









Common Investment Meeting (FIRE)


Schedule	Thursday, September 19, 2019 9:00 AM — 3:00 PM EDT
Venue	Office of the New York City Comptroller, 1 Centre Street, 10th Floor (Room 1005) - Northside, New York, NY 10007
Organizer	Kim Boston

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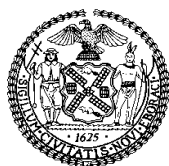
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PUBLIC SESSION

Welcome and Opening

Quarterly Fund Performance Overview:

(RISK) Excluded Companies List:



OFFICE OF NEW YORK CITY COMPTROLLER SCOTT M. STRINGER

Alex Doñé, Deputy Comptroller - Asset Management / Chief Investment Officer

Bureau of Asset Management | 1 Centre Street Room 800, New York, NY 10007-2341 | www.comptroller.nyc.gov

Telephone: (212) 669 – 3257 | Email: adone@comptroller.nyc.gov

TO: Trustees of the Teachers' Retirement System of the City of New York
 Trustees of the New York City Employees' Retirement System
 Trustees of the New York City Police Pension Fund
 Trustees of the New York City Fire Pension Fund
 Trustees of the Board of Education Retirement System of the City of New York

FROM: Miles Draycott

DATE: September 19, 2019

RE: Excluded Companies List – Annual Update

I. PURPOSE AND BACKGROUND:

The purpose of this memorandum is to provide Trustees with recommended updates to the excluded company lists (as of 6/30/2019) and to solicit Board feedback and/or decisions on the proposed changes. The excluded companies list is generated in accordance with various resolutions passed by the System's Trustees and is produced using MSCI's ESG data and screening tool.

BAM understands these resolutions to limit or prohibit investment in equity securities issued by companies engaged in the activities listed below.

Publicly-traded debt securities are issued by both publicly-owned and privately-owned companies. Data/Analytics companies such as MSCI can only obtain data detailing the revenues of publicly-owned companies. Although BAM circulates the excluded companies list to managers of Fixed Income (debt) securities, BAM cannot produce a comprehensive list of companies (publicly-owned and privately-owned) that engage in activities referred to in the resolutions passed by the trustees and which have issued debt securities.

Ex ante tracking error is the expected standard deviation of the difference between the portfolio return and the return of a benchmark. The ex-ante tracking error resulting from each resolution and the cumulative ex-ante tracking error resulting from all of the exclusions is detailed below. Please note that the cumulative tracking error resulting from all of the exclusions is de minimus for every system except NYCERS where a country screen preventing investment in China is still in place. The 64 basis points of tracking error resulting from this exclusion is material.



RISK SUMMARY	BERS	FIRE	NYCERS	POLICE	TRS
Portfolio Risk without Exclusions (%)	12.14	12.20	12.12	12.22	12.14
Active Risk by Policy Directive					
Tobacco	-	-	0.08	-	-
Thermal Coal	0.01	-	0.01	-	0.01
Civilian Firearms Manufacturers	0.00	-	0.00	-	0.00
Civilian Firearms Retailers	0.00	-	0.00	-	0.00
For-Profit Prisons	0.00	0.00	0.00	0.00	0.00
UN Sanctions	0.00	0.00	0.00	0.00	0.00
Country Screens	-	-	0.65	-	0.05
Cumulative Tracking Error	0.01	0.01	0.64	0.01	0.05
Portfolio Risk with Exclusions	12.15	12.21	12.76	12.23	12.19

II. TOBACCO

In 1998, the Board of the New York City Employees' Retirement System ("NYCERS") passed a resolution prohibiting additional purchases of tobacco stocks in passive domestic equity accounts. As of 6/30/2019 no additional shares in the six companies identified in the resolution had been purchased in the system's passive domestic equity accounts.

BAM Risk screened for U.S. companies that derive more than 50% of their revenues from any one of the four business activities classified as tobacco-related and identified three additional companies. These companies were not included in the list of excluded companies compiled in 1998, but the resolution would seem to prohibit investment in these companies. Equities issued by two of these companies are currently held in NYCERS' passive domestic equity portfolios. The results of BAM's review appear below:

ISSUER	TICKER	% Revenue from Activity as of 6/30/2019	Russell Passive Investments 6/30/19	# Shares in Russell Passive Investments 12/31/18	Suggested Action
UNIVERSAL CORPORATION	UUV	100.0	1,011	1,011	
PHILIP MORRIS INTERNATIONAL INC.	PM	100.0	306,093	306,093	
TURNING POINT BRANDS, INC.	TPB	98.0	-	-	
ALTRIA GROUP, INC.	MO	96.8	672,306	672,306	
CORE-MARK HOLDING COMPANY, INC.	CORE	77.5	2,795	2,795	
SCHWEITZER-MAUDUIT INTERNATIONAL, INC.	SWM	60.0	2,553	2,553	
VECTOR GROUP LTD.	VGR	59.4	-	-	
PYXUS INTERNATIONAL	PYX	100.0	403	-	Add
22ND CENTURY GROUP INC	XXII	100.0	29,509	-	Add
AMCON DISTRIBUTING CO	DIT	83.8	-	-	Add

BAM recommends three additions to the excluded companies list (highlighted in green): Pyxus International, 22nd Century Group, Inc., and Amcon Distributing Co.



The ex-ante tracking error resulting from the above resolution is set out below:

Tracking Error Impact from Tobacco Exclusion				
BERS	FIRE	NYCERS	POLICE	TRS
-	-	0.08%	-	-

BAM's recommends three additions and no deletions to NYCERS' excluded companies list.

III. THERMAL COAL

In a resolution passed in 2015, the Boards of NYCERS, TRS and BERS prohibited investment in companies engaged in the extraction of thermal coal. The following list shows companies currently deriving at least 50% of revenues from the extraction of thermal coal -- and companies previously thought to derive at least 50% of their revenues from this business activity.



ISSUER	TICKER	% Revenue from Activity as of 6/30/2019	Suggested Action
PT BUMI RESOURCES TBK	BUMI	99.4	
LUBELSKI WEGIEL BOGDANKA SA	LWB	97.2	
EXXARO RESOURCES LIMITED	EXX	96.1	
PT DELTA DUNIA MAKMUR TBK	DOID	95.0	
INNER MONGOLIA YITAI COAL CO., LTD	900948	94.6	
WASHINGTON H. SOUL PATTINSON AND COMPANY LIMITED	SOL	89.3	
COAL INDIA LTD	COALINDIA	87.8	
AGRITRADE RESOURCES LIMITED	1131	86.5	
CONSOL ENERGY INC.	CEIX	84.3	
PT ADARO ENERGY TBK	ADRO	83.4	
WHITEHAVEN COAL LIMITED	WHC	80.5	
GUJARAT MINERAL DEVELOPMENT CORPORATION LIMITED	GMDCLTD	78.4	
BANPU PUBLIC COMPANY LIMITED	BANPU	78.0	
CLOUD PEAK ENERGY INC.	CLDPQ	72.3	
PEABODY ENERGY CORPORATION	BTU	70.7	
YANZHOU COAL MINING COMPANY LIMITED	600188	68.5	
ARCH COAL, INC.	ARCH	57.2	
PT UNITED TRACTORS TBK	UNTR	56.9	
SEMIRARA MINING AND POWER CORP	SCC	55.2	
ALLIANCE RESOURCE PARTNERS, L.P.	ARLP	93.0	Add
FORESIGHT ENERGY LP	FELP	98.9	Add
GEO ENERGY RESOURCES LIMITED	RE4	98.3	Add
NEW HOPE CORPORATION LIMITED	NHC	97.3	Add
BUKIT ASAM TBK PT	PTBA	96.7	Add
YANG QUAN COAL INDUSTRY (GROUP) CO., LTD.	600348	75.3	Add
INDIKA ENERGY TBK PT	PNKGF	**	Delete
INDO TAMBANGRAYA MEGAH	PTIZF	**	Keep
TAMBANG BATUBARA BUKIT	PBATF	**	Keep
HARGREAVES SERVICES PLC	HSP	**	Keep
HALLADOR ENERGY COMPANY	HNRG	**	Keep
PT HARUM ENERGY TBK	HRUM	**	Keep
THE LANNA RESOURCES PUBLIC CO. LTD	LANNA-R	**	Keep
WESTMORELAND COAL COMPANY	WLBAQ	**	Keep

BAM recommends six additions to the excluded companies list (highlighted in green): Alliance Resource Partners, LP, Foresight Energy, LP, Geo Energy Resources Limited, New Hope Corporation Limited, Bukit Asam TBK PT, and Yang Quan Coal Industry (Group) Co., Ltd.

In addition, BAM recommends one deletion from the list (highlighted in red): Indika Energy TBK PT. Analysis of this company using the MSCI data/screening tool suggests that the company now derives less than 50% of its revenues from the extraction of thermal coal. As a result, BAM is now recommending that they be dropped from the list.



Finally, MSCI no longer provides coverage for seven companies previously on the list (highlighted in yellow): Indo Tambangraya Megah, Tambang Batubara Bukit, Hargreaves Services, PLC, Hallador Energy Company, PT Harum Energy Tbk, The Lanna Resources Public Co., Ltd. and Westmoreland Coal Company. Based on information observed on Bloomberg and/or corporate websites, BAM believes it unlikely that these companies have changed their business model. BAM believes that they continue to be engaged in, and derive the majority of their revenues from, the extraction of thermal coal. BAM recommends that those companies remain on the list.

The ex-ante tracking error resulting from the above resolution is set out below:

Tracking Error Impact from Thermal Coal Divestment				
BERS	FIRE	NYCERS	POLICE	TRS
0.01%	-	0.01%	-	0.01%

IV. CIVILIAN FIREARMS MANUFACTURERS

In a 2013 resolution, the Boards of NYCERS, TRS and BERS prohibited investment in companies engaged in the manufacture of civilian firearms. The following list shows companies deriving at least 5% of their revenues from this business activity.

ISSUER	TICKER	% Revenue from Activity as of 6/30/2019	Suggested Action
REMINGTON ARMS COMPANY, LLC	REMIG	90.0	
STURM RUGER & COMPANY INC.	RGR	80.0	
AMERICAN OUTDOOR BRANDS CORPORATION	AOBC	75.0	
MIROKU CORPORATION	7983	62.8	
COLT DEFENSE LLC	COESE	45.0	
SIG SAUER INC.	SIGSR	45.0	
VISTA OUTDOOR INC.	VSTO	45.0	
FORJAS TAURUS SA	FJTA3	44.0	
VERNEY CARRON SA	MLVER	35.0	
HECKLER & KOCH GMBH	HK	20.0	
POONGSAN CORPORATION	103140	12.0	
OLIN CORPORATION	OLN	10.0	
IZHEVSKIY MASHZAVOD OAO	ROSTE	10.0	
HOWA MACHINERY, LTD.	6203	10.0	
CLARUS CORPORATION	CLAR	5.0	
NORTHROP GRUMMAN INNOVATIONS SYSTEMS, INC.	NOC	5.0	Add
S&T MOTIV CO., LTD.	064960	5.0	Add



BAM recommends two additions to the excluded companies list (highlighted in green), Northrup Grumman Innovations Systems, INC., and S&T Motiv Co., Ltd., as revenues derived from the manufacture of civilian firearms exceed the 5% threshold.

The ex-ante tracking error resulting from the above resolution is set out below:

Tracking Error Impact from Civilian Firearms Manufacturers Divestment				
BERS	FIRE	NYCERS	POLICE	TRS
0.00%	-	0.00%	-	0.00%

V. CIVILIAN FIREARMS RETAILERS

In a 2016 resolution, the Boards of NYCERS, TRS and BERS prohibited investment in companies engaged in the retail sale of civilian firearms. The following list shows companies deriving at least 5% of their revenues from this business activity.

ISSUER	TICKER	% Revenue from Activity as of 6/30/2019	Suggested Action
DICK'S SPORTING GOODS, INC.	DKS	5.0	
SPORTSMAN'S WAREHOUSE HOLDINGS, INC.	SPWH	15.0	Add
CABELA'S INCORPORATED	BSGRP	5.0	Add
BIG 5 SPORTING GOODS CORPORATION	BGFV	2.0	Delete
VISTA OUTDOOR INC.	VSTO	**	Delete

BAM recommends two additions to the excluded companies list: Cabela's Inc. and Sportsman's Warehouse Holdings, Inc. (highlighted in green), as revenue from the retail sale of civilian firearms exceeds the 5% threshold.

BAM also recommends two deletions from the list (highlighted in red): Big 5 Sporting Goods Corp. and Vista Outdoor Inc., since revenue from the retail sale of civilian firearms has fallen below the 5% threshold.

The ex-ante tracking error resulting from the above resolution is set out below:



Tracking Error Impact from Civilian Firearms Retailers Divestment				
BERS	FIRE	NYCERS	POLICE	TRS
0.00%	-	0.00%	-	0.00%

VI. FOR-PROFIT PRISONS

In a 2017 resolution, the Boards of NYCERS, POLICE, FIRE, TRS and BERS prohibited investment in companies engaged in the operation of incarceration facilities. The following list shows companies deriving at least 20% of their revenues from this business activity.

ISSUER	TICKER	% Revenue from Activity as of 6/30/2019	Suggested Action
CORECIVIC, INC.	CXW	97.4	
THE GEO GROUP, INC.	GEO	75.0	
G4S PLC	GFS	1.0	Delete

BAM recommends one deletion from the excluded companies list, G4S (highlighted in red), as revenue derived from the operation of private incarceration facilities has dropped below the 20% threshold.

The ex-ante tracking error resulting from the above resolution is set out below:

Tracking Error Impact from For-Profit Prisons Divestment				
BERS	FIRE	NYCERS	POLICE	TRS
0.00%	0.00%	0.00%	0.00%	0.00%

VII. UN Sanctions

In a 2008 resolution and subsequent 2009 investment directive, the Boards of NYCERS, POLICE, FIRE, TRS and BERS prohibited investment in two companies found to be non-compliant with UN sanctions on Iran and Sudan and which were also non-responsive to repeated requests for information from the Comptroller and other institutional investors. These companies are listed below:



ISSUER	COUNTRY	TICKER
PETROCHINA COMPANY LIMITED	CN	601857
OIL AND NATURAL GAS CORPORATION LIMITED	IN	ONGC

The ex-ante tracking error resulting from the above resolution is set out below:

Tracking Error Impact from UN Sanctions Exclusion				
BERS	FIRE	NYCERS	POLICE	TRS
0.00%	0.00%	0.00%	0.00%	0.00%

VIII. Country Screens

In a 2006 resolution, the Boards of NYCERS and TRS prohibited investment in any company incorporated in China, Russia or Pakistan. In June of this year, TRS's policy was revised to only prohibit investment in companies incorporated in China, Russia or Pakistan with poor rankings relative to the UN Global Compact Principles and controversies. As a result, the TRS trustees recently approved adding the following companies to TRS's excluded companies list:

ISSUER	COUNTRY	TICKER
PETROCHINA COMPANY LIMITED	CN	601857
ZIJIN MINING GROUP COMPANY LIMITED	CN	601899
JIANGXI COPPER COMPANY LIMITED	CN	600362
CHINA PETROLEUM & CHEMICAL CORPORATION	CN	600028
ZTE CORPORATION	CN	000063
AVICHINA INDUSTRY & TECHNOLOGY COMPANY LIMITED	CN	2357
CHINA RAILWAY GROUP LIMITED	CN	601390
CHINA SOUTHERN AIRLINES COMPANY LIMITED	CN	600029
ALUMINUM CORPORATION OF CHINA LIMITED	CN	601600
CHINA EASTERN AIRLINES CORPORATION LIMITED	CN	600115
SEVERSTAL' PAO	RU	CHMF
PJSC MMC NORILSK NICKEL	RU	GMKN
GAZPROM PAO	RU	GAZP
HABIB BANK LIMITED	PK	HLB



At present NYCERS retains the country screen which prohibits investment in every company incorporated in China, Russia and Pakistan.

The ex-ante tracking error resulting from the above resolution is set out below:

Tracking Error Impact from Country Screens Exclusion				
BERS	FIRE	NYCERS	POLICE	TRS
-	-	0.65%	-	0.05%

DISCLOSURES

The information contained in this memo is confidential, may not be distributed to unauthorized persons, and may contain material non-public information pertaining to certain investment activities and portfolio companies. Federal, state, and/or foreign securities laws prohibit any person who has received such information from purchasing or selling such securities based on material non-public information or from communicating such information to any other person under circumstances in which it is reasonably foreseeable that such person is likely to purchase or sell such securities.



Fire

Exclusion Category	Asset Name	Security Ticker
For Profit Prison Companies	CORECIVIC, INC.	CXW
For Profit Prison Companies	THE GEO GROUP, INC.	GEO
Iran / Sudan	OIL AND NATURAL GAS CORPORATION LIMITED	ONG
Iran / Sudan	PETROCHINA COMPANY LIMITED	PETROCHINA

The above list replaces all prior instruction relating to the divestment of for profit prison companies and investment in Iran and Sudan. All managers of public equity or fixed-income accounts for the New York City Fire Pension Fund are hereby directed: (i) to sell as soon as practicable and in an orderly manner any holdings of the companies listed above, and (ii) to not buy in the future any securities of any kind of the companies listed above.

SUPPLEMENTAL MATERIAL - PERFORMANCE REPORTING (Public):

Total Fund Overview (Public):



New York City
Fire Department Pension Fund, Subchapter Two
Performance Overview as of June 30, 2019

Total Fund Overview



New York City Fire Department Pension Fund, Subchapter Two

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Broad Market Commentary

Financial markets the world over have posted a string of impressive wins so far this year, much like the reigning World Cup champions, the United States women's soccer team. Something else they have in common: the unequal distribution of earnings. For instance, within equities, the S&P 500 Index, which breached a new high of 3000 points, is far outpacing international stocks with its year-to-date returns of over 18%. To this end, just as the US women's soccer team's stellar performance reinforces the case for pay equity and equal treatment, we remind investors to use their gains from high-performing assets to rebalance their portfolios. Our recommendation to rebalance comes amid a clash in sentiment as investors oscillate between a buoyant stock market and pessimistic economic signals from the bond market. These seemingly contradictory points of view have fueled robust gains in interest-rate markets, an unusual occurrence caused by sovereign bond yields declining the world over even as risk assets show little sign of faltering. At NEPC, we believe these mixed signals are the new normal. We see no meaningful signs of an impending US recession and find the current investment dynamic to be a common characteristic of the late stage of an economic cycle. In addition to rebalancing gains from US equities, we recommend potentially trimming exposure to non-US developed equities where risks are tilted more to the downside, especially in Europe. Where appropriate, we believe holding total equity exposure marginally below strategic targets is a sensible posture, given the disparate messages from equity and bond markets.

In fixed income, we advocate reducing exposure to lower-quality credit amid a substantive decline in credit spreads since the beginning of the year. In addition, we recommend assets that serve as dry powder in times of market stress, for instance, Treasuries, cash equivalents and shorter-term maturities in safe haven debt. With the US yield curve remaining flat and inverted at certain points, we encourage a shorter duration bias for non-LDI investors with Treasuries yielding around 2% across most parts of the yield curve.

Moving to emerging markets, we maintain an overweight posture in equities and are supportive of increasing the relative size of emerging stocks compared to total equity exposure as developed market positions in the portfolio are rebalanced. We are optimistic of some form of resolution to the ongoing trade dispute between the United States and China, and we believe even a narrow agreement between the two nations will remove a headwind for stocks in emerging markets and Asia.

Our message is a bit more defensive as we encourage investors to harvest the stellar returns reaped so far in 2019. With global equity and interest-rate markets posting strong gains this year, we revert to a simple principle of reducing exposure to assets that have exceeded expectations. Specifically, we encourage investors to cut back on lower-quality credit and rebalance equity exposure by paring positions in developed markets. We still find emerging market stocks promising and maintain our overweight position on them. At the same time, we encourage investors to consider assets that can serve as dry powder in times of market stress. To this end, we remind investors of the benefits of a diversified and balanced portfolio as risks associated with the late stage of an



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economic cycle are skewed towards the negative but can offer positive returns for investors for an extended period before the final whistle is blown.

Equity Markets

In the US, large-cap financials led the charge with returns of 8.4% in the second quarter. The MSCI ACWI Index increased 3.6%, with financials up 6.6%; energy was the only outlier, losing 0.8%. During the same period, the HFRI Equity Hedge Index gained 1.7%. There was a wide dispersion in the performance of emerging markets hedge funds with those concentrating on India and China taking the biggest hits, losing 1.5% and 1.6%, respectively; strategies focused on Eastern Europe and Latin America led with returns of 7.2% and 4.4%, respectively. Earnings for S&P 500 companies for the second quarter are estimated to fall 3.0% from a year ago; this forecast comes on the back of a 4.1% fall in the second quarter, according to FactSet data. The last time around earnings were down two consecutive quarters was in 2016. We continue to closely monitor growth estimates and valuation multiples.

In private equity, fundraising totaled \$111.5 billion in the second quarter, just shy of the \$113.1 billion raised in the previous quarter, and lower than the quarterly one-, three- and five-year averages, according to data provider Preqin. Additionally, the number of funds raised, at 267, was the lowest since 2013. While the current pace of fundraising is on track to match the total dollar amount raised last year, the number of funds is expected to shrink by a fourth at the present rate. For the three months ended June 30, the value of US buyouts—a combination of confirmed and yetto-close deals—rebounded from the second quarter to \$160.4 billion as transactions totaling \$2.5 billion or more accounted for 26% of deal activity, according to data from PitchBook.

In venture capital, funds invested, at \$31.5 billion, were down from \$34.5 billion in the second quarter, but they were still higher than recent averages, according to PitchBook. Buyout exits totaled a lackluster \$62.0 billion in the second quarter. In contrast, venture exits hit a new high of \$138.3 billion during the same period, bringing total liquidity this year to \$188.4 billion while surpassing 2018's record of \$127.2 billion; the main driver of this wave of liquidity were the hefty IPOs—all over \$10 billion—of Lyft, Uber, Slack, Pinterest and Zoom Video.

Fixed Income Markets

In fixed income, spreads for investment-grade credit were little changed, at 119 basis points, amid steady demand. In contrast, spreads on the riskier CCC-rated segment of high-yield debt widened as much as 70 basis points, underscoring investor concerns around credit risk associated with the late stage of an economic cycle.

The Bloomberg Barclays Aggregate and the Bloomberg Barclays US Long Treasury indexes were up 3.1% and 6.0%, respectively, in the second quarter. The Bloomberg Barclays High Yield Index gained 2.5% and leveraged loans returned 1.6%, according to the S&P LSTA Leveraged Loan Index. Net outflows continued for high yield and levered loan funds, while investment-grade funds experienced net inflows during the quarter. In the same period,



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credit hedge funds maintained their positive trajectory with the HFRI ED: Credit Arbitrage Index gaining 3.1% and the HFRI ED: Distressed/Restructuring Index up 1.8%.

Outside the US, emerging market debt rallied with local currency-denominated debt posting a return of 5.6% for the quarter. External emerging market sovereign debt continued its strong run, returning 4.4% for the quarter. Valuations and fundamentals remain favorable for emerging economies given the Federal Reserve's more dovish stance. That said, we believe current spread levels do not fully reflect the underlying credit risks in the market, increasing the appeal of safe-haven fixed-income assets. The significant growth of credit markets since the financial crisis, accompanied by deteriorating credit quality and increasing amounts of leverage, may eventually attract investors of distressed debt. Niche lending emerging market debt (local), and investment grade collateralized loan obligations (IG-CLOs) offer the potential for risk compensation given their structural nuances and opportunity for credit selection.

Real Assets

Publicly-traded real assets were volatile, but ultimately positive, in the second quarter with a modest retreat by the Bloomberg Commodity Index. The price of WTI Crude Oil was moderately down and natural gas posted losses of 13% for the three months ended June 30. Industrial metals gave up gains on concerns around the ongoing trade dispute between the United States and China.

Equities in the energy, agriculture, and metals and mining sectors were up 0.4%, 1.3% and 2.0%, respectively. We remain positive on natural resource equities, believing that these securities offer more efficient exposure to commodity markets. Midstream energy was modestly positive for the quarter as investors weighed improving fundamentals with compressing yields after a strong showing in the second quarter. NEPC continues to be constructive on the long-term macro drivers for the sector, as a chunk of North America's oil and gas infrastructure needs to be constructed and/or redeveloped. Meanwhile, in real estate, real estate investment trusts (REITs) were up 1.7% in the second quarter, according to the FTSE

NAREIT Equity REITs Index, bolstered by strong fundamentals and softening long-term interest rates. All subsectors were in the black, with the exceptions of retail and office. Property types with strong secular trends, for instance, industrial and data centers, remain to be strong performers. Overall, REITs ended the second quarter trading at a 14% premium to net asset values; however, a wide dispersion in valuations within property types remains.



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Performance (net of fees)

For the second quarter, the Fund returned 3.39%, underperforming the policy index return by 82 basis points. Over the trailing 3-year period, the Fund returned 9.72% versus the index return of 9.50%, outperforming the index by 22 basis points.

Equity Composite (net of fees)

At the end of the quarter, the Fund held \$9.36 billion (64.58%) in equity securities. The total equity composite returned 3.47% for the quarter.

For the quarter, the portfolio held \$4.26 billion (29.36% of the total fund) in domestic equity assets. The Total Domestic Equity Portfolio returned 3.84%, lagging the Russell 3000 Index return of 4.10% by 26 basis points. The domestic equity portfolio is lagging its index by 21 basis points for the 3-year period. For the quarter, the best performing portfolio within the domestic equity composite was the small cap portfolio. The small cap portfolio bested its index by 111 basis points. For the same period, the worst performing portfolio was the mid cap portfolio, which lagged its index by 195 basis points.

For the quarter, the portfolio held \$1.21 billion (8.34% of the total fund) in World ex-USA equity Assets. The Total World ex-USA Equity Portfolio returned 3.30%, lagging its index which returned of 3.50%, by 20 basis points. For the quarter, the best performing portfolio within the international equity composite was the World ex-US fund of fund portfolio, which bested its index by 122 basis points. Alternatively, the worst performing active composite was the large/mid portfolio which lagged its index by 38 basis points for the quarter.

During the quarter, the portfolio held \$219 million (1.51% of the total fund) in global equities. The global equity composite bested its index, which returned 3.61%, by 288 basis points for the quarter.

Fixed Income Composite (net of fees)

At the end of the quarter, the Fund held \$5.14 billion (35.42% of the total fund) in fixed income securities. The Total Fixed Income portfolio returned 3.22% for the quarter. For the 3 year period, the portfolio has posted a return of 4.04%. For the quarter, the worst performing composite was the convertible debt portfolio, which lagged its index by 195 basis points. The targeted investments portfolio was the best performing composite, this composite bested its index by 76 basis points.

Real Estate and Infrastructure Composites

For the quarter, the Fund had \$184 million (1.27% of the total fund) in Real Estate Equity Securities ("REIT"). For the quarter, the REIT portfolio returned 0.57% (net of fees), outperforming its index by 25 basis points.



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For the quarter, the Fund had \$613 million (4.23% of the total fund) in private real estate investments. For the quarter, the real estate portfolio returned 2.12% (time weighted), outperforming the NCREIF NFI-ODCE Net + 100 basis points index, by 110 basis points.

For the quarter, the Fund had \$126 million (0.87% of the total fund) in private infrastructure investments. For the second quarter, the infrastructure portfolio returned 3.59% (time weighted), outperforming CPI + 4% index, by 215 basis points.

Private Equity Composites (time weighted)

The Fund held \$943 million (6.50% of the total fund) in private equity investments. For the quarter, the private equity portfolio returned 5.10%, lagging its index by 976 basis points.

NYC's Total HF Allocations (Direct + FoHF):

The allocation to hedge funds as of June 30, 2019 was \$767.6 million, 5.3% of the total fund. In the second quarter, the direct hedge fund portfolio generated positive returns of 3.96%. The direct hedge fund portfolio outperformed both hedge fund benchmarks (i) the HFRI FOF Composite Index + 1% return of 1.75%, and (ii) the 1 Yr. T-bill yield + 4% return of 1.88%.

As of June 30, 2019, the fund has received nearly all its full redemption from its fund of hedge fund investment. Less than 10 basis points of exposure remains.

NYC's Tactical Portfolio:

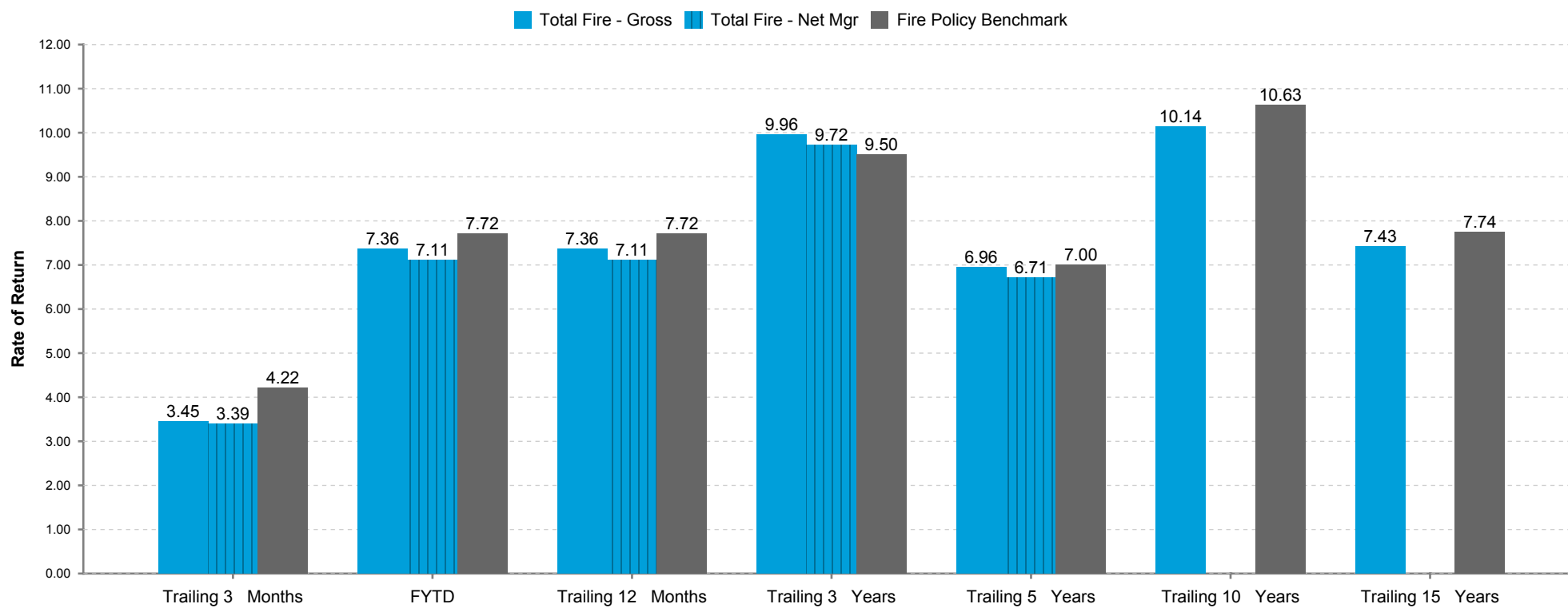
The allocation to the tactical trade as of June 30, 2019 was \$86.3 million, 0.6% of the total fund. In the second quarter, the tactical trade generated positive returns of 5.8%. The tactical trade outperformed the Russell 3000 benchmark, which returned 4.1%.

Note: 1Yr. T-bill + 4% calculated using Barclays U.S. Treasury: 1-3 Year + 4%

Market Value (Billions)

\$14.5

TOTAL FIRE

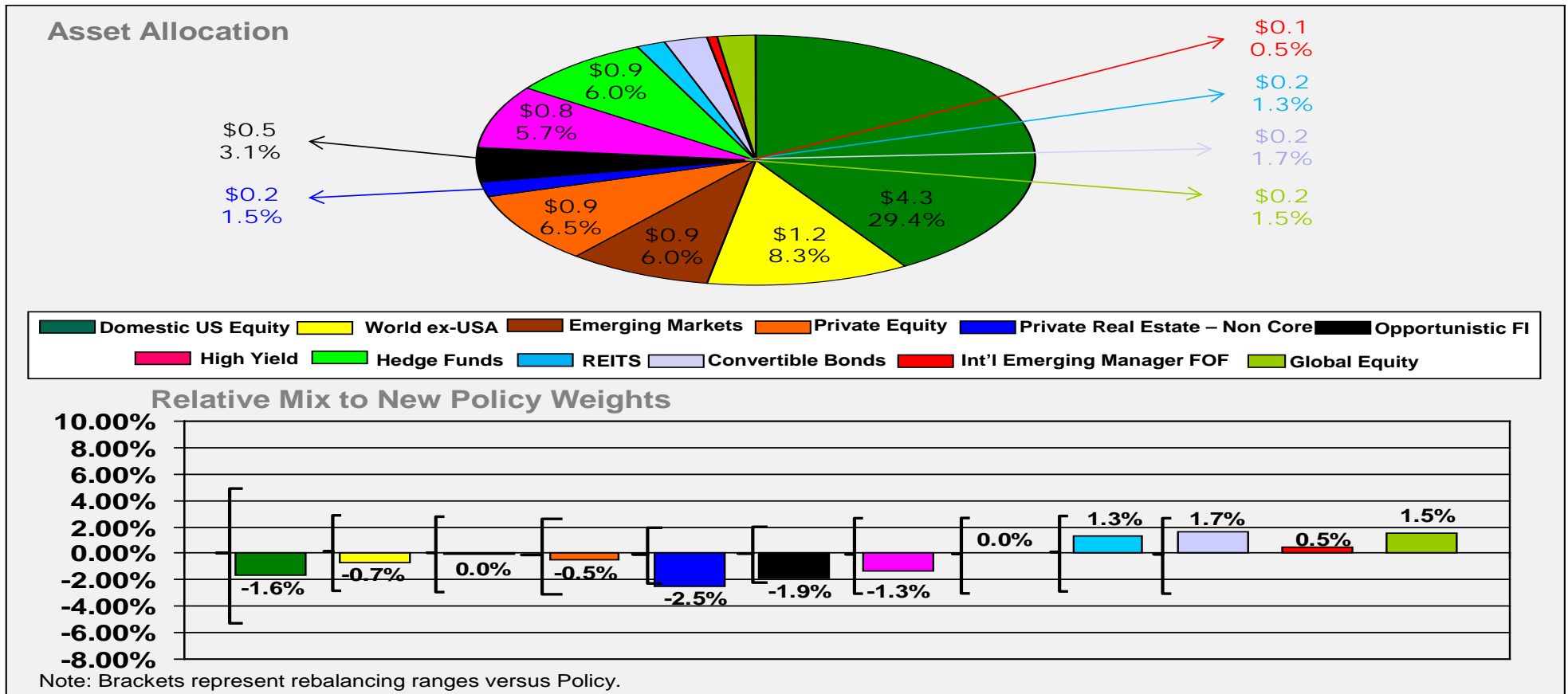


	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation						
TOTAL FIRE	5.9	6.1	7.0	6.2	7.7	8.2



Portfolio Asset Allocation: June 30, 2019

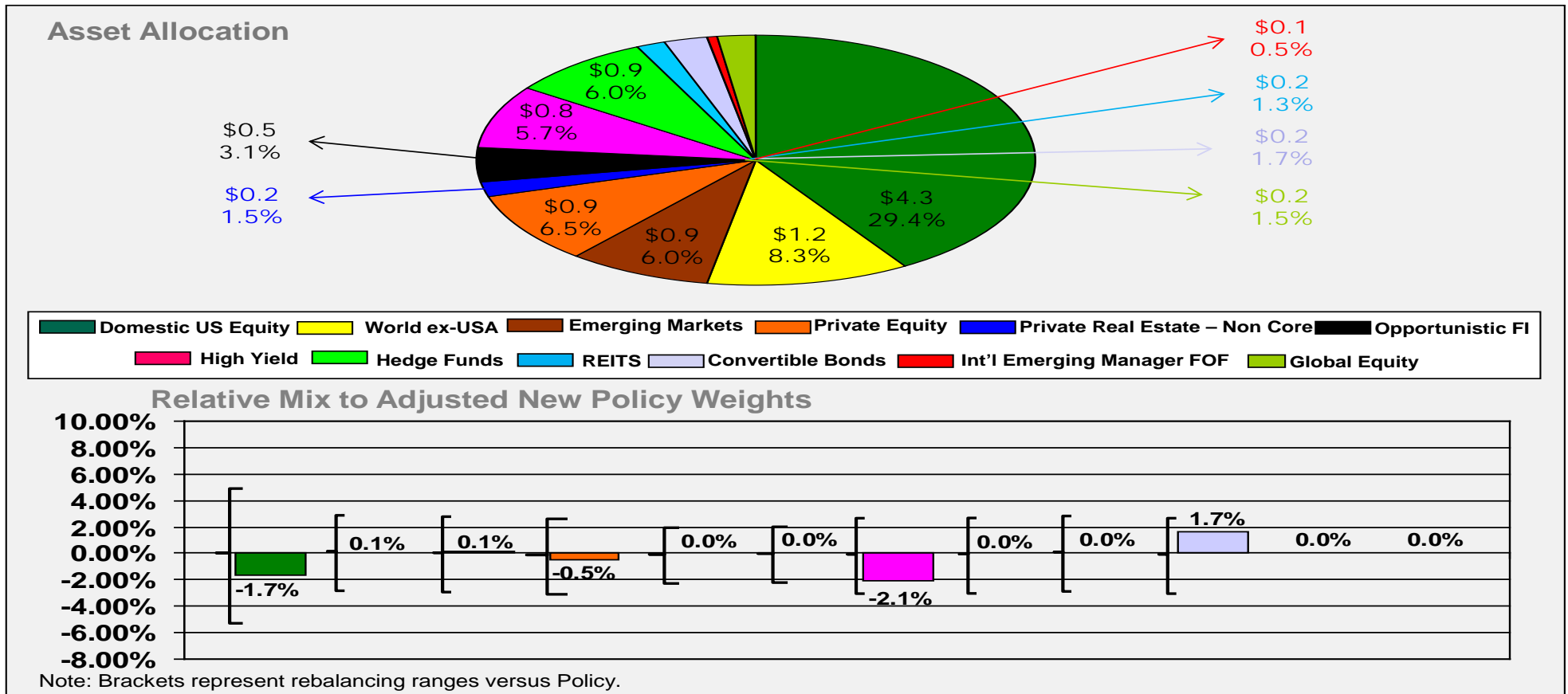
Portfolio Asset Allocation – Growth





Portfolio Asset Allocation: June 30, 2019

Portfolio Asset Allocation – Growth

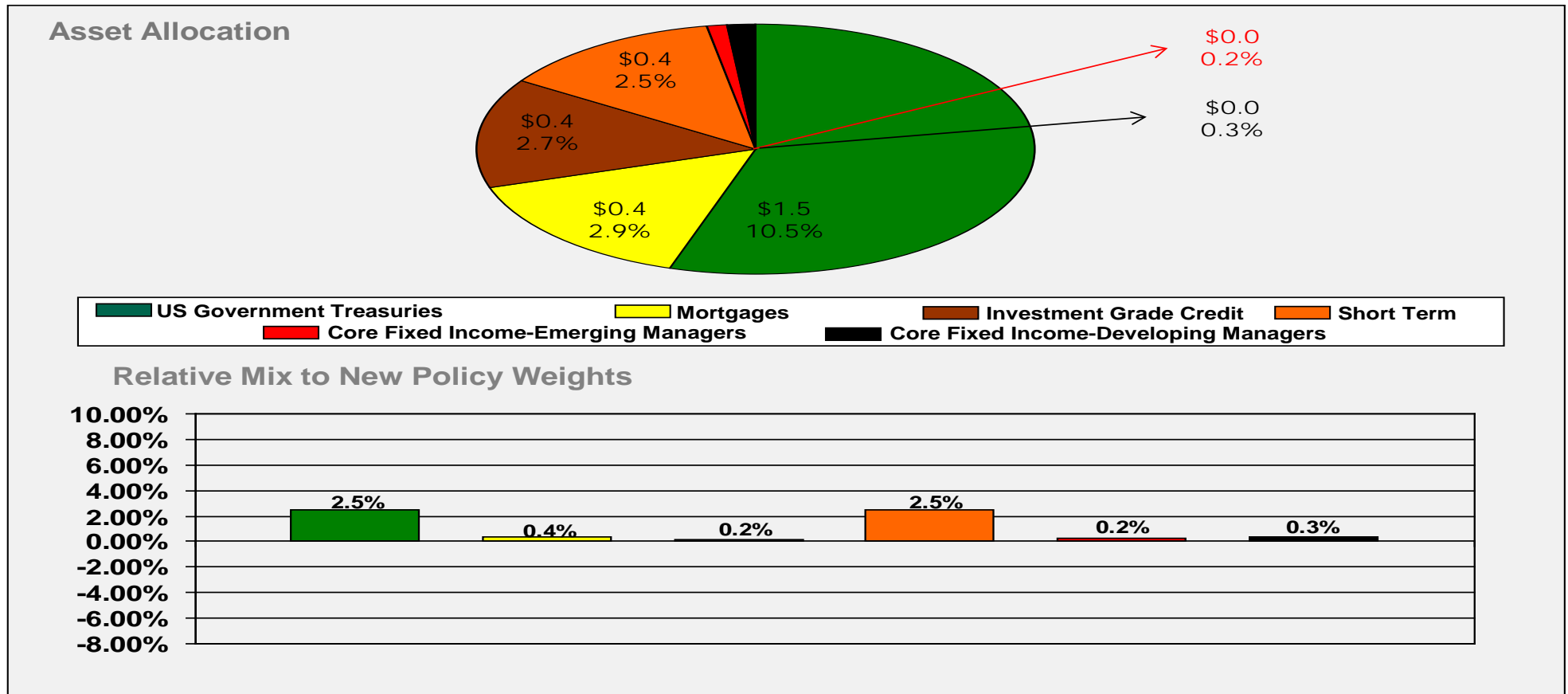


Note: On June 28, 2019 Fire's combined Fixed Income and Cash portfolios have a duration of 6.8 years. The duration of the Barclays US Aggregate Index was 5.7 years on that date.



Portfolio Asset Allocation: June 30, 2019

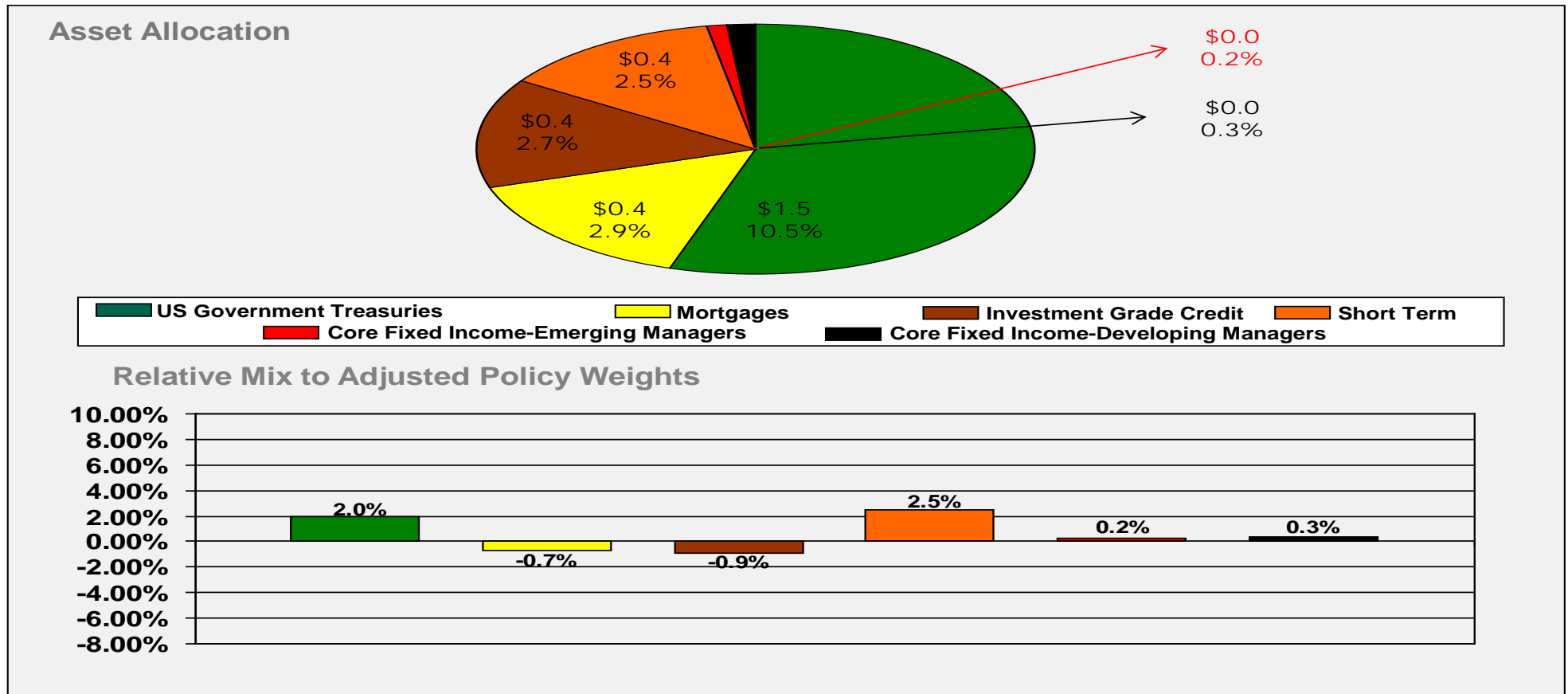
Portfolio Asset Allocation – Deflation Protection





Portfolio Asset Allocation: June 30, 2019

Portfolio Asset Allocation – Deflation Protection



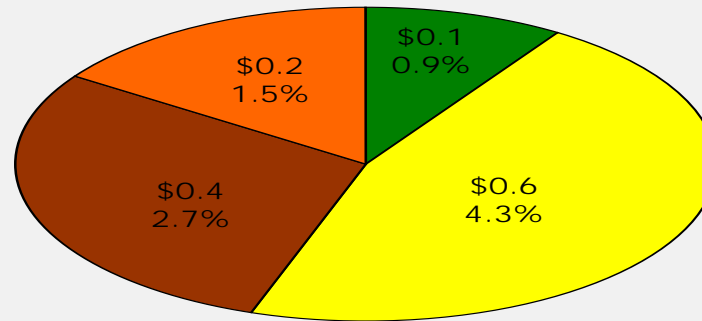
Note: On June 28, 2019 Fire's combined Fixed Income and Cash portfolios have a duration of 6.8 years. The duration of the Barclays US Aggregate Index was 5.7 years on that date.



Portfolio Asset Allocation: June 30, 2019

Portfolio Asset Allocation – Inflation Protection

Asset Allocation



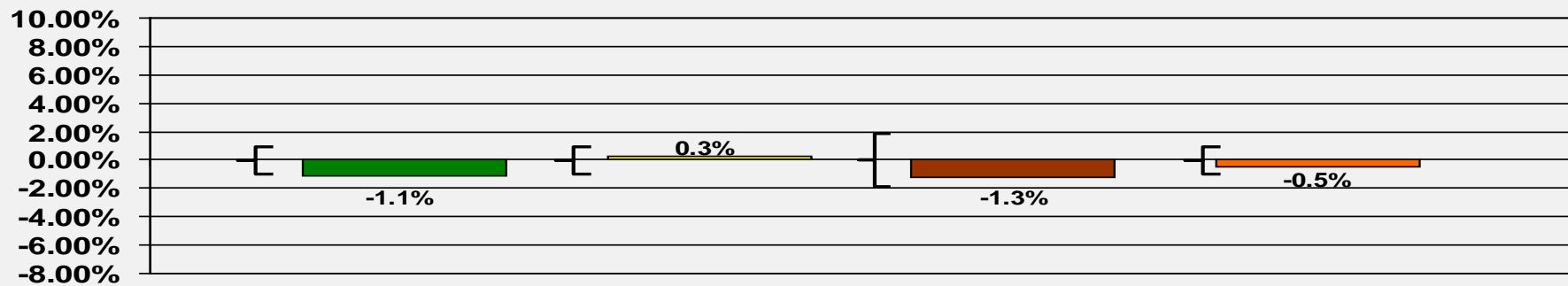
Infrastructure

US TIPS

Real Estate - Core

Bank Loans

Relative Mix to New Policy Weights

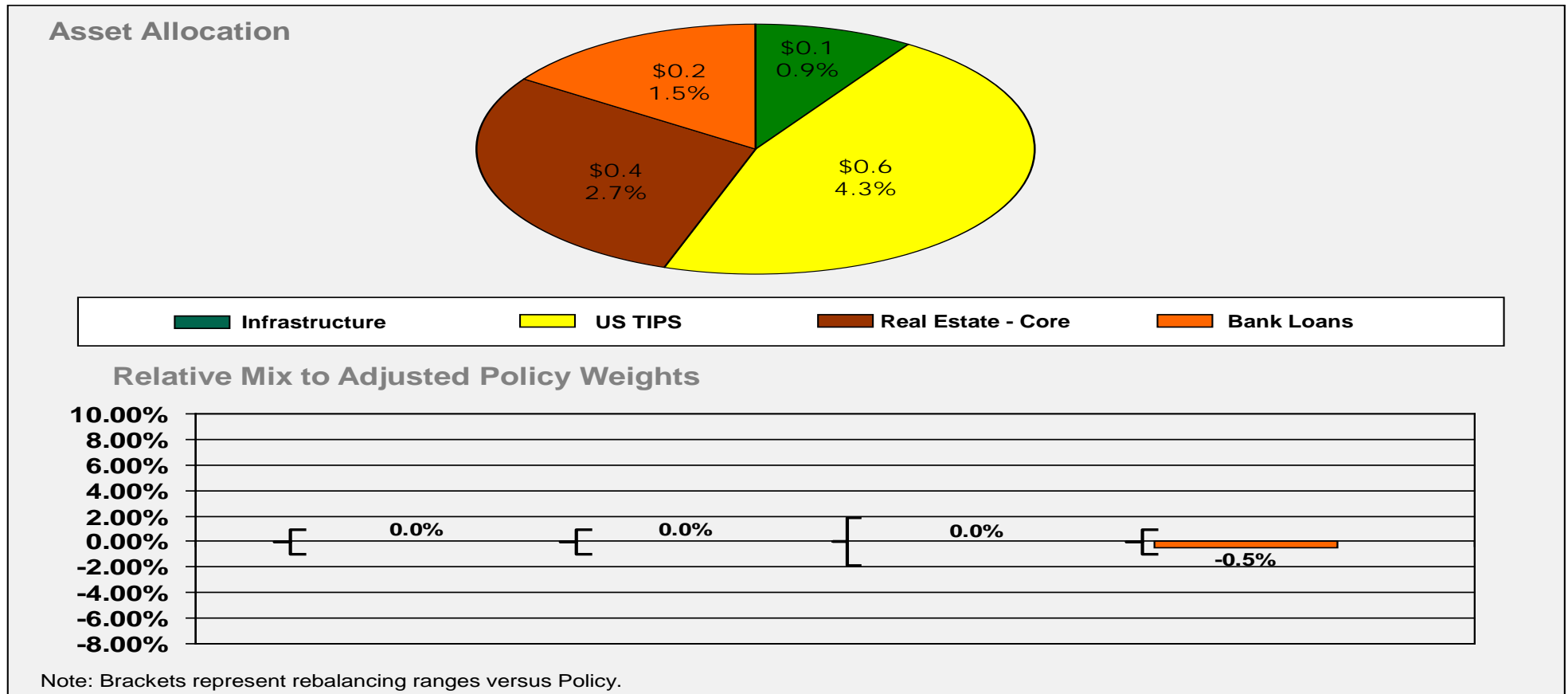


Note: Brackets represent rebalancing ranges versus Policy.

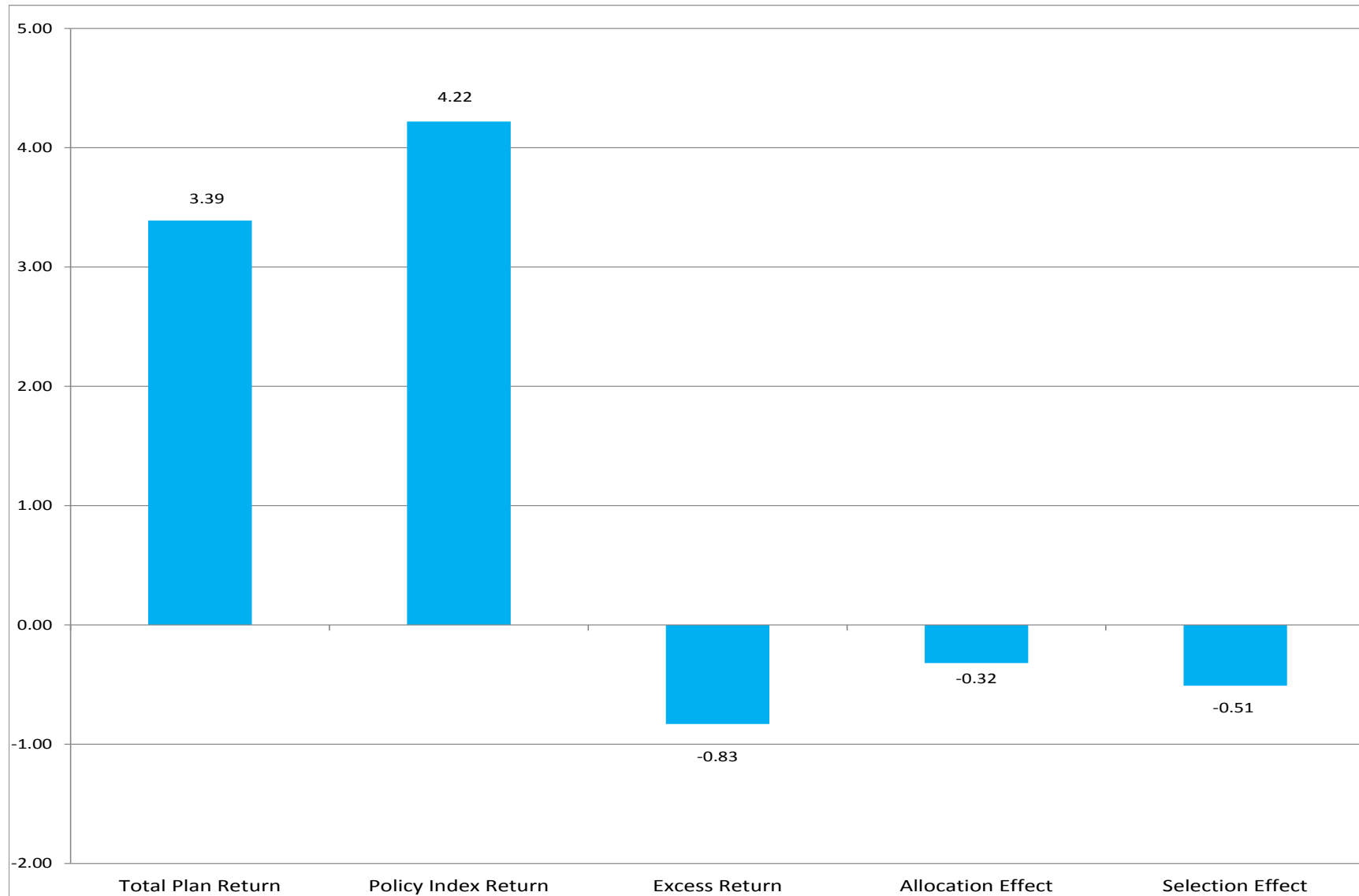


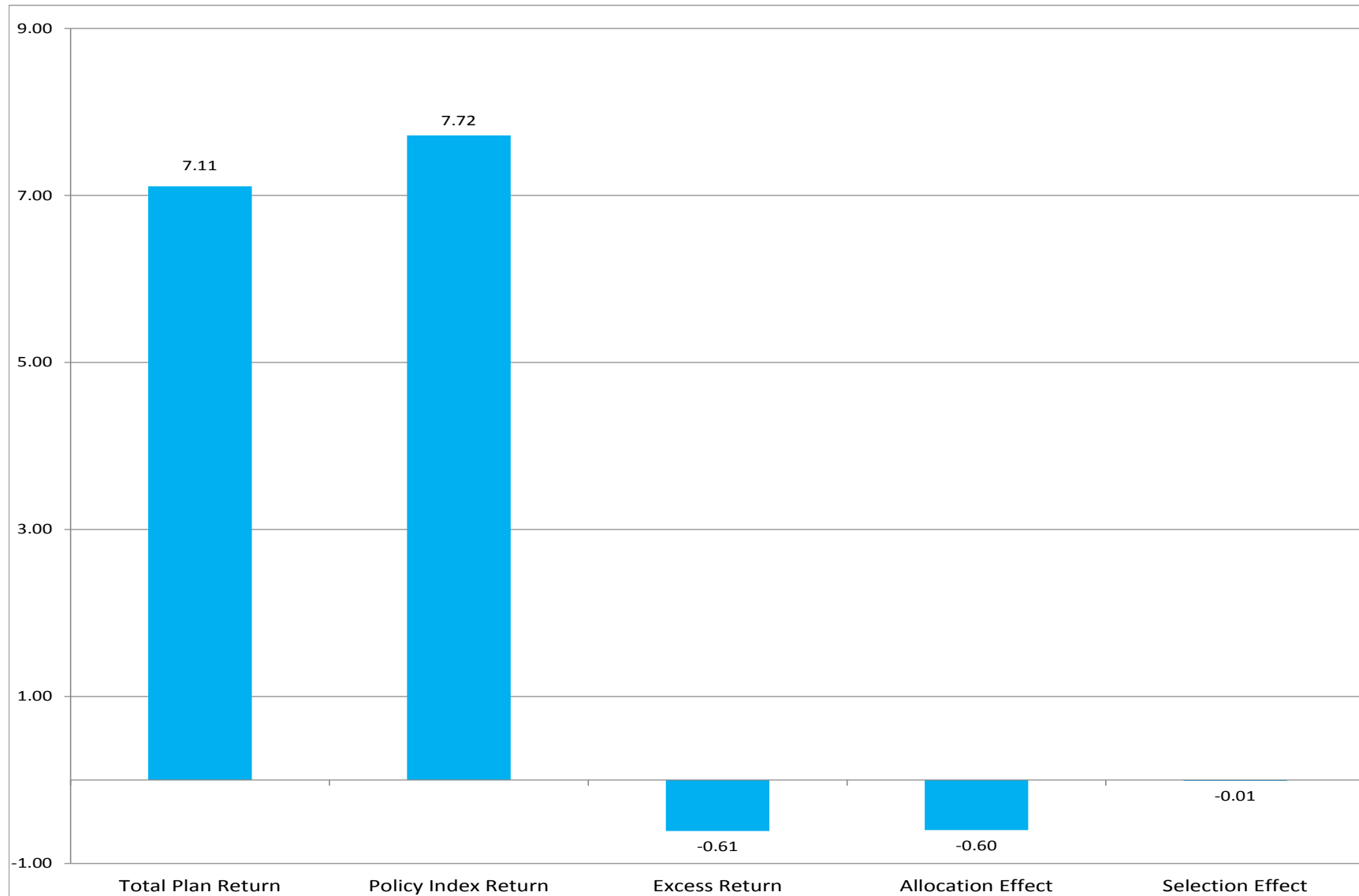
Portfolio Asset Allocation: June 30, 2019

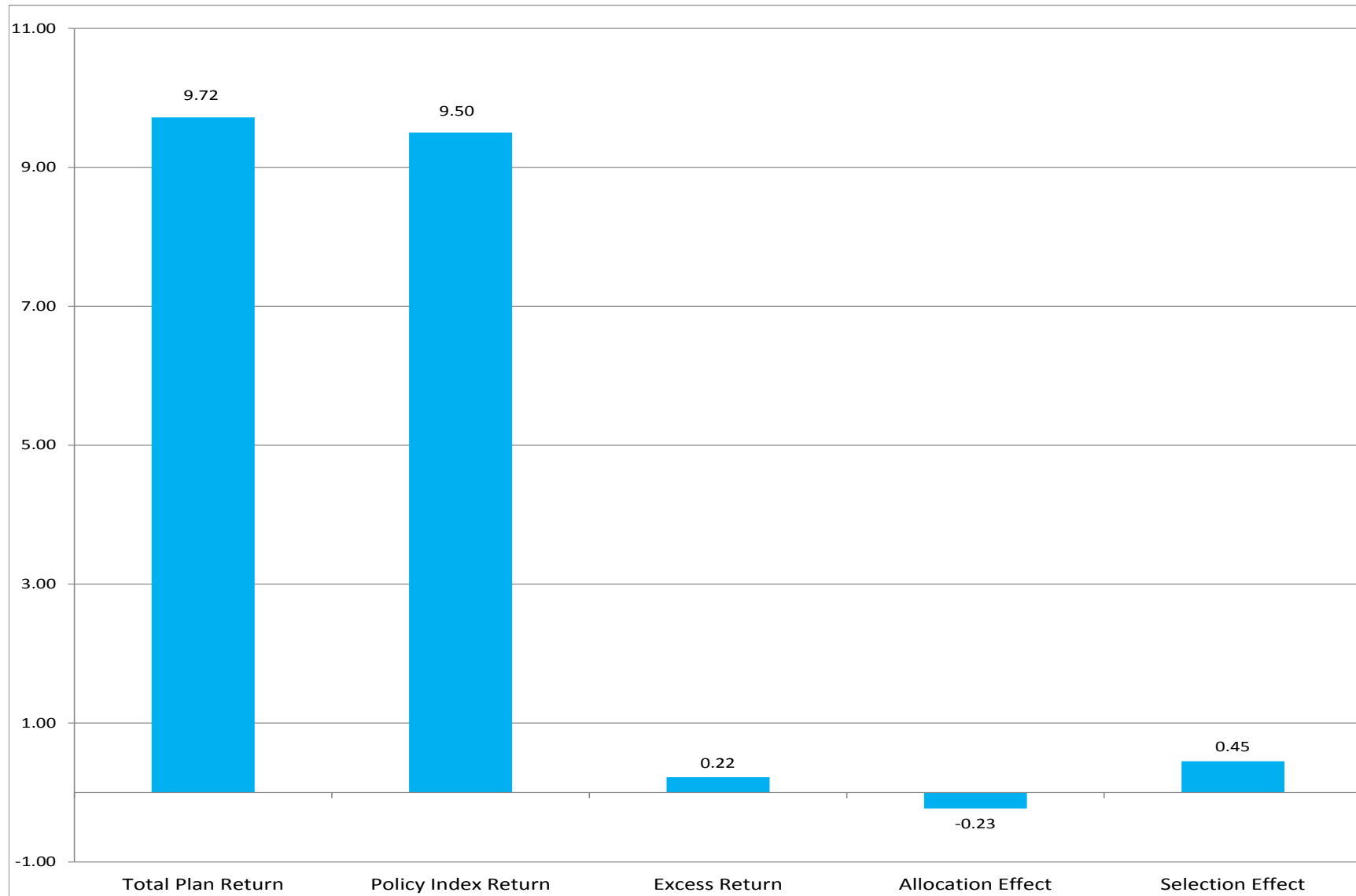
Portfolio Asset Allocation – Inflation Protection



Note: On June 28, 2019 Fire's combined Fixed Income and Cash portfolios have a duration of 6.8 years. The duration of the Barclays US Aggregate Index was 5.7 years on that date.









Allocation Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL FIRE	-0.32	-0.60	-0.23	Fire Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.05	-0.15	-0.09	RUSSELL 3000
TOTAL WORLD ex-USA	-0.01	-0.03	-0.01	MSCI World Ex USA IMI Net
TOTAL EMERGING MARKETS	-0.02	-0.06	-0.01	MSCI Emerging Markets
TOTAL GLOBAL EQUITY	0.00	-0.03	-0.01	MSCI AC WORLD
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL HEDGE FUNDS	0.00	-0.01	0.00	HFRI Fund of Funds Composite Index plus 1%
TOTAL REAL ESTATE SECURITIES	-0.05	0.03	-0.07	Dow Jones US Select Securities Index
TOTAL PRIVATE EQUITY	-0.05	-0.09	-0.03	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.01	0.00	-0.01	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.00	0.01	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	-0.02	0.08	-0.05	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.00	0.00	-0.02	FTSE USBIG Treasury/Agency 1-10 y
TOTAL ACTIVE GOVERNMENT	0.03	0.11	-0.13	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	-0.13	-0.32	0.17	FTSE Treasury 10+
TOTAL INVESTMENT GRADE CREDIT	0.00	-0.03	-0.10	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	-0.01	0.03	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.00	0.00	-0.02	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.00	0.00	-0.01	BBG BARC Agg
TOTAL HIGH YIELD	0.03	-0.03	0.10	High Yield Custom Benchmark
TOTAL BANK LOANS	0.01	0.01	0.02	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	-0.01	-0.02	-0.01	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CONVERTIBLE BONDS	0.00	0.01	0.02	Merrill All US Converts
TOTAL OPPORTUNISTIC FIXED	0.00	0.00	0.00	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	-0.04	-0.07	-0.11	

Selection Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL FIRE	-0.51	-0.01	0.45	Fire Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.08	-0.21	-0.06	RUSSELL 3000
TOTAL WORLD ex-USA	-0.02	-0.01	0.19	MSCI World Ex USA IMI Net
TOTAL EMERGING MARKETS	0.04	0.06	0.08	MSCI Emerging Markets
TOTAL GLOBAL EQUITY	0.04	0.07	0.02	MSCI AC WORLD
TOTAL INTERNATIONAL FOF	0.01	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL HEDGE FUNDS	0.11	0.14	0.11	HFRI Fund of Funds Composite Index plus 1%
TOTAL REAL ESTATE SECURITIES	0.00	0.00	0.04	Dow Jones US Select Securities Index
TOTAL PRIVATE EQUITY	-0.63	0.03	-0.02	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE-CORE	0.03	0.06	0.03	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE-NON CORE	0.01	0.00	0.04	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.02	0.04	0.03	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.00	0.00	0.00	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	0.00	0.00	0.00	FTSE USBIG Treasury/Agency 1-10 y
TOTAL ACTIVE GOVERNMENT	0.00	0.00	0.00	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	0.00	0.00	0.00	FTSE Treasury 10+
TOTAL INVESTMENT GRADE CREDIT	0.01	0.01	0.02	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	0.00	0.00	FTSE MORTGAGE INDEX
TOTAL ETI	0.01	0.01	0.00	ETI Custom Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.00	0.00	0.00	BBG BARC Agg
TOTAL CORE FI- EMERGING MGRS	0.00	0.00	0.00	BBG BARC Agg
TOTAL HIGH YIELD	0.02	-0.02	-0.01	High Yield Custom Benchmark
TOTAL BANK LOANS	-0.01	-0.02	-0.01	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	-0.03	-0.05	-0.08	Merrill All US Converts
TOTAL OPPORTUNISTIC FIXED	-0.04	-0.11	-0.02	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	0.00	0.00	

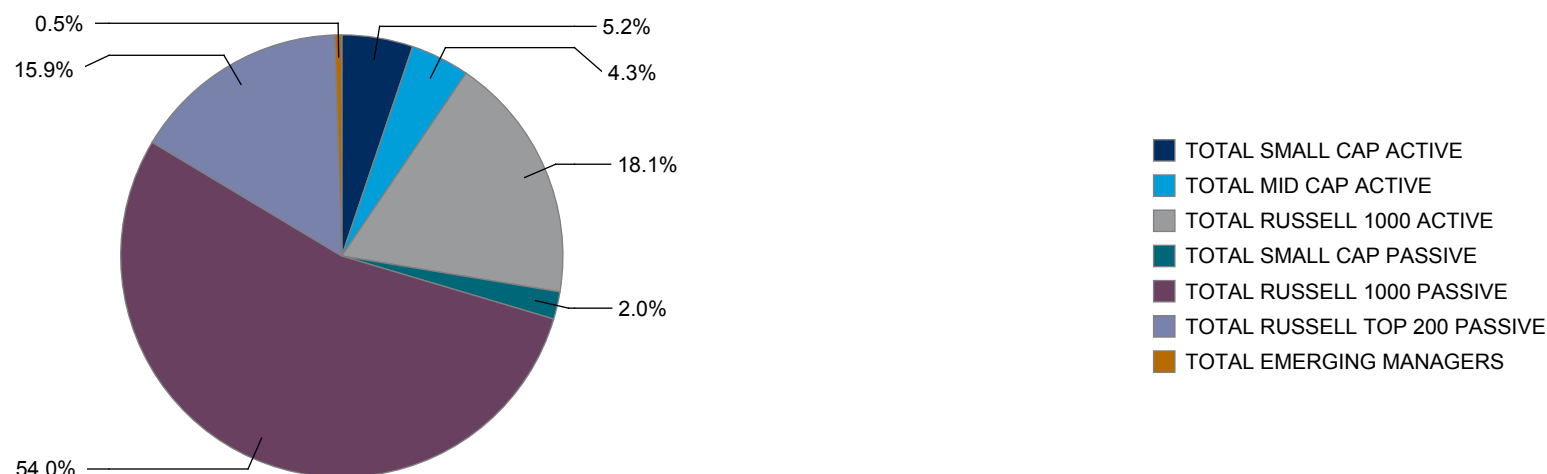
Total Domestic Equity Asset Allocations: June 30, 2019



TOTAL DOMESTIC EQUITY

Market Value (Billions)

\$4.3

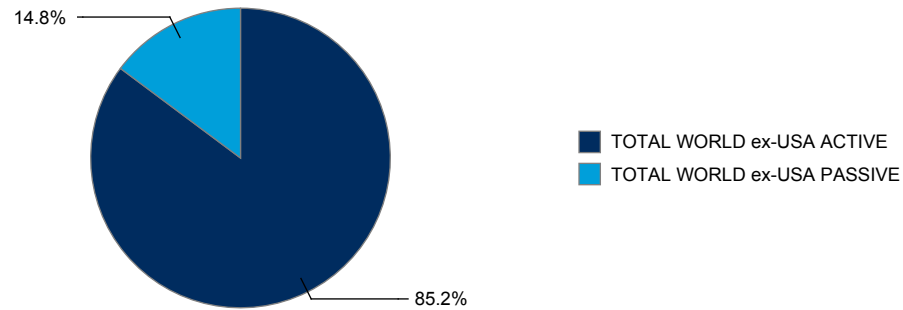


	Policy Weight	Actual Weight	Under/Over Weight	Quarterly Returns		
				Fund	Benchmark	Excess
TOTAL SMALL CAP ACTIVE	4.9	5.2	0.3	3.4	2.1	1.3
TOTAL MID CAP ACTIVE	7.0	4.3	(2.7)	2.2	4.1	(1.9)
TOTAL RUSSELL 1000 ACTIVE	18.0	18.1	0.1	1.6	4.2	(2.6)
TOTAL SMALL CAP PASSIVE	2.2	2.0	(0.1)	2.7	2.1	0.6
TOTAL RUSSELL 1000 PASSIVE	49.8	54.0	4.3	4.3	4.2	0.1
TOTAL RUSSELL TOP 200 PASSIVE	17.6	15.9	(1.7)	4.4	4.3	0.1
TOTAL EMERGING MANAGERS	0.6	0.5	(0.1)	2.0	2.1	(0.1)

World ex-USA Equity Asset Allocation: June 30, 2019



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL WORLD ex-USA	\$1.2	8.3

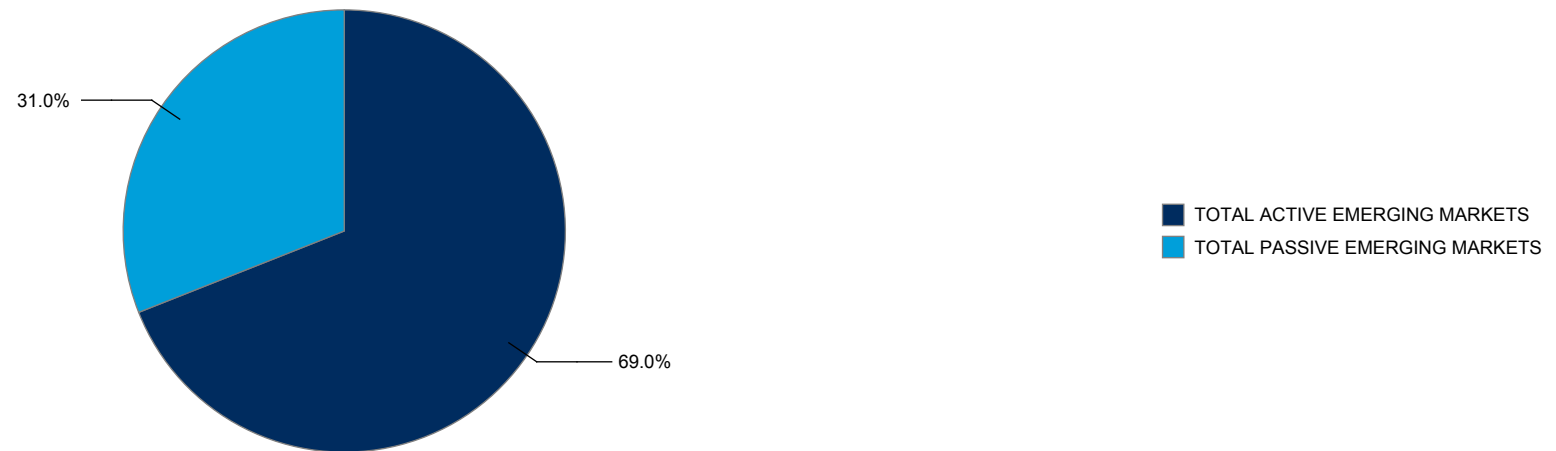


	<u>Asset Class Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL WORLD ex-USA LARGE & MID ACTIVE	75.03	3.41	3.79	(0.38)
TOTAL WORLD ex-SMALL CAP ACTIVE	10.15	2.37	2.37	(0.00)
TOTAL WORLD ex-USA SMALL CAP PASSIVE	4.07	1.94	1.76	0.17
TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE	10.74	3.97	3.79	0.18
TOTAL WORLD ex-USA	100.00	3.30	3.50	(0.20)

Emerging Markets Equity Asset Allocation: June 30, 2019



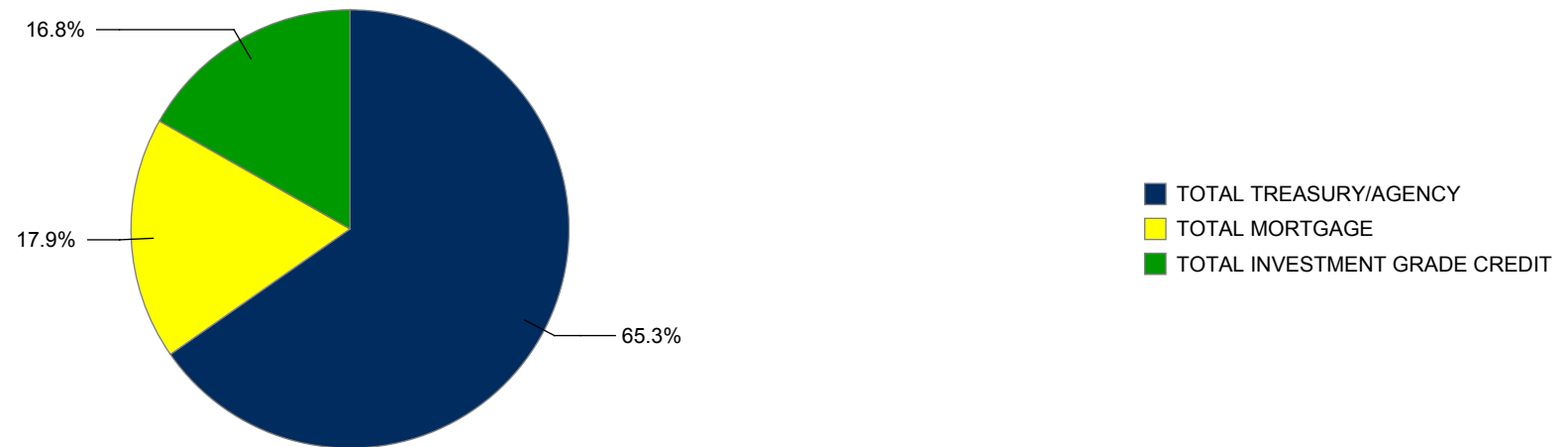
	<u>Market Value (Millions)</u>	<u>% of Plan</u>
TOTAL EMERGING MARKETS	\$868.5	6.0



	<u>Asset Class Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL ACTIVE EMERGING MARKETS	68.95	1.53	0.61	0.92
TOTAL PASSIVE EMERGING MARKETS	31.05	0.70	0.61	0.09
TOTAL EMERGING MARKETS	100.00	1.27	0.61	0.66



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL STRUCTURED+ETI	\$2.3	16.1



	<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	65.29	3.75	4.68	6.04	(1.37)
TOTAL MORTGAGE	19.23	17.94	(1.29)	2.46	2.09	0.37
TOTAL INVESTMENT GRADE CREDIT	19.23	16.77	(2.46)	4.33	4.07	0.25

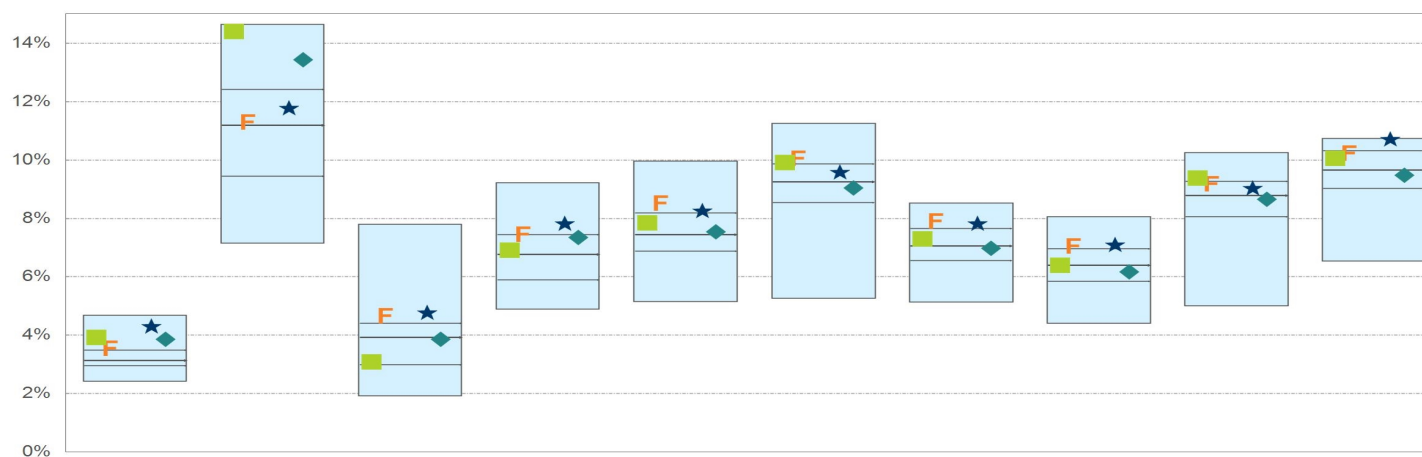


Through June 30, 2019



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Cumulative Periods Ending : June 30, 2019



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	4.68	14.65	7.80	9.22	9.96	11.26	8.52	8.06	10.26	10.74
25th	3.48	12.42	4.41	7.44	8.18	9.87	7.66	6.96	9.27	10.31
50th	3.14	11.19	3.92	6.77	7.44	9.25	7.06	6.39	8.79	9.65
75th	2.95	9.45	2.99	5.90	6.88	8.54	6.56	5.85	8.05	9.02
95th	2.42	7.16	1.92	4.90	5.15	5.26	5.14	4.41	5.01	6.54
No. Of Obs	58	58	57	57	57	57	57	57	57	54
F Total System - Fire	3.45 (25)	11.21 (48)	4.57 (18)	7.36 (25)	8.43 (19)	9.96 (21)	7.82 (14)	6.96 (25)	9.09 (26)	10.14 (26)
★ Fire Policy Benchmark	4.22 (9)	11.69 (33)	4.68 (18)	7.73 (21)	8.17 (25)	9.50 (41)	7.73 (18)	7.00 (21)	8.94 (41)	10.63 (6)
■ Public Mkt Equiv 25	3.83 (14)	14.31 (6)	2.98 (75)	6.81 (46)	7.75 (41)	9.82 (28)	7.20 (44)	6.29 (51)	9.28 (23)	9.96 (26)
◆ Public Mkt Equiv 35	3.77 (18)	13.34 (11)	3.77 (55)	7.25 (26)	7.44 (50)	8.95 (60)	6.88 (62)	6.07 (62)	8.56 (57)	9.38 (65)

Wilshire Trust Universe Comparison Service® (TUCS®)

