Monthly Performance Review
September 2019

Prepared for the New York City
Fire Department Pension Fund
11.2019

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER

TABLE OF CONTENTS

Market Indicators for September & October 1

Contribution to Returns 6

Asset Allocation: Growth, Deflation, Inflation; New Policy Weights & Adjusted Policy Weight Mixes 7

Classification of Investments. 13

Fire Market Values 2018-2019 17

Fire Market Values 2010-2019 18

Manager / Benchmark Comparison Report 19

Private Equity Fund Supplemental Details 32

Private Equity Cash Flow Tracker 34

Real Estate Fund Supplemental Details 35

Real Estate Cash Flow Tracker 36

Infrastructure Fund Supplemental Details 37

Infrastructure Cash Flow Tracker 38

CITY OF NEW YORK
NYC Fire Department Pension Fund
Market Indicator Report
September 30, 2019

STATE STREET

MARKET INDICATORS

	1 Month	3 Month	Fiscal YTD	1 Year	2 Year	3 Year	5 Year	10 Year
S&P 500	1.87	1.70	1.70	4.25	10.87	13.39	10.84	13.24
S&P 400 MID CAP	3.06	(0.09)	(0.09)	(2.49)	5.53	9.38	8.88	12.56
RUSSELL 1000	1.73	1.42	1.42	3.87	10.60	13.19	10.62	13.23
RUSSELL 2000	2.08	(2.40)	(2.40)	(8.89)	2.47	8.23	8.19	11.19
RUSSELL 3000	1.76	1.16	1.16	2.92	10.00	12.83	10.44	13.08
RUSSELL 3000 GROWTH	(0.04)	1.10	1.10	2.70	13.70	16.36	13.07	14.74
RUSSELL 3000 VALUE	3.67	1.23	1.23	3.10	6.23	9.24	7.76	11.36
MSCI EAFE NET	2.87	(1.07)	(1.07)	(1.34)	0.68	6.48	3.27	4.90
MSCI EMF NET	1.91	(4.25)	(4.25)	(2.02)	(1.42)	5.97	2.33	3.37
MSCI WORLD NET	2.13	0.53	0.53	1.83	6.43	10.21	7.18	9.01
MSCI EUROPE SMID CAP NET	2.53	(1.97)	(1.97)	(5.93)	(2.11)	6.04	4.91	6.89
MSCI AC WORLD ex US NET	2.57	(1.80)	(1.80)	(1.23)	0.26	6.33	2.90	4.45
FTSE ALL WORLD EX US	2.67	(1.51)	(1.51)	(0.81)	0.80	6.78	3.54	5.05
1 YEAR TREASURY BILL YIELD + 4%	0.49	1.63	1.63	7.26	6.24	5.70	5.23	4.84
HFRI FUND OF FUNDS COMPOSITE + 1%	(0.33)	(0.65)	(0.65)	1.01	2.53	4.18	2.97	3.70
NYC - TREASURY AGENCY PLUS FIVE	(1.61)	4.50	4.50	17.12	6.61	3.07	4.70	5.03
FTSE USBIG Treasury 1-3 Y Index	(0.11)	0.58	0.58	4.34	2.16	1.52	1.31	1.15
FTSE USBIG Treasury/Agency 1-10 y	(0.44)	1.17	1.17	7.46	3.07	1.81	2.16	2.33
FTSE Treasury 10+	(2.51)	7.95	7.95	24.86	9.72	4.09	6.83	6.92
CITIGROUP MORTGAGE INDEX	0.13	1.49	1.49	8.07	3.46	2.41	2.85	3.18

*NCREIF NFI - ODCE NET index return calculated on a quarterly basis

MARKET INDICATORS

	1 Month	3 Month	Fiscal YTD	1 Year	2 Year	3 Year	5 Year	10 Year
NYC - INVESTMENT GRADE CREDIT	(0.71)	3.07	3.07	12.52	5.51	4.25	4.49	5.20
CITIGROUP BROAD INVESTMENT GRADE	(0.55)	2.37	2.37	10.44	4.44	2.96	3.40	3.72
NYC - CORE PLUS FIVE	(0.64)	2.88	2.88	12.00	5.06	3.38	3.96	4.39
BARCLAYS AGGREGATE	(0.53)	2.27	2.27	10.30	4.38	2.92	3.38	3.75
FTSE BB & B	0.30	1.33	1.33	7.06	4.84	5.93	5.13	7.41
FTSE BB & B CAPPED	0.31	1.29	1.29	6.99	4.79	5.84	5.02	7.30
BofA ML HIGH YIELD MASTER II	0.32	1.22	1.22	6.30	4.61	6.07	5.36	7.85
ICE BofAML US High Yield Constrained	0.32	1.22	1.22	6.30	4.61	6.07	5.37	7.84
CSFB LEVERAGED LOAN	0.42	0.92	0.92	3.11	4.34	4.68	4.11	5.38
BARCLAYS GLOBAL US TIPS	(1.36)	1.35	1.35	7.13	3.71	2.21	2.45	3.46
BofA ML U.S. Convertible – Yield Alternative	1.18	1.96	1.96	5.33	5.74	6.67	3.59	5.98
ICE BofAML All IG US Convertibles	2.47	5.42	5.42	13.69	12.70	15.29	12.16	11.29
BofA ML ALL CONVERTIBLES EX MANDATORY	(0.47)	(0.03)	(0.03)	3.80	8.26	10.97	7.94	10.39
DJ US SELECT REAL ESTATE	2.71	6.83	6.83	16.41	10.34	6.48	9.69	12.65
CPI + 4%	0.35	1.40	1.40	5.81	6.09	6.17	5.61	
91 DAY TREASURY BILL	0.17	0.56	0.56	2.39	1.99	1.54	0.98	0.54

*NCREIF NFI - ODCE NET index return calculated on a quarterly basis

MARKET INDICATORS

	1 Month	3 Month	Fiscal YTD	1 Year	2 Year	3 Year	5 Year	10 Year
S&P 500	2.17	2.43	3.90	14.33	10.78	14.91	10.78	13.70
S&P 400 MID CAP	1.13	(0.14)	1.04	9.02	4.94	10.79	8.37	13.21
RUSSELL 1000	2.12	1.99	3.57	14.15	10.51	14.73	10.55	13.72
RUSSELL 2000	2.63	(0.40)	0.17	4.90	3.37	10.96	7.37	12.27
RUSSELL 3000	2.15	1.83	3.34	13.49	9.99	14.47	10.31	13.62
RUSSELL 3000 GROWTH	2.82	1.75	3.96	16.34	13.23	18.50	13.05	15.26
RUSSELL 3000 VALUE	1.47	1.91	2.71	10.65	6.64	10.40	7.52	11.91
MSCI EAFE NET	3.59	3.80	2.48	11.04	1.70	8.48	4.31	5.41
MSCI EMF NET	4.22	1.03	(0.21)	11.86	(1.08)	7.36	2.93	3.78
MSCI WORLD NET	2.54	2.58	3.09	12.69	6.77	11.86	7.58	9.48
MSCI EUROPE SMID CAP NET	4.52	4.57	2.46	8.95	(0.36)	9.40	6.23	7.60
MSCI AC WORLD ex US NET	3.49	2.87	1.63	11.27	1.04	8.07	3.82	4.94
FTSE ALL WORLD EX US	3.59	3.21	2.03	11.88	1.61	8.53	4.47	5.55
1 YEAR TREASURY BILL YIELD + 4%	0.67	1.84	2.31	7.39	6.38	5.81	5.30	4.87
HFRI FUND OF FUNDS COMPOSITE + 1%	0.53	(0.53)	(0.19)	4.44	2.14	4.41	3.17	3.75
NYC - TREASURY AGENCY PLUS FIVE	(0.26)	4.24	4.23	18.36	6.54	3.77	4.28	5.05
FTSE USBIG Treasury 1-3 Y Index	0.33	1.02	0.92	4.54	2.36	1.66	1.32	1.17
FTSE USBIG Treasury/Agency 1-10 y	0.29	1.64	1.47	7.73	3.28	2.07	2.08	2.34
FTSE Treasury 10+	(0.87)	6.81	7.02	27.67	9.29	5.22	6.04	6.98
CITIGROUP MORTGAGE INDEX	0.40	1.46	1.90	9.25	3.70	2.63	2.73	3.15

*NCREIF NFI - ODCE NET index return calculated on a quarterly basis

MARKET INDICATORS

	1 Month	3 Month	Fiscal YTD	1 Year	2 Year	3 Year	5 Year	10 Year
NYC - INVESTMENT GRADE CREDIT	0.51	2.95	3.59	14.54	5.60	4.69	4.37	5.19
CITIGROUP BROAD INVESTMENT GRADE	0.30	2.40	2.68	11.64	4.57	3.32	3.26	3.70
NYC - CORE PLUS FIVE	0.29	2.76	3.18	13.53	5.17	3.80	3.78	4.37
BARCLAYS AGGREGATE	0.30	2.35	2.58	11.51	4.51	3.29	3.24	3.73
FTSE BB & B	0.23	1.06	1.56	8.91	4.76	5.95	4.86	7.29
FTSE BB & B CAPPED	0.22	1.05	1.52	8.84	4.68	5.85	4.77	7.17
BofA ML HIGH YIELD MASTER II	0.23	0.94	1.46	8.32	4.53	6.04	5.17	7.69
ICE BofAML US High Yield Constrained	0.23	0.94	1.46	8.32	4.53	6.04	5.18	7.67
CSFB LEVERAGED LOAN	(0.49)	(0.35)	0.43	2.61	3.74	4.24	3.95	5.26
BARCLAYS GLOBAL US TIPS	0.26	1.24	1.60	8.96	3.73	2.44	2.33	3.36
BofA ML U.S. Convertible – Yield Alternative	0.79	2.12	2.77	8.48	6.26	7.18	3.80	6.05
ICE BofAML All IG US Convertibles	1.87	6.04	7.39	18.40	10.98	16.48	11.95	11.54
BofA ML ALL CONVERTIBLES EX MANDATORY	1.70	(0.28)	1.67	12.39	8.14	12.17	8.00	10.79
DJ US SELECT REAL ESTATE	1.07	6.27	7.97	20.72	11.53	8.94	7.71	13.33
NCREIF NFI - ODCE NET*	0.00	1.08	1.08	4.64	6.16	6.34	8.36	9.84
NCREIF NFI-ODCE NET + 100	0.08	1.33	1.41	5.69	7.22	7.40	9.43	
CPI + 4%	0.68	1.42	2.10	5.84	6.24	6.20	5.68	

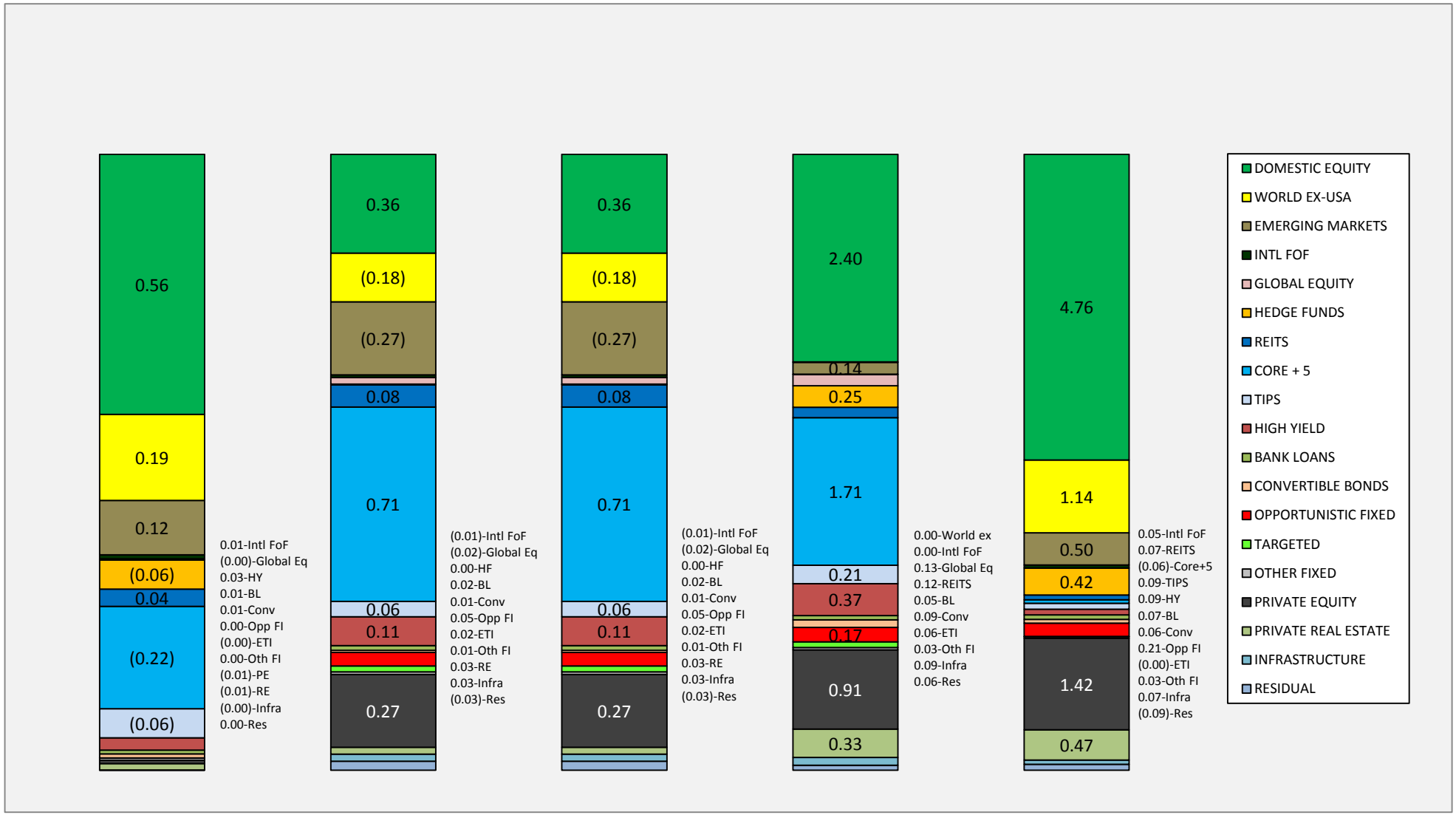
*NCREIF NFI - ODCE NET index return calculated on a quarterly basis

MARKET INDICATORS

	1 Month	3 Month	Fiscal YTD	1 Year	2 Year	3 Year	5 Year	10 Year
91 DAY TREASURY BILL	0.19	0.57	0.76	2.40	2.04	1.60	1.02	0.56

*NCREIF NFI - ODCE NET index return calculated on a quarterly basis

NYC Fire Dept. Pension Fund Contribution to Return - September 2019



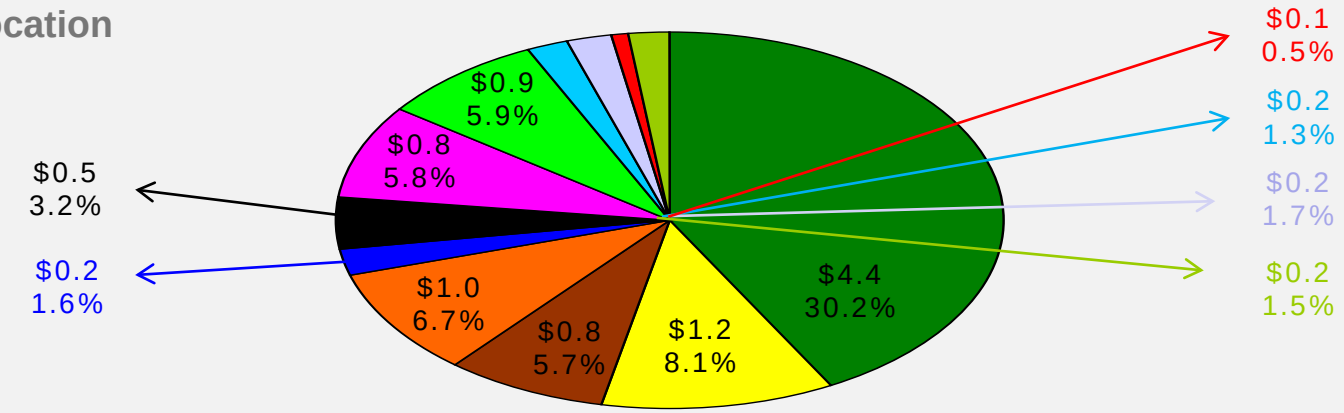
1 Month - Total Fund	3 Months - Total Fund	FYTD - Total Fund	FY Ending 6/30/19 Total	FY Ending 6/30/18 Total
Return: 0.59%	Return: 1.23%	Return: 1.23%	Return: 7.11%	Return: 9.30%

Prepared by State Street

Portfolio Asset Allocation – Growth : September 30, 2019

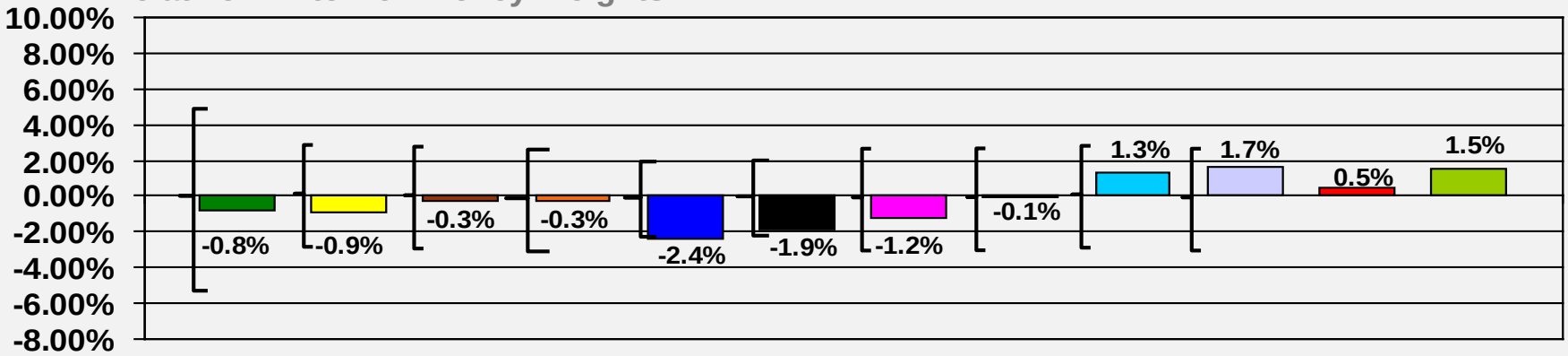
$14.6B Under Management

Asset Allocation



Domestic US Equity | World ex-USA | Emerging Markets | Private Equity | Private Real Estate – Non Core | Opportunistic FI | High Yield | Hedge Funds | REITS | Convertible Bonds | Int'l Emerging Manager FOF | Global Equity

Relative Mix to New Policy Weights

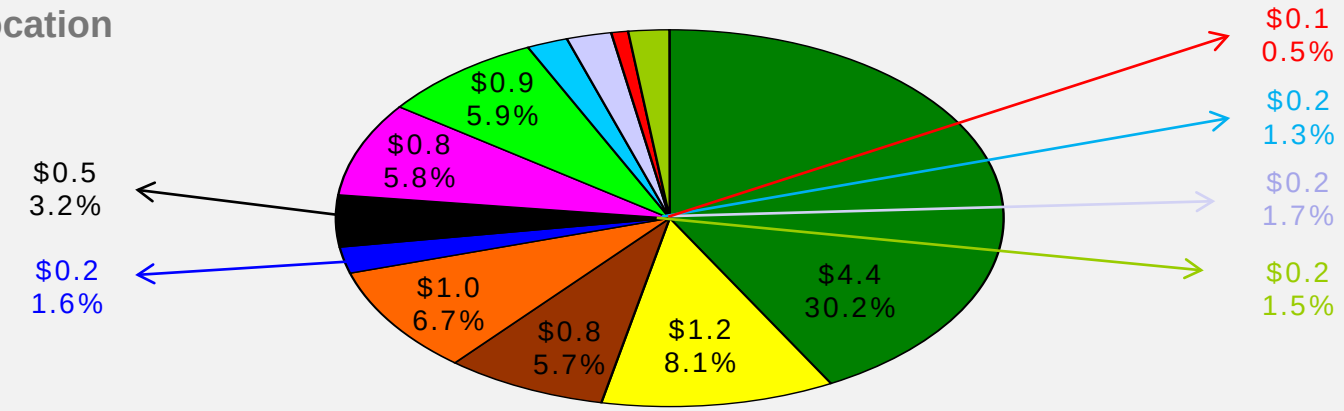


Note: Brackets represent rebalancing ranges versus Policy.

