



New York City
Fire Department Pension Fund, Subchapter Two
Performance Overview as of March 31, 2020

Total Fund Overview

New York City Fire Department Pension Fund, Subchapter Two

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Through March 31, 2020



Broad Market Commentary

In these trying times, amid the COVID-19 pandemic, we take this moment to think about the debt of gratitude—immeasurable and unrepayable—we owe to those on the frontlines. These men and women—first responders or healthcare workers on their fourth straight shift, teachers demystifying fractions in virtual classrooms, grocery-store employees stocking and disinfecting shelves, sanitation workers and delivery drivers—are out there, every day, putting their wellbeing and that of their families on the line to ensure our health and safety. It is their untiring efforts and steely resolve that will pave the way for a future in which we will meet again. We hope for their safety and wellbeing. We thank them. We salute them. And we try to pay it forward.

At NEPC, we are focused on doing our part to prepare our clients for the vastly changed investment landscape and position their portfolios for long-term financial success. As the virus shuts down economies, whipsaws capital markets and disrupts asset valuations, we are witnesses to the most extreme price fluctuation we have seen in our lifetime. While volatility breeds opportunity, it also generates uncertainty. Faced with a confounding array of potential economic outcomes, this is what we are sure of: it remains imperative to follow a disciplined rebalancing approach, aimed at preserving long-term strategic asset-allocation targets. We also encourage investors to set aside cash covering one quarter of spending needs.

At the same time, we suggest investors begin to explore the possibility of raising the strategic asset allocation targets of risk assets. We are fully aware that this is not an easy ask but our return outlook is designed to highlight the strategic direction for portfolios over a long-term planning cycle. Our recently updated capital-market assumptions underscore wider risk premiums for equities. We believe the return differential between equities and government bonds will likely remain elevated for considerably longer, as the significant price dislocations of the first quarter and our key market theme of permanent interventions foreshadow that low interest rates are here to stay. That said, we believe that safe-haven fixed income will continue to play a prominent role in a diversified portfolio. Accordingly, we encourage investors to maintain a dedicated allocation to Treasuries to provide liquidity and diversification during times of market stress.

Our strategic outlook shows an increasing bias to equity exposure that stems from our recently updated 10-year return expectations for asset classes. While we saw big shifts in return expectations for most assets due to the wide price swings in capital markets, our long-term outlook for corporate earnings has not materially changed even though the earnings visibility over the next few years for stocks is extremely unclear. This assumption for corporate earnings is a critical component of NEPC's building-block approach to construct return expectations for equities. It reinforces our belief that we are likely to see elevated risk premiums for equities given that interest rates are expected to remain low over the long term.

Often, the greatest investment challenges are the ones that test our core beliefs. To that end, 2020 is likely to be one of our greatest trials. At this moment, the outcome of the efforts to contain COVID-19 and the full extent of

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the economic damage inflicted by the virus are highly uncertain; what we can rely on are key investment principles that tell us to maintain discipline, stay committed to diversification, and focus on strategic objectives. We encourage investors to confirm their risk tolerance and strategic objectives as these heightened levels of volatility can test even the most disciplined investment framework. We also urge investors to conservatively size liquidity levels of their portfolios relative to spending needs. While the months ahead will test our resolve, we draw strength from the resilience of our communities and the knowledge that each of us is doing our part to ensure the wellbeing of those around us. Until we meet again, stay safe and keep well.

Equity Markets

Equities nosedived in the first quarter as volatility tore through markets. The S&P 500 Index plunged 29.5% over 18 trading days between February and March, ending the quarter down 19.6%. The MSCI EAFE and Emerging Markets indexes also recorded steep losses of 22.8% and 23.6%, respectively. Growth and large-cap companies outperformed value and small caps; the gap was the widest in the US with the Russell 1000 Growth Index declining 14.1% compared to losses of 35.7% for the Russell 2000 Value Index. Energy companies, particularly in the exploration and production sector, were the hardest hit with the S&P 500 Energy Sector Index down 50.5% for the three months ended March 31.

Moving to private equity, fundraising totaled \$133 billion in the first quarter, up from \$119 billion a year earlier, according to data from Preqin; this pace will likely slow, though successful firms that launched fundraises prior to the spread of COVID-19 will probably be successful in raising capital. US buyout activity totaled \$186 billion for the quarter, in line with the quarterly averages of 2019, according to PitchBook data; we expect a sharp drop in the volume of new deals for the rest of this year. Exit activity was the lowest since 2013, totaling \$61 billion in the first quarter, compared to a quarterly average of \$92 billion in the prior four quarters. In venture capital, deal activity stood at \$34 billion during the quarter, up from \$31 billion in the fourth quarter. During the same period, exit activity fell to \$19 billion from \$24 billion in the prior quarter. While the exit value is significantly lower than the prior four quarters, the data is skewed by a blockbuster second quarter in 2019, which saw an exit value of \$145 billion.

Within hedge funds, long/short equity held up moderately well in the first quarter, with the HFRI Equity Hedge (Total) Index losing 13%; the asset class captured around 60% of the decline in the MSCI ACWI Index and two-thirds of the fall in the S&P 500 for the quarter. Sector-focused strategies in healthcare and technology led performance, down 6.2% and 8.2%, respectively. Gross leverage decreased during the quarter, led by the deleveraging of quantitative strategies, while net exposure increased as fundamental managers marginally defended their long exposure and covered shorts. Hedge funds ended the quarter with overweight positions in consumer discretionary, technology and communications-services sectors, and underweights in energy, staples, financials and utilities.

Fixed Income Markets

Fixed income experienced significant spread widening across the credit spectrum in the first quarter amid market illiquidity, rapid deleveraging and fire sales in March. Government bond yields fell as investors took refuge in safe-haven securities. The Bloomberg Barclays Aggregate Index was up 3.1% as gains in Treasuries were offset by negative returns from investment-grade credit. Debt rated below investment grade suffered larger losses with the Bloomberg Barclays High Yield Index down 12.7% and the S&P LSTA Leveraged Loan Index declining 9.9%. Credit hedge funds were not immune to the market dislocation, with the HFRI Relative Value index down 4.1%. Emerging market debt was also in the red with the JPM EMBI Index declining 13.4% and the JPM GBIEM Index losing 15.2% for the quarter. While monetary and fiscal measures have eased concerns around volatility and liquidity for the time being, significant uncertainty remains around the overall fallout from COVID-19. We see current market opportunities in structured credit such as asset-backed securities and residential mortgage-backed securities, as potential rating downgrades may create broader dislocations in investment-grade corporate credit. These structured credit opportunities can be accessed through hedge funds and investment mandates such as the TALF program. We believe medium- and longer-term opportunities will subsequently present themselves as the market evolves and we encourage investors to remain mindful of market liquidity.

Real Assets

Energy markets were slammed in the first quarter as restrictions on travel and movement sharply curtailed global demand for crude oil at a time of plentiful supply. WTI and Brent plunged more than 60%, while natural gas fared better with a 25% drop. Equities for companies in the exploration and production, and midstream spaces plummeted; the Alerian North American Midstream Index fell 47%. Oil producers are aggressively slashing capital expenditures and dividends in efforts to survive. We expect to see consolidation in the industry as undercapitalized companies struggle to service their debt.

Within real estate investment trusts, the FTSE NAREIT Composite Index sold off 25%. Certain property types were hit harder than others as public-market investors scrambled to position their portfolios. Hospitality, retail and senior-housing lagged, while data centers, life science and industrial REITs stood their ground. Although dividend yields in this space appear attractive, it remains to be seen if those dividends payments are sustainable.

In private real estate, transaction volumes stalled as investors grapple to quantify the economic impact of the pandemic. Some open-end real-estate funds have begun to institute redemption gates due to uncertainty around valuations in the first quarter and a desire to retain cash in this uncertain environment. We expect modest declines in valuations for hotel and retail assets as we await data on first-quarter performance; we believe valuations in the second quarter will more accurately represent the economic slowdown. We reiterate our belief that selection of property type will be a large driver of relative performance for managers in the sector. Certain pockets of the infrastructure market are experiencing headwinds as development and construction come to a standstill. Demand for transportation assets, for instance, airports, is depressed amid widespread travel restrictions. While these

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temporary disruptions will create challenges for investors, low interest rates should continue to drive capital flows from income-focused allocators.

Performance (net of fees)

For the first quarter, the Fund returned -10.01%, outperforming the policy index return by 71 basis points. Over the trailing 3-year period, the Fund returned 4.78% versus the index return of 4.76%, matching the policy index.

Equity Composite (net of fees)

At the end of the quarter, the Fund held \$8,461 billion (61.55%) in total equity securities. The total equity composite returned -16.14% for the quarter.

For the quarter, the portfolio held \$3,673 billion (26.72% of the total fund) in domestic equity assets. The Total Domestic Equity Portfolio returned -21.67%, underperforming the Russell 3000 Index return of -20.90% by 77 basis points. The domestic equity portfolio is lagging its index by 72 basis points for the 3-year period.

For the quarter, the portfolio held \$1,019 billion (7.41% of the total fund) in World ex-US equity assets. The Total World ex-US Portfolio returned -22.19%, outperforming its index, which returned of -24.00%, by 181 basis points. The international equity portfolio is outperforming its index by 224 basis points for the 3-year period.

For the quarter, the portfolio held \$675 million (4.91% of the total fund) in emerging market equity assets. The Emerging Market Equity Portfolio returned -26.65%, underperforming its index, which returned of -23.60%, by 305 basis points. The emerging market equity portfolio is lagging its index by 158 basis points for the 3-year period.

For the quarter, the portfolio held \$203 million (1.48% of the total fund) in global equity assets. The global equity Portfolio returned -14.50%, outperforming its index, which returned of -21.37%, by 687 basis points.

Fixed Income Composite (net of fees)

For the quarter, the portfolio held \$5,286 million (38.45% of the total fund) in total fixed income assets. The total fixed income portfolio returned 1.91% for the quarter. The total fixed income portfolio returned 5.04% for the 3-year period.

For the quarter, the portfolio held \$2,644 million (19.24% of the total fund) in structured fixed income assets. The total structured fixed income portfolio returned 10.18% for the quarter, underperforming its index, which returned of 12.56%, by 238 basis points. The structured fixed income portfolio is lagging its index by 187 basis points for the 3-year period.

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For the quarter, the portfolio held \$756 million (5.50% of the total fund) in high yield fixed income assets. The high yield fixed income portfolio returned -12.28% for the quarter, outperforming its index, which returned of -12.68%, by 40 basis points. The high yield fixed income portfolio is lagging its index by 4 basis points for the 3-year period.

For the quarter, the portfolio held \$194 million (1.41% of the total fund) in bank loan income assets. The bank loan portfolio returned -11.73% for the quarter, outperforming its index, which returned of -13.19%, by 146 basis points. The bank loan portfolio is outperforming its index by 24 basis points for the 3-year period.

For the quarter, the portfolio held \$496 million (3.61% of the total fund) in opportunistic fixed income assets. The opportunistic fixed income portfolio returned +0.44% for the quarter, outperforming its index, which returned of -13.39%, by 1383 basis points. The opportunistic fixed income portfolio is outperforming its index by 284 basis points for the 3-year period.

Real Estate and Infrastructure Composites

For the quarter, the Fund had \$143 million (1.04% of the total fund) in Real Estate Equity Securities ("REIT"). For the quarter, the REIT portfolio returned -27.08% (net of fees), outperforming its index by 144 basis points.

For the quarter, the Fund had \$691 million (5.03% of the total fund) in private real estate investments. For the quarter, the real estate portfolio returned 2.24% (time weighted), outperforming NCREIF NFI-ODCE Net +100 basis points index, by 124 basis points.

For the quarter, the Fund had \$162 million (1.18% of the total fund) in private infrastructure investments. For the quarter, the infrastructure portfolio returned 0.99% (time weighted, net of fees), outperforming CPI +4% index, by 19 basis points.

Private Equity Composites (time weighted)

The Fund held \$1,004 million (7.30% of the total fund) in private equity investments. For the quarter, the private equity portfolio returned 3.51%, underperforming its index by 638 basis points.

NYC Total HF Allocations (Direct + EnTrust holdings):

The allocation to hedge funds as of March 31, 2020 was \$777.3 million, 5.7% of the total fund. The first quarter return for the hedge fund portfolio was 2.0%, outperforming the HFRI FOF Composite Index +1% return of -8.6%, and underperforming the 9-12 month T-bill yield + 4% return of 2.5%.

The remaining amount allocated to the fund of hedge fund investment is just a few basis points and had no effect on performance this quarter.

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NYC's Tactical Portfolio:

The allocation to the tactical trade as of March 31, 2020 was \$104.9 million, 0.8% of the total fund. The first quarter return for the tactical trade was 30.1%, outperforming the Russell 3000 return of -20.9%.

Total Portfolio Returns: March 31, 2020

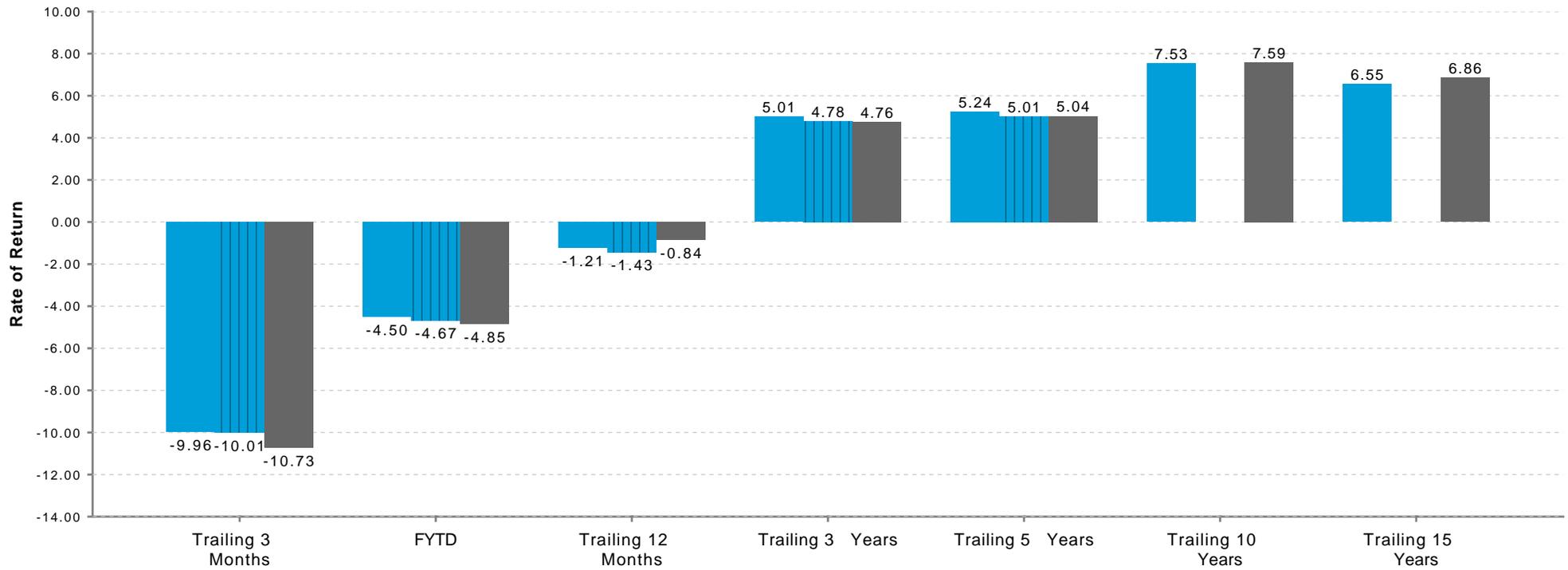


Market Value (Billions)

\$13.7

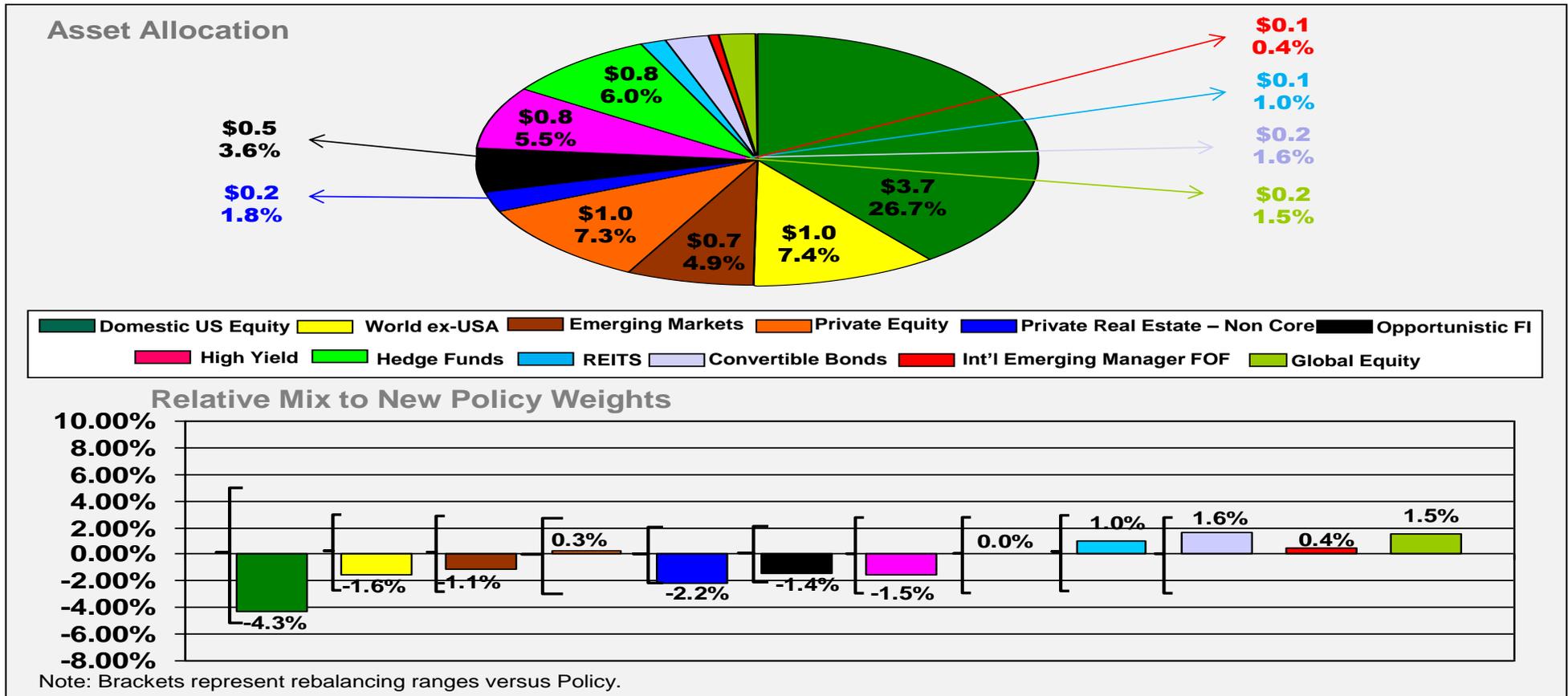
TOTAL FIRE

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

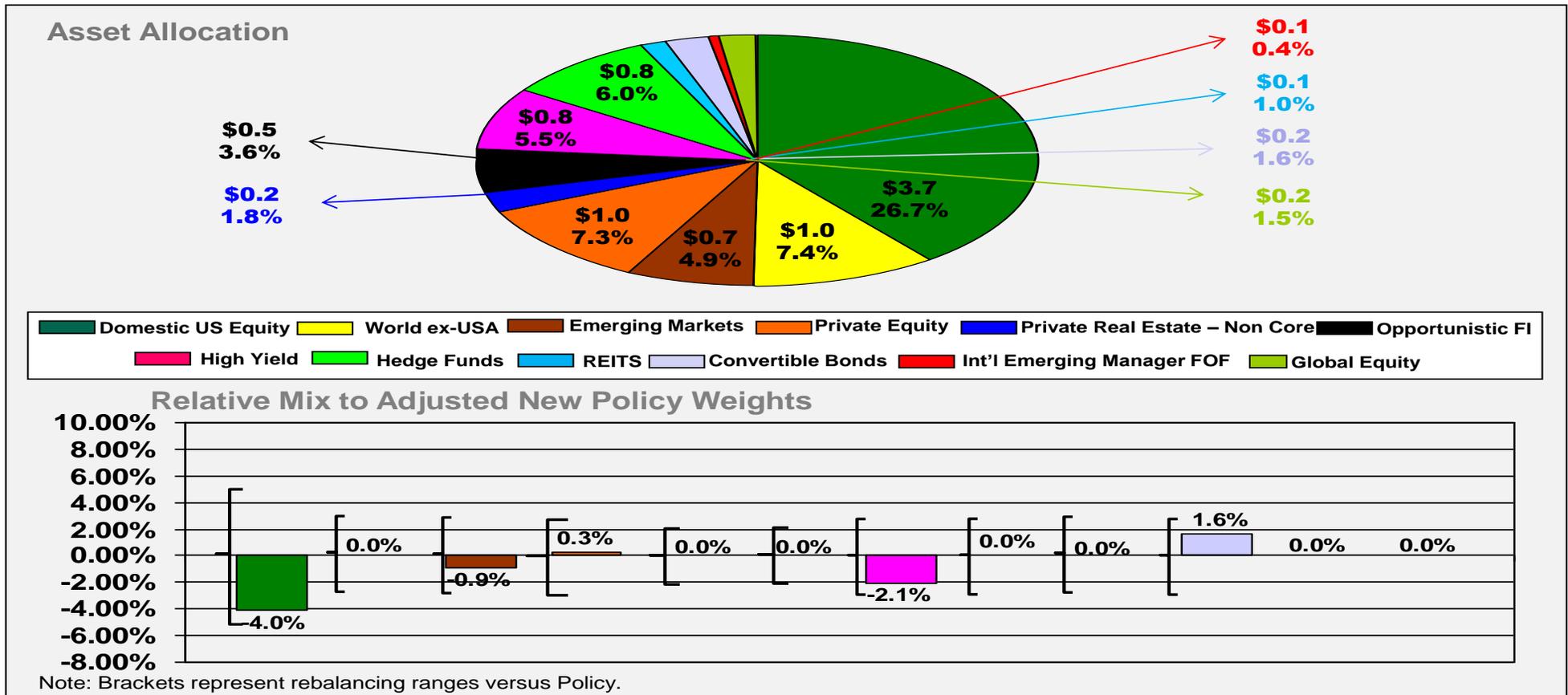


	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation						
TOTAL FIRE	7.6	8.2	5.2	7.4	7.8	8.3