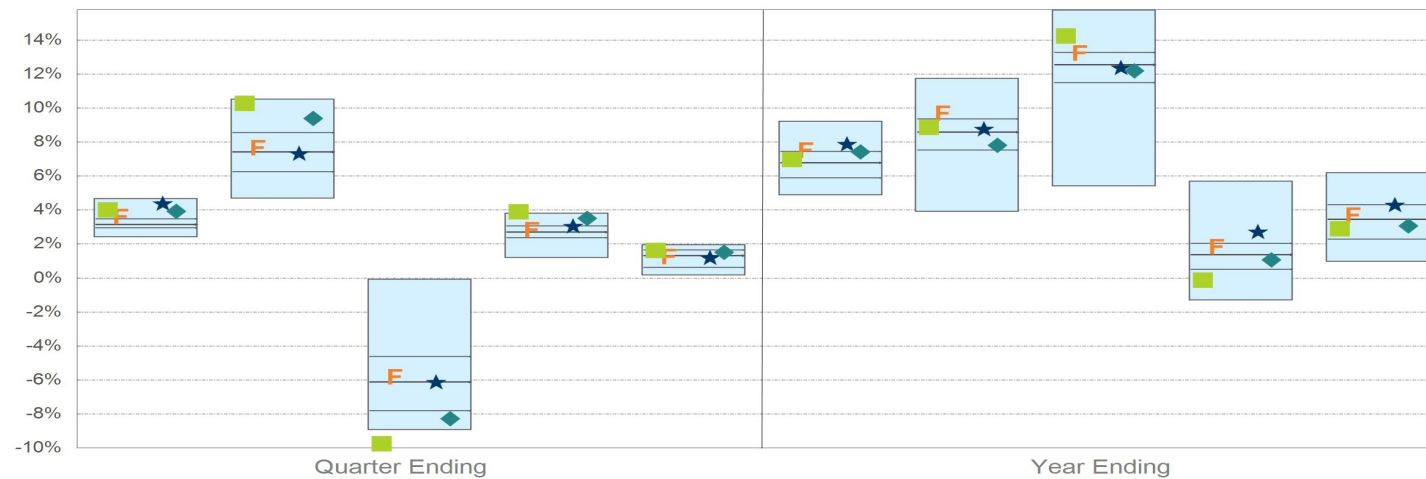


Through June 30, 2019



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Consecutive Time Periods: June 30, 2019



Percentile Rankings	Jun 19	Mar 19	Dec 18	Sep 18	Jun 18	Jun 19	Jun 18	Jun 17	Jun 16	Jun 15
5th	4.68	10.53	-0.08	3.81	1.95	9.22	11.76	15.77	5.71	6.20
25th	3.48	8.56	-4.63	3.07	1.65	7.44	9.37	13.27	2.03	4.30
50th	3.14	7.41	-6.12	2.70	1.31	6.77	8.59	12.54	1.38	3.44
75th	2.95	6.25	-7.82	2.37	0.62	5.90	7.53	11.50	0.51	2.30
95th	2.42	4.70	-8.93	1.20	0.17	4.90	3.92	5.41	-1.28	0.98
No. Of Obs	58	58	57	58	58	57	58	58	58	58
F Total System - Fire	3.45 (25)	7.50 (44)	-5.97 (46)	2.67 (53)	1.09 (58)	7.36 (25)	9.52 (21)	13.07 (26)	1.67 (33)	3.55 (46)
★ Fire Policy Benchmark	4.22 (9)	7.17 (53)	-6.27 (53)	2.91 (32)	1.05 (58)	7.73 (21)	8.61 (48)	12.22 (64)	2.57 (14)	4.15 (28)
■ Public Mkt Equiv 25	3.83 (14)	10.10 (6)	-9.91 (99)	3.72 (5)	1.45 (41)	6.81 (46)	8.70 (42)	14.09 (14)	-0.30 (87)	2.74 (62)
◆ Public Mkt Equiv 35	3.77 (18)	9.22 (14)	-8.45 (82)	3.35 (19)	1.35 (44)	7.25 (26)	7.64 (73)	12.03 (66)	0.89 (60)	2.91 (58)

Wilshire Trust Universe Comparison Service® (TUCS®)

FIRE RETIREMENT SYSTEM
ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2018 AND ESTIMATED FEES FOR FY 2019 UPDATED THROUGH SEPTEMBER 2018

INVESTMENT STYLE (EQUITIES)	Avg. MV FY 2018 (\$MM)	Mgmt. Fees (\$M)	Partnership Expenses (\$M)	Actual 2018		Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees & Expenses in (\$M)	Total Fees & Expenses in BPS	Avg. MV FYTD 09-30-18 (\$MM)	Estimates 2019	
				Mgmt. Fees / Partnership Expenses in BPS							Mgmt. Fees (\$M)	Mgmt. Fees in BPS
Total US Equities	6,512.85	3,011.61		4.62		479.58	-	3,491.20	5.36	3,993.90	3,491.65	8.74
Small Cap Active												
Small Cap Growth	206.48	1,388.08		67.22		-	-	1,388.08	67.22	234.66	1,610.35	68.63
Small Cap Value	59.25	589.31		99.47		-	-	589.31	99.47	73.22	731.88	99.96
	147.24	798.78		54.25		-	-	798.78	54.25	161.44	878.48	54.42
Mid Cap Active												
Mid Cap Growth	276.52	1,148.77		41.54		479.58	17.34	1,628.36	58.89	293.74	1,212.25	41.27
Mid Cap Value	-	-		-		-	-	-	-	-	-	-
Mid Cap Core	127.07	702.72		55.30		-	-	702.72	55.30	126.00	706.18	56.05
	149.45	446.05		29.85		479.58	32.09	925.64	61.94	167.75	506.07	30.17
Russell 1000 Fundamental	191.28	221.68				-	-	221.68	11.59	407.24	468.71	11.51
Active Emerging Managers (U.S. Equities)	21.10	98.29		46.59		-	-	98.29	46.59	22.29	111.25	49.90
Total US Active Equities	695.38	2,856.82		41.08		479.58	6.90	3,336.41	47.98	957.93	3,402.56	35.52
Small Cap Passive												
Small Cap Passive	37.94	1.58		0.42		-	-	1.58	0.42	90.21	3.82	0.42
Russell / S&P Passive												
Russell 1000 Growth Passive	799.71	36.56		0.46		-	-	36.56	0.46	1.16	-	-
Russell 1000 Value Passive	730.57	33.22		0.45		-	-	33.22	0.45	1.14	-	-
Russell 1000 Core Passive	2,609.38	13.72		0.05		-	-	13.72	0.05	2,171.30	43.41	0.20
Passive Russell 3000	924.46	60.13		0.65		-	-	60.13	0.65	0.00	-	-
Passive S&P 500	-	-		-		-	-	-	-	-	-	-
Passive Russell Top 200	715.41	9.58		0.13		-	-	9.58	0.13	772.15	41.86	0.54
Total US Passive Equities	5,817.47	154.79		0.27		-	-	154.79	0.27	3,035.97	89.09	0.29



FIRE RETIREMENT SYSTEM ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2018 AND ESTIMATED FEES FOR FY 2019 UPDATED THROUGH SEPTEMBER 2018

Actual
2018

Estimates
2019

	Avg. MV FY 2018 (\$MM)	Mgmt. Fees (\$M)	Partnership Expenses (\$M)	Mgmt. Fees / Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees & Expenses in (\$M)	Total Fees & Expenses in BPS	Avg. MV FYTD 09-30- 18 (\$MM)	Mgmt. Fees (\$M)	Mgmt. Fees in BPS
Total International Equities	2,122.25	6,109.77		28.79	-	-	6,109.77	28.79	2,076.27	5,808.85	27.98
Global Equity	100.11	65.03			-	-	65.03	6.50	200.55	900.89	44.92
Total Global Equities	100.11	65.03			-	-	65.03	6.50	200.55	900.89	44.92
Active EAFE Equities	1,085.77	3,345.37		30.81	-	-	3,345.37	30.81	1,038.19	3,124.13	30.09
World Ex-USA Large & Mid Active	922.60	2,582.09		27.99	-	-	2,582.09	27.99	907.40	2,523.52	27.81
World Ex-USA Small Cap Active	163.10	763.29		46.80	-	-	763.29	46.80	130.78	600.61	45.92
Total World Ex USA	0.07	-		-	-	-	-	-	0.01	-	-
Active Emerging Markets	570.72	2,367.23		41.48	-	-	2,367.23	41.48	589.70	2,331.09	39.53
Total Active Int'l Fund of Funds	73.80	257.42		34.88	-	-	257.42	34.88	73.24	253.79	34.65
Total Active International Equities	1,730.29	5,970.02		34.50	-	-	5,970.02	34.50	1,701.13	5,709.01	33.56
Int'l Passive Equities											
World Ex-USA Small Cap Passive	36.37	17.76		4.88	-	-	17.76	4.88	36.62	18.34	5.01
World Ex-USA Large & Mid Cap Passive	71.39	8.08		1.13	-	-	8.08	1.13	71.90	8.36	1.16
Passive Emerging Markets	284.20	113.92		4.01	-	-	113.92	4.01	266.62	73.15	2.74
Total Int'l Passive Equities	391.97	139.75		3.57	-	-	139.75	3.57	375.14	99.84	2.66
REITS Active Equities	199.95	778.89		38.95	-	-	778.89	38.95	171.60	714.57	41.64

FIRE RETIREMENT SYSTEM
ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2018 AND ESTIMATED FEES FOR FY 2019 UPDATED THROUGH SEPTEMBER 2018

			Actual 2018						Estimates 2019		
	Avg. MV FY 2018 (\$MM)	Mgmt. Fees (\$M)	Partnership Expenses (\$M)	Mgmt. Fees / Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees & Expenses in (\$M)	Total Fees & Expenses in BPS	Avg. MV FYTD 09-30- 18 (\$MM)	Mgmt. Fees (\$M)	Mgmt. Fees in BPS
INVESTMENT STYLE (FIXED INCOME)											
Total Fixed Income	4,116.89	5,269.86		12.80	25.20	0.06	5,295.06	12.86	4,551.45	5,060.94	11.12
Structured Program	2,116.17	1,094.72		5.17	25.20	0.12	1,119.92	5.29	2,473.86	876.28	3.54
Government Treas/Agency Sector	718.53	338.55		4.71	25.20	0.35	363.74	5.06	1,266.65	277.59	2.19
Long Duration Treasury	429.39	41.49		0.97			41.49		453.29	45.95	1.01
Mortgage Sector	332.06	163.45		4.92	-	-	163.45	4.92	331.59	164.86	4.97
Investment Grade Credit Sector	636.20	551.24		8.66	-	-	551.24	8.66	422.33	387.88	9.18
Developing Managers	44.02	87.15		19.80	-	-	87.15	19.80	43.80	87.52	19.98
Emerging Managers	30.09	103.08		34.25	-	-	103.08	34.25	30.01	103.79	34.58
TIPS	553.68	98.24		1.77	-	-	98.24	1.77	592.04	106.33	1.80
Active TIPS Managers	140.54	77.80		5.54	-	-	77.80	5.54	150.41	84.03	5.59
Passive TIPS Managers	413.14	20.45		0.49	-	-	20.45	0.49	441.63	22.30	0.50
High Yield	634.27	1,937.20		30.54	-	-	1,937.20	30.54	629.70	1,748.55	27.77
Bank Loans	201.83	729.21		36.13	-	-	729.21	36.13	208.12	741.45	35.63
Convertible Bonds	211.70	951.85		44.96	-	-	951.85	44.96	233.85	1,125.80	48.14
ETI - Access - RBC	25.01	46.40		18.55	-	-	46.40	18.55	26.69	49.23	18.44
ETI - AFL-CIO HIT	54.97	222.00		40.39	-	-	222.00	40.39	54.55	222.00	40.70
Total Public Markets (Externally managed)	12,806.89	15,235.16		11.90	504.78	0.39	15,739.94	12.29	10,734.95	15,976.91	14.88
Other ETI Programs	17.43	-		-	-	-	-	-	17.75	-	-
In-House Short Term	227.74	-		-	-	-	-	-	241.08	-	-
Total Public Markets	13,052.06	15,235.16		11.67	504.78	0.39	15,739.94	12.06	10,993.77	15,976.91	14.53



FIRE RETIREMENT SYSTEM ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2018 AND ESTIMATED FEES FOR FY 2019 UPDATED THROUGH SEPTEMBER 2018

INVESTMENT STYLE (PRIVATE MARKETS)	Avg. MV FY 2018 (\$MM)	Mgmt. Fees (\$M)	Partnership Expenses (\$M)	Mgmt. Fees / Partnership Expenses in BPS	Actual 2018		Total Fees & Expenses in (\$M)	Total Fees & Expenses in BPS	Avg. MV FYTD 09-30-18 (\$MM)	Estimates 2019	
					Incentive Fees in (\$M)	Incentive Fees in BPS				Mgmt. Fees (\$M)	Mgmt. Fees in BPS
Hedge Funds	664.49	7,425.47	-	111.75	9,656.24	145.32	17,081.71	257.06	729.78	7,945.26	108.87
Private Equity	892.21	10,552.74	3,741.62	160.21	21,921.29	245.70	36,215.64	405.91	921.27	15,683.38	170.24
Private Real Estate	541.74	5,425.91	1,773.88	132.90	7,360.98	135.88	14,560.77	268.78	555.21	5,839.47	105.18
Infrastructure	58.31	1,669.19	690.75	131.47	115.07	19.73	2,475.01	125.35	82.40	2,315.38	117.26
Opportunistic Fixed Income	372.36	3,388.53	2,587.11	160.48	1,098.09	29.49	7,073.73	189.97	391.00	3,416.67	87.38
Total Private Markets	2,529.11	28,461.84	8,793.36	147.31	40,151.66	158.76	77,406.86	306.06	2,679.66	35,200.15	131.36
Total Overall	13,126.35	43,697.00	8,793.36	39.99	40,656.44	30.97	93,146.81	70.96	13,673.44	51,177.06	37.43

The overall carried interest and incentive fees paid by FIRE in Fiscal Year 2018: 30.97 BPS

General Footnotes:

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

**NYC FIRE DEPARTMENT PENSION FUND
SECURITIES LENDING INCOME
June 30, 2019**

	U. S. FIXED INCOME	U. S. EQUITY	INTERNATIONAL EQUITY	TOTAL
1989	109,000	-	-	109,000
1990	104,000	-	-	104,000
1991	157,000	-	-	157,000
1992	429,000	47,000	48,000	524,000
1993	762,000	146,000	102,000	1,010,000
1994	693,000	267,000	102,000	1,062,000
1995	495,000	306,000	96,000	897,000
1996	455,000	228,000	179,000	862,000
1997	473,000	512,000	257,000	1,242,000
1998	789,000	552,000	356,000	1,697,000
1999	716,000	690,000	408,000	1,814,000
2000	734,000	897,000	408,000	2,039,000
2001	1,176,000	1,286,000	561,000	3,023,000
2002	671,000	1,162,000	506,000	2,339,000
2003	349,000	644,000	452,000	1,445,000
2004	505,000	670,000	462,000	1,637,000
2005	740,000	1,070,000	574,000	2,384,000
2006	599,000	1,753,000	713,000	3,065,000
2007	1,437,000	3,180,000	786,000	5,403,000
2008	4,172,000	6,798,000	1,236,000	12,206,000
2009	1,606,000	3,588,000	817,000	6,011,000
2010	760,000	2,047,000	563,000	3,370,000
2011	977,000	2,674,000	927,000	4,578,000
2012	1,229,000	3,324,000	832,000	5,385,000
2013	893,000	3,467,000	704,000	5,064,000
2014	756,000	2,028,000	1,739,000	4,523,000
2015	788,000	2,034,000	2,407,000	5,229,000
2016	807,000	3,245,000	2,094,000	6,146,000
2017	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 (6 months)	342,228	1,467,175	610,713	2,420,115
Since Inception	26,108,458	49,039,175	21,003,190	96,150,823



New York City
Fire Department Pension Fund, Subchapter Two

Appendix A

Consolidated Performance Report

Consolidated Performance Report



Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
SYSTEM RETURN SUMMARY															
5 FIRE-TOTAL PORTFOLIO - GROSS	14,497	100.00	3.45	7.36	11.21	(2.27)	16.81	8.68	0.34	7.55	9.96	6.96	10.14	8.58	07/01/1987
FIRE - ESTIMATED INVESTMENT FEES			(0.05)	(0.25)	(0.13)	(0.19)	(0.26)	(0.25)	(0.25)	(0.29)	(0.24)	(0.25)			
EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.04)	(0.12)	(0.07)	(0.11)	(0.12)	(0.13)	(0.15)	(0.16)	(0.12)	(0.13)			
EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.01)	(0.13)	(0.06)	(0.08)	(0.14)	(0.12)	(0.10)	(0.13)	(0.12)	(0.12)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIRE-TOTAL PORTFOLIO - NET MGR			3.39	7.11	11.08	(2.47)	16.55	8.43	0.09	7.26	9.72	6.71			
FIRE POLICY BENCHMARK			4.22	7.72	11.69	(2.67)	16.06	8.91	0.43	8.43	9.50	7.00	10.63		
EXCESS RETURN			(0.82)	(0.61)	(0.61)	0.20	0.49	(0.48)	(0.33)	(1.17)	0.22	(0.29)	(0.49)		
EQUITY RETURN DETAIL															
26 FIRE-TOTAL EQUITY (INCL PE & RA) - GROSS	9,362	64.58	3.53	7.11	13.48	(3.59)	22.64	10.08	0.68	8.36	12.79	8.55	12.36	8.14	04/01/2004
ESTIMATED INVESTMENT FEES			(0.06)	(0.31)	(0.17)	(0.23)	(0.32)	(0.31)	(0.34)	(0.37)	(0.30)	(0.31)			
EST MANAGEMENT FEES			(0.06)	(0.31)	(0.17)	(0.23)	(0.32)	(0.31)	(0.34)	(0.37)	(0.30)	(0.31)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIRE-TOTAL EQUITY (INCL PE & RA) - NET MGR			3.47	6.81	13.31	(3.82)	22.32	9.77	0.35	7.99	12.49	8.24			
34 FIRE-TOTAL DOMESTIC EQUITY - GROSS	4,256	29.36	3.88	8.35	18.48	(5.45)	20.97	12.97	0.19	11.05	13.91	9.81	14.49	12.22	08/01/1979
ESTIMATED INVESTMENT FEES			(0.04)	(0.11)	(0.07)	(0.08)	(0.10)	(0.13)	(0.15)	(0.17)	(0.10)	(0.13)			
FIRE-TOTAL DOMESTIC EQUITY - NET MGR			3.84	8.24	18.41	(5.53)	20.88	12.84	0.04	10.88	13.81	9.68			
RUSSELL 3000 (DAILY)			4.10	8.98	18.71	(5.24)	21.13	12.74	0.48	12.56	14.02	10.19	14.67	11.62	
EXCESS RETURN			(0.26)	(0.74)	(0.31)	(0.29)	(0.25)	0.10	(0.44)	(1.67)	(0.21)	(0.51)	(0.17)	0.61	
44 FIRE-TOTAL SMALL CAP - GROSS	308	2.13	3.33	0.20	18.93	(9.88)	15.49	23.36	(0.80)	4.08	12.39	8.73	13.76	7.56	04/01/2004
ESTIMATED INVESTMENT FEES			(0.12)	(0.49)	(0.29)	(0.47)	(0.69)	(0.75)	(0.60)	(0.55)	(0.62)	(0.62)			
FIRE-TOTAL SMALL CAP - NET MGR			3.21	(0.29)	18.65	(10.34)	14.80	22.62	(1.41)	3.52	11.76	8.11			
RUSSELL 2000 (DAILY)			2.10	(3.31)	16.98	(11.01)	14.65	21.31	(4.41)	4.89	12.30	7.06	13.45	8.05	
EXCESS RETURN			1.11	3.02	1.66	0.67	0.15	1.31	3.01	(1.37)	(0.54)	1.04	0.31	(0.49)	
54 FIRE-TOTAL MID CAP - GROSS	183	1.26	2.72	2.23	23.32	(14.39)	24.69	10.84	0.19	9.81	12.59	8.29	14.84	8.60	04/01/2004
ESTIMATED INVESTMENT FEES			(0.54)	(0.85)	(0.77)	(0.35)	(0.47)	(0.59)	(0.52)	(0.46)	(0.64)	(0.58)			
FIRE-TOTAL MID CAP - NET MGR			2.18	1.38	22.55	(14.74)	24.22	10.25	(0.33)	9.35	11.95	7.71			
RUSSELL MIDCAP (DAILY)			4.13	7.83	21.35	(9.06)	18.52	13.80	(2.44)	13.22	12.16	8.63	15.16	9.76	
EXCESS RETURN			(1.95)	(6.44)	1.20	(5.68)	5.70	(3.55)	2.11	(3.87)	(0.20)	(0.92)	(0.31)	(1.16)	
64 FIRE-TOTAL RUSSELL 1000 - GROSS	3,069	21.17	3.93	9.41	18.10										
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)									10.68	04/01/2018
FIRE-TOTAL RUSSELL 1000 - NET MGR			3.93	9.39	18.09									(0.02)	
RUSSELL 1000 (DAILY)			4.25	10.02	18.84									11.01	
EXCESS RETURN			(0.32)	(0.63)	(0.75)									(0.35)	

Consolidated Performance Report



Through June 30, 2019

		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL																
76	FIRE-TOTAL RUSSELL TOP 200 PASSIVE - GROSS	675	4.66	4.36	10.99	17.95									12.43	05/01/2018
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	0.00									(0.01)	
	FIRE-TOTAL RUSSELL TOP 200 PASSIVE - NET MGR			4.36	10.98	17.95									12.41	
	RUSSELL TOP 200 INDEX (DAILY)			4.29	10.89	17.91									12.35	
	EXCESS RETURN			0.06	0.09	0.05									0.06	
86	FIRE-TOTAL FUND OF FUNDS - GROSS	21	0.15	2.11	0.44	16.88	(7.75)								6.94	05/01/2017
	ESTIMATED INVESTMENT FEES			(0.13)	(0.50)	(0.29)	(0.46)								(0.61)	
	FIRE-TOTAL FUND OF FUNDS - NET MGR			1.98	(0.06)	16.59	(8.21)								6.33	
	RUSSELL 2000 (DAILY)			2.10	(3.31)	16.98	(11.01)								6.75	
	EXCESS RETURN			(0.12)	3.25	(0.40)	2.80								(0.42)	

Consolidated Performance Report



Through June 30, 2019

		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL																
98	FIRE-TOTAL WORLD ex-USA - GROSS	1,210	8.34	3.37	0.32	15.79	(14.17)	31.56	4.14	(1.08)	(5.07)	11.46	4.35	8.27	6.25	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.07)	(0.27)	(0.15)	(0.24)	(0.33)	(0.30)	(0.29)	(0.27)	(0.30)	(0.29)			
	FIRE-TOTAL WORLD ex-USA - NET MGR			3.30	0.05	15.65	(14.41)	31.22	3.83	(1.37)	(5.34)	11.16	4.06			
	WORLD EX-USA CUSTOM BM			3.50	0.16	14.39	(14.68)	26.40	1.15	0.49	(4.90)	9.23	2.60	7.28	5.56	
	EXCESS RETURN			(0.20)	(0.11)	1.26	0.28	4.82	2.68	(1.86)	(0.44)	1.93	1.46	0.99	0.69	
108	FIRE-TOTAL WORLD ex-USA LARGE & MID ACTIVE - GROSS	908	6.26	3.48	1.54	16.46	(13.36)	32.16	4.51	(3.31)	(4.49)	12.26	4.50		5.04	11/01/2013
	ESTIMATED INVESTMENT FEES			(0.07)	(0.28)	(0.16)	(0.24)	(0.32)	(0.30)	(0.28)	(0.27)	(0.30)	(0.29)		(0.29)	
	FIRE-TOTAL WORLD ex-USA LARGE & MID ACTIVE - NET MGR			3.41	1.26	16.30	(13.60)	31.84	4.21	(3.59)	(4.76)	11.96	4.21		4.75	
	NYC CUSTOM WORLD EX-USA LG & MID ACT INDEX			3.79	1.29	14.64	(14.09)	25.18	1.00	(0.81)	(4.90)	9.22	2.31		3.29	
	EXCESS RETURN			(0.38)	(0.03)	1.66	0.49	6.66	3.21	(2.78)	0.15	2.74	1.90		1.46	
118	FIRE-TOTAL WORLD ex-USA SMALL CAP ACTIVE - GROSS	123	0.85	2.48	(6.34)	12.77	(18.26)	35.60	3.35	10.82	(4.78)	9.52	5.05		7.68	05/01/2013
	ESTIMATED INVESTMENT FEES			(0.11)	(0.41)	(0.24)	(0.39)	(0.65)	(0.50)	(0.54)	(0.47)	(0.51)	(0.50)			
	FIRE-TOTAL WORLD ex-USA SMALL CAP ACTIVE - NET MGR			2.37	(6.75)	12.54	(18.65)	34.95	2.85	10.28	(5.25)	9.00	4.55			
	S&P EPAC SMALL CAP USD NET			2.37	(6.38)	12.53	(18.58)	33.47	1.34	8.58	(3.43)	8.61	4.13		6.71	
	EXCESS RETURN			(0.00)	(0.38)	0.01	(0.07)	1.49	1.51	1.69	(1.82)	0.40	0.42		0.97	
128	FIRE-TOTAL WORLD ex-USA SMALL CAP PASSIVE - GROSS	49	0.34	1.94	(5.95)	12.95	(17.95)	33.51	2.79	9.88		9.34	4.77		5.78	02/01/2014
	ESTIMATED INVESTMENT FEES			(0.01)	(0.03)	(0.01)	(0.02)	(0.08)	(0.02)	(0.02)		(0.04)	(0.03)		(0.03)	
	FIRE-TOTAL WORLD ex-USA SMALL CAP PASSIVE - NET MGR			1.94	(5.98)	12.94	(17.97)	33.43	2.77	9.86		9.30	4.74		5.75	
	WORLD EX USA SC PASSIVE CUSTOM BM			1.76	(6.17)	12.88	(18.07)	33.31	2.18	9.59		9.17	4.46		5.45	
	EXCESS RETURN			0.17	0.19	0.05	0.10	0.12	0.59	0.27		0.13	0.28		0.30	
138	FIRE-TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE - GROSS	130	0.90	3.97	1.93	14.85	(13.63)	24.44	1.30	(0.53)	(4.73)	9.25	2.43		4.76	02/01/2011
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.02)	0.00	(0.01)	(0.01)	(0.01)			
	FIRE-TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE - NET MGR			3.97	1.92	14.85	(13.64)	24.43	1.28	(0.53)	(4.75)	9.25	2.42			
	NYC CUSTOM WORLD EX US INDEX			3.79	1.29	14.64	(14.09)	24.12	1.00	(0.81)	(4.90)	8.91	2.13		4.43	
	EXCESS RETURN			0.18	0.63	0.21	0.45	0.32	0.28	0.29	0.16	0.34	0.29		0.33	

Consolidated Performance Report

Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
150 FIRE-TOTAL ACTIVE EMERGING MARKETS - GROSS	599	4.13	1.63	3.00	11.29	(14.39)	41.09	10.79	(13.23)	(0.48)	12.89	3.50	7.07	8.87	04/01/2004
ESTIMATED INVESTMENT FEES			(0.10)	(0.41)	(0.22)	(0.34)	(0.62)	(0.53)	(0.44)	(0.50)	(0.48)	(0.47)			
FIRE-TOTAL ACTIVE EMERGING MARKETS - NET MGR			1.53	2.59	11.07	(14.73)	40.47	10.27	(13.67)	(0.98)	12.41	3.03			
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)	10.66	2.49	5.81	7.83	
EXCESS RETURN			0.92	1.39	0.49	(0.16)	3.18	(0.92)	1.24	1.21	1.75	0.54	1.26	1.04	
160 FIRE-TOTAL PASSIVE EMERGING MARKETS - GROSS	270	1.86	0.70	1.44	10.83	(14.44)	37.41	11.23	(14.86)	(2.23)	10.77	2.62		1.29	04/01/2011
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	0.01	(0.15)	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)			
FIRE-TOTAL PASSIVE EMERGING MARKETS - NET MGR			0.70	1.42	10.81	(14.43)	37.25	11.17	(14.91)	(2.29)	10.71	2.57			
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)	10.66	2.49		1.21	
EXCESS RETURN			0.09	0.21	0.23	0.14	(0.03)	(0.02)	0.01	(0.10)	0.05	0.08		0.08	
170 FIRE-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	73	0.51	4.05	0.70	14.70	(14.36)								5.89	05/01/2017
ESTIMATED INVESTMENT FEES			(0.09)	(0.34)	(0.19)	(0.30)								(0.37)	
FIRE-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR			3.96	0.35	14.50	(14.65)								5.53	
MSCI ACWI EX USA IMI NET			2.74	0.26	13.33	(14.76)								5.29	
EXCESS RETURN			1.22	0.09	1.17	0.10								0.24	
180 FIRE-TOTAL GLOBAL EQUITY - GROSS	219	1.51	6.64	9.83	25.35									8.19	06/01/2018
ESTIMATED INVESTMENT FEES			(0.15)	(0.61)	(0.38)									(0.60)	
FIRE-TOTAL GLOBAL EQUITY - NET MGR			6.49	9.22	24.97									7.59	
MSCI AC WORLD (DAILY CONST)			3.61	5.74	16.23									4.77	
EXCESS RETURN			2.88	3.48	8.74									2.82	

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		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL																
198	FIRE-TOTAL HEDGE FUNDS* - NET MGR	852	5.88	4.25	4.98	6.19	2.09	9.80	3.20	(1.68)	5.35	7.32	4.24		4.20	07/01/2011
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			1.73	2.15	6.67	(3.06)	8.84	1.52	0.73	4.40	5.28	3.21		3.63	
	EXCESS RETURN			2.52	2.83	(0.48)	5.14	0.96	1.68	(2.41)	0.95	2.03	1.04		0.58	
208	FIRE-TOTAL DIRECT HEDGE FUNDS* - NET MGR	852	5.87	4.25	4.98	6.19	2.17	10.56	3.00	(1.36)	5.76	7.58	4.48		5.21	01/01/2012
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			1.73	2.15	6.67	(3.06)	8.84	1.52	0.73	4.40	5.28	3.21		4.58	
	EXCESS RETURN			2.52	2.84	(0.48)	5.23	1.71	1.48	(2.09)	1.37	2.30	1.27		0.63	
218	FIRE-TOTAL PERMAL HEDGE FUNDS OF FUNDS* - NET MGR	1	0.00	1.72	0.31	3.43	(0.84)	2.07	4.58	(3.52)	3.11	2.87	1.20		2.20	07/01/2011
	HFRI FUND OF FUNDS COMPOSITE INDEX + 1%			1.73	2.15	6.67	(3.06)	8.84	1.52	0.73	4.40	5.28	3.21		3.63	
	EXCESS RETURN			(0.01)	(1.83)	(3.24)	2.22	(6.77)	3.06	(4.26)	(1.28)	(2.41)	(2.01)		(1.43)	

* INFORMATION PROVIDED BY ALPHA FRONTIER

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Through June 30, 2019

		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL																
226	FIRE-TOTAL REAL ESTATE SECURITIES - GROSS ESTIMATED INVESTMENT FEES	184	1.27	0.67 (0.10)	9.80 (0.45)	17.33 (0.23)	(6.09) (0.39)	8.71 (0.42)	3.95 (0.28)	1.39 (0.34)	28.21 (0.46)	5.20 (0.39)	6.99 (0.38)	15.11	11.09	01/01/2003
	FIRE-TOTAL REAL ESTATE SECURITIES - NET MGR			0.57	9.36	17.10	(6.48)	8.30	3.67	1.05	27.75	4.81	6.61			
	DJ US SELECT REAL ESTATE SECURITIES INDEX			0.82	9.75	16.67	(4.22)	3.76	6.65	4.46	31.85	3.73	7.59	15.39	10.45	
	EXCESS RETURN			(0.25)	(0.39)	0.43	(2.26)	4.53	(2.98)	(3.41)	(4.11)	1.08	(0.98)	(0.28)	0.64	
236	FIRE-TOTAL PRIVATE EQUITY (TIME WEIGHTED) NYC R3000 +3% LAGGED	943	6.50	5.10 14.85	14.52 12.01	4.70 (0.80)	18.87 21.06	23.66 22.22	10.84 18.37	11.71 2.49	15.81 21.24	18.19 16.86	15.00 13.64	14.52 19.77	13.64 13.03	04/01/2004
	EXCESS RETURN			(9.76)	2.51	5.50	(2.19)	1.45	(7.54)	9.22	(5.43)	1.33	1.36	(5.25)	0.62	
246	FIRE-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED) NCREIF NFI-ODCE NET + 100 BP	613	4.23	2.12 1.02	8.27 6.51	3.44 2.48	10.88 8.43	11.52 7.72	11.46 8.86	15.25 15.08	17.21 12.56	10.45 7.67	12.09 9.84	9.96	8.38	04/01/2004
	EXCESS RETURN			1.10	1.76	0.96	2.45	3.79	2.60	0.17	4.65	2.78	2.25			
256	FIRE-TOTAL INFRASTRUCTURE (TIME WEIGHTED) CPI + 4%	126	0.87	3.59 1.45	13.56 5.86	5.59 3.02	10.05 6.03	27.94 6.20	10.72 6.17	15.95 4.69	20.21 4.69	16.25 6.16	15.08 5.55		16.04 5.63	12/01/2013
	EXCESS RETURN			2.15	7.70	2.57	4.02	21.74	4.55	11.26	15.52	10.09	9.53		10.41	

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		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL																
268	FIRE-TOTAL FIXED INCOME - GROSS	5,135	35.42	3.25	7.55	7.30	(0.38)	5.40	5.66	(0.43)	5.94	4.17	3.59	5.54	8.04	02/01/1980
	ESTIMATED INVESTMENT FEES			(0.03)	(0.14)	(0.07)	(0.12)	(0.13)	(0.14)	(0.09)	(0.15)	(0.13)	(0.13)			
	EST MANAGEMENT FEES			(0.03)	(0.14)	(0.07)	(0.12)	(0.13)	(0.14)	(0.09)	(0.15)	(0.13)	(0.13)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	FIRE-TOTAL FIXED INCOME - NET MGR			3.22	7.41	7.22	(0.50)	5.27	5.52	(0.52)	5.79	4.04	3.47			
276	FIRE-TOTAL STRUCTURED FIXED INCOME - GROSS	2,228	15.37	4.29	9.65	8.02	(0.85)	5.22	3.97	0.17	7.66	3.33	3.67	5.16	7.63	01/01/1985
	ESTIMATED INVESTMENT FEES			(0.01)	(0.04)	(0.02)	(0.04)	(0.06)	(0.07)	(0.07)	(0.08)	(0.05)	(0.06)			
	FIRE-TOTAL STRUCTURED FIXED INCOME - NET MGR			4.28	9.61	8.00	(0.89)	5.16	3.90	0.10	7.57	3.27	3.61			
	NYC CUSTOM STRUCTURED INDEX-FIRE			4.94	10.80	9.39	(1.29)	6.95								
	EXCESS RETURN			(0.66)	(1.19)	(1.39)	0.40	(1.78)								
286	FIRE-TOTAL CORE FI- DEVELOPING MGRS - GROSS	47	0.32	3.20	8.07	7.11	(1.01)	4.16	3.89	1.36	5.74	2.87	3.38	4.73	4.92	05/01/2009
	ESTIMATED INVESTMENT FEES			(0.05)	(0.21)	(0.10)	(0.20)	(0.20)	(0.21)	(0.19)	(0.17)	(0.20)	(0.20)			
	FIRE-TOTAL CORE FI- DEVELOPING MGRS - NET MGR			3.15	7.86	7.00	(1.21)	3.95	3.68	1.17	5.57	2.67	3.18			
	BBG BARC AGG (DLY)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97	2.31	2.95	3.90	3.96	
	EXCESS RETURN			0.07	(0.01)	0.89	(1.22)	0.41	1.04	0.62	(0.39)	0.35	0.23	0.83	0.96	
296	FIRE-TOTAL CORE FI- EMERGING MGRS - GROSS	32	0.22	3.27	8.22	6.47	0.29	4.51	3.19	1.13	6.21	3.06	3.40		3.63	03/01/2012
	ESTIMATED INVESTMENT FEES			(0.09)	(0.37)	(0.18)	(0.34)	(0.48)	(0.22)	(0.35)	(0.36)	(0.35)	(0.35)			
	FIRE-TOTAL CORE FI- EMERGING MGRS - NET MGR			3.19	7.85	6.29	(0.05)	4.02	2.97	0.78	5.85	2.71	3.05			
	BBG BARC AGG (DLY)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97	2.31	2.95		2.71	
	EXCESS RETURN			0.11	(0.02)	0.18	(0.06)	0.48	0.32	0.23	(0.12)	0.40	0.10		0.92	
306	FIRE-TOTAL TIPS - GROSS	623	4.30	2.85	4.84	6.19	(1.25)	3.06	4.65	(1.31)	3.59	2.10	1.78	3.71	3.84	06/01/2005
	ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.07)	(0.02)	(0.03)			
	FIRE-TOTAL TIPS - NET MGR			2.85	4.82	6.18	(1.27)	3.04	4.63	(1.34)	3.52	2.08	1.76			
	BBG BARC GBL INF-LK: US TIPS (DLY)			2.86	4.84	6.15	(1.26)	3.01	4.68	(1.44)	3.64	2.08	1.76	3.64	3.71	
	EXCESS RETURN			(0.02)	(0.02)	0.03	(0.01)	0.03	(0.05)	0.09	(0.12)	0.00	0.00	0.07	0.12	
316	FIRE-TOTAL HIGH YIELD - GROSS	826	5.70	2.90	7.20	10.18	(2.94)	7.53	14.46	(3.07)	2.54	7.15	4.37	8.34	8.04	12/01/1994
	ESTIMATED INVESTMENT FEES			(0.08)	(0.33)	(0.18)	(0.29)	(0.32)	(0.37)	(0.34)	(0.35)	(0.33)	(0.34)			
	FIRE-TOTAL HIGH YIELD - NET MGR			2.82	6.87	10.00	(3.24)	7.21	14.09	(3.40)	2.19	6.83	4.04			
	HIGH YIELD CUSTOM BENCHMARK			2.50	7.48	9.94	(2.34)	7.03	15.48	(4.21)	2.78	7.06	4.41	8.24	6.99	
	EXCESS RETURN			0.32	(0.61)	0.06	(0.90)	0.18	(1.39)	0.81	(0.59)	(0.23)	(0.37)	0.10	1.05	
326	FIRE- TOTAL BANK LOANS - GROSS	214	1.47	1.10	3.45	4.53	1.18	4.51	8.55	1.47	2.82	5.03	4.08		4.64	12/01/2012
	ESTIMATED INVESTMENT FEES			(0.09)	(0.37)	(0.19)	(0.36)	(0.38)	(0.41)	(0.38)	(0.39)	(0.38)	(0.38)			
	FIRE-TOTAL BANK LOANS - NET MGR			1.01	3.08	4.35	0.81	4.14	8.15	1.09	2.43	4.65	3.69			
	CSFB LEVERAGED LOAN INDEX			1.58	4.15	5.42	1.14	4.25	9.88	(0.38)	2.06	5.43	3.85		4.40	
	EXCESS RETURN			(0.57)	(1.06)	(1.07)	(0.33)	(0.11)	(1.73)	1.48	0.38	(0.78)	(0.16)		0.24	

Consolidated Performance Report

Through June 30, 2019

		Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL																
338	FIRE-TOTAL CONVERTIBLE BONDS - GROSS	241	1.66	2.09	5.68	8.68	(1.44)	8.44	7.74	(0.91)	5.16	6.67	4.17	8.26	6.19	07/01/2008
	ESTIMATED INVESTMENT FEES			(0.12)	(0.51)	(0.26)	(0.48)	(0.52)	(0.54)	(0.51)	(0.54)	(0.52)	(0.52)			
	FIRE-TOTAL CONVERTIBLE BONDS - NET MGR			1.97	5.18	8.42	(1.92)	7.92	7.20	(1.42)	4.62	6.15	3.66			
	BOFAML ALL CONVERTIBLE EX M AI (DAILY)			3.92	8.00	14.39	0.65	15.70	11.71	(2.75)	9.33	13.65	7.60	12.04	9.05	
	EXCESS RETURN			(1.95)	(2.83)	(5.97)	(2.57)	(7.78)	(4.51)	1.32	(4.71)	(7.50)	(3.94)	(3.78)	(2.85)	
348	FIRE-TOTAL OPPORTUNISTIC FIXED INCOME	453	3.13	1.83	5.70	3.22	6.54	8.42	9.53	(3.02)	7.41	8.67	5.07	11.83	8.39	11/01/2007
	OPPORTUNISTIC FIXED INCOME JPMGHY / CSFB 50/50 BLEND PLUS 300			2.96	9.26	9.32	2.36	9.42	17.40	0.63	4.93	9.86	7.48	11.14	9.14	
	EXCESS RETURN			(1.12)	(3.56)	(6.10)	4.18	(1.00)	(7.87)	(3.65)	2.48	(1.19)	(2.41)	0.69	(0.75)	
358	FIRE-TOTAL TARGETED INVESTMENTS (NO CASH) - GROSS	107	0.74	3.48	8.88	6.36	0.93	3.98	2.37	3.06	6.90	2.82	3.79	4.19	7.24	12/01/1984
	ESTIMATED INVESTMENT FEES			(0.06)	(0.28)	(0.13)	(0.28)	(0.30)	(0.32)	(0.32)	(0.36)	(0.29)	(0.31)	(0.35)	(0.18)	
	FIRE-TOTAL TARGETED INVESTMENTS (NO CASH) - NET MGR			3.43	8.59	6.24	0.65	3.68	2.04	2.73	6.54	2.54	3.48	3.85	7.07	
	FIRE CUSTOM BENCHMARK (NO CASH)			2.67	7.27	5.30	0.68	3.19	2.46	1.05	5.75	2.35	2.91	3.69		
	EXCESS RETURN			0.76	1.33	0.94	(0.04)	0.49	(0.41)	1.68	0.79	0.18	0.57	0.15		
CASH SUMMARY																
370	Short Term FIRE - GROSS	364	2.51	0.64	2.36	1.26	1.97	1.13	0.88	0.32	0.21	1.53	1.14	0.79	3.54	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			0.64	2.36	1.26	1.97	1.13	0.88	0.32	0.21	1.53	1.14	0.79		
374	Cash Account	0	0.00													
376	Securities Lending	0	0.00													
378	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 June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
EQUITY SUMMARY										
US EQUITY										
BlackRock US SCG R2000	81	0.56	2.74	(0.36)	20.34	(9.14)	22.26	11.29	(1.29)	5.50
RUSSELL 2000 GROWTH DAILY			2.75	(0.49)	20.36	(9.31)	22.17	11.32	(1.38)	5.60
Excess			(0.01)	0.13	(0.02)	0.17	0.09	(0.02)	0.09	(0.11)
BlackRock US SCV R2000	4	0.03	1.31	(6.25)	13.46	(12.79)	7.34	31.71	(7.33)	3.80
RUSSELL 2000 VALUE DAILY			1.38	(6.24)	13.47	(12.86)	7.84	31.74	(7.47)	4.22
Excess			(0.06)	(0.02)	(0.00)	0.08	(0.49)	(0.03)	0.13	(0.41)
Brown Asset Mgmt US SCG	74	0.51	7.23	10.23	27.89	1.06	28.87	10.25	8.61	2.92
RUSSELL 2000 GROWTH DAILY			2.75	(0.49)	20.36	(9.31)	22.17	11.32	(1.38)	5.60
Excess			4.48	10.72	7.53	10.37	6.70	(1.07)	9.99	(2.68)
Ceredex US SCV	86	0.59	2.17	(3.90)	13.67	(11.72)	10.66	29.36	(4.73)	2.54
RUSSELL 2000 VALUE DAILY			1.38	(6.24)	13.47	(12.86)	7.84	31.74	(7.47)	4.22
Excess			0.79	2.33	0.20	1.14	2.83	(2.38)	2.74	(1.68)
Dalton US SCV	63	0.43	0.87	(5.65)	13.98	(17.30)	8.38	25.01	(3.32)	4.47
RUSSELL 2000 VALUE DAILY			1.38	(6.24)	13.47	(12.86)	7.84	31.74	(7.47)	4.22
Excess			(0.51)	0.58	0.52	(4.43)	0.55	(6.73)	4.15	0.25
Iridian US MCC	9	0.06				(23.30)	23.23	4.19	(3.71)	14.03
RUSSELL MIDCAP (DAILY)						(9.06)	18.52	13.80	(2.44)	13.22
Excess						(14.24)	4.71	(9.60)	(1.27)	0.82
Wellington US MCC	174	1.20	4.40	8.17	25.60	(7.35)	25.09	12.29	1.78	10.93
S&P 400 MIDCAP INDEX (DAILY)			3.05	1.36	17.97	(11.08)	16.24	20.74	(2.18)	9.77
Excess			1.36	6.81	7.62	3.74	8.84	(8.45)	3.95	1.17

Public Markets Manager Performance Detail

Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
BlackRock US LC R1000 Value	0	0.00					13.65	17.48	(3.90)	13.39
RUSSELL 1000 VALUE (DAILY)							13.66	17.34	(3.83)	13.45
Excess							(0.01)	0.14	(0.08)	(0.06)
BlackRock US LMC R1000 Core	2,299	15.86	4.33	10.27	18.91					
RUSSELL 1000 (DAILY)			4.25	10.02	18.84					
Excess			0.08	0.25	0.07					
PIMCO RAFI US LMCE	404	2.79	2.22	5.10	14.14	(6.74)	16.88			
RUSSELL 1000 (DAILY)			4.25	10.02	18.84	(4.78)	21.69			
Excess			(2.02)	(4.92)	(4.70)	(1.96)	(4.81)			
Legal General US LMCE	366	2.52								
RUSSELL 1000 (DAILY)										
Excess										
SSGA US LMC Top 200 Core	675	4.66	4.36	10.98	17.95					
RUSSELL TOP 200 INDEX (DAILY)			4.29	10.89	17.91					
Excess			0.06	0.09	0.05					
FUND OF FUNDS										
FIRE-TOTAL FUND OF FUNDS	21	0.15	1.98	(0.06)	16.59	(8.21)				
RUSSELL 2000 (DAILY)			2.10	(3.31)	16.98	(11.01)				
Excess			(0.12)	3.25	(0.40)	2.80				
FIRE-TOTAL LEGATO	21	0.15	1.98	(0.06)	16.59	(8.19)				
RUSSELL 2000 (DAILY)			2.10	(3.31)	16.98	(11.01)				
Excess			(0.12)	3.25	(0.40)	2.82				

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
NON - US EQUITY										
Baillie Gifford WorldxUS LMCC	204	1.41	3.68	(2.39)	23.75	(15.37)	44.17	0.70	(3.81)	(6.77)
NYC Developed Growth Benchmark			3.79	1.29	14.64	(14.09)	27.77	(3.04)	4.09	(4.43)
Excess			(0.11)	(3.68)	9.11	(1.28)	16.40	3.74	(7.90)	(2.34)
Walter Scott WorldxUS LMCC	257	1.77	5.56	8.95	17.98	(7.65)	28.12	5.03	0.28	(3.76)
NYC Developed Growth Benchmark			3.79	1.29	14.64	(14.09)	27.77	(3.04)	4.09	(4.43)
Excess			1.77	7.66	3.34	6.44	0.35	8.07	(3.81)	0.67
Causeway WorldxUS LMCC	199	1.37	0.47	(4.01)	11.14	(18.34)	28.22	0.52	(2.39)	(4.91)
NYC Developed Value Benchmark			3.79	1.29	14.64	(14.09)	22.77	5.02	(5.68)	(5.39)
Excess			(3.32)	(5.30)	(3.49)	(4.25)	5.45	(4.51)	3.29	0.48
Sprucegrove WorldxUS LMCC	247	1.70	3.43	1.48	13.22	(13.67)	27.20	11.10	(9.44)	(3.32)
NYC Developed Value Benchmark			3.79	1.29	14.64	(14.09)	22.77	5.02	(5.68)	(5.39)
Excess			(0.36)	0.19	(1.42)	0.42	4.44	6.08	(3.75)	2.07
Acadian WorldxUS SCC	75	0.52	2.05	(6.23)	12.55	(19.22)	38.38	6.41	8.68	(4.92)
S&P EPAC Small Cap USD NET			2.37	(6.38)	12.53	(18.58)	33.47	1.34	8.58	(3.43)
Excess			(0.32)	0.14	0.02	(0.65)	4.91	5.07	0.09	(1.49)
Fidelity WorldxUS SCC	29	0.20	3.37	(6.76)	13.33	(18.22)	31.28	(0.80)	11.96	(5.60)
S&P EPAC Small Cap USD NET			2.37	(6.38)	12.53	(18.58)	33.47	1.34	8.58	(3.43)
Excess			0.99	(0.38)	0.80	0.36	(2.19)	(2.14)	3.38	(2.17)
Alger EAFE SCC	19	0.13	2.15							
MSCI EAFE SMALL CAP NET (DAILY)			1.71							
Excess			0.44							
SSGA WorldxUS LMC NYC Custom IDX	130	0.90	3.97	1.92	14.85	(13.64)	24.43	1.28	(0.55)	(4.75)
NYC Custom World ex US Index			3.79	1.29	14.64	(14.09)	24.12	1.00	(0.81)	(4.90)
Excess			0.18	0.63	0.21	0.45	0.32	0.28	0.27	0.15

Public Markets Manager Performance Detail

Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
SSGA WorldxUS SC Custom IDX ¹	49	0.34	1.94	(5.98)	12.94	(17.97)	33.43	2.77	9.86	
World ex USA SC PASSIVE CUSTOM BM			1.76	(6.17)	12.88	(18.07)	33.31	2.18	9.59	
Excess			0.17	0.19	0.05	0.10	0.12	0.59	0.27	
EMERGING MARKETS										
Baillie Gifford EM	164	1.13	2.49	7.98	17.60	(15.37)	54.13	2.78	(7.99)	0.10
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)
Excess			1.89	6.77	7.02	(0.80)	16.85	(8.41)	6.92	2.28
Acadian EM	138	0.95	1.00	(1.42)	9.18	(17.27)	40.45	12.65	(15.05)	3.79
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)
Excess			0.39	(2.63)	(1.40)	(2.70)	3.16	1.46	(0.13)	5.97
Parametric EM	151	1.04	2.02	1.77	9.83	(14.33)	29.65	13.85	(15.72)	(3.88)
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)
Excess			1.41	0.56	(0.75)	0.24	(7.63)	2.67	(0.81)	(1.69)
DFA EM	146	1.00	0.45	1.67	7.37	(12.06)	33.64	17.36	(19.25)	(4.39)
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)
Excess			(0.15)	0.47	(3.21)	2.51	(3.64)	6.17	(4.33)	(2.20)
BlackRock MSCI EM Core	270	1.86	0.70	1.42	10.81	(14.43)	37.25	11.17	(14.91)	(2.29)
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)
Excess			0.09	0.21	0.23	0.14	(0.03)	(0.02)	0.01	(0.10)
INTERNATIONAL FOF										
FIRE-TOTAL INTERNATIONAL FOF	73	0.51	3.96	0.35	14.50	(14.65)				
MSCI ACWI ex USA IMI Net			2.74	0.26	13.33	(14.76)				
Excess			1.22	0.09	1.17	0.10				

Public Markets Manager Performance Detail

Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
FIRE-TOTAL INTERNATIONAL FIS	73	0.51	3.96	0.35	14.50	(14.65)				
MSCI ACWI ex USA IMI Net			2.74	0.26	13.33	(14.76)				
Excess			1.22	0.09	1.17	0.10				
GLOBAL EQUITY										
Fiera-Global	113	0.78	6.12		22.62					
MSCI World Index			4.00		16.98					
Excess			2.12		5.64					
Morgan Stanley-Global	106	0.73	6.88	6.68	27.55					
MSCI AC WORLD (Daily Const)			3.61	5.74	16.23					
Excess			3.27	0.94	11.33					
REAL ESTATE SECURITIES										
Morgan Stanley REITS	72	0.49	(1.51)	4.20	13.20	(7.88)	9.26	3.49	(1.63)	30.72
Morgan Stanley Custom RESI Index			0.82	9.75	16.67	(4.22)	8.64	2.37	(1.53)	31.85
Excess			(2.32)	(5.55)	(3.47)	(3.66)	0.63	1.13	(0.11)	(1.13)
Adelante REITS	113	0.78	1.94	12.91	19.72	(5.49)	7.34	3.90	4.82	33.07
DJ US SELECT REAL ESTATE SECURITIES INDEX			0.82	9.75	16.67	(4.22)	3.76	6.65	4.46	31.85
Excess			1.12	3.16	3.05	(1.27)	3.58	(2.75)	0.36	1.21
FIXED INCOME SUMMARY										
STRUCTURED FIXED INCOME										
Taplin Credit	48	0.33	4.62	10.08	10.43	(3.48)	8.08	9.52	(3.74)	7.73
NYC - Investment Grade Credit			4.07	10.13	8.99	(1.90)	6.04	5.56	(0.65)	7.04
Excess			0.55	(0.05)	1.44	(1.58)	2.05	3.97	(3.10)	0.69
T Rowe Price Credit	165	1.14	4.35	10.49	9.47	(2.41)	6.89	6.00	0.16	7.74
NYC - Investment Grade Credit			4.07	10.13	8.99	(1.90)	6.04	5.56	(0.65)	7.04
Excess			0.28	0.37	0.48	(0.51)	0.86	0.44	0.80	0.70

Public Markets Manager Performance Detail

Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
BlackRock Credit	102	0.70	4.25	10.32	9.50	(2.01)	6.12	5.43	(0.61)	7.43
NYC - Investment Grade Credit			4.07	10.13	8.99	(1.90)	6.04	5.56	(0.65)	7.04
Excess			0.17	0.19	0.51	(0.11)	0.09	(0.13)	0.04	0.39
Prudential Credit	76	0.52	4.19	10.23	9.15	(1.81)	6.32	5.97	(0.18)	7.19
NYC - Investment Grade Credit			4.07	10.13	8.99	(1.90)	6.04	5.56	(0.65)	7.04
Excess			0.11	0.10	0.16	0.09	0.28	0.41	0.47	0.14
BlackRock Mortgages	203	1.40	2.31	6.71	4.72	0.97	2.66	2.19	1.72	6.77
FTSE MORTGAGE INDEX			2.09	6.39	4.30	1.01	2.47	1.59	1.56	6.12
Excess			0.22	0.33	0.42	(0.04)	0.19	0.60	0.16	0.64
Neuberger Berman Mortgages	109	0.75	1.99	6.13	4.18	0.81	2.42	1.52	1.38	6.66
FTSE MORTGAGE INDEX			2.09	6.39	4.30	1.01	2.47	1.59	1.56	6.12
Excess			(0.10)	(0.26)	(0.12)	(0.20)	(0.05)	(0.06)	(0.18)	0.54
SSGA LI Treasury	869	5.99	4.54	10.33	8.13	(0.20)	4.81	1.47	0.47	12.15
NYC - Treasury Agency Plus Five			4.56	10.38	8.09	(0.05)	4.66	1.21	0.72	12.38
Excess			(0.02)	(0.06)	0.04	(0.15)	0.16	0.26	(0.25)	(0.23)
SSGA IT Treasury 1-10Y ²	6	0.04	2.33	5.02	3.84	2.03				
FTSE USBIG Treasury/Agency 1-10 y			2.33	6.11	3.95	1.42				
Excess			(0.00)	(1.09)	(0.11)	0.61				
91 DAY TREASURY BILL (DAILY)			0.64	2.31	1.24	1.87				
Excess			1.69	2.71	2.60	0.16				
SSGA ST Treasury 1-3Y ³	133	0.92	1.50	4.03	2.50	1.53	1.78			
FTSE USBIG Treasury 1-3 Y Index			1.44	3.95	2.44	1.56	0.42			
Excess			0.07	0.08	0.06	(0.03)	1.36			
91 DAY TREASURY BILL (DAILY)			0.64	2.31	1.24	1.87	0.86			
Excess			0.87	1.72	1.26	(0.35)	0.92			

Public Markets Manager Performance Detail

Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
SSGA LT Treasury 10Y Plus	517	3.56	6.05	12.27	11.00	(1.83)	8.54			
FTSE Treasury 10+			6.04	12.24	11.03	(1.89)	8.60			
Excess			0.01	0.03	(0.03)	0.05	(0.07)			
CORE FI-EMERGING MANAGERS										
Optimum Quantvest-Core	3	0.02	3.26	8.14	5.95	0.33	2.64	2.61	0.61	7.09
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97
Excess			0.18	0.27	(0.16)	0.32	(0.90)	(0.03)	0.06	1.13
Integrity-Core	3	0.02	3.18	7.67	6.05	(0.03)	3.93			
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54			
Excess			0.10	(0.20)	(0.07)	(0.04)	0.39			
New Century-Core Plus	8	0.06	3.17	7.80	6.21	0.12	4.04	2.37	(0.30)	6.53
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97
Excess			0.09	(0.07)	0.09	0.11	0.50	(0.28)	(0.85)	0.56
Pugh-Core Plus	10	0.07	3.14	7.69	6.22	(0.42)	4.12	3.48	0.79	5.88
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97
Excess			0.06	(0.18)	0.10	(0.43)	0.58	0.83	0.24	(0.09)
Ramirez-Core	8	0.06	3.22	8.06	6.69	0.07	4.47	3.64	1.12	
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	
Excess			0.14	0.19	0.57	0.06	0.93	0.99	0.57	
HIGH YIELD										
Brigade High Yield	55	0.38	3.01		10.50					
BBG BARC US HY - 2% Issr Cap			2.50		9.94					
Excess			0.51		0.56					

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
Eaton Vance High Yield	89	0.61	2.69		10.00					
BBG BARC US HY - 2% Issr Cap			2.50		9.94					
Excess			0.19		0.06					
Mackay Shields High Yield	85	0.59	2.40		9.40					
BBG BARC US HY - 2% Issr Cap			2.50		9.94					
Excess			(0.10)		(0.54)					
Nomura High Yield	54	0.37	2.04		8.88					
BBG BARC US HY - 2% Issr Cap			2.50		9.94					
Excess			(0.46)		(1.06)					
Shenkman High Yield	156	1.08	2.55		9.41					
BBG BARC US HY - 2% Issr Cap			2.50		9.94					
Excess			0.05		(0.53)					
T Rowe Price High Yield	386	2.66	3.16	8.87	10.51	(2.34)	7.29	12.24	(1.28)	2.91
BBG BARC US HY - 2% Issr Cap			2.50	7.48	9.94	(2.08)	7.50	17.13	(4.43)	2.46
Excess			0.66	1.40	0.57	(0.26)	(0.22)	(4.89)	3.16	0.45
BANK LOANS										
Barings Bank Loans	105	0.72	0.95	2.98	4.75	0.38	4.47	8.46	0.12	1.99
CSFB LEVERAGED LOAN INDEX			1.58	4.15	5.42	1.14	4.25	9.88	(0.38)	2.06
Excess			(0.63)	(1.17)	(0.66)	(0.76)	0.22	(1.41)	0.50	(0.07)
Guggenheim Bank Loans	1	0.01				1.24	3.82	7.84	2.07	2.88
CSFB LEVERAGED LOAN INDEX						1.14	4.25	9.88	(0.38)	2.06
Excess						0.10	(0.43)	(2.03)	2.45	0.83
Bain Bank Loans	108	0.74								
CSFB LEVERAGED LOAN INDEX										
Excess										

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
TIPS										
BlackRock TIPS	158	1.09	2.82	4.79	6.16	(1.18)	2.98	4.75	(1.24)	3.74
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			2.86	4.84	6.15	(1.26)	3.01	4.68	(1.44)	3.64
Excess			(0.04)	(0.04)	0.01	0.08	(0.02)	0.07	0.20	0.10
SSGA TIPS										
SSGA TIPS	465	3.20	2.85	4.82	6.18	(1.30)	3.06	4.59	(1.35)	3.57
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			2.86	4.84	6.15	(1.26)	3.01	4.68	(1.44)	3.64
Excess			(0.01)	(0.01)	0.03	(0.04)	0.05	(0.09)	0.09	(0.07)
CONVERTIBLE BONDS										
Advent Convertible Bonds	241	1.66	1.97	5.18	8.42	(1.92)	7.92	7.20	(1.42)	4.62
BofA ML U.S. Convertible Yield Alternative			2.25	4.57	8.69	(0.42)	9.45	9.96	(8.77)	2.75
Excess			(0.29)	0.60	(0.27)	(1.51)	(1.53)	(2.76)	7.35	1.87
CORE FI-DEVELOPING MANAGERS										
LM Capital-Core Plus	24	0.17	3.11	7.89	6.88	(1.30)	3.92	3.43	1.02	5.57
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97
Excess			0.03	0.02	0.77	(1.32)	0.38	0.78	0.47	(0.39)
GIA-Core Plus										
GIA-Core Plus	23	0.16	3.19	7.82	7.13	(1.11)	3.99	3.96		
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65		
Excess			0.11	(0.05)	1.02	(1.12)	0.45	1.31		
ECONOMICALLY TARGETED INVESTMENTS										
AFL-CIO Housing Investment Trust	59	0.41	3.28	7.90	6.02	0.16	3.17	1.94	1.13	6.10
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97
Excess			0.20	0.03	(0.09)	0.15	(0.38)	(0.71)	0.58	0.14
RBC Access MBS										
RBC Access MBS	27	0.18	2.30	6.83	4.85	0.49	2.64	1.61	1.83	6.66
Access RBC Benchmark			2.16	6.27	4.21	1.17	1.96	1.52	1.40	5.08
Excess			0.14	0.55	0.64	(0.69)	0.69	0.09	0.43	1.58

Public Markets Manager Performance Detail

Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
CPC Construction Facility	2	0.01	0.79	4.21	2.11	4.14	6.06	(3.95)	12.90	
CPC CONST BENCHMARK			1.06	4.23	2.13	3.99	3.34	3.03	2.90	
Excess			(0.27)	(0.02)	(0.01)	0.15	2.73	(6.99)	10.01	
BOA PPAR FNMA	3	0.02	5.66	13.51	9.25	2.33	5.21	4.07	42.03	13.31
FNMA Plus 85bps			2.35	7.26	4.73	1.86	3.61	2.38	2.50	7.13
Excess			3.31	6.25	4.52	0.47	1.60	1.69	39.53	6.19
Citibank PPAR FNMA	3	0.02	6.30	15.16	9.75	2.63	5.26	3.71	6.69	25.71
FNMA Plus 85bps			2.35	7.26	4.73	1.86	3.61	2.38	2.50	7.13
Excess			3.96	7.90	5.02	0.77	1.65	1.33	4.20	18.58
Citibank PPAR GNMA	1	0.01	2.53	10.12	5.32	1.90	3.10	2.78	5.08	15.37
GNMA Plus 65bps			2.13	6.90	4.50	1.63	2.53	2.28	2.02	6.65
Excess			0.40	3.21	0.82	0.27	0.57	0.50	3.06	8.72
CFSB PPAR GNMA	0	0.00	2.85	9.78	5.57	0.99	3.83	3.21	5.90	15.34
GNMA Plus 65bps			2.13	6.90	4.50	1.63	2.53	2.28	2.02	6.65
Excess			0.73	2.87	1.07	(0.65)	1.30	0.93	3.88	8.69
CPC PPAR FNMA	3	0.02	5.94	14.84	9.95	2.31	5.06	6.15	8.96	13.91
FNMA Plus 85bps			2.35	7.26	4.73	1.86	3.61	2.38	2.50	7.13
Excess			3.59	7.58	5.22	0.45	1.45	3.77	6.46	6.78
JPMC PPAR FNMA	6	0.04	6.79	14.75	10.26	1.68	9.96	7.94	6.18	11.95
FNMA Plus 85bps			2.35	7.26	4.73	1.86	3.61	2.38	2.50	7.13
Excess			4.44	7.50	5.52	(0.18)	6.35	5.56	3.68	4.82
LIIF PPAR FNMA	3	0.02	5.72	14.40	9.26	2.27	9.55	5.03	6.29	38.12
FNMA Plus 85bps			2.35	7.26	4.73	1.86	3.61	2.38	2.50	7.13
Excess			3.38	7.15	4.53	0.41	5.94	2.65	3.79	30.99

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
LIIF PPAR GNMA	0	0.00	2.40	8.01	4.37	2.53	2.52	3.88	3.92	9.74
GNMA Plus 65bps			2.13	6.90	4.50	1.63	2.53	2.28	2.02	6.65
Excess			0.27	1.11	(0.13)	0.89	(0.01)	1.61	1.91	3.09
LISC PPAR FNMA	1	0.01	5.85		9.79					
FNMA Plus 85bps			2.35		4.73					
Excess			3.50		5.05					
NCBCI PPAR FNMA	0	0.00	0.57	8.27	3.10	2.00	1.75	3.46	4.97	14.93
FNMA Plus 85bps			2.35	7.26	4.73	1.86	3.61	2.38	2.50	7.13
Excess			(1.78)	1.02	(1.63)	0.15	(1.86)	1.07	2.47	7.81
NCBCI PPAR GNMA	0	0.00	1.40	8.09	3.91	1.23	3.01	3.51	5.53	16.66
GNMA Plus 65bps			2.13	6.90	4.50	1.63	2.53	2.28	2.02	6.65
Excess			(0.73)	1.19	(0.59)	(0.41)	0.48	1.23	3.52	10.01
Wells Fargo PPAR FNMA	0	0.00	5.80	23.19	16.37					
FNMA Plus 85bps			2.35	7.26	4.73					
Excess			3.45	15.93	11.64					
CASH										
Short Term FIRE	364	2.51	0.64	2.36	1.26	1.97	1.13	0.88	0.32	0.21
91 DAY TREASURY BILL (DAILY)			0.64	2.31	1.24	1.87	0.86	0.33	0.05	0.03
Excess			(0.00)	0.05	0.01	0.09	0.27	0.56	0.26	0.18
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 March 31, 2019

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
TOTAL PRIVATE EQUITY		2,367,271,317	1,790,801,473	1,703,429,460	952,528,101	1.48	11.4%
TOTAL LIQUIDATED		162,374,323	180,600,645	234,812,251	-	1.30	7.9%
TOTAL ACTIVE		2,204,896,995	1,610,200,828	1,468,617,209	952,528,101	1.50	12.0%
TOTAL ACTIVE							
Cypress Merchant Banking Partners II, L.P.	1999	22,586,486	26,972,134	25,292,077	13,081	0.94	-1.2%
Lincolnshire Equity Fund II, L.P.	1999	6,899,005	7,223,050	14,015,738	279,746	1.98	24.6%
SCP Private Equity Partners II, L.P.	2000	15,000,000	16,834,296	6,514,303	1,767,762	0.49	-8.0%
Apollo Investment Fund V, L.P.	2001	15,000,000	23,379,009	46,122,367	139,848	1.98	38.8%
CVC European Equity Partners III, L.P.	2001	10,000,000	11,880,366	29,775,858	684,367	2.56	41.0%
Landmark Equity Partners XI, L.P.	2002	5,000,000	4,753,167	7,305,360	12,288	1.54	23.3%
FS Equity Partners V, L.P.	2003	10,000,000	8,567,981	16,744,589	774,312	2.04	15.4%
Blackstone Capital Partners IV, L.P.	2003	13,875,989	17,166,532	41,515,941	711,828	2.46	36.3%
Ares Corporate Opportunities Fund, L.P.	2003	5,000,000	5,998,308	8,941,880	217,010	1.53	13.3%
Markstone Capital Partners, LP	2004	5,000,000	5,862,384	2,477,825	34,027	0.43	-43.5%
FdG Capital Partners II LP	2004	5,000,000	5,387,768	6,228,579	330,260	1.22	3.8%
Paladin Homeland Security Fund (NY City), L.P.	2004	7,500,000	8,256,642	3,143,003	11,099	0.38	-14.2%
Lincolnshire Equity Fund III, L.P.	2004	5,000,000	5,000,631	7,066,602	1,936,872	1.80	28.4%
Yucaipa American Alliance Fund I, LP	2004	5,000,000	7,491,869	7,275,413	2,007,336	1.24	4.9%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 1	2004	2,000,000	2,053,879	1,940,290	404,104	1.14	2.2%
Aurora Equity Partners III L.P.	2004	5,000,000	5,412,677	8,743,588	37,477	1.62	13.5%
Medica III Investments (International) L.P.	2004	3,000,000	2,992,836	1,267,948	722,000	0.66	-7.9%
Palladium Equity Partners III, L.P.	2005	10,000,000	10,577,602	19,418,004	979,528	1.93	15.6%
New Mountain Partners II, L.P.	2005	2,580,650	2,337,304	4,502,540	37,154	1.94	13.6%
Carlyle Partners IV, L.P.	2005	5,000,000	5,153,753	10,090,391	103,842	1.98	13.0%
Prism Venture Partners V-A, L.P.	2005	7,500,000	7,690,681	4,765,525	118,090	0.64	-8.8%
Snow Phipps Group, L.P.	2005	5,000,000	5,956,871	5,228,654	2,594,398	1.31	6.0%
Blackstone Mezzanine Partners II, L.P.	2005	2,561,603	2,866,163	3,810,696	30,524	1.34	7.8%
Psilos Group Partners III, L.P.	2005	2,500,000	2,657,559	1,282,054	1,755,928	1.14	2.0%
FirstMark Capital I, L.P. (fka FirstMark IV)	2005	1,500,000	1,639,064	4,611,677	5,868,419	6.39	33.3%
USPF II Institutional Fund, L.P.	2005	5,000,000	6,594,940	7,595,220	907,992	1.29	4.3%
JP Morgan Fleming (Tranche A)	2005	3,000,000	3,006,280	2,909,513	927,684	1.28	4.7%
Arlington Capital Partners II, L.P.	2005	4,000,000	4,069,527	6,842,637	255,842	1.74	11.1%
Aisling Capital II, LP	2006	1,000,000	1,178,021	1,141,279	53,172	1.01	0.2%

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%
InterMedia Partners VII, L.P.	2006	2,500,000	2,919,819	2,959,171	24,313	1.02	0.3%
Terra Firma Capital Partners III, L.P.	2006	5,222,766	5,293,671	1,998,164	370,803	0.45	-9.8%
Fenway Partners Capital Fund III, L.P.	2006	5,000,000	5,743,510	4,919,243	4,208,565	1.59	7.3%
Blackstone Capital Partners V, L.P.	2006	9,448,250	10,049,920	15,902,559	449,907	1.63	8.0%
Avista Capital Partners, L.P.	2006	5,000,000	6,573,992	8,004,066	119,593	1.24	4.5%
Apollo Investment Fund VI, L.P.	2006	20,000,000	25,741,832	36,308,230	2,517,956	1.51	8.7%
Ares Corporate Opportunities Fund II, L.P.	2006	5,000,000	5,476,087	8,835,217	341,882	1.68	13.1%
CCMP Capital Investors II, L.P.	2006	5,000,000	5,486,988	9,439,624	4,233	1.72	13.5%
Euro Choice III L.P.	2006	5,314,768	5,347,612	5,718,543	481,015	1.16	2.9%
Thomas, McNerney & Partners II, L.P.	2006	3,000,000	3,035,394	6,119,246	730,769	2.26	16.7%
Catterton Partners VI, L.P.	2006	5,000,000	5,693,763	8,325,211	2,282,898	1.86	11.7%
First Reserve Fund XI, L.P.	2006	5,000,000	5,313,265	3,418,095	269,580	0.69	-8.0%
Permira IV, L.P.	2006	5,513,169	5,989,739	8,625,746	696,322	1.56	8.6%
Arsenal Capital Partners II, LP	2006	4,000,000	4,982,154	7,865,472	1,303,953	1.84	11.7%
GF Capital Private Equity Fund, L.P.	2006	3,000,000	3,074,084	3,916,818	1,592,959	1.79	12.3%
RRE Ventures IV, L.P.	2006	2,500,000	3,162,574	1,754,151	2,810,095	1.44	5.4%
Coller International Partners V, L.P.	2006	5,000,000	4,372,182	5,728,047	487,499	1.42	8.2%
MidOcean Partners III, L.P.	2006	9,705,796	11,583,199	21,201,570	2,721,190	2.07	13.0%
The Fourth Cinven Fund	2006	2,731,530	2,870,272	4,120,624	2,046	1.44	7.3%
Falconhead Capital Partners II, L.P.	2006	4,000,000	4,481,396	4,478,251	1,281,317	1.29	4.6%
Atlantic Equity Partners IV, L.P.	2006	3,768,757	3,661,520	505,364	2,114,175	0.72	-4.1%
Capital Partners Private Equity Income Fund, L.P.	2006	2,000,000	1,923,102	4,406,173	47,284	2.32	20.9%
Pegasus Partners IV, L.P.	2007	7,500,000	9,185,635	6,895,091	1,708,597	0.94	-1.3%
Olympus Capital Asia III, L.P.	2007	5,000,000	5,851,116	2,988,294	1,976,998	0.85	-3.6%
FTVentures III, LP	2007	2,500,000	2,743,841	5,106,031	953,382	2.21	15.8%
Highland Consumer Fund I LP	2007	2,000,000	2,003,212	1,136,631	508,142	0.82	-2.7%
Montreux Equity Partners IV, L.P.	2007	5,000,000	5,000,000	2,761,158	4,030,647	1.36	4.8%
Gleacher Mezzanine Fund II, L.P.	2007	3,000,000	2,752,429	3,651,296	25,017	1.34	10.6%
SCP Vitalife Partners II Fund	2007	5,000,000	5,024,924	395	2,186,841	0.44	-10.1%
Constellation Venture Capital III, L.P.	2007	5,000,000	5,715,007	2,799,144	1,627,225	0.77	-4.2%
United States Power Fund III, L.P.	2007	5,000,000	5,915,665	6,017,519	1,433,517	1.26	4.2%
Carlyle Partners V, L.P.	2007	10,000,000	10,306,406	16,604,546	1,701,141	1.78	13.7%
PCG Clean Energy & Technology Fund (East), LLC	2007	10,000,000	9,047,736	1,977,305	1,682,921	0.40	-12.7%
GSO Capital Opportunities Fund LP	2007	7,500,000	11,229,550	15,937,873	124,589	1.43	17.4%

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
New Mountain Partners III, L.P.	2007	10,000,000	10,186,606	13,560,676	6,718,146	1.99	13.2%
Vista Equity Partners Fund III, L.P.	2007	7,500,000	8,045,926	19,154,991	899,366	2.49	27.1%
Trilantic Capital Partners IV L.P.	2007	7,236,332	7,559,627	11,217,244	893,586	1.60	13.7%
Pine Brook Capital Partners, L.P.	2007	7,500,000	8,511,266	9,720,738	1,441,522	1.31	7.4%
Princeton Capital Corp. (fka Capital Point)	2007	3,000,000	3,497,432	2,182,562	1,343,723	1.01	0.2%
Post Capital Equity Partners II LP	2007	3,000,000	2,142,326	4,013,183	476,653	2.10	15.4%
Paladin III (NY City), L.P.	2008	7,500,000	10,052,297	7,077,534	8,976,688	1.60	9.5%
Apollo Investment Fund VII, L.P.	2008	25,000,000	30,315,294	47,679,693	4,446,088	1.72	22.9%
NGN BioMed Opportunity II, L.P.	2008	5,000,000	4,787,955	3,336,553	2,735,379	1.27	3.6%
Riverstone/Carlyle Global Energy & Power Fund IV, L.P.	2008	7,500,000	8,730,885	7,061,827	2,933,357	1.14	3.7%
Yucaipa American Alliance Fund II, LP	2008	15,000,000	20,468,035	15,911,218	17,827,191	1.65	9.5%
Levine Leichtman Capital Partners IV, L.P.	2008	5,000,000	5,353,601	8,459,480	566,952	1.69	18.4%
New York/Fairview Emerging Managers Fund, L.P.-Tranche 2	2008	5,000,000	4,999,647	5,205,029	3,935,139	1.83	14.3%
Yucaipa Corporate Initiatives Fund II, LP	2008	4,676,976	4,588,700	1,673,241	2,424,612	0.89	-1.8%
CVC European Equity Partners V, L.P.	2008	13,698,204	14,791,218	23,862,091	4,096,638	1.89	16.1%
GI Partners Fund III L.P.	2008	7,500,000	8,103,000	12,597,993	145,620	1.57	13.0%
Ares Corporate Opportunities Fund III, L.P.	2008	10,000,000	12,069,911	18,612,162	7,379,781	2.15	20.9%
GCM Grosvenor NYCFDPF Emerging Manager Fund, L.P.	2008	8,979,798	11,246,645	9,392,380	5,830,463	1.35	9.1%
First Reserve Fund XII, L.P.	2008	5,000,000	5,554,103	2,733,585	976,510	0.67	-9.2%
Landmark Equity Partners XIV, L.P.	2008	13,630,000	13,247,977	14,891,538	2,447,654	1.31	9.6%
Crestview Partners II, L.P.	2008	7,500,000	8,693,626	11,135,698	3,544,114	1.69	13.4%
NB New York City Growth Fund IA	2008	1,208,990	1,208,990	417,624	440,544	0.71	-4.5%
Milestone Partners III, L.P.	2008	3,000,000	3,226,520	2,732,394	449,319	0.99	-0.3%
Euro Choice IV L.P.	2008	6,453,977	5,971,363	5,626,740	2,833,478	1.42	7.3%
Avista Capital Partners II, L.P.	2008	10,000,000	12,960,801	20,021,237	2,159,715	1.71	15.3%
Bridgepoint Europe IV	2008	6,663,647	6,761,888	7,766,756	2,526,050	1.52	10.1%
Blue Wolf Capital Fund II, L.P.	2008	3,000,000	3,252,569	3,768,005	768,213	1.39	7.8%
Aisling Capital III, LP	2008	3,500,000	3,950,660	8,732,526	572,226	2.36	26.2%
Onex Partners III LP	2008	5,000,000	5,460,617	7,225,550	1,895,329	1.67	12.7%
NorthBound Emerging Manager Custom Fund LP	2009	5,000,000	4,317,619	5,717,286	1,658,156	1.71	13.7%
Welsh, Carson, Anderson & Stowe XI, L.P.	2009	7,500,000	7,500,000	9,705,620	2,652,320	1.65	12.5%
Scale Venture Partners III, LP	2009	5,000,000	4,947,453	11,002,818	2,920,853	2.81	23.2%
FS Equity Partners VI, L.P.	2009	12,500,000	12,540,700	27,593,924	9,522,275	2.96	24.1%
Lincolnshire Equity Fund IV, L.P.	2009	2,500,000	2,663,593	3,046,031	1,090,779	1.55	10.9%

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%
Lexington Capital Partners VII, L.P.	2009	10,000,000	8,923,109	11,060,902	2,853,170	1.56	14.1%
Snow Phipps II, L.P.	2010	7,500,000	8,444,808	6,328,869	4,789,243	1.32	8.6%
Trident V, L.P.	2010	15,000,000	17,231,400	17,925,389	9,925,863	1.62	11.3%
Comvest Investment Partners IV, L.P.	2010	20,000,000	20,052,821	30,503,383	6,203,616	1.83	29.8%
Blackstone Capital Partners VI, L.P.	2011	10,000,000	10,275,503	7,816,545	8,745,219	1.61	13.5%
Ampersand 2011	2011	5,000,000	5,000,000	8,091,816	5,824,836	2.78	21.6%
BDCM Opportunity Fund III, L.P.	2011	10,000,000	14,335,300	6,501,903	12,898,382	1.35	8.5%
AXA Secondary Fund V B L.P.	2011	40,000,000	32,957,139	45,389,117	7,533,067	1.61	15.7%
Wellspring Capital Partners V, L.P.	2011	7,500,000	7,602,638	8,407,164	3,608,680	1.58	16.0%
EQT VI, L.P.	2011	17,733,494	18,420,281	22,762,803	8,440,696	1.69	14.1%
Pegasus Partners V, L.P.	2011	6,236,975	7,452,164	6,752,765	6,065,411	1.72	14.2%
BC European Capital IX	2011	21,962,416	23,763,920	16,428,526	17,229,149	1.42	10.5%
American Securities Partners VI, L.P.	2011	20,000,000	21,480,500	32,234,616	9,065,234	1.92	21.8%
Vista Equity Partners Fund IV, L.P.	2011	30,000,000	30,758,843	37,902,227	24,127,653	2.02	18.8%
Warburg Pincus Private Equity XI, L.P.	2012	35,000,000	37,237,928	25,833,772	33,671,825	1.60	14.3%
Summit Partners Growth Equity Fund VIII-A, L.P.	2012	30,000,000	33,797,926	46,642,245	20,648,840	1.99	25.5%
<u>NYCFPF - 2012 Emerging Manager Program</u>	<u>2012</u>	<u>23,700,000</u>	<u>23,194,729</u>	<u>8,447,673</u>	<u>25,373,254</u>	<u>1.46</u>	<u>14.4%</u>
Trilantic Capital Partners V L.P.	2012	10,000,000	10,668,907	9,108,014	6,850,191	1.50	18.0%
Palladium Equity Partners IV, L.P.	2012	10,000,000	8,420,195	4,640,794	8,185,360	1.52	14.5%
Ares Corporate Opportunities Fund IV, L.P.	2012	20,000,000	20,660,046	10,790,976	18,995,307	1.44	12.3%
Green Equity Investors VI, L.P.	2012	25,000,000	26,898,089	16,690,189	27,011,119	1.62	15.7%
Platinum Equity Capital Partners III, L.P.	2012	25,000,000	20,477,068	28,945,830	9,128,383	1.86	36.1%
Carlyle Partners VI, L.P.	2013	20,000,000	20,768,027	8,443,912	18,710,947	1.31	11.4%
Carlyle Partners VI, L.P. (Side Car)	2014	2,200,000	1,599,461	92,222	1,544,765	1.02	0.5%
Landmark Equity Partners XV, L.P.	2013	26,000,000	17,934,256	13,116,508	9,355,291	1.25	12.0%
Landmark - NYC Fund I, L.P.	2013	9,000,000	7,327,038	4,806,081	5,428,810	1.40	15.0%
Apollo Investment Fund VIII, L.P.	2013	40,000,000	36,061,628	11,428,818	34,321,796	1.27	10.6%
CVC Capital Partners VI, L.P.	2014	35,237,400	34,365,446	9,127,215	35,685,793	1.30	13.1%
Crestview Partners III, L.P.	2013	24,000,000	15,704,434	2,868,434	18,209,433	1.34	16.0%
Crestview Partners III (Co-Investment B), L.P.	2013	8,000,000	7,325,883	394,887	8,646,587	1.23	10.5%
Olympus Growth Fund VI, L.P.	2014	15,000,000	12,360,745	5,085,335	11,545,002	1.35	15.0%
ASF VI B L.P.	2014	30,000,000	21,262,670	11,841,550	18,632,535	1.43	13.5%
ASF VI B NYC Co-Invest L.P.	2014	10,000,000	7,725,627	6,019,047	4,683,514	1.39	12.6%
Vista Equity Partners Fund V, L.P.	2014	40,000,000	46,161,423	36,098,832	46,093,347	1.78	22.6%

