

# NYC Board of Education Retirement System Investment Meeting (Public)

<b>Schedule</b>	Wednesday, June 15, 2022 9:30 AM — 12:00 PM EDT
<b>Venue</b>	Join Zoom Meeting: <a href="https://us02web.zoom.us/j/86241034179?pwd=dIV6czhVWEQrQzJpZE1QN2FRRVVUUT09">https://us02web.zoom.us/j/86241034179?pwd=dIV6czhVWEQrQzJpZE1QN2FRRVVUUT09</a>
<b>Notes for Participants</b>	Topic: NYCERS Investment Meeting (+ BERS) Time: Jun 15, 2022 09:30 AM Eastern Time (US and Canada)  Join Zoom Meeting: <a href="https://us02web.zoom.us/j/86241034179?pwd=dIV6czhVWEQrQzJpZE1QN2FRRVVUUT09">https://us02web.zoom.us/j/86241034179?pwd=dIV6czhVWEQrQzJpZE1QN2FRRVVUUT09</a>  Meeting ID: 862 4103 4179 Passcode: 989567 One tap mobile +16468769923,,86241034179# US (New York) +13126266799,,86241034179# US (Chicago) Dial by your location: +1 646 876 9923 US (New York) +1 312 626 6799 US (Chicago) +1 301 715 8592 US (Washington DC) +1 253 215 8782 US (Tacoma) +1 346 248 7799 US (Houston) +1 669 900 6833 US (San Jose) Meeting ID: 862 4103 4179 Find your local number: <a href="https://us02web.zoom.us/u/kbjY5bSW6">https://us02web.zoom.us/u/kbjY5bSW6</a> Join by SIP: 86241034179@zoomcrc.com Join by H.323 162.255.37.11 (US West) 162.255.36.11 (US East) 115.114.131.7 (India Mumbai) 115.114.115.7 (India Hyderabad) 213.19.144.110 (Amsterdam Netherlands) 213.244.140.110 (Germany) 103.122.166.55 (Australia Sydney) 103.122.167.55 (Australia Melbourne) 149.137.40.110 (Singapore) 64.211.144.160 (Brazil)

149.137.68.253 (Mexico)  
69.174.57.160 (Canada Toronto)  
65.39.152.160 (Canada Vancouver)  
207.226.132.110 (Japan Tokyo)  
149.137.24.110 (Japan Osaka)  
Meeting ID: 862 4103 4179  
Passcode: 989567

Thank you,  
Kim Boston








KIM D. BOSTON  
Administrative Manager  
Bureau of Asset Management, Pension Unit  
Office of New York City Comptroller Brad Lander  
Work: (212) 669-4789 | Mobile: (347) 723-6697  
Email: kboston@comptroller.nyc.gov

Organizer

Kim Boston

## Agenda

	PUBLIC AGENDA -	1
9:30 AM	Welcome and Opening	2
9:45 AM	Quarterly Fund Performance Overview (Public): -Market Overview -Performance Update -Risk Update	3
	 06-15-2022 BERS Meeting (1Q2022 Quarterly) Public.pdf	4
	NON-INVESTMENT MATERIAL - QUARTERLY PERFORMANCE REPORTING SECTION (Public Reports):	35
	State Street Quarterly Fund Performance Overview (Public):	36
	 BERS 1Q21 Quarterly Report Overview_(Public).pdf	37

ETI Quarterly Report (Public):	98
 ETI 1Q Qtrly Rpt (Public)_06.15.2022 (BERS).pdf	99
<hr/>	
Private Equity Quarterly Report (Public):	105
 PE 4Q Qtrly Rpt (Public)_06.15.2022 (BERS).pdf	106
<hr/>	
Real Estate Quarterly Report (Public):	129
 RE 4Q Qtrly Rpt (Public)_06.15.2022 (BERS).pdf	130
<hr/>	
Infrastructure Quarterly Report (Public):	157
 Infra 4Q Qtrly Rpt (Public)_06.15.2022 (BERS).pdf	158
<hr/>	
Risk Quarterly Report (Public):	185
 Risk 1Q Qtrly Report_06.15.2022 (BERS).pdf	186
<hr/>	
APPENDICES:	227
-Basket Clause	
-Liquidity Analysis	
 Basket Clause Rpt_06.15.2022 (BERS).pdf	228
 Liquidity Report_06.15.2022 (BERS).pdf	229
<hr/>	

**PUBLIC AGENDA -**



# Welcome and Opening

## Quarterly Fund Performance Overview (Public):

- Market Overview
- Performance Update
- Risk Update



# BERS INVESTMENT MEETING

## PUBLIC SESSION



June 15, 2022

# **MARKET OVERVIEW AND BERS PERFORMANCE REPORTING, Q1-2022**

# PUBLIC MARKET RETURNS, Q1-2022

Asset Class	Index	Q1-22	1 Year	3 Year	5 Year	Expected*
Equities - U.S.	Russell 3000	-5.28%	11.92%	18.24%	15.40%	5.80%
Equities - Developed Intl	MSCI World ex USA IMI Net	-5.18%	2.31%	8.69%	7.22%	6.80%
Equities - Emerging Intl	MSCI EMERGING MARKETS	-6.97%	-11.37%	4.94%	5.98%	8.30%
Debt - US Govt Long Duration	FTSE Treasury 10+	-10.42%	-0.84%	3.34%	3.96%	2.65%
Debt - US Government	NYC Treas/Agency +5	-7.98%	-2.86%	2.19%	2.68%	2.60%
Debt - Investment Grade	Bloomberg U.S. Corporate IG	-7.69%	-4.20%	3.02%	3.34%	3.60%
Debt - High Yield	Bloomberg U.S. HY-2% Issuer Cap	-4.82%	-0.66%	4.56%	4.68%	4.80%

\*Average of consultant long-term arithmetic expected market returns as of 1H '20



# PUBLIC MARKET RETURNS, Q1-2022

## Key Drivers of Market Returns

1. Continued rise of inflation and central bank rate hikes
  - 3/10 CPI report – from transitory to reality (CPI 7.9%, core CPI 6.4%)
  - 3/16 FOMC meeting – 1) raised rates 25bp 2) “anticipates that ongoing increases in target range will be appropriate and 3) Balance sheet announcement at next FOMC Meeting
  - Rate hikes and/or anticipated rate hikes in most developed and emerging markets, except for Japan and China.
2. Geo-political events adding to inflation increases
  - Russia invasion of Ukraine – increases in energy and commodities
  - China zero Covid policy – continued supply chain constraints



# PUBLIC MARKET RETURNS, Q1-2022

## Key Drivers of Market Returns

### 3. US Equity market decline

§ Correction from historically expensive valuations

**S&P 500 P/E not at recessionary levels yet**



Source: Credit Suisse

**NASDAQ valuations back at average levels**



Source: Credit Suisse



# PUBLIC MARKET RETURNS, Q1-2022

## Collapse in Unprofitable Tech Index



Source: Bloomberg

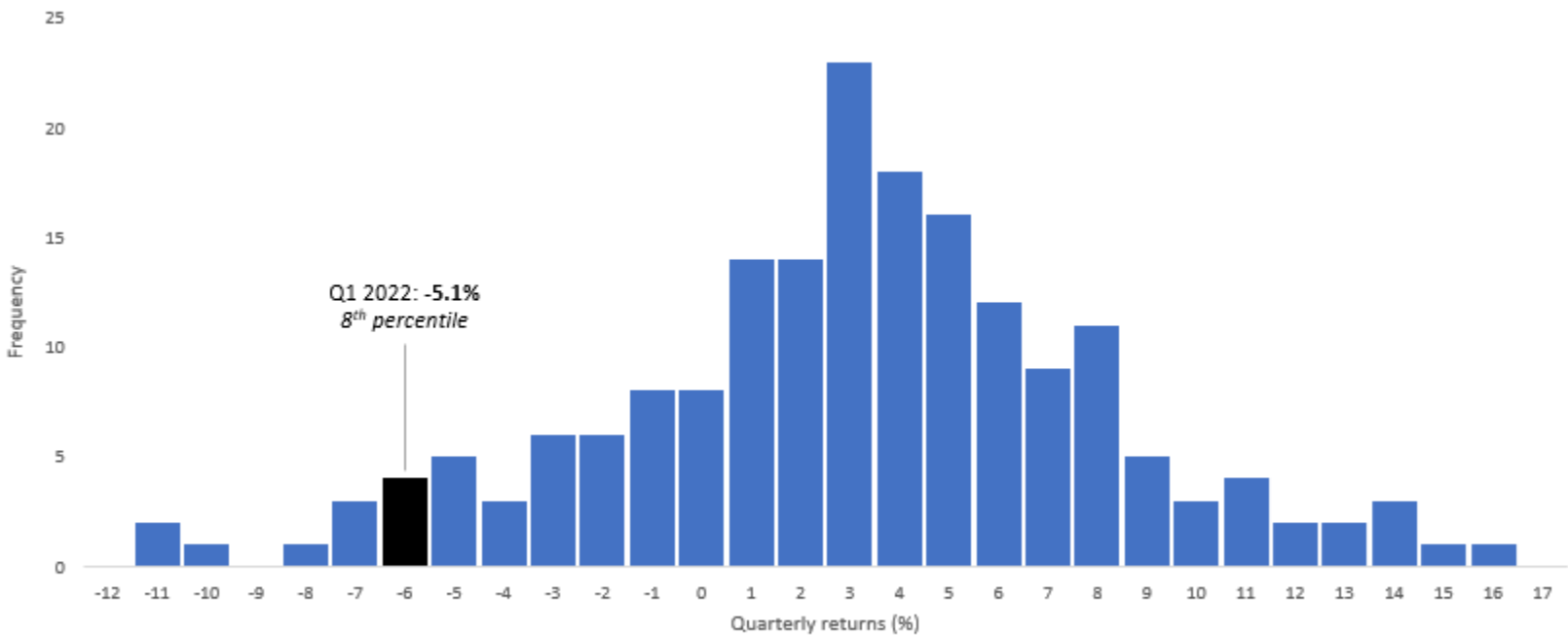




# PUBLIC MARKET RETURNS, Q1-2022

## Historical view of 60-40 indexed returns

Distribution of quarterly returns since 1976



Source of returns: Morningstar. Calculations by T. Rowe Price. 60% S&P 500 TR USD / 40% Bloomberg US Agg Bond TR USD, discreet quarters, beginning Q1 1976 and ending Q1 2022.



# NET PUBLIC MARKET RETURNS BY STRATEGY

## AS OF 3/31/2022

Investment Strategy	AUM (\$ Millions)	3 Month	1 Year	3 Year	5 Year
U.S. Equity	2,712	(6.37)	10.25	17.78	15.39
WORLD ex-USA	735	(12.71)	(12.26)	10.30	9.75
Emerging Markets	456	(6.23)	(7.87)	4.70	5.02
Core Fixed Income	1,522	(5.84)	(3.85)	2.62	2.70
TIPS	309	(2.81)	4.65	6.30	4.49
High Yield	762	(3.95)	0.31	5.38	5.00
ETI	42	(5.37)	(3.35)	2.16	2.71
Cash	102	(0.11)	(0.06)	0.59	1.04



# NET PRIVATE MARKETS RETURNS BY STRATEGY

## as of 3/31/2022

Investment Strategy	1 Year	3 Year	5 Year	10 Year	Since Inception
Private Equity	40.6	27.1	23.1	19.0	16.1
Private Real Estate Core	27.2	11.0	9.8	10.2	10.3
Private Real Estate Non-Core (Opp.)	28.6	13.6	14.7	15.0	14.9
Infrastructure	16.3	13.4	14.2	n/a	13.4
Opportunistic Fixed*	11.1	n/a	n/a	n/a	15.1

Dollar weighted returns for periods ended December 31, 2021, unless otherwise noted.

\* Returns through March 31, 2022

Source: Aksia, Hamilton Lane, State Street, Townsend Group



# NET PLAN PERFORMANCE as of 3/31/2022

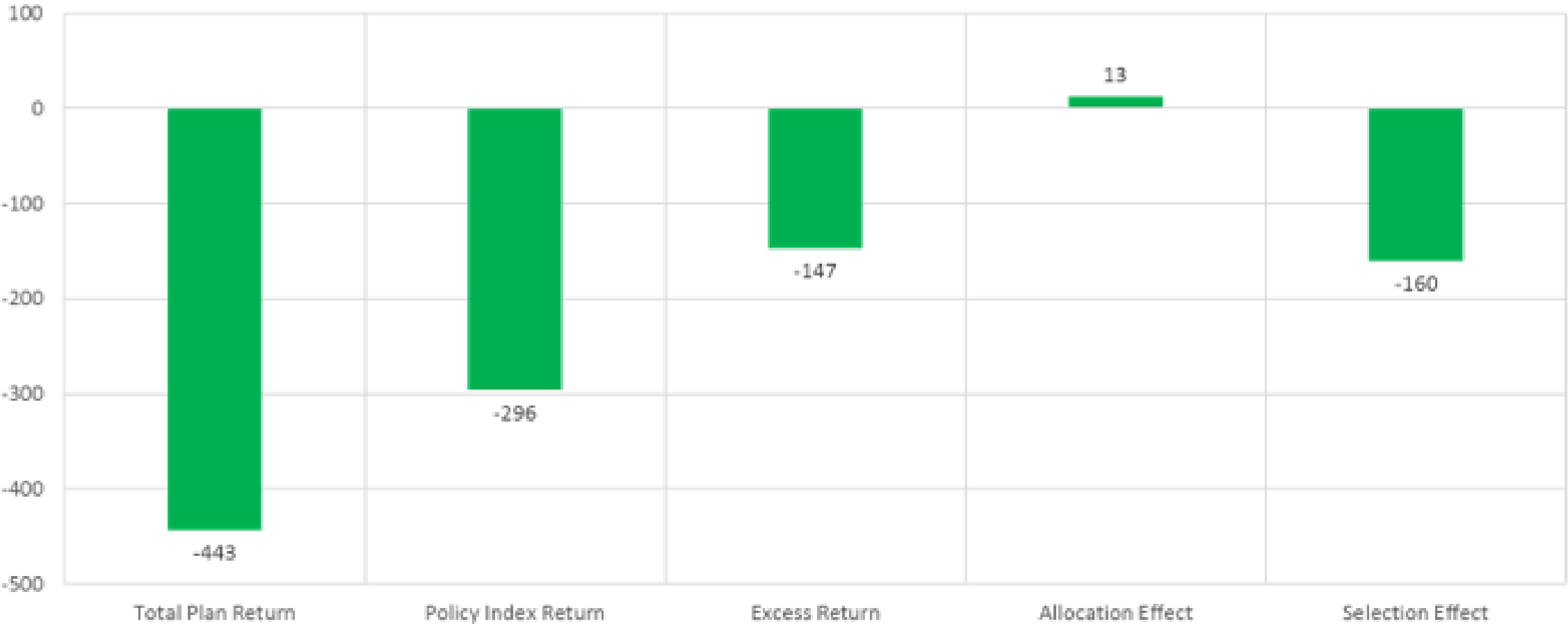
Aggregate Performance	3 Month	1 Year	3 Year	5 Year
BERS Total Plan	(4.4)	6.1	11.9	10.6
BERS Policy Return	(3.0)	7.2	12.1	10.3
Public Market Equivalent 65/35 Portfolio	(5.6)	3.9	10.3	9.0
Median Fund TUCS	(2.5)	9.8	11.8	10.1

Source: SSB



# QTD NET MGR. RETURN AS OF 3/31/2022 TOTAL PORTFOLIO

Basis Points of Excess Return



# PUBLIC MARKETS EXCESS RETURNS (IN BPS, Q1-2022)

Investment Strategy	3 Month Excess	1 Year Excess	3 Year Excess	5 Year Excess
U.S. Equity	(109)	(167)	(46)	(1)
WORLD ex-USA	(753)	(1,457)	162	252
Emerging Markets	75	351	(24)	(96)
Core Fixed Income	2	8	(68)	(60)
TIPS Managers	21	37	8	6
High Yield	87	97	82	39
Targeted (ETI)	(43)	58	63	62
Total BERS	(147)	(116)	(20)	38



# PRIVATE MARKETS EXCESS RETURNS (in bps, Q1-2022)

Investment Strategy	1 Year Excess	3 Year Excess	5 Year Excess	10 Year Excess	Since Inception Excess
Private Equity	1510	120	450	230	200
Private Real Estate Core	1965	(173)	58	213	229
Private Real Estate Non-Core (Opp.)	1600	(365)	251	402	390
Infrastructure	920	630	710	n/a	634
Opportunistic Fixed*	1041	n/a	n/a	n/a	960

Dollar weighted returns vs. benchmark for periods ended December 31, 2021, unless otherwise noted.

\* Returns through March 31, 2022

Source: Aksia, Hamilton Lane, State Street, Townsend Group



# BERS SUMMARY OF REBALANCING ACTIVITIES, Q1-2022

		From	Amount (\$MM)	To	Amount (\$MM)
BERS	US Equity	Large & Mid Cap	30	Cash Desk	30
Total Outflow			30	Total Inflow	30



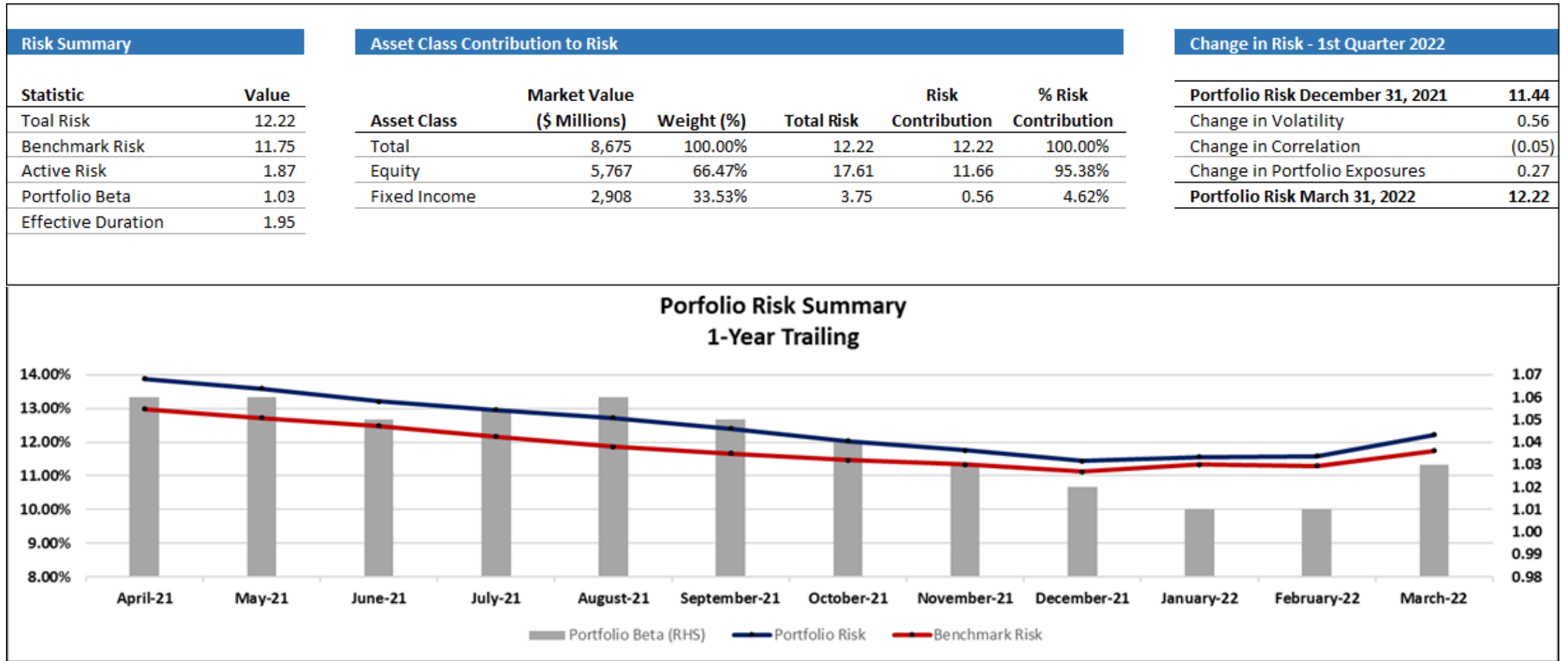


# BERS PORTFOLIO UNDER AND OVER WEIGHTS

Strategy	Policy Target	9/30/2021	12/30/2021	3/31/2022
Cash	0.0%	0.7%	1.4%	1.2%
U.S. Treasuries	6.5%	-0.7%	0.2%	0.4%
Investment Grade Bonds	4.8%	-0.3%	-0.5%	-0.5%
Mortgage-Backed Securities	4.7%	-0.5%	-0.6%	-0.5%
U.S. Equities	31.0%	0.8%	1.6%	0.0%
Developed Markets Equities	10.0%	0.8%	0.8%	-0.7%
Emerging Markets Equities	6.0%	0.0%	-0.1%	-0.4%



# BERS TOTAL PLAN SUMMARY



Source: MSCI



# BERS RISK & PERFORMANCE REVIEW

## Risk & Performance Summary 12 Months Ended March 31, 2022

Asset Class	Allocation			Performance <sup>†</sup>			Risk			
	Weight	Policy Weight	Active Weight	Portfolio Return	Benchmark Return	Active Return	Portfolio Volatility	Benchmark Volatility	% Contribution to Risk	Active Risk
<b>BERS Portfolio</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>#N/A</b>	<b>#N/A</b>	<b>#N/A</b>	<b>12.2%</b>	<b>11.8%</b>	<b>100.0%</b>	<b>1.9%</b>
U.S. Equity	32.3%	32.3%	0.0%	10.3%	11.9%	-1.7%	18.4%	18.3%	45.4%	0.7%
Developed Markets ex-U.S.	9.4%	10.2%	-0.7%	-12.3%	2.3%	-14.6%	20.3%	17.9%	17.2%	4.7%
Emerging Markets	5.7%	6.1%	-0.4%	-7.9%	-11.4%	3.5%	18.9%	19.4%	6.8%	3.7%
Private Equity	10.1%	9.0%	1.1%	40.6%	25.5%	15.1%	25.7%	18.3%	18.8%	14.8%
Private Real Estate - Core	4.3%	4.0%	0.3%	27.2%	7.6%	19.6%	12.5%	17.6%	3.0%	5.9%
Private Real Estate - Non-Core	2.6%	2.6%	0.0%	28.6%	12.6%	16.0%	12.5%	17.6%	2.1%	8.8%
Infrastructure	2.4%	2.4%	0.0%	16.3%	7.1%	9.2%	14.2%	2.3%	2.0%	13.6%
Core Fixed Income	17.9%	18.5%	-0.6%	-3.9%	-4.2%	0.3%	4.5%	4.5%	0.0%	0.5%
TIPS	3.5%	3.4%	0.1%	4.7%	4.3%	0.4%	5.2%	5.5%	0.5%	0.3%
High Yield	8.7%	9.6%	-0.9%	0.3%	-0.7%	1.0%	4.5%	4.8%	2.3%	0.4%
OFI	1.8%	1.8%	0.0%	11.1%	0.7%	10.4%	17.0%	4.4%	1.9%	13.8%
Cash-Equivalent	1.2%	0.0%	1.2%	-0.1%	0.1%	-0.1%	0.2%	0.1%	0.0%	0.1%

<sup>†</sup> Returns for alternative investment classes are shown on a dollar-weighted basis relative to their public market equivalents.

Source: Aksia, Hamilton Lane, MSCI, State Street, StepStone Group



# GLOBAL MACRO ISSUES

1. Slowing growth, high inflation and rising interest rates
2. Continued geo-political concerns
  - Russian – Ukraine war
  - China – 1) zero Covid policy 2) property sector decline 3) “shared prosperity” policies



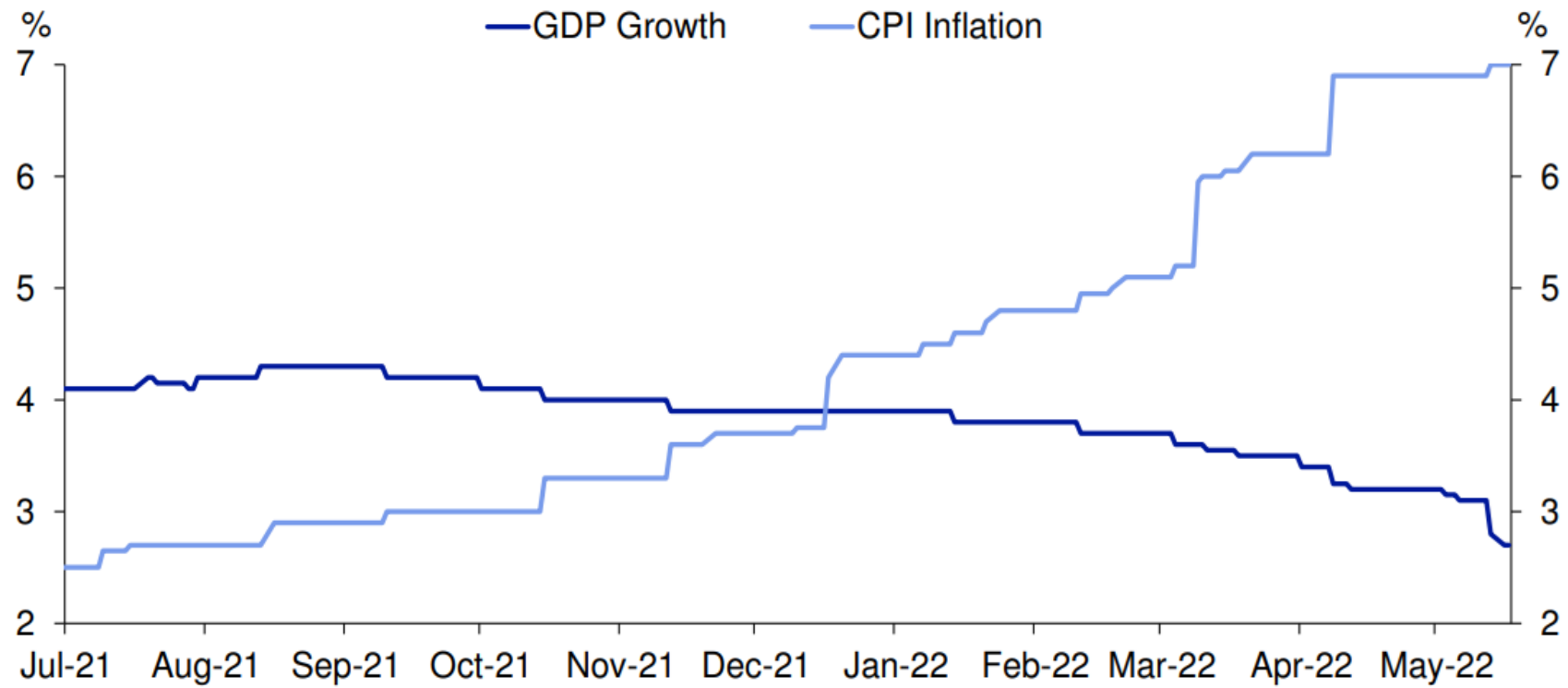
# SLOWING GROWTH AND HIGH INFLATION

- Central bank rate hikes, QT (end of European QE), and rising commodity prices leading to forecasts of slowing growth; near term inflation forecasts higher, while longer term inflation forecasts are lower
- Recession or soft landing has implication for future asset class returns
- Two ways to frame question 1) neutral or restrictive monetary policy and 2) Financial Conditions



