



New York City
Fire Department Pension Fund, Subchapter Two
Performance Overview as of June 30, 2017

Total Fund Overview

New York City Fire Department Pension Fund, Subchapter Two

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Through June 30, 2017



Equity Markets

Global equities recorded another quarter of gains amid a solid corporate earnings season and generally positive economic data. Similar to the first quarter, growth stocks outperformed value and large-cap stocks bested small-cap equities. The S&P 500 Index returned 3.1% despite some mixed economic data and political uncertainty around the ability of the White House to push through its policies. Healthcare stocks rallied as the Senate proposed a new industry-friendly plan to reform the nation's healthcare system. Non-US developed markets posted gains of 6.1%, according to the MSCI EAFE Index. France and Switzerland led the pack with gains of around 9.0%, while Australia lagged with losses of 1.9%. The euro's appreciation versus the US dollar remained a tailwind for US dollar-centric investors. Emerging market equities led the fray with gains of 6.3%, according to the MSCI EM Index. China, Korea and Taiwan were the biggest winners with returns of 10.7%, 10% and 9.2%, respectively; Russia fell behind, losing 9.8%. Within sectors, information technology gained 15.5% and consumer discretionary returned 8.4%; energy lost 4.8% while utilities declined by 1.6%. In private equity, fundraising remained robust at \$121 billion. While only 12% of buyout deals totaled \$1 billion or more, they accounted for 71% of aggregate value.

Fixed Income Markets

Fixed income gained 1.4% in the second quarter, according to the Barclays Aggregate Index, bringing the index's year-to-date performance to 2.3%. High-yield debt outperformed bank loans, returning nearly 5% so far this year compared to 2% for bank loans. Emerging markets debt in hard currency gained 2.4% in the second quarter; local currency-denominated securities outperformed, up 3.6%, fueled by a boost to emerging market currencies (which returned 1.9% in the quarter), bringing total returns for the JP GBI- EM Index to over 10% in 2017. We remain positive on emerging market debt, especially local-currency denominated issues. We favor leveraged loans to high-yield bonds from a relative value standpoint. In private debt, fundraising totaled \$16 billion. In private lending, the US core-middle market offers attractive risk-adjusted returns, given the stage of the credit cycle. With European banks still exiting leveraged loans due to regulatory pressures, the manager universe in Europe has become tiered with stronger managers enjoying superior deal flow and performance. Within hedge funds, relative-value strategies posted moderate gains as rates increased and US yields were little changed. Credit spreads are tight, and while markets remain on a benign trajectory, there are some pockets of opportunity in structured securities. The HFRI Relative Value Index was up 0.5% for the quarter while the HFRI Distressed/Restructuring Index eked out a modest 0.9% as default rates remain stable.

Hedge Funds

Hedge funds started the year in the black with equity strategies leading the charge; healthcare and technology sectors contributed significantly to the overall index. Fixed income-based relative-value arbitrage came a close

Through June 30, 2017



second to equities, supported by convertible bonds and credit-focused multi-strategies. Event-driven strategies tapered off towards the end of March but remained positive, posting a solid quarter. This may be attributed, in large part, to a strong restructuring environment earlier in the year, subsequently bolstered by merger arbitrage and special situations. Global macro was flat for the quarter, posting negative returns in January and March but was mildly positive in February. Quantitative, trend-following and systematic strategies were the main drivers of performance on both the upside and downside during the quarter. Equity strategies within hedge funds posted another strong quarter, gaining 2.1%, according to the HFRI Equity Hedge Index. Emerging markets led performance, returning 3.3%, according to the HFRI Emerging Markets Index. Healthcare and technology sectors contributed significantly to the overall index. Activist strategies finished the quarter at 2.6% assisted by large-scale mergers and acquisitions activity in the auto and food industries.

Private Markets

Commodities continued to retreat, declining 3% in the second quarter, according to the Bloomberg Commodity Index. Natural gas fell 9.4% as increased production and cooler than seasonal weather reduced demand for power. Precious metals decreased by 3.2% amid tepid desire for safe haven assets. Industrial metals, down 1.2%, were affected by concerns of slowing demand in China. In agriculture, weather in the Northern US plains supported Kansas City and Chicago wheat, while conditions in Brazil hindered sugar and coffee. Lean hogs led performance in livestock, which gained 11.2%. Energy fell 9.7%. North American shale production offset the effects of OPEC's extension of production cuts, fueling declines of 9.0% and 9.3%, respectively, in WTI crude and Brent crude. Within energy, our highest-conviction strategies remain in private equity as these managers appear best equipped to invest and manage assets amid what we believe will be a choppy recovery. We still believe asset selection is critical in energy; in the public markets, we favor Master Limited Partnerships, or MLPs, which have exhibited resilient cash flows. We are constructive on mining over the mid-to- longer-term and are actively seeking infrastructure opportunities; however, the impact of federal legislation remains uncertain. We remain positive on energy, negative on timber, and neutral on agriculture, infrastructure and metals and mining. In real estate, US core property markets have normalized, but fundamentals remain healthy. Future value appreciation will likely come from income growth as opposed to cap-rate compression, which remains at historical lows. Rising interest rates will place upward pressure on cap rates but we expect growth, although at a slower pace, as capital flows chase income-yielding core assets in the United States. Relative value opportunities remain within non-core US real estate. We favor niche, cash flow-driven strategies, and managers that are attentive to duration risk given the current stage of the expansion cycle. Elsewhere, capital markets constraints and pockets of distress in Europe and emerging markets may be appealing.

Through June 30, 2017



Performance (net of fees):

For the second quarter of 2017, the Fund returned 3.06%, underperforming the policy index return of 3.28%. For the one year ended June 30, 2017, the Fund returned 12.82% versus the policy index return of 12.22%. Over the trailing 3-year period, the Fund 5.73% versus the index return of 6.23%.

Equity Composite (net of fees)

For the quarter, the portfolio held \$3.94 billion (31.92% of the total fund) in domestic equity assets. The Total Domestic Equity Portfolio returned 3.00%, slightly underperforming the Russell 3000 Index return of 3.02%, by 1 basis point. The Small Cap Composite posted a return of 1.32%, underperforming the Russell 2000 Index return of 2.46%, by 115 basis points. The Mid Cap Composite posted a return of 4.97%, outperforming the Russell Midcap Index return of 2.70%, by 227 basis points. The Large Cap Composite posted a return of 2.88%, underperforming the Russell 1000 Index return of 3.06%, by 18 basis points.

For the quarter, the portfolio held \$2.07 billion (16.79% of the total fund) in international equities. The Total International Equity Portfolio returned 6.32%, outperforming the MSCI AC World ex US Index return of 5.78%, by 53 basis points.

Fixed Income Composite (net of fees)

At the end of the second quarter, the Fund held \$4.01 billion (32.50% of the total fund) in fixed income securities. The Total Fixed Income portfolio returned 1.32% in the second quarter. The Structured Fixed Income Composite returned 1.88% in the second quarter, outperforming the NYC Core plus 5 Index return of 1.82%, by 6 basis points. The Core Fixed Income Composite returned 1.49% outperforming the Barclays Capital Aggregate Index which returned 1.45% for the quarter by 4 basis points. The TIPS Composite returned -0.4%, which matched the Barclays Global Inflation Linked: US TIPS Index return. The Opportunistic Fixed composite returned 0.32%, which underperformed the 10% Annualized Return Index return of 2.41%, the composite outperformed the 50/50 J.P. Morgan Global High Yield/CS Leverage Loan +300 basis points which had a return of 2.16% for the quarter.

Real Estate Equity Securities Composite (net of fees)

As of June 30, 2017, the Fund had \$246 million (1.99% of the total fund) in Real Estate Equity Securities ("REIT"). In the second quarter of 2017, the REIT portfolio returned 2.35%, outperforming the DJ US Select Real Estate Securities Index return of 1.64%, by 71 basis points.

Through June 30, 2017



Hedge Fund Composite (net of fee)

Hedge Fund Allocations (Direct + Permal holdings):

The allocation to hedge funds as of June 30, 2017 was \$666.7 million, 5.4% of the total fund. The second quarter return for the hedge fund portfolio was 1.3%, outperforming the HFRI FOF Composite Index +1% return of 0.87% and the 1 Yr. T-bill yield + 4% return of 1.15%.

Direct Hedge Fund allocations only:

The allocation to hedge funds as of June 30, 2017 was \$615.2 million, 5.0% of the total fund. The second quarter return for the hedge fund portfolio was 1.43%, outperforming the HFRI FOF Composite Index +1% return of 0.87% and the 1 Yr. T-bill yield + 4% return of 1.15%.

Total Portfolio Returns: June 30, 2017

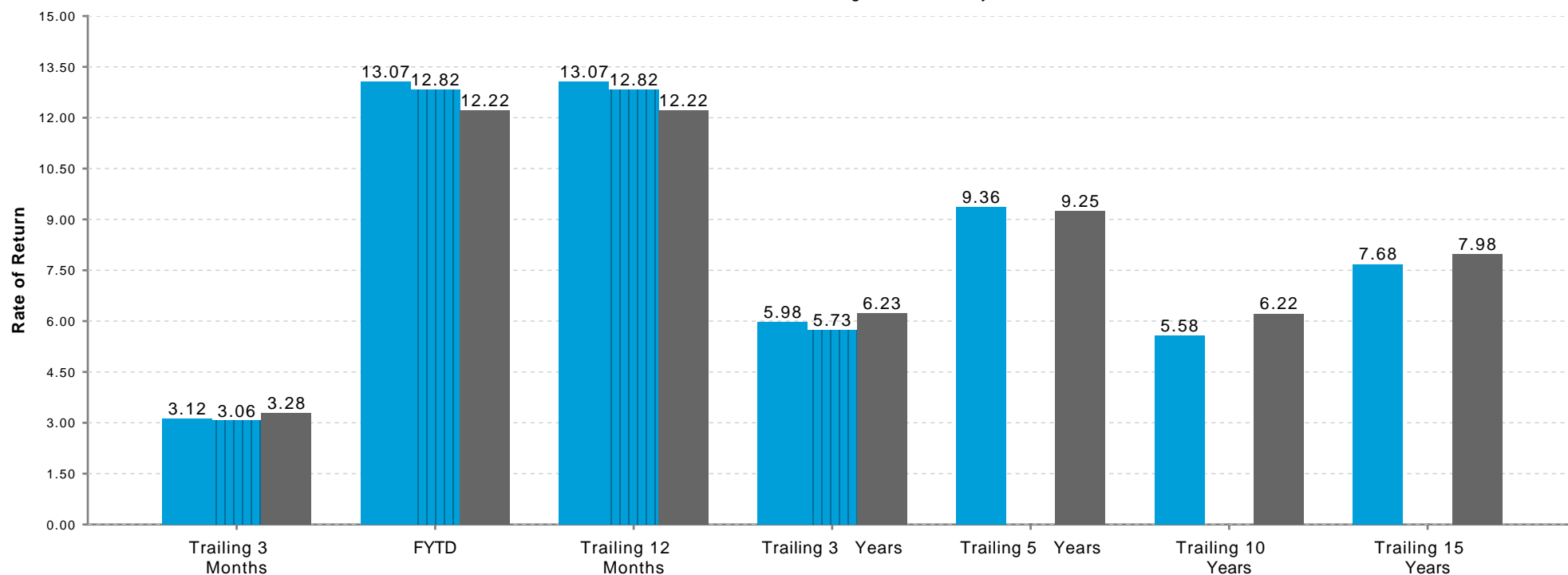


Market Value (Billions)

\$12.3

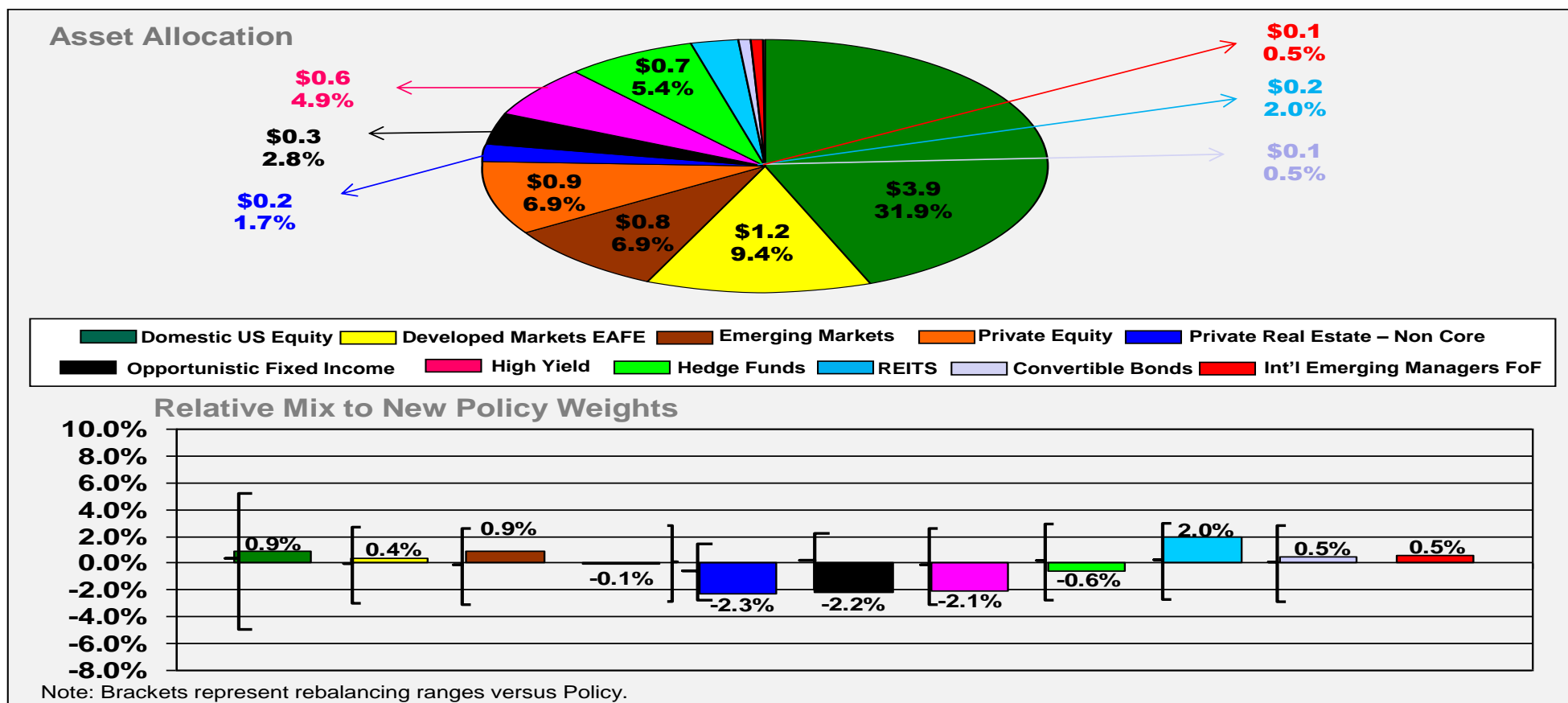
TOTAL FIRE

■ Total Fire - Gross ■ Total Fire - Net Mgr ■ Fire Policy Benchmark

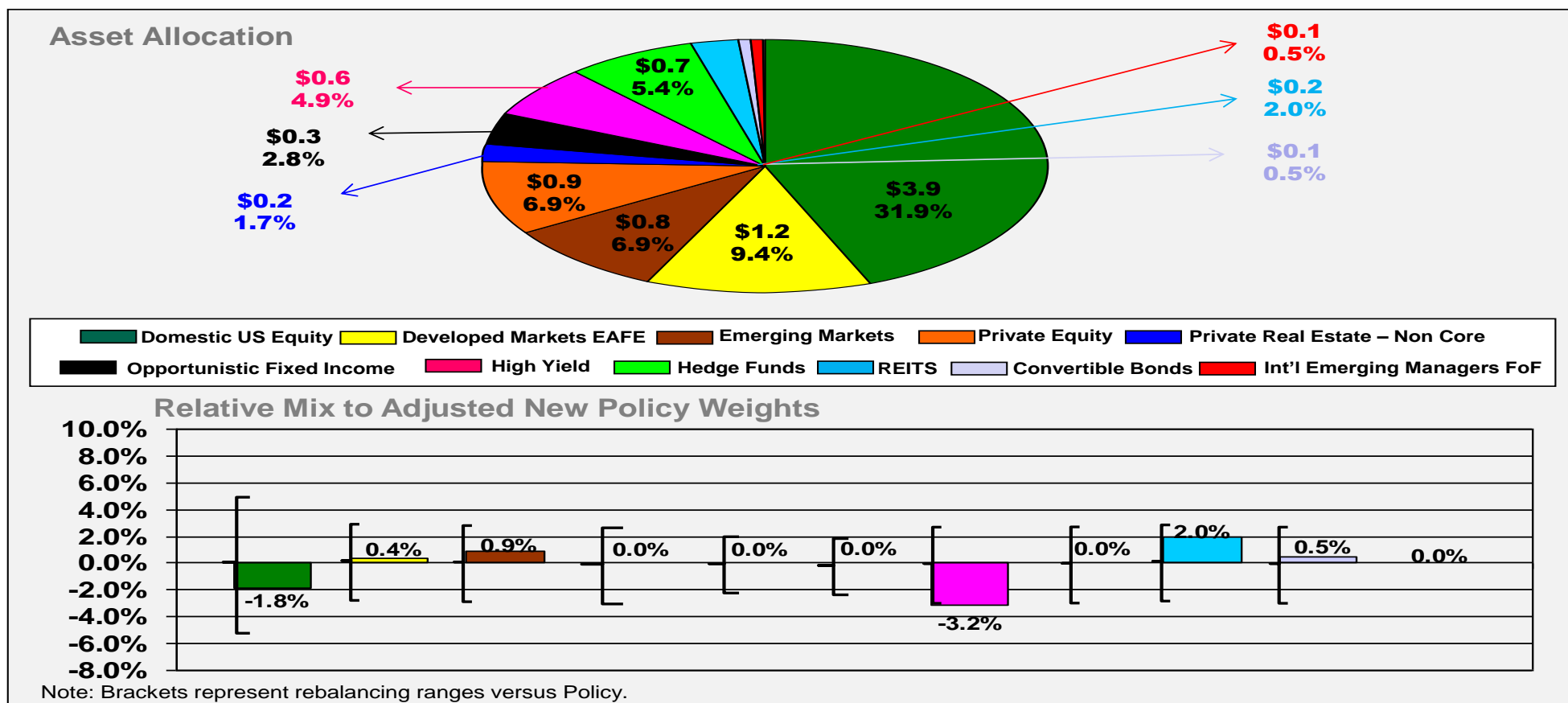


	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation						
TOTAL FIRE	5.8	5.7	9.4	5.3	10.3	11.5

Portfolio Asset Allocation – Growth :