Portfolio Asset Allocation – Growth

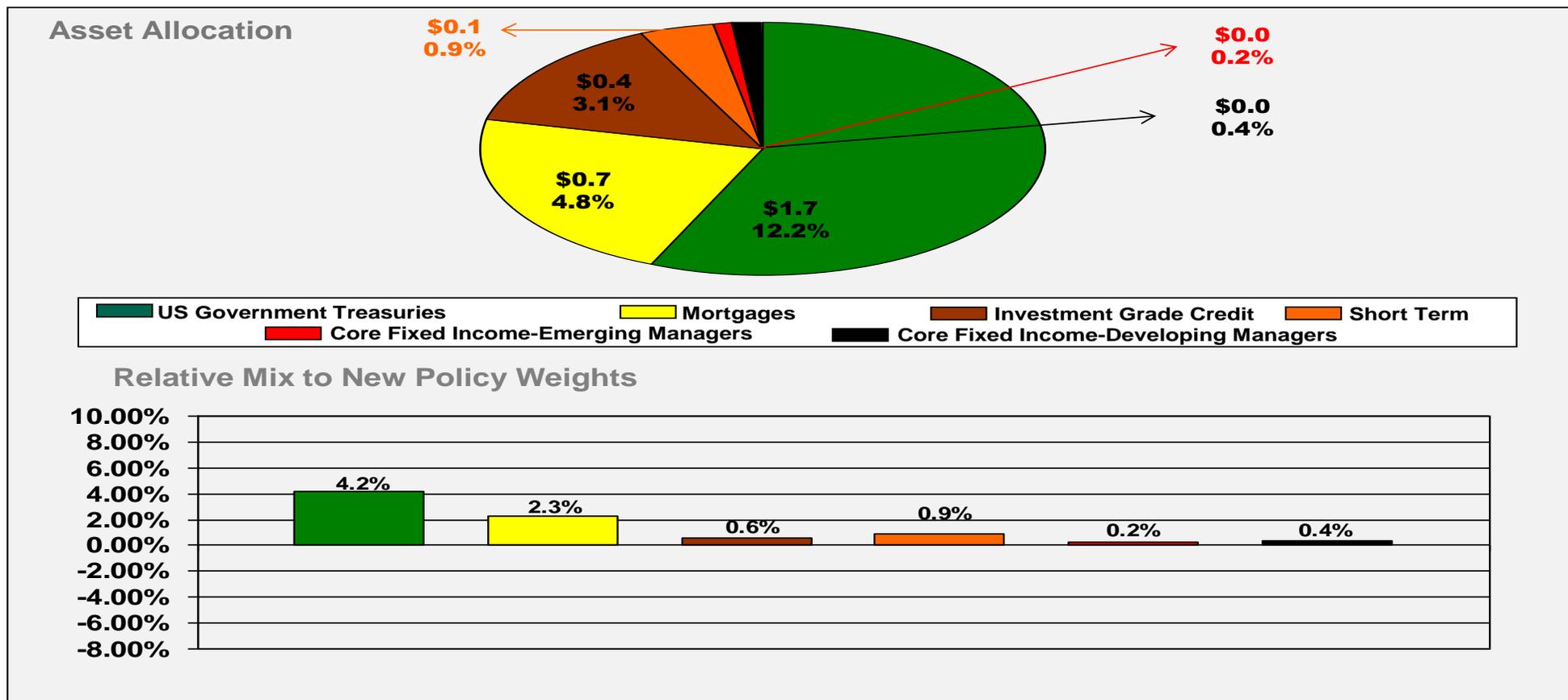


Portfolio Asset Allocation – Growth

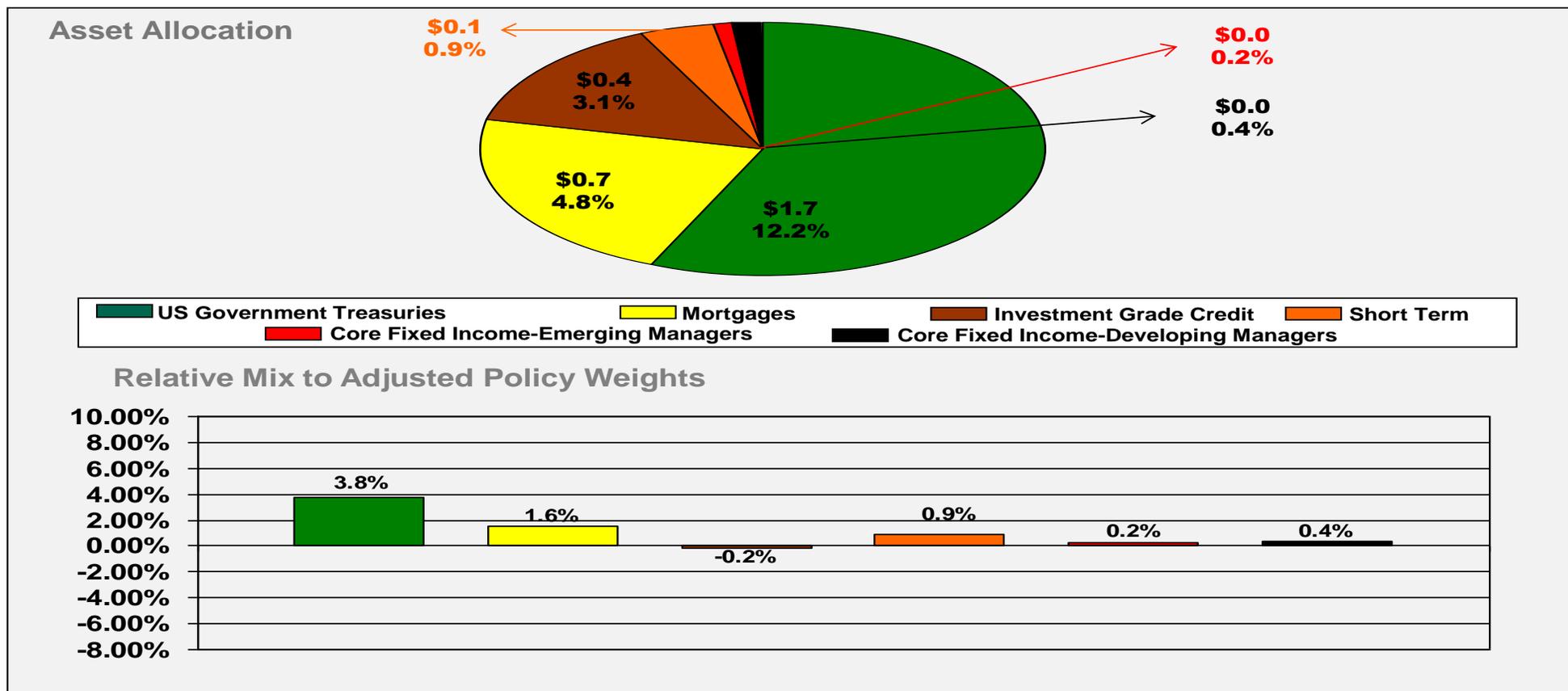


Note: On March 31, 2020 Fire's combined Fixed Income and Cash portfolios have a duration of 7.5 years. The duration of the Barclays US Aggregate Index was 5.7 years on that date.

Portfolio Asset Allocation – Deflation Protection

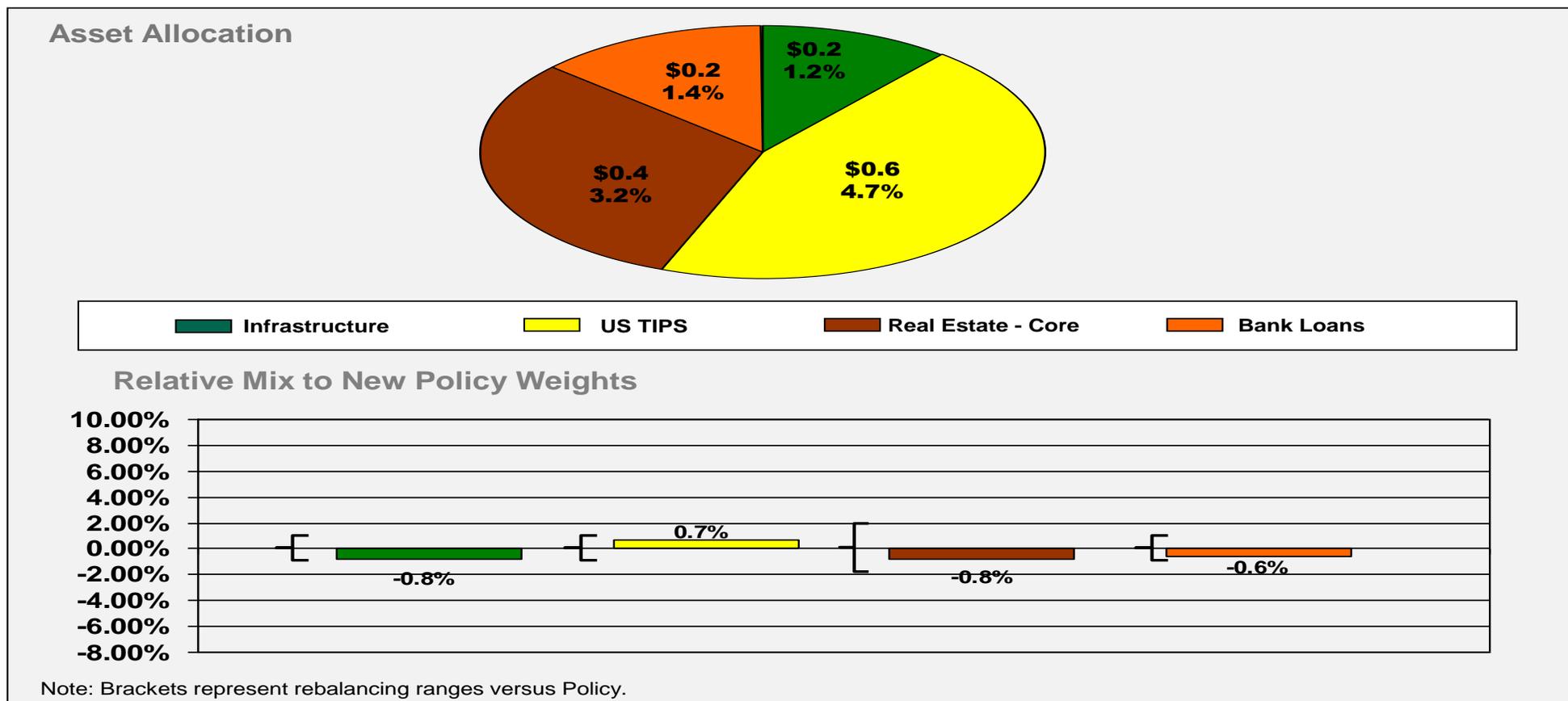


Portfolio Asset Allocation – Deflation Protection

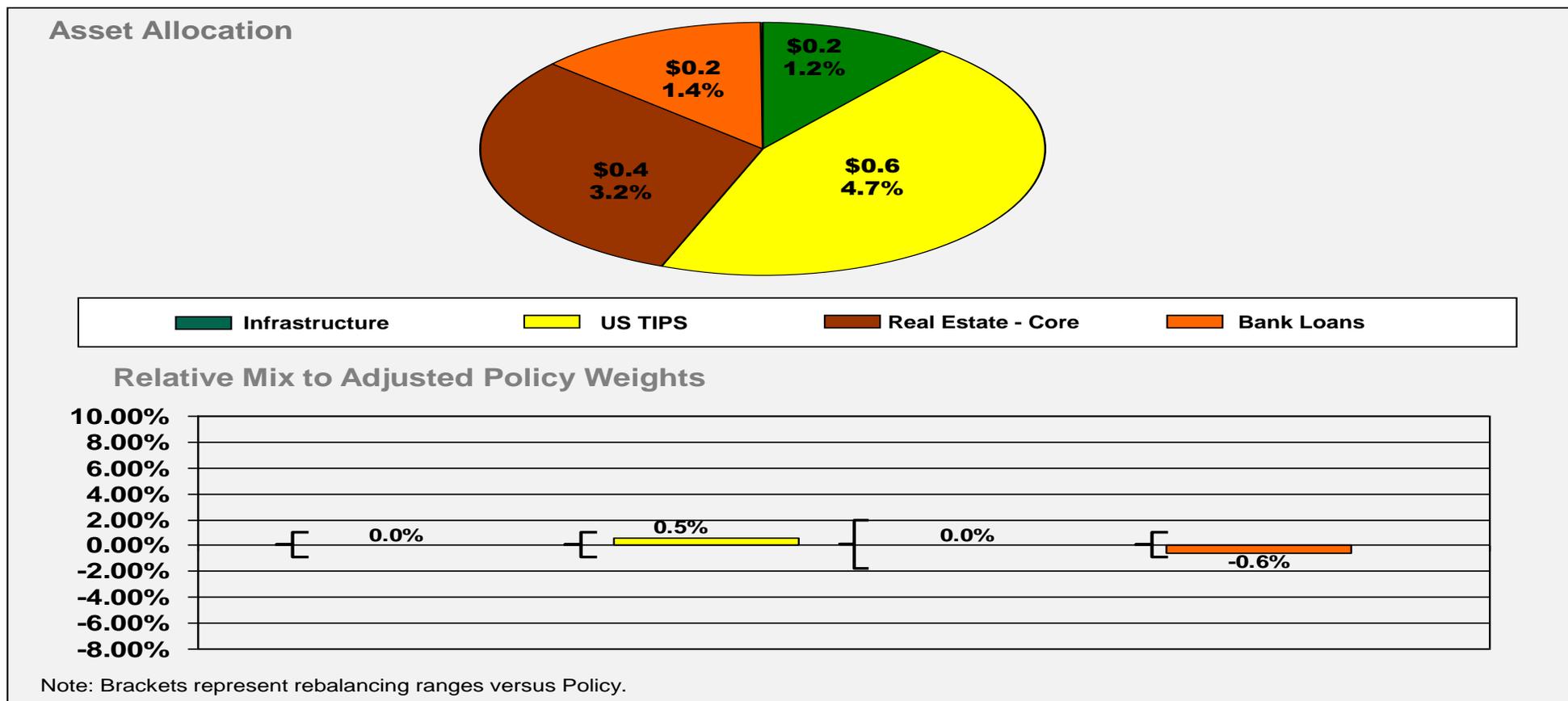


Note: On March 31, 2020 Fire's combined Fixed Income and Cash portfolios have a duration of 7.5 years. The duration of the Barclays US Aggregate Index was 5.7 years on that date.

Portfolio Asset Allocation – Inflation Protection

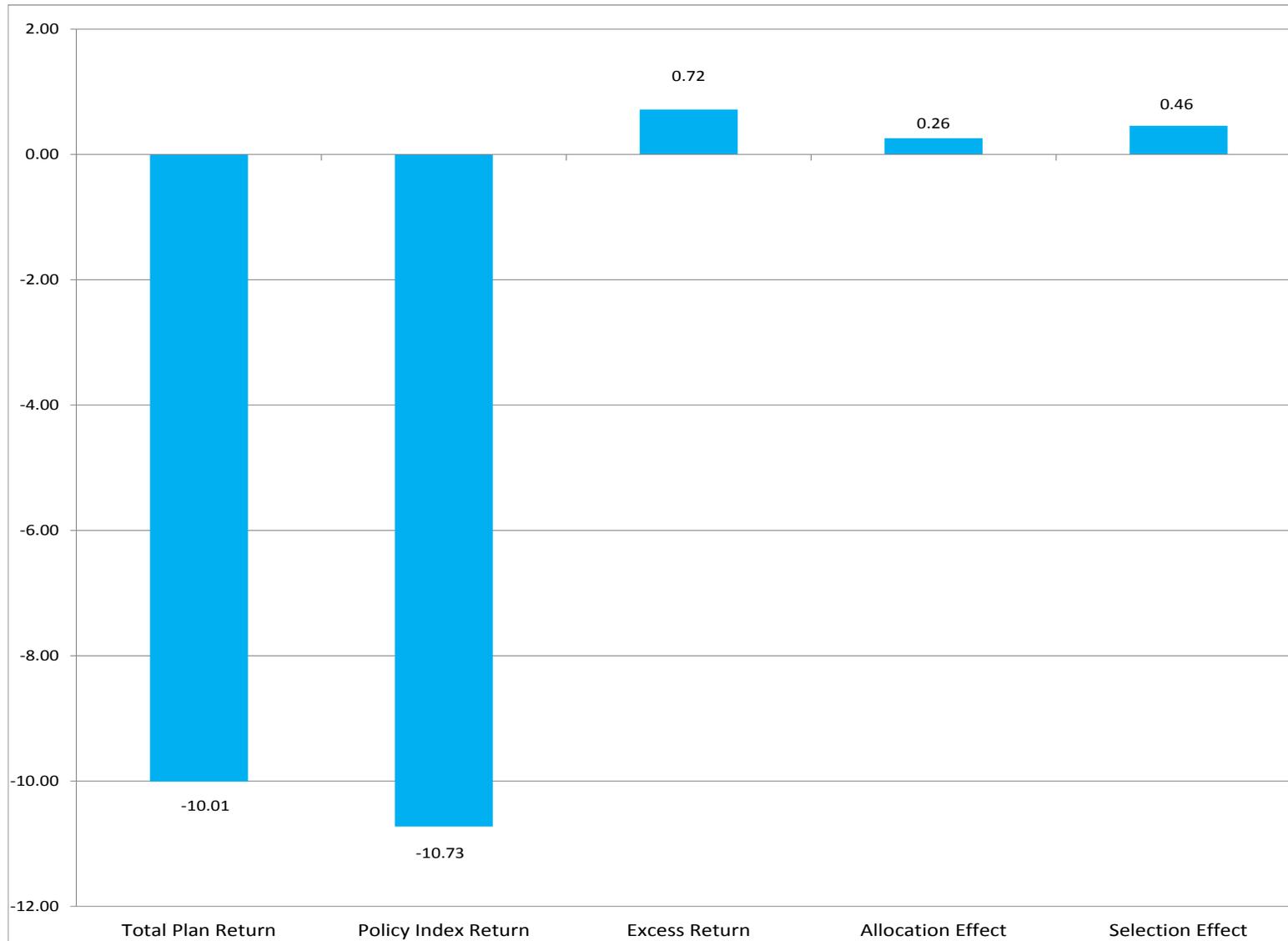


Portfolio Asset Allocation – Inflation Protection

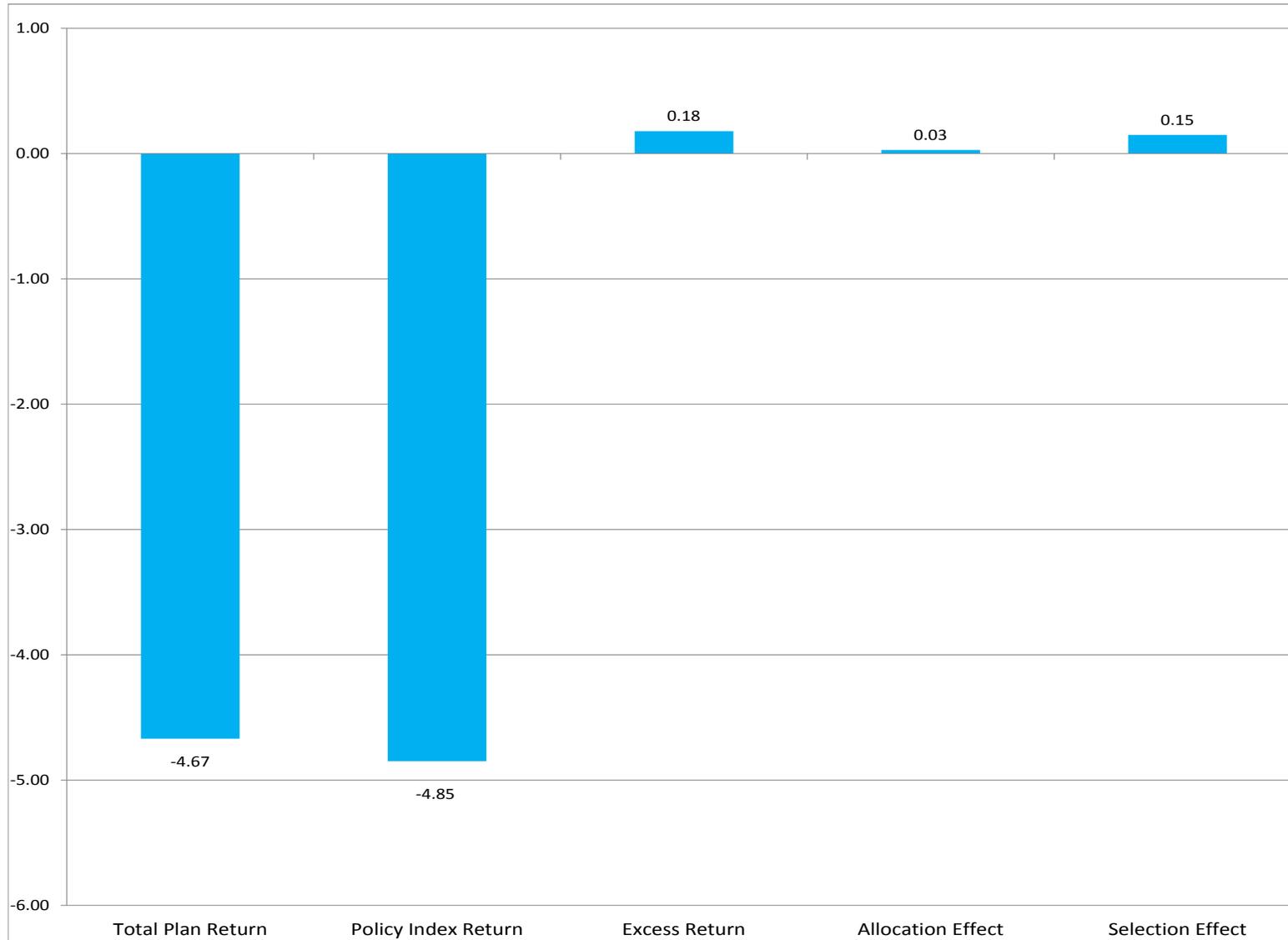


Note: On March 31, 2020 Fire's combined Fixed Income and Cash portfolios have a duration of 7.5 years. The duration of the Barclays US Aggregate Index was 5.7 years on that date.