# SLOWING GROWTH AND HIGH INFLATION

## Change in US growth and inflation consensus forecasts

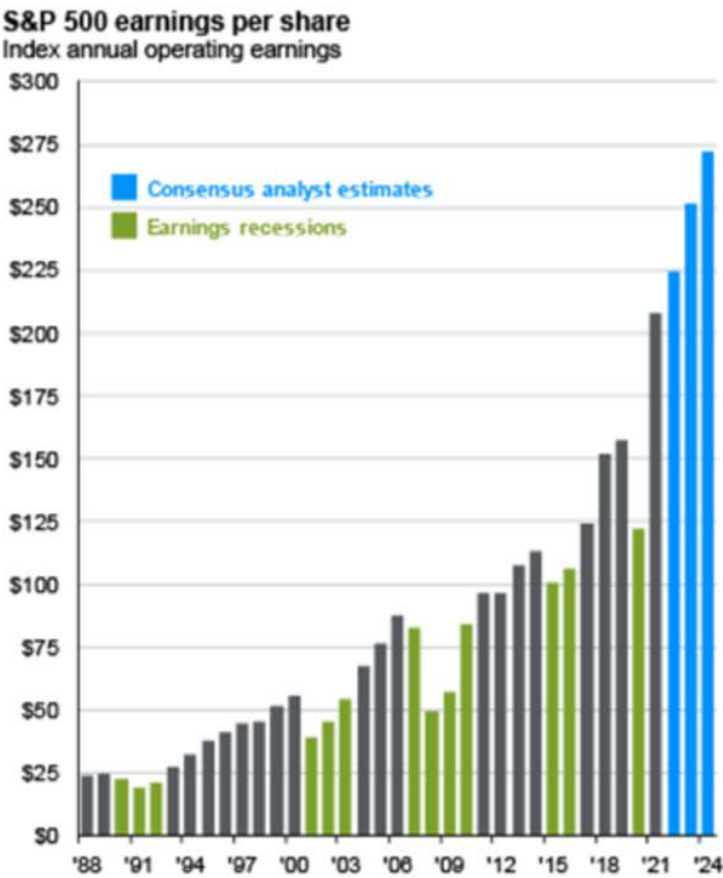


Source : Bloomberg Finance LP, Deutsche Bank

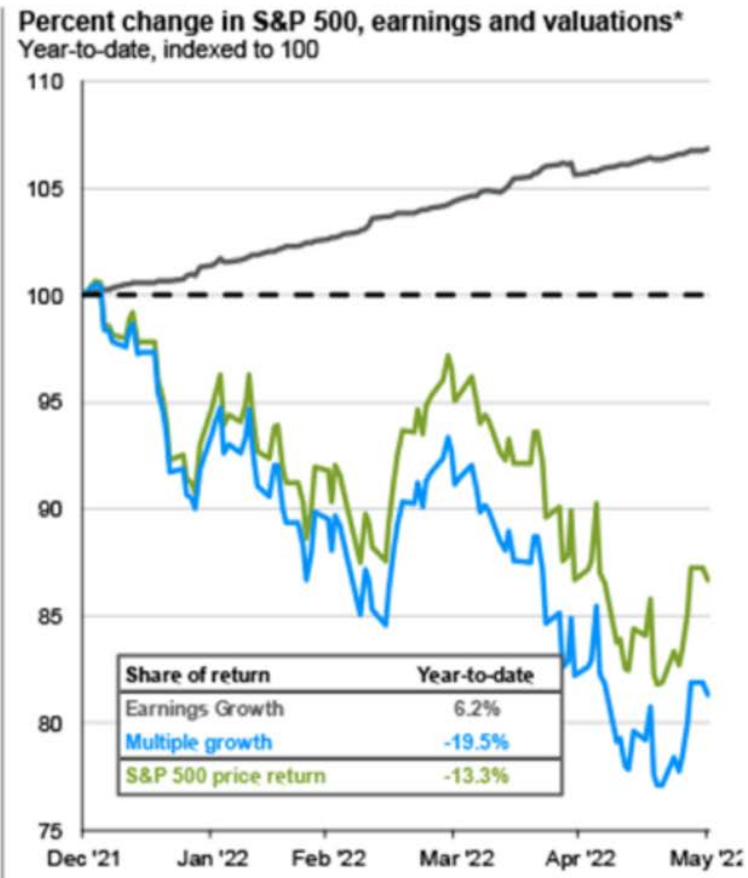


# SLOWING GROWTH AND HIGH INFLATION

## Earnings and Valuations

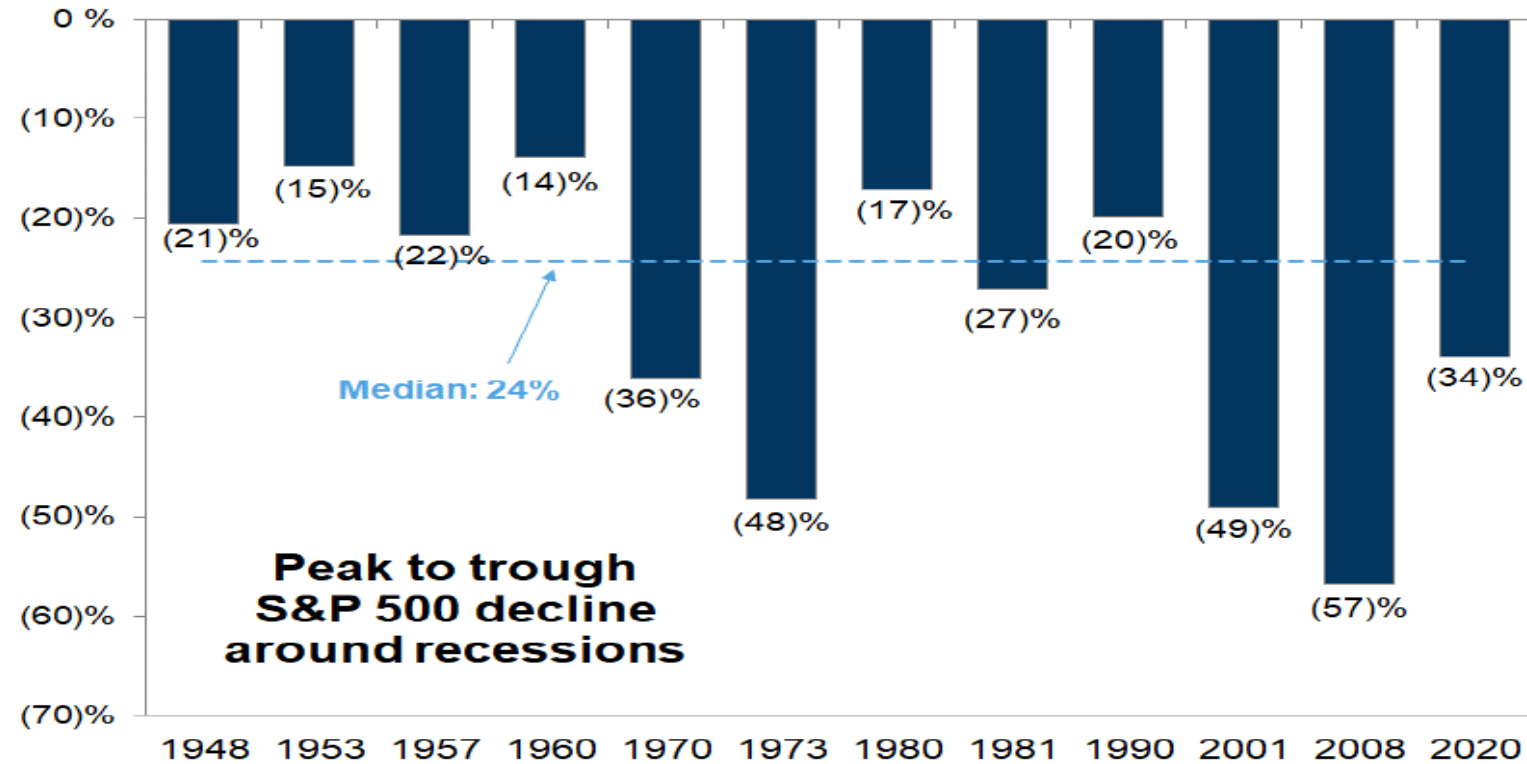


Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.



# SLOWING GROWTH AND HIGH INFLATION

## Recession issue impacts equity markets



Source(s): Goldman Sachs

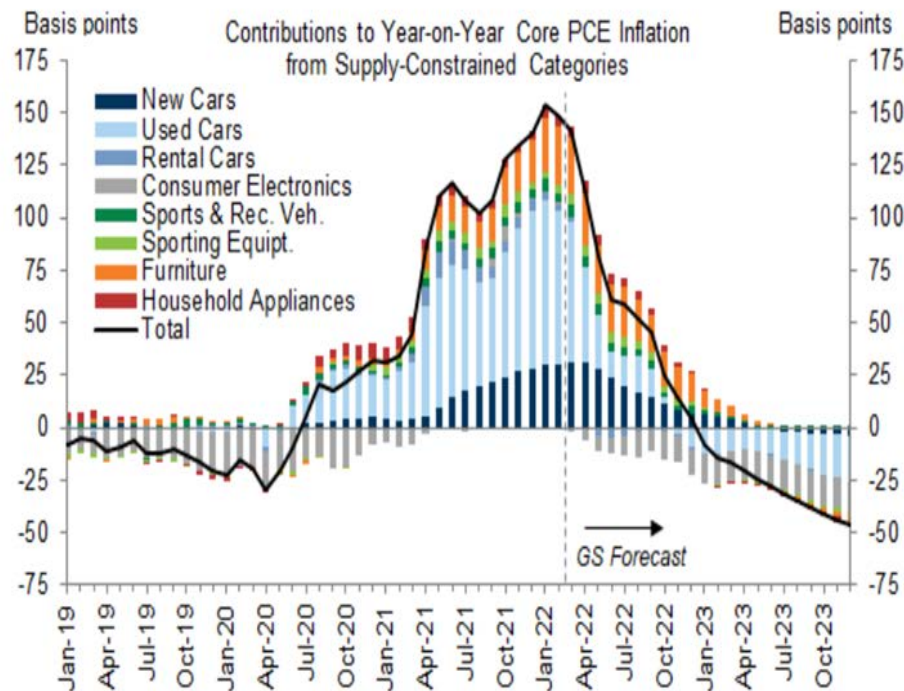




# SLOWING GROWTH AND HIGH INFLATION

## Core Inflation Fundamentals

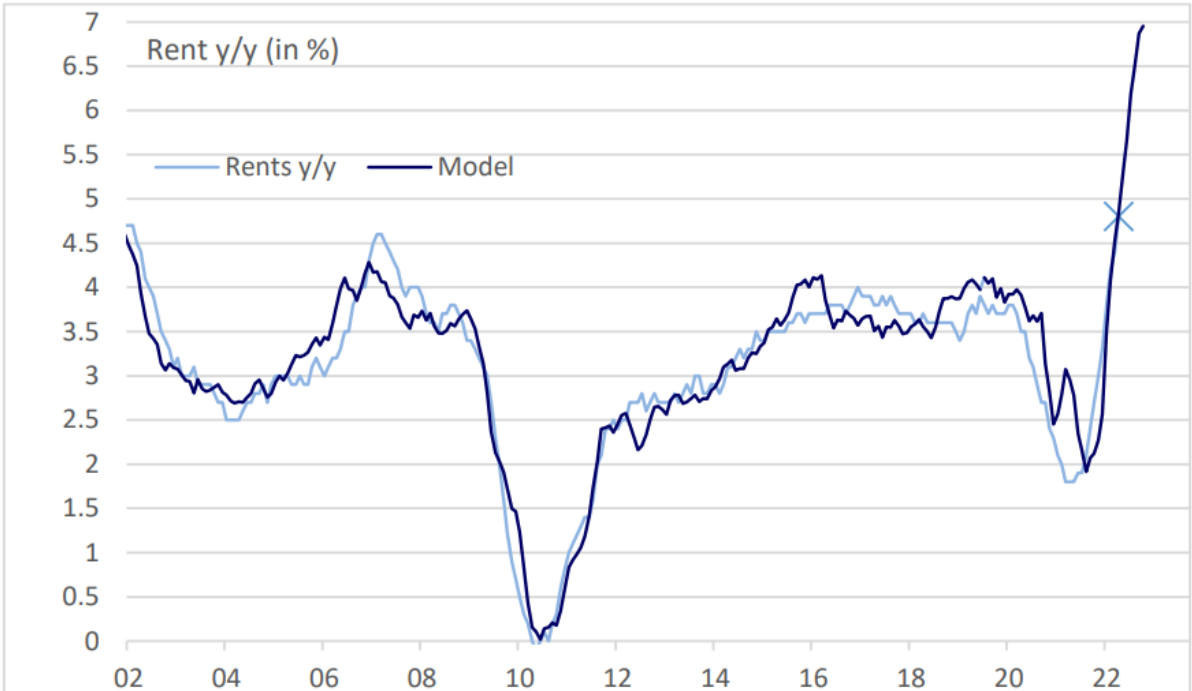
Contributions to YoY Core PCE Inflation from Supply-Constrained Categories



Source: Goldman Sachs

## Rising OER Inflation

Figure 2: Rents keep rising, which should keep inflation elevated



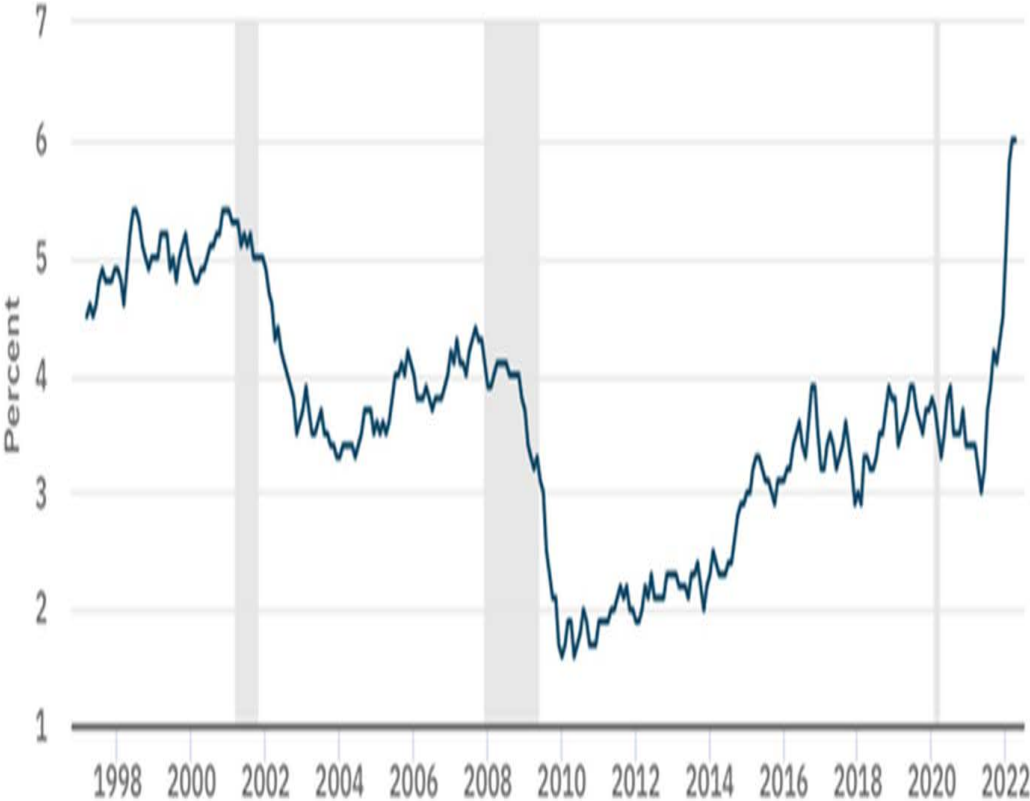
Source : Deutsche Bank, Haver Analytics, BLS, University of Michigan, AIA, BEA, Census Bureau Model: f(UR (3mavg, 6m lead), CS HP y/y (24m lead), NPCE y/y (12m avg, 9m lead), Mich 5y5y (3m avg, 6m lead), ABI (3m avg, 15m lead), Vacancy (3m avg, 9m lead)



# SLOWING GROWTH AND HIGH INFLATION

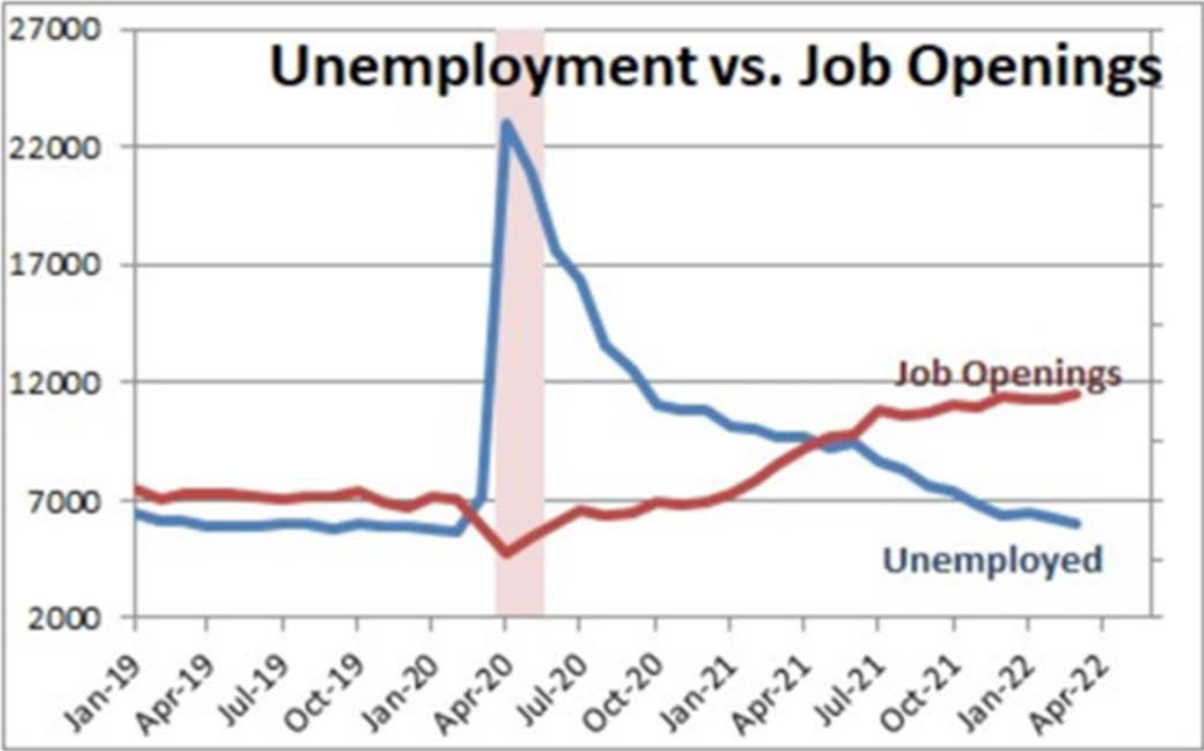
## LABOR MARKET FUNDAMENTALS

Atlanta Fed wage index



Source: Atlanta Federal Reserve Bank

Job openings vs # of unemployed



Source: NumberNomics

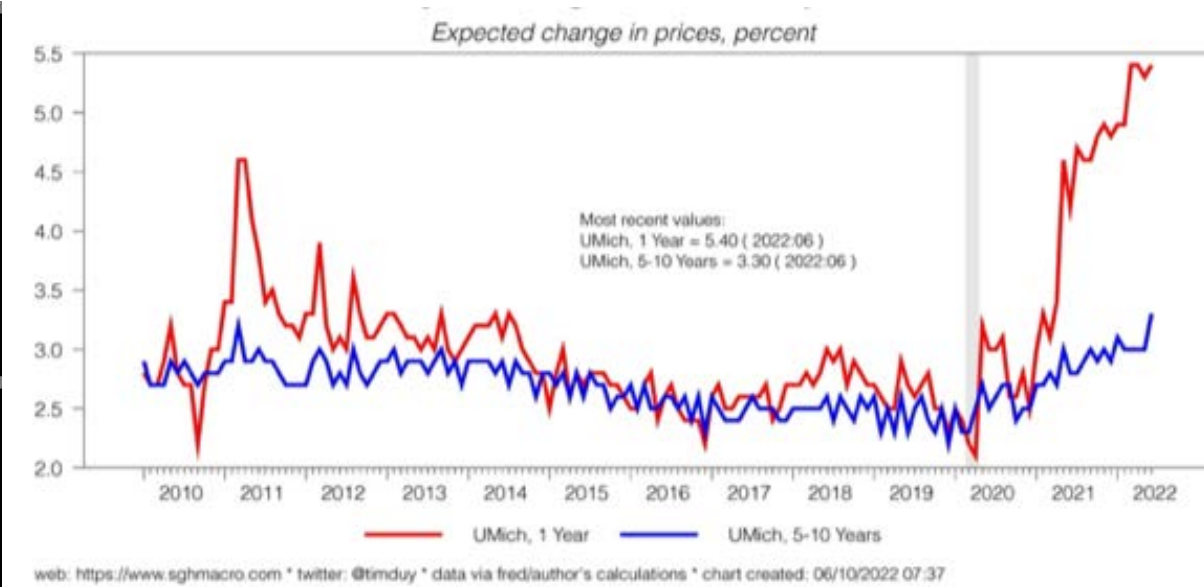


# SLOWING GROWTH AND HIGH INFLATION

## NY Fed Inflation Expectations



## U of Michigan Inflation Expectations



# SLOWING GROWTH AND HIGH INFLATION

## NEUTRAL OR RESTRICTIVE MONETARY POLICY

### Real Fed Funds Rate



Source: Neuberger Berman

Terminal Fed Funds Rate  
(June '23 Fed Funds futures, 96 implies Fed Funds of about 4%)



Source: Bloomberg



- Theory – monetary policy impacts economy through various financial markets
- FCI model incorporates 1) equity market 2) short and long term interest rates 3) value of dollar and 4) credit spreads

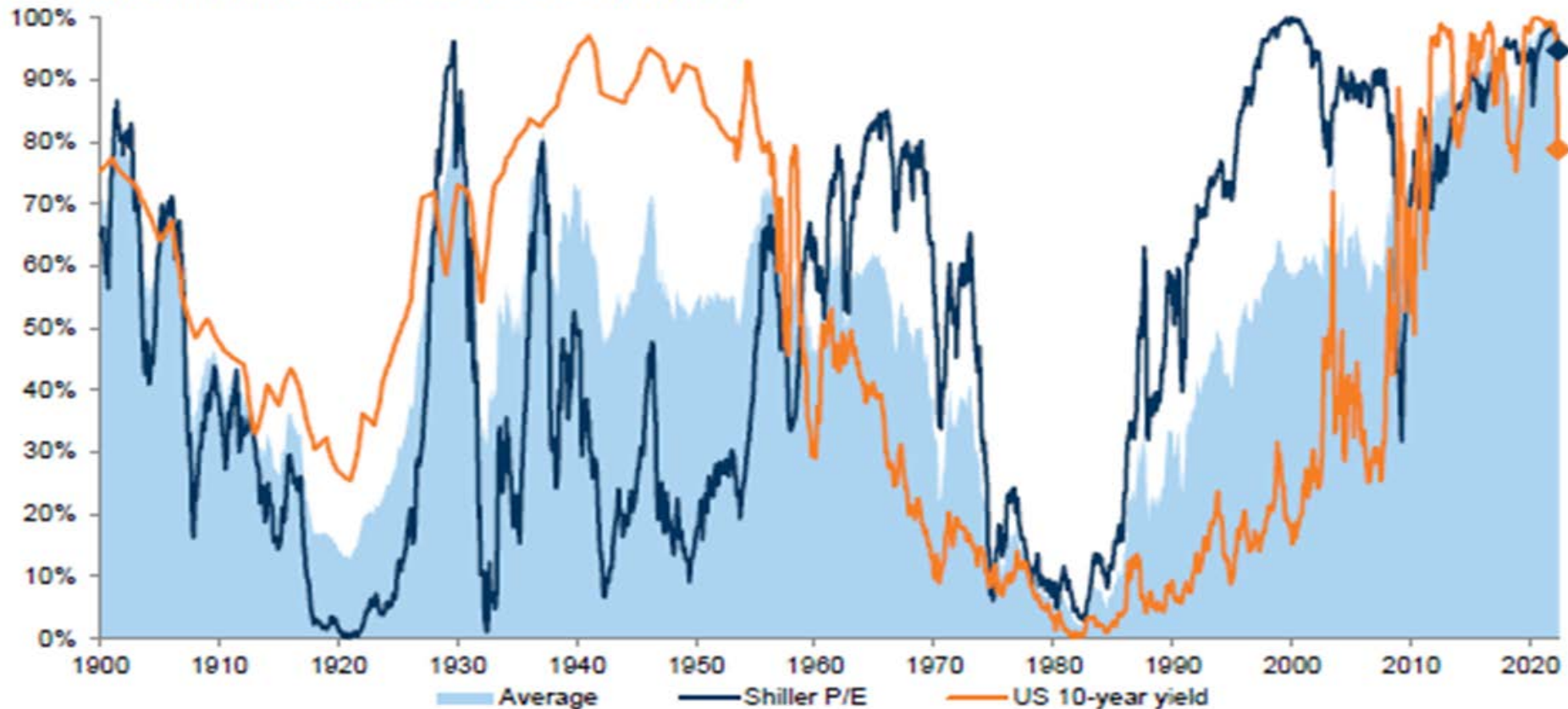




# RECESSION OR SOFT LANDING

## Valuations still historically expensive

Valuation frustration - both bonds and equities expensive  
Valuation percentile (since 1881 for S&P 500 & US 10-year yields)