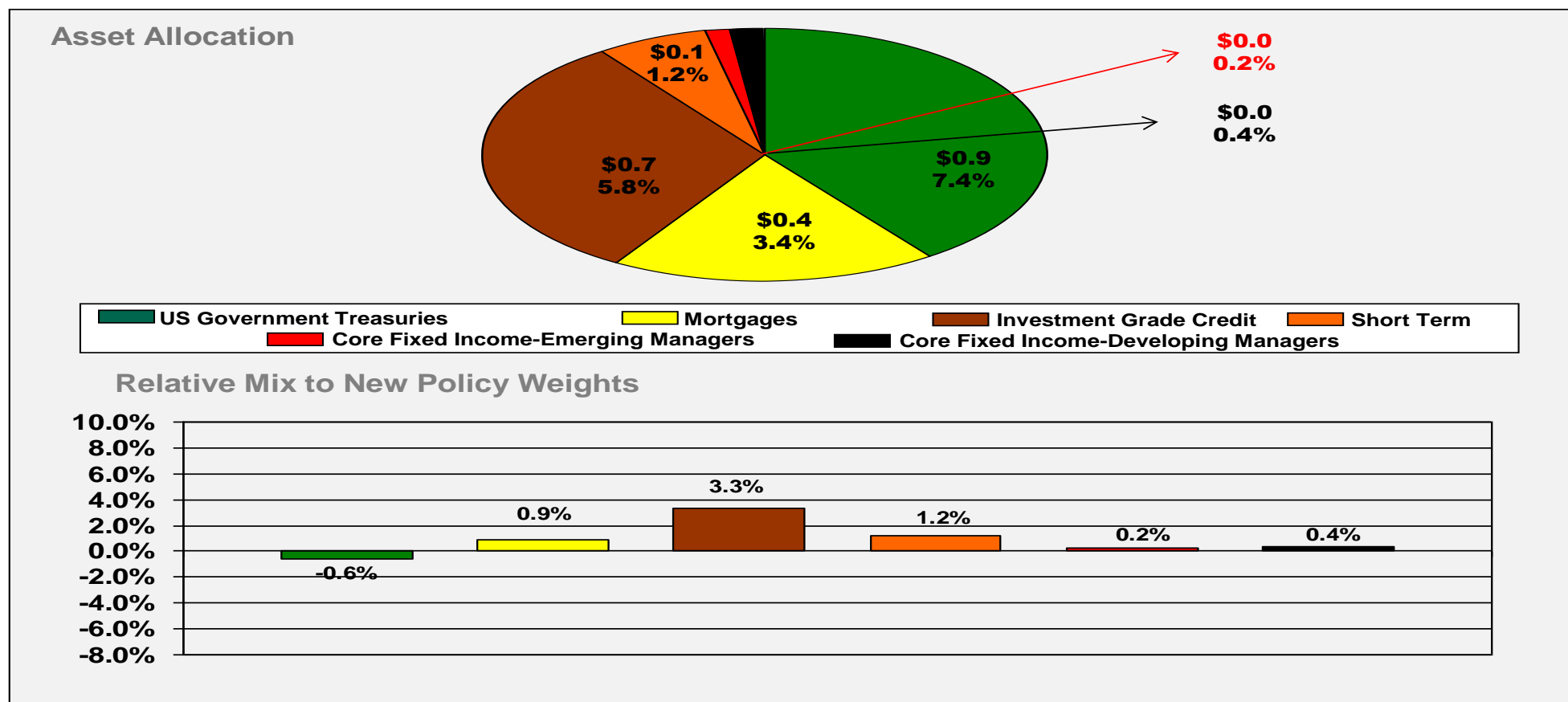


Portfolio Asset Allocation – Growth :

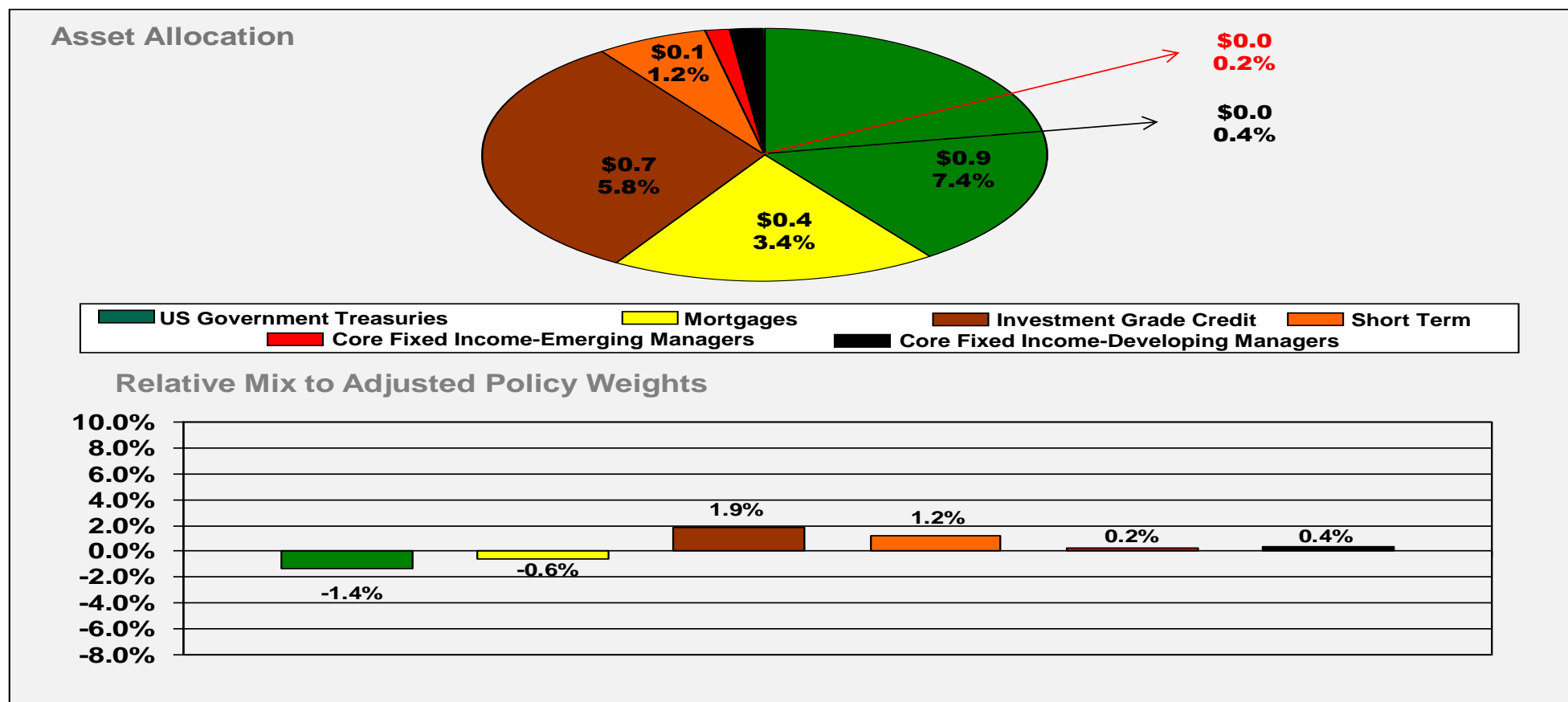


Note: On June 30, 2017 Fire's combined Fixed Income and Cash portfolios have a duration of 7 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

Portfolio Asset Allocation – Deflation Protection :

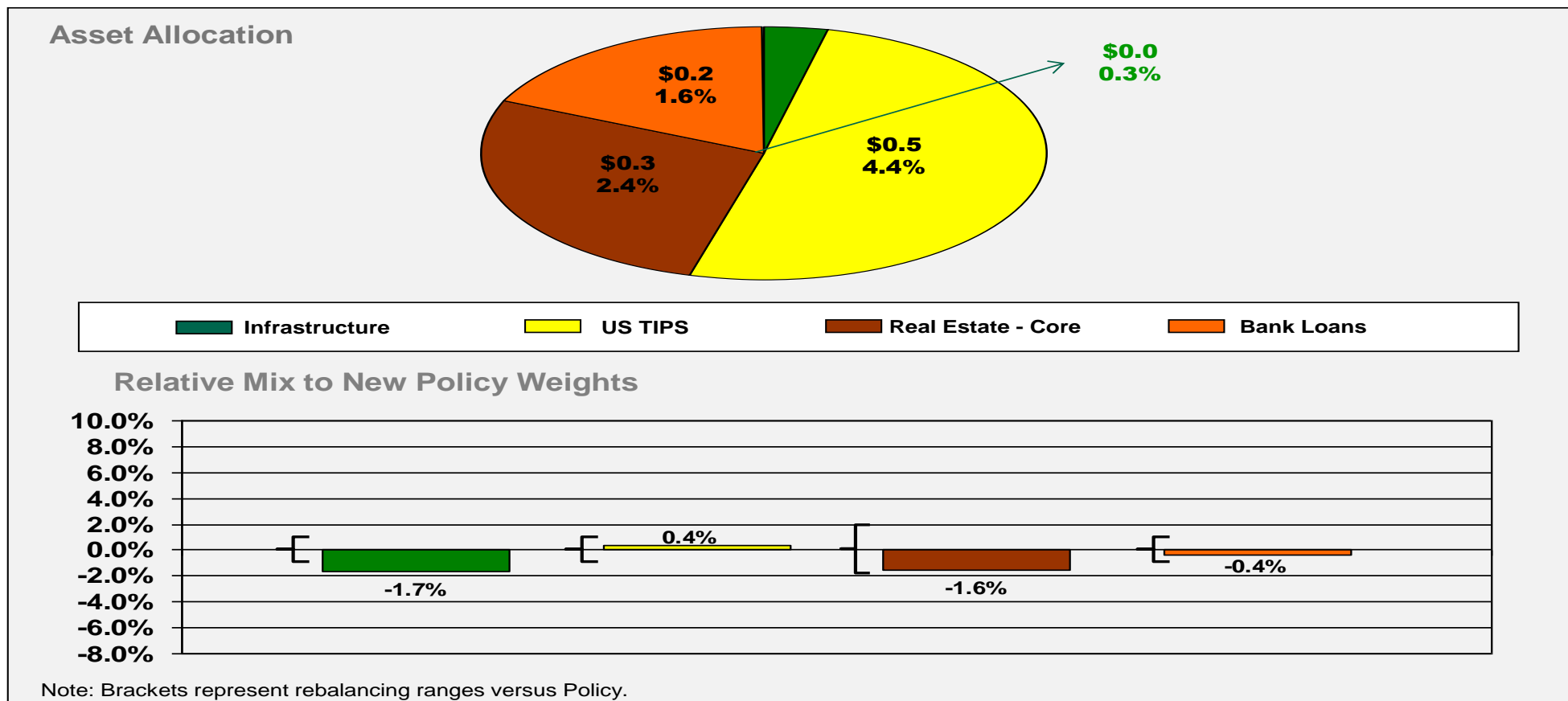


Portfolio Asset Allocation – Deflation Protection :

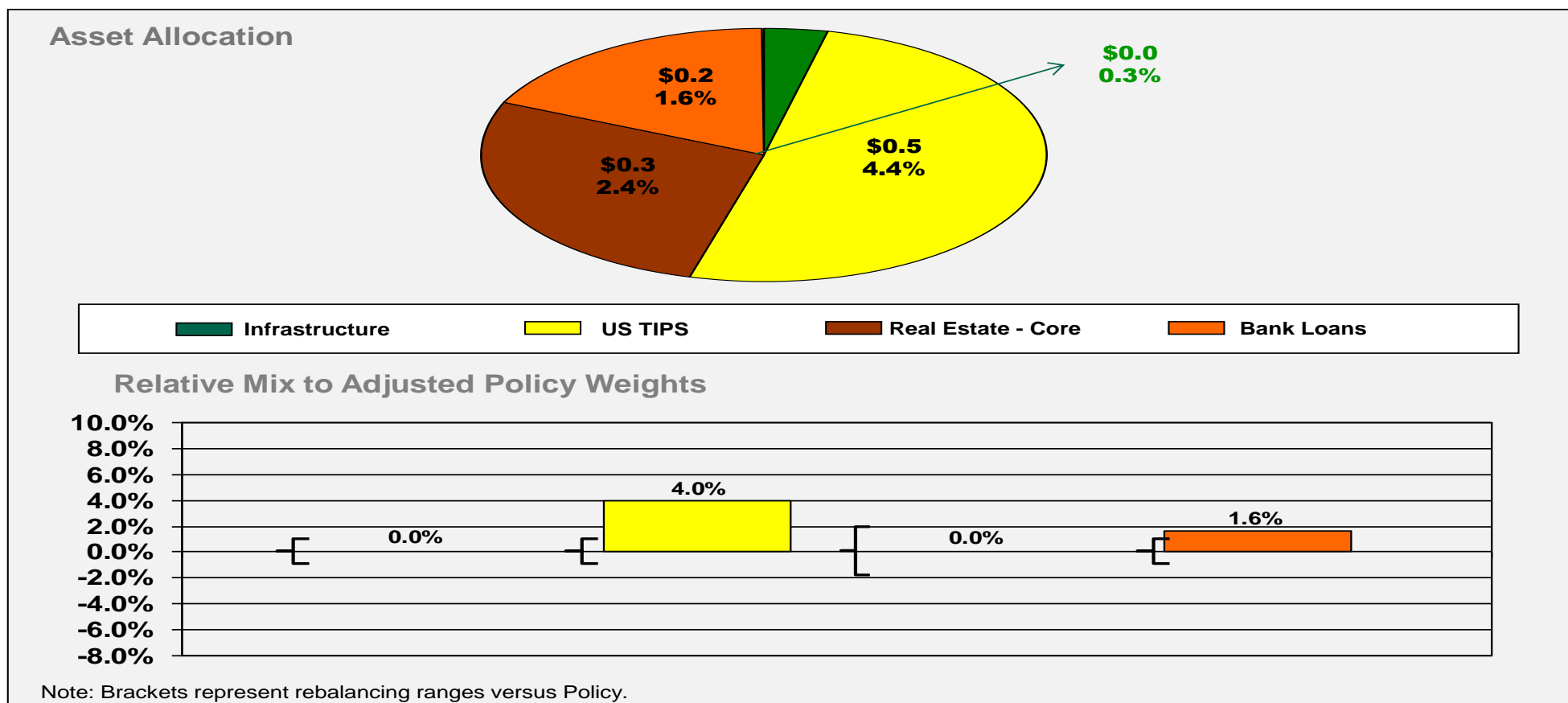


Note: On June 30, 2017 Fire's combined Fixed Income and Cash portfolios have a duration of 7 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

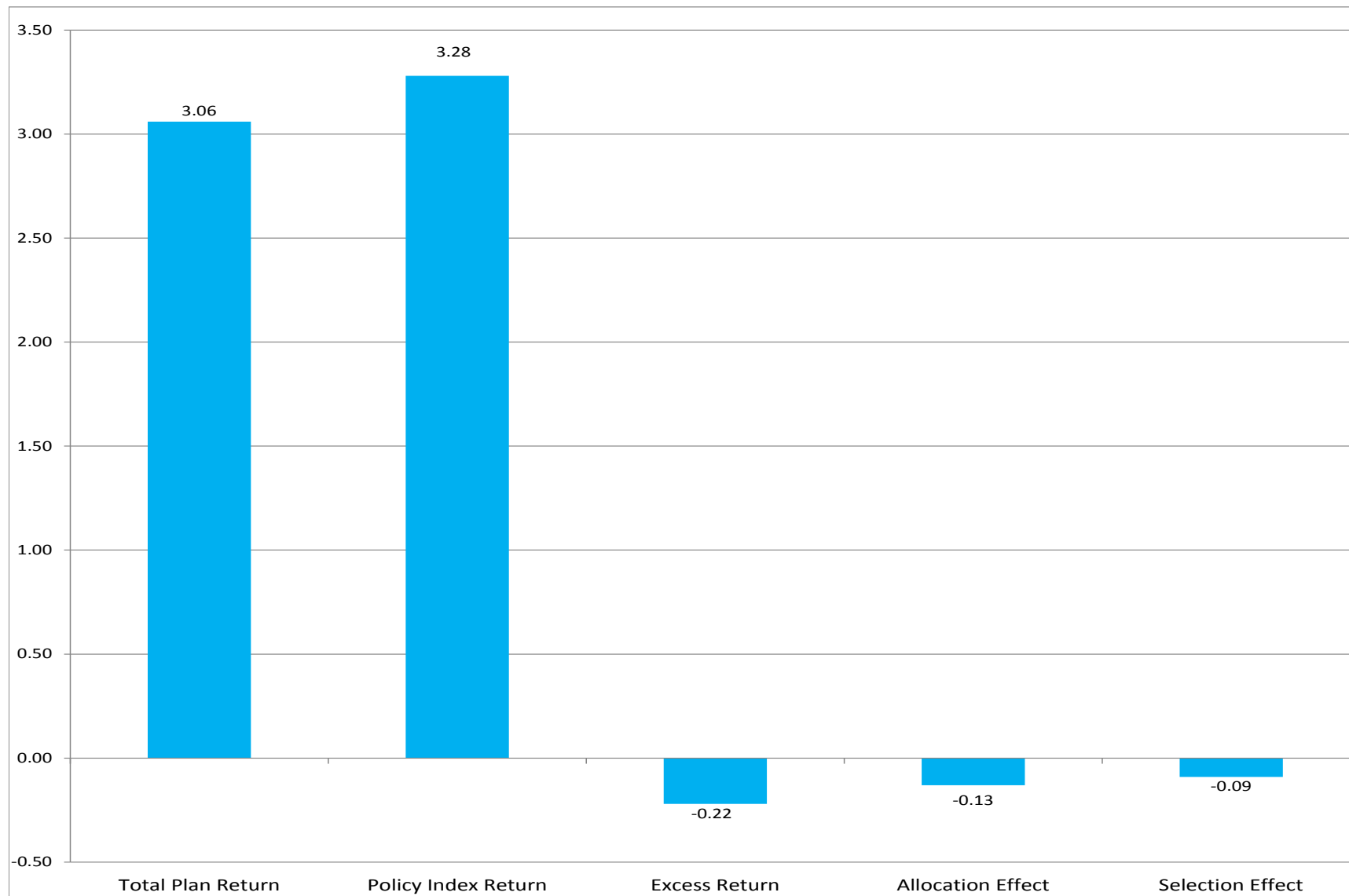
Portfolio Asset Allocation – Inflation Protection :