Portfolio Asset Allocation – Growth : September 30, 2019

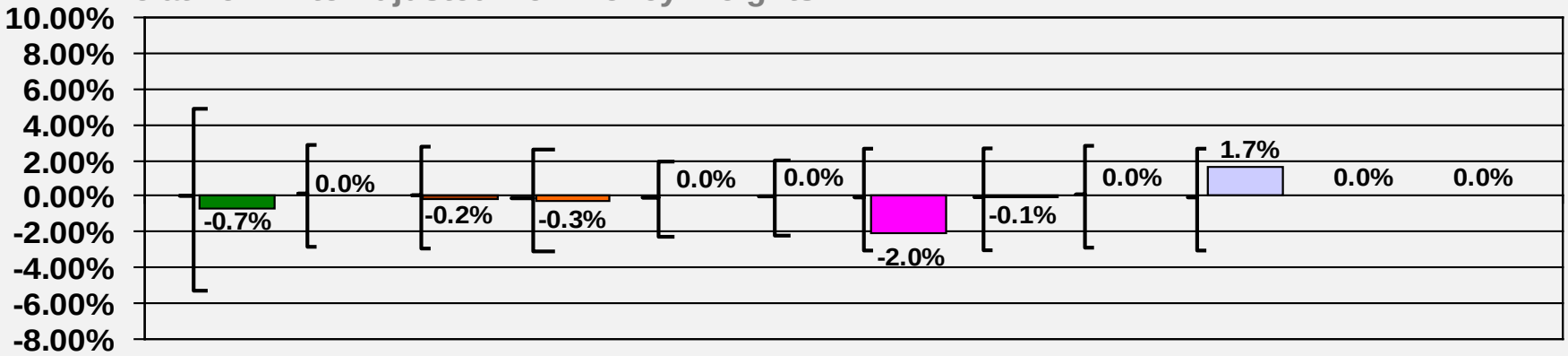
$14.6B Under Management

Asset Allocation



Domestic US Equity | World ex-USA | Emerging Markets | Private Equity | Private Real Estate – Non Core | Opportunistic FI | High Yield | Hedge Funds | REITS | Convertible Bonds | Int'l Emerging Manager FOF | Global Equity

Relative Mix to Adjusted New Policy Weights



Note: Brackets represent rebalancing ranges versus Policy.

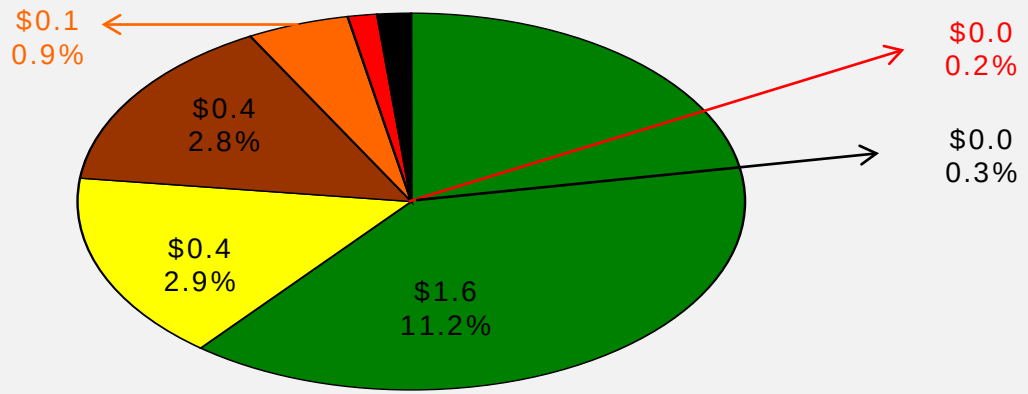
New York City Fire Department Pension Fund, Subchapter Two
Performance Overview as of September 30, 2019
Prepared by State Street

Note: On September 30, 2019 Fire's combined Fixed Income and Cash portfolios have a duration of 7.7 years. The duration of the Barclays US Aggregate Index was 5.8 years on that date.

Portfolio Asset Allocation – Deflation Protection : September 30, 2019

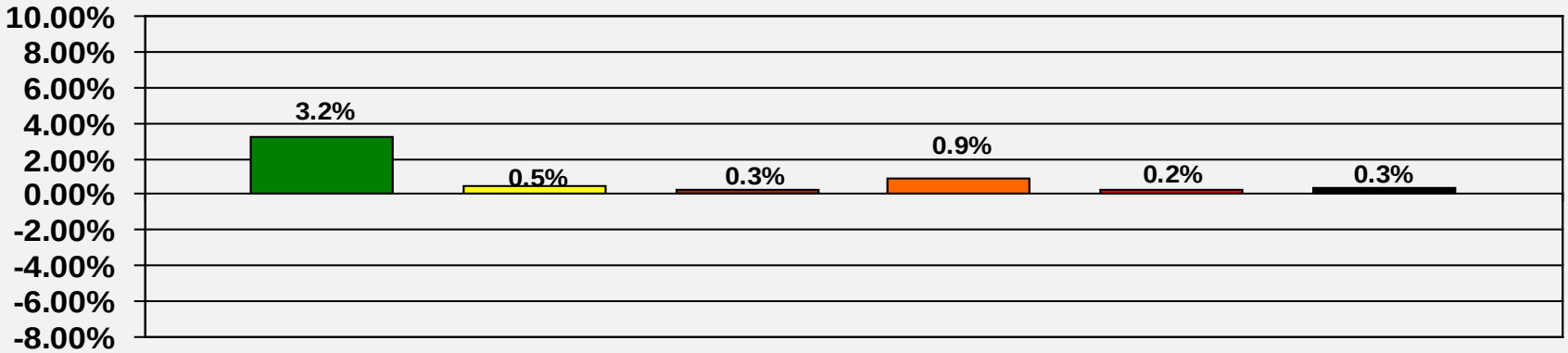
$14.6B Under Management

Asset Allocation



US Government Treasuries | Mortgages | Investment Grade Credit | Short Term | Core Fixed Income-Emerging Managers | Core Fixed Income-Developing Managers

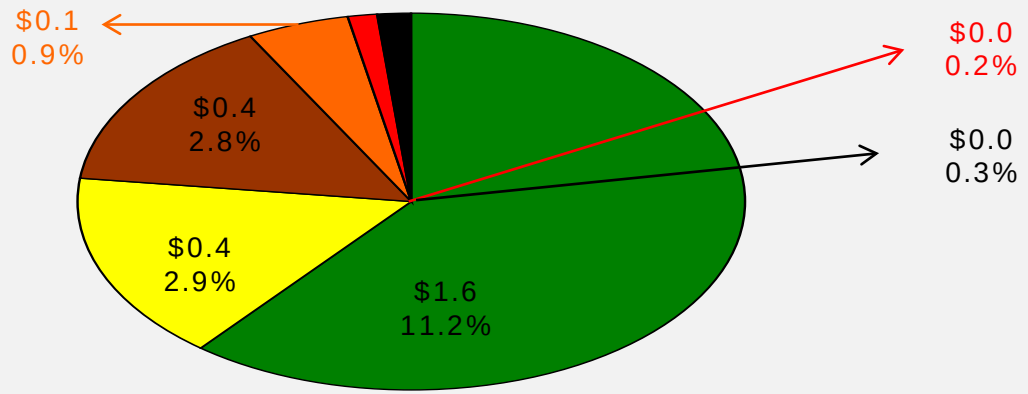
Relative Mix to New Policy Weights



Portfolio Asset Allocation – Deflation Protection : September 30, 2019

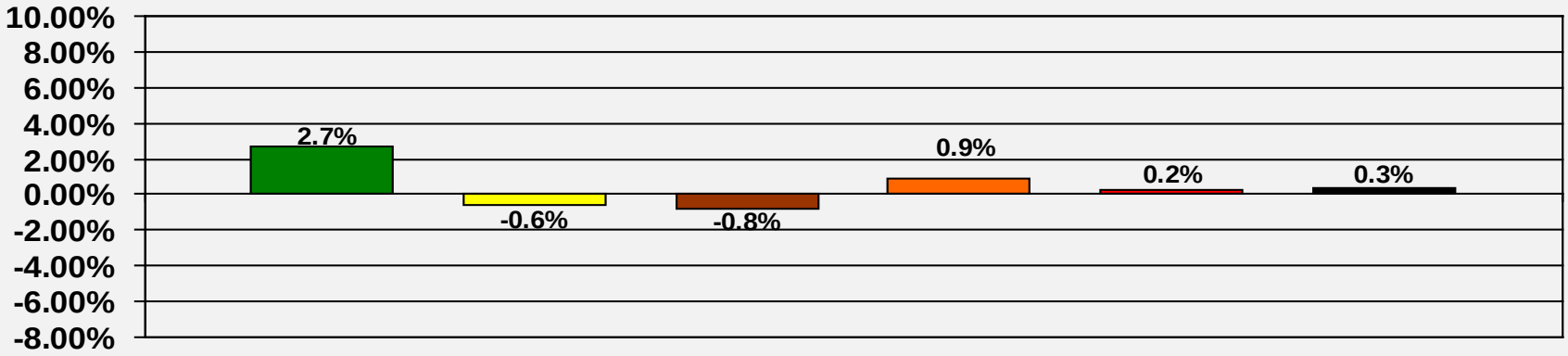
$14.6B Under Management

Asset Allocation



US Government Treasuries | Mortgages | Investment Grade Credit | Short Term | Core Fixed Income-Emerging Managers | Core Fixed Income-Developing Managers

Relative Mix to Adjusted Policy Weights



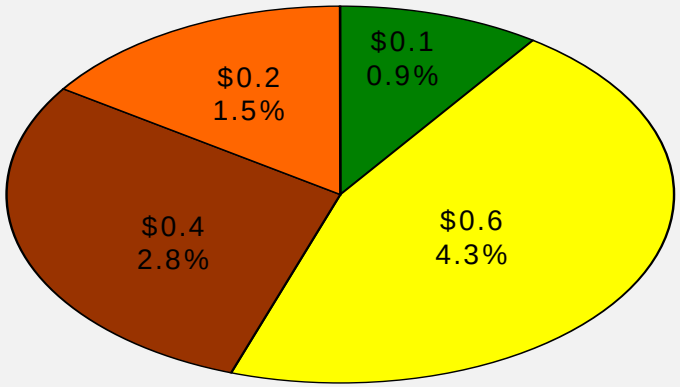
New York City Fire Department Pension Fund, Subchapter Two
Performance Overview as of September 30, 2019
Prepared by State Street

Note: On September 30, 2019 Fire's combined Fixed Income and Cash portfolios have a duration of 7.7 years. The duration of the Barclays US Aggregate Index was 5.8 years on that date.

Portfolio Asset Allocation – Inflation Protection : September 30, 2019

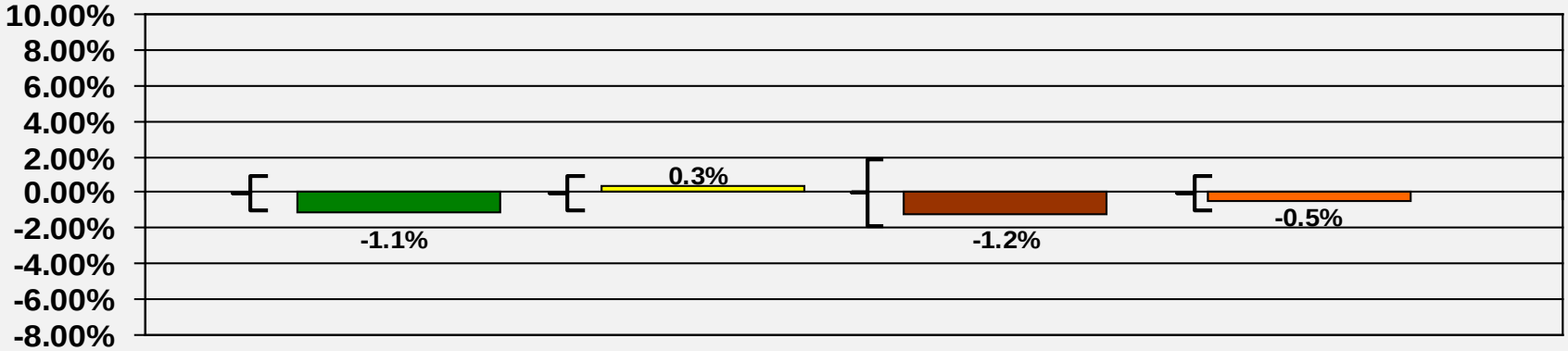
$14.6B Under Management

Asset Allocation



Infrastructure | US TIPS | Real Estate - Core | Bank Loans

Relative Mix to New Policy Weights

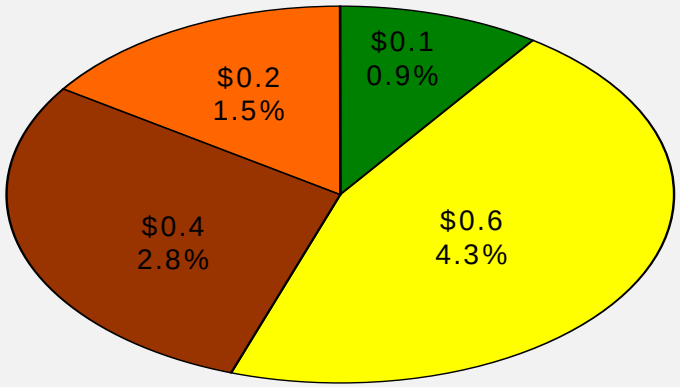


Note: Brackets represent rebalancing ranges versus Policy.

Portfolio Asset Allocation – Inflation Protection : September 30, 2019

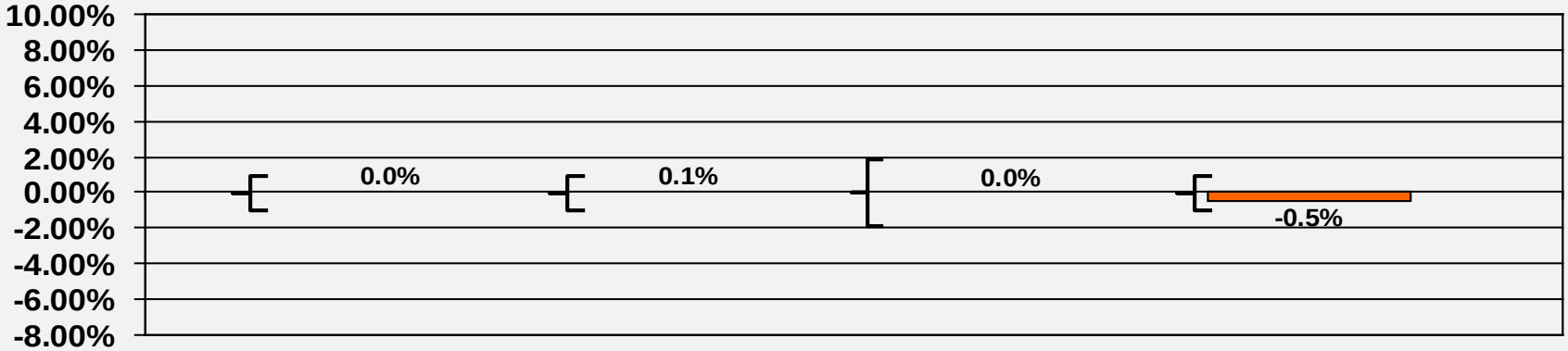
$14.6B Under Management

Asset Allocation



Infrastructure | US TIPS | Real Estate - Core | Bank Loans

Relative Mix to Adjusted Policy Weights



Note: Brackets represent rebalancing ranges versus Policy.

New York City Fire Department Pension Fund, Subchapter Two
Performance Overview as of September 30, 2019
Prepared by State Street

Note: On September 30, 2019 Fire's combined Fixed Income and Cash portfolios have a duration of 7.7 years. The duration of the Barclays US Aggregate Index was 5.8 years on that date.

NYC FIRE DEPARTMENT PENSION FUND
CLASSIFICATION OF INVESTMENTS
(as of September 30th, 2019)

ASSET CLASS ALLOCATIONS

	In $MM	Actual	Policy Target	*Adjustment*	*Adjusted Policy*	*Adjusted Target Range* ***
TOTAL EQUITIES	$9,505.7	65.2%	69.0%	*NA*	*66.4%*	*60.4% - 72.4%*
TOTAL FIXED INCOME	$5,079.4	34.8%	31.0%	*NA*	*33.3%*	*28.3% - 38.3%*
TOTAL ASSETS	$14,585.1	100.0%	100.0%	*NA*	*99.7%*	

	In $MM	Actual	Policy Target	*Adjustment*	*Adjusted Policy*	*Adjusted Target Range* ***
US Equities	$4,408.0	30.2%	31.0%	*2.3%*	*33.3%*	*28.3% - 38.3%*
Non-US Equities/EAFE	$1,183.2	8.1%	9.0%	*0.2%*	*9.2%*	*6.2% - 12.2%*
Emerging Markets	$828.5	5.7%	6.0%	*0.1%*	*6.1%*	*3.1% - 9.1%*
Non-US Emerging Mgrs. FoF	$72.1	0.5%	0.0%	*NA*	*0.0%*	-
Global Equity	$215.3	1.5%	0.0%	*NA*	*0.0%*	-
Real Estate Investment Trusts	$195.6	1.3%	0.0%	*NA*	*0.0%*	*0.0% - 0.0%*
TOTAL PUBLIC EQUITY	$6,902.7	47.3%	46.0%	*2.5%*	*48.5%*	
** HEDGE FUNDS*	$859.4	5.9%	6.0%	*NA*	*5.9%*	*2.9% - 8.9%*
** REAL ESTATE - CORE*	$402.8	2.8%	4.0%	*NA*	*2.8%*	*0.8% - 4.8%*
** REAL ESTATE - OPPORTUNISTIC*	$227.3	1.6%	4.0%	*NA*	*1.6%*	*-0.4% - 3.6%*
** PRIVATE EQUITY*	$977.7	6.7%	7.0%	*NA*	*6.7%*	*3.7% - 9.7%*
PRIVATE INFRASTRUCTURE	$135.9	0.9%	2.0%	*NA*	*0.9%*	*-0.1% - 1.9%*
TOTAL EQUITIES	$9,505.7	65.2%	69.0%	NA	66.4%	*60.4% - 72.4%*

	In $MM	Actual	Policy Target	*Adjustment*	*Adjusted Policy*	*Adjusted Target Range* ***
U.S. Treasuries – All Maturities	$1,079.5	7.4%	0.0%	*NA*	*0.0%*	*-4.0% - 4.0%*
U.S. Treasuries - Longer Than Twenty Years	$557.6	3.8%	8.0%	*0.6%*	*8.6%*	*4.6% - 12.6%*
Core Mortgage-Backed Securities	$316.3	2.2%	0.5%	*1.2%*	*1.7%*	*0.7% - 2.7%*
Credit - Investment Grade Corporates	$403.5	2.8%	2.5%	*1.2%*	*3.7%*	*2.7% - 4.7%*
High Yield	$841.4	5.8%	7.0%	*0.9%*	*7.9%*	*4.9% - 10.9%*
Bank Loans	$216.0	1.5%	2.0%	*NA*	*2.0%*	*1.0% - 3.0%*
Total High Yield & Bank Loans	$1,057.4	7.2%	9.0%	*0.9%*	*9.9%*	*4.9% - 10.9%*
TIPS	$630.9	4.3%	4.0%	*0.3%*	*4.3%*	*3.3% - 5.3%*
Convertible Bonds	$242.0	1.7%	0.0%	*NA*	*0.0%*	*0.0% - 0.0%*
** ETI	$113.9	0.8%	2.0%	*NA*	*2.0%*	*1.0% - 3.0%*
Cash	$137.0	0.9%	0.0%	*NA*	*0.0%*	*0.0% - 5.0%*
TOTAL PUBLIC FIXED INCOME	$4,538.3	31.1%	26.0%	NA	*30.2%*	
** OPPORTUNISTIC FIXED INCOME*	$460.0	3.2%	5.0%	*NA*	*3.2%*	*1.2% - 5.2%*
OTHER FIXED INCOME	$81.1	0.6%	0.0%	*NA*	*0.0%*	*0.0% - 0.0%*
TOTAL FIXED INCOME	$5,079.4	34.8%	31.0%	*NA*	*33.3%*	28.3% - 38.3%

* Ranges for illiquid asset classes represent minimums and maximums which will be monitored and will influence pacing analysis but will not necessarily result in purchases or sales.

** ETIs have a policy of 2% of the total Fund. The ETI adjusted policy % is shown for illustrative purposes only and is not included in the sub-totals. The ETI policy % is included within the policy % of the other asset classes.

*** Adjusted Target Ranges are calculated as follows: Total Equities: +/-6%; Total Fixed Income: +/-5%; US Equities: +/-5%; Non-US Equities/EAFE: +/-3%; Emerging Markets: +/-3%; Hedge Funds: +/-3%; Real Estate Core: +/-2%; Real Estate Opportunistic: +/-2%; Private Equity: +/-3%; US Treasuries All Maturities: +/-4%; US Treasuries Longer than 20 Years: +/-4%; Mortgage Backed Securities: +/-1%; Investment Grade Corporates: +/-1%; TIPS: +/-1%; High Yield: +/-3%; Bank Loans: +/-1%; OFI: +/-2%.

Information Classification: General

NYC FIRE DEPARTMENT PENSION FUND
CLASSIFICATION OF INVESTMENTS
(as of September 30th, 2019)

Adjustments to Long-Term Asset Allocation

1) **Private Equity**
100% of uninvested commitments will be invested in Domestic Equity.

2) **Real Estate Core**
40% of uninvested commitments will be invested in US Equity, 12% of uninvested commitments will be invested in US Treasuries, 24% of uninvested commitments will be invested in Investment Grade Corporates, and 24% of uninvested commitments will be invested in Mortgage Backed Securities.

3) **Real Estate Opportunistic**
60% of uninvested commitments will be invested in US Equity, 8% of uninvested commitments will be invested in US Treasuries, 16% of uninvested commitments will be invested in Investment Grade Corporates, and 16% of uninvested commitments will be invested in Mortgage Backed Securities.

4) **Infrastructure**
27% of uninvested commitments will be invested in US Equity, 18% of uninvested commitments will be invested in Developed Ex-US Equity, 5% of uninvested commitments will be invested in Emerging Markets Equity, 5% of uninvested commitments will be invested in US Treasuries, 10% of uninvested commitments will be invested in Investment Grade Corporates, 10% of uninvested commitments will be invested in Mortgage Backed Securities, and 25% of uninvested commitments will be invested in TIPS.