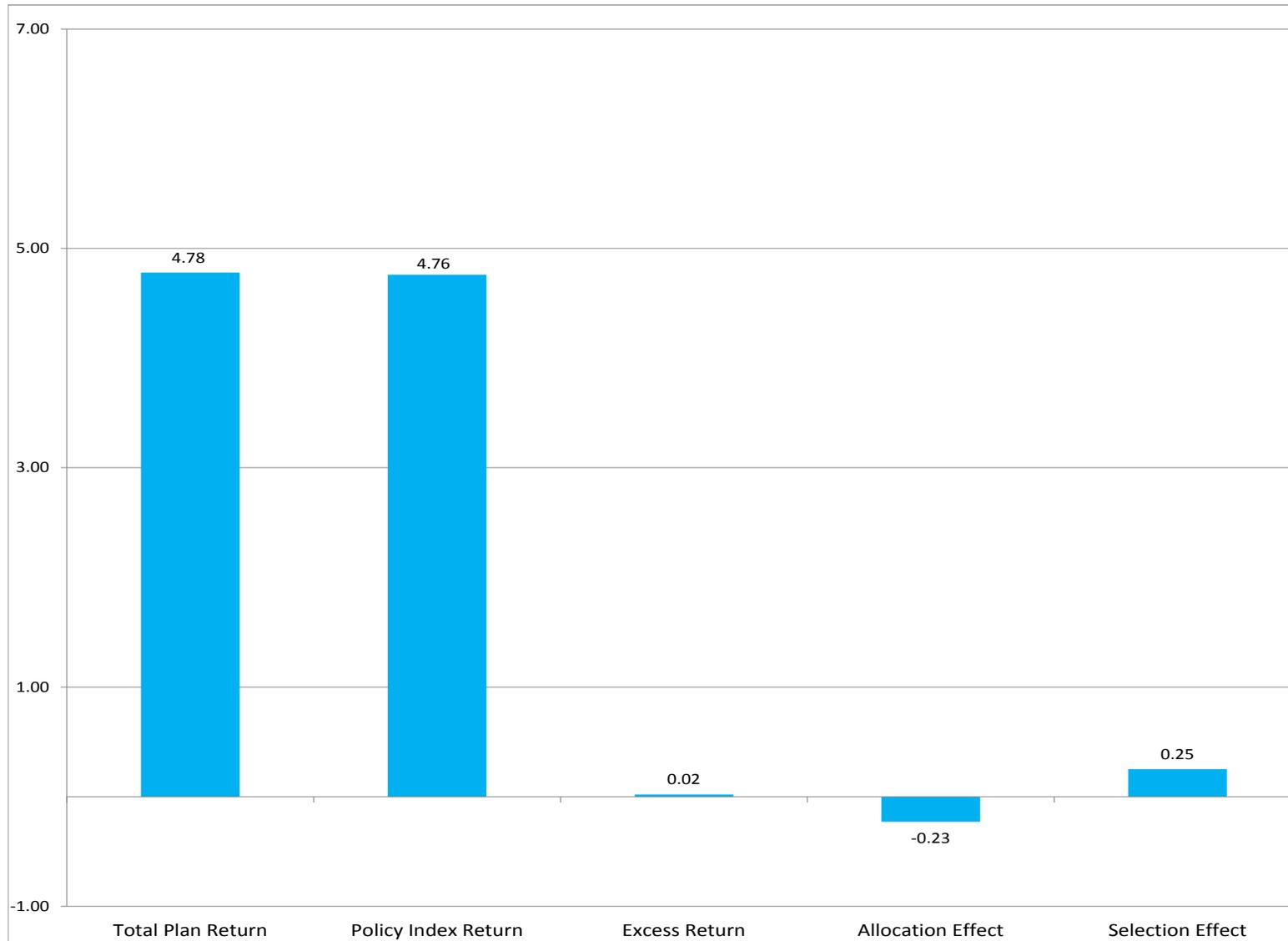
Performance Attribution: Total Plan - Quarter Ending: March 31, 2020



Performance Attribution: Total Plan - Fiscal Year to Date: March 31, 2020



Performance Attribution: Total Plan - 3 Years Ending: March 31, 2020





Allocation Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL FIRE	0.26	0.03	-0.23	Fire Policy Benchmark
TOTAL DOMESTIC EQUITY	0.21	0.16	-0.03	RUSSELL 3000
TOTAL WORLD ex-USA	0.01	0.01	0.00	MSCI World Ex USA IMI Net
TOTAL EMERGING MARKETS	0.02	0.00	-0.01	MSCI Emerging Markets
TOTAL GLOBAL EQUITY	-0.01	-0.01	-0.01	MSCI AC WORLD
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL HEDGE FUNDS	-0.01	-0.01	0.00	HFRI Fund of Funds Composite Index plus 1%
TOTAL REAL ESTATE SECURITIES	-0.22	-0.22	-0.11	Dow Jones US Select Securities Index
TOTAL PRIVATE EQUITY	-0.09	-0.08	-0.05	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	-0.02	-0.02	-0.01	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	-0.01	-0.01	0.00	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	-0.01	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.19	0.15	0.04	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.01	0.00	-0.01	FTSE USBIG Treasury/Agency 1-10 y
TOTAL ACTIVE GOVERNMENT	1.25	1.00	0.27	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	-1.28	-1.20	-0.39	FTSE Treasury 10+
TOTAL INVESTMENT GRADE CREDIT	-0.06	-0.04	-0.05	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.03	0.05	0.03	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.04	0.03	0.00	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.03	0.02	0.00	BBG BARC Agg
TOTAL HIGH YIELD	0.04	0.08	0.09	High Yield Custom Benchmark
TOTAL BANK LOANS	0.01	0.03	0.02	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.01	0.01	0.00	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CONVERTIBLE BONDS	-0.03	-0.02	0.02	ICE BofA All US Conv Ex Mandatory
TOTAL OPPORTUNISTIC FIXED	0.00	0.01	0.00	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.14	0.09	-0.03	

Selection Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL FIRE	0.46	0.15	0.25	Fire Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.24	-0.39	-0.18	RUSSELL 3000
TOTAL WORLD ex-USA	0.15	0.19	0.18	MSCI World Ex USA IMI Net
TOTAL EMERGING MARKETS	-0.18	-0.24	-0.07	MSCI Emerging Markets
TOTAL GLOBAL EQUITY	0.11	0.11	0.05	MSCI AC WORLD
TOTAL INTERNATIONAL FOF	0.01	0.01	0.00	MSCI ACWI Ex US IMI Net
TOTAL HEDGE FUNDS	0.39	0.26	0.15	HFRI Fund of Funds Composite Index plus 1%
TOTAL REAL ESTATE SECURITIES	0.02	0.02	0.02	Dow Jones US Select Securities Index
TOTAL PRIVATE EQUITY	-0.35	-0.36	-0.09	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE-CORE	0.02	0.00	0.03	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE-NON CORE	0.03	0.08	0.07	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.03	0.04	CPI + 4%
TOTAL US TREASURY SHORT TERM	-0.01	-0.01	0.00	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.00	0.00	0.00	FTSE USBIG Treasury/Agency 1-10 y
TOTAL ACTIVE GOVERNMENT	0.06	0.07	0.02	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	0.05	0.05	0.02	FTSE Treasury 10+
TOTAL INVESTMENT GRADE CREDIT	-0.04	-0.03	0.00	NYC - Investment Grade Credit
TOTAL MORTGAGES	-0.02	-0.02	-0.01	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	-0.01	-0.01	0.00	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.00	0.00	0.00	BBG BARC Agg
TOTAL HIGH YIELD	0.02	0.04	0.00	High Yield Custom Benchmark
TOTAL BANK LOANS	0.02	0.02	0.00	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	0.00	0.00	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CONVERTIBLE BONDS	0.02	-0.02	-0.06	ICE BofA All US Conv Ex Mandatory
TOTAL OPPORTUNISTIC FIXED	0.42	0.35	0.08	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	0.01	0.00	

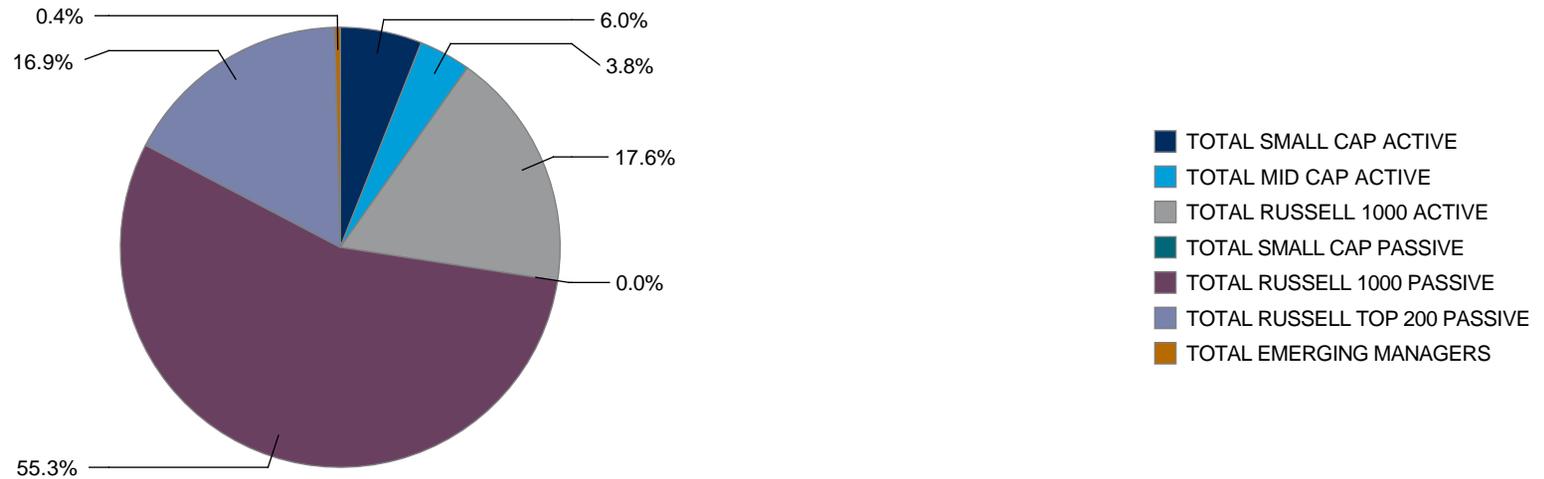
Total Domestic Equity Asset Allocations: March 31, 2020



Market Value (Billions)

TOTAL DOMESTIC EQUITY

\$3.7

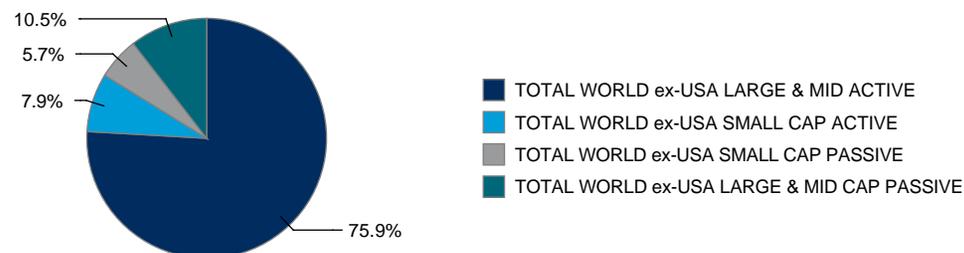
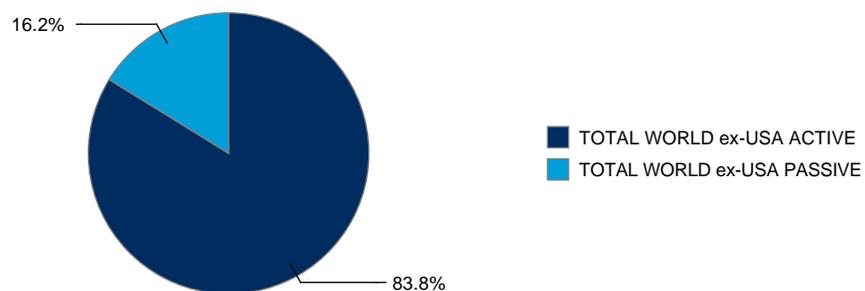


	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL SMALL CAP ACTIVE	6.2	6.0	(0.2)	(29.4)	(30.6)	1.2
TOTAL MID CAP ACTIVE	7.0	3.8	(3.2)	(24.1)	(27.1)	2.9
TOTAL RUSSELL 1000 ACTIVE	18.0	17.6	(0.4)	(26.3)	(20.2)	(6.1)
TOTAL SMALL CAP PASSIVE	0.0	0.0	0.0	(28.9)	(30.6)	1.7
TOTAL RUSSELL 1000 PASSIVE	50.0	55.2	5.3	(20.1)	(20.2)	0.2
TOTAL RUSSELL TOP 200 PASSIVE	18.2	16.9	(1.3)	(17.6)	(17.7)	0.1
TOTAL EMERGING MANAGERS	0.6	0.4	(0.2)	(30.6)	(30.6)	0.0

World ex-USA Equity Asset Allocation: March 31, 2020



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL WORLD ex-USA	\$1.0	7.4

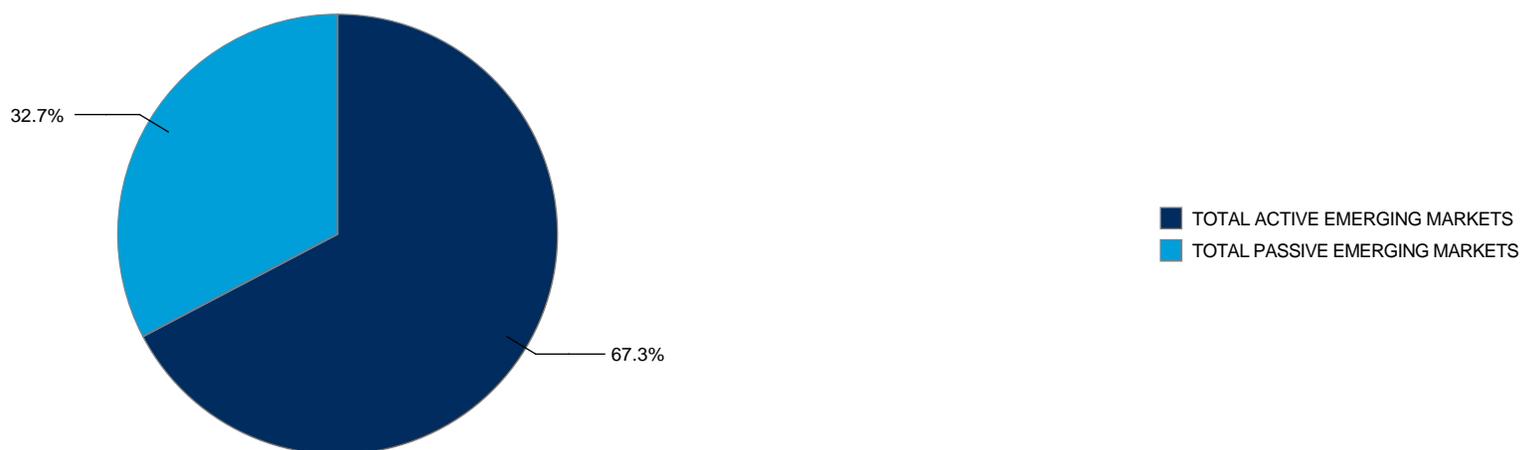


	<u>Asset Class Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL WORLD ex-USA LARGE & MID ACTIVE	75.94	(21.27)	(23.26)	1.99
TOTAL WORLD ex-USA SMALL CAP ACTIVE	7.88	(24.97)	(27.73)	2.76
TOTAL WORLD ex-USA SMALL CAP PASSIVE	5.72	(28.14)	(28.39)	0.25
TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE	10.46	(23.06)	(23.26)	0.20
TOTAL WORLD ex-USA	100.00	(22.19)	(24.00)	1.81

Emerging Markets Equity Asset Allocation: March 31, 2020



	<u>Market Value (Millions)</u>	<u>% of Plan</u>
TOTAL EMERGING MARKETS	\$674.9	4.9

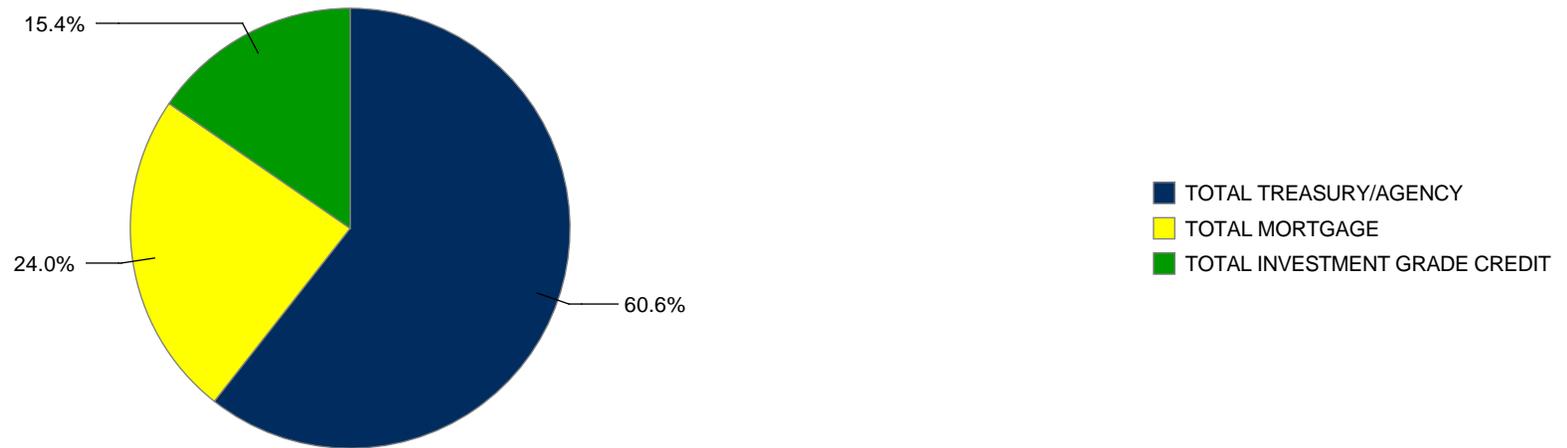


	<u>Asset Class Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL ACTIVE EMERGING MARKETS	67.33	(28.03)	(23.60)	(4.43)
TOTAL PASSIVE EMERGING MARKETS	32.67	(23.64)	(23.60)	(0.04)
TOTAL EMERGING MARKETS	100.00	(26.65)	(23.60)	(3.05)

Structured Fixed Income Asset Allocation: March 31, 2020



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL STRUCTURED+ETI	\$2.8	20.1



	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL TREASURY/AGENCY	61.54	60.63	(0.91)	15.98	20.62	(4.64)
TOTAL MORTGAGE	19.23	23.97	4.74	3.02	3.27	(0.26)
TOTAL INVESTMENT GRADE CREDIT	19.23	15.39	(3.84)	(4.62)	(3.01)	(1.61)



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Cumulative Periods Ending : March 31, 2020

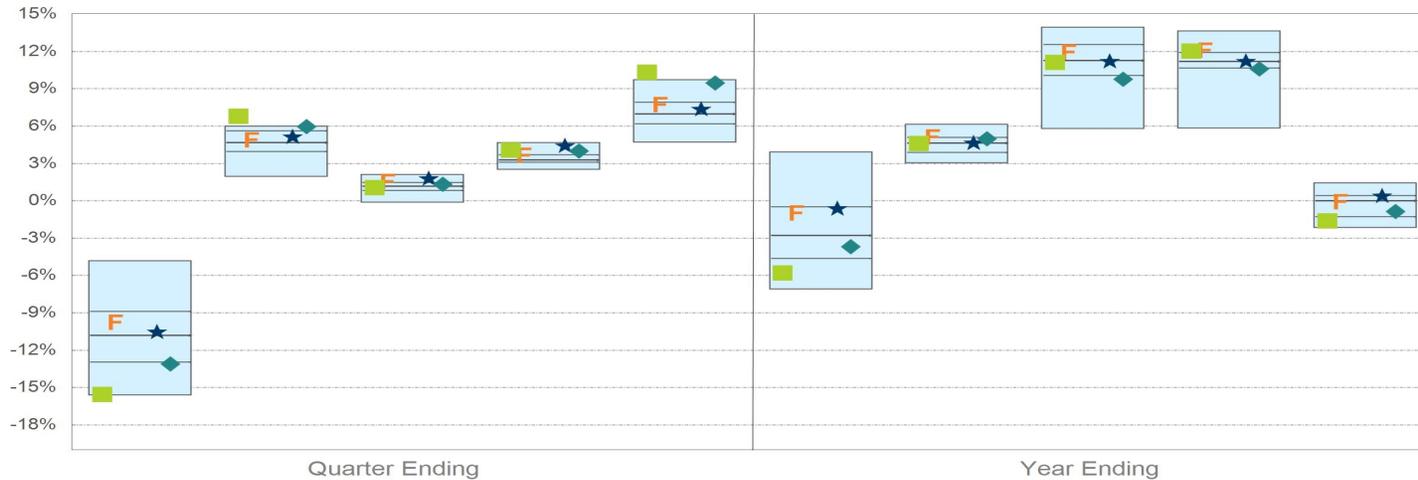


Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	-4.83	-1.73	-0.06	3.93	4.85	6.95	8.04	6.40	8.07	8.60
25th	-8.87	-5.13	-3.86	-0.50	1.99	4.89	6.35	5.01	6.63	7.60
50th	-10.82	-6.71	-5.82	-2.79	0.81	4.00	5.81	4.37	5.98	7.03
75th	-12.96	-8.45	-7.77	-4.62	-0.31	3.21	5.12	3.90	5.53	6.57
95th	-15.59	-11.20	-10.65	-7.07	-1.83	2.25	3.61	3.07	2.58	4.29
No. Of Obs	50	47	46	45	45	45	45	45	45	42
F Total System - Fire	-9.96 (41)	-5.73 (33)	-4.50 (36)	-1.21 (31)	1.81 (25)	5.01 (17)	6.68 (15)	5.24 (21)	6.64 (23)	7.53 (30)
★ Fire Policy Benchmark	-10.74 (47)	-6.33 (43)	-4.85 (38)	-0.84 (29)	1.77 (27)	4.76 (29)	6.29 (25)	5.04 (23)	6.47 (27)	7.59 (25)
■ Public Mkt Equiv 25	-15.79 (95)	-10.26 (92)	-9.50 (92)	-6.04 (91)	-0.98 (87)	2.83 (89)	5.00 (77)	3.60 (84)	5.68 (65)	6.72 (67)
◆ Public Mkt Equiv 35	-13.35 (79)	-8.39 (72)	-7.39 (68)	-3.90 (63)	0.33 (59)	3.31 (72)	5.03 (77)	3.78 (79)	5.57 (72)	6.58 (72)



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Consecutive Time Periods: March 31, 2020



Percentile Rankings	Mar 20	Dec 19	Sep 19	Jun 19	Mar 19	Mar 20	Mar 19	Mar 18	Mar 17	Mar 16
5th	-4.83	6.01	2.12	4.68	9.72	3.93	6.14	13.93	13.64	1.45
25th	-8.87	5.61	1.47	3.70	7.91	-0.50	5.11	12.56	11.92	0.41
50th	-10.82	4.67	1.19	3.27	6.98	-2.79	4.63	11.28	11.21	0.01
75th	-12.96	3.97	0.84	3.09	6.17	-4.62	3.89	10.05	10.66	-1.29
95th	-15.59	1.95	-0.11	2.54	4.70	-7.07	3.05	5.79	5.84	-2.15
No. Of Obs	50	47	49	49	50	45	50	50	50	50
F Total System - Fire	-9.96 (41)	4.69 (47)	1.31 (41)	3.45 (33)	7.50 (31)	-1.21 (31)	4.92 (35)	11.71 (43)	11.87 (29)	-0.31 (56)
★ Fire Policy Benchmark	-10.74 (47)	4.94 (41)	1.57 (21)	4.22 (11)	7.17 (41)	-0.84 (29)	4.45 (56)	11.01 (54)	11.00 (58)	0.20 (37)
■ Public Mkt Equiv 25	-15.79 (95)	6.57 (1)	0.84 (75)	3.83 (16)	10.10 (3)	-6.04 (91)	4.36 (58)	10.89 (56)	11.78 (31)	-1.83 (91)
◆ Public Mkt Equiv 35	-13.35 (79)	5.72 (17)	1.09 (58)	3.77 (19)	9.22 (11)	-3.90 (63)	4.74 (41)	9.55 (85)	10.36 (77)	-1.08 (68)

**FIRE RETIREMENT SYSTEM
INVESTMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2019**

INVESTMENT STYLE (EQUITIES)	Avg. Market Value FY 2019 (\$MM)	Base Mgr. Fees (\$M)	Partnership Expenses (\$M)	Base Mgr. Fees & Partnership Expenses in BPS	Performance / Carry Fees in (\$M)	Performance / Carry Fees in BPS	Total Net All Investment Mgr. Expenses in (\$M)	Total Net All in BPS
Total US Equities	4,123.62	3,244.03	-	7.87	1,006.84	2.44	4,250.87	10.31
Small Cap Active:	217.48	1,494.92	-	68.74	-	-	1,494.92	68.74
Small Cap Growth	68.76	681.34	-	99.09	-	-	681.34	99.09
Small Cap Value	148.72	813.58	-	54.70	-	-	813.58	54.70
Small Cap Core	-	-	-	-	-	-	-	-
Small Cap Fundamental Index	-	-	-	-	-	-	-	-
Mid Cap Active:	269.01	1,102.13	-	40.97	1,006.84	-	2,108.96	-
Mid Cap Growth	-	-	-	-	-	-	-	-
Mid Cap Value	107.18	619.74	-	57.82	-	-	619.74	57.82
Mid Cap Core	161.83	482.39	-	29.81	1,006.84	62.22	1,489.23	92.02
Russell 1000 Fundamental	576.14	455.25	-	7.90	-	-	455.25	7.90
Legato (Emerging Manager- Equity)	20.89	103.88	-	49.73	-	-	103.88	49.73
U.S. Environmental Managers	-	-	-	-	-	-	-	-
Total US Active Equities	1,083.53	3,156.17	-	29.13	1,006.84	9.29	4,163.01	38.42
Small Cap Passive:								
Small Cap Passive	83.25	3.50	-	0.42	-	-	3.50	0.42
Mid Cap Passive:								
Mid Cap Passive	-	-	-	-	-	-	-	-
Russell / S&P Passive:								
Russell 1000 Growth Passive	-	-	-	-	-	-	-	-
Russell 1000 Value Passive	-	-	-	-	-	-	-	-
Russell 1000 Core Passive	2,209.76	43.72	-	0.20	-	-	43.72	0.20
Passive Russell 3000	-	-	-	-	-	-	-	-
Passive S&P 500	-	-	-	-	-	-	-	-
Passive Russell Top 200	747.09	40.64	-	0.54	-	-	40.64	0.54
Total US Passive Equities	3,040.09	87.86	-	0.29	-	-	87.86	0.29