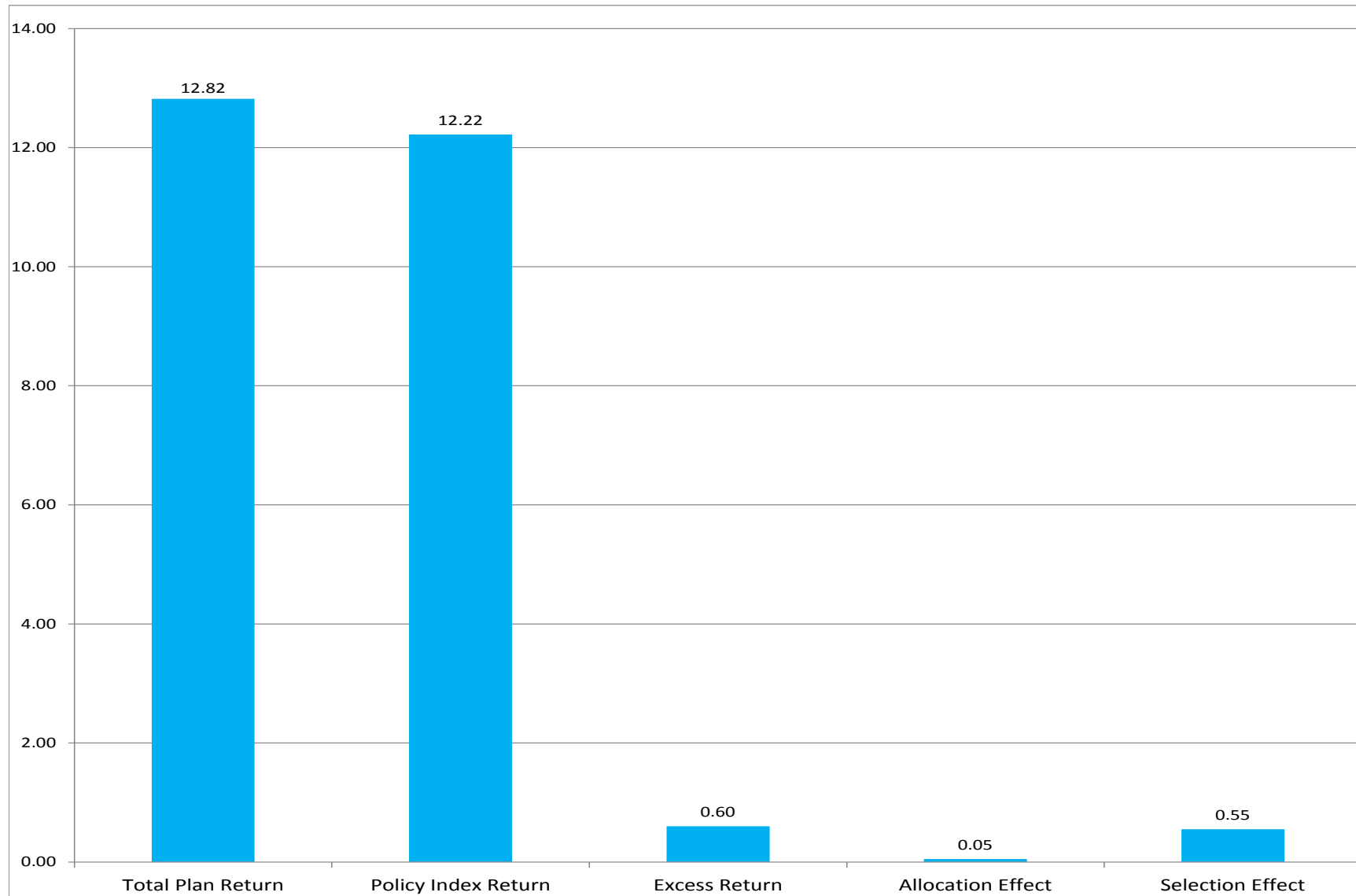


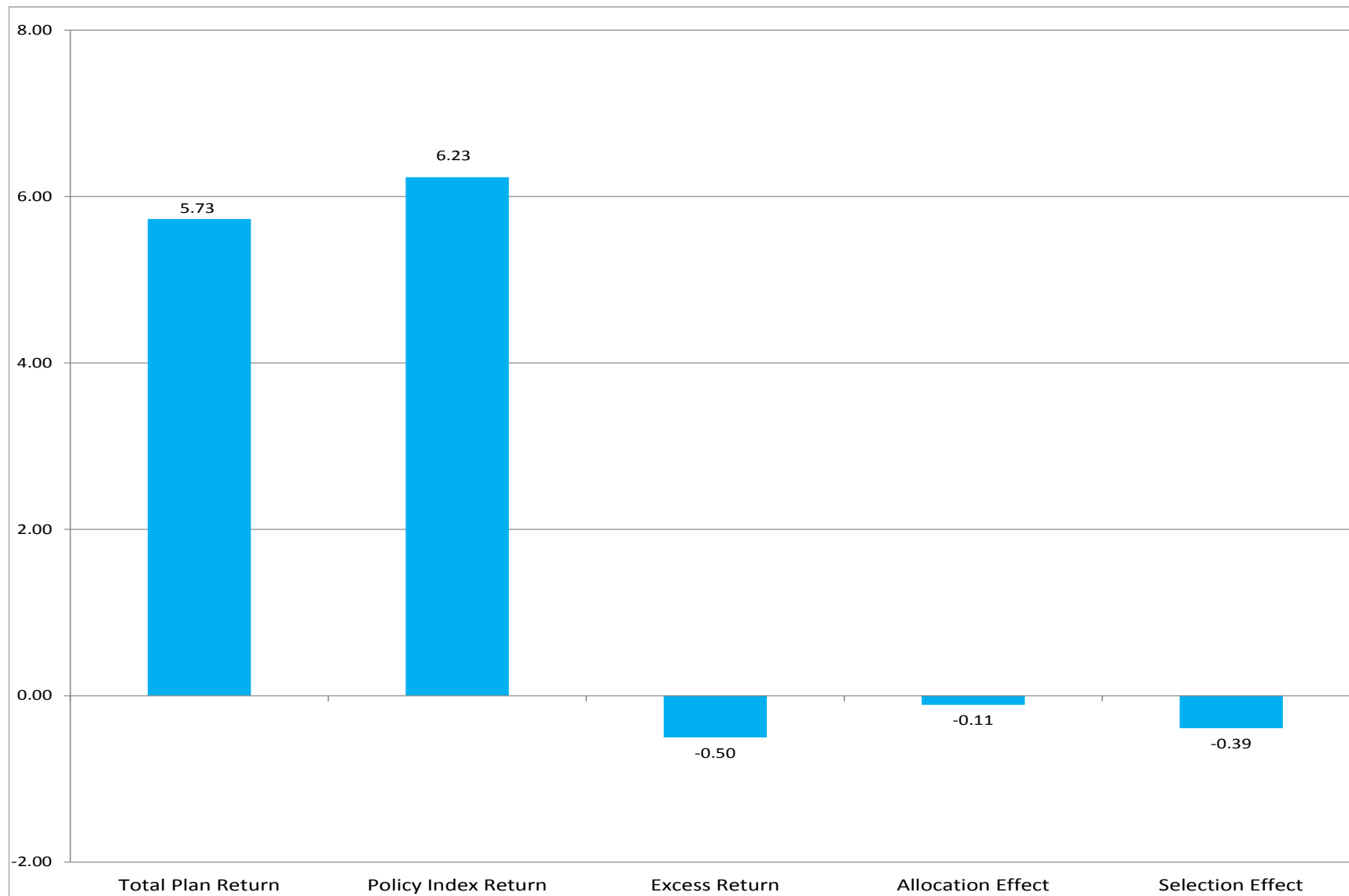
Portfolio Asset Allocation – Inflation Protection :



Note: On June 30, 2017 Fire's combined Fixed Income and Cash portfolios have a duration of 7 years. The duration of the Barclays US Aggregate Index was 6 years on that date.







Allocation Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL FIRE	-0.13	0.05	-0.11	Fire Policy Benchmark
TOTAL DOMESTIC EQUITY	0.01	0.05	0.00	RUSSELL 3000
TOTAL DEVELOPED EQUITY	0.04	0.03	0.00	MSCI EAFE IMI Net
TOTAL EMERGING MARKETS	0.03	0.04	-0.01	MSCI Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL HEDGE FUNDS	0.00	0.00	0.00	HFRI Fund of Funds Composite Index plus 1%
TOTAL REAL ESTATE SECURITIES	-0.05	-0.15	-0.04	Dow Jones US Select Securities Index
TOTAL PRIVATE EQUITY	0.00	0.00	0.00	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.00	-0.01	0.00	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.02	0.01	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	-0.05	-0.17	-0.05	Citigroup USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	-0.02	-0.03	-0.01	Citigroup USBIG Treasury/Agency 1-10 y
TOTAL US TREASURY INTERMEDIATE LONG	-0.03	-0.15	-0.05	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	-0.06	0.38	0.12	Citigroup Treasury 10+
TOTAL INVESTMENT GRADE CREDIT	-0.02	-0.16	-0.05	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.01	0.04	0.01	CITIGROUP MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	-0.01	-0.03	-0.01	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.00	-0.02	-0.01	BBG BARC Agg
TOTAL HIGH YIELD	0.04	0.14	0.04	CITIGROUP BB&B
TOTAL BANK LOANS	0.01	0.02	0.01	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	-0.02	0.02	Lehman U.S. TIPS
TOTAL CONVERTIBLE BONDS	0.00	-0.03	0.01	Merrill All US Converts
TOTAL OPPORTUNISTIC FIXED	0.00	0.00	0.00	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	-0.03	-0.16	-0.13	

Selection Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL FIRE	-0.09	0.55	-0.39	Fire Policy Benchmark
TOTAL DOMESTIC EQUITY	0.00	-0.01	-0.20	RUSSELL 3000
TOTAL DEVELOPED EQUITY	-0.02	0.15	0.16	MSCI EAFE IMI Net
TOTAL EMERGING MARKETS	-0.01	0.20	0.03	MSCI Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL HEDGE FUNDS	0.00	0.09	-0.08	HFRI Fund of Funds Composite Index plus 1%
TOTAL REAL ESTATE SECURITIES	0.02	0.11	-0.06	Dow Jones US Select Securities Index
TOTAL PRIVATE EQUITY	-0.10	-0.31	-0.10	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE-CORE	0.01	0.00	0.00	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE-NON CORE	0.04	0.00	0.00	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.02	0.03	0.01	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.00	0.00	0.00	Citigroup USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.00	0.00	0.00	Citigroup USBIG Treasury/Agency 1-10 y
TOTAL US TREASURY INTERMEDIATE LONG DURATION	0.00	0.00	0.00	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	0.00	0.00	0.00	Citigroup Treasury 10+
TOTAL INVESTMENT GRADE CREDIT	0.01	0.05	0.02	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	0.00	0.00	CITIGROUP MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.00	0.00	0.00	BBG BARC Agg (Dly)
TOTAL CORE FI- EMERGING MGRS	0.00	0.00	0.00	BBG BARC Agg
TOTAL HIGH YIELD	0.01	0.02	-0.01	CITIGROUP BB&B
TOTAL BANK LOANS	0.00	-0.02	0.00	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	0.00	0.00	Lehman U.S. TIPS
TOTAL CONVERTIBLE BONDS	-0.01	-0.05	-0.01	Merrill All US Converts
TOTAL OPPORTUNISTIC FIXED	-0.05	0.04	-0.16	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	0.00	0.01	

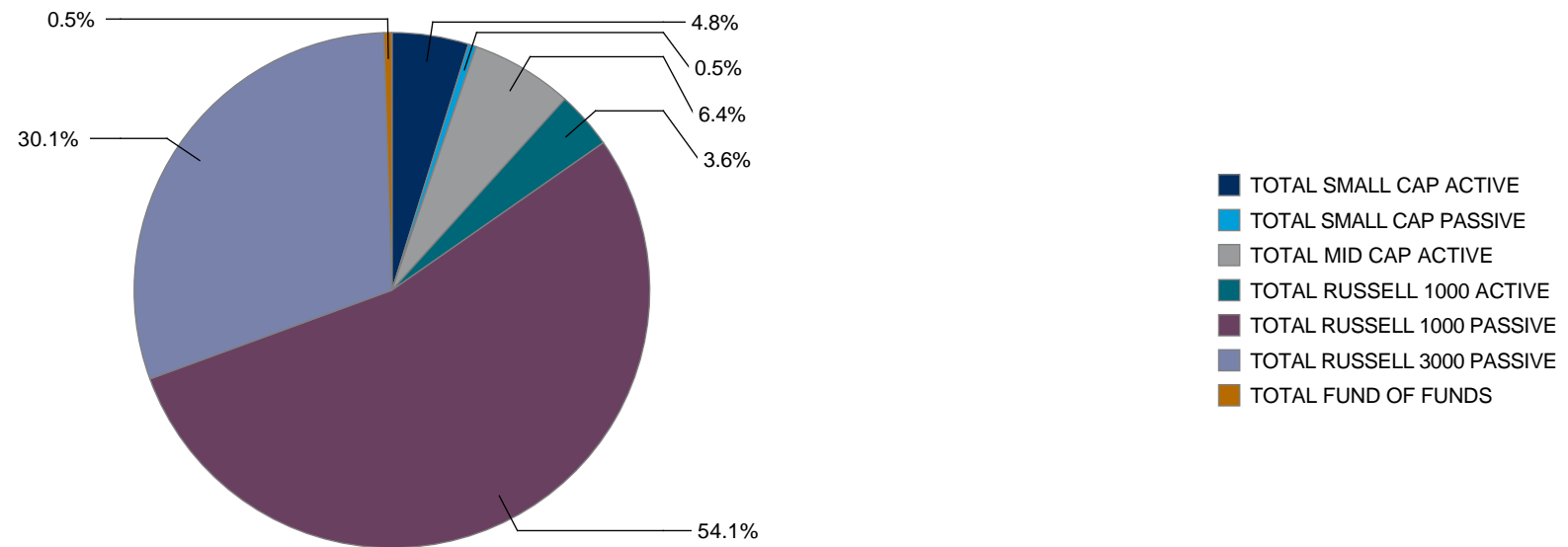
Total Domestic Equity Asset Allocations: June 30, 2017



TOTAL DOMESTIC EQUITY

Market Value (Billions)

\$3.9

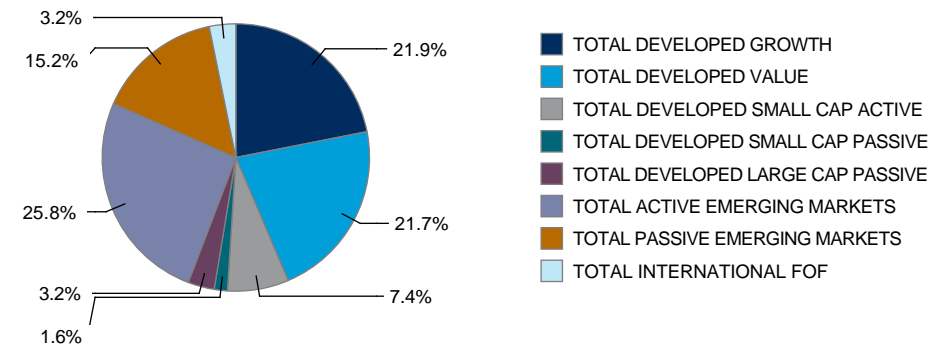
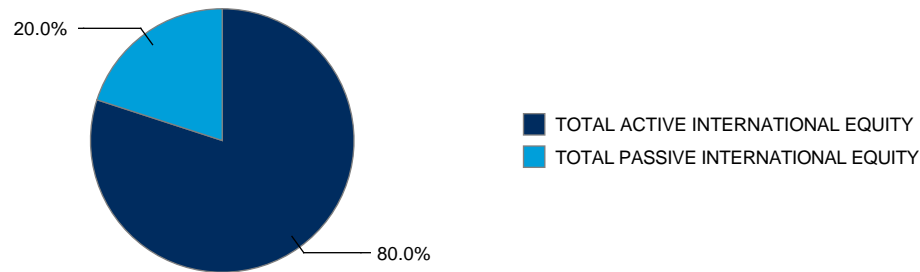


Sub Sector	Policy Weight	Actual Weight	Under/Over Weight	Index Return	Actual Return	Difference
TOTAL SMALL CAP ACTIVE	4.3	4.8	0.5	2.5	1.2	-1.2
TOTAL SMALL CAP PASSIVE	1.5	0.5	-1.0	2.5	3.5	1.1
TOTAL MID CAP ACTIVE	4.4	6.4	2.0	2.7	5.1	2.4
TOTAL RUSSELL 1000 ACTIVE	19.0	3.6	-15.4	3.1	0.7	-2.3
TOTAL RUSSELL 1000 PASSIVE	39.6	54.1	14.5	3.1	3.0	0.0
TOTAL RUSSELL 3000 PASSIVE	24.4	30.1	5.7	3.0	3.0	0.0
TOTAL EMERGING MANAGERS	0.6	0.5	-0.1	2.5		-2.5
TOTAL RUSSELL TOP 200 PASSIVE	6.2	0.0	-6.2			

International Equity Asset Allocation: June 30, 2017



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL INTERNATIONAL EQUITY	\$2.1	16.8

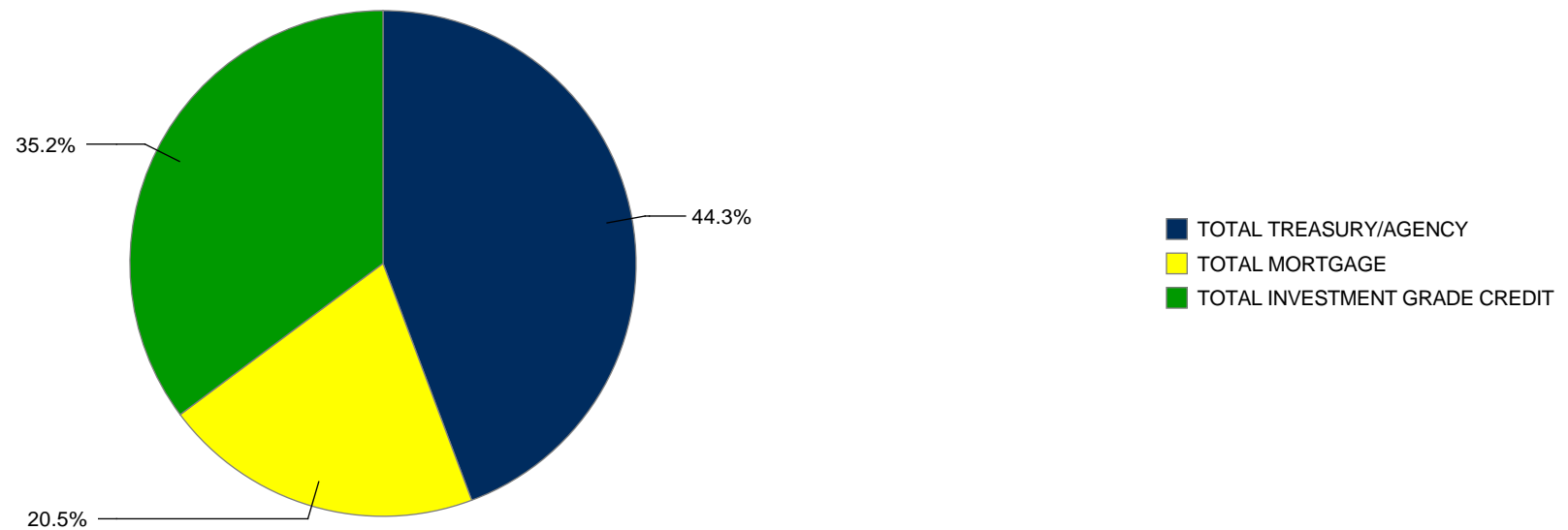


	<u>Asset Class Weight</u>	<u>Quarterly Returns - Fund and Benchmarks</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL DEVELOPED GROWTH	21.89	8.62	7.52	1.10
TOTAL DEVELOPED VALUE	21.71	4.09	4.78	(0.69)
TOTAL DEVELOPED SMALL CAP ACTIVE	7.37	8.87	8.65	0.23
TOTAL DEVELOPED SMALL CAP PASSIVE	1.57	8.17	8.10	0.06
TOTAL DEVELOPED LARGE CAP PASSIVE	3.20	5.81	5.63	0.18
TOTAL ACTIVE EMERGING MARKETS	25.81	6.15	6.27	(0.12)
TOTAL PASSIVE EMERGING MARKETS	15.19	6.36	6.27	0.09
TOTAL INTERNATIONAL FOF	3.24			
TOTAL INTERNATIONAL EQUITY	100.00	6.39	5.78	0.61