5) **Opportunistic Fixed Income**
10% of uninvested commitments will be invested in US Treasuries, 20% of uninvested commitments will be invested in Investment Grade Corporates, 20% of uninvested commitments will be invested in Mortgages Backed Securities, and 50% of uninvested commitments will be invested in High Yield.

6) **Hedge Funds**
27% of uninvested commitments will be invested in US Equity, 18% of uninvested commitments will be invested in Developed Ex-US Equity, 5% of uninvested commitments will be invested in Emerging Markets Equity, 10% of uninvested commitments will be invested in US Treasuries, 20% of uninvested commitments will be invested in Investment Grade Corporates, and 20% of uninvested commitments will be invested in Mortgage Backed Securities.

Impact of Adjustments

1) U.S. Treasuries - Longer Than Twenty Years	**8.0%**
Adjustment: 12% of uninvested Real Estate Core	0.1%
Adjustment: 8% of uninvested Real Estate Opportunistic	0.2%
Adjustment: 5% of uninvested Private Infrastructure	0.1%
Adjustment: 10% of uninvested Hedge Funds	0.0%
Adjustment: 10% of uninvested Opportunistic Fixed Income	0.2%
Total U.S. Treasuries - Longer Than Twenty Years	**8.6%**
2) Credit - Investment Grade Corporates	**2.5%**
Adjustment: 24% of uninvested Real Estate Core	0.3%
Adjustment: 16% of uninvested Real Estate Opportunistic	0.4%
Adjustment: 10% of uninvested Private Infrastructure	0.1%
Adjustment: 20% of uninvested Hedge Funds	0.0%
Adjustment: 20% of uninvested Opportunistic Fixed Income	0.4%
Total Credit - Investment Grade Corporates	**3.7%**

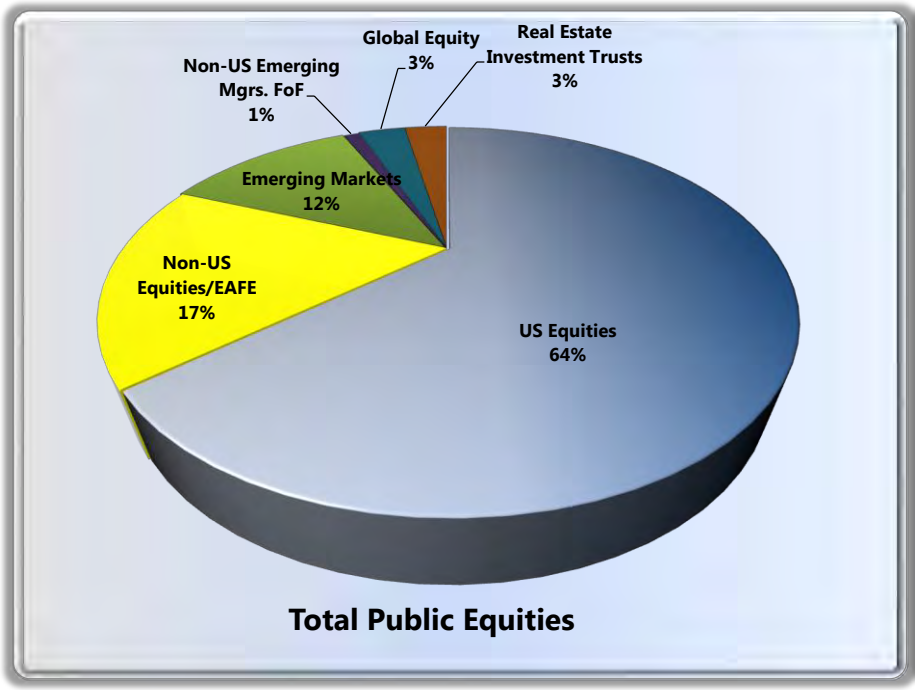
Information Classification: General

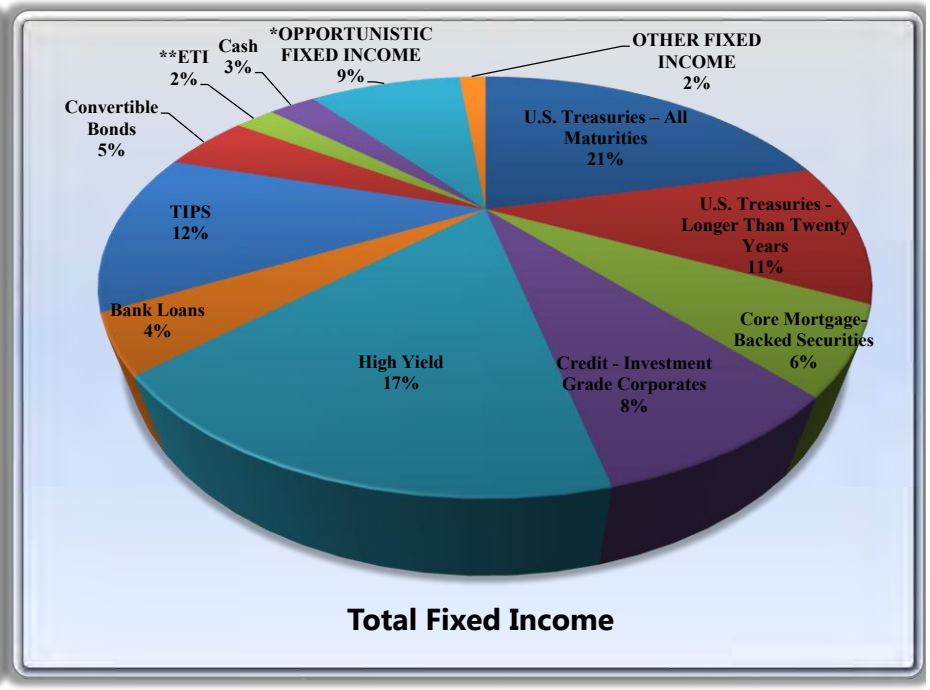
NYC FIRE DEPARTMENT PENSION FUND
CLASSIFICATION OF INVESTMENTS
(as of September 30th, 2019)

3) Core Mortgage-Backed Securities	**0.5%**
Adjustment: 24% of uninvested Real Estate Core	0.3%
Adjustment: 16% of uninvested Real Estate Opportunistic	0.4%
Adjustment: 10% of uninvested Private Infrastructure	0.1%
Adjustment: 20% of uninvested Hedge Funds	0.0%
Adjustment: 20% of uninvested Opportunistic Fixed Income	0.4%
Total Core Mortgage-Backed Securities	**1.7%**
4) High Yield Securities	**7.0%**
Adjustment: 50% of uninvested Opportunistic Fixed Income	0.9%
** Existing Convertibles holdings to be placeholder for HY Securities	
Total High Yield Securities	**7.9%**
5) Domestic Equity	**31.0%**
Adjustment: 100% of uninvested Private Equity	0.0%
Adjustment: 40% of uninvested of uninvested Real Estate Core	0.5%
Adjustment: 60% of uninvested Real Estate Opportunistic	1.5%
Adjustment: 27% of uninvested Private Infrastructure	0.3%
Adjustment: 27% of uninvested Hedge Funds	0.0%
Total Domestic Equity	**33.3%**
6) Treasury Inflation Protected Securities	**4.0%**
Adjustment: 25% of uninvested Private Infrastructure	0.3%
Total Treasury Inflation Protected Securities	**4.3%**
7) Non-U.S. Equity - Emerging Markets	**6.0%**
Adjustment: 5% of uninvested Private Infrastructure	0.1%
Adjustment: 5% of uninvested Hedge Funds	0.0%
Total Non-U.S. Equity - Emerging Markets	**6.1%**
8) Non-U.S. Equity - Developed Mkts.	**9.0%**
Adjustment: 18% of uninvested Private Infrastructure	0.2%
Adjustment: 18% of uninvested Hedge Funds	0.0%
Total Non-U.S. Equity	**9.2%**

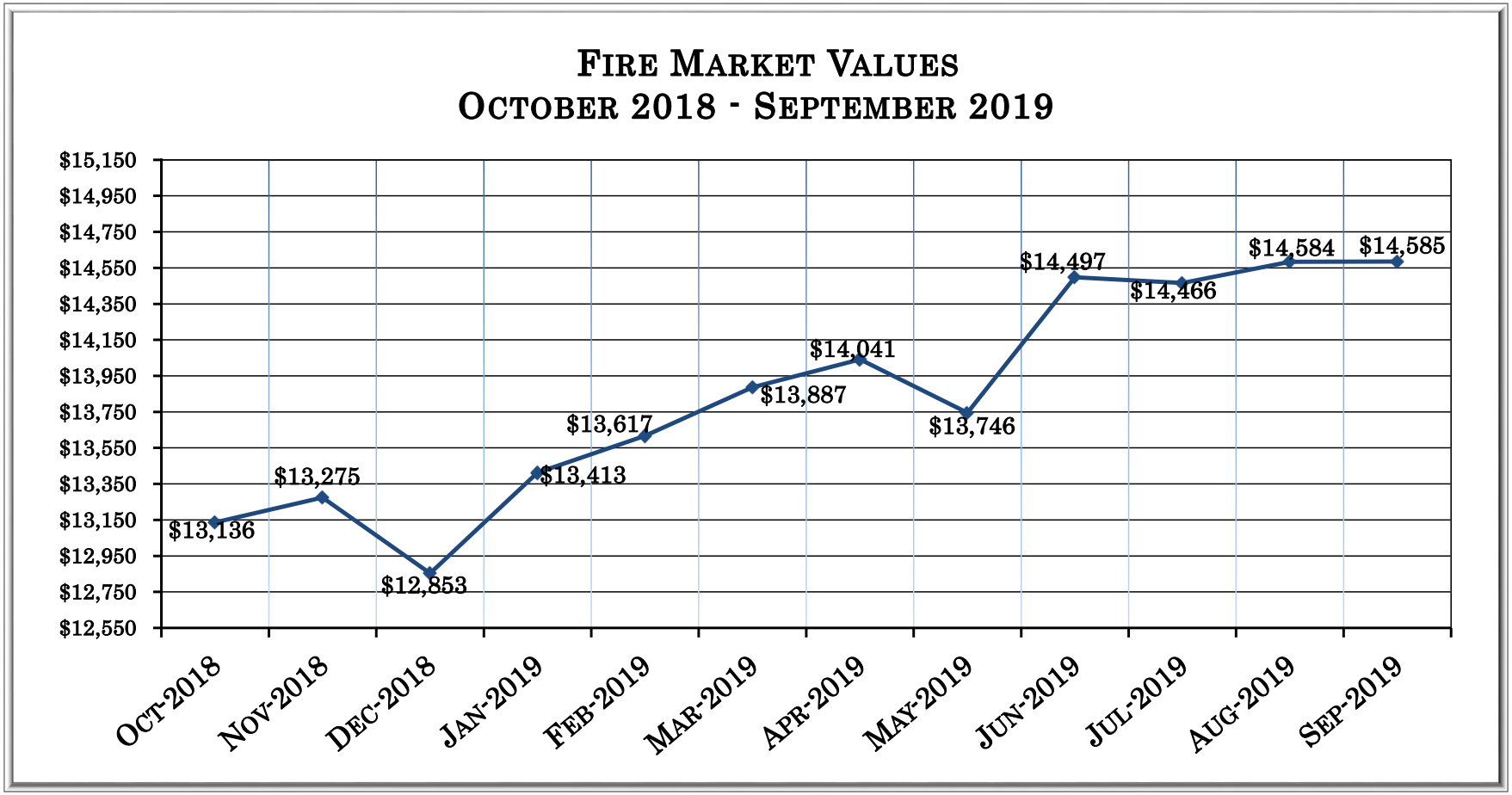
Information Classification: General

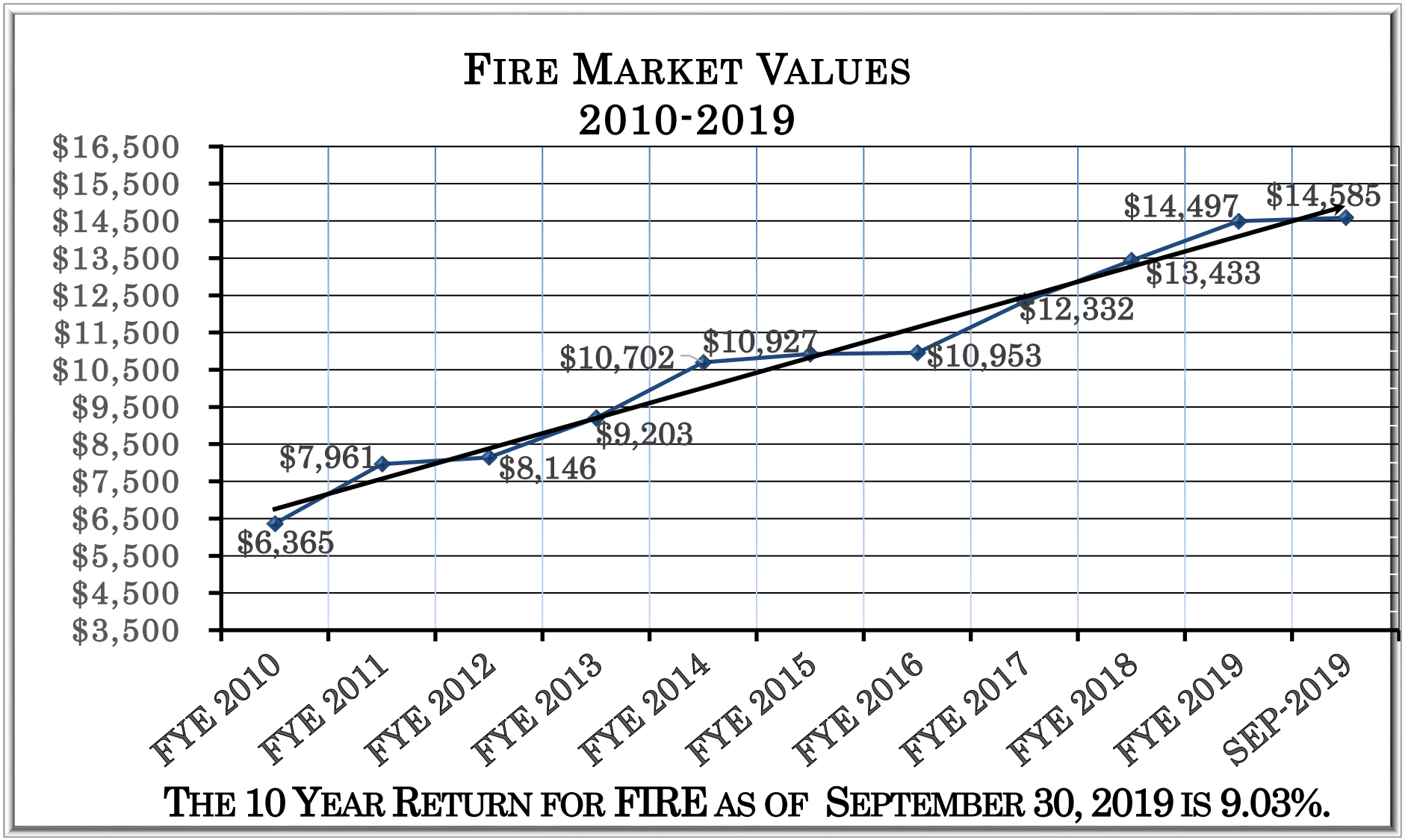
NYC FIRE DEPARTMENT PENSION FUND
CLASSIFICATION OF INVESTMENTS
(as of September 30th, 2019)





Note: Totals may not equal 100% due to rounding


FIRE MARKET VALUES
OCTOBER 2018 - SEPTEMBER 2019
$15,150
$14,950
$14,750
$14,550
$14,350
$14,150
$13,950
$13,750
$13,550
$13,350
$13,150
$12,950
$12,750
$12,550
$13,136
$13,275
$12,853
$13,413
$13,617
$13,887
$14,041
$13,746
$14,497
$14,466
$14,584
$14,585
OCT-2018
NOV-2018
DEC-2018
JAN-2019
FEB-2019
MAR-2019
APR-2019
MAY-2019
JUN-2019
JUL-2019
AUG-2019
SEP-2019



THE 10 YEAR RETURN FOR FIRE AS OF SEPTEMBER 30, 2019 IS 9.03%.

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Assets ($MM)	% of Total	Trailing 1 Month	Trailing 3 Month	FYTD	CYTD	FYE 06/30/19	CYE 12/31/18	CYE 12/31/17	CYE 12/31/16	CYE 12/31/15	CYE 12/31/14	Trailing 1 Year	Inception Date
ASSET CLASS SUMMARY														
FIRE-TOTAL DOMESTIC EQUITY	4,407.98	30.22	1.89	1.21	1.21	19.84	8.24	(5.53)	20.88	12.84	0.04	10.88	2.43	Aug-01-79
FIRE-TOTAL WORLD ex-USA	1,183.19	8.11	2.35	(2.18)	(2.18)	13.13	0.05	(14.41)	31.22	3.83	(1.37)	(5.34)	(2.61)	Apr-01-04
FIRE-TOTAL EMERGING MARKETS	828.53	5.68	2.11	(4.60)	(4.60)	5.88	2.23	(14.63)	39.35	10.58	(14.25)	(1.34)	(2.30)	Sep-01-96
FIRE-TOTAL INTL FOF	72.05	0.49	1.81	(1.90)	(1.90)	12.32	0.35	(14.65)					(0.89)	May-01-17
FIRE-TOTAL GLOBAL EQUITY	215.28	1.48	(0.18)	(1.63)	(1.63)	22.94	9.22						7.00	Jun-01-18
FIRE-TOTAL HEDGE FUNDS	859.40	5.89	(1.06)	0.05	0.05	5.27	4.39	2.24	9.77	3.21	(1.58)	5.21	3.38	Jul-01-11
FIRE-TOTAL REAL ESTATE SECURITIES	195.64	1.34	2.84	5.79	5.79	23.88	9.36	(6.48)	8.30	3.67	1.05	27.75	14.64	Jan-01-03
FIRE-TOTAL STRUCTURED	2,357.06	16.16	(1.34)	4.48	4.48	12.83	9.61	(0.89)	5.16	3.90	0.10	7.57	15.10	Jan-01-85
FIRE-TOTAL CONVERTIBLE BONDS	242.04	1.66	0.53	0.48	0.48	8.94	5.18	(1.92)	7.92	7.20	(1.42)	4.62	3.03	Jul-01-08
FIRE-TOTAL TIPS MANAGERS	630.89	4.33	(1.44)	1.30	1.30	7.56	4.82	(1.27)	3.04	4.63	(1.34)	3.52	7.08	Jun-01-05
FIRE-TOTAL HIGH YIELD	841.38	5.77	0.46	1.85	1.85	12.03	6.87	(3.24)	7.21	14.09	(3.40)	2.19	7.17	Dec-01-94
FIRE-TOTAL BANK LOANS	216.00	1.48	0.55	1.15	1.15	5.54	3.08	0.81	4.14	8.15	1.09	2.43	2.19	Dec-01-12
FIRE-TOTAL OPPORTUNISTIC FIXED	460.03	3.15	0.00	1.56	1.56	4.74	5.55	6.38	8.32	9.30	(2.77)	7.19	4.58	Nov-01-07
FIRE-TOTAL CORE FI- EMERGING MGRS	33.05	0.23	(0.55)	2.34	2.34	8.78	7.85	(0.05)	4.02	2.97	0.78	5.85	10.33	Mar-01-12
FIRE-TOTAL CORE FI- DEVELOPING MGRS	48.03	0.33	(0.48)	2.17	2.17	9.32	7.86	(1.21)	3.95	3.68	1.17	5.57	9.74	May-01-09
TOTAL FIRE ETI (w/o cash)	113.92	0.78	(0.08)	2.90	2.90	9.32	8.59	0.65	3.68	2.04	2.73	6.54	11.72	Dec-01-84
FIRE-TOTAL PRIVATE EQUITY	977.65	6.70	(0.11)	4.05	4.05	8.38	13.38	17.98	22.60	9.83	10.51	14.34	12.33	Apr-01-04
FIRE-TOTAL PRIVATE REAL ESTATE	630.08	4.32	(0.32)	0.60	0.60	3.77	7.76	10.43	10.90	10.92	14.52	16.50	6.18	Apr-01-04
FIRE-TOTAL INFRASTRUCTURE	135.91	0.93	(0.02)	2.95	2.95	8.14	12.07	8.59	24.10	9.00	13.30	11.49	11.81	Dec-01-13
FIRE-TOTAL CASH	136.96	0.94	0.18	0.68	0.68	2.15	2.62	2.05	1.16	0.88	0.32	0.20	2.76	Apr-01-04
SECURITY LENDING	0.00	0.00												Apr-01-04
FIRE-TOTAL FIRE	14,585.09	100.00	0.59	1.23	1.23	12.45	7.11	(2.47)	16.55	8.43	0.09	7.26	5.67	Jul-01-87
FIRE-TOTAL EQUITY	6,707.03	45.99	1.93	(0.28)	(0.28)	16.68	5.83	(8.79)	25.52	10.64	(2.23)	5.72	1.02	Apr-01-04
FIRE-TOTAL HEDGE FUNDS	859.40	5.89	(1.06)	0.05	0.05	5.27	4.39	2.24	9.77	3.21	(1.58)	5.21	3.38	Jul-01-11
FIRE-TOTAL FIXED INCOME (MINUS SS)	4,942.41	33.89	(0.71)	2.90	2.90	10.50	7.55	(0.63)	5.43	5.84	(0.57)	6.13	10.40	Apr-01-04
FIRE-TOTAL PRIVATE EQUITY	977.65	6.70	(0.11)	4.05	4.05	8.38	13.38	17.98	22.60	9.83	10.51	14.34	12.33	Apr-01-04
FIRE-TOTAL REAL ESTATE SECURITIES	195.64	1.34	2.84	5.79	5.79	23.88	9.36	(6.48)	8.30	3.67	1.05	27.75	14.64	Jan-01-03
FIRE-TOTAL PRIVATE REAL ESTATE	630.08	4.32	(0.32)	0.60	0.60	3.77	7.76	10.43	10.90	10.92	14.52	16.50	6.18	Apr-01-04
FIRE-TOTAL INFRASTRUCTURE	135.91	0.93	(0.02)	2.95	2.95	8.14	12.07	8.59	24.10	9.00	13.30	11.49	11.81	Dec-01-13
FIRE-TOTAL CASH	136.96	0.94	0.18	0.68	0.68	2.15	2.62	2.05	1.16	0.88	0.32	0.20	2.76	Apr-01-04
SECURITY LENDING	0.00	0.00												Apr-01-04
FIRE-TOTAL FIRE	14,585.09	100.00	0.59	1.23	1.23	12.45	7.11	(2.47)	16.55	8.43	0.09	7.26	5.67	Jul-01-87
Fire Policy Benchmark			1.21	1.53	1.53	13.39	7.73	(2.67)	16.06	8.91	0.43	8.43	6.28	Jul-01-94