**FIRE RETIREMENT SYSTEM
INVESTMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2019**

Total International Equities	2,043.72	5,842.85	-	28.59	-	-	5,842.85	28.59
Global Equity	198.27	1,068.74	-	53.90	-	-	1,068.74	53.90
Active Total Global Equities	198.27	1,068.74	-	53.90	-	-	1,068.74	53.90
Active Total World Ex USA:	997.30	3,161.67	-	31.70	-	-	3,161.67	31.70
World Ex-USA Large & Mid Active	866.74	2,401.07	-	27.70	-	-	2,401.07	27.70
World Ex-USA Small Cap Active	130.56	760.59	-	58.26	-	-	760.59	58.26
Total World Ex USA	0.01	-	-	-	-	-	-	-
Total Progress Intl.	-	-	-	-	-	-	-	-
NON-U.S. Activist	-	-	-	-	-	-	-	-
NON-U.S. Environmental Managers	-	-	-	-	-	-	-	-
Active Emerging Markets	577.17	2,290.41	-	39.68	-	-	2,290.41	39.68
International Fund of Funds	75.94	238.06	-	31.35	-	-	238.06	31.35
Total Active International Equities	1,650.41	5,690.13	-	34.48	-	-	5,690.13	34.48
Int'l Passive Equities:								
World Ex-USA Small Cap Passive	40.14	19.90	-	4.96	-	-	19.90	4.96
World Ex-USA Large & Mid Cap Passive	92.39	10.57	-	1.14	-	-	10.57	1.14
Passive Global	-	-	-	-	-	-	-	-
Passive Emerging Markets	260.78	71.25	-	2.73	-	-	71.25	2.73
Total Int'l Passive Equities	393.31	101.72	-	2.59	-	-	101.72	2.59
REITS Active Equities	174.66	713	-	40.82	-	-	713	40.82
Total Equities	6,540.27	10,868.49	-	16.62	1,006.84	1.54	11,875.33	18.16

**FIRE RETIREMENT SYSTEM
INVESTMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2019**

INVESTMENT STYLE (FIXED INCOME)

Total Fixed Income	4,832.98	5,605.91	-	11.60	2.56	0.01	5,608.47	11.60
Structured Program:	2,327.79	849.35	-	3.65	2.56	0.01	851.91	3.66
Government Treas/Agency Sector	1,121.45	277.50	-	2.47	2.56	0.02	280.06	2.50
Long Duration Treasury	468.49	46.50	-	0.99	-	-	46.50	0.99
Mortgage Sector	328.72	161.09	-	4.90	-	-	161.09	4.90
Investment Grade Credit Sector	409.13	364.27	-	8.90	-	-	364.27	8.90
Developing Managers	44.85	88.03	-	19.63	-	-	88.03	19.63
Emerging Managers	30.69	104.57	-	34.07	-	-	104.57	34.07
TIPS:	843.92	125.36	-	1.49	-	-	125.36	1.49
Active TIPS Managers	151.80	103.22	-	6.80	-	-	103.22	6.80
Passive TIPS Managers	692.12	22.15	-	0.32	-	-	22.15	0.32
High Yield	786.66	2,295.39	-	29.18	-	-	2,295.39	29.18
Bank Loans	288.69	760.92	-	26.36	-	-	760.92	26.36
Convertible Bonds	233.20	1,116.90	-	47.89	-	-	1,116.90	47.89
ETI - Access - RBC	26.43	48.39	-	18.31	-	-	48.39	18.31
ETI - AFL-CIO HIT	55.92	216.99	-	38.80	-	-	216.99	38.80
Other ETI Programs	19.55	-	-	-	-	-	-	-
Short Term (Internal)	175.28	-	-	-	-	-	-	-
Total Public Markets	11,373.25	16,474.40	-	14.49	1,009.40	0.89	17,483.80	15.37

**FIRE RETIREMENT SYSTEM
INVESTMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2019**

INVESTMENT STYLE (PRIVATE MARKETS)

Hedge Funds	871.31	6,652.59	351.84	80.39	3,198.26	36.71	10,202.69	117.10
Private Equity	940.29	12,659.03	3,162.68	168.26	21,451.04	228.13	37,272.75	396.40
Private Real Estate	583.10	5,480.50	2,285.11	133.18	5,758.56	98.76	13,524.17	231.93
Infrastructure	109.26	2,068.24	421.82	89.07	241.02	22.06	2,731.07	97.69
Opportunistic Fixed Income	413.29	3,980.13	1,617.84	135.45	468.15	11.33	6,066.12	146.78
Total Private Markets	2,917.25	30,840.49	7,839.29	132.59	31,117.03	106.67	69,796.81	239.26
Total Overall	14,290.49	47,314.89	7,839.29	38.60	32,126.42	22.48	87,280.61	61.08

The overall carried interest and incentive fees paid by FIRE in Fiscal Year : 22.48 BPS

General Footnotes:

- 1) Private Markets expense data is restricted to the partnerships that have provided expense templates. In the event where there is no expense data, financial statements are prorated for each of the participants of the LP and/or adjusted for cash flows as reported by our custodian bank for carried interest realized.
- 2) Infrastructure's expense data is based off the total committed amounts rather than current market value due to its early fund life juncture.

**NYC FIRE DEPARTMENT PENSION FUND
SECURITIES LENDING INCOME
March 31, 2020**

	U. S. FIXED INCOME	U. S. EQUITY	INTERNATIONAL EQUITY	TOTAL
1989	109,000	-	-	109,000
1990	104,000	-	-	104,000
1991	157,000	0	-	157,000
1992	429,000	47,000	48,000	524,000
1993	762,000	146,000	102,000	1,010,000
1994	693,000	267,000	102,000	1,062,000
1995	495,000	306,000	96,000	897,000
1996	455,000	228,000	179,000	862,000
1997	473,000	512,000	257,000	1,242,000
1998	789,000	552,000	356,000	1,697,000
1999	716,000	690,000	408,000	1,814,000
2000	734,000	897,000	408,000	2,039,000
2001	1,176,000	1,286,000	561,000	3,023,000
2002	671,000	1,162,000	506,000	2,339,000
2003	349,000	644,000	452,000	1,445,000
2004	505,000	670,000	462,000	1,637,000
2005	740,000	1,070,000	574,000	2,384,000
2006	599,000	1,753,000	713,000	3,065,000
2007	1,437,000	3,180,000	786,000	5,403,000
2008	4,172,000	6,798,000	1,236,000	12,206,000
2009	1,606,000	3,588,000	817,000	6,011,000
2010	760,000	2,047,000	563,000	3,370,000
2011	977,000	2,674,000	927,000	4,578,000
2012	1,229,000	3,324,000	832,000	5,385,000
2013	893,000	3,467,000	704,000	5,064,000
2014	756,000	2,028,000	1,739,000	4,523,000
2015	788,000	2,034,000	2,407,000	5,229,000
2016	807,000	3,245,000	2,094,000	6,146,000
2017	1,285,000	2,515,000	1,574,000	5,374,000
2018	1,100,230	2,442,001	1,489,477	5,031,708
2019	693,784	2,129,087	1,094,881	3,917,752
2020 (3 months)	167,460	227,761	179,288	574,508
Since Inception	<u>26,627,474</u>	<u>49,928,848</u>	<u>21,666,646</u>	<u>98,222,968</u>

**New York City
Fire Department Pension Fund, Subchapter Two**

Appendix A

Consolidated Performance Report

Consolidated Performance Report

Through March 31, 2020



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2019	2019	2018	2017	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date	
SYSTEM RETURN SUMMARY																
5	FIRE-TOTAL PORTFOLIO - GROSS	13,746	100.00	(9.96)	(4.50)	(9.96)	7.36	17.95	(2.27)	16.81	(1.21)	5.01	5.24	7.53	8.22	07/01/1987
	FIRE - ESTIMATED INVESTMENT FEES			(0.05)	(0.16)	(0.05)	(0.25)	(0.29)	(0.19)	(0.26)	(0.22)	(0.23)	(0.24)			
	EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.03)	(0.09)	(0.03)	(0.13)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)			
	EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.02)	(0.07)	(0.02)	(0.12)	(0.17)	(0.07)	(0.14)	(0.10)	(0.11)	(0.11)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	FIRE-TOTAL PORTFOLIO - NET MGR			(10.01)	(4.67)	(10.01)	7.11	17.67	(2.47)	16.55	(1.43)	4.78	5.01			
	FIRE POLICY BENCHMARK			(10.73)	(4.85)	(10.73)	7.73	19.05	(2.67)	16.06	(0.84)	4.76	5.04	7.59		
	EXCESS RETURN			0.73	0.19	0.73	(0.61)	(1.38)	0.20	0.49	(0.59)	0.01	(0.03)	(0.06)		
EQUITY RETURN DETAIL																
26	FIRE-TOTAL EQUITY (INCLUDES ALTERNATIVES & REITS) - GROSS	8,461	61.55	(16.08)	(9.67)	(16.08)	7.11	22.15	(3.59)	22.64	(6.48)	4.54	5.51	8.56	7.06	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.05)	(0.19)	(0.05)	(0.31)	(0.36)	(0.23)	(0.32)	(0.25)	(0.28)	(0.29)			
	EST MANAGEMENT FEES			(0.05)	(0.19)	(0.05)	(0.31)	(0.36)	(0.23)	(0.32)	(0.25)	(0.28)	(0.29)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	FIRE-TOTAL EQUITY (INCLUDES ALTERNATIVES & REITS) - NET MGR			(16.14)	(9.86)	(16.14)	6.81	21.79	(3.82)	22.32	(6.74)	4.26	5.21			
34	FIRE-TOTAL EQUITY - GROSS	5,630	40.96	(22.14)	(15.16)	(22.14)	6.02	27.62	(8.65)	25.72	(12.18)	2.10	3.85	7.66	6.50	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.03)	(0.09)	(0.03)	(0.19)	(0.21)	(0.14)	(0.19)	(0.14)	(0.16)	(0.18)			
	EST MANAGEMENT FEES			(0.03)	(0.09)	(0.03)	(0.19)	(0.21)	(0.14)	(0.19)	(0.14)	(0.16)	(0.18)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	FIRE-TOTAL EQUITY - NET MGR			(22.17)	(15.25)	(22.17)	5.83	27.41	(8.79)	25.52	(12.32)	1.94	3.68			
42	FIRE-TOTAL DOMESTIC EQUITY - GROSS	3,673	26.72	(21.65)	(13.98)	(21.65)	8.35	30.08	(5.45)	20.97	(10.65)	3.36	5.22	9.85	11.57	08/01/1979
	ESTIMATED INVESTMENT FEES			(0.02)	(0.04)	(0.02)	(0.11)	(0.12)	(0.08)	(0.10)	(0.08)	(0.09)	(0.11)			
	FIRE-TOTAL DOMESTIC EQUITY - NET MGR			(21.67)	(14.03)	(21.67)	8.24	29.96	(5.53)	20.88	(10.73)	3.28	5.12			
	RUSSELL 3000 (DAILY)			(20.90)	(12.70)	(20.90)	8.98	31.02	(5.24)	21.13	(9.13)	4.00	5.77	10.15	11.02	
	EXCESS RETURN			(0.77)	(1.33)	(0.77)	(0.74)	(1.06)	(0.29)	(0.25)	(1.61)	(0.73)	(0.65)	(0.30)	0.55	
52	FIRE-TOTAL SMALL CAP - GROSS	222	1.62	(29.34)	(26.17)	(29.34)	0.20	24.28	(9.88)	15.49	(23.71)	(3.92)	1.54	7.60	5.18	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.11)	(0.29)	(0.11)	(0.49)	(0.61)	(0.47)	(0.69)	(0.39)	(0.52)	(0.57)			
	FIRE-TOTAL SMALL CAP - NET MGR			(29.45)	(26.46)	(29.45)	(0.29)	23.67	(10.34)	14.80	(24.10)	(4.43)	0.97			
	RUSSELL 2000 (DAILY)			(30.61)	(25.55)	(30.61)	(3.31)	25.52	(11.01)	14.65	(23.99)	(4.64)	(0.25)	6.90	5.69	
	EXCESS RETURN			1.17	(0.91)	1.17	3.02	(1.86)	0.67	0.15	(0.11)	0.21	1.22	0.70	(0.51)	
62	FIRE-TOTAL MID CAP - GROSS	139	1.01	(24.08)	(19.71)	(24.08)	2.23	30.43	(14.39)	24.69	(17.52)	(0.61)	2.20	8.83	6.71	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.06)	(0.18)	(0.06)	(0.85)	(1.01)	(0.35)	(0.47)	(0.62)	(0.52)	(0.53)			
	FIRE-TOTAL MID CAP - NET MGR			(24.14)	(19.89)	(24.14)	1.38	29.42	(14.74)	24.22	(18.14)	(1.13)	1.67			
	RUSSELL MIDCAP (DAILY)			(27.07)	(21.54)	(27.07)	7.83	30.54	(9.06)	18.52	(18.31)	(0.81)	1.85	8.77	7.64	
	EXCESS RETURN			2.93	1.65	2.93	(6.44)	(1.12)	(5.68)	5.70	0.16	(0.32)	(0.18)	0.06	(0.93)	

Consolidated Performance Report

Through March 31, 2020



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2019	2019	2018	2017	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
74	FIRE-TOTAL RUSSELL 1000 - GROSS	2,674	19.45	(21.63)	(13.68)	(21.63)	9.41	30.08		(10.29)				(1.01)	04/01/2018
	ESTIMATED INVESTMENT FEES			(0.01)	(0.02)	(0.01)	(0.02)	(0.02)		(0.02)				(0.02)	
	FIRE-TOTAL RUSSELL 1000 - NET MGR			(21.64)	(13.70)	(21.64)	9.39	30.06		(10.31)				(1.04)	
	RUSSELL 1000 (DAILY)			(20.22)	(11.77)	(20.22)	10.02	31.43		(8.03)				0.26	
	EXCESS RETURN			(1.42)	(1.93)	(1.42)	(0.63)	(1.37)		(2.28)				(1.30)	
84	FIRE-TOTAL RUSSELL TOP 200 PASSIVE - GROSS	621	4.52	(17.63)	(7.98)	(17.63)	10.99	31.77		(3.97)				2.83	05/01/2018
	ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.01)	(0.00)		(0.01)				(0.01)	
	FIRE-TOTAL RUSSELL TOP 200 PASSIVE - NET MGR			(17.63)	(7.98)	(17.63)	10.98	31.77		(3.97)				2.82	
	RUSSELL TOP 200 INDEX (DAILY)			(17.70)	(8.03)	(17.70)	10.89	31.75		(4.08)				2.76	
	EXCESS RETURN			0.07	0.05	0.07	0.09	0.02		0.11				0.06	
94	FIRE-TOTAL FUND OF FUNDS - GROSS	16	0.11	(30.49)	(26.29)	(30.49)	0.44	23.94	(7.75)	(24.73)				(5.32)	05/01/2017
	ESTIMATED INVESTMENT FEES			(0.09)	(0.28)	(0.09)	(0.50)	(0.62)	(0.46)	(0.37)				(0.52)	
	FIRE-TOTAL FUND OF FUNDS - NET MGR			(30.57)	(26.56)	(30.57)	(0.06)	23.33	(8.21)	(25.11)				(5.85)	
	RUSSELL 2000 (DAILY)			(30.61)	(25.55)	(30.61)	(3.31)	25.52	(11.01)	(23.99)				(5.12)	
	EXCESS RETURN			0.04	(1.01)	0.04	3.25	(2.20)	2.80	(1.12)				(0.72)	

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EQUITY RETURN DETAIL																
106	FIRE-TOTAL WORLD ex-USA - GROSS	1,019	7.41	(22.14)	(15.77)	(22.14)	0.32	25.27	(14.17)	31.56	(12.93)	0.40	1.73	4.16	4.81	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.05)	(0.16)	(0.05)	(0.27)	(0.31)	(0.24)	(0.33)	(0.22)	(0.26)	(0.28)			
	FIRE-TOTAL WORLD ex-USA - NET MGR			(22.19)	(15.92)	(22.19)	0.05	24.96	(14.41)	31.22	(13.15)	0.14	1.45			
	WORLD EX-USA CUSTOM BM			(24.00)	(18.34)	(24.00)	0.16	22.91	(14.68)	26.40	(15.48)	(2.10)	(0.49)	2.93	3.97	
	EXCESS RETURN			1.81	2.42	1.81	(0.11)	2.05	0.28	4.82	2.33	2.23	1.95	1.24	0.85	
116	FIRE-TOTAL WORLD ex-USA LARGE & MID ACTIVE - GROSS	774	5.63	(21.21)	(14.78)	(21.21)	1.54	25.96	(13.36)	32.16	(11.82)	1.40	2.03	1.86	11/01/2013	
	ESTIMATED INVESTMENT FEES			(0.06)	(0.18)	(0.06)	(0.28)	(0.35)	(0.24)	(0.32)	(0.24)	(0.27)	(0.28)	(0.28)		
	FIRE-TOTAL WORLD ex-USA LARGE & MID ACTIVE - NET MGR			(21.27)	(14.96)	(21.27)	1.26	25.62	(13.60)	31.84	(12.06)	1.13	1.75	1.58		
	NYC CUSTOM WORLD EX-USA LG & MID ACT INDEX			(23.26)	(18.00)	(23.26)	1.29	22.49	(14.09)	25.18	(14.89)	(1.95)	(0.70)	(0.24)		
	EXCESS RETURN			1.99	3.04	1.99	(0.03)	3.13	0.49	6.66	2.83	3.08	2.45	1.82		
126	FIRE-TOTAL WORLD ex-USA SMALL CAP ACTIVE - GROSS	80	0.58	(24.91)	(18.31)	(24.91)	(6.34)	22.69	(18.26)	35.60	(16.29)	(2.16)	2.11	3.74	05/01/2013	
	ESTIMATED INVESTMENT FEES			(0.05)	(0.22)	(0.05)	(0.41)	(0.50)	(0.39)	(0.65)	(0.32)	(0.43)	(0.47)			
	FIRE-TOTAL WORLD ex-USA SMALL CAP ACTIVE - NET MGR			(24.97)	(18.54)	(24.97)	(6.75)	22.18	(18.65)	34.95	(16.60)	(2.59)	1.64			
	S&P EPAC SMALL CAP USD NET			(27.73)	(20.55)	(27.73)	(6.38)	23.71	(18.58)	33.47	(18.67)	(3.48)	0.27	2.49		
	EXCESS RETURN			2.76	2.02	2.76	(0.38)	(1.52)	(0.07)	1.49	2.06	0.89	1.37	1.25		
136	FIRE-TOTAL WORLD ex-USA SMALL CAP PASSIVE - GROSS	58	0.42	(28.13)	(20.15)	(28.13)	(5.95)	25.50	(17.95)	33.51	(18.60)	(2.92)	1.09	1.29	02/01/2014	
	ESTIMATED INVESTMENT FEES			(0.01)	(0.02)	(0.01)	(0.03)	(0.03)	(0.02)	(0.08)	(0.02)	(0.04)	(0.03)	(0.03)		
	FIRE-TOTAL WORLD ex-USA SMALL CAP PASSIVE - NET MGR			(28.14)	(20.17)	(28.14)	(5.98)	25.46	(17.97)	33.43	(18.62)	(2.96)	1.05	1.26		
	WORLD EX USA SC PASSIVE CUSTOM BM			(28.39)	(20.44)	(28.39)	(6.17)	25.41	(18.07)	33.31	(19.04)	(3.15)	0.80	0.96		
	EXCESS RETURN			0.25	0.27	0.25	0.19	0.05	0.10	0.12	0.42	0.19	0.26	0.31		
146	FIRE-TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE - GROSS	107	0.78	(23.05)	(17.75)	(23.05)	1.93	22.76	(13.63)	24.44	(14.49)	(1.65)	(0.52)	2.16	02/01/2011	
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)			
	FIRE-TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE - NET MGR			(23.06)	(17.76)	(23.06)	1.92	22.75	(13.64)	24.43	(14.49)	(1.66)	(0.53)			
	NYC CUSTOM WORLD EX US INDEX			(23.26)	(18.00)	(23.26)	1.29	22.49	(14.09)	24.12	(14.89)	(2.07)	(0.87)	1.83		
	EXCESS RETURN			0.20	0.24	0.20	0.63	0.26	0.45	0.32	0.40	0.42	0.34	0.33		

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EQUITY RETURN DETAIL																
158	FIRE-TOTAL EMERGING MARKETS - GROSS	675	4.91	(26.60)	(22.12)	(26.60)	2.52	17.93	(14.40)	39.80	(21.08)	(2.91)	(0.53)	0.93	5.54	09/01/1996
	ESTIMATED INVESTMENT FEES			(0.05)	(0.17)	(0.05)	(0.29)	(0.33)	(0.23)	(0.45)	(0.23)	(0.28)	(0.31)			
	FIRE-TOTAL EMERGING MARKETS - NET MGR			(26.65)	(22.29)	(26.65)	2.23	17.60	(14.63)	39.35	(21.30)	(3.20)	(0.83)			
	MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	1.21	18.42	(14.57)	37.28	(17.69)	(1.62)	(0.37)	0.68		
	EXCESS RETURN			(3.05)	(4.11)	(3.05)	1.02	(0.83)	(0.06)	2.06	(3.62)	(1.57)	(0.47)	0.25		
168	FIRE-TOTAL ACTIVE EMERGING MARKETS - GROSS	454	3.31	(27.96)	(23.88)	(27.96)	3.00	17.59	(14.39)	41.09	(22.64)	(3.55)	(0.59)	0.98	6.60	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.08)	(0.23)	(0.08)	(0.41)	(0.47)	(0.34)	(0.62)	(0.31)	(0.40)	(0.44)			
	FIRE-TOTAL ACTIVE EMERGING MARKETS - NET MGR			(28.03)	(24.11)	(28.03)	2.59	17.12	(14.73)	40.47	(22.95)	(3.94)	(1.02)			
	MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	1.21	18.42	(14.57)	37.28	(17.69)	(1.62)	(0.37)	0.68	6.11	
	EXCESS RETURN			(4.43)	(5.93)	(4.43)	1.39	(1.30)	(0.16)	3.18	(5.27)	(2.32)	(0.66)	0.30	0.49	
178	FIRE-TOTAL PASSIVE EMERGING MARKETS - GROSS	220	1.60	(23.63)	(18.18)	(23.63)	1.44	18.74	(14.44)	37.41	(17.60)	(1.53)	(0.26)	(1.05)	04/01/2011	
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.02)	(0.03)	0.01	(0.15)	(0.02)	(0.04)	(0.05)			
	FIRE-TOTAL PASSIVE EMERGING MARKETS - NET MGR			(23.64)	(18.19)	(23.64)	1.42	18.72	(14.43)	37.25	(17.62)	(1.57)	(0.30)			
	MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	1.21	18.42	(14.57)	37.28	(17.69)	(1.62)	(0.37)	(1.12)		
	EXCESS RETURN			(0.04)	(0.01)	(0.04)	0.21	0.29	0.14	(0.03)	0.07	0.05	0.06	0.07		
188	FIRE-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	61	0.44	(22.52)	(17.21)	(22.52)	0.70	22.57	(14.36)		(13.85)			(2.20)	05/01/2017	
	ESTIMATED INVESTMENT FEES			(0.07)	(0.21)	(0.07)	(0.34)	(0.42)	(0.30)		(0.29)			(0.34)		
	FIRE-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR			(22.59)	(17.42)	(22.59)	0.35	22.15	(14.65)		(14.14)			(2.53)		
	MSCI ACWI EX USA IMI NET			(24.11)	(18.55)	(24.11)	0.26	21.63	(14.76)		(16.32)			(3.15)		
	EXCESS RETURN			1.52	1.13	1.52	0.09	0.52	0.10		2.17			0.62		
198	FIRE-TOTAL GLOBAL EQUITY - GROSS	203	1.48	(14.38)	(6.62)	(14.38)	9.83	36.71		(0.42)				0.91	06/01/2018	
	ESTIMATED INVESTMENT FEES			(0.12)	(0.39)	(0.12)	(0.61)	(0.79)		(0.55)				(0.56)		
	FIRE-TOTAL GLOBAL EQUITY - NET MGR			(14.50)	(7.01)	(14.50)	9.22	35.92		(0.98)				0.36		
	MSCI AC WORLD (DAILY CONST)			(21.37)	(14.35)	(21.37)	5.74	26.60		(11.26)				(5.55)		
	EXCESS RETURN			6.86	7.34	6.86	3.48	9.32		10.28				5.90		