Structured Fixed Income Asset Allocation: June 30, 2017



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL STRUCTURED+ETI	\$2.0	16.6



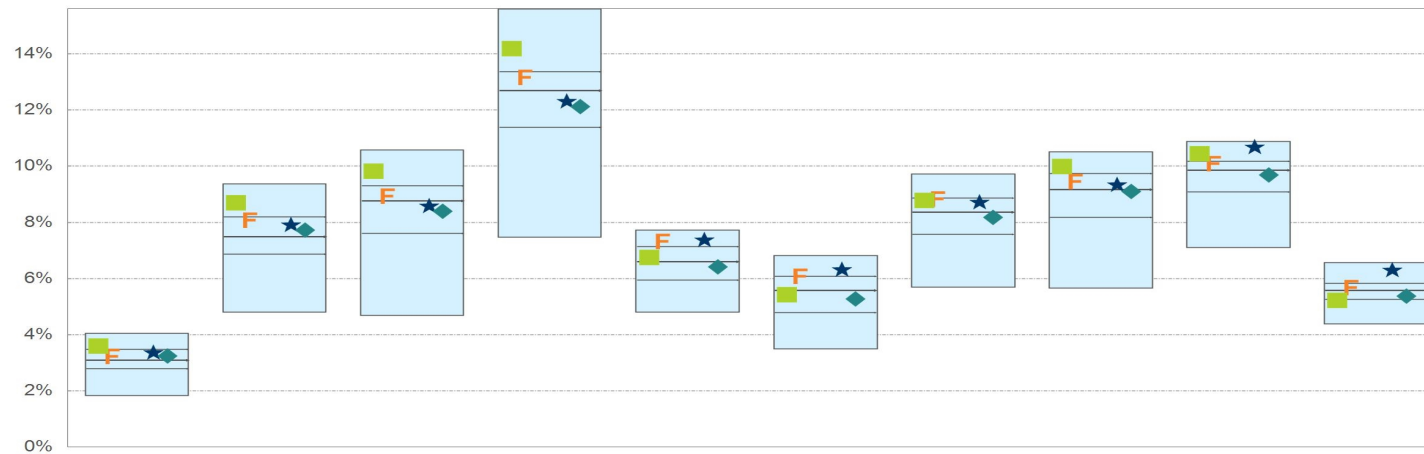
Sub Sector	Policy Weight	Actual Weight	Under/Over Weight	Index Return	Actual Return	Difference
Total Treasury/Agency	61.54	44.32	-17.22	4.00	1.70	-2.30
Total Mortgage	19.23	20.53	1.30	0.92	1.25	0.33
Total Inv Grade Credit	19.23	35.15	15.92	2.28	2.48	0.20

Through June 30, 2017



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Cumulative Periods Ending : June 30, 2017



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	4.04	9.37	10.58	15.60	7.73	6.81	9.72	10.52	10.88	6.57
25th	3.48	8.19	9.30	13.36	7.13	6.08	8.86	9.74	10.18	5.83
50th	3.09	7.49	8.76	12.69	6.60	5.58	8.36	9.17	9.86	5.58
75th	2.78	6.87	7.60	11.38	5.94	4.79	7.57	8.17	9.08	5.25
95th	1.83	4.80	4.68	7.48	4.80	3.50	5.69	5.66	7.11	4.38
No. Of Obs	76	76	76	76	75	75	75	75	72	68
F Total System - Fire	3.12 (46)	7.97 (27)	8.83 (44)	13.07 (31)	7.22 (17)	5.98 (31)	8.73 (30)	9.36 (43)	9.99 (45)	5.58 (50)
★ Fire Policy Benchmark	3.28 (30)	7.83 (36)	8.49 (56)	12.22 (61)	7.29 (13)	6.23 (18)	8.63 (39)	9.25 (48)	10.60 (12)	6.22 (11)
■ Public Mkt Equiv 25	3.49 (22)	8.59 (17)	9.73 (15)	14.09 (15)	6.65 (46)	5.33 (56)	8.68 (32)	9.89 (21)	10.35 (22)	5.13 (81)
◆ Public Mkt Equiv 35	3.14 (42)	7.62 (42)	8.29 (61)	12.03 (65)	6.31 (61)	5.17 (58)	8.08 (56)	9.00 (55)	9.59 (52)	5.27 (72)

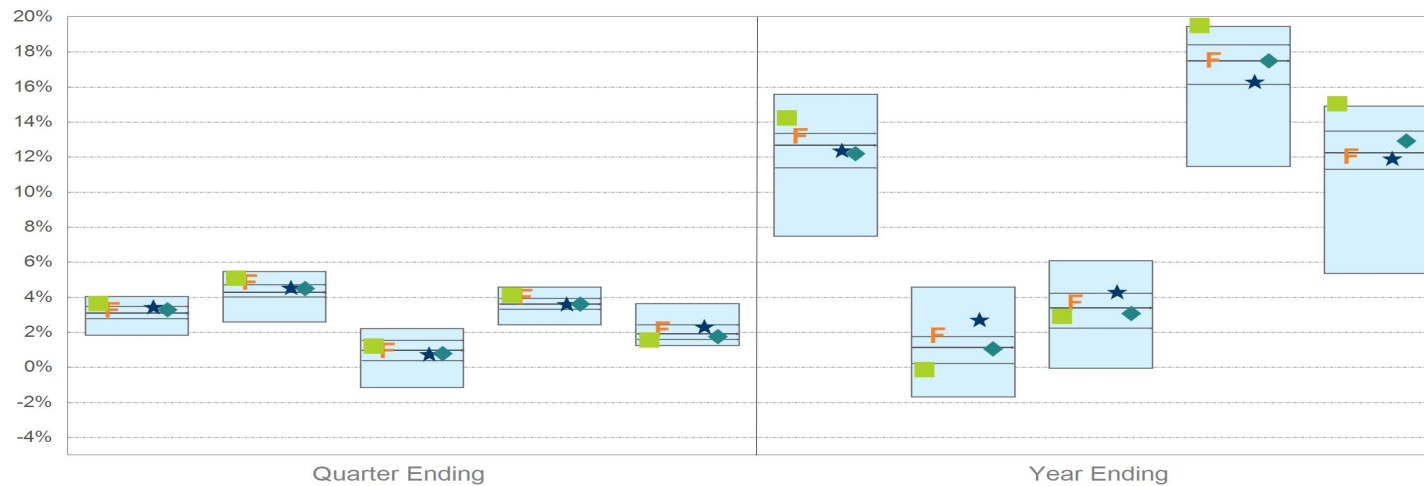
Wilshire Trust Universe Comparison Service® (TUCS®)

Through June 30, 2017



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Consecutive Time Periods: June 30, 2017



Percentile Rankings	Jun 17	Mar 17	Dec 16	Sep 16	Jun 16	Jun 17	Jun 16	Jun 15	Jun 14	Jun 13
5th	4.04	5.47	2.20	4.59	3.63	15.60	4.58	6.10	19.45	14.92
25th	3.48	4.71	1.55	3.93	2.43	13.36	1.76	4.24	18.40	13.48
50th	3.09	4.29	0.98	3.60	1.92	12.69	1.13	3.40	17.49	12.25
75th	2.78	4.02	0.39	3.31	1.58	11.38	0.22	2.24	16.14	11.31
95th	1.83	2.60	-1.15	2.44	1.23	7.48	-1.69	-0.06	11.48	5.35
No. Of Obs	76	76	76	76	76	76	75	75	75	75
F Total System - Fire	3.12 (46)	4.71 (25)	0.80 (56)	3.89 (31)	2.02 (44)	13.07 (31)	1.67 (30)	3.55 (44)	17.40 (54)	11.90 (59)
★ Fire Policy Benchmark	3.28 (30)	4.40 (42)	0.61 (65)	3.44 (63)	2.16 (31)	12.22 (61)	2.57 (11)	4.15 (26)	16.14 (76)	11.77 (62)
■ Public Mkt Equiv 25	3.49 (22)	4.92 (14)	1.05 (44)	3.98 (22)	1.40 (92)	14.09 (15)	-0.30 (77)	2.74 (62)	19.36 (6)	14.88 (5)
◆ Public Mkt Equiv 35	3.14 (42)	4.34 (44)	0.62 (65)	3.46 (63)	1.60 (73)	12.03 (65)	0.89 (56)	2.91 (59)	17.33 (54)	12.76 (36)

Wilshire Trust Universe Comparison Service® (TUCS®)

**FIRE RETIREMENT SYSTEM
ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2016 AND
ESTIMATED FEES FOR FY 2017 UPDATED THROUGH NOVEMBER 2016**

INVESTMENT STYLE (EQUITIES)	Actual 2016		Estimates 2017	
	Avg MV 16 (\$MM)	Mgmt Fees BPS	MV 11-30-16 (\$MM)	Mgmt Fees BPS
US Equities	3,305	12.26	3,624	10.41
Small Cap Active	164	59.49	180	65.69
Small Cap Growth	39	83.47	45	100.00
Small Cap Value	125	52.03	135	54.20
Small Cap core	-	-	-	-
Small Cap Fundamental Index	-	-	-	-
Small/Mid Cap Active	165	54.39	-	-
Small/Mid Cap Growth	165	54.39	-	-
Small/Mid Cap Value	-	-	-	-
Mid Cap Active	207	42.83	223	42.02
Mid Cap Growth	-	-	-	-
Mid Cap Value	100	39.67	104	55.67
Mid Cap core	107	45.78	119	30.00
Russell 1000 Active	-	-	132	12.32
Russell 1000 Fundamental Index	-	-	132	12.32
Active Emerging Managers (U.S. Equities)	199	58.23	179	74.72
Total US Active Equities	735	53.31	715	50.68
Total US Passive Equities	2,570	0.52	2,909	0.51
Environmental US E. Strategies	-	-	-	-
International Equities	1,699	30.51	1,804	31.21
Active EAFE Equities	958	31.24	985	32.17
Growth	425	28.08	437	29.55
Value	390	29.00	402	28.94
Small Cap	143	46.74	146	48.85
Non-US Environmental Strategies	-	-	-	-
Active Emerging Markets	433	47.16	476	48.41
Total Int'l Active Equities	1,391	36.20	1,460	37.46
Total Int'l Passive Equities	308	4.77	344	4.64
Total Passive Developed Markets	79	2.85	79	1.68
Total Passive Emerging Markets	229	5.44	265	5.53
REITS Passive Index	359	33.40	360	44.76

Information provided by the New York City Comptroller

**FIRE RETIREMENT SYSTEM
ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2016 AND
ESTIMATED FEES FOR FY 2017 UPDATED THROUGH NOVEMBER 2016**

INVESTMENT STYLE (FIXED INCOME)	Actual 2016		Estimates 2017	
	Avg MV 16 (\$MM)	Mgmt Fees BPS	MV 11-30-16 (\$MM)	Mgmt Fees BPS
Fixed Income	3,476	12.20	3,354	12.91
Structured Program	2,003	7.47	1,747	8.09
Government Sector	240	8.05	247	7.66
SSGA Long Duration Treasury	-	-	74	1.00
Mortgage Sector	776	5.59	462	6.45
Investment Grade Credit Sector	988	8.81	964	9.54
Global Fixed Income	42	17.96	43	19.92
Progress Fixed Emerging Managers	31	32.24	29	37.50
TIPS	360	2.30	540	1.84
Active TIPS	119	5.95	137	5.76
Passive TIPS	241	0.50	403	0.51
Enhanced Yield	397	32.19	442	31.04
Bank Loans	181	37.22	191	37.08
Convertible Bonds	52	51.64	56	49.90
ETI - Access - RBC	19	23.66	29	17.78
ETI - AFL-CIO HIT	51	42.50	54	39.53
Total Public Markets (Externally managed)	8,499	17.27	8,918	17.21
Other ETI Programs	13	-	15	-
In-House Short Term	326	0.00	209	0.00
Total Public Markets	8,839	16.60	9,142	16.78
INVESTMENT STYLE (PRIVATE)				
Hedge Funds	362	132.92	539	117.60
Private Equities	790	180.24	819	196.80 ¹
Private Real Estate	469	102.35	460	101.21
Infrastructure	23	58.93	36	105.61 ²
Opportunistic Fixed Income	289	96.86	321	92.07
Total Private Markets	1,933	140.55 ³	2,176	142.52
Total Overall	10,772	38.84	11,317	40.95

Footnotes

1 -Private Equity estimates for FY 2017 are based on partnership terms. For funds in the investment period, management fees are based on the committed capital. For funds in the post-investment period, management fees are based on the Market Value as of 6/30/2016.

2 - Infrastructure Fees are based on committed amounts for each investment which are higher than the market values.

3 - Private Markets Investments exclude GP CARRY & Incentive Fees .

4 -The Incentive Fees paid for the Fire Fund in 2016 are 12.60 BPS.

Information provided by the New York City Comptroller

**NYC FIRE DEPARTMENT PENSION FUND
SECURITIES LENDING INCOME
June 30, 2017**

	<u>U. S. FIXED INCOME</u>	<u>U. S. EQUITY</u>	<u>INTERNATIONAL EQUITY</u>	<u>TOTAL</u>
1989	109,000	-	-	109,000
1990	104,000	-	-	104,000
1991	157,000	-	-	157,000
1992	429,000	47,000	48,000	524,000
1993	762,000	146,000	102,000	1,010,000
1994	693,000	267,000	102,000	1,062,000
1995	495,000	306,000	96,000	897,000
1996	455,000	228,000	179,000	862,000
1997	473,000	512,000	257,000	1,242,000
1998	789,000	552,000	356,000	1,697,000
1999	716,000	690,000	408,000	1,814,000
2000	734,000	897,000	408,000	2,039,000
2001	1,176,000	1,286,000	561,000	3,023,000
2002	671,000	1,162,000	506,000	2,339,000
2003	349,000	644,000	452,000	1,445,000
2004	505,000	670,000	462,000	1,637,000
2005	740,000	1,070,000	574,000	2,384,000
2006	599,000	1,753,000	713,000	3,065,000
2007	1,437,000	3,180,000	786,000	5,403,000
2008	4,172,000	6,798,000	1,236,000	12,206,000
2009	1,606,000	3,588,000	817,000	6,011,000
2010	760,000	2,047,000	563,000	3,370,000
2011	977,000	2,674,000	927,000	4,578,000
2012	1,229,000	3,324,000	832,000	5,385,000
2013	893,000	3,467,000	704,000	5,064,000
2014	756,000	2,028,000	1,739,000	4,523,000
2015	788,000	2,034,000	2,407,000	5,229,000
2016	807,000	3,245,000	2,094,000	6,146,000
2017 (6 months)	587,000	1,266,000	798,000	2,651,000
Since Inception	<u>23,968,000</u>	<u>43,881,000</u>	<u>18,127,000</u>	<u>85,976,000</u>

New York City
Fire Department Pension Fund, Subchapter Two

Appendix A

Consolidated Performance Report

Consolidated Performance Report

Through June 30, 2017



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
SYSTEM RETURN SUMMARY															
5 FIRE-TOTAL PORTFOLIO - GROSS	12,332	100.00	3.12	13.07	7.97	8.68	0.34	7.55	15.87	13.13	5.98	9.36	5.58	8.58	07/01/1987
FIRE - ESTIMATED INVESTMENT FEES			(0.05)	(0.25)	(0.11)	(0.25)	(0.25)	(0.29)			(0.26)				
EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.03)	(0.12)	(0.06)	(0.13)	(0.15)	(0.16)			(0.12)				
EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.02)	(0.13)	(0.05)	(0.12)	(0.10)	(0.13)			(0.14)				
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIRE-TOTAL PORTFOLIO - NET MGR			3.06	12.82	7.85	8.43	0.09	7.26			5.73				
FIRE POLICY BENCHMARK			3.28	12.22	7.83	8.91	0.43	8.43	14.29	13.45	6.23	9.25	6.22		
EXCESS RETURN			(0.22)	0.60	0.02	(0.48)	(0.33)	(1.17)	1.58	(0.32)	(0.51)	0.11	(0.64)		
EQUITY RETURN DETAIL															
26 FIRE-TOTAL EQUITY (INCL PE & RA) - GROSS	8,315	67.43	3.95	17.92	10.28	10.08	0.68	8.36	23.36	16.16	7.39	12.04	5.44	7.81	04/01/2004
ESTIMATED INVESTMENT FEES			(0.07)	(0.31)	(0.14)	(0.31)	(0.34)	(0.37)			(0.33)				
EST MANAGEMENT FEES			(0.07)	(0.31)	(0.14)	(0.31)	(0.34)	(0.37)							
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIRE-TOTAL EQUITY (INCL PE & RA) - NET MGR			3.89	17.61	10.14	9.77	0.35	7.99			7.07				
34 FIRE-TOTAL DOMESTIC EQUITY - GROSS	3,936	31.92	3.03	18.62	8.75	12.97	0.19	11.05	35.79	16.67	8.61	14.76	7.12	12.25	08/01/1979
ESTIMATED INVESTMENT FEES			(0.02)	(0.11)	(0.05)	(0.13)	(0.15)	(0.17)			(0.14)				
FIRE-TOTAL DOMESTIC EQUITY - NET MGR			3.00	18.51	8.70	12.84	0.04	10.88			8.46				
RUSSELL 3000 (DAILY)			3.02	18.51	8.93	12.74	0.48	12.56	33.55	16.42	9.10	14.58	7.26	11.61	
EXCESS RETURN			(0.01)	(0.00)	(0.23)	0.10	(0.44)	(1.67)	2.24	0.26	(0.64)	0.18	(0.13)	0.65	
44 FIRE-TOTAL SMALL CAP - GROSS	210	1.71	1.46	19.88	4.54	23.36	(0.80)	4.08	38.55	15.20	8.67	14.81	5.88	7.37	04/01/2004
ESTIMATED INVESTMENT FEES			(0.15)	(0.72)	(0.31)	(0.75)	(0.60)	(0.55)			(0.65)				
FIRE-TOTAL SMALL CAP - NET MGR			1.32	19.16	4.23	22.62	(1.41)	3.52			8.02				
RUSSELL 2000 (DAILY)			2.46	24.60	4.99	21.31	(4.41)	4.89	38.82	16.35	7.36	13.70	6.92	8.27	
EXCESS RETURN			(1.15)	(5.44)	(0.76)	1.31	3.01	(1.37)	(0.27)	(1.15)	0.66	1.11	(1.03)	(0.90)	
54 FIRE-TOTAL MID CAP - GROSS	253	2.05	5.07	22.64	13.13	10.84	0.19	9.81	37.17	19.96	8.57	15.76	7.34	8.71	04/01/2004
ESTIMATED INVESTMENT FEES			(0.10)	(0.55)	(0.19)	(0.59)	(0.52)	(0.46)			(0.52)				
FIRE-TOTAL MID CAP - NET MGR			4.97	22.09	12.94	10.25	(0.33)	9.35			8.05				
RUSSELL MIDCAP (DAILY)			2.70	16.48	7.99	13.80	(2.44)	13.22	34.76	17.28	7.69	14.72	7.67	9.72	
EXCESS RETURN			2.27	5.60	4.95	(3.55)	2.11	(3.87)	2.40	2.68	0.36	1.04	(0.33)	(1.01)	
64 FIRE-TOTAL RUSSELL 1000 - GROSS	2,270	18.41	2.89	17.73	8.88	12.32	0.59	12.77	51.93	13.16	9.07	17.45	8.05	8.71	04/01/2004
ESTIMATED INVESTMENT FEES			(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.05)			(0.01)				
FIRE-TOTAL RUSSELL 1000 - NET MGR			2.88	17.72	8.87	12.32	0.58	12.73			9.05				
RUSSELL 1000 (DAILY)			3.06	18.03	9.27	12.05	0.92	13.24	33.11	16.42	9.26	14.67	7.29	8.38	
EXCESS RETURN			(0.18)	(0.31)	(0.40)	0.26	(0.33)	(0.51)	18.82	(3.26)	(0.21)	2.78	0.76	0.33	