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	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Lexington Capital Partners VIII, L.P.	2014	40,000,000	33,889,404	12,625,696	30,947,390	1.29	20.4%
Siris Partners III, L.P.	2015	5,500,000	4,618,419	2,512,758	2,954,362	1.18	10.0%
Centerbridge Capital Partners III, L.P.	2015	4,200,000	2,349,059	772,613	2,358,446	1.33	13.7%
Welsh, Carson, Anderson & Stowe XII, L.P.	2015	14,000,000	9,885,326	1,949,227	13,758,228	1.59	26.4%
Warburg Pincus Private Equity XII, L.P.	2015	36,000,000	26,075,885	1,577,628	29,389,540	1.19	11.6%
ASF VII B L.P.	2015	17,000,000	5,625,547	712,324	6,552,159	1.29	16.8%
ASF VII B NYC Co-Invest L.P.	2015	9,000,000	4,574,648	479,680	6,704,033	1.57	41.1%
EQT VII, L.P.	2015	28,522,364	24,379,649	3,173,119	27,327,083	1.25	14.1%
American Securities Partners VII, L.P.	2015	14,000,000	11,061,343	1,646,135	8,486,952	0.92	-6.4%
Bridgepoint Europe V L.P.	2015	11,427,513	10,446,095	1,488,705	11,080,804	1.20	12.3%
Bridgepoint Europe V Co-Invest	2015	3,491,158	3,241,557	324,224	4,933,065	1.62	35.0%
<u>NYCFPF - 2015 Emerging Manager Program</u>	<u>2015</u>	<u>190,400,000</u>	<u>9,416,822</u>	<u>386,107</u>	<u>10,883,836</u>	<u>1.20</u>	<u>19.5%</u>
Vista Equity Partners Fund VI, L.P.	2016	28,000,000	29,941,957	6,988,561	32,447,677	1.32	19.5%
Platinum Equity Capital Partners IV, L.P.	2016	19,000,000	12,546,466	3,479,480	13,859,795	1.38	36.0%
Platinum Equity Capital Partners IV Co-Investment, L.P.	2018	3,000,000	2,100,000	-	1,959,877	0.93	NM
Apax IX USD, L.P.	2016	22,000,000	9,961,190	208,652	13,562,573	1.38	NM
Green Equity Investors VII, L.P.	2017	17,000,000	8,650,222	67,318	9,561,463	1.11	NM
Ares Corporate Opportunities Fund V, L.P.	2017	17,000,000	9,553,239	292,664	9,650,024	1.04	NM
KKR Americas Fund XII, L.P.	2017	28,000,000	11,001,325	184,583	11,466,917	1.06	NM
BC European Capital X	2017	15,955,397	7,947,676	-	7,846,511	0.99	NM
BCEC X Co-Investment	2017	6,447,994	4,215,983	-	4,346,352	1.03	3.3%
Warburg Pincus Financial Sector, L.P.	2017	21,000,000	5,495,772	1,071,000	3,851,109	0.90	NM
Platinum Equity Small Cap Fund, L.P.	2018	8,000,000	608,593	-	478,471	0.79	NM
EQT VIII, L.P.	2018	21,934,403	3,170,212	268,865	2,842,233	0.98	NM
EQT VIII Co-Investment	2018	7,975,895	1,208,173	-	1,351,729	1.12	NM
CVC Capital Partners VII, L.P.	2018	30,384,935	4,841,052	45,645	5,928,957	1.23	NM
Grain Communications Opportunity Fund II, L.P.	2018	3,500,000	587,608	2,857	471,918	0.81	NM
Palladium Equity Partners V, L.P.	2017	6,666,667	1,097,311	-	837,006	0.76	NM
Vista Equity Partners Fund VII, L.P.	2018	35,500,000	2,921,103	127	2,871,145	0.98	NM
Welsh, Carson, Anderson & Stowe XIII, L.P.	2019	18,000,000	132,036	-	35,599	0.27	NM
Siris Partners IV, L.P.	2018	18,000,000	2,728,308	-	2,537,676	0.93	NM
Apollo Investment Fund IX, L.P.	2018	52,000,000	4,749,874	538	4,086,094	0.86	NM
ASF VIII B L.P.	2019	36,000,000	3,600	-	125,248	34.79	NM
ASF VIII B NYC Co-Invest L.P.	2019	18,000,000	1,800	-	451	0.25	NM

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Warburg Pincus Global Growth, L.P.	2019	25,500,000	301,878	-	223,918	0.74	NM
Bridgepoint Europe VI	2018	23,579,848	-	-	(289,912)	-	N/A
Bridgepoint Europe VI Co-Invest	2018	5,892,177	-	-	-	-	N/A
Crestview Partners IV, L.P.	2018	14,000,000	-	-	-	-	N/A
Crestview Partners IV (Co-Investment), L.P.	2018	4,666,667	-	-	-	-	N/A
KKR European Fund V (USD)	2019	17,650,000	-	-	-	-	N/A
Lexington Capital Partners IX	2019	21,375,000	-	-	1,005,254	-	NM

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2019

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL PRIVATE REAL ESTATE			1,020,651,520	822,634,821	568,922,878	582,941,865	1.39	8.1%
TOTAL PRIVATE REAL ESTATE								
PRISA SA	2006	Core Portfolio	7,000,000	7,530,220	2,849,391	9,964,908	1.70	4.9%
Prologis Targeted U.S. Logistics Fund	2006	Core Portfolio	5,000,000	6,745,383	2,226,838	9,324,876	1.71	5.6%
RREEF America REIT II	2006	Core Portfolio	7,000,000	9,178,399	4,787,963	10,084,197	1.62	5.3%
UBS Trumbull Property Fund	2006	Core Portfolio	27,000,000	40,919,619	34,399,217	29,003,253	1.55	7.1%
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	14,326,664	5,326,664	20,102,746	1.77	7.9%
JP Morgan Special Situation Property Fund	2007	Core Portfolio	5,000,000	5,870,702	2,048,537	7,290,241	1.59	4.7%
JP Morgan Strategic Property Fund	2007	Core Portfolio	22,000,000	24,459,391	-	50,511,150	2.07	8.2%
PRISA II	2007	Core Portfolio	20,228,233	21,417,377	6,826,553	30,637,441	1.75	5.9%
LaSalle Property Fund	2010	Core Portfolio	48,000,000	30,000,000	11,236,543	43,983,767	1.84	10.6%
NYC Asset Investor #2 LLC	2013	Core Portfolio	9,000,000	8,663,939	2,515,598	11,712,854	1.64	14.3%
MetLife Core Property Fund	2014	Core Portfolio	41,000,000	15,000,000	3,050,492	18,911,204	1.46	10.6%
Exeter Industrial Core Club Fund II	2016	Core Portfolio	6,000,000	4,159,517	438,726	4,604,950	1.21	13.2%
Jamestown Premier Property Fund	2016	Core Portfolio	8,000,000	9,485,965	4,127,816	7,254,512	1.20	9.0%
NYCRS Artemis Co-Investment (SEM)	2016	Core Portfolio	11,000,000	10,728,426	3,941,790	9,027,653	1.21	19.0%
USAA Eagle Real Estate Fund	2016	Core Portfolio	30,000,000	20,561,278	-	23,788,266	1.16	8.6%
Brookfield Premier Real Estate Partners	2017	Core Portfolio	19,000,000	20,542,343	1,790,423	24,084,212	1.26	12.2%
Carlyle Property Investors	2017	Core Portfolio	19,000,000	20,071,285	1,294,187	21,031,987	1.11	7.9%
Lion Industrial Trust - 2007	2017	Core Portfolio	50,000,000	31,338,081	1,210,549	35,422,714	1.17	15.6%
Almanac Realty Securities VIII	2019	Core Portfolio	10,500,000	147,482	-	82,420	N/A	N/A
Almanac Realty Securities VIII (Sidecar II)	2019	Core Portfolio	7,000,000	114,364	-	117,488	1.03	25.6%
Heitman Core Real Estate Debt Income Trust	2019	Core Portfolio	8,000,000	8,049,379	200,294	8,026,955	1.02	8.6%
Blackstone Fund IV	2004	Non-Core Portfolio	5,000,000	6,406,782	8,347,173	566,003	1.39	10.0%
The City Investment Fund I	2004	Non-Core Portfolio	35,000,000	34,515,181	34,904,154	60,456	1.01	0.3%
Canyon Johnson Urban Fund II	2005	Non-Core Portfolio	10,000,000	8,988,710	3,974,652	34,106	0.45	-10.5%
Blackstone Real Estate Partners VI	2007	Non-Core Portfolio	10,000,000	11,170,327	21,256,692	903,671	1.98	13.2%
Carlyle Realty Partners V	2007	Non-Core Portfolio	5,000,000	6,321,633	7,515,570	1,464,644	1.42	8.4%
Colony Investors VIII	2007	Non-Core Portfolio	20,000,000	21,249,679	9,077,467	436,402	0.45	-11.5%
Metropolitan Workforce Housing Fund (SEM)	2007	Non-Core Portfolio	3,500,000	3,503,257	4,186,143	64,547	1.21	3.9%
AG Realty Fund VII	2008	Non-Core Portfolio	15,000,000	14,100,000	20,916,846	393,501	1.51	12.6%
American Value Partners Fund I (SEM)	2008	Non-Core Portfolio	5,000,000	3,785,294	3,413,281	457,627	1.02	0.4%
Ares European Real Estate Fund III, LP	2008	Non-Core Portfolio	15,000,000	15,243,750	16,618,750	278,716	1.11	2.6%
Silverpeak Legacy Partners III	2008	Non-Core Portfolio	5,000,000	2,216,844	402,066	425,317	0.37	-10.5%
Stockbridge Real Estate Fund III	2008	Non-Core Portfolio	13,500,000	13,499,074	8,414,877	7,344,101	1.17	2.3%
Thor Urban Property Fund II	2009	Non-Core Portfolio	5,000,000	6,849,514	6,847,656	1,789,798	1.26	6.8%

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

Alternative Assets Manager Performance Detail



Through March 31, 2019

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Walton Street Real Estate Fund VI	2009	Non-Core Portfolio	5,000,000	4,432,393	4,786,027	2,050,517	1.54	8.8%
Blackstone Real Estate Partners Europe III (USD Vehicle)	2010	Non-Core Portfolio	5,000,000	5,200,174	6,818,513	915,837	1.49	11.1%
Canyon Johnson Urban Fund III	2010	Non-Core Portfolio	5,000,000	4,931,163	6,664,557	5,884	1.35	11.9%
Westbrook Real Estate Fund VIII	2010	Non-Core Portfolio	5,000,000	5,959,702	6,889,968	996,582	1.32	11.5%
Carlyle Realty Partners VI	2011	Non-Core Portfolio	20,000,000	19,179,817	30,594,067	2,644,970	1.73	25.4%
H/2 Special Opportunities Fund II	2011	Non-Core Portfolio	10,000,000	10,000,001	14,233,974	1,173,816	1.54	14.5%
Blackstone Real Estate Partners VII	2012	Non-Core Portfolio	30,000,000	36,782,439	40,965,134	19,973,594	1.66	17.5%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	15,000,000	16,857,868	22,267,103	11,362,973	1.99	21.4%
Divco West Fund III	2012	Non-Core Portfolio	30,000,000	29,429,127	50,063,782	794,604	1.73	23.9%
Taconic New York City Investment Fund LP	2012	Non-Core Portfolio	20,000,000	8,363,637	13,396,035	1,327,916	1.76	15.8%
NYC Asset Investor #1 LLC	2013	Non-Core Portfolio	5,000,000	5,480,718	2,193,861	4,747,780	N/A	N/A
NYC Asset Investor #3 LLC	2013	Non-Core Portfolio	6,000,000	3,784,833	661,497	4,135,675	N/A	N/A
Blackstone Real Estate Partners Europe IV (USD Vehicle)	2014	Non-Core Portfolio	26,000,000	25,089,887	24,329,862	13,738,599	1.52	15.7%
Carlyle Realty Partners VII	2014	Non-Core Portfolio	15,000,000	12,753,092	8,199,993	9,433,522	1.38	15.5%
Divco West Fund IV	2014	Non-Core Portfolio	30,000,000	29,700,495	42,986,084	6,488,635	1.67	26.0%
Lone Star Real Estate Fund III	2014	Non-Core Portfolio	25,000,000	23,435,387	28,407,786	3,325,221	1.35	14.9%
Avanath Affordable Housing Fund II (SEM)	2015	Non-Core Portfolio	2,220,000	2,158,370	134,679	3,225,434	1.56	13.4%
Blackstone Real Estate Partners VIII	2015	Non-Core Portfolio	31,500,000	27,267,083	9,156,392	25,873,491	1.28	16.0%
H/2 Special Opportunities Fund III	2015	Non-Core Portfolio	15,000,000	15,000,000	11,208,572	8,236,419	1.30	11.8%
European Property Investors Special Opportunities IV (EPISO IV)	2016	Non-Core Portfolio	10,059,238	7,125,644	442,785	7,730,448	1.15	9.6%
PW Real Estate Fund III LP	2016	Non-Core Portfolio	9,562,261	5,902,512	753,265	7,239,303	1.35	22.2%
Westbrook Real Estate Fund X	2016	Non-Core Portfolio	8,000,000	4,718,525	917,892	4,396,964	1.13	11.5%
Divco West Fund V	2017	Non-Core Portfolio	12,000,000	5,804,155	-	6,144,049	1.06	4.4%
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	8,000,000	4,697,865	1,198,162	4,405,012	1.19	17.8%
Exeter Industrial Value Fund IV	2017	Non-Core Portfolio	10,000,000	5,500,000	-	6,083,203	1.11	11.4%
H/2 Special Opportunities Fund IV	2017	Non-Core Portfolio	19,000,000	3,555,000	-	3,772,970	1.06	4.4%
KKR CMBS B-Piece SMA	2017	Non-Core Portfolio	25,000,000	19,628,558	1,581,754	19,704,204	1.08	8.8%
Lone Star Real Estate Fund V	2017	Non-Core Portfolio	23,100,000	3,278,786	979,894	1,848,562	0.86	-13.7%
Pramerica Real Estate Capital VI (PRECap VI)	2017	Non-Core Portfolio	10,040,161	5,084,753	2,313,533	3,867,033	1.22	20.8%
Basis Investment Group Fund I (SEM)	2018	Non-Core Portfolio	4,100,000	2,036,439	159,278	2,099,951	1.11	17.4%
KKR Real Estate Partners Americas II	2018	Non-Core Portfolio	20,070,000	6,981,487	1,086,551	6,417,610	1.13	15.5%
AERMONT Real Estate Fund IV	2019	Non-Core Portfolio	10,271,627	-	-	(91,618)	N/A	N/A
Brookfield Strategic Real Estate Partners III	2019	Non-Core Portfolio	30,000,000	-	-	(313,978)	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 March 31, 2019

	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL INFRASTRUCTURE		258,374,711	116,167,283	19,061,769	120,846,704	1.20	13.0%
TOTAL INFRASTRUCTURE INVESTMENTS							
Brookfield Infrastructure Fund II, L.P.	2013	15,000,000	12,310,820	3,393,212	14,883,599	1.48	12.4%
IFM Global Infrastructure Fund	2014	10,000,000	13,351,525	4,947,488	14,052,262	1.42	12.4%
Global Energy & Power Infrastructure Fund II	2014	10,000,000	8,452,511	5,145,346	6,829,064	1.42	34.8%
KKR Global Infrastructure Investors II L.P.	2014	12,000,000	11,533,928	1,357,107	12,594,056	1.21	10.9%
Global Infrastructure Partners III-A/B, L.P.	2016	22,000,000	16,708,591	1,088,886	17,370,776	1.10	8.0%
Brookfield Infrastructure Fund III, L.P.	2016	19,000,000	9,072,494	617,449	9,539,655	1.12	9.3%
Actis Energy 4	2016	12,900,000	6,736,372	993,537	7,018,615	1.19	18.6%
EQT Infrastructure III (No.2) SCSp	2017	11,261,672	10,322,722	469,013	11,208,204	1.13	19.2%
ASF VII Infrastructure L.P.	2017	15,000,000	5,926,547	516,598	5,764,875	1.06	27.7%
Axiom Infrastructure North America	2017	15,220,450	15,329,350	431,409	15,323,487	1.03	7.0%
NYCRS EIG Energy Partners, L.P.	2017	15,300,000	3,154,554	101,725	3,240,019	1.06	10.6%
NYCRS EIG Energy Partners Co-Investment, L.P.	2018	3,820,000	-	-	-	NM	NM
KKR Global Infrastructure Investors III L.P.	2018	17,200,000	1,191,760	-	989,730	NM	NM
Global Energy & Power Infrastructure Fund III, L.P.	2018	17,200,000	-	-	-	NM	NM
Cardinal NR Sidecar Holdings L.P.	2018	2,060,000	2,060,000	-	2,133,040	NM	NM
EQT Infrastructure IV (No.2) USD SCSp	2019	20,000,000	-	-	(115,456)	NM	NM
Ardian Infrastructure Fund V B	2019	15,712,588	16,108	-	14,780	NM	NM
Global Infrastructure Partners IV-A/B, L.P.	2019	24,700,000	-	-	-	NM	NM

Information provided by the New York City Fire Retirement System Consultants

Alternative Assets Manager Performance Detail



Through June 30, 2019

	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
TOTAL OPPORTUNISTIC FIXED INCOME		545,503,994	558,049,429	247,505,319	457,046,087	1.74%	7.20%
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	5,076,662	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	1,049,798	0.00%	1.39%
GoldenTree Managed Account	2011	32,000,000	30,000,730	-	47,975,122	2.21%	7.04%
Marathon Centre Street Partnership, L.P. - Asset Class	2011	46,875,000	68,625,000	23,625,000	69,629,462	1.40%	7.23%
AG Centre Street Partnership, L.P. - CC Asset Class	2012	35,000,000	31,850,000	9,260,636	31,105,568	0.07%	5.03%
Apollo Centre Street Partnership, L.P.	2012	50,000,000	72,353,466	37,520,329	45,741,354	2.97%	4.97%
FCO MA Centre Street L.P.	2012	30,000,000	56,627,684	33,223,447	35,897,177	0.00%	8.47%
OHA Centre Street Partnership, L.P.	2012	37,500,000	52,490,431	14,990,431	55,517,667	2.45%	8.02%
Contrarian Centre Street Partnership, L.P. - Asset Class	2013	15,000,000	15,000,000	-	15,791,581	-0.08%	1.20%
Oaktree Opportunities Fund IX, L.P.	2013	30,000,000	30,000,000	12,868,629	23,024,929	4.49%	4.00%
Ares Centre Street Partnership, L.P.	2014	30,000,000	27,453,659	-	39,295,802	1.59%	9.81%
Brightwood Capital Fund III, L.P.	2015	8,000,000	6,492,299	2,611,369	5,181,577	-2.13%	5.66%
Torchlight Debt Opportunity Fund V, LP	2015	20,000,000	16,000,000	2,062,811	17,694,698	0.76%	11.78%
Brightwood Capital Fund IV, LP	2016	20,000,000	14,000,000	1,072,259	14,169,491	0.00%	9.65%
ICG Centre Street Partnership, L.P.	2017	30,000,000	27,663,324	15,891,539	13,628,111	0.00%	7.95%
KKR OFI SMA	2017	55,000,000	28,134,311	5,235,890	25,963,998	5.23%	16.06%
Maranon Centre Street Partnership, L.P.	2018	21,000,000	10,289,019	325,178	10,377,917	2.09%	7.21%
Torchlight Debt Opportunity Fund VI, LP	2019	20,000,000	5,001,836	-	5,001,836		0.00%

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

Alternative Assets Manager Performance Detail



Through June 30, 2019

	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	852,224,695	2.22%	4.25%	4.98%	6.19%	4.98%	7.31%	4.24%	39.45%
TOTAL DIRECT HEDGE FUNDS	851,715,317	2.22%	4.25%	4.98%	6.19%	4.98%	7.58%	5.15%	46.33%
FUND OF FUNDS HEDGE FUNDS	509,378	1.11%	1.72%	0.31%	3.43%	0.31%	2.87%	2.20%	18.98%
TOTAL DIRECT HEDGE FUNDS									
Caspian Select Credit Fund, L.P.	25,254,634	0.80%	1.77%	3.16%	3.45%	3.16%	6.61%	3.89%	31.46%
D.E. Shaw Composite Fund, L.L.C.	87,339,024	1.37%	1.77%	11.95%	5.69%	11.95%	10.50%	12.88%	148.18%
Jefferies Structured Alpha Fund B, LLC	24,772,485	-0.06%	-0.85%	-0.91%	-0.91%			-0.91%	-0.91%
Voloridge Fund, LP	29,875,339	4.75%	13.46%	19.50%	19.50%			19.50%	19.50%
Voloridge Trading Aggressive Fund, LP	15,365,496	2.20%	9.05%	9.75%	9.75%			9.75%	9.75%
Relative Value	182,606,978	1.70%	3.73%	12.62%	7.80%	12.62%	10.44%	9.68%	99.90%
AlphaQuest Original LLC	53,020,228	6.11%	11.19%	-9.83%	3.87%	-9.83%		3.32%	7.04%
Brevan Howard AH Fund, L.P.	66,547,969	6.06%	8.46%	2.45%	10.28%	2.45%		12.07%	28.01%
Florin Court Capital Fund	37,370,520	5.95%	7.32%	13.24%	10.93%			13.24%	13.24%
GSA Trend Fund LP	58,114,141	-0.29%	2.94%	1.38%	-1.05%	1.38%		-2.70%	-5.76%
Key Square Partners LP	64,774,840	-0.89%	1.83%	1.87%	7.83%	1.87%		0.99%	2.08%
Pharo Gaia Fund, LTD.	62,280,967	4.94%	7.44%	16.72%	10.49%	16.72%	13.83%	14.32%	61.52%
Pharo Macro Fund, Ltd.	43,793,233	3.07%	4.37%	9.51%	7.98%	9.51%	9.72%	9.26%	70.12%
Tactical Trading	385,901,897	3.33%	6.06%	4.14%	7.02%	4.14%	5.35%	3.26%	27.55%
DL Partners Opportunities Fund LP	39,691,962	1.04%	-1.79%	0.49%	3.02%			0.49%	0.49%
Fir Tree Value Fund, L.P.	14,184,354	0.40%	-0.24%	-8.46%	-2.04%	-8.46%	-1.05%	-0.62%	-3.93%
Luxor Capital Partners Liquidating SPV, LLC.	1,056,749	-3.89%	-1.32%	24.03%	7.48%			24.03%	24.03%
Luxor Capital Partners, LP	51,173,873	-2.82%	1.82%	1.62%	0.85%	1.62%	19.79%	2.72%	14.63%
Perry Partners L.P.	1,123,553	8.01%	8.01%	7.68%	24.97%	7.68%	2.82%	-1.11%	-6.55%
Standard General Fund II L.P.	16,234,172	-3.20%	-0.16%	2.16%	5.63%	2.16%		7.56%	19.27%
Event Driven	123,464,663	-1.21%	0.21%	-1.06%	1.81%	-1.06%	10.51%	3.27%	22.93%
Altimeter Partners Fund LP	29,019,387	14.10%	12.51%	31.35%	20.83%	31.35%	26.05%	16.40%	65.92%
Gotham Targeted Neutral, LP	11,945,036	1.85%	-0.52%	-0.21%	-0.72%	-0.21%	1.31%	-0.57%	-2.49%
Lansdowne European Absolute Opportunities Fund, L.P.	30,628,041	-1.20%		-1.20%	-1.20%			-1.20%	-1.20%
SRS Partners US, LP	47,252,534	2.66%	4.85%	8.23%	8.73%	8.23%	11.57%	8.24%	42.78%
Turiya Fund LP	40,896,782	-0.25%	0.10%	-1.48%	1.89%	-1.48%	0.09%	-1.82%	-7.07%
Long/Short Equity	159,741,779	2.93%	3.32%	7.21%	6.84%	7.21%	7.96%	4.75%	32.13%
FUND OF FUNDS HEDGE FUNDS									
Fund of Funds Hedge Funds	509,378	1.11%	1.72%	0.31%	3.43%	0.31%	2.87%	2.20%	18.98%

Information provided by Alpha Frontier



New York City
Fire Department Pension Fund, Subchapter Two

Appendix D

Footnotes



Through June 30, 2019

- 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.



Through June 30, 2019

General Notes

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

Page Specific

Pages 9 - 14 - Portfolio Asset Allocation

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

Pages 15 - 17 - Performance Attribution: Total Plan

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



Through June 30, 2019

The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 32.17%*

International Developed (EAFE) Markets: MSCI World ex USA IMI Net 8.26%*

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

*Emerging Markets: MSCI Emerging Markets * 5.86%*

*International Emerging Managers FOF: MSCI ACWI Ex US IMI Net * 0.50%*

*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 * 3.09%*

*Private Real Estate – Non Core: NFI - ODCE Net + 200bps * 1.70%*

*Infrastructure: CPI + 4% * 0.96%*

*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+ * 8.50%*

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

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

*Mortgage: FTSE Mortgage Index * 2.72%*

*ETI: ETI Custom Benchmark * 0.77%*



Through June 30, 2019

*Investment Grade Credit: NYC – Investment Grade Credit * 3.49%*

*High Yield: Bloomberg Barclays US High Yield 2% Issuer Capped * 7.76%*

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

*TIPS: BBG BARC Gbl Inf-Lk: US TIPS * 4.26%*

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

*Opportunistic Fixed: OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum * 3.48%*

Page 18 – 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.



New York City
Fire Officers' Variable Supplements Fund
Performance Overview as of June 30, 2019

Total Fund Overview



New York City Fire Officers' Variable Supplements Fund

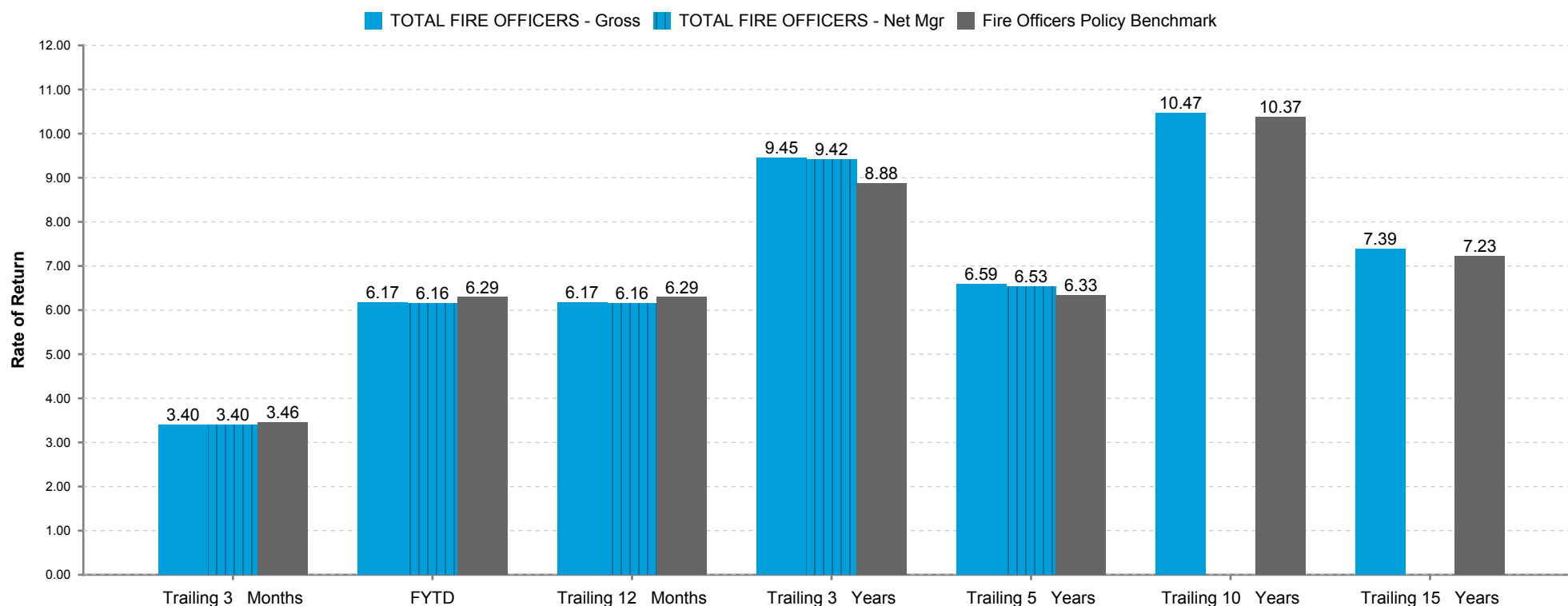
Table of Contents:

Performance Charts	p.3
Appendix A - Consolidated Performance Report	p.10
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Appendix C - Footnotes	p.17

Market Value (Millions)

\$350.1

TOTAL FIRE OFFICERS



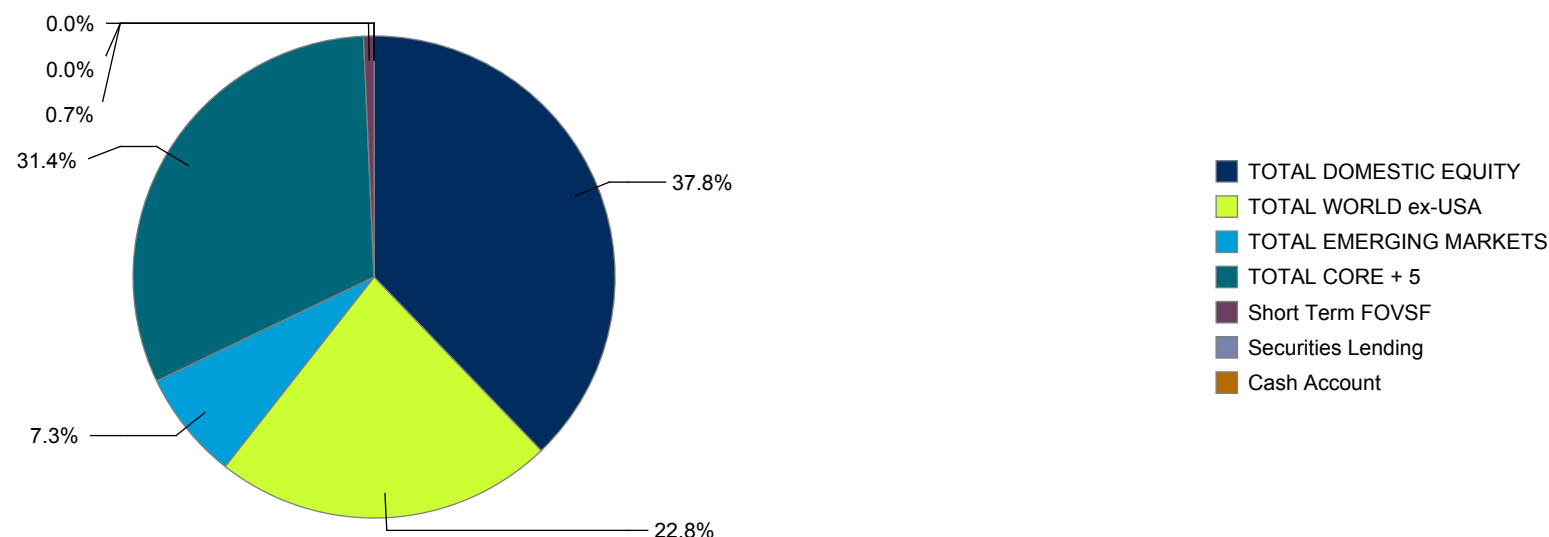
	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 7 Years	Benchmark 7 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation								
TOTAL FIRE OFFICERS	7.7	7.5	6.6	8.1	7.9	7.5	9.5	9.2

TOTAL FIRE OFFICERS

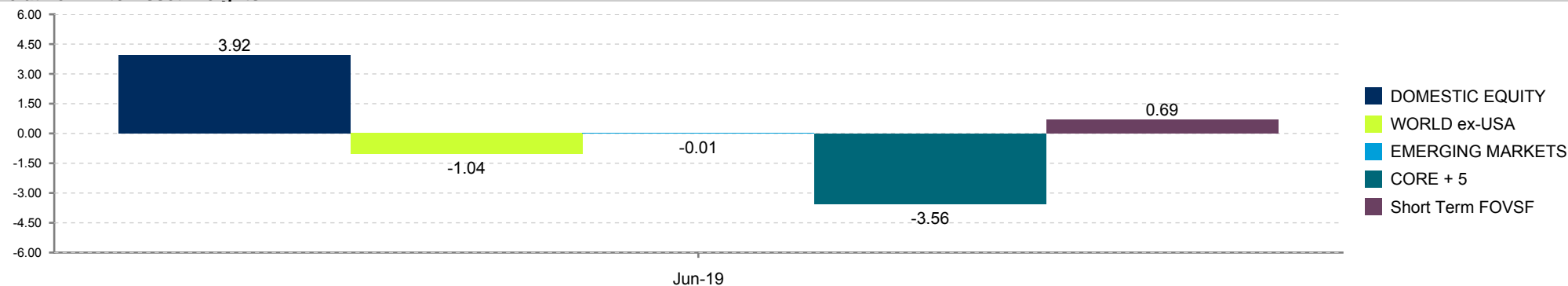
Market Value (Millions)

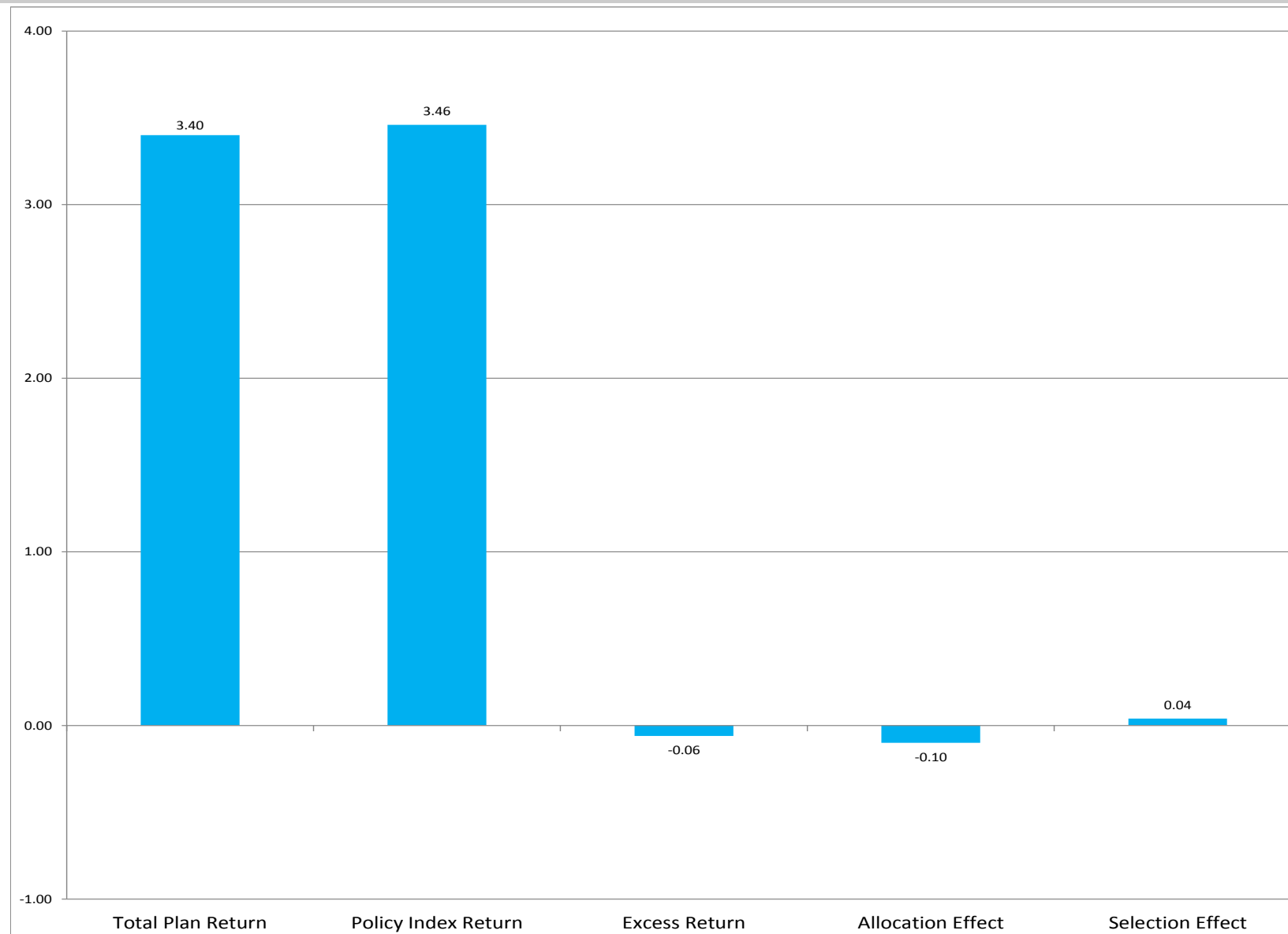
\$350.1

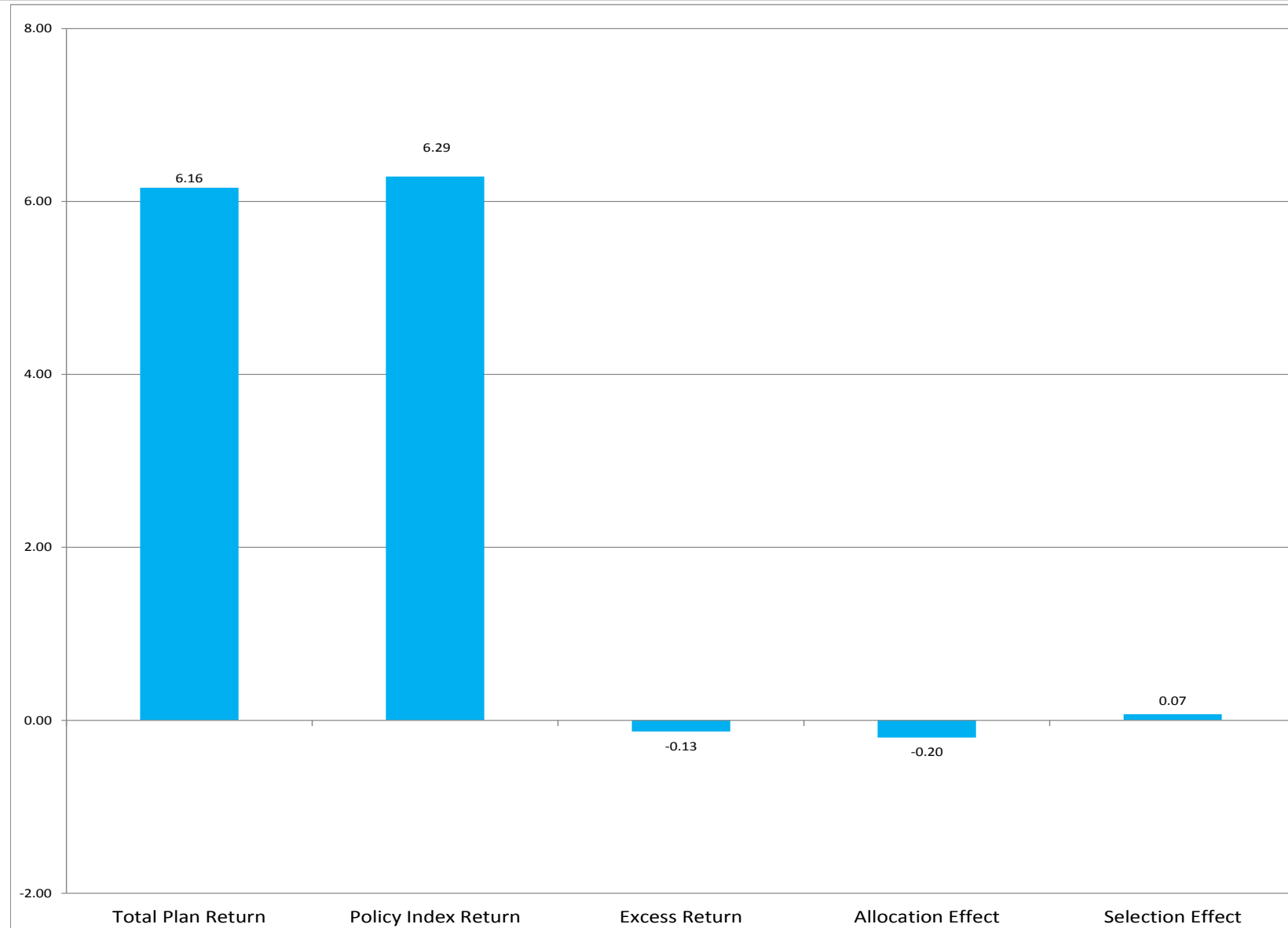
Asset Allocation

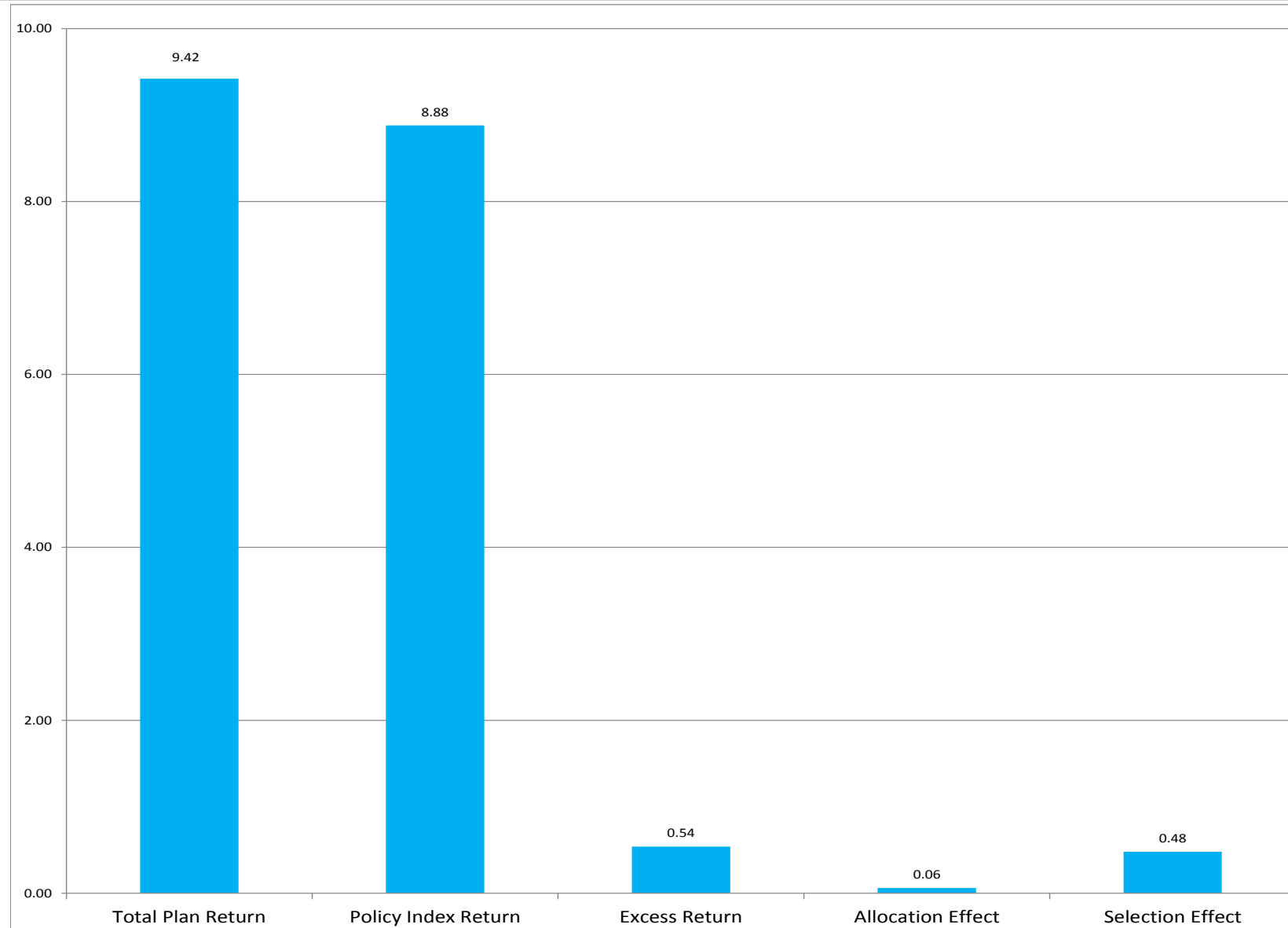


Relative Mix to Asset Weights









Allocation Effect - Asset Class Breakdown				
	<u>Quarter</u>	<u>FYTD</u>	<u>3 Years</u>	<u>Benchmark</u>
TOTAL FIRE OFFICERS	-0.10	-0.20	0.06	Fire Officers Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.01	-0.05	0.04	RUSSELL 3000
TOTAL WORLD ex-USA EQUITY	0.00	0.08	0.01	MSCI World ex USA IMI Net
TOTAL EMERGING MARKETS	-0.01	-0.03	-0.01	MSCI EMERGING MARKETS
TOTAL STRUCTURED	-0.06	0.01	0.15	Barclays Aggregate
TOTAL CASH	-0.02	-0.22	-0.15	

Selection Effect - Asset Class Breakdown				
	<u>Quarter</u>	<u>FYTD</u>	<u>3 Years</u>	<u>Benchmark</u>
TOTAL FIRE OFFICERS	0.04	0.07	0.48	Fire Officers Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.01	-0.01	0.04	RUSSELL 3000
TOTAL WORLD ex-USA EQUITY	0.03	0.02	0.45	MSCI World ex USA IMI Net
TOTAL EMERGING MARKETS	0.01	0.02	0.00	MSCI EMERGING MARKETS
TOTAL STRUCTURED	0.01	0.04	-0.04	Barclays Aggregate
TOTAL CASH	0.00	0.00	0.00	

NYC FIRE OFFICERS' VARIABLE SUPPLEMENTS FUND
SECURITIES LENDING INCOME
June 30, 2019

	<u>U. S. FIXED INCOME</u>	<u>U. S. EQUITY</u>	<u>INTERNATIONAL EQUITY</u>	<u>TOTAL</u>
2001	32,000	6,000	-	38,000
2002	20,000	6,200	-	26,200
2003	14,000	11,000	31,000	56,000
2004	24,000	24,000	24,000	72,000
2005	42,000	42,000	32,000	116,000
2006	44,000	98,000	32,000	174,000
2007	91,000	137,000	28,000	256,000
2008	240,000	195,000	37,000	472,000
2009	67,000	101,000	25,000	193,000
2010	32,000	101,000	20,000	153,000
2011	48,000	116,000	34,000	198,000
2012	37,000	129,000	25,000	191,000
2013	17,000	113,000	25,000	155,000
2014	7,900	11,000	131,000	149,900
2015	2,000	8,400	209,000	219,400
2016	7,000	131,000	170,000	308,000
2017	15,000	60,000	99,000	174,000
2018	6,012	33,752	110,683	150,447
2019 (6 months)	2,062	8,675	36,951	47,688
Since Inception	<u>747,974</u>	<u>1,332,027</u>	<u>1,069,634</u>	<u>3,149,635</u>



**New York City
Fire Officers' Variable Supplements Fund**

Appendix A

Consolidated Performance Report

Consolidated Performance Report



Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
SYSTEM RETURN SUMMARY															
5 FIRE OFFICERS-TOTAL PORTFOLIO - GROSS	350	100.00	3.40	6.17	12.52	(5.83)	17.71	8.64	(0.74)	8.30	9.45	6.59	10.47	8.40	01/01/1988
FIRE OFFICERS- ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	(0.00)	(0.06)	(0.08)	(0.09)	(0.11)	(0.04)	(0.06)			
EST MANAGEMENT FEES			(0.00)	(0.01)	(0.01)	(0.00)	(0.06)	(0.08)	(0.09)	(0.11)	(0.04)	(0.06)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIRE OFFICERS-TOTAL PORTFOLIO - NET MGR			3.40	6.16	12.52	(5.83)	17.64	8.56	(0.83)	8.19	9.42	6.53			
FIRE OFFICERS POLICY BENCHMARK			3.46	6.29	12.76	(6.22)	16.32	9.01	(0.34)	8.29	8.88	6.33	10.37		
EXCESS RETURN			(0.06)	(0.13)	(0.24)	0.39	1.32	(0.45)	(0.49)	(0.10)	0.54	0.21	0.11		
EQUITY RETURN DETAIL															
17 FOVSF-TOTAL EQUITY - GROSS	238	67.87	3.56	5.05	16.39	(9.53)	24.78	10.41	(1.18)	9.13	12.24	8.06	12.66	6.60	08/01/2001
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.06)	(0.07)	(0.08)	(0.10)	(0.03)	(0.05)			
EST MANAGEMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.06)	(0.07)	(0.08)	(0.10)	(0.03)	(0.05)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FOVSF-TOTAL EQUITY - NET MGR			3.56	5.04	16.38	(9.53)	24.72	10.34	(1.25)	9.03	12.21	8.00			
25 FOVSF-TOTAL DOMESTIC EQUITY - GROSS	132	37.82	4.08	8.97	18.68	(5.09)	21.15	12.96	0.62	12.73	14.12	10.31	14.75	10.28	01/01/1991
ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)			
FOVSF-TOTAL DOMESTIC EQUITY - NET MGR			4.08	8.96	18.68	(5.09)	21.14	12.95	0.61	12.73	14.12	10.30			
RUSSELL 3000/S&P500 04/30/09			4.10	8.98	18.71	(5.24)	21.13	12.74	0.48	12.56	14.02	10.19	14.67	10.22	
EXCESS RETURN			(0.02)	(0.02)	(0.04)	0.15	0.01	0.22	0.14	0.17	0.10	0.11	0.08	0.06	

Consolidated Performance Report

Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
37 FOVSF-TOTAL WORLD ex-USA - GROSS	80	22.76	3.65	0.28	14.55	(14.40)	36.65	1.38	(3.56)	(6.55)	12.27	4.00	7.20	5.90	07/01/1994
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.02)	(0.17)	(0.26)	(0.25)	(0.24)	(0.10)	(0.17)			
FOVSF-TOTAL WORLD ex-USA - NET MGR			3.65	0.27	14.55	(14.41)	36.48	1.11	(3.81)	(6.79)	12.17	3.84			
WORLD EX-USA CUSTOM BM			3.50	0.16	14.39	(14.68)	26.40	1.15	0.49	(4.90)	9.23	2.60	7.28	4.86	
EXCESS RETURN			0.15	0.11	0.16	0.27	10.08	(0.04)	(4.30)	(1.89)	2.94	1.23	(0.07)	1.04	
47 FOVSF- TOTAL EMERGING MARKETS - GROSS	26	7.29	0.70	1.44	10.83	(14.44)	37.41	11.25	(19.53)	(2.57)	10.77	1.62	5.17	5.77	08/01/2005
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	0.01	(0.15)	(0.06)	(0.15)	(0.54)	(0.05)	(0.13)			
FOVSF-TOTAL EMERGING MARKETS - NET MGR			0.70	1.42	10.81	(14.44)	37.27	11.19	(19.68)	(3.11)	10.72	1.49			
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)	10.66	2.49	5.81	6.59	
EXCESS RETURN			0.09	0.21	0.23	0.13	(0.02)	0.01	(4.76)	(0.92)	0.06	(0.99)	(0.63)	(0.82)	

Consolidated Performance Report



Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL															
59 FOVSF-TOTAL FIXED INCOME - GROSS	113	32.13	3.03	7.74	5.99	(0.18)	3.68	5.33	0.27	6.59	2.94	3.19	5.39	5.96	08/01/1993
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	0.01	(0.06)	(0.11)	(0.12)	(0.14)	(0.04)	(0.07)			
EST MANAGEMENT FEES			(0.00)	(0.01)	(0.01)	0.01	(0.06)	(0.11)	(0.12)	(0.14)	(0.04)	(0.07)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FOVSF-TOTAL FIXED INCOME - NET MGR			3.03	7.72	5.98	(0.17)	3.62	5.22	0.14	6.45	2.90	3.12			
67 FOVSF-TOTAL STRUCTURED - GROSS	110	31.44	3.10	8.00	6.22	(0.22)	3.31	3.50	1.13	8.37	2.23	3.25	5.11	5.73	09/01/2000
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	0.01	(0.05)	(0.07)	(0.08)	(0.08)	(0.03)	(0.05)			
FOVSF-TOTAL STRUCTURED - NET MGR			3.10	7.99	6.21	(0.21)	3.26	3.43	1.05	8.29	2.20	3.20			
BBG BARC AGG (DLY)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97	2.31	2.95	3.90	4.87	
EXCESS RETURN			0.02	0.12	0.10	(0.22)	(0.28)	0.78	0.50	2.32	(0.11)	0.25	1.21	0.87	
CASH SUMMARY															
79 Short Term FOVSF - GROSS	2	0.69	0.41	2.27	1.20	1.62		0.48	0.18	0.15					01/01/1988
ESTIMATED INVESTMENT FEES			0.18	0.00	0.00	0.00		0.00	0.00	0.00					
Short Term FOVSF - NET MGR			0.59	2.27	1.20	1.62		0.48	0.18	0.15					
83 Cash Account	0	0.00													
85 Securities Lending	0	0.00													



**New York City
Fire Officers' Variable Supplements Fund**

Appendix B

Public Markets Manager Performance Detail

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
EQUITY SUMMARY										
US EQUITY										
BlackRock US SCG R2000	5	1.47	2.74	(0.36)	20.34	(9.14)	22.26	11.29	(1.30)	5.47
RUSSELL 2000 GROWTH DAILY			2.75	(0.49)	20.36	(9.31)	22.17	11.32	(1.38)	5.60
Excess			(0.01)	0.13	(0.02)	0.17	0.09	(0.02)	0.08	(0.14)
BlackRock US SCV R2000	4	1.27	1.31	(6.25)	13.46	(12.79)	7.34	31.71	(7.38)	4.11
RUSSELL 2000 VALUE DAILY			1.38	(6.24)	13.47	(12.86)	7.84	31.74	(7.47)	4.22
Excess			(0.06)	(0.02)	(0.00)	0.08	(0.49)	(0.03)	0.09	(0.11)
BlackRock US LC R1000 Value	0	0.00					13.65	17.31	(3.66)	13.38
RUSSELL 1000 VALUE (DAILY)							13.66	17.34	(3.83)	13.45
Excess							(0.01)	(0.03)	0.17	(0.08)
BlackRock US LMC R1000 Core	123	35.08	4.24	10.05	18.81					
RUSSELL 1000 (DAILY)			4.25	10.02	18.84					
Excess			(0.01)	0.03	(0.03)					
NON - US EQUITY										
Baillie Gifford WorldxUS LMCC	0	0.00					44.24	1.12	(3.81)	(6.77)
NYC Developed Growth Benchmark							27.77	(3.04)	4.09	(4.43)
Excess							16.48	4.16	(7.90)	(2.34)
SSGA WorldxUS LMC NYC Custom IDX	67	19.23	3.97	1.92	14.85	(13.64)				
NYC Custom World ex US Index			3.79	1.29	14.64	(14.09)				
Excess			0.18	0.63	0.21	0.45				
SSGA WORLD EX USA SMALL CAP ¹	12	3.53	1.94	(5.98)	12.94	(17.97)				
World ex USA SC PASSIVE CUSTOM BM			1.76	(6.17)	12.88	(18.07)				
Excess			0.17	0.19	0.05	0.10				



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
EMERGING MARKETS										
BlackRock MSCI EM Core	26	7.29	0.70	1.42	10.81	(14.44)	37.26	11.19		
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19		
Excess			0.09	0.21	0.23	0.13	(0.02)	0.01		
FIXED INCOME SUMMARY										
STRUCTURED FIXED INCOME										
SSGA-Core US Agg	110	31.44	3.10	7.99	6.21	(0.24)				
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01				
Excess			0.02	0.12	0.10	(0.25)				
CASH										
Short Term FOVSF	2	0.69	0.59	2.27	1.20	1.62		0.48	0.18	0.15
91 DAY TREASURY BILL (DAILY)			0.64	2.31	1.24	1.87		0.33	0.05	0.03
Excess			(0.05)	(0.04)	(0.04)	(0.25)		0.16	0.13	0.11
Cash Account	0	0.00								
Securities Lending	0	0.00								



**New York City
Fire Officers' Variable Supplements Fund**

Appendix C

Footnotes



Through June 30, 2019

- Effective 4/1/03, the name of the Core +5 benchmark index provider was changed from Salomon to Citigroup.
- Effective 5/31/09, the US Passive Equity sector S&P 500 Index was replaced with the Russell 3000 benchmark index.
- Effective 7/1/09, the Core+5 program was restructured.
 - The U.S. Gov't sector benchmark Index was changed from the Citigroup Core+5 Treasury/Gov't Sponsored Index to the Citigroup Core+5 Treasury/Agency Index.
 - The Corporate and Yankee sectors were combined to form the new Investment Grade Credit sector. The benchmark for the new combined sector is the customized Citigroup Credit Index. For historical performance purposes, the old Corporate sector Index is linked to the new Credit sector Index.
 - There were no changes to the Mortgage sector Index.
 - The total Core+5 results and benchmark returns combine the three sectors. Historical total Core+5 returns continue to include the old Corporate and Yankee sector returns.



Through June 30, 2019

General Notes

- Returns are Net of Manager Fees for periods after January 2014 and Gross of investment advisory fees for other periods unless otherwise indicated.

Page Specific

Page 4 - Portfolio Asset Allocation

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

Pages 5 - 7 - Performance Attribution: Total Plan

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



Through June 30, 2019

The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 33.90%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI Net * 23.80%*

*International Emerging Markets: MSCI Emerging Markets * 7.30%*

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

*Domestic Fixed Income: Barclays Aggregate * 35.00%*

TIPS: BBG BARC Gbl Inf-Lk: US TIPS (Dly) 0.00%*

*High Yield: FTSE BB&B * 0.00%*

Page 8 – 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.



New York City
Firefighters' Variable Supplements Fund
Performance Overview as of June 30, 2019

Total Fund Overview



New York City Firefighters' Variable Supplements Fund

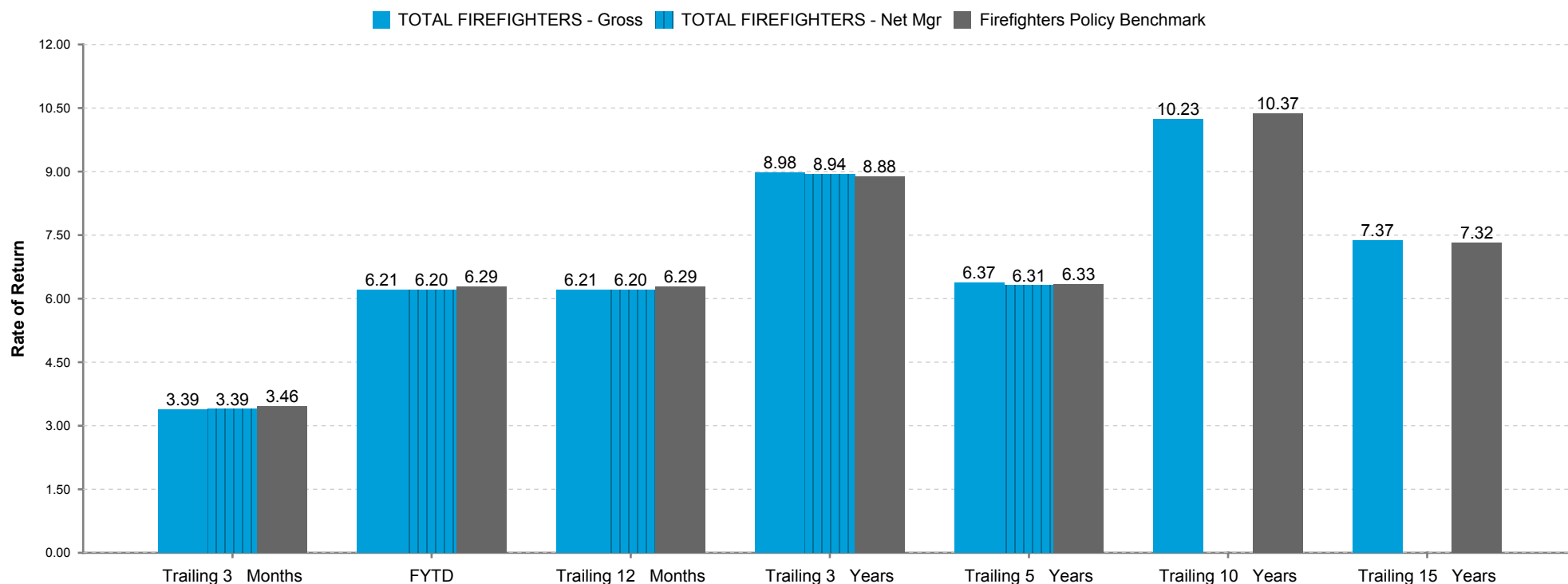
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TOTAL FIREFIGHTERS

Market Value (Millions)

\$502.9



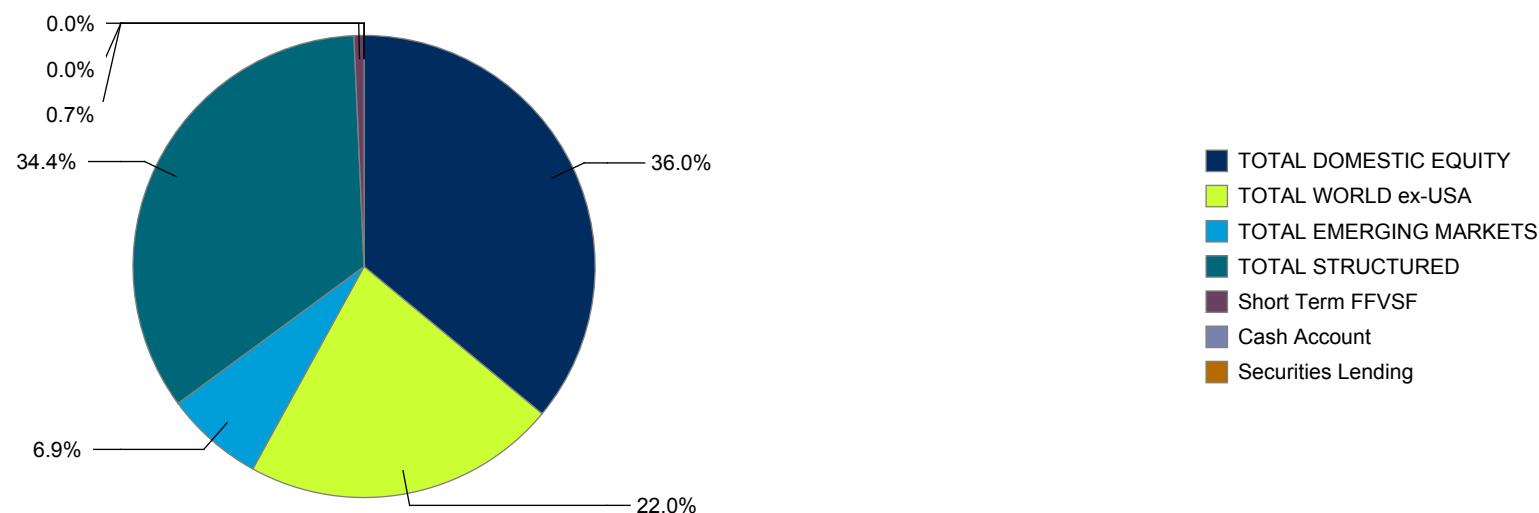
	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 7 Years	Benchmark 7 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation								
TOTAL FIREFIGHTERS	7.5	7.5	6.4	8.1	7.5	7.5	9.1	9.2

TOTAL FIREFIGHTERS

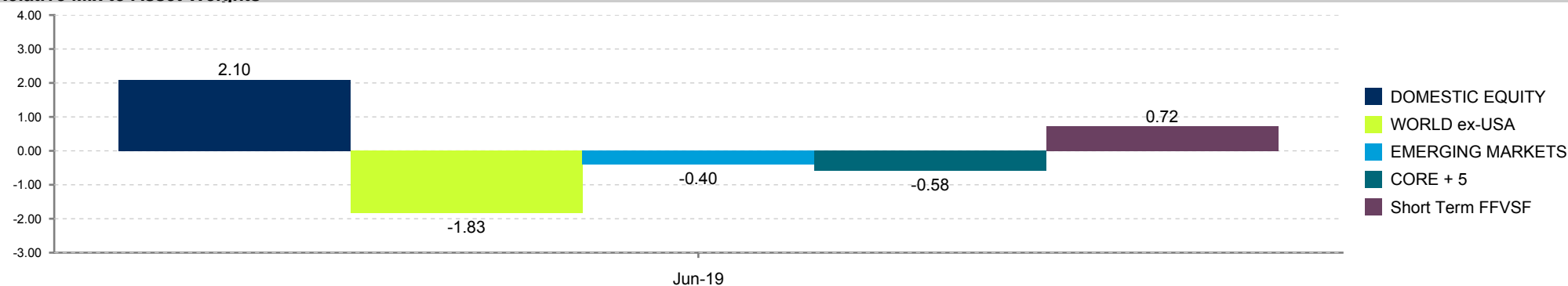
Market Value (Millions)

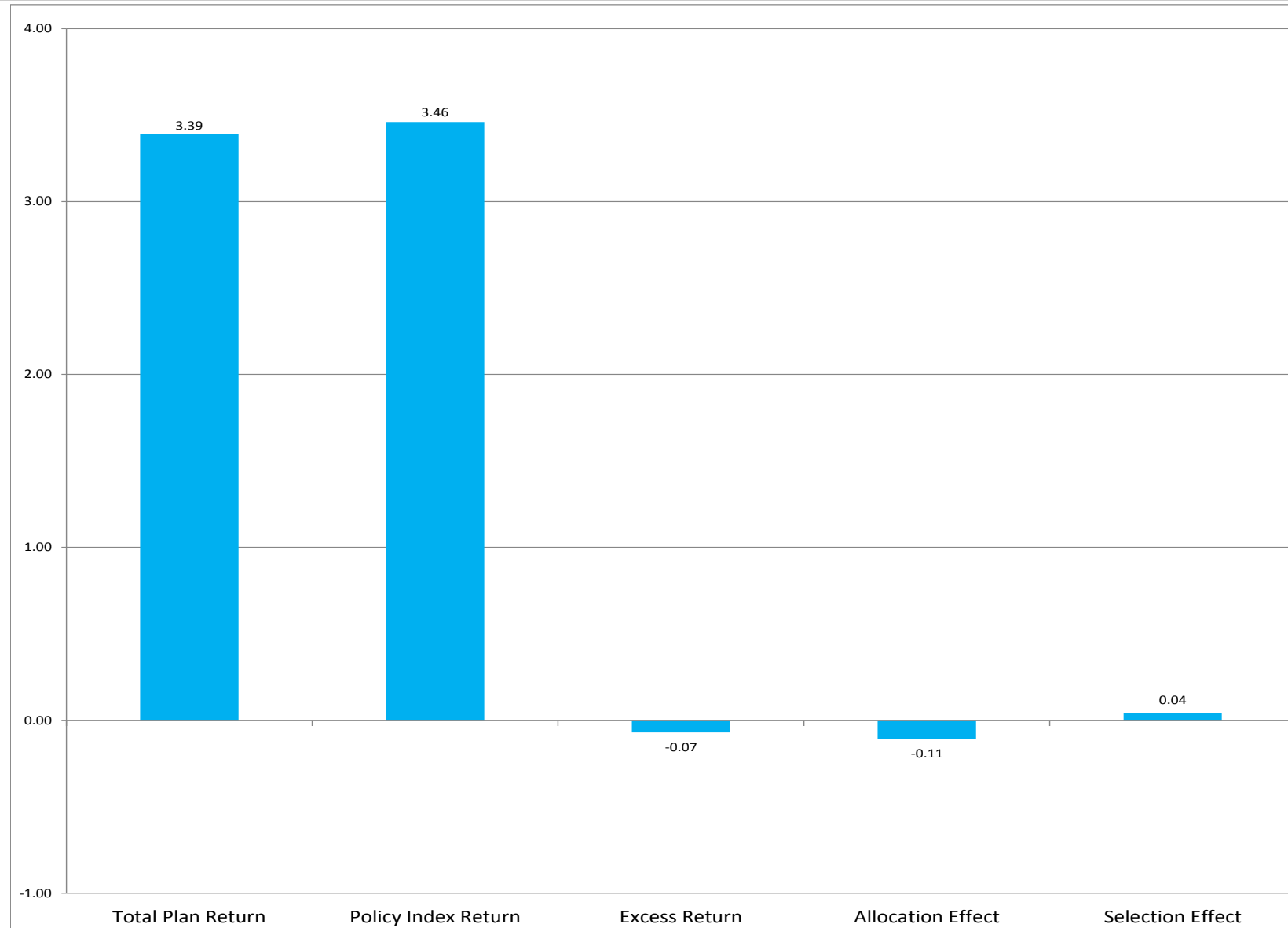
\$502.9

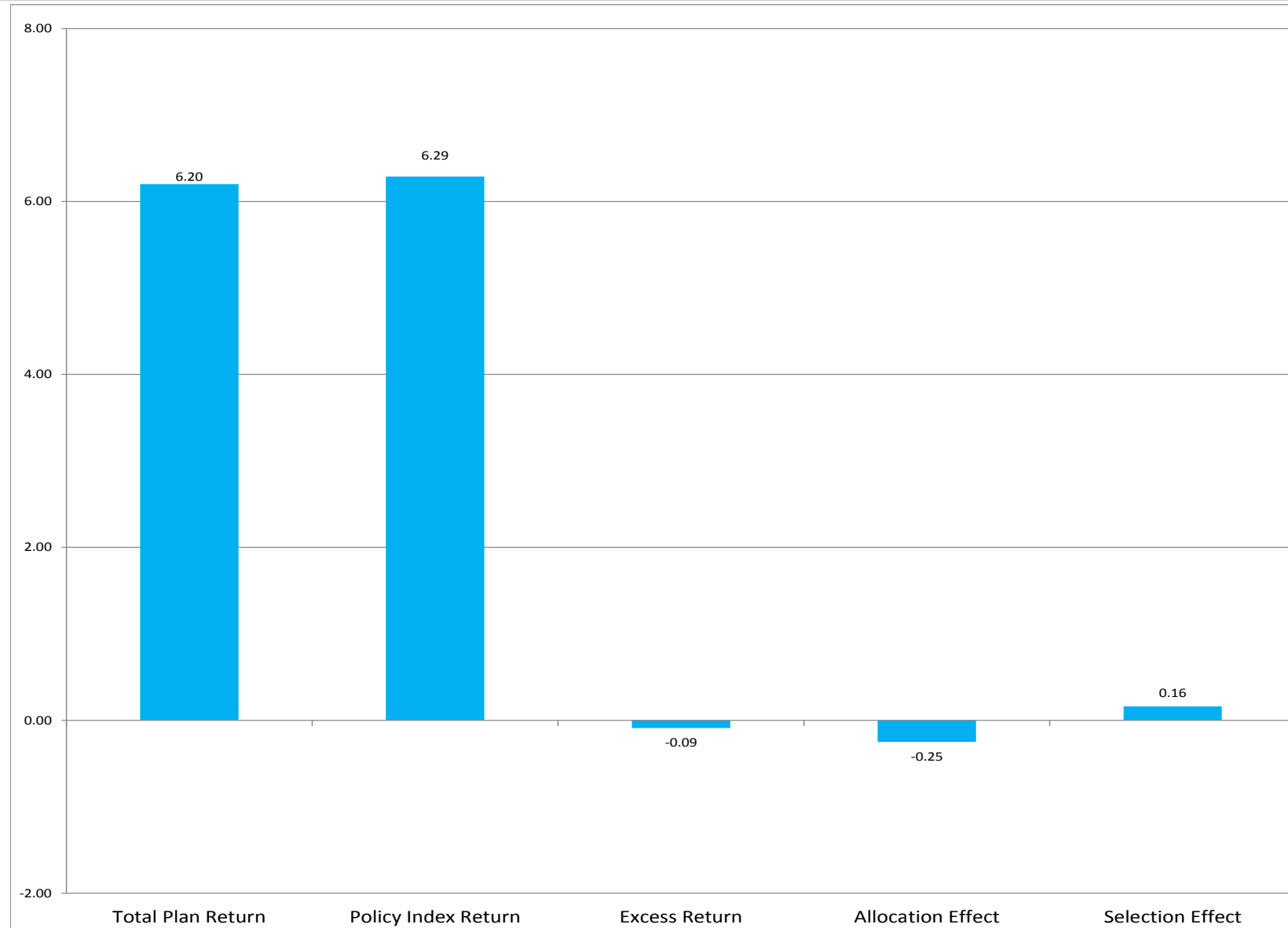
Asset Allocation

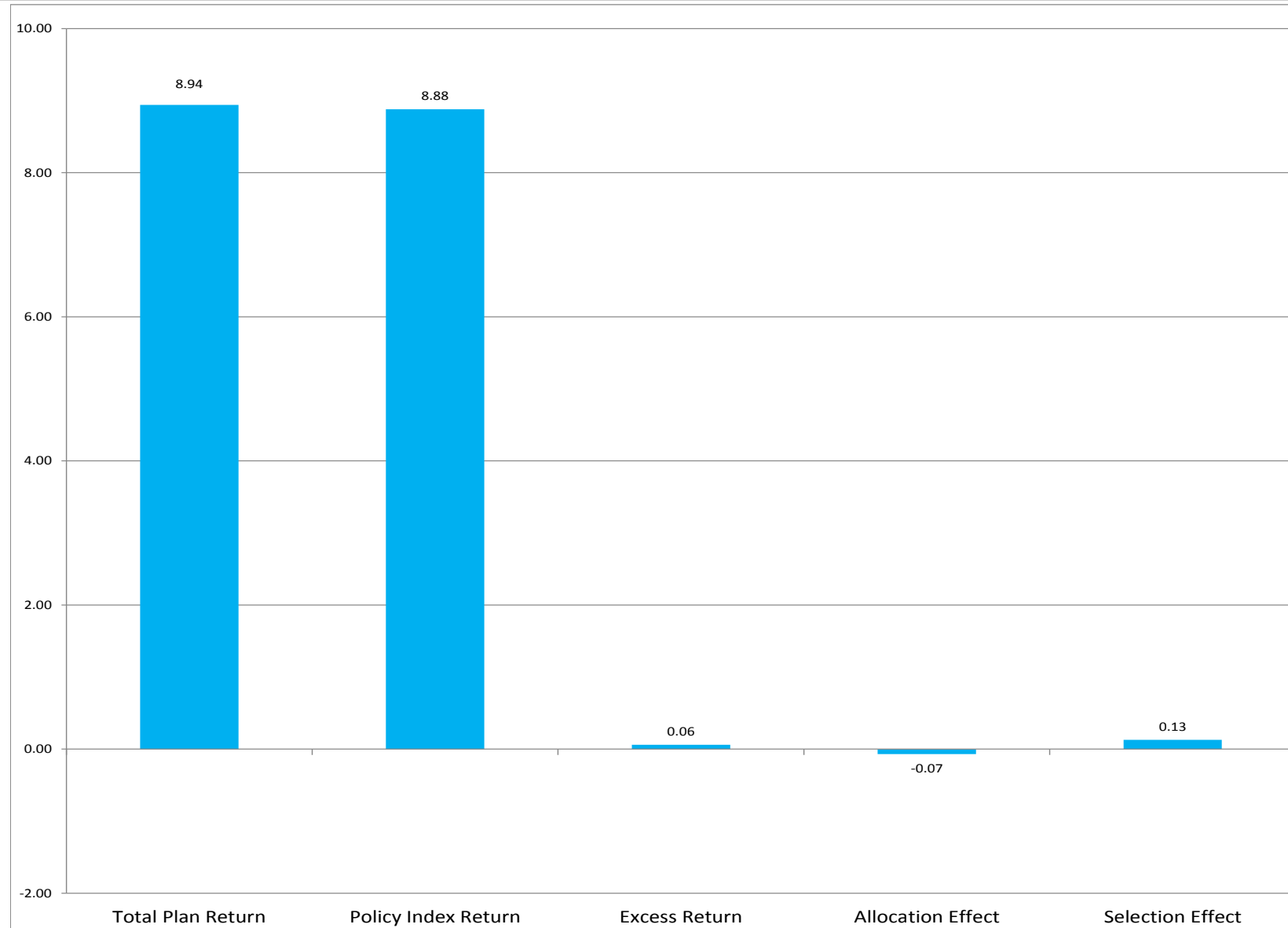


Relative Mix to Asset Weights









Allocation Effect - Asset Class Breakdown				
	<u>Quarter</u>	<u>FYTD</u>	<u>3 Years</u>	<u>Benchmark</u>
TOTAL FIREFIGHTERS	-0.11	-0.25	-0.07	Firefighters Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.02	-0.08	-0.07	RUSSELL 3000
TOTAL WORLD ex-USA EQUITY	0.00	0.08	0.04	MSCI World ex USA IMI Net
TOTAL EMERGING MARKETS	0.00	0.00	-0.01	MSCI EMERGING MARKETS
TOTAL STRUCTURED	-0.07	-0.17	0.06	Barclays Aggregate
TOTAL CASH	-0.02	-0.07	-0.11	

Selection Effect - Asset Class Breakdown				
	<u>Quarter</u>	<u>FYTD</u>	<u>3 Years</u>	<u>Benchmark</u>
TOTAL FIREFIGHTERS	0.04	0.16	0.13	Firefighters Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.01	-0.02	0.01	RUSSELL 3000
TOTAL WORLD ex-USA EQUITY	0.04	0.11	0.08	MSCI World ex USA IMI Net
TOTAL EMERGING MARKETS	0.01	0.03	0.00	MSCI EMERGING MARKETS
TOTAL STRUCTURED	0.01	0.04	0.03	Barclays Aggregate
TOTAL CASH	0.00	0.00	0.00	

NYC FIRE FIGHTERS' VARIABLE SUPPLEMENTS FUND
SECURITIES LENDING INCOME
June 30, 2019

	<u>U. S. FIXED INCOME</u>	<u>U. S. EQUITY</u>	<u>INTERNATIONAL EQUITY</u>	<u>TOTAL</u>
2001	73,000	57,000	-	130,000
2002	34,000	36,000	-	70,000
2003	22,000	48,000	59,000	129,000
2004	45,000	93,000	45,000	183,000
2005	76,000	147,000	61,000	284,000
2006	79,000	192,000	63,000	334,000
2007	164,000	293,000	51,000	508,000
2008	451,000	492,000	65,000	1,008,000
2009	123,000	231,000	45,000	399,000
2010	49,000	204,000	31,000	284,000
2011	62,000	211,000	51,000	324,000
2012	60,000	201,000	36,000	297,000
2013	25,000	174,000	37,000	236,000
2014	6,800	18,000	133,000	157,800
2015	4,300	9,300	272,000	285,600
2016	11,000	159,000	205,000	375,000
2017	19,000	82,000	136,000	237,000
2018	8,674	42,245	142,702	193,621
2019 (6 months)	2,869	11,942	51,405	66,215
Since Inception	<u>1,315,643</u>	<u>2,701,486</u>	<u>1,484,106</u>	<u>5,501,236</u>



**New York City
Firefighters' Variable Supplements Fund**

Appendix A

Consolidated Performance Report

Consolidated Performance Report

Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
SYSTEM RETURN SUMMARY															
5 FIREFIGHTERS-TOTAL PORTFOLIO - GROSS	503	100.00	3.39	6.21	12.54	(6.10)	16.19	8.84	(0.57)	8.40	8.98	6.37	10.23	8.53	01/01/1988
FIREFIGHTERS- ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	(0.01)	(0.07)	(0.09)	(0.08)	(0.13)	(0.04)	(0.06)			
EST MANAGEMENT FEES			(0.00)	(0.01)	(0.01)	(0.01)	(0.07)	(0.09)	(0.08)	(0.13)	(0.04)	(0.06)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FIREFIGHTERS-TOTAL PORTFOLIO - NET MGR			3.39	6.20	12.53	(6.11)	16.12	8.75	(0.65)	8.27	8.94	6.31			
FIREFIGHTERS POLICY BENCHMARK			3.46	6.29	12.76	(6.22)	16.32	9.01	(0.34)	8.29	8.88	6.33	10.37		
EXCESS RETURN			(0.07)	(0.09)	(0.23)	0.11	(0.20)	(0.26)	(0.31)	(0.01)	0.06	(0.02)	(0.14)		
EQUITY RETURN DETAIL															
17 FFVSF-TOTAL EQUITY - GROSS	326	64.87	3.57	5.18	16.39	(9.64)	22.48	10.25	(0.62)	9.08	11.61	7.79	12.49	6.89	08/01/2001
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.07)	(0.09)	(0.08)	(0.12)	(0.04)	(0.06)			
EST MANAGEMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.07)	(0.09)	(0.08)	(0.12)	(0.04)	(0.06)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FFVSF-TOTAL EQUITY - NET MGR			3.57	5.17	16.38	(9.65)	22.41	10.16	(0.70)	8.96	11.57	7.73			
25 FFVSF-TOTAL DOMESTIC EQUITY - GROSS	181	36.00	4.07	8.92	18.67	(5.16)	21.13	12.84	0.62	12.42	14.05	10.24	14.66	10.20	06/01/1988
ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)			
FFVSF-TOTAL DOMESTIC EQUITY - NET MGR			4.07	8.92	18.67	(5.16)	21.13	12.83	0.62	12.42	14.05	10.24			
RUSSELL 3000 (DAILY)			4.10	8.98	18.71	(5.24)	21.13	12.74	0.48	12.56	14.02	10.19	14.67	10.50	
EXCESS RETURN			(0.02)	(0.06)	(0.04)	0.08	(0.00)	0.10	0.14	(0.14)	0.02	0.05	(0.01)	(0.30)	

Consolidated Performance Report

Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN DETAIL															
37 FFVSF-TOTAL WORLD ex-USA - GROSS	110	21.97	3.67	0.69	14.57	(14.41)	24.83	1.54	(2.05)	(6.76)	9.82	2.81	6.67	6.05	07/01/1994
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.02)	(0.20)	(0.37)	(0.34)	(0.37)	(0.13)	(0.22)			
FFVSF-TOTAL WORLD ex-USA - NET MGR			3.67	0.67	14.57	(14.42)	24.63	1.17	(2.39)	(7.13)	9.69	2.59			
WORLD EX-USA CUSTOM BM			3.50	0.16	14.39	(14.68)	26.40	1.15	0.49	(4.90)	9.23	2.60	7.28	4.86	
EXCESS RETURN			0.17	0.51	0.18	0.26	(1.77)	0.02	(2.89)	(2.22)	0.46	(0.02)	(0.61)	1.20	
47 FFVSF-TOTAL EMERGING MARKETS - GROSS	35	6.90	0.70	1.44	10.83	(14.44)	37.41	11.25	(19.53)	(2.57)	10.77	1.62	5.17	5.72	08/01/2005
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	0.00	(0.15)	(0.06)	(0.15)	(0.54)	(0.05)	(0.13)			
FFVSF-TOTAL EMERGING MARKETS - NET MGR			0.70	1.42	10.81	(14.44)	37.26	11.19	(19.67)	(3.11)	10.71	1.50			
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19	(14.92)	(2.19)	10.66	2.49	5.81	6.59	
EXCESS RETURN			0.09	0.21	0.23	0.13	(0.02)	0.00	(4.75)	(0.92)	0.05	(0.99)	(0.63)	(0.87)	

Consolidated Performance Report



Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN DETAIL															
59 FFVSF-TOTAL FIXED INCOME - GROSS	177	35.13	3.05	7.83	6.08	(0.16)	3.96	5.79	(0.41)	6.77	3.26	3.20	5.20	6.59	05/01/1988
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	(0.01)	(0.06)	(0.09)	(0.10)	(0.15)	(0.04)	(0.07)			
EST MANAGEMENT FEES			(0.00)	(0.02)	(0.01)	(0.01)	(0.06)	(0.09)	(0.10)	(0.15)	(0.04)	(0.07)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
FFVSF-TOTAL FIXED INCOME - NET MGR			3.04	7.82	6.07	(0.18)	3.91	5.70	(0.52)	6.61	3.22	3.13			
67 FFVSF-TOTAL STRUCTURED - GROSS	173	34.42	3.10	8.00	6.22	(0.22)	3.67	4.78	(0.39)	8.27	2.59	3.21	4.77	5.47	09/01/2000
ESTIMATED INVESTMENT FEES			(0.00)	(0.02)	(0.01)	(0.01)	(0.04)	(0.06)	(0.06)	(0.09)	(0.03)	(0.04)			
FFVSF-TOTAL STRUCTURED - NET MGR			3.10	7.99	6.21	(0.24)	3.63	4.72	(0.45)	8.18	2.56	3.17			
BBG BARC AGG (DLY)			3.08	7.87	6.11	0.01	3.54	2.65	0.55	5.97	2.31	2.95	3.90	4.87	
EXCESS RETURN			0.02	0.12	0.10	(0.25)	0.08	2.07	(1.00)	2.22	0.25	0.22	0.87	0.60	
CASH SUMMARY															
79 Short Term FFVSF - GROSS	4	0.72	0.41	2.28	1.17	1.51		0.79	0.45						01/01/1988
ESTIMATED INVESTMENT FEES			0.18	0.00	0.00	0.00		0.00	0.00						
Short Term FFVSF - NET MGR			0.59	2.28	1.17	1.51		0.79	0.45						
83 Cash Account	0	0.00													
85 Securities Lending	0	0.00													



**New York City
Firefighters' Variable Supplements Fund**

Appendix B

Public Markets Manager Performance Detail

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
EQUITY SUMMARY										
US EQUITY										
BlackRock US SCG R2000	7	1.41	2.74	(0.36)	20.34	(9.14)	22.26	11.29	(1.30)	5.50
RUSSELL 2000 GROWTH DAILY			2.75	(0.49)	20.36	(9.31)	22.17	11.32	(1.38)	5.60
Excess			(0.01)	0.13	(0.02)	0.17	0.09	(0.02)	0.08	(0.11)
BlackRock US SCV R2000	7	1.30	1.31	(6.25)	13.46	(12.79)	7.34	31.71	(7.38)	4.11
RUSSELL 2000 VALUE DAILY			1.38	(6.24)	13.47	(12.86)	7.84	31.74	(7.47)	4.22
Excess			(0.06)	(0.02)	(0.00)	0.08	(0.49)	(0.03)	0.09	(0.11)
BlackRock US LC R1000 Value	0	0.00					13.65	17.31	(3.66)	13.39
RUSSELL 1000 VALUE (DAILY)							13.66	17.34	(3.83)	13.45
Excess							(0.01)	(0.03)	0.17	(0.06)
BlackRock US LMC R1000 Core	167	33.29	4.24	10.05	18.82					
RUSSELL 1000 (DAILY)			4.25	10.02	18.84					
Excess			(0.01)	0.03	(0.03)					
NON - US EQUITY										
Causeway WorldxUS LMCC	0	0.00					28.22	1.18	(2.39)	
NYC Developed Value Benchmark							22.77	5.02	(5.68)	
Excess							5.45	(3.85)	3.30	
SSGA WorldxUS LMC NYC Custom IDX	95	18.83	3.97	1.92	14.85	(13.64)				
NYC Custom World ex US Index			3.79	1.29	14.64	(14.09)				
Excess			0.18	0.63	0.21	0.45				
SSGA WORLD EX USA SMALL CAP ¹	16	3.14	1.94	(5.98)	12.94	(17.97)				
World ex USA SC PASSIVE CUSTOM BM			1.76	(6.17)	12.88	(18.07)				
Excess			0.17	0.19	0.05	0.10				

Public Markets Manager Performance Detail



Net Returns Through June 30, 2019

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2018	2017	2016	2015	2014
EMERGING MARKETS										
BlackRock MSCI EM Core	35	6.90	0.70	1.42	10.81	(14.44)	37.26	11.19		
MSCI EMERGING MARKETS			0.61	1.21	10.58	(14.57)	37.28	11.19		
Excess			0.09	0.21	0.23	0.13	(0.03)	0.00		
FIXED INCOME SUMMARY										
STRUCTURED FIXED INCOME										
SSGA-Core US Agg	173	34.42	3.10	7.99	6.21	(0.25)				
BBG BARC Agg (Dly)			3.08	7.87	6.11	0.01				
Excess			0.02	0.12	0.10	(0.26)				
CASH										
Short Term FFVSF	4	0.72	0.59	2.28	1.17	1.51		0.79	0.45	
91 DAY TREASURY BILL (DAILY)			0.64	2.31	1.24	1.87		0.33	0.05	
Excess			(0.05)	(0.03)	(0.07)	(0.37)		0.46	0.40	
Cash Account	0	0.00								
Securities Lending	0	0.00								



**New York City
Firefighters' Variable Supplements Fund**

Appendix C

Footnotes

Through June 30, 2019



- Effective 4/1/03 the name of the Core +5 benchmark index 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.