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ALTERNATIVE EQUITY RETURN DETAIL															
216	FIRE-TOTAL HEDGE FUNDS* - NET MGR	879	6.39	4.68	4.14	4.68	4.98	5.64	2.09	9.80	8.56	6.39	4.01	4.32	07/01/2011
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			(8.55)	(6.16)	(8.55)	2.16	9.47	(3.06)	8.84	(4.53)	0.96	1.01	2.56	
	EXCESS RETURN			13.23	10.30	13.23	2.82	(3.83)	5.14	0.96	13.09	5.43	3.01	1.75	
226	FIRE-TOTAL DIRECT HEDGE FUNDS* - NET MGR	878	6.39	4.68	4.14	4.68	4.98	5.64	2.17	10.56	8.56	6.57	4.16	5.24	01/01/2012
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			(8.55)	(6.16)	(8.55)	2.16	9.47	(3.06)	8.84	(4.53)	0.96	1.01	3.36	
	EXCESS RETURN			13.23	10.30	13.23	2.82	(3.83)	5.23	1.71	13.09	5.60	3.15	1.88	
236	FIRE-TOTAL PERMAL HEDGE FUNDS OF FUNDS* - NET MGR	-	0.00	(10.97)	(8.53)	(10.97)	0.31	6.26	(0.84)	2.07	(6.96)	(1.53)	(1.08)	0.97	07/01/2011
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			(8.55)	(6.16)	(8.55)	2.16	9.47	(3.06)	8.84	(4.53)	0.96	1.01	2.56	
	EXCESS RETURN			(2.42)	(2.37)	(2.42)	(1.85)	(3.20)	2.22	(6.77)	(2.43)	(2.49)	(2.09)	(1.59)	

* INFORMATION PROVIDED BY ALPHA FRONTIER

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ALTERNATIVE EQUITY RETURN DETAIL																
244	FIRE-TOTAL REAL ESTATE SECURITIES - GROSS	143	1.04	(27.01)	(22.66)	(27.01)	9.80	24.32	(6.09)	8.71	(22.14)	(2.96)	(1.51)	7.13	8.95	01/01/2003
	ESTIMATED INVESTMENT FEES			(0.07)	(0.22)	(0.07)	(0.45)	(0.48)	(0.39)	(0.42)	(0.30)	(0.40)	(0.36)			
	FIRE-TOTAL REAL ESTATE SECURITIES - NET MGR			(27.08)	(22.88)	(27.08)	9.36	23.83	(6.48)	8.30	(22.44)	(3.36)	(1.86)			
	DJ US SELECT REAL ESTATE SECURITIES INDEX			(28.52)	(24.58)	(28.52)	9.75	23.10	(4.22)	3.76	(23.96)	(4.28)	(1.45)	6.82	8.19	
	EXCESS RETURN			1.44	1.69	1.44	(0.39)	0.73	(2.26)	4.53	1.52	0.92	(0.41)	0.31	0.76	
254	FIRE-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - GROSS	1,004	7.30	3.72	11.91	3.72	14.52	12.96	18.87	23.66	17.61	17.99	16.02	14.43	13.76	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.21)	(0.85)	(0.21)	(1.14)	(1.20)	(0.89)	(1.06)	(0.97)	(1.04)	(1.05)			
	FIRE-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - NET MGR			3.51	11.06	3.51	13.38	11.76	17.98	22.60	16.64	16.95	14.97			
	NYC R3000 +3% LAGGED			9.88	17.42	9.88	12.01	6.00	21.06	22.22	34.86	17.97	14.55	17.16	13.51	
	EXCESS RETURN			(6.38)	(6.37)	(6.38)	1.37	5.76	(3.08)	0.38	(18.23)	(1.02)	0.42	(2.73)	0.25	
264	FIRE-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED) - GROSS	691	5.03	2.33	6.43	2.33	8.27	7.58	10.88	11.52	8.68	9.95	10.92	12.96	8.39	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.09)	(0.50)	(0.09)	(0.51)	(0.70)	(0.45)	(0.62)	(0.71)	(0.58)	(0.59)			
	FIRE-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - NET MGR			2.24	5.93	2.24	7.76	6.88	10.43	10.90	7.98	9.37	10.33			
	NCREIF NFI-ODCE NET + 100 BP			1.00	3.91	1.00	6.51	5.43	8.43	7.72	4.97	6.91	8.55			
	EXCESS RETURN			1.24	2.02	1.24	1.25	1.45	2.00	3.17	3.01	2.46	1.79			
274	FIRE-TOTAL INFRASTRUCTURE (TIME WEIGHTED) - GROSS	162	1.18	1.36	9.24	1.36	13.56	13.79	10.05	27.94	13.16	16.72	13.98	15.62	12/01/2013	
	ESTIMATED INVESTMENT FEES			(0.37)	(1.39)	(0.37)	(1.49)	(1.61)	(1.46)	(3.84)	(1.76)	(2.08)	(2.08)	(3.17)		
	FIRE-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - NET MGR			0.99	7.85	0.99	12.07	12.18	8.59	24.10	11.40	14.65	11.91	12.45		
	CPI + 4%			0.79	4.01	0.79	5.75	6.38	6.02	6.20	5.58	5.99	5.87	5.61		
	EXCESS RETURN			0.19	3.84	0.19	6.32	5.80	2.57	17.90	5.82	8.66	6.04	6.84		

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FIXED INCOME RETURN DETAIL																
286	FIRE-TOTAL FIXED INCOME - GROSS	5,286	38.45	1.94	5.01	1.94	7.55	10.53	(0.38)	5.40	8.43	5.18	4.12	5.01	8.01	02/01/1980
	ESTIMATED INVESTMENT FEES			(0.03)	(0.11)	(0.03)	(0.14)	(0.15)	(0.12)	(0.13)	(0.15)	(0.14)	(0.13)			
	EST MANAGEMENT FEES			(0.03)	(0.11)	(0.03)	(0.14)	(0.15)	(0.12)	(0.13)	(0.15)	(0.14)	(0.13)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	FIRE-TOTAL FIXED INCOME - NET MGR			1.91	4.90	1.91	7.41	10.38	(0.50)	5.27	8.28	5.04	3.99			
294	FIRE-TOTAL FIXED INCOME (ex ALTERNATIVE CREDIT & CASH) - GROSS	3,712	27.00	6.63	9.66	6.63	8.35	10.59	(0.84)	4.64	13.83	6.53	4.57	4.77	11/01/2013	
	ESTIMATED INVESTMENT FEES			(0.02)	(0.06)	(0.02)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)		
	EST MANAGEMENT FEES			(0.02)	(0.06)	(0.02)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)		
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	FIRE-TOTAL FIXED INCOME (ex ALTERNATIVE CREDIT & CASH) - NET MGR			6.61	9.59	6.61	8.27	10.51	(0.92)	4.56	13.74	6.44	4.48	4.67		
302	FIRE-TOTAL STRUCTURED FIXED INCOME - GROSS	2,644	19.24	10.19	13.41	10.19	9.65	11.18	(0.85)	5.22	18.28	8.11	5.49	5.68	7.84	01/01/1985
	ESTIMATED INVESTMENT FEES			(0.01)	(0.03)	(0.01)	(0.04)	(0.04)	(0.04)	(0.06)	(0.05)	(0.05)	(0.06)			
	FIRE-TOTAL STRUCTURED FIXED INCOME - NET MGR			10.18	13.38	10.18	9.61	11.13	(0.89)	5.16	18.23	8.06	5.43			
	NYC CUSTOM STRUCTURED INDEX-FIRE			12.56	16.45	12.56	10.80	13.17	(1.29)	6.95	22.21	9.93				
	EXCESS RETURN			(2.38)	(3.07)	(2.38)	(1.19)	(2.04)	0.40	(1.78)	(3.97)	(1.87)				
312	FIRE-TOTAL GOVERNMENT - GROSS	1,674	12.18	15.99	19.16	15.99	9.92	11.15	(1.02)	4.62	24.74	9.83	5.70	6.42	7.49	01/01/1987
	ESTIMATED INVESTMENT FEES			(0.01)	(0.02)	(0.01)	(0.02)	(0.03)	(0.02)	(0.04)	(0.03)	(0.03)	(0.05)			
	FIRE-TOTAL GOVERNMENT - NET MGR			15.98	19.13	15.98	9.90	11.12	(1.04)	4.58	24.71	9.80	5.65			
	FTSE TREASURY 10+			20.62	24.82	20.62	12.24	14.89	(1.89)	8.60	32.36	13.34	7.28	8.99	8.33	
	EXCESS RETURN			(4.64)	(5.68)	(4.64)	(2.34)	(3.78)	0.85	(4.02)	(7.66)	(3.55)	(1.63)	(2.57)	(0.84)	
322	FIRE-TOTAL MORTGAGE - GROSS	546	3.97	2.73	4.97	2.73	6.57	6.85	0.97	2.67	7.29	4.22	3.06	3.74	6.44	03/01/1987
	ESTIMATED INVESTMENT FEES			(0.01)	(0.04)	(0.01)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)			
	FIRE-TOTAL MORTGAGE - NET MGR			2.72	4.93	2.72	6.52	6.80	0.92	2.61	7.24	4.16	3.01			
	FTSE MORTGAGE INDEX			3.27	5.63	3.27	6.39	6.68	1.01	2.47	7.83	4.32	3.07	3.38	6.15	
	EXCESS RETURN			(0.55)	(0.69)	(0.55)	0.13	0.12	(0.09)	0.14	(0.60)	(0.16)	(0.06)	0.37	0.29	
332	FIRE-TOTAL INVESTMENT GRADE CREDIT - GROSS	425	3.09	(4.60)	(0.34)	(4.60)	10.47	14.47	(2.22)	6.90	4.00	3.94	3.37	5.09	6.87	01/01/1987
	ESTIMATED INVESTMENT FEES			(0.02)	(0.07)	(0.02)	(0.10)	(0.10)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)			
	FIRE-TOTAL INVESTMENT GRADE CREDIT - NET MGR			(4.62)	(0.40)	(4.62)	10.37	14.37	(2.30)	6.81	3.91	3.85	3.29			
	NYC - INVESTMENT GRADE CREDIT			(3.01)	0.91	(3.01)	10.13	13.40	(1.90)	6.04	5.02	4.11	3.28	4.67		
	EXCESS RETURN			(1.61)	(1.31)	(1.61)	0.24	0.98	(0.40)	0.77	(1.11)	(0.26)	0.01	0.42		
342	FIRE-TOTAL CORE FI- DEVELOPING MGRS - GROSS	48	0.35	0.44	3.22	0.44	8.07	10.07	(1.01)	4.16	6.51	4.05	3.36	4.21	4.88	05/01/2009
	ESTIMATED INVESTMENT FEES			(0.05)	(0.15)	(0.05)	(0.21)	(0.22)	(0.20)	(0.20)	(0.21)	(0.20)	(0.20)			
	FIRE-TOTAL CORE FI- DEVELOPING MGRS - NET MGR			0.39	3.07	0.39	7.86	9.85	(1.21)	3.95	6.31	3.85	3.16			
	BBG BARC AGG (DLY)			3.15	5.68	3.15	7.87	8.72	0.01	3.54	8.93	4.82	3.36	3.88	4.21	
	EXCESS RETURN			(2.76)	(2.61)	(2.76)	(0.01)	1.14	(1.22)	0.41	(2.63)	(0.98)	(0.20)	0.33	0.67	

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	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2019	2019	2018	2017	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL															
354	FIRE-TOTAL CORE FI- EMERGING MGRS - GROSS	33	0.24	1.33	3.97	1.33	8.22	9.25	0.29	4.51	7.38	4.74	3.53	3.79	03/01/2012
	ESTIMATED INVESTMENT FEES			(0.08)	(0.26)	(0.08)	(0.37)	(0.37)	(0.34)	(0.48)	(0.36)	(0.43)	(0.35)		
	FIRE-TOTAL CORE FI- EMERGING MGRS - NET MGR			1.25	3.71	1.25	7.85	8.88	(0.05)	4.02	7.01	4.31	3.18		
	BBG BARC AGG (DLY)			3.15	5.68	3.15	7.87	8.72	0.01	3.54	8.93	4.82	3.36	3.16	
	EXCESS RETURN			(1.90)	(1.97)	(1.90)	(0.02)	0.16	(0.06)	0.48	(1.92)	(0.51)	(0.18)	0.63	
364	FIRE-TOTAL TIPS - GROSS	647	4.71	1.78	3.96	1.78	4.84	8.46	(1.25)	3.06	6.92	3.52	2.70	3.91	06/01/2005
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)		
	FIRE-TOTAL TIPS - NET MGR			1.78	3.94	1.78	4.82	8.44	(1.27)	3.04	6.90	3.50	2.68		
	BBG BARC GBL INF-LK: US TIPS (DLY)			1.69	3.87	1.69	4.84	8.43	(1.26)	3.01	6.85	3.46	2.67	3.48	3.79
	EXCESS RETURN			0.08	0.07	0.08	(0.02)	0.01	(0.01)	0.03	0.05	0.04	0.01	0.07	0.12
374	FIRE-TOTAL CONVERTIBLE BONDS - GROSS	222	1.61	(11.31)	(7.51)	(11.31)	5.68	13.33	(1.44)	8.44	(5.58)	1.19	2.14	5.09	07/01/2008
	ESTIMATED INVESTMENT FEES			(0.11)	(0.33)	(0.11)	(0.51)	(0.54)	(0.48)	(0.52)	(0.45)	(0.49)	(0.50)		
	FIRE-TOTAL CONVERTIBLE BONDS - NET MGR			(11.41)	(7.85)	(11.41)	5.18	12.79	(1.92)	7.92	(6.04)	0.71	1.64		
	ICE BOFA ALL US CONV EX MANDATORY			(12.93)	(6.46)	(12.93)	8.00	22.89	0.65	15.70	(2.79)	5.67	5.62	8.51	7.83
	EXCESS RETURN			1.51	(1.39)	1.51	(2.83)	(10.10)	(2.57)	(7.78)	(3.25)	(4.96)	(3.99)	(3.39)	(2.75)
384	FIRE-TOTAL TARGETED INVESTMENTS (NO CASH) - GROSS	116	0.84	3.79	6.42	3.79	8.88	9.05	0.93	3.98	10.12	5.64	4.19	7.27	12/01/1984
	ESTIMATED INVESTMENT FEES			(0.05)	(0.17)	(0.05)	(0.28)	(0.25)	(0.28)	(0.30)	(0.23)	(0.27)	(0.29)	(0.33)	(0.18)
	FIRE-TOTAL TARGETED INVESTMENTS (NO CASH) - NET MGR			3.74	6.25	3.74	8.59	8.81	0.65	3.68	9.89	5.37	3.90	4.01	7.09
	FIRE CUSTOM BENCHMARK (NO CASH)			3.27	5.70	3.27	7.27	7.78	0.68	3.19	8.52	4.71	3.37	3.75	
	EXCESS RETURN			0.47	0.55	0.47	1.33	1.03	(0.04)	0.49	1.36	0.65	0.53	0.26	

Consolidated Performance Report

Through March 31, 2020



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2019	2019	2018	2017	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date	
ALTERNATIVE CREDIT INCOME RETURN DETAIL																
396	FIRE-TOTAL HIGH YIELD - GROSS	756	5.50	(12.21)	(8.22)	(12.21)	7.20	15.18	(2.94)	7.53	(5.56)	0.94	2.67	5.45	7.42	12/01/1994
	ESTIMATED INVESTMENT FEES			(0.07)	(0.22)	(0.07)	(0.33)	(0.37)	(0.29)	(0.32)	(0.30)	(0.31)	(0.33)			
	FIRE-TOTAL HIGH YIELD - NET MGR			(12.28)	(8.44)	(12.28)	6.87	14.81	(3.24)	7.21	(5.86)	0.63	2.35			
	HIGH YIELD CUSTOM BENCHMARK			(12.68)	(9.21)	(12.68)	7.48	14.32	(2.34)	7.03	(6.94)	0.67	2.41	5.34	6.37	
	EXCESS RETURN			0.40	0.76	0.40	(0.61)	0.49	(0.90)	0.18	1.08	(0.04)	(0.06)	0.10	1.06	
406	FIRE- TOTAL BANK LOANS - GROSS	194	1.41	(11.65)	(8.94)	(11.65)	3.45	7.73	1.18	4.51	(7.93)	(0.13)	1.62	2.83	12/01/2012	
	ESTIMATED INVESTMENT FEES			(0.08)	(0.25)	(0.08)	(0.37)	(0.39)	(0.36)	(0.38)	(0.34)	(0.36)	(0.37)			
	FIRE-TOTAL BANK LOANS - NET MGR			(11.73)	(9.19)	(11.73)	3.08	7.34	0.81	4.14	(8.27)	(0.49)	1.24			
	CSFB LEVERAGED LOAN INDEX			(13.19)	(10.92)	(13.19)	4.15	8.17	1.14	4.25	(9.51)	(0.73)	1.21	2.32		
	EXCESS RETURN			1.46	1.73	1.46	(1.06)	(0.83)	(0.33)	(0.11)	1.24	0.24	0.04	0.52		
416	FIRE-TOTAL OPPORTUNISTIC FIXED INCOME - GROSS	496	3.61	0.44	2.99	0.44	5.70	5.84	6.54	8.42	4.88	5.51	5.21	8.03	8.12	11/01/2007
	ESTIMATED INVESTMENT FEES			(0.04)	(0.14)	(0.04)	(0.15)	(0.18)	(0.16)	(0.10)	(0.16)	(0.15)	(0.08)			
	FIRE-TOTAL OPPORTUNISTIC FIXED INCOME - NET MGR			0.40	2.85	0.40	5.55	5.66	6.38	8.32	4.72	5.35	5.13			
	OPPORTUNISTIC FIXED INCOME JPMGHY / CSFB 50/50 BLEND PLUS 300			(13.39)	(9.16)	(13.39)	9.26	14.66	2.36	9.42	(6.48)	2.67	4.99	7.55	7.73	
	EXCESS RETURN			13.80	12.01	13.80	(3.71)	(9.01)	4.02	(1.10)	11.19	2.69	0.14	0.48	0.39	
CASH SUMMARY																
428	Short Term FIRE - GROSS	127	0.93	0.34	1.34	0.34	2.36	2.27	1.97	1.13	1.99	1.83	1.34	0.85	3.49	12/01/1989
	ESTIMATED INVESTMENT FEES			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Short Term FIRE - NET MGR			0.34	1.34	0.34	2.36	2.27	1.97	1.13	1.99	1.83	1.34	0.85		
432	Cash Account	0	0.00													
434	Securities Lending	0	0.00													
436	KKR Cash Account	0	0.00													

**New York City
Fire Department Pension Fund, Subchapter Two**

Appendix B

Public Markets Manager Performance Detail

Public Markets Manager Performance Detail

Net Returns Through March 31, 2020



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
EQUITY SUMMARY										
US EQUITY										
PanAgora-US SCC	50	0.37								
RUSSELL 2000 (DAILY)										
Excess										
BlackRock US SCG R2000	0	0.00	(25.76)	(20.79)	(25.76)	28.39	(9.14)	22.26	11.29	(1.29)
RUSSELL 2000 GROWTH DAILY			(25.76)	(20.76)	(25.76)	28.48	(9.31)	22.17	11.32	(1.38)
Excess			0.01	(0.04)	0.01	(0.09)	0.17	0.09	(0.02)	0.09
BlackRock US SCV R2000	0	0.00	(35.72)	(30.55)	(35.72)	22.60	(12.79)	7.34	31.71	(7.33)
RUSSELL 2000 VALUE DAILY			(35.66)	(30.60)	(35.66)	22.39	(12.86)	7.84	31.74	(7.47)
Excess			(0.06)	0.05	(0.06)	0.20	0.08	(0.49)	(0.03)	0.13
Brown Asset Mgmt US SCG	63	0.46	(15.65)	(14.62)	(15.65)	29.45	1.06	28.87	10.25	8.61
RUSSELL 2000 GROWTH DAILY			(25.76)	(20.76)	(25.76)	28.48	(9.31)	22.17	11.32	(1.38)
Excess			10.12	6.14	10.12	0.97	10.37	6.70	(1.07)	9.99
Wasatch-US SCG	37	0.27	(22.83)		(22.83)					
RUSSELL 2000 GROWTH DAILY			(25.76)		(25.76)					
Excess			2.93		2.93					
Ceredex US SCV	0	0.00				17.90	(11.72)	10.66	29.36	(4.73)
RUSSELL 2000 VALUE DAILY						22.39	(12.86)	7.84	31.74	(7.47)
Excess						(4.50)	1.14	2.83	(2.38)	2.74
Cooke and Bieler-US SCV	34	0.25	(35.69)		(35.69)					
RUSSELL 2000 VALUE DAILY			(35.66)		(35.66)					
Excess			(0.03)		(0.03)					

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
Dalton US SCV	0	0.00					(17.30)	8.38	25.01	(3.32)
RUSSELL 2000 VALUE DAILY							(12.86)	7.84	31.74	(7.47)
Excess							(4.43)	0.55	(6.73)	4.15
Pzena-US SCV	37	0.27	(43.00)		(43.00)					
RUSSELL 2000 VALUE DAILY			(35.66)		(35.66)					
Excess			(7.34)		(7.34)					
Iridian US MCC	0	0.00					(23.30)	23.23	4.19	(3.71)
RUSSELL MIDCAP (DAILY)							(9.06)	18.52	13.80	(2.44)
Excess							(14.24)	4.71	(9.60)	(1.27)
Wellington US MCC	139	1.01	(24.14)	(19.86)	(24.14)	32.69	(7.35)	25.09	12.29	1.78
S&P 400 MIDCAP INDEX (DAILY)			(29.70)	(24.80)	(29.70)	26.20	(11.08)	16.24	20.74	(2.18)
Excess			5.56	4.94	5.56	6.49	3.74	8.84	(8.45)	3.95
BlackRock US LMC R1000 Core	2,029	14.76	(20.06)	(11.67)	(20.06)	31.40				
RUSSELL 1000 (DAILY)			(20.22)	(11.77)	(20.22)	31.43				
Excess			0.16	0.11	0.16	(0.02)				
PIMCO RAFI US LMCE	321	2.34	(27.72)	(20.60)	(27.72)	25.39	(6.74)	16.88		
RUSSELL 1000 (DAILY)			(20.22)	(11.77)	(20.22)	31.43	(4.78)	21.69		
Excess			(7.50)	(8.82)	(7.50)	(6.03)	(1.96)	(4.81)		
Legal General US LMCE	325	2.36	(24.83)	(18.67)	(24.83)					
RUSSELL 1000 (DAILY)			(20.22)	(11.77)	(20.22)					
Excess			(4.61)	(6.89)	(4.61)					
SSGA US LMC Top 200 Core	621	4.52	(17.63)	(7.98)	(17.63)	31.77				
RUSSELL TOP 200 INDEX (DAILY)			(17.70)	(8.03)	(17.70)	31.75				
Excess			0.07	0.05	0.07	0.02				