Information Classification: Limited Access

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
ASSET CLASS SUMMARY										
FIRE-TOTAL FIRE	**14,585**	**100.00**	**0.59**	**1.23**	**1.23**	**12.45**	**(2.47)**	**16.55**	**8.43**	**0.09**
Fire Policy Benchmark			*1.21*	*1.53*	*1.53*	*13.39*	*(2.67)*	*16.06*	*8.91*	*0.43*
Excess			*(0.62)*	*(0.29)*	*(0.29)*	*(0.95)*	*0.20*	*0.49*	*(0.48)*	*(0.33)*
FIRE-TOTAL EQUITY (INCL PE & RA)	9,506	65.17	1.28	0.42	0.42	13.78	(3.82)	22.32	9.77	0.35
FIRE-TOTAL FIXED INCOME (DOM & GLOBAL)	5,079	34.83	(0.68)	2.80	2.80	10.23	(0.50)	5.27	5.52	(0.52)
EQUITY SUMMARY										
FIRE-TOTAL DOMESTIC EQUITY	4,408	30.22	1.89	1.21	1.21	19.84	(5.53)	20.88	12.84	0.04
RUSSELL 3000 (DAILY)			1.76	1.16	1.16	20.09	(5.24)	21.13	12.74	0.48
Excess			0.14	0.05	0.05	(0.26)	(0.29)	(0.25)	0.10	(0.44)
BlackRock US SCG R2000	78	0.54	(0.78)	(4.09)	(4.09)	15.42	(9.14)	22.26	11.29	(1.29)
RUSSELL 2000 GROWTH DAILY			(0.82)	(4.17)	(4.17)	15.34	(9.31)	22.17	11.32	(1.38)
Excess			0.04	0.08	0.08	0.08	0.17	0.09	(0.02)	0.09
BlackRock US SCV R2000	4	0.03	5.20	(0.44)	(0.44)	12.96	(12.79)	7.34	31.71	(7.33)
RUSSELL 2000 VALUE DAILY			5.13	(0.57)	(0.57)	12.82	(12.86)	7.84	31.74	(7.47)
Excess			0.07	0.13	0.13	0.15	0.08	(0.49)	(0.03)	0.13
Brown Asset Mgmt US SCG	72	0.49	(2.88)	(3.41)	(3.41)	23.52	1.06	28.87	10.25	8.61
RUSSELL 2000 GROWTH DAILY			(0.82)	(4.17)	(4.17)	15.34	(9.31)	22.17	11.32	(1.38)
Excess			(2.06)	0.76	0.76	8.18	10.37	6.70	(1.07)	9.99
Ceredex US SCV	87	0.60	4.35	1.21	1.21	15.05	(11.72)	10.66	29.36	(4.73)
RUSSELL 2000 VALUE DAILY			5.13	(0.57)	(0.57)	12.82	(12.86)	7.84	31.74	(7.47)
Excess			(0.78)	1.79	1.79	2.23	1.14	2.83	(2.38)	2.74
Dalton US SCV	63	0.43	5.14	1.04	1.04	15.17	(17.30)	8.38	25.01	(3.32)
RUSSELL 2000 VALUE DAILY			5.13	(0.57)	(0.57)	12.82	(12.86)	7.84	31.74	(7.47)
Excess			0.01	1.61	1.61	2.35	(4.43)	0.55	(6.73)	4.15
Legal General US LMCE	409	2.80	2.70	2.38	2.38					
RUSSELL 1000 (DAILY)			1.73	1.42	1.42					
Excess			0.97	0.95	0.95					
Iridian US MCC	0	0.00					(23.30)	23.23	4.19	(3.71)
RUSSELL MIDCAP (DAILY)			1.97				(9.06)	18.52	13.80	(2.44)
Excess							(14.24)	4.71	(9.60)	(1.27)
PIMCO RAFI US LMCE	410	2.81	4.10	1.39	1.39	15.73	(6.74)	16.88		
RUSSELL 1000 (DAILY)			1.73	1.42	1.42	20.53	(4.78)	21.69		
Excess			2.37	(0.03)	(0.03)	(4.80)	(1.96)	(4.81)		
Wellington US MCC	172	1.18	(0.86)	(1.23)	(1.23)	24.05	(7.35)	25.09	12.29	1.78
S&P 400 MIDCAP INDEX (DAILY)			3.06	(0.09)	(0.09)	17.87	(11.08)	16.24	20.74	(2.18)
Excess			(3.92)	(1.15)	(1.15)	6.18	3.74	8.84	(8.45)	3.95
BlackRock US LMC R1000 Core	2,405	16.49	1.73	1.36	1.36	20.53				
RUSSELL 1000 (DAILY)			1.73	1.42	1.42	20.53				
Excess			0.00	(0.06)	(0.06)	0.00				

Information Classification: Limited Access

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
SSGA US LMC Top 200 Core	687	4.71	1.64	1.77	1.77	20.05				
RUSSELL TOP 200 INDEX (DAILY)			1.64	1.78	1.78	20.01				
Excess			0.00	(0.01)	(0.01)	0.04				
FUND OF FUNDS										
Essex US SCG - Legato	4	0.03	0.21	(2.71)	(2.71)	15.65	(5.24)			
RUSSELL 2000 GROWTH DAILY			(0.82)	(4.17)	(4.17)	15.34	(9.31)			
Excess			1.03	1.47	1.47	0.31	4.07			
Dean US SCV - Legato	4	0.03	5.45	0.05	0.05	13.23	(12.50)			
RUSSELL 2000 VALUE DAILY			5.13	(0.57)	(0.57)	12.82	(12.86)			
Excess			0.31	0.62	0.62	0.41	0.37			
Bridge City US SCG - Legato	5	0.03	2.82	1.11	1.11	17.66	0.88			
RUSSELL 2000 GROWTH DAILY			(0.82)	(4.17)	(4.17)	15.34	(9.31)			
Excess			3.64	5.28	5.28	2.32	10.19			
Bowling US SCV - Legato	3	0.02	4.14	(1.33)	(1.33)	13.19	(19.61)			
RUSSELL 2000 VALUE DAILY			5.13	(0.57)	(0.57)	12.82	(12.86)			
Excess			(1.00)	(0.76)	(0.76)	0.38	(6.74)			
Altravue US SCV - Legato	3	0.02	2.46	0.06	0.06	13.02	(10.07)			
RUSSELL 2000 VALUE DAILY			5.13	(0.57)	(0.57)	12.82	(12.86)			
Excess			(2.67)	0.63	0.63	0.20	2.80			
Lisanti US SCG - Legato	2	0.02	(5.06)	(5.64)	(5.64)	18.84				
RUSSELL 2000 GROWTH DAILY			(0.82)	(4.17)	(4.17)	15.34				
Excess			(4.24)	(1.46)	(1.46)	3.50				
Legato Transition US	0	0.00								
FIRE-TOTAL WORLD ex-USA	1,183	8.11	2.35	(2.18)	(2.18)	13.13	(14.41)	31.22	3.83	(1.37)
WORLD ex-USA CUSTOM BM			2.77	(0.84)	(0.84)	13.43	(14.68)	26.40	1.15	0.49
Excess			(0.42)	(1.34)	(1.34)	(0.30)	0.28	4.82	2.68	(1.86)
Baillie Gifford WorldxUS LMCC	200	1.37	(0.10)	(2.16)	(2.16)	21.08	(15.37)	44.17	0.70	(3.81)
NYC Developed Growth Benchmark			2.81	(0.93)	(0.93)	13.57	(14.09)	27.77	(3.04)	4.09
Excess			(2.91)	(1.23)	(1.23)	7.51	(1.28)	16.40	3.74	(7.90)
Walter Scott WorldxUS LMCC	257	1.76	2.46	0.05	0.05	18.03	(7.65)	28.12	5.03	0.28
NYC Developed Growth Benchmark			2.81	(0.93)	(0.93)	13.57	(14.09)	27.77	(3.04)	4.09
Excess			(0.35)	0.98	0.98	4.46	6.44	0.35	8.07	(3.81)
Causeway WorldxUS LMCC	195	1.34	4.41	(2.08)	(2.08)	8.83	(18.34)	28.22	0.52	(2.39)
NYC Developed Value Benchmark			2.81	(0.93)	(0.93)	13.57	(14.09)	22.77	5.02	(5.68)
Excess			1.61	(1.15)	(1.15)	(4.74)	(4.25)	5.45	(4.51)	3.29
Sprucegrove WorldxUS LMCC	234	1.60	2.88	(5.33)	(5.33)	7.18	(13.67)	27.20	11.10	(9.44)
NYC Developed Value Benchmark			2.81	(0.93)	(0.93)	13.57	(14.09)	22.77	5.02	(5.68)
Excess			0.08	(4.40)	(4.40)	(6.39)	0.42	4.44	6.08	(3.75)
Acadian WorldxUS SCC	72	0.50	0.81	(3.32)	(3.32)	8.81	(19.22)	38.38	6.41	8.68
S&P EPAC Small Cap USD NET			2.42	(1.72)	(1.72)	10.59	(18.58)	33.47	1.34	8.58
Excess			(1.61)	(1.60)	(1.60)	(1.78)	(0.65)	4.91	5.07	0.09

Information Classification: Limited Access

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
Algert EAFE SCC	18	0.13	1.59	(3.06)	(3.06)					
MSCI EAFE SMALL CAP NET (DAILY)			2.81	(0.44)	(0.44)					
Excess			(1.22)	(2.62)	(2.62)					
Fidelity WorldxUS SCC	28	0.19	2.61	(1.49)	(1.49)	11.64	(18.22)	31.28	(0.80)	11.96
S&P EPAC Small Cap USD NET			2.42	(1.72)	(1.72)	10.59	(18.58)	33.47	1.34	8.58
Excess			0.19	0.24	0.24	1.05	0.36	(2.19)	(2.14)	3.38
SSGA WorldxUS LMC NYC Custom IDX	129	0.88	2.83	(0.88)	(0.88)	13.84	(13.64)	24.43	1.28	(0.55)
NYC Custom World ex US Index			2.81	(0.93)	(0.93)	13.57	(14.09)	24.12	1.00	(0.81)
Excess			0.03	0.05	0.05	0.27	0.45	0.32	0.28	0.27
SSGA WorldxUS SC Custom IDX	49	0.34	2.57	(0.18)	(0.18)	12.74	(17.97)	33.43	2.77	9.86
World ex USA SC PASSIVE CUSTOM BM			2.55	(0.27)	(0.27)	12.58	(18.07)	33.31	2.18	9.59
Excess			0.02	0.09	0.09	0.16	0.10	0.12	0.59	0.27
FIRE-TOTAL INTL FOF	72	0.49	1.81	(1.90)	(1.90)	12.32	(14.65)			
MSCI ACWI ex USA IMI Net			2.55	(1.72)	(1.72)	11.38	(14.76)			
Excess			(0.75)	(0.19)	(0.19)	0.94	0.10			
Martin Intl FoF - FIS	6	0.04	0.47	(0.07)	(0.07)					
MSCI EAFE			2.87	(1.07)	(1.07)					
Excess			(2.39)	1.00	1.00					
Redwood Intl FoF - FIS	6	0.04	0.45	(1.21)	(1.21)					
MSCI EAFE + Canada Net Index			2.81	(0.93)	(0.93)					
Excess			(2.35)	(0.28)	(0.28)					
Osmosis WorldxUS - FIS	10	0.07	3.00	(1.56)	(1.56)	9.91	(15.06)			
MSCI EAFE			2.87	(1.07)	(1.07)	12.80	(13.79)			
Excess			0.14	(0.49)	(0.49)	(2.89)	(1.27)			
Metis WorldxUS - FIS	3	0.02	4.85	(1.38)	(1.38)	4.44	(18.53)			
MSCI EAFE			2.87	(1.07)	(1.07)	12.80	(13.79)			
Excess			1.98	(0.31)	(0.31)	(8.37)	(4.74)			
Dundas WorldxUS - FIS	11	0.08	2.29	(0.93)	(0.93)	17.16	(9.88)			
MSCI EAFE + Canada Net Index			2.81	(0.93)	(0.93)	13.57	(14.09)			
Excess			(0.51)	0.00	0.00	3.59	4.21			
Denali WorldxUS - FIS	7	0.04	3.20	(3.57)	(3.57)	3.89	(11.58)			
MSCI EAFE + Canada Net Index			2.81	(0.93)	(0.93)	13.57	(14.09)			
Excess			0.39	(2.64)	(2.64)	(9.68)	2.51			
Change Global WorldxUS - FIS	8	0.05	1.81	(5.39)	(5.39)	3.33	(16.80)			
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)			
Excess			(0.10)	(1.14)	(1.14)	(2.56)	(2.23)			
Aubrey WorldxUS - FIS	10	0.07	0.30	(1.87)	(1.87)	17.63	(19.98)			
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)			
Excess			(1.61)	2.37	2.37	11.74	(5.41)			
Ativo WorldxUS - FIS	11	0.07	1.44	(1.15)	(1.15)	14.11	(12.41)			
MSCI EAFE + Canada Net Index			2.81	(0.93)	(0.93)	13.57	(14.09)			
Excess			(1.36)	(0.22)	(0.22)	0.54	1.68			

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New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

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Algert WorldxUS SCC - FIS	0	0.00					(23.34)			
MSCI EAFE SMALL CAP NET (DAILY)			2.81				(17.89)			
Excess							(5.45)			
FIRE-TOTAL EMERGING MARKETS	829	5.68	2.11	(4.60)	(4.60)	5.88	(14.63)	39.35	10.58	(14.25)
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)	37.28	11.19	(14.92)
Excess			0.20	(0.36)	(0.36)	(0.01)	(0.06)	2.06	(0.60)	0.67
Baillie Gifford EM	158	1.09	2.49	(3.43)	(3.43)	13.57	(15.37)	54.13	2.78	(7.99)
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)	37.28	11.19	(14.92)
Excess			0.58	0.82	0.82	7.68	(0.80)	16.85	(8.41)	6.92
Acadian EM	131	0.90	2.74	(4.91)	(4.91)	3.82	(17.27)	40.45	12.65	(15.05)
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)	37.28	11.19	(14.92)
Excess			0.83	(0.67)	(0.67)	(2.07)	(2.70)	3.16	1.46	(0.13)
Parametric EM	145	0.99	1.21	(4.25)	(4.25)	5.17	(14.33)	29.65	13.85	(15.72)
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)	37.28	11.19	(14.92)
Excess			(0.69)	0.00	0.00	(0.72)	0.24	(7.63)	2.67	(0.81)
DFA EM	136	0.93	2.52	(6.89)	(6.89)	(0.02)	(12.06)	33.64	17.36	(19.25)
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)	37.28	11.19	(14.92)
Excess			0.61	(2.64)	(2.64)	(5.91)	2.51	(3.64)	6.17	(4.33)
BlackRock MSCI EM Core	259	1.77	1.85	(4.07)	(4.07)	6.31	(14.43)	37.25	11.17	(14.91)
MSCI EMERGING MARKETS			1.91	(4.25)	(4.25)	5.89	(14.57)	37.28	11.19	(14.92)
Excess			(0.06)	0.18	0.18	0.42	0.14	(0.03)	(0.02)	0.01
FIRE-TOTAL GLOBAL EQUITY	215	1.48	(0.18)	(1.63)	(1.63)	22.94				
MSCI AC WORLD (Daily Const)			2.10	(0.03)	(0.03)	16.20				
Excess			(2.29)	(1.60)	(1.60)	6.74				
Morgan Stanley-Global	103	0.70	(1.56)	(3.54)	(3.54)	23.03				
MSCI AC WORLD (Daily Const)			2.10	(0.03)	(0.03)	16.20				
Excess			(3.66)	(3.52)	(3.52)	6.84				
Fiera-Global	113	0.77	1.10	0.18	0.18	22.85				
MSCI World Index			2.13	0.53	0.53	17.61				
Excess			(1.03)	(0.35)	(0.35)	5.24				
FIRE-TOTAL REAL ESTATE SECURITIES	196	1.34	2.84	5.79	5.79	23.88	(6.48)	8.30	3.67	1.05
DJ US SELECT REAL ESTATE SECURITIES INDEX			2.71	6.83	6.83	24.64	(4.22)	3.76	6.65	4.46
Excess			0.13	(1.04)	(1.04)	(0.76)	(2.26)	4.53	(2.98)	(3.41)
Morgan Stanley REITS	74	0.51	3.20	3.92	3.92	17.64	(7.88)	9.26	3.49	(1.63)
Morgan Stanley Custom RESI Index			2.71	6.83	6.83	24.64	(4.22)	8.64	2.37	(1.53)
Excess			0.50	(2.91)	(2.91)	(7.00)	(3.66)	0.63	1.13	(0.11)
Adelante REITS	121	0.83	2.62	7.64	7.64	28.87	(5.49)	7.34	3.90	4.82
DJ US SELECT REAL ESTATE SECURITIES INDEX			2.71	6.83	6.83	24.64	(4.22)	3.76	6.65	4.46
Excess			(0.09)	0.81	0.81	4.23	(1.27)	3.58	(2.75)	0.36
FIRE-TOTAL HEDGE FUNDS	859	5.89	(1.06)	0.05	0.05	5.27	2.24	9.77	3.21	(1.58)
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			(0.73)	0.69	0.69	(0.72)	5.29	0.93	1.70	(2.31)

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
FUND OF FUNDS HEDGE FUNDS	1	0.00						2.78	1.87	(2.15)
HFRI Fund of Funds Composite Index + 1%			(0.33)				(3.06)	8.84	1.52	0.73
Excess								(6.07)	0.35	(2.88)
Altimeter Partners	29	0.20	(0.20)	1.03	1.03	22.10	18.20	8.38		
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84		
Excess			0.13	1.68	1.68	16.11	21.26	(0.46)		
Brevan Howard AH Fund	62	0.42	3.73	(1.63)	(1.63)	2.62	27.07			
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)			
Excess			4.07	(0.98)	(0.98)	(3.37)	30.12			
CASPIAN SELECT CF	25	0.17	(0.11)	(0.40)	(0.40)	3.01	0.85	6.50	8.92	(10.46)
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			0.22	0.25	0.25	(2.98)	3.91	(2.34)	7.40	(11.19)
D.E. SHAW COMPOSITE FD	91	0.62	2.02	4.04	4.04	10.02	11.59	10.67	6.14	15.02
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			2.35	4.69	4.69	4.02	14.65	1.82	4.62	14.29
DL PARTNERS OPP LP	38	0.26	(3.28)	(4.30)	(4.30)	(1.41)				
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99				
Excess			(2.95)	(3.66)	(3.66)	(7.41)				
FIR TREE VAL FD	3	0.02	(24.06)	(25.16)	(25.16)	(32.88)	(3.45)	2.04	0.47	(7.59)
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			(23.72)	(24.51)	(24.51)	(38.87)	(0.39)	(6.80)	(1.05)	(8.33)
Florin Court Capital	37	0.26	(3.54)	(0.42)	(0.42)	10.47				
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99				
Excess			(3.20)	0.23	0.23	4.48				
Gotham Asset Management	12	0.08	2.34	2.34	2.34	1.76	(1.37)	1.11	6.40	
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	
Excess			2.67	2.99	2.99	(4.23)	1.69	(7.73)	4.88	
GRESHAM QUANT ACAR FD	18	0.12	(7.77)	(10.45)	(10.45)					
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)					
Excess			(7.44)	(9.80)	(9.80)					
GSA Capital Partners LP	62	0.42	(5.65)	6.41	6.41	5.29	(6.51)			
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)			
Excess			(5.32)	7.06	7.06	(0.70)	(3.46)			
JEFFERIES STRC ALPHA B	25	0.17	(0.04)	0.55	0.55					
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)					
Excess			0.29	1.20	1.20					
KEY SQUARE GROUP LP	63	0.43	0.02	(2.75)	(2.75)	4.76	(1.93)			
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)			
Excess			0.36	(2.10)	(2.10)	(1.23)	1.12			
LANSDOWNE EURO ABS OPP	31	0.22	(1.40)	2.66	2.66					
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)					
Excess			(1.07)	3.31	3.31					

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New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