Through June 30, 2019

General Notes

- Returns are Net of Manager Fees for periods after January 2014 and Gross of investment advisory fees for other periods unless otherwise indicated.

Page Specific

Page 4 - Portfolio Asset Allocation

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

Pages 5 - 7 - Performance Attribution: Total Plan

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



Through June 30, 2019

The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 33.90%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI Net * 23.80%*

*International Emerging Markets: MSCI Emerging Markets * 7.30%*

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

*Domestic Fixed Income: Barclays Aggregate * 35.00%*

*TIPS: BBG BARC Gbl Inf-Lk: US TIPS (Dly) * 0.00%*

*High Yield: FTSE BB&B * 0.00%*

Page 8 – 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.

ETI Quarterly Report (Public):

Fire Pension Fund - Economically Targeted Investments Quarterly Report

Public/Private Apartment Rehabilitation Program (PPAR)

Lenders*	<u>BOA</u>		<u>CCD</u>		<u>CFSB</u>		<u>CPC</u>		<u>JPM</u>		<u>LIIF</u>		<u>NCBCI</u>		<u>NHS</u>		<u>WF</u>		<u>LISC</u>		<u>BE</u>		<u>HDC</u>	
Contractual Commitment ¹	\$11.00		\$6.00		\$1.00		\$6.00		\$10.00		\$6.00		\$1.00		\$1.00		\$3.00		\$7.00		\$7.00		\$5.00	
Current Market Value ¹	\$3.07		\$3.55		\$0.38		\$2.56		\$5.73		\$3.06		\$0.27		\$0.00		\$0.41		\$0.85		\$0.00		\$0.00	
	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units
Commitments Q2 (included in total)																								
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$0.05	90	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
Brooklyn	0.00	0	0.00	0	0.00	0	0.04	333	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Manhattan	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Queens	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Staten Island	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Outside of NYC	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$0.00	0	\$0.00	0	\$0.00	0	\$0.09	423	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
Delivered Q2 (included in total)																								
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$0.15	393	\$0.21	30	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
Brooklyn	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Manhattan	0.00	0	0.00	0	0.00	0	0.00	0	0.08	54	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Queens	0.00	0	0.00	0	0.00	0	0.00	0	0.37	68	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Staten Island	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Outside of NYC	0.00	0	0.32	41	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$0.00	0	\$0.32	41	\$0.00	0	\$0.15	393	\$0.66	152	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
Total Commitments																								
Bronx	\$0.00	0	\$0.49	157	\$0.00	0	\$1.12	1,386	\$1.39	339	\$0.37	61	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.75	101	\$0.00	0
Brooklyn	0.60	212	0.90	179	0.00	0	0.44	1,152	0.29	156	0.26	95	0.00	0	0.00	0	0.37	130	1.65	156	1.46	359	0.00	0
Manhattan	0.00	0	0.00	0	0.05	39	0.40	435	0.00	0	0.66	174	0.00	0	0.00	0	0.58	103	2.97	155	1.41	83	0.00	0
Queens	0.00	0	0.00	0	0.00	0	0.19	389	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Staten Island	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Outside of NYC	0.00	0	0.00	0	0.00	0	0.13	254	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$0.60	212	\$1.39	336	\$0.05	39	\$2.27	3,616	\$1.67	495	\$1.30	330	\$0.00	0	\$0.00	0	\$0.96	233	\$4.62	311	\$3.62	543	\$0.00	0
Historical Investments																								
Bronx	\$0.61	60	\$1.65	645	\$0.00	0	\$0.78	1,715	\$3.79	1,377	\$0.37	117	\$0.00	0	\$0.00	0	\$0.17	90	\$0.75	48	\$0.00	0	\$0.00	0
Brooklyn	0.65	54	0.72	302	0.00	0	0.88	1,241	0.38	137	1.20	401	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Manhattan	0.78	100	0.56	283	0.48	197	0.50	1,204	0.55	333	1.58	407	0.27	123	0.00	0	0.14	100	0.00	0	0.00	0	0.00	0
Queens	1.97	293	0.12	54	0.00	0	0.02	38	0.46	164	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Staten Island	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	67	0.00	0	0.00	0	0.00	0
Outside of NYC	0.21	39	0.32	41	0.00	0	0.40	461	0.39	123	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$4.22	546	\$3.37	1,325	\$0.48	197	\$2.59	4,659	\$5.55	2,134	\$3.15	925	\$0.27	123	\$0.00	0	\$0.36	257	\$0.75	48	\$0.00	0	\$0.00	0

*Lenders :

Bank of
AmericaCiti Community
DevelopmentCarver Federal
Savings BankThe Community
Preservation CorpJP Morgan
ChaseLow Income
Investment FundNCB Capital
ImpactNeighborhood
Housing Service

Wells Fargo

Local Initiatives
Support CorpBellwether
Enterprise

NYC HDC

¹ Dollar amount listed in millions

Fire Pension Fund - Economically Targeted Investments Quarterly Report

Public/Private Apartment Rehabilitation Program (PPAR)

Lenders*	All Lender Totals	
Contractual Commitment ¹	\$64.00	
Current Market Value ¹	\$19.88	
	Dollars	Units
Commitments Q2 (included in total)		
Bronx	\$0.05	90
Brooklyn	0.04	333
Manhattan	0.00	0
Queens	0.00	0
Staten Island	0.00	0
Outside of NYC	0.00	0
Total	\$0.09	423
Delivered Q2 (included in total)		
Bronx	\$0.36	423
Brooklyn	0.00	0
Manhattan	0.08	54
Queens	0.37	68
Staten Island	0.00	0
Outside of NYC	0.32	41
Total	\$1.12	586
Total Commitments		
Bronx	\$4.11	2,044
Brooklyn	5.97	2,439
Manhattan	6.07	989
Queens	0.19	389
Staten Island	0.00	0
Outside of NYC	0.13	254
Total	\$16.48	6,115
Historical Investments		
Bronx	\$8.12	4,052
Brooklyn	3.84	2,135
Manhattan	4.86	2,747
Queens	2.57	549
Staten Island	0.05	67
Outside of NYC	1.31	664
Total	\$20.75	10,214

¹ Dollar amount listed in millions

Current Commitments All PPAR Lenders

Brooklyn
\$5.97 (36%)
2,439 Units

Manhattan
\$6.07 (37%)
989 Units

Queens
\$0.19 (1%)
389 Units

Staten Island
\$0.00 (0%)
0 Units

Outside of NYC
\$0.13 (1%)
254 Units

Bronx
\$4.11 (25%)
2,044 Units

Historical Investments Since Inception All PPAR Lenders

Brooklyn
\$3.84 (19%)
2,135 Units

Manhattan
\$4.86 (23%)
2,747 Units

Queens
\$2.57 (12%)
549 Units

Staten Island
\$0.05 (0%)
67 Units

Outside of NYC
\$1.31 (6%)
664 Units

Bronx
\$8.12 (39%)
4,052 Units

Fire Pension Fund - Economically Targeted Investments Quarterly Report

AFL-CIO Housing Investment Trust (HIT)
Market Value \$58.88 million¹

NYC Community Investment Initiative (NYCCII)

<u>Borough</u>	<u>NYCCII Phase I:</u> 2002 - 2005		<u>NYCCII Phase II:</u> 2006 - 2013		<u>Grand Total</u>	
	<u>Investments</u>	<u>Units</u> ²	<u>Investments</u>	<u>Units</u> ²	<u>Investments</u>	<u>Units</u> ²
Bronx	\$27,600,000	2,010	\$52,827,900	761	\$80,427,900	2,771
Brooklyn	49,501,800	3,230	103,890,446	5,616	153,392,246	8,846
Manhattan	172,021,700	6,908	174,075,200	813	346,096,900	7,721
Queens	0	0	17,760,000	1,149	17,760,000	1,149
Staten Island	0	0	6,414,554	693	6,414,554	693
Outside NYC	0	0	100,000,000	137	100,000,000	137
Total	\$249,123,500	12,148	\$454,968,100	9,169	\$704,091,600	21,317

HIT Home Mortgage Program

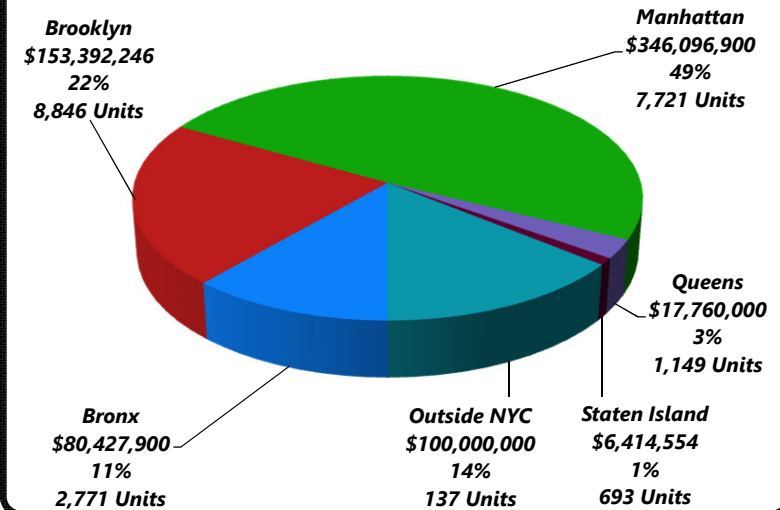
<u>Borough</u>	<u>NYCCII Phase I:</u> 2002 - 2005		<u>NYCCII Phase II:</u> 2006 - 2013		<u>Grand Total</u>	
	<u>\$ Amount</u>	<u>Loans</u>	<u>\$ Amount</u>	<u>Loans</u>	<u>\$ Amount</u>	<u>Loans</u>
Bronx	\$32,544,168	41	\$218,082,108	296	\$250,626,276	337
Brooklyn	116,575,736	138	864,892,271	1,115	981,468,007	1,253
Manhattan	10,742,253	12	214,244,680	265	224,986,933	277
Queens	82,399,317	64	894,399,418	973	976,798,735	1,037
Staten Island	106,039,089	191	359,980,460	439	466,019,549	630
Total	\$348,300,563	446	\$2,551,598,937	3,088	\$2,899,899,500	3,534

FIRE Loans	Phase I:	48	Phase II:	133	Total:	181
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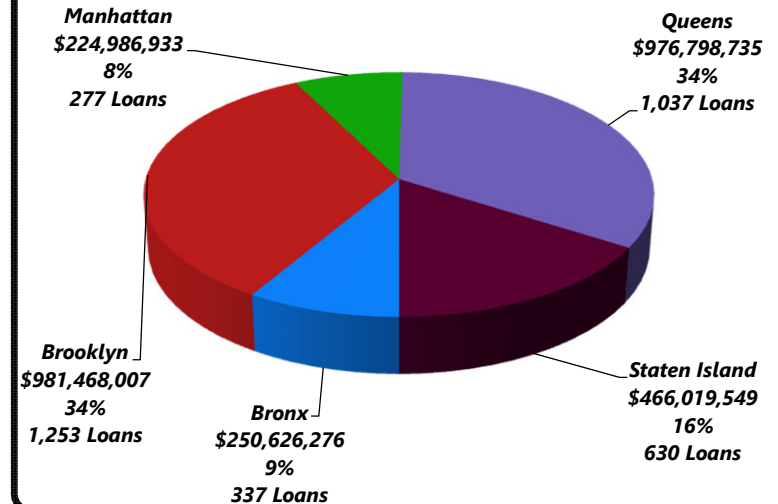
¹Interest is reinvested

²Low/Moderate Income Units

NYCCII Multifamily Program

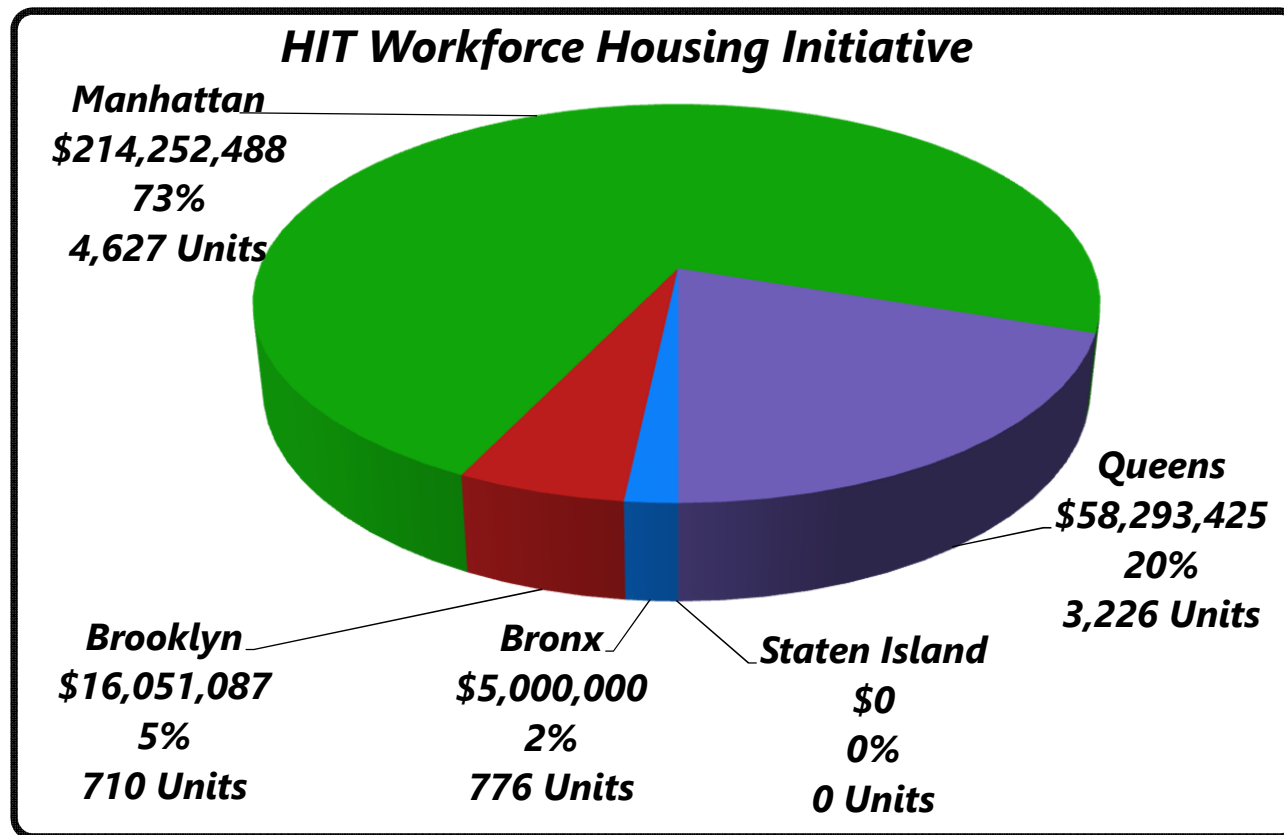


Home Mortgage Program



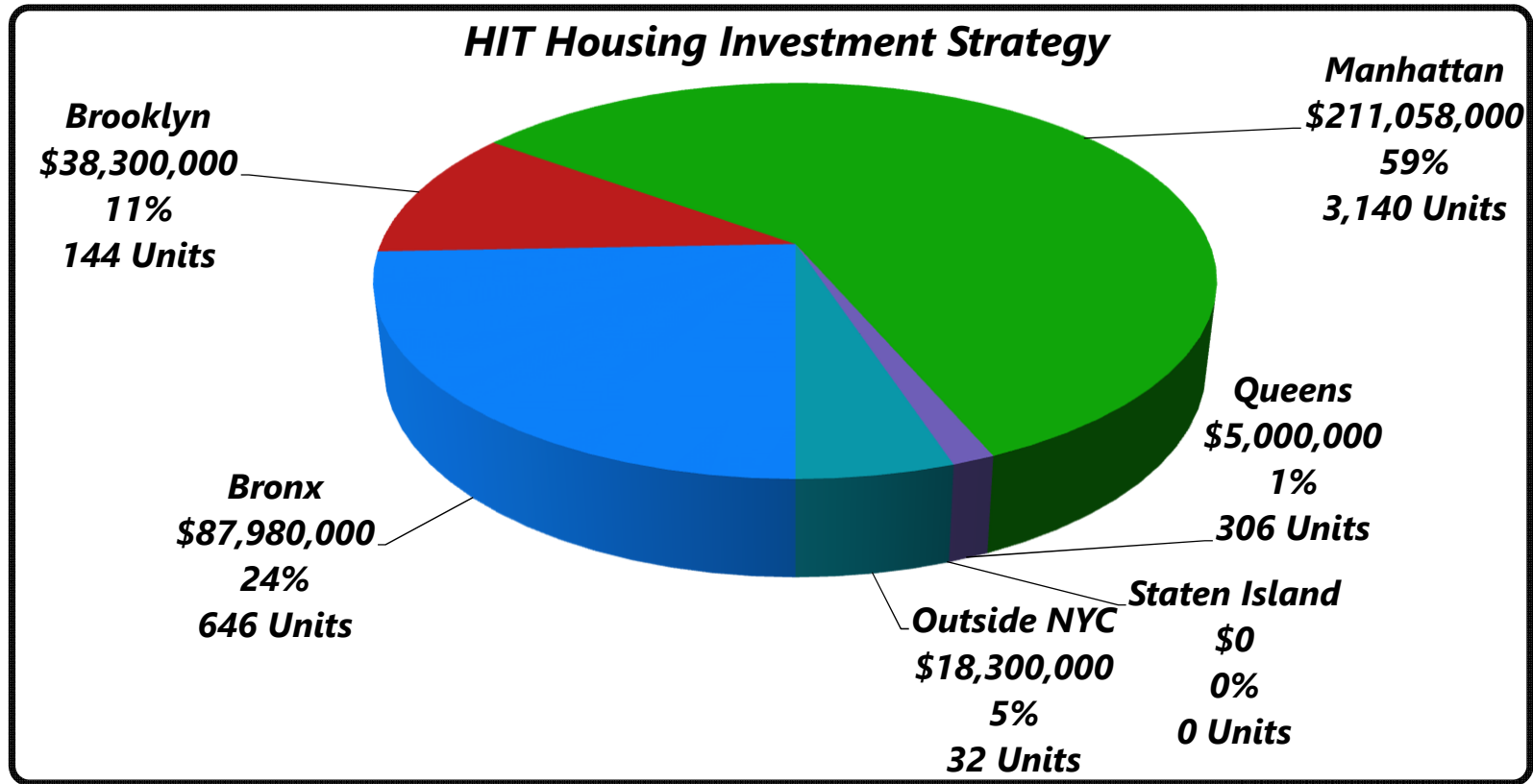
Fire Pension Fund - Economically Targeted Investments Quarterly Report

AFL-CIO Housing Investment Trust (HIT)		
NYC Workforce Housing Initiative: 2009 - 2015		
	<u>Investments</u>	<u>Low/Mod Units</u>
<u>Borough</u>	<u>Since Inception</u>	<u>Since Inception</u>
Bronx	\$5,000,000	776
Brooklyn	16,051,087	710
Manhattan	214,252,488	4,627
Queens	58,293,425	3,226
Staten Island	0	0
Total	\$293,597,000	9,339



Fire Pension Fund - Economically Targeted Investments Quarterly Report

AFL-CIO Housing Investment Trust (HIT)				
HIT Housing Investment Strategy: 2015 - Q2 2019				
<u>Borough</u>	<u>Q2 Investments</u>	<u>Investments Since Inception</u>	<u>Q2 LMI Units</u>	<u>Low/Mod Units Since Inception</u>
Bronx	\$52,000,000	\$87,980,000	152	646
Brooklyn	0	38,300,000	0	144
Manhattan	0	211,058,000	0	3,140
Queens	0	5,000,000	0	306
Staten Island	0	0	0	0
Outside NYC	0	18,300,000	0	32
Total	\$52,000,000	\$360,638,000	152	4,268



Fire Pension Fund - Economically Targeted Investments Quarterly Report

RBC ACCESS CAPITAL STRATEGIES (Since Inception 2/1/07)

\$28.5 million Allocated (6.33% of total account)

Market Value \$26.52 million

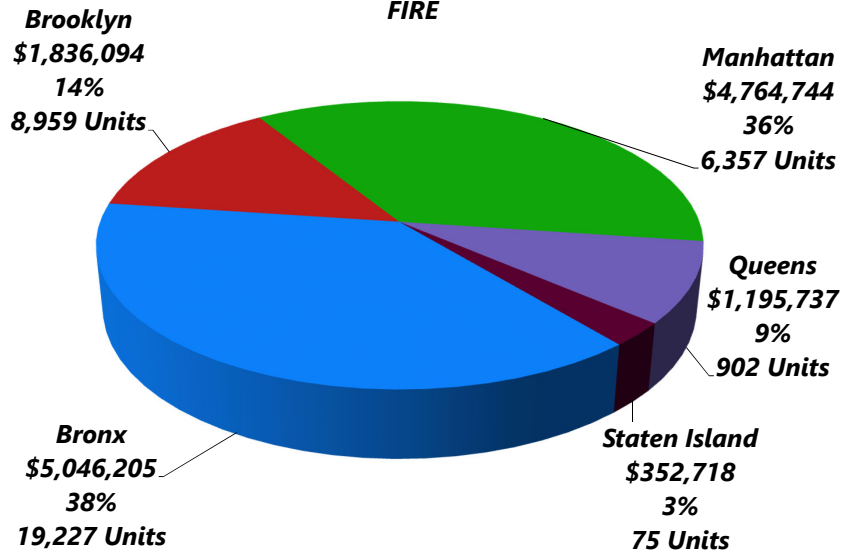
Multifamily Investments Detail	\$ Invested ¹		Units ²	
	Q2	Total	Q2	Total
Bronx	\$0	\$5,046,205	0	19,227
Brooklyn	0	1,836,094	0	8,959
Manhattan	0	4,764,744	0	6,357
Queens	0	1,195,737	0	902
Staten Island	0	352,718	0	75
Total FIRE Multifamily Investments	\$0	\$13,195,499	0	35,520
Multifamily Total All Systems	\$0	\$208,459,702	0	35,520

Single Family Investments Detail	\$ Invested		Units	
	Q2	Total	Q2	Total
Bronx	\$26,021	\$3,576,472	1	276
Brooklyn	36,032	9,234,890	2	641
Manhattan	0	849,337	0	56
Queens	0	14,179,733	0	899
Staten Island	16,876	8,689,168	1	560
Total FIRE Single Family Investments	\$78,930	\$36,529,599	4	2,432
Single Family Total All Systems	\$1,246,914	\$577,086,874	4	2,432

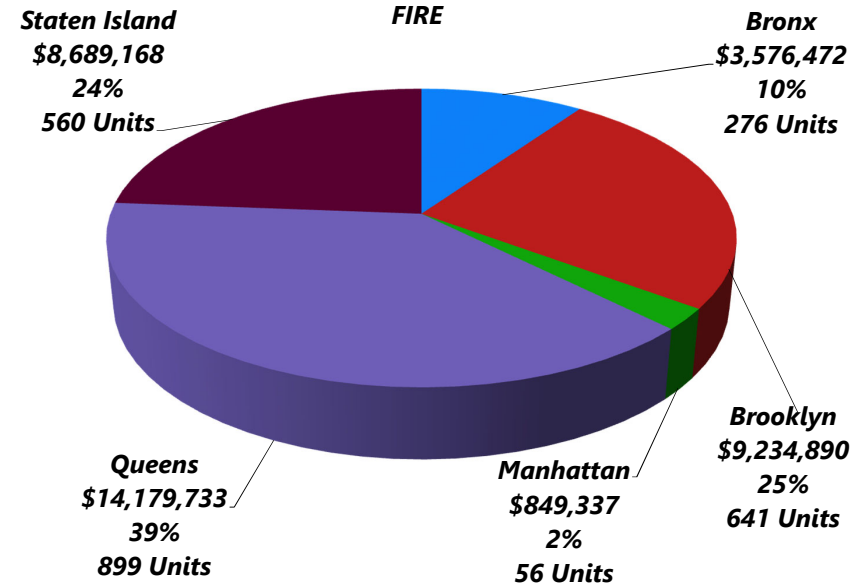
Other Investments Detail	\$ Invested		Loans	
	Q2	Total	Q2	Total
Bronx	\$0	\$42,728	0	1
Brooklyn	0	341,212	0	8
Manhattan	0	154,003	0	5
Queens	0	34,399	0	3
Staten Island	0	0	0	0
Total FIRE Other Investments	\$0	\$572,342	0	17
Other Investments Total All Systems	\$0	\$9,041,740	0	17
Grand Total FIRE	\$78,930	\$50,297,440		
Grand Total All Systems	\$1,246,914	\$794,588,316		

¹ Certain bond investment amounts are allocated pro rata across boroughs based upon unit count.² If not indicated otherwise, superintendent units are allocated based on building size.

RBC Access Multifamily Investments Since Inception



RBC Access Single Family Investments Since Inception



Fire Pension Fund - Economically Targeted Investments Quarterly Report

Equity Investments

Total Market Value \$19.05 million

Hudson Market Value \$4.14 million

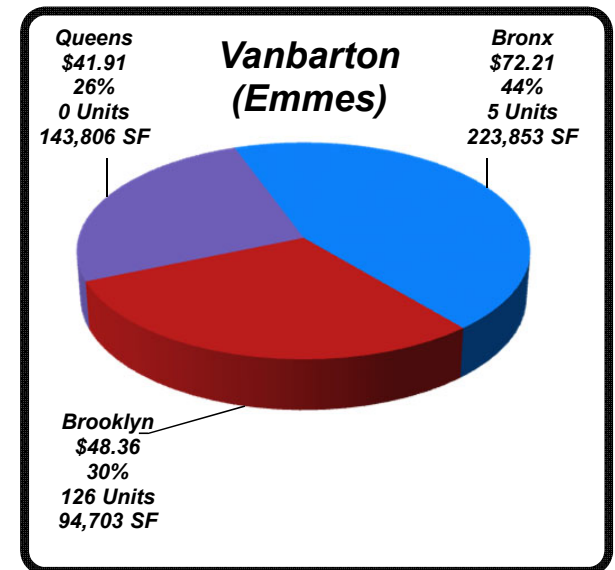
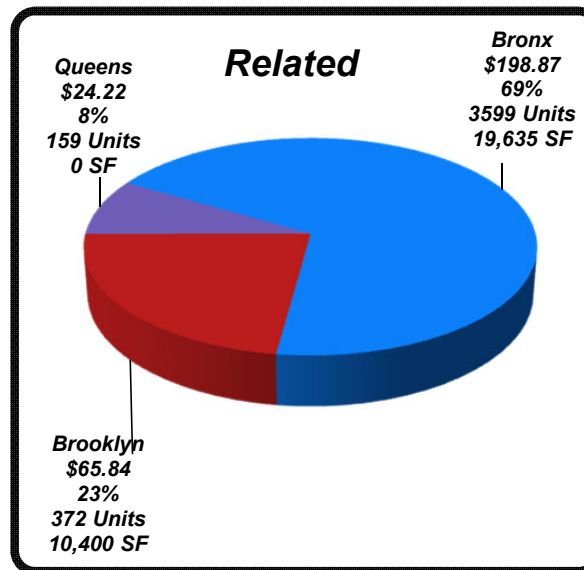
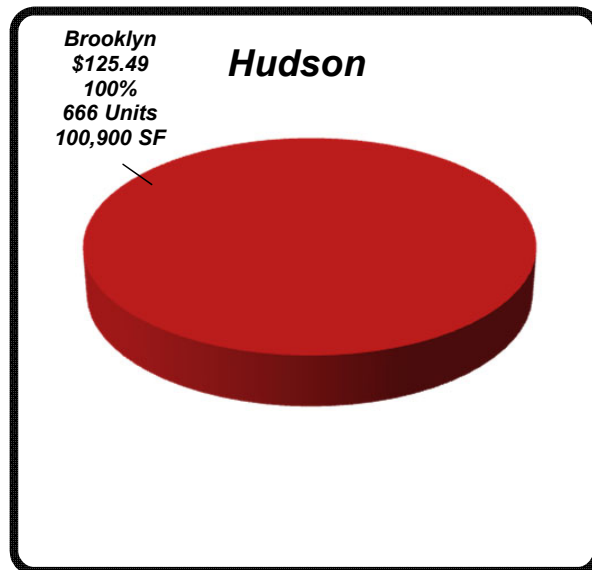
Borough	Gross Capital Invested	Total Units	Workforce Units	Comm. SF
Bronx	\$0.00	0	0	0
Brooklyn	125.49	666	666	100,900
Manhattan	0.00	0	0	0
Queens	0.00	0	0	0
Staten Island	0.00	0	0	0
Outside NYC	0.00	0	0	0
Totals	\$125.49	666	666	100,900

Related Market Value \$10.50 million

Borough	Gross Capital Invested	Total Units	Workforce Units	Comm. SF
Bronx	\$198.87	3,599	3,356	19,635
Brooklyn	65.84	372	212	10,400
Manhattan	0.00	0	0	0
Queens	24.22	159	151	0
Staten Island	0.00	0	0	0
Outside NYC	0.00	0	0	0
Totals	\$288.93	4,130	3,719	30,035

Vanbarton (Emmes) Market Value \$4.41 million

Borough	Gross Capital Invested	Total Units	Workforce Units	Comm. SF
Bronx	\$72.21	5	2	223,853
Brooklyn	48.36	126	61	94,703
Manhattan	0.00	0	0	0
Queens	41.91	0	0	143,806
Staten Island	0.00	0	0	0
Outside NYC	0.00	0	0	0
Totals	\$162.48	131	63	462,362



*All information is derived from quarterly reports submitted by individual managers. Performance has not been reviewed by consultants or custodial bank.

**Dollar amount listed in millions

Private Equity Quarterly Report (Public):



Private Equity Monitoring Report

For the period ended March 31, 2019

Report Prepared For:

New York City Fire Pension Fund



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All data is as of March 31, 2019 unless otherwise noted.

PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. ACTUAL PERFORMANCE MAY VARY.

I. Executive Summary

The New York City Fire Pension Fund (“NYCFPF”) established the Alternative Investment Program (the “Program”) on January 1, 1997 on behalf of its beneficiaries to participate in attractive long-term investment opportunities and to provide diversification to its overall pension investment portfolio.

StepStone Group LP (“StepStone”) was engaged by NYCFPF on February 1, 2012 to provide private equity advisory services for prospective investment opportunities and monitoring and reporting services for existing and new investments.

Since inception through March 31, 2019, the Program has committed US\$2.2 billion to 222 partnership investments (the “Portfolio”). This quarterly monitoring report covers the performance of the Portfolio as of March 31, 2019 as well as significant activity that occurred during the first quarter of 2019.

Performance Summary

US\$ in millions	March 31, 2019	December 31, 2018	March 31, 2018	Quarterly Change	Yearly Change
Number of Managers	119	119	118	-	1
Number of Investments	222	219	207	3	15
Committed Capital ¹	\$2,203.1	\$2,125.3	\$1,989.4	\$77.8	\$213.7
Contributed Capital	\$1,790.8	\$1,750.4	\$1,641.4	\$40.4	\$149.4
Distributed Capital	\$1,703.4	\$1,659.3	\$1,471.8	\$44.1	\$231.6
Market Value	\$952.5	\$920.2	\$939.8	\$32.4	\$12.7
Total Value	\$2,656.0	\$2,579.5	\$2,411.6	\$76.5	\$244.3
Total Gain/(Loss)	\$865.2	\$829.1	\$770.2	\$36.1	\$94.9
Unfunded Commitment ²	\$663.0	\$617.3	\$562.9	\$45.7	\$100.1
Total Exposure ³	\$1,615.6	\$1,537.5	\$1,502.7	\$78.1	\$112.9
DPI ⁴	0.95x	0.95x	0.90x	0.00x	0.05x
TVM ⁵	1.48x	1.47x	1.47x	0.01x	0.01x
IRR ⁶	11.4%	11.3%	11.4%	+ 8 bps	-5 bps
TVM Net of StepStone Fees ⁷	1.48x	1.47x	1.47x	0.01x	0.01x
IRR Net of StepStone Fees ⁷	11.4%	11.3%	11.4%	+ 8 bps	-5 bps

¹ Committed Capital is presented net of any commitment releases or expirations and reflects foreign currency exchange rate fluctuations.

² Unfunded Commitment represents the aggregate remaining commitments to partnership investments.

³ Total Exposure represents the sum of Market Value and Unfunded Commitment.

⁴ DPI, or Distributed to Paid-In Multiple, is a performance metric that measures distributions received relative to capital invested. DPI is calculated as Distributed Capital divided by Contributed Capital.

⁵ TVM, or Total Value Multiple, is a performance metric that measures total value created by the Portfolio relative to capital invested, without consideration for time. TVM is calculated as Total Value, which is comprised of Market Value plus Distributed Capital, divided by Contributed Capital.

⁶ IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio’s daily cash flows and market value as of quarter-end. IRR is net of fund manager’s fees, expenses and carried interest.

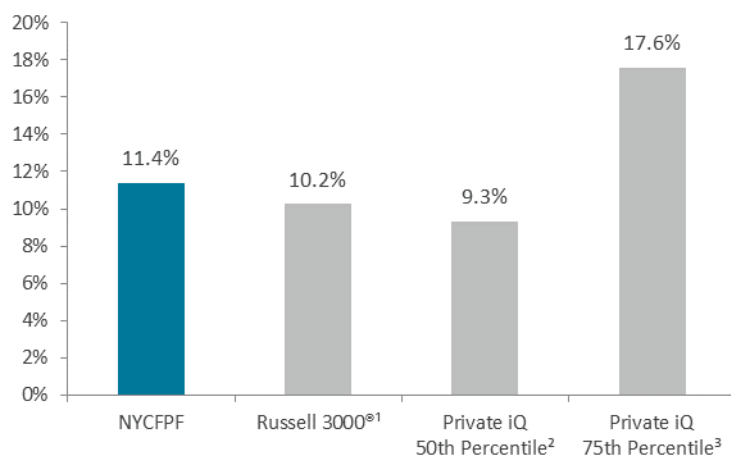
⁷ TVM and IRR Net of StepStone fees represent TVM and IRR net of fees paid by NYCFPF to StepStone.

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

Portfolio Performance vs. Benchmarks

The Portfolio's performance is measured against a dollar-weighted public benchmark, which produced the return that would have been earned if NYCFPF's private equity cash flows were invested in the Russell 3000® Index¹.

The following graph illustrates Portfolio IRR performance versus benchmarks as of March 31, 2019.



¹Return is a dollar-weighted PME+ calculation of daily changes in the Russell 3000® Index. Russell Investment Group is the source and owner of the trademark, service marks and copyrights related to the Russell Indexes. Russell® is a trademark of Russell Investment Group.

²Private iQ benchmark reflects Equity (all sub-sectors), Mezzanine, Distressed, Oil & Gas Assets asset classes, 50th percentile, or median, IRR at March 31, 2019 for funds with vintage years from 1998 through 2019. The benchmark is a weighted average of the primary and secondary 50th percentile returns based on the Portfolio's market value as of March 31, 2019. Note: Data may be subject to change.

³Private iQ benchmark reflects Equity (all sub-sectors), Mezzanine, Distressed, Oil & Gas Assets asset classes, 50th percentile, or median, IRR at March 31, 2019 for funds with vintage years from 1998 through 2019. The benchmark is a weighted average of the primary and secondary 75th percentile returns based on the Portfolio's market value as of March 31, 2019. Note: Data may be subject to change.

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

Portfolio Diversification

By Strategy

As of March 31, 2019 (US\$ in millions)	Market Value		Unfunded Commitment		Total Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
Buyout	\$577.6	60.6%	\$390.4	58.9%	\$968.0	59.9%
Growth Equity	124.3	13.0%	74.2	11.2%	198.5	12.3%
Special Situations	78.3	8.2%	38.9	5.9%	117.1	7.3%
Energy	8.2	0.9%	1.2	0.2%	9.4	0.6%
Secondaries	80.0	8.4%	107.7	16.2%	187.7	11.6%
Co-Investment	40.0	4.2%	48.6	7.3%	88.7	5.5%
Other	44.2	4.6%	1.9	0.3%	46.1	2.9%
Total	\$952.5	100.0%	\$663.0	100.0%	\$1,615.6	100.0%

By Fund Geographic Focus

As of March 31, 2019 (US\$ in millions)	Market Value		Unfunded Commitment		Total Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
North America	\$631.1	66.3%	\$346.2	52.2%	\$977.3	60.5%
Global	178.8	18.8%	189.2	28.5%	368.0	22.8%
Western Europe	137.7	14.5%	127.2	19.2%	265.0	16.4%
Rest of World	4.9	0.5%	0.4	0.1%	5.3	0.3%
Total	\$952.5	100.0%	\$663.0	100.0%	\$1,615.6	100.0%

Fund Geographic Focus is based on a number of factors, including the GP-stated geographic focus, the number of investments within each region, invested capital by region, the location of the firm's offices and investment professionals, and the underlying fund currency.

II. Market Overview

Executive Summary

Global equity markets rebounded during the first quarter of 2019 as U.S.-China trade negotiations showed signs of progress and major central banks grew more accommodative to slowing global economic growth. The MSCI Emerging Markets index increased 9.6%, as the U.S. decided to suspend tariff hikes on \$200 billion worth of Chinese goods. The MSCI Europe index rallied 10%, despite ongoing Brexit-related uncertainty, as the European Central Bank restarted the bank's stimulus plan and vowed to maintain negative interest rates through the end of the year. The S&P 500 Total Return index rose during the quarter, returning 13.6%, led by a 19.9% gain in the Information Technology sector following strong earnings. The U.S. Federal Reserve placed interest-rate hikes on hold for the remainder of the year, acknowledging the deterioration of economic momentum. The Federal Reserve's adjusted outlook on slowing growth expectations caused the Treasury yield curve to invert.

In private markets, U.S. leveraged buyout ("LBO") debt volume increased by 39.2% quarter-over-quarter, from US\$26.6 billion to US\$37.0 billion, 30.3% higher than the first quarter of 2018 and 98.8% higher than the 10-year quarterly average of US\$17.7 billion. According to data from S&P, purchase price multiples for U.S. LBOs increased to 10.3x EBITDA in the first quarter, up 0.3% from 10.3x EBITDA in the prior quarter, and above the 10-year average of 9.6x EBITDA. Average debt multiples of large corporate U.S. LBO loans remained at 5.7x for the quarter, above the 10-year average of 5.2x. Equity contributions for U.S. LBOs decreased to 42.2%, a 1.6% decrease quarter-over-quarter and above the 10-year average of 41.4%.¹

Fundraising for global private equity totaled US\$139.4 billion in the first quarter of 2019, a 1.8% increase compared to the prior quarter and a 13.6% increase from the first quarter of 2018. Geographically, the U.S. represented 60.3% of total funds raised in the quarter, higher than the 10-year average of 59.6%. Funds raised in Europe, Asia, and the Rest of World made up 27.9%, 9.3% and 2.5% of global fundraising for the quarter, respectively. Invested capital for private equity funds decreased 3.4% quarter-over-quarter and increased 39.8% year-over-year, with US\$95.9 billion invested in 3,635 deals. A significant portion of the capital deployed was in the Information Technology sector, accounting for 40.7% compared to the 10-year average of 35.6%.²

Private equity-backed IPO transaction volume decreased in the first quarter with US\$3.8 billion raised in 12 IPOs. The amount raised through IPOs decreased 25.4% compared to the prior quarter and 52.1% compared to the first quarter of 2018. The largest IPOs of the quarter were completed by Lyft, Inc. (NASDAQ: LYFT), a provider of peer-to-peer on-demand ridesharing services in North America, which raised US\$2.6 billion, and Gossamer Bio, Inc. (NASDAQ: GOSS), a clinical-stage biopharmaceutical company focused on developing therapeutics in the disease areas of immunology, inflammation, and oncology, which raised US\$317.4 million. Together these deals represent 73.1% of the total value for all IPOs in the quarter. M&A activity decreased in the first quarter with a total value of US\$169.7 billion, a 23.1% decrease compared to the prior quarter and a 34.8% decrease compared to the first quarter of 2018. The largest M&A deals of the quarter were the US\$80.9 billion purchase of Shire plc by Takeda Pharmaceutical Company Limited (TSE: 4502) and the US\$11.4 billion purchase of EnLink Midstream Partners, LP by EnLink Midstream, LLC (NYSE: ENLC). Together these deals represent 54.3% of the total value for all deals in the quarter.³

¹ S&P U.S. LBO Review, Q1 2019

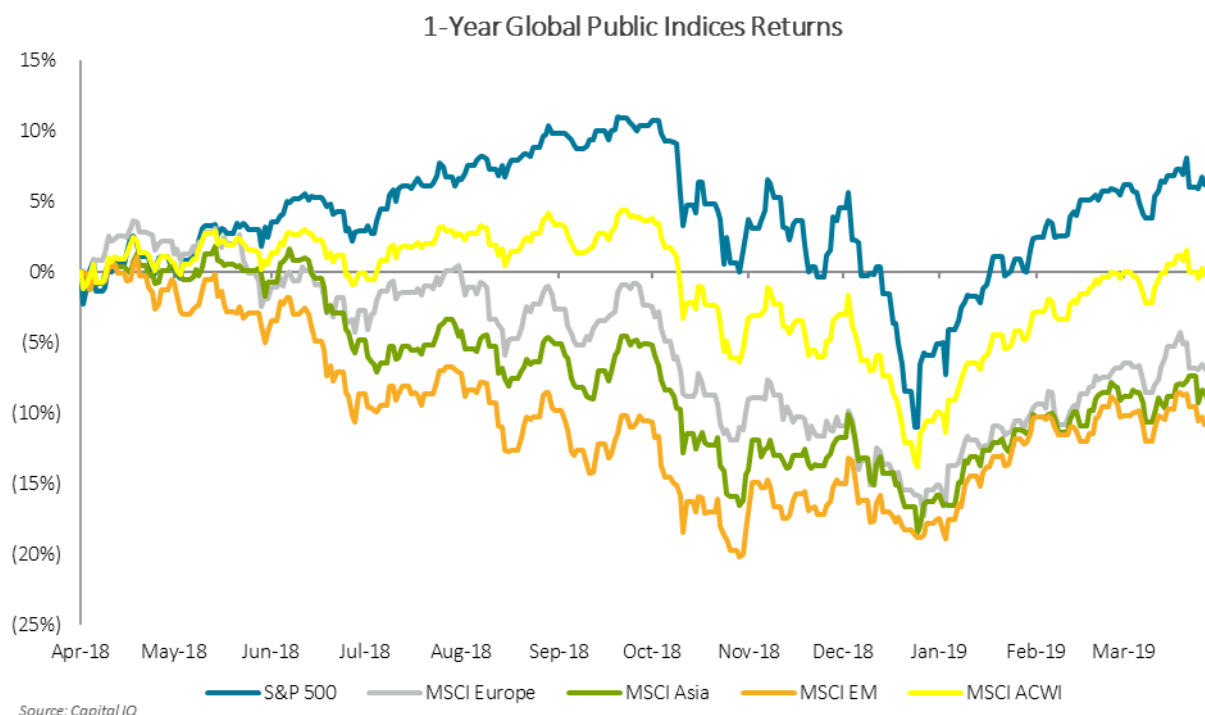
² Thomson ONE data as of June 6, 2019. Please note, all data in this report from Thomson ONE is subject to revision as further data is made available.

³ Capital IQ Transaction Screening Report as of June 6, 2019

Capital Markets Overview

Public Equity Markets

Global public markets rallied during the quarter as China-U.S. trade concerns eased and major banks grew more accommodative to slowing global economic growth. U.S. markets fueled global growth due to the Federal Reserve's dovish tilt in planned interest rate hikes and progress in U.S.-China trade talks. Information Technology, Energy, and Consumer Discretionary sectors for U.S. equities increased 19.9%, 16.4%, and 15.7% for the quarter, respectively. Although global markets grew over the quarter, economic growth has become a cause of concern amongst investors.



The following table shows the returns of four major MSCI indices, as well as the S&P 500 and the S&P 500 Total Return Index, over various time horizons through March 31, 2019. Returns for time periods greater than one year are annualized. During the quarter, U.S. markets increased 13.6% followed by MSCI ACWI at 11.6%, MSCI Europe at 10.0%, and MSCI Emerging Markets at 9.6%.

Regional Indices

	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr
MSCI Asia	8.8%	(8.4%)	7.9%	4.0%	7.2%
MSCI Europe	10.0%	(6.6%)	3.5%	(1.7%)	5.8%
MSCI EM	9.6%	(9.6%)	8.1%	1.2%	6.4%
MSCI ACWI	11.6%	0.5%	8.5%	4.4%	9.7%
S&P 500	13.1%	7.3%	11.2%	8.6%	13.5%
S&P 500 Total Return*	13.6%	9.5%	13.5%	10.9%	15.9%

For the period ended March 31, 2019

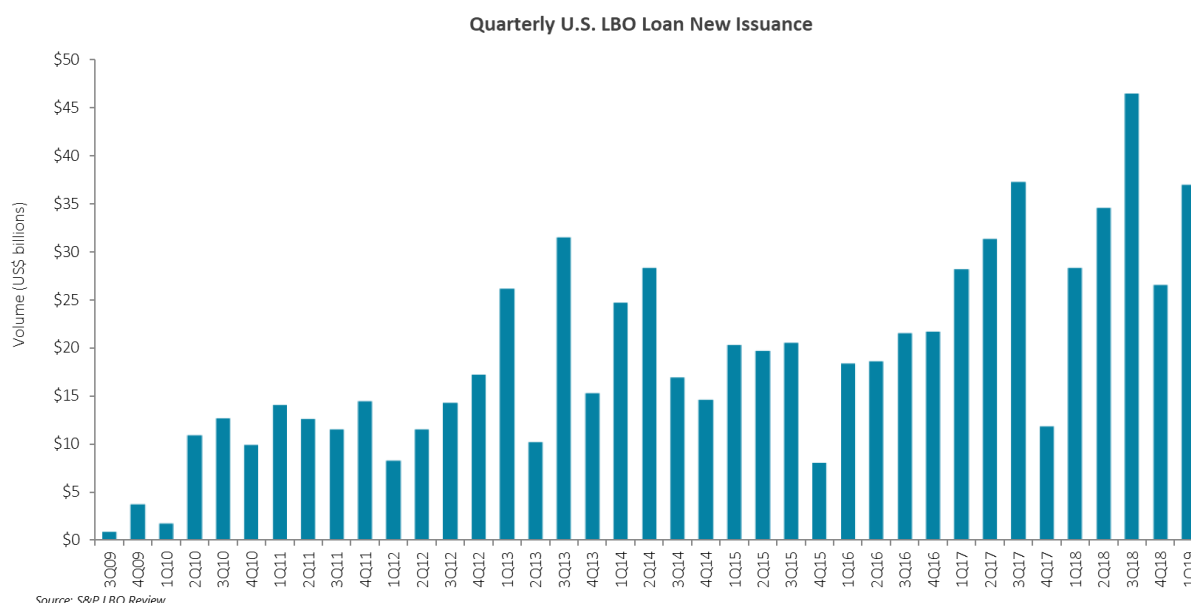
*Includes reinvestment of dividends.

Source: Capital IQ

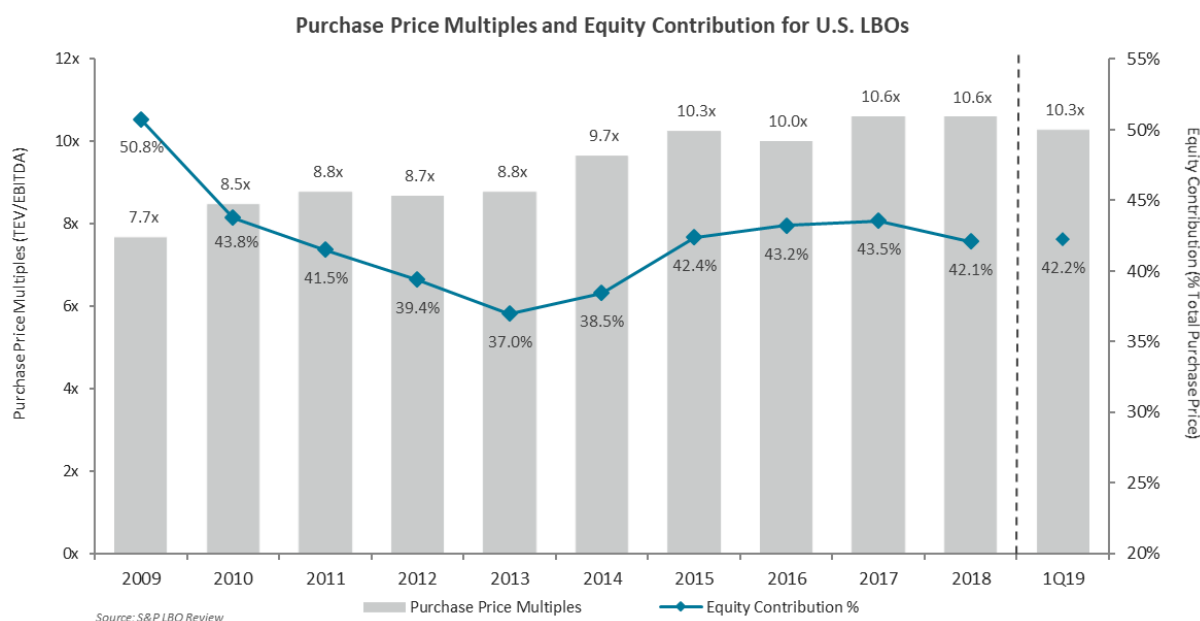
The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially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

Debt Markets

During the first quarter of 2019, U.S. LBO new loan issuance totaled US\$37.0 billion, representing an increase of 39.2% from the prior quarter and an increase of 30.3% from the first quarter of 2018. The following chart shows the quarterly volume of U.S. LBO new loan issuance for the past ten years.



The weighted average purchase price multiple for U.S. LBO deals was 10.3x total enterprise value (“TEV”) to EBITDA in the first quarter, remaining constant with the prior quarter and above the 10-year average of 9.6x. Average debt multiples of large corporate U.S. LBO loans remained at 5.7x EBITDA, as equity contributions for U.S. LBOs decreased from 42.9% to 42.2%. The following chart compares purchase price multiples and equity contribution percentages for U.S. LBO deals.



Private Equity Market Overview

All Private Equity

The table below shows the pooled Internal Rate of Return (“IRR”) performance of global private equity investments by sector over various investment horizons through March 31, 2019. The All Private Equity benchmark had an IRR of 3.8% for the quarter. All five sectors were positive for the quarter, led by Venture Capital with 5.3%, followed by Large Buyouts with 4.5%, Energy with 2.5%, Small/Middle Buyouts with 2.4%, and Mezzanine with 1.8%.

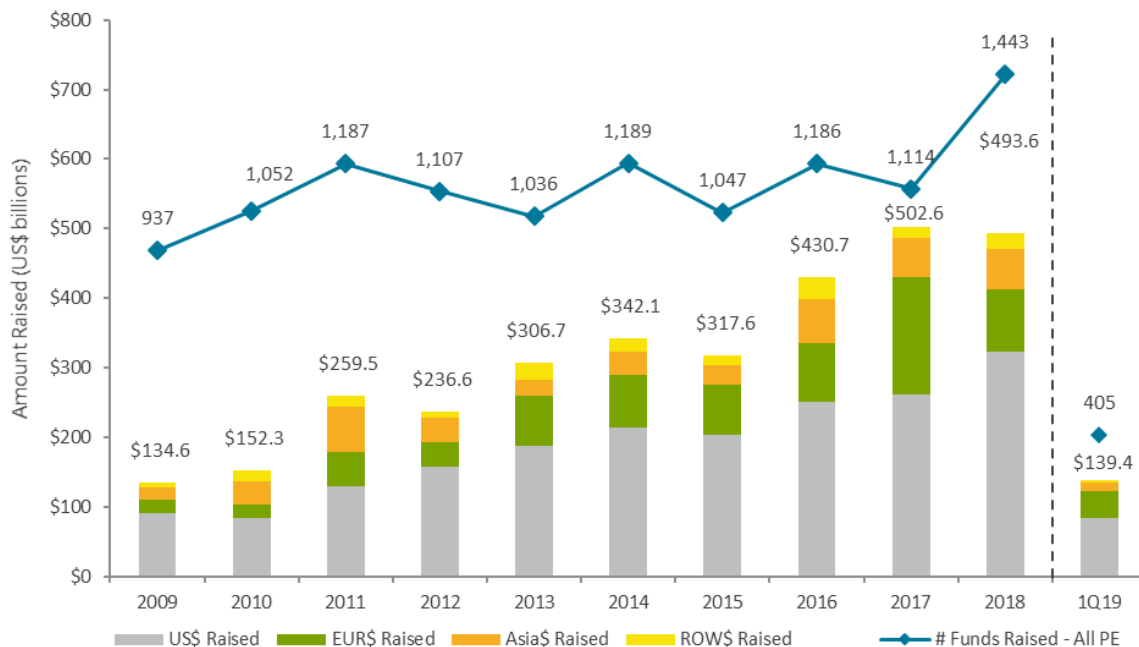
Sector	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr
Small/Middle Buyouts (<\$3bn)	2.4%	9.4%	15.0%	11.7%	14.1%
Large Buyouts (>\$3bn)	4.5%	10.7%	15.5%	12.5%	15.7%
Mezzanine	1.8%	5.0%	9.2%	8.3%	9.9%
Energy	2.5%	(6.3%)	7.8%	(0.5%)	5.4%
Venture Capital	5.3%	21.2%	15.0%	15.4%	14.9%
All Private Equity	3.8%	11.3%	14.2%	11.7%	14.3%

Source: Burgiss PrivateIQ

Fundraising

Global private equity fundraising totaled US\$139.4 billion in the first quarter, representing an increase of 1.8% quarter-over-quarter and an increase of 13.6% compared to the first quarter of 2018. Buyout fundraising totaled US\$91.5 billion, decreasing 11.4% quarter-over-quarter and increasing 13.3% compared to the prior year period. Venture Capital raised US\$21.5 billion in the first quarter, a decrease of 5.0% quarter-over-quarter and an increase of 50.6% compared to the first quarter of 2018. Geographically, the U.S. represented 60.3% of total funds raised in the quarter, higher than the 10-year average of 59.6%. Funds raised in Europe, Asia, and the Rest of World made up 27.9%, 9.3% and 2.5%, respectively, of global fundraising for the quarter. The chart below shows annual private equity fundraising activity across all sectors.

Regional Fundraising by Year – All Private Equity

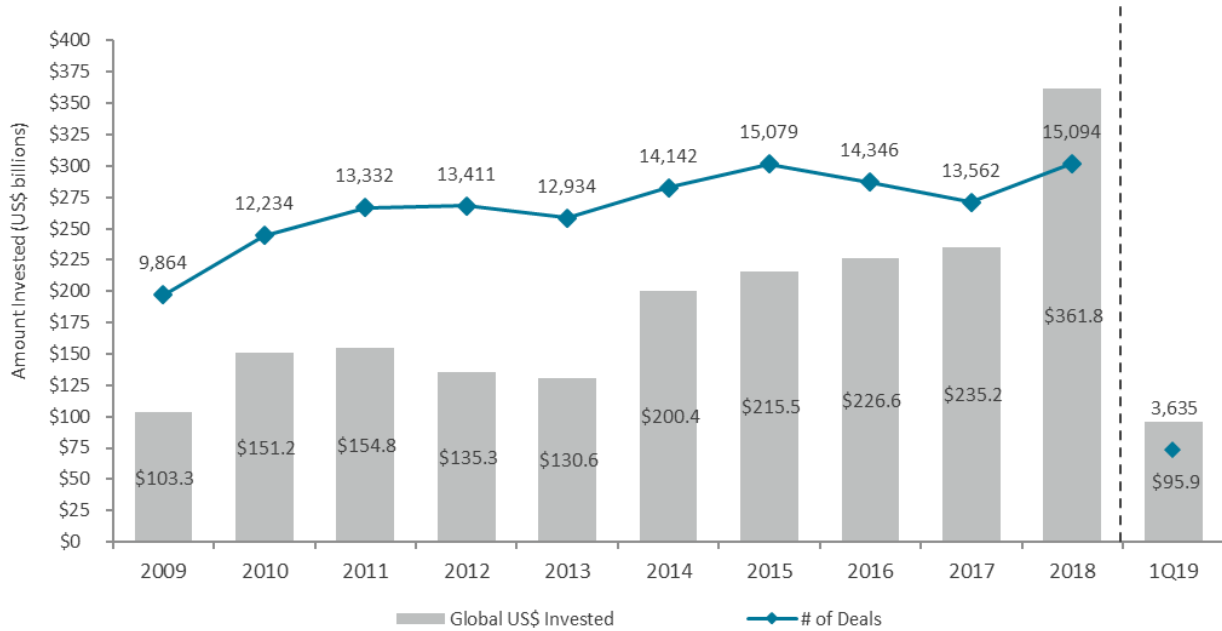


Source: Thomson ONE

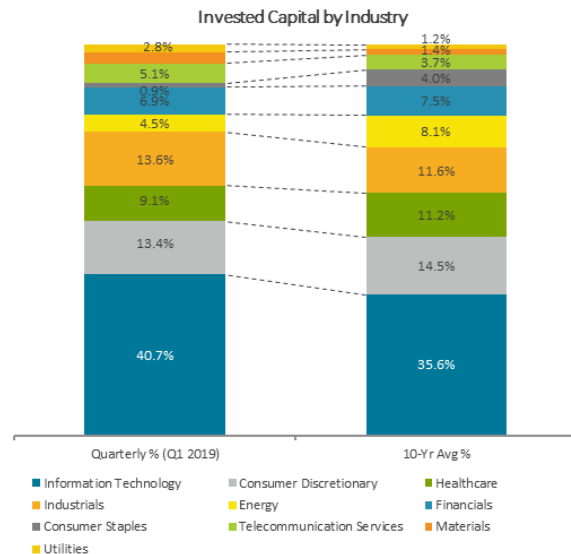
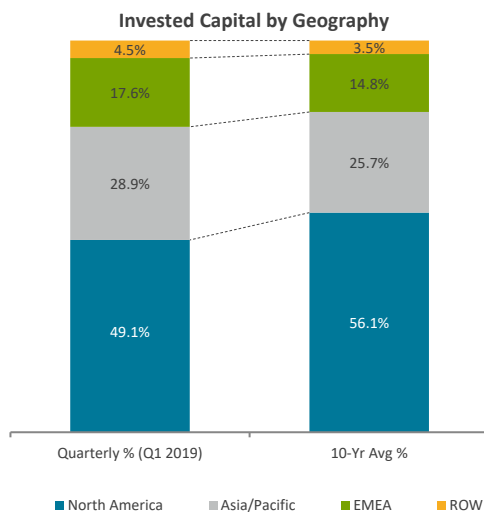
Investment Activity

Private equity funds invested US\$95.9 billion globally during the first quarter, representing a quarter-over-quarter decrease of 7.3% and an increase of 37.3% from the first quarter of 2018. The average investment size during the quarter was US\$26.4 million, a decrease of 3.4% compared to the average investment size of US\$27.3 million in the fourth quarter.

Investment Activity - All Private Equity



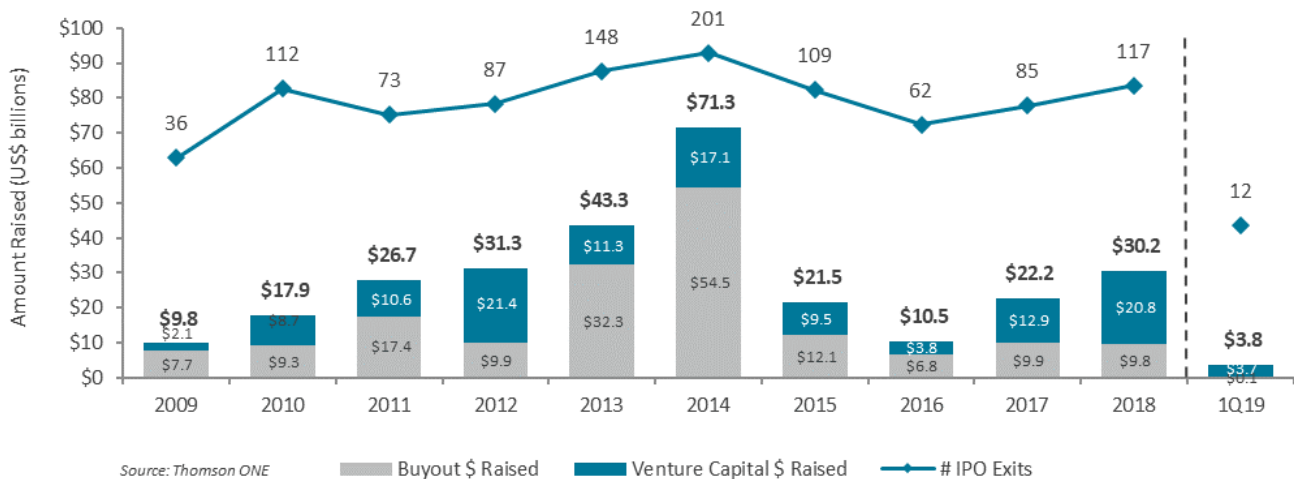
The graphs below depict the percentage of invested capital by industry and geography for the first quarter of 2019 and over the last ten years. The Information Technology sector had the largest departure from its 10-year average, accounting for US\$39.0 billion of transactions, or 40.7% of total capital invested by private equity firms, compared to its 10-year average of 35.6%. Considering geography, investment activity was below average in North America, comprising 49.1% of total capital invested compared to its 10-year historical average of 56.1%.



Deal Environment

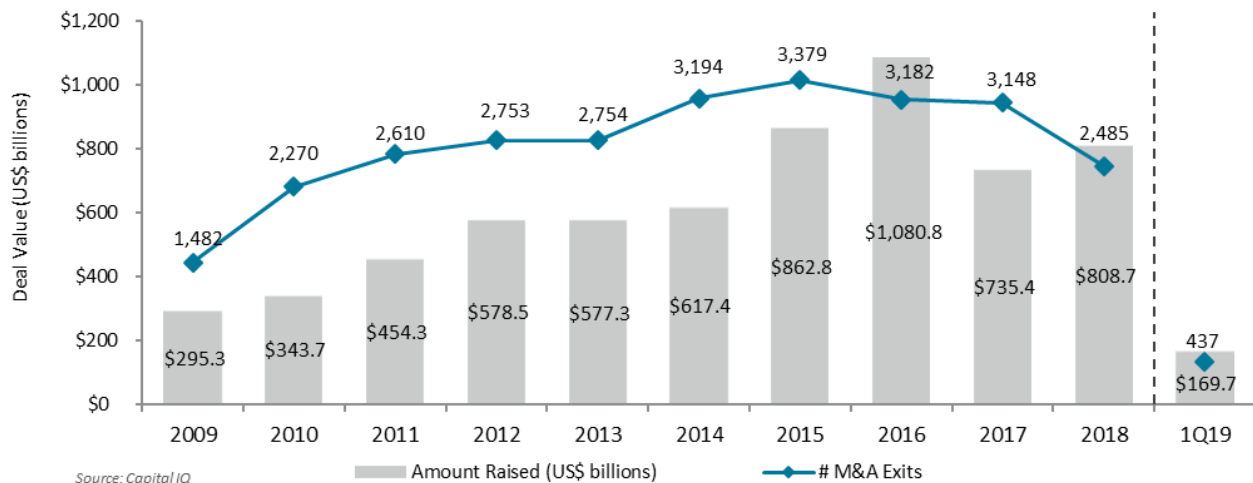
In the first quarter, the number of private equity-backed IPOs decreased 52.0%, from 25 to 12, and the amount raised decreased 25.4%, from US\$5.1 billion to US\$3.8 billion, compared to the prior quarter. The IPOs were comprised of 11 venture capital-backed IPOs that raised a total of US\$3.7 billion and one IPO from buyouts that raised US\$0.1 billion. The largest IPOs of the quarter were completed by Lyft, Inc. (NASDAQ: LYFT), a provider of peer-to-peer on-demand ridesharing services in North America, which raised US\$2.6 billion, and Gossamer Bio, Inc. (NASDAQ: GOSS), a clinical-stage biopharmaceutical company focused on developing therapeutics in the disease areas of immunology, inflammation, and oncology, which raised US\$317.4 million. Together these deals represented 73.1% of the total value for all IPOs in the quarter. The graph below shows the amount raised and the number of IPOs on the NYSE and NASDAQ.

IPO Activity by Strategy - All Private Equity



The number of private equity-backed Mergers and Acquisitions (“M&A”) declined 23.1%, and the total value of M&A deals decreased 34.8% compared to the prior quarter. In the first quarter, there were 437 private-equity backed M&A deals totaling US\$169.7 billion. The largest M&A deals of the quarter were the US\$80.9 billion purchase of Shire plc by Takeda Pharmaceutical Company Limited (TSE: 4502) and the US\$11.4 billion purchase of EnLink Midstream Partners, LP by EnLink Midstream, LLC (NYSE: ENLC). Together these deals represent 54.3% of the total value for all deals in the quarter. The graph below shows the deal value and the number of M&A deals.

M&A Activity - All Private Equity



III. Portfolio Review

Quarterly Highlights

- Cash Flow Activity** – During the first quarter of 2019, the Portfolio made US\$40.4 million of contributions and received US\$44.1 million of distributions, for a net cash inflow of US\$3.8 million, compared to a net cash inflow of US\$22.5 million during the prior quarter and a net cash inflow of US\$4.7 million during the first quarter of 2018. Contributions decreased 14.7% from the prior quarter and increased 31.6% from the first quarter of 2018. The most recent four quarter average of the Program's contributions is US\$37.3 million. Distributions decreased 36.9% from the prior quarter and increased 24.9% from the first quarter of 2018. The most recent four quarter average of the Program's distributions is US\$57.9 million.
- Recent Portfolio Activity** – During the first quarter of 2019, net of cash flow activity, the valuation of the Portfolio increased by US\$36.1 million, or 3.9%, from the prior quarter. The increase in Portfolio value is primarily attributable to strong performance of Mega Buyout funds during the quarter, which generated a US\$9.4 million increase in valuation from the prior quarter-end. During the last twelve months, net of cash flow activity, the valuation of the Portfolio increased by US\$94.9 million, or 11.1%, from the quarter ended March 31, 2018.
- New Investment Commitments** – The Program closed on three new investment commitments during the first quarter of 2019, totaling US\$79.5 million.

<i>As of March 31, 2019 (US\$ in millions)</i>	Month Closed	Sub-Strategy	Geographic Focus	Committed Capital
Warburg Pincus Global Growth, L.P.	January 2019	Growth Equity	Global	\$ 25.5
ASF VIII L.P.	March 2019	Secondaries	Europe	36.0
ASF VIII B NYC Co-Invest L.P.	March 2019	Co-Investment	Europe	18.0
Total				\$ 79.5

- Subsequent Investment Commitments** – Subsequent to quarter-end through August 22, 2019, the Program has closed on six new investment commitments, totaling US\$121.1 million.

<i>As of August 22, 2019 (US\$ in millions)</i>	Month Closed	Sub-Strategy	Geographic Focus	Committed Capital
Lindsay Goldberg V, L.P.	April 2019	Buyout	North America	\$ 18.0
Lexington Co-Invest Partners B, L.P.	May 2019	Co-Investment	Global	7.1
Platinum Equity Capital Partners V, L.P.	July 2019	Special Situations	North America	32.0
Apax X USD L.P.	July 2019	Butout	Global	21.5
Trilantic Capital Partners VI (North America) L.P.	July 2019	Buyout	North America	20.0
Blackstone Capital Partners VIII L.P.	August 2019	Buyout	Global	22.5
Total				\$ 121.1

Investment Performance

Since Inception Performance

<i>US\$ in millions</i>	March 31, 2019	December 31, 2018	March 31, 2018	Quarterly Change	Yearly Change
Active Investments					
Number of Managers	102	102	106	-	(4)
Number of Investments	192	189	186	3	6
Committed Capital ¹	\$2,040.7	\$1,963.0	\$1,884.9	\$77.8	\$155.9
Contributed Capital	\$1,610.2	\$1,569.8	\$1,525.6	\$40.4	\$84.6
Distributed Capital	\$1,468.6	\$1,424.5	\$1,331.3	\$44.1	\$137.3
Market Value	\$952.5	\$920.2	\$939.8	\$32.4	\$12.7
Total Value	\$2,421.1	\$2,344.7	\$2,271.1	\$76.5	\$150.1
Total Gain/(Loss)	\$810.9	\$774.8	\$745.5	\$36.1	\$65.4
Unfunded Commitment ²	\$663.0	\$617.3	\$562.9	\$45.7	\$100.1
Total Exposure ³	\$1,615.6	\$1,537.5	\$1,502.7	\$78.1	\$112.9
DPI ⁴	0.91x	0.91x	0.87x	0.00x	0.04x
TVM ⁵	1.50x	1.49x	1.49x	0.01x	0.01x
IRR ⁶	12.0%	11.9%	12.0%	+ 8 bps	+ 2 bps
Exited Investments					
Number of Managers	26	26	18	-	8
Number of Investments	30	30	21	-	9
Committed Capital ¹	\$162.4	\$162.4	\$104.5	(\$0.0)	\$57.8
Contributed Capital	\$180.6	\$180.6	\$115.9	\$0.0	\$64.7
Distributed Capital	\$234.8	\$234.8	\$140.5	\$0.0	\$94.3
Total Value	\$234.8	\$234.8	\$140.5	\$0.0	\$94.3
Total Gain/(Loss)	\$54.2	\$54.2	\$24.7	\$0.0	\$29.5
Unfunded Commitment ²	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
DPI ⁴	1.30x	1.30x	1.21x	0.00x	0.09x
TVM ⁵	1.30x	1.30x	1.21x	0.00x	0.09x
IRR ⁶	7.9%	7.9%	6.2%	+ 0 bps	+ 167 bps
Total Portfolio					
Number of Managers	119	119	118	-	1
Number of Investments	222	219	207	3	15
Committed Capital ¹	\$2,203.1	\$2,125.3	\$1,989.4	\$77.8	\$213.7
Contributed Capital	\$1,790.8	\$1,750.4	\$1,641.4	\$40.4	\$149.4
Distributed Capital	\$1,703.4	\$1,659.3	\$1,471.8	\$44.1	\$231.6
Market Value	\$952.5	\$920.2	\$939.8	\$32.4	\$12.7
Total Value	\$2,656.0	\$2,579.5	\$2,411.6	\$76.5	\$244.3
Total Gain/(Loss)	\$865.2	\$829.1	\$770.2	\$36.1	\$94.9
Unfunded Commitment ²	\$663.0	\$617.3	\$562.9	\$45.7	\$100.1
Total Exposure ³	\$1,615.6	\$1,537.5	\$1,502.7	\$78.1	\$112.9
DPI ⁴	0.95x	0.95x	0.90x	0.00x	0.05x
TVM ⁵	1.48x	1.47x	1.47x	0.01x	0.01x
IRR ⁶	11.4%	11.3%	11.4%	+ 8 bps	-5 bps
TVM Net of StepStone Fees ⁷	1.48x	1.47x	1.47x	0.01x	0.01x
IRR Net of StepStone Fees ⁷	11.4%	11.3%	11.4%	+ 8 bps	-5 bps

¹ Committed Capital is presented net of any commitment releases or expirations and reflects foreign currency exchange rate fluctuations. Total committed includes underlying fund commitments to the EM 2012 and 2015 Programs.

² Unfunded Commitment represents the aggregate remaining commitments to partnership investments.

³ Total Exposure represents the sum of Market Value and Unfunded Commitment.

⁴ DPI, or Distributed to Paid-In Multiple, is a performance metric that measures distributions received relative to capital invested. DPI is calculated as Distributed Capital divided by Contributed Capital.

⁵ TVM, or Total Value Multiple, is a performance metric that measures total value created by the Portfolio relative to capital invested, without consideration for time. TVM is calculated as Total Value, which is comprised of Market Value plus Distributed Capital, divided by Contributed Capital.

⁶ IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of fund manager's fees, expenses and carried interest.

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

Performance by Vintage Year

The following table and chart illustrate the Portfolio's since inception investment performance by vintage year as of March 31, 2019 relative to the median quartile U.S. All Private Equity TVM and IRR benchmarks as provided by Burgiss Private iQ. Performance of funds that are less than two years old are not meaningful. Note that Burgiss Private iQ data is continuously updated and is therefore subject to change.

As of March 31, 2019 (US\$ in millions)

Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Unfunded Commitment	Total Exposure	TVM	IRR	PME Return ¹	PME Spread ²	Private iQ U.S. All PE 50th Percentile TVM	Private iQ U.S. All PE 50th Percentile IRR
1998	\$10.0	\$10.0	\$13.8	\$0.0	\$0.0	\$0.0	1.37x	6.3%	3.4%	2.9%	1.43x	7.7%
1999	54.5	63.0	91.3	0.3	-	0.3	1.45x	8.8%	6.4%	2.4%	0.87x	(1.5%)
2000	28.8	33.8	42.5	1.8	-	1.8	1.31x	6.7%	6.2%	0.4%	1.19x	2.7%
2001	49.1	58.8	99.4	0.8	1.2	2.0	1.70x	21.2%	8.2%	12.9%	1.36x	6.9%
2002	5.0	4.8	7.3	0.0	0.3	0.3	1.54x	23.3%	7.5%	15.8%	1.51x	10.7%
2003	28.9	31.7	67.2	1.7	2.5	4.2	2.17x	25.1%	7.2%	17.9%	1.55x	9.7%
2004	54.3	59.1	59.5	5.5	1.2	6.7	1.10x	2.1%	6.8%	-4.7%	1.50x	7.6%
2005	68.2	76.5	95.0	13.6	2.3	15.9	1.42x	6.6%	7.6%	-1.0%	1.40x	7.2%
2006	134.9	152.1	193.7	24.9	5.4	30.3	1.44x	7.2%	8.8%	-1.6%	1.43x	6.2%
2007	123.4	134.3	144.1	29.7	8.5	38.3	1.29x	6.2%	11.2%	-5.0%	1.59x	10.0%
2008	194.7	223.3	267.8	79.9	12.7	92.6	1.56x	11.7%	13.7%	-2.0%	1.56x	10.8%
2009	46.9	46.2	74.2	20.7	2.9	23.5	2.05x	18.0%	14.4%	3.5%	1.92x	14.9%
2010	42.5	45.7	54.8	20.9	7.8	28.7	1.65x	16.7%	13.1%	3.6%	1.59x	12.9%
2011	168.4	172.0	192.3	103.5	21.9	125.4	1.72x	15.9%	13.2%	2.7%	1.76x	16.4%
2012	158.8	161.8	145.1	128.1	22.5	150.6	1.69x	19.0%	12.0%	7.0%	1.56x	14.5%
2013	139.0	117.1	45.7	108.3	35.0	143.3	1.32x	12.3%	11.2%	1.1%	1.57x	16.0%
2014	180.4	164.9	82.3	157.3	44.9	202.2	1.45x	17.3%	11.2%	6.2%	1.42x	14.5%
2015	147.1	104.6	15.0	116.5	46.5	163.1	1.26x	15.0%	11.4%	3.6%	1.26x	12.6%
2016	69.0	52.4	10.7	59.9	25.0	84.8	1.35x	23.3%	11.2%	12.1%	1.17x	12.4%
2017	124.6	54.1	1.6	54.6	71.9	126.5	NM	NM	NM	NM	NM	NM
2018	238.2	23.9	0.4	23.1	214.5	237.6	NM	NM	NM	NM	NM	NM
2019	136.5	0.4	-	1.4	136.1	137.5	NM	NM	NM	NM	NM	NM
Total	\$2,203.1	\$1,790.8	\$1,703.4	\$952.5	\$663.0	\$1,615.6	1.48x	11.4%	10.2%	1.1%	1.34x	9.3%

¹ Russell 3000 PME+

² PME Spread is calculated as IRR minus PME Return.