1 Name changed from SSGA MSCI EAFE Small Cap Index 12.2017

2 Assets were in transition from 9/29/17 to 2/1/19

3 Assets were in transition from 9/29/17 to 11/30/17

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
FUND OF FUNDS										
FIRE-TOTAL FUND OF FUNDS	16	0.11	(30.57)	(26.56)	(30.57)	23.33	(8.21)			
RUSSELL 2000 (DAILY)			(30.61)	(25.55)	(30.61)	25.52	(11.01)			
Excess			0.04	(1.01)	0.04	(2.20)	2.80			
FIRE-TOTAL LEGATO	16	0.11	(30.57)	(26.56)	(30.57)	23.33	(8.19)			
RUSSELL 2000 (DAILY)			(30.61)	(25.55)	(30.61)	25.52	(11.01)			
Excess			0.04	(1.01)	0.04	(2.20)	2.82			
NON - US EQUITY										
Baillie Gifford WorldxUS LMCC	197	1.43	(13.84)	(4.62)	(13.84)	37.00	(15.37)	44.17	0.70	(3.81)
NYC Developed Growth Benchmark			(23.26)	(18.00)	(23.26)	22.49	(14.09)	27.77	(3.04)	4.09
Excess			9.42	13.39	9.42	14.50	(1.28)	16.40	3.74	(7.90)
Walter Scott WorldxUS LMCC	242	1.76	(15.20)	(7.63)	(15.20)	28.51	(7.65)	28.12	5.03	0.28
NYC Developed Growth Benchmark			(23.26)	(18.00)	(23.26)	22.49	(14.09)	27.77	(3.04)	4.09
Excess			8.06	10.38	8.06	6.02	6.44	0.35	8.07	(3.81)
Causeway WorldxUS LMCV	149	1.08	(30.95)	(24.61)	(30.95)	21.35	(18.34)	28.22	0.52	(2.39)
NYC Developed Value Benchmark			(23.26)	(18.00)	(23.26)	22.49	(14.09)	22.77	5.02	(5.68)
Excess			(7.69)	(6.61)	(7.69)	(1.14)	(4.25)	5.45	(4.51)	3.29
Sprucegrove WorldxUS LMCC	183	1.33	(28.59)	(25.81)	(28.59)	17.62	(13.67)	27.20	11.10	(9.44)
NYC Developed Value Benchmark			(23.26)	(18.00)	(23.26)	22.49	(14.09)	22.77	5.02	(5.68)
Excess			(5.33)	(7.81)	(5.33)	(4.87)	0.42	4.44	6.08	(3.75)
Acadian WorldxUS SCC	60	0.44	(25.51)	(19.37)	(25.51)	21.82	(19.22)	38.38	6.41	8.68
S&P EPAC Small Cap USD NET			(27.73)	(20.55)	(27.73)	23.71	(18.58)	33.47	1.34	8.58
Excess			2.22	1.18	2.22	(1.89)	(0.65)	4.91	5.07	0.09
Fidelity WorldxUS SCC	5	0.04					(18.22)	31.28	(0.80)	11.96
S&P EPAC Small Cap USD NET							(18.58)	33.47	1.34	8.58
Excess							0.36	(2.19)	(2.14)	3.38

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
Alger EAFE SCC	15	0.11	(28.64)	(21.68)	(28.64)					
MSCI EAFE SMALL CAP NET (DAILY)			(27.52)	(19.52)	(27.52)					
Excess			(1.12)	(2.16)	(1.12)					
SSGA WorldxUS LMC NYC Custom IDX	107	0.78	(23.06)	(17.76)	(23.06)	22.75	(13.64)	24.43	1.28	(0.55)
NYC Custom World ex US Index			(23.26)	(18.00)	(23.26)	22.49	(14.09)	24.12	1.00	(0.81)
Excess			0.20	0.24	0.20	0.26	0.45	0.32	0.28	0.27
SSGA WorldxUS SC Custom IDX ¹	58	0.42	(28.14)	(20.04)	(28.14)	25.67	(17.97)	33.43	2.77	9.86
World ex USA SC PASSIVE CUSTOM BM			(28.39)	(20.44)	(28.39)	25.41	(18.07)	33.31	2.18	9.59
Excess			0.25	0.40	0.25	0.26	0.10	0.12	0.59	0.27
EMERGING MARKETS										
Baillie Gifford EM	132	0.96	(26.06)	(19.20)	(26.06)	28.50	(15.37)	54.13	2.78	(7.99)
MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	18.42	(14.57)	37.28	11.19	(14.92)
Excess			(2.46)	(1.02)	(2.46)	10.08	(0.80)	16.85	(8.41)	6.92
Acadian EM	111	0.80	(24.49)	(19.98)	(24.49)	15.71	(17.27)	40.45	12.65	(15.05)
MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	18.42	(14.57)	37.28	11.19	(14.92)
Excess			(0.90)	(1.80)	(0.90)	(2.71)	(2.70)	3.16	1.46	(0.13)
Parametric EM	110	0.80	(30.07)	(27.29)	(30.07)	14.20	(14.33)	29.65	13.85	(15.72)
MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	18.42	(14.57)	37.28	11.19	(14.92)
Excess			(6.47)	(9.10)	(6.47)	(4.22)	0.24	(7.63)	2.67	(0.81)
DFA EM	102	0.74	(31.75)	(30.25)	(31.75)	9.73	(12.06)	33.64	17.36	(19.25)
MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	18.42	(14.57)	37.28	11.19	(14.92)
Excess			(8.15)	(12.07)	(8.15)	(8.69)	2.51	(3.64)	6.17	(4.33)
BlackRock MSCI EM Core	220	1.60	(23.64)	(18.16)	(23.64)	18.76	(14.43)	37.25	11.17	(14.91)
MSCI EMERGING MARKETS			(23.60)	(18.18)	(23.60)	18.42	(14.57)	37.28	11.19	(14.92)
Excess			(0.04)	0.02	(0.04)	0.34	0.14	(0.03)	(0.02)	0.01

¹ Name changed from SSGA MSCI EAFE Small Cap Index 12.2017

² Assets were in transition from 9/29/17 to 2/1/19

³ Assets were in transition from 9/29/17 to 11/30/17

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
INTERNATIONAL FOF										
FIRE-TOTAL INTERNATIONAL FOF	61	0.44	(22.59)	(17.42)	(22.59)	22.15	(14.65)			
MSCI ACWI ex USA IMI Net			(24.11)	(18.55)	(24.11)	21.63	(14.76)			
Excess			1.52	1.13	1.52	0.52	0.10			
INTERNATIONAL FIS										
FIRE-TOTAL INTERNATIONAL FIS	61	0.44	(22.59)	(17.42)	(22.59)	22.15	(14.65)			
MSCI ACWI ex USA IMI Net			(24.11)	(18.55)	(24.11)	21.63	(14.76)			
Excess			1.52	1.13	1.52	0.52	0.10			
GLOBAL EQUITY										
Fiera-Global	102	0.74	(17.17)	(9.47)	(17.17)	34.02				
MSCI World Index			(21.05)	(13.84)	(21.05)	27.67				
Excess			3.89	4.37	3.89	6.35				
Morgan Stanley-Global										
Morgan Stanley-Global	102	0.74	(11.65)	(4.41)	(11.65)	38.01				
MSCI AC WORLD (Daily Const)			(21.37)	(14.35)	(21.37)	26.60				
Excess			9.72	9.94	9.72	11.41				
REAL ESTATE SECURITIES										
Morgan Stanley REITS	51	0.37	(32.74)	(29.28)	(32.74)	19.02	(7.88)	9.26	3.49	(1.63)
Morgan Stanley Custom RESI Index			(28.52)	(24.58)	(28.52)	23.10	(4.22)	8.64	2.37	(1.53)
Excess			(4.22)	(4.70)	(4.22)	(4.08)	(3.66)	0.63	1.13	(0.11)
Adelante REITS										
Adelante REITS	92	0.67	(23.54)	(18.34)	(23.54)	27.85	(5.49)	7.34	3.90	4.82
DJ US SELECT REAL ESTATE SECURITIES INDEX			(28.52)	(24.58)	(28.52)	23.10	(4.22)	3.76	6.65	4.46
Excess			4.98	6.24	4.98	4.75	(1.27)	3.58	(2.75)	0.36

1 Name changed from SSGA MSCI EAFE Small Cap Index 12.2017

2 Assets were in transition from 9/29/17 to 2/11/19

3 Assets were in transition from 9/29/17 to 11/30/17

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
FIXED INCOME SUMMARY										
STRUCTURED FIXED INCOME										
Taplin Credit	48	0.35	(5.01)	(0.56)	(5.01)	15.61	(3.48)	8.08	9.52	(3.74)
NYC - Investment Grade Credit			(3.01)	0.91	(3.01)	13.40	(1.90)	6.04	5.56	(0.65)
Excess			(2.00)	(1.46)	(2.00)	2.22	(1.58)	2.05	3.97	(3.10)
T Rowe Price Credit	173	1.26	(5.40)	(1.04)	(5.40)	14.52	(2.41)	6.89	6.00	0.16
NYC - Investment Grade Credit			(3.01)	0.91	(3.01)	13.40	(1.90)	6.04	5.56	(0.65)
Excess			(2.39)	(1.95)	(2.39)	1.12	(0.51)	0.86	0.44	0.80
BlackRock Credit	127	0.93	(3.58)	0.43	(3.58)	14.05	(2.01)	6.12	5.43	(0.61)
NYC - Investment Grade Credit			(3.01)	0.91	(3.01)	13.40	(1.90)	6.04	5.56	(0.65)
Excess			(0.56)	(0.48)	(0.56)	0.66	(0.11)	0.09	(0.13)	0.04
Prudential Credit	76	0.55	(4.13)	(0.13)	(4.13)	13.71	(1.81)	6.32	5.97	(0.18)
NYC - Investment Grade Credit			(3.01)	0.91	(3.01)	13.40	(1.90)	6.04	5.56	(0.65)
Excess			(1.12)	(1.04)	(1.12)	0.31	0.09	0.28	0.41	0.47
BlackRock Mortgages	432	3.14	2.75	5.02	2.75	7.04	0.97	2.66	2.19	1.72
FTSE MORTGAGE INDEX			3.27	5.63	3.27	6.68	1.01	2.47	1.59	1.56
Excess			(0.52)	(0.61)	(0.52)	0.36	(0.04)	0.19	0.60	0.16
Neuberger Berman Mortgages	114	0.83	2.66	4.78	2.66	6.32	0.81	2.42	1.52	1.38
FTSE MORTGAGE INDEX			3.27	5.63	3.27	6.68	1.01	2.47	1.59	1.56
Excess			(0.61)	(0.85)	(0.61)	(0.35)	(0.20)	(0.05)	(0.06)	(0.18)
SSGA LI Treasury	611	4.45	15.10	17.81	15.10	10.67	(0.20)	4.81	1.47	0.47
NYC - Treasury Agency Plus Five			13.78	16.22	13.78	10.40	(0.05)	4.66	1.21	0.72
Excess			1.32	1.59	1.32	0.27	(0.15)	0.16	0.26	(0.25)

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
SSGA IT Treasury 1-10Y ²	7	0.05	5.30	6.56	5.30	5.08	2.03			
FTSE USBIG Treasury/Agency 1-10 y			5.13	6.37	5.13	5.18	1.42			
Excess			0.17	0.19	0.17	(0.09)	0.61			
SSGA ST Treasury 1-3Y ³	403	2.93	1.99	3.04	1.99	3.56	1.53	1.78		
FTSE USBIG Treasury 1-3 Y Index			2.67	3.79	2.67	3.56	1.56	0.42		
Excess			(0.67)	(0.74)	(0.67)	0.00	(0.03)	1.36		
SSGA LT Treasury 10Y Plus	652	4.74	21.97	26.24	21.97	14.88	(1.83)	8.54		
FTSE Treasury 10+			20.62	24.82	20.62	14.89	(1.89)	8.60		
Excess			1.35	1.42	1.35	(0.01)	0.05	(0.07)		
CORE FI-EMERGING MANAGERS										
Optimum Quantvest-Core	3	0.02	5.81	7.78	5.81	7.93	0.33	2.64	2.61	0.61
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	0.55
Excess			2.67	2.11	2.67	(0.79)	0.32	(0.90)	(0.03)	0.06
Integrity-Core	3	0.02	1.22	3.62	1.22	8.56	(0.03)	3.93		
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54		
Excess			(1.93)	(2.06)	(1.93)	(0.16)	(0.04)	0.39		
New Century-Core Plus	9	0.06	2.92	5.16	2.92	8.52	0.12	4.04	2.37	(0.30)
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	0.55
Excess			(0.23)	(0.51)	(0.23)	(0.19)	0.11	0.50	(0.28)	(0.85)
Pugh-Core Plus	10	0.07	1.00	3.57	1.00	8.92	(0.42)	4.12	3.48	0.79
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	0.55
Excess			(2.15)	(2.11)	(2.15)	0.21	(0.43)	0.58	0.83	0.24
Ramirez-Core	8	0.06	(1.93)	0.81	(1.93)	9.67	0.07	4.47	3.64	1.12
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	0.55
Excess			(5.08)	(4.87)	(5.08)	0.95	0.06	0.93	0.99	0.57

¹ Name changed from SSGA MSCI EAFE Small Cap Index 12.2017

² Assets were in transition from 9/29/17 to 2/1/19

³ Assets were in transition from 9/29/17 to 11/30/17

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
HIGH YIELD										
Brigade High Yield	50	0.36	(13.88)	(10.32)	(13.88)	15.07				
BBG BARC US HY - 2% Issr Cap			(12.68)	(9.21)	(12.68)	14.32				
Excess			(1.19)	(1.11)	(1.19)	0.75				
Eaton Vance High Yield	81	0.59	(12.36)	(8.64)	(12.36)	14.66				
BBG BARC US HY - 2% Issr Cap			(12.68)	(9.21)	(12.68)	14.32				
Excess			0.33	0.57	0.33	0.35				
Mackay Shields High Yield	79	0.57	(11.03)	(7.40)	(11.03)	13.87				
BBG BARC US HY - 2% Issr Cap			(12.68)	(9.21)	(12.68)	14.32				
Excess			1.65	1.81	1.65	(0.45)				
Nomura High Yield	49	0.35	(13.53)	(10.47)	(13.53)	12.74				
BBG BARC US HY - 2% Issr Cap			(12.68)	(9.21)	(12.68)	14.32				
Excess			(0.85)	(1.27)	(0.85)	(1.58)				
Shenkman High Yield	145	1.05	(11.27)	(7.47)	(11.27)	14.10				
BBG BARC US HY - 2% Issr Cap			(12.68)	(9.21)	(12.68)	14.32				
Excess			1.41	1.73	1.41	(0.22)				
T Rowe Price High Yield	354	2.57	(12.54)	(8.47)	(12.54)	15.65	(2.34)	7.29	12.24	(1.28)
BBG BARC US HY - 2% Issr Cap			(12.68)	(9.21)	(12.68)	14.32	(2.08)	7.50	17.13	(4.43)
Excess			0.14	0.74	0.14	1.33	(0.26)	(0.22)	(4.89)	3.16
BANK LOANS										
Barings Bank Loans	95	0.69	(12.26)	(9.70)	(12.26)	7.82	0.38	4.47	8.46	0.12
CSFB LEVERAGED LOAN INDEX			(13.19)	(10.92)	(13.19)	8.17	1.14	4.25	9.88	(0.38)
Excess			0.93	1.22	0.93	(0.36)	(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							1.14	4.25	9.88	(0.38)
Excess							0.10	(0.43)	(2.03)	2.45

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
Bain Bank Loans	98	0.72	(11.30)	(8.78)	(11.30)					
CSFB LEVERAGED LOAN INDEX			(13.19)	(10.92)	(13.19)					
Excess			1.89	2.13	1.89					
TIPS										
BlackRock TIPS	164	1.20	1.80	3.97	1.80	8.42	(1.18)	2.98	4.75	(1.24)
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			1.69	3.87	1.69	8.43	(1.26)	3.01	4.68	(1.44)
Excess			0.10	0.09	0.10	(0.01)	0.08	(0.02)	0.07	0.20
SSGA TIPS	483	3.51	1.77	3.93	1.77	8.44	(1.30)	3.06	4.59	(1.35)
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			1.69	3.87	1.69	8.43	(1.26)	3.01	4.68	(1.44)
Excess			0.08	0.06	0.08	0.02	(0.04)	0.05	(0.09)	0.09
CONVERTIBLE BONDS										
Advent Convertible Bonds	222	1.61	(11.41)	(7.85)	(11.41)	12.79	(1.92)	7.92	7.20	(1.42)
ICE BofA US Convertibles - Yield Alter			(13.81)	(8.49)	(13.81)	15.40	(0.42)	9.45	9.96	(8.77)
Excess			2.40	0.64	2.40	(2.61)	(1.51)	(1.53)	(2.76)	7.35
CORE FI-DEVELOPING MANAGERS										
LM Capital-Core Plus	25	0.18	1.79	4.33	1.79	9.55	(1.30)	3.92	3.43	1.02
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	0.55
Excess			(1.36)	(1.35)	(1.36)	0.84	(1.32)	0.38	0.78	0.47
GIA-Core Plus	23	0.17	(1.08)	1.72	(1.08)	10.17	(1.11)	3.99	3.96	
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	
Excess			(4.23)	(3.95)	(4.23)	1.46	(1.12)	0.45	1.31	

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
ECONOMICALLY TARGETED INVESTMENTS										
AFL-CIO Housing Investment Trust	62	0.45	3.43	5.14	3.43	7.78	0.16	3.17	1.94	1.13
BBG BARC Agg (Dly)			3.15	5.68	3.15	8.72	0.01	3.54	2.65	0.55
Excess			0.28	(0.53)	0.28	(0.94)	0.15	(0.38)	(0.71)	0.58
RBC Access MBS	29	0.21	3.09	5.40	3.09	7.21	0.49	2.64	1.61	1.83
Access RBC Benchmark			3.77	5.60	3.77	6.05	1.17	1.96	1.52	1.40
Excess			(0.69)	(0.20)	(0.69)	1.16	(0.69)	0.69	0.09	0.43
CPC Construction Facility	3	0.02	(0.41)	3.79	(0.41)	6.42	4.14	6.06	(3.95)	12.90
CPC CONST BENCHMARK			0.83	2.77	0.83	4.09	3.99	3.34	3.03	2.90
Excess			(1.24)	1.02	(1.24)	2.33	0.15	2.73	(6.99)	10.01
BOA PPAR FNMA	3	0.02	6.19	10.36	6.19	13.54	2.33	5.21	4.07	42.03
FNMA Plus 85bps			3.46	6.49	3.46	7.80	1.86	3.61	2.38	2.50
Excess			2.73	3.87	2.73	5.74	0.47	1.60	1.69	39.53
Citibank PPAR FNMA	4	0.03	6.15	15.79	6.15	19.71	2.63	5.26	3.71	6.69
FNMA Plus 85bps			3.46	6.49	3.46	7.80	1.86	3.61	2.38	2.50
Excess			2.69	9.30	2.69	11.91	0.77	1.65	1.33	4.20
Citibank PPAR GNMA	1	0.01	5.05	5.06	5.05	5.33	1.90	3.10	2.78	5.08
GNMA Plus 65bps			3.41	5.62	3.41	6.73	1.63	2.53	2.28	2.02
Excess			1.64	(0.56)	1.64	(1.41)	0.27	0.57	0.50	3.06
CFSB PPAR GNMA	0	0.00	4.78	5.12	4.78	5.91	0.99	3.83	3.21	5.90
GNMA Plus 65bps			3.41	5.62	3.41	6.73	1.63	2.53	2.28	2.02
Excess			1.37	(0.50)	1.37	(0.82)	(0.65)	1.30	0.93	3.88
CPC PPAR FNMA	3	0.02	5.95	9.07	5.95	13.18	2.31	5.06	6.15	8.96
FNMA Plus 85bps			3.46	6.49	3.46	7.80	1.86	3.61	2.38	2.50
Excess			2.50	2.58	2.50	5.38	0.45	1.45	3.77	6.46

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
JPMC PPAR FNMA	6	0.05	6.14	10.40	6.14	14.68	1.68	9.96	7.94	6.18
FNMA Plus 85bps			3.46	6.49	3.46	7.80	1.86	3.61	2.38	2.50
Excess			2.69	3.91	2.69	6.88	(0.18)	6.35	5.56	3.68
LIIF PPAR FNMA	3	0.02	6.22	13.10	6.22	16.35	2.27	9.55	5.03	6.29
FNMA Plus 85bps			3.46	6.49	3.46	7.80	1.86	3.61	2.38	2.50
Excess			2.76	6.61	2.76	8.55	0.41	5.94	2.65	3.79
LIIF PPAR GNMA	0	0.00	3.62	4.79	3.62	5.54	2.53	2.52	3.88	3.92
GNMA Plus 65bps			3.41	5.62	3.41	6.73	1.63	2.53	2.28	2.02
Excess			0.21	(0.83)	0.21	(1.19)	0.89	(0.01)	1.61	1.91
LISC PPAR FNMA	1	0.01	10.71	15.92	10.71	14.95				
FNMA Plus 85bps			3.46	6.49	3.46	7.80				
Excess			7.25	9.43	7.25	7.15				
NCBCI PPAR FNMA	0	0.00	4.67	5.67	4.67	4.08	2.00	1.75	3.46	4.97
FNMA Plus 85bps			3.46	6.49	3.46	7.80	1.86	3.61	2.38	2.50
Excess			1.21	(0.82)	1.21	(3.72)	0.15	(1.86)	1.07	2.47
NCBCI PPAR GNMA	0	0.00	4.40	4.18	4.40	3.69	1.23	3.01	3.51	5.53
GNMA Plus 65bps			3.41	5.62	3.41	6.73	1.63	2.53	2.28	2.02
Excess			0.99	(1.44)	0.99	(3.04)	(0.41)	0.48	1.23	3.52
Wells Fargo PPAR FNMA	0	0.00	6.10	10.96	6.10	21.71				
FNMA Plus 85bps			3.46	6.49	3.46	7.80				
Excess			2.64	4.47	2.64	13.91				
CASH										
Short Term FIRE	127	0.93	0.34	1.34	0.34	2.27	1.97	1.13	0.88	0.32
ICE BofA US 3-Month Treasury Bill			0.57	1.61	0.57	2.28	1.87	0.86	0.33	0.05
Excess			(0.23)	(0.26)	(0.23)	(0.01)	0.09	0.27	0.56	0.26

1 Name changed from SSGA MSCI EAFE Small Cap Index 12.2017

2 Assets were in transition from 9/29/17 to 2/1/19

3 Assets were in transition from 9/29/17 to 11/30/17

Public Markets Manager Performance Detail



Net Returns Through March 31, 2020

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2019	2018	2017	2016	2015
Cash Account	0	0.00								
Securities Lending	0	0.00								
KKR Cash Account	0	0.00								

**New York City
Fire Department Pension Fund, Subchapter Two**

Appendix C

Alternative Assets Manager Performance Detail

Alternative Assets Manager Performance Detail

Through December 31, 2019



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
TOTAL PRIVATE EQUITY		2,399,293,515	1,923,750,769	1,877,733,373	1,007,779,905	1.50	11.5%
TOTAL LIQUIDATED		194,480,175	215,563,433	272,050,738	27,577	1.26	6.6%
TOTAL ACTIVE		2,204,813,340	1,708,187,336	1,605,682,635	1,007,752,328	1.53	12.5%