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LUXOR CAPITAL	50	0.35	(3.78)	(3.56)	(3.56)	(2.56)	14.63	25.43	9.95	(18.59)
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			(3.44)	(2.91)	(2.91)	(8.56)	17.69	16.59	8.43	(19.32)
PERRY CAPITAL LP	1	0.01	0.00	8.83	8.83	19.43	(11.07)	(6.87)	8.07	(13.38)
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			0.33	9.48	9.48	13.43	(8.01)	(15.71)	6.55	(14.11)
Pharo Gaia Fund Ltd	60	0.41	0.98	(3.43)	(3.43)	6.37	0.15	27.21	13.47	
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	
Excess			1.31	(2.78)	(2.78)	0.38	3.21	18.37	11.95	
PHARO MACRO FD	42	0.29	0.19	(3.88)	(3.88)	3.87	2.10	16.74	7.44	3.61
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			0.53	(3.23)	(3.23)	(2.13)	5.16	7.89	5.92	2.88
QUEST PARTNERS LLC	56	0.38	(4.67)	5.80	5.80	9.89	3.18			
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)			
Excess			(4.34)	6.45	6.45	3.90	6.23			
SRS Investment Management	46	0.32	0.96	(2.36)	(2.36)	6.18	4.90	12.35	(2.84)	14.73
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			1.30	(1.71)	(1.71)	0.19	7.95	3.51	(4.36)	14.00
STANDARD GENERAL	15	0.10	(4.58)	(10.17)	(10.17)	(4.65)	6.51	7.10	11.23	(2.45)
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	0.73
Excess			(4.25)	(9.52)	(9.52)	(10.64)	9.56	(1.74)	9.71	(3.18)
Turiya Capital Management	41	0.28	(0.56)	0.00	0.00	1.89	(21.01)	23.77	(9.19)	
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)	5.99	(3.06)	8.84	1.52	
Excess			(0.23)	0.65	0.65	(4.10)	(17.95)	14.92	(10.71)	
VOLORIDGE AGGRESSIVE	17	0.12	2.62	11.07	11.07					
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)					
Excess			2.95	11.72	11.72					
VOLORIDGE FUND	34	0.23	0.41	11.64	11.64					
HFRI Fund of Funds Composite Index + 1%			(0.33)	(0.65)	(0.65)					
Excess			0.74	12.29	12.29					
FIXED INCOME SUMMARY										
FIRE-TOTAL STRUCTURED	2,357	16.16	(1.34)	4.48	4.48	12.83	(0.89)	5.16	3.90	0.10
NYC Custom Structured Index-Fire			(1.67)	5.85	5.85	15.79	(1.29)	6.95		
Excess			0.32	(1.37)	(1.37)	(2.95)	0.40	(1.78)		
BlackRock Mortgages	206	1.41	0.12	1.61	1.61	6.41	0.97	2.66	2.19	1.72
FTSE MORTGAGE INDEX			0.13	1.49	1.49	5.86	1.01	2.47	1.59	1.56
Excess			(0.01)	0.12	0.12	0.55	(0.04)	0.19	0.60	0.16
Neuberger Berman Mortgages	110	0.76	0.12	1.19	1.19	5.41	0.81	2.42	1.52	1.38
FTSE MORTGAGE INDEX			0.13	1.49	1.49	5.86	1.01	2.47	1.59	1.56
Excess			(0.01)	(0.30)	(0.30)	(0.44)	(0.20)	(0.05)	(0.06)	(0.18)

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New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

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Taplin Credit	50	0.34	(0.69)	2.83	2.83	13.55	(3.48)	8.08	9.52	(3.74)
NYC - Investment Grade Credit			(0.71)	3.07	3.07	12.33	(1.90)	6.04	5.56	(0.65)
Excess			0.01	(0.24)	(0.24)	1.22	(1.58)	2.05	3.97	(3.10)
T Rowe Price Credit	170	1.17	(0.63)	3.15	3.15	12.92	(2.41)	6.89	6.00	0.16
NYC - Investment Grade Credit			(0.71)	3.07	3.07	12.33	(1.90)	6.04	5.56	(0.65)
Excess			0.07	0.09	0.09	0.59	(0.51)	0.86	0.44	0.80
BlackRock Credit	105	0.72	(0.63)	2.98	2.98	12.76	(2.01)	6.12	5.43	(0.61)
NYC - Investment Grade Credit			(0.71)	3.07	3.07	12.33	(1.90)	6.04	5.56	(0.65)
Excess			0.08	(0.09)	(0.09)	0.43	(0.11)	0.09	(0.13)	0.04
Prudential Credit	78	0.54	(0.68)	2.95	2.95	12.37	(1.81)	6.32	5.97	(0.18)
NYC - Investment Grade Credit			(0.71)	3.07	3.07	12.33	(1.90)	6.04	5.56	(0.65)
Excess			0.03	(0.11)	(0.11)	0.04	0.09	0.28	0.41	0.47
SSGA LI Treasury	934	6.40	(1.56)	4.68	4.68	13.20	(0.20)	4.81	1.47	0.47
NYC - Treasury Agency Plus Five			(1.61)	4.50	4.50	12.95	(0.05)	4.66	1.21	0.72
Excess			0.05	0.18	0.18	0.24	(0.15)	0.16	0.26	(0.25)
SSgA Int Gov Bond Index *	6	0.04	(0.44)	1.18	1.18	5.06	2.03			
FTSE USBIG Treasury/Agency 1-10 y			(0.44)	1.17	1.17	5.16	1.42			
Excess			(0.01)	0.01	0.01	(0.10)	0.61			
ICE BofAML US 3-Month Treasury Bill			0.17	0.56	0.56	1.81	1.87			
Excess			(0.62)	0.62	0.62	3.25	0.16			
* Assets were in transition from 9/29/17 to 2/11/19										
SSGA 1-3 Treasury Index **	139	0.95	(0.12)	0.51	0.51	3.03	1.53	1.78		
FTSE USBIG Treasury 1-3 Y Index			(0.11)	0.58	0.58	3.03	1.56	0.42		
Excess			(0.01)	(0.07)	(0.07)	(0.01)	(0.03)	1.36		
ICE BofAML US 3-Month Treasury Bill			0.17	0.56	0.56	1.81	1.87	0.86		
Excess			(0.29)	(0.05)	(0.05)	1.22	(0.35)	0.92		
** Assets were in transition from 9/29/17 to 11/30/17										
SSGA LT Treasury 10Y Plus	558	3.82	(2.58)	7.95	7.95	19.83	(1.83)	8.54		
FTSE Treasury 10+			(2.51)	7.95	7.95	19.86	(1.89)	8.60		
Excess			(0.07)	0.00	0.00	(0.03)	0.05	(0.07)		
FIRE-TOTAL CORE FI- EMERGING MGRS	33	0.23	(0.55)	2.34	2.34	8.78	(0.05)	4.02	2.97	0.78
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			(0.02)	0.07	0.07	0.26	(0.06)	0.48	0.32	0.23
Optimum Quantvest-Core - Progress	3	0.02	(0.57)	2.25	2.25	8.33	0.33	2.64	2.61	0.61
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			(0.03)	(0.02)	(0.02)	(0.19)	0.32	(0.90)	(0.03)	0.06
Integrity-Core - Progress	3	0.02	(0.70)	2.22	2.22	8.40	(0.03)	3.93		
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54		
Excess			(0.17)	(0.05)	(0.05)	(0.12)	(0.04)	0.39		
New Century-Core Plus - Progress	9	0.06	(0.53)	2.04	2.04	8.37	0.12	4.04	2.37	(0.30)
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			0.00	(0.23)	(0.23)	(0.15)	0.11	0.50	(0.28)	(0.85)

Information Classification: Limited Access

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
Pugh-Core Plus - Progress	10	0.07	(0.52)	2.43	2.43	8.80	(0.42)	4.12	3.48	0.79
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			0.01	0.16	0.16	0.27	(0.43)	0.58	0.83	0.24
Ramirez-Core - Progress	8	0.06	(0.56)	2.63	2.63	9.49	0.07	4.47	3.64	1.12
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			(0.03)	0.36	0.36	0.97	0.06	0.93	0.99	0.57
FIRE-TOTAL HIGH YIELD	841	5.77	0.46	1.85	1.85	12.03	(3.24)	7.21	14.09	(3.40)
High Yield Custom Benchmark			0.36	1.33	1.33	11.41	(2.34)	7.03	15.48	(4.21)
Excess			0.10	0.52	0.52	0.63	(0.90)	0.18	(1.39)	0.81
T Rowe Price High Yield	395	2.71	0.45	2.20	2.20	12.93	(2.34)	7.29	12.24	(1.28)
BBG BARC US HY - 2% Issr Cap			0.36	1.33	1.33	11.41	(2.08)	7.50	17.13	(4.43)
Excess			0.09	0.86	0.86	1.53	(0.26)	(0.22)	(4.89)	3.16
Brigade High Yield	56	0.38	0.21	0.73	0.73	11.31				
BBG BARC US HY - 2% Issr Cap			0.36	1.33	1.33	11.41				
Excess			(0.16)	(0.60)	(0.60)	(0.10)				
Eaton Vance High Yield	90	0.62	0.53	1.83	1.83	12.01				
BBG BARC US HY - 2% Issr Cap			0.36	1.33	1.33	11.41				
Excess			0.16	0.49	0.49	0.61				
Mackay Shields High Yield	87	0.59	0.54	1.51	1.51	11.05				
BBG BARC US HY - 2% Issr Cap			0.36	1.33	1.33	11.41				
Excess			0.18	0.18	0.18	(0.36)				
Nomura High Yield	55	0.38	0.16	1.04	1.04	10.01				
BBG BARC US HY - 2% Issr Cap			0.36	1.33	1.33	11.41				
Excess			(0.20)	(0.30)	(0.30)	(1.40)				
Shenkman High Yield	159	1.09	0.59	1.88	1.88	11.46				
BBG BARC US HY - 2% Issr Cap			0.36	1.33	1.33	11.41				
Excess			0.23	0.54	0.54	0.06				
Transition High Yield	0	0.00								
FIRE-TOTAL BANK LOANS	216	1.48	0.55	1.15	1.15	5.54	0.81	4.14	8.15	1.09
CSFB LEVERAGED LOAN INDEX			0.42	0.92	0.92	6.39	1.14	4.25	9.88	(0.38)
Excess			0.12	0.22	0.22	(0.85)	(0.33)	(0.11)	(1.73)	1.48
Bain Bank Loans	109	0.75	0.52	1.23	1.23					
CSFB LEVERAGED LOAN INDEX			0.42	0.92	0.92					
Excess			0.10	0.31	0.31					
Barings Bank Loans	106	0.73	0.58	1.06	1.06	5.86	0.38	4.47	8.46	0.12
CSFB LEVERAGED LOAN INDEX			0.42	0.92	0.92	6.39	1.14	4.25	9.88	(0.38)
Excess			0.16	0.13	0.13	(0.53)	(0.76)	0.22	(1.41)	0.50
Guggenheim Bank Loans	1	0.01					1.24	3.82	7.84	2.07
CSFB LEVERAGED LOAN INDEX			0.42				1.14	4.25	9.88	(0.38)
Excess							0.10	(0.43)	(2.03)	2.45

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
FIRE-TOTAL TIPS MANAGERS	631	4.33	(1.44)	1.30	1.30	7.56	(1.27)	3.04	4.63	(1.34)
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			(1.36)	1.35	1.35	7.58	(1.26)	3.01	4.68	(1.44)
Excess			(0.08)	(0.04)	(0.04)	(0.02)	(0.01)	0.03	(0.05)	0.09
BlackRock TIPS	160	1.10	(1.43)	1.29	1.29	7.53	(1.18)	2.98	4.75	(1.24)
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			(1.36)	1.35	1.35	7.58	(1.26)	3.01	4.68	(1.44)
Excess			(0.07)	(0.05)	(0.05)	(0.05)	0.08	(0.02)	0.07	0.20
SSGA TIPS	471	3.23	(1.44)	1.30	1.30	7.57	(1.30)	3.06	4.59	(1.35)
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			(1.36)	1.35	1.35	7.58	(1.26)	3.01	4.68	(1.44)
Excess			(0.08)	(0.04)	(0.04)	(0.01)	(0.04)	0.05	(0.09)	0.09
FIRE-TOTAL CONVERTIBLE BONDS	242	1.66	0.53	0.48	0.48	8.94	(1.92)	7.92	7.20	(1.42)
ICE BofAML All US Conv Ex Mandatory			(0.47)	(0.03)	(0.03)	14.36	0.65	15.70	11.71	(2.75)
Excess			0.99	0.50	0.50	(5.42)	(2.57)	(7.78)	(4.51)	1.32
Advent Convertible Bonds	242	1.66	0.53	0.48	0.48	8.94	(1.92)	7.92	7.20	(1.42)
ICE BofAML US Convertibles - Yield Alter			1.18	1.96	1.96	10.82	(0.42)	9.45	9.96	(8.77)
Excess			(0.66)	(1.48)	(1.48)	(1.88)	(1.51)	(1.53)	(2.76)	7.35
FIRE-TOTAL CORE FI- DEVELOPING MGRS	48	0.33	(0.48)	2.17	2.17	9.32	(1.21)	3.95	3.68	1.17
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			0.05	(0.10)	(0.10)	0.80	(1.22)	0.41	1.04	0.62
LM Capital-Core Plus	25	0.17	(0.55)	2.16	2.16	9.19	(1.30)	3.92	3.43	1.02
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			(0.01)	(0.11)	(0.11)	0.67	(1.32)	0.38	0.78	0.47
GIA-Core Plus	23	0.16	(0.42)	2.17	2.17	9.46	(1.11)	3.99	3.96	
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	
Excess			0.12	(0.10)	(0.10)	0.94	(1.12)	0.45	1.31	
FIRE-TOTAL OPPORTUNISTIC FIXED	460	3.15	0.00	1.56	1.56	4.74	6.38	8.32	9.30	(2.77)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.73)	(0.19)	(0.19)	(6.49)	4.02	(1.10)	(8.11)	(3.39)
Avenue Special Situations Fund VI L.P.	1	0.01	0.00	0.54	0.54	(1.41)	12.41	(16.32)	(10.10)	(9.95)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.74)	(1.21)	(1.21)	(12.65)	10.05	(25.74)	(27.50)	(10.58)
Brightwood Capital Advisors III, LP	5	0.03	0.00	(2.13)	(2.13)	3.85	11.00	5.22	1.78	
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	
Excess			(0.74)	(3.88)	(3.88)	(7.39)	8.64	(4.21)	(15.63)	
Brightwood Capital Advisors FD IV, LP	18	0.12	0.00	(0.81)	(0.81)	3.38	6.94	14.82		
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42		
Excess			(0.74)	(2.56)	(2.56)	(7.85)	4.58	5.39		
Fortress Ctr St Ptnrs	35	0.24	0.00	2.12	2.12	5.59	10.99	11.92	7.74	8.14
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.74)	0.37	0.37	(5.65)	8.63	2.49	(9.66)	7.51
ICG Centre St Partner	15	0.11	0.00	2.66	2.66	8.63	9.02			
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36			
Excess			(0.74)	0.91	0.91	(2.60)	6.66			

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
Oaktree Opp Fd IX	23	0.16	0.00	4.49	4.49	8.78	4.57	12.87	3.89	(9.30)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.74)	2.74	2.74	(2.46)	2.21	3.45	(13.51)	(9.92)
Torchlight Debt Oppy Fund III, LLC	0	0.00						47.02	22.40	120.31
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74				2.36	9.42	17.40	0.63
Excess								37.60	5.00	119.69
Torchlight Debt Opp V	12	0.08	(0.28)	2.42	2.42	4.42	14.55	16.30	12.02	
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	
Excess			(1.01)	0.67	0.67	(6.82)	12.19	6.87	(5.38)	
TORCHLIGHT DEBT OPP VI	4	0.03	0.00	0.09	0.09					
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75					
Excess			(0.74)	(1.67)	(1.67)					
Angelo Gordon Ct St Ptnrs	32	0.22	0.18	2.68	2.68	(1.26)	7.97	4.32	7.38	(6.05)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.55)	0.93	0.93	(12.49)	5.61	(5.10)	(10.02)	(6.68)
Apollo Centre Street Partnership, L.P	53	0.36	0.54	2.34	2.34	4.33	8.32	8.88	5.78	(11.35)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.20)	0.59	0.59	(6.90)	5.96	(0.54)	(11.63)	(11.97)
Ares Centre Street	40	0.27	0.66	2.05	2.05	6.72	9.71	10.01	9.10	9.43
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.07)	0.30	0.30	(4.52)	7.35	0.59	(8.30)	8.80
Contrarian Partnership, L.P	15	0.11	(2.50)	(1.17)	(1.17)	(7.01)	(4.51)	8.52	16.94	(8.12)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(3.24)	(2.93)	(2.93)	(18.25)	(6.87)	(0.90)	(0.46)	(8.75)
Golden Tree OD	49	0.33	0.42	0.87	0.87	8.38	(1.71)	7.08	10.28	2.33
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.31)	(0.88)	(0.88)	(2.86)	(4.08)	(2.34)	(7.12)	1.70
Maranon Partnership	11	0.07	0.73	2.06	2.06	5.74				
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23				
Excess			(0.01)	0.31	0.31	(5.50)				
Marathon Centre Street Partnership, L.P.	66	0.45	0.54	1.35	1.35	6.28	4.09	3.35	15.52	(4.74)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(0.20)	(0.40)	(0.40)	(4.95)	1.73	(6.08)	(1.88)	(5.36)
Oak Hill Ctr St Ptnrs	56	0.38	(0.26)	1.28	1.28	5.39	7.72	13.66	13.18	(4.29)
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36	9.42	17.40	0.63
Excess			(1.00)	(0.47)	(0.47)	(5.84)	5.36	4.24	(4.23)	(4.91)
KKR NYC CREDIT A & B	26	0.18	(2.43)	0.47	0.47	(0.40)	26.52			
Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300			0.74	1.75	1.75	11.23	2.36			
Excess			(3.17)	(1.28)	(1.28)	(11.64)	24.16			

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

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TOTAL FIRE ETI (w/o cash)	114	0.78	(0.08)	2.90	2.90	9.32	0.65	3.68	2.04	2.73
Fire Custom Benchmark (No Cash)			(0.26)	1.92	1.92	7.32	0.68	3.19	2.46	1.05
Excess			0.18	0.98	0.98	2.00	(0.04)	0.49	(0.41)	1.68
AFL-CIO Housing Investment Trust	60	0.41	(0.48)	2.10	2.10	8.24	0.16	3.17	1.94	1.13
BBG BARC Agg (Dly)			(0.53)	2.27	2.27	8.52	0.01	3.54	2.65	0.55
Excess			0.05	(0.17)	(0.17)	(0.28)	0.15	(0.38)	(0.71)	0.58
RBC Access MBS	28	0.19	0.12	1.88	1.88	6.82	0.49	2.64	1.61	1.83
Access RBC Benchmark			(0.17)	1.36	1.36	5.63	1.17	1.96	1.52	1.40
Excess			0.29	0.51	0.51	1.19	(0.69)	0.69	0.09	0.43
CPC Construction Facility	5	0.03	0.62	4.03	4.03	6.23	4.14	6.06	(3.95)	12.90
CPC CONST BENCHMARK			0.31	1.00	1.00	3.15	3.99	3.34	3.03	2.90
Excess			0.31	3.03	3.03	3.08	0.15	2.73	(6.99)	10.01
CFSB PPAR GNMA	0	0.00	0.19	1.78	1.78	7.45	0.99	3.83	3.21	5.90
GNMA Plus 65bps			0.06	1.47	1.47	6.04	1.63	2.53	2.28	2.02
Excess			0.13	0.30	0.30	1.41	(0.65)	1.30	0.93	3.88
Citibank PPAR GNMA	1	0.01	0.20	1.98	1.98	7.40	1.90	3.10	2.78	5.08
GNMA Plus 65bps			0.06	1.47	1.47	6.04	1.63	2.53	2.28	2.02
Excess			0.15	0.50	0.50	1.36	0.27	0.57	0.50	3.06
Citibank PPAR FNMA	3	0.02	0.73	8.87	8.87	19.48	2.63	5.26	3.71	6.69
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61	2.38	2.50
Excess			0.44	7.05	7.05	12.85	0.77	1.65	1.33	4.20
BOA PPAR FNMA	3	0.02	1.00	7.04	7.04	16.94	2.33	5.21	4.07	42.03
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61	2.38	2.50
Excess			0.71	5.22	5.22	10.30	0.47	1.60	1.69	39.53
CPC PPAR FNMA	3	0.02	0.58	6.09	6.09	16.64	2.31	5.06	6.15	8.96
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61	2.38	2.50
Excess			0.29	4.26	4.26	10.00	0.45	1.45	3.77	6.46
JPMC PPAR FNMA	6	0.04	0.64	6.62	6.62	17.55	1.68	9.96	7.94	6.18
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61	2.38	2.50
Excess			0.35	4.79	4.79	10.91	(0.18)	6.35	5.56	3.68
LIIF PPAR GNMA	0	0.00	0.08	1.48	1.48	5.91	2.53	2.52	3.88	3.92
GNMA Plus 65bps			0.06	1.47	1.47	6.04	1.63	2.53	2.28	2.02
Excess			0.03	0.00	0.00	(0.13)	0.89	(0.01)	1.61	1.91
LIIF PPAR FNMA	3	0.02	0.68	6.72	6.72	16.61	2.27	9.55	5.03	6.29
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61	2.38	2.50
Excess			0.39	4.90	4.90	9.97	0.41	5.94	2.65	3.79
LISC PPAR FNMA	1	0.01	0.91	7.97	7.97	18.54				
FNMA Plus 85bps			0.29	1.82	1.82	6.64				
Excess			0.62	6.15	6.15	11.90				
NCBCI PPAR GNMA	0	0.00	0.16	0.64	0.64	4.58	1.23	3.01	3.51	5.53
GNMA Plus 65bps			0.06	1.47	1.47	6.04	1.63	2.53	2.28	2.02
Excess			0.10	(0.83)	(0.83)	(1.46)	(0.41)	0.48	1.23	3.52