As of March 31, 2019



Portfolio Periodic Returns vs. Russell 3000® Index

As of March 31, 2019	3 Month	1 Year	3 Year	5 Year	10 Year	Since Inception
NYCFFP IRR	4.1%	10.7%	15.2%	12.1%	13.1%	11.4%
Russell 3000® ¹	14.3%	3.7%	13.8%	10.4%	16.1%	10.2%
Russell 3000® + 300 bps ²	17.3%	6.7%	16.8%	13.4%	19.1%	13.2%
NYCERS Outperformance/(Underperformance)						
vs. Russell 3000® + 300 bps ²	(13.2%)	4.0%	(1.6%)	(1.3%)	(6.0%)	(1.9%)

¹Return is a dollar-weighted PME+ calculation of daily changes in the Russell 3000® Index. Russell Investment Group is the source and owner of the trademark, service marks and copyrights related to the Russell Indexes. Russell® is a trademark of Russell Investment Group.

²Benchmark is a dollar-weighted PME+ calculation of daily changes in the Russell 3000® Index plus a 300 basis point illiquidity premium (the Opportunity Cost Benchmark).

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

Performance by Strategy / Sub-Strategy

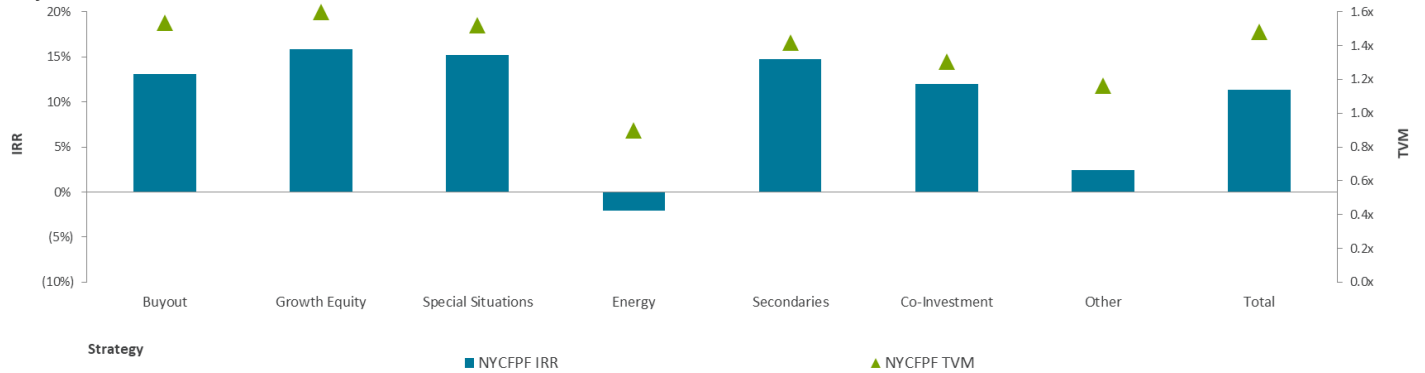
The following table and charts illustrate the Portfolio's since inception investment performance by strategy and sub-strategy as of March 31, 2019.

As of March 31, 2019 (US\$ in millions)

Strategy / Sub-Strategy	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Unfunded Commitment	Total Exposure	TVM	IRR
Buyout	\$1,352.9	\$1,141.4	\$1,177.1	\$577.6	\$390.4	\$968.0	1.54x	13.1%
Mega Buyout	447.9	290.8	208.8	202.1	199.5	401.5	1.41x	12.8%
Large Buyout	385.2	366.8	411.6	218.0	84.7	302.7	1.72x	24.1%
Middle-Market Buyout	287.9	244.2	273.7	86.7	83.1	169.9	1.48x	8.9%
Small Buyout	232.0	239.5	283.0	70.8	23.1	93.9	1.48x	9.9%
Growth Equity	215.2	167.5	143.6	124.3	74.2	198.5	1.60x	15.9%
Special Situations	135.0	115.4	97.1	78.3	38.9	117.1	1.52x	15.2%
Energy	37.5	41.2	28.8	8.2	1.2	9.4	0.90x	-2.1%
Secondaries	244.0	143.0	122.7	80.0	107.7	187.7	1.42x	14.7%
Co-Investment	89.9	41.8	14.6	40.0	48.6	88.7	1.31x	12.0%
Other	128.7	140.5	119.5	44.2	1.9	46.1	1.17x	2.5%
Venture Capital	112.6	120.2	94.0	42.7	1.2	43.8	1.14x	1.9%
Mezzanine	16.1	20.3	25.6	1.5	0.8	2.3	1.33x	10.5%
Total	\$2,203.1	\$1,790.8	\$1,703.4	\$952.5	\$663.0	\$1,615.6	1.48x	11.4%

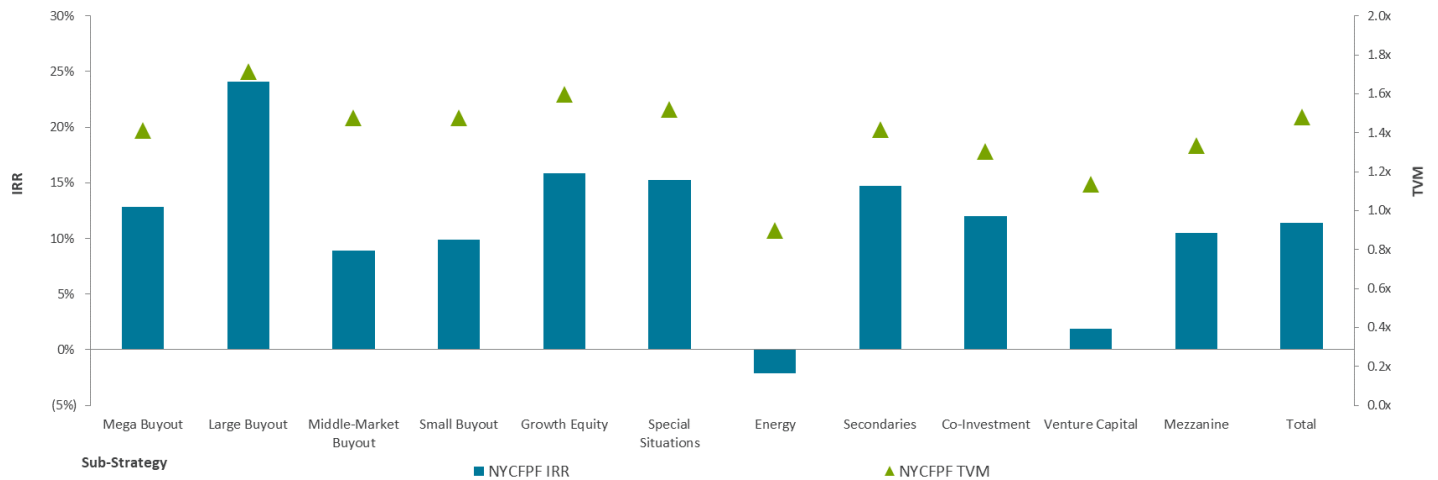
Performance by Strategy

As of March 31, 2019



Performance by Sub-Strategy

As of March 31, 2019



Portfolio Diversification

The following tables illustrate the Portfolio's diversification by strategy and fund geographic focus as of March 31, 2019.

By Strategy/Sub-Strategy

As of March 31, 2019 (US\$ in millions)	Market Value		Unfunded Commitment		Total Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
Buyout	\$577.6	60.6%	\$390.4	58.9%	\$968.0	59.9%
Mega Buyout	202.1	21.2%	199.5	30.1%	401.5	24.9%
Large Buyout	218.0	22.9%	84.7	12.8%	302.7	18.7%
Middle-Market Buyout	86.7	9.1%	83.1	12.5%	169.9	10.5%
Small Buyout	70.8	7.4%	23.1	3.5%	93.9	5.8%
Growth Equity	124.3	13.0%	74.2	11.2%	198.5	12.3%
Special Situations	78.3	8.2%	38.9	5.9%	117.1	7.3%
Energy	8.2	0.9%	1.2	0.2%	9.4	0.6%
Secondaries	80.0	8.4%	107.7	16.2%	187.7	11.6%
Co-Investment	40.0	4.2%	48.6	7.3%	88.7	5.5%
Other	44.2	4.6%	1.9	0.3%	46.1	2.9%
Venture Capital	42.7	4.5%	1.2	0.2%	43.8	2.7%
Mezzanine	1.5	0.2%	0.8	0.1%	2.3	0.1%
Total	\$952.5	100.0%	\$663.0	100.0%	\$1,615.6	100.0%

By Fund Geographic Focus

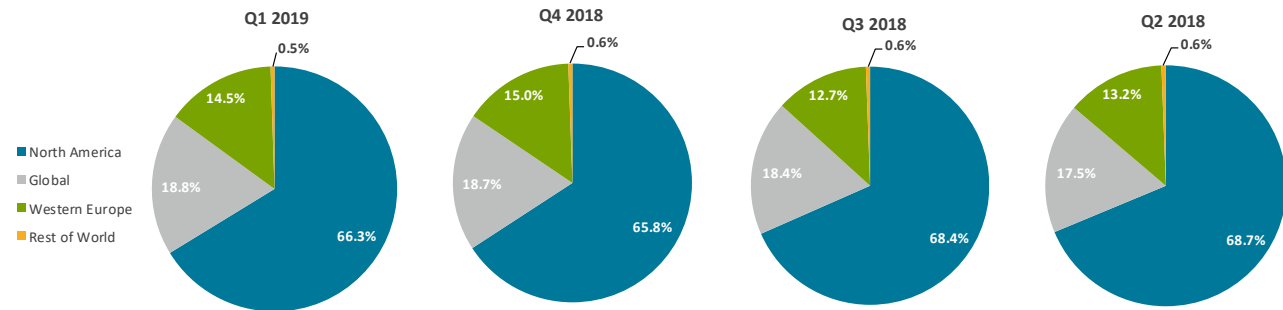
As of March 31, 2019 (US\$ in millions)	Market Value		Unfunded Commitment		Total Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
North America	\$631.1	66.3%	\$346.2	52.2%	\$977.3	60.5%
Global	178.8	18.8%	189.2	28.5%	368.0	22.8%
Western Europe	137.7	14.5%	127.2	19.2%	265.0	16.4%
Rest of World	4.9	0.5%	0.4	0.1%	5.3	0.3%
Total	\$952.5	100.0%	\$663.0	100.0%	\$1,615.6	100.0%

Fund Geographic Focus is based on a number of factors, including the GP-stated geographic focus, the number of investments within each region, invested capital by region, the location of the firm's offices and investment professionals, and the underlying fund currency.

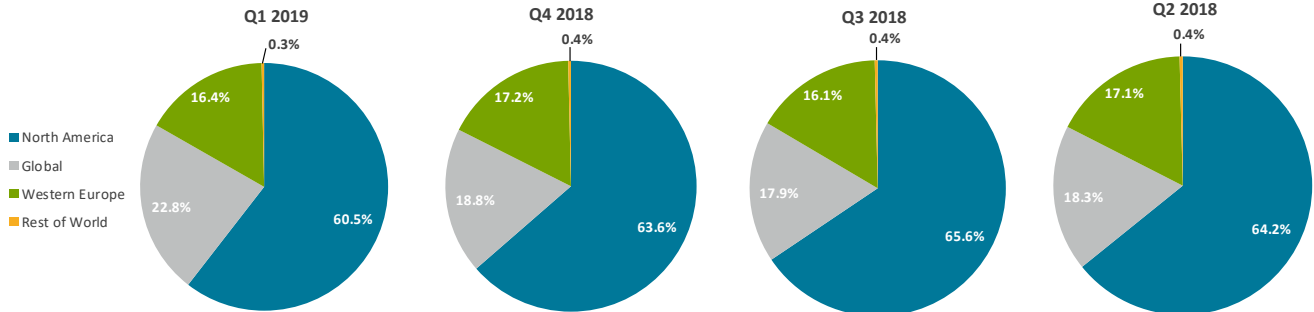
By Fund Geographic Focus

The following charts illustrate the Portfolio's diversification by fund geographic focus for the most recent four quarters as of March 31, 2019.

Geographic Exposure by Market Value



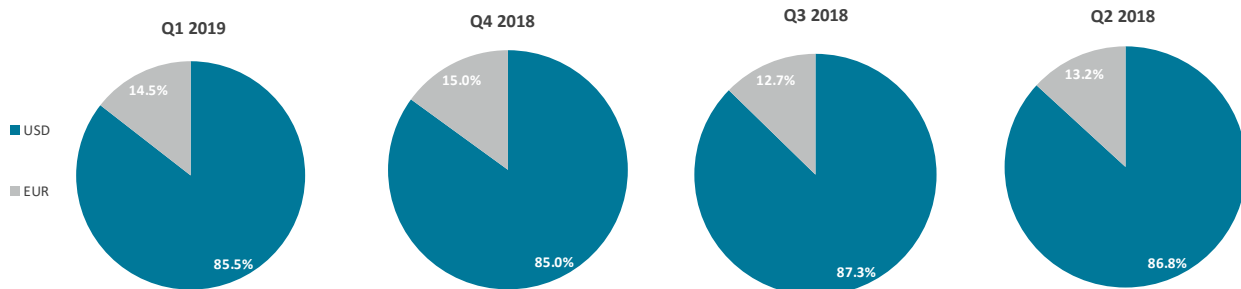
Geographic Exposure by Market Value + Unfunded



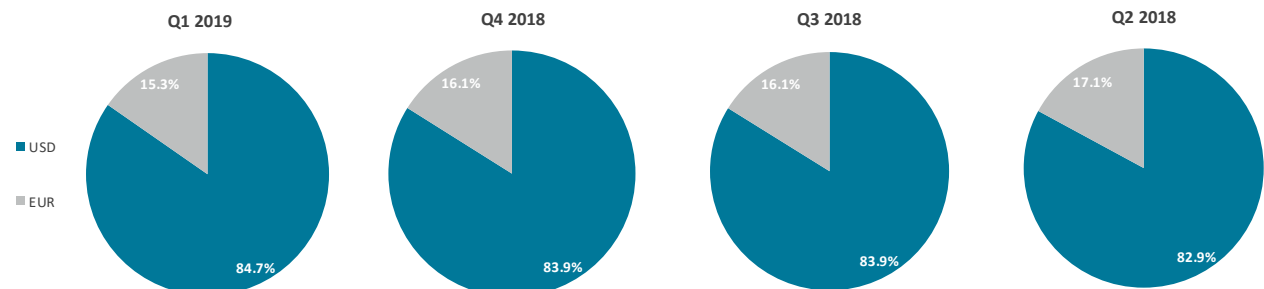
By Fund Currency

The following charts illustrate the Portfolio's diversification by fund currency for the most recent four quarters as of March 31, 2019.

Fund Currency Exposure by Market Value



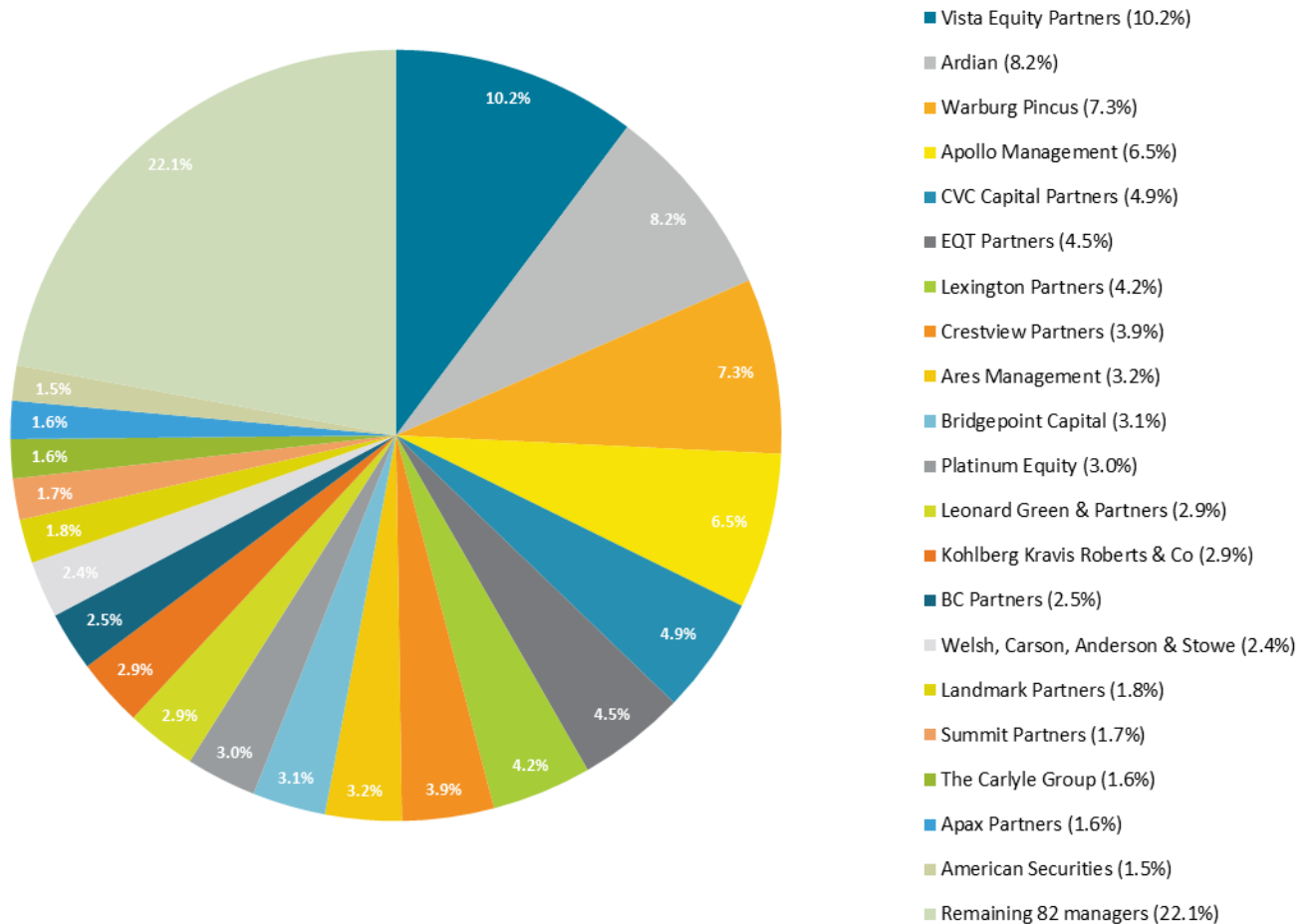
Fund Currency Exposure by Market Value + Unfunded



By Investment Manager

As of March 31, 2019, the Portfolio was highly diversified by investment manager, with 20 managers comprising US\$1.3 billion, or 77.9% of total exposure. The remaining 82 managers comprised 22.1% of total exposure as of quarter-end.

Portfolio Total Exposure by Investment Manager
As of March 31, 2019

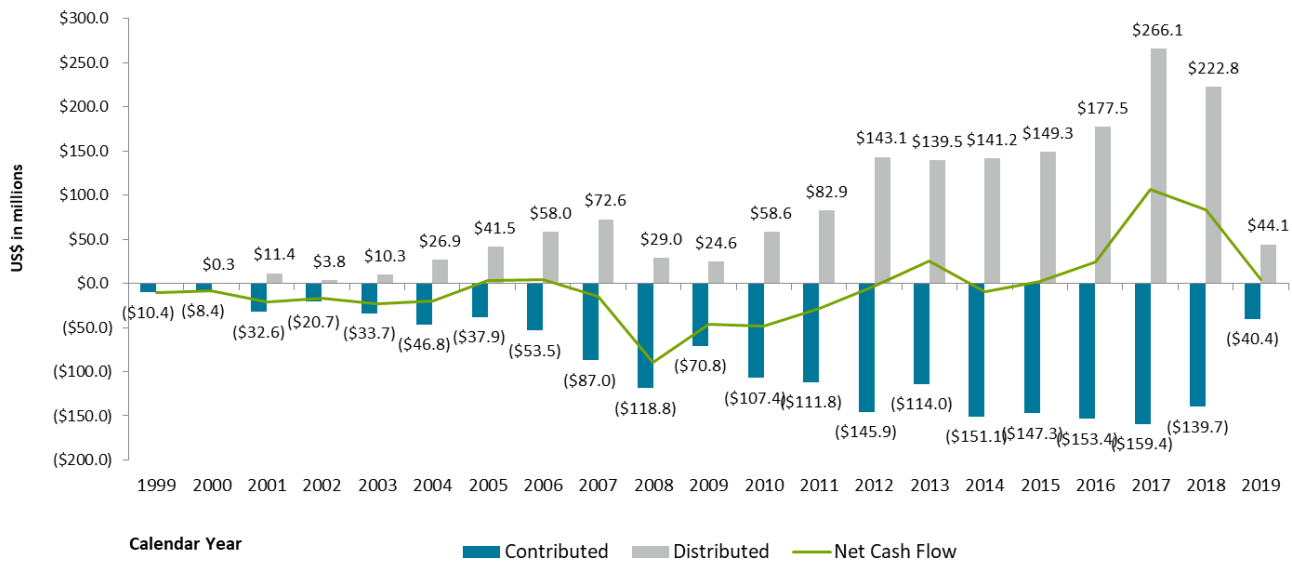


Portfolio Cash Flow Analysis

The following yearly and quarterly cash flow analysis is based on actual Portfolio cash flows during those time periods.

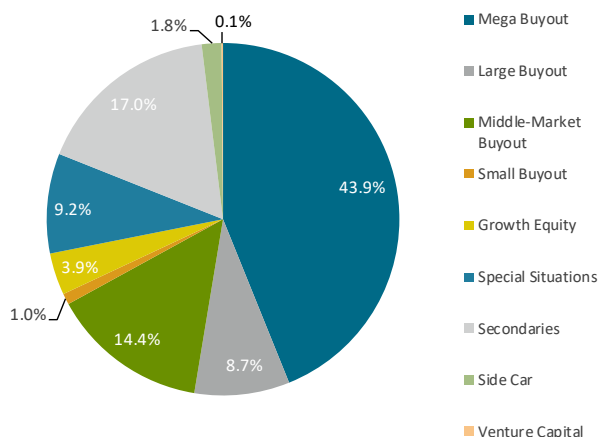
Year to Date Cash Flow Activity

During the three months ended March 31, 2019, the Portfolio made US\$40.4 million of contributions and received US\$44.1 million of distributions, for a net cash inflow of US\$3.8 million, compared to a net cash inflow of US\$4.7 million during the same period in the prior year. The graph below illustrates cash flow activity since inception by calendar year.

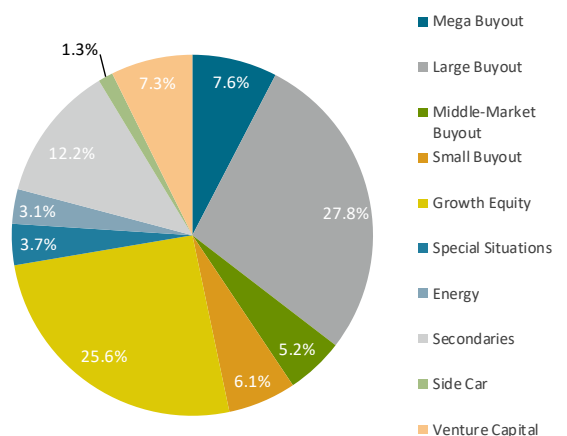


Buyout funds were the most active in terms of cash flow activity during 2019. Buyout funds drew down US\$27.5 million, or 68.0% of total contributions during 2019, and distributed US\$20.6 million, or 46.7% of total distributions during 2019.

2019 Total Contributed by Sub-Strategy

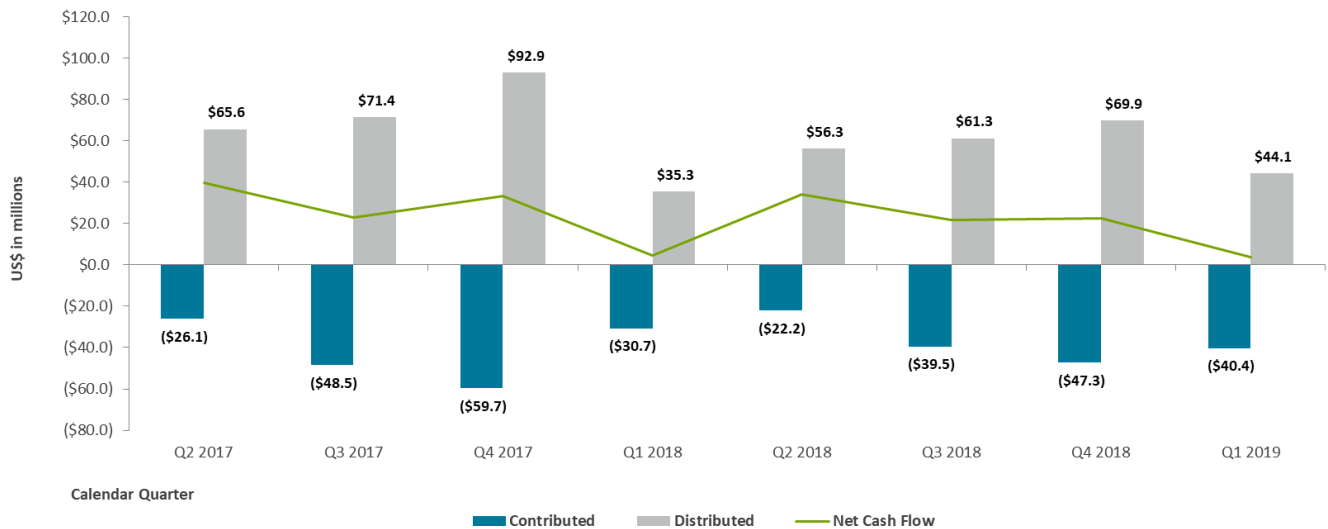


2019 Total Distributed by Sub-Strategy



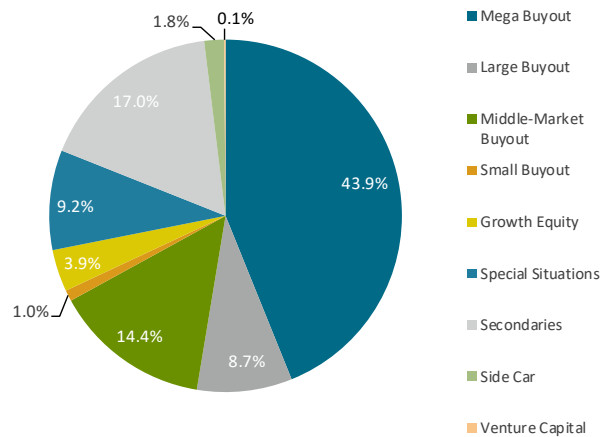
Quarterly Cash Flow Activity

During the first quarter of 2019, the Portfolio made US\$40.4 million of contributions and received US\$44.1 million of distributions, for a net cash inflow of US\$3.8 million. The graph below illustrates recent cash flow activity by quarter.

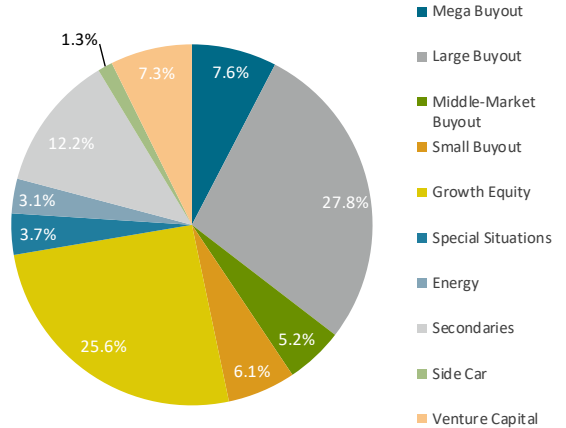


Buyout funds were the most active in terms of cash flow activity during first quarter of 2019. Buyout funds drew down US\$27.5 million, or 68.0% of total contributions during the quarter, and distributed US\$20.6 million, or 46.7% of total distributions during the quarter.

Q1 2019 Total Contributed by Sub-Strategy

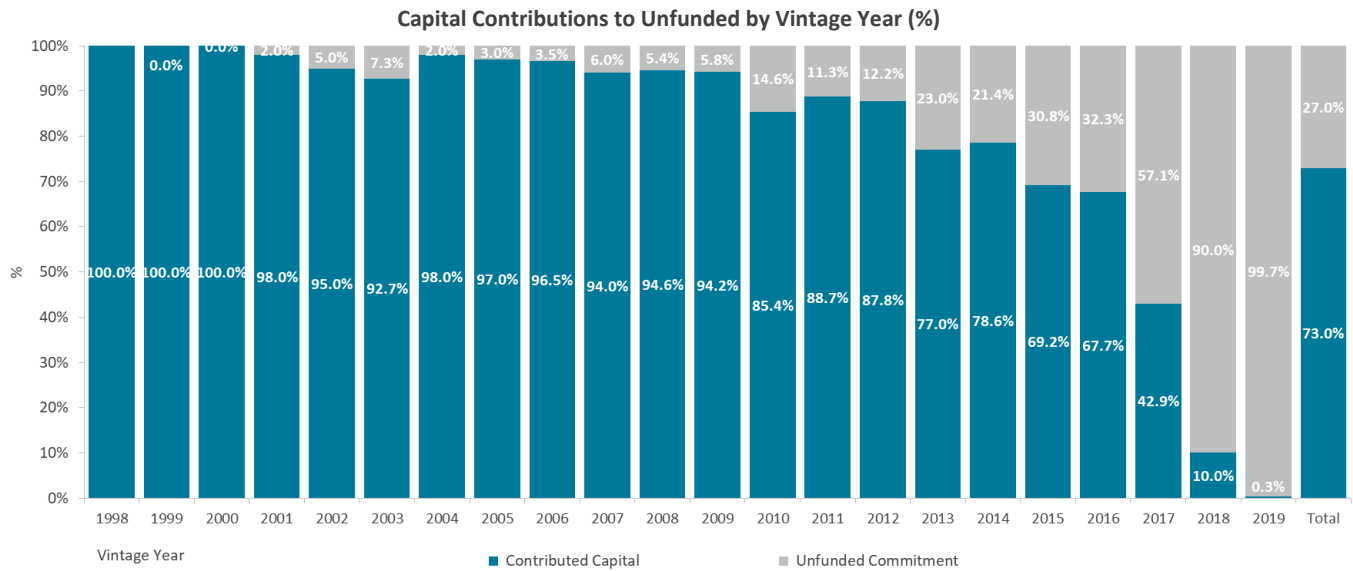


Q1 2019 Total Distributed by Sub-Strategy

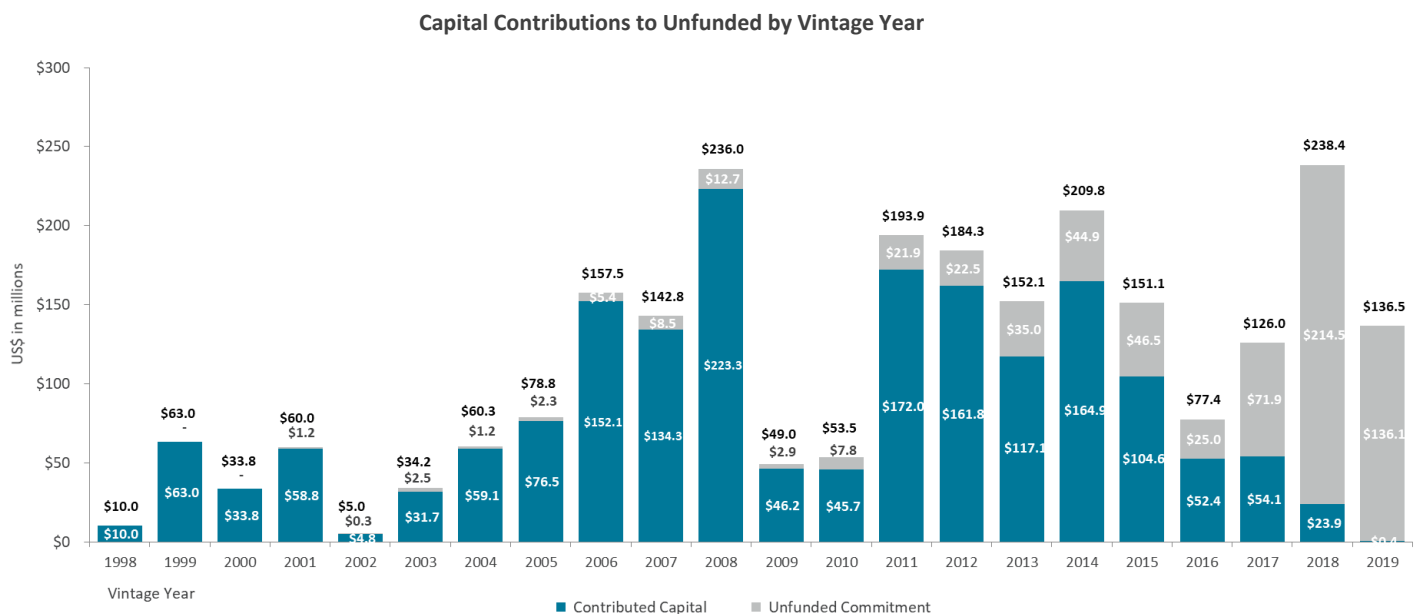


Invested Capital by Vintage Year

The following chart illustrates cumulative net capital contributions as a percentage of total capital commitments, by fund vintage year, as of March 31, 2019.



The following chart illustrates cumulative net capital contributions relative to unfunded commitment, by fund vintage year, as of March 31, 2019.



Portfolio Company-Level Analysis

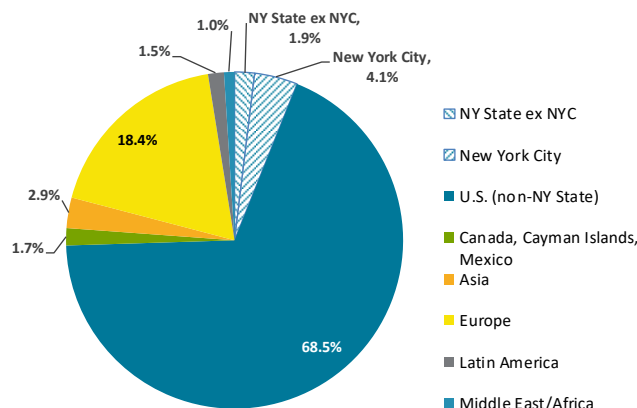
Geographic Exposure

The following charts illustrate the Portfolio's total investment cost and current market value exposure by geography at the portfolio company level as of March 31, 2019. Please note that the geography is based upon the corporate headquarters of each portfolio company.

Geographic Exposure by Total Cost

As of March 31, 2019 (US\$ in millions)

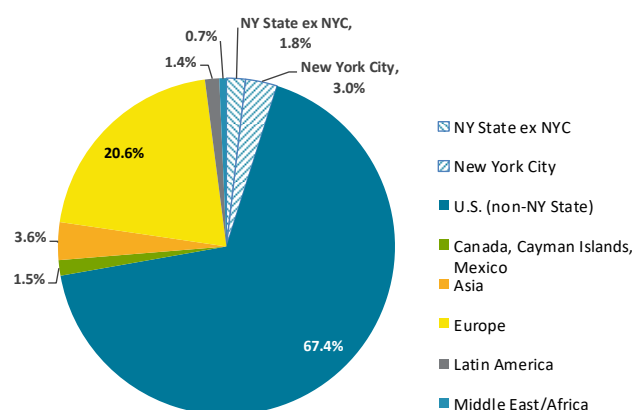
	Sum of Total Cost	% of Total
North America	\$1,203.8	76.2%
New York	95.6	6.0%
NY State ex NYC	30.2	1.9%
New York City	65.4	4.1%
U.S. (non-NY State)	1,082.0	68.5%
Canada, Cayman Islands, Mexico	26.1	1.7%
Asia	46.3	2.9%
Europe	290.6	18.4%
Latin America	24.1	1.5%
Middle East/Africa	15.9	1.0%
Total	\$1,580.6	100.0%



Geographic Exposure by Current Market Value

As of March 31, 2019 (US\$ in millions)

	Sum of Current Market Value	% of Total
North America	\$804.5	73.7%
New York	53.1	4.9%
NY State ex NYC	19.9	1.8%
New York City	33.2	3.0%
U.S. (non-NY State)	735.2	67.4%
Canada, Cayman Islands, Mexico	16.2	1.5%
Asia	39.5	3.6%
Europe	225.3	20.6%
Latin America	14.9	1.4%
Middle East/Africa	7.4	0.7%
Total*	\$1,091.6	100.0%

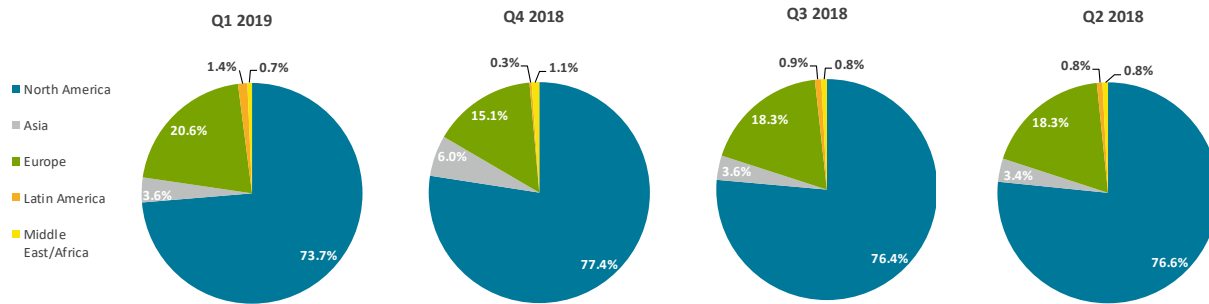


* Total portfolio company market value will not equal the Portfolio's market value due to a fund's cash holding and rounding estimates.

Geographic Exposure

The following charts illustrate the Portfolio's current exposure by geography at the portfolio company level for the most recent four quarters. Please note that the geography is based upon the corporate headquarters of each portfolio company.

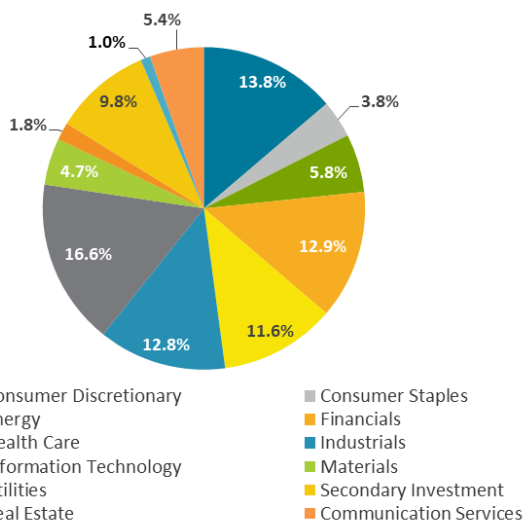
Geographic Exposure by Current Market Value



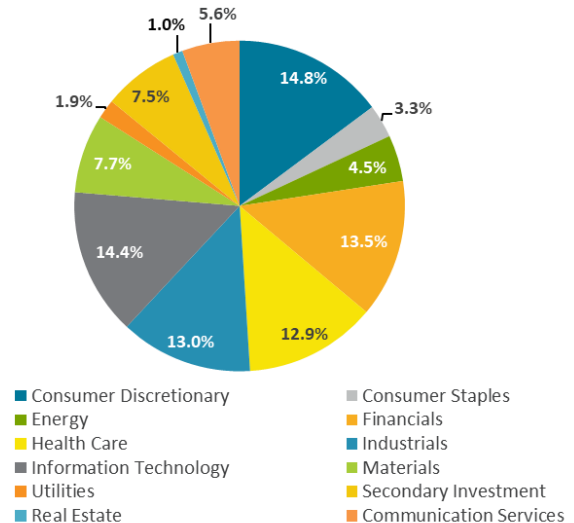
Industry Exposure

The following charts illustrate the Portfolio's total investment cost and current market value exposure by industry at the portfolio company level as of March 31, 2019. Please note that the Financials category includes investments in various debt securities.

Industry Exposure by Total Cost



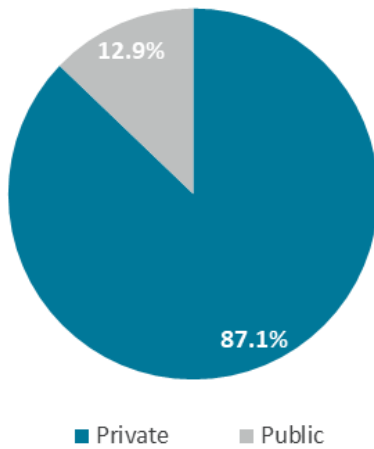
Industry Exposure by Current Market Value



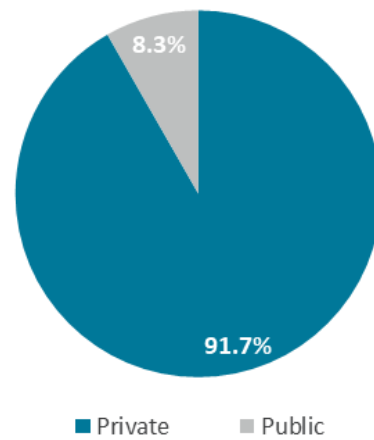
Public Market Exposure

As of quarter-end, publicly traded investments comprised 12.9% of the Portfolio’s total investment cost and 8.3% of the Portfolio’s exposed market value. The following charts illustrate the current public market exposure at the portfolio company level.

Public Market Exposure by Total Cost



Public Market Exposure Current Market Value



IV. Appendix

**New York City Fire Pension Fund
Private Equity Portfolio
As of March 31, 2019 (in USD)**

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR ¹	PME Return ²	PME Spread ³
Active Investments										
1999	Cypress Merchant Banking Partners II, L.P.	3/29/1999	\$ 22,586,486	\$ 26,972,134	\$ 25,292,077	\$ 13,081	0.94x	(1.2%)	5.5%	(6.7%)
1999	Lincolnshire Equity Fund II, L.P.	10/20/1999	6,899,005	7,223,050	14,015,738	279,746	1.98x	24.6%	7.0%	17.6%
2000	SCP Private Equity Partners II, L.P.	6/15/2000	15,000,000	16,834,296	6,514,303	1,767,762	0.49x	(8.0%)	5.8%	(13.8%)
2001	Apollo Investment Fund V, L.P.	4/13/2001	15,000,000	23,379,009	46,122,367	139,848	1.98x	38.8%	8.3%	30.4%
2001	CVC European Equity Partners III, L.P.	9/4/2001	10,000,000	11,880,366	29,775,858	684,367	2.56x	41.0%	10.8%	30.2%
2002	Landmark Equity Partners XI, L.P.	10/23/2002	5,000,000	4,753,167	7,305,360	12,288	1.54x	23.3%	7.5%	15.8%
2003	FS Equity Partners V, L.P.	1/20/2003	10,000,000	8,567,981	16,744,589	774,312	2.04x	15.4%	5.0%	10.4%
2003	Blackstone Capital Partners IV, L.P.	2/26/2003	13,875,989	17,166,532	41,515,941	711,828	2.46x	36.3%	8.5%	27.8%
2003	Ares Corporate Opportunities Fund, L.P.	4/1/2003	5,000,000	5,998,308	8,941,880	217,010	1.53x	13.3%	7.5%	5.9%
2004	Markstone Capital Partners, LP	1/30/2004	5,000,000	5,862,384	2,477,825	34,027	0.43x	(43.5%)	10.3%	(53.8%)
2004	FdG Capital Partners II LP	8/30/2004	5,000,000	5,387,768	6,228,579	330,260	1.22x	3.8%	6.7%	(3.0%)
2004	Paladin Homeland Security Fund (NY City), L.P.	9/27/2004	7,500,000	8,256,642	3,143,003	11,099	0.38x	(14.2%)	6.2%	(20.4%)
2004	Lincolnshire Equity Fund III, L.P.	10/1/2004	5,000,000	5,000,631	7,066,602	1,936,872	1.80x	28.4%	11.2%	17.2%
2004	Yucaipa American Alliance Fund I, LP	10/1/2004	5,000,000	7,491,869	7,275,413	2,007,336	1.24x	4.9%	10.5%	(5.6%)
2004	New York/Fairview Emerging Managers Fund, L.P.-Tranche 1	10/21/2004	2,000,000	2,053,879	1,940,290	404,104	1.14x	2.2%	8.7%	(6.4%)
2004	Aurora Equity Partners III L.P.	11/16/2004	5,000,000	5,412,677	8,743,588	37,477	1.62x	13.5%	9.9%	3.6%
2004	Medica III Investments (International) L.P.	8/21/2006	3,000,000	2,992,836	1,267,948	722,000	0.66x	(7.9%)	(5.0%)	(2.9%)
2005	Palladium Equity Partners III, L.P.	11/12/2004	10,000,000	10,577,602	19,418,004	979,528	1.93x	15.6%	11.5%	4.1%
2005	New Mountain Partners II, L.P.	1/12/2005	2,580,650	2,337,304	4,502,540	37,154	1.94x	13.6%	4.5%	9.2%
2005	Carlyle Partners IV, L.P.	4/29/2005	5,000,000	5,153,753	10,090,391	103,842	1.98x	13.0%	4.1%	8.9%
2005	Prism Venture Partners V-A, L.P.	7/14/2005	7,500,000	7,690,681	4,765,525	118,090	0.64x	(8.8%)	8.3%	(17.0%)
2005	Snow Phipps Group, L.P.	9/7/2005	5,000,000	5,956,871	5,228,654	2,594,398	1.31x	6.0%	10.9%	(4.9%)
2005	Blackstone Mezzanine Partners II, L.P.	10/10/2005	2,561,603	2,866,163	3,810,696	30,524	1.34x	7.8%	3.7%	4.1%
2005	Psilos Group Partners III, L.P.	10/24/2005	2,500,000	2,657,559	1,282,054	1,755,928	1.14x	2.0%	7.4%	(5.3%)
2005	FirstMark Capital I, L.P. (fka FirstMark IV)	11/21/2005	1,500,000	1,639,064	4,611,677	5,868,419	6.39x	33.3%	10.4%	23.0%
2005	USPF II Institutional Fund, L.P.	11/23/2005	5,000,000	6,594,940	7,595,220	907,992	1.29x	4.3%	7.7%	(3.4%)
2005	JP Morgan Fleming (Tranche A)	12/21/2005	3,000,000	3,006,280	2,909,513	927,684	1.28x	4.7%	10.6%	(6.0%)
2005	Arlington Capital Partners II, L.P.	4/20/2006	4,000,000	4,069,527	6,842,637	255,842	1.74x	11.1%	6.8%	4.4%
2006	Aisling Capital II, LP	1/12/2006	1,000,000	1,178,021	1,141,279	53,172	1.01x	0.2%	7.7%	(7.4%)
2006	InterMedia Partners VII, L.P.	1/20/2006	2,500,000	2,919,819	2,959,171	24,313	1.02x	0.3%	9.7%	(9.4%)
2006	Terra Firma Capital Partners III, L.P.	3/8/2006	5,222,766	5,293,671	1,998,164	370,803	0.45x	(9.8%)	9.8%	(19.6%)
2006	Fenway Partners Capital Fund III, L.P.	3/29/2006	5,000,000	5,743,510	4,919,243	4,208,565	1.59x	7.3%	8.4%	(1.1%)
2006	Blackstone Capital Partners V, L.P.	4/13/2006	9,448,250	10,049,920	15,902,559	449,907	1.63x	8.0%	8.3%	(0.4%)
2006	Avista Capital Partners, L.P.	4/27/2006	5,000,000	6,573,992	8,004,066	119,593	1.24x	4.5%	6.3%	(1.8%)
2006	Apollo Investment Fund VI, L.P.	5/10/2006	20,000,000	25,741,832	36,308,230	2,517,956	1.51x	8.7%	7.6%	1.1%
2006	Ares Corporate Opportunities Fund II, L.P.	5/23/2006	5,000,000	5,476,087	8,835,217	341,882	1.68x	13.1%	3.9%	9.2%
2006	CCMP Capital Investors II, L.P.	8/17/2006	5,000,000	5,486,988	9,439,624	4,233	1.72x	13.5%	10.6%	2.9%
2006	Euro Choice III L.P.	11/21/2006	5,314,768	5,347,612	5,718,543	481,015	1.16x	2.9%	11.9%	(9.0%)
2006	Thomas, McNeerney & Partners II, L.P.	11/29/2006	3,000,000	3,035,394	6,119,246	730,769	2.26x	16.7%	11.6%	5.1%
2006	Catterton Partners VI, L.P.	12/14/2006	5,000,000	5,693,763	8,325,211	2,282,898	1.86x	11.7%	8.8%	2.9%
2006	First Reserve Fund XI, L.P.	12/14/2006	5,000,000	5,313,265	3,418,095	269,580	0.69x	(8.0%)	6.8%	(14.8%)
2006	Permira IV, L.P.	12/14/2006	5,513,169	5,989,739	8,625,746	696,322	1.56x	8.6%	9.4%	(0.8%)
2006	Arsenal Capital Partners II, LP	12/18/2006	4,000,000	4,982,154	7,865,472	1,303,953	1.84x	11.7%	11.7%	0.0%
2006	GF Capital Private Equity Fund, L.P.	12/18/2006	3,000,000	3,074,084	3,916,818	1,592,959	1.79x	12.3%	11.8%	0.5%
2006	RRE Ventures IV, L.P.	12/19/2006	2,500,000	3,162,574	1,754,151	2,810,095	1.44x	5.4%	10.8%	(5.4%)
2006	Coller International Partners V, L.P.	12/21/2006	5,000,000	4,372,182	5,728,047	487,499	1.42x	8.2%	10.6%	(2.4%)
2006	MidOcean Partners III, L.P.	12/21/2006	9,705,796	11,583,199	21,201,570	2,721,190	2.07x	13.0%	9.7%	3.3%
2006	The Fourth Civen Fund	1/22/2007	2,731,530	2,870,272	4,120,624	2,046	1.44x	7.3%	7.5%	(0.2%)
2006	Falconhead Capital Partners II, L.P.	3/23/2007	4,000,000	4,481,396	4,478,251	1,281,317	1.29x	4.6%	8.6%	(4.0%)
2006	Atlantic Equity Partners IV, L.P.	10/30/2007	3,768,757	3,661,520	505,364	2,114,175	0.72x	(4.1%)	9.3%	(13.4%)
2006	Capital Partners Private Equity Income Fund, L.P.	11/29/2007	2,000,000	1,923,102	4,406,173	47,284	2.32x	20.9%	11.2%	9.7%
2007	Pegasus Partners IV, L.P.	1/29/2007	7,500,000	9,185,635	6,895,091	1,708,597	0.94x	(1.3%)	11.1%	(12.4%)
2007	Olympus Capital Asia III, L.P.	1/31/2007	5,000,000	5,851,116	2,988,294	1,976,998	0.85x	(3.6%)	11.0%	(14.6%)
2007	FTVentures III, LP	3/1/2007	2,500,000	2,743,841	5,106,031	953,382	2.21x	15.8%	10.2%	5.6%
2007	Highland Consumer Fund I LP	3/16/2007	2,000,000	2,003,212	1,136,631	508,142	0.82x	(2.7%)	10.7%	(13.4%)
2007	Montreux Equity Partners IV, L.P.	3/27/2007	5,000,000	5,000,000	2,761,158	4,030,647	1.36x	4.8%	10.2%	(5.5%)
2007	Gleacher Mezzanine Fund II, L.P.	3/30/2007	3,000,000	2,752,429	3,651,296	25,017	1.34x	10.6%	12.1%	(1.5%)
2007	SCP Vitalife Partners II Fund	4/13/2007	5,000,000	5,024,924	395	2,186,841	0.44x	(10.1%)	7.8%	(17.9%)
2007	Constellation Venture Capital III, L.P.	5/22/2007	5,000,000	5,715,007	2,799,144	1,627,225	0.77x	(4.2%)	15.2%	(19.4%)
2007	United States Power Fund III, L.P.	6/28/2007	5,000,000	5,915,665	6,017,519	1,433,517	1.26x	4.2%	9.4%	(5.3%)
2007	Carlyle Partners V, L.P.	7/6/2007	10,000,000	10,306,406	16,604,546	1,701,141	1.78x	13.7%	11.0%	2.8%
2007	PCG Clean Energy & Technology Fund (East), LLC	7/6/2007	10,000,000	9,047,736	1,977,305	1,682,921	0.40x	(12.7%)	13.0%	(25.7%)
2007	GSO Capital Opportunities Fund LP	7/16/2007	7,500,000	11,229,550	15,937,873	124,589	1.43x	17.4%	10.1%	7.2%
2007	New Mountain Partners III, L.P.	8/9/2007	10,000,000	10,186,606	13,560,676	6,718,146	1.99x	13.2%	12.5%	0.7%

**New York City Fire Pension Fund
Private Equity Portfolio
As of March 31, 2019 (in USD)**

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR ¹	PME Return ²	PME Spread ³
2007	Vista Equity Partners Fund III, L.P.	10/3/2007	7,500,000	8,045,926	19,154,991	899,366	2.49x	27.1%	9.9%	17.2%
2007	Trilantic Capital Partners IV L.P.	10/22/2007	7,236,332	7,559,627	11,217,244	893,586	1.60x	13.7%	10.9%	2.9%
2007	Pine Brook Capital Partners, L.P.	1/11/2008	7,500,000	8,511,266	9,720,738	1,441,522	1.31x	7.4%	12.0%	(4.6%)
2007	Princeton Capital Corp. (fka Capital Point)	10/17/2008	3,000,000	3,497,432	2,182,562	1,343,723	1.01x	0.2%	15.1%	(15.0%)
2007	Post Capital Equity Partners II LP	2/10/2009	3,000,000	2,142,326	4,013,183	476,653	2.10x	15.4%	16.0%	(0.5%)
2008	Paladin III (NY City), L.P.	1/8/2008	7,500,000	10,052,297	7,077,534	8,976,688	1.60x	9.5%	12.0%	(2.5%)
2008	Apollo Investment Fund VII, L.P.	1/28/2008	25,000,000	30,315,294	47,679,693	4,446,088	1.72x	22.9%	13.6%	9.3%
2008	NGN BioMed Opportunity II, L.P.	2/11/2008	5,000,000	4,787,955	3,336,553	2,735,379	1.27x	3.6%	14.8%	(11.1%)
2008	Riverstone/Carlyle Global Energy & Power Fund IV, L.P.	3/3/2008	7,500,000	8,730,885	7,061,827	2,933,357	1.14x	3.7%	13.7%	(10.1%)
2008	Yucaipa American Alliance Fund II, LP	3/28/2008	15,000,000	20,468,035	15,911,218	17,827,191	1.65x	9.5%	12.2%	(2.7%)
2008	Levine Leichtman Capital Partners IV, L.P.	4/8/2008	5,000,000	5,353,601	8,459,480	566,952	1.69x	18.4%	14.2%	4.2%
2008	New York/Fairview Emerging Managers Fund, L.P.-Tranche 2	5/28/2008	5,000,000	4,999,647	5,205,029	3,935,139	1.83x	14.3%	13.0%	1.3%
2008	Yucaipa Corporate Initiatives Fund II, LP	6/23/2008	4,676,976	4,588,700	1,673,241	2,424,612	0.89x	(1.8%)	11.9%	(13.7%)
2008	CVC European Equity Partners V, L.P.	7/21/2008	13,698,204	14,791,218	23,862,091	4,096,638	1.89x	16.1%	12.7%	3.4%
2008	GI Partners Fund III L.P.	7/29/2008	7,500,000	8,103,000	12,597,993	145,620	1.57x	13.0%	15.3%	(2.3%)
2008	Ares Corporate Opportunities Fund III, L.P.	7/30/2008	10,000,000	12,069,911	18,612,162	7,379,781	2.15x	20.9%	12.1%	8.8%
2008	GCM Grosvenor NYCFDPF Emerging Manager Fund, L.P.	8/22/2008	8,979,798	11,246,645	9,392,380	5,830,463	1.35x	9.1%	13.3%	(4.2%)
2008	First Reserve Fund XII, L.P.	8/25/2008	5,000,000	5,554,103	2,733,585	976,510	0.67x	(9.2%)	16.8%	(26.0%)
2008	Landmark Equity Partners XIV, L.P.	9/19/2008	13,630,000	13,247,977	14,891,538	2,447,654	1.31x	9.6%	14.5%	(4.9%)
2008	Crestview Partners II, L.P.	10/1/2008	7,500,000	8,693,626	11,135,698	3,544,114	1.69x	13.4%	14.5%	(1.1%)
2008	NB New York City Growth Fund IA	10/17/2008	1,208,990	1,208,990	417,624	440,544	0.71x	(4.5%)	16.2%	(20.7%)
2008	Milestone Partners III, L.P.	10/17/2008	3,000,000	3,226,520	2,732,394	449,319	0.99x	(0.3%)	14.4%	(14.7%)
2008	Euro Choice IV L.P.	10/22/2008	6,453,977	5,971,363	5,626,740	2,833,478	1.42x	7.3%	13.1%	(5.8%)
2008	Avista Capital Partners II, L.P.	11/5/2008	10,000,000	12,960,801	20,021,237	2,159,715	1.71x	13.7%	14.7%	0.7%
2008	Bridgepoint Europe IV	11/14/2008	6,663,647	6,761,888	7,766,756	2,526,050	1.52x	10.1%	14.8%	(4.7%)
2008	Blue Wolf Capital Fund II, L.P.	11/19/2008	3,000,000	3,252,569	3,768,005	768,213	1.39x	7.8%	16.2%	(8.4%)
2008	Aisling Capital III, LP	11/20/2008	3,500,000	3,950,660	8,732,526	572,226	2.36x	26.2%	14.2%	12.0%
2008	Onex Partners III LP	12/10/2008	5,000,000	5,460,617	7,225,550	1,895,329	1.67x	12.7%	14.8%	(2.2%)
2009	NorthBound Emerging Manager Custom Fund LP	1/29/2009	5,000,000	4,317,619	5,717,286	1,658,156	1.71x	13.7%	14.5%	(0.8%)
2009	Welsh, Carson, Anderson & Stowe XI, L.P.	2/10/2009	7,500,000	7,500,000	9,705,620	2,652,320	1.65x	12.5%	14.7%	(2.2%)
2009	Scale Venture Partners III, LP	5/1/2009	5,000,000	4,947,453	11,002,818	2,920,853	2.81x	23.2%	13.7%	9.5%
2009	FS Equity Partners VII, L.P.	7/27/2009	12,500,000	12,540,700	27,593,924	9,522,275	2.96x	24.1%	14.7%	9.4%
2009	Lincolnshire Equity Fund IV, L.P.	8/5/2009	2,500,000	2,663,593	3,046,031	1,090,779	1.55x	10.9%	13.4%	(2.5%)
2009	Lexington Capital Partners VII, L.P.	12/3/2009	10,000,000	8,923,109	11,060,902	2,853,170	1.56x	14.1%	14.3%	(0.2%)
2010	Snow Phipps II, L.P.	1/8/2010	7,500,000	8,444,808	6,328,869	4,789,243	1.32x	8.6%	13.7%	(5.1%)
2010	Trident V, L.P.	4/29/2010	15,000,000	17,231,400	17,925,389	9,925,863	1.62x	11.3%	12.4%	(1.1%)
2010	Comvest Investment Partners IV, L.P.	10/21/2010	20,000,000	20,052,821	30,503,383	6,203,616	1.83x	29.8%	14.0%	15.8%
2011	Blackstone Capital Partners VI, L.P.	1/24/2011	10,000,000	10,275,503	7,816,545	8,745,219	1.61x	13.5%	12.3%	1.2%
2011	Amersand 2011	3/11/2011	5,000,000	5,000,000	8,091,816	5,824,836	2.78x	21.6%	12.6%	9.0%
2011	BDCM Opportunity Fund III, L.P.	4/8/2011	10,000,000	14,335,300	6,501,903	12,898,382	1.35x	8.5%	12.3%	(3.8%)
2011	AXA Secondary Fund V B L.P.	6/16/2011	40,000,000	32,957,139	45,389,117	7,533,067	1.61x	15.7%	14.7%	1.0%
2011	Wellspring Capital Partners V, L.P.	7/1/2011	7,500,000	7,602,638	8,407,164	3,608,680	1.58x	16.0%	12.1%	3.9%
2011	EQT VI, L.P.	8/1/2011	17,733,494	18,420,281	22,762,803	8,440,696	1.69x	14.1%	12.2%	1.9%
2011	Pegasus Partners V, L.P.	8/16/2011	6,236,975	7,452,164	6,752,765	6,065,411	1.72x	14.2%	14.0%	0.2%
2011	BC European Capital IX	9/19/2011	21,962,416	23,763,920	16,428,526	17,229,149	1.42x	10.5%	13.3%	(2.8%)
2011	American Securities Partners VI, L.P.	11/18/2011	20,000,000	21,480,500	32,234,616	9,065,234	1.92x	21.8%	13.1%	8.7%
2011	Vista Equity Partners Fund IV, L.P.	11/30/2011	30,000,000	30,758,843	37,902,227	24,127,653	2.02x	18.8%	13.4%	5.4%
2012	Warburg Pincus Private Equity XI, L.P.	5/24/2012	35,000,000	37,237,928	25,833,772	33,671,825	1.60x	14.3%	12.2%	2.1%
2012	Summit Partners Growth Equity Fund VIII-A, L.P.	6/14/2012	30,000,000	33,797,926	46,642,245	20,648,840	1.99x	25.5%	11.9%	13.6%
2012	NYCFPF - 2012 Emerging Manager Program ⁴	6/21/2013	23,700,000	23,194,729	8,447,673	25,373,254	1.46x	14.4%	11.1%	3.3%
2012	Trilantic Capital Partners V L.P.	9/20/2012	10,000,000	10,668,907	9,108,014	6,850,191	1.50x	18.0%	12.1%	5.9%
2012	Palladium Equity Partners IV, L.P.	10/10/2012	10,000,000	8,420,195	4,640,794	8,185,360	1.52x	14.5%	12.9%	1.7%
2012	Ares Corporate Opportunities Fund IV, L.P.	11/5/2012	20,000,000	20,660,046	10,790,976	18,995,307	1.44x	12.3%	10.9%	1.4%
2012	Green Equity Investors VI, L.P.	11/30/2012	25,000,000	26,898,089	16,690,189	27,011,119	1.62x	15.7%	11.9%	3.8%
2012	Platinum Equity Capital Partners III, L.P.	1/14/2013	25,000,000	20,477,068	28,945,830	9,128,383	1.86x	36.1%	13.1%	23.1%
2013	Carlyle Partners VI, L.P.	7/3/2013	20,000,000	20,768,027	8,443,912	18,710,947	1.31x	11.4%	10.9%	0.5%
2014	Carlyle Partners VI, L.P. (Side Car)	9/23/2014	2,200,000	1,599,461	92,222	1,544,765	1.02x	0.5%	11.2%	(10.8%)
2013	Landmark Equity Partners XV, L.P.	10/30/2013	26,000,000	17,934,256	13,116,508	9,355,291	1.25x	12.0%	11.2%	0.9%
2013	Landmark - NYC Fund I, L.P.	12/24/2013	9,000,000	7,327,038	4,806,081	5,428,810	1.40x	15.0%	9.6%	5.4%
2013	Apollo Investment Fund VIII, L.P.	12/11/2013	40,000,000	36,061,628	11,428,818	34,321,796	1.27x	10.6%	11.6%	(1.0%)
2014	CVC Capital Partners VI, L.P.	2/18/2014	35,237,400	34,365,446	9,127,215	35,685,793	1.30x	13.1%	11.2%	1.8%
2013	Crestview Partners III, L.P.	3/3/2015	24,000,000	15,704,434	2,868,434	18,209,433	1.34x	16.0%	10.9%	5.1%

**New York City Fire Pension Fund
Private Equity Portfolio
As of March 31, 2019 (in USD)**

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR ¹	PME Return ²	PME Spread ³
2013	Crestview Partners III (Co-Investment B), L.P.	12/17/2015	8,000,000	7,325,883	394,887	8,646,587	1.23x	10.5%	12.9%	(2.4%)
2014	Olympus Growth Fund VI, L.P.	1/24/2014	15,000,000	12,360,745	5,085,335	11,545,002	1.35x	15.0%	12.7%	2.4%
2014	ASF VI B L.P.	5/9/2014	30,000,000	21,262,670	11,841,550	18,632,535	1.43x	13.5%	11.1%	2.4%
2014	ASF VI B NYC Co-Invest L.P.	5/9/2014	10,000,000	7,725,627	6,019,047	4,683,514	1.39x	12.6%	8.8%	3.8%
2014	Vista Equity Partners Fund V, L.P.	9/8/2014	40,000,000	46,161,423	36,098,832	46,093,347	1.78x	22.6%	11.1%	11.5%
2014	Lexington Capital Partners VIII, L.P.	1/8/2015	40,000,000	33,889,404	12,625,696	30,947,390	1.29x	20.4%	11.9%	8.5%
2015	Siris Partners III, L.P.	5/4/2015	5,500,000	4,618,419	2,512,758	2,954,362	1.18x	10.0%	11.1%	(1.1%)
2015	Centerbridge Capital Partners III, L.P.	5/21/2015	4,200,000	2,349,059	772,613	2,358,446	1.33x	13.7%	11.1%	2.6%
2015	Welsh, Carson, Anderson & Stowe XII, L.P.	8/26/2015	14,000,000	9,885,326	1,949,227	13,758,228	1.59x	26.4%	12.1%	14.3%
2015	Warburg Pincus Private Equity XII, L.P.	12/21/2015	36,000,000	26,075,885	1,577,628	29,389,540	1.19x	11.6%	11.1%	0.5%
2015	ASF VIII B L.P.	12/29/2015	17,000,000	5,625,547	712,324	6,552,159	1.29x	16.8%	10.9%	5.9%
2015	ASF VIII B NYC Co-Invest L.P.	12/29/2015	9,000,000	4,574,648	479,680	6,704,033	1.57x	41.1%	9.1%	32.0%
2015	EQT VII, L.P.	1/8/2016	28,522,364	24,379,649	3,173,119	27,327,083	1.25x	14.1%	11.6%	2.5%
2015	American Securities Partners VII, L.P.	1/19/2016	14,000,000	11,061,343	1,646,135	8,486,952	0.92x	(6.4%)	12.5%	(18.9%)
2015	Bridgepoint Europe V L.P.	2/8/2016	11,427,513	10,446,095	1,488,705	11,080,804	1.20x	12.3%	11.6%	0.7%
2015	Bridgepoint Europe V Co-Invest	8/16/2016	3,491,158	3,241,557	324,224	4,933,065	1.62x	35.0%	12.1%	22.9%
2015	NYCFPF - 2015 Emerging Manager Program ⁵	2/22/2016	190,400,000	9,416,822	386,107	10,883,836	1.20x	19.5%	10.0%	9.5%
2016	Vista Equity Partners Fund VI, L.P.	6/28/2016	28,000,000	29,941,957	6,988,561	32,447,677	1.32x	19.5%	12.4%	7.1%
2016	Platinum Equity Capital Partners IV, L.P.	3/21/2017	19,000,000	12,546,466	3,479,480	13,859,795	1.38x	36.0%	9.2%	26.9%
2018	Platinum Equity Capital Partners IV Co-Investment, L.P.	9/7/2018	3,000,000	2,100,000	-	1,959,877	0.93x	NM	NM	N/A
2016	Apax IX USD, L.P.	5/12/2017	22,000,000	9,961,190	208,652	13,562,573	1.38x	NM	NM	N/A
2017	Green Equity Investors VII, L.P.	5/12/2017	17,000,000	8,650,222	67,318	9,561,463	1.11x	NM	NM	N/A
2017	Ares Corporate Opportunities Fund V, L.P.	6/22/2017	17,000,000	9,553,239	292,664	9,650,024	1.04x	NM	NM	N/A
2017	KKR Americas Fund XII, L.P.	10/31/2017	28,000,000	11,001,325	184,583	11,466,917	1.06x	NM	NM	N/A
2017	BC European Capital X	12/14/2017	15,955,397	7,947,676	-	7,846,511	0.99x	NM	NM	N/A
2017	BCEC X Co-Investment	3/24/2017	6,447,994	4,215,983	-	4,346,352	1.03x	3.3%	7.4%	(4.2%)
2017	Warburg Pincus Financial Sector, L.P.	1/5/2018	21,000,000	5,495,772	1,071,000	3,851,109	0.90x	NM	NM	N/A
2018	Platinum Equity Small Cap Fund, L.P.	6/27/2018	8,000,000	608,593	-	478,471	0.79x	NM	NM	N/A
2018	EQT VIII, L.P.	8/10/2018	21,934,403	3,170,212	268,865	2,842,233	0.98x	NM	NM	N/A
2018	EQT VIII Co-Investment	11/2/2018	7,975,895	1,208,173	-	1,351,729	1.12x	NM	NM	N/A
2018	CVC Capital Partners VII, L.P.	12/4/2018	30,384,935	4,841,052	45,645	5,928,957	1.23x	NM	NM	N/A
2018	Grain Communications Opportunity Fund II, L.P.	12/26/2018	3,500,000	587,608	2,857	471,918	0.81x	NM	NM	N/A
2017	Palladium Equity Partners V, L.P.	2/11/2019	6,666,667	1,097,311	-	837,006	0.76x	NM	NM	N/A
2018	Vista Equity Partners Fund VII, L.P.	2/13/2019	35,500,000	2,921,103	127	2,871,145	0.98x	NM	NM	N/A
2019	Welsh, Carson, Anderson & Stowe XIII, L.P.	3/14/2019	18,000,000	132,036	-	35,599	0.27x	NM	NM	N/A
2018	Siris Partners IV, L.P.	3/15/2019	18,000,000	2,728,308	-	2,537,676	0.93x	NM	NM	N/A
2018	Apollo Investment Fund IX, L.P.	3/15/2019	52,000,000	4,749,874	538	4,086,094	0.86x	NM	NM	N/A
2019	ASF VIII B L.P.	3/15/2019	36,000,000	3,600	-	125,248	34.79x	NM	NM	N/A
2019	ASF VIII B NYC Co-Invest L.P.	3/15/2019	18,000,000	1,800	-	451	0.25x	NM	NM	N/A
2019	Warburg Pincus Global Growth, L.P.	3/26/2019	25,500,000	301,878	-	223,918	0.74x	NM	NM	N/A
2018	Bridgepoint Europe VI	N/A	23,579,848	-	-	(289,912)	-	N/A	N/A	N/A
2018	Bridgepoint Europe VI Co-Invest	N/A	5,892,177	-	-	-	-	N/A	N/A	N/A
2018	Crestview Partners IV, L.P.	N/A	14,000,000	-	-	-	-	N/A	N/A	N/A
2018	Crestview Partners IV (Co-Investment), L.P.	N/A	4,666,667	-	-	-	-	N/A	N/A	N/A
2019	KKR European Fund V (USD)	N/A	17,650,000	-	-	-	-	N/A	N/A	N/A
2019	Lexington Capital Partners IX	N/A	21,375,000	-	-	1,005,254	-	NM	N/A	N/A
Total Portfolio⁶			\$ 2,367,271,317	\$ 1,790,801,473	\$ 1,703,429,460	\$ 952,528,101	1.48x	11.4%	10.3%	1.1%

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

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

³ PME Spread is calculated as IRR minus PME Benchmark.

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

⁵ NYCFPF - 2015 Emerging Manager Program total commitment amount includes the full amount allocated to the Program, of which \$26.3 million has been committed as of August 22, 2019.

⁶ Total Portfolio includes liquidated investments.

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

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

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

**New York City Fire Pension Fund
Subsequent Commitments
As of March 31, 2019 (in USD)**

Vintage Year	Investment	First Drawdown	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Multiple	IRR ¹	PME Return ²	PME Spread ³
Commitments Closed Subsequent to as of Date										
2019	Lindsay Goldberg V, L.P.	N/A	\$ 18,000,000	\$ -	\$ -	\$ -	N/A	N/A	N/A	N/A
2019	Lexington Co-Invest Partners B, L.P.	N/A	7,125,000	-	-	-	N/A	N/A	N/A	N/A
2019	Platinum Equity Capital Partners V, L.P.	N/A	32,000,000	-	-	-	N/A	N/A	N/A	N/A
2019	Apax X USD L.P.	N/A	21,500,000	-	-	-	N/A	N/A	N/A	N/A
2019	Trilantic Capital Partners VI (North America) L.P.	N/A	20,000,000	-	-	-	N/A	N/A	N/A	N/A
2019	Blackstone Capital Partners VIII L.P.	N/A	22,500,000	-	-	-	N/A	N/A	N/A	N/A
Total Commitments Closed Subsequent to as of Date			\$ 121,125,000	\$ -	\$ -	\$ -	N/A	N/A	N/A	N/A

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

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

³ PME Spread is calculated as IRR minus PME Benchmark.

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

Real Estate Quarterly Report (Public):

Executive Summary: First Quarter 2019 Performance Measurement Report Real Estate

Portfolio Profile

The New York City Fire Department Pension Fund has allocated 8.0% of the total plan to Real Estate. The Real Estate Portfolio's objective is to generate a total net return that exceeds the NFI-ODCE+100 bps total net return measured over full market cycles.

Portfolio Statistics (March 31, 2019)

Total Plan Assets	\$13.9 billion
Target Real Estate Allocation (%)	8%
Target Real Estate Allocation (\$)	\$1.1 billion
Total Real Estate Market Value	\$582.9 million
Real Estate Unfunded Commitments	\$319.3 million
Total Real Estate Exposure	\$902.2 million
Number of Investments	70
Number of Managers	42

Net Returns (as of March 31, 2019)

1Q19 Time-Weighted Net Return:	1.9%
1 Year Time Weighted Net Return:	7.2%
3 Year Time Weighted Net Return:	9.6%
5 Year Time Weighted Net Return:	11.3%
Inception-to-Date (ITD) Time-Weighted:	7.4%
ITD Net IRR:	8.1%

Investment Guidelines

Style Sector:	Target •4.0% Core/Core Plus •4.0% Non-Core
Benchmark	NFI-ODCE Index + 100 bps net over full market cycles
Region Diversification	Maximum 25% Int'l
Investment Diversification	Limit 15% to a single investment
Manager Diversification	Limit 15% to a single manager
Leverage	65%

First Quarter Investment Activity

During the Quarter, the Board approved a \$10 million investment to a Non-Core, diversified, global fund with an existing manager, a \$10 commitment to a Core Plus, alternatives sector fund, and a \$6.7 million commitment (as well as a \$3.3 million co-investment) to another Core Plus, alternatives sector fund.

OVERVIEW

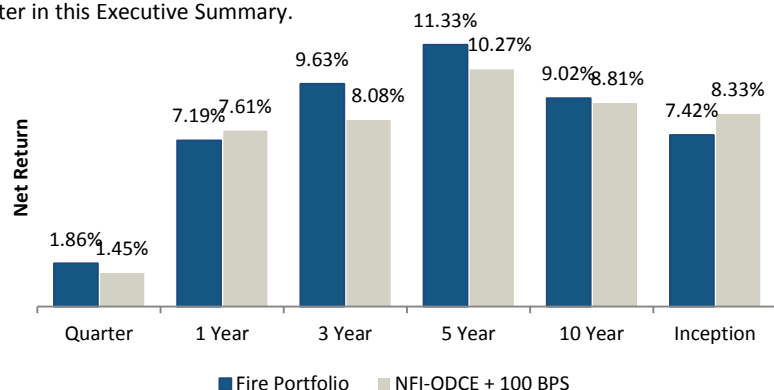
Global investment activity during the first quarter of 2019 was elevated, but there are indications that momentum has begun to slow as compared to 2018. During the quarter, the three most active cities were New York City, London, and Los Angeles respectively. Capital values and rents are expected to increase during the year, however, full-year global investment volumes are expected to decline by 5-10%. Investment volumes in the Americas decreased during the first quarter year-over-year, including the U.S., Canada, Brazil, and Mexico all showing declines. In EMEA, the decline in investment volume is largely attributable to uncertainty over Brexit in the UK. In the office sector, global leasing vacancy rates continued to decrease through the first quarter of 2019. The U.S office market performed well with an increase in gross leasing activity up 6% year-over-year. Europe also started the year strong with gross leasing up 6% year-over-year, boosted by performance in Brussels and Stockholm. In the European retail sector, strengthening labor markets and wage growth in Europe has positively impacted consumer spending, and retailers continue to focus on rightsizing their store portfolios. The multifamily market in the U.S. has continued to see growth in demand and increases in effective rental growth, specifically in the Sun Belt markets. There has been an increase in construction activity which is likely to lead to some near-term supply headwinds. Investment activity in European multifamily markets continued to be robust, specifically in France, Spain, and the UK. The global industrial market maintained momentum during the quarter, with vacancy rates in the U.S. and Asia Pacific at all-time lows as demand continues to be robust. Demand has been strong in the European logistics market as well, however, a slight deceleration in the rate of growth suggests the sector may be entering a stage of stabilization.

Global Total Commercial Real Estate Volume - 2018 - 2019

	Q1 2019	Q1 2018	% Change Q1 19 - Q1 18	Full Year Ending	Full Year Ending 1Q18	% Change Full Year
\$ US Billions						
Americas	92	106	-13%	505	447	13%
EMEA	50	78	-36%	327	371	-12%
Asia Pacific	168	216	-22%	815	895	-9%
Total	310	400	-22%	1646	1713	-4%

Source: Real Capital Analytics, Inc., Q1'19

The New York City Fire Department Pension Fund ("Fire") Real Estate Portfolio is, and has been, well positioned to take advantage of conditions in the real estate marketplace. In the period reflected in the rolling five-year net return, Fire performance outperforms the benchmark by 106 basis points. At the end of the First Quarter 2019, the Portfolio achieved a total gross return of 2.3% which was comprised of 1.1% income and 1.3% appreciation. The net return for the Quarter was 1.9%. A detailed analysis of the Portfolio's real estate performance is found later in this Executive Summary.



Executive Summary: First Quarter 2019 Performance Measurement Report

Real Estate

FUNDING AND COMPOSITION

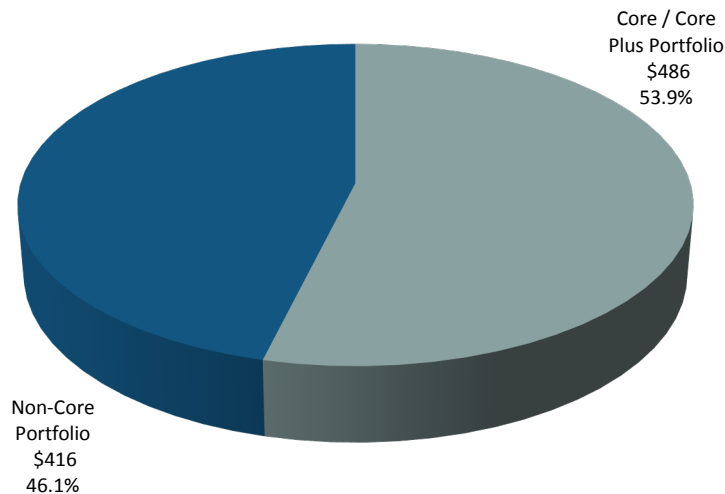
At the end of the First Quarter, the Portfolio was funded at \$582.9 million, or 4.2% of total plan assets. A total of \$319.3 million in unfunded commitments are still outstanding. Unfunded commitments are up from \$304.4 million as of the Fourth Quarter 2018.

New contributions for the Quarter totaled \$31.0 million, offset by \$18.7 million in distributions and withdrawals. Distributions were weighted to the Core / Core Plus sector.

Shown in the pie chart to the right is the current risk sector exposure calculated by Market Value + Unfunded Commitments. The Core/ Core Plus component accounts for 53.9% of the Portfolio exposure during the Quarter. The Non-Core component accounts for 46.1% of the Portfolio exposure.

A more detailed break-down of the Portfolio Composition is shown in the table below. Attached as Exhibit A is a matrix which demonstrates compliance with various Investment Policy Statement guidelines.