Consolidated Performance Report

Through June 30, 2017



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
76 FIRE-TOTAL RUSSELL 3000 PASSIVE - GROSS	1,183	9.59	3.02	18.49	8.90	12.77	0.54	11.97	33.69	16.42	8.96	14.51	7.28	9.71	08/01/1991
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)			(0.01)				
FIRE-TOTAL RUSSELL 3000 PASSIVE - NET MGR			3.02	18.48	8.89	12.75	0.53	11.96			8.95				
RUSSELL 3000 (DAILY)			3.02	18.51	8.93	12.74	0.48	12.56	33.55	16.42	9.10	14.58	7.26	9.73	
EXCESS RETURN			0.00	(0.03)	(0.04)	0.02	0.05	(0.60)	0.14	0.00	(0.16)	(0.08)	0.02	(0.02)	
86 FIRE-TOTAL FUND OF FUNDS - GROSS	19	0.15												(0.02)	05/01/2017
ESTIMATED INVESTMENT FEES														(0.25)	
FIRE-TOTAL FUND OF FUNDS - NET MGR														(0.27)	
RUSSELL 2000 (DAILY)														1.35	
EXCESS RETURN														(1.62)	

Consolidated Performance Report

Through June 30, 2017



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
98 FIRE-TOTAL INTERNATIONAL EQUITY - GROSS	2,070	16.79	6.39	24.68	17.67	6.79	(6.16)	(3.45)	12.74	17.14	2.74	7.75	1.70	6.82	07/01/1991
ESTIMATED INVESTMENT FEES			(0.07)	(0.37)	(0.17)	(0.33)	(0.30)	(0.31)			(0.32)				
FIRE-TOTAL INTERNATIONAL EQUITY - NET MGR			6.32	24.31	17.50	6.46	(6.46)	(3.77)			2.42				
MSCI AC WORLD EX US (NET)			5.78	20.45	14.10	4.50	(5.66)	(3.87)	15.29	16.83	0.80	7.22	1.13		
EXCESS RETURN			0.53	3.86	3.40	1.97	(0.80)	0.10	(2.55)	0.31	1.62	0.53	0.57		
108 FIRE-TOTAL DEVELOPED GROWTH ACTIVE - GROSS	453	3.67	8.62	23.01	19.24	3.46	(1.24)	(5.48)	23.43	21.24	4.32	10.31		2.65	01/01/2008
ESTIMATED INVESTMENT FEES			(0.07)	(0.34)	(0.16)	(0.30)	(0.28)	(0.27)			(0.29)				
FIRE-TOTAL DEVELOPED GROWTH ACTIVE - NET MGR			8.55	22.67	19.08	3.17	(1.52)	(5.75)			4.03				
MSCI EAFE GROWTH			7.52	15.70	16.68	(3.04)	4.09	(4.43)	22.55	16.86	2.81	9.19		1.75	
EXCESS RETURN			1.03	6.98	2.40	6.21	(5.61)	(1.32)	0.88	4.38	1.21	1.13		0.90	
118 FIRE-TOTAL DEVELOPED VALUE ACTIVE - GROSS	449	3.64	4.09	23.14	12.56	5.66	(5.49)	(3.61)	22.38	17.83	1.04	8.28	1.54	6.24	04/01/2004
ESTIMATED INVESTMENT FEES			(0.07)	(0.34)	(0.14)	(0.31)	(0.28)	(0.26)			(0.29)				
FIRE-TOTAL DEVELOPED VALUE ACTIVE - NET MGR			4.02	22.81	12.41	5.35	(5.76)	(3.87)			0.75				
MSCI EAFE VALUE NET (DAILY)			4.78	25.01	11.12	5.02	(5.68)	(5.39)	22.95	17.69	(0.59)	8.12	(0.08)	5.02	
EXCESS RETURN			(0.75)	(2.20)	1.30	0.33	(0.08)	1.52	(0.57)	0.15	1.34	0.16	1.62	1.22	
128 FIRE-TOTAL DEVELOPED SMALL CAP ACTIVE - GROSS	153	1.24	8.87	24.72	18.68	3.35	10.82	(4.78)			6.71			10.19	05/01/2013
ESTIMATED INVESTMENT FEES			(0.12)	(0.58)	(0.26)	(0.50)	(0.54)	(0.47)			(0.52)				
FIRE-TOTAL DEVELOPED SMALL CAP ACTIVE - NET MGR			8.75	24.14	18.41	2.85	10.28	(5.25)			6.19				
S&P EPAC SMALL CAP USD NET			8.65	22.97	17.38	1.34	8.58	(3.43)			5.52			9.01	
EXCESS RETURN			0.11	1.17	1.03	1.51	1.69	(1.82)			0.67			1.18	
138 FIRE-TOTAL DEVELOPED SMALL CAP PASSIVE - GROSS	33	0.26	8.17	23.41	16.82	2.79	9.88				6.02			7.50	02/01/2014
ESTIMATED INVESTMENT FEES			(0.03)	(0.05)	(0.04)	(0.02)	(0.02)				(0.03)			(0.03)	
FIRE-TOTAL DEVELOPED SMALL CAP PASSIVE - NET MGR			8.14	23.36	16.78	2.77	9.86				6.00			7.47	
MSCI EAFE SMALL CAP NET (DAILY)			8.10	23.18	16.72	2.18	9.59				5.60			7.05	
EXCESS RETURN			0.04	0.18	0.06	0.59	0.27				0.40			0.41	
148 FIRE-TOTAL DEVELOPED LARGE CAP PASSIVE - GROSS	66	0.54	5.81	19.30	12.92	1.30	(0.53)	(4.73)	23.13	17.54	1.04	8.71		4.82	02/01/2011
ESTIMATED INVESTMENT FEES			0.00	(0.01)	(0.00)	(0.02)	0.00	(0.01)			(0.01)				
FIRE-TOTAL DEVELOPED LARGE CAP PASSIVE - NET MGR			5.81	19.29	12.92	1.28	(0.53)	(4.75)			1.03				
NYC CUSTOM WORLD EX US INDEX			5.63	19.14	12.74	1.00	(0.81)	(4.90)	22.78	17.32	0.83	8.48		4.52	
EXCESS RETURN			0.18	0.15	0.18	0.28	0.29	0.16	0.35	0.22	0.20	0.23		0.30	

Consolidated Performance Report

Through June 30, 2017



		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL																
160	FIRE-TOTAL ACTIVE EMERGING MARKETS - GROSS	534	4.33	6.15	29.55	21.04	10.79	(13.23)	(0.48)	1.87	16.13	2.26	5.77	2.72	9.41	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.12)	(0.59)	(0.27)	(0.53)	(0.44)	(0.50)			(0.50)				
	FIRE-TOTAL ACTIVE EMERGING MARKETS - NET MGR			6.03	28.95	20.78	10.27	(13.67)	(0.98)			1.77				
	MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)	(2.60)	18.22	1.07	3.96	1.91	8.32	
	EXCESS RETURN			(0.24)	5.21	2.34	(0.92)	1.24	1.21	4.47	(2.09)	0.69	1.82	0.81	1.09	
170	FIRE-TOTAL PASSIVE EMERGING MARKETS - GROSS	314	2.55	6.36	23.89	18.78	11.23	(14.86)	(2.23)	(1.97)	18.27	1.24	4.17		0.21	04/01/2011
	ESTIMATED INVESTMENT FEES			(0.02)	(0.07)	(0.04)	(0.06)	(0.05)	(0.06)			(0.06)				
	FIRE-TOTAL PASSIVE EMERGING MARKETS - NET MGR			6.34	23.82	18.74	11.17	(14.91)	(2.29)			1.18				
	MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)	(2.60)	18.22	1.07	3.96		0.14	
	EXCESS RETURN			0.08	0.07	0.31	(0.02)	0.01	(0.10)	0.63	0.04	0.11	0.22		0.07	
180	FIRE-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	67	0.54												2.95	05/01/2017
	ESTIMATED INVESTMENT FEES														(0.06)	
	FIRE-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR														2.89	
	MSCI ACWI EX USA IMI NET														3.51	
	EXCESS RETURN														(0.62)	

Consolidated Performance Report

Through June 30, 2017



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
199 *FIRE-TOTAL HEDGE FUNDS - NET MGR	667	5.41	1.28	8.25	4.26	3.20	(1.68)	5.35	4.92	7.85	2.54	4.53		3.33	07/01/2011
HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			1.05	7.54	3.71	1.52	0.73	4.40	10.04	5.82	2.57	4.90		3.45	
EXCESS RETURN			0.23	0.71	0.54	1.68	(2.41)	0.95	(5.12)	2.03	(0.03)	(0.38)		(0.11)	
209 *FIRE-TOTAL DIRECT HEDGE FUNDS - NET MGR	615	4.99	1.43	8.67	4.68	3.00	(1.36)	5.76	4.20	8.96	2.80	4.67		4.55	01/01/2012
HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			1.05	7.54	3.71	1.52	0.73	4.40	10.04	5.82	2.57	4.90		4.73	
EXCESS RETURN			0.38	1.13	0.97	1.48	(2.09)	1.37	(5.84)	3.13	0.24	(0.24)		(0.18)	
219 *FIRE-TOTAL PERMAL HEDGE FUNDS OF FUNDS - NET MGR	52	0.42	(0.15)	4.13	0.14	4.58	(3.52)	3.11	7.73	5.05	0.51	3.40		2.18	07/01/2011
HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			1.05	7.54	3.71	1.52	0.73	4.40	10.04	5.82	2.57	4.90		3.45	
EXCESS RETURN			(1.20)	(3.41)	(3.57)	3.06	(4.26)	(1.28)	(2.31)	(0.78)	(2.06)	(1.50)		(1.26)	

*Information provided by Alpha Frontier

Consolidated Performance Report

Through June 30, 2017



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
225 FIRE-TOTAL REAL ESTATE SECURITIES - GROSS	246	1.99	2.52	0.99	3.93	3.95	1.39	28.21	2.72	20.17	6.75	8.69	5.07	11.62	01/01/2003
ESTIMATED INVESTMENT FEES			(0.16)	(0.32)	(0.22)	(0.28)	(0.34)	(0.46)			(0.35)				
FIRE-TOTAL REAL ESTATE SECURITIES - NET MGR			2.35	0.68	3.71	3.67	1.05	27.75			6.40				
DJ US SELECT REAL ESTATE SECURITIES INDEX			1.64	(2.43)	1.36	6.65	4.46	31.85	1.31	17.09	8.02	8.97	5.32	10.94	
EXCESS RETURN			0.71	3.10	2.35	(2.98)	(3.41)	(4.11)	1.41	3.08	(1.62)	(0.29)	(0.24)	0.67	
235 FIRE-TOTAL PRIVATE EQUITY (TIME WEIGHTED)	850	6.89	5.14	18.25	10.24	10.84	11.71	15.81	12.72	11.35	12.94	13.07	9.83	12.98	04/01/2004
NYC R3000 +3% LAGGED			6.51	21.56	11.81	18.37	2.49	21.24	24.53	35.20	13.02	16.43	11.82	12.80	
EXCESS RETURN			(1.38)	(3.31)	(1.57)	(7.54)	9.22	(5.43)	(11.81)	(23.86)	(0.09)	(3.36)	(2.00)	0.18	
245 FIRE-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED)	508	4.12	2.95	11.06	5.44	11.46	15.25	17.21	12.58	14.84	13.41	13.77	3.81	8.12	04/01/2004
NCREIF NFI-ODCE NET + 100 BP			1.72	7.96	3.55	8.86	15.08	12.56	14.02	10.88	11.42	11.86			
EXCESS RETURN			1.23	3.10	1.89	2.60	0.17	4.65	(1.44)	3.96	1.99	1.91			
255 FIRE-TOTAL INFRASTRUCTURE (TIME WEIGHTED)	39	0.31	8.14	16.67	10.43	10.72	15.95	20.21			14.44			16.05	12/01/2013
CPI + 4%			1.00	5.71	2.39	6.18	4.68	4.69			4.98			5.19	
EXCESS RETURN			7.13	10.96	8.04	4.55	11.26	15.51			9.46			10.87	

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	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL															
267 FIRE-TOTAL FIXED INCOME - GROSS	4,008	32.50	1.35	3.40	3.05	5.66	(0.43)	5.94	0.68	7.72	2.96	3.71	5.53	8.22	02/01/1980
ESTIMATED INVESTMENT FEES			(0.03)	(0.12)	(0.06)	(0.14)	(0.09)	(0.15)			(0.12)				
EST MANAGEMENT FEES			(0.03)	(0.12)	(0.06)	(0.14)	(0.09)	(0.15)							
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIRE-TOTAL FIXED INCOME - NET MGR			1.32	3.28	2.99	5.52	(0.52)	5.79			2.84				
275 FIRE-TOTAL STRUCTURED FIXED INCOME - GROSS	1,958	15.88	1.89	0.90	3.07	3.97	0.17	7.66	(1.86)	6.85	3.07	3.20	5.50	7.82	01/01/1985
ESTIMATED INVESTMENT FEES			(0.02)	(0.06)	(0.03)	(0.07)	(0.07)	(0.08)			(0.07)				
FIRE-TOTAL STRUCTURED FIXED INCOME - NET MGR			1.88	0.84	3.04	3.90	0.10	7.57			3.00				
NYC - CORE PLUS FIVE			1.82	(0.21)	2.82	3.20	0.41	7.66	(2.79)	5.41	2.97	2.68	5.20		
EXCESS RETURN			0.06	1.04	0.22	0.70	(0.31)	(0.09)	0.93	1.44	0.04	0.52	0.29		
285 FIRE-TOTAL CORE FI- DEVELOPING MGRS - GROSS	44	0.36	1.53	1.27	2.73	3.89	1.36	5.74	(1.20)	6.22	3.18	3.09		5.23	05/01/2009
ESTIMATED INVESTMENT FEES			(0.05)	(0.20)	(0.10)	(0.21)	(0.19)	(0.17)			(0.20)				
FIRE-TOTAL CORE FI- DEVELOPING MGRS - NET MGR			1.49	1.07	2.64	3.68	1.17	5.57			2.99				
BBG BARC AGG (DLY)			1.45	(0.31)	2.27	2.65	0.55	5.97	(2.02)	4.21	2.48	2.21		4.04	
EXCESS RETURN			0.04	1.39	0.36	1.04	0.62	(0.39)	0.82	2.01	0.51	0.88		1.19	
295 FIRE-TOTAL CORE FI- EMERGING MGRS - GROSS	30	0.24	1.71	0.74	2.70	3.19	1.13	6.21	(1.58)		2.84	2.77		3.41	03/01/2012
ESTIMATED INVESTMENT FEES			(0.29)	(0.34)	(0.30)	(0.22)	(0.35)	(0.36)			(0.35)				
FIRE-TOTAL CORE FI- EMERGING MGRS - NET MGR			1.41	0.40	2.40	2.97	0.78	5.85			2.49				
BBG BARC AGG (DLY)			1.45	(0.31)	2.27	2.65	0.55	5.97	(2.02)		2.48	2.21		2.36	
EXCESS RETURN			(0.03)	0.71	0.12	0.32	0.23	(0.12)	0.45		0.01	0.56		1.05	
305 FIRE-TOTAL TIPS - GROSS	543	4.41	(0.39)	(0.64)	0.87	4.65	(1.31)	3.59	(8.32)	6.99	0.65	0.36	4.39	3.89	06/01/2005
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	(0.02)	(0.03)	(0.07)			(0.03)				
FIRE-TOTAL TIPS - NET MGR			(0.40)	(0.66)	0.86	4.63	(1.34)	3.52			0.62				
BBG BARC GBL INF-LK: US TIPS (DLY)			(0.40)	(0.63)	0.85	4.68	(1.44)	3.64	(8.61)	6.98	0.63	0.27	4.27	3.75	
EXCESS RETURN			0.01	(0.03)	0.01	(0.05)	0.09	(0.12)	0.28	0.01	(0.01)	0.10	0.12	0.14	
315 FIRE-TOTAL HIGH YIELD - GROSS	609	4.94	2.29	12.30	4.95	14.46	(3.07)	2.54	7.15	13.50	4.17	6.52	7.28	8.34	12/01/1994
ESTIMATED INVESTMENT FEES			(0.06)	(0.33)	(0.15)	(0.37)	(0.34)	(0.35)			(0.34)				
FIRE-TOTAL HIGH YIELD - NET MGR			2.22	11.97	4.80	14.09	(3.40)	2.19			3.83				
CITIGROUP BB & B			2.07	11.47	4.40	15.48	(4.21)	2.78	6.17	14.45	4.07	6.21	6.25	7.17	
EXCESS RETURN			0.15	0.50	0.41	(1.39)	0.81	(0.59)	0.98	(0.95)	(0.24)	0.31	1.04	1.17	

Consolidated Performance Report

Through June 30, 2017



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014	2013	2012	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL															
327 FIRE- TOTAL BANK LOANS - GROSS	196	1.59	0.77	6.72	1.82	8.55	1.47	2.82	7.00		4.00			4.83	12/01/2012
ESTIMATED INVESTMENT FEES			(0.09)	(0.39)	(0.18)	(0.41)	(0.38)	(0.39)			(0.39)				
FIRE-TOTAL BANK LOANS - NET MGR			0.68	6.33	1.64	8.15	1.09	2.43			3.61				
CSFB LEVERAGED LOAN INDEX			0.75	7.49	1.96	9.88	(0.38)	2.06	6.15		3.49			4.40	
EXCESS RETURN			(0.07)	(1.16)	(0.32)	(1.73)	1.48	0.38	0.85		0.13			0.43	
337 FIRE-TOTAL CONVERTIBLE BONDS - GROSS	59	0.47	1.56	10.02	5.29	7.74	(0.91)	5.16	14.14	12.20	3.61	7.48		6.45	07/01/2008
ESTIMATED INVESTMENT FEES			(0.12)	(0.54)	(0.25)	(0.54)	(0.51)	(0.54)			(0.52)				
FIRE-TOTAL CONVERTIBLE BONDS - NET MGR			1.44	9.48	5.04	7.20	(1.42)	4.62			3.08				
BOFAML ALL CONVERTIBLE EX M AI (DAILY)			2.98	19.86	8.76	11.71	(2.75)	9.33	25.00	14.41	5.60	11.56		8.69	
EXCESS RETURN			(1.53)	(10.38)	(3.72)	(4.51)	1.32	(4.71)	(10.87)	(2.21)	(2.52)	(4.08)		(2.24)	
347 FIRE-TOTAL OPPORTUNISTIC FIXED INCOME	343	2.78	0.32	12.88	4.89	9.53	(3.02)	7.41	17.25	16.32	4.06	8.08		8.76	11/01/2007
OPPORTUNISTIC FIXED INCOME JPMGHY / CSFB 50/50 BLEND PLUS 300			2.16	13.71	5.00	17.40	0.63	4.93	9.99	16.13	7.15	9.11		9.38	
EXCESS RETURN			(1.83)	(0.83)	(0.12)	(7.87)	(3.65)	2.48	7.27	0.19	(3.09)	(1.03)		(0.62)	
357 FIRE-TOTAL TARGETED INVESTMENTS (NO CASH)	89	0.72	1.98	0.08	2.77	2.37	3.06	6.90	(1.71)	4.34	3.50	2.98	4.87	7.43	12/01/1984
FIRE CUSTOM BENCHMARK (NO CASH)			1.27	(0.03)	2.00	2.46	1.05	5.75	(1.74)	3.79	2.48	2.20	4.32		
EXCESS RETURN			0.72	0.11	0.77	(0.09)	2.01	1.16	0.03	0.55	1.02	0.79	0.55		
CASH SUMMARY															
369 FIRE SHORT TERM - GROSS	136	1.10	0.27	0.71	0.47	0.88	0.32	0.21	0.24	0.37	0.60	0.46	1.13	3.65	12/01/1989
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		
FIRE SHORT TERM - NET MGR			0.27	0.71	0.47	0.88	0.32	0.21	0.24	0.37	0.60	0.46	1.13		
373 C/D - FAIL FLOAT EARNINGS	-	0.00													
375 SECURITY LENDING	8	0.07													