Information Classification: Limited Access

New York City Fire Department Pension Fund

Manager / Benchmark Comparison Report

Rates of Return - Net Mgr

Periods Ending September 30, 2019

	Ending Market Value ($MM)	% of Total	1 Month	3 Month	FYTD	CYTD	CYE 12/31/2018	CYE 12/31/2017	CYE 12/31/2016	CYE 12/31/2015
NCBCI PPAR FNMA	0	0.00	0.18	1.24	1.24	4.37	2.00	1.75	3.46	4.97
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61	2.38	2.50
Excess			(0.11)	(0.59)	(0.59)	(2.27)	0.15	(1.86)	1.07	2.47
Wells Fargo PPAR FNMA	0	0.00	0.91	7.79	7.79	25.44				
FNMA Plus 85bps			0.29	1.82	1.82	6.64	1.86	3.61		
Excess			0.62	5.97	5.97	18.80				
FIRE-TOTAL CASH	137	0.94	0.18	0.68	0.68	2.15	2.05	1.16	0.88	0.32
ICE BofAML US 3-Month Treasury Bill			0.17	0.56	0.56	1.81	1.87	0.86	0.33	0.05
Excess			0.01	0.12	0.12	0.34	0.18	0.30	0.56	0.26
Short Term FIRE	137	0.94	0.17	0.56	0.56	1.83	1.97	1.13	0.88	0.32
ICE BofAML US 3-Month Treasury Bill			0.17	0.56	0.56	1.81	1.87	0.86	0.33	0.05
Excess			0.00	0.00	0.00	0.01	0.09	0.27	0.56	0.26
Cash Account	0	0.00								
KKR SP CASH ACCOUNT	0	0.00	0.16	0.50	0.61					
Securities Lending	0	0.00								
FIRE-TOTAL PRIVATE EQUITY	978	6.70	(0.11)	4.05	4.05	8.38	17.98	22.60	9.83	10.51
FIRE-TOTAL PRIVATE REAL ESTATE	630	4.32	(0.32)	0.60	0.60	3.77	10.43	10.90	10.92	14.52
FIRE-TOTAL INFRASTRUCTURE	136	0.93	(0.02)	2.95	2.95	8.14	8.59	24.10	9.00	13.30

Information Classification: Limited Access

New York City Fire Pension Fund
Private Equity Portfolio
As of June 30, 2019 (in USD)

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR[1]	PME Return[2]	PME Spread[3]
Active Investments										
1999	Cypress Merchant Banking Partners II, L.P.	3/29/1999	$ 22,586,486	$ 26,972,134	$ 25,292,077	$ 12,730	0.94x	(1.2%)	5.5%	(6.7%)
1999	Lincolnshire Equity Fund II, L.P.	10/20/1999	6,899,005	7,223,050	14,015,738	279,306	1.98x	24.6%	7.0%	17.6%
2000	SCP Private Equity Partners II, L.P.	6/15/2000	15,000,000	16,834,296	6,514,303	1,758,706	0.49x	(8.0%)	5.8%	(13.7%)
2001	Apollo Investment Fund V, L.P.	4/13/2001	15,000,000	23,379,009	46,122,367	129,591	1.98x	38.8%	8.3%	30.4%
2001	CVC European Equity Partners III, L.P.	9/4/2001	10,000,000	11,880,366	29,775,858	655,201	2.56x	41.0%	10.8%	30.2%
2002	Landmark Equity Partners XI, L.P.	10/23/2002	5,000,000	4,753,167	7,305,360	12,243	1.54x	23.3%	7.5%	15.8%
2003	FS Equity Partners V, L.P.	1/20/2003	10,000,000	8,567,981	16,744,589	669,741	2.03x	15.3%	5.0%	10.4%
2003	Blackstone Capital Partners IV, L.P.	2/26/2003	13,875,989	17,166,532	41,569,298	642,529	2.46x	36.3%	8.5%	27.8%
2003	Ares Corporate Opportunities Fund, L.P.	4/1/2003	5,000,000	5,998,308	8,941,880	137,038	1.51x	13.2%	7.4%	5.8%
2004	Markstone Capital Partners, LP	1/30/2004	5,000,000	5,862,384	2,477,825	34,027	0.43x	(42.1%)	10.3%	(52.4%)
2004	FdG Capital Partners II LP	8/30/2004	5,000,000	5,387,768	6,228,579	304,134	1.21x	3.7%	6.7%	(3.0%)
2004	Paladin Homeland Security Fund (NY City), L.P.	9/27/2004	7,500,000	8,256,642	3,143,003	11,099	0.38x	(14.2%)	6.2%	(20.4%)
2004	Lincolnshire Equity Fund III, L.P.	10/1/2004	5,000,000	5,000,631	7,066,602	1,936,247	1.80x	28.3%	11.3%	17.0%
2004	Yucaipa American Alliance Fund I, LP	10/1/2004	5,000,000	7,491,869	8,800,690	478,386	1.24x	4.9%	10.6%	(5.7%)
2004	New York/Fairview Emerging Managers Fund, L.P.-Tranche 1	10/21/2004	2,000,000	2,053,879	1,959,926	374,029	1.14x	2.1%	8.7%	(6.5%)
2004	Aurora Equity Partners III L.P.	11/16/2004	5,000,000	5,412,677	8,743,588	37,401	1.62x	13.5%	9.9%	3.6%
2004	Medica III Investments (International) L.P.	8/21/2006	3,000,000	2,992,836	1,267,948	722,000	0.66x	(7.8%)	(4.8%)	(2.9%)
2005	Palladium Equity Partners III, L.P.	11/12/2004	10,000,000	10,579,332	19,428,329	702,913	1.90x	15.4%	11.5%	3.9%
2005	New Mountain Partners II, L.P.	1/12/2005	2,580,650	2,337,304	4,502,540	35,951	1.94x	13.6%	4.5%	9.2%
2005	Carlyle Partners IV, L.P.	4/29/2005	5,000,000	5,153,753	10,090,391	130,326	1.98x	13.0%	4.1%	8.9%
2005	Snow Phipps Group, L.P.	9/7/2005	5,000,000	5,956,871	5,228,654	2,660,634	1.32x	6.1%	11.0%	(4.9%)
2005	Blackstone Mezzanine Partners II, L.P.	10/10/2005	2,561,603	2,866,163	3,810,696	32,627	1.34x	7.8%	3.7%	4.1%
2005	Psilos Group Partners III, L.P.	10/24/2005	2,500,000	2,657,559	1,282,054	1,755,472	1.14x	2.0%	7.4%	(5.4%)
2005	FirstMark Capital I, L.P. (fka FirstMark IV)	11/21/2005	1,500,000	1,639,064	4,611,677	6,826,070	6.98x	33.8%	10.6%	23.2%
2005	USPF II Institutional Fund, L.P.	11/23/2005	5,000,000	6,594,940	7,636,580	761,463	1.27x	4.1%	7.7%	(3.6%)
2005	JP Morgan Fleming (Tranche A)	12/21/2005	3,000,000	3,011,887	2,912,094	929,722	1.28x	4.6%	10.7%	(6.1%)
2005	Arlington Capital Partners II, L.P.	4/20/2006	4,000,000	4,069,527	7,137,350	19,737	1.76x	11.2%	6.8%	4.5%
2006	Aisling Capital II, LP	1/12/2006	1,000,000	1,178,021	1,141,279	49,643	1.01x	0.2%	7.7%	(7.5%)
2006	InterMedia Partners VII, L.P.	1/20/2006	2,500,000	2,919,819	2,959,171	(1,261)	1.01x	0.2%	9.7%	(9.5%)
2006	Terra Firma Capital Partners III, L.P.	3/8/2006	5,223,007	5,293,671	1,998,164	375,571	0.45x	(9.8%)	9.8%	(19.6%)
2006	Fenway Partners Capital Fund III, L.P.	3/29/2006	5,000,000	5,761,877	8,536,385	507,163	1.57x	7.1%	8.5%	(1.4%)
2006	Blackstone Capital Partners V, L.P.	4/13/2006	9,448,250	10,050,051	15,932,123	399,178	1.62x	7.9%	8.4%	(0.4%)
2006	Avista Capital Partners, L.P.	4/27/2006	5,000,000	6,573,992	8,004,066	119,493	1.24x	4.5%	6.3%	(1.8%)
2006	Apollo Investment Fund VI, L.P.	5/10/2006	20,000,000	25,741,832	38,519,613	373,071	1.51x	8.7%	7.6%	1.1%
2006	Ares Corporate Opportunities Fund II, L.P.	5/23/2006	5,000,000	5,488,194	9,029,147	128,178	1.67x	13.1%	3.8%	9.2%
2006	CCMP Capital Investors II, L.P.	8/17/2006	5,000,000	5,486,988	9,439,624	3,984	1.72x	13.5%	10.6%	2.9%
2006	Euro Choice III L.P.	11/21/2006	5,314,341	5,347,612	5,739,519	464,281	1.16x	2.9%	11.9%	(9.0%)
2006	Thomas, McNerney & Partners II, L.P.	11/29/2006	3,000,000	3,035,394	6,371,246	589,373	2.29x	16.8%	11.6%	5.2%
2006	Catterton Partners VI, L.P.	12/14/2006	5,000,000	5,693,763	8,325,211	2,315,384	1.87x	11.7%	8.9%	2.8%
2006	First Reserve Fund XI, L.P.	12/14/2006	5,000,000	5,313,265	3,442,893	253,850	0.70x	(7.9%)	6.8%	(14.7%)
2006	Permira IV, L.P.	12/14/2006	5,507,175	5,989,739	8,625,746	734,581	1.56x	8.7%	9.4%	(0.8%)
2006	Arsenal Capital Partners II, LP	12/18/2006	4,000,000	4,982,154	7,865,472	1,351,603	1.85x	11.7%	11.7%	0.0%
2006	GF Capital Private Equity Fund, L.P.	12/18/2006	3,000,000	3,076,007	4,033,278	1,364,963	1.75x	11.8%	11.8%	0.0%
2006	RRE Ventures IV, L.P.	12/19/2006	2,500,000	3,175,366	2,023,539	2,371,632	1.38x	4.8%	10.9%	(6.1%)
2006	Coller International Partners V, L.P.	12/21/2006	5,000,000	4,372,182	5,799,214	451,818	1.43x	8.3%	10.7%	(2.4%)
2006	MidOcean Partners III, L.P.	12/21/2006	9,705,796	11,584,280	22,197,727	1,878,144	2.08x	13.0%	9.8%	3.3%
2006	The Fourth Cinven Fund	1/22/2007	2,729,837	2,870,272	4,120,624	2,071	1.44x	7.3%	7.5%	(0.2%)
2006	Falconhead Capital Partners II, L.P.	3/23/2007	4,000,000	4,481,396	4,478,251	1,278,258	1.28x	4.6%	8.6%	(4.0%)
2006	Atlantic Equity Partners IV, L.P.	10/30/2007	3,768,757	3,661,520	505,364	2,130,896	0.72x	(3.9%)	9.3%	(13.2%)
2006	Capital Partners Private Equity Income Fund, L.P.	11/29/2007	2,000,000	1,923,102	4,406,173	49,443	2.32x	20.9%	11.2%	9.7%
2007	Pegasus Partners IV, L.P.	1/29/2007	7,500,000	9,185,635	6,895,091	1,608,280	0.93x	(1.5%)	11.1%	(12.6%)
2007	Olympus Capital Asia III, L.P.	1/31/2007	5,000,000	5,851,116	2,988,294	1,552,516	0.78x	(5.7%)	11.0%	(16.7%)
2007	FTVentures III, LP	3/1/2007	2,500,000	2,743,841	5,106,031	944,782	2.21x	15.7%	10.3%	5.5%
2007	Highland Consumer Fund I LP	3/16/2007	2,000,000	2,003,212	1,136,631	501,608	0.82x	(2.7%)	10.7%	(13.5%)
2007	Montreux Equity Partners IV, L.P.	3/27/2007	5,000,000	5,000,000	2,761,158	4,035,546	1.36x	4.7%	10.3%	(5.6%)
2007	Gleacher Mezzanine Fund II, L.P.	3/30/2007	3,000,000	2,752,429	3,651,296	24,846	1.34x	10.6%	12.1%	(1.5%)
2007	SCP Vitalife Partners II Fund	4/13/2007	5,000,000	5,024,924	395	2,507,416	0.50x	(8.2%)	8.8%	(17.0%)
2007	Constellation Venture Capital III, L.P.	5/22/2007	5,000,000	5,715,007	2,799,144	1,577,981	0.77x	(4.3%)	15.2%	(19.5%)
2007	United States Power Fund III, L.P.	6/28/2007	5,000,000	5,915,665	6,030,482	1,350,937	1.25x	4.0%	9.5%	(5.5%)
2007	Carlyle Partners V, L.P.	7/6/2007	10,000,000	10,306,406	17,013,508	1,350,616	1.78x	13.7%	11.0%	2.8%
2007	PCG Clean Energy & Technology Fund (East), LLC	7/6/2007	10,000,000	9,047,736	2,056,513	1,373,414	0.38x	(13.5%)	13.1%	(26.5%)
2007	GSO Capital Opportunities Fund LP	7/16/2007	7,500,000	11,229,550	15,937,873	111,189	1.43x	17.3%	10.1%	7.2%
2007	New Mountain Partners III, L.P.	8/9/2007	10,000,000	10,186,606	13,560,676	7,656,695	2.08x	13.7%	12.6%	1.1%
2007	Vista Equity Partners Fund III, L.P.	10/3/2007	7,500,000	8,045,926	19,154,991	755,092	2.47x	27.0%	9.9%	17.1%
2007	Trilantic Capital Partners IV L.P.	10/22/2007	7,236,332	7,561,195	11,218,812	821,374	1.59x	13.6%	10.9%	2.7%
2007	Pine Brook Capital Partners, L.P.	1/11/2008	7,500,000	8,514,853	9,789,394	1,388,798	1.31x	7.3%	12.0%	(4.6%)
2007	Princeton Capital Corp. (fka Capital Point)	10/17/2008	3,000,000	3,497,432	2,267,271	1,135,927	0.97x	(0.6%)	15.2%	(15.8%)
2007	Post Capital Equity Partners II LP	2/10/2009	3,000,000	2,142,326	4,013,183	475,883	2.10x	15.4%	16.0%	(0.6%)
2008	Paladin III (NY City), L.P.	1/8/2008	7,500,000	10,092,257	7,169,873	10,168,220	1.72x	10.6%	12.1%	(1.6%)
2008	Apollo Investment Fund VII, L.P.	1/28/2008	25,000,000	30,587,258	48,008,665	4,084,988	1.70x	22.7%	13.6%	9.1%
2008	NGN BioMed Opportunity II, L.P.	2/11/2008	5,000,000	4,787,955	3,336,553	2,692,299	1.26x	3.5%	14.8%	(11.3%)
2008	Riverstone/Carlyle Global Energy & Power Fund IV, L.P.	3/3/2008	7,500,000	8,697,374	7,680,496	2,255,426	1.14x	3.6%	13.8%	(10.2%)
2008	Yucaipa American Alliance Fund II, LP	3/28/2008	15,000,000	20,468,035	18,957,963	14,455,649	1.63x	9.1%	12.3%	(3.2%)
2008	Levine Leichtman Capital Partners IV, L.P.	4/8/2008	5,000,000	5,353,601	8,459,480	527,616	1.68x	18.3%	14.3%	4.0%
2008	New York/Fairview Emerging Managers Fund, L.P.-Tranche 2	5/28/2008	5,000,000	4,999,647	5,376,295	4,981,074	2.07x	16.3%	13.0%	3.3%
2008	Yucaipa Corporate Initiatives Fund II, LP	6/23/2008	4,676,976	4,588,700	1,673,241	2,417,076	0.89x	(1.8%)	12.0%	(13.7%)
2008	CVC European Equity Partners V, L.P.	7/21/2008	13,684,191	14,791,218	25,308,633	2,910,431	1.91x	16.2%	12.7%	3.5%
2008	GI Partners Fund III L.P.	7/29/2008	7,500,000	8,103,000	12,619,975	126,846	1.57x	13.0%	15.3%	(2.3%)
2008	Ares Corporate Opportunities Fund III, L.P.	7/30/2008	10,000,000	12,148,386	19,382,376	6,578,577	2.14x	20.6%	12.1%	8.5%
2008	GCM Grosvenor NYCFDPF Emerging Manager Fund, L.P.	8/22/2008	8,979,798	11,368,693	9,694,114	5,960,557	1.38x	9.4%	13.3%	(4.0%)
2008	First Reserve Fund XII, L.P.	8/25/2008	5,000,000	5,554,103	2,733,585	857,047	0.65x	(10.0%)	16.8%	(26.9%)
2008	Landmark Equity Partners XIV, L.P.	9/19/2008	13,630,000	13,247,977	15,007,503	2,339,320	1.31x	9.5%	14.5%	(5.0%)
2008	Crestview Partners II, L.P.	10/1/2008	7,500,000	8,693,626	11,135,698	3,663,915	1.70x	13.4%	14.5%	(1.2%)
2008	NB New York City Growth Fund IA	10/17/2008	1,208,990	1,208,990	417,624	440,544	0.71x	(4.4%)	16.2%	(20.6%)
2008	Milestone Partners III, L.P.	10/17/2008	3,000,000	3,233,156	2,739,030	420,246	0.98x	(0.4%)	14.4%	(14.9%)
2008	Euro Choice IV L.P.	10/22/2008	6,460,835	5,971,363	5,690,590	2,926,205	1.44x	7.5%	13.2%	(5.7%)
2008	Avista Capital Partners II, L.P.	11/5/2008	10,000,000	12,960,801	20,021,237	1,804,033	1.68x	15.0%	14.7%	0.3%
2008	Bridgepoint Europe IV	11/14/2008	6,664,197	6,761,888	8,438,960	1,858,594	1.52x	10.0%	14.8%	(4.8%)
2008	Blue Wolf Capital Fund II, L.P.	11/19/2008	3,000,000	3,252,569	3,768,005	782,142	1.40x	7.8%	16.2%	(8.4%)
2008	Aisling Capital III, LP	11/20/2008	3,500,000	3,950,768	8,826,865	454,200	2.35x	26.1%	14.2%	11.9%
2008	Onex Partners III LP	12/10/2008	5,000,000	5,460,617	7,225,550	1,895,853	1.67x	12.6%	14.9%	(2.3%)
2009	NorthBound Emerging Manager Custom Fund LP	1/29/2009	5,000,000	4,317,619	5,947,330	1,372,204	1.70x	13.4%	14.5%	(1.1%)
2009	Welsh, Carson, Anderson & Stowe XI, L.P.	2/10/2009	7,500,000	7,500,000	9,705,620	2,608,400	1.64x	12.3%	14.7%	(2.4%)
2009	Scale Venture Partners III, LP	5/1/2009	5,000,000	4,947,453	12,750,882	1,285,453	2.84x	23.2%	13.8%	9.4%
2009	FS Equity Partners VI, L.P.	7/27/2009	12,500,000	12,547,548	27,593,924	9,652,426	2.97x	24.0%	14.8%	9.2%
2009	Lincolnshire Equity Fund IV, L.P.	8/5/2009	2,500,000	2,666,413	3,071,357	1,066,098	1.55x	10.7%	13.4%	(2.7%)
2009	Lexington Capital Partners VII, L.P.	12/3/2009	10,000,000	8,923,109	11,358,575	2,657,054	1.57x	14.1%	14.3%	(0.2%)
2010	Snow Phipps II, L.P.	1/8/2010	7,500,000	8,662,071	6,369,935	5,144,461	1.33x	8.8%	13.8%	(5.0%)
2010	Trident V, L.P.	4/29/2010	15,000,000	17,478,670	18,720,966	9,695,627	1.63x	11.3%	12.5%	(1.2%)
2010	Comvest Investment Partners IV, L.P.	10/21/2010	20,000,000	20,052,821	30,503,383	5,811,224	1.81x	29.3%	14.1%	15.2%
2011	Blackstone Capital Partners VI, L.P.	1/24/2011	10,000,000	10,423,629	7,900,915	8,636,476	1.59x	12.8%	12.5%	0.3%
2011	Ampersand 2011	3/11/2011	5,000,000	5,000,000	8,091,816	6,811,370	2.98x	22.4%	12.8%	9.6%
2011	BDCM Opportunity Fund III, L.P.	4/8/2011	10,000,000	14,392,705	6,815,651	12,991,303	1.38x	8.6%	12.5%	(3.8%)
2011	AXA Secondary Fund V B L.P.	6/16/2011	40,000,000	32,956,913	46,908,066	5,968,912	1.60x	15.6%	14.7%	0.9%

New York City Fire Pension Fund
Private Equity Portfolio
As of June 30, 2019 (in USD)