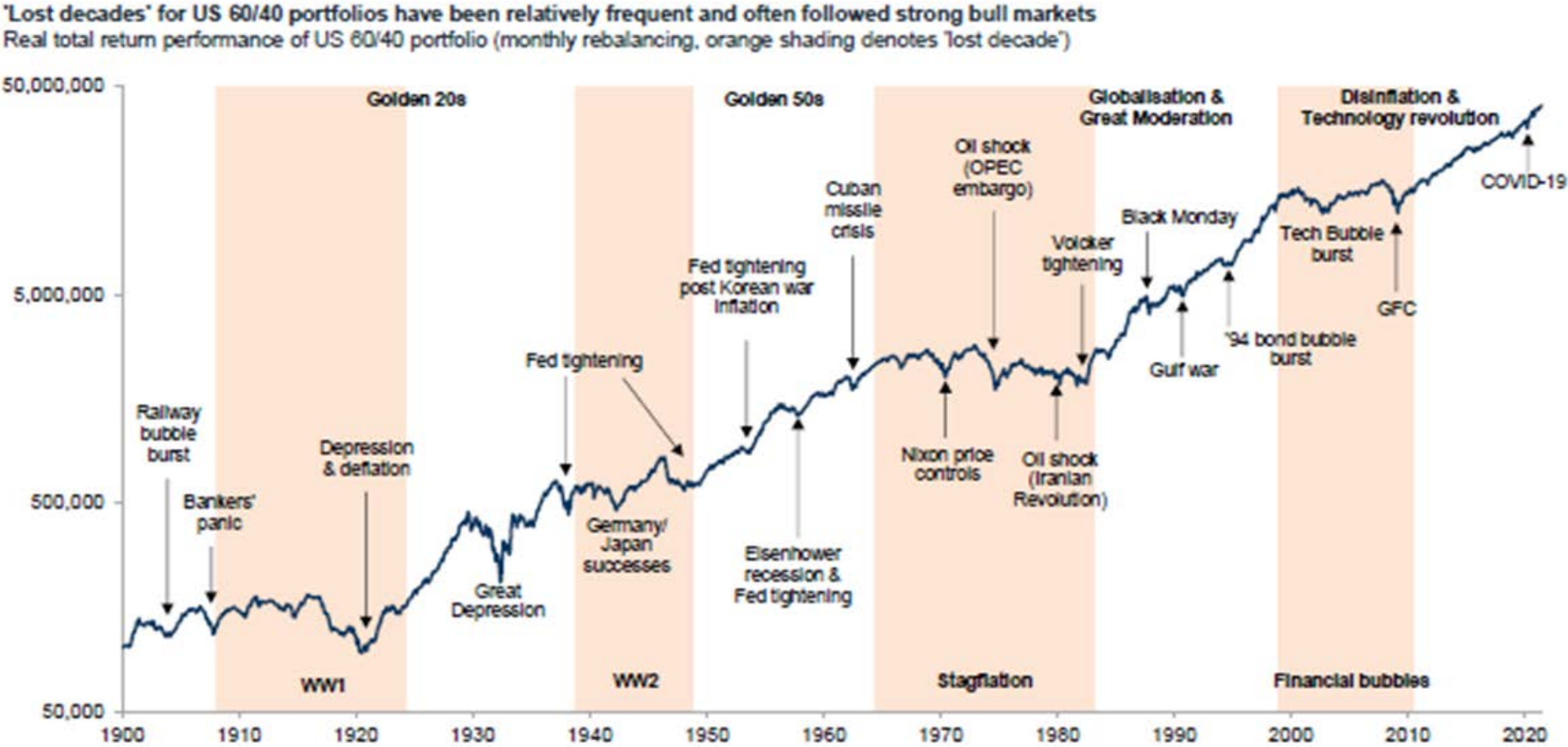


hs



# RECESSION OR SOFT LANDING

## Potential for lost decade of returns



Source: Goldman Sachs



# MARKET IMPLICATIONS OF POTENTIAL MONETARY ACTIONS

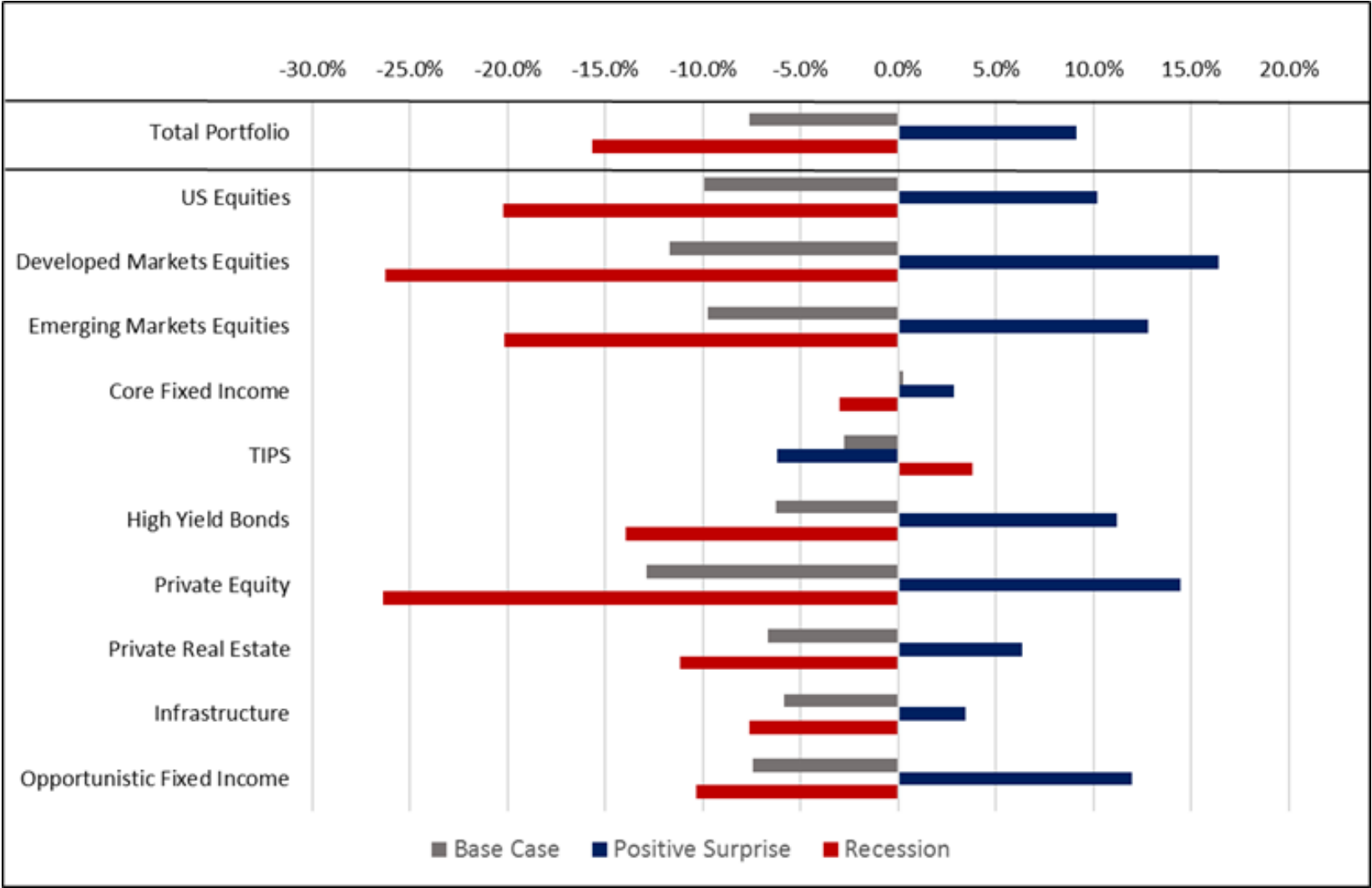
Shock Category	Factor	Base Case	Recession	Positive Surprise
Equity Returns	U.S. Markets (%)	-10%	-20%	10%
Treasury-rate shocks	2-year U.S. Govt (bps)	(20)	50	(50)
	10-year U.S. Govt (bps)	(10)	10	(20)
BEI-rate shocks	2-year U.S. BEI (bps)	(110)	150	(200)
	10-year U.S. BEI (bps)	(50)	50	(100)
Credit-spread shocks	US Corporate IG Spread (%)	10%	50%	-30%
	US Corporate HY Spread (%)	50%	100%	-80%
Commodity	Crude Oil Prices (%)	-10%	30%	-25%

For illustrative purposes only.





# BERS STRESS TEST RESULTS



For illustrative purposes only.



NON-INVESTMENT MATERIAL -  
QUARTERLY PERFORMANCE  
REPORTING SECTION (Public Reports):

## State Street Quarterly Fund Performance Overview (Public):



New York City  
Board of Education Retirement System  
Performance Overview as of March 31, 2022

# Total Fund Overview

## **New York City Board of Education Retirement System**

### **Table of Contents:**

<b>Consultant's Commentary &amp; Performance Charts</b>	<b>p.3</b>
<b>Appendix A - Consolidated Performance Report</b>	<b>p.34</b>
<b>Appendix B - Public Markets Manager Performance Detail</b>	<b>p.41</b>
<b>Appendix C - Alternative Assets Manager Performance Detail</b>	<b>p.49</b>
<b>Appendix D - Footnotes</b>	<b>p.57</b>

Through March 31, 2022

### **New York City Board of Education Retirement System (BERS)** **Consultant's Commentary – Through March 31, 2022**

#### **Total Fund Performance**

The Board of Education Retirement System (BERS) Total Fund returned -4.43% net of fees for the quarter ended March 31, 2022, versus the policy benchmark's return of -2.96%. For the fiscal year to date as of March 31, 2022, the Total Fund returned +0.17% net of fees, below the benchmark return of +1.77%.

#### **Total Fund Asset Allocation**

As of March 31, 2022, the BERS Total Fund had \$8.72 billion, down from \$9.13 billion as of December 31, 2021. The allocation to domestic equity, emerging markets equity and high yield relative to the strategic asset allocation hurt quarterly results. The active managers that dragged relative results the most were Wellington U.S. Mid Cap, Ballie Gifford World ex U.S., J.P. Morgan Emerging Markets, Morgan Stanley Global reduced relative results.

#### **U.S. Equity Commentary**

As of March 31, 2022, U.S. Equity was \$2.71 billion or represented 31.1% of the NYBERS Total Fund. The U.S. equity composite was negative in the first quarter of 2022 returning -6.37%. This performance was below the Russell 3000 index return of -5.28%.

#### **Active U.S. Equity Managers**

**Wellington** returned -10.23% during the quarter, below the S&P Midcap 400 Index return of -4.88%. For the fiscal year to date as of March 31, 2022, Wellington returned -8.82% versus +0.92% for the S&P Midcap 400 Index.

- Security selection was a driver of relative underperformance. Weak selection in consumer discretionary, information technology and industrials were modestly offset by selection in communication services. Sector allocation, a result of the bottom-up stock selection process, also detracted from returns. Allocation effect was driven by the underweight to energy and materials and overweight to information technology, but partially offset by the underweight to consumer discretionary.

- At the issuer level, the top two relative contributors were an overweight to WEX and an out of benchmark allocation to Markel. The top two relative detractors were out of benchmark allocations to Etsy and NVR.

Through March 31, 2022

**Wasatch** returned -15.59% during the quarter, below the Russell 2000 Growth Index return of -12.63%. For the fiscal year to date as of March 31, 2022, Wasatch returned -10.96% versus -17.56% for the Russell 2000 Growth Index.

- The greatest detractor from strategy performance for the first quarter was Trex Co., Inc. (TREX)—a manufacturer of high-performance composite (non-wood) decking and accessories. The company has continued to take market share in composite decking and from traditional suppliers of wood products, which have shorter lifespans and require extra upkeep compared to composites. Although higher energy and logistics costs squeezed margins in the company's most recently reported quarter, Trex was able to raise prices with little impact on demand.
- The top contributor to strategy performance for the first quarter was HealthEquity, Inc. (HQY). The company is the largest U.S. non-bank custodian for health-savings accounts (HSAs). Account holders have online access to their tax advantaged HSAs and can compare treatment options, pay medical bills, earn wellness incentives, and receive personalized benefit and clinical information. HealthEquity reported strong growth in its HSA business, with total HSA assets increasing 37% year-over-year and the number of HSAs on the company's platform up 25% from a year ago.

### World ex-USA Commentary

As of March 31, 2022, World ex-USA Equity was \$735.0 million (8.4% of assets) of the NYBERS Total Fund. World ex-USA Equity returned -12.71% in the first quarter of 2022 versus -5.18% for the World ex-USA custom benchmark.

### Active World ex-USA Equity Managers

**Sprucegrove** returned -6.33% during the quarter versus -4.81% for NYC Developed Value Benchmark. For the fiscal year to date as of March 31, 2022, Sprucegrove returned -8.41% versus -2.46% for the NYC Developed Value Benchmark.

- The portfolio continues to represent high quality value style holdings with a projected ROE of 14.4%, which is higher than the World ex-USA Index at 11.0%. The portfolio has a normalized P/E ratio of 13.7x, less than the 16.8x for the Index. These characteristics are consistent with the historical profile of the manager. The manager believes the portfolio is attractively valued compared to the market. The strategy is well diversified across sectors and geographies, a residual from bottom up selection.
- The U.K. was the largest country exposure in the Fund at 18.1%, followed by Japan at 13.6%. Exposure to Emerging Markets was 15.8% and cash was 1.9% of the Fund at quarter end.
- Over the quarter, the Fund's underweight position was mainly due to stock selection in the United Kingdom (IMI and Berkeley Group) and Finland (Nokian Tyres). Stock selection in Holland (Boskalis Westminster and SBM Offshore) and Singapore (United Overseas Bank and Sembcorp Industries) made meaningful contributions to relative performance.

Through March 31, 2022

- The top 10 holdings represent 24.1% of the portfolio.

**Baillie Gifford** returned -22.48% in the quarter versus -4.81% for NYC Developed Growth Benchmark. For the fiscal year to date as of March 31, 2022, Baillie Gifford returned -31.11% versus -2.46% for the NYC Developed Growth Benchmark.

- ASML, a semiconductor equipment manufacturer, was the portfolio's largest holdings at 7.8%.
- At quarter end, the portfolio had 12.7% invested in Emerging Markets.
- The top 10 holdings represent 43.2% of the portfolio.

**Acadian** performed above the index for the quarter, -5.24% versus -9.62% for the S&P EPAC Small Cap Index. For the fiscal year to date as of March 31, 2022, Acadian returned -2.25% versus -10.53% for the S&P EPAC Small Cap Index.

- The top allocation by country was Japan with 16.5%, followed by Australia (10.8%), and United Kingdom (7.7%).
- The portfolio had a P/E of 10.2x while the benchmark had a P/E of 18.9x.
- At quarter end, the portfolio's emerging markets exposure was 10.3%.
- The portfolio held 1,053 stocks.

**Algert** underperformed for the quarter, -11.53% versus -8.53% for the MSCI EAFE Small Cap Index. For the fiscal year to date as of March 31, 2022, Algert returned -11.04% versus -7.64% for the MSCI EAFE Small Cap Index.

- Quality exposures were the primary detractor to performance for the quarter, particularly in Europe. Continuing the risk on market rotation from late 2021 investor sentiment broadly favored cheap, cyclically oriented firms at the start of 2022 amid expectations of gradual economic normalization. Notably, stocks with the most attractive valuation metrics, such as book to price, led the rotation, irrespective of their underlying business fundamentals. Amid this value led shift in market dynamics, most prevalent within European markets, the Strategy's relatively defensive Quality based positioning generated losses.
- The Strategy's common risk factor, country and currency positioning were a positive contributor to performance for the quarter. Most notably, the Strategy's modest overweight exposure to the Energy sector generated gains, as the Ukrainian invasion led to a sharp rally in oil and other commodities.
- The portfolio held 161 stocks compared to MSCI EAFE Small Cap of 2,356 stocks.





Through March 31, 2022

### Emerging Markets Equity Commentary

As of March 31, 2022, Emerging Markets Equity was \$456.1 million or represented 5.2% of the NYBERS Total Fund. Emerging Markets returned -6.23% for the quarter versus -6.97% for the MSCI Emerging Markets, Net Index.

### Emerging Markets Equity Managers

**Acadian** returned -1.80% for the quarter versus -6.97% for the MSCI Emerging Markets, Net Index. For the fiscal year to date as of March 31, 2022, Acadian returned -7.43% versus -15.62% for the MSCI Emerging Markets, Net Index.

- The portfolio had a P/E of 6.7x, while the benchmark had a P/E of 13.9x.
- At quarter end, the portfolio held 487 stocks and the benchmark held 1,399.
- The top allocation by country was China with 28.8% followed by Taiwan (18.9%) and South Korea (15.8%).

**CONY GT EM BlackRock** returned -6.66% versus -6.97% for the MSCI Emerging Markets, Net Index during the quarter. For the fiscal year to date as of March 31, 2022, CONY GT EM BlackRock returned -15.20% versus -15.62% for the MSCI Emerging Markets, Net Index.

- On top of rising inflation rate and supply chain disruptions, emerging markets were hit by geopolitical tension on the back of the Russian invasion of Ukraine. The U.S. and its European counterparts imposed a broad range of sanctions on Russia that weighed down on the Ruble, Russian equity market, and put further upward pressure on commodity prices. Russian securities were removed from major EM indices.
- The Chinese equity market fell over the quarter. China saw a resurgence of Covid cases, with the country recording the highest number of daily cases since the start of the pandemic. The government-imposed lockdowns on major cities, including Shanghai, further dampened the market performance over the quarter. Additionally, the regulatory concerns relating to US-listed Chinese stocks also weighed down on market performance.
- From a sector perspective, Materials (7.01%), Financials (6.88%), and Utilities (0.93%) were the best performers. On the other hand, Consumer Discretionary (-14.10%), Health Care (-12.83%) and Information Technology (-11.05%) were among the worst performers.

Through March 31, 2022

**JP Morgan** returned -16.98% versus -6.97% for the MSCI Emerging Markets, Net Index during the quarter. For the fiscal year to date as of March 31, 2022, JP Morgan returned -26.04% versus -15.62% for the MSCI Emerging Markets, Net Index.

- Stock selection in the financial services sector hindered performance in the period, specifically driven by the portfolio's exposure to TCS, a digital provider of online financial and lifestyle services in Russia. The stock fell 96.2% in USD terms. Russian equities fell sharply on the back of military escalation with Ukraine in late February.
- On the positive side, stock selection in Mexico contributed to relative performance, most notably led by the portfolio's exposure to Walmart de Mexico (Walmex). Walmex held an Investor Day, highlighting priorities including continuing to offer value to the customer (crucial in an inflationary environment) and developing further its logistics to drive its omni-channel presence. Additionally, the portfolio's holding in Regional SAB de CV (Mexico, financials) contributed to the returns during the quarter. Regional offers banking products and services to customers in Mexico. Regional's share rose after the company posted earnings for Q4 and 2021 which were better than expected, partly driven by strong cost control. While the outlook for growth remains relatively muted, there are signs of recovery and rising net interest margins will be supportive. There is also the possibility of an increased dividend payout, subject to regulatory approval, given the company's historically high tier 1 capital ratio at ~16%.

### Global Equity Managers

**Morgan Stanley** returned -19.72% versus -5.36% for the MSCI AC World Index, during the quarter. For the fiscal year to date as of March 31, 2022, Morgan Stanley underperformed returning -23.69% versus -0.11% for the MSCI AC World Index.

- During the first quarter of 2022, the portfolio underperformed the MSCI AC World Index due to unfavorable stock selection and sector allocation. Stock selection in information technology, consumer discretionary, industrials and communication services were the greatest overall detractors from the relative performance of the portfolio during the period. Top individual detractors included shares of Eastern European business services firm EPAM Systems (which is no longer owned in the portfolio), Canadian e-commerce solutions provider Shopify, Korean e-commerce platform Coupang, Chinese local commerce platform Meituan and global social network Meta Platforms.
- A sector underweight allocation to real estate modestly contributed to relative performance. Top individual contributors included shares of Latin American e-commerce platform Mercado Libre, payment solution providers Adyen NV and Block Inc. and global payments networks Visa and Mastercard.

**Fiera** returned -9.89% versus -5.15% for the MSCI World Index, during the quarter. For the fiscal year to date as of March 31, 2022, Fiera returned +0.46% versus +2.21% for the MSCI World Index.

- The largest detractors over the quarter were Sherwin Williams and Keyence. Sherwin Williams' stock underperformed as the valuation had crossed into expensive territory following a long stretch of outperformance. While supply chain and labor constraints have dampened the company's short-term prospects, management continues to demonstrate its ability to optimize the business by



Through March 31, 2022

taking actions such as reformulating paints to avoid shortages and putting pricing initiatives into place to offset the rising costs of materials. The fundamentals of the company remain unchanged, with demand for the company's products continuing to grow. As for Keyence, its stock corrected along with the market rotation which penalized higher multiple securities. The company however reported strong earnings with year over year growth across all geographies.

- The leading contributors to performance over the quarter were Becton Dickinson and Johnson & Johnson. Becton Dickinson's stock outperformed given its undemanding valuation and its broad-based strong results, exceeding expectations. The company demonstrated its ability to execute on its margin target in this inflationary environment by putting into place pricing and cost cutting actions. As for Johnson & Johnson, its stock was up as the company delivered overall solid results, with its pharmaceutical division continuing to deliver steady growth. The company's Medical Devices division furthermore continues to recover, with less than anticipated omicron related disruptions. The company also provided optimistic guidance which was well received. The company additionally received a favorable judgement in relations to pending lawsuits over allegedly unsafe talc-based products, agreeing that the company did not act in bad faith when filing for bankruptcy of one of its subsidiaries. The bankruptcy judge ruled that on the contrary, Johnson Johnson's process was in good faith and may enable the company to accelerate equitable payments to plaintiffs.

### **Fixed Income – Structured Manager Composite Commentary**

As of March 31, 2022, the Total Structured Portfolio was \$1.40 billion or 16.1% of the NYBERS Total Fund. Structured Fixed Income returned -5.83% in the first quarter versus -5.86% for the benchmark. For the fiscal year to date as of March 31, 2022, Structured Fixed Income returned -5.73% versus -5.75% for the benchmark.

### **Fixed Income – Structured Manager Composite Managers**

**BlackRock (mortgages)** returned -4.92% in the quarter versus the NYC Custom Mortgage Benchmark return of -4.97%. For the fiscal year to date as of March 31, 2022, BlackRock (mortgages) returned -5.07% versus -5.23% for the NYC Custom Mortgage Benchmark.

- Duration benefited results versus the index while security selection and sector allocation negatively affected relative performance versus the index. Exposure to commercial mortgage backed securities also detracted to performance.

- At quarter end, the portfolio held 1,834 holdings.

**T Rowe Price** returned -7.88% in the quarter versus the Bloomberg Barclay U.S. Corporate Investment Grade Index return of -7.69%. For the fiscal year to date as of March 31, 2022, T. Rowe Price returned -7.59% versus -7.48% for the Bloomberg Barclay U.S. Corporate Investment Grade Index.



Through March 31, 2022

- In the first quarter, credit selection within banking weighed on relative results, although an overweight allocation to the sector negated some losses. Credits issued by U.S. money center banks, including Wells Fargo and J.P. Morgan Chase, detracted alongside concerns that slowing global growth and higher inflation may reduce lending margins. Elevated issuance in the banking sector also contributed to technical pressures within the space. The Yield curve positioning was also a detractor to relative performance. Over the reporting period, the neutral duration position hindered performance as rates rose across the yield curve.
- Relative Contributors during the first quarter include an out-of-benchmark allocation to the securitized sector. The sector held in relatively well during periods of rate and spread volatility given its defensive characteristics. Also, selection among insurance credits contributed to performance. Credits issued by Equitable Financial and Athene Global Funding outperformed as investors considered the potential positive impact of rising rates on future levels of investment income.

**SSgA LI Treasury (governments)** returned -7.98% in the quarter versus the -7.98% return for the NYC - Treasury Agency Plus Five. For the fiscal year to date as of March 31, 2022, SSgA (governments) returned -6.83% versus the -6.75% for the NYC - Treasury Agency Plus Five.

• The 2y and 5y US Treasury yields have risen significantly since January, with both yields up 1.6% and 1.2%, respectively. The Fed's interest rate hikes and the rising chance of multiple rate hikes in 2022 led to a slight flattening of the yield curve in March, with the shorter end of the yield curve rising sharply while the longer rose at a much slower pace. During March, the yield curve also witnessed inversions along the long end of the curve, with 5 yr. rates ending the month marginally higher than the 30y by a basis point. Yields across the board ended the quarter higher.

**SSGA 1-10 Yr. Treasury/ Agency** returned -4.12% in the quarter. For the fiscal year to date as of March 31, 2022, the SSGA 1-10 Yr. Treasury Index returned -4.71%.

**SSgA 1 -3 Yr. Treasury Index** returned -2.43% in the quarter, slight below the FTSE USBIG Treasury 1 -3 Yr. Index return of -2.38%. For the fiscal year to date as of March 31, 2022, the SSGA 1-3 Yr. Treasury Index returned -2.92%, slightly below the FTSE USBIG Treasury 1 -3 Yr. Index return of -2.87%.

**SSGA LT Treasury 10Y Plus** returned -10.17% in the quarter versus the FTSE Treasury 10+ return of -10.42%. For the fiscal year to date as of March 31, 2022, the SSGA LT Treasury 10Y Plus returned -7.31% matching the FTSE Treasury 10+ return of -7.31%.

### Enhanced Yield Fixed Income & Bank Loans Commentary

As of March 31, 2022, Enhanced Yield Fixed Income was \$762.4 million or 8.7% of the NYBERS Total Fund.



Through March 31, 2022

**Mackay Shields** returned -3.92% in the quarter versus -4.82% for Bloomberg Barclays US High Yield – 2% Issuer Cap Index. For the fiscal year to date as of March 31, 2022, Mackay Shields returned -2.10% versus -3.31% for the Bloomberg Barclays US High Yield – 2% Issuer Cap Index.

- During the quarter, selection across the quality spectrum was positive for performance. A focus on larger coupon, shorter duration BBs were beneficial for relative returns. Energy was the biggest contributor to returns as selection posted positive absolute returns for the quarter. Gulfport Energy and Talos Energy drove returns in the Energy Exploration and Production Industry. Selection was also positive in the Chemical sector as the portfolio avoided certain bonds that underperformed. Within Telecom-Wireline, the portfolio was underweight longer duration. Lumen Technologies bonds that lagged the market. An underweight to Food-Wholesale companies also aided returns as the sector materially underperformed the market.
- An underweight to Casinos was negative for relative returns over the quarter. Carlson Travel lagged the marker in the Support Services sectors. Within Health Facilities, not owning Tenet Healthcare was a detractor for performance as the company outperformed.

**Nomura** returned -3.98% in the quarter versus -4.82% for Bloomberg Barclays US High Yield – 2% Issuer Cap Index. For the fiscal year to date as of March 31, 2022, Nomura returned -2.52% versus -3.31% for the Bloomberg Barclays US High Yield – 2% Issuer Cap Index.

- In the first quarter of 2022, the top contributors of the portfolios' relative performance included investments in Energy and Leisure, duration and rating posture, and key underweights in sectors most exposed to rates and inflation. The top positive contributors to relative performance in March on a sector basis included overweights and positive credit selection in Energy Exploration and Production and Oil Field Equipment and Services, which continued to outperform on production volume and commodity price strength, as well as the underweight to Wholesale Food.
- The key sector detractors in the quarter were Cable & Satellite TV and Satellite Telecom, where headwinds included duration and rates, sectoral decline, and Intelsat's drawn-out bankruptcy process.

### **TIPS, ETI, Cash Commentary**

As of March 31, 2022, Fixed Income – TIPS, ETI and Cash was \$453.14 million or 5.2% of the NYBERS Total Fund.

### **Fixed Income – TIPS Manager**

**SSgA (TIPS)** returned -2.81% in the quarter, above the -3.02% return for the Barclays Global Inflation Linked Index. For the fiscal year to date as of March 31, 2022, SSgA (TIPS) returned +1.19% versus the +1.01% return for the Barclays Global Inflation Linked Index.



Through March 31, 2022

### *Fixed Income – Core Manager*

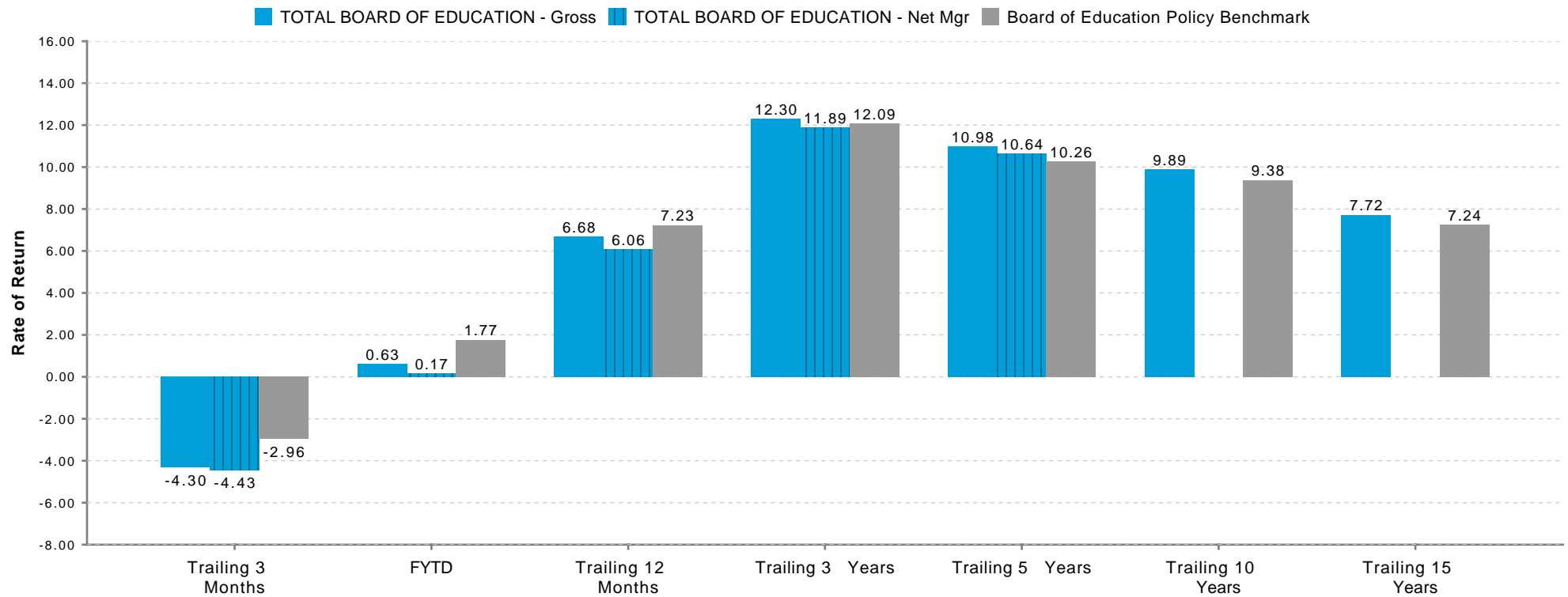
**Pugh** returned -5.97% in the quarter, versus the -5.93% return for Bloomberg Barclays Aggregate Index. For the fiscal year to date as of March 31, 2022, Pugh returned -6.03% versus the -5.87% return for the Bloomberg U.S. Aggregate.