Real Estate Exposure



New York City Fire Department Pension Fund		
Total Plan Assets (\$)	3/31/2019	13,887
Real Estate Allocation (%)		8.0
Real Estate Allocation (\$)		1,111
Real Estate Core Allocation (%)		4.0
Real Estate Core Allocation (\$)		555
Real Estate Non-Core Allocation (%)		4.0
Real Estate Non-Core Allocation (\$)		555
Style Sector Allocation		
Funded (Market Value) Core/Core Plus Portfolio (\$)		375
Funded (Market Value) Non-Core Portfolio (\$)		208
Unfunded Core / Core Plus Portfolio (\$)		111
Unfunded Non-Core Portfolio (\$)		208
Funded (Market Value) and Committed Statistics		
Core / Core Plus Portfolio (%)		53.9
Non-Core Portfolio (%)		46.1
Core/Core Plus Committed (\$)		486
Non-Core Committed (\$)		416
\$ Committed		902
% Committed on Real Estate Allocation		81.2
% Committed on Total Plan Assets		6.5
Funded (Market Value) Statistics		
% Core/Core Plus Funded (Market Value) of Total Plan Assets		2.7
% Non-Core Funded (Market Value) of Total Plan Assets		1.5
% Funded (Market Value) of Total Plan Assets		4.2
% Funded (Market Value) of Total Real Estate Allocation		52.5

PERFORMANCE

During the Quarter under review, the Fire Real Estate Portfolio produced a 2.3% total gross return. The total net return for the Quarter was 1.9%. On a rolling one-year basis, the total gross return of 8.9% was recorded. On a net basis, the total return was 7.2%. On a gross basis, the Fire Portfolio meets or exceeds the NFI-ODCE over the quarter, one, three, five, and ten-year time periods. The benchmark return contemplates a 100 bps premium over the ODCE net return over full market cycles. This benchmark is exceeded over the quarter, three, five and ten-year time periods. The various components of the Portfolio returns are depicted in the chart below.

Core/Core Plus

As of March 31, 2019 the market value of the Core/Core Plus Portfolio was \$375.0 million, or 64.3% on an invested basis. On a funded and committed basis, the Core/Core Plus Portfolio totaled \$485.9 million, or 53.9% of the total Portfolio. The Core / Core plus Portfolio generated a 1.9% total gross return for the Quarter comprised of 1.0% in income and 0.9% in appreciation. The total net return for the Quarter was 1.7%.

A significant contributor to the Quarterly return in this sector was Lion Industrial Trust, which generated a 4.5% total net return. A significant detractor from the Core / Core Plus Portfolio was JPM Strategic Property Fund, which generated a 0.3% total net return.

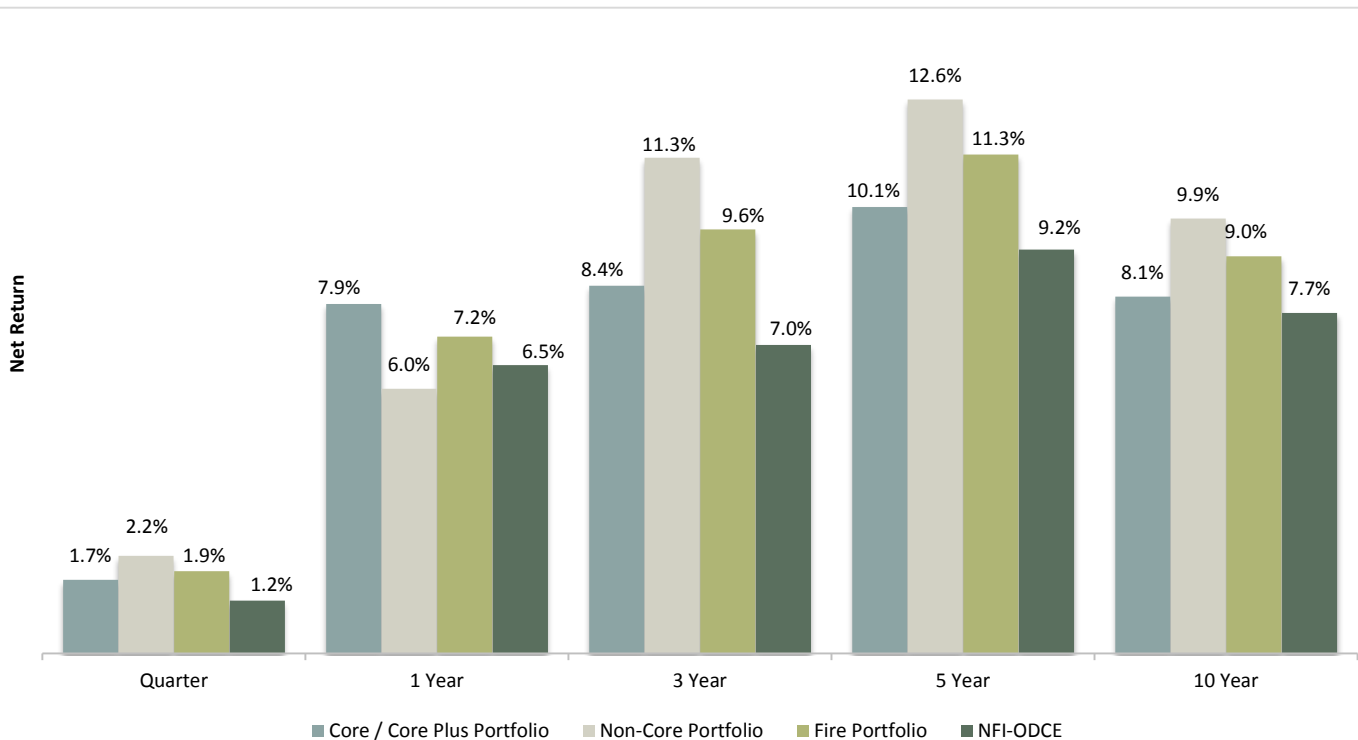
The Core/Core Plus Portfolio achieved an 8.4% net return over the three-year period ending March 31, 2019. Within the Core / Core Plus Funds, Prologis Targeted U.S. Logistics Fund was a significant contributor, generating a 17.2% total net return. UBS Trumbull Property Fund was a significant detractor, generating a 5.6% total net return over the period.

Non-Core

As of March 31, 2019 the market value of the Non-Core Portfolio was \$208.0 million, or 35.7% on an invested basis. On a funded and committed basis, the Non-Core Portfolio totaled \$416.3 million, or 46.1% of the total Portfolio. The Non-Core Portfolio generated a 3.1% total gross return for the Quarter comprised of 1.3% in income and 1.8% in appreciation. The total net return for the Quarter was 2.2%.

A significant contributor to the Quarterly return in this sector was H/2 Special Opportunities Fund IV which generated a 12.6% total net return. A significant detractor from the Non-Core Portfolio was Thor Urban Property Fund II, which generated a (3.9%) total net return.

The Non-Core Portfolio generated a three-year net return of 11.3%. Within the Non-Core Portfolio, Brookfield Strategic Real Estate Partners was a significant contributor, generated a 23.4% total net return. Stockbridge Real Estate Fund III was a significant detractor, generating a (6.8%) total net return over the period.



Executive Summary: First Quarter 2019 Performance Measurement Report

Real Estate

PERFORMANCE

Portfolio Performance

At the end of the First Quarter 2019, the Portfolio had a cumulative market value of \$582.9 million. Total market value plus unfunded commitments was \$902.2 million, or 81.2% of the real estate allocation. During the Quarter, the Portfolio achieved a total gross return of 2.3% which was comprised of 1.1% in income and 1.3% in appreciation. The Portfolio achieved a total net return of 1.9%. Since inception, the Portfolio has a net IRR of 8.1% and an equity multiple of 1.4x as of March 31, 2019. Note, attached as Exhibit B are performance metrics relating to each investment within the Portfolio.

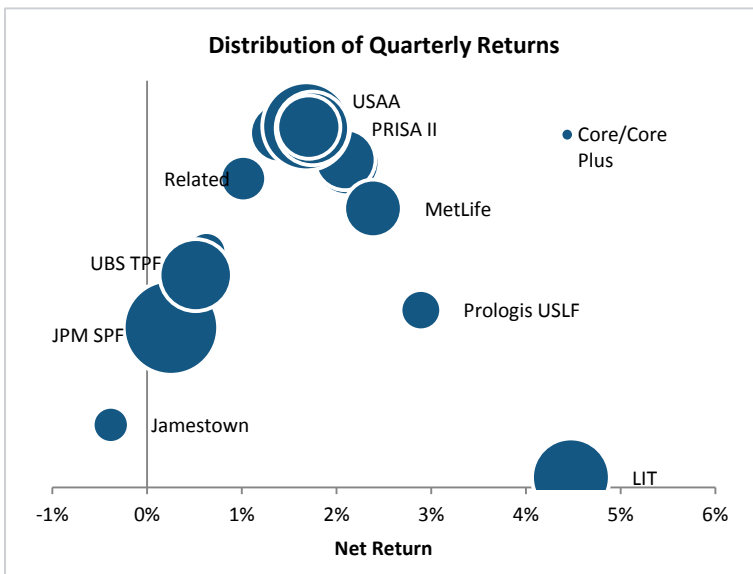
Brief reviews of select Funds are found below. Note, that attached as Exhibit C are charts relating to fund contributions to returns during different relevant periods.

Prologis Targeted U.S. Logistics Fund. Prologis USLF generated a total gross return of 3.2% comprised of 1.2% in income and 2.0% in appreciation. The net return after fees was 2.9%. As of Quarter-end, the total occupancy of the portfolio was 96%, marking a 1.2% decrease compared to the prior quarter. 100% of the Fund's assets were appraised during the Quarter, resulting in an unrealized gain of \$187.7 million. The increase in value was driven by growth in market rents primarily on the west coast. The Fund acquired leased land in Oakland, California and an industrial park in Chicago, Illinois. Finally, the Fund acquired a stabilized trailer yard in Portlan, Oregon.

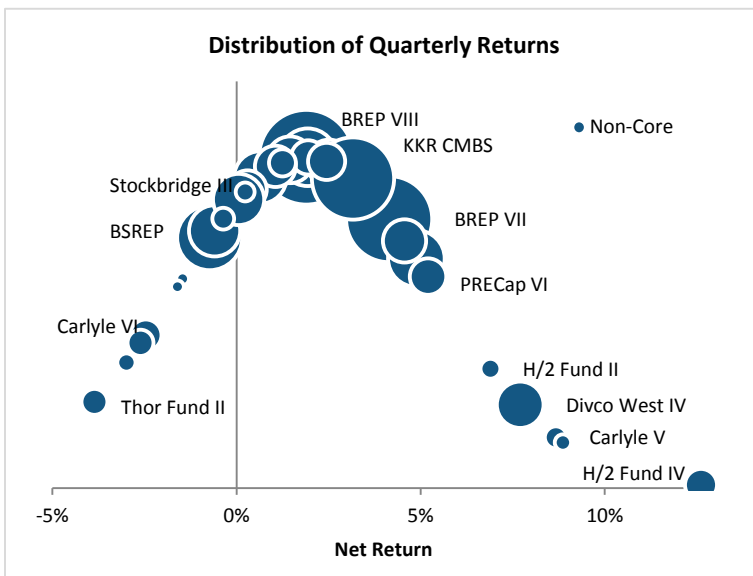
MetLife Core Property Fund. MetLife generated a total gross return of 2.5% comprised of 1.3% in income and 1.2% in appreciation. The net return after fees was 2.4%. During the Quarter, appreciation was largely driven by the industrial sector, followed by contributions from the apartment and office sectors. The Fund executed two development joint ventures, including a mixed-use project and an industrial asset for a combined price of \$128 million. Further, the Fund bought out its partner's interest in a business park in Des Moines, Iowa.

DivcoWest Fund IV. DivcoWest Fund IV had a total gross return of 11.6% comprised of 0.3% in income and 11.2% in appreciation. The net return after fees was 7.7%. As of Quarter-end, the Fund has realized 14 investments and currently has six unrealized investments, representing a total of \$2.3 billion in initial acquisition costs. The remaining assets are concentrated in the San Francisco Bay Area, as well as one asset in Austin, Texas, and a portfolio of WeWork assets in various locations. The Fund has distributed a total of \$1.3 billion to investors since inception.

Core/Core Plus	1-Year	3-Year	5-Year	S.I. IRR
Net Return	7.9%	8.4%	10.1%	7.0%



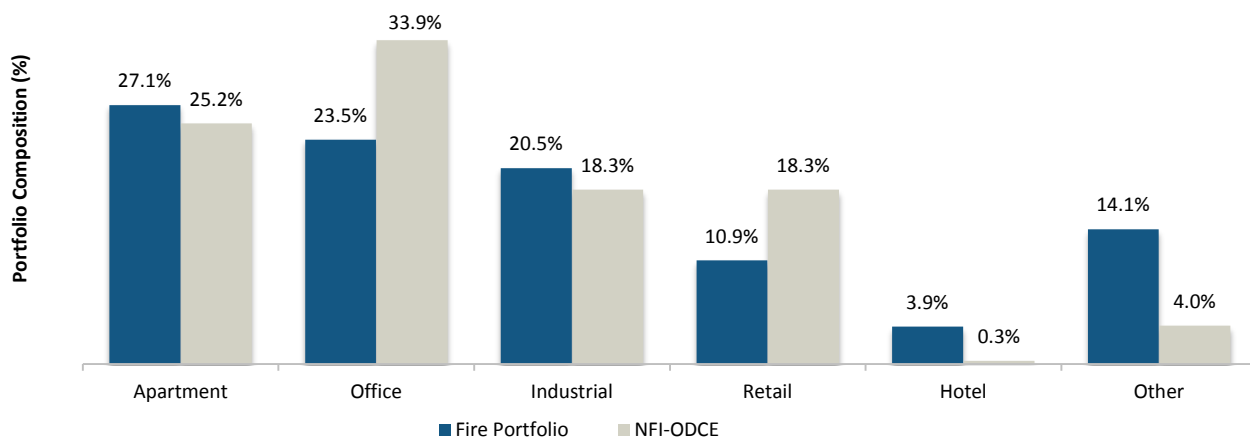
Non-Core	1-Year	3-Year	5-Year	S.I. IRR
Net Return	6.0%	11.3%	12.6%	9.1%



PROPERTY TYPE DIVERSIFICATION

The diversification of the current Portfolio by property type is shown below and compared to the diversification of the NFI-ODCE at the end of the Quarter. Relative to the ODCE, the Portfolio is underweight to office and retail. The Portfolio is overweight to multifamily, industrial, hotel and other property types which includes debt-related investments and other investments within diversified funds such as for sale residential, self storage, land, data centers, senior living, healthcare, medical office and student housing.

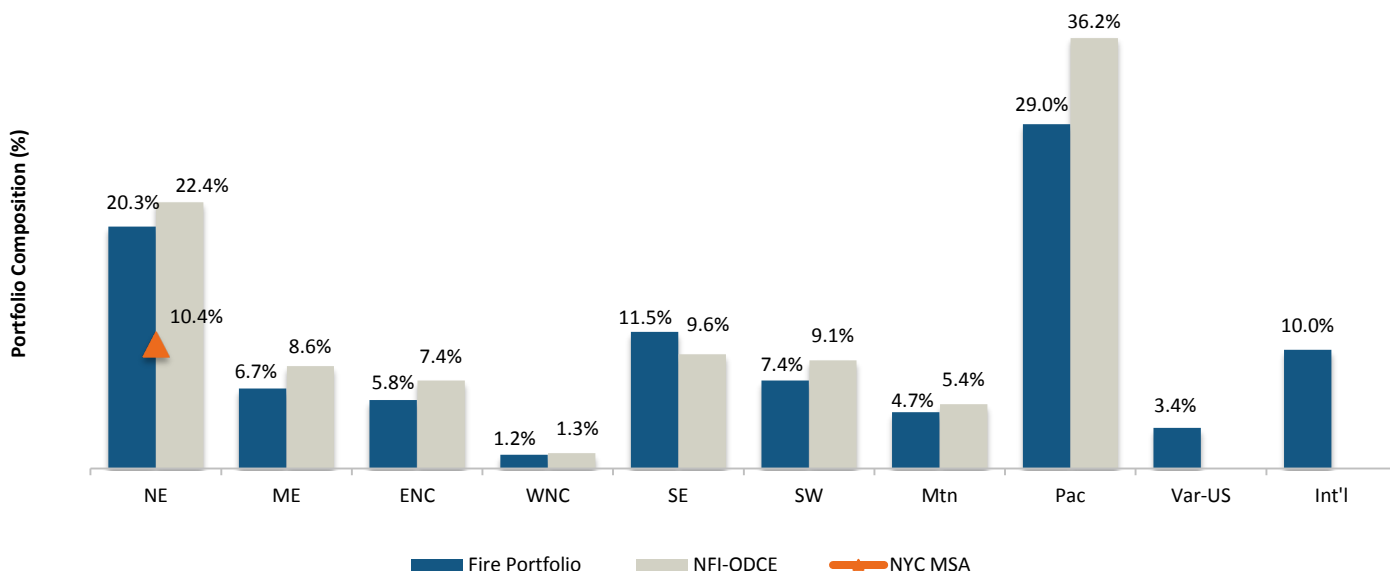
Property Type Diversification



GEOGRAPHIC DIVERSIFICATION

The diversification of the current funded Portfolio by geographic region is shown below and compared to the diversification of the NFI-ODCE at the end of the Quarter. The ODCE is a US-only index. The domestic portion of the Portfolio is well diversified relative to the ODCE with an underweight to the Pacific region. The 10.0% international exposure is appropriate for the risk and return profile of Fire and consistent with the long-term target. Exposure to the NYC MSA is also included, which stands at 10.4% as of March 31, 2019.

Geographic Diversification



MARKET UPDATE

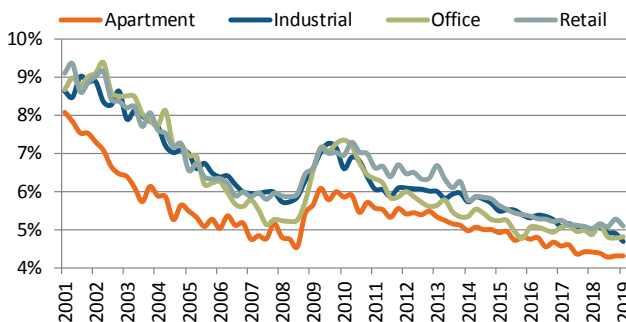
General

- The S&P 500 produced a gross total return of 13.6% during the Quarter, as markets rebounded from a poor fourth quarter (-13.1%). The MSCI US REIT index produced a return of 16.3%. Consumer Sentiment remained flat at 98.4, but rose subsequent to quarter end.
- Macro indicators for U.S. real estate continue to be positive; GDP grew at an annualized rate of 3.2% in the First Quarter and headline CPI rose by 1.7% YoY, below the Fed's 2% target. As of Quarter-end, the economy has now experienced 102 consecutive months of job growth. The Federal Reserve has paused its tightening of monetary policy, with the effective federal funds rate remaining around 2.4% at Quarter-end. Based on interest rate futures, the Market has begun pricing in the expectation of a cut by the Fed.

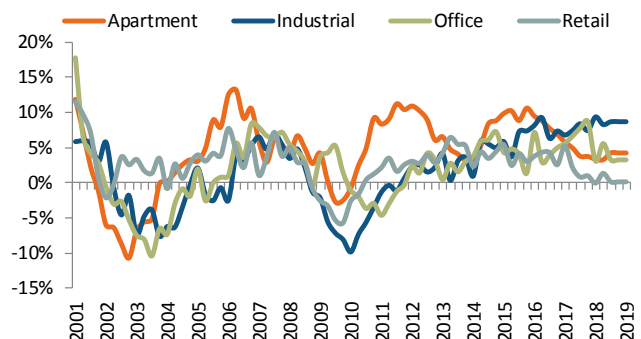
Commercial Real Estate

- Private real estate market carrying values remained flat over the Quarter. Transaction cap rates (5.4%) expanded 5 bps during the Quarter. While, current valuation cap rates remained flat across property sectors, with the exception of the industrial and retail sector cap rates which compressed by 20 bps.
- NOI growth by sector continued to deviate during the Quarter, with the industrial sector continuing to outpace the other traditional property types. While the industrial sector has faced increasing supply, it continues to benefit from outsized demand tailwinds (e-commerce and economic growth). On the other hand, retail experienced negative 20 bps of NOI growth during the Quarter.
- In the First Quarter of 2019, \$66 bn of aggregate capital was raised by real estate funds. In 2018, private equity real estate funds raised \$236 bn which is an increase of 9% YoY. Although, transaction volume declined during the 1st quarter by 18% year over year to \$28 bn.
- 10-year treasury bond yields dropped 28 bps to 2.4% during the Quarter, and, subsequent to Quarter-end, have dropped further to 2.1%. A combination of expansionary fiscal policy and tightening monetary policy have led to increasing short-term interest rates and a few temporary inversions of the yield curve.

Current Value Cap Rates by Property Type



4 Qtr Rolling NOI Growth



Source: NCREIF, Bureau of Economic Analysis, U.S. Census Bureau, Federal Reserve Board, NCREIF, Cushman and Wakefield, Real Capital Analytics, Bloomberg LP., Preqin, University of Michigan, Green Street

EXHIBIT A: COMPLIANCE MATRIX

Category	Requirement	Portfolio Status
Benchmark	NFI-ODCE (net) +100 bps over full market cycles	<i>Portfolio returns outperform the benchmark over the quarter, three ,five, and ten-year time periods.</i>
Portfolio Composition	Core/Core Plus (4% of RE Allocation)	<i>The portfolio is funded (market value) and committed at 81.2% of real estate allocation with a portfolio composition of 53.9% core/core plus and 46.1% non-core. Based on market value, the core/core plus portfolio is funded at 64.3% and the non-core portfolio is funded at 35.7%.</i>
	Non Core (4% of RE Allocation)	
Real Estate Allocation	Target of 8.0%	<i>Funded (market value) and committed dollars place the portfolio at 6.5% of total plan assets.</i>
	Currently Funded at 4.2%	
Property Type Diversification	Up to 40% Multifamily Up to 35% Industrial Up to 45% Office Up to 35% Retail Up to 25% Hotel Up to 20% Other	<i>All property type locations are in compliance.</i>
Geographic Diversification	Diversified geographically Max 25% Ex-US	<i>All geographic type locations are in compliance</i>
LTV	65%	<i>Portfolio is in compliance (43.2 %).</i>
Manager Exposure	15% of real estate allocation	<i>Manager exposure is in compliance based on market value.</i>

Executive Summary: First Quarter 2019 Performance Measurement Report Real Estate

EXHIBIT B: FIRST QUARTER 2019 FOIL

Vintage Year	Fund Name	Style Sector	Geographic Play	First Draw Down	Capital Committed	Contributions	Distributions	Market Value	Equity Multiple	Net IRR
2019	Almanac Realty Securities VIII	Core / Core Plus Portfolio	Developed Americas	12/21/2018	10,500,000	147,482	0	82,420	n/a	n/a
2019	Almanac Realty Securities VIII (Sidecar II)	Core / Core Plus Portfolio	Developed Americas	12/21/2018	7,000,000	114,364	0	117,488	1.0	25.6
2017	Brookfield Premier Real Estate Partners	Core / Core Plus Portfolio	Developed Americas	11/22/2016	19,000,000	20,542,343	-1,790,423	24,084,212	1.3	12.2
2017	Carlyle Property Investors	Core / Core Plus Portfolio	Developed Americas	7/3/2017	19,000,000	20,071,285	-1,294,187	21,031,987	1.1	7.9
2007	Colony Realty Partners II	Core / Core Plus Portfolio	Developed Americas	12/20/2006	5,000,000	5,355,052	-1,384,970	0	0.3	-13.4
2016	Exeter Industrial Core Club Fund II	Core / Core Plus Portfolio	Developed Americas	5/20/2016	6,000,000	4,159,517	-438,726	4,604,950	1.2	13.2
2019	Heitman Core Real Estate Debt Income Trust	Core / Core Plus Portfolio	Developed Americas	11/2/2018	8,000,000	8,049,379	-200,294	8,026,955	1.0	8.6
2007	Heitman HART	Core / Core Plus Portfolio	Developed Americas	3/29/2007	9,000,000	14,326,664	-5,326,664	20,102,746	1.8	7.9
2016	Jamestown Premier Property Fund	Core / Core Plus Portfolio	Developed Americas	2/4/2016	8,000,000	9,485,965	-4,127,816	7,254,512	1.2	9.0
2007	JP Morgan Special Situation Property Fund	Core / Core Plus Portfolio	Developed Americas	1/2/2007	5,000,000	5,870,702	-2,048,537	7,290,241	1.6	4.7
2007	JP Morgan Strategic Property Fund	Core / Core Plus Portfolio	Developed Americas	12/5/2006	22,000,000	24,459,391	0	50,511,150	2.1	8.2
2010	LaSalle Property Fund	Core / Core Plus Portfolio	Developed Americas	7/1/2010	48,000,000	30,000,000	-11,236,543	43,983,767	1.8	10.6
2017	Lion Industrial Trust - 2007	Core / Core Plus Portfolio	Developed Americas	1/1/2017	50,000,000	31,338,081	-1,210,549	35,422,714	1.2	15.6
2014	MetLife Core Property Fund	Core / Core Plus Portfolio	Developed Americas	7/1/2014	41,000,000	15,000,000	-3,050,492	18,911,204	1.5	10.6
2013	NYC Asset Investor #2 LLC	Core / Core Plus Portfolio	Developed Americas	7/9/2013	9,000,000	8,663,939	-2,515,598	11,712,854	1.6	14.3
2016	NYCRS Artemis Co-Investment (SEM)	Core / Core Plus Portfolio	Developed Americas	2/24/2016	11,000,000	10,728,426	-3,941,790	9,027,653	1.2	19.0
2007	PRISA II	Core / Core Plus Portfolio	Developed Americas	6/30/2007	20,228,233	21,417,377	-6,826,553	30,637,441	1.7	5.9
2006	PRISA SA	Core / Core Plus Portfolio	Developed Americas	9/29/2006	7,000,000	7,530,220	-2,849,391	9,964,908	1.7	4.9
2006	Prologis Targeted U.S. Logistics Fund	Core / Core Plus Portfolio	Developed Americas	10/1/2006	5,000,000	6,745,383	-2,226,838	9,324,876	1.7	5.6
2006	RREEF America REIT II	Core / Core Plus Portfolio	Developed Americas	10/1/2006	7,000,000	9,178,399	-4,787,963	10,084,197	1.6	5.3
2006	UBS Trumbull Property Fund	Core / Core Plus Portfolio	Developed Americas	9/28/2006	27,000,000	40,919,619	-34,399,217	29,003,253	1.5	7.1
2016	USAA Eagle Real Estate Fund	Core / Core Plus Portfolio	Developed Americas	12/1/2015	30,000,000	20,561,278	0	23,788,266	1.2	8.6
Core / Core Plus Portfolio					373,728,233	314,664,866	-89,656,551	374,967,794	1.5	7.0
2019	AERMONT Real Estate Fund IV	Non-Core Portfolio	Developed Europe	n/a	10,271,627	0	0	-91,618	n/a	n/a
2008	AG Realty Fund VII	Non-Core Portfolio	Developed Americas	5/20/2008	15,000,000	14,100,000	-20,916,846	393,501	1.5	12.6
2008	American Value Partners Fund I (SEM)	Non-Core Portfolio	Developed Americas	10/18/2007	5,000,000	3,785,294	-3,413,281	457,627	1.0	0.4
2008	Ares European Real Estate Fund III, LP	Non-Core Portfolio	Developed Europe	5/6/2008	15,000,000	15,243,750	-16,618,750	278,716	1.1	2.6
2015	Avanath Affordable Housing Fund II (SEM)	Non-Core Portfolio	Developed Americas	7/14/2015	2,220,000	2,158,370	-134,679	3,225,434	1.6	13.4
2018	Basis Investment Group Fund I (SEM)	Non-Core Portfolio	Developed Americas	11/16/2017	4,100,000	2,036,439	-159,278	2,099,951	1.1	17.4
2004	Blackstone Fund IV	Non-Core Portfolio	Developed Americas	5/10/2004	5,000,000	6,406,782	-8,347,173	566,003	1.4	10.0
2010	Blackstone Real Estate Partners Europe III (USD Vehicle)	Non-Core Portfolio	Developed Europe	10/24/2008	5,000,000	5,200,174	-6,818,513	915,837	1.5	11.1
2014	Blackstone Real Estate Partners Europe IV (USD Vehicle)	Non-Core Portfolio	Unidentified	12/23/2013	26,000,000	25,089,887	-24,329,862	13,738,599	1.5	15.7
2007	Blackstone Real Estate Partners VI	Non-Core Portfolio	Developed Americas	9/27/2007	10,000,000	11,170,327	-21,256,692	903,671	2.0	13.2
2012	Blackstone Real Estate Partners VII	Non-Core Portfolio	Global	3/31/2012	30,000,000	36,782,439	-40,965,134	19,973,594	1.7	17.5
2015	Blackstone Real Estate Partners VIII	Non-Core Portfolio	Global	8/18/2015	31,500,000	27,267,083	-9,156,392	25,873,491	1.3	16.0
2012	Brookfield Strategic Real Estate Partners	Non-Core Portfolio	Global	9/20/2012	15,000,000	16,857,868	-22,267,103	11,362,973	2.0	21.4
2019	Brookfield Strategic Real Estate Partners III	Non-Core Portfolio	Global	n/a	30,000,000	0	0	-313,978	n/a	n/a
2005	Canyon Johnson Urban Fund II	Non-Core Portfolio	Developed Americas	5/11/2005	10,000,000	8,988,710	-3,974,652	34,106	0.4	-10.5
2010	Canyon Johnson Urban Fund III	Non-Core Portfolio	Developed Americas	3/29/2010	5,000,000	4,931,163	-6,664,557	5,884	1.4	11.9
2007	Carlyle Realty Partners V	Non-Core Portfolio	Developed Americas	8/27/2007	5,000,000	6,321,633	-7,515,700	1,464,644	1.4	8.4
2011	Carlyle Realty Partners VI	Non-Core Portfolio	Developed Americas	9/14/2011	20,000,000	19,179,817	-30,594,067	2,644,970	1.7	25.4
2014	Carlyle Realty Partners VII	Non-Core Portfolio	Developed Americas	6/30/2014	15,000,000	12,753,092	-8,199,993	9,433,522	1.4	15.5
2007	Colony Investors VIII	Non-Core Portfolio	Global	9/18/2007	20,000,000	21,249,679	-9,077,467	436,402	0.4	-11.5
2012	Divco West Fund III	Non-Core Portfolio	Developed Americas	12/30/2011	30,000,000	29,429,127	-50,063,782	794,604	1.7	23.9
2014	Divco West Fund IV	Non-Core Portfolio	Developed Americas	1/15/2014	30,000,000	29,700,495	-42,986,084	6,488,635	1.7	26.0
2017	Divco West Fund V	Non-Core Portfolio	Developed Americas	12/21/2016	12,000,000	5,804,155	0	6,144,049	1.1	4.4
2017	DRA Growth and Income Fund IX	Non-Core Portfolio	Developed Americas	3/9/2017	8,000,000	4,697,865	-1,198,162	4,405,012	1.2	17.8
2016	European Property Investors Special Opportunities IV (EPISO IV)	Non-Core Portfolio	Developed Europe	12/18/2015	10,059,238	7,125,644	-442,785	7,730,448	1.1	9.6
2017	Exeter Industrial Value Fund IV	Non-Core Portfolio	Developed Americas	9/20/2017	10,000,000	5,500,000	0	6,083,203	1.1	11.4
2011	H/2 Special Opportunities Fund II	Non-Core Portfolio	Developed Americas	1/31/2011	10,000,000	10,000,001	-14,233,974	1,173,816	1.5	14.5
2015	H/2 Special Opportunities Fund III	Non-Core Portfolio	Developed Americas	12/29/2014	15,000,000	15,000,000	-11,208,572	8,236,419	1.3	11.8
2017	H/2 Special Opportunities Fund IV	Non-Core Portfolio	Developed Americas	11/15/2016	19,000,000	3,555,000	0	3,772,970	1.1	4.4
2017	KKR CMBS B-Piece SMA*	Non-Core Portfolio	Developed Americas	9/27/2017	25,000,000	19,628,558	-1,581,754	19,704,204	1.1	8.8
2018	KKR Real Estate Partners Americas II*	Non-Core Portfolio	Developed Americas	2/9/2018	20,070,000	6,981,487	-1,086,551	6,417,610	1.1	15.5
2014	Lone Star Real Estate Fund III	Non-Core Portfolio	Global	5/20/2014	25,000,000	23,435,387	-28,407,786	3,325,221	1.4	14.9
2017	Lone Star Real Estate Fund V	Non-Core Portfolio	Global	9/26/2017	23,100,000	3,278,786	-979,894	1,848,562	0.9	-13.7
2007	Metropolitan Workforce Housing Fund (SEM)	Non-Core Portfolio	Developed Americas	7/13/2007	3,500,000	3,503,257	-4,186,143	64,547	1.2	3.9
2013	NYC Asset Investor #1 LLC	Non-Core Portfolio	Developed Americas	6/25/2013	5,000,000	5,480,718	-2,193,861	4,747,780	n/a	n/a
2013	NYC Asset Investor #3 LLC	Non-Core Portfolio	Developed Americas	9/20/2013	6,000,000	3,784,833	-661,497	4,135,675	n/a	n/a
2017	Pramerica Real Estate Capital VI (PRECap VI)	Non-Core Portfolio	Developed Europe	4/21/2017	10,040,161	5,084,753	-2,313,533	3,867,033	1.2	20.8
2016	PW Real Estate Fund III LP	Non-Core Portfolio	Developed Europe	10/7/2016	9,562,261	5,902,512	-753,265	7,239,303	1.4	22.2
2008	Silverpeak Legacy Partners III	Non-Core Portfolio	Global	5/28/2008	5,000,000	2,216,844	-402,066	425,317	0.4	-10.5
2008	Stockbridge Real Estate Fund III	Non-Core Portfolio	Developed Americas	9/9/2008	13,500,000	13,499,074	-8,414,877	7,344,101	1.2	2.3
2012	Taconic New York City Investment Fund LP	Non-Core Portfolio	Developed Americas	7/5/2012	20,000,000	8,363,637	-13,396,035	1,327,916	1.8	15.8
2004	The City Investment Fund I	Non-Core Portfolio	Developed Americas	3/16/2004	35,000,000	34,515,181	-34,904,154	60,456	1.0	0.3
2009	Thor Urban Property Fund II	Non-Core Portfolio	Developed Americas	10/30/2008	5,000,000	6,849,514	-6,847,656	1,789,798	1.3	6.8
2009	Walton Street Real Estate Fund VI	Non-Core Portfolio	Global	4/27/2009	5,000,000	4,432,393	-4,786,027	2,050,517	1.5	8.8
2010	Westbrook Real Estate Fund VIII	Non-Core Portfolio	Global	12/28/2009	5,000,000	5,959,702	-6,889,968	996,582	1.3	11.5
2016	Westbrook Real Estate Fund X	Non-Core Portfolio	Global	7/18/2016	8,000,000	4,718,525	-917,892	4,396,964	1.1	11.5
Non-Core Portfolio					646,923,287	507,969,955	-479,266,327	207,974,071	1.3	9.1
Small Emerging Manager					25,820,000	22,211,786	-11,835,171	14,875,212	1.2	6.3
New York City Fire Department Pension Fund					1,020,651,520	822,634,821	-568,922,878	582,941,865	1.4	8.1

Source: PGC historical cash flow data. TGT cash flow data from Fund Managers, effective 2005. Note: The equity multiples and IRRs contained in this report are interim calculations based upon information provided by the investment managers of the New York City Retirement Systems, including cash flows and quarterly unaudited, or audited, valuations. The IRR calculated in early years of a fund life is not meaningful given the J-curve effect and can be significantly impacted by the timing of cash flows, investment strategy, investment pacing, and fund life. The calculations are not necessarily indicative of total fund performance, which can only be determined after the fund is liquidated and all capital contributed and earnings have been distributed to the investor. All data submitted is as of March 31, 2019. Note: At the direction of the Bureau of Asset Management ("BAM"), all fees related to KKR CMBS B-Piece SMA and KKR Real Estate Partners Americas II are input by TGT each quarter as the fees for the KKR funds are calculated at the strategic partnership level for the New York City Retirement Systems. Therefore, the fees are not input by the Manager, rather they are provided to TGT by the client.

EXHIBIT C : CORE / CORE PLUS PERFORMANCE SUMMARY

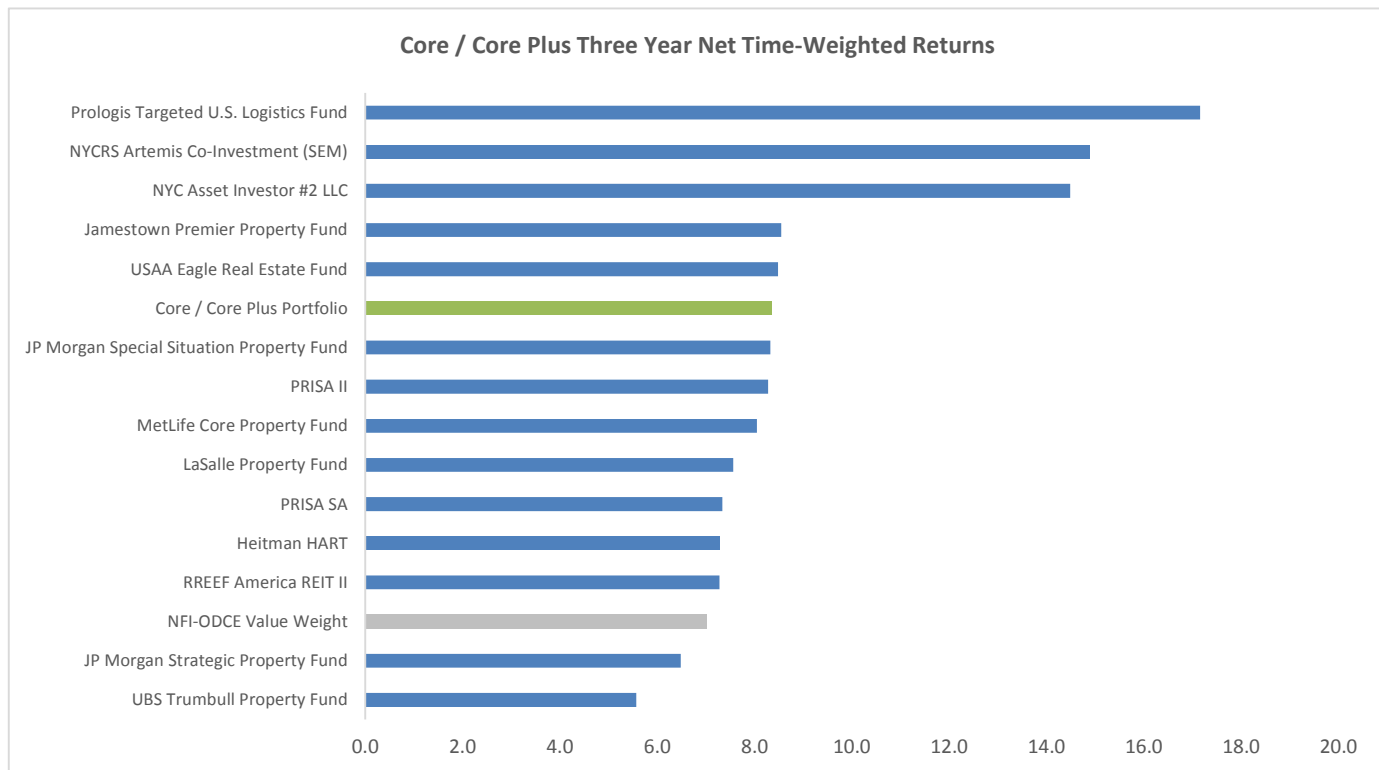
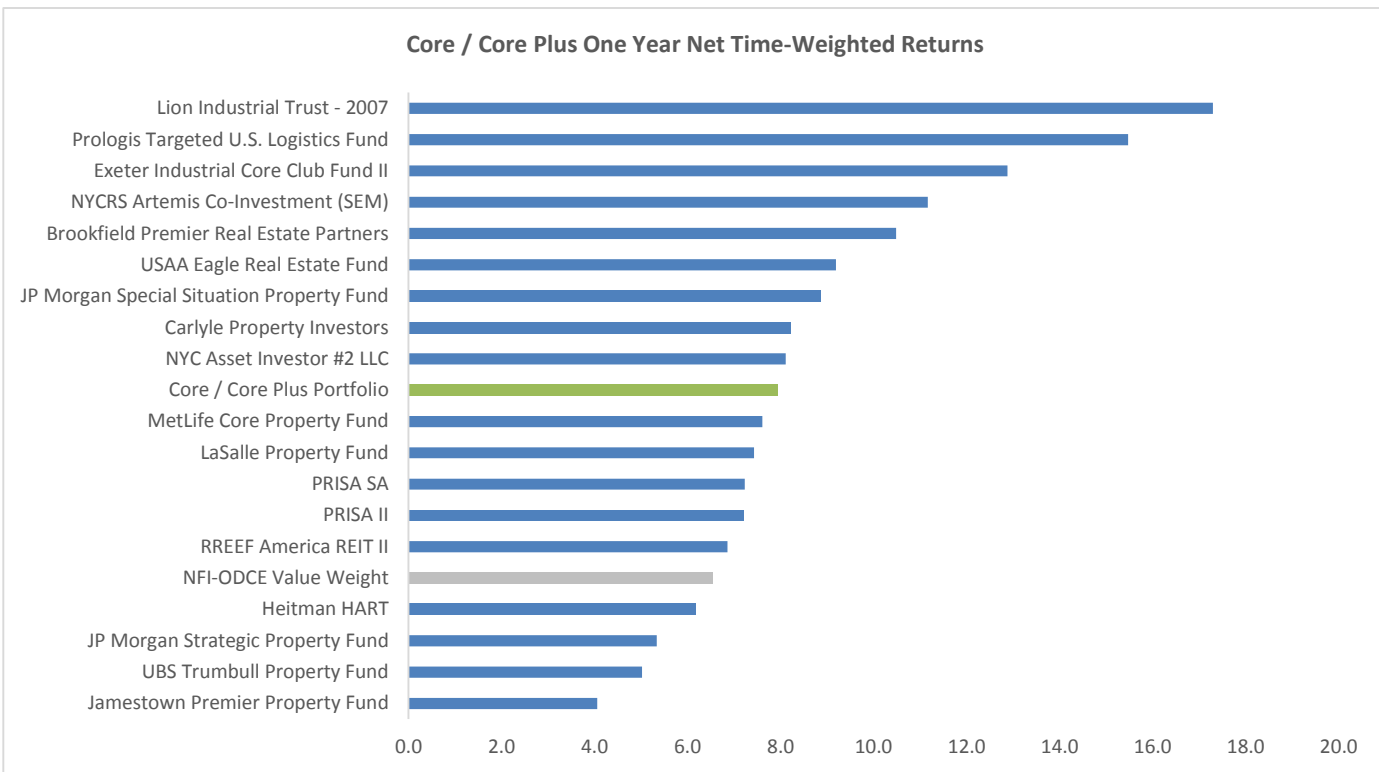


EXHIBIT C : NON-CORE PERFORMANCE SUMMARY

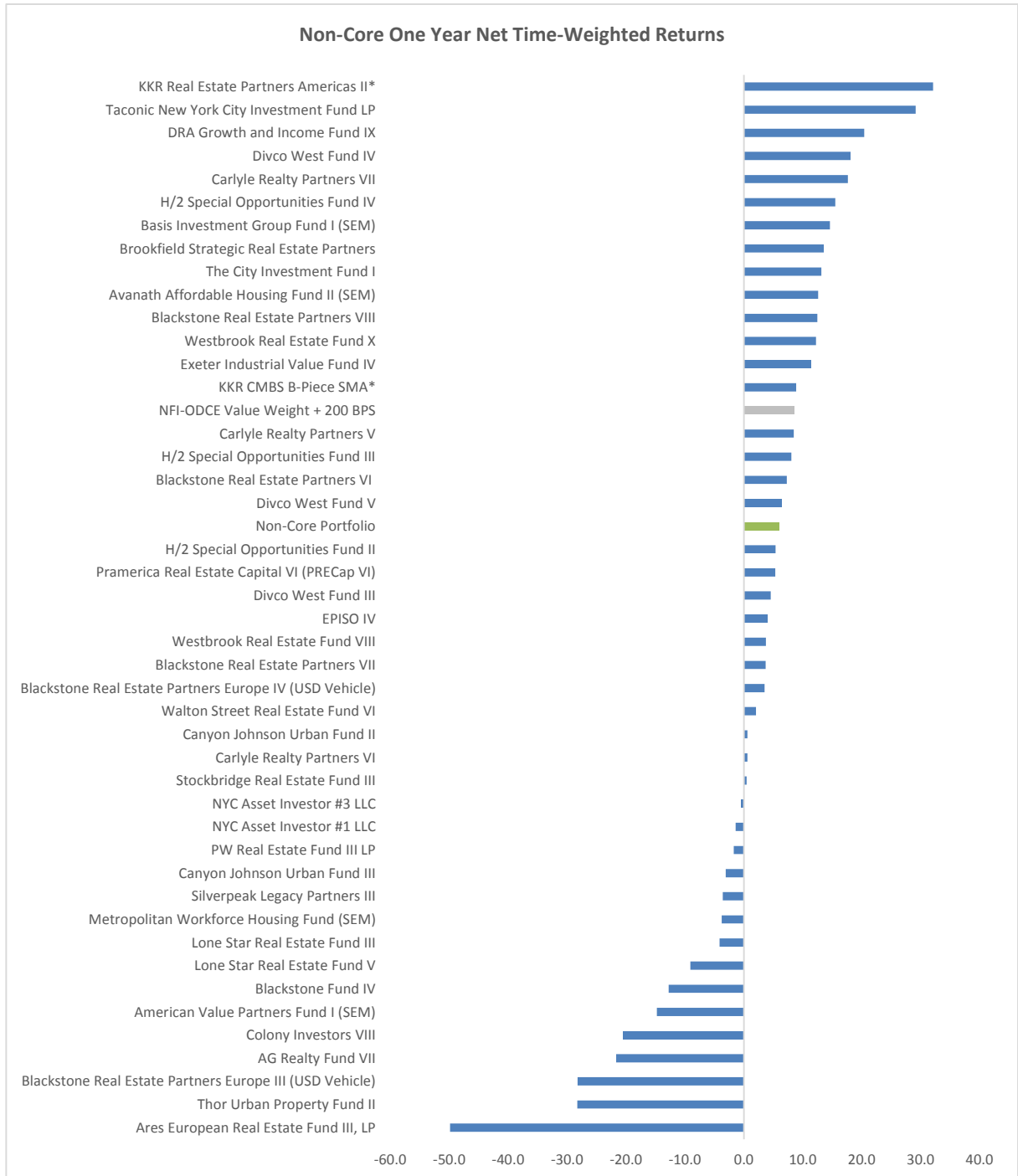
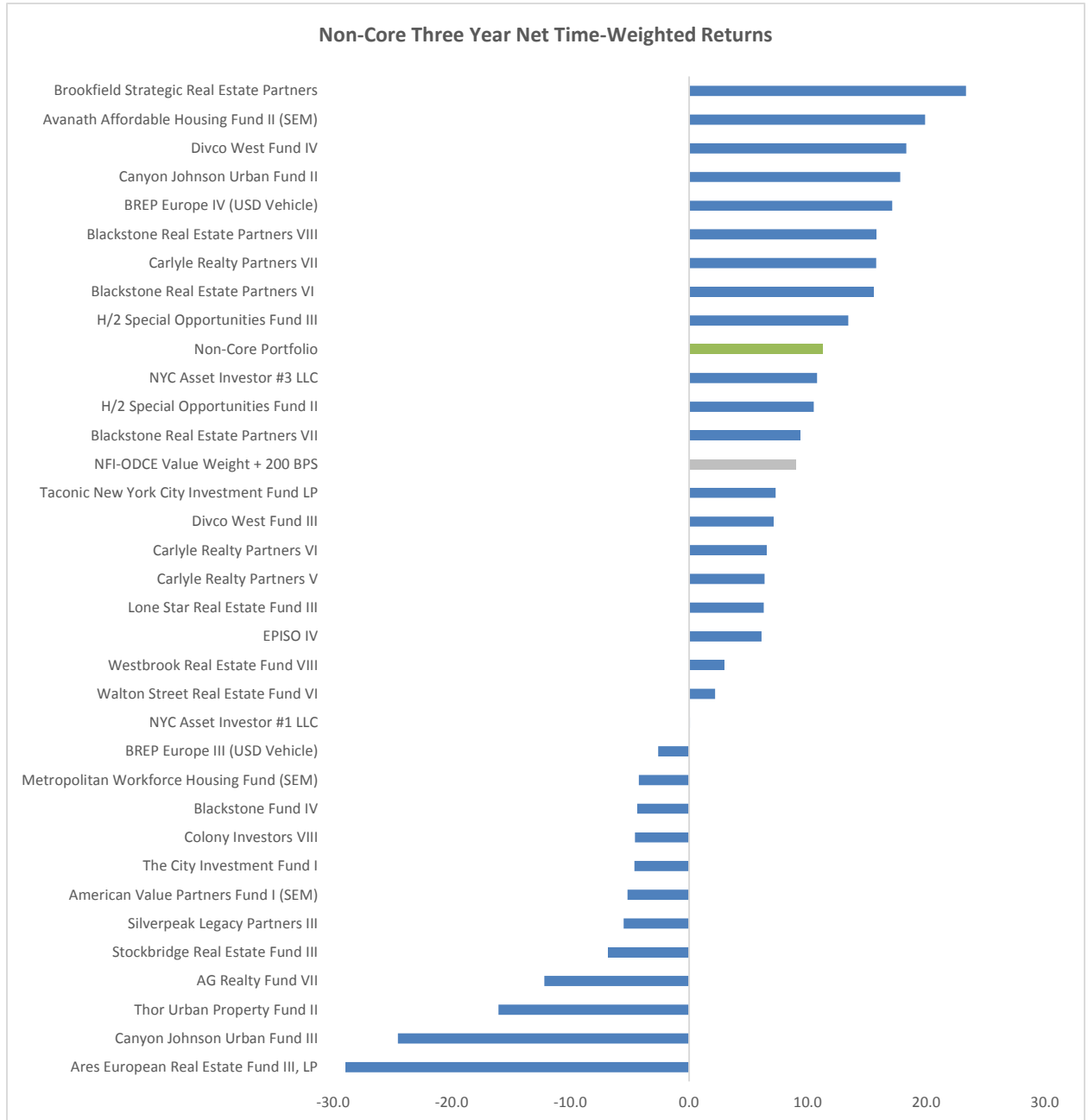


EXHIBIT C : NON-CORE PERFORMANCE SUMMARY



Infrastructure Quarterly Report (Public):



Infrastructure Monitoring Report

For the period ended March 31, 2019

Report Prepared For:

New York City Fire Pension Fund, Subchapter 2



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All data is as of March 31, 2019 unless otherwise noted.

PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. ACTUAL PERFORMANCE MAY VARY.

I. Executive Summary

The New York City Fire Pension Fund, Subchapter 2 (“NYCFPF”) established the Infrastructure Program (the “Program”) in December of 2012 on behalf of its beneficiaries to participate in attractive long-term investment opportunities and to provide diversification to its overall pension investment portfolio.

The inclusion of infrastructure in the NYCFPF pension portfolio allows for global investments in facilities or assets that provide core essential services critical to the operation and development of economies. Typically infrastructure investments have high barriers to entry due to significant capital expenditure requirements, exclusive long term contracts or regulatory requirements. Infrastructure investments are comprised of long useful-life assets with high tangible value and relatively low value erosion over time.

The Program seeks to invest in opportunities in a variety of infrastructure sectors, including but not limited to, transportation, energy, power, utilities, water, wastewater, communications and social infrastructure.

StepStone Group LP (“StepStone”) was engaged by NYCFPF on October 20, 2014 to provide infrastructure advisory services for prospective investment opportunities and monitoring and reporting services for existing and new investments.

Since inception through March 31, 2019, the Program has committed US\$258.3 million to 18 partnership investments (the “Portfolio”). This quarterly monitoring report covers the performance of the Portfolio as of March 31, 2019 as well as significant activity that occurred during the first quarter of 2019.

Allocation Summary

NYCFPF has an Infrastructure allocation target of 2% of total pension assets. As of March 31, 2019, the market value of NYCFPF Infrastructure Program represented approximately 0.9% of total pension assets, a nine-basis point increase from the prior quarter.

As the Program matures, the percentage of its market value relative to the total NYCFPF pension assets will continue to increase.

US\$ in millions*	March 31, 2019	December 31, 2018	March 31, 2018	Quarterly Change	Yearly Change
Total Pension Assets*	\$13,746.0	\$12,853.0	\$13,302.0	\$893.0	\$444.0
Total Infrastructure Assets	\$120.8	\$101.5	\$64.3	\$19.3	\$56.6
% Allocation to Infrastructure (Target of 2%)	0.9%	0.8%	0.5%	+9 bps	+40 bps

*NYCFPF total Pension Assets are as of quarter-end (or, if not yet available, the most recent month-end prior to quarter-end) as reported by The New York City Comptroller's Office on www.comptroller.nyc.gov

Performance Summary

As of March 31, 2019, the Infrastructure Program has achieved a Total Value to Paid-In multiple of 1.2x invested capital and an IRR of 13.0%. Note that, given the relative immaturity of the Portfolio and underlying fund investments, the current performance to-date is not meaningful.

US\$ in millions*	March 31, 2019	December 31, 2018	March 31, 2018	Quarterly Change	Yearly Change
Number of Managers	10	10	10	0	0
Number of Investments	18	16	13	2	5
Committed Capital ¹	\$258.4	\$217.9	\$179.6	\$40.5	\$78.8
Contributed Capital	\$116.2	\$98.9	\$62.2	\$17.2	\$53.9
Distributed Capital	\$19.1	\$17.1	\$11.6	\$2.0	\$7.5
Market Value	\$120.8	\$101.5	\$64.3	\$19.3	\$56.6
Total Value	\$139.9	\$118.6	\$75.9	\$21.3	\$64.0
Total Gain/(Loss)	\$23.7	\$19.7	\$13.6	\$4.1	\$10.1
Unfunded Commitment	\$151.7	\$128.1	\$123.3	\$23.6	\$28.4
Exposure ²	\$272.5	\$229.6	\$187.5	\$42.9	\$85.0
DPI ³	0.2x	0.2x	0.2x	0.0x	0.0x
TVPI ⁴	1.2x	1.2x	1.2x	0.0x	0.0x
IRR ⁵	13.0%	12.6%	13.6%	0.4%	-0.6%
TVPI Net of StepStone Fees ⁶	1.2x	1.2x	1.2x	0.0x	0.0x
IRR Net of StepStone Fees ⁶	12.9%	12.5%	13.5%	0.4%	-0.6%

* Note that amounts may not total due to rounding. **Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.**

¹ Committed Capital is presented net of any commitment releases or expirations and reflects foreign currency exchange rate fluctuations. Note that the Base/(US\$) committed capital for foreign currency-denominated investments as of respective quarter-end dates is calculated as follows: (total net amount funded in Base currency) + (unfunded commitment in Local currency * quarter-end exchange rate). StepStone utilizes S&P Capital IQ as the source for quarter-end exchange rates to calculate committed capital.

² Exposure represents the sum of Market Value and Unfunded Commitment.

³ DPI, or Distributed to Paid-In Multiple, is a performance metric that measures distributions received relative to capital invested. DPI is calculated as Distributed Capital divided by Contributed Capital.

⁴ TVPI, or Total Value to Paid-In Multiple, is a performance metric that measures total value created by the Portfolio relative to capital invested, without consideration for time. TVPI is calculated as Total Value, which is comprised of Market Value plus Distributed Capital, divided by Contributed Capital.

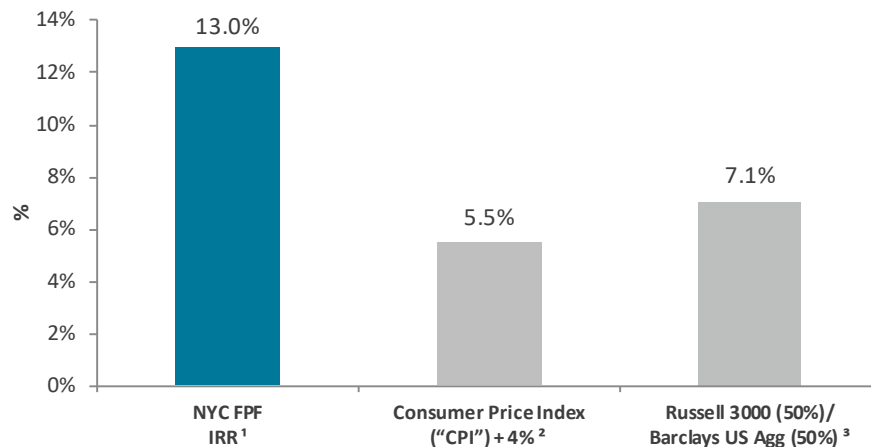
⁵ IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of fund managers' fees, expenses and carried interest.

⁶ TVPI and IRR Net of StepStone fees represent TVPI and IRR net of fees paid by NYCFPF to StepStone through the quarter-end date.

Portfolio Performance vs. Benchmarks

The performance benchmark for the Infrastructure Portfolio is to meet or exceed the Consumer Price Index ("CPI") plus 4% net of fees over a rolling 5-year period. The Infrastructure Portfolio's performance is also measured against a dollar-weighted public benchmark, which produced the return that would have been earned if NYCFPF's infrastructure cash flows were invested in an index of 50% Russell 3000® and 50% Barclays U.S. Aggregate®. The Infrastructure Portfolio is expected to generate a total return, net of investment management fees, of at least 6.5%.

The following graph illustrates Portfolio IRR performance versus benchmarks as of March 31, 2019.



¹NYCFPF since inception Internal Rate of Return ("IRR") is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of fund managers' fees, expenses and carried interest. **Past performance is not necessarily indicative of future results.**

²Consumer Price Index ("CPI") benchmark represents the compound annual growth rate of the Consumer Price Index for All Urban Consumers and All Items, as provided by the U.S. Department of Labor: Bureau of Labor Statistics, calculated over a five-year rolling period plus a 4.0% premium.

³ Benchmark is a dollar-weighted PME+ calculation of daily changes in 50% of the Russell 3000® Index and 50% of the Barclays U.S. Aggregate® Index. These index comparisons are being provided solely for informational purposes as an indication of returns that could be earned by investors by making similar investments in the indexes and should not be relied upon for any purpose. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

Portfolio Diversification

The Program's objective is to build a Portfolio that is diversified by investment strategy, asset type, and geography. The target investment strategy ranges are as follows:

- Core Infrastructure Investments: 60% to 100%; and
- Non-Core Infrastructure Investments: 0% to 40%.

Actual percentages may differ substantially from these targets during the initial years of the Program. The following table illustrates the current diversification of the Portfolio by fund strategy, geography and industry focus.

As of March 31, 2019. (US\$ In millions)	Market Value		Unfunded Commitment		Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
By Strategy:						
Core	102.6	84.9%	143.2	94.4%	245.8	90.2%
Non-Core	18.2	15.1%	8.5	5.6%	26.7	9.8%
Total	120.8	100.0%	151.7	100.0%	272.5	100.0%
By Geographic Focus:						
Global	42.7	35.3%	21.8	14.4%	64.5	23.7%
North America	20.7	17.1%	16.1	10.6%	36.8	13.5%
OECD	57.5	47.6%	113.8	75.0%	171.3	62.8%
Total	120.8	100.0%	151.7	100.0%	272.5	100.0%
By Industry Focus:						
Diversified	103.8	85.9%	108.8	71.7%	212.5	78.0%
Energy	17.1	14.1%	42.9	28.3%	60.0	22.0%
Total	120.8	100.0%	151.7	100.0%	272.5	100.0%

II. Infrastructure Market Overview

Market Update¹

During the first quarter of 2019, the North American market faced increasing volatility, as concerns around the U.S.-China trade dispute and Brexit continued to cast uncertainty on the economic outlook. While the U.S. equity market regained some ground from the weak end to 2018, North American Central Banks have remained cautious as economic indicators signal the continuous need for expansionary policies. The Federal Reserve is expected to have no rate hikes this year and the Bank of Canada is also slowing the pace of rate hikes in 2019. Against this economic backdrop, infrastructure funds continue to demonstrate strong appetite for North American midstream, telecom, and renewable assets. Multiple significant midstream transactions were announced in Q1 2019. Blackstone acquired Tallgrass Energy (100% GP interest, 44% economic interest) for US\$3.3 billion in equity. The transaction implies an acquisition multiple of 14.2x EBITDA. Also in the midstream sector, EQM Midstream Partners acquired Hornet Midstream from Morgan Stanley (North Haven Infrastructure Partners) for US\$1.03 billion and Blackstone acquired a 45% interest in Targa Badlands, a crude oil and natural gas gathering and storage business in North Dakota, from Targa Resources for US\$1.6 billion. In the telecom space, Brookfield's US\$1.1 billion acquisition of AT&T data centres reached financial close. Additionally, based on public news sources, a consortium comprising Digital Colony and EQT are reportedly in negotiations to acquire Zayo Corporation, a publicly listed US telecommunications provider with an enterprise value of US\$13.4 billion. The renewable sector remained active with several large-scale brownfield transactions announced: American Electric Power and KKR led the way with acquisitions of Sempra Energy's 2.0GW wind portfolio and NextEra's 1.2GW operating renewable portfolio, respectively.

In Europe, M&A activity in the European transport sector was robust during the first quarter of 2019. In the airports sub-sector, APG, QIC and Swiss Life acquired a 36% stake in Brussels Airport from Macquarie. In the car parking sub-sector, MEAG and Mirova acquired a 49.2% interest in Indigo, a France-based car park operator, from Ardan. Also in the car parking sub-sector, Sumitomo, a Japanese conglomerate, acquired Q-Park's Nordic assets from KKR. In the ports sub-sector, a consortium led by Monaco Resources, acquired a 100% interest in Euroports from Antin, Brookfield and Arcus, with the transaction implying an acquisition multiple of 11.4x EBITDA. Also in the ports sub-sector, PSA International, the Polish Development Fund and IFM acquired a 100% interest in DCT Gdansk, the largest container terminal in Poland, from Macquarie Infrastructure and Real Assets, MTAA Super, AustralianSuper and Statewide Super. No financial information on the deal was disclosed, however based on public news sources, the deal transacted in the range of 16-18x EBITDA. In the telecommunications sector, Basalt Infrastructure Partners acquired Manx-Telecom, a provider of fixed line, broadband, mobile and data services to customers and businesses on the Isle of Man, in the UK. The transaction values Manx-Telecom at 11.7x EBITDA. Also in the telecommunications sector, Mirova acquired a 49% interest in Axione, a French telecom infrastructure operator. In the utilities sector, German energy group Uniper agreed to sell a 48.2% stake in the Offshore LNG Toscana project to First State for €400 million. Ontario Teachers' Pension Plan agreed to sell its 50% stake in InterGen to Sev.en Energy. InterGen owns a total installed capacity of 4,000MW across its CCGT plants in the UK, and two coal-fired power stations in Australia. In the renewables sector, Macquarie agreed to acquire a portfolio of geothermal and hydro projects in Iceland from Canadian developer Innergex Renewable Energy in a transaction that valued the assets at an acquisition multiple of 12.7x EBITDA. In the wind sub-sector, Greencoat UK Wind and HSBC UK Pension Scheme agreed to buy a 49.9% stake in two Scottish wind farms from SSE for £635 million. SSE holds the remaining 50.1% and will continue to operate both assets.

In Latin America, transaction activity over the quarter was robust in the power and renewables sectors, and predominantly in greenfield projects. The largest transaction closing over the quarter consisted of the financial close of Gás Natural Açú ("GNA")'s Porto de Açú project, an LNG-to-power plant in Brazil. GNA is a joint venture formed by Prumo Logística, BP, and

¹ Data used in this section is Q1 2019 data from InfraNews and Preqin.

Siemens. The gas-fired power plant will have a capacity of 1.3GW and is expected to begin commercial operations in 2021. Total construction cost is expected to be US\$1.2 billion. Greenfield activity was also strong in the renewables sector, particularly in Mexico due to its energy auctions of power purchase agreements. Such projects reaching financial close during the quarter include: two 150MW solar energy projects in Zacatecas with equity sponsor Helios Generación (a joint venture between Fomento a la Energía e Infraestructura de México 2 and Pattern Energy Group), requiring capex of US\$370 million; a 220MW wind farm in Puebla with equity sponsor Iberdola S.A. requiring capex of US\$225 million; a 90MW solar power project in Sonora with equity sponsor EDF Renewables requiring capex of US\$115 million. Within the transport sector, Brookfield Infrastructure sold a 33% stake of its Chilean highway concessions, Vespucio Norte and Túnel San Cristóbal, to Chilean infrastructure fund Frontal Trust Infraestructura Alpha Fondo de Inversión for a reported US\$330 million.

In Australia, there were a number of notable transactions that occurred during the quarter across various sectors. In renewables, Tilt Renewables acquired the Liverpool Range Wind Farm project from Epuron. The greenfield project is in pre-construction phase and has received development approval for up to 267 turbines. Upon completion, the project is anticipated to have a total capacity of ~1,000MW, which would make it the largest wind farm in Australia. Elsewhere in the energy sector, QIC-owned Lochard Energy acquired the Heytesbury depleted gas reservoir assets from Origin Energy. The assets are located near Lochard Energy's Iona gas storage facility and have potential to be developed for incremental gas storage for Iona. In telecommunications, Brookfield acquired two data centres from Blackstone's portfolio company DCI for A\$253 million. The two data centres are located in Sydney and Adelaide. The transaction implies an acquisition multiple of ~12.6x EBITDA. In ports, Gateway Infrastructure Investments (managed by Corsair Infrastructure Partners) divested its 37.5% interest in DP World Australia to DP World. In social infrastructure, AMP Capital's Community Infrastructure Fund ("CommIF") acquired a 50% interest in the Optus Stadium from John Laing. The 60,000-seat stadium is located in Perth and is owned under an availability PPP expiring in 2039.

III. Portfolio Review

Quarterly Highlights

- **New Investment Commitment** – During the first quarter of 2019, the Program closed on two new investments totaling US\$40.4 million. This is shown in the table below.

US\$ in millions

Investment	Month and Year Closed	Vintage Year	Strategy	Geographic Focus	Industry Focus	Committed Capital
ARDIAN Infrastructure Fund V B S.C.S., SICAV-RAIF	March 2019	2019	Infrastructure	OECD	Diversified	\$15.7
Global Infrastructure Partners IV, L.P.	March 2019	2019	Infrastructure	OECD	Diversified	24.7
Total						\$40.4

- **Subsequent Investment Commitments** – Subsequent to quarter-end, the Program closed on one new investment commitment totaling US\$21.0 million. This is shown in the table below.

US\$ in millions

Investment	Month and Year Closed	Vintage Year	Strategy	Geographic Focus	Industry Focus	Committed Capital
Brookfield Infrastructure Fund IV, L.P.	May 2019	2019	Infrastructure	Global	Diversified	\$21.0
Total						\$21.0

- **Cash Outflow Increased** – During the first quarter of 2019, the Program made US\$17.2 million of contributions and received US\$2.0 million of distributions, for a net cash outflow of US\$15.3 million. This compared to a net cash outflow of US\$12.5 million during the prior quarter.
- **Valuation Increased** – During the first quarter of 2019, net of cash flow activity, the valuation of the Portfolio increased by approximately US\$4.1 million, or 3.5%, from the prior quarter. The valuation increase primarily reflects the increase in value of underlying investments in Global Infrastructure Partners III, L.P.
- **New Underlying Fund Investments** – During the first quarter of 2019, seven new investment positions were added to the Portfolio.

US\$ in millions

Company	Fund(s)	Investment Date	Stage	Industry	Country	Exposed Invested Capital	Exposed Market Value	TVM
SemCAMS Midstream ULC	KKR Global Infrastructure Investors III L.P.	Feb-19	Private	Midstream	Canada	1.3	1.3	1.0x
Indian Gas Pipeline Business	Brookfield Infrastructure Fund III, L.P.	Mar-19	Private	Midstream	India	1.1	1.1	1.0x
Kodiak Gas Services	EQT Infrastructure III (No.2) SCSp	Feb-19	Private	Midstream	United States	1.0	1.0	1.0x
Axiom Aurora Solar	Axiom Infrastructure Canada II (Intl) L.P.	Feb-19	Private	Renewables	Canada	0.4	0.4	1.0x
Asia Pacific Data Center Business	Brookfield Infrastructure Fund III, L.P.	Jan-19	Private	Telecom	Australia	0.2	0.3	1.0x
Altavair Aircraft Leasing	KKR Global Infrastructure Investors III L.P.	Feb-19	Private	Transportation	Ireland	0.1	0.1	1.0x
Blue Racer Midstream	NYCRS EIG Energy Partners, L.P.	Feb-19	Private	Midstream	United States	0.1	0.1	1.1x

- **Company Exits** – During the first quarter of 2019, one investment position exited the Portfolio.

US\$ in millions

Company	Fund(s)	Investment Date	Exit Date	Stage	Industry	Country	Invested Capital	Total Value	TVM
Dominion Midstream Partners	Global Energy & Power Infrastructure Fund II	Dec-16	Feb-19	Public	Midstream	United States	0.2	0.3	1.2x

Performance by Vintage Year

The following table illustrates the Portfolio's since-inception investment performance by vintage year as of March 31, 2019. Note that the performance of funds that are less than two years old is not meaningful.

As of March 31, 2019 (US\$ in millions)

Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/ (Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
2013	\$15.0	\$12.3	\$3.4	\$14.9	\$18.3	\$6.0	\$3.4	\$18.3	0.3x	1.5x	12.4%
2014	32.0	33.3	11.4	33.5	44.9	11.6	4.0	37.5	0.3x	1.3x	14.8%
2016	53.9	32.5	2.7	33.9	36.6	4.1	23.7	57.6	0.1x	1.1x	10.2%
2017	56.8	34.7	1.5	35.5	37.1	2.3	23.1	58.7	0.0x	1.1x	14.5%
2018	40.3	3.3	-	3.1	3.1	-	37.0	40.2	NM	NM	NM
2019	60.4	0.0	-	-	-	-	60.4	60.3	NM	NM	NM
Total	\$258.4	\$116.2	\$19.1	\$120.8	\$139.9	\$23.7	\$151.7	\$272.5	0.2x	1.2x	13.0%

Performance by Strategy and Industry Focus

The following table illustrates the Portfolio's since-inception investment performance by strategy and industry focus as of March 31, 2019.

As of March 31, 2019 (US\$ in millions)

Strategy/Industry	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/ (Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
Core	\$234.2	\$99.1	\$17.6	\$102.6	\$120.2	\$21.1	\$143.2	\$245.8	0.2x	1.2x	12.5%
Diversified	187.9	87.5	12.4	92.6	104.9	17.4	107.4	200.0	0.1x	1.2x	11.1%
Energy	46.3	11.6	5.2	10.1	15.3	3.7	35.8	45.8	0.5x	1.3x	32.0%
Non-Core	24.2	17.1	1.5	18.2	19.7	2.6	8.5	26.7	0.1x	1.1x	18.9%
Diversified	11.3	10.3	0.5	11.2	11.7	1.4	1.3	12.5	0.0x	1.1x	19.2%
Energy	12.9	6.7	1.0	7.0	8.0	1.3	7.2	14.2	0.1x	1.2x	18.6%
Total	\$258.4	\$116.2	\$19.1	\$120.8	\$139.9	\$23.7	\$151.7	\$272.5	0.2x	1.2x	13.0%

Performance by Geographic Focus

The following table and charts illustrate the Portfolio's since-inception investment performance by geographic focus as of March 31, 2019.

As of March 31, 2019 (US\$ in millions)

Geographic Focus	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/ (Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
Global	\$58.2	\$38.4	\$5.5	\$42.7	\$48.1	\$9.7	\$21.8	\$64.5	0.1x	1.2x	13.0%
North America	36.4	20.5	0.5	20.7	21.2	0.7	16.1	36.8	0.0x	1.1x	7.8%
OECD	163.8	57.2	13.1	57.5	70.6	13.4	113.8	171.3	0.2x	1.2x	13.3%
Total	\$258.4	\$116.2	\$19.1	\$120.8	\$139.9	\$23.7	\$151.7	\$272.5	0.2x	1.2x	13.0%

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

Portfolio Diversification

By Strategy, Geography and Industry Focus

The Program's objective is to build a Portfolio that is diversified by investment strategy, asset type, and geography. The target investment strategy ranges are as follows:

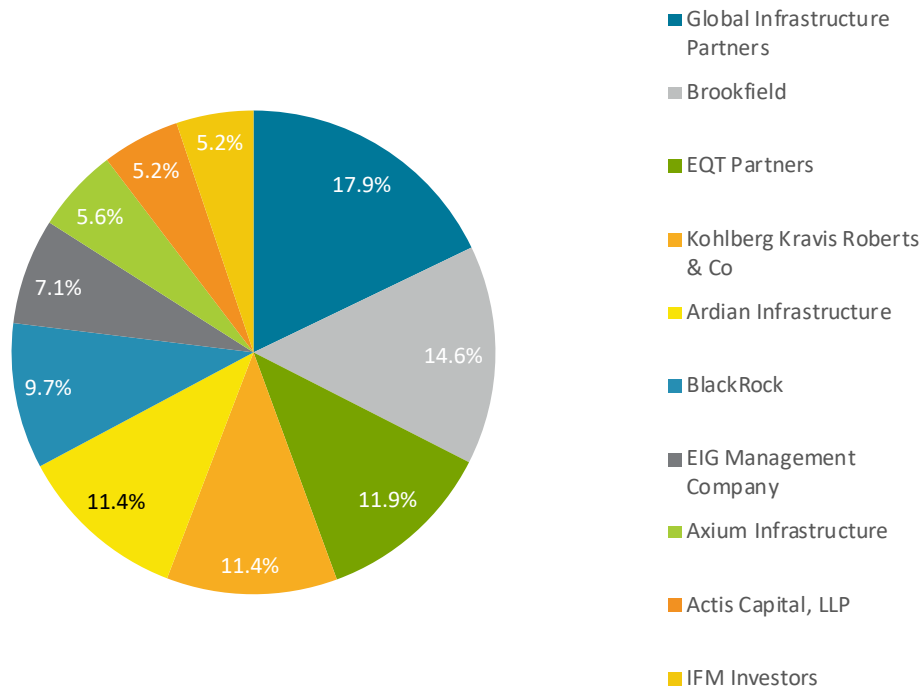
- Core Infrastructure Investments: 60% to 100%; and
- Non-Core Infrastructure Investments: 0% to 40%.

Actual percentages may differ substantially from these targets during the initial years of the Program. The following table illustrates the current diversification of the Portfolio by fund strategy, geography and industry focus.

	Market Value		Unfunded Commitment		Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
<i>As of March 31, 2019. (US\$ In millions)</i>						
By Strategy:						
Core	102.6	84.9%	143.2	94.4%	245.8	90.2%
Non-Core	18.2	15.1%	8.5	5.6%	26.7	9.8%
Total	120.8	100.0%	151.7	100.0%	272.5	100.0%
By Geographic Focus:						
Global	42.7	35.3%	21.8	14.4%	64.5	23.7%
North America	20.7	17.1%	16.1	10.6%	36.8	13.5%
OECD	57.5	47.6%	113.8	75.0%	171.3	62.8%
Total	120.8	100.0%	151.7	100.0%	272.5	100.0%
By Industry Focus:						
Diversified	103.8	85.9%	108.8	71.7%	212.5	78.0%
Energy	17.1	14.1%	42.9	28.3%	60.0	22.0%
Total	120.8	100.0%	151.7	100.0%	272.5	100.0%

By Investment Manager

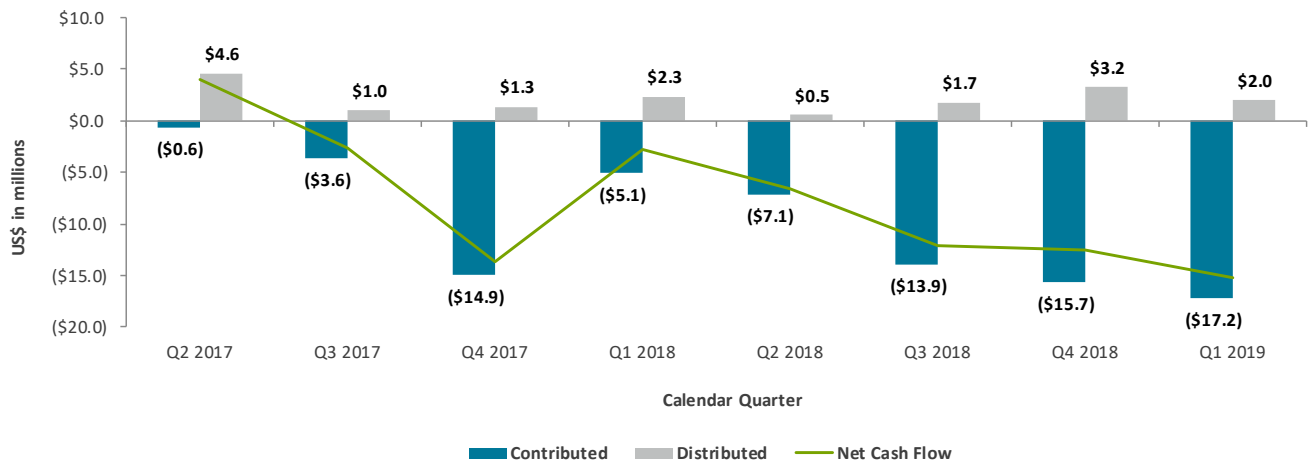
As of March 31, 2019, the Program had made 18 investment commitments to ten managers. NYCFPF seeks to limit its exposure to any single manager to no more than 10% of the total Real Assets Program when fully invested. As the Program matures and closes on additional commitments, the single manager exposure is expected to decline significantly. Below is the Portfolio's current exposure by manager.



Portfolio Cash Flow Analysis

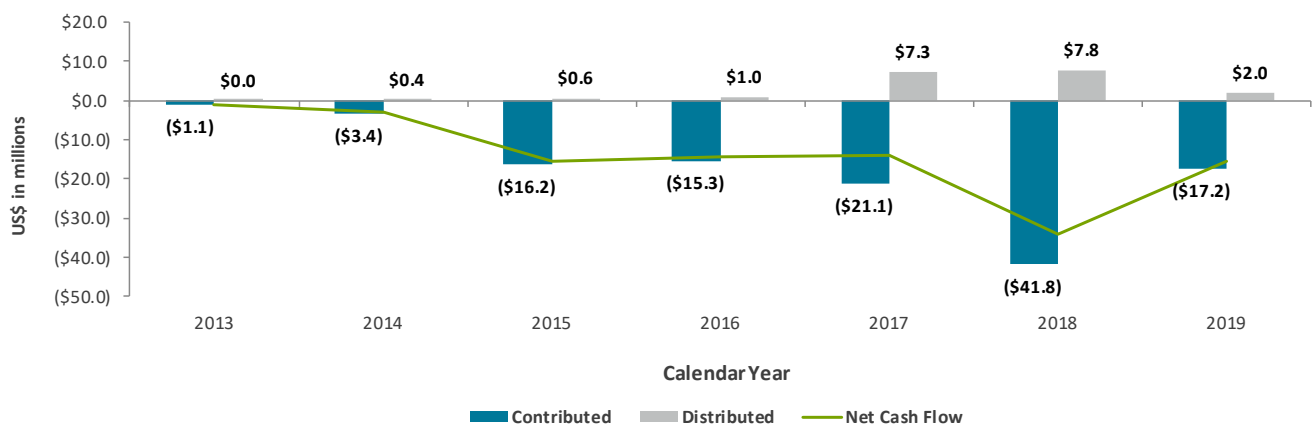
Quarterly Cash Flow Activity

During the first quarter of 2019, the Program made US\$17.2 million of contributions and received US\$2.0 million of distributions, for a net cash outflow of US\$15.3 million. As of March 31, 2019, 15 fund investments in the Portfolio had cash flow activity. As the Program's commitment and investment activity increases, net cash outflow is expected to increase. The graph below illustrates cash flow activity since inception by calendar quarter.



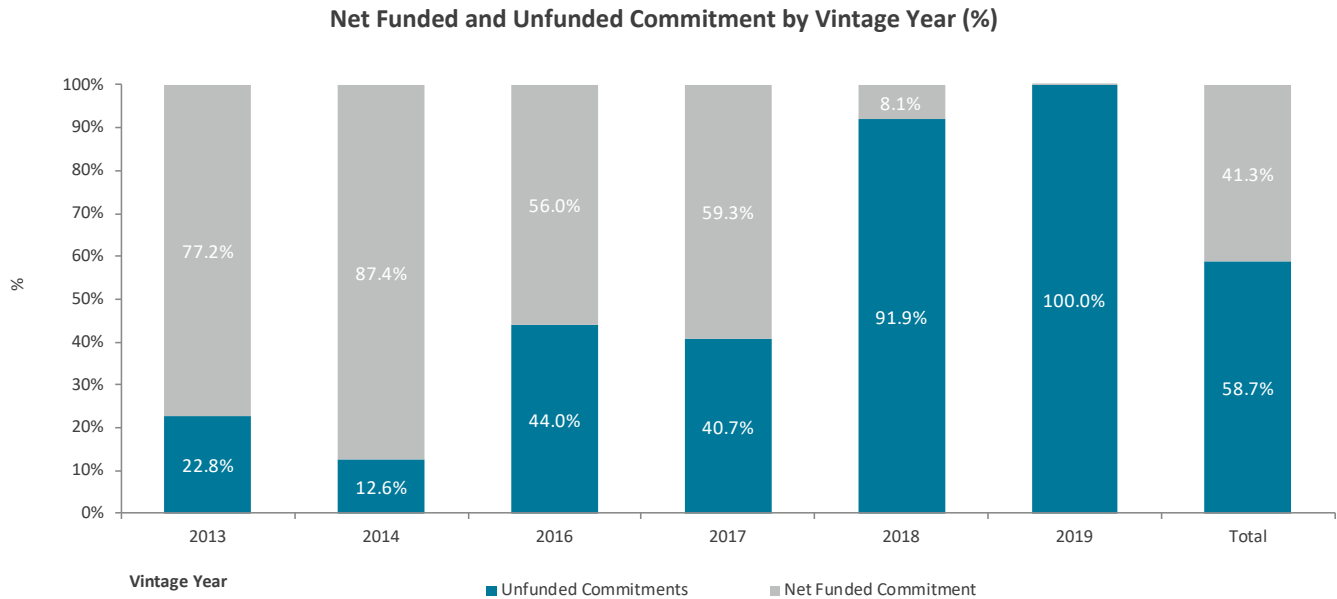
Annual Cash Flow Activity

During 2019, the Program made US\$17.2 million of contributions and received US\$2.0 million of distributions, for a net cash outflow of US\$15.3 million. The graph below illustrates cash flow activity since inception by calendar year.