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR[1]	PME Return[2]	PME Spread[3]
2011	Wellspring Capital Partners V, L.P.	7/1/2011	7,500,000	7,602,638	8,678,886	3,336,178	1.58x	15.8%	12.2%	3.5%
2011	EQT VI, L.P.	8/1/2011	17,721,756	18,383,011	24,800,689	6,494,639	1.70x	14.0%	12.2%	1.8%
2011	Pegasus Partners V, L.P.	8/16/2011	6,236,975	7,500,411	6,756,473	5,573,661	1.64x	12.9%	14.2%	(1.3%)
2011	BC European Capital IX	9/19/2011	21,935,463	23,763,920	20,668,664	16,436,810	1.56x	12.7%	13.3%	(0.6%)
2011	American Securities Partners VI, L.P.	11/18/2011	20,000,000	21,477,118	32,254,614	9,830,236	1.96x	22.0%	13.1%	8.9%
2011	Vista Equity Partners Fund IV, L.P.	11/30/2011	30,000,000	30,758,843	39,485,667	21,964,159	2.00x	18.3%	13.5%	4.8%
2012	Warburg Pincus Private Equity XI, L.P.	5/24/2012	35,000,000	37,237,928	28,102,848	32,031,811	1.61x	14.1%	12.4%	1.7%
2012	Summit Partners Growth Equity Fund VIII-A, L.P.	6/14/2012	30,000,000	33,797,926	46,642,245	25,886,017	2.15x	27.2%	12.1%	15.1%
2012	NYCFPF - 2012 Emerging Manager Program[4]	6/21/2013	23,700,000	23,523,341	9,892,796	25,896,902	1.52x	15.1%	11.4%	3.7%
2012	Trilantic Capital Partners V L.P.	9/20/2012	10,000,000	10,842,266	9,146,429	7,300,204	1.52x	18.1%	12.3%	5.8%
2012	Palladium Equity Partners IV, L.P.	10/10/2012	10,000,000	8,519,109	4,700,284	7,892,315	1.48x	13.1%	13.2%	(0.1%)
2012	Ares Corporate Opportunities Fund IV, L.P.	11/5/2012	20,000,000	20,904,088	11,438,970	19,602,723	1.48x	12.8%	11.2%	1.6%
2012	Green Equity Investors VI, L.P.	11/30/2012	25,000,000	26,898,089	17,885,109	27,864,845	1.70x	16.4%	12.1%	4.3%
2012	Platinum Equity Capital Partners III, L.P.	1/14/2013	25,000,000	20,630,401	29,062,497	9,398,005	1.86x	35.7%	13.2%	22.5%
2013	Carlyle Partners VI, L.P.	7/3/2013	20,000,000	20,963,986	8,998,882	18,135,436	1.29x	10.3%	11.3%	(0.9%)
2014	Carlyle Partners VI, L.P. (Side Car)	9/23/2014	2,200,000	1,599,752	92,222	1,431,603	0.95x	(1.5%)	10.6%	(12.0%)
2013	Landmark Equity Partners XV, L.P.	10/30/2013	26,000,000	18,366,286	13,327,313	9,976,620	1.27x	12.3%	11.4%	0.8%
2013	Landmark - NYC Fund I, L.P.	12/24/2013	9,000,000	7,490,091	5,030,747	5,548,284	1.41x	15.0%	10.0%	5.0%
2013	Apollo Investment Fund VIII, L.P.	12/11/2013	40,000,000	36,781,576	11,719,827	35,918,635	1.30x	10.8%	12.0%	(1.1%)
2014	CVC Capital Partners VI, L.P.	2/18/2014	35,249,816	34,362,064	9,799,711	39,651,618	1.44x	16.4%	11.7%	4.7%
2013	Crestview Partners III, L.P.	3/3/2015	24,000,000	16,733,860	3,181,206	18,719,757	1.31x	14.0%	11.7%	2.2%
2013	Crestview Partners III (Co-Investment B), L.P.	12/17/2015	8,000,000	7,881,889	394,887	9,045,173	1.20x	8.6%	13.4%	(4.8%)
2014	Olympus Growth Fund VI, L.P.	1/24/2014	15,000,000	12,491,125	5,085,335	11,851,827	1.36x	14.4%	13.0%	1.4%
2014	ASF VI B L.P.	5/9/2014	30,000,000	22,752,748	13,514,756	19,142,049	1.44x	13.6%	11.4%	2.2%
2014	ASF VI B NYC Co-Invest L.P.	5/9/2014	10,000,000	7,905,447	6,388,677	4,713,025	1.40x	12.9%	9.1%	3.7%
2014	Vista Equity Partners Fund V, L.P.	9/8/2014	40,000,000	46,161,423	36,098,832	51,931,918	1.91x	24.0%	11.4%	12.6%
2014	Lexington Capital Partners VIII, L.P.	1/8/2015	40,000,000	33,889,404	14,596,460	29,877,377	1.31x	19.6%	12.5%	7.1%
2015	Siris Partners III, L.P.	5/4/2015	5,500,000	4,897,129	2,602,627	3,371,626	1.22x	11.5%	11.5%	(0.1%)
2015	Centerbridge Capital Partners III, L.P.	5/21/2015	4,200,000	2,703,468	866,019	2,779,139	1.35x	14.9%	11.6%	3.3%
2015	Welsh, Carson, Anderson & Stowe XII, L.P.	8/26/2015	14,000,000	11,792,598	5,000,260	13,138,652	1.54x	25.9%	12.8%	13.1%
2015	Warburg Pincus Private Equity XII, L.P.	12/21/2015	36,000,000	28,019,885	1,577,628	32,849,611	1.23x	12.9%	11.9%	1.0%
2015	ASF VII B L.P.	12/29/2015	17,000,000	5,709,131	1,006,591	6,623,809	1.34x	17.0%	11.6%	5.4%
2015	ASF VII B NYC Co-Invest L.P.	12/29/2015	9,000,000	4,574,648	644,570	6,925,568	1.65x	38.7%	10.4%	28.3%
2015	EQT VII, L.P.	1/8/2016	28,578,665	24,379,649	3,173,119	31,252,608	1.41x	19.4%	12.1%	7.3%
2015	American Securities Partners VII, L.P.	1/19/2016	14,000,000	11,289,600	1,670,494	8,909,346	0.94x	(4.2%)	13.0%	(17.2%)
2015	Bridgepoint Europe V L.P.	2/8/2016	11,441,455	10,446,095	1,488,705	11,408,886	1.23x	12.3%	12.3%	0.0%
2015	Bridgepoint Europe V Co-Invest	8/16/2016	3,494,704	3,241,557	324,224	5,144,921	1.69x	32.9%	12.9%	19.9%
2015	NYCFPF - 2015 Emerging Manager Program[5]	2/22/2016	190,400,000	11,506,002	397,979	13,972,779	1.25x	19.52%	23.1%	(3.6%)
2016	Vista Equity Partners Fund VI, L.P.	6/28/2016	28,000,000	30,196,990	6,988,561	33,549,530	1.34x	18.5%	13.0%	5.5%
2016	Platinum Equity Capital Partners IV, L.P.	3/21/2017	19,000,000	14,959,451	3,884,344	16,233,298	1.34x	31.6%	10.6%	21.0%
2018	Platinum Equity Capital Partners IV Co-Investment, L.P.	9/7/2018	3,000,000	2,100,000	-	2,417,242	1.15x	NM	NM	N/A
2016	Apax IX USD, L.P.	5/12/2017	22,000,000	10,687,190	578,513	15,257,089	1.48x	28.1%	NM	N/A
2017	Green Equity Investors VII, L.P.	5/12/2017	17,000,000	10,043,178	67,318	11,705,761	1.17x	13.5%	NM	N/A
2017	Ares Corporate Opportunities Fund V, L.P.	6/22/2017	17,000,000	11,315,771	292,664	11,916,155	1.08x	8.5%	NM	N/A
2017	KKR Americas Fund XII, L.P.	10/31/2017	28,000,000	11,310,613	184,583	12,051,302	1.08x	NM	NM	N/A
2017	BC European Capital X	12/14/2017	16,069,149	7,947,676	-	8,337,733	1.05x	NM	NM	N/A
2017	BCEC X Co-Investment	3/24/2017	6,475,306	4,529,514	-	5,092,343	1.12x	10.8%	9.4%	1.4%
2017	Warburg Pincus Financial Sector, L.P.	1/5/2018	21,000,000	9,711,522	1,071,000	7,953,776	0.93x	NM	NM	N/A
2018	Platinum Equity Small Cap Fund, L.P.	6/27/2018	8,000,000	608,593	-	467,733	0.77x	NM	NM	N/A
2018	EQT VIII, L.P.	8/10/2018	22,187,744	4,031,393	268,865	3,897,883	1.03x	NM	NM	N/A
2018	EQT VIII Co-Investment	11/2/2018	8,060,936	1,919,248	-	2,165,544	1.13x	NM	NM	N/A
2018	CVC Capital Partners VII, L.P.	12/4/2018	30,747,796	4,841,052	103,693	5,843,565	1.23x	NM	NM	N/A
2018	Grain Communications Opportunity Fund II, L.P.	12/26/2018	3,500,000	482,623	8,621	341,689	0.73x	NM	NM	N/A
2017	Palladium Equity Partners V, L.P.	2/11/2019	6,666,667	1,097,311	-	775,458	0.71x	NM	NM	N/A
2018	Vista Equity Partners Fund VII, L.P.	2/13/2019	35,500,000	4,863,989	5,252	4,641,026	0.96x	NM	NM	N/A
2019	Welsh, Carson, Anderson & Stowe XIII, L.P.	3/14/2019	18,000,000	132,036	-	(28,998)	(0.22x)	N/A	N/A	N/A
2018	Siris Partners IV, L.P.	3/15/2019	18,000,000	2,728,308	-	2,719,200	1.00x	NM	NM	N/A
2018	Apollo Investment Fund IX, L.P.	3/15/2019	52,000,000	4,749,874	538	3,969,661	0.84x	NM	NM	N/A
2019	ASF VIII B L.P.	3/15/2019	36,000,000	3,600	-	232,508	64.59x	NM	NM	N/A
2019	ASF VIII B NYC Co-Invest L.P.	3/15/2019	18,000,000	1,800	-	(1,793)	(1.00x)	N/A	N/A	N/A
2019	Warburg Pincus Global Growth, L.P.	3/26/2019	25,500,000	295,503	-	114,623	0.39x	NM	NM	N/A
2018	Bridgepoint Europe VI	N/A	23,898,212	1,380,964	-	1,014,435	0.73x	NM	NM	N/A
2018	Bridgepoint Europe VI Co-Invest	N/A	5,966,686	975,594	-	974,074	1.00x	NM	NM	N/A
2018	Crestview Partners IV, L.P.	N/A	14,000,000	-	-	(30,960)	-	N/A	N/A	N/A
2018	Crestview Partners IV (Co-Investment), L.P.	N/A	4,666,667	-	-	(10,320)	-	N/A	N/A	N/A
2019	KKR European Fund V (USD)	N/A	17,650,000	-	-	(43,651)	-	N/A	N/A	N/A
2019	Lexington Capital Partners IX	N/A	21,375,000	-	-	1,046,812	-	NM	N/A	N/A
2019	Lexington IX Co-Invest	N/A	7,125,000	-	-	-	-	N/A	N/A	N/A
2019	Lindsay Goldberg V	N/A	18,000,000	-	-	-	-	N/A	N/A	N/A
2019	Trilantic Capital Partners VI (North America) L.P.	N/A	20,000,000	-	-	-	-	N/A	N/A	N/A
Total Portfolio[6]			**$ 2,413,665,277**	**$ 1,821,958,840**	**$ 1,751,542,360**	**$ 981,146,896**	**1.50x**	**11.5%**	**10.4%**	**1.2%**

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR[1]	PME Return[2]	PME Spread[3]
Commitments Closed Subsequent to as of Date										
2019	Platinum Equity Capital Partners V, L.P.	N/A	$ 32,000,000	$ -	$ -	$ -	N/A	N/A	N/A	N/A
2019	Apax X USD L.P.	N/A	21,500,000	-	-	-	N/A	N/A	N/A	N/A
2019	Blackstone Capital Partners VIII L.P.	N/A	22,500,000	-	-	-	N/A	N/A	N/A	N/A
2019	Reverence Capital Partners Opportunities Fund II, L.P.	N/A	3,000,000	-	-	-	N/A	N/A	N/A	N/A
2019	Reverence Capital Partners Opportunities Fund II (Parallel), L.P.	N/A	1,500,000	-	-	-	N/A	N/A	N/A	N/A
Total Commitments Closed Subsequent to as of Date			**$ 80,500,000**	**$ -**	**$ -**	**$ -**	**N/A**	**N/A**	**N/A**	**N/A**

[1] Performance for funds with less than eight (8) quarters of activity is not meaningful.

[2] Russell 3000 PME+ or Long-Nickels PME for investments with no distributed capital as of quarter-end.

[3] PME Spread is calculated as IRR minus PME Benchmark.

[4] NYCFPF - 2012 Emerging Manager Program total commitment amount of $23.7 million has been fully committed as of June 30, 2015.

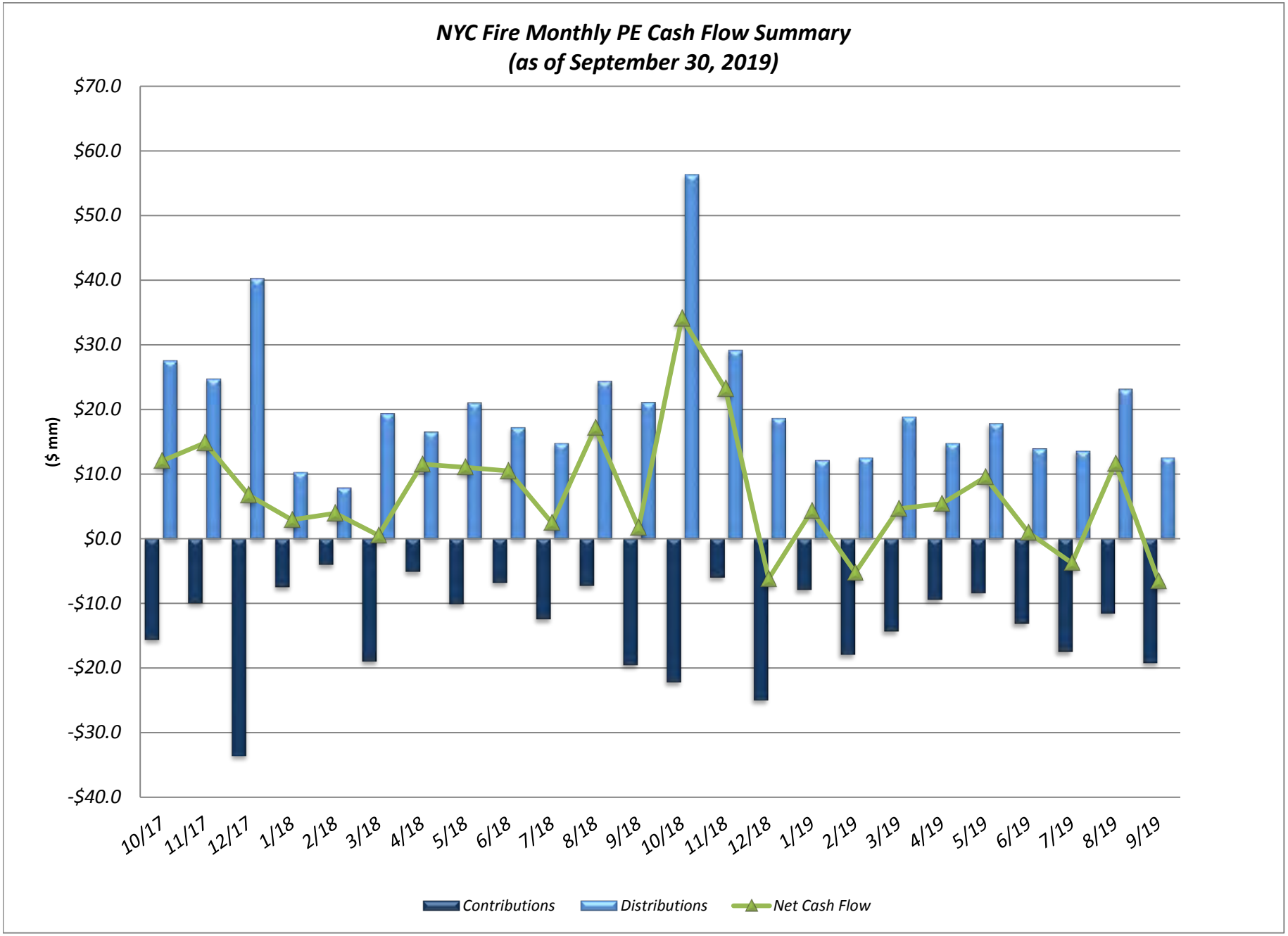
[5] NYCFPF - 2015 Emerging Manager Program total commitment amount includes the full amount allocated to the Program, of which $26.3 million has been committed as of November 1, 2019.

[6] Total Portfolio includes liquidated investments.

Past performance is not necessarily indicative of future results and there can be no assurance that the fund will achieve comparable results or avoid substantial losses.

The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

Note: IRRs presented are interim estimates and may not be indicative of the ultimate performance of fund investments due to a number of factors, such as the lack of industry valuation standards and the differences in the investment pace and strategy of various funds. Until a fund is liquidated, typically over 10 to 12 years, the IRR is only an interim estimated return. The IRR calculated in early years of a fund is not meaningful given the J-curve effect. The actual IRR performance of any fund is not known until all capital contributed and earnings have been distributed to the investor. The IRRs contained in this report are calculated by StepStone Group LP ("StepStone"), a consultant to the New York City Police Pension Fund, Subchapter 2, based on information provided by the general partners (e.g. cash flows and valuations). The IRR calculations and other information contained in this report have not been reviewed or confirmed by the general partners. The result of the IRR calculation may differ from that generated by the general partner or other limited partners. Differences in IRR calculations can be affected by cash-flow timing, the accounting treatment of carried interest, fund management fees, advisory fees, organizational fees, other fund expenses, sale of distributed stock, and valuations.


NYC Fire Monthly PE Cash Flow Summary
(as of September 30, 2019)
($ mm)
$70.0
$60.0
$50.0
$40.0
$30.0
$20.0
$10.0
$0.0
-$10.0
-$20.0
-$30.0
-$40.0
10/17
11/17
12/17
1/18
2/18
3/18
4/18
5/18
6/18
7/18
8/18
9/18
10/18
11/18
12/18
1/19
2/19
3/19
4/19
5/19
6/19
7/19
8/19
9/19
Contributions
Distributions
Net Cash Flow

TOWNSEND GROUP
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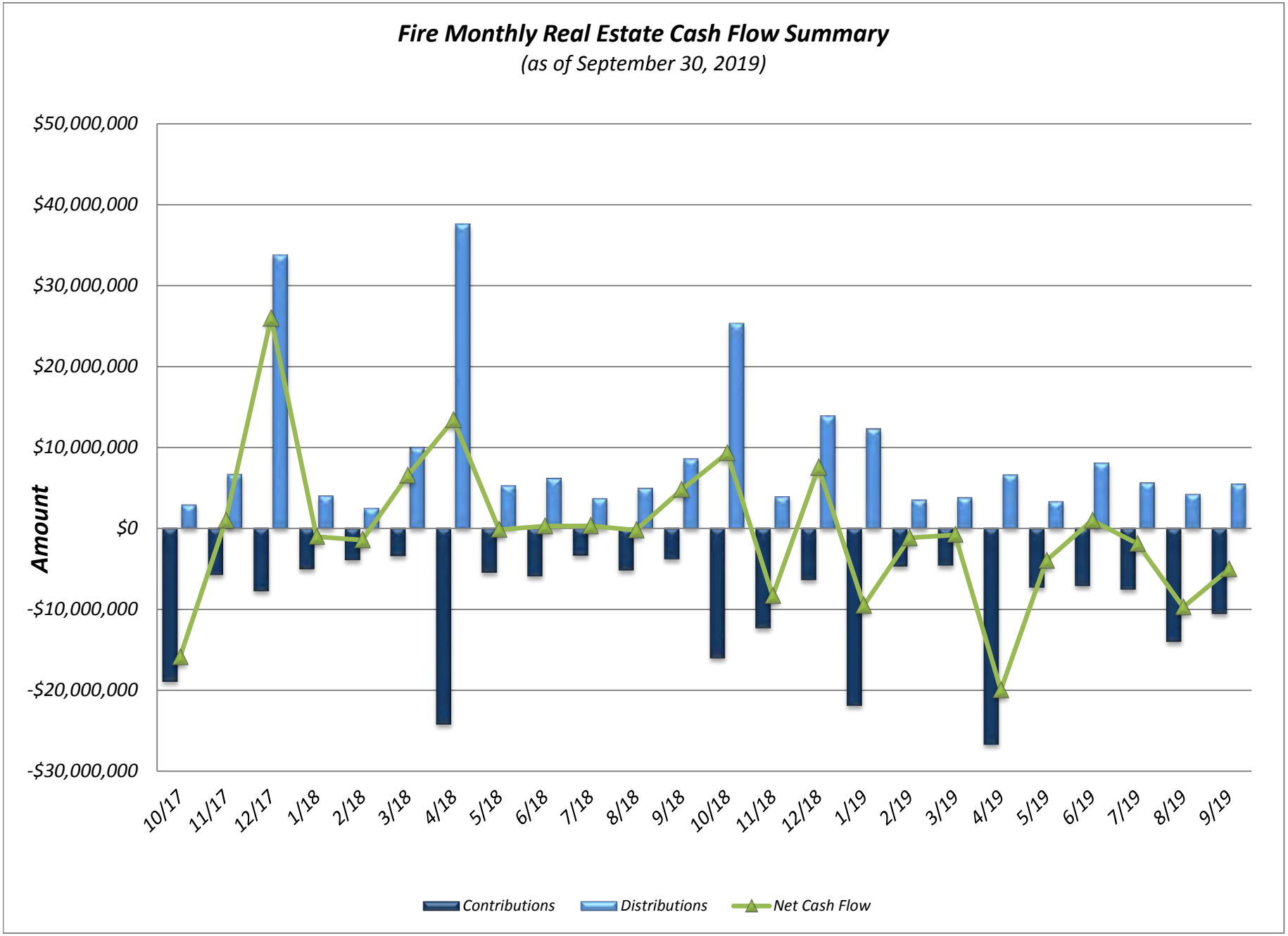
New York City Fire Department Pension Fund **2Q 2019**