- Sector allocation and security selection both detracted from performance in the quarter. Security selection within Corporates and MBS was negative, due largely to a focus on lower quality securities in the Corporates sector and an underweight to shorter-duration profiles in the MBS sector.
- Duration and yield curve positioning contributed positively to performance over the period. Duration positioning was moved to a slight overweight at quarter end with the portfolio at 6.58 versus the Index duration of 6.48.

**TOTAL BOARD OF EDUCATION**

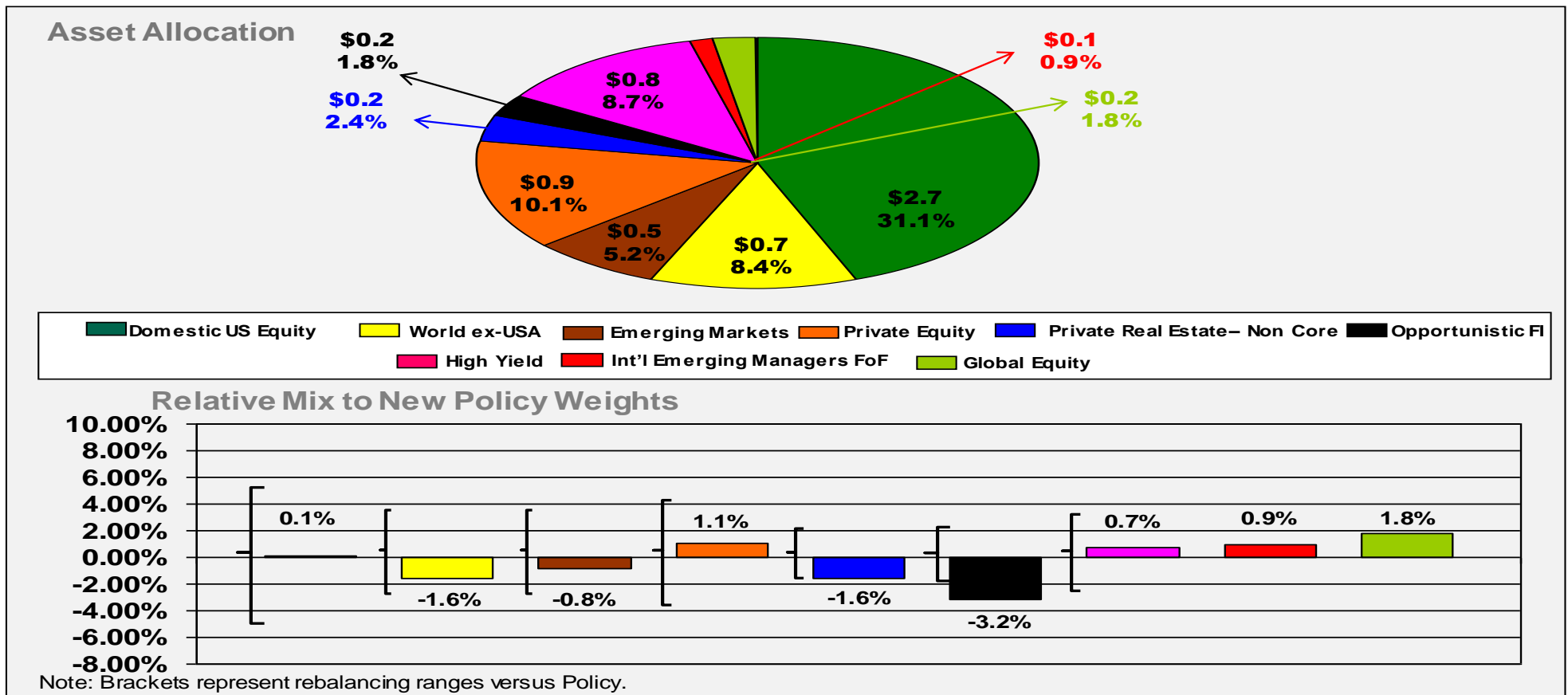
**Market Value (Billions)**

**\$8.7**



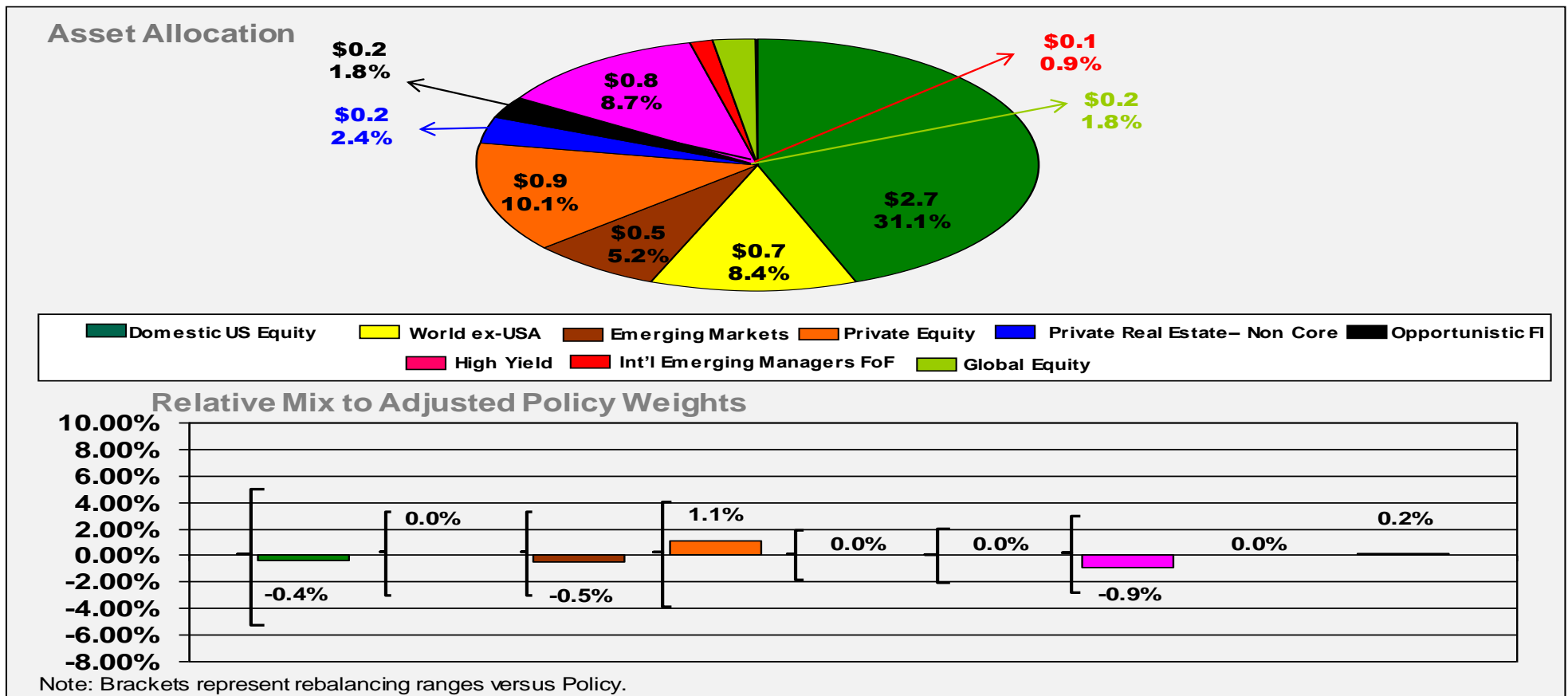
	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation						
TOTAL BOARD OF EDUCATION	9.8	10.0	11.0	8.7	8.0	7.9

## Portfolio Asset Allocation – Growth



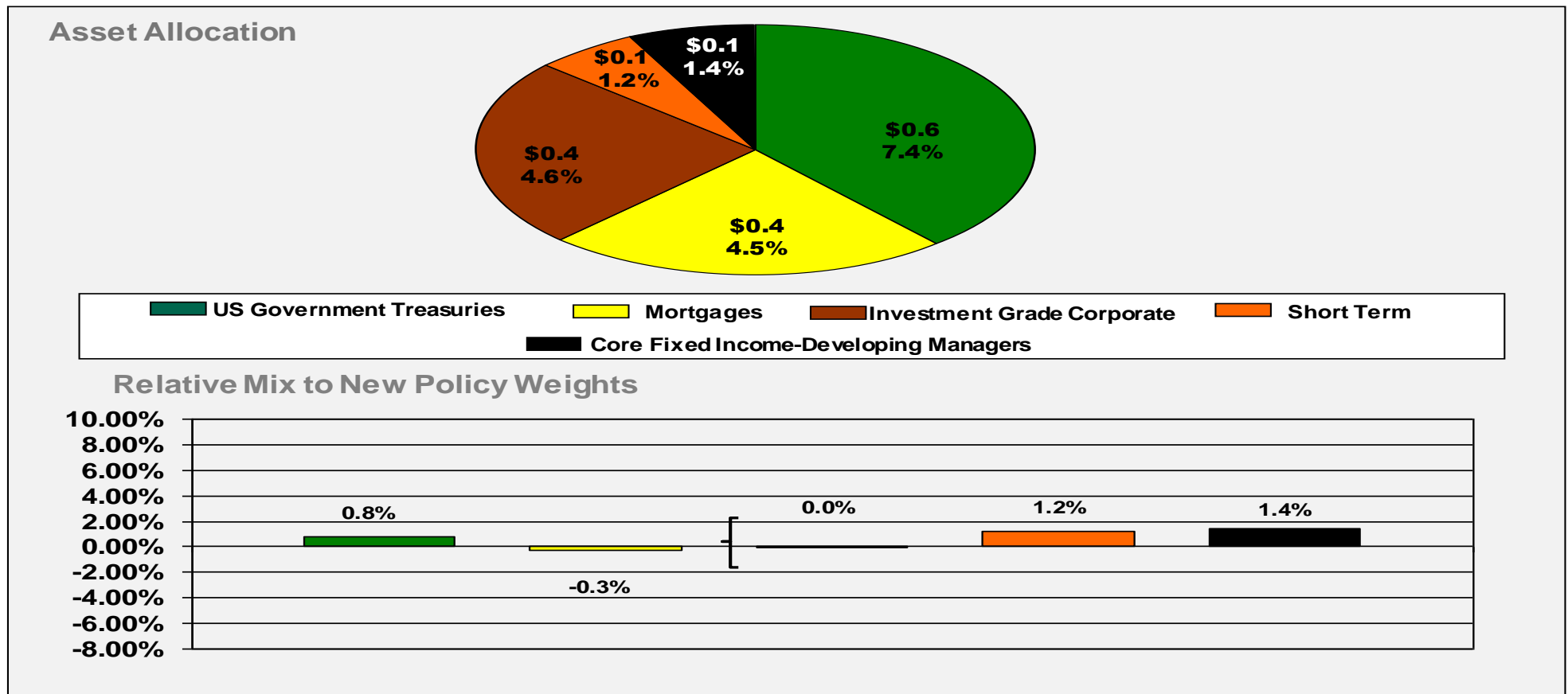


## Portfolio Asset Allocation – Growth

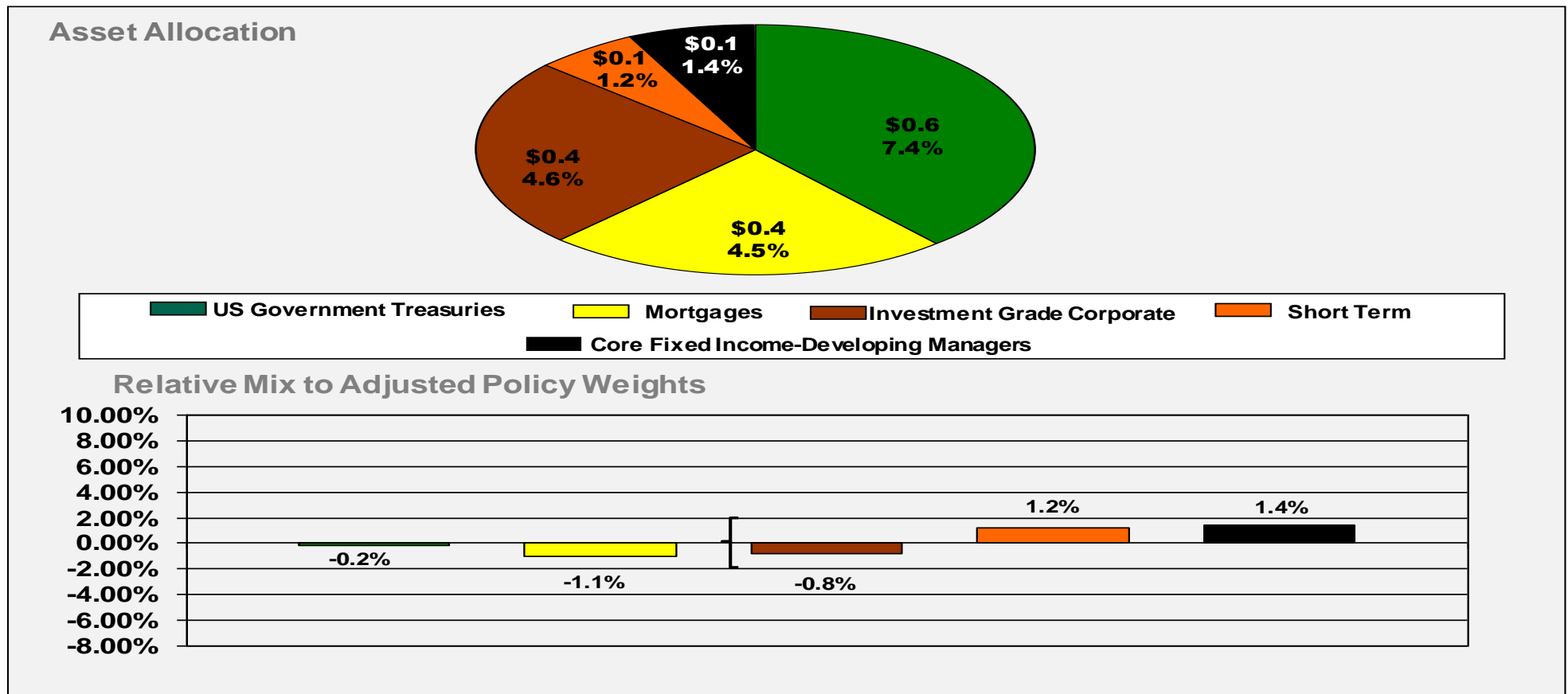


Note: On March 31, 2022 BERS' combined Fixed Income and Cash portfolios have a duration of 5.4 years. The duration of the Bardays US Aggregate Index was 6.6 years on that date.

## Portfolio Asset Allocation – Deflation Protection

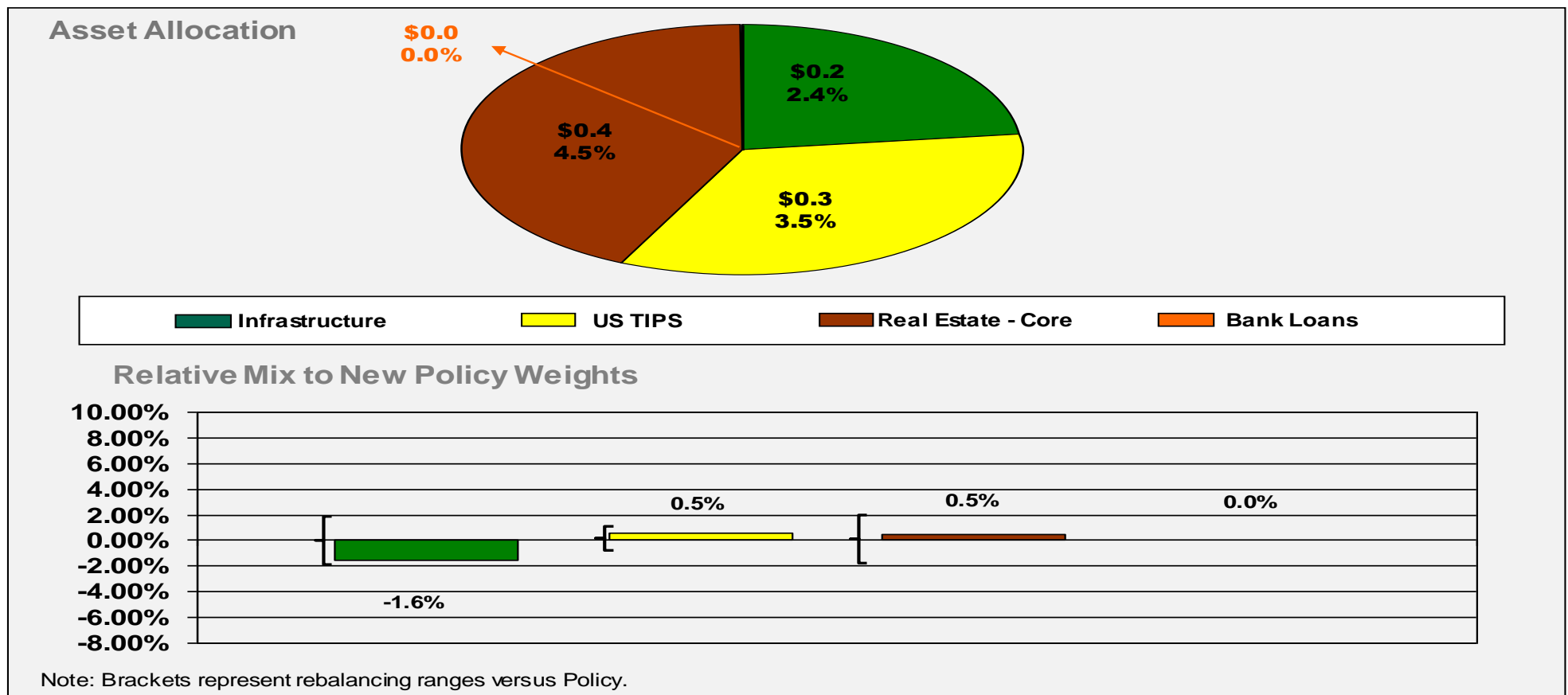


## Portfolio Asset Allocation – Deflation Protection

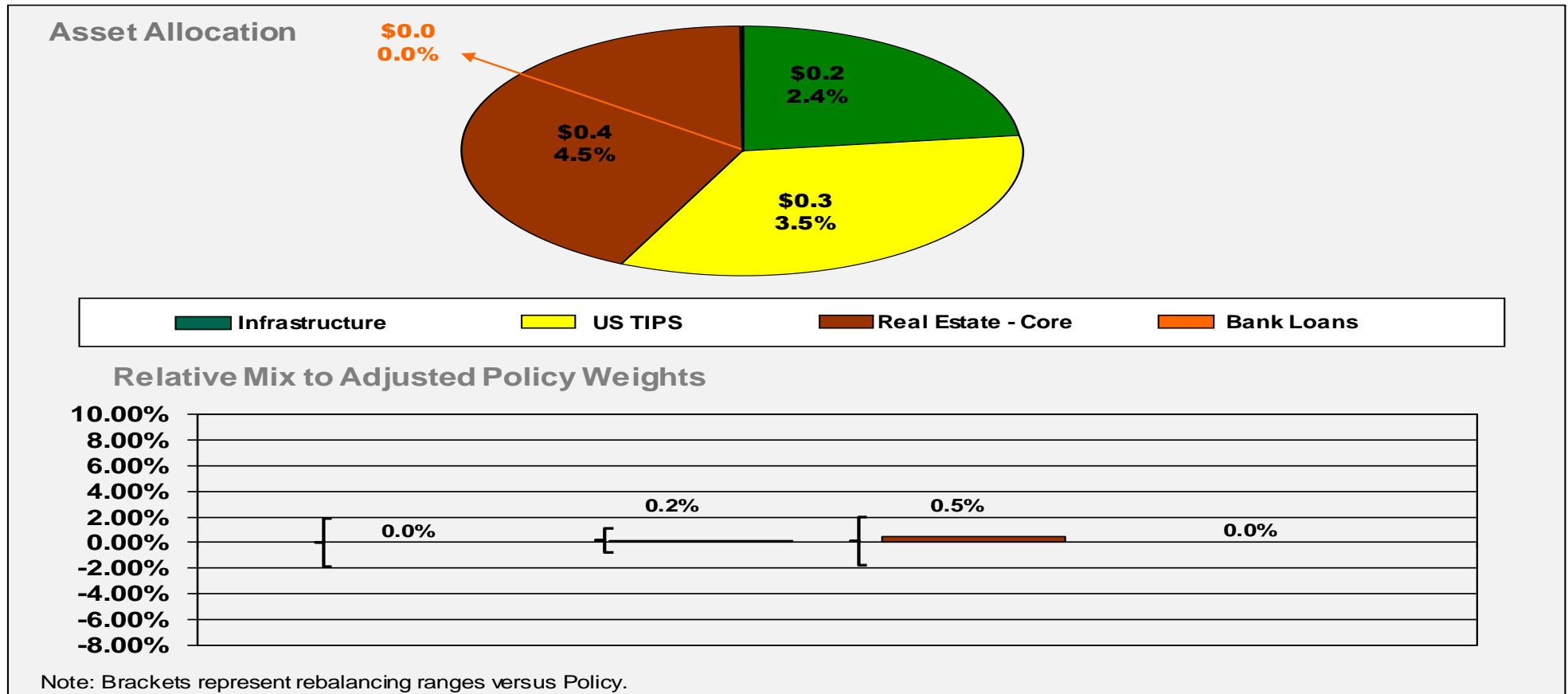


Note: On March 31, 2022 BERS' combined Fixed Income and Cash portfolios have a duration of 5.4 years. The duration of the Bardays US Aggregate Index was 6.6 years on that date.

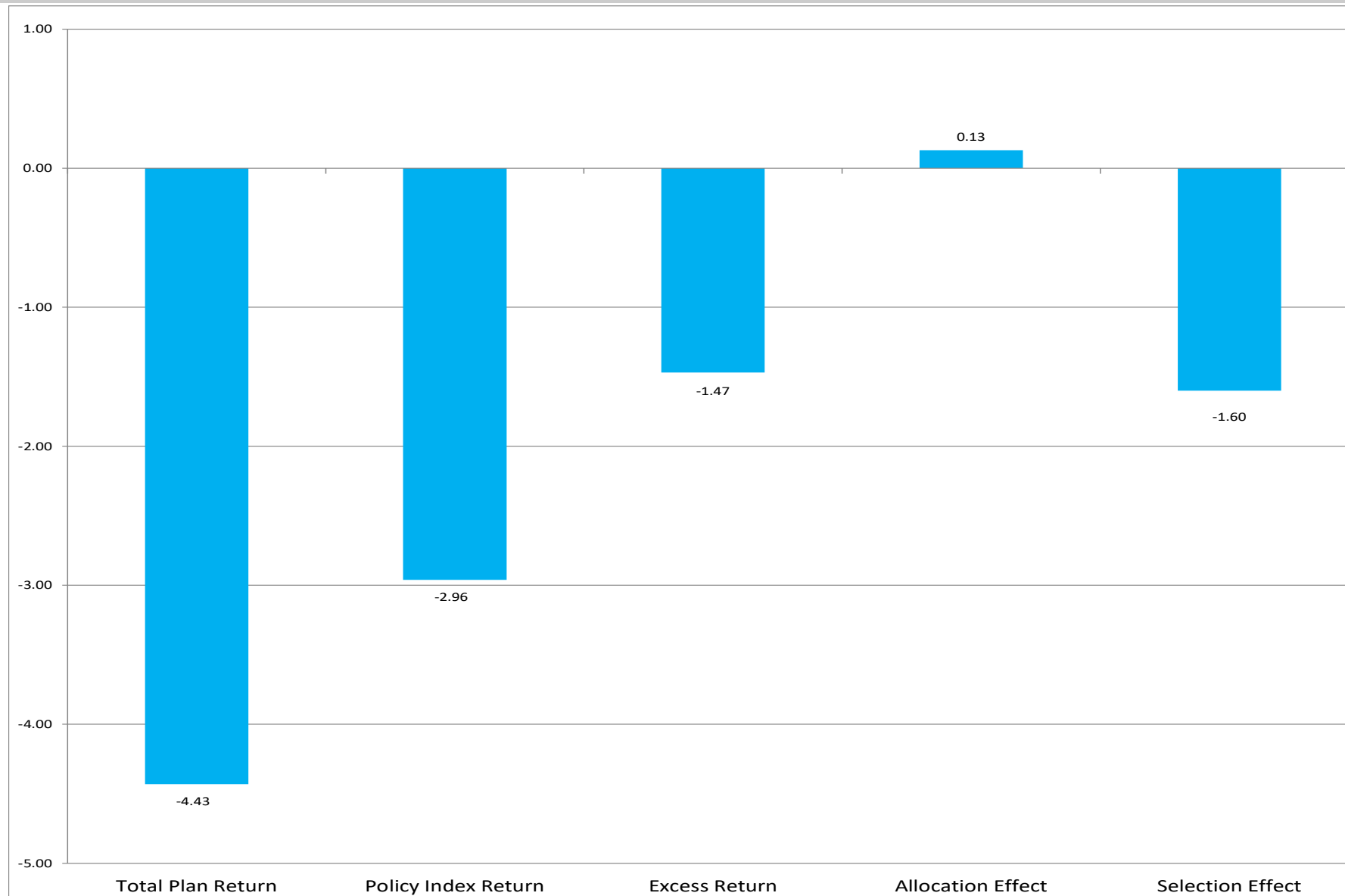
## Portfolio Asset Allocation – Inflation Protection