TOTAL ACTIVE							
Cypress Merchant Banking Partners II, L.P.	1999	22,586,486	26,972,134	25,292,077	12,093	0.94	-1.2%
Lincolnshire Equity Fund II, L.P.	1999	6,899,005	7,223,050	14,133,528	151,997	1.98	24.6%
SCP Private Equity Partners II, L.P.	2000	15,000,000	16,834,296	6,514,303	1,630,737	0.48	-8.1%
Apollo Investment Fund V, L.P.	2001	15,000,000	23,379,009	46,122,367	130,303	1.98	38.8%
CVC European Equity Partners III, L.P.	2001	10,000,000	11,880,366	29,775,858	679,801	2.56	41.0%
Landmark Equity Partners XI, L.P.	2002	5,000,000	4,753,167	7,305,360	12,007	1.54	23.3%
Ares Corporate Opportunities Fund, L.P.	2003	5,000,000	5,998,308	8,941,880	83,198	1.50	13.2%
Blackstone Capital Partners IV, L.P.	2003	13,875,989	17,172,972	41,853,940	371,029	2.46	36.3%
FS Equity Partners V, L.P.	2003	10,000,000	8,567,981	16,744,589	874,730	2.06	15.4%
FdG Capital Partners II LP	2004	5,000,000	5,387,768	6,228,579	292,400	1.21	3.7%
Lincolnshire Equity Fund III, L.P.	2004	5,000,000	5,000,631	7,070,971	1,914,455	1.80	28.1%
Markstone Capital Partners, LP	2004	5,000,000	5,862,384	2,477,825	34,027	0.43	-39.5%
Medica III Investments (International) L.P.	2004	3,000,000	2,992,836	1,267,948	722,000	0.66	-7.4%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 1	2004	2,000,000	2,053,879	1,964,901	298,881	1.10	1.6%
Yucaipa American Alliance Fund I, LP	2004	5,000,000	7,491,869	8,800,690	355,029	1.22	4.7%
Arlington Capital Partners II, L.P.	2005	4,000,000	4,069,527	7,137,350	7,963	1.76	11.2%
Blackstone Mezzanine Partners II, L.P.	2005	2,561,603	2,866,163	3,810,696	34,179	1.34	7.8%
Carlyle Partners IV, L.P.	2005	5,000,000	5,153,753	10,090,391	129,349	1.98	13.0%
FirstMark Capital I, L.P. (fka FirstMark IV)	2005	1,500,000	1,639,064	5,557,458	4,597,944	6.20	32.1%
JP Morgan Fleming (Tranche A)	2005	3,000,000	3,011,194	3,034,443	810,711	1.28	4.5%
New Mountain Partners II, L.P.	2005	2,580,650	2,337,304	4,502,540	27,684	1.94	13.6%
Palladium Equity Partners III, L.P.	2005	10,000,000	10,590,126	19,465,465	609,040	1.90	15.3%
Psilos Group Partners III, L.P.	2005	2,500,000	2,657,559	1,282,054	2,352,298	1.37	4.3%
Snow Phipps Group, L.P.	2005	5,000,000	5,956,871	5,228,654	2,191,022	1.25	4.8%
USPF II Institutional Fund, L.P.	2005	5,000,000	6,594,940	7,688,280	700,555	1.27	4.0%
Aisling Capital II, LP	2006	1,000,000	1,178,021	1,141,279	50,912	1.01	0.2%
Apollo Investment Fund VI, L.P.	2006	20,000,000	25,741,832	38,519,613	380,881	1.51	8.7%
Ares Corporate Opportunities Fund II, L.P.	2006	5,000,000	5,476,087	9,135,462	8,642	1.67	13.1%

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Arsenal Capital Partners II, LP	2006	4,000,000	4,986,154	7,896,554	1,701,607	1.92	12.1%
Atlantic Equity Partners IV, L.P.	2006	3,768,757	3,652,900	641,294	2,111,008	0.75	-3.2%
Avista Capital Partners, L.P.	2006	5,000,000	6,573,992	8,004,066	81,322	1.23	4.4%
Blackstone Capital Partners V, L.P.	2006	9,448,250	10,060,690	15,981,355	346,416	1.62	7.9%
Capital Partners Private Equity Income Fund, L.P.	2006	2,000,000	1,923,102	4,406,173	47,012	2.32	20.9%
Catterton Partners VI, L.P.	2006	5,000,000	5,693,763	8,940,481	1,501,113	1.83	11.3%
Coller International Partners V, L.P.	2006	5,000,000	4,372,182	5,799,214	380,288	1.41	8.0%
Euro Choice III L.P.	2006	5,314,778	5,347,612	5,909,821	359,201	1.17	3.1%
Falconhead Capital Partners II, L.P.	2006	4,000,000	4,481,396	4,478,251	925,597	1.21	3.5%
First Reserve Fund XI, L.P.	2006	5,000,000	5,313,265	3,450,830	204,908	0.69	-8.1%
GF Capital Private Equity Fund, L.P.	2006	3,000,000	3,076,007	4,033,278	1,340,181	1.75	11.6%
InterMedia Partners VII, L.P.	2006	2,500,000	2,919,819	2,959,171	(3,103)	1.01	0.2%
MidOcean Partners III, L.P.	2006	9,705,796	11,595,207	22,767,622	1,414,398	2.09	13.0%
Permira IV, L.P.	2006	5,512,728	6,014,207	8,688,910	715,181	1.56	8.6%
RRE Ventures IV, L.P.	2006	2,500,000	3,175,366	2,023,539	2,288,891	1.36	4.3%
Terra Firma Capital Partners III, L.P.	2006	5,222,761	5,294,533	2,052,241	409,612	0.46	-9.1%
The Fourth Cinven Fund	2006	2,731,570	2,870,280	4,124,333	(1,749)	1.44	7.3%
Thomas, McNerney & Partners II, L.P.	2006	3,000,000	3,035,394	6,611,246	310,172	2.28	16.7%
Carlyle Partners V, L.P.	2007	10,000,000	10,306,406	17,042,759	1,394,150	1.79	13.7%
Constellation Venture Capital III, L.P.	2007	5,000,000	5,765,313	2,904,086	1,536,502	0.77	-4.1%
FTVentures III, LP	2007	2,500,000	2,743,841	5,340,857	745,221	2.22	15.7%
Gleacher Mezzanine Fund II, L.P.	2007	3,000,000	2,752,429	3,651,296	22,590	1.33	10.5%
GSO Capital Opportunities Fund LP	2007	7,500,000	11,229,550	15,937,873	110,191	1.43	17.3%
Highland Consumer Fund I LP	2007	2,000,000	2,003,212	1,224,131	401,756	0.81	-2.8%
Montreux Equity Partners IV, L.P.	2007	5,000,000	5,000,000	2,761,158	4,039,725	1.36	4.5%
New Mountain Partners III, L.P.	2007	10,000,000	10,186,606	13,560,676	7,808,990	2.10	13.5%
Olympus Capital Asia III, L.P.	2007	5,000,000	5,851,116	2,988,294	1,614,637	0.79	-5.1%
PCG Clean Energy & Technology Fund (East), LLC	2007	10,000,000	9,047,736	2,328,790	1,050,458	0.37	-13.3%
Pegasus Partners IV, L.P.	2007	7,500,000	9,112,510	6,900,231	1,540,444	0.93	-1.4%
Pine Brook Capital Partners, L.P.	2007	7,500,000	8,517,075	10,609,787	337,358	1.29	6.8%
Post Capital Equity Partners II LP	2007	3,000,000	2,142,326	4,037,987	474,720	2.11	15.4%
Princeton Capital Corp. (fka Capital Point)	2007	3,000,000	3,497,432	2,267,271	1,033,959	0.94	-1.2%
SCP Vitalife Partners II Fund	2007	5,000,000	5,024,924	395	2,952,110	0.59	-5.9%

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Trilantic Capital Partners IV L.P.	2007	7,236,332	7,561,195	11,218,812	694,469	1.58	13.4%
United States Power Fund III, L.P.	2007	5,000,000	5,915,665	6,102,704	1,142,265	1.22	3.6%
Vista Equity Partners Fund III, L.P.	2007	7,500,000	8,049,111	19,154,991	705,107	2.47	26.9%
Aisling Capital III, LP	2008	3,500,000	3,948,241	9,005,042	344,498	2.37	26.2%
Apollo Investment Fund VII, L.P.	2008	25,000,000	30,602,334	48,300,193	3,559,035	1.69	22.5%
Ares Corporate Opportunities Fund III, L.P.	2008	10,000,000	12,213,584	24,237,386	2,053,777	2.15	20.5%
Avista Capital Partners II, L.P.	2008	10,000,000	13,150,800	20,608,240	1,428,755	1.68	14.9%
Blue Wolf Capital Fund II, L.P.	2008	3,000,000	3,252,569	3,768,005	1,211,661	1.53	9.3%
Bridgepoint Europe IV	2008	6,663,635	6,761,888	9,131,924	1,114,166	1.52	9.8%
Crestview Partners II, L.P.	2008	7,500,000	8,725,970	11,266,726	3,860,313	1.73	13.5%
CVC European Equity Partners V, L.P.	2008	13,698,512	14,796,154	26,782,831	1,704,828	1.93	16.2%
Euro Choice IV L.P.	2008	6,453,826	5,971,363	6,071,911	2,561,168	1.45	7.4%
First Reserve Fund XII, L.P.	2008	5,000,000	5,554,103	2,776,022	753,457	0.64	-10.2%
GCM Grosvenor NYCFDPF Emerging Manager Fund, L.P.	2008	8,979,798	11,530,218	10,021,649	5,860,723	1.38	9.1%
GI Partners Fund III L.P.	2008	7,500,000	8,103,000	12,636,713	95,156	1.57	13.0%
Landmark Equity Partners XIV, L.P.	2008	13,630,000	13,275,474	15,279,660	2,133,561	1.31	9.4%
Levine Leichtman Capital Partners IV, L.P.	2008	5,000,000	5,353,601	8,459,480	462,789	1.67	18.1%
Milestone Partners III, L.P.	2008	3,000,000	3,237,896	2,743,770	359,486	0.96	-0.8%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 2	2008	5,000,000	4,999,647	5,607,647	5,114,148	2.14	16.3%
NGN BioMed Opportunity II, L.P.	2008	5,000,000	4,787,955	3,336,553	2,359,885	1.19	2.6%
Onex Partners III LP	2008	5,000,000	5,468,098	7,276,734	1,840,871	1.67	12.3%
Paladin III (NY City), L.P.	2008	7,500,000	10,266,340	7,477,034	14,724,506	2.16	13.7%
Riverstone/Carlyle Global Energy & Power Fund IV, L.P.	2008	7,500,000	8,700,858	8,281,887	1,360,013	1.11	2.8%
Yucaipa American Alliance Fund II, LP	2008	15,000,000	20,587,385	19,806,022	13,655,697	1.63	8.8%
Yucaipa Corporate Initiatives Fund II, LP	2008	4,676,976	4,592,705	2,742,407	1,358,416	0.89	-1.7%
FS Equity Partners VI, L.P.	2009	12,500,000	12,565,627	29,647,079	8,864,725	3.06	24.1%
Lexington Capital Partners VII, L.P.	2009	10,000,000	8,923,109	11,715,470	2,315,836	1.57	13.9%
Lincolnshire Equity Fund IV, L.P.	2009	2,500,000	2,677,713	3,079,667	1,069,396	1.55	10.4%
NorthBound Emerging Manager Custom Fund LP	2009	5,000,000	4,366,772	5,947,330	1,383,485	1.68	13.1%
Scale Venture Partners III, LP	2009	5,000,000	4,947,453	12,750,882	1,280,552	2.84	23.0%
Welsh, Carson, Anderson & Stowe XI, L.P.	2009	7,500,000	7,500,000	9,705,620	2,569,957	1.64	12.0%
Comvest Investment Partners IV, L.P.	2010	20,000,000	20,519,080	33,015,368	3,244,977	1.77	28.5%
Snow Phipps II, L.P.	2010	7,500,000	8,701,490	6,369,935	5,472,218	1.36	8.9%

Information provided by the New York City Fire Retirement System Consultants

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Trident V, L.P.	2010	15,000,000	17,478,175	19,562,793	9,221,240	1.65	11.3%
American Securities Partners VI, L.P.	2011	20,000,000	21,477,118	32,254,614	10,335,069	1.98	21.7%
Ampersand 2011	2011	5,000,000	5,000,000	8,091,816	7,665,559	3.15	22.5%
AXA Secondary Fund V B L.P.	2011	40,000,000	32,956,743	52,273,967	622,276	1.61	15.5%
BC European Capital IX	2011	21,962,046	23,842,881	23,088,755	14,985,486	1.60	12.7%
BDCM Opportunity Fund III, L.P.	2011	10,000,000	14,392,705	6,921,533	13,357,391	1.41	8.5%
Blackstone Capital Partners VI, L.P.	2011	10,000,000	10,531,990	9,090,860	7,539,023	1.58	12.1%
EQT VI, L.P.	2011	17,734,182	18,413,092	25,293,394	6,691,721	1.74	14.2%
Pegasus Partners V, L.P.	2011	6,236,975	7,718,486	6,756,473	5,393,313	1.57	11.5%
Vista Equity Partners Fund IV, L.P.	2011	30,000,000	30,827,310	39,485,667	20,486,538	1.95	17.1%
Wellspring Capital Partners V, L.P.	2011	7,500,000	7,879,416	8,797,629	3,350,197	1.54	14.9%
Ares Corporate Opportunities Fund IV, L.P.	2012	20,000,000	21,135,475	13,203,617	19,128,339	1.53	12.6%
Green Equity Investors VI, L.P.	2012	25,000,000	26,954,142	19,073,161	28,411,241	1.76	16.1%
<u>NYCFPF - 2012 Emerging Manager Program</u>	<u>2012</u>	<u>22,700,000</u>	<u>22,864,573</u>	<u>12,222,791</u>	<u>24,712,364</u>	<u>1.62</u>	<u>15.8%</u>
Palladium Equity Partners IV, L.P.	2012	10,000,000	9,409,637	4,871,008	8,544,566	1.43	11.7%
Platinum Equity Capital Partners III, L.P.	2012	25,000,000	21,838,680	29,351,654	13,183,720	1.95	36.6%
Summit Partners Growth Equity Fund VIII-A, L.P.	2012	30,000,000	33,991,073	57,348,578	15,904,773	2.16	26.5%
Trilantic Capital Partners V L.P.	2012	10,000,000	10,955,382	10,546,646	6,171,473	1.53	17.3%
Warburg Pincus Private Equity XI, L.P.	2012	35,000,000	37,237,928	38,306,713	21,934,318	1.62	13.3%
Apollo Investment Fund VIII, L.P.	2013	40,000,000	36,781,915	17,072,904	34,478,010	1.40	12.3%
Carlyle Partners VI, L.P.	2013	20,000,000	21,141,745	9,089,622	18,908,012	1.32	10.1%
Crestview Partners III (Co-Investment B), L.P.	2013	8,000,000	8,125,363	394,887	8,664,201	1.11	4.3%
Crestview Partners III, L.P.	2013	24,000,000	16,899,969	10,241,055	12,005,301	1.32	12.0%
Landmark - NYC Fund I, L.P.	2013	9,000,000	7,636,737	5,190,651	5,691,648	1.42	14.2%
Landmark Equity Partners XV, L.P.	2013	26,000,000	19,274,998	14,180,345	10,247,683	1.27	11.6%
ASF VI B L.P.	2014	30,000,000	23,355,989	17,908,285	15,417,651	1.43	12.5%
ASF VI B NYC Co-Invest L.P.	2014	10,000,000	8,025,327	7,352,712	4,044,150	1.42	12.6%
Carlyle Partners VI, L.P. (Side Car)	2014	2,200,000	1,599,950	92,222	1,460,311	0.97	0.8%
CVC Capital Partners VI, L.P.	2014	35,228,505	35,713,856	16,066,961	36,957,579	1.48	16.0%
Lexington Capital Partners VIII, L.P.	2014	40,000,000	34,774,041	17,571,631	28,518,094	1.33	17.1%
Olympus Growth Fund VI, L.P.	2014	15,000,000	12,560,390	5,667,754	11,138,684	1.34	12.1%
Vista Equity Partners Fund V, L.P.	2014	40,000,000	46,472,765	47,994,410	39,723,532	1.89	21.8%
American Securities Partners VII, L.P.	2015	14,000,000	11,338,838	1,699,607	9,164,677	0.96	-2.2%

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
ASF VII B L.P.	2015	17,000,000	7,363,165	1,652,944	8,200,863	1.34	17.1%
ASF VII B NYC Co-Invest L.P.	2015	9,000,000	5,216,220	1,406,062	6,885,851	1.59	29.1%
Bridgepoint Europe V Co-Invest	2015	3,491,080	3,241,557	1,423,503	4,654,223	1.87	31.8%
Bridgepoint Europe V L.P.	2015	11,419,662	11,198,872	4,019,366	10,820,888	1.33	14.1%
Centerbridge Capital Partners III, L.P.	2015	4,200,000	3,434,514	1,420,825	3,292,250	1.37	16.4%
EQT VII, L.P.	2015	28,519,942	27,719,633	12,735,192	28,897,656	1.50	21.1%
<i>NYCFPF - 2015 Emerging Manager Program</i>	<i>2015</i>	<i>29,750,000</i>	<i>14,562,400</i>	<i>2,611,208</i>	<i>16,003,785</i>	<i>1.28</i>	<i>20.8%</i>
Siris Partners III, L.P.	2015	5,500,000	4,962,154	2,605,689	3,749,758	1.28	12.4%
Warburg Pincus Private Equity XII, L.P.	2015	36,000,000	33,745,876	3,397,619	39,732,840	1.28	13.9%
Welsh, Carson, Anderson & Stowe XII, L.P.	2015	14,000,000	12,498,929	5,791,458	14,726,599	1.64	26.1%
Apax IX USD, L.P.	2016	22,000,000	20,317,434	578,513	27,951,596	1.40	29.5%
Platinum Equity Capital Partners IV, L.P.	2016	19,000,000	16,256,112	4,512,993	16,915,468	1.32	22.5%
Vista Equity Partners Fund VI, L.P.	2016	28,000,000	30,592,135	6,988,561	36,233,232	1.41	17.6%
Ares Corporate Opportunities Fund V, L.P.	2017	17,000,000	14,636,816	1,596,857	14,528,667	1.10	8.7%
BC European Capital X	2017	15,913,863	10,238,311	206,607	12,084,770	1.20	15.1%
BCEC X Co-Investment	2017	6,427,329	5,929,180	-	7,658,317	1.29	21.2%
Green Equity Investors VII, L.P.	2017	17,000,000	11,861,396	152,280	14,295,746	1.22	13.4%
KKR Americas Fund XII, L.P.	2017	28,000,000	13,412,600	184,583	15,507,176	1.17	13.8%
Palladium Equity Partners V, L.P.	2017	6,666,667	1,842,901	22,230	1,545,548	0.85	NM
Warburg Pincus Financial Sector, L.P.	2017	21,000,000	11,591,022	1,071,000	11,402,033	1.08	NM
Apollo Investment Fund IX, L.P.	2018	52,000,000	9,427,865	75,957	8,444,930	0.90	NM
Bridgepoint Europe VI	2018	23,537,937	3,475,515	-	3,795,609	1.09	NM
Bridgepoint Europe VI Co-Invest	2018	5,895,243	975,594	-	1,025,435	1.05	NM
CVC Capital Partners VII, L.P.	2018	30,241,418	15,118,595	127,217	16,156,794	1.08	NM
EQT VIII Co-Investment	2018	7,933,253	4,325,311	-	4,642,582	1.07	NM
EQT VIII, L.P.	2018	21,841,119	9,638,996	268,865	10,351,246	1.10	NM
Platinum Equity Capital Partners IV Co-Investment, L.P.	2018	3,000,000	2,100,000	-	2,887,594	1.38	NM
Platinum Equity Small Cap Fund, L.P.	2018	8,000,000	1,357,224	-	848,903	0.63	NM
Siris Partners IV, L.P.	2018	18,000,000	8,278,707	-	9,695,922	1.17	NM
Vista Equity Partners Fund VII, L.P.	2018	35,500,000	8,702,999	25,692	8,388,238	0.97	NM
Apax X USD L.P.	2019	21,500,000	-	-	(149,285)	-	N/A
ASF VIII B L.P.	2019	36,000,000	2,408,447	105	3,627,018	1.51	NM
ASF VIII B NYC Co-Invest L.P.	2019	18,000,000	714,570	-	1,337,602	1.87	NM

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Blackstone Capital Partners VIII L.P.	2019	22,500,000	-	-	-	-	N/A
Crestview Partners IV (Co-Investment), L.P.	2019	4,666,667	-	-	11,970	-	NM
Crestview Partners IV, L.P.	2019	14,000,000	-	-	27,148	-	NM
KKR European Fund V (USD)	2019	17,650,000	-	-	(170,538)	-	N/A
Lexington Capital Partners IX	2019	21,375,000	1,513,775	-	2,688,460	1.78	NM
Lexington IX Co-Invest	2019	7,125,000	-	-	(7,831)	-	N/A
Lindsay Goldberg V	2019	18,000,000	-	-	-	-	N/A
<i>NYCFPF - 2019 Emerging Manager Program</i>	<i>2019</i>	<i>37,550,000</i>	<i>1,651,796</i>	<i>-</i>	<i>1,807,055</i>	<i>1.09</i>	<i>NM</i>
Platinum Equity Capital Partners V, L.P.	2019	32,000,000	109,107	-	82,610	0.76	NM
Trilantic Capital Partners VI (North America) L.P.	2019	20,000,000	4,942,547	4,425	4,409,156	0.89	NM
Warburg Pincus Global Growth, L.P.	2019	25,500,000	4,069,503	-	3,730,354	0.92	NM
Welsh, Carson, Anderson & Stowe XIII, L.P.	2019	18,000,000	132,036	-	(342,679)	(2.60)	NM
Green Equity Investors VIII Coinvest N, L.P.	2020	7,500,000	-	-	-	-	N/A
Green Equity Investors VIII, L.P.	2020	22,500,000	-	-	-	-	N/A
Platinum Equity Capital Partners V Co-Investment, L.P.	2020	8,000,000	-	-	-	-	N/A

