completion of RFPs and contracts. The policy index/custom benchmark is calculated monthly based on adjusted policy weights at the beginning of each month.*

## Glossary of Terms

Through June 30, 2018



*The indexes and most recent policy weights are as follows:*

*U.S. Equity: Russell 3000 \* 31.32%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI\* 12.69%*

*Emerging Markets: FTSE Custom NYCRS Emerging Markets \* 6.97%*

*International Emerging Managers FOF: NYC Blended Custom Benchmark for FoF\* 0.65%*

*REITs: Dow Jones Real Estate Securities \* 0.00%*

*Private Equity: Russell 3000 + 300 b.p. per annum \* 6.97%*

*Private Real Estate – Core: NFI - ODCE Net \* 3.30%*

*Private Real Estate – Non Core: NFI - ODCE Net + 200bps \* 1.95%*

*Infrastructure: CPI + 4% \* 0.60%*

*Hedge Funds: HFRI Fund of Funds Composite Index plus 1% \* 0.00%*

*US Treasury Short Term: FTSE USBIG Treasury 1-3Y \* 0.00%*

*US Treasury Intermediate: FTSE USBIG Treasury/Agency 1-10Y \* 0.00%*

*Active Government: NYC Treasury Agency + 5 \* 10.66%*

*Core FI-Developing Managers: BBG Barc Agg \* 0.00%*

*Core FI-Emerging Managers: BBG Barc Agg \* 0.00%*

*Mortgage: FTSE Mortgage Index \* 3.55%*

*ETI: ETI Custom Benchmark \* 1.26%*

*Investment Grade Credit: NYC – Investment Grade Credit \* 4.81%*

*High Yield: FTSE BB&B \* 6.09%*

*Bank Loans: Credit Suisse Leveraged Loan \* 2.00%*

*TIPS: BBG BARC Gbl Inf-Lk: US TIPS \* 4.35%*

*Convertible Bonds: BofAML All Convertibles Ex Mandatory \* 0.00%*

*Opportunistic Fixed: OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum \* 2.82%*

### **Page 17 – Allocation and Selection Effects - Asset Class Breakdown**

- This chart aims to break down the Allocation and Selection Effects shown on the Performance Attribution pages. The aim of the Page is to show the asset classes where Managers are either out performing or under performing their benchmark and to show the basis point effect that this is having on Plan performance.