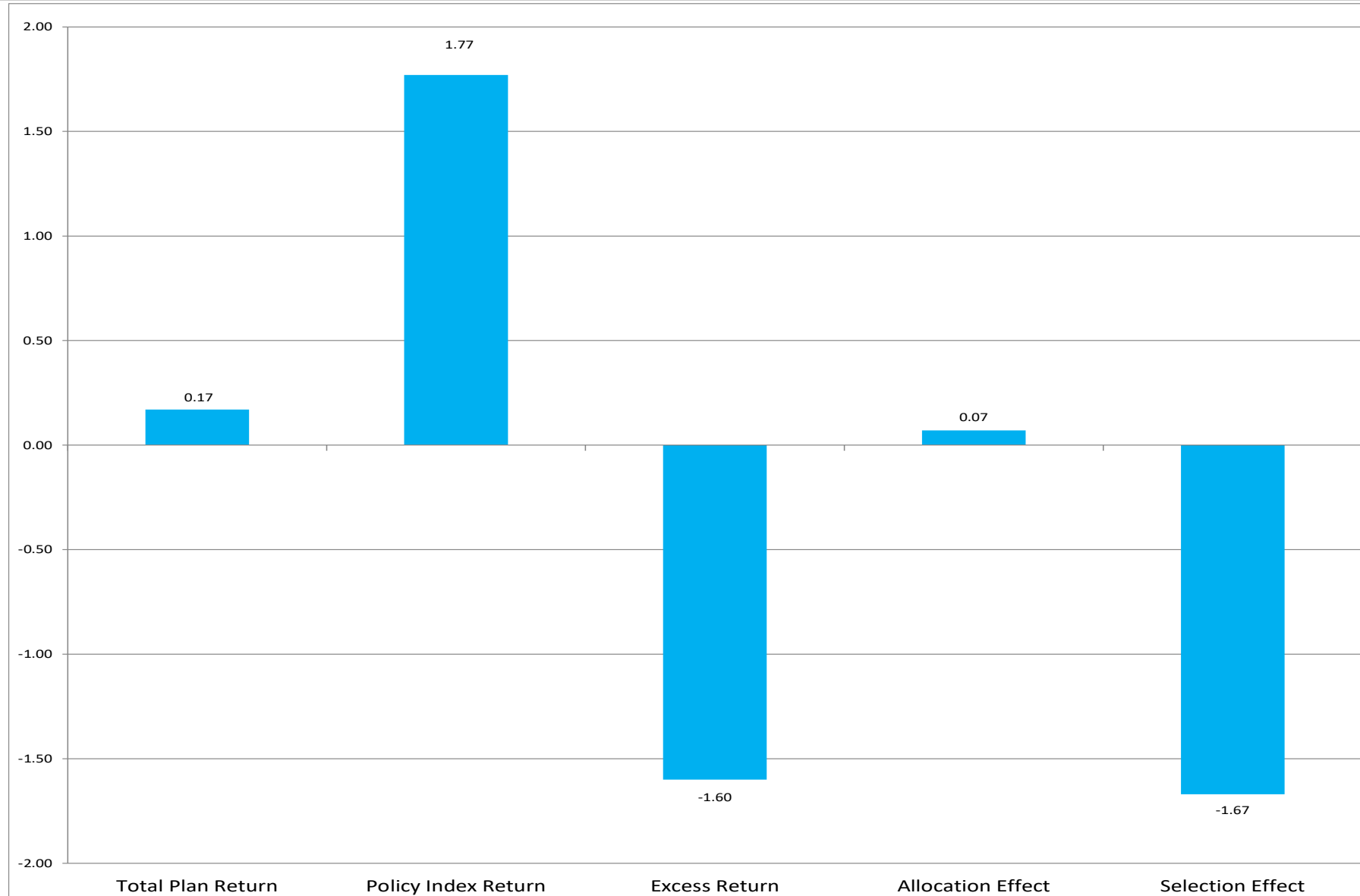


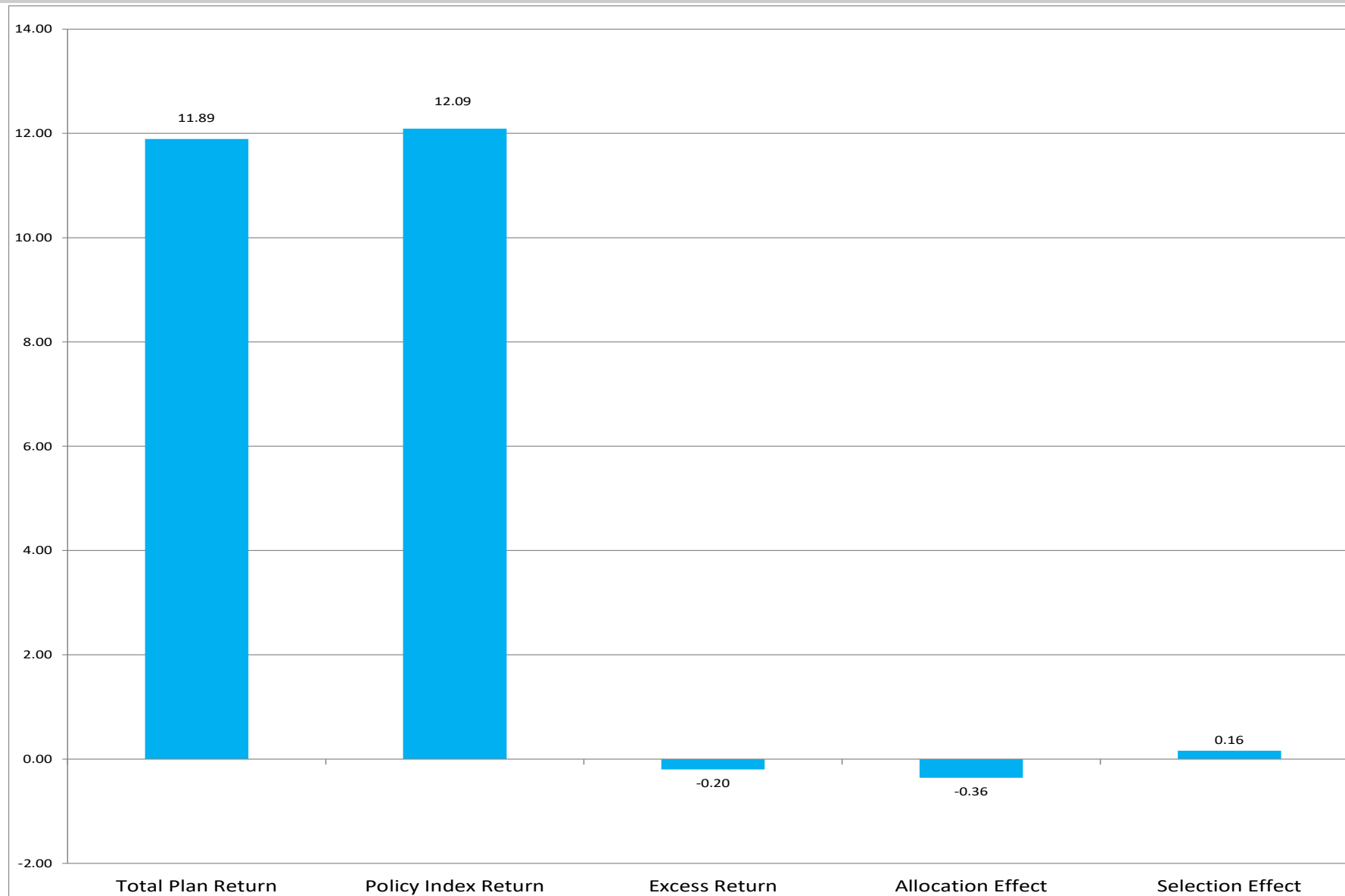
## Portfolio Asset Allocation – Inflation Protection



Note: On March 31, 2022 BERS' combined Fixed Income and Cash portfolios have a duration of 5.4 years. The duration of the Bardays US Aggregate Index was 6.6 years on that date.







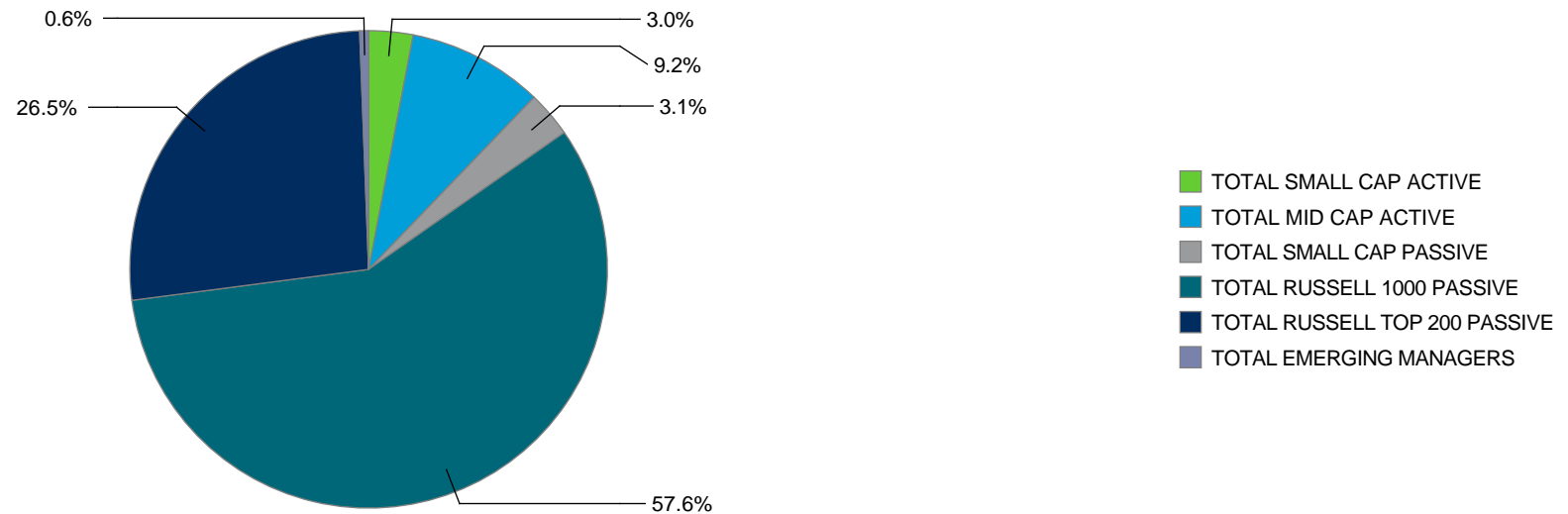


Allocation Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL BOARD OF EDUCATION	0.13	0.07	-0.36	Board of Education Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.02	-0.04	-0.12	RUSSELL 3000
TOTAL WORLD ex-USA	0.00	-0.03	-0.01	MSCI World ex USA IMI Net
TOTAL GLOBAL EQUITY	-0.01	-0.01	0.01	MSCI AC WORLD
TOTAL EMERGING MARKETS	0.02	0.01	-0.02	MSCI Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL PRIVATE EQUITY	0.03	0.01	-0.04	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.03	0.03	0.01	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE NON-CORE	0.00	0.00	0.00	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	-0.01	-0.01	0.00	FTSE US Government Bond 1-3 Years Index
TOTAL US TREASURY SHORT TERM	0.00	0.03	-0.17	FTSE USBIG Treasury 1-3 Y Index
TOTAL US TREASURY INTERMEDIATE	-0.01	-0.01	0.00	USBIG TSY AGN 1-10
TOTAL US TREASURY INTERMEDIATE	0.00	0.01	-0.01	FTSE USBIG Treasury/Agency 1-10 Y
TOTAL ACTIVE GOVERNMENT	0.03	0.04	0.01	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	-0.01	-0.01	0.00	FTSE US Government Bond 10+ Years Index
TOTAL US TREASURY LONG DURATION	0.00	-0.01	0.01	FTSE Treasury 10+
TOTAL INVESTMENT GRADE CORPORATE	0.03	0.07	0.17	NYC Custom IGC Benchmark
TOTAL MORTGAGES	0.02	0.07	0.09	NYC Custom Mortgage Benchmark
TOTAL CORE FI- DEVELOPING MGRS	-0.04	-0.11	-0.17	Bloomberg U.S. Aggregate
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL HIGH YIELD	0.01	0.04	0.16	High Yield Custom Benchmark
TOTAL BANK LOANS	0.00	0.00	-0.01	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	-0.01	-0.02	Bloomberg Global Infl-Linked: U.S. TIPS
TOTAL OPPORTUNISTIC FIXED	0.00	0.00	0.00	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.05	-0.01	-0.24	

Selection Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL BOARD OF EDUCATION	-1.60	-1.67	0.16	Board of Education Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.34	-0.39	-0.14	RUSSELL 3000
TOTAL WORLD ex-USA	-0.69	-1.46	0.29	MSCI World ex USA IMI Net
TOTAL GLOBAL EQUITY	-0.19	-0.26	0.02	MSCI AC WORLD
TOTAL EMERGING MARKETS	0.04	0.16	-0.03	MSCI Emerging Markets
TOTAL INTERNATIONAL FOF	-0.02	-0.02	0.01	MSCI ACWI Ex US IMI Net
TOTAL PRIVATE EQUITY	-0.42	0.32	-0.15	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	-0.04	-0.10	-0.06	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE NON-CORE	0.02	-0.03	0.03	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	-0.06	-0.07	0.06	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.00	0.00	0.00	FTSE US Government Bond 1-3 Years Index
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	USBIG TSY AGN 1-10
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 US Government Bond 10+ Years Index
TOTAL US TREASURY LONG DURATION	0.01	0.00	0.00	FTSE Treasury 10+
TOTAL INVESTMENT GRADE CORPORATE	-0.01	-0.01	0.01	NYC Custom IGC Benchmark
TOTAL MORTGAGES	0.00	0.01	0.01	NYC Custom Mortgage Benchmark
TOTAL CORE FI- DEVELOPING MGRS	0.00	0.00	0.01	Bloomberg U.S. Aggregate
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL HIGH YIELD	0.08	0.09	0.06	High Yield Custom Benchmark
TOTAL BANK LOANS	0.00	0.00	-0.01	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.01	0.01	0.00	Bloomberg Global Infl-Linked: U.S. TIPS
TOTAL OPPORTUNISTIC FIXED	0.04	0.08	0.04	OFI - JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	0.00	0.00	

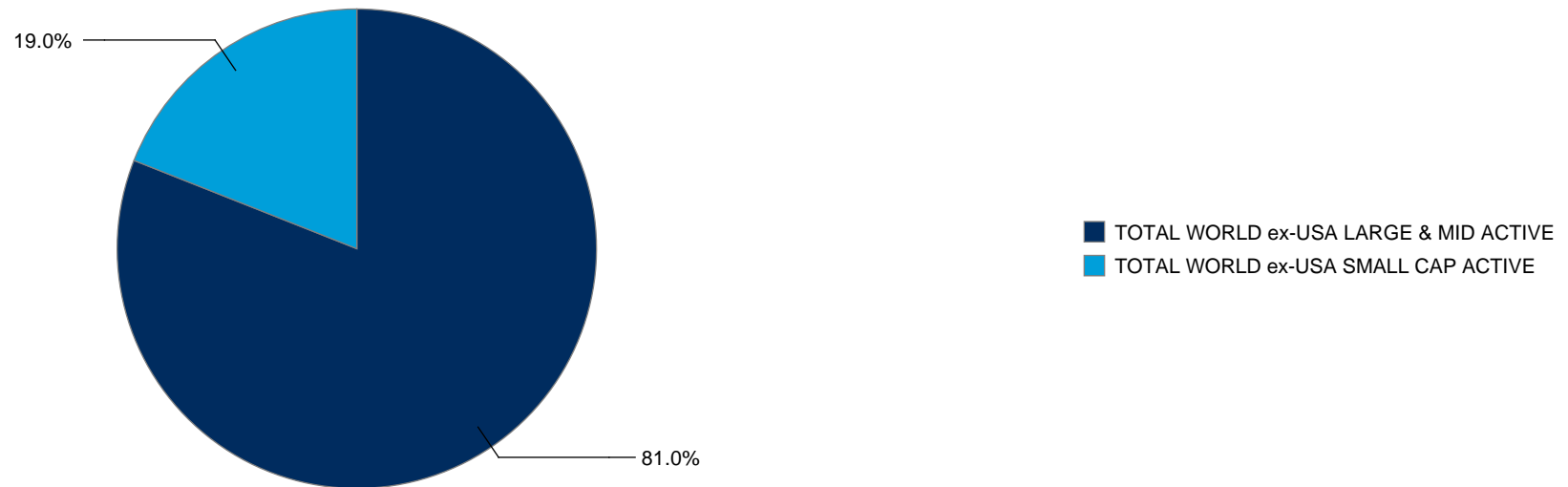
## Total Domestic Equity Asset Allocations: March 31, 2022

	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL DOMESTIC EQUITY	\$2.7	31.1



	<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 SMALL CAP ACTIVE	2.9	3.0	0.1	(15.6)	(7.5)	(8.1)
TOTAL MID CAP ACTIVE	10.0	9.2	(0.8)	(10.2)	(5.7)	(4.6)
TOTAL SMALL CAP PASSIVE	2.9	3.1	0.2	(2.4)	(7.5)	5.1
TOTAL RUSSELL 1000 PASSIVE	55.0	57.7	2.7	(5.9)	(5.1)	(0.7)
TOTAL RUSSELL TOP 200 PASSIVE	28.7	26.5	(2.2)	(5.3)	(4.9)	(0.4)
TOTAL EMERGING MANAGERS	0.5	0.6	0.1	(8.9)	(7.5)	(1.4)

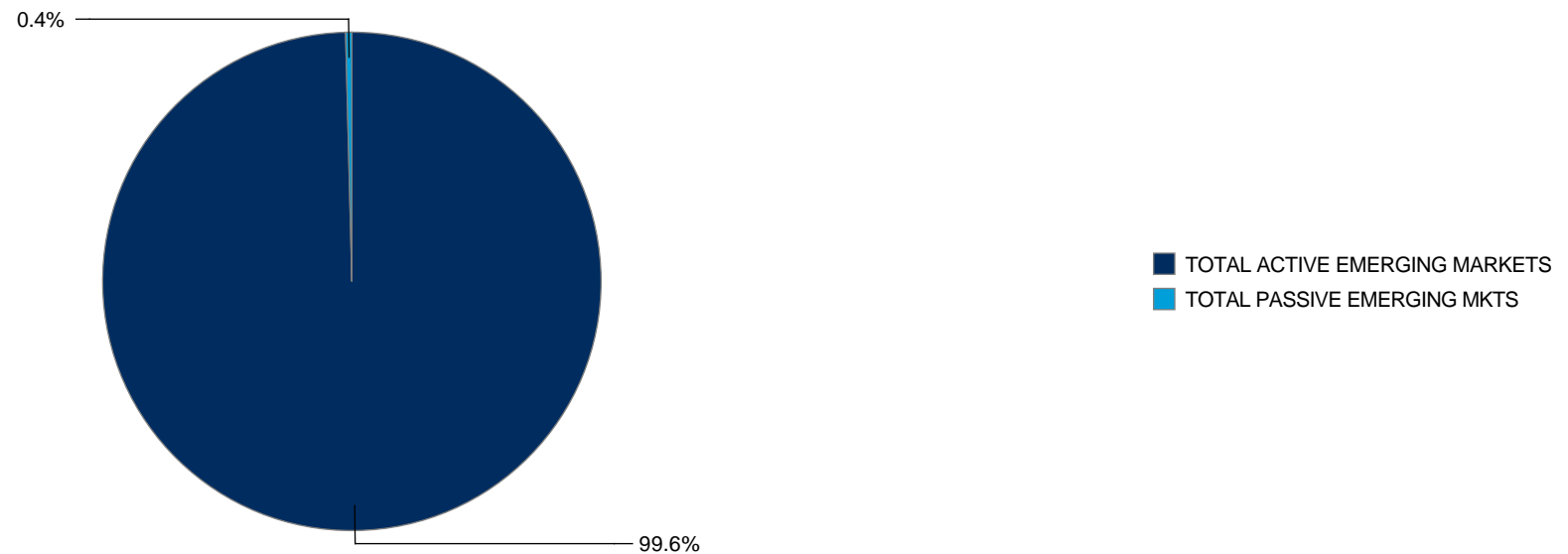
	<u>Market Value (Millions)</u>	<u>% of Plan</u>
TOTAL WORLD ex-USA	\$735.0	8.4



	<u>Asset Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL WORLD ex-USA LARGE & MID ACTIVE	80.99	(14.00)	(4.81)	(9.20)
TOTAL WORLD ex-USA SMALL CAP ACTIVE	19.01	(6.74)	(9.62)	2.88
TOTAL WORLD ex-USA	100.00	(12.71)	(5.18)	(7.53)

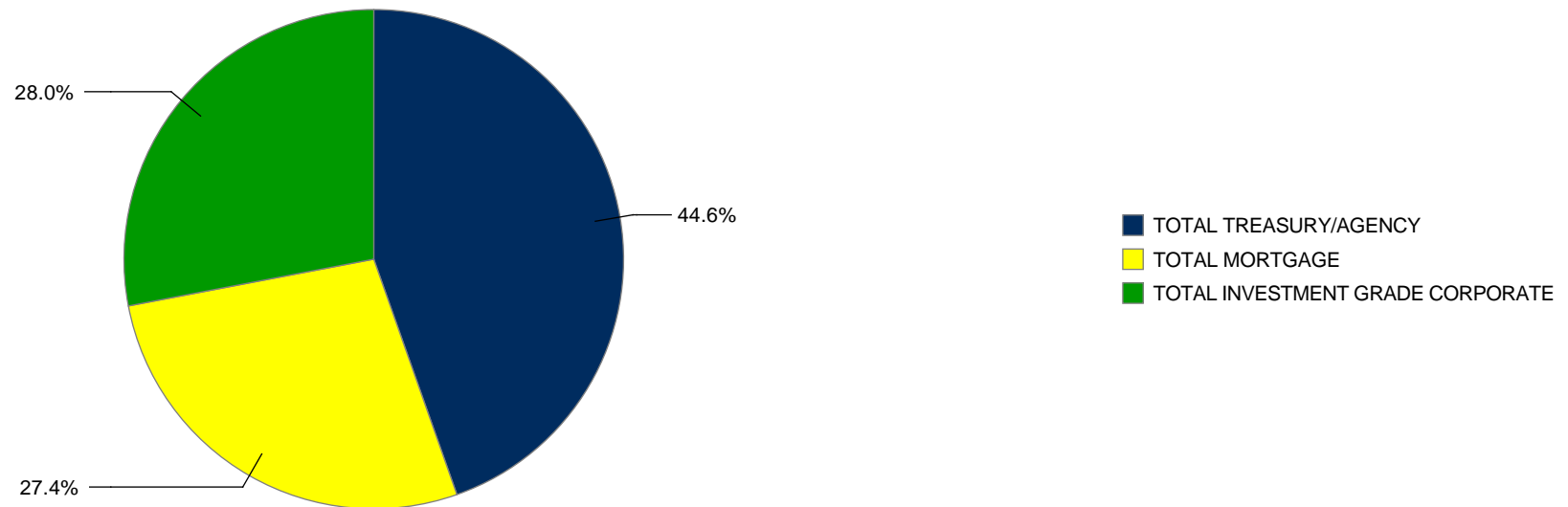
## Emerging Markets Equity Asset Allocation: March 31, 2022

	<u>Market Value (Millions)</u>	<u>% of Plan</u>
TOTAL EMERGING MARKETS	\$456.1	5.2



	<u>Asset Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL ACTIVE EMERGING MARKETS	99.61	(6.22)	(6.97)	0.75
TOTAL PASSIVE EMERGING MARKETS	0.39	(6.66)	(6.97)	0.31
TOTAL EMERGING MARKETS	100.00	(6.23)	(6.97)	0.75

	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL STRUCTURED + ETI	\$1.4	16.5



	<u>Policy Weight</u>	<u>Asset Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL TREASURY/AGENCY	40.81	44.60	3.79	(5.00)	(5.19)	0.19
TOTAL MORTGAGE	29.94	27.36	(2.58)	(4.97)	(4.97)	(0.00)
TOTAL INVESTMENT GRADE CORPORATE	29.25	28.04	(1.21)	(7.87)	(7.69)	(0.18)



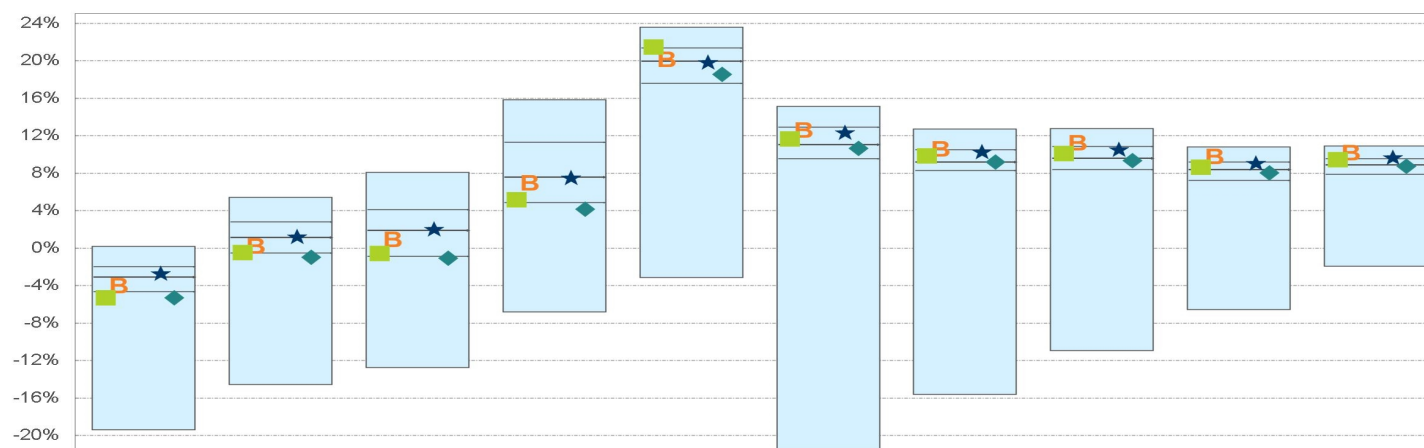
Through March 31, 2022



## City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion

Cumulative Periods Ending : March 31, 2022



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	0.20	5.41	8.08	15.84	23.61	15.13	12.71	12.79	10.80	10.92
25th	-1.96	2.82	4.10	11.33	21.40	12.94	10.49	10.88	9.20	9.56
50th	-3.10	1.17	1.92	7.57	19.96	11.08	9.18	9.61	8.37	8.89
75th	-4.65	-0.51	-0.86	4.86	17.62	9.55	8.28	8.41	7.25	7.89
95th	-19.39	-14.56	-12.72	-6.79	-3.14	-21.75	-15.62	-10.95	-6.54	-1.90
No. Of Obs	58	58	57	57	57	46	46	46	46	46
<span style="color: orange;">■</span> Total System - BOE	-4.30 (67)	-0.04 (67)	0.63 (62)	6.68 (64)	19.85 (53)	12.30 (27)	10.31 (29)	10.98 (23)	9.52 (17)	9.89 (17)
<span style="color: blue;">★</span> Board of Ed Policy Ben	-2.96 (46)	0.96 (60)	1.77 (50)	7.23 (53)	19.57 (55)	12.09 (31)	10.02 (31)	10.26 (29)	8.79 (36)	9.38 (31)
<span style="color: green;">■</span> Public Mkt Equiv 25	-5.58 (88)	-0.75 (81)	-0.88 (76)	4.85 (75)	21.20 (28)	11.34 (45)	9.55 (40)	9.82 (47)	8.35 (50)	9.16 (43)
<span style="color: green;">◆</span> Public Mkt Equiv 35	-5.60 (88)	-1.27 (83)	-1.37 (76)	3.88 (80)	18.24 (67)	10.35 (65)	8.92 (61)	9.04 (65)	7.72 (63)	8.46 (65)

Wilshire Trust Universe Comparison Service® (TUCS®)