New York City
Fire Department Pension Fund, Subchapter Two

Appendix B

Public Markets Manager Performance Detail

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
EQUITY SUMMARY								
US EQUITY								
State Street Global Advisors R3000	1,183	9.59	3.01	18.47	8.89	12.74	0.50	11.96
RUSSELL 3000 (DAILY)			3.02	18.51	8.93	12.74	0.48	12.56
Excess			(0.00)	(0.04)	(0.04)	0.01	0.03	(0.60)
NYC FIRE BLACKROCK R2000 GROWTH	16	0.13	4.36	24.37	9.99	11.29	(1.29)	5.50
RUSSELL 2000 GROWTH DAILY			4.39	24.40	9.97	11.32	(1.38)	5.60
Excess			(0.03)	(0.03)	0.02	(0.02)	0.09	(0.11)
NYC FIRE BLACKROCK R2000 VALUE	4	0.03	0.05	24.09	(0.01)	31.71	(7.33)	3.80
RUSSELL 2000 VALUE DAILY			0.67	24.86	0.54	31.74	(7.47)	4.22
Excess			(0.62)	(0.77)	(0.55)	(0.03)	0.13	(0.41)
Brown AM - SCG	52	0.42	7.97	27.00	17.47	10.25	8.61	2.92
RUSSELL 2000 GROWTH DAILY			4.39	24.40	9.97	11.32	(1.38)	5.60
Excess			3.58	2.60	7.50	(1.07)	9.99	(2.68)
CEREDEX SCV	77	0.62	(2.15)	11.91	(0.73)	29.36	(4.73)	2.54
RUSSELL 2000 VALUE DAILY			0.67	24.86	0.54	31.74	(7.47)	4.22
Excess			(2.82)	(12.94)	(1.27)	(2.38)	2.74	(1.68)
Dalton Greiner Sm Cap-Value	61	0.49	(0.26)	20.90	(0.30)	25.01	(3.32)	4.47
RUSSELL 2000 VALUE DAILY			0.67	24.86	0.54	31.74	(7.47)	4.22
Excess			(0.93)	(3.96)	(0.84)	(6.73)	4.15	0.25
Iridian Asset Mgmt. MCV	119	0.96	3.81	21.15	13.35	4.19	(3.71)	14.03
RUSSELL MIDCAP (DAILY)			2.70	16.48	7.99	13.80	(2.44)	13.22
Excess			1.11	4.66	5.37	(9.60)	(1.27)	0.82

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
Wellington Mgmt. MCC	135	1.09	6.02	22.90	12.57	12.29	1.78	10.93
S&P 400 MIDCAP INDEX (DAILY)			1.97	18.57	5.99	20.74	(2.18)	9.77
Excess			4.05	4.34	6.58	(8.45)	3.95	1.17
NYC FIRE BLACKROCK R1000 GROWTH	1,084	8.79	4.70	20.43	14.02	7.16	5.66	12.91
RUSSELL 1000 GROWTH - DAILY			4.67	20.42	13.99	7.08	5.67	13.05
Excess			0.03	0.00	0.02	0.08	(0.01)	(0.14)
NYC FIRE BLACKROCK R1000 VALUE	1,046	8.48	1.34	15.50	4.64	17.48	(3.90)	13.39
RUSSELL 1000 VALUE (DAILY)			1.34	15.53	4.66	17.34	(3.83)	13.45
Excess			(0.01)	(0.03)	(0.02)	0.14	(0.08)	(0.06)
RAFI - LC Fundamental	140	1.14	0.61		4.25			
RUSSELL 1000 (DAILY)			3.06		9.27			
Excess			(2.45)		(5.03)			
FUND OF FUNDS								
FIRE-TOTAL FUND OF FUNDS	19	0.15						
RUSSELL 2000 (DAILY)								
Excess								
FIRE-TOTAL LEGATO	19	0.15						
RUSSELL 2000 (DAILY)								
Excess								
NON - US EQUITY								
Baillie Gifford	231	1.88	10.50	30.46	24.01	0.70	(3.81)	(6.77)
MSCI EAFE GROWTH			7.52	15.70	16.68	(3.04)	4.09	(4.43)
Excess			2.98	14.76	7.32	3.74	(7.90)	(2.34)
Walter Scott	222	1.80	6.99	17.12	15.41	5.03	0.28	(3.76)
MSCI EAFE GROWTH			7.52	15.70	16.68	(3.04)	4.09	(4.43)
Excess			(0.53)	1.42	(1.28)	8.07	(3.81)	0.67

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
Causeway	228	1.85	5.01	22.00	13.44	0.52	(2.39)	(4.91)
MSCI EAFE VALUE NET (DAILY)			4.78	25.01	11.12	5.02	(5.68)	(5.39)
Excess			0.23	(3.01)	2.33	(4.51)	3.29	0.48
Sprucegrove	221	1.79	2.91	23.65	11.24	11.10	(9.44)	(3.32)
MSCI EAFE VALUE NET (DAILY)			4.78	25.01	11.12	5.02	(5.68)	(5.39)
Excess			(1.86)	(1.36)	0.13	6.08	(3.75)	2.07
Acadian	79	0.64	8.52	26.95	19.41	6.41	8.68	(4.92)
S&P EPAC Small Cap USD NET			8.65	22.97	17.38	1.34	8.58	(3.43)
Excess			(0.12)	3.98	2.03	5.07	0.09	(1.49)
Pyramis	74	0.60	9.02	21.16	17.34	(0.80)	11.96	(5.60)
S&P EPAC Small Cap USD NET			8.65	22.97	17.38	1.34	8.58	(3.43)
Excess			0.37	(1.81)	(0.05)	(2.14)	3.38	(2.17)
SSGA	66	0.54	5.81	19.29	12.92	1.28	(0.55)	(4.75)
NYC Custom World ex US Index			5.63	19.14	12.74	1.00	(0.81)	(4.90)
Excess			0.18	0.15	0.18	0.28	0.27	0.15
SSGA MSCI EAFE Small Cap Index	33	0.26	8.14	23.36	16.78	2.77	9.86	
MSCI EAFE SMALL CAP NET (DAILY)			8.10	23.18	16.72	2.18	9.59	
Excess			0.04	0.18	0.06	0.59	0.27	
EMERGING MARKETS								
Baillie Gifford	163	1.32	9.47	35.71	26.96	2.78	(7.99)	0.10
MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)
Excess			3.20	11.97	8.53	(8.41)	6.92	2.28
ACADIAN	132	1.07	5.61	31.06	21.38	12.65	(15.05)	3.79
MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)
Excess			(0.66)	7.31	2.95	1.46	(0.13)	5.97

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
PARAMETRIC EM	124	1.00	4.25	20.00	14.84	13.85	(15.72)	(3.88)
MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)
Excess			(2.02)	(3.75)	(3.59)	2.67	(0.81)	(1.69)
DFA	115	0.93	2.93	25.97	16.84	17.36	(19.25)	(4.39)
MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)
Excess			(3.34)	2.23	(1.59)	6.17	(4.33)	(2.20)
CONY GT FIRE Blackrock-MSCI EM MK	314	2.55	6.34	23.82	18.74	11.17	(14.91)	(2.29)
MSCI EMERGING MARKETS			6.27	23.75	18.43	11.19	(14.92)	(2.19)
Excess			0.08	0.07	0.31	(0.02)	0.01	(0.10)
INTERNATIONAL FOF								
FIRE-TOTAL INTERNATIONAL FOF	67	0.54						
MSCI ACWI ex USA IMI Net								
Excess								
FIRE-TOTAL INTERNATIONAL FIS	67	0.54						
MSCI ACWI ex USA IMI Net								
Excess								
REAL ESTATE SECURITIES								
MS REIT	139	1.13	2.01	1.37	3.90	3.49	(1.63)	30.72
Morgan Stanley Custom RESI Index			2.64	(0.85)	4.61	2.37	(1.53)	31.85
Excess			(0.62)	2.23	(0.72)	1.13	(0.11)	(1.13)
Adelante (Lend Lease Rosen) (REIT)	106	0.86	2.80	(0.21)	3.47	3.90	4.82	33.07
DJ US SELECT REAL ESTATE SECURITIES INDEX			1.64	(2.43)	1.36	6.65	4.46	31.85
Excess			1.16	2.21	2.11	(2.75)	0.36	1.21

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
FIXED INCOME SUMMARY								
STRUCTURED FIXED INCOME								
Taplin Canida Habacht - Credit	119	0.97	2.65	5.99	4.79	9.52	(3.74)	7.73
NYC - Investment Grade Credit			2.28	1.90	3.69	5.56	(0.65)	7.04
Excess			0.37	4.08	1.10	3.97	(3.10)	0.69
T Rowe Price - Credit	260	2.11	2.59	2.76	4.18	6.00	0.16	7.74
NYC - Investment Grade Credit			2.28	1.90	3.69	5.56	(0.65)	7.04
Excess			0.31	0.85	0.49	0.44	0.80	0.70
Blackrock - Credit	189	1.54	2.39	2.06	3.79	5.43	(0.61)	7.43
NYC - Investment Grade Credit			2.28	1.90	3.69	5.56	(0.65)	7.04
Excess			0.11	0.15	0.10	(0.13)	0.04	0.39
Prudential - Credit	119	0.96	2.29	2.16	3.67	5.97	(0.18)	7.19
NYC - Investment Grade Credit			2.28	1.90	3.69	5.56	(0.65)	7.04
Excess			0.01	0.26	(0.01)	0.41	0.47	0.14
Prudential-Privest - Credit	32	0.26	1.91	2.81	3.62	4.24	1.63	7.20
NYC - Investment Grade Credit			2.28	1.90	3.69	5.56	(0.65)	7.04
Excess			(0.37)	0.91	(0.07)	(1.32)	2.28	0.16
Blackrock - Mortgage	228	1.85	1.09	0.65	1.64	2.19	1.72	6.77
CITIGROUP MORTGAGE INDEX			0.92	(0.08)	1.36	1.59	1.56	6.12
Excess			0.17	0.74	0.28	0.60	0.16	0.64
Neuberger Berman - Mortgage	103	0.83	0.93	(0.03)	1.37	1.52	1.38	6.66
CITIGROUP MORTGAGE INDEX			0.92	(0.08)	1.36	1.59	1.56	6.12
Excess			0.00	0.05	0.01	(0.06)	(0.18)	0.54

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
Fischer Francis - Govt	126	1.02	2.25	(4.56)	3.41	1.35	0.52	11.44
NYC - Treasury Agency Plus Five			2.30	(4.60)	3.42	1.21	0.72	12.38
Excess			(0.05)	0.04	(0.01)	0.14	(0.20)	(0.94)
State Street - Gov't	237	1.92	2.35	(4.34)	3.51	1.47	0.47	12.15
NYC - Treasury Agency Plus Five			2.30	(4.60)	3.42	1.21	0.72	12.38
Excess			0.05	0.27	0.09	0.26	(0.25)	(0.23)
SSgA Int Gov Bond Index	106	0.86	0.63					
Citigroup USBIG Treasury/Agency 1-10 y			0.64					
Excess			(0.01)					
SSGA 1-3 Treasury Index	163	1.32	0.17		0.42			
Citigroup USBIG Treasury 1-3 Y Index			0.18		0.44			
Excess			(0.01)		(0.02)			
SSGA Long Duration Treasury	275	2.23	3.94		5.40			
Citigroup Treasury 10+			4.00		5.47			
Excess			(0.06)		(0.07)			
CORE FI-EMERGING MANAGERS								
Hillswick	3	0.02	1.13	(0.90)	1.92	2.61	0.61	7.09
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65	0.55	5.97
Excess			(0.31)	(0.59)	(0.35)	(0.03)	0.06	1.13
Integrity	3	0.02	1.25	0.06	2.32			
BBG BARC Agg (Dly)			1.45	(0.31)	2.27			
Excess			(0.19)	0.37	0.05			
NEW CENTURY	8	0.06	1.42	0.45	2.49	2.37	(0.30)	6.53
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65	0.55	5.97
Excess			(0.03)	0.76	0.21	(0.28)	(0.85)	0.56

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
PUGH CAP	9	0.07	1.51	0.48	2.55	3.48	0.79	5.88
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65	0.55	5.97
Excess			0.07	0.80	0.28	0.83	0.24	(0.09)
Ramirez Asset	7	0.06	1.45	0.88	2.33	3.64	1.12	
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65	0.55	
Excess			0.01	1.19	0.06	0.99	0.57	
HIGH YIELD								
Loomis Sayles - High Yield	129	1.05	1.89	14.09	5.24	19.72	(8.98)	2.88
BofAML HIGH YIELD MASTER II (DAILY)			2.14	12.75	4.91	17.49	(4.64)	2.50
Excess			(0.26)	1.34	0.33	2.23	(4.33)	0.37
Penn Capital Mgt	131	1.06	1.99	11.75	4.50	11.92	(1.31)	0.39
CITIGROUP BB & B			2.07	11.47	4.40	15.48	(4.21)	2.78
Excess			(0.08)	0.29	0.10	(3.55)	2.90	(2.39)
T ROWE HY	349	2.83	2.46	10.78	4.66	12.24	(1.28)	2.91
CITIGROUP BB & B			2.07	11.47	4.40	15.48	(4.21)	2.78
Excess			0.39	(0.69)	0.26	(3.24)	2.93	0.13
BANK LOANS								
Babson BL	97	0.79	0.67	6.82	1.74	8.46	0.12	1.99
CSFB LEVERAGED LOAN INDEX			0.75	7.49	1.96	9.88	(0.38)	2.06
Excess			(0.09)	(0.67)	(0.23)	(1.41)	0.50	(0.07)
Guggenheim BL	99	0.81	0.70	5.85	1.55	7.84	2.07	2.88
CSFB LEVERAGED LOAN INDEX			0.75	7.49	1.96	9.88	(0.38)	2.06
Excess			(0.06)	(1.64)	(0.42)	(2.03)	2.45	0.83

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
TIPS								
Blackrock TIPS	138	1.12	(0.39)	(0.63)	0.87	4.75	(1.24)	3.74
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			(0.40)	(0.63)	0.85	4.68	(1.44)	3.64
Excess			0.01	(0.01)	0.01	0.07	0.20	0.10
State Street TIPS Passive								
State Street TIPS Passive	405	3.29	(0.40)	(0.67)	0.86	4.59	(1.35)	3.57
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			(0.40)	(0.63)	0.85	4.68	(1.44)	3.64
Excess			0.01	(0.04)	0.01	(0.09)	0.09	(0.07)
CONVERTIBLE BONDS								
Advent Conv Bonds	59	0.47	1.44	9.48	5.04	7.20	(1.42)	4.62
BofA ML U.S. Convertible Yield Alternative			2.47	12.56	6.29	9.96	(8.77)	2.75
Excess			(1.03)	(3.08)	(1.26)	(2.76)	7.35	1.87
CORE FI-DEVELOPING MANAGERS								
LM Capital	23	0.18	1.55	0.94	2.59	3.43	1.02	5.57
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65	0.55	5.97
Excess			0.10	1.26	0.32	0.78	0.47	(0.39)
GIA								
GIA	21	0.17	1.42	1.21	2.68	3.96		
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65		
Excess			(0.03)	1.52	0.41	1.31		
ECONOMICALLY TARGETED INVESTMENTS								
AFL-CIO HOUSING INV TRUST	55	0.45	1.32	(0.38)	2.14	1.94	1.13	6.10
BBG BARC Agg (Dly)			1.45	(0.31)	2.27	2.65	0.55	5.97
Excess			(0.13)	(0.07)	(0.13)	(0.71)	0.58	0.14
ACCESS RBC								
ACCESS RBC	17	0.14	1.13	(0.13)	1.62	1.61	1.83	6.66
Access RBC Benchmark			0.80	(0.51)	1.27	1.52	1.40	5.08
Excess			0.33	0.38	0.35	0.09	0.43	1.58

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
CPC CONST FACILITY	1	0.01	0.61	1.98	2.66	(3.95)	12.90	
CPC CONST BENCHMARK			0.81	3.09	1.58	3.03	2.90	
Excess			(0.20)	(1.11)	1.08	(6.99)	10.01	
BOA-PPAR (FNMA)	3	0.02	4.52	(2.31)	4.77	4.07	42.03	13.31
FNMA Plus 85bps			1.28	0.77	1.99	2.38	2.50	7.13
Excess			3.24	(3.08)	2.77	1.69	39.53	6.19
CCD-PPAR (FNMA)	1	0.01	3.46	(2.15)	3.82	3.71	6.69	25.71
FNMA Plus 85bps			1.28	0.77	1.99	2.38	2.50	7.13
Excess			2.18	(2.92)	1.83	1.33	4.20	18.58
CCD-PPAR (GNMA)	1	0.01	2.69	(3.10)	2.75	2.78	5.08	15.37
GNMA Plus 65bps			0.77	0.47	1.19	2.28	2.02	6.65
Excess			1.92	(3.57)	1.56	0.50	3.06	8.72
CFSB-PPAR (GNMA)	0	0.00	3.32	(2.30)	3.55	3.21	5.90	15.34
GNMA Plus 65bps			0.77	0.47	1.19	2.28	2.02	6.65
Excess			2.55	(2.77)	2.36	0.93	3.88	8.69
CPC-PPAR (FNMA)	2	0.02	4.14	(1.89)	3.31	6.15	8.96	13.91
FNMA Plus 85bps			1.28	0.77	1.99	2.38	2.50	7.13
Excess			2.87	(2.66)	1.32	3.77	6.46	6.78
JPMC-PPAR (FNMA)	5	0.04	7.38	5.61	8.71	7.94	6.18	11.95
FNMA Plus 85bps			1.28	0.77	1.99	2.38	2.50	7.13
Excess			6.10	4.84	6.72	5.56	3.68	4.82
LIIF-PPAR (FNMA)	2	0.02	8.05	(4.70)	8.46	5.03	6.29	38.12
FNMA Plus 85bps			1.28	0.77	1.99	2.38	2.50	7.13
Excess			6.77	(5.47)	6.47	2.65	3.79	30.99

Public Markets Manager Performance Detail



Net Returns Through June 30, 2017

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2016	2015	2014
LIIF-PPAR (GNMA)	0	0.00	1.84	(0.64)	2.20	3.88	3.92	9.74
GNMA Plus 65bps			0.77	0.47	1.19	2.28	2.02	6.65
Excess			1.07	(1.11)	1.01	1.61	1.91	3.09
NCBCI-PPAR (FNMA)	0	0.00	0.87	(4.87)	0.26	3.46	4.97	14.93
FNMA Plus 85bps			1.28	0.77	1.99	2.38	2.50	7.13
Excess			(0.41)	(5.64)	(1.73)	1.07	2.47	7.81
NCBCI-PPAR (GNMA)	0	0.00	2.61	(2.89)	2.57	3.51	5.53	16.66
GNMA Plus 65bps			0.77	0.47	1.19	2.28	2.02	6.65
Excess			1.84	(3.36)	1.37	1.23	3.52	10.01
FIRE SHORT TERM	136	1.11	0.27	0.71	0.47	0.88	0.32	0.21
91 DAY T-BILL			0.20	0.49	0.31	0.33	0.05	0.02
Excess			0.06	0.22	0.16	0.56	0.27	0.19
C/D - Fail Float Earnings	0	0.00						
SECURITY LENDING	8	0.07						