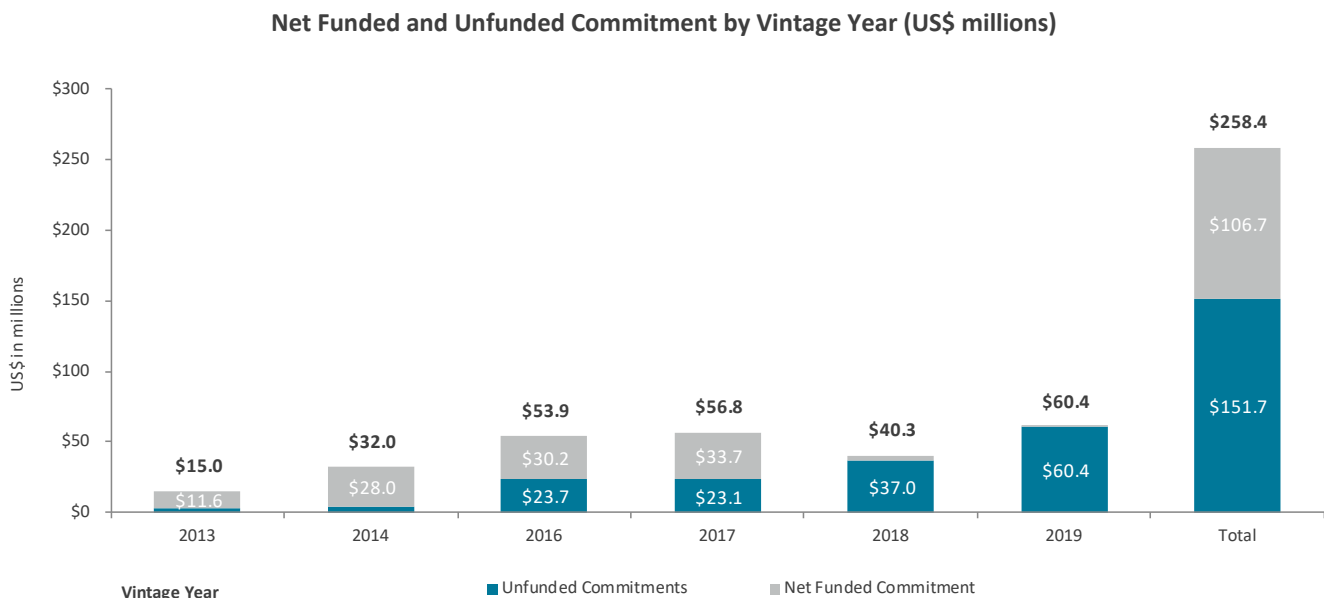


Net Funded and Unfunded Commitments by Vintage Year

The following chart illustrates the Portfolio's net funded commitments (defined as total contributions inside commitment less any returns of excess capital and callable distributions) as a percentage of total capital commitments, by fund vintage year, as of March 31, 2019. Overall, the Portfolio was 58.7% unfunded as of quarter-end.



The following chart illustrates the Portfolio's net funded commitments relative to total capital commitments, by fund vintage year, as of March 31, 2019. Overall, the Portfolio had US\$151.7 million of unfunded commitments as of quarter-end.

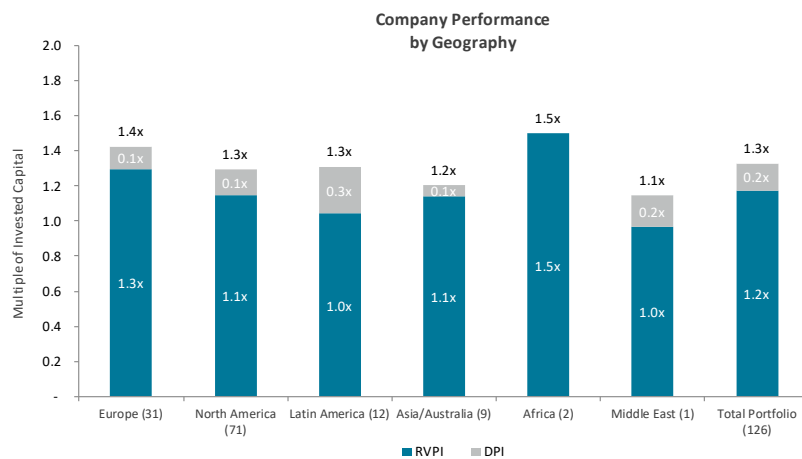
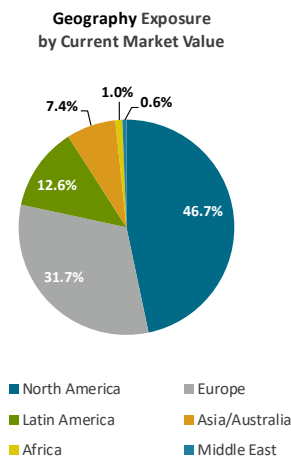


Portfolio Company-Level Analysis

As of quarter-end, the Portfolio had exposure to 125 unique unrealized portfolio companies/investment positions. As the Portfolio matures, the number of unique portfolio companies/investment positions is expected to increase significantly. On the individual fund level, all current investments are within the single investment limitation of 15% of total fund size. The Program's individual portfolio investment exposure is relatively concentrated as a result of the relative immaturity of the Program.

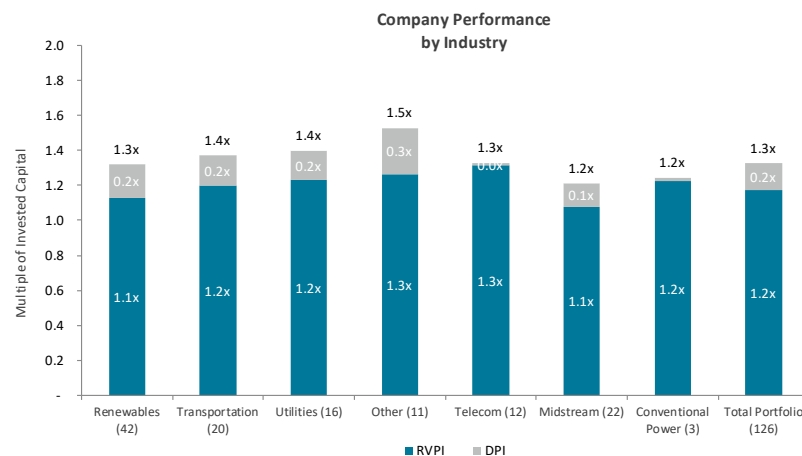
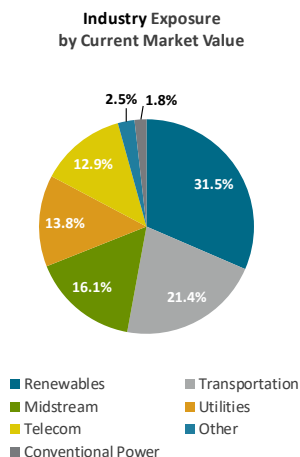
Geographic Exposure and Performance

The following charts illustrate the Portfolio's current exposure and performance by geographic region at the portfolio company level.



Industry Exposure and Performance

The following charts illustrate the Portfolio's current exposure and performance by industry at the portfolio company level.

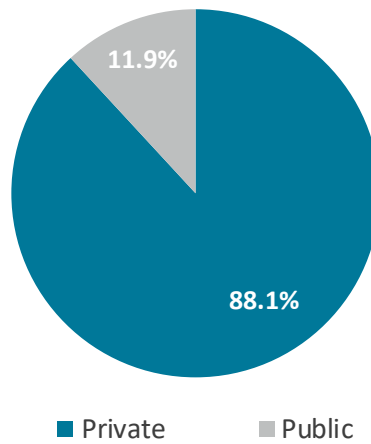


*Multiples may not add to total multiple due to rounding.

Public Market Exposure

As of quarter-end, publicly traded investments comprised 11.9% of the Portfolio’s exposed market value. The following chart illustrates the current public market exposure at the portfolio company level.

Public Market Exposure Current Market Value



IV. Risk Management Matrix

Category	Requirement	Status	Status Notes
Allocation	NYCFPF has an Infrastructure allocation target of 2% of total pension assets.	✓	<p>The market value of NYCFPF Infrastructure Program represents approximately 0.9% of total pension assets.</p> <p>As the Program matures, its market value as a percentage of the total NYCFPF pension assets and the total Infrastructure Program is expected to increase.</p>
Performance vs. Benchmarks	<p>The performance benchmark for the Infrastructure Portfolio is to meet or exceed: (i) The Consumer Price Index ("CPI") plus 4% net of fees over a rolling 5-year period and (ii) A dollar-weighted PME+ ("PME") calculation of daily changes in 50% of the Russell 3000® Index and 50% of the Barclays U.S. Aggregate® Index.</p> <p>The Infrastructure Portfolio is expected to generate a total return, net of investment management fees, of at least 6.5%.</p>	✓	<p>As of March 31, 2019, the Portfolio outperformed the CPI and PME benchmark by 7.5% and 5.9%, respectively.</p> <p>However, given the relative immaturity of the Portfolio, the current performance to-date versus benchmarks is not meaningful.</p>
Strategy Diversification	<p>Core Infrastructure Investments: 60-100% Non-Core Infrastructure Investments: 0-40%</p> <p>Actual percentages may differ substantially from these targets during the initial years of the Program.</p>	✓	The Program is in compliance with the Core/Non-Core allocation ranges. Currently the Program has 90.2% exposure to Core investments and 9.8% exposure to Non-Core investments.
Asset Type & Location Diversification	The Program will seek diversification by asset type, revenue drivers, and geography. The portfolio may include a variety of assets including but not limited to electricity transmission, pipelines, airports, toll roads, communication towers and electric generators, windmills etc. to vary the sources of revenue to the portfolio.	✓	<p>Given the relative immaturity of the Portfolio, it is not yet diversified by asset type.</p> <p>The asset types and geographic location of current Portfolio investments are in compliance with the Program's Investment Policy Statement and Permissible Markets.</p>
Leverage	The average leverage of all investments in the Program is to be no higher than 65%.	✓	The Program is in compliance with the average leverage limitation. The current leverage level is 35.2% ¹ .
Single Investment Size & Manager Diversification	<p>The maximum commitment to a single investment is limited to no more than 15% of the aggregate committed capital of each fund.</p> <p>The maximum commitment to a single manager is limited to 10% of the total Real Assets Program allocation when fully invested.</p>	✓	<p>On the individual fund level, all current investments are in compliance with the single investment limitation of 15% of total fund size.</p> <p>The Program is in compliance with the single manager limitation of 10% of the total Infrastructure Program.</p> <p>The Program's manager exposure is currently relatively concentrated as a result of the relative immaturity of the Program. Manager diversification is expected to increase as the Program closes on new investment commitments.</p>

¹The Program's leverage level is calculated by using a weighted average of each underlying investment's leverage and Net Asset Value as of March 31, 2019.

New York City Fire Pension Fund, Subchapter 2
Infrastructure Portfolio
As of March 31, 2019

Vintage Year	Investment	Closing Date	Committed Capital	Contributed Capital	Distributed Capital	Market Value	TVPI	IRR
Active Investments:								
2013	Brookfield Infrastructure Fund II, L.P.	7/8/2013	\$15,000,000	\$12,310,820	\$3,393,212	\$14,883,599	1.5x	12.4%
2014	IFM Global Infrastructure Fund	1/2/2014	\$10,000,000	\$13,351,525	\$4,947,488	\$14,052,262	1.4x	12.4%
2014	Global Energy & Power Infrastructure Fund II	4/16/2014	\$10,000,000	\$8,452,511	\$5,145,346	\$6,829,064	1.4x	34.8%
2014	KKR Global Infrastructure Investors II L.P.	6/12/2015	\$12,000,000	\$11,533,928	\$1,357,107	\$12,594,056	1.2x	10.9%
2016	Global Infrastructure Partners III-A/B, L.P.	1/29/2016	\$22,000,000	\$16,708,591	\$1,088,886	\$17,370,776	1.1x	8.0%
2016	Brookfield Infrastructure Fund III, L.P.	4/15/2016	\$19,000,000	\$9,072,494	\$617,449	\$9,539,655	1.1x	9.3%
2016	Actis Energy 4	12/16/2016	\$12,900,000	\$6,736,372	\$993,537	\$7,018,615	1.2x	18.6%
2017	EQT Infrastructure III (No.2) SCSp	2/18/2017	\$11,261,672	\$10,322,722	\$469,013	\$11,208,204	1.1x	19.2%
2017	ASF VII Infrastructure L.P.	4/24/2017	\$15,000,000	\$5,926,547	\$516,598	\$5,764,875	1.1x	27.7%
2017	Axiom Infrastructure North America	8/14/2017	\$15,220,450	\$15,329,350	\$431,409	\$15,323,487	1.0x	7.0%
2017	NYCRS EIG Energy Partners, L.P.	8/14/2017	\$15,300,000	\$3,154,554	\$101,725	\$3,240,019	1.1x	10.6%
2018	NYCRS EIG Energy Partners Co-Investment, L.P.	1/12/2018	\$3,820,000	-	-	-	NM	NM
2018	KKR Global Infrastructure Investors III L.P.	3/29/2018	\$17,200,000	\$1,191,760	-	\$989,730	NM	NM
2018	Global Energy & Power Infrastructure Fund III, L.P.	7/3/2018	\$17,200,000	-	-	-	NM	NM
2018	Cardinal NR Sidecar Holdings L.P.	10/5/2018	\$2,060,000	\$2,060,000	-	\$2,133,040	NM	NM
2019	EQT Infrastructure IV (No.2) USD SCSp	12/20/2018	\$20,000,000	-	-	(\$115,456)	NM	NM
2019	Ardian Infrastructure Fund V B	3/4/2019	\$15,712,588	\$16,108	-	\$14,780	NM	NM
2019	Global Infrastructure Partners IV-A/B, L.P.	3/11/2019	\$24,700,000	-	-	-	NM	NM
Total			\$258,374,711	\$116,167,283	\$19,061,769	\$120,846,704	1.2x	13.0%

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

Risk Quarterly Report (Public):

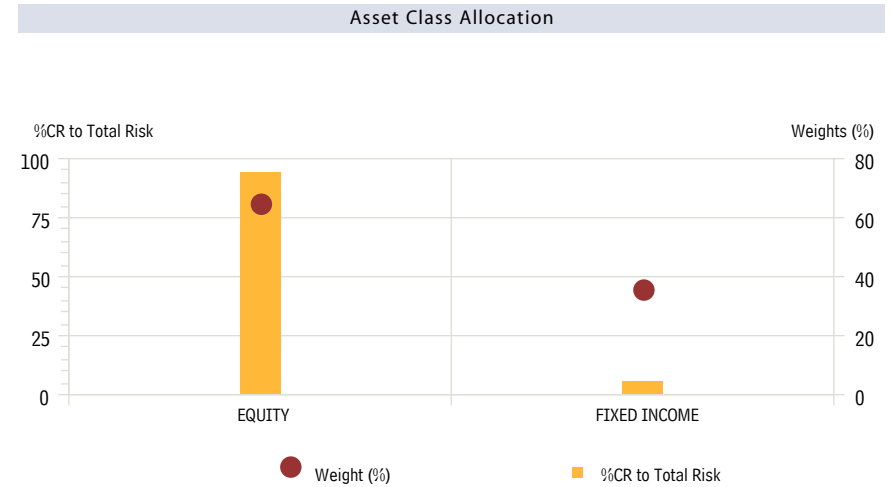
BarraOne Total Plan Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: zTest_FIRE_Total Plan
BENCHMARK: zTest_FIRE_New_Policy
POSITIONS: 10,370

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 13,996,965,670
ACCEPTED: 10,238

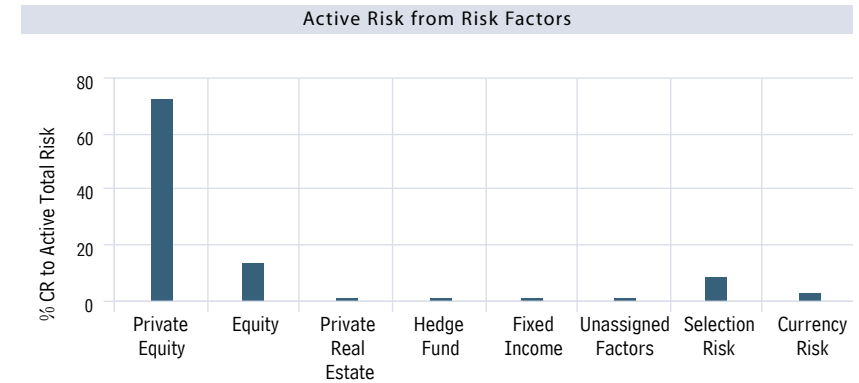
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk				
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution
Total Risk	7.49	Total	13,996,965,670	100.00	7.49	7.49
Benchmark Risk	7.33	EQUITY	9,061,451,097	64.74	11.05	7.09
Active Risk	0.94	FIXED INCOME	4,935,514,573	35.26	2.97	0.40
Portfolio Beta	1.01					
Effective Duration	2.35					



Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	7.49	100.00	1.00	0.94	100.00	1.00
Local Market Risk	7.19	96.06	1.00	0.91	97.14	0.99
Common Factor Risk	7.17	95.72	0.99	0.83	88.17	0.94
Equity	6.68	89.15	0.97	0.13	13.69	0.35
Fixed Income	0.22	2.99	0.21	0.00	0.10	0.01
Hedge Fund	0.00	0.02	0.01	0.01	0.69	0.08
Private Real Estate	0.18	2.38	0.59	0.01	1.10	0.07
Private Equity	0.09	1.14	0.11	0.68	72.52	0.85
Selection Risk	0.03	0.34	0.06	0.08	8.97	0.30
Currency Risk	0.30	3.94	0.40	0.03	2.86	0.18



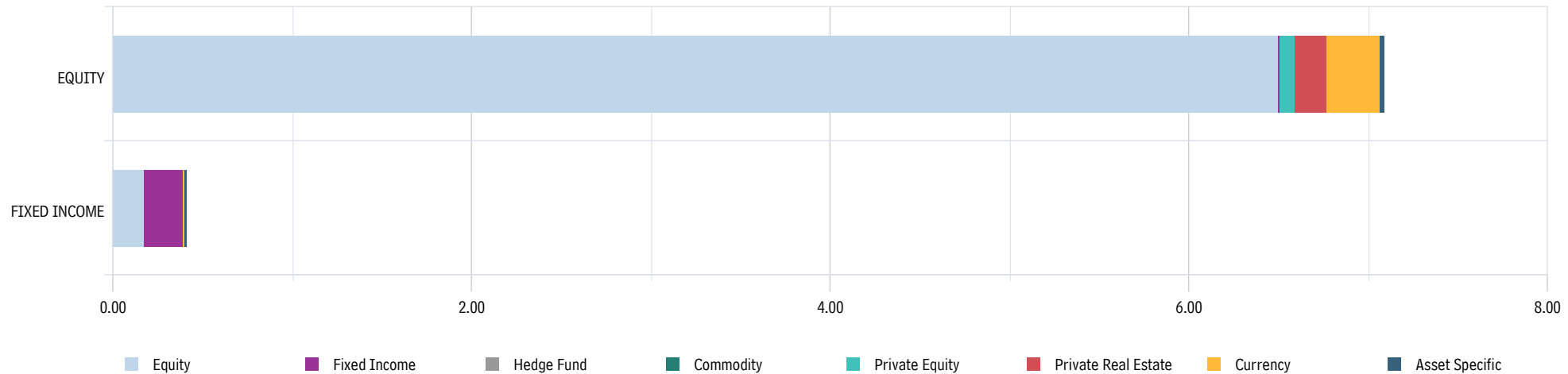
BarraOne Total Plan Summary

COMPANY: NYCRS - Fire Plan
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POSITIONS: 10,370

CURRENCY: USD
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ACCEPTED: 10,238

Risk Contribution Breakdown by Risk Type

Asset Name	Mkt Value	Weight (%)	Eff Weight (%)	Total Risk	%CR to Total Risk	Port Risk Contribution	Risk Contribution							
							Equity	Fixed Income	Hedge Fund	Commodity	Private Real Estate	Private Equity	Currency	Asset Specific
Total	13,996,965,670	100.00	100.00	7.49	100.00	7.49	6.68	0.22	0.00	0.00	0.18	0.09	0.30	0.03
EQUITY	9,061,451,097	64.74	64.74	11.05	94.66	7.09	6.50	0.01	0.00	0.00	0.18	0.09	0.29	0.02
FIXED INCOME	4,935,514,573	35.26	35.26	2.97	5.34	0.40	0.18	0.21	0.00	0.00	0.00	0.00	0.01	0.00



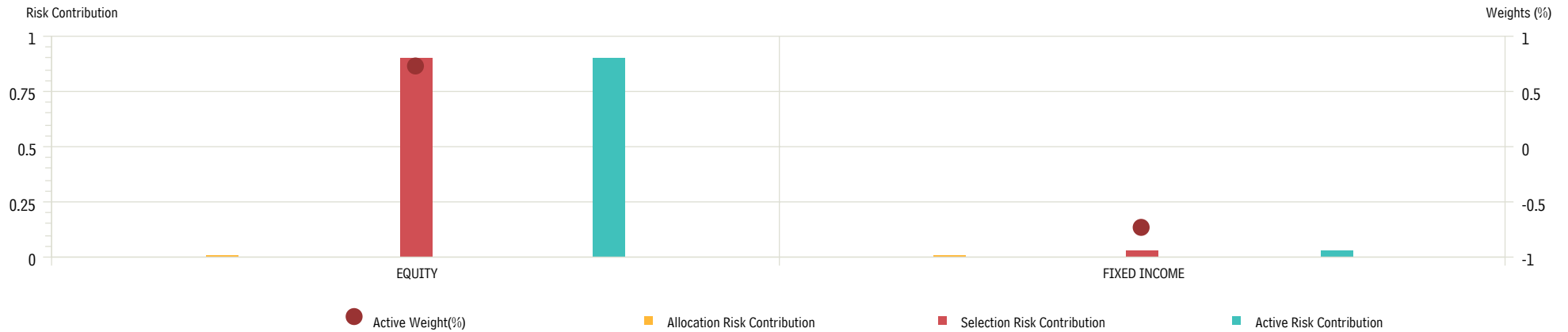
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Allocation Selection

Asset Class	Active Weight(%)	Allocation			Selection			Active
		Volatility	Correlation	Risk Contribution	Volatility	Correlation	Risk Contribution	Risk Contribution
Active Total Risk				0.01			0.93	0.94
EQUITY	0.74	3.79	0.08	0.00	1.42	0.98	0.90	0.91
FIXED INCOME	-0.74	6.75	-0.08	0.00	0.46	0.18	0.03	0.03



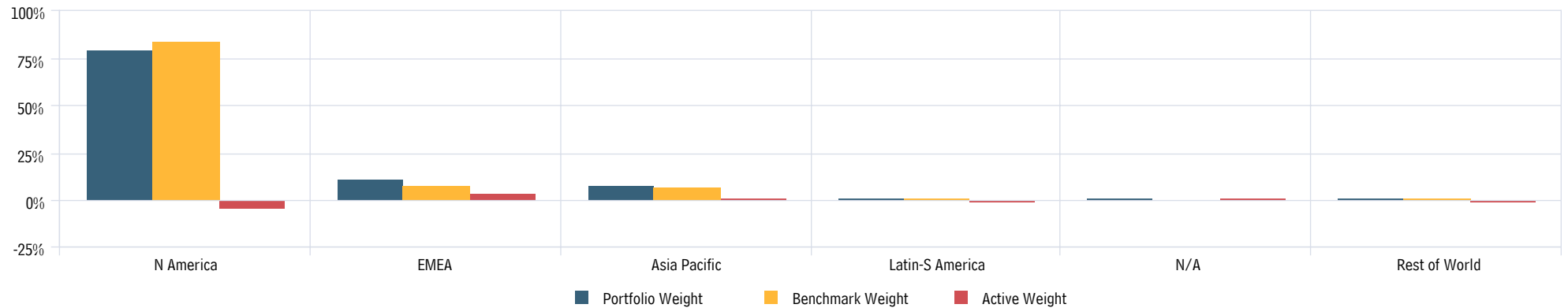
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POSITIONS: 10,370

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Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	7.49	0.94	100.00	0.01
N America	79.35	83.74	-4.39	6.99	0.74	78.77	0.00
EMEA	11.37	7.69	3.68	10.84	0.16	17.13	0.02
Asia Pacific	7.70	7.25	0.46	12.64	0.02	2.59	0.01
Latin-S America	0.84	0.88	-0.04	19.94	0.01	0.91	0.03
N/A	0.40	0.00	0.40	9.36	0.00	0.43	0.01
Rest of World	0.35	0.45	-0.10	6.03	0.00	0.17	-0.00



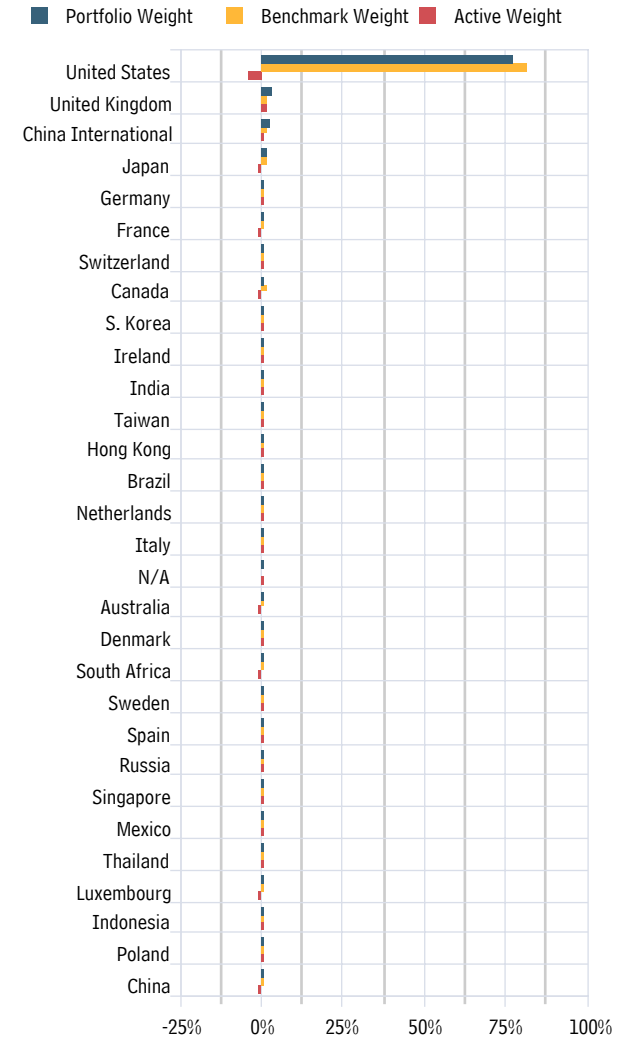
BarraOne Total Plan Summary

COMPANY: NYCRC - Fire Plan
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Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	7.49	0.94	100.00	0.01
United States	77.36	81.75	-4.38	6.92	0.72	76.15	0.00
United Kingdom	3.56	1.80	1.76	11.09	0.07	7.10	0.03
China International	2.10	1.79	0.31	19.32	0.01	1.02	0.03
Japan	1.76	2.03	-0.27	14.60	0.01	0.56	0.01
Germany	1.04	0.85	0.18	14.60	0.01	1.59	0.02
France	0.99	1.05	-0.06	14.75	0.01	1.29	0.03
Switzerland	0.94	0.81	0.14	12.25	0.01	0.96	0.02
Canada	0.94	1.46	-0.53	9.03	0.01	0.74	0.01
S. Korea	0.93	0.76	0.17	18.01	0.00	0.42	0.02
Ireland	0.90	0.12	0.78	1.63	-0.00	-0.37	-0.00
India	0.82	0.54	0.28	20.92	0.01	0.78	0.02
Taiwan	0.70	0.65	0.05	15.81	0.00	0.17	0.02
Hong Kong	0.68	0.31	0.37	13.44	0.00	0.29	0.01
Brazil	0.65	0.49	0.16	29.90	0.02	1.64	0.05
Netherlands	0.64	0.59	0.04	12.87	0.01	0.86	0.02
Italy	0.43	0.29	0.14	17.93	0.01	1.19	0.03
N/A	0.41	0.00	0.41	9.40	0.00	0.43	0.01
Australia	0.36	0.63	-0.28	13.42	-0.00	-0.37	0.01
Denmark	0.35	0.14	0.20	15.62	0.01	0.97	0.04
South Africa	0.34	0.37	-0.03	25.27	-0.00	-0.08	0.03
Sweden	0.34	0.26	0.08	17.54	0.01	0.87	0.03
Spain	0.33	0.27	0.07	14.03	0.00	0.31	0.02
Russia	0.32	0.27	0.06	22.71	0.00	0.23	0.02
Singapore	0.27	0.15	0.11	14.14	0.00	0.21	0.02
Mexico	0.24	0.23	0.01	19.34	0.00	0.19	0.02
Thailand	0.23	0.18	0.05	15.53	0.00	0.09	0.01
Luxembourg	0.22	0.23	-0.01	8.50	0.00	0.00	-0.00
Indonesia	0.20	0.17	0.03	20.68	0.00	0.13	0.01
Poland	0.17	0.07	0.09	21.24	0.01	0.54	0.04
China	0.14	0.24	-0.10	15.21	-0.00	-0.08	0.01

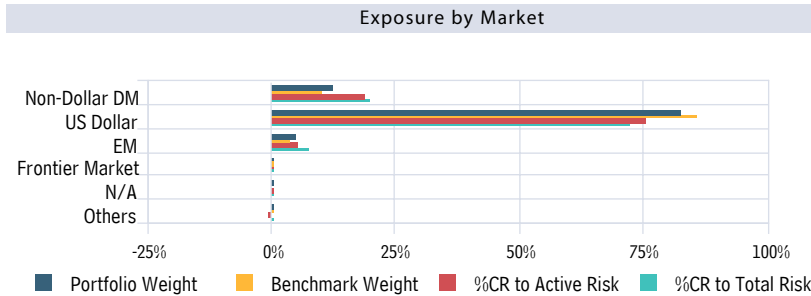


BarraOne Total Plan Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: zTest_FIRE_Total Plan
BENCHMARK: zTest_FIRE_New_Policy
POSITIONS: 10,370

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 13,996,965,670
ACCEPTED: 10,238

Portfolio Allocation by Currency



Developed Market Currency				Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)	Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	11,502,938,446.34	78.11	72.18	Korean Won	123,892,287.87	0.32	1.43
Euro	538,084,085.90	6.79	6.24	Indian Rupee	113,430,316.64	0.75	1.04
British Pound Sterling	327,437,891.05	5.63	3.83	New Taiwan Dollar	97,323,575.18	0.17	0.97
Hong Kong Dollar	267,510,482.82	0.81	3.27	Brazilian Real	88,436,032.10	1.64	1.24
Japanese Yen	244,619,257.22	0.50	2.32	South African Rand	47,786,050.95	-0.07	0.71

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)				Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active						
Total	100.00	100.00	0.00		7.49	7.49	100.00	0.94	100.00
US Dollar	82.18	85.59	-3.41		6.70	5.41	72.18	0.73	78.11
Euro	3.84	2.60	1.24		14.37	0.47	6.24	0.06	6.79
British Pound Sterling	2.34	1.37	0.97		15.75	0.29	3.83	0.05	5.63
Hong Kong Dollar	1.91	1.63	0.28		17.64	0.25	3.27	0.01	0.81
Japanese Yen	1.75	1.93	-0.18		14.75	0.17	2.32	0.00	0.50
Swiss Franc	0.90	0.76	0.14		12.74	0.09	1.22	0.01	0.95
Korean Won	0.89	0.74	0.14		17.96	0.11	1.43	0.00	0.32
Indian Rupee	0.81	0.54	0.27		20.99	0.08	1.04	0.01	0.75
New Taiwan Dollar	0.70	0.65	0.05		15.81	0.07	0.97	0.00	0.17
Brazilian Real	0.63	0.46	0.17		30.70	0.09	1.24	0.02	1.64
Canadian Dollar	0.46	0.83	-0.37		15.30	0.06	0.79	0.01	0.62
Danish Krone	0.35	0.14	0.21		15.62	0.03	0.46	0.01	0.97
South African Rand	0.34	0.36	-0.02		25.40	0.05	0.71	-0.00	-0.07
Australian Dollar	0.32	0.58	-0.26		14.39	0.04	0.47	-0.00	-0.40
Swedish Krona	0.28	0.22	0.06		17.45	0.04	0.51	0.01	0.65

BarraOne Total Plan Macro Summary

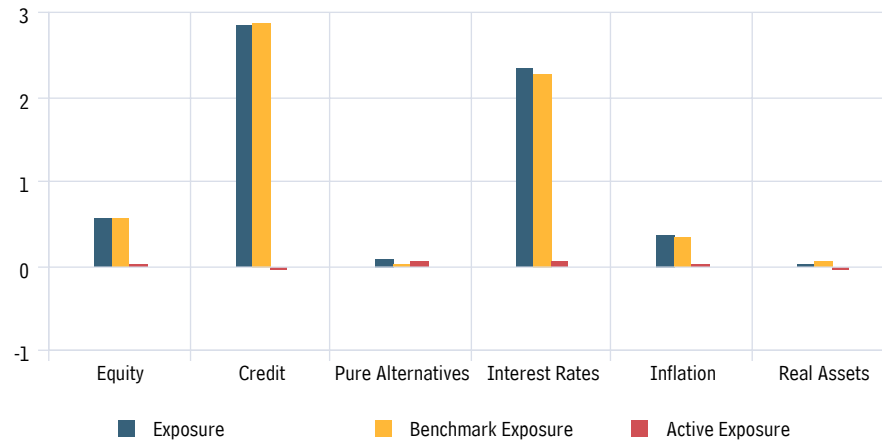
Macro factor models attribute the risk of the Barra Integrated Model to a far smaller set of factors. At the highest level, we use just six factors, representing the primary drivers of total risk and return for a global, multi-asset class portfolio that reduces the number of factors in an integrated factor model by aggregating selected groups of factors into single factors. Tier I is the highest level of the Macro Factor Scheme which has 6 factors.

COMPANY: NYCRC - Fire Plan
PORTFOLIO: zTest_FIRE_Total Plan
BENCHMARK: zTest_FIRE_New_Policy
POSITIONS: 10,370

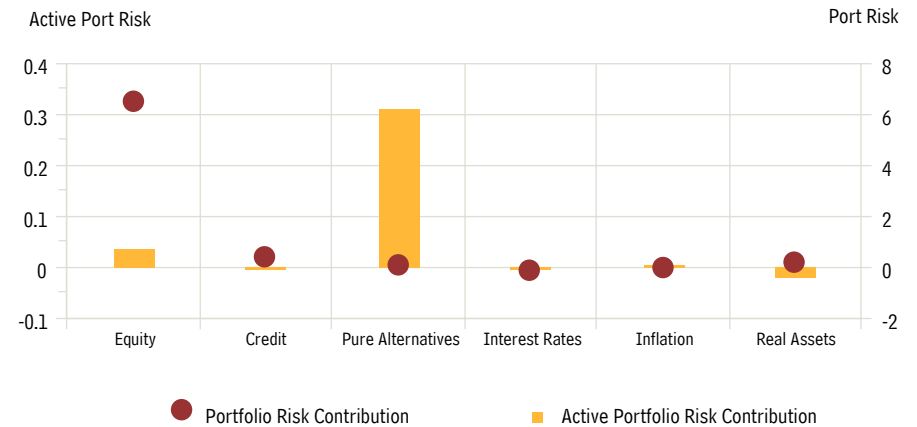
MODEL: BIM303L (Tier 1 Macro Factors)

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 13,996,965,670
ACCEPTED: 10,238

Macro Factor Exposures



Macro Factor Risk Contribution



Risk Decomposition

Risk Source	Exposure			Contribution			
	Exposure	Benchmark Exposure	Active Exposure	Portfolio Risk Contribution	% Portfolio Risk	Active Portfolio Risk Contribution	% Active Risk
Total Risk	-	-	-	7.51	100.00	0.94	100.00
Local Market Risk	-	-	-	7.22	96.09	0.91	97.23
Common Factor Risk	-	-	-	7.20	95.76	0.83	88.23
Equity	0.58	0.56	0.02	6.56	87.35	0.04	4.17
Credit	2.86	2.90	-0.03	0.44	5.92	-0.00	-0.12
Pure Alternatives	0.10	0.04	0.06	0.06	0.84	0.31	32.89
Interest Rates	2.36	2.29	0.07	-0.12	-1.59	-0.00	-0.09
Inflation	0.37	0.34	0.02	0.03	0.46	0.00	0.03
Real Assets	0.04	0.05	-0.01	0.21	2.84	-0.02	-2.05
Factor Residual Risk	-	-	-	-0.00	-0.06	0.50	53.41
Selection Risk	-	-	-	0.03	0.33	0.08	9.00
Currency Risk	-	-	-	0.29	3.91	0.03	2.77

Tier 1 Macro Factor Scheme has six factors

Factor	Exposure Type	Description
Equity	Membership (weights)	Global Public and Private Equity
Credit	Sensitivities (durations)	Sensitivity to global credit spreads
Pure Alternatives	Membership (weights)	Investment strategy return of Private Equity and Hedge Funds net of public factor returns
Interest Rates	Sensitivities (durations)	Sensitivity to global interest rates
Inflation	Sensitivities (durations)	Sensitivity to breakeven inflation
Real Assets	Membership (weights)	Real Estate and Commodities

Factor Residual Risk

Risk Source	Portfolio Risk Contribution	% Portfolio Risk	Active Portfolio Risk Contribution	% Active Risk
Commodities	0.00	0.00	0.00	0.00
Equity	0.12	1.62	0.09	9.88
Fixed Income	-0.14	-1.83	0.00	0.22
Hedge Fund	-0.02	-0.24	0.05	5.26
Private Equity	0.04	0.54	0.33	35.13
Private Real Estate	-0.03	-0.46	0.03	2.92
Unassigned Factors	0.02	0.31	-0.00	-0.01

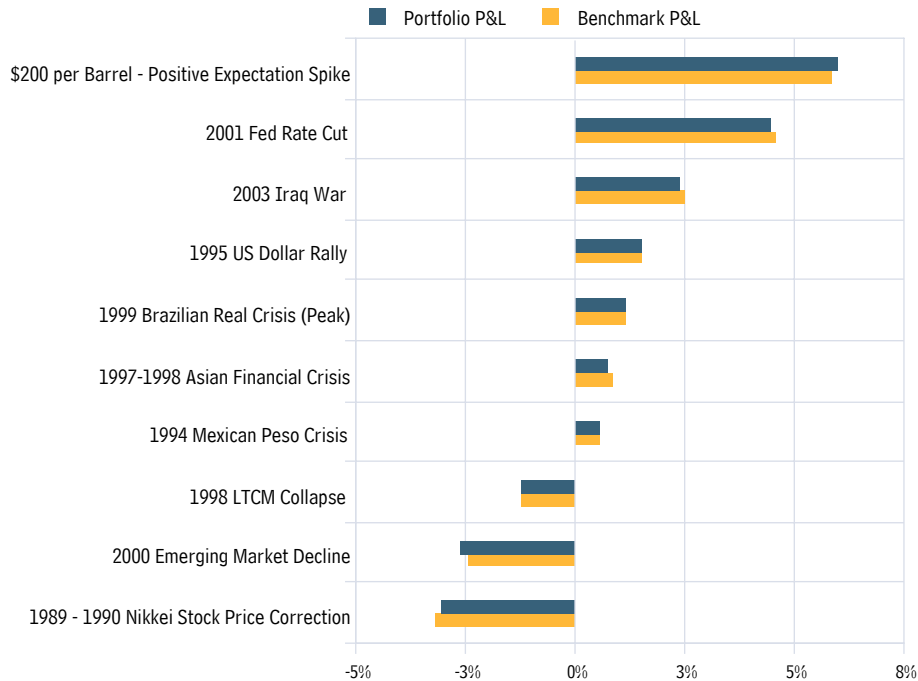
BarraOne Total Plan Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: zTest_FIRE_Total Plan
BENCHMARK: zTest_FIRE_New_Policy
POSITIONS: 10,370
MODEL: BIM303L

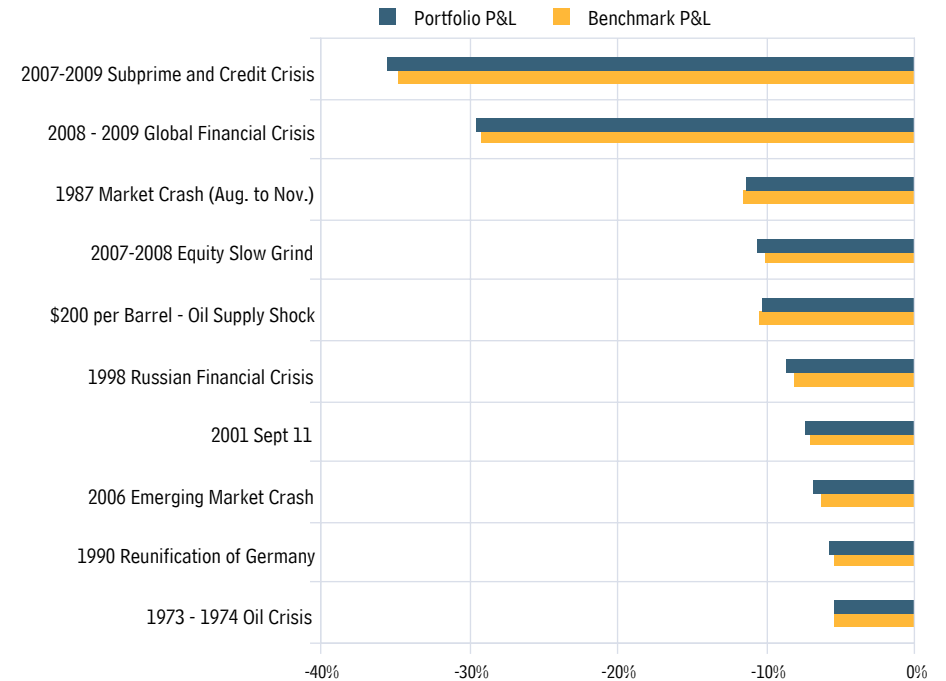
CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 13,996,965,670
ACCEPTED: 10,238

Stress Scenarios

Top 10 Best Scenarios			
Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
\$200 per Barrel - Positive Expectation S	6.01	5.88	840,592,988
2001 Fed Rate Cut	4.45	4.56	623,545,775
2003 Iraq War	2.36	2.49	329,941,278
1995 US Dollar Rally	1.55	1.51	217,018,537
1999 Brazilian Real Crisis (Peak)	1.14	1.14	158,984,871
1997-1998 Asian Financial Crisis	0.71	0.83	98,960,143
1994 Mexican Peso Crisis	0.56	0.58	78,970,403
1998 LTCM Collapse	-1.22	-1.19	-170,677,199
2000 Emerging Market Decline	-2.60	-2.41	-364,053,276
1989 - 1990 Nikkei Stock Price Correctio	-3.04	-3.19	-425,794,841



Top 10 Worst Scenarios			
Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2007-2009 Subprime and Credit Crisis	-35.42	-34.80	-4,957,418,487
2008 - 2009 Global Financial Crisis	-29.55	-29.11	-4,136,787,666
1987 Market Crash (Aug. to Nov.)	-11.27	-11.50	-1,577,104,091
2007-2008 Equity Slow Grind	-10.57	-10.17	-1,479,076,085
\$200 per Barrel - Oil Supply Shock	-10.35	-10.42	-1,449,056,553
1998 Russian Financial Crisis	-8.57	-8.07	-1,199,687,835
2001 Sept 11	-7.47	-7.08	-1,045,543,610
2006 Emerging Market Crash	-6.90	-6.37	-965,562,267
1990 Reunification of Germany	-5.69	-5.49	-797,069,712
1973 - 1974 Oil Crisis	-5.40	-5.36	-756,124,966



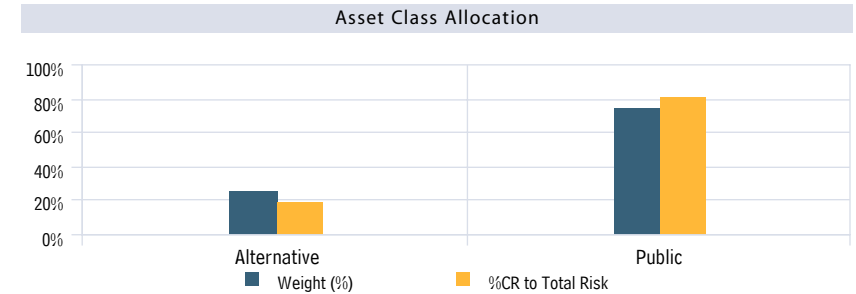
BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 4,520
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 9,061,451,097
ACCEPTED: 4,411

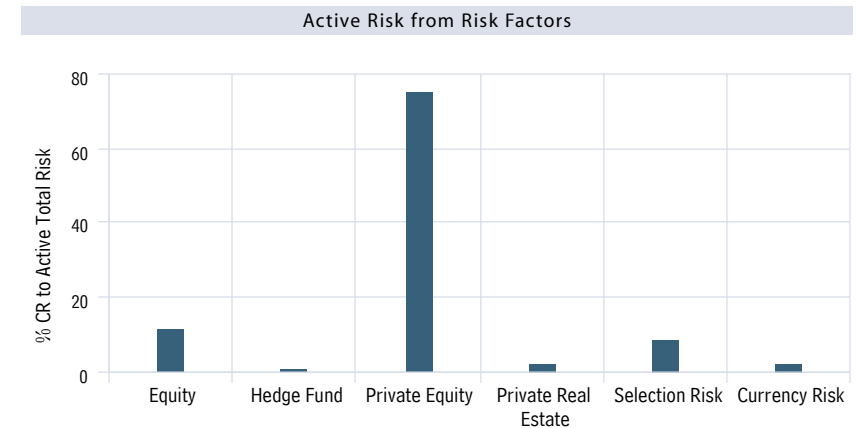
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	11.05	Total	9,061,451,097	100.00	11.05	11.05	100.00
Benchmark Risk	10.92	Alternative	2,257,220,933	24.91	9.32	2.04	18.44
Active Risk	1.42	Public	6,804,230,164	75.09	12.10	9.01	81.56
Portfolio Beta	1.00						



Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	11.05	100.00	1.00	1.42	100.00	1.00
Local Market Risk	10.63	96.20	1.00	1.39	97.73	0.99
Common Factor Risk	10.59	95.85	0.99	1.26	88.85	0.94
Equity	10.17	91.99	0.99	0.16	11.19	0.34
Style	0.07	0.61	0.28	0.05	3.19	0.17
Industry	10.10	91.38	0.99	0.11	8.01	0.29
Fixed Income	0.01	0.13	0.38	0.00	0.18	0.08
Nominal Rates	-0.01	-0.10	-0.30	-0.00	-0.02	-0.01
Credit	0.03	0.23	0.65	0.00	0.32	0.12
Hedge Fund	0.00	0.02	0.01	0.01	0.72	0.08
Private Real Estate	0.27	2.42	0.57	0.03	1.81	0.11
Private Equity	0.14	1.24	0.11	1.07	74.89	0.87
Selection Risk	0.04	0.36	0.06	0.13	8.88	0.30
Currency Risk	0.42	3.80	0.38	0.03	2.27	0.17



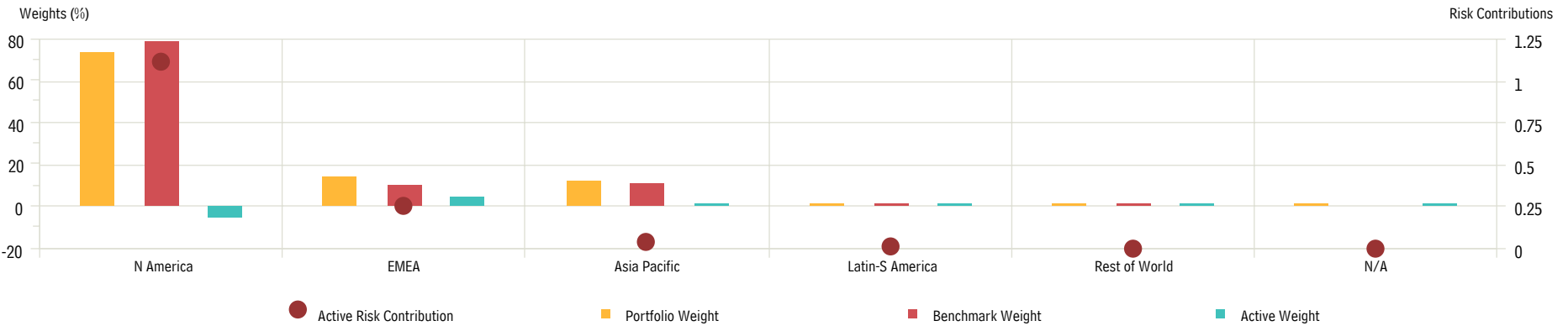
BarraOne Equity Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 4,520
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 9,061,451,097
ACCEPTED: 4,411

Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	11.05	1.42	100.00	0.01
Asia Pacific	11.67	10.66	1.01	12.85	0.04	2.58	0.01
EMEA	13.67	9.34	4.33	13.51	0.25	17.50	0.03
Latin-S America	1.10	1.08	0.02	22.88	0.01	0.96	0.05
N America	73.26	78.76	-5.50	11.15	1.12	78.90	0.01
N/A	0.00	0.00	0.00	9.57	0.00	0.00	0.01
Rest of World	0.29	0.16	0.13	9.25	0.00	0.07	0.01



BarraOne Equity Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 4,520
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 9,061,451,097
ACCEPTED: 4,411

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	11.05	1.42	100.00	0.01
United States	70.93	76.63	-5.69	11.12	1.09	76.34	0.01
United Kingdom	4.26	2.14	2.12	14.01	0.11	7.49	0.04
China International	3.25	2.80	0.45	19.33	0.01	0.91	0.03
Japan	2.70	3.02	-0.32	14.75	0.01	0.48	0.01
Germany	1.49	1.13	0.36	15.65	0.02	1.46	0.03
France	1.45	1.45	-0.00	15.29	0.02	1.29	0.03
S. Korea	1.42	1.16	0.26	18.18	0.01	0.37	0.02
Switzerland	1.39	1.19	0.20	12.72	0.01	0.87	0.02
India	1.27	0.84	0.43	21.01	0.01	0.83	0.03
Taiwan	1.07	1.02	0.06	15.81	0.00	0.15	0.02
Hong Kong	1.05	0.48	0.57	13.44	0.00	0.35	0.02
Brazil	0.98	0.72	0.26	30.64	0.02	1.68	0.06
Canada	0.73	1.30	-0.57	15.07	0.01	0.71	0.02
Netherlands	0.66	0.46	0.20	17.76	0.01	0.76	0.03
Italy	0.64	0.30	0.35	18.26	0.02	1.12	0.03
South Africa	0.53	0.56	-0.03	25.43	-0.00	-0.07	0.03
Denmark	0.51	0.22	0.30	16.07	0.01	0.96	0.04
Sweden	0.51	0.34	0.17	17.91	0.01	0.82	0.03
Australia	0.51	0.91	-0.40	14.35	-0.00	-0.29	0.01
Russia	0.50	0.38	0.12	22.71	0.00	0.21	0.03
Spain	0.47	0.38	0.09	15.47	0.00	0.31	0.02
Singapore	0.40	0.20	0.20	14.50	0.00	0.22	0.02
Thailand	0.35	0.28	0.07	15.53	0.00	0.09	0.02
Mexico	0.30	0.24	0.06	23.23	0.00	0.20	0.03
Indonesia	0.28	0.20	0.08	22.21	0.00	0.13	0.03
Poland	0.26	0.10	0.15	21.46	0.01	0.53	0.05
Malaysia	0.19	0.20	-0.01	15.00	0.00	0.01	0.02
Norway	0.19	0.09	0.11	22.09	0.00	0.34	0.03
Turkey	0.17	0.05	0.12	36.62	0.01	0.35	0.04
China	0.14	0.15	-0.01	20.57	-0.00	-0.01	0.02

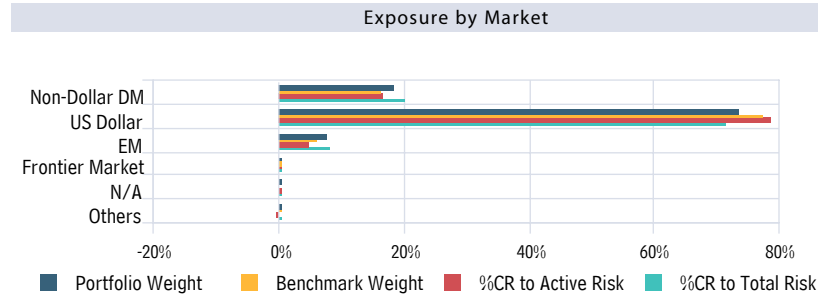


BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 4,520
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 9,061,451,097
ACCEPTED: 4,411

Portfolio Allocation by Currency



Developed Market Currency				Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)	Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	6,647,546,631.86	79.39	71.45	Korean Won	123,892,287.87	0.28	1.48
Euro	468,232,389.84	5.90	6.05	Indian Rupee	113,430,316.64	0.79	1.03
British Pound Sterling	321,972,829.65	5.34	4.03	New Taiwan Dollar	97,323,575.18	0.15	1.01
Hong Kong Dollar	267,510,482.82	0.72	3.44	Brazilian Real	88,436,032.10	1.68	1.28
Japanese Yen	244,619,257.22	0.48	2.45	South African Rand	47,786,050.95	-0.06	0.73

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	11.05	11.05	100.00	1.42	100.00
US Dollar	73.36	77.48	-4.12	10.97	7.90	71.45	1.13	79.39
Euro	5.17	4.07	1.10	15.22	0.67	6.05	0.08	5.90
British Pound Sterling	3.55	2.14	1.41	15.90	0.45	4.03	0.08	5.34
Hong Kong Dollar	2.95	2.54	0.41	17.64	0.38	3.44	0.01	0.72
Japanese Yen	2.70	3.02	-0.32	14.75	0.27	2.45	0.01	0.48
Swiss Franc	1.39	1.19	0.20	12.74	0.14	1.29	0.01	0.87
Korean Won	1.37	1.16	0.21	17.96	0.16	1.48	0.00	0.28
Indian Rupee	1.25	0.84	0.41	20.99	0.11	1.03	0.01	0.79
New Taiwan Dollar	1.07	1.02	0.06	15.81	0.11	1.01	0.00	0.15
Brazilian Real	0.98	0.72	0.26	30.70	0.14	1.28	0.02	1.68
Canadian Dollar	0.69	1.30	-0.61	15.28	0.09	0.80	0.01	0.68
South African Rand	0.53	0.56	-0.03	25.40	0.08	0.73	-0.00	-0.06
Danish Krone	0.51	0.22	0.30	16.07	0.05	0.48	0.01	0.96
Australian Dollar	0.49	0.91	-0.41	14.40	0.05	0.49	-0.00	-0.30
Swedish Krona	0.42	0.34	0.08	17.66	0.06	0.54	0.01	0.65

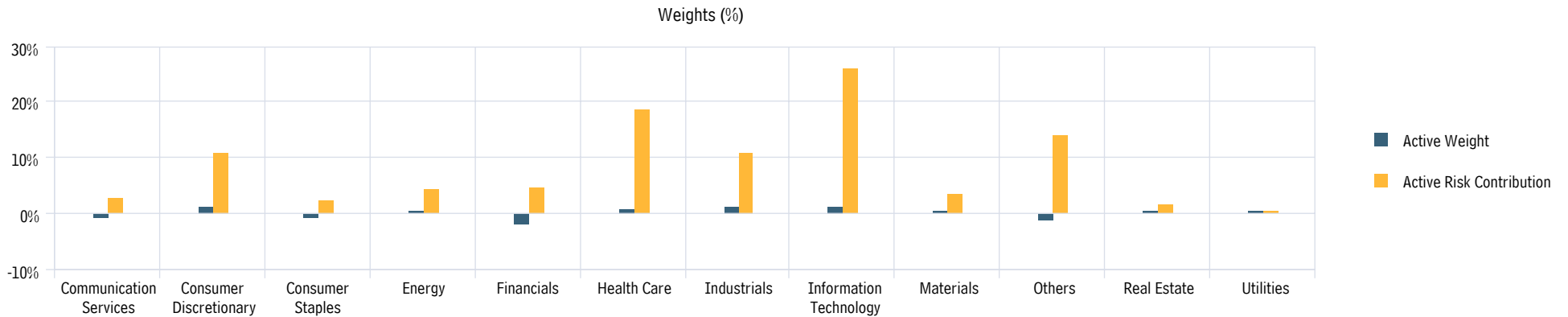
BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 4,520
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 9,061,451,097
ACCEPTED: 4,411

Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	11.05	1.42	100.00	0.01
Communication Services	6.32	7.24	-0.92	12.77	0.04	2.85	0.01
Consumer Discretionary	9.97	8.93	1.03	14.74	0.15	10.87	0.03
Consumer Staples	5.16	5.92	-0.76	10.08	0.03	2.38	0.02
Energy	4.55	4.48	0.07	19.58	0.06	4.17	0.04
Financials	11.60	13.36	-1.76	13.20	0.07	4.82	0.02
Health Care	10.70	10.01	0.70	14.13	0.26	18.55	0.04
Industrials	9.56	8.52	1.04	14.62	0.15	10.78	0.03
Information Technology	16.10	14.93	1.17	16.02	0.37	26.17	0.04
Materials	4.07	3.56	0.52	15.36	0.05	3.36	0.03
Others	14.52	15.75	-1.23	4.44	0.20	14.03	0.00
Real Estate	4.74	4.66	0.08	12.14	0.02	1.48	0.01
Utilities	2.69	2.65	0.05	9.88	0.01	0.56	0.01



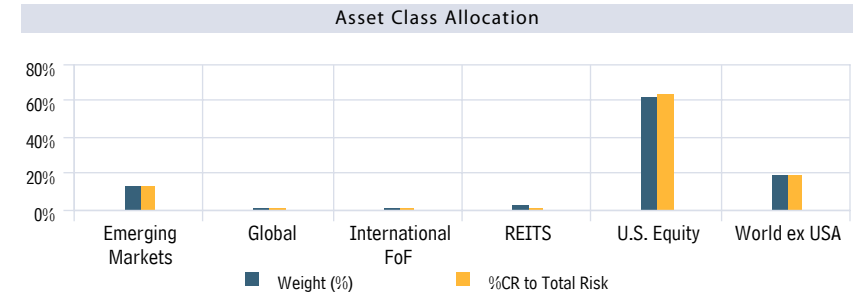
BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 4,096
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 6,804,230,164
ACCEPTED: 4,035

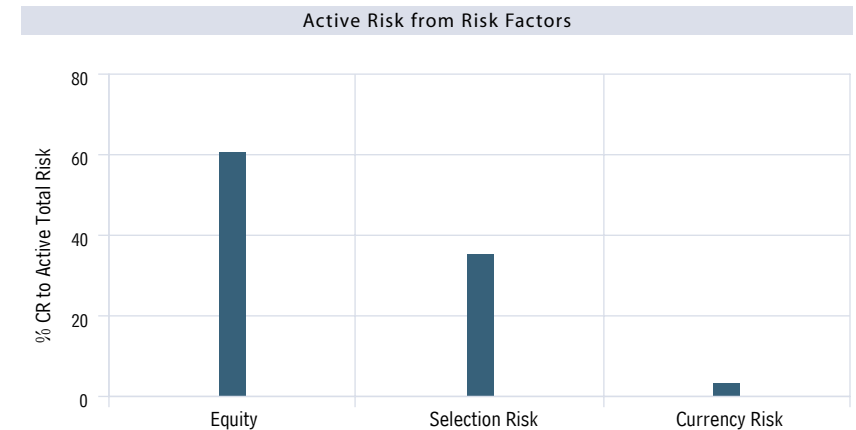
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	12.10	Total	6,804,230,164	100.00	12.10	12.10	100.00
Benchmark Risk	12.10	Emerging Markets	868,538,010	12.76	14.79	1.54	12.76
Active Risk	0.45	Global	106,382,133	1.56	14.00	0.20	1.64
Portfolio Beta	1.00	International FoF	73,046,574	1.07	11.96	0.12	0.96
		REITS	183,892,279	2.70	12.63	0.21	1.71
		U.S. Equity	4,250,390,189	62.47	12.73	7.76	64.13
		World ex USA	1,321,980,979	19.43	12.61	2.28	18.81



Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	12.10	100.00	1.00	0.45	100.00	1.00
Local Market Risk	11.59	95.82	0.99	0.44	96.36	0.98
Common Factor Risk	11.54	95.40	0.99	0.28	61.16	0.78
Equity	11.54	95.38	0.99	0.28	60.95	0.78
Style	0.07	0.60	0.26	0.13	27.84	0.50
Industry	11.46	94.78	0.99	0.15	33.11	0.54
Selection Risk	0.05	0.42	0.06	0.16	35.20	0.59
Currency Risk	0.51	4.18	0.39	0.02	3.64	0.18



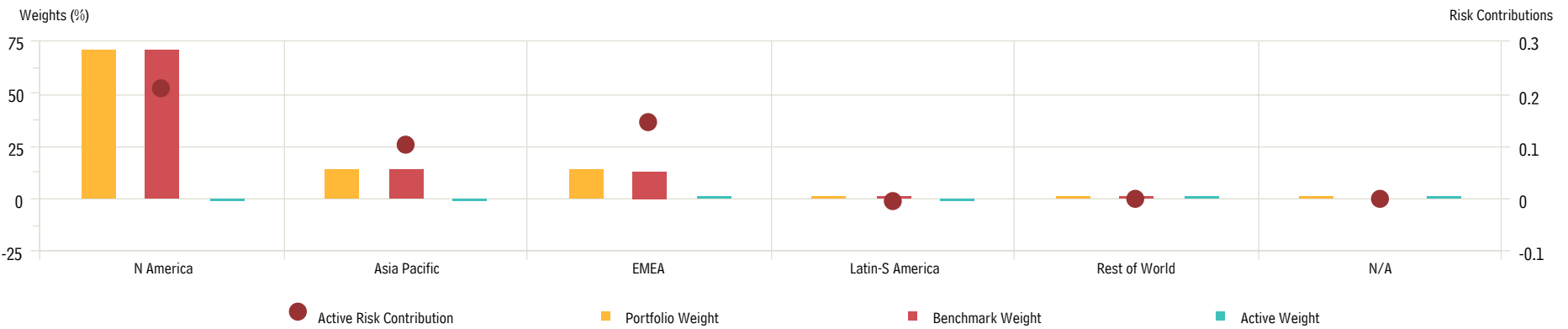
BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
 PORTFOLIO: Public Equity
 BENCHMARK: Public
 POSITIONS: 4,096
 MODEL: BIM303L

CURRENCY: USD
 ANALYSIS DATE: June 30, 2019
 MARKET VALUE: 6,804,230,164
 ACCEPTED: 4,035

Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	12.10	0.45	100.00	0.00
Asia Pacific	14.34	14.51	-0.17	13.11	0.10	22.68	0.02
EMEA	13.45	12.72	0.73	14.11	0.14	31.98	0.02
Latin-S America	1.35	1.47	-0.12	22.97	-0.01	-1.29	0.04
N America	70.53	71.08	-0.55	12.46	0.21	46.23	0.01
N/A	0.00	0.00	0.00	4.60	0.00	0.00	0.01
Rest of World	0.33	0.21	0.11	9.31	0.00	0.41	0.01



BarraOne Equity Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 4,096
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 6,804,230,164
ACCEPTED: 4,035

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	12.10	0.45	100.00	0.00
United States	67.66	68.17	-0.52	12.48	0.15	32.42	-0.00
China International	4.11	3.81	0.29	19.23	0.02	5.46	0.04
Japan	3.59	4.11	-0.52	14.75	0.04	8.91	-0.00
United Kingdom	3.41	2.91	0.50	15.61	0.04	9.10	0.01
S. Korea	1.88	1.58	0.30	18.20	0.01	2.29	0.03
Switzerland	1.69	1.61	0.08	12.56	0.01	2.71	0.01
Germany	1.55	1.53	0.02	16.67	0.02	4.04	0.01
India	1.51	1.15	0.37	21.15	0.02	5.48	0.05
Taiwan	1.43	1.38	0.05	15.81	0.01	1.13	0.03
France	1.41	1.98	-0.57	14.70	-0.00	-0.18	0.01
Brazil	1.21	0.98	0.23	31.15	0.02	4.01	0.05
Hong Kong	0.79	0.65	0.14	18.84	0.01	1.77	0.02
Canada	0.76	1.77	-1.02	15.22	0.01	1.30	-0.00
Netherlands	0.70	0.63	0.08	19.00	0.01	2.18	0.01
South Africa	0.70	0.76	-0.06	25.43	-0.00	-0.18	0.02
Russia	0.66	0.51	0.15	22.71	0.01	1.55	0.02
Australia	0.60	1.23	-0.64	14.83	0.00	0.48	0.00
Italy	0.57	0.40	0.17	21.20	0.01	3.15	0.02
Denmark	0.52	0.30	0.22	15.61	0.01	2.08	0.03
Singapore	0.51	0.27	0.23	14.69	0.01	1.45	0.02
Thailand	0.46	0.38	0.08	15.54	0.00	0.68	0.02
Sweden	0.45	0.46	-0.01	18.50	0.01	1.12	0.02
Spain	0.42	0.52	-0.10	18.37	0.00	0.83	0.00
Mexico	0.39	0.32	0.06	23.45	0.00	0.59	0.02
Indonesia	0.35	0.27	0.08	22.55	0.00	0.92	0.04
Malaysia	0.25	0.27	-0.02	15.00	0.00	0.01	0.02
Poland	0.23	0.14	0.09	21.91	0.00	0.90	0.03
Turkey	0.22	0.06	0.16	36.62	0.01	2.43	0.07
Norway	0.21	0.12	0.09	22.80	0.00	0.94	0.01
Finland	0.16	0.17	-0.01	18.80	0.00	0.46	0.02

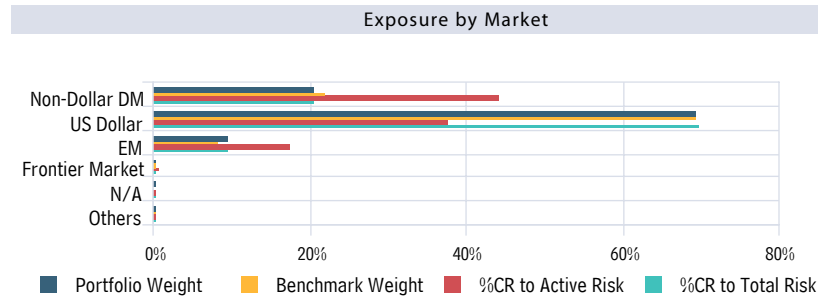


BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 4,096
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 6,804,230,164
ACCEPTED: 4,035

Portfolio Allocation by Currency



Developed Market Currency				Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)	Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	4,711,283,187.91	37.60	69.88	Korean Won	122,744,662.58	1.67	1.81
Euro	353,566,114.93	11.56	5.67	Indian Rupee	101,459,539.60	5.18	1.13
Hong Kong Dollar	266,538,539.85	5.71	4.24	New Taiwan Dollar	97,323,575.18	1.13	1.25
Japanese Yen	244,347,477.08	8.91	3.02	Brazilian Real	82,123,808.97	4.01	1.46
British Pound Sterling	231,577,334.30	9.10	3.48	South African Rand	47,786,050.95	-0.17	0.91

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	12.10	12.10	100.00	0.45	100.00
US Dollar	69.24	69.34	-0.10	12.47	8.45	69.88	0.17	37.60
Euro	5.20	5.54	-0.34	15.33	0.69	5.67	0.05	11.56
Hong Kong Dollar	3.92	3.46	0.45	17.65	0.51	4.24	0.03	5.71
Japanese Yen	3.59	4.11	-0.52	14.75	0.37	3.02	0.04	8.91
British Pound Sterling	3.40	2.91	0.49	15.61	0.42	3.48	0.04	9.10
Korean Won	1.80	1.58	0.22	17.97	0.22	1.81	0.01	1.67
Swiss Franc	1.69	1.61	0.08	12.55	0.17	1.41	0.01	2.71
Indian Rupee	1.49	1.15	0.35	21.12	0.14	1.13	0.02	5.18
New Taiwan Dollar	1.43	1.38	0.05	15.81	0.15	1.25	0.01	1.13
Brazilian Real	1.21	0.98	0.23	31.15	0.18	1.46	0.02	4.01
Canadian Dollar	0.73	1.77	-1.04	14.89	0.09	0.75	0.01	1.22
South African Rand	0.70	0.76	-0.06	25.40	0.11	0.91	-0.00	-0.17
Australian Dollar	0.58	1.23	-0.66	14.90	0.07	0.54	0.00	0.36
Russian Ruble	0.52	0.45	0.07	23.58	0.07	0.57	0.00	0.93
Danish Krone	0.52	0.30	0.22	15.61	0.05	0.40	0.01	2.08

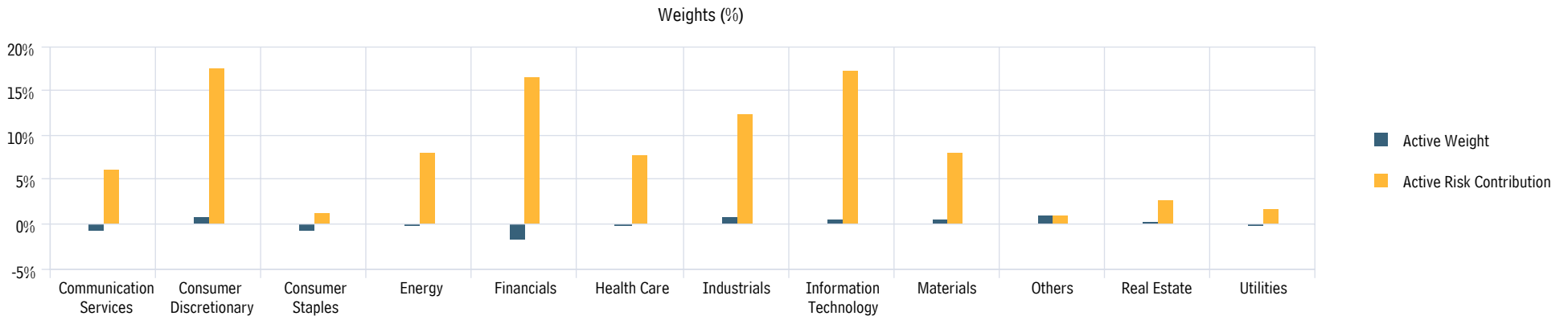
BarraOne Equity Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 4,096
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 6,804,230,164
ACCEPTED: 4,035

Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	12.10	0.45	100.00	0.00
Communication Services	7.89	8.50	-0.61	12.75	0.03	5.95	0.00
Consumer Discretionary	11.38	10.61	0.77	14.55	0.08	17.49	0.02
Consumer Staples	6.44	7.10	-0.66	9.87	0.01	1.11	0.00
Energy	5.25	5.40	-0.15	19.36	0.04	8.09	0.01
Financials	14.55	16.16	-1.61	13.17	0.08	16.56	0.00
Health Care	11.23	11.54	-0.31	13.61	0.04	7.82	0.00
Industrials	10.74	10.09	0.65	14.60	0.06	12.47	0.01
Information Technology	17.66	17.15	0.52	15.89	0.08	17.17	0.01
Materials	4.93	4.40	0.53	15.46	0.04	8.07	0.02
Others	1.05	0.16	0.89	1.32	0.00	1.00	0.00
Real Estate	5.80	5.75	0.05	12.36	0.01	2.68	0.01
Utilities	3.08	3.13	-0.05	10.96	0.01	1.60	0.00



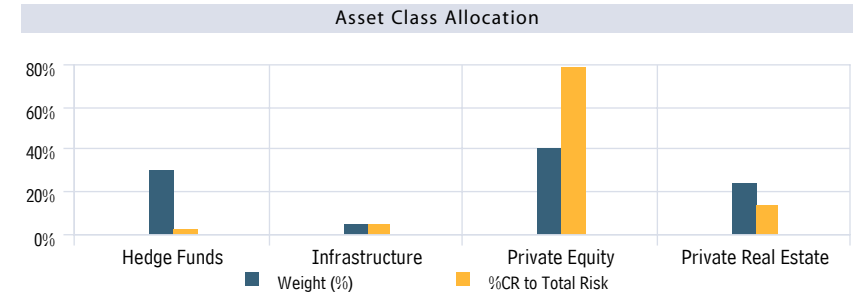
BarraOne Equity Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Alternative
BENCHMARK: Alternative
POSITIONS: 424
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 2,257,220,933
ACCEPTED: 376

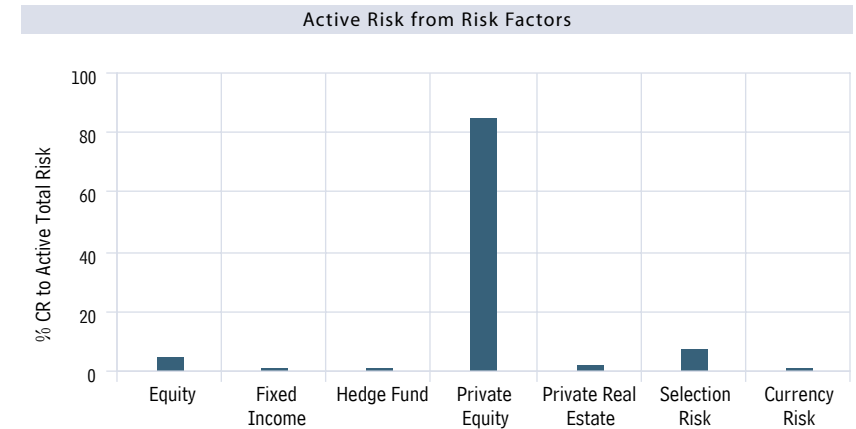
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	9.32	Total	2,257,220,933	100.00	9.32	9.32	100.00
Benchmark Risk	8.01	Hedge Funds	678,517,726	30.06	4.38	0.22	2.39
Active Risk	5.36	Infrastructure	124,487,502	5.52	10.46	0.46	4.93
Portfolio Beta	0.95	Private Equity	911,879,611	40.40	18.84	7.39	79.22
		Private Real Estate	542,336,094	24.03	8.38	1.26	13.47



Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	9.32	100.00	1.00	5.36	100.00	1.00
Local Market Risk	9.18	98.41	1.00	5.30	98.92	0.99
Common Factor Risk	9.02	96.70	0.99	4.94	92.14	0.96
Equity	5.20	55.79	0.81	0.24	4.49	0.22
Style	0.05	0.52	0.19	0.02	0.37	0.05
Industry	5.15	55.28	0.81	0.22	4.12	0.21
Fixed Income	0.05	0.56	0.34	0.01	0.12	0.05
Nominal Rates	-0.03	-0.34	-0.22	-0.00	-0.02	-0.01
Credit	0.08	0.90	0.53	0.01	0.19	0.06
Hedge Fund	0.04	0.40	0.06	0.04	0.80	0.09
Private Real Estate	1.10	11.78	0.58	0.10	1.77	0.13
Private Equity	2.62	28.08	0.53	4.55	84.94	0.92
Unassigned Factors	0.01	0.08	0.32	0.00	0.02	0.03
Selection Risk	0.16	1.71	0.13	0.36	6.78	0.26
Currency Risk	0.15	1.59	0.25	0.06	1.08	0.10



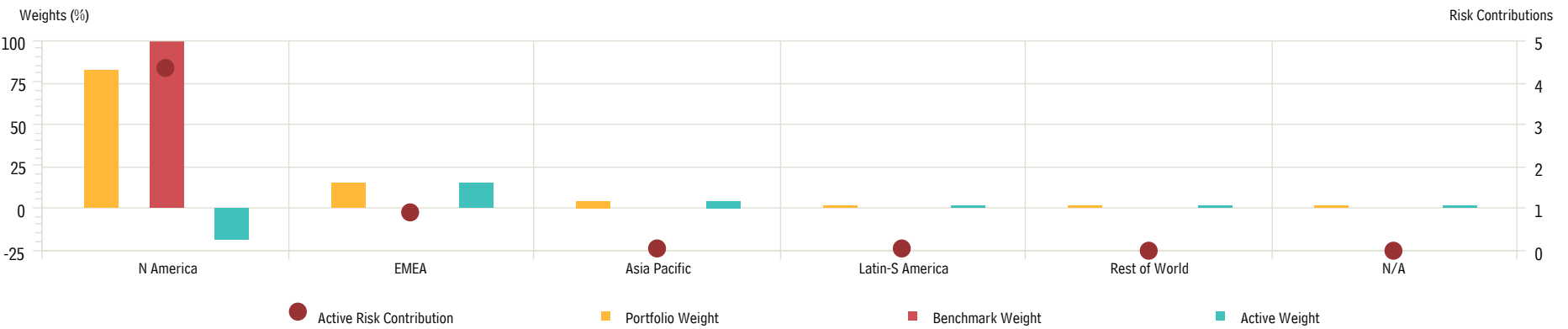
BarraOne Equity Summary

COMPANY: NYCRS - Fire Plan
 PORTFOLIO: Alternative
 BENCHMARK: Alternative
 POSITIONS: 424
 MODEL: BIM303L

CURRENCY: USD
 ANALYSIS DATE: June 30, 2019
 MARKET VALUE: 2,257,220,933
 ACCEPTED: 376

Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	9.32	5.36	100.00	0.05
Asia Pacific	3.61	0.00	3.61	12.27	0.04	0.73	0.01
EMEA	14.33	0.00	14.33	15.59	0.89	16.58	0.06
Latin-S America	0.35	0.00	0.35	32.80	0.07	1.26	0.19
N America	81.50	100.00	-18.50	9.44	4.36	81.34	0.02
N/A	0.02	0.00	0.02	9.78	0.00	0.00	0.01
Rest of World	0.18	0.00	0.18	19.89	0.00	0.08	0.02



BarraOne Equity Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: Alternative
BENCHMARK: Alternative
POSITIONS: 424
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 2,257,220,933
ACCEPTED: 376

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	9.32	5.36	100.00	0.05
United States	80.80	100.00	-19.20	9.39	4.30	80.12	0.02
United Kingdom	6.84	0.00	6.84	17.77	0.42	7.86	0.05
Hong Kong	1.84	0.00	1.84	12.64	0.02	0.38	0.01
France	1.58	0.00	1.58	21.74	0.11	1.97	0.06
Germany	1.29	0.00	1.29	15.02	0.07	1.22	0.04
Italy	0.87	0.00	0.87	16.28	0.04	0.83	0.05
Sweden	0.71	0.00	0.71	20.98	0.04	0.80	0.05
China International	0.67	0.00	0.67	24.50	0.01	0.16	0.01
Canada	0.65	0.00	0.65	18.47	0.06	1.19	0.09
Spain	0.61	0.00	0.61	12.55	0.02	0.39	0.03
India	0.53	0.00	0.53	23.34	0.01	0.11	0.01
Netherlands	0.52	0.00	0.52	17.05	0.03	0.55	0.05
Denmark	0.49	0.00	0.49	23.65	0.04	0.69	0.07
Switzerland	0.48	0.00	0.48	21.19	0.03	0.60	0.06
Poland	0.33	0.00	0.33	25.95	0.02	0.38	0.06
Ireland	0.30	0.00	0.30	16.43	0.01	0.27	0.04
Brazil	0.29	0.00	0.29	37.97	0.06	1.15	0.21
Belgium	0.26	0.00	0.26	23.10	0.02	0.35	0.07
Australia	0.24	0.00	0.24	13.17	0.00	0.04	0.00
Israel	0.16	0.00	0.16	31.93	0.01	0.25	0.08
Portugal	0.16	0.00	0.16	14.65	0.01	0.13	0.04
Norway	0.13	0.00	0.13	26.98	0.01	0.15	0.06
Vietnam	0.12	0.00	0.12	26.67	0.00	0.02	0.00
China	0.11	0.00	0.11	24.37	0.00	0.03	0.01
Singapore	0.10	0.00	0.10	18.77	0.00	0.01	-0.00
Finland	0.09	0.00	0.09	23.53	0.01	0.12	0.06
Greece	0.09	0.00	0.09	40.11	0.01	0.13	0.07
Indonesia	0.07	0.00	0.07	28.65	0.00	0.00	-0.00
United Arab Emirates	0.06	0.00	0.06	24.75	0.00	0.06	0.05
S. Korea	0.05	0.00	0.05	34.62	0.00	0.01	0.01