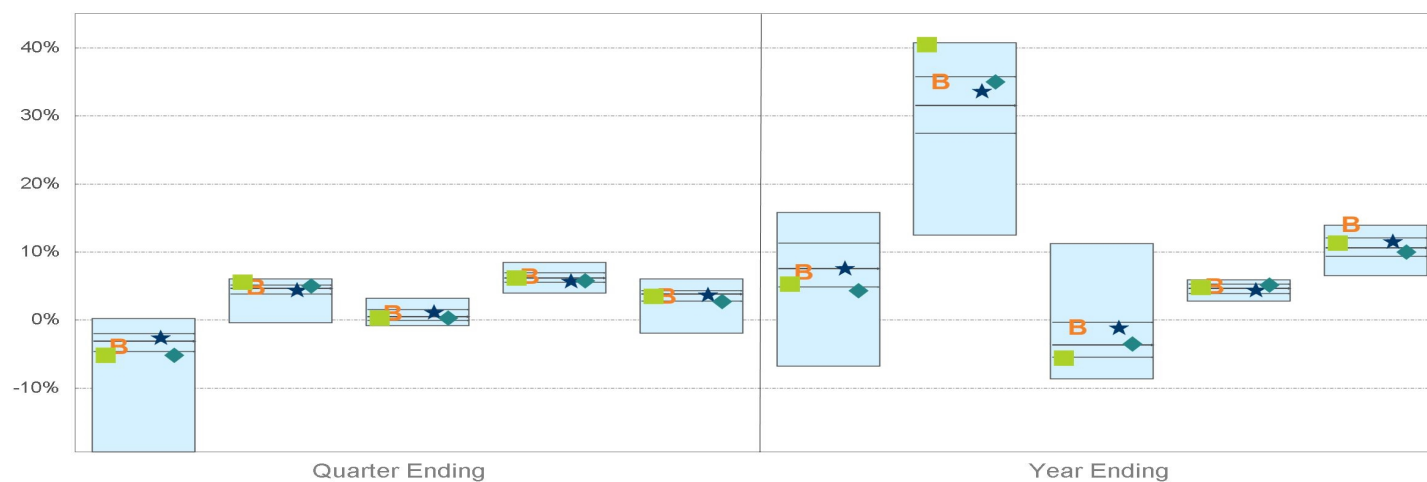


Through March 31, 2022



## City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion  
Consecutive Time Periods: March 31, 2022



Percentile Rankings	Mar 22	Dec 21	Sep 21	Jun 21	Mar 21	Mar 22	Mar 21	Mar 20	Mar 19	Mar 18
5th	0.20	6.07	3.24	8.48	6.06	15.84	40.74	11.28	5.89	13.93
25th	-1.96	5.14	1.52	6.96	4.29	11.33	35.78	-0.36	5.30	12.11
50th	-3.10	4.64	0.49	6.19	3.84	7.57	31.52	-3.64	4.67	10.64
75th	-4.65	3.83	-0.08	5.55	2.82	4.86	27.46	-5.46	3.89	9.36
95th	-19.39	-0.43	-0.84	3.96	-1.95	-6.79	12.49	-8.62	2.81	6.50
No. Of Obs	58	60	59	60	60	57	60	48	50	50
<b>B</b> Total System - BOE	-4.30 (67)	4.45 (56)	0.67 (48)	6.02 (55)	3.16 (71)	6.68 (64)	34.64 (30)	-1.42 (37)	4.58 (54)	13.66 (5)
★ Board of Ed Policy Ben	-2.96 (46)	4.04 (68)	0.81 (48)	5.37 (78)	3.33 (63)	7.23 (53)	33.32 (36)	-1.50 (37)	4.04 (68)	11.21 (37)
■ Public Mkt Equiv 25	-5.58 (88)	5.12 (26)	-0.14 (75)	5.78 (65)	3.08 (71)	4.85 (75)	40.10 (6)	-6.04 (85)	4.36 (60)	10.89 (41)
◆ Public Mkt Equiv 35	-5.60 (88)	4.59 (50)	-0.10 (75)	5.32 (80)	2.27 (80)	3.88 (80)	34.58 (30)	-3.90 (54)	4.74 (43)	9.55 (70)

Wilshire Trust Universe Comparison Service® (TUCS®)

# Actual Fees Incurred

Through March 31, 2022

## BOARD OF EDUCATION RETIREMENT SYSTEM INVESTMENT MANAGEMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2021

INVESTMENT STYLE (EQUITIES)	Avg. Net Asset Value FY 2021 (\$MM)	Base Mgmt. Fees (\$M)	Partnership Fees (\$M)	Base Mgmt. Fees & Partnership Fees in BPS	Performance / Carry Fees in (\$M)	Performance / Carry Fees in BPS	Total Investment Mgmt. Fees in (\$M)	Total Investment Mgmt. Fees in BPS
<b>Total US Equities</b>	<b>2,677.16</b>	<b>1,087.60</b>	-	<b>4.06</b>	<b>1,733.09</b>	<b>6.47</b>	<b>2,820.69</b>	<b>10.54</b>
<b>Small Cap Active:</b>	113.25	285.74	-	25.23	811.25	71.64	1,097.00	96.87
Small Cap Growth	113.25	285.74	-	25.23	811.25	71.64	1,097.00	96.87
Small Cap Value	-	-	-	-	-	-	-	-
Small Cap Core	-	-	-	-	-	-	-	-
Small Cap Fundamental Index	-	-	-	-	-	-	-	-
<b>Mid Cap Active:</b>	222.40	660.83	-	29.71	910.83	40.96	1,571.66	-
Mid Cap Growth	-	-	-	-	-	-	-	-
Mid Cap Value	-	-	-	-	-	-	-	-
Mid Cap Core	222.40	660.83	-	29.71	910.83	40.96	1,571.66	70.67
<b>Other Active:</b>	-	-	-	-	-	-	-	-
Russell 1000 Fundamental	-	-	-	-	-	-	-	-
Legato (Emerging Manager- Equity)	17.02	72.95	-	42.87	11.01	6.47	83.96	49.34
U.S. Environmental Managers	-	-	-	-	-	-	-	-
<b>Total US Active Equities</b>	<b>352.66</b>	<b>1,019.53</b>	-	<b>28.91</b>	<b>1,733.09</b>	<b>49.14</b>	<b>2,752.62</b>	<b>78.05</b>
<b>Small Cap Passive:</b>	71.21	3.18	-	0.45	-	-	3.18	0.45
Small Cap Passive	71.21	3.18	-	0.45	-	-	3.18	0.45
<b>Mid Cap Passive:</b>	-	-	-	-	-	-	-	-
Mid Cap Passive	-	-	-	-	-	-	-	-
<b>Russell / S&amp;P Passive:</b>	-	-	-	-	-	-	-	-
Russell 1000 Growth Passive	-	-	-	-	-	-	-	-
Russell 1000 Value Passive	-	-	-	-	-	-	-	-
Russell 1000 Core Passive	1,661.90	33.20	-	0.20	-	-	33.20	0.20
Passive Russell 3000	-	-	-	-	-	-	-	-
Passive S&P 500	-	-	-	-	-	-	-	-
Passive Russell Top 200	591.40	31.69	-	0.54	-	-	31.69	0.54
<b>Total US Passive Equities</b>	<b>2,324.50</b>	<b>68.07</b>	-	<b>0.29</b>	-	-	<b>68.07</b>	<b>0.29</b>



# Actual Fees Incurred

Through March 31, 2022

BOARD OF EDUCATION RETIREMENT SYSTEM  
INVESTMENT MANAGEMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2021

	Avg. Net Asset Value FY 2021 (\$MM)	Base Mgmt. Fees (\$M)	Partnership Fees (\$M)	Base Mgmt. Fees & Partnership Fees in BPS	Performance / Carry Fees in (\$M)	Performance / Carry Fees in BPS	Total Investment Mgmt. Fees in (\$M)	Total Investment Mgmt. Fees in BPS
<b>Total International Equities</b>	<b>1,763.58</b>	<b>3,746.72</b>	-	<b>21.24</b>	<b>137.40</b>	<b>0.78</b>	<b>3,884.11</b>	<b>22.02</b>
Global Equity	160.43	855.90	-	53.35	-	-	855.90	53.35
<b>Active Total Global Equities</b>	<b>160.43</b>	<b>855.90</b>	-	<b>53.35</b>	-	-	<b>855.90</b>	<b>53.35</b>
<b>Active Total World Ex USA:</b>	<b>1,104.53</b>	<b>2,021.77</b>	-	<b>18.30</b>	-	-	<b>2,021.77</b>	<b>18.30</b>
World Ex-USA Large & Mid Developed Growth Active	362.57	909.01	-	25.07	-	-	909.01	25.07
World Ex-USA Large & Mid Developed Value Active	583.69	704.71	-	12.07	-	-	704.71	12.07
World Ex-USA Developed Small Cap Active	158.27	408.05	-	25.78	-	-	408.05	25.78
Total World Ex USA	0.01	-	-	-	-	-	-	-
NON-U.S. Activist	-	-	-	-	-	-	-	-
NON-U.S. Environmental Managers	-	-	-	-	-	-	-	-
Active Emerging Markets	482.72	1,458.60	-	30.22	-	-	1,458.60	30.22
International Fund of Funds	81.39	244.18	-	30.00	137.40	16.88	381.57	46.88
<b>Total Active International Equities</b>	<b>1,668.65</b>	<b>3,724.55</b>	-	<b>22.32</b>	<b>137.40</b>	-	<b>3,861.95</b>	<b>23.14</b>
<b>Int'l Passive Equities:</b>								
World Ex-USA Small Cap Passive	-	-	-	-	-	-	-	-
World Ex-USA Large & Mid Cap Passive	-	-	-	-	-	-	-	-
Passive Global	-	-	-	-	-	-	-	-
Passive Emerging Markets	94.93	22.16	-	2.33	-	-	22.16	2.33
<b>Total Int'l Passive Equities</b>	<b>94.93</b>	<b>22.16</b>	-	<b>2.33</b>	-	-	<b>22.16</b>	<b>2.33</b>
<b>Real Estate Equity Securities</b>	-	-	-	-	-	-	-	-
<b>Total Equities</b>	<b>4,601.17</b>	<b>5,690.22</b>	-	<b>12.37</b>	<b>1,870.49</b>	<b>4.07</b>	<b>7,560.71</b>	<b>16.43</b>

## Actual Fees Incurred

Through March 31, 2022

BOARD OF EDUCATION RETIREMENT SYSTEM  
INVESTMENT MANAGEMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2021

INVESTMENT STYLE (FIXED INCOME)	Avg. Net Asset Value FY 2021 (\$MM)	Base Mgmt. Fees (\$M)	Partnership Fees (\$M)	Base Mgmt. Fees & Partnership Fees in BPS	Performance / Carry Fees in (\$M)	Performance / Carry Fees in BPS	Total Investment Mgmt. Fees in (\$M)	Total Investment Mgmt. Fees in BPS
<b>Total Fixed Income</b>	<b>2,747.85</b>	<b>2,631.55</b>	-	<b>9.58</b>	-	-	<b>2,631.55</b>	<b>9.58</b>
<b>Structured Program:</b>	1,515.91	582.80	-	3.84	-	-	582.80	3.84
Government Treas/Agency Sector	569.10	136.10	-	2.39	-	-	136.10	2.39
Long Duration Treasury	34.21	1.44	-	0.42	-	-	1.44	0.42
Mortgage Sector	352.26	148.26	-	4.21	-	-	148.26	4.21
Investment Grade Credit Sector	560.33	296.99	-	5.30	-	-	296.99	5.30
Developing Managers	128.14	231.91	-	18.10	-	-	231.91	18.10
Emerging Managers	-	-	-	-	-	-	-	-
<b>TIPS:</b>	<b>297.76</b>	<b>14.84</b>	-	<b>0.50</b>	-	-	<b>14.84</b>	<b>0.50</b>
Active TIPS Managers	-	-	-	-	-	-	-	-
Passive TIPS Managers	297.76	14.84	-	0.50	-	-	14.84	0.50
High Yield	547.13	1,594.39	-	29.14	-	-	1,594.39	29.14
Bank Loans	38.67	130.53	-	33.75	-	-	130.53	33.75
Convertible Bonds	-	-	-	-	-	-	-	-
ETI - Access - RBC	11.01	18.97	-	17.23	-	-	18.97	17.23
ETI - AFL-CIO HIT	18.35	58.10	-	31.67	-	-	58.10	31.67
Other ETI Programs (Internally Managed)	15.12	-	-	-	-	-	-	-
Short Term (Internally Managed)	175.75	-	-	-	-	-	-	-
<b>Total Public Markets</b>	<b>7,349.01</b>	<b>8,321.77</b>	-	<b>11.32</b>	<b>1,870.49</b>	<b>2.55</b>	<b>10,192.26</b>	<b>13.87</b>

## Actual Fees Incurred

Through March 31, 2022

BOARD OF EDUCATION RETIREMENT SYSTEM  
INVESTMENT MANAGEMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2021

INVESTMENT STYLE (PRIVATE MARKETS)	Avg. Net Asset Value FY 2021 (\$MM)	Base Mgmt. Fees (\$M)	Partnership Fees (\$M)	Base Mgmt. Fees & Partnership Fees in BPS	Performance / Carry Fees in (\$M)	Performance / Carry Fees in BPS	Total Investment Mgmt. Fees in (\$M)	Total Investment Mgmt. Fees in BPS
Hedge Funds	-	-	-	-	-	-	-	-
Private Equity	595.45	8,488.13	2,248.16	180.31	7,338.93	123.25	18,075.23	303.55
Private Real Estate	431.12	4,714.64	1,647.80	147.58	1,364.18	31.64	7,726.62	179.22
Infrastructure	154.97	2,708.71	669.73	218.01	147.94	9.55	3,526.38	227.55
Opportunistic Fixed Income	74.84	372.23	201.13	76.61	37.55	5.02	610.91	81.63
<b>Total Private Markets</b>	<b>1,256.38</b>	<b>16,283.70</b>	<b>4,766.83</b>	<b>167.55</b>	<b>8,888.61</b>	<b>70.75</b>	<b>29,939.14</b>	<b>238.30</b>
<b>Total Overall</b>	<b>8,605.39</b>	<b>24,605.47</b>	<b>4,766.83</b>	<b>34.13</b>	<b>10,759.10</b>	<b>12.50</b>	<b>40,131.40</b>	<b>46.64</b>

The overall carried interest and performance incentive fees paid by BERS for the Fiscal Year: 12.5 BPS

**General Footnote(s):**

Public accounts reflect actual payments and if an actual payment has not been incurred then an accrued expense is reported.

Private market accounts reflect expense amounts provided on the quarterly ILPA reports. If an ILPA report is not available then the partnership financial statements are prorated for each limited partner and if financial statements are unavailable then cash flow payments reported by the custodian are reported.

Through March 31, 2022

**NYC BOARD OF EDUCATION RETIREMENT SYSTEM  
SECURITIES LENDING INCOME  
March 31, 2022**

	U. S. FIXED INCOME	U. S. EQUITY	INTERNATIONAL EQUITY	TOTAL
1989	70,000	-	-	70,000
1990	79,000	-	-	79,000
1991	111,000	-	-	111,000
1992	122,000	11,000	-	133,000
1993	79,000	32,000	15,000	126,000
1994	93,000	77,000	20,000	190,000
1995	112,000	93,000	12,000	217,000
1996	99,000	76,000	27,000	202,000
1997	101,000	126,000	40,000	267,000
1998	111,000	170,000	60,000	341,000
1999	159,000	263,000	100,000	522,000
2000	193,000	310,000	97,000	600,000
2001	295,000	208,000	159,000	662,000
2002	209,000	143,000	152,000	504,000
2003	153,000	158,000	195,000	506,000
2004	226,000	255,000	174,000	655,000
2005	384,000	479,000	217,000	1,080,000
2006	303,000	734,000	246,000	1,283,000
2007	593,000	1,208,000	272,000	2,073,000
2008	2,514,000	2,266,000	451,000	5,231,000
2009	698,000	1,416,000	367,000	2,481,000
2010	246,000	729,000	326,000	1,301,000
2011	340,000	943,000	599,000	1,882,000
2012	516,000	1,144,000	495,000	2,155,000
2013	349,000	1,325,000	446,000	2,120,000
2014	287,000	512,000	1,387,000	2,186,000
2015	338,000	429,000	1,985,000	2,752,000
2016	418,000	1,585,000	1,685,000	3,688,000
2017	686,000	1,015,000	1,215,000	2,916,000
2018	582,738	682,039	954,109	2,218,886
2019	319,440	712,602	788,647	1,820,689
2020	360,464	392,674	356,478	1,109,617
2021	672,093	566,378	92,881	1,331,351
2022 (3 months)	262,862	204,991	9,548	477,400
Since Inception	12,081,598	18,265,684	12,943,662	43,290,944

**New York City  
Board of Education Retirement System**

# **Appendix A**

## **Consolidated Performance Report**

# Consolidated Performance Report

Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2021	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>SYSTEM RETURN SUMMARY</b>															
5 BERS-TOTAL PORTFOLIO - GROSS	8,728	100.00	(4.30)	0.63	(4.30)	28.38	15.00	16.68	19.37	6.68	12.30	10.98	9.89	9.08	07/01/1987
BERS - ESTIMATED INVESTMENT FEES			(0.14)	(0.46)	(0.14)	(0.41)	(0.59)	(0.29)	(0.31)	(0.62)	(0.41)	(0.34)			
EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.03)	(0.09)	(0.03)	(0.13)	(0.13)	(0.12)	(0.12)	(0.13)	(0.12)	(0.12)			
EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.11)	(0.37)	(0.11)	(0.28)	(0.46)	(0.17)	(0.19)	(0.49)	(0.29)	(0.22)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-TOTAL PORTFOLIO - NET MGR			(4.43)	0.17	(4.43)	27.97	14.41	16.39	19.06	6.06	11.89	10.64			
BOARD OF EDUCATION POLICY BENCHMARK			(2.96)	1.77	(2.96)	27.47	14.19	14.46	19.07	7.23	12.09	10.26	9.38		
EXCESS RETURN			(1.47)	(1.60)	(1.47)	0.50	0.23	1.93	(0.01)	(1.16)	(0.20)	0.38	0.51		
<b>EQUITY RETURN DETAIL</b>															
18 BERS-TOTAL EQUITY (INCLUDES ALTERNATIVES) - GROSS	5,833	66.82	(4.25)	2.53	(4.25)	41.69	21.72	20.57	24.41	10.49	16.43	14.42	12.73	9.99	08/01/1993
ESTIMATED INVESTMENT FEES			(0.19)	(0.66)	(0.19)	(0.59)	(0.85)	(0.39)	(0.42)	(0.88)	(0.57)	(0.46)			
EST MANAGEMENT FEES			(0.19)	(0.66)	(0.19)	(0.59)	(0.85)	(0.39)	(0.42)	(0.88)	(0.57)	(0.46)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-TOTAL EQUITY (INCLUDES ALTERNATIVES) - NET MGR			(4.44)	1.88	(4.44)	41.10	20.88	20.18	23.99	9.61	15.86	13.97			
26 BERS-TOTAL EQUITY - GROSS	4,138	47.41	(7.88)	(4.20)	(7.88)	44.31	17.30	23.57	28.11	2.94	14.68	12.88	11.81	9.32	04/01/2004
ESTIMATED INVESTMENT FEES			(0.03)	(0.11)	(0.03)	(0.25)	(0.22)	(0.20)	(0.20)	(0.20)	(0.19)	(0.17)			
EST MANAGEMENT FEES			(0.03)	(0.11)	(0.03)	(0.25)	(0.22)	(0.20)	(0.20)	(0.20)	(0.19)	(0.17)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-TOTAL EQUITY - NET MGR			(7.91)	(4.31)	(7.91)	44.06	17.08	23.38	27.91	2.75	14.49	12.71			
34 BERS-TOTAL DOMESTIC EQUITY - GROSS	2,712	31.07	(6.36)	2.18	(6.36)	43.93	25.13	21.91	31.14	10.37	17.89	15.47	14.35	10.65	09/01/1991
ESTIMATED INVESTMENT FEES			(0.01)	(0.04)	(0.01)	(0.13)	(0.13)	(0.11)	(0.10)	(0.11)	(0.11)	(0.08)			
BERS-TOTAL DOMESTIC EQUITY - NET MGR			(6.37)	2.14	(6.37)	43.79	25.00	21.80	31.04	10.25	17.78	15.39			
RUSSELL 3000 (DAILY)			(5.28)	3.40	(5.28)	44.16	25.66	20.89	31.02	11.92	18.24	15.40	14.28	10.54	
EXCESS RETURN			(1.09)	(1.27)	(1.09)	(0.37)	(0.66)	0.91	0.02	(1.67)	(0.46)	(0.01)	0.07	0.11	
44 BERS-TOTAL SMALL CAP - GROSS	165	1.89	(9.41)	(5.98)	(9.41)	60.95	23.03	24.30	25.20	0.29	14.82	11.54	12.29	8.16	04/01/2004
ESTIMATED INVESTMENT FEES			(0.03)	(0.09)	(0.03)	(0.91)	(0.68)	(0.21)	(0.00)	(0.54)	(0.29)	(0.17)			
BERS-TOTAL SMALL CAP - NET MGR			(9.43)	(6.08)	(9.43)	60.05	22.35	24.10	25.20	(0.26)	14.53	11.37			
RUSSELL 2000 (DAILY)			(7.53)	(9.66)	(7.53)	62.03	14.82	19.96	25.52	(5.79)	11.74	9.74	11.04	8.65	
EXCESS RETURN			(1.91)	3.59	(1.91)	(1.98)	7.53	4.13	(0.33)	5.53	2.78	1.62	1.25	(0.49)	
54 BERS-TOTAL MID CAP - GROSS	248	2.85	(10.16)	(8.55)	(10.16)	44.24	10.77	26.31	33.87	(5.59)	11.81	13.12	13.63	13.77	10/01/2010
ESTIMATED INVESTMENT FEES			(0.07)	(0.28)	(0.07)	(0.80)	(0.70)	(1.19)	(1.19)	(0.60)	(0.92)	(0.78)			
BERS-TOTAL MID CAP - NET MGR			(10.23)	(8.82)	(10.23)	43.43	10.07	25.12	32.68	(6.18)	10.89	12.34			
RUSSELL MIDCAP (DAILY)			(5.68)	(0.54)	(5.68)	49.80	22.58	17.10	30.54	6.92	14.89	12.62	12.85	13.32	
EXCESS RETURN			(4.55)	(8.29)	(4.55)	(6.36)	(12.52)	8.02	2.14	(13.10)	(4.00)	(0.28)	0.78	0.45	
64 BERS-TOTAL RUSSELL 1000 - GROSS	1,564	17.91	(5.86)	3.61	(5.86)	43.19	26.64	20.97	31.35	12.49	18.46		16.21	04/01/2018	
ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		(0.00)		
BERS-TOTAL RUSSELL 1000 - NET MGR			(5.86)	3.61	(5.86)	43.19	26.64	20.97	31.35	12.49	18.46		16.21		
RUSSELL 1000 (DAILY)			(5.13)	4.36	(5.13)	43.07	26.45	20.96	31.43	13.27	18.71		16.29		
EXCESS RETURN			(0.73)	(0.75)	(0.73)	0.11	0.18	0.00	(0.07)	(0.78)	(0.26)		(0.08)		
74 BERS-TOTAL RUSSELL TOP 200 PASSIVE - GROSS	718	8.22	(5.30)	5.47	(5.30)	40.72	27.51	22.41	31.67	14.87	19.86		17.68	05/01/2018	
ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)		(0.01)		
BERS-TOTAL RUSSELL TOP 200 PASSIVE - NET MGR			(5.30)	5.47	(5.30)	40.72	27.50	22.40	31.66	14.86	19.85		17.67		
RUSSELL TOP 200 INDEX (DAILY)			(4.94)	6.18	(4.94)	40.81	27.90	22.37	31.75	15.66	20.14		17.88		
EXCESS RETURN			(0.36)	(0.71)	(0.36)	(0.09)	(0.40)	0.03	(0.09)	(0.80)	(0.28)		(0.21)		

# Consolidated Performance Report

Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2021	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>EQUITY RETURN DETAIL</b>															
86 BERS-TOTAL EMERGING MANAGER - GROSS	17	0.19	(8.83)	(5.78)	(8.83)	67.82	25.72	19.98	23.94	(1.35)	14.19			11.34	05/01/2017
ESTIMATED INVESTMENT FEES			(0.11)	(0.35)	(0.11)	(0.94)	(0.70)	(0.60)	(0.62)	(0.54)	(0.59)			(0.53)	
BERS-TOTAL EMERGING MANAGER - NET MGR			(8.94)	(6.13)	(8.94)	66.87	25.02	19.38	23.33	(1.89)	13.60			10.82	
RUSSELL 2000 (DAILY)			(7.53)	(9.66)	(7.53)	62.03	14.82	19.96	25.52	(5.79)	11.74			9.67	
EXCESS RETURN			(1.41)	3.53	(1.41)	4.85	10.20	(0.58)	(2.20)	3.90	1.86			1.14	
96 BERS-TOTAL WORLD ex-USA EQUITY - GROSS	735	8.42	(12.66)	(17.07)	(12.66)	48.07	3.28	34.62	26.47	(12.05)	10.57	10.02	8.45	7.97	11/01/1992
ESTIMATED INVESTMENT FEES			(0.05)	(0.15)	(0.05)	(0.36)	(0.25)	(0.33)	(0.31)	(0.21)	(0.27)	(0.27)			
BERS-TOTAL WORLD ex-USA EQUITY - NET MGR			(12.71)	(17.22)	(12.71)	47.71	3.02	34.29	26.16	(12.26)	10.30	9.75			
NYC DEVELOPED EQUITY BENCHMARK			(5.18)	(3.04)	(5.18)	34.82	12.39	8.32	22.91	2.31	8.69	7.24	6.53	6.21	
EXCESS RETURN			(7.53)	(14.18)	(7.53)	12.89	(9.37)	25.97	3.26	(14.57)	1.62	2.52	1.91	1.75	
106 BERS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - GROSS	595	6.82	(13.96)	(19.61)	(13.96)	47.10	0.34	37.50	27.08	(14.99)	9.75	9.88		6.65	11/01/2013
ESTIMATED INVESTMENT FEES			(0.05)	(0.14)	(0.05)	(0.34)	(0.23)	(0.32)	(0.29)	(0.19)	(0.25)	(0.25)		(0.25)	
BERS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - NET MGR			(14.00)	(19.75)	(14.00)	46.76	0.11	37.17	26.79	(15.18)	9.50	9.62		6.40	
NYC CUSTOM WORLD EX-USA LG & MID ACT INDEX			(4.81)	(2.46)	(4.81)	33.60	12.62	7.59	22.49	3.04	8.55	7.22		4.77	
EXCESS RETURN			(9.20)	(17.28)	(9.20)	13.16	(12.51)	29.59	4.30	(18.22)	0.94	2.41		1.63	
126 BERS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - GROSS	140	1.60	(6.66)	(4.16)	(6.66)	52.68	19.51	17.27	22.61	3.14	13.30	10.38		9.93	05/01/2013
ESTIMATED INVESTMENT FEES			(0.07)	(0.23)	(0.07)	(0.50)	(0.39)	(0.39)	(0.41)	(0.34)	(0.37)	(0.36)			
BERS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - NET MGR			(6.74)	(4.40)	(6.74)	52.17	19.12	16.88	22.21	2.81	12.92	10.02			
S&P EPAC SMALL CAP USD NET			(9.62)	(10.53)	(9.62)	42.23	8.06	13.78	23.71	(5.79)	7.74	6.70		6.97	
EXCESS RETURN			2.88	6.14	2.88	9.94	11.06	3.10	(1.50)	8.59	5.18	3.32		2.96	
136 BERS-TOTAL EMERGING MARKETS - GROSS	456	5.23	(6.13)	(12.79)	(6.13)	39.86	1.55	13.05	16.90	(7.47)	5.02	5.31	4.00	7.34	11/01/1997
ESTIMATED INVESTMENT FEES			(0.10)	(0.29)	(0.10)	(0.41)	(0.41)	(0.26)	(0.27)	(0.40)	(0.32)	(0.30)			
BERS-TOTAL EMERGING MARKETS - NET MGR			(6.23)	(13.08)	(6.23)	39.44	1.13	12.79	16.63	(7.87)	4.70	5.02			
MSCI EMERGING MARKETS			(6.97)	(15.62)	(6.97)	40.90	(2.54)	18.31	18.42	(11.37)	4.94	5.98	3.36		
EXCESS RETURN			0.75	2.54	0.75	(1.46)	3.68	(5.52)	(1.79)	3.50	(0.24)	(0.96)	0.64		
146 BERS-TOTAL ACTIVE EMERGING MARKETS - GROSS	454	5.21	(6.12)	(12.78)	(6.12)	38.63	1.69	11.09	16.09	(7.45)	4.40	4.60	3.72	7.61	04/01/2004
ESTIMATED INVESTMENT FEES			(0.10)	(0.29)	(0.10)	(0.50)	(0.43)	(0.37)	(0.38)	(0.41)	(0.39)	(0.37)			
BERS-TOTAL ACTIVE EMERGING MARKETS - NET MGR			(6.22)	(13.07)	(6.22)	38.13	1.26	10.72	15.71	(7.86)	4.01	4.22			
MSCI EMERGING MARKETS			(6.97)	(15.62)	(6.97)	40.90	(2.54)	18.31	18.42	(11.37)	4.94	5.98	3.36	7.42	
EXCESS RETURN			0.75	2.55	0.75	(2.77)	3.80	(7.59)	(2.71)	3.51	(0.92)	(1.75)	0.36	0.19	
156 BERS-TOTAL PASSIVE EMERGING MARKETS - GROSS	2	0.02	(6.67)	(15.19)	(6.67)	40.69	(2.08)	17.29	18.79	(11.03)	4.98	6.04		7.86	12/01/2016
ESTIMATED INVESTMENT FEES			0.01	(0.01)	0.01	(0.03)	(0.02)	(0.02)	(0.03)	(0.01)	(0.02)	(0.03)		(0.03)	
BERS-TOTAL PASSIVE EMERGING MARKETS - NET MGR			(6.66)	(15.20)	(6.66)	40.66	(2.10)	17.27	18.76	(11.04)	4.96	6.00		7.83	
MSCI EMERGING MARKETS			(6.97)	(15.62)	(6.97)	40.90	(2.54)	18.31	18.42	(11.37)	4.94	5.98		7.81	
EXCESS RETURN			0.31	0.42	0.31	(0.24)	0.44	(1.04)	0.34	0.32	0.03	0.03		0.02	
166 BERS-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	77	0.88	(7.44)	(8.05)	(7.44)	40.75	9.43	17.00	22.67	(0.29)	9.71			7.65	05/01/2017
ESTIMATED INVESTMENT FEES			(0.07)	(0.23)	(0.07)	(0.70)	(0.53)	(0.41)	(0.42)	(0.51)	(0.43)			(0.40)	
BERS-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR			(7.51)	(8.28)	(7.51)	40.05	8.90	16.60	22.25	(0.79)	9.28			7.25	
MSCI ACWI EX USA IMI NET			(5.60)	(6.50)	(5.60)	37.18	8.53	11.12	21.63	(1.27)	7.87			6.55	
EXCESS RETURN			(1.92)	(1.77)	(1.92)	2.87	0.37	5.48	0.62	0.48	1.41			0.70	
176 BERS-TOTAL GLOBAL EQUITY - GROSS	158	1.81	(14.65)	(12.11)	(14.65)	43.05	12.70	39.74	36.70	(4.27)	16.07			12.99	06/01/2018
ESTIMATED INVESTMENT FEES			(0.11)	(0.35)	(0.11)	(0.77)	(0.60)	(0.77)	(0.79)	(0.50)	(0.63)			(0.61)	
BERS-TOTAL GLOBAL EQUITY - NET MGR			(14.76)	(12.46)	(14.76)	42.28	12.10	38.98	35.91	(4.78)	15.44			12.37	
MSCI AC WORLD (DAILY CONST)			(5.36)	(0.11)	(5.36)	39.26	18.54	16.25	26.60	7.28	13.75			11.04	
EXCESS RETURN			(9.40)	(12.35)	(9.40)	3.02	(6.44)	22.72	9.31	(12.06)	1.68			1.33	