New York City
Fire Department Pension Fund, Subchapter Two

Appendix C

Alternative Assets Manager Performance Detail

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
TOTAL PRIVATE EQUITY		1,782,219,496	1,476,413,413	1,206,479,333	874,861,499	1.41	10.8%
TOTAL LIQUIDATED		97,030,666	107,081,433	134,092,937	-	1.25	7.2%
TOTAL ACTIVE		1,685,188,830	1,369,331,980	1,072,386,395	874,861,499	1.42	11.2%
TOTAL ACTIVE							
Cypress Merchant Banking Partners II, L.P.	1999	22,586,486	26,972,134	25,268,643	42,101	0.94	-1.2%
FdG Capital Partners LLC	1999	25,000,000	28,954,204	49,959,349	3,193,755	1.84	15.3%
Lincolnshire Equity Fund II, L.P.	1999	6,899,005	7,223,050	13,677,462	229,696	1.93	24.5%
SCP Private Equity Partners II, L.P.	2000	15,000,000	16,834,296	6,514,303	2,245,084	0.52	-7.7%
Apollo Investment Fund V, L.P.	2001	15,000,000	23,379,009	46,050,894	294,202	1.98	38.8%
CVC European Equity Partners III, L.P.	2001	10,000,000	11,579,021	29,775,858	266,865	2.59	41.1%
Landmark Equity Partners XI, L.P.	2002	5,000,000	4,753,167	7,076,448	278,838	1.55	23.4%
FS Equity Partners V, L.P.	2003	10,000,000	8,563,770	16,712,063	784,058	2.04	15.5%
Blackstone Capital Partners IV, L.P.	2003	13,875,989	17,141,626	39,731,830	2,129,762	2.44	36.4%
Ares Corporate Opportunities Fund, L.P.	2003	5,000,000	5,998,308	8,941,880	354,348	1.55	13.6%
Markstone Capital Partners, LP	2004	5,000,000	5,862,384	2,477,825	34,027	0.43	-60.5%
Euro Choice II (Delaware) L.P.	2004	6,749,668	6,714,168	9,386,997	362,946	1.45	7.0%
FdG Capital Partners II LP	2004	5,000,000	5,374,885	6,071,286	428,851	1.21	3.7%
Paladin Homeland Security Fund (NY City), L.P.	2004	7,500,000	8,229,281	3,010,376	210,622	0.39	-13.7%
Lincolnshire Equity Fund III, L.P.	2004	5,000,000	4,945,290	7,038,444	1,887,283	1.80	29.5%
Yucaipa American Alliance Fund I, LP	2004	5,000,000	7,491,869	6,475,457	1,788,930	1.10	2.8%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 1	2004	2,000,000	2,053,879	1,799,497	619,802	1.18	2.9%
Aurora Equity Partners III L.P.	2004	5,000,000	5,412,677	8,743,588	268,466	1.66	13.9%
Trilantic Capital Partners III L.P.	2004	5,000,000	4,519,812	7,302,147	105,586	1.64	14.6%
Celtic Pharmaceutical Holdings L.P.	2004	2,500,000	2,540,209	40,209	397,602	0.17	-17.4%
Medica III Investments (International) L.P.	2004	3,000,000	2,992,836	1,267,948	1,004,000	0.76	-6.1%
Palladium Equity Partners III, L.P.	2005	10,000,000	10,495,995	14,817,483	6,179,066	2.00	16.9%
New Mountain Partners II, L.P.	2005	2,580,650	2,321,161	4,492,653	49,972	1.96	13.7%
VSS Communications Partners IV, L.P.	2005	2,469,034	2,843,972	1,914,905	191,973	0.74	-5.2%
Carlyle Partners IV, L.P.	2005	5,000,000	5,153,158	10,078,088	139,993	1.98	13.1%
Prism Venture Partners V-A, L.P.	2005	7,500,000	7,690,681	4,178,447	893,359	0.66	-8.1%
Snow Phipps Group, L.P.	2005	5,000,000	5,934,095	4,565,437	2,771,537	1.24	5.5%
GI Partners Fund II L.P.	2005	2,500,000	2,532,382	3,898,927	138,863	1.59	7.6%
Blackstone Mezzanine Partners II, L.P.	2005	3,000,000	2,865,036	3,808,573	31,261	1.34	7.8%
Psilos Group Partners III, L.P.	2005	2,500,000	2,657,559	1,282,054	1,845,753	1.18	3.0%
FirstMark Capital I, L.P. (fka FirstMark IV)	2005	1,500,000	1,639,064	3,844,748	6,173,438	6.11	36.9%

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
USPF II Institutional Fund, L.P.	2005	5,000,000	6,594,940	4,996,916	3,908,188	1.35	5.5%
JP Morgan Fleming (Tranche A)	2005	3,000,000	2,947,799	2,283,755	1,571,885	1.31	5.5%
Arlington Capital Partners II, L.P.	2005	4,000,000	4,067,113	6,252,796	762,397	1.72	11.2%
Levine Leichtman Capital Partners Deep Value Fund, L.P.	2005	5,000,000	6,229,039	6,404,856	4,534	1.03	0.7%
Aisling Capital II, LP	2006	1,000,000	1,177,628	835,105	323,435	0.98	-0.3%
InterMedia Partners VII, L.P.	2006	2,500,000	2,919,819	2,959,171	234,108	1.09	1.4%
Terra Firma Capital Partners III, L.P.	2006	5,221,957	5,301,883	581,343	1,939,012	0.48	-10.5%
Fenway Partners Capital Fund III, L.P.	2006	5,000,000	5,677,145	4,595,060	1,991,851	1.16	2.9%
Blackstone Capital Partners V, L.P.	2006	9,448,250	10,044,626	14,765,168	1,560,483	1.63	8.1%
Avista Capital Partners, L.P.	2006	5,000,000	6,556,380	6,268,301	2,262,144	1.30	5.5%
Apollo Investment Fund VI, L.P.	2006	20,000,000	25,741,832	32,589,113	6,117,982	1.50	8.9%
Ares Corporate Opportunities Fund II, L.P.	2006	5,000,000	5,476,087	8,826,777	460,165	1.70	13.4%
CCMP Capital Investors II, L.P.	2006	5,000,000	5,502,030	7,958,662	1,406,361	1.70	13.5%
CLP 2014 (fka Perseus Partners VII)	2006	5,000,000	5,840,394	2,171,913	53,989	0.38	-22.1%
Euro Choice III L.P.	2006	5,316,203	5,347,612	4,825,762	1,254,362	1.14	2.7%
Thomas, McNerney & Partners II, L.P.	2006	3,000,000	3,035,394	5,820,046	988,422	2.24	17.2%
Catterton Partners VI, L.P.	2006	5,000,000	5,591,502	6,929,228	3,290,961	1.83	12.2%
First Reserve Fund XI, L.P.	2006	5,000,000	5,313,265	3,121,368	545,714	0.69	-8.7%
Permira IV, L.P.	2006	5,529,358	5,921,973	7,736,472	1,280,424	1.52	8.5%
Arsenal Capital Partners II, LP	2006	4,000,000	4,897,470	6,460,833	1,647,905	1.66	10.6%
GF Capital Private Equity Fund, L.P.	2006	3,000,000	3,060,562	3,394,832	2,151,384	1.81	13.6%
RRE Ventures IV, L.P.	2006	2,500,000	3,138,967	1,582,714	3,139,457	1.50	7.2%
Coller International Partners V, L.P.	2006	5,000,000	4,352,996	5,284,606	947,629	1.43	8.6%
MidOcean Partners III, L.P.	2006	10,000,000	11,447,290	12,459,368	7,010,382	1.70	10.7%
The Fourth Civen Fund	2006	2,755,017	2,870,272	3,706,523	300,364	1.40	6.9%
Falconhead Capital Partners II, L.P.	2006	4,000,000	4,455,013	3,706,827	1,265,052	1.12	2.3%
Atlantic Equity Partners IV, L.P.	2006	3,768,757	3,454,555	-	2,035,624	0.59	-7.5%
Capital Partners Private Equity Income Fund, L.P.	2006	2,000,000	1,918,034	3,703,310	596,542	2.24	21.0%
Pegasus Partners IV, L.P.	2007	7,500,000	8,926,991	5,346,168	3,164,326	0.95	-1.0%
Olympus Capital Asia III, L.P.	2007	5,000,000	5,851,116	2,965,253	3,288,526	1.07	1.7%
FTVentures III, LP	2007	2,500,000	2,740,689	3,709,304	2,118,201	2.13	16.2%
Highland Consumer Fund I LP	2007	2,000,000	2,003,212	588,704	909,373	0.75	-4.7%
Montreux Equity Partners IV, L.P.	2007	5,000,000	5,000,000	2,761,158	4,391,689	1.43	6.7%
Gleacher Mezzanine Fund II, L.P.	2007	3,000,000	2,752,429	3,559,437	111,843	1.33	10.6%
SCP Vitalife Partners II Fund	2007	5,000,000	5,024,924	395	2,859,556	0.57	-9.2%
Constellation Venture Capital III, L.P.	2007	5,000,000	5,459,492	1,135,209	2,973,601	0.75	-5.1%

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
United States Power Fund III, L.P.	2007	5,000,000	5,915,665	4,569,741	3,629,419	1.39	6.4%
Carlyle Partners V, L.P.	2007	10,000,000	10,189,621	13,876,587	3,694,427	1.72	13.7%
PCG Clean Energy & Technology Fund (East), LLC	2007	10,000,000	8,917,291	1,154,781	2,828,945	0.45	-13.6%
GSO Capital Opportunities Fund LP	2007	7,500,000	11,216,404	15,877,108	255,600	1.44	17.6%
New Mountain Partners III, L.P.	2007	10,000,000	10,125,115	11,078,198	7,053,556	1.79	12.9%
Vista Equity Partners Fund III, L.P.	2007	7,500,000	7,984,651	17,064,196	3,263,209	2.55	27.8%
Trilantic Capital Partners IV L.P.	2007	7,236,332	7,529,116	10,254,888	1,834,125	1.61	14.3%
Pine Brook Capital Partners, L.P.	2007	7,500,000	8,171,715	5,625,597	4,724,825	1.27	7.1%
Princeton Capital Corp. (fka Capital Point)	2007	3,000,000	3,497,432	2,182,562	1,427,259	1.03	0.8%
Post Capital Equity Partners II LP	2007	3,000,000	2,041,382	2,700,073	1,332,099	1.98	14.6%
Paladin III (NY City), L.P.	2008	7,500,000	9,504,445	4,679,925	7,838,832	1.32	7.2%
Relativity Fund, L.P.	2008	1,631,513	1,612,064	345,053	478,875	0.51	-10.8%
Apollo Investment Fund VII, L.P.	2008	25,000,000	29,842,738	45,238,256	7,165,692	1.76	24.0%
NGN BioMed Opportunity II, L.P.	2008	5,000,000	4,787,955	1,486,553	3,595,078	1.06	1.1%
Riverstone/Carlyle Global Energy & Power Fund IV, L.P.	2008	7,500,000	8,339,560	5,725,100	4,159,331	1.19	5.2%
Yucaipa American Alliance Fund II, LP	2008	15,000,000	20,468,035	12,161,707	16,276,762	1.39	8.1%
Levine Leichtman Capital Partners IV, L.P.	2008	5,000,000	5,025,128	7,482,919	1,357,654	1.76	19.8%
Lee Equity Partners Fund, L.P.	2008	6,575,577	8,915,115	10,837,960	19,708	1.22	6.3%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 2	2008	5,000,000	4,803,912	3,350,563	4,249,809	1.58	13.7%
Yucaipa Corporate Initiatives Fund II, LP	2008	4,676,976	4,566,023	1,407,741	2,824,452	0.93	-1.5%
CVC European Equity Partners V, L.P.	2008	13,726,621	14,435,474	17,494,952	5,557,241	1.60	13.5%
GI Partners Fund III L.P.	2008	7,500,000	8,075,352	8,838,159	3,288,435	1.50	12.7%
Ares Corporate Opportunities Fund III, L.P.	2008	10,000,000	11,987,271	13,878,205	8,469,048	1.86	20.5%
GCM Grosvenor NYCFDPF Emerging Manager Fund, L.P.	2008	8,979,798	10,301,386	7,112,393	6,691,375	1.34	10.4%
First Reserve Fund XII, L.P.	2008	5,000,000	5,427,462	2,406,398	1,484,702	0.72	-8.6%
Landmark Equity Partners XIV, L.P.	2008	13,630,000	12,862,967	11,313,261	5,378,582	1.30	10.5%
Crestview Partners II, L.P.	2008	7,500,000	8,371,658	7,094,346	7,600,963	1.76	16.0%
NB New York City Growth Fund IA	2008	1,208,990	1,208,990	417,624	387,445	0.67	-6.3%
Milestone Partners III, L.P.	2008	3,000,000	3,189,622	1,680,248	1,453,155	0.98	-0.4%
Euro Choice IV L.P.	2008	6,430,946	5,971,363	2,641,985	4,761,401	1.24	5.7%
Avista Capital Partners II, L.P.	2008	10,000,000	12,320,675	16,382,173	6,050,621	1.82	16.9%
Bridgepoint Europe IV	2008	6,661,799	6,691,525	6,633,975	3,031,461	1.44	10.2%
Carpenter Community BancFund-A, L.P.	2008	3,000,000	2,922,576	1,735,627	3,123,822	1.66	8.6%
Blue Wolf Capital Fund II, L.P.	2008	3,000,000	3,252,569	1,852,630	2,463,199	1.33	7.8%
Aisling Capital III, LP	2008	3,500,000	3,842,715	4,003,636	2,578,515	1.71	21.4%
Onex Partners III LP	2008	5,000,000	5,401,799	4,383,810	4,873,596	1.71	14.9%

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
NorthBound Emerging Manager Custom Fund LP	2009	5,000,000	4,270,257	3,952,407	3,676,808	1.79	16.6%
Welsh, Carson, Anderson & Stowe XI, L.P.	2009	7,500,000	7,443,395	6,562,247	5,164,821	1.58	13.2%
Scale Venture Partners III, LP	2009	5,000,000	4,893,728	5,913,400	4,814,554	2.19	20.9%
FS Equity Partners VI, L.P.	2009	12,500,000	12,075,544	10,446,908	13,830,992	2.01	18.8%
Lincolnshire Equity Fund IV, L.P.	2009	2,500,000	2,609,906	1,371,838	2,180,091	1.36	9.7%
Lexington Capital Partners VII, L.P.	2009	10,000,000	8,674,588	8,884,382	4,201,215	1.51	14.8%
Snow Phipps II, L.P.	2010	7,500,000	7,630,338	4,013,412	7,282,788	1.48	14.6%
Trident V, L.P.	2010	15,000,000	16,521,448	6,855,461	16,385,855	1.41	10.2%
Comvest Investment Partners IV, L.P.	2010	20,000,000	19,709,698	25,090,282	9,093,165	1.73	32.4%
Blackstone Capital Partners VI, L.P.	2011	10,000,000	9,866,611	3,948,065	9,307,695	1.34	12.2%
Ampersand 2011	2011	5,000,000	4,825,000	3,807,450	6,205,502	2.08	19.0%
BDCM Opportunity Fund III, L.P.	2011	10,000,000	12,756,957	4,606,283	10,781,465	1.21	7.5%
AXA Secondary Fund V B L.P.	2011	40,000,000	32,170,020	28,260,316	22,470,378	1.58	16.7%
Wellspring Capital Partners V, L.P.	2011	7,500,000	7,463,479	7,234,081	4,250,337	1.54	18.1%
EQT VI, L.P.	2011	17,679,368	17,486,438	3,412,314	19,597,309	1.32	9.4%
Pegasus Partners V, L.P.	2011	6,236,975	6,201,476	1,266,842	9,193,055	1.69	17.9%
BC European Capital IX	2011	21,902,218	21,404,396	9,196,124	19,536,028	1.34	11.7%
American Securities Partners VI, L.P.	2011	20,000,000	21,331,027	7,879,766	26,313,598	1.60	20.2%
Vista Equity Partners Fund IV, L.P.	2011	30,000,000	30,170,998	17,501,583	38,377,820	1.85	20.7%
Warburg Pincus Private Equity XI, L.P.	2012	35,000,000	33,527,928	9,626,645	35,447,424	1.34	12.9%
Summit Partners Growth Equity Fund VIII-A, L.P.	2012	30,000,000	32,630,927	12,192,324	34,162,995	1.42	19.1%
<u>NYCFPF - 2012 Emerging Manager Program</u>	<u>2012</u>	<u>25,000,000</u>	<u>17,201,581</u>	<u>3,236,402</u>	<u>17,832,680</u>	<u>1.22</u>	<u>12.2%</u>
Trilantic Capital Partners V L.P.	2012	10,000,000	7,117,931	1,888,317	6,840,567	1.23	11.2%
Palladium Equity Partners IV, L.P.	2012	10,000,000	6,525,986	609,004	7,271,430	1.21	9.4%
Ares Corporate Opportunities Fund IV, L.P.	2012	20,000,000	17,174,132	4,038,613	19,702,564	1.38	15.2%
Green Equity Investors VI, L.P.	2012	25,000,000	26,623,923	5,045,389	28,752,798	1.27	13.0%
Platinum Equity Capital Partners III, L.P.	2012	25,000,000	20,683,478	16,694,995	19,551,690	1.75	48.3%
Carlyle Partners VI, L.P.	2013	20,000,000	13,753,618	3,169,849	12,585,935	1.15	8.8%
Carlyle Partners VI, L.P. (Side Car)	2014	1,218,333	1,193,842	-	1,143,408	0.96	-2.4%
Landmark Equity Partners XV, L.P.	2013	26,000,000	11,562,508	5,093,236	8,720,510	1.19	11.8%
Landmark - NYC Fund I, L.P.	2013	9,000,000	4,763,201	1,766,083	4,482,184	1.31	16.2%
Apollo Investment Fund VIII, L.P.	2013	40,000,000	26,216,837	3,490,926	27,489,273	1.18	14.0%
CVC Capital Partners VI, L.P.	2014	33,869,536	19,225,652	236,858	20,059,008	1.06	4.5%
Crestview Partners III, L.P.	2013	24,000,000	7,358,141	121,324	7,315,053	1.01	0.8%
Crestview Partners III (Co-Investment B), L.P.	2013	8,000,000	4,837,521	109,575	5,435,501	1.15	NM
Olympus Growth Fund VI, L.P.	2014	15,000,000	7,785,091	2,080,312	8,454,178	1.35	26.4%

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
ASF VI B L.P.	2014	30,000,000	17,275,563	2,011,375	19,962,530	1.27	14.6%
ASF VI B NYC Co-Invest L.P.	2014	10,000,000	6,627,868	2,186,434	6,661,151	1.33	16.1%
Vista Equity Partners Fund V, L.P.	2014	40,000,000	39,978,557	7,410,659	39,171,881	1.17	10.5%
Lexington Capital Partners VIII, L.P.	2014	40,000,000	10,269,627	4,349,084	9,637,365	1.36	28.6%
Siris Partners III, L.P.	2015	5,500,000	2,680,838	36,235	2,616,898	0.99	NM
Centerbridge Capital Partners III, L.P.	2015	4,200,000	1,183,636	55,569	1,392,231	1.22	NM
Welsh, Carson, Anderson & Stowe XII, L.P.	2015	14,000,000	3,941,735	-	4,775,196	1.21	NM
Warburg Pincus Private Equity XII, L.P.	2015	36,000,000	8,555,942	-	8,262,639	0.97	NM
ASF VII B L.P.	2015	17,000,000	1,776,297	5,243	2,258,738	1.27	NM
ASF VII B NYC Co-Invest L.P.	2015	9,000,000	900	-	900	1.00	NM
EQT VII, L.P.	2015	27,106,584	9,929,603	51,186	10,080,880	1.02	NM
American Securities Partners VII, L.P.	2015	14,000,000	3,446,504	-	3,658,396	1.06	NM
Bridgepoint Europe V L.P.	2015	10,826,179	5,181,459	1,098,544	4,565,983	1.09	NM
Bridgepoint Europe V Co-Invest	2015	3,239,892	1,160,691	-	1,151,341	0.99	NM
<u>NYCFPF - 2015 Emerging Manager Program</u>	<u>2015</u>	<u>30,000,000</u>	<u>941,521</u>	<u>13,817</u>	<u>1,018,984</u>	<u>1.10</u>	<u>NM</u>
Vista Equity Partners Fund VI, L.P.	2016	28,000,000	10,512,285	40,671	10,297,671	0.98	NM
Platinum Equity Capital Partners IV, L.P.	2016	19,000,000	1,594,987	65,361	1,798,393	1.17	NM
Apax IX USD, L.P.	2016	22,000,000	-	-	(386,420)	-	N/A
BC European Capital X	2017	14,970,060	-	-	-	-	N/A
BCEC X Co-Investment	2017	5,980,760	560,145	-	561,335	1.00	NM
Green Equity Investors VII, L.P.	2017	17,000,000	-	-	-	-	N/A
Ares Corporate Opportunities Fund V, L.P.	2017	17,000,000	-	-	51,604	-	NM