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	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL PRIVATE REAL ESTATE			1,124,949,267	939,237,280	621,539,888	681,297,243	1.38	8.0%
TOTAL PRIVATE REAL ESTATE								
PRISA SA	2006	Core Portfolio	7,000,000	7,530,220	3,108,131	10,081,720	1.75	0.05
Prologis Targeted U.S. Logistics Fund	2006	Core Portfolio	5,000,000	6,745,383	2,439,937	10,366,071	1.90	0.06
RREEF America REIT II	2006	Core Portfolio	7,000,000	9,178,399	5,037,601	10,293,176	1.67	5.3%
UBS Trumbull Property Fund	2006	Core Portfolio	27,000,000	41,043,362	41,116,785	21,506,242	1.53	6.6%
Colony Realty Partners II	2007	Core Portfolio	5,000,000	5,355,052	1,384,970	-	0.26	-13.4%
Heitman HART	2007	Core Portfolio	9,000,000	14,867,174	5,867,174	20,143,236	1.75	7.4%
JP Morgan Special Situation Property Fund	2007	Core Portfolio	5,000,000	5,870,702	2,178,437	7,401,747	1.63	4.7%
JP Morgan Strategic Property Fund	2007	Core Portfolio	22,000,000	24,459,391	712,830	51,450,142	2.13	7.9%
PRISA II	2007	Core Portfolio	20,228,233	21,417,377	7,626,143	31,261,750	1.82	5.9%
LaSalle Property Fund	2010	Core Portfolio	48,000,000	44,259,511	12,542,329	58,894,780	1.61	10.1%
NYC Asset Investor #2 LLC	2013	Core Portfolio	9,000,000	9,038,861	3,770,524	6,818,755	1.16	7.2%
MetLife Core Property Fund	2014	Core Portfolio	41,000,000	35,470,977	4,144,101	40,146,345	1.25	9.8%
Exeter Industrial Core Club Fund II	2016	Core Portfolio	6,000,000	5,704,517	732,600	6,370,099	1.25	13.2%
Jamestown Premier Property Fund	2016	Core Portfolio	8,000,000	9,598,766	4,240,617	7,457,577	1.22	8.0%
NYCRS Artemis Co-Investment (SEM)	2016	Core Portfolio	11,000,000	12,622,943	4,847,086	10,701,047	1.23	16.2%
USAA Eagle Real Estate Fund	2016	Core Portfolio	30,000,000	27,701,598	-	31,920,166	1.15	7.3%
Brookfield Premier Real Estate Partners	2017	Core Portfolio	19,000,000	21,306,843	2,561,626	25,713,017	1.33	11.3%
Carlyle Property Investors	2017	Core Portfolio	19,000,000	20,750,717	1,986,692	22,366,501	1.17	8.1%
Lion Industrial Trust - 2007	2017	Core Portfolio	50,000,000	42,520,146	2,276,925	49,474,785	1.22	14.9%
Almanac Realty Securities VIII	2019	Core Portfolio	10,500,000	1,013,533	18,088	892,082	0.90	-25.2%
Almanac Realty Securities VIII (Sidecar II)	2019	Core Portfolio	7,000,000	705,024	17,689	740,264	1.08	20.8%
Artemis Real Estate Partners Income and Growth Fund	2019	Core Portfolio	10,000,000	1,651,666	-	1,658,396	1.00	0.8%
Harrison Street Core Property Fund, L.P.	2019	Core Portfolio	6,700,000	6,720,173	85,848	6,805,194	1.03	2.6%
Heitman Core Real Estate Debt Income Trust	2019	Core Portfolio	8,000,000	8,448,166	448,167	8,572,542	1.07	7.0%
HSRE-Centre Street Core Co-Investment, L.P.	2019	Core Portfolio	3,300,000	2,082,525	29,068	2,125,452	1.03	4.7%
Exeter Industrial Core Fund III, LP	2020	Core Portfolio	21,300,000	-	-	(56,025)	N/A	N/A
Blackstone Fund IV	2004	Non-Core Portfolio	5,000,000	6,406,782	8,882,576	188,673	1.42	10.3%
The City Investment Fund I	2004	Non-Core Portfolio	35,000,000	34,515,181	34,904,154	56,363	1.01	0.3%
Canyon Johnson Urban Fund II	2005	Non-Core Portfolio	10,000,000	8,988,710	3,974,652	33,292	0.45	-10.4%
Blackstone Real Estate Partners VI	2007	Non-Core Portfolio	10,000,000	11,170,327	21,605,229	768,764	2.00	13.3%
Carlyle Realty Partners V	2007	Non-Core Portfolio	5,000,000	6,340,865	8,256,707	974,934	1.46	8.6%
Colony Investors VIII	2007	Non-Core Portfolio	20,000,000	21,249,679	9,077,467	400,052	0.45	-11.5%
Metropolitan Workforce Housing Fund (SEM)	2007	Non-Core Portfolio	3,500,000	3,503,257	4,186,143	65,727	1.21	3.9%
AG Realty Fund VII	2008	Non-Core Portfolio	15,000,000	14,100,000	20,916,846	366,106	1.51	12.6%
American Value Partners Fund I (SEM)	2008	Non-Core Portfolio	5,000,000	3,785,294	3,413,281	389,041	1.00	0.1%

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

Alternative Assets Manager Performance Detail

Through December 31, 2019



	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Ares European Real Estate Fund III, LP	2008	Non-Core Portfolio	15,000,000	15,243,750	16,618,750	285,940	1.11	2.6%
Silverpeak Legacy Partners III	2008	Non-Core Portfolio	5,000,000	2,216,844	441,508	348,277	0.36	-10.6%
Stockbridge Real Estate Fund III	2008	Non-Core Portfolio	13,500,000	13,499,074	8,414,877	7,443,835	1.17	2.3%
Thor Urban Property Fund II	2009	Non-Core Portfolio	5,000,000	6,849,514	6,847,656	1,538,145	1.22	5.9%
Walton Street Real Estate Fund VI	2009	Non-Core Portfolio	5,000,000	4,432,393	5,072,700	1,758,093	1.54	8.5%
Blackstone Real Estate Partners Europe III (USD Vehicle)	2010	Non-Core Portfolio	5,000,000	5,213,203	6,922,958	820,931	1.49	10.9%
Westbrook Real Estate Fund VIII	2010	Non-Core Portfolio	5,000,000	5,966,709	6,889,968	927,474	1.31	11.0%
Carlyle Realty Partners VI	2011	Non-Core Portfolio	20,000,000	19,240,172	31,181,120	2,013,216	1.73	25.0%
H/2 Special Opportunities Fund II	2011	Non-Core Portfolio	10,000,000	10,000,001	14,530,678	738,493	1.53	14.1%
Blackstone Real Estate Partners VII	2012	Non-Core Portfolio	30,000,000	37,107,292	47,653,775	14,805,212	1.68	17.1%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	15,000,000	17,086,234	25,640,729	8,592,312	2.00	20.5%
Divco West Fund III	2012	Non-Core Portfolio	30,000,000	29,429,127	50,867,781	57,767	1.73	23.9%
Taconic New York City Investment Fund LP	2012	Non-Core Portfolio	20,000,000	8,363,637	13,546,356	1,365,119	1.78	15.9%
NYC Asset Investor #1 LLC	2013	Non-Core Portfolio	5,000,000	5,504,633	2,546,425	4,295,960	1.24	5.4%
NYC Asset Investor #3 LLC	2013	Non-Core Portfolio	6,000,000	3,928,278	694,670	4,713,238	1.38	9.8%
Blackstone Real Estate Partners Europe IV (USD Vehicle)	2014	Non-Core Portfolio	26,000,000	25,238,215	28,363,331	10,492,945	1.54	15.0%
Carlyle Realty Partners VII	2014	Non-Core Portfolio	15,000,000	13,496,772	12,755,558	6,864,094	1.45	16.0%
Divco West Fund IV	2014	Non-Core Portfolio	30,000,000	29,700,495	45,321,908	4,424,322	1.67	25.6%
Lone Star Real Estate Fund III	2014	Non-Core Portfolio	25,000,000	23,435,387	28,926,964	3,076,036	1.37	14.8%
Avanath Affordable Housing Fund II (SEM)	2015	Non-Core Portfolio	2,220,000	2,158,370	606,185	2,920,763	1.63	12.5%
Blackstone Real Estate Partners VIII	2015	Non-Core Portfolio	31,500,000	32,985,753	12,475,038	31,939,144	1.35	16.5%
H/2 Special Opportunities Fund III	2015	Non-Core Portfolio	15,000,000	15,000,000	12,725,138	7,263,088	1.33	11.5%
European Property Investors Special Opportunities IV (EPISO IV)	2016	Non-Core Portfolio	10,059,238	8,297,340	1,092,116	9,033,262	1.22	10.6%
PW Real Estate Fund III LP	2016	Non-Core Portfolio	9,562,261	6,628,106	2,537,409	9,601,585	1.83	34.4%
Westbrook Real Estate Fund X	2016	Non-Core Portfolio	8,000,000	6,320,679	3,143,857	4,350,145	1.19	13.5%
Divco West Fund V	2017	Non-Core Portfolio	12,000,000	6,403,357	-	7,456,147	1.16	8.1%
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	8,000,000	7,565,885	1,862,877	7,097,456	1.18	14.9%
Exeter Industrial Value Fund IV	2017	Non-Core Portfolio	10,000,000	8,500,000	-	9,838,760	1.16	13.0%
H/2 Special Opportunities Fund IV	2017	Non-Core Portfolio	19,000,000	8,058,001	-	8,925,899	1.11	9.3%
KKR CMBS B-Piece SMA	2017	Non-Core Portfolio	25,000,000	22,313,016	3,026,320	22,748,962	1.16	10.0%
Lone Star Real Estate Fund V	2017	Non-Core Portfolio	23,100,000	6,051,305	1,484,768	4,333,411	0.96	-4.5%
Pramerica Real Estate Capital VI (PRECap VI)	2017	Non-Core Portfolio	10,040,161	8,056,909	4,388,154	5,223,801	1.19	18.9%
Basis Investment Group Fund I (SEM)	2018	Non-Core Portfolio	4,100,000	1,982,772	543,849	1,778,657	1.17	13.3%
KKR Real Estate Partners Americas II	2018	Non-Core Portfolio	20,070,000	11,202,844	1,893,141	11,810,441	1.22	26.8%
AERMONT Real Estate Fund IV	2019	Non-Core Portfolio	10,271,627	1,704,296	-	1,815,014	1.06	12.4%
Blackstone Real Estate Partners IX	2019	Non-Core Portfolio	34,000,000	5,879,302	130,501	5,858,427	1.02	3.7%
Brookfield Strategic Real Estate Partners III	2019	Non-Core Portfolio	30,000,000	7,371,073	2,400	7,782,490	1.06	6.2%
Blackstone Real Estate Partners Europe VI (EURO Vehicle)	2020	Non-Core Portfolio	19,997,747	683,421	-	674,636	0.99	-1.4%

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

Alternative Assets Manager Performance Detail

Through December 31, 2019



	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
GreenOak Asia III (USD Vehicle)	2020	Non-Core Portfolio	14,000,000	-	-	(64,267)	N/A	N/A

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

Alternative Assets Manager Performance Detail

Through December 31, 2019



	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL INFRASTRUCTURE		283,164,264	143,284,689	28,805,595	149,263,475	1.24	12.6%
TOTAL INFRASTRUCTURE INVESTMENTS							
Brookfield Infrastructure Fund II, L.P.	2013	15,000,000	12,499,282	4,923,081	14,569,291	1.56	12.0%
Global Energy & Power Infrastructure Fund II	2014	10,000,000	10,063,155	7,526,790	6,585,237	1.40	28.7%
IFM Global Infrastructure Fund	2014	10,000,000	13,351,525	4,947,488	15,752,842	1.55	12.9%
KKR Global Infrastructure Investors II L.P.	2014	12,000,000	12,388,658	2,361,868	13,681,169	1.29	11.5%
Actis Energy 4	2016	12,900,000	8,549,829	1,224,896	10,098,000	1.32	21.9%
Brookfield Infrastructure Fund III, L.P.	2016	19,000,000	10,201,478	1,558,181	10,591,536	1.19	10.0%
Global Infrastructure Partners III-A/B, L.P.	2016	22,000,000	17,973,843	2,440,605	18,042,929	1.14	7.2%
ASF VII Infrastructure L.P.	2017	15,000,000	5,835,370	625,464	6,237,838	1.18	20.4%
Axiom Infrastructure North America	2017	15,220,450	15,443,678	1,321,106	15,775,975	1.11	9.6%
EQT Infrastructure III (No.2) SCSp	2017	11,262,799	10,414,381	1,021,269	11,729,848	1.22	15.8%
NYCRS EIG Energy Partners, L.P.	2017	15,300,000	3,417,907	422,699	3,357,644	1.11	9.0%
Cardinal NR Sidecar Holdings L.P.	2018	2,060,000	2,072,686	221,897	2,333,179	NM	NM
Global Energy & Power Infrastructure Fund III, L.P.	2018	17,200,000	2,900,082	137,094	3,094,479	NM	NM
KKR Global Infrastructure Investors III L.P.	2018	17,200,000	5,035,511	72,256	4,804,821	NM	NM
NYCRS EIG Energy Partners Co-Investment, L.P.	2018	3,820,000	-	-	-	NM	NM
Ardian Infrastructure Fund V B	2019	15,701,015	715,985	1	614,469	NM	NM
Brookfield Infrastructure Fund IV (BIF IV): Co-invest	2019	2,000,000	2,000,000	-	2,000,000	NM	NM
Brookfield Infrastructure Fund IV, L.P.	2019	21,000,000	6,187,101	900	6,109,857	NM	NM
EQT Infrastructure IV (No.2) USD SCSp	2019	20,000,000	3,898,068	-	3,897,515	NM	NM
EQT Infrastructure IV Co-Investment (Saber)	2019	1,800,000	-	-	-	NM	NM
Global Infrastructure Partners IV-A/B, L.P.	2019	24,700,000	336,149	-	(13,154)	NM	NM

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2020



	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
TOTAL OPPORTUNISTIC FIXED INCOME		575,318,768	634,012,302	293,384,680	502,115,293	0.35%	6.88%
Avenue Special Situations Fund V, L.P.	2007	5,052,332	5,130,079	6,706,716	-		NM
Avenue Europe Special Sit. Fund, L.P.	2008	4,891,436	4,495,867	8,970,029	-		NM
PIMCO DISCO Fund, L.P.	2008	25,000,000	25,071,292	34,076,267	-		11.23%
Torchlight Debt Opportunity Fund III, LLC	2009	15,000,000	15,991,888	23,792,157	-		13.36%
Avenue Special Situations Fund VI (A), L.P.	2011	15,000,000	15,378,545	15,272,631	1,051,161	0.00%	1.37%
GoldenTree Managed Account	2011	32,000,000	30,000,730	-	49,450,282	-0.72%	6.75%
Marathon Centre Street Partnership, L.P. - Asset Class	2011	46,875,000	76,125,000	33,000,000	68,468,109	1.69%	6.63%
AG Centre Street Partnership, L.P. - CC Asset Class	2012	35,000,000	31,850,000	9,260,636	31,867,762	0.38%	4.84%
Apollo Centre Street Partnership, L.P.	2012	50,000,000	99,329,079	49,308,947	63,747,697	1.18%	5.30%
FCO MA Centre Street L.P.	2012	30,000,000	57,861,407	39,770,923	32,729,599	0.00%	8.51%
OHA Centre Street Partnership, L.P.	2012	37,500,000	52,490,431	14,990,431	57,500,599	-0.02%	7.61%
Contrarian Centre Street Partnership, L.P. - Asset Class	2013	15,000,000	15,000,000	-	14,839,379	-2.81%	-0.21%
Oaktree Opportunities Fund IX, L.P.	2013	30,000,000	30,000,000	14,368,629	22,102,699	0.00%	3.95%
Ares Centre Street Partnership, L.P.	2014	30,000,000	27,453,659	-	41,216,246	0.71%	9.27%
Brightwood Capital Fund III, L.P.	2015	8,000,000	6,492,299	3,303,518	4,479,200	0.00%	4.94%
Torchlight Debt Opportunity Fund V, LP	2015	20,000,000	16,000,000	14,769,515	5,744,470	0.20%	11.76%
Brightwood Capital Fund IV, LP	2016	20,000,000	18,000,000	1,786,784	17,446,739	0.00%	4.86%
ICG Centre Street Partnership, L.P.	2017	30,000,000	35,064,021	17,679,916	20,055,226	0.00%	7.70%
KKR OFI SMA	2017	55,000,000	37,133,760	5,235,890	35,873,688	0.00%	10.16%
Maranon Centre Street Partnership, L.P.	2018	21,000,000	17,981,023	527,182	18,639,288	1.71%	7.83%
FCO MA Centre Street II (PF) LP	2019	30,000,000	5,565,000	-	5,509,221	0.00%	-7.47%
Torchlight Debt Fund VI, LP	2019	20,000,000	11,598,222	564,508	11,393,928	0.00%	7.18%

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

Alternative Assets Manager Performance Detail

Through March 31, 2020



	Market Value	MTD Return%	3 Month Return%	FYTD Return%	YTD Return%	1 Year Return%	3 Year Return%	ITD Return%	ITD Cumulative Return%
TOTAL HEDGE FUNDS	878,574,183	1.90%	4.68%	4.14%	4.68%	8.56%	6.39%	4.36%	45.22%
TOTAL DIRECT HEDGE FUNDS	878,385,935	1.90%	4.68%	4.14%	4.68%	8.56%	6.57%	5.19%	52.39%
FUND OF FUNDS HEDGE FUNDS	188,248	-10.94%	-10.97%	-8.53%	-10.97%	-6.96%	-1.53%	0.97%	8.83%
TOTAL DIRECT HEDGE FUNDS									
Caspian Select Credit Fund, L.P.	22,564,378	-11.90%	-12.13%	-10.65%	-12.13%	-9.07%	-1.51%	2.05%	17.45%
D.E. Shaw Composite Fund, L.L.C.	83,790,857	-0.12%	2.12%	7.07%	2.12%	8.97%	10.90%	12.58%	165.74%
Jefferies Structured Alpha Fund B, LLC	22,553,114	-6.91%	-8.36%	-8.96%	-8.36%	-9.73%		-9.07%	-9.79%
Voloridge Fund, LP	34,154,003	5.83%	-0.91%	14.32%	-0.91%	29.70%		33.38%	36.62%
Voloridge Trading Aggressive Fund, LP	12,851,031	2.51%	5.87%	18.19%	5.87%	28.89%		27.14%	29.71%
Relative Value	175,913,383	-1.47%	-1.69%	4.18%	-1.69%	8.06%	8.87%	9.30%	108.25%
AlphaQuest Original LLC	63,749,351	8.68%	17.46%	20.24%	17.46%	33.69%		9.32%	28.71%
Brevan Howard AH Fund, L.P.	118,724,422	71.40%	134.54%	78.40%	134.54%	93.49%		32.73%	128.37%
Florin Court Capital Fund	39,673,788	1.93%	2.09%	6.16%	2.09%	13.93%		11.68%	20.22%
GreshamQuant - ACAR Fund, LLC	21,927,688	5.84%	11.11%	9.64%	11.11%			9.64%	9.64%
GSA Trend Fund LP	60,463,939	3.81%	3.95%	4.04%	3.95%	7.10%		-0.67%	-1.95%
Key Square Partners LP	51,074,625	-13.82%	-15.36%	-21.15%	-15.36%	-19.71%		-7.37%	-19.51%
Pharo Gaia Fund, LTD.	54,672,736	-15.96%	-11.72%	-12.22%	-11.72%	-5.69%	4.21%	8.39%	41.79%
Pharo Macro Fund, Ltd.	39,728,356	-10.79%	-6.91%	-9.28%	-6.91%	-5.32%	3.56%	6.64%	54.33%
Tactical Trading	450,014,904	8.52%	16.40%	10.87%	16.40%	17.58%	8.70%	4.25%	41.42%
DL Partners Opportunities Fund LP	35,779,429	-9.44%	-9.36%	-9.86%	-9.36%	-11.47%		-6.74%	-9.42%
Fir Tree Value Fund, L.P.	275,163	-52.10%	-62.93%	-61.74%	-62.93%	-61.83%	-29.41%	-13.03%	-63.25%
Luxor Capital Partners Liquidating SPV, LLC.	660,246	-17.79%	-27.13%	-37.52%	-27.13%	-38.35%		-15.63%	-22.51%
Luxor Capital Partners, LP	52,827,778	-3.49%	-1.05%	3.23%	-1.05%	5.11%	10.07%	2.93%	18.33%
Perry Partners L.P.	623,406	-18.46%	-18.46%	-22.79%	-18.46%	-16.60%	-7.66%	-4.66%	-27.84%
Standard General Fund II L.P.	11,791,079	-15.32%	-20.43%	-27.37%	-20.43%	-27.48%	-4.92%	-4.43%	-13.37%
Event Driven	101,957,101	-7.58%	-7.39%	-7.13%	-7.39%	-6.93%	1.77%	1.87%	14.17%
Altimeter Partners Fund LP	23,048,311	-13.61%	-20.96%	-20.58%	-20.96%	-10.64%	5.98%	6.99%	31.78%
Gotham Targeted Neutral, LP	11,233,968	-0.68%	-7.06%	-5.95%	-7.06%	-6.45%	-2.06%	-1.66%	-8.29%
Lansdowne European Absolute Opportunities Fund, L.P.	25,354,013	-5.88%	-14.09%	-17.22%	-14.09%			-18.21%	-18.21%
SRS Partners US, LP	48,889,200	-4.08%	-1.03%	3.46%	-1.03%	8.48%	9.25%	7.72%	47.72%
Turiya Fund LP	41,975,055	-1.40%	-3.03%	2.64%	-3.03%	2.74%	-0.33%	-0.99%	-4.62%
Long/Short Equity	150,500,546	-5.03%	-7.92%	-5.79%	-7.92%	-2.65%	2.69%	3.30%	24.49%
FUND OF FUNDS HEDGE FUNDS									
Fund of Funds Hedge Funds	188,248	-10.94%	-10.97%	-8.53%	-10.97%	-6.96%	-1.53%	0.97%	8.83%

Information provided by Alpha Frontier

**New York City
Fire Department Pension Fund, Subchapter Two**

Appendix D

Footnotes

Through March 31, 2020



- The Barclays Capital Aggregate (then known as the Lehman Brothers Aggregate) was used prior to 1/1/89. Effective 1/1/89, in the Government Sector, maturities of less than 5 years were dropped from the Salomon and Lehman indices. From that date until 7/1/99 the benchmark was the NYC Core + 5, from Lehman.
- Effective 7/1/94, the NYC Core + 5 Index includes BBB rated securities.
- Effective 7/1/99, the basis of the NYC Index was changed from Lehman Brothers to Salomon. Also effective 7/1/99, only Salomon indices have been used to compare all fixed income managers.
- Effective 4/1/03, the name of the benchmark provider was changed from Salomon to Citigroup.
- Effective 7/1/09, the Core+5 program was restructured.
 - The U.S. Gov't sector benchmark Index was changed from the Citigroup Core+5 Treasury/Gov't Sponsored Index to the Citigroup Core+5 Treasury/Agency Index.
 - The Corporate and Yankee sectors were combined to form the new Investment Grade Credit sector. The benchmark for the new combined sector is the customized Citigroup Credit Index. For historical performance purposes, the old Corporate sector Index is linked to the new Credit sector Index.
 - There were no changes to the Mortgage sector Index.
 - The total Core+5 results and benchmark returns combine the three sectors. Historical total Core+5 returns continue to include the old Corporate and Yankee sector returns.
- Private market investment performance and valuations are generally reported with a quarter lag so data contained in this report does not reflect any impact from the COVID-19 outbreak.

General Notes

- Estimated management fees for public market investments are calculated on an accrual basis without adjustment for management fee caps. Alternative investment (Private Market) fees are recorded on a cash basis and are not inclusive of carried interest paid. Since not all alternative managers currently provide detailed fee disclosure, the alternative investment fees noted here are not comprehensive.
- Public Market returns are Net of Manager Fees for periods after January 2014 and Gross of investment advisory fees for other periods unless otherwise indicated.
- Public market excess returns for periods prior to 2014 are based on Gross performance.
- Private market investment performance and valuations are generally reported with a quarter lag so data contained in this report does not reflect any impact from the COVID-19 outbreak.

Page Specific

Pages 10 - 15 - Portfolio Asset Allocation

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

Pages 16 - 18 - Performance Attribution: Total Plan

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

Glossary of Terms

Through March 31, 2020



and contracts. The policy index/custom benchmark is calculated monthly based on adjusted policy weights at the beginning of each month.

The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 32.04%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI Net * 8.25%*

*International Active – Global: MSCI ACWI * 1.48%*

*Emerging Markets: MSCI Emerging Markets * 5.85%*

*International Emerging Managers FOF: MSCI ACWI Ex US IMI Net * 0.48%*

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

*Private Equity: Russell 3000 + 300 b.p. per annum * 7.00%*

*Private Real Estate – Core: NFI - ODCE Net * 3.21%*

*Private Real Estate – Non Core: NFI - ODCE Net + 200bps * 1.76%*

*Infrastructure: CPI + 4% * 1.11%*

*Hedge Funds: HFRI Fund of Funds Composite Index plus 1% * 6.00%*

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

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

*Active Government: NYC Treasury Agency + 5 * 0.00%*

*US Treasury Long Duration: FTSE Treasury 10+ * 8.48%*

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

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

Glossary of Terms

Through March 31, 2020



*Mortgage: FTSE Mortgage Index * 2.68%*

*ETI: ETI Custom Benchmark * 0.78%*

*Investment Grade Credit: NYC – Investment Grade Credit * 3.46%*

*High Yield: Bloomberg Barclays US High Yield 2% Issuer Capped * 7.81%*

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

*TIPS: BBG BARC Gbl Inf-Lk: US TIPS * 4.22%*

*Convertible Bonds: ICE BofA All US Conv Ex Mandatory * 0.00%*

*Opportunistic Fixed: OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum * 3.38%*

Page 19 – Allocation and Selection Effects - Asset Class Breakdown

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