Vintage Year	Fund Name	First Draw Down	Capital Committed	Contributions	Distributions	Market Value	uity Multip	Net IRR
2019	Almanac Realty Securities VIII	12/21/2018	10,500,000	520,283	0	430,937	n/a	n/a
2019	Almanac Realty Securities VIII (Sidecar II)	12/21/2018	7,000,000	350,849	0	370,792	1.1	32.3
2019	Artemis Real Estate Partners Income and Growth Fund	n/a	10,000,000	0	0	-47,470	n/a	n/a
2017	Brookfield Premier Real Estate Partners	11/22/2016	19,000,000	20,790,423	-2,046,030	24,570,605	1.3	11.8
2017	Carlyle Property Investors	7/3/2017	19,000,000	20,294,187	-1,524,798	21,480,219	1.1	8.0
2007	Colony Realty Partners II	12/20/2006	5,000,000	5,355,052	-1,384,970	0	0.3	-13.4
2016	Exeter Industrial Core Club Fund II	5/20/2016	6,000,000	5,227,517	-529,389	5,686,874	1.2	12.7
2019	Heitman Core Real Estate Debt Income Trust	11/2/2018	8,000,000	8,183,496	-348,987	8,162,972	1.0	8.2
2007	Heitman HART	3/29/2007	9,000,000	14,497,911	-5,497,911	20,007,385	1.8	7.7
2019	HSRE-Centre Street Core Co-Investment, L.P.	5/28/2019	3,300,000	1,456,311	0	1,458,699	1.0	1.8
2016	Jamestown Premier Property Fund	2/4/2016	8,000,000	9,531,056	-4,172,906	7,420,648	1.2	9.0
2007	JP Morgan Special Situation Property Fund	1/2/2007	5,000,000	5,870,702	-2,091,623	7,247,281	1.6	4.6
2007	JP Morgan Strategic Property Fund	12/5/2006	22,000,000	24,459,391	-54	50,988,025	2.1	8.1
2010	LaSalle Property Fund	7/1/2010	48,000,000	30,000,000	-11,647,187	44,151,391	1.9	10.5
2017	Lion Industrial Trust - 2007	1/1/2017	50,000,000	34,195,109	-1,530,565	39,159,155	1.2	15.4
2014	MetLife Core Property Fund	7/1/2014	41,000,000	27,685,338	-3,385,679	31,969,175	1.3	10.4
2013	NYC Asset Investor #2 LLC	7/9/2013	9,000,000	8,748,538	-3,770,524	6,239,823	1.1	3.7
2016	NYCRS Artemis Co-Investment	2/24/2016	11,000,000	11,291,980	-4,847,086	8,931,860	1.2	18.0
2007	PRISA II	6/30/2007	20,228,233	21,417,377	-7,093,522	30,748,141	1.8	5.9
2006	PRISA SA	9/29/2006	7,000,000	7,530,220	-2,937,195	10,005,031	1.7	4.9
2006	Prologis Targeted U.S. Logistics Fund	10/1/2006	5,000,000	6,745,383	-2,298,696	9,633,843	1.8	5.8
2006	RREEF America REIT II	10/1/2006	7,000,000	9,178,399	-4,866,342	10,162,497	1.6	5.3
2006	UBS Trumbull Property Fund	9/28/2006	27,000,000	40,964,584	-36,326,958	26,074,639	1.5	6.7
2016	USAA Eagle Real Estate Fund	12/1/2015	30,000,000	23,758,436	0	27,384,486	1.2	8.3
	Core / Core Plus Portfolio		**387,028,233**	**338,052,542**	**-96,300,422**	**392,237,008**	**1.4**	**6.8**
2019	AERMONT Real Estate Fund IV	4/18/2019	10,271,627	830,094	0	718,884	n/a	n/a
2008	AG Realty Fund VII	5/20/2008	15,000,000	14,100,000	-20,916,846	393,357	1.5	12.6
2008	American Value Partners Fund I (SEM)	10/18/2007	5,000,000	3,785,294	-3,413,281	457,260	1.0	0.4
2008	Ares European Real Estate Fund III, LP	5/6/2008	15,000,000	15,243,750	-16,618,750	293,979	1.1	2.7
2015	Avanath Affordable Housing Fund II (SEM)	7/14/2015	2,220,000	2,158,370	-347,745	3,024,279	1.6	12.6
2018	Basis Investment Group Fund I (SEM)	11/16/2017	4,100,000	1,661,036	-160,165	1,751,022	1.2	14.5
2004	Blackstone Fund IV	5/10/2004	5,000,000	6,406,782	-8,832,632	284,687	1.4	10.4
2010	Blackstone Real Estate Partners Europe III (USD Vehicle)	10/24/2008	5,000,000	5,204,577	-6,820,093	938,526	1.5	11.1
2014	Blackstone Real Estate Partners Europe IV (USD Vehicle)	12/23/2013	26,000,000	25,120,289	-24,794,122	13,511,836	1.5	15.4
2007	Blackstone Real Estate Partners VI	9/27/2007	10,000,000	11,170,327	-21,256,692	1,017,667	2.0	13.3
2012	Blackstone Real Estate Partners VII	3/31/2012	30,000,000	37,031,886	-43,474,743	18,457,186	1.7	17.5
2015	Blackstone Real Estate Partners VIII	8/18/2015	31,500,000	28,417,976	-9,652,248	27,362,016	1.3	15.8
2012	Brookfield Strategic Real Estate Partners	9/20/2012	15,000,000	16,857,868	-22,836,237	10,713,168	2.0	20.9
2019	Brookfield Strategic Real Estate Partners III	4/12/2019	30,000,000	6,398,568	-2,400	6,345,260	n/a	n/a
2005	Canyon Johnson Urban Fund II	5/11/2005	10,000,000	8,988,710	-3,974,652	33,602	0.4	-10.5
2010	Canyon Johnson Urban Fund III	3/29/2010	5,000,000	4,931,163	-6,664,557	943	1.4	11.9
2007	Carlyle Realty Partners V	8/27/2007	5,000,000	6,327,260	-7,561,987	1,621,370	1.5	8.7
2011	Carlyle Realty Partners VI	9/14/2011	20,000,000	19,204,612	-30,610,854	2,569,043	1.7	25.2
2014	Carlyle Realty Partners VII	6/30/2014	15,000,000	13,073,000	-9,348,529	9,082,121	1.4	15.8
2007	Colony Investors VIII	9/18/2007	20,000,000	21,249,679	-9,077,467	403,989	0.4	-11.5
2012	Divco West Fund III	12/30/2011	30,000,000	29,429,127	-50,376,448	500,629	1.7	23.9
2014	Divco West Fund IV	1/15/2014	30,000,000	29,700,495	-44,461,341	5,493,030	1.7	26.1
2017	Divco West Fund V	12/21/2016	12,000,000	5,951,170	0	6,395,290	1.1	4.8
2017	DRA Growth and Income Fund IX	3/9/2017	8,000,000	6,728,322	-1,415,793	6,372,314	1.2	16.9
2016	European Property Investors Special Opportunities IV (EPISO IV)	12/18/2015	10,059,238	7,540,707	-683,548	8,147,898	1.2	10.0
2017	Exeter Industrial Value Fund IV	9/20/2017	10,000,000	6,500,000	0	7,223,363	1.1	11.0
2011	H/2 Special Opportunities Fund II	1/31/2011	10,000,000	10,000,001	-14,433,713	907,935	1.5	14.3
2015	H/2 Special Opportunities Fund III	12/29/2014	15,000,000	15,000,000	-11,360,030	8,268,509	1.3	11.7
2017	H/2 Special Opportunities Fund IV	11/15/2016	19,000,000	3,555,000	0	3,922,670	1.1	6.2
2017	KKR CMBS B-Piece SMA	9/27/2017	25,000,000	22,425,552	-2,050,338	22,421,290	1.1	8.6
2018	KKR Real Estate Partners Americas II	2/9/2018	20,070,000	7,231,995	-1,086,551	6,841,898	1.1	14.2
2014	Lone Star Real Estate Fund III	5/20/2014	25,000,000	23,435,387	-28,407,786	3,456,051	1.4	14.9
2017	Lone Star Real Estate Fund V	9/26/2017	23,100,000	3,278,786	-984,042	1,856,193	0.9	-11.6
2007	Metropolitan Workforce Housing Fund (SEM)	7/13/2007	3,500,000	3,503,257	-4,186,143	64,258	1.2	3.9
2013	NYC Asset Investor #1 LLC	6/25/2013	5,000,000	5,489,133	-2,546,425	4,443,198	1.3	6.5
2013	NYC Asset Investor #3 LLC	9/20/2013	6,000,000	3,801,974	-661,497	3,752,766	1.2	5.1
2017	Pramerica Real Estate Capital VI (PRECap VI)	4/21/2017	10,040,161	5,543,690	-2,590,013	4,109,778	1.2	18.8
2016	PW Real Estate Fund III LP	10/7/2016	9,562,261	5,902,512	-753,265	7,178,095	1.3	18.7
2008	Silverpeak Legacy Partners III	5/28/2008	5,000,000	2,216,844	-402,066	426,108	0.4	-10.4
2008	Stockbridge Real Estate Fund III	9/9/2008	13,500,000	13,499,074	-8,414,877	7,345,540	1.2	2.2
2012	Taconic New York City Investment Fund LP	7/5/2012	20,000,000	8,363,637	-13,396,035	1,321,245	1.8	15.8
2004	The City Investment Fund I	3/16/2004	35,000,000	34,515,181	-34,904,154	74,928	1.0	0.3
2009	Thor Urban Property Fund II	10/30/2008	5,000,000	6,849,514	-6,847,656	1,573,948	1.2	6.1
2009	Walton Street Real Estate Fund VI	4/27/2009	5,000,000	4,432,393	-4,942,464	1,886,995	1.5	8.7
2010	Westbrook Real Estate Fund VIII	12/28/2009	5,000,000	5,962,021	-6,889,968	998,541	1.3	11.4
2016	Westbrook Real Estate Fund X	7/18/2016	8,000,000	5,158,925	-1,254,735	4,707,494	1.2	12.7
	Non-Core Portfolio		**646,923,287**	**524,175,938**	**-489,412,888**	**218,670,159**	**1.3**	**9.1**
	Small Emerging Manager		**25,820,000**	**22,399,937**	**-12,954,420**	**14,228,678**	**1.2**	**6.4**
	New York City Fire Department Pension Fund		**1,033,951,520**	**862,228,480**	**-585,713,310**	**610,907,167**	**1.4**	**7.9**

Additional Funds Closed		
	Core / Core Plus Portfolio	
2019	Harrison Street Core Fund	6,700,000
2019	Exeter Industrial Core III	21,300,000
	Core / Core Plus Portfolio Subtotal	**28,000,000**
Non-Core Portfolio		
	Non-Core Portfolio	
2019	Blackstone Europe VI	20,000,000
2019	Blackstone Real Estate Partners IX	34,000,000
2019	Westbrook Real Estate Fund XI	10,000,000
	Non-Core Portfolio Subtotal	**64,000,000**
	Additional Funds Closed to Date Grand Total	**92,000,000**

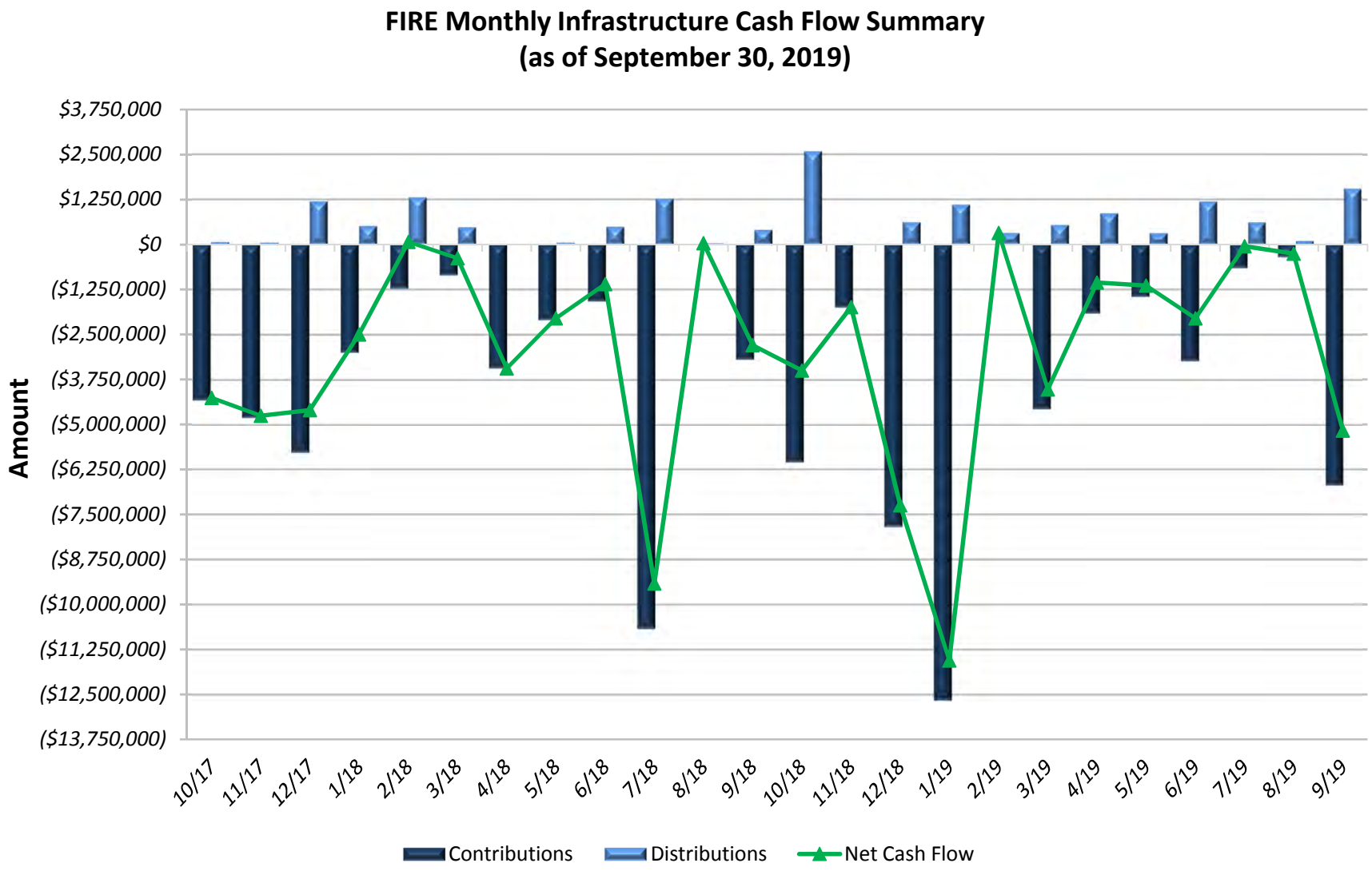
Source: PCG historical cash flow data. TTG cash flow data from Fund Managers, effective 2005. Note: The equity multiples and IRRs contained in this report are interim calculations based upon information provided by the investment managers of the New York City Retirement Systems, including cash flows and quarterly unaudited, or audited, valuations. The IRR calculated in early years of a fund life is not meaningful given the J-curve effect and can be significantly impacted by the timing of cash flows, investment strategy, investment pacing, and fund life. The calculations are not necessarily indicative of total fund performance, which can only be determined after the fund is liquidated and all capital contributed and earnings have been distributed to the investor. All data supplied is as of June 30, 2019. Note: At the direction of the Bureau of Asset Management ("BAM"), all fees related to KKR CMBS B-Piece SMA and KKR Real Estate Partners Americas II are input by TTG each quarter as the fees for the KKR funds are calculated at the strategic partnership level for the New York City Retirement Systems. Therefore, the fees are not input by the Manager, rather they are provided to TTG by the client.


Fire Monthly Real Estate Cash Flow Summary
(as of September 30, 2019)
$50,000,000
$40,000,000
$30,000,000
$20,000,000
$10,000,000
$0
-$10,000,000
-$20,000,000
-$30,000,000
Amount
10/17
11/17
12/17
1/18
2/18
3/18
4/18
5/18
6/18
7/18
8/18
9/18
10/18
11/18
12/18
1/19
2/19
3/19
4/19
5/19
6/19
7/19
8/19
9/19
Contributions
Distributions
Net Cash Flow

New York City Fire Pension Fund, Subchapter 2
Infrastructure Portfolio
As of June 30, 2019

Vintage Year	Investment	Closing Date	Committed Capital	Contributed Capital	Distributed Capital	Market Value	TVPI	IRR
Active Investments:								
2013	Brookfield Infrastructure Fund II, L.P.	7/8/2013	$15,000,000	$12,348,095	$3,734,158	$14,888,189	1.5x	12.2%
2014	IFM Global Infrastructure Fund	1/2/2014	$10,000,000	$13,351,525	$4,947,488	$14,587,669	1.5x	12.6%
2014	Global Energy & Power Infrastructure Fund II	4/16/2014	$10,000,000	$9,687,530	$5,412,625	$7,985,997	1.4x	32.7%
2014	KKR Global Infrastructure Investors II L.P.	6/12/2015	$12,000,000	$12,075,802	$1,761,109	$13,127,749	1.2x	11.1%
2016	Global Infrastructure Partners III-A/B, L.P.	1/29/2016	$22,000,000	$17,407,129	$1,317,172	$18,095,334	1.1x	7.7%
2016	Brookfield Infrastructure Fund III, L.P.	4/15/2016	$19,000,000	$10,267,714	$856,450	$10,801,333	1.1x	9.8%
2016	Actis Energy 4	12/16/2016	$12,900,000	$6,736,372	$993,537	$8,044,296	1.3x	26.4%
2017	EQT Infrastructure III (No.2) SCSp	2/18/2017	$11,272,459	$10,322,722	$1,021,269	$11,348,779	1.2x	21.4%
2017	ASF VII Infrastructure L.P.	4/24/2017	$15,000,000	$6,194,022	$516,598	$6,337,050	1.1x	25.3%
2017	Axium Infrastructure North America	8/14/2017	$15,220,450	$15,366,090	$708,221	$15,559,103	1.1x	9.3%
2017	NYCRS EIG Energy Partners, L.P.	8/14/2017	$15,300,000	$3,155,619	$160,916	$3,238,484	1.1x	9.6%
2018	NYCRS EIG Energy Partners Co-Investment, L.P.	1/12/2018	$3,820,000	-	-	-	NM	NM
2018	KKR Global Infrastructure Investors III L.P.	3/29/2018	$17,200,000	$2,168,211	-	$1,880,234	NM	NM
2018	Global Energy & Power Infrastructure Fund III, L.P.	7/3/2018	$17,200,000	$681,091	$292	$708,673	NM	NM
2018	Cardinal NR Sidecar Holdings L.P.	10/5/2018	$2,060,000	$2,060,000	-	$2,253,210	NM	NM
2019	EQT Infrastructure IV (No.2) USD SCSp	12/20/2018	$20,000,000	$773,834	-	$637,763	NM	NM
2019	Ardian Infrastructure Fund V B	3/4/2019	$15,904,137	$16,108	-	($13,822)	NM	NM
2019	Global Infrastructure Partners IV-A/B, L.P.	3/11/2019	$24,700,000	$172,953	-	($10,943)	NM	NM
2019	Brookfield Infrastructure Fund IV, L.P.	5/10/2019	$21,000,000	-	-	($2,046)	NM	NM
Total			**$279,577,046**	**$122,784,817**	**$21,429,834**	**$129,467,053**	**1.2x**	**13.2%**

Note: IRRs presented are interim estimates and may not be indicative of the ultimate performance of fund investments due to a number of factors, such as the lack of industry valuation standards and the differences in the investment pace and strategy of various funds. Until a fund is liquidated, typically over 10 to 12 years, the IRR is only an interim estimated return. The IRR calculated in the early years of a fund is usually not meaningful given the J-Curve effect. The actual IRR performance of any fund is not known until all capital contributed and earnings have been distributed to the investor. The IRRs contained in this report are calculated by StepStone Group LP, a consultant to the New York City Retirement Systems, based on information provided by the general partners of each investment (e.g. cash flows and valuations). The IRR calculations and other information contained in this report have not been reviewed or confirmed by the general partners. The result of the IRR calculation may differ from that generated by the general partner or other limited partners. Differences in IRR calculations can be affected by cash-flow timing, the accounting treatment of carried interest, fund management fees, advisory fees, organizational fees, other fund expenses, sale of distributed stock, and valuations.


FIRE Monthly Infrastructure Cash Flow Summary
(as of September 30, 2019)
Amount
$3,750,000
$2,500,000
$1,250,000
$0
($1,250,000)
($2,500,000)
($3,750,000)
($5,000,000)
($6,250,000)
($7,500,000)
($8,750,000)
($10,000,000)
($11,250,000)
($12,500,000)
($13,750,000)
10/17
11/17
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8/18
9/18
10/18
11/18
12/18
1/19
2/19
3/19
4/19
5/19
6/19
7/19
8/19
9/19
Contributions
Distributions
Net Cash Flow