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL PRIVATE REAL ESTATE			811,669,732	691,975,441	414,217,304	516,283,665	1.34	7.7%
TOTAL PRIVATE REAL ESTATE								
Brookfield Premier Real Estate Partners	2017	Core / Core Plus Portfolio	19,000,000	17,666,890	-	18,695,348	1.06	35.2%
Colony Realty Partners II	2007	Core / Core Plus Portfolio	5,000,000	5,355,052	166,526	1,020,100	0.22	-15.5%
Exeter Industrial Core Club Fund II	2016	Core / Core Plus Portfolio	6,000,000	2,046,001	62,526	2,092,909	1.05	10.7%
Heitman HART	2007	Core / Core Plus Portfolio	9,000,000	13,027,425	4,027,425	17,656,165	1.66	8.2%
Jamestown Premier Property Fund	2016	Core / Core Plus Portfolio	8,000,000	8,379,020	1,026,780	7,764,800	1.05	6.3%
JP Morgan Special Situation Property Fund	2007	Core / Core Plus Portfolio	5,000,000	5,790,793	1,646,080	6,475,445	1.40	4.0%
JP Morgan Strategic Property Fund	2007	Core / Core Plus Portfolio	22,000,000	24,177,819	-	44,695,246	1.85	8.8%
LaSalle Property Fund	2010	Core / Core Plus Portfolio	30,000,000	30,000,000	7,512,915	41,645,881	1.64	11.8%
Lion Industrial Trust - 2007	2017	Core / Core Plus Portfolio	12,000,000	9,000,000	76,037	9,200,349	1.03	13.2%
MetLife Core Property Fund	2014	Core / Core Plus Portfolio	15,000,000	15,000,000	1,582,525	17,642,091	1.28	13.0%
NYC Asset Investor #2 LLC	2013	Core / Core Plus Portfolio	9,000,000	8,637,851	1,186,890	10,327,017	1.33	15.5%
NYCRS Artemis Co-Investment	2016	Core / Core Plus Portfolio	11,000,000	3,253,838	-	4,312,130	1.33	52.5%
PRISA II	2007	Core / Core Plus Portfolio	20,228,233	21,417,377	5,088,074	27,781,646	1.53	5.5%
PRISA SA	2006	Core / Core Plus Portfolio	7,000,000	7,530,220	2,151,296	9,287,058	1.52	4.5%
Prologis Targeted U.S. Logistics Fund	2006	Core / Core Plus Portfolio	5,000,000	6,616,077	1,686,964	7,061,683	1.32	3.5%
RREEF America REIT II	2006	Core / Core Plus Portfolio	7,000,000	9,178,399	4,159,035	9,370,573	1.47	5.0%
RREEF America REIT III - 1410	2007	Core / Core Plus Portfolio	5,000,000	5,000,000	2,808,572	35,786	0.57	-7.6%
UBS Trumbull Property Fund	2006	Core / Core Plus Portfolio	27,000,000	37,339,244	8,326,075	46,380,727	1.47	7.4%
USAA Eagle Real Estate Fund	2016	Core / Core Plus Portfolio	12,000,000	9,761,602	-	10,816,806	1.11	10.2%
AG Realty Fund VII	2008	Non-Core Portfolio	15,000,000	14,100,000	19,866,847	1,449,828	1.51	12.9%
American Value Partners Fund I	2008	Non-Core Portfolio	5,000,000	3,785,294	2,969,969	974,665	1.04	0.8%
ARA Asia Dragon Fund	2008	Non-Core Portfolio	10,000,000	9,284,000	11,886,344	42,309	1.28	7.1%
AREA European Real Estate Fund III, LP	2008	Non-Core Portfolio	15,000,000	15,243,750	15,568,750	2,438,616	1.18	4.2%
Avanath Affordable Housing Fund II	2015	Non-Core Portfolio	2,220,000	2,158,370	-	2,598,112	1.20	12.7%
Blackstone Fund IV	2004	Non-Core Portfolio	5,000,000	6,406,782	8,125,585	839,178	1.40	10.4%
Blackstone Real Estate Partners Europe III (USD Vehicle)	2010	Non-Core Portfolio	5,000,000	5,146,742	3,997,164	3,272,237	1.41	11.0%
Blackstone Real Estate Partners Europe IV (USD Vehicle)	2014	Non-Core Portfolio	26,000,000	23,376,571	4,559,582	23,940,495	1.22	11.3%
Blackstone Real Estate Partners VI	2007	Non-Core Portfolio	10,000,000	11,141,811	18,705,180	2,886,483	1.94	13.1%
Blackstone Real Estate Partners VII	2012	Non-Core Portfolio	30,000,000	35,745,996	27,042,300	27,821,209	1.53	19.4%
Blackstone Real Estate Partners VIII	2015	Non-Core Portfolio	31,500,000	14,219,042	3,885,838	13,168,047	1.20	19.7%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	15,000,000	15,967,322	7,705,057	16,855,475	1.54	18.6%
Canyon Johnson Urban Fund	2003	Non-Core Portfolio	10,000,000	9,060,242	10,582,954	-	1.17	10.2%
Canyon Johnson Urban Fund II	2005	Non-Core Portfolio	10,000,000	8,988,710	3,916,319	88,422	0.45	-10.5%
Canyon Johnson Urban Fund III	2010	Non-Core Portfolio	5,000,000	4,931,163	6,597,777	55,013	1.35	11.9%
Carbon Capital III	2009	Non-Core Portfolio	10,000,000	10,378,522	12,722,879	-	1.23	8.5%
Carlyle Realty Partners V	2007	Non-Core Portfolio	5,000,000	6,273,385	7,119,091	1,649,897	1.40	8.6%
Carlyle Realty Partners VI	2011	Non-Core Portfolio	20,000,000	18,958,841	23,084,329	9,153,406	1.70	27.0%
Carlyle Realty Partners VII	2014	Non-Core Portfolio	15,000,000	9,032,312	308,993	10,156,696	1.16	13.4%

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Colony Investors VIII	2007	Non-Core Portfolio	20,000,000	21,249,679	7,473,645	1,993,681	0.45	-12.0%
Divco West Fund III	2012	Non-Core Portfolio	30,000,000	29,429,127	43,223,119	7,494,466	1.72	25.0%
Divco West Fund IV	2014	Non-Core Portfolio	30,000,000	29,131,906	31,784,240	15,172,041	1.61	28.3%
Divco West Fund V	2016	Non-Core Portfolio	12,000,000	1,927,022	-	1,864,256	0.97	-25.0%
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	8,000,000	928,227	-	984,744	N/A	N/A
European Property Investors Special Opportunities IV (EPISO IV)	2016	Non-Core Portfolio	10,059,238	2,629,972	258,376	2,309,360	0.98	-4.2%
H/2 Special Opportunities Fund II	2011	Non-Core Portfolio	10,000,000	10,000,001	8,607,432	6,267,798	1.49	15.4%
H/2 Special Opportunities Fund III	2015	Non-Core Portfolio	15,000,000	12,993,856	945,599	14,672,148	1.20	18.3%
H/2 Special Opportunities Fund IV	2017	Non-Core Portfolio	19,000,000	1,635,815	-	1,676,064	1.02	7.3%
KTR Industrial Fund III	2013	Non-Core Portfolio	10,000,000	4,369,869	6,896,859	18,516	1.58	40.5%
Lone Star Real Estate Fund III	2014	Non-Core Portfolio	25,000,000	23,405,262	12,403,629	18,972,500	1.34	19.4%
Lone Star Real Estate Fund V	2017	Non-Core Portfolio	23,100,000	-	-	(345,239)	N/A	N/A
Metropolitan Workforce Housing Fund	2007	Non-Core Portfolio	3,500,000	3,503,257	3,695,031	546,787	1.21	3.9%
NYC Asset Investor #1 LLC	2013	Non-Core Portfolio	5,000,000	5,386,406	777,639	6,032,928	1.26	11.7%
NYC Asset Investor #3 LLC	2013	Non-Core Portfolio	6,000,000	3,057,407	23,481	3,479,290	1.15	9.2%
PW Real Estate Fund III LP	2016	Non-Core Portfolio	9,562,261	2,320,171	-	2,061,322	0.89	-23.1%
Silverpeak Legacy Partners III	2008	Non-Core Portfolio	5,000,000	2,216,844	312,186	560,180	0.39	-11.6%
Stockbridge Real Estate Fund III	2008	Non-Core Portfolio	13,500,000	13,499,074	8,414,877	7,246,402	1.16	2.5%
Taconic New York City Investment Fund LP	2012	Non-Core Portfolio	20,000,000	8,272,728	6,318,180	8,526,414	1.79	17.1%
The City Investment Fund I	2004	Non-Core Portfolio	35,000,000	34,515,181	34,904,154	74,974	1.01	0.3%
Thor Urban Property Fund II	2009	Non-Core Portfolio	5,000,000	6,469,584	6,847,656	2,524,658	1.45	10.9%
Walton Street Real Estate Fund VI	2009	Non-Core Portfolio	5,000,000	4,432,393	4,398,362	2,213,833	1.49	9.2%
Westbrook Real Estate Fund VIII	2010	Non-Core Portfolio	5,000,000	5,939,088	6,780,163	989,266	1.31	12.0%
Westbrook Real Estate Fund X	2016	Non-Core Portfolio	8,000,000	1,286,108	-	1,295,427	1.01	2.0%

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2017



	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL INFRASTRUCTURE		111,245,381	37,941,368	2,392,055	43,143,593	1.20	14.1%
TOTAL INFRASTRUCTURE INVESTMENTS							
Brookfield Infrastructure Fund II	2013	15,000,000	11,406,847	1,499,925	13,076,548	1.30	14.2%
First Reserve Energy Infrastructure Fund II, L.P.	2014	10,000,000	3,668,378	252,497	5,942,389	1.70	70.8%
IFM Global Infrastructure Fund	2014	10,000,000	10,323,038	323,038	11,672,556	1.20	8.6%
KKR Global Infrastructure Investors II L.P.	2014	12,000,000	5,179,603	180,979	5,043,881	1.00	1.1%
Actis Energy 4	2016	12,900,000	383,860	671	257,000	N/A	N/A
Brookfield Infrastructure Fund III, L.P.	2016	19,000,000	3,097,476	60,238	3,394,171	N/A	N/A
Global Infrastructure Partners III-A/B, L.P.	2016	22,000,000	3,882,165	74,706	3,757,048	N/A	N/A
EQT Infrastructure III	2017	10,345,381	-	-	-	N/A	N/A

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through June 30, 2017



	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
TOTAL OPPORTUNISTIC FIXED INCOME		419,511,796	397,546,722	155,331,703	336,144,258	1.19%	7.45%
Avenue Special Situations Fund V, L.P.	2007	5,052,332	5,130,079	6,699,797	57,772	0.00%	NM
Avenue Europe Special Sit. Fund, L.P.	2008	5,084,464	4,495,867	8,970,029	-	0.00%	NM
PIMCO DiSCO Fund, L.P.	2008	25,000,000	25,071,292	34,076,267	146,043	0.00%	11.23%
Torchlight Debt Oppy Fund III, LLC	2009	15,000,000	15,991,888	21,812,240	1,742,875	2.54%	13.27%
Avenue Special Situations Fund VI L.P.	2011	15,000,000	15,378,545	13,083,864	4,067,838	0.00%	1.12%
Golden Tree	2011	32,000,000	30,000,730	-	44,114,274	2.17%	8.18%
Marathon Centre Street Partnership, L.P.	2011	46,875,000	51,750,000	11,250,000	59,332,136	-0.22%	8.37%
AG Centre Street Partnership, L.P.	2012	35,000,000	27,650,000	9,260,636	25,697,675	-1.33%	6.12%
Apollo Centre Street Partnership, L.P.	2012	50,000,000	55,097,560	14,349,597	45,008,960	1.69%	3.27%
FCO MA Centre Street L.P.	2012	30,000,000	40,988,466	17,789,470	28,703,327	0.00%	8.67%
OHA Centre Street Partnership, L.P.	2012	37,500,000	38,046,338	12,066,818	36,488,562	2.72%	7.76%
Contrarian Partnership, L.P.	2013	15,000,000	15,000,000	-	17,267,047	1.37%	6.20%
Oaktree Opportunities Fund IX, L.P.	2013	30,000,000	30,000,000	4,490,347	27,422,611	3.06%	2.01%
Ares Centre Street LP	2014	30,000,000	27,453,659	-	32,789,476	1.71%	10.18%
Brightwood Capital Fund III, L.P.	2015	8,000,000	6,492,299	1,308,467	5,525,382	0.00%	1.53%
Torchlight Debt Opportunity Fund V, LP	2015	20,000,000	7,000,000	174,172	5,657,574	4.02%	13.26%
Brightwood Capital Fund IV, LP	2016	20,000,000	2,000,000	-	2,122,707	0.00%	9.20%

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

Alternative Assets Manager Performance Detail

Through June 30, 2017



	Market Value	MTD Return%	3 Month Return%	FYTD Return%	YTD Return%	1 Year Return%	3 Year Return%	ITD Return%	ITD Cumulative Return%
TOTAL HEDGE FUNDS	666,794,607	-0.46%	1.28%	8.25%	4.26%	8.25%	2.54%	3.39%	22.15%
TOTAL DIRECT HEDGE FUNDS	615,234,024	-0.50%	1.43%	8.67%	4.68%	8.67%	2.80%	4.48%	27.71%
FUND OF FUNDS HEDGE FUNDS - PERMAL	51,560,583	0.00%	-0.15%	4.13%	0.14%	4.13%	0.51%	2.18%	13.82%
TOTAL DIRECT HEDGE FUNDS									
Caspian Select Credit Fund, L.P.	51,757,115	0.14%	-0.69%	12.54%	3.48%	12.54%	-0.23%	3.94%	22.08%
D.E. Shaw Composite Fund, L.L.C.	72,045,529	-0.31%	2.33%	8.39%	4.95%	8.39%	10.82%	13.37%	99.39%
Relative Value	123,802,644	-0.12%	1.06%	10.13%	4.34%	10.13%	6.12%	9.40%	65.14%
AlphaQuest Original LLC	30,719,035	-0.91%		-0.91%	-0.91%			-0.91%	-0.91%
Brevan Howard AH Fund, L.P.	32,031,056	-4.10%		-6.83%	-6.83%			-6.83%	-6.83%
Brevan Howard L.P.	14,573,320	-1.47%	-2.75%	-0.56%	-4.69%	-0.56%	0.50%	0.66%	3.73%
CCP Quantitative Fund LP	11,098,317	-4.94%	1.23%	-9.96%	3.02%	-9.96%	9.48%	-1.83%	-7.84%
GSA Trend Fund LP	35,484,735	-3.17%		-6.62%	-6.62%			-6.62%	-6.62%
Key Square Partners LP	40,908,692	-1.42%		-1.42%	-1.42%			-1.42%	-1.42%
Pharo Gaia Fund, LTD.	51,691,666	0.43%	6.99%	22.41%	16.19%	22.41%		20.34%	34.06%
Pharo Macro Fund, Ltd.	52,824,541	0.93%	6.13%	14.50%	11.40%	14.50%	7.10%	10.20%	47.47%
Tactical Trading	269,331,363	-1.28%	1.93%	9.73%	7.33%	9.73%	7.66%	5.24%	32.97%
Fir Tree Value Fund, L.P.	41,176,806	-1.02%	0.30%	5.69%	0.65%	5.69%	-3.03%	1.07%	4.80%
Luxor Capital Partners, LP	50,002,566	0.34%	2.32%	36.15%	13.73%	36.15%	-2.59%	-3.09%	-9.22%
Perry Partners L.P.	2,281,019	-3.07%	-4.24%	2.07%	-8.09%	2.07%	-7.16%	-3.15%	-12.24%
Standard General Fund II L.P.	13,731,882	-0.47%	0.11%	0.89%	0.89%			0.89%	0.89%
Event Driven	107,192,273	-0.36%	1.14%	21.04%	7.22%	21.04%	-2.76%	0.79%	3.52%
Altimeter Partners Fund LP	20,735,532	-1.15%	7.08%	43.10%	10.46%	43.10%		13.62%	18.56%
Gotham Targeted Neutral, LP	11,732,998	-0.49%	-1.89%	2.15%	-2.75%	2.15%		-1.77%	-4.22%
SRS Partners US, LP	37,768,009	1.76%	0.73%	10.99%	2.40%	10.99%		5.43%	14.12%
Turiya Fund LP	44,671,206	1.35%	5.36%	9.52%	8.91%	9.52%		0.75%	1.51%
Long/Short Equity	114,907,745	0.83%	3.50%	15.06%	5.98%	15.06%		3.23%	8.26%
FUND OF FUNDS HEDGE FUNDS - PERMAL									
Permal Asset Management Inc. - Managed Account	51,560,583	0.00%	-0.15%	4.13%	0.14%	4.13%	0.51%	2.18%	13.82%

Information provided by Alpha Frontier

New York City
Fire Department Pension Fund, Subchapter Two

Appendix D

Footnotes

Through June 30, 2017



- 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 7/1/09, 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.

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.

The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 33.62%*

*International Developed (EAFE) Markets: MSCI EAFE IMI Net * 8.98%*

*Emerging Markets: MSCI Emerging Markets * 5.98%*

*International Emerging Managers FOF: MSCI ACWI Ex US IMI Net * 0.55%*

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

*Private Equity: Russell 3000 + 300 b.p. per annum * 6.96%*

*Private Real Estate - Core: NFI - ODCE Net * 2.43%*

*Private Real Estate – Non Core: NFI - ODCE Net + 200bps * 1.75%*

*Infrastructure: CPI + 4% * 0.31%*

*Hedge Funds: HFRI Fund of Funds Composite Index plus 1% * 5.48%*

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

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

*US Treasury Intermediate Long: NYC Treasury Agency + 5 * 0.00%*

*US Treasury Long Duration: Citigroup Treasury 10+ * 8.73%*

*Core FI-Developing Mgrs: BBG Barc Agg * 0.00%*

*Core FI-Emerging Mgrs: BBG Barc Agg * 0.00%*

*Mortgage: Citigroup Mortgage Index * 3.23%*

*ETI: ETI Custom Benchmark * 0.72%*

*Investment Grade Credit: NYC – Investment Grade Credit * 3.95%*

Through June 30, 2017



*High Yield: Citigroup BB&B * 8.11%*

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

*TIPS: Lehman U.S. TIPS * 4.42%*

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

*Opportunistic Fixed: OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum * 2.78%*

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.