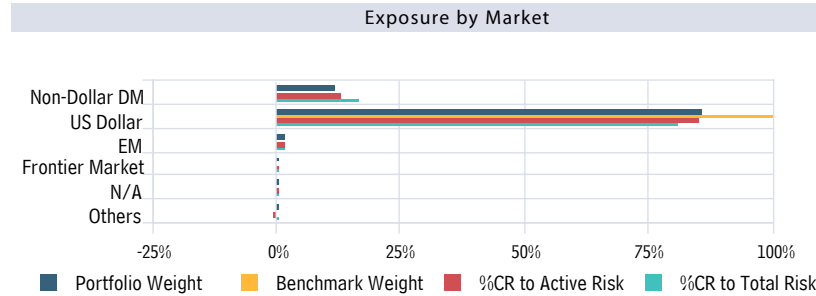


BarraOne Equity Summary

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POSITIONS: 424
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
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ACCEPTED: 376

Portfolio Allocation by Currency



Developed Market Currency				Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)	Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	1,936,263,443.96	83.67	80.90	CNH	14,118,892.75	0.13	0.76
Euro	114,666,274.91	5.84	6.72	Indian Rupee	11,970,777.05	0.11	0.42
British Pound Sterling	90,395,495.35	4.75	5.56	Polish Zloty	7,502,434.86	0.38	0.40
Swedish Krona	16,029,723.14	0.80	1.03	Brazilian Real	6,312,223.13	1.15	0.68
CNH	14,118,892.75	0.13	0.76	Vietnamese Dong	2,747,615.05	0.02	0.04

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	9.32	9.32	100.00	5.36	100.00
US Dollar	85.78	100.00	-14.22	8.99	7.54	80.90	4.49	83.67
Euro	5.08	0.00	5.08	17.92	0.63	6.72	0.31	5.84
British Pound Sterling	4.00	0.00	4.00	19.86	0.52	5.56	0.25	4.75
Swedish Krona	0.71	0.00	0.71	20.98	0.10	1.03	0.04	0.80
CNH	0.63	0.00	0.63	24.38	0.07	0.76	0.01	0.13
Canadian Dollar	0.56	0.00	0.56	21.32	0.10	1.03	0.06	1.18
Indian Rupee	0.53	0.00	0.53	23.34	0.04	0.42	0.01	0.11
Danish Krone	0.49	0.00	0.49	23.65	0.07	0.72	0.04	0.69
Swiss Franc	0.47	0.00	0.47	21.67	0.06	0.66	0.03	0.60
Polish Zloty	0.33	0.00	0.33	25.95	0.04	0.40	0.02	0.38
Brazilian Real	0.28	0.00	0.28	39.09	0.06	0.68	0.06	1.15
Australian Dollar	0.24	0.00	0.24	13.17	0.02	0.18	0.00	0.04
New Israeli Sheqel	0.16	0.00	0.16	31.93	0.02	0.25	0.01	0.25
Vietnamese Dong	0.12	0.00	0.12	26.67	0.00	0.04	0.00	0.02
Norwegian Krone	0.12	0.00	0.12	29.46	0.02	0.20	0.01	0.15

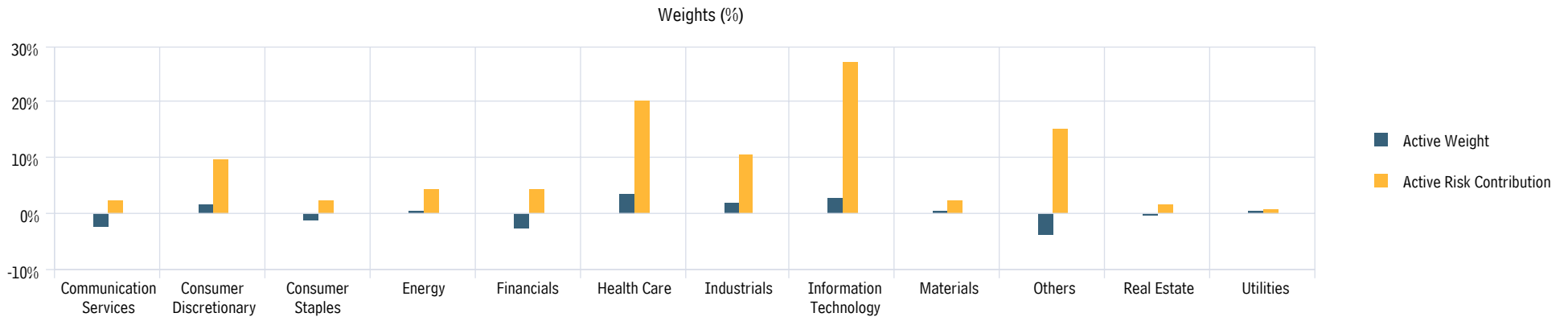
BarraOne Equity Summary

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CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 2,257,220,933
ACCEPTED: 376

Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	9.32	5.36	100.00	0.05
Communication Services	1.61	3.76	-2.14	17.71	0.12	2.20	0.02
Consumer Discretionary	5.72	4.30	1.42	18.65	0.52	9.65	0.05
Consumer Staples	1.33	2.66	-1.33	17.79	0.13	2.41	0.03
Energy	2.44	1.92	0.52	23.84	0.22	4.15	0.06
Financials	2.71	5.61	-2.89	16.27	0.22	4.08	0.02
Health Care	9.12	5.77	3.36	19.87	1.08	20.06	0.07
Industrials	5.99	4.16	1.83	17.47	0.56	10.41	0.05
Information Technology	11.39	8.81	2.58	21.09	1.46	27.28	0.07
Materials	1.48	1.23	0.25	17.80	0.13	2.45	0.05
Others	55.12	58.85	-3.73	4.68	0.82	15.23	0.00
Real Estate	1.54	1.62	-0.08	11.86	0.07	1.38	0.01
Utilities	1.53	1.32	0.21	6.41	0.04	0.70	0.01



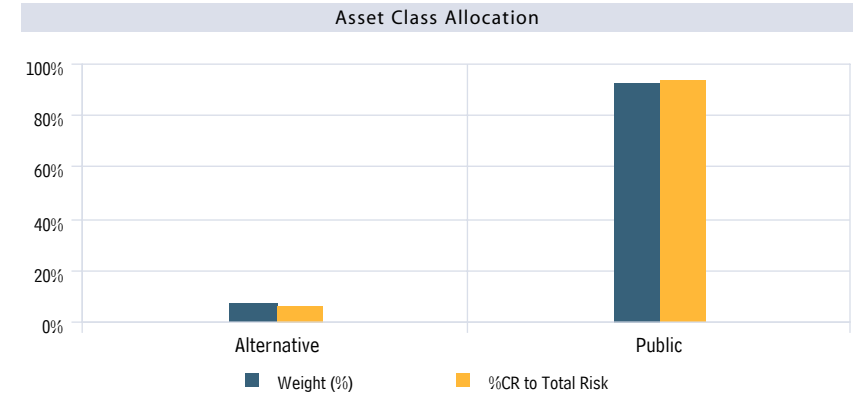
BarraOne Fixed Income Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 5,850
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,935,514,573
ACCEPTED: 5,827

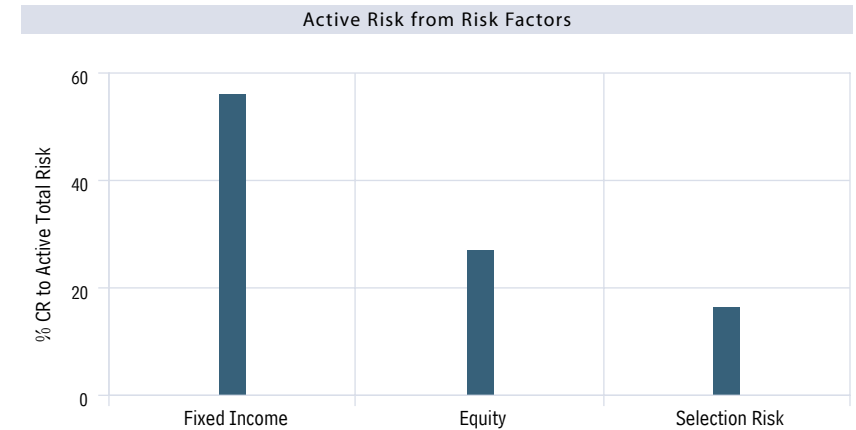
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	2.97	Total	4,935,514,573	100.00	2.97	2.97	100.00
Benchmark Risk	2.92	Alternative	359,331,278	7.28	7.96	0.17	5.78
Active Risk	0.46	Public	4,576,183,295	92.72	3.08	2.80	94.22
Portfolio Beta	1.01						
Cont. to Eff. Duration	6.57						
Convexity	1.09						
Yield to Worst (%)	infinity						
OAS to Swap (bp)	130.03						



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	2.97	100.00	1.00	0.46	100.00	1.00
Local Market Risk	2.95	99.41	1.00	0.46	99.67	0.99
Common Factor Risk	2.94	99.06	1.00	0.38	83.00	0.90
Equity	0.10	3.52	0.18	0.13	26.96	0.45
Style	0.02	0.57	0.08	0.11	23.66	0.48
Industry	0.09	2.95	0.19	0.02	3.30	0.10
Fixed Income	2.84	95.54	0.98	0.26	55.85	0.68
Nominal Rates	2.25	75.85	0.77	0.07	15.54	0.39
Real Rates	0.38	12.75	0.83	0.00	0.55	0.04
Credit	0.21	6.94	0.14	0.18	39.75	0.56
Selection Risk	0.01	0.36	0.06	0.08	16.67	0.41
Currency Risk	0.02	0.59	0.23	0.00	0.33	0.02



BarraOne Fixed Income Summary

COMPANY: NYCERS - Fire Plan
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 5,850
MODEL: BIM303L

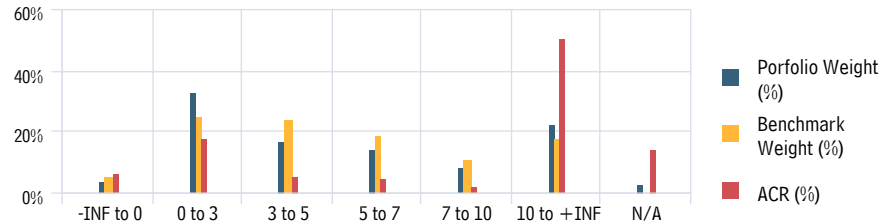
CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,935,514,573
ACCEPTED: 5,827

Portfolio by Factor Breakdowns

Top 10 Spread Factor									
Spread Factor	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
US Swap Shift	0.14	4.02	2.81	1.21	0.00	0.33	-0.03	0.06	12.22
US Swap Butterfly	0.06	-1.80	-0.76	-1.04	-0.00	-0.31	0.01	0.02	4.53
US Conventional 30 yr Mortgage	0.35	0.20	0.42	-0.22	-0.00	-0.22	0.02	0.02	3.71
US Energy CCC	7.43	0.00	0.01	-0.01	-0.02	-0.24	0.00	0.01	2.74
US Consumer Discretionary B	1.76	0.09	0.10	-0.02	-0.00	-0.25	0.02	0.01	1.54
US Technology B	1.90	0.01	0.02	-0.01	-0.00	-0.24	0.00	0.01	1.24
US Materials BB	1.19	0.02	0.03	-0.02	-0.00	-0.27	0.00	0.01	1.20
US Consumer Discretionary BB	0.92	0.02	0.04	-0.02	-0.00	-0.28	0.00	0.01	1.14
US Industrials BB	1.14	0.02	0.04	-0.02	-0.00	-0.29	0.00	0.01	1.11
US Financials BB	1.11	0.03	0.05	-0.02	-0.00	-0.20	0.01	0.00	1.07

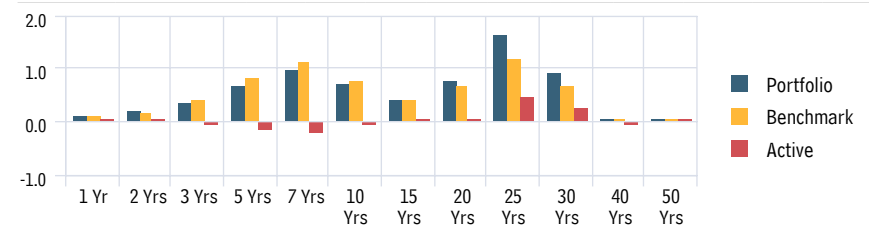
Top 10 Term Structure									
Term Structure	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
US Butterfly	0.12	0.71	-0.44	1.15	0.00	0.23	-0.03	0.03	7.13
US Twist	0.17	2.90	2.35	0.54	0.00	0.36	0.28	0.03	7.00
US Shift	0.49	5.48	5.40	0.08	0.00	0.17	1.98	0.01	1.44
US Inflation-protected	0.31	0.38	0.33	0.06	0.00	0.26	0.01	0.00	0.98
EUR Shift	0.40	0.03	0.00	0.03	0.00	0.16	0.01	0.00	0.41
EUR Implied Volatility	11.63	-0.00	0.00	-0.00	-0.01	-0.06	0.00	0.00	0.06
EUR Twist	0.21	0.01	0.00	0.01	0.00	0.13	0.00	0.00	0.06
US Municipal Shift	0.43	0.01	0.00	0.00	0.00	0.07	0.00	0.00	0.03
US Municipal Twist	0.23	0.01	0.00	0.00	0.00	0.14	0.00	0.00	0.02
GB Shift	0.47	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.01

%CR to Active Risk by Duration Buckets



Key Rate Duration

	Cont. To Eff. Dur	Key Rate Duration										
		1 Yr	2 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs	20 Yrs	25 Yrs	30 Yrs	40 Yrs	50 Yrs
Portfolio	6.54	0.11	0.22	0.68	0.95	0.69	0.40	0.74	1.63	0.90	0.01	0.01
Benchmark	6.29	0.09	0.18	0.84	1.14	0.76	0.39	0.67	1.17	0.64	0.02	0.01
Active	0.25	0.02	0.04	-0.15	-0.19	-0.07	0.01	0.07	0.46	0.26	-0.00	0.00



BarraOne Fixed Income Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 5,850
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,935,514,573
ACCEPTED: 5,827

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	2.97	0.46	100.00	0.00
United States	89.17	90.84	-1.68	3.17	0.44	95.72	0.00
Ireland	2.31	0.21	2.10	0.34	-0.00	-0.26	-0.00
United Kingdom	2.28	1.20	1.08	2.11	0.00	0.34	-0.00
Canada	1.32	1.75	-0.44	4.34	0.00	0.68	-0.01
N/A	1.15	0.00	1.15	9.41	-0.01	-1.34	-0.00
Luxembourg	0.62	0.64	-0.02	8.52	0.00	0.16	-0.01
Netherlands	0.60	0.83	-0.23	5.37	0.00	0.31	-0.01
Euro. Monetary Union	0.42	0.00	0.42	6.43	0.00	0.41	0.00
Germany	0.21	0.37	-0.16	2.36	0.00	0.01	-0.00
Caymans	0.17	0.10	0.07	7.12	0.00	0.37	0.01
France	0.14	0.34	-0.20	9.59	0.00	0.07	-0.00
Mexico	0.13	0.23	-0.09	6.14	0.00	0.03	-0.00
Switzerland	0.12	0.13	-0.01	4.22	0.00	0.04	-0.01
China	0.12	0.39	-0.27	7.08	0.01	1.17	-0.01
Spain	0.10	0.06	0.03	3.67	0.00	0.00	-0.00
Bermuda	0.09	0.08	0.01	7.23	0.00	0.20	-0.00
United Arab Emirates	0.09	0.03	0.06	4.68	-0.00	-0.03	-0.00
Australia	0.08	0.15	-0.07	7.29	-0.00	-0.01	-0.00
New Zealand	0.08	0.05	0.02	5.62	-0.00	-0.04	-0.01
Belgium	0.07	0.13	-0.06	7.50	-0.00	-0.05	0.01
Austria	0.06	0.02	0.05	17.55	0.00	0.00	0.00
Israel	0.06	0.04	0.02	9.87	0.00	0.10	-0.01
Venezuela	0.05	0.00	0.05	9.48	-0.00	-0.00	0.00
Japan	0.05	0.28	-0.23	2.80	0.00	0.01	0.00
Brazil	0.05	0.08	-0.03	6.97	0.00	0.18	-0.00
Colombia	0.05	0.07	-0.03	8.29	0.00	0.01	0.00
Indonesia	0.05	0.11	-0.06	10.62	0.00	0.04	-0.00
Chile	0.04	0.02	0.02	4.13	-0.00	-0.01	0.00
Norway	0.03	0.06	-0.02	10.38	-0.00	-0.04	-0.00
Denmark	0.03	0.00	0.03	12.24	0.00	0.00	-0.00

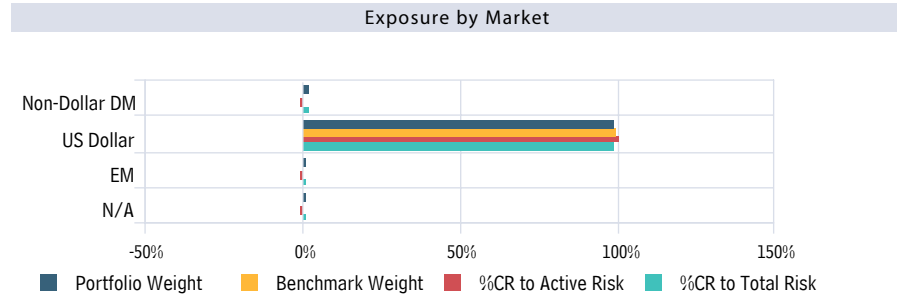


BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 5,850
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,935,514,573
ACCEPTED: 5,827

Portfolio Allocation by Currency



Developed Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	4,855,391,814.47	100.98	98.55
Euro	69,851,696.06	-0.88	1.31
British Pound Sterling	5,465,061.40	-0.05	0.06
Canadian Dollar	2,092,932.34	-0.01	0.05
Danish Krone	1,645,537.42	-0.00	0.02

Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
CNH	70,254.43	-0.00	0.00
Mexican Peso	0.01	-0.00	0.00

Top 15 Currencies by Weight%								
Currency of Exposure	Weight (%)		Active	Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark						
Total	100.00	100.00	0.00	2.97	2.97	100.00	0.46	100.00
US Dollar	98.38	100.00	-1.62	2.98	2.93	98.55	0.47	100.98
Euro	1.42	0.00	1.42	9.42	0.04	1.31	-0.00	-0.88
British Pound Sterling	0.11	0.00	0.11	12.20	0.00	0.06	-0.00	-0.05
Canadian Dollar	0.04	0.00	0.04	31.16	0.00	0.05	-0.00	-0.01
Danish Krone	0.03	0.00	0.03	12.24	0.00	0.02	-0.00	-0.00
Swedish Krona	0.01	0.00	0.01	8.54	0.00	0.01	-0.00	-0.01
Norwegian Krone	0.01	0.00	0.01	51.20	0.00	0.01	-0.00	-0.02
CNH	0.00	0.00	0.00	12.42	0.00	0.00	-0.00	-0.00
Australian Dollar	0.00	0.00	0.00	12.27	0.00	0.00	-0.00	-0.00
Singapore Dollar	0.00	0.00	0.00	3.96	0.00	0.00	-0.00	-0.00
Swiss Franc	0.00	0.00	0.00	73.68	0.00	0.00	-0.00	-0.00
Mexican Peso	0.00	0.00	0.00	11.29	0.00	0.00	-0.00	-0.00
Japanese Yen	0.00	0.00	0.00	7.32	0.00	0.00	0.00	0.00

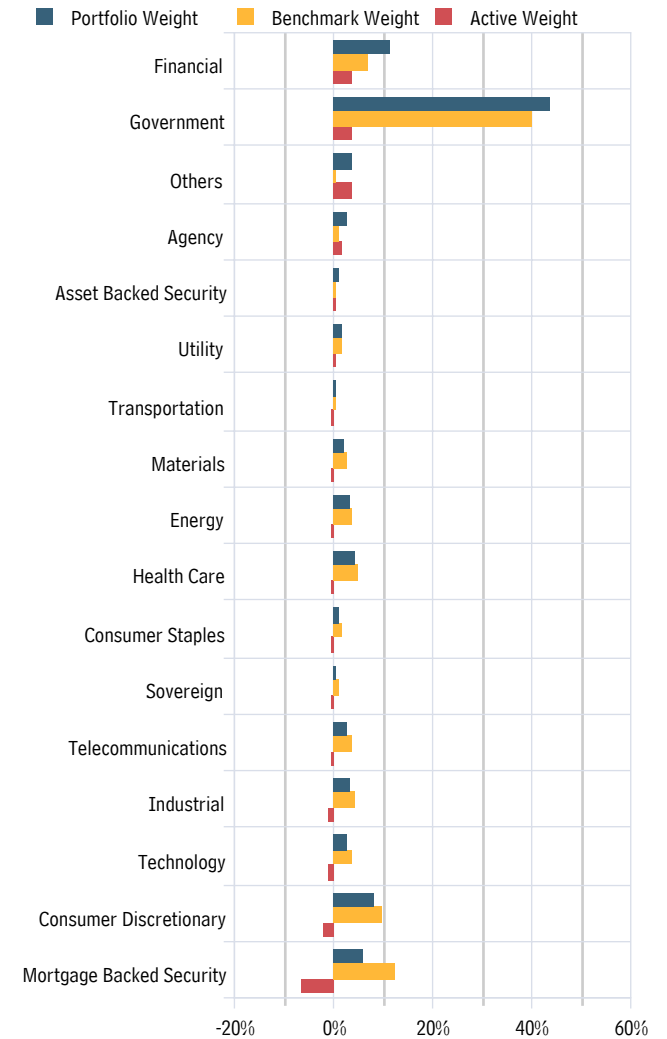
BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 5,850
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,935,514,573
ACCEPTED: 5,827

Portfolio Allocation by Bond Sector

Sector	Weight (%)			Cont. To Eff. Dur	Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	6.54	2.97	0.46	100.00	0.00
Government	43.99	40.16	3.83	4.85	5.51	0.14	30.61	0.01
Financial	11.10	7.13	3.97	0.23	1.69	0.00	0.39	-0.00
Consumer Discretionary	7.93	9.84	-1.91	0.22	4.12	0.04	7.99	-0.01
Mortgage Backed Security	5.92	12.62	-6.70	0.23	2.73	-0.01	-2.24	0.00
Health Care	4.30	4.92	-0.62	0.13	3.52	0.02	4.47	-0.01
Others	3.72	0.02	3.69	0.04	10.49	0.08	18.13	0.01
Energy	3.48	3.90	-0.42	0.14	8.03	0.01	3.20	-0.02
Industrial	3.30	4.12	-0.82	0.08	3.84	0.01	1.86	-0.01
Agency	2.96	1.30	1.66	0.07	1.34	-0.00	-0.21	0.00
Telecommunications	2.94	3.63	-0.68	0.10	4.79	0.01	2.58	-0.01
Technology	2.78	3.94	-1.16	0.11	3.98	0.06	12.16	-0.01
Materials	2.29	2.57	-0.29	0.06	4.65	0.00	0.46	-0.01
Utility	1.75	1.59	0.16	0.08	6.89	0.01	2.78	0.01
Consumer Staples	1.19	1.84	-0.65	0.06	3.66	0.00	0.04	-0.00
Asset Backed Security	0.88	0.12	0.76	0.02	2.45	0.01	1.53	0.01
Transportation	0.69	0.71	-0.02	0.03	4.31	0.00	0.68	0.00
Commercial Mortgage Backed	0.30	0.07	0.23	0.01	3.25	0.00	0.65	0.01
Sovereign	0.23	0.90	-0.67	0.02	5.95	0.00	0.38	-0.00
Local/Provincial	0.22	0.23	-0.01	0.01	6.79	0.00	0.25	0.01
Collateralized Loan Obligat	0.03	0.00	0.03	0.06	603.25	0.07	14.39	2.41
Collateralized Debt Obligat	0.01	0.00	0.01	0.00	16.05	0.00	0.05	0.03
Supranational	0.00	0.39	-0.39	0.00	1.29	-0.00	-0.16	0.00
Covered bond	0.00	0.00	-0.00	0.00	0.48	0.00	0.00	0.00
Corporation	0.00	0.00	-0.00	0.00	0.00	0.00	0.01	-0.01



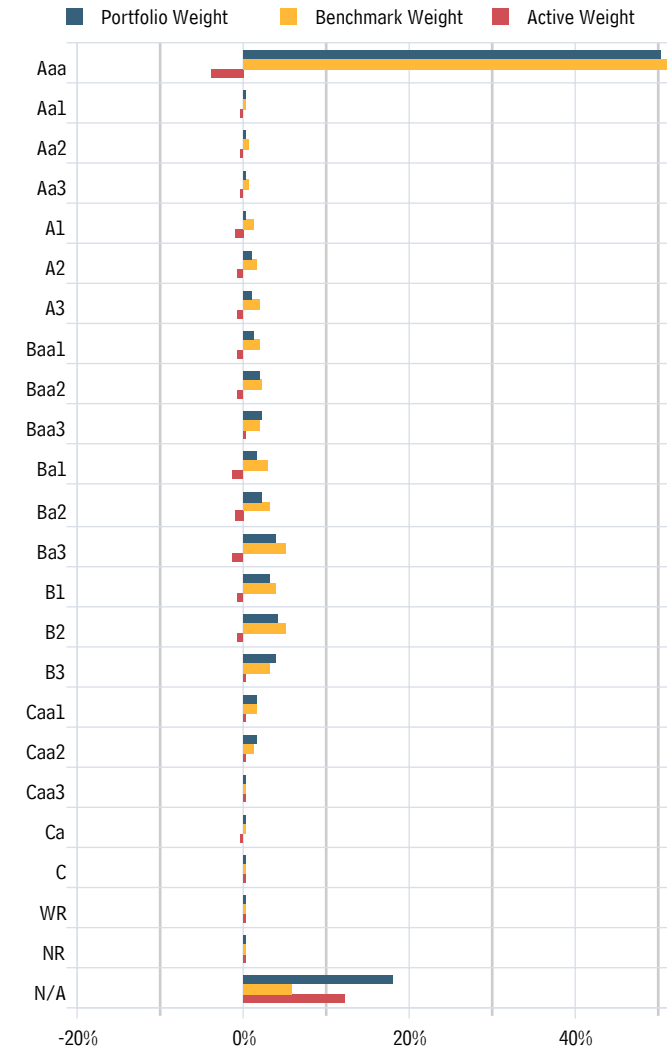
BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 5,850
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,935,514,573
ACCEPTED: 5,827

Portfolio Allocation by Moody's Rating

Rating	Weight (%)			Cont. To Eff. Dur	Spread Duration	Total Risk	Active Risk CR	%CR to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	6.54	7.01	2.97	0.46	100.00
Aaa	50.46	54.18	-3.72	5.14	10.32	5.08	0.13	28.10
Aa1	0.11	0.23	-0.12	0.01	11.54	6.32	0.00	0.12
Aa2	0.10	0.55	-0.45	0.01	12.42	6.99	-0.00	-0.21
Aa3	0.18	0.55	-0.37	0.02	8.69	4.33	0.00	0.00
A1	0.36	1.32	-0.95	0.03	7.76	3.79	-0.00	-0.41
A2	0.87	1.57	-0.70	0.06	6.67	3.28	0.00	0.02
A3	1.08	1.80	-0.72	0.08	7.78	3.92	-0.00	-0.55
Baa1	1.37	1.97	-0.60	0.10	7.32	3.66	-0.00	-0.52
Baa2	1.84	2.38	-0.53	0.14	7.55	3.82	-0.00	-0.27
Baa3	2.17	2.02	0.16	0.11	5.71	2.82	0.00	0.15
Ba1	1.65	2.88	-1.23	0.06	4.16	3.23	0.01	2.57
Ba2	2.38	3.35	-0.98	0.07	3.40	3.22	0.01	1.33
Ba3	3.99	5.28	-1.29	0.11	3.17	3.24	0.01	2.50
B1	3.15	3.89	-0.74	0.07	2.85	4.47	0.01	1.32
B2	4.28	5.03	-0.76	0.07	2.82	4.99	0.01	1.92
B3	3.71	3.38	0.33	0.09	2.89	5.04	0.00	0.02
Caa1	1.75	1.63	0.12	0.04	2.49	6.03	0.00	1.06
Caa2	1.59	1.30	0.29	0.04	3.13	8.93	0.00	1.05
Caa3	0.14	0.13	0.01	0.00	2.76	8.02	0.00	0.09
Ca	0.04	0.18	-0.14	0.00	2.01	15.57	0.00	0.84
C	0.04	0.04	0.01	0.01	12.32	36.32	0.00	0.46
WR	0.47	0.46	0.01	0.02	4.96	23.91	0.02	4.04
NR	0.06	0.03	0.04	0.06	123.86	270.31	0.07	14.34
Not Rated	18.21	5.87	12.34	0.21	1.59	3.49	0.19	42.03



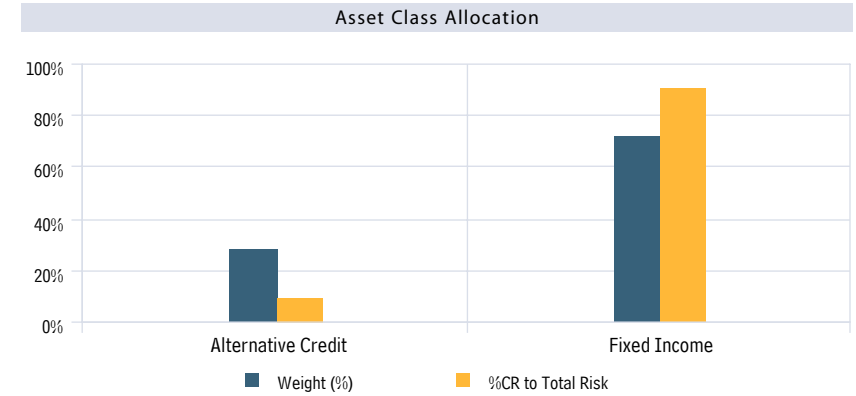
BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Public
BENCHMARK: Fixed Income
POSITIONS: 5,832
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,576,183,295
ACCEPTED: 5,814

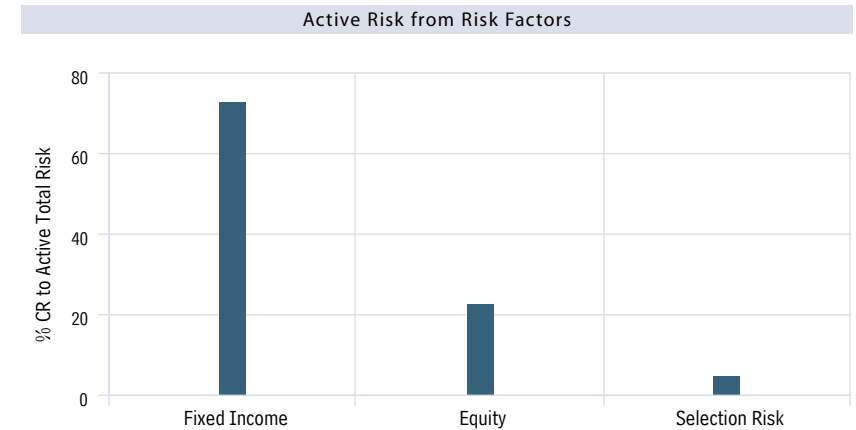
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	3.08	Total	4,576,183,295	100.00	3.08	3.08	100.00
Benchmark Risk	2.92	Alternative Credit	1,281,051,447	27.99	4.17	0.28	9.16
Active Risk	0.67	Fixed Income	3,295,131,848	72.01	4.19	2.80	90.84
Portfolio Beta	1.03						
Cont. to Eff. Duration	6.85						
Convexity	0.91						
Yield to Worst (%)	2.49						
OAS to Swap (bp)	95.42						



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	3.08	100.00	1.00	0.67	100.00	1.00
Local Market Risk	3.08	100.00	1.00	0.67	99.97	1.00
Common Factor Risk	3.07	99.83	1.00	0.64	95.40	0.98
Equity	0.01	0.29	0.04	0.15	22.66	0.66
Style	-0.00	-0.01	-0.01	0.05	7.71	0.49
Industry	0.01	0.30	0.05	0.10	14.95	0.67
Fixed Income	3.06	99.54	1.00	0.49	72.74	0.92
Nominal Rates	2.65	86.01	0.86	0.18	27.09	0.65
Real Rates	0.42	13.59	0.85	0.02	3.65	0.25
Credit	-0.00	-0.06	-0.00	0.28	42.00	0.80
Selection Risk	0.01	0.17	0.04	0.03	4.57	0.21



BarraOne Fixed Income Summary

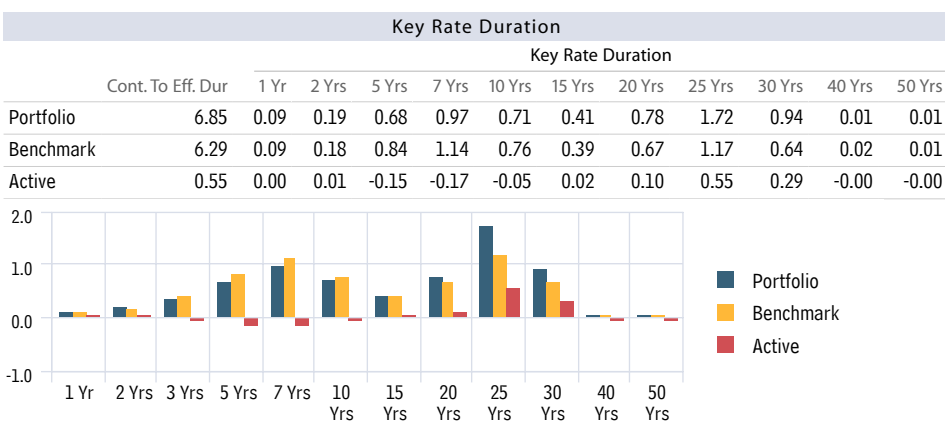
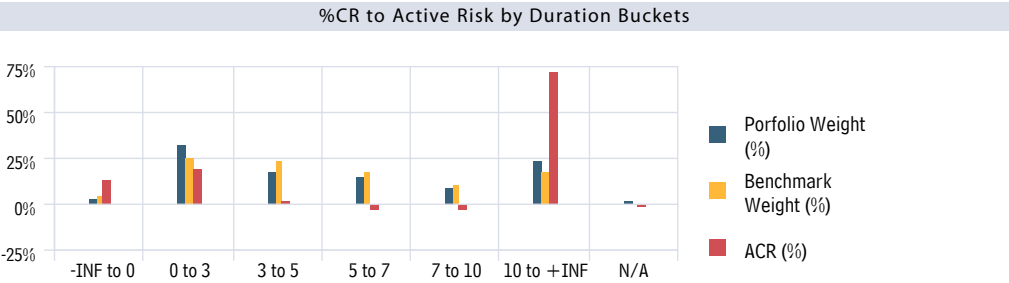
COMPANY: NYCRS - Fire Plan
PORTFOLIO: Public
BENCHMARK: Fixed Income
POSITIONS: 5,832
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,576,183,295
ACCEPTED: 5,814

Portfolio by Factor Breakdowns

Top 10 Spread Factor									
Spread Factor	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		Active Port	to TR	to AR
US Energy CCC	7.43	0.00	0.01	-0.01	-0.04	-0.55	-0.00	0.03	4.46
US Consumer Discretionary B	1.76	0.09	0.10	-0.02	-0.01	-0.72	0.00	0.02	3.50
US Conventional 30 yr Mortgage	0.35	0.21	0.42	-0.21	-0.00	-0.25	0.01	0.02	2.76
US Financials BB	1.11	0.03	0.05	-0.03	-0.01	-0.57	0.00	0.02	2.45
US Technology B	1.90	0.01	0.02	-0.01	-0.01	-0.67	-0.00	0.02	2.29
US Materials BB	1.19	0.02	0.03	-0.02	-0.01	-0.73	-0.00	0.02	2.24
US Health Care CCC	2.43	0.01	0.02	-0.01	-0.01	-0.62	0.00	0.01	2.18
US Swap Shift	0.14	2.37	2.81	-0.44	-0.00	-0.22	-0.05	0.01	2.00
US Consumer Discretionary BB	0.92	0.02	0.04	-0.02	-0.01	-0.72	-0.00	0.01	1.94
US Industrials BB	1.14	0.02	0.04	-0.02	-0.01	-0.74	-0.00	0.01	1.90

Top 10 Term Structure									
Term Structure	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		Active Port	to TR	to AR
US Shift	0.49	5.72	5.40	0.32	0.00	0.67	2.33	0.10	15.58
US Twist	0.17	3.25	2.35	0.89	0.00	0.56	0.34	0.08	12.47
US Inflation-protected	0.31	0.42	0.33	0.09	0.00	0.53	0.02	0.01	2.08
US Inflation-protected	0.46	1.12	0.89	0.23	0.00	0.09	0.39	0.01	1.40
US Inflation-protected	0.14	-0.24	-0.20	-0.04	-0.00	-0.22	0.01	0.00	0.17
US Implied Volatility	16.23	-0.00	-0.00	0.00	0.01	0.07	0.01	0.00	0.16
US Municipal Shift	0.43	0.01	0.00	0.00	0.00	0.33	0.00	0.00	0.06
US Municipal Twist	0.23	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.01
US Municipal Butterfly	0.16	-0.00	-0.00	-0.00	-0.00	-0.09	0.00	0.00	0.00
US Butterfly	0.12	0.84	-0.44	1.28	-0.00	-0.05	-0.03	-0.01	-1.19



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BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Public
BENCHMARK: Fixed Income
POSITIONS: 5,832
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,576,183,295
ACCEPTED: 5,814

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	3.08	0.67	100.00	0.01
United States	90.89	90.84	0.05	3.29	0.62	91.49	0.00
Ireland	2.46	0.21	2.25	0.27	-0.00	-0.74	-0.00
United Kingdom	2.27	1.20	1.07	1.92	0.00	0.12	-0.01
Canada	1.31	1.75	-0.44	3.90	0.01	1.38	-0.02
Luxembourg	0.61	0.64	-0.02	8.19	0.00	0.44	-0.03
Netherlands	0.59	0.83	-0.23	5.68	0.00	0.73	-0.03
Germany	0.22	0.37	-0.15	2.12	-0.00	-0.03	-0.00
France	0.15	0.34	-0.19	6.73	0.01	0.78	-0.02
Mexico	0.14	0.23	-0.08	6.14	0.00	0.13	-0.00
Switzerland	0.13	0.13	-0.00	4.21	-0.00	-0.10	-0.02
China	0.13	0.39	-0.26	7.08	0.01	1.99	-0.04
Caymans	0.09	0.10	-0.01	9.66	-0.00	-0.09	-0.03
Australia	0.09	0.15	-0.06	7.40	-0.00	-0.08	-0.01
Bermuda	0.09	0.08	0.01	7.86	0.00	0.08	-0.02
United Arab Emirates	0.08	0.03	0.06	4.55	-0.00	-0.02	-0.00
New Zealand	0.08	0.05	0.03	5.62	-0.00	-0.09	-0.02
Spain	0.08	0.06	0.01	1.34	0.00	0.02	-0.00
Belgium	0.07	0.13	-0.06	7.50	-0.00	-0.13	0.02
Japan	0.05	0.28	-0.23	2.80	-0.00	-0.07	0.01
Colombia	0.05	0.07	-0.02	8.29	0.00	0.02	-0.00
Indonesia	0.05	0.11	-0.06	10.80	0.00	0.08	-0.00
Chile	0.05	0.02	0.02	4.13	-0.00	-0.01	0.00
Israel	0.04	0.04	-0.00	10.97	0.00	0.24	-0.03
Norway	0.03	0.06	-0.03	2.59	-0.00	-0.06	0.00
S. Korea	0.03	0.05	-0.02	4.02	0.00	0.00	0.01
Bahamas	0.03	0.00	0.03	2.38	-0.00	-0.02	-0.00
Italy	0.03	0.28	-0.25	9.84	0.01	1.22	-0.03
Brazil	0.03	0.08	-0.05	7.72	0.00	0.17	-0.02
Panama	0.02	0.04	-0.02	4.35	0.00	0.02	-0.01
Macao	0.02	0.07	-0.04	9.06	0.00	0.13	-0.02

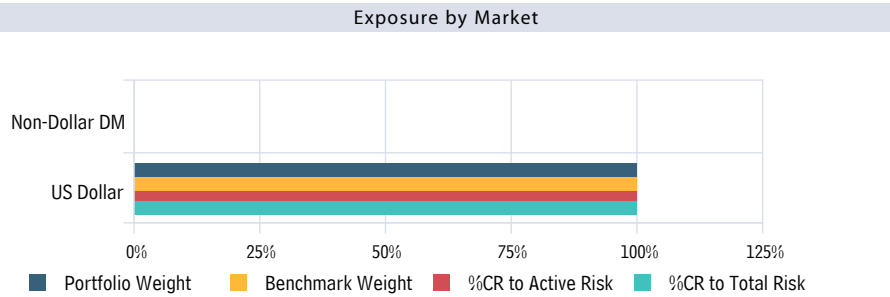


BarraOne Fixed Income Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: Public
BENCHMARK: Fixed Income
POSITIONS: 5,832
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,576,183,295
ACCEPTED: 5,814

Portfolio Allocation by Currency



Developed Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	4,576,183,295.05	100.00	100.00

Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)

Top 15 Currencies by Weight%								
Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	3.08	3.08	100.00	0.67	100.00
US Dollar	100.00	100.00	-0.00	3.08	3.08	100.00	0.67	100.00



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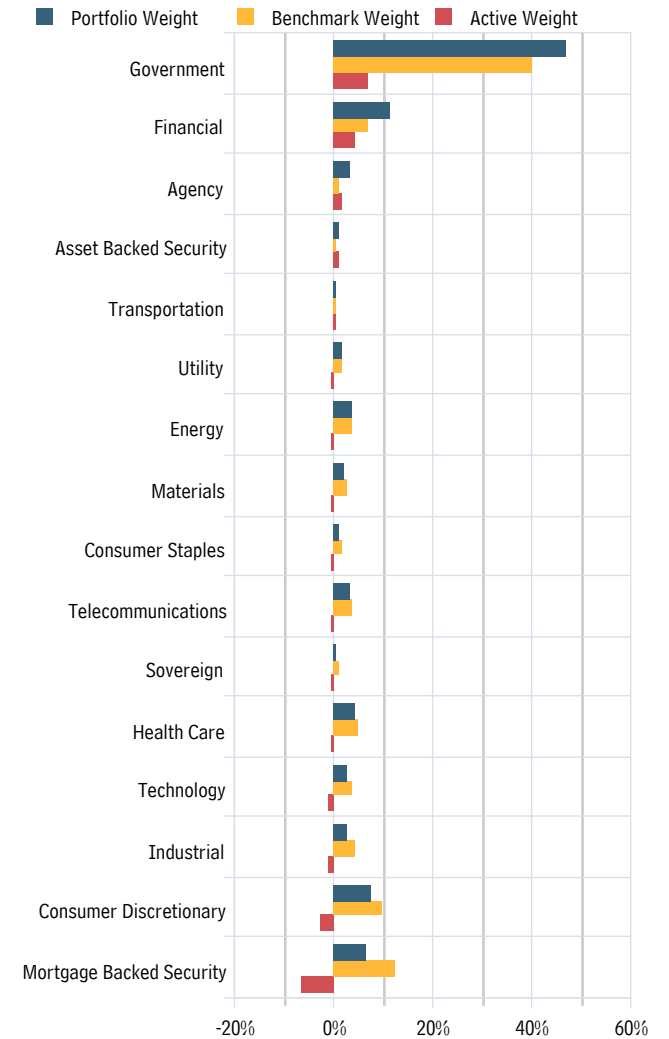
BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Public
BENCHMARK: Fixed Income
POSITIONS: 5,832
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,576,183,295
ACCEPTED: 5,814

Portfolio Allocation by Bond Sector

Sector	Weight (%)			Cont. To Eff. Dur	Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	6.85	3.08	0.67	100.00	0.01
Government	47.14	40.16	6.98	5.20	5.51	0.41	61.03	0.03
Financial	11.52	7.13	4.40	0.23	1.59	-0.02	-2.49	-0.00
Consumer Discretionary	7.39	9.84	-2.45	0.22	4.11	0.09	13.32	-0.03
Mortgage Backed Security	6.35	12.62	-6.27	0.24	2.73	-0.02	-3.42	0.01
Health Care	4.22	4.92	-0.70	0.14	3.55	0.04	5.46	-0.02
Energy	3.63	3.90	-0.27	0.15	8.03	0.02	2.85	-0.04
Agency	3.19	1.30	1.89	0.08	1.34	-0.00	-0.73	0.01
Telecommunications	3.00	3.63	-0.63	0.10	4.73	0.03	4.22	-0.03
Industrial	2.94	4.12	-1.18	0.08	3.77	0.02	2.79	-0.02
Technology	2.90	3.94	-1.04	0.12	4.06	0.13	18.74	-0.04
Materials	2.19	2.57	-0.38	0.06	4.36	0.01	1.15	-0.02
Utility	1.41	1.59	-0.18	0.07	2.57	-0.01	-1.21	0.01
Consumer Staples	1.27	1.84	-0.57	0.07	3.67	-0.00	-0.39	-0.00
Asset Backed Security	0.94	0.12	0.82	0.03	2.37	-0.00	-0.10	0.00
Transportation	0.73	0.71	0.01	0.03	4.31	-0.01	-1.35	-0.01
Others	0.44	0.02	0.41	0.00	0.20	-0.00	-0.10	-0.00
Commercial Mortgage Backed	0.31	0.07	0.25	0.01	3.19	0.00	0.23	0.01
Local/Provincial	0.22	0.23	-0.02	0.01	6.95	-0.00	-0.24	0.01
Sovereign	0.21	0.90	-0.69	0.02	6.38	0.01	0.98	-0.00
Supranational	0.00	0.39	-0.39	0.00	1.29	-0.01	-0.76	0.02
Covered bond	0.00	0.00	-0.00	0.00	0.48	0.00	0.00	0.00
Collateralized Debt Obligat	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
Corporation	0.00	0.00	-0.00	0.00	0.00	0.00	0.01	-0.02



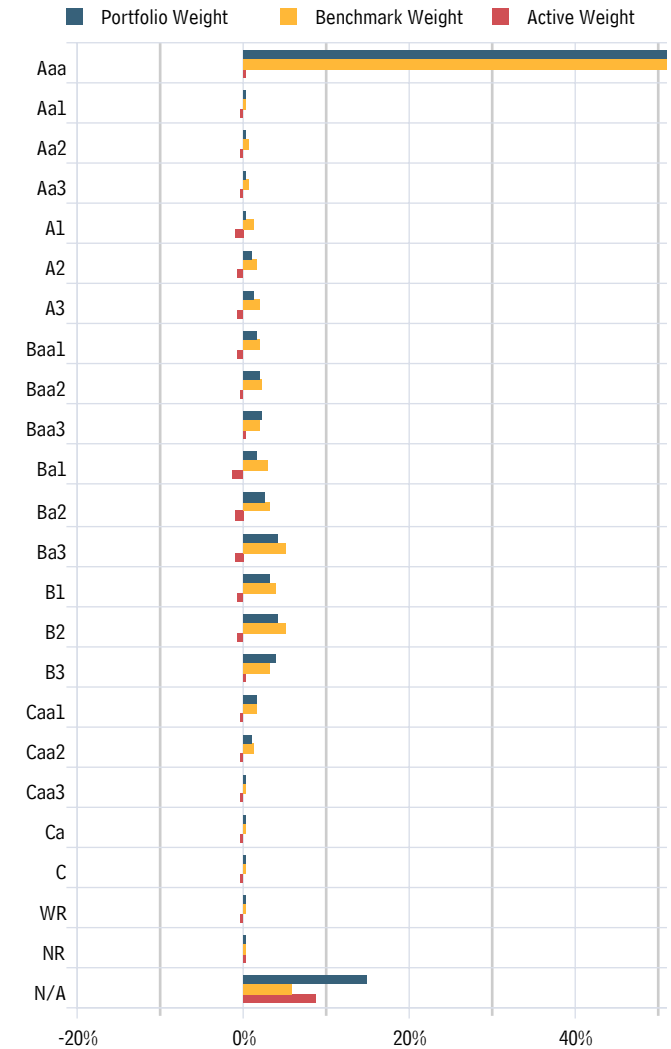
BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Public
BENCHMARK: Fixed Income
POSITIONS: 5,832
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
MARKET VALUE: 4,576,183,295
ACCEPTED: 5,814

Portfolio Allocation by Moody's Rating

Rating	Weight (%)			Cont. To Eff. Dur	Spread Duration	Total Risk	Active Risk CR	%CR to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	6.85	7.09	3.08	0.67	100.00
Aaa	54.32	54.18	0.14	5.53	10.32	5.08	0.39	57.62
Aa1	0.12	0.23	-0.11	0.01	11.54	6.32	0.00	0.11
Aa2	0.15	0.55	-0.40	0.02	10.25	5.12	-0.00	-0.43
Aa3	0.19	0.55	-0.36	0.02	8.69	4.33	-0.00	-0.02
A1	0.39	1.32	-0.92	0.03	7.76	3.79	-0.01	-1.01
A2	0.94	1.57	-0.63	0.06	6.67	3.28	-0.00	-0.50
A3	1.16	1.80	-0.64	0.09	7.78	3.92	-0.01	-0.92
Baa1	1.48	1.97	-0.49	0.11	7.32	3.66	-0.01	-1.43
Baa2	2.01	2.38	-0.36	0.15	7.66	3.87	-0.00	-0.33
Baa3	2.37	2.02	0.35	0.13	5.75	2.84	0.00	0.65
Ba1	1.47	2.88	-1.40	0.06	4.18	3.30	0.04	5.99
Ba2	2.49	3.35	-0.86	0.07	3.42	3.26	0.01	1.63
Ba3	4.19	5.28	-1.09	0.11	3.15	3.20	0.03	4.64
B1	3.22	3.89	-0.67	0.07	2.84	4.39	0.01	2.21
B2	4.24	5.03	-0.80	0.07	2.84	5.06	0.02	3.66
B3	3.72	3.38	0.34	0.09	2.86	5.02	-0.00	-0.66
Caa1	1.54	1.63	-0.09	0.03	2.35	5.61	0.02	2.28
Caa2	0.99	1.30	-0.31	0.03	3.37	10.77	0.03	4.11
Caa3	0.02	0.13	-0.10	0.00	2.10	10.01	0.00	0.71
Ca	0.02	0.18	-0.16	0.00	2.76	20.96	0.01	1.26
C	0.00	0.04	-0.03	0.00	0.85	6.14	0.00	0.20
WR	0.22	0.46	-0.24	0.00	3.25	3.81	0.00	0.04
NR	0.04	0.03	0.01	0.00	0.39	0.58	-0.00	-0.09
Not Rated	14.71	5.87	8.84	0.15	1.25	1.93	0.14	20.29



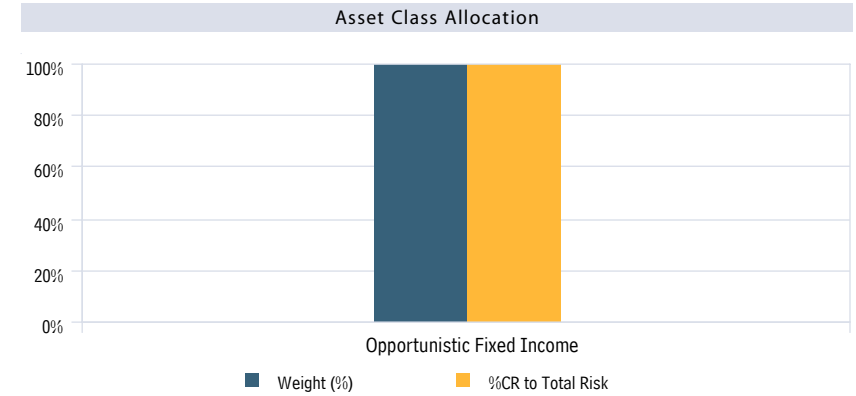
BarraOne Fixed Income Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: Alternative
BENCHMARK: Alternative_FI
POSITIONS: 18
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
ACCEPTED: 13

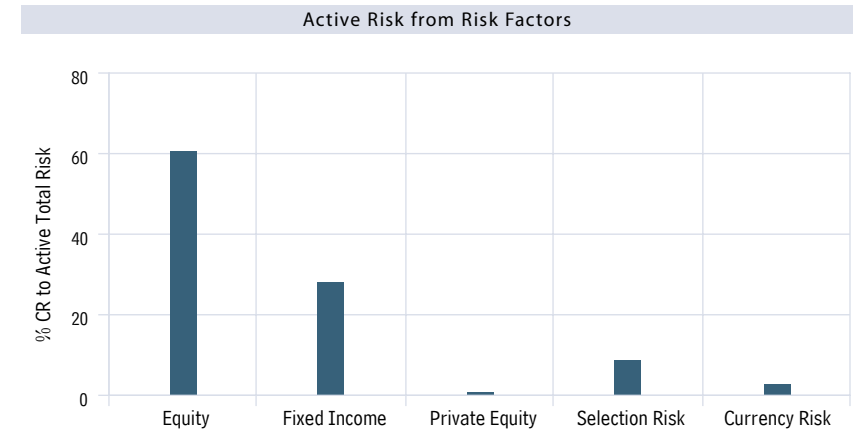
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	7.96	Total	359,331,278	100.00	7.96	7.96	100.00
Benchmark Risk	3.87	Opportunistic Fixed Income	359,331,278	100.00	7.96	7.96	100.00
Active Risk	5.95						
Portfolio Beta	1.43						
Cont. to Eff. Duration	3.05						
Convexity	3.42						
Yield to Worst (%)	infinity						
OAS to Swap (bp)	802.26						



Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	7.96	100.00	1.00	5.95	100.00	1.00
Local Market Risk	7.79	97.91	0.99	5.81	97.60	0.99
Common Factor Risk	7.41	93.10	0.97	5.29	88.95	0.94
Equity	4.19	52.63	0.84	3.61	60.73	0.73
Style	1.17	14.68	0.48	1.21	20.40	0.50
Industry	3.02	37.94	0.78	2.40	40.32	0.62
Fixed Income	3.21	40.35	0.78	1.67	28.01	0.45
Nominal Rates	-0.37	-4.61	-0.29	-0.07	-1.23	-0.17
Credit	3.58	44.96	0.79	1.74	29.24	0.48
Private Equity	0.01	0.12	0.03	0.01	0.22	0.05
Selection Risk	0.38	4.81	0.22	0.51	8.65	0.29
Currency Risk	0.17	2.09	0.16	0.14	2.40	0.14



BarraOne Fixed Income Summary

COMPANY: NYCRC - Fire Plan
PORTFOLIO: Alternative
BENCHMARK: Alternative_FI
POSITIONS: 18
MODEL: BIM303L

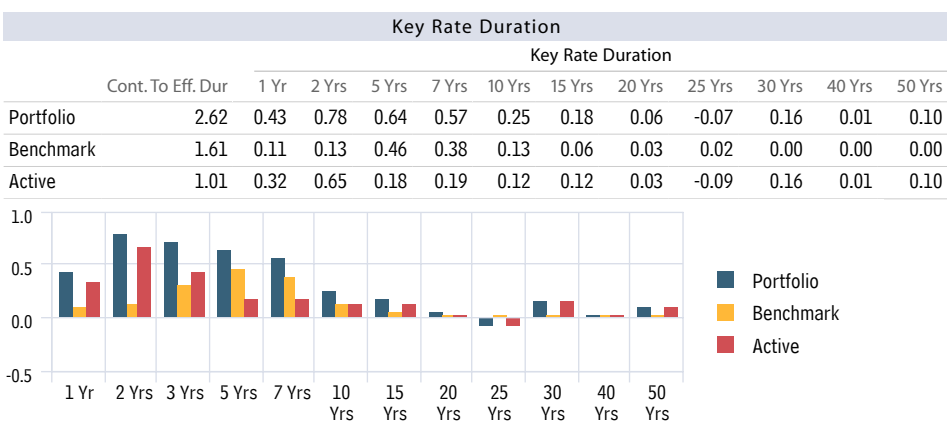
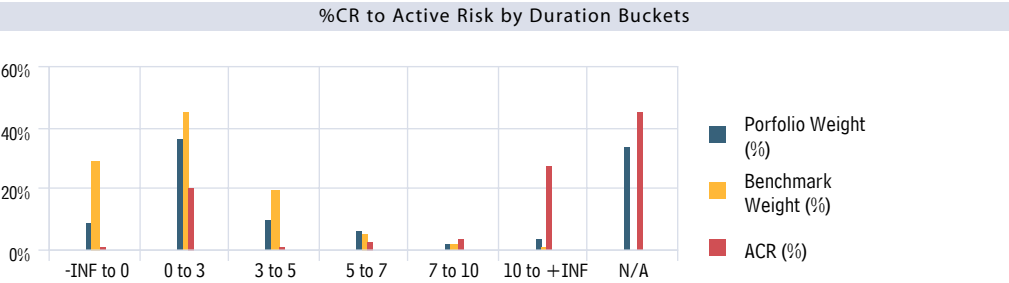
CURRENCY: USD
ANALYSIS DATE: June 30, 2019

ACCEPTED: 13

Portfolio by Factor Breakdowns

Top 10 Spread Factor									
Spread Factor	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
US Swap Shift	0.14	24.99	2.14	22.85	0.00	0.61	1.62	1.96	32.88
US Swap Butterfly	0.06	-12.71	-1.50	-11.21	-0.00	-0.16	0.12	0.12	1.99
US CCC	2.79	0.20	0.02	0.17	0.01	0.24	0.35	0.11	1.90
US Consumer Discretionary CCC	3.16	0.16	0.06	0.10	0.01	0.24	0.29	0.07	1.20
US Industrials CCC	2.37	0.12	0.05	0.07	0.01	0.22	0.16	0.04	0.60
US Materials CCC	3.07	0.05	0.01	0.04	0.00	0.15	0.08	0.02	0.30
EUR Swap Shift	0.16	0.60	0.00	0.60	0.00	0.13	0.01	0.01	0.21
US Swap Twist	0.08	-6.56	-0.52	-6.04	-0.00	-0.02	0.06	0.01	0.18
GB Swap Shift	0.24	0.15	0.00	0.15	0.00	0.29	0.01	0.01	0.18
US Utilities BB	0.84	0.10	0.05	0.06	0.00	0.14	0.04	0.01	0.12

Top 10 Term Structure									
Term Structure	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
US Twist	0.17	-1.57	-0.44	-1.13	-0.00	-0.09	0.03	0.02	0.30
EUR Implied Volatility	11.63	-0.01	0.00	-0.01	-0.03	-0.24	0.02	0.02	0.28
FR Shift	0.38	-0.03	0.00	-0.03	-0.00	-0.12	0.00	0.00	0.02
US Butterfly	0.12	-0.94	-1.05	0.11	0.00	0.05	-0.01	0.00	0.01
GB Twist	0.17	-0.01	0.00	-0.01	-0.00	-0.15	0.00	0.00	0.00
SE Twist	0.22	-0.00	0.00	-0.00	-0.00	-0.08	0.00	0.00	0.00
ES Shift	0.46	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
US Inflation-protected	0.46	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
NO Shift	0.35	-0.00	0.00	-0.00	-0.00	-0.11	0.00	0.00	0.00
CA Twist	0.15	-0.00	0.00	-0.00	-0.00	-0.07	0.00	0.00	0.00



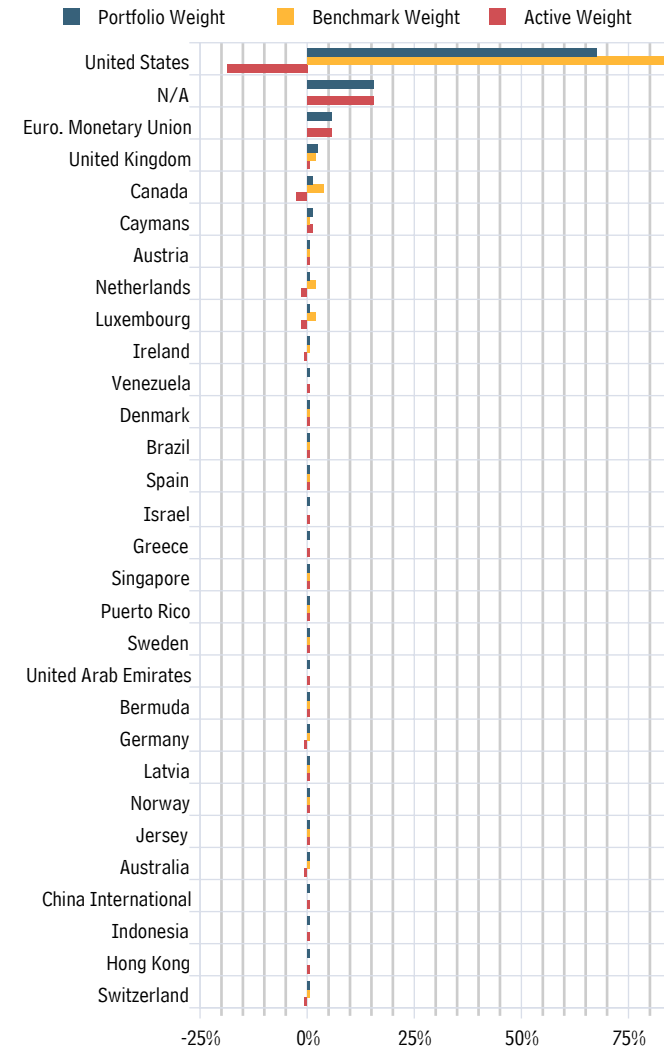
BarraOne Fixed Income Summary

COMPANY: NYCERS - Fire Plan
PORTFOLIO: Alternative
BENCHMARK: Alternative_FI
POSITIONS: 18
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
ACCEPTED: 13

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	7.96	5.95	100.00	0.06
United States	67.23	85.73	-18.49	9.51	5.01	84.11	0.03
N/A	15.84	0.00	15.84	9.41	0.68	11.46	0.05
Euro. Monetary Union	5.81	0.00	5.81	6.43	-0.01	-0.12	0.01
United Kingdom	2.46	2.08	0.38	8.38	0.04	0.60	0.02
Canada	1.42	4.06	-2.64	16.49	0.06	0.94	0.02
Caymans	1.18	0.21	0.98	8.98	0.03	0.44	0.03
Austria	0.75	0.02	0.73	20.70	0.05	0.80	0.07
Netherlands	0.71	1.90	-1.19	9.87	-0.00	-0.00	0.01
Luxembourg	0.68	2.14	-1.46	35.54	0.01	0.19	0.02
Ireland	0.48	0.51	-0.02	10.38	0.00	0.05	0.02
Venezuela	0.46	0.00	0.46	15.03	-0.00	-0.03	0.01
Denmark	0.46	0.03	0.43	12.24	0.00	0.06	0.02
Brazil	0.33	0.09	0.24	9.28	0.01	0.14	0.03
Spain	0.31	0.06	0.25	14.35	0.00	0.04	0.02
Israel	0.28	0.00	0.28	8.18	-0.00	-0.02	0.01
Greece	0.27	0.00	0.27	33.62	0.02	0.38	0.10
Singapore	0.25	0.09	0.16	4.01	-0.00	-0.03	0.00
Puerto Rico	0.21	0.01	0.20	13.39	0.01	0.15	0.05
Sweden	0.20	0.08	0.12	28.58	0.00	0.06	0.02
United Arab Emirates	0.14	0.00	0.14	9.80	-0.00	-0.01	0.01
Bermuda	0.14	0.05	0.09	9.81	0.00	0.00	0.01
Germany	0.10	0.40	-0.30	25.21	0.00	0.05	0.01
Latvia	0.10	0.01	0.08	9.23	-0.00	-0.00	0.01
Norway	0.09	0.06	0.02	52.83	0.01	0.14	0.06
Jersey	0.06	0.06	0.01	338.89	0.02	0.30	0.17
Australia	0.03	0.34	-0.31	8.00	0.00	0.01	0.01
China International	0.02	0.00	0.02	12.42	0.00	0.00	0.02
Indonesia	0.01	0.00	0.01	5.87	-0.00	-0.00	0.00
Hong Kong	0.01	0.00	0.01	16.07	-0.00	-0.00	0.00
Switzerland	0.00	0.18	-0.18	73.68	-0.00	-0.01	0.02



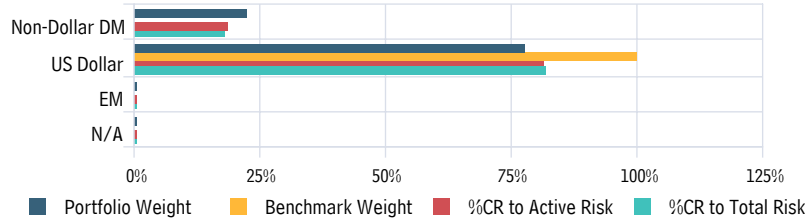
BarraOne Fixed Income Summary

COMPANY: NYCRS - Fire Plan
PORTFOLIO: Alternative
BENCHMARK: Alternative_FI
POSITIONS: 18
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
ACCEPTED: 13

Portfolio Allocation by Currency

Exposure by Market



Developed Market Currency

Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	279,208,519.43	85.25	81.79
Euro	69,851,696.06	13.01	15.95
British Pound Sterling	5,465,061.40	0.66	0.94
Canadian Dollar	2,092,932.34	0.86	0.94
Danish Krone	1,645,537.42	0.06	0.15

Emerging Market Currency

Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
CNH	70,254.43	0.00	0.01
Mexican Peso	0.01	0.00	0.00

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	7.96	7.96	100.00	5.95	100.00
US Dollar	77.70	100.00	-22.30	8.59	6.51	81.79	5.07	85.25
Euro	19.44	0.00	19.44	9.42	1.27	15.95	0.77	13.01
British Pound Sterling	1.52	0.00	1.52	12.20	0.07	0.94	0.04	0.66
Canadian Dollar	0.58	0.00	0.58	31.16	0.08	0.94	0.05	0.86
Danish Krone	0.46	0.00	0.46	12.24	0.01	0.15	0.00	0.06
Swedish Krona	0.17	0.00	0.17	8.54	0.00	0.05	0.00	0.02
Norwegian Krone	0.09	0.00	0.09	51.20	0.01	0.16	0.01	0.14
CNH	0.02	0.00	0.02	12.42	0.00	0.01	0.00	0.00
Australian Dollar	0.01	0.00	0.01	12.27	0.00	0.01	0.00	0.01
Singapore Dollar	0.01	0.00	0.01	3.96	0.00	0.00	-0.00	-0.00
Swiss Franc	0.00	0.00	0.00	73.68	0.00	0.00	0.00	0.00
Mexican Peso	0.00	0.00	0.00	11.29	0.00	0.00	0.00	0.00
Japanese Yen	0.00	0.00	0.00	7.32	-0.00	-0.00	-0.00	-0.00

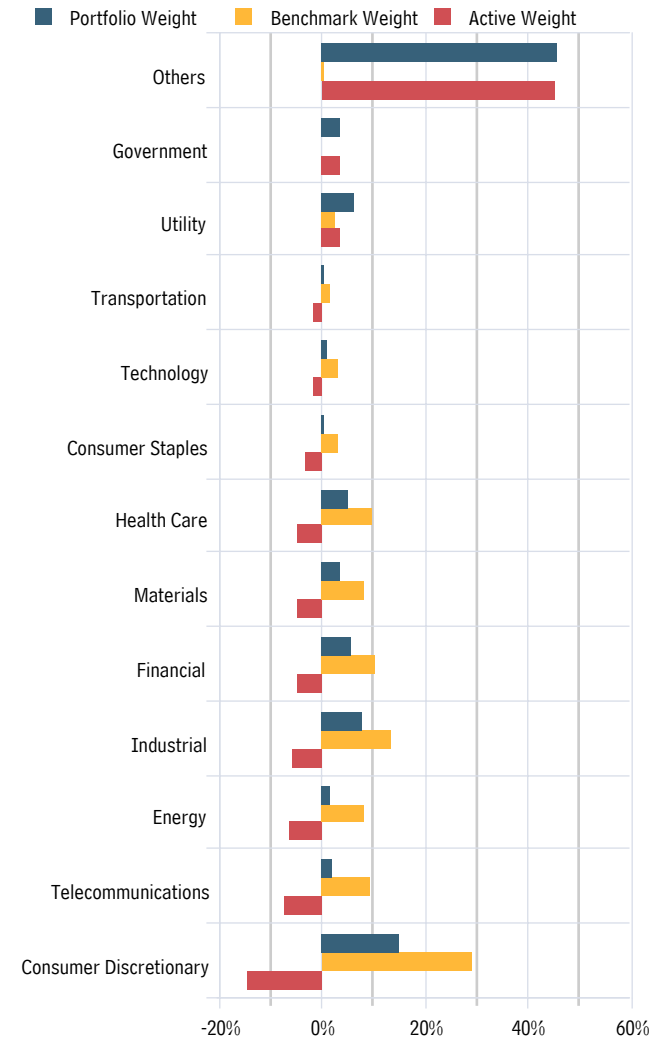
BarraOne Fixed Income Summary

COMPANY: NYCERS - Fire Plan
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BENCHMARK: Alternative_FI
POSITIONS: 18
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
ACCEPTED: 13

Portfolio Allocation by Bond Sector

Sector	Weight (%)			Cont. To Eff. Dur	Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	2.62	7.96	5.95	100.00	0.06
Others	45.49	0.13	45.36	0.49	11.77	3.79	63.74	0.04
Consumer Discretionary	14.81	29.17	-14.36	0.17	4.77	0.11	1.89	0.01
Industrial	7.80	13.55	-5.75	0.11	5.71	0.09	1.57	0.01
Utility	6.03	2.47	3.56	0.22	24.94	0.44	7.34	0.06
Financial	5.70	10.53	-4.82	0.17	6.54	0.08	1.32	0.02
Health Care	5.33	9.94	-4.61	0.07	3.93	0.02	0.40	0.01
Government	3.88	0.00	3.88	0.39	5.55	-0.07	-1.25	-0.00
Materials	3.51	8.29	-4.78	0.10	10.22	0.03	0.56	0.01
Telecommunications	2.23	9.58	-7.35	0.07	6.85	0.01	0.22	0.01
Energy	1.65	8.12	-6.47	-0.02	11.63	-0.04	-0.74	0.02
Technology	1.23	2.95	-1.72	0.02	3.88	0.00	0.02	0.01
Sovereign	0.45	0.00	0.45	0.00	15.41	-0.00	-0.06	0.00
Mortgage Backed Security	0.39	0.00	0.39	0.02	2.77	-0.00	-0.04	0.00
Collateralized Loan Obligat	0.38	0.00	0.38	0.86	603.25	1.43	24.06	3.78
Local/Provincial	0.25	0.12	0.12	0.01	11.28	0.01	0.09	0.04
Transportation	0.22	1.78	-1.57	0.00	6.67	0.01	0.13	0.01
Consumer Staples	0.21	3.25	-3.04	-0.09	46.60	0.03	0.52	0.01
Asset Backed Security	0.16	0.08	0.08	0.01	8.37	0.01	0.09	0.03
Commercial Mortgage Backed	0.16	0.00	0.16	0.01	11.46	0.00	0.06	0.03
Collateralized Debt Obligat	0.10	0.00	0.10	0.01	16.05	0.00	0.05	0.04
Agency	0.02	0.00	0.02	0.00	56.81	0.00	0.02	0.09
Corporation	0.00	0.03	-0.03	0.00	0.00	0.00	0.00	0.01



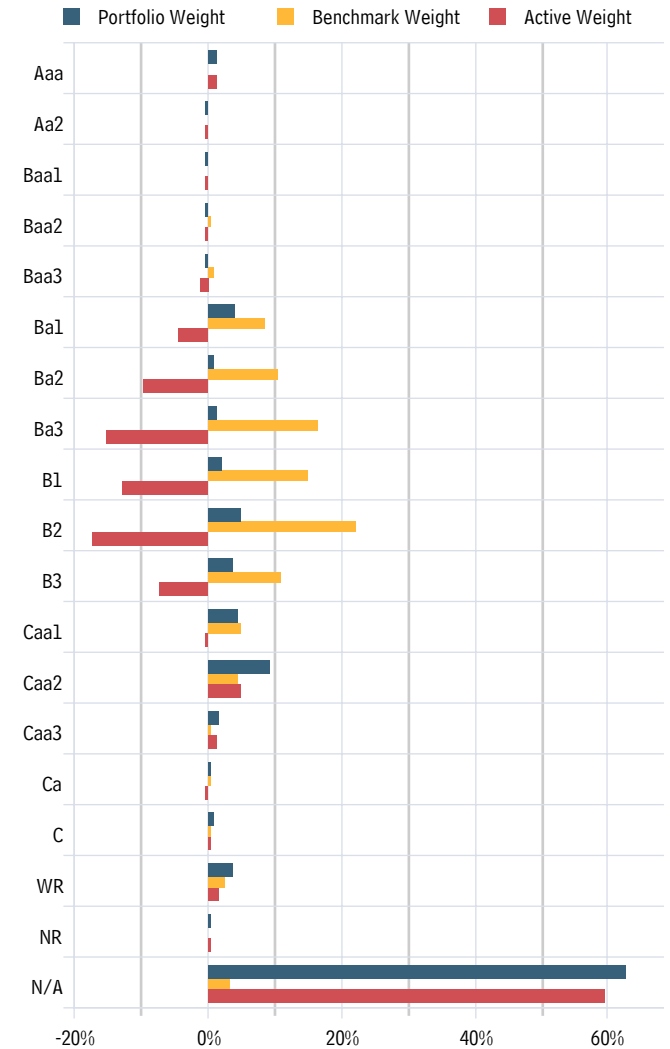
BarraOne Fixed Income Summary

COMPANY: NYCRS - Fire Plan
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POSITIONS: 18
MODEL: BIM303L

CURRENCY: USD
ANALYSIS DATE: June 30, 2019
ACCEPTED: 13

Portfolio Allocation by Moody's Rating

Rating	Weight (%)			Cont. To Eff. Dur	Spread Duration	Total Risk	Active Risk CR	%CR to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	2.62	5.44	7.96	5.95	100.00
Aaa	1.37	0.00	1.37	0.15	11.28	6.02	-0.03	-0.45
Aa2	-0.54	0.00	-0.54	-0.03	4.72	6.39	0.00	0.02
Baa1	-0.08	0.00	-0.08	-0.01	8.95	12.46	0.00	0.01
Baa2	-0.31	0.05	-0.37	-0.05	16.11	10.18	0.01	0.11
Baa3	-0.31	0.78	-1.09	-0.03	9.42	15.49	0.01	0.09
Ba1	3.84	8.35	-4.51	0.03	4.05	4.66	0.01	0.15
Ba2	0.92	10.37	-9.45	0.02	2.63	4.04	0.03	0.50
Ba3	1.36	16.49	-15.13	0.04	3.95	7.61	0.05	0.85
B1	2.19	14.97	-12.78	0.04	3.05	6.55	0.01	0.16
B2	4.76	21.97	-17.20	0.05	2.58	4.41	-0.02	-0.34
B3	3.65	10.98	-7.33	0.09	3.24	5.78	-0.01	-0.13
Caa1	4.50	4.89	-0.39	0.07	3.10	9.69	0.03	0.48
Caa2	9.24	4.47	4.77	0.13	2.80	7.91	0.04	0.69
Caa3	1.63	0.47	1.16	0.01	2.88	8.60	0.01	0.22
Ca	0.33	0.52	-0.19	0.01	1.43	12.61	0.00	0.02
C	0.60	0.08	0.53	0.07	12.56	37.08	0.02	0.31
WR	3.69	2.26	1.42	0.22	6.23	40.25	0.47	7.97
NR	0.39	0.00	0.39	0.86	272.06	594.59	1.43	24.07
Not Rated	62.77	3.36	59.41	0.94	4.04	8.75	3.88	65.27



APPENDICES:

Basket Clause

Basket Limit	25.00%
Basket Consumed	23.28%
Remaining Capacity	1.72%

	Basket-Eligible Assets*				
	Non-Basket Assets	Non-Contributing	Contributing	Basket Assets	Total
FIXED INCOME	28.07%	4.73%	0.01%	5.65%	38.47%
U.S. Fixed	14.01%	4.28%	0.01%	5.40%	23.70%
Cash/Equivalent	6.82%	---	---	0.00%	6.82%
TIPS	4.11%	---	---	---	4.11%
Convertible Bonds	1.46%	0.01%	0.01%	0.11%	1.59%
OFI	0.04%	0.13%	0.00%	2.85%	3.03%
High Yield	0.37%	4.05%	0.00%	1.09%	5.52%
Bank Loans	0.05%	0.04%	---	1.32%	1.41%
ETI Investments	0.69%	---	---	0.01%	0.70%
Core/Core Plus	0.48%	0.04%	---	0.01%	0.52%
U.S. Structured	14.06%	0.46%	---	0.25%	14.77%
Credit	2.07%	0.46%	---	0.06%	2.59%
Mortgages	1.93%	---	---	0.19%	2.12%
ST Treasury	0.88%	---	---	---	0.88%
Treasury/Agency	5.73%	---	---	---	5.73%
MT Treasury	0.04%	---	---	---	0.04%
LT Treasury	3.41%	---	---	---	3.41%
EQUITY	29.07%	14.85%	5.62%	11.98%	61.53%
Public Equity	29.07%	9.98%	5.62%	0.18%	44.85%
U.S. Equity	26.77%	0.77%	0.43%	0.09%	28.06%
EAFF	0.18%	5.21%	2.93%	0.04%	8.36%
Emerging Markets	0.05%	3.63%	2.05%	0.05%	5.77%
Global	0.86%	0.37%	0.21%	0.00%	1.44%
Real Estate Equity	1.21%	0.00%	0.00%	0.00%	1.22%
Alternative Investments	0.00%	4.87%	---	11.80%	16.68%
Hedge Funds	---	---	---	5.60%	5.60%
Infrastructure	0.00%	0.83%	---	---	0.83%
Private RE/Core	---	2.61%	---	---	2.61%
Private RE/Non-Core	0.00%	1.43%	---	---	1.44%
Private Equity	0.00%	---	---	6.20%	6.20%
TOTAL ASSETS	57.15%	19.58%	5.64%	17.64%	100.00%
	Non-Basket:	76.72%	Basket:	23.28%	

This analysis shows basket consumption by investment mandate on a security look-through basis.

* Basket Eligible Assets are subject to the following thresholds - above which investment consumes basket capacity: 10% aggregate portfolio weight for investments in non-U.S. listed equities; 10% aggregate portfolio weight for real assets; and 10% aggregate portfolio weight for investments in high yield bonds and foreign debt issues that are registered with the SEC. To the extent that the value of investments in a particular category exceeds a threshold, the excess consumes basket capacity.

In the above table, the investment of cash held as collateral under the system's securities lending program, is included as a Non-Basket Asset in the Cash/Equivalent line.



Liquidity Analysis

AUM as of June 30, 2019

	Current MV	Liquid Assets		
		Today	1 Year	2 Years
PUBLIC EQUITY	\$6,811	\$6,811	\$6,811	\$6,811
U.S.	4,440	4,440	4,440	4,440
EAFE Equity	1,210	1,210	1,210	1,210
Emerging Markets	942	942	942	942
Global Equity	219	219	219	219
PUBLIC FIXED INCOME	\$4,682	\$4,602	\$4,660	\$4,660
Short Term Securities	364	364	364	364
U.S. Government	1,525	1,525	1,525	1,525
Long Duration Treasury	0	0	0	0
Mortgages				
Core Mortgages	312	312	312	312
ETI	107	27	85	85
Credit - Investment Grade	712	712	712	712
Corporate - High Yield	826	826	826	826
Corporate - Bank Loans	214	214	214	214
UST - Inflation Protected	623	623	623	623
ALTERNATIVE ASSETS	\$3,005	\$464	\$885	\$985
Private Equity	943	0	0	0
Private Real Estate	613	0	0	0
Infrastructure	126	0	0	0
Opportunistic Fixed Income	453	340	453	453
Hedge Funds	870	124	432	532
Total Assets	\$14,497	\$11,876	\$12,356	\$12,456
Total Illiquid \$		\$2,621	\$2,141	\$2,041
Total Illiquid %		18.1%	14.8%	14.1%
Unfunded OFI Commitments	\$125			
Unfunded INF Commitments	\$171			
Unfunded PE Commitments	\$680			
Unfunded RE Commitments	\$386			
Total commitments \$	\$1,362			
Total commitments %	9.4%			



AUM as of June 30, 2019

Denominator Effect - Decrease AUM by One-Third

Total Illiquid \$	\$2,621	\$2,141	\$2,041
Total Illiquid %	27.1%	22.2%	21.1%

Note: Assumes zero realizations, no new commitments and a five-year investment period; funded out of liquids

	Current MV	Liquid Assets		
		Today	1 Year	2 Years
Total Assets	\$14,497	\$11,876	\$12,356	\$12,456

Private Equity, Real Estate, Infrastructure and Opportunistic Fixed Income Stress Case

Unfunded OFI Commitments	\$25	\$50
Unfunded INF Commitments	\$34	\$69
Unfunded PE Commitments Drawn	\$136	\$272
Unfunded RE Commitments Drawn	\$77	\$154
Total commitments \$	\$272	\$545
Total commitments %	1.9%	3.8%

Total Illiquid \$	\$2,414	\$2,586
Total Illiquid %	16.6%	17.8%

Note: Assumes zero realizations, no new commitments and a five-year investment period; funded out of liquids

Denominator Effect - Decrease AUM by One-Third

Total Illiquid \$	\$2,621	\$2,414	\$2,586
Total Illiquid %	27.1%	25.0%	26.8%

Note: Assumes zero realizations, no new commitments and a five-year investment period; funded out of liquids