# Consolidated Performance Report

Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2021	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>ALTERNATIVE EQUITY RETURN DETAIL</b>															
188 BERS-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - GROSS	879	10.07	5.67	28.64	5.67	54.87	52.85	18.72	14.11	45.75	29.71	24.96	19.76	11.43	07/01/2006
ESTIMATED INVESTMENT FEES			(0.41)	(2.80)	(0.41)	(2.40)	(4.14)	(1.24)	(1.45)	(3.85)	(2.10)	(1.73)			
BERS-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - NET MGR			5.26	25.83	5.26	52.48	48.72	17.48	12.66	41.90	27.61	23.23			
NYC R3000 +3% LAGGED			10.06	20.76	10.06	67.21	35.74	18.42	6.00	29.36	29.49	21.46	19.76	14.83	
EXCESS RETURN			(4.80)	5.07	(4.80)	(14.74)	12.97	(0.94)	6.66	12.54	(1.89)	1.77	0.01	(3.39)	
198 BERS-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED) - GROSS	604	6.92	7.75	23.87	7.75	10.43	24.29	0.82	7.61	28.98	12.36	12.53	12.52	12.15	12/01/2010
ESTIMATED INVESTMENT FEES			(0.44)	(1.75)	(0.44)	(0.97)	(1.90)	(0.63)	(0.71)	(2.25)	(1.17)	(0.96)			
BERS-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED) - NET MGR			7.31	22.12	7.31	9.46	22.39	0.18	6.90	26.73	11.19	11.57			
NCREIF NFI-ODCE NET + 100 BP			7.40	23.64	7.40	8.15	22.21	1.35	5.43	28.51	11.40	9.98	11.01	11.84	
EXCESS RETURN			(0.09)	(1.52)	(0.09)	1.31	0.18	(1.16)	1.47	(1.77)	(0.21)	1.58	1.52	0.31	
208 BERS-TOTAL INFRASTRUCTURE (TIME WEIGHTED) - GROSS	212	2.43	3.40	10.52	3.40	21.46	17.75	10.82	13.63	15.99	14.54	16.41		14.91	12/01/2013
ESTIMATED INVESTMENT FEES			(2.25)	(4.30)	(2.25)	(2.01)	(3.31)	(1.40)	(1.45)	(5.37)	(2.81)	(2.36)		(3.05)	
BERS-TOTAL INFRASTRUCTURE (TIME WEIGHTED) - NET MGR			1.14	6.22	1.14	19.45	14.44	9.42	12.17	10.62	11.73	14.05		11.86	
CPI + 4%			3.72	9.35	3.72	9.55	11.38	5.33	6.35	12.90	8.37	7.49		6.61	
EXCESS RETURN			(2.58)	(3.13)	(2.58)	9.90	3.06	4.09	5.82	(2.28)	3.36	6.55		5.25	



# Consolidated Performance Report

Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2021	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>FIXED INCOME RETURN DETAIL</b>															
220 BERS-TOTAL FIXED INCOME - GROSS	2,896	33.18	(4.42)	(3.24)	(4.42)	4.35	2.00	9.20	9.46	(0.91)	4.03	3.63	3.55	7.41	02/01/1980
ESTIMATED INVESTMENT FEES			(0.03)	(0.10)	(0.03)	(0.11)	(0.13)	(0.10)	(0.10)	(0.13)	(0.11)	(0.11)			
EST MANAGEMENT FEES			(0.03)	(0.10)	(0.03)	(0.11)	(0.13)	(0.10)	(0.10)	(0.13)	(0.11)	(0.11)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-TOTAL FIXED INCOME - NET MGR			(4.45)	(3.34)	(4.45)	4.24	1.87	9.09	9.36	(1.04)	3.92	3.52			
228 BERS-FIXED INCOME (ex ALTERNATIVE CREDIT & CASH) - GROSS	1,873	21.46	(5.33)	(4.60)	(5.33)	0.68	(0.24)	10.08	9.00	(2.44)	3.23	3.00		3.06	11/01/2013
ESTIMATED INVESTMENT FEES			(0.01)	(0.04)	(0.01)	(0.05)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)		(0.06)	
EST MANAGEMENT FEES			(0.01)	(0.04)	(0.01)	(0.05)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)		(0.06)	
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-FIXED INCOME (ex ALTERNATIVE CREDIT & CASH) - NET MGR			(5.34)	(4.64)	(5.34)	0.63	(0.30)	10.03	8.96	(2.49)	3.18	2.96		3.00	
236 BERS-TOTAL STRUCTURED FIXED INCOME - GROSS	1,401	16.05	(5.82)	(5.70)	(5.82)	(0.54)	(1.48)	10.05	9.16	(3.79)	2.67	2.74	2.96	7.04	01/01/1985
ESTIMATED INVESTMENT FEES			(0.01)	(0.03)	(0.01)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)			
BERS-TOTAL STRUCTURED FIXED INCOME - NET MGR			(5.83)	(5.73)	(5.83)	(0.59)	(1.53)	10.00	9.12	(3.84)	2.62	2.70			
NYC CUSTOM STRUCTURED INDEX-BERS			(5.86)	(5.75)	(5.86)	(0.42)	(1.43)	11.38	10.27	(3.93)	3.30	3.30	3.07		
EXCESS RETURN			0.03	0.01	0.03	(0.17)	(0.10)	(1.38)	(1.15)	0.09	(0.68)	(0.61)	(0.11)		
246 BERS-TOTAL GOVERNMENT - GROSS	644	7.37	(5.00)	(4.75)	(5.00)	(2.80)	(2.05)	10.87	8.16	(3.05)	2.85	2.58	2.62	6.66	05/01/1987
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)			
BERS-TOTAL GOVERNMENT - NET MGR			(5.00)	(4.76)	(5.00)	(2.83)	(2.07)	10.84	8.13	(3.07)	2.82	2.56			
CUSTOM GOVERNMENT BENCHMARK - BOE			(5.19)	(4.88)	(5.19)	(3.00)	(2.09)	13.94	10.40	(3.03)	4.14	3.85	3.29		
EXCESS RETURN			0.19	0.12	0.19	0.17	0.02	(3.10)	(2.27)	(0.04)	(1.32)	(1.30)	(0.67)		
256 BERS-TOTAL MORTGAGE - GROSS	353	4.04	(4.91)	(5.04)	(4.91)	0.18	(0.74)	4.47	6.97	(4.55)	1.01	1.76	2.07	5.12	08/01/1993
ESTIMATED INVESTMENT FEES			(0.01)	(0.03)	(0.01)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)			
BERS-TOTAL MORTGAGE - NET MGR			(4.92)	(5.07)	(4.92)	0.14	(0.79)	4.42	6.93	(4.59)	0.97	1.72			
NYC CUSTOM MORTGAGE BENCHMARK			(4.97)	(5.23)	(4.97)	(0.48)	(1.04)	3.91	6.68	(4.92)	0.67	1.44	1.72	4.65	
EXCESS RETURN			0.05	0.16	0.05	0.62	0.26	0.52	0.25	0.33	0.30	0.28	0.35	0.47	
266 BERS-TOTAL INVESTMENT GRADE CORPORATE - GROSS	405	4.64	(7.85)	(7.52)	(7.85)	3.35	(1.36)	10.51	14.68	(4.13)	3.07	3.35	3.83	6.79	04/01/1987
ESTIMATED INVESTMENT FEES			(0.02)	(0.06)	(0.02)	(0.09)	(0.10)	(0.09)	(0.10)	(0.09)	(0.09)	(0.09)			
BERS-TOTAL INVESTMENT GRADE CORPORATE - NET MGR			(7.87)	(7.59)	(7.87)	3.26	(1.45)	10.41	14.58	(4.23)	2.98	3.26			
NYC CUSTOM IGC BENCHMARK			(7.69)	(7.48)	(7.69)	3.34	(0.85)	9.70	13.40	(4.20)	2.83	3.16	3.42		
EXCESS RETURN			(0.18)	(0.11)	(0.18)	(0.08)	(0.61)	0.71	1.18	(0.03)	0.15	0.10	0.41		

# Consolidated Performance Report

Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2021	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>FIXED INCOME RETURN DETAIL</b>															
278 BERS-TOTAL CORE FI- DEVELOPING MGRS - GROSS	121	1.38	(5.93)	(5.89)	(5.93)		(1.12)			(3.83)				(3.78)	09/01/2020
ESTIMATED INVESTMENT FEES			(0.05)	(0.14)	(0.05)		(0.20)			(0.19)				(0.19)	
BERS-TOTAL CORE FI- DEVELOPING MGRS - NET MGR			(5.97)	(6.03)	(5.97)		(1.32)			(4.03)				(3.97)	
BLOOMBERG U.S. AGGREGATE			(5.93)	(5.87)	(5.93)		(1.54)			(4.15)				(4.37)	
EXCESS RETURN			(0.04)	(0.16)	(0.04)		0.23			0.13				0.39	
288 BERS-TOTAL TIPS - GROSS	309	3.54	(2.81)	1.19	(2.81)	6.50	5.93	11.07	8.45	4.66	6.30	4.49	2.84	4.18	06/01/2005
ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)			
BERS-TOTAL TIPS - NET MGR			(2.81)	1.19	(2.81)	6.50	5.93	11.06	8.44	4.65	6.30	4.49			
BLOOMBERG GLOBAL INFL-LINKED: U.S. TIPS			(3.02)	1.01	(3.02)	6.51	5.96	10.99	8.43	4.29	6.22	4.43	2.69	4.04	
EXCESS RETURN			0.21	0.18	0.21	(0.02)	(0.03)	0.07	0.02	0.37	0.08	0.06	0.15	0.15	
298 BERS-TOTAL TARGETED INVESTMENTS (NO CASH) - GROSS	42	0.48	(5.33)	(5.15)	(5.33)	0.60	(0.72)	6.81	9.82	(3.19)	2.34	2.91	3.09	6.36	12/01/1984
ESTIMATED INVESTMENT FEES			(0.04)	(0.12)	(0.04)	(0.17)	(0.17)	(0.19)	(0.21)	(0.17)	(0.18)	(0.21)	(0.27)	(0.13)	
BERS-TOTAL TARGETED INVESTMENTS (NO CASH) - NET MGR			(5.37)	(5.27)	(5.37)	0.42	(0.89)	6.63	9.60	(3.35)	2.16	2.71	2.82	6.23	
BERS CUSTOM BENCHMARK (NO CASH)			(4.95)	(4.95)	(4.95)	(0.05)	(0.96)	5.84	7.67	(3.93)	1.53	2.08	2.21		
EXCESS RETURN			(0.43)	(0.33)	(0.43)	0.47	0.08	0.78	1.93	0.58	0.63	0.62	0.62		

# Consolidated Performance Report

Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2021	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>ALTERNATIVE CREDIT INCOME RETURN DETAIL</b>															
310 BERS-TOTAL HIGH YIELD - GROSS	762	8.74	(3.88)	(2.10)	(3.88)	16.38	6.26	8.45	14.08	0.60	5.70	5.33	6.09	5.94	08/01/1997
ESTIMATED INVESTMENT FEES			(0.07)	(0.21)	(0.07)	(0.35)	(0.31)	(0.34)	(0.37)	(0.29)	(0.32)	(0.33)			
BERS-TOTAL HIGH YIELD - NET MGR			(3.95)	(2.31)	(3.95)	16.03	5.95	8.12	13.71	0.31	5.38	5.00			
HIGH YIELD CUSTOM BENCHMARK			(4.82)	(3.31)	(4.82)	15.34	5.26	7.05	14.32	(0.66)	4.56	4.61	5.41	5.80	
EXCESS RETURN			0.87	0.99	0.87	0.69	0.69	1.07	(0.61)	0.97	0.82	0.39	0.68	0.14	
320 BERS- TOTAL BANK LOANS - GROSS	-	-						1.43	8.17						12/01/2012
ESTIMATED INVESTMENT FEES								(0.31)	(0.36)						
BERS-TOTAL BANK LOANS - NET MGR								1.12	7.82						
CSFB LEVERAGED LOAN INDEX						11.67	5.40	2.78	8.17						
EXCESS RETURN								(1.66)	(0.36)						
330 BERS-TOTAL OPPORTUNISTIC FIXED INCOME - GROSS	158	1.81	0.95	7.75	0.95		18.81			12.83				15.54	08/01/2020
ESTIMATED INVESTMENT FEES			(0.05)	(0.49)	(0.05)		(0.47)			(0.51)				(0.31)	
BERS-TOTAL OPPORTUNISTIC FIXED INCOME - NET MGR			0.90	7.26	0.90		18.34			12.33				15.23	
OPPORTUNISTIC FIXED INCOME JPMGHY / CSFB 50/50 BLEND PLUS 300			(1.57)	1.25	(1.57)		8.29			4.12				8.78	
EXCESS RETURN			2.47	6.00	2.47		10.05			8.21				6.45	
<b>CASH SUMMARY</b>															
342 Short Term BERS - GROSS	102	1.17	(0.11)	(0.12)	(0.11)	0.15	0.07	0.44	2.00	(0.06)	0.59	1.04	0.74	1.81	10/01/2000
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 BERS - NET MGR			(0.11)	(0.12)	(0.11)	0.15	0.07	0.44	2.00	(0.06)	0.59	1.04	0.74		
346 Cash Account	0	0.00													
348 Securities Lending	0	0.00													
350 KKR Cash Account															

**New York City  
Board of Education Retirement System**

# **Appendix B**

## **Public Markets Manager Performance Detail**

# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
EQUITY SUMMARY										
US EQUITY										
Wasatch-US SCG	\$82	0.94	(15.59)	(10.96)	(15.59)	19.39	38.80			
RUSSELL 2000 GROWTH DAILY			(12.63)	(17.56)	(12.63)	2.83	34.63			
Excess			(2.96)	6.60	(2.96)	16.56	4.17			
BlackRock US SCG R2000	\$0	0.00	(12.61)	(17.37)	(12.61)	3.35	34.42	28.39	(9.14)	22.26
RUSSELL 2000 GROWTH DAILY			(12.63)	(17.56)	(12.63)	2.83	34.63	28.48	(9.31)	22.17
Excess			0.02	0.19	0.02	0.51	(0.21)	(0.09)	0.17	0.09
BlackRock US SCV R2000	\$83	0.95	(2.40)	(0.92)	(2.40)	28.48	4.87	22.60	(12.79)	7.34
RUSSELL 2000 VALUE DAILY			(2.40)	(1.18)	(2.40)	28.27	4.63	22.39	(12.86)	7.84
Excess			0.00	0.26	0.00	0.21	0.24	0.20	0.08	(0.49)
Wellington US MCC	\$248	2.85	(10.23)	(8.82)	(10.23)	10.07	25.12	32.68	(7.37)	25.06
S&P MID CAP 400			(4.88)	0.92	(4.88)	24.76	13.66	26.20	(11.08)	16.24
Excess			(5.35)	(9.74)	(5.35)	(14.69)	11.46	6.48	3.71	8.82
BlackRock US LMC R1000 Core	\$1,564	17.91	(5.86)	3.61	(5.86)	26.64	20.97	31.36		
RUSSELL 1000 (DAILY)			(5.13)	4.36	(5.13)	26.45	20.96	31.43		
Excess			(0.73)	(0.75)	(0.73)	0.18	0.00	(0.07)		
SSGA-US LC Russell TOP 200 Core	\$718	8.22	(5.30)	5.47	(5.30)	27.50	22.40	31.66		
RUSSELL TOP 200 INDEX (DAILY)			(4.94)	6.18	(4.94)	27.90	22.37	31.75		
Excess			(0.36)	(0.71)	(0.36)	(0.40)	0.03	(0.09)		
FUND OF FUNDS										
BERS-TOTAL FUNDS OF FUNDS	\$17	0.19	(8.94)	(6.13)	(8.94)	25.02	19.38	23.33	(8.27)	
RUSSELL 2000 (DAILY)			(7.53)	(9.66)	(7.53)	14.82	19.96	25.52	(11.01)	
Excess			(1.41)	3.53	(1.41)	10.20	(0.58)	(2.20)	2.74	

# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
BERS-TOTAL LEGATO	\$17	0.19	(8.94)	(6.13)	(8.94)	25.02	19.38	23.33	(8.27)	
RUSSELL 2000 (DAILY)			(7.53)	(9.66)	(7.53)	14.82	19.96	25.52	(11.01)	
Excess			(1.41)	3.53	(1.41)	10.20	(0.58)	(2.20)	2.74	
NON - US EQUITY										
Sprucegrove WorldxUS LMCC	\$339	3.88	(6.33)	(8.41)	(6.33)	8.01	5.35	17.55	(13.67)	27.15
NYC Developed Value Benchmark <sup>[1]</sup>			(4.81)	(2.46)	(4.81)	12.62	7.59	22.49	(14.09)	22.77
Excess			(1.52)	(5.94)	(1.52)	(4.61)	(2.24)	(4.94)	0.42	4.38
Baillie Gifford WorldxUS LMCC	\$255	2.93	(22.48)	(31.11)	(22.48)	(7.53)	66.99	36.64	(15.35)	44.17
NYC Developed Growth Benchmark <sup>[2]</sup>			(4.81)	(2.46)	(4.81)	12.62	7.59	22.49	(14.09)	27.77
Excess			(17.67)	(28.64)	(17.67)	(20.15)	59.40	14.15	(1.26)	16.40
Acadian WorldxUS SCC	\$108	1.24	(5.24)	(2.25)	(5.24)	21.67	15.96	21.82	(19.22)	38.38
S&P EPAC Small Cap USD NET			(9.62)	(10.53)	(9.62)	8.06	13.78	23.71	(18.58)	33.47
Excess			4.38	8.28	4.38	13.61	2.18	(1.89)	(0.65)	4.91
Alger EAFE SCC	\$32	0.36	(11.53)	(11.04)	(11.53)	11.94	9.76			
MSCI EAFE SMALL CAP NET (DAILY)			(8.53)	(7.64)	(8.53)	10.10	12.34			
Excess			(3.00)	(3.40)	(3.00)	1.84	(2.59)			
EMERGING MARKETS										
Acadian EM	\$337	3.86	(1.80)	(7.43)	(1.80)	4.96	10.72	15.71	(17.27)	40.45
MSCI EMERGING MARKETS			(6.97)	(15.62)	(6.97)	(2.54)	18.31	18.42	(14.57)	37.28
Excess			5.17	8.20	5.17	7.50	(7.59)	(2.71)	(2.70)	3.16
JP Morgan AM-EM ACG	\$117	1.34	(16.98)	(26.04)	(16.98)					
MSCI EMERGING MARKETS			(6.97)	(15.62)	(6.97)					
Excess			(10.01)	(10.42)	(10.01)					
BlackRock MSCI EM Core	\$2	0.02	(6.66)	(15.20)	(6.66)	(2.10)	17.27	18.76	(14.45)	37.25
MSCI EMERGING MARKETS			(6.97)	(15.62)	(6.97)	(2.54)	18.31	18.42	(14.57)	37.28
Excess			0.31	0.42	0.31	0.44	(1.04)	0.34	0.12	(0.03)

# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
INTERNATIONAL FOF										
BERS-TOTAL INTERNATIONAL FOF	\$77	0.88	(7.51)	(8.28)	(7.51)	8.90	16.60	22.25	(14.53)	
MSCI ACWI ex USA IMI Net			(5.60)	(6.50)	(5.60)	8.53	11.12	21.63	(14.76)	
Excess			(1.92)	(1.77)	(1.92)	0.37	5.48	0.62	0.23	
BERS-TOTAL INTERNATIONAL XPONANCE										
BERS-TOTAL INTERNATIONAL XPONANCE	\$77	0.88	(7.51)	(8.28)	(7.51)	8.90	16.60	22.25	(14.53)	
MSCI ACWI ex USA IMI Net			(5.60)	(6.50)	(5.60)	8.53	11.12	21.63	(14.76)	
Excess			(1.92)	(1.77)	(1.92)	0.37	5.48	0.62	0.23	
GLOBAL EQUITY										
Morgan Stanley-Global	\$74	0.84	(19.72)	(23.69)	(19.72)	0.63	58.66	38.03		
MSCI AC WORLD (Daily Const)			(5.36)	(0.11)	(5.36)	18.54	16.25	26.60		
Excess			(14.36)	(23.59)	(14.36)	(17.91)	42.41	11.44		
Fiera-Global										
Fiera-Global	\$84	0.97	(9.89)	0.46	(9.89)	26.21	20.57	33.97		
MSCI World Index			(5.15)	2.21	(5.15)	21.82	15.90	27.67		
Excess			(4.74)	(1.74)	(4.74)	4.39	4.66	6.30		
FIXED INCOME SUMMARY										
STRUCTURED FIXED INCOME										
BlackRock Mortgages	\$353	4.04	(4.92)	(5.07)	(4.92)	(0.79)	4.42	6.93	1.00	3.06
NYC Custom Mortgage Benchmark <sup>(3)</sup>			(4.97)	(5.23)	(4.97)	(1.04)	3.91	6.68	1.01	2.47
Excess			0.05	0.16	0.05	0.26	0.52	0.25	(0.01)	0.59
Prudential Corporate										
Prudential Corporate	\$0	0.00					9.89	13.63	(1.95)	6.21
NYC - Investment Grade Credit							9.70	13.40	(1.90)	6.04
Excess							0.19	0.24	(0.05)	0.17
T Rowe Price-Corporate										
T Rowe Price-Corporate	\$404	4.63	(7.88)	(7.59)	(7.88)					
Bloomberg U.S. Corporate Inv Grade			(7.69)	(7.48)	(7.69)					
Excess			(0.19)	(0.12)	(0.19)					

# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
SSGA LI Treasury	\$114	1.30	(7.98)	(6.83)	(7.98)	(3.60)	12.59	10.57	(0.18)	4.92
NYC - Treasury Agency Plus Five			(7.98)	(6.75)	(7.98)	(3.78)	12.85	10.40	(0.05)	4.66
Excess			(0.01)	(0.08)	(0.01)	0.17	(0.26)	0.17	(0.12)	0.27
SSGA IT Treasury 1-10Y	\$240	2.75	(4.12)	(4.71)	(4.12)	(1.73)	5.73			
USBIG TSY AGN 1-10			(4.06)	(4.64)	(4.06)	(1.66)	5.72			
Excess			(0.05)	(0.07)	(0.05)	(0.07)	0.02			
SSGA ST Treasury 1-3Y	\$216	2.48	(2.43)	(2.92)	(2.43)	(0.60)	3.05	3.56	1.51	0.45
FTSE US Government Bond 1-3 Years Index			(2.38)	(2.87)	(2.38)	(0.58)	3.09	3.56	1.56	0.42
Excess			(0.05)	(0.06)	(0.05)	(0.02)	(0.04)	0.00	(0.05)	0.03
SSGA LT Treasury 10Y Plus	\$73	0.84	(10.17)	(7.31)	(10.17)					
FTSE US Government Bond 10+ Years Index			(10.42)	(7.31)	(10.42)					
Excess			0.25	(0.00)	0.25					
HIGH YIELD										
Mackay Shields High Yield	\$381	4.36	(3.92)	(2.10)	(3.92)	5.42	8.00	13.85		
Bloomberg U.S. HY - 2% Issuer Cap			(4.82)	(3.31)	(4.82)	5.26	7.05	14.32		
Excess			0.90	1.21	0.90	0.16	0.95	(0.47)		
Nomura High Yield	\$382	4.37	(3.98)	(2.52)	(3.98)	6.49	8.22	13.74		
Bloomberg U.S. HY - 2% Issuer Cap			(4.82)	(3.31)	(4.82)	5.26	7.05	14.32		
Excess			0.84	0.78	0.84	1.23	1.17	(0.58)		
BANK LOANS										
Barings Bank Loans	\$0	0.00					1.12	7.82	0.38	4.47
CSFB LEVERAGED LOAN INDEX							2.78	8.17	1.14	4.25
Excess							(1.66)	(0.36)	(0.76)	0.22



# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
TIPS										
SSGA TIPS	\$309	3.54	(2.81)	1.19	(2.81)	5.93	11.06	8.44	(1.29)	3.04
Bloomberg Global Infl-Linked: U.S. TIPS			(3.02)	1.01	(3.02)	5.96	10.99	8.43	(1.26)	3.01
Excess			0.21	0.18	0.21	(0.03)	0.07	0.02	(0.03)	0.04
CORE FI-DEVELOPING MANAGERS										
Pugh-CorePlus	\$121	1.38	(5.97)	(6.03)	(5.97)	(1.32)				
Bloomberg U.S. Aggregate			(5.93)	(5.87)	(5.93)	(1.54)				
Excess			(0.04)	(0.16)	(0.04)	0.23				
ECONOMICALLY TARGETED INVESTMENTS										
RBC Access MBS	\$10	0.12	(5.57)	(5.77)	(5.57)	(1.03)	6.14	7.21	0.49	2.64
Access RBC Benchmark			(4.67)	(5.12)	(4.67)	(1.46)	4.69	6.05	1.17	1.96
Excess			(0.91)	(0.66)	(0.91)	0.43	1.45	1.16	(0.69)	0.69
AFL-CIO Housing Investment Trust	\$17	0.20	(5.94)	(6.23)	(5.94)	(1.04)	6.20	7.78	0.16	3.17
Bloomberg U.S. Aggregate			(5.93)	(5.87)	(5.93)	(1.54)	7.51	8.72	0.01	3.54
Excess			(0.00)	(0.35)	(0.00)	0.50	(1.31)	(0.94)	0.15	(0.38)
CPC Construction Facility	\$3	0.04	0.67	2.26	0.67	3.89	0.67	6.87	4.14	6.05
CPC CONST BENCHMARK			0.62	1.83	0.62	2.42	2.73	4.09	3.99	3.34
Excess			0.04	0.43	0.04	1.47	(2.06)	2.78	0.15	2.72
BOA PPAR FNMA	\$1	0.01	(5.79)	(5.38)	(5.79)	(1.89)	6.12	13.54	2.33	5.21
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			(0.75)	(0.40)	(0.75)	(1.52)	0.98	5.74	0.47	1.60
Citibank PPAR FNMA	\$2	0.02	(6.28)	(5.67)	(6.28)	(1.56)	7.06	19.71	2.63	5.26
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			(1.24)	(0.69)	(1.24)	(1.19)	1.92	11.91	0.77	1.65

# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
Citibank PPAR GNMA	\$0	0.00	(3.95)	(4.78)	(3.95)	(1.10)	8.31	5.33	1.90	3.10
GNMA Plus 65bps			(3.86)	(4.01)	(3.86)	(0.82)	4.31	6.73	1.63	2.53
Excess			(0.09)	(0.77)	(0.09)	(0.29)	4.00	(1.41)	0.27	0.57
CFSB PPAR FNMA	\$0	0.00	(6.37)	(5.73)	(6.37)	(2.05)				
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)				
Excess			(1.33)	(0.74)	(1.33)	(1.67)				
CFSB PPAR GNMA	\$0	0.00	(3.83)	(3.64)	(3.83)	0.03	8.01	5.91	0.99	3.83
GNMA Plus 65bps			(3.86)	(4.01)	(3.86)	(0.82)	4.31	6.73	1.63	2.53
Excess			0.03	0.38	0.03	0.84	3.69	(0.82)	(0.65)	1.30
CPC PPAR FNMA	\$1	0.01	(5.75)	(4.08)	(5.75)	1.14	7.00	13.18	2.31	5.06
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			(0.71)	0.91	(0.71)	1.51	1.87	5.38	0.45	1.45
ECLF PPAR FNMA	\$0	0.00	(6.37)	(5.58)	(6.37)	(1.65)				
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)				
Excess			(1.33)	(0.60)	(1.33)	(1.28)				
JPMC PPAR FNMA	\$4	0.04	(5.84)	(5.34)	(5.84)	(1.84)	8.33	14.68	1.68	9.96
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			(0.79)	(0.35)	(0.79)	(1.47)	3.19	6.88	(0.18)	6.35
LIIF PPAR FNMA	\$2	0.02	(5.80)	(5.26)	(5.80)	(1.75)	6.44	16.35	2.27	9.55
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			(0.76)	(0.27)	(0.76)	(1.37)	1.30	8.55	0.41	5.94
LIIF PPAR GNMA	\$0	0.00	(2.36)	(1.96)	(2.36)	0.84	6.19	5.54	2.53	2.52
GNMA Plus 65bps			(3.86)	(4.01)	(3.86)	(0.82)	4.31	6.73	1.63	2.53
Excess			1.50	2.06	1.50	1.65	1.87	(1.19)	0.89	(0.01)

# Public Markets Manager Performance Detail

Net Returns Through March 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2021	2020	2019	2018	2017
LISC PPAR FNMA	\$0	0.00	(6.36)	(5.63)	(6.36)	(1.69)	31.93	14.95		
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80		
Excess			(1.32)	(0.65)	(1.32)	(1.32)	26.80	7.15		
NCBCI PPAR FNMA	\$0	0.00	(3.56)	(3.28)	(3.56)	0.66	8.49	4.08	2.00	1.75
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			1.49	1.71	1.49	1.03	3.36	(3.72)	0.15	(1.86)
NCBCI PPAR GNMA	\$0	0.00	(3.43)	(3.13)	(3.43)	0.95	8.16	3.69	1.23	3.01
GNMA Plus 65bps			(3.86)	(4.01)	(3.86)	(0.82)	4.31	6.73	1.63	2.53
Excess			0.43	0.89	0.43	1.77	3.85	(3.04)	(0.41)	0.48
Wells Fargo PPAR FNMA	\$1	0.01	(6.29)	(5.57)	(6.29)	(1.86)	28.61	21.71		
FNMA Plus 85bps			(5.04)	(4.99)	(5.04)	(0.37)	5.14	7.80	1.86	3.61
Excess			(1.25)	(0.58)	(1.25)	(1.48)	23.48	13.91		
<b>CASH</b>										
Short Term BERS	\$102	1.17	(0.11)	(0.12)	(0.11)	0.07	0.44	2.00	1.92	1.10
ICE BofA US 3-Month Treasury Bill			0.04	0.06	0.04	0.05	0.67	2.28	1.87	0.86
Excess			(0.15)	(0.18)	(0.15)	0.02	(0.23)	(0.28)	0.05	0.24
Cash Account	\$0	0.00								
Securities Lending	\$0	0.00								

**New York City  
Board of Education Retirement System**

# Appendix C

## Alternative Assets Manager Performance Detail

# Alternative Assets Manager Performance Detail

Through December 31, 2021

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
<b>TOTAL PRIVATE EQUITY</b>		1,339,786,399	851,665,132	629,140,195	881,225,888	1.77	16.1%
<b>TOTAL ACTIVE</b>							
Mesirow Financial Private Equity Partnership Fund III	2005	57,000,000	56,233,273	90,939,616	5,486,047	1.71	8.4%
Mesirow Financial Private Equity Partnership Fund IV	2006	25,000,000	24,342,233	41,316,368	7,495,815	2.01	11.6%
New York Fairview Private Equity Fund	2006	19,000,000	17,700,307	23,292,563	-	1.32	4.9%
Mesirow Financial Private Equity Partnership Fund V	2008	45,000,000	42,539,326	70,514,625	38,016,074	2.55	18.6%
Platinum Equity Capital Partners III	2011	15,000,000	14,642,373	26,542,088	4,613,218	2.13	36.9%
<u>NYCBERS - 2012 Emerging Manager Program</u>	<u>2012</u>	<u>14,650,000</u>	<u>15,284,514</u>	<u>19,933,781</u>	<u>15,312,742</u>	<u>2.31</u>	<u>20.0%</u>
Warburg Pincus Private Equity XI	2012	25,000,000	25,371,740	30,807,498	13,694,790	1.75	12.7%
Apollo Investment Fund VIII	2013	20,000,000	19,039,625	19,076,590	11,302,117	1.60	12.4%
ASF VI B	2013	15,000,000	12,275,385	15,825,242	2,529,223	1.50	13.1%
Carlyle Partners VI	2013	20,000,000	21,499,872	24,752,770	19,997,433	2.08	18.0%
Landmark - NYC Fund I	2013	6,000,000	5,479,861	6,268,960	3,132,241	1.72	16.3%
Landmark Equity Partners XV	2013	19,000,000	15,251,966	14,547,697	7,957,377	1.48	14.0%
ASF VI B NYC Co-Invest	2014	5,000,000	4,240,761	4,966,876	1,716,663	1.58	14.0%
Bridgepoint Europe V	2014	8,857,553	8,088,748	8,671,174	7,476,479	2.00	20.9%
Carlyle Partners VI - Side Car	2014	2,200,000	1,604,408	1,862,899	1,953,641	2.38	16.7%
Crestview Partners III	2014	15,000,000	12,674,226	6,699,260	12,727,483	1.53	13.9%
Crestview Partners III (Co-Investment B)	2014	5,000,000	5,181,674	250,760	6,754,350	1.35	7.0%
CVC Capital Partners VI	2014	20,037,822	19,695,499	17,122,373	22,338,038	2.00	19.7%
Lexington Capital Partners VIII	2014	20,000,000	18,161,156	15,729,434	15,027,498	1.69	19.9%
Vista Equity Partners Fund V	2014	25,000,000	30,938,596	33,530,442	36,563,243	2.27	22.1%
ASF VII B	2015	10,000,000	6,037,719	3,707,909	6,701,978	1.72	21.2%
ASF VII B NYC Co-Invest	2015	6,000,000	3,949,091	3,434,837	3,964,763	1.87	23.7%
Centerbridge Capital Partners III	2015	2,500,000	3,212,503	2,336,399	2,867,005	1.62	20.4%
EQT VII	2015	17,715,106	19,640,855	25,681,798	14,492,630	2.05	26.6%
<u>NYCBERS - 2015 Emerging Manager Program</u>	<u>2015</u>	<u>30,750,000</u>	<u>26,796,948</u>	<u>8,351,910</u>	<u>41,184,940</u>	<u>1.85</u>	<u>31.4%</u>
Siris Partners III	2015	3,500,000	3,553,764	2,699,957	2,756,922	1.54	14.5%
Warburg Pincus Private Equity XII	2015	21,500,000	21,506,301	11,817,258	32,606,159	2.07	22.6%
Welsh, Carson, Anderson & Stowe XII	2015	10,000,000	9,374,663	11,446,601	12,394,381	2.54	31.6%
American Securities Partners VII	2016	8,000,000	7,777,825	2,931,348	10,394,081	1.71	17.0%
Apax IX	2016	13,000,000	13,104,797	8,979,292	22,604,491	2.41	34.3%
BCEC X Metro Co-Investment	2016	4,433,361	4,603,171	202,992	9,122,266	2.03	24.5%

Information provided by the New York City Board of Education Retirement System Consultants

# Alternative Assets Manager Performance Detail



Through December 31, 2021

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Bridgepoint Europe V Co-Invest	2016	2,952,518	2,666,140	2,265,991	5,177,563	2.79	31.5%
Platinum Equity Capital Partners IV	2016	11,500,000	11,356,040	10,291,102	12,901,306	2.04	29.9%
Vista Equity Partners Fund VI	2016	16,000,000	18,714,717	13,660,877	26,857,932	2.17	24.2%
Ares Corporate Opportunities Fund V	2017	10,000,000	10,722,775	4,308,910	10,006,981	1.34	12.3%
BC European Capital X	2017	11,083,403	11,229,427	437,588	16,874,471	1.54	17.5%
CVC Capital Partners VII	2017	19,077,331	17,313,693	1,184,329	27,655,545	1.67	35.6%
Green Equity Investors VII	2017	10,000,000	8,893,411	5,785,943	15,007,383	2.34	31.2%
KKR Americas Fund XII	2017	16,000,000	14,934,488	4,976,644	28,708,464	2.26	43.7%
Palladium Equity Partners V	2017	10,000,000	6,104,130	673,827	6,969,581	1.25	13.2%
Warburg Pincus Financial Sector	2017	13,000,000	11,664,754	1,289,990	19,436,699	1.78	29.1%
Apollo Investment Fund IX	2018	32,000,000	19,233,279	5,840,885	20,225,291	1.36	28.8%
ASF VIII B	2018	21,000,000	9,157,949	1,390,706	14,111,796	1.69	62.3%
Bridgepoint Europe VI	2018	15,388,972	8,719,715	1,111,261	10,622,337	1.35	24.9%
EQT VIII	2018	14,145,141	12,235,678	5,902,296	19,249,842	2.06	49.4%
EQT VIII (Co-Invest)	2018	4,914,264	2,620,487	3,452,711	4,428,463	3.01	56.1%
ICG Strategic Equity Fund III	2018	13,340,000	9,594,114	1,797,852	15,827,765	1.84	91.8%
Lexington Capital Partners IX	2018	12,375,000	7,735,773	1,483,325	11,037,881	1.62	86.3%
Platinum Equity Capital Partners IV Co-Investment	2018	1,050,000	1,052,043	209,317	1,949,016	2.05	26.1%
Platinum Equity Small Cap Fund	2018	10,000,000	6,271,640	1,762,477	6,507,192	1.32	19.3%
Siris Partners IV	2018	10,000,000	6,362,229	1,151,555	8,985,207	1.59	26.3%
Vista Equity Partners Fund VII	2018	20,500,000	15,084,992	134,664	22,017,106	1.47	27.8%
Apax X	2019	12,500,000	6,022,848	-	7,239,964	1.20	51.4%
ASF VIII B NYC Co-Invest	2019	10,500,000	2,265,707	-	5,250,100	2.32	123.6%
Bridgepoint Europe VI Co-Invest	2019	3,847,243	2,127,148	-	3,091,992	1.45	24.3%
KKR European Fund V (USD)	2019	9,950,000	6,146,035	559,217	6,918,119	1.22	17.5%
<u>NYCBERS - 2019 Emerging Manager Program</u>	<u>2019</u>	<u>45,550,000</u>	<u>11,574,637</u>	<u>307,983</u>	<u>16,329,867</u>	<u>1.44</u>	<u>28.2%</u>
Warburg Pincus Global Growth	2019	15,000,000	12,737,224	108,750	16,705,878	1.32	27.4%
WCAS XIII	2019	10,000,000	5,948,215	940,734	6,961,271	1.33	43.2%
Clearlake Capital Partners VI	2020	10,000,000	8,122,212	342,081	12,957,259	1.64	79.1%
Crestview IV Co-Invest	2020	2,666,667	703,332	2,752	1,296,383	1.85	160.1%
Crestview Partners IV	2020	8,000,000	2,145,896	7,943	3,445,671	1.61	115.1%
EQT IX	2020	19,643,000	14,453,301	629,792	16,822,403	1.21	55.1%
EQT IX (Co-Invest)	2020	5,357,000	5,318,799	-	6,032,125	1.13	30.7%
FTV VI	2020	3,500,000	3,045,000	-	4,614,974	1.52	56.1%

Information provided by the New York City Board of Education Retirement System Consultants

# Alternative Assets Manager Performance Detail



Through December 31, 2021

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
ICG Strategic Equity Co-Investment Fund III	2020	4,444,119	3,284,658	-	4,866,459	1.48	53.5%
KKR Asian Fund IV	2020	25,000,000	4,751,659	-	3,881,491	0.82	-40.8%
Lexington IX Co-Invest	2020	4,125,000	2,021,456	82,902	3,195,609	1.62	113.4%
Lindsay Goldberg V	2020	10,500,000	3,119,470	157,556	4,139,789	1.38	47.6%
NYC-Northbound Emerging Managers Program	2020	25,000,000	3,000,000	-	4,265,532	1.42	131.6%
Valor Equity Partners V	2020	3,500,000	2,368,795	-	3,266,412	1.38	60.8%
Clearlake Capital Partners VII	2021	30,000,000	-	-	(193,698)	0.00	NM
CVC Capital Partners VIII	2021	25,532,300	5,050,657	-	5,183,565	1.03	74.7%
Grain Communications Opportunity Fund III	2021	3,000,000	1,087,827	387	946,742	0.87	-47.1%
HarbourVest Centre Street Co-Investment Fund	2021	23,000,000	5,462,500	-	5,642,162	1.03	12.9%
ICG Strategic Equity Co-Investment Fund IV	2021	10,000,000	2,712,702	-	2,842,086	1.05	10.2%
ICG Strategic Equity Fund IV	2021	20,000,000	8,321,768	86,448	10,230,890	1.24	54.5%
Insight Partners XII	2021	18,750,000	6,572,808	-	6,630,283	1.01	2.8%
Insight Partners XII Buyout Annex Fund	2021	6,250,000	2,343,750	-	2,345,426	1.00	0.2%
KKR Americas Fund XIII	2021	31,000,000	-	-	(65,207)	0.00	NM
One Rock Capital Partners III	2021	25,000,000	7,646,915	2,559,255	7,829,473	1.36	101.2%
Permira VIII	2021	23,700,600	-	-	-	0.00	NM
PSG V	2021	23,000,000	3,192,042	-	2,939,825	0.92	-97.7%
Reverence Capital Partners Opportunities Fund V (FOO) (PE F	2021	7,000,000	-	-	(16,262)	0.00	NM
Reverence Capital Partners Opportunities Fund V (PE Fund III)	2021	18,000,000	-	-	(41,817)	0.00	NM
Stellax Capital Partners II	2021	25,000,000	6,284,620	827	5,745,559	0.91	-22.2%
Vistria Fund IV	2021	13,000,000	2,362,501	-	2,263,521	0.96	-62.4%
TPG Rise Climate	2022	8,333,334	-	-	(79,865)	0.00	NM
TPG Rise Climate Co-Invest	2022	16,666,666	-	-	-	0.00	NM

Information provided by the New York City Board of Education Retirement System Consultants

# Alternative Assets Manager Performance Detail

Through December 31, 2021

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
<b>TOTAL PRIVATE REAL ESTATE</b>			961,022,597	676,130,659	392,290,954	590,833,774	1.45	11.8%
<b>TOTAL PRIVATE REAL ESTATE</b>								
LaSalle Property Fund	2010	Core Portfolio	38,600,000	38,600,000	14,312,670	57,265,575	1.85	9.8%
Trumbull Property Fund	2011	Core Portfolio	41,400,000	64,083,537	74,938,953	29,500,180	1.63	7.7%
NYC Asset Investor #2	2013	Core Portfolio	11,000,000	11,187,179	4,748,101	8,346,753	1.17	3.1%
MetLife Core Property Fund	2014	Core Portfolio	15,000,000	15,000,000	4,933,144	23,053,846	1.87	10.3%
USAA Eagle Real Estate Feeder 1	2015	Core Portfolio	18,000,000	20,154,090	2,246,878	24,296,335	1.32	7.3%
Brookfield Premier Real Estate Partners	2016	Core Portfolio	25,000,000	27,791,229	2,791,229	35,715,439	1.39	14.0%
Exeter Core Industrial Club Fund II	2016	Core Portfolio	10,000,000	9,739,474	2,696,487	22,422,879	2.58	29.7%
Jamestown Premier Property Fund	2016	Core Portfolio	6,246,307	7,327,296	2,794,401	5,153,982	1.08	2.5%
NYCRS Artemis Mach II	2016	Core Portfolio	11,000,000	12,795,019	11,592,401	7,975,126	1.53	17.1%
Heitman Core Real Estate Debt Income Trust	2017	Core Portfolio	25,000,000	24,762,813	2,440,051	24,676,030	1.10	6.4%
Lion Industrial Trust	2017	Core Portfolio	18,000,000	21,836,278	3,836,278	38,885,682	1.96	20.2%
Almanac Realty Securities VIII	2018	Core Portfolio	10,500,000	3,749,969	368,572	4,139,963	1.20	14.7%
Almanac Realty Securities VIII (Sidecar II)	2018	Core Portfolio	7,000,000	2,559,698	247,473	3,227,162	1.36	25.0%
Artemis Real Estate Partners Income and Growth Fund	2018	Core Portfolio	10,000,000	4,952,617	1,133,092	4,299,669	1.10	7.7%
Exeter Industrial Core Fund III	2019	Core Portfolio	12,700,000	11,430,000	281,557	15,305,631	1.36	NM
Harrison Street Core Property Fund	2019	Core Portfolio	80,000,000	11,100,964	900,015	11,945,071	1.16	7.4%
HSRE-Centre Street Core Co-Investment	2019	Core Portfolio	5,000,000	3,193,401	239,361	4,305,500	1.42	15.9%
Cortland Growth and Income	2020	Core Portfolio	10,000,000	10,621,786	621,786	13,694,756	1.35	NM
LaSalle GPS Co-Investment Program – Core	2021	Core Portfolio	10,000,000	3,157,649	-	3,156,623	1.00	NM
RREEF America REIT II	2021	Core Portfolio	17,000,000	17,000,000	166,603	19,749,434	1.17	NM
RREEF Core Plus Industrial Fund	2021	Core Portfolio	25,000,000	8,815,074	65,074	10,273,002	1.17	NM
Franklin Templeton Private Real Estate Fund	2011	Non-Core Portfolio	30,000,000	35,998,165	48,374,586	903,317	1.37	19.2%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	10,000,000	12,074,598	19,324,125	4,589,411	1.98	19.1%
Blackstone Real Estate Partners Europe IV (USD)	2013	Non-Core Portfolio	32,500,000	32,492,659	40,162,537	7,703,786	1.47	12.5%
NYC Asset Investor #1	2013	Non-Core Portfolio	10,000,000	11,944,351	5,919,447	6,587,563	1.05	1.0%
NYC Asset Investor #3	2013	Non-Core Portfolio	8,000,000	5,667,020	1,038,341	6,495,272	1.33	6.1%
Carlyle Realty Partners VII	2014	Non-Core Portfolio	25,000,000	23,092,968	26,414,579	7,358,412	1.46	13.4%
H/2 Special Opportunities III	2014	Non-Core Portfolio	15,000,000	15,577,770	14,651,937	4,689,264	1.24	7.5%
Blackstone Real Estate Partners VIII	2015	Non-Core Portfolio	16,500,000	18,486,290	15,763,216	15,251,491	1.68	18.1%
European Property Investors Special Opportunities 4	2015	Non-Core Portfolio	11,227,018	10,226,724	3,640,873	10,780,211	1.41	10.6%
PW Real Estate Fund III	2015	Non-Core Portfolio	11,203,575	8,751,528	4,406,749	20,185,855	2.81	36.0%
DivcoWest Fund V	2016	Non-Core Portfolio	10,000,000	7,662,174	1,997,774	8,114,982	1.32	9.4%
H/2 Special Opportunities IV	2016	Non-Core Portfolio	10,000,000	10,076,908	553,690	12,659,585	1.31	12.4%
Westbrook Real Estate Co-Investment Partnership X	2016	Non-Core Portfolio	10,000,000	9,660,347	8,103,505	3,841,512	1.24	11.0%
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	10,000,000	10,839,264	8,414,974	8,268,320	1.54	19.2%
Exeter Industrial Value Fund IV	2017	Non-Core Portfolio	10,000,000	9,400,559	19,241,680	1,500,127	2.21	31.6%
Lone Star Real Estate Fund V	2017	Non-Core Portfolio	11,000,804	7,685,879	3,869,771	3,020,270	0.90	-6.9%
NYCRS-KKR CMBS Retention Partners	2017	Non-Core Portfolio	13,000,001	12,050,645	3,718,074	11,264,446	1.24	7.3%
Primerica Real Estate Capital VI	2017	Non-Core Portfolio	10,325,370	10,734,480	8,066,744	4,855,506	1.20	11.3%
Aermont Capital Real Estate Fund IV	2018	Non-Core Portfolio	9,839,522	5,402,559	-	5,322,791	0.99	-1.4%
Brookfield Strategic Real Estate Partners III	2018	Non-Core Portfolio	12,000,000	9,152,184	1,144,268	10,180,133	1.24	14.8%
KKR Real Estate Partners Americas II	2018	Non-Core Portfolio	10,000,000	10,232,191	10,105,407	5,238,087	1.50	26.4%

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



## Alternative Assets Manager Performance Detail

Through December 31, 2021

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Blackstone Real Estate Partners IX	2019	Non-Core Portfolio	15,000,000	10,057,048	2,211,995	13,112,519	1.52	44.2%
Greenoak Asia (USD) III	2019	Non-Core Portfolio	10,000,000	7,307,837	4,706,180	3,293,489	1.09	NM
Westbrook Real Estate Fund XI	2019	Non-Core Portfolio	10,000,000	2,319,311	685,609	1,856,070	1.10	NM
DivcoWest Fund VI	2020	Non-Core Portfolio	10,000,000	2,421,353	163,275	2,126,239	0.95	NM
Exeter Industrial Value Fund V	2020	Non-Core Portfolio	5,000,000	3,500,000	-	5,515,176	1.58	NM
KKR Real Estate Partners Europe II	2020	Non-Core Portfolio	9,950,000	4,632,990	-	4,776,832	1.03	NM
KKR Real Estate Securities Dislocation Opportunity Co-Investmen	2020	Non-Core Portfolio	10,000,000	5,990,633	5,745,418	2,288,788	1.34	NM
Rialto Real Estate Fund IV - Debt	2020	Non-Core Portfolio	25,000,000	11,380,457	1,022,836	11,429,887	1.09	NM
Almanac Realty Securities IX	2021	Non-Core Portfolio	23,330,000	-	-	(57,523)	-	NM
Almanac Realty Securities IX (Sidecar II)	2021	Non-Core Portfolio	11,700,000	-	-	-	-	NM
BIG Real Estate Fund II	2021	Non-Core Portfolio	25,000,000	5,225,291	1,489,240	3,701,031	0.99	NM
KKR Real Estate Partners Americas III	2021	Non-Core Portfolio	35,000,000	9,003,512	-	8,801,349	0.98	NM
LaSalle GPS Co-investment Program - Non-Core	2021	Non-Core Portfolio	15,000,000	2,384,983	-	2,379,147	1.00	NM
Mesirow Financial Real Estate Value Fund IV	2021	Non-Core Portfolio	25,000,000	4,839,909	-	5,743,784	1.19	NM
Brookfield Strategic Real Estate Partners IV	2022	Non-Core Portfolio	39,000,000	-	-	(331,993)	-	NM

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

# Alternative Assets Manager Performance Detail

Through December 31, 2021

	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
<b>TOTAL INFRASTRUCTURE</b>		419,753,586	207,998,038	86,413,422	200,929,956	1.38	13.4%
<b>TOTAL INFRASTRUCTURE</b>							
Brookfield Infrastructure Fund II	2013	10,000,000	9,989,871	8,351,914	9,593,909	1.80	13.2%
Global Energy & Power Infrastructure Fund II	2014	15,000,000	16,058,941	15,024,350	6,447,956	1.34	17.0%
IFM Global Infrastructure Fund	2014	15,000,000	20,027,335	9,014,484	26,944,512	1.80	12.1%
KKR Global Infrastructure Investors II	2014	19,000,000	20,603,353	26,383,497	8,897,521	1.71	17.4%
Actis Energy 4	2016	10,600,000	8,802,787	3,446,388	8,469,000	1.35	12.3%
ASF VII Infrastructure	2016	12,000,000	7,595,344	958,946	10,140,940	1.46	19.9%
Brookfield Infrastructure Fund III	2016	10,000,000	6,493,868	2,111,299	6,614,829	1.34	10.1%
Global Infrastructure Partners III	2016	12,000,000	11,071,847	2,916,253	12,481,067	1.39	10.4%
Axiom Infrastructure North America	2017	12,221,338	12,636,845	2,709,984	13,769,136	1.30	9.9%
EQT Infrastructure III	2017	9,214,756	10,016,958	3,933,941	15,339,070	1.92	24.6%
NYCRS EIG Energy Partners	2017	11,760,000	5,064,203	2,180,826	3,671,762	1.16	7.9%
Cardinal NR Sidecar Holdings	2018	1,880,001	1,892,695	552,066	2,689,102	1.71	19.9%
EQT Infrastructure IV - USD Fund	2018	18,000,000	15,698,325	2,481,965	16,625,568	1.22	14.9%
Global Infrastructure Partners IV	2018	22,600,000	4,861,156	0	4,594,406	0.95	-6.5%
KKR Global Infrastructure Investors III	2018	15,600,000	10,180,672	2,107,037	6,954,642	0.89	-7.6%
Ardian Infrastructure Fund V B	2019	14,737,491	3,640,953	231,243	4,041,480	1.17	14.8%
Brookfield Infrastructure Fund IV	2019	19,000,000	12,677,789	1,922,050	13,126,222	1.19	12.7%
Brookfield Infrastructure Fund IV (BIF IV): Co-Invest	2019	2,000,000	2,008,481	212,225	2,520,374	1.36	16.5%
Global Energy & Power Infrastructure Fund III F	2019	15,600,000	7,933,925	1,433,879	7,641,539	1.14	11.9%
Actis Energy 5	2020	27,000,000	459,227	-	(247,000)	(0.54)	NM
EQT Infrastructure IV Co-Investment (Saber)	2020	1,600,000	1,616,000	97,112	1,892,127	1.23	NM
EQT Infrastructure V	2020	32,000,000	9,615,413	270,662	8,939,764	0.96	NM
ASF VIII Infrastructure B	2021	40,000,000	2,283,318	-	2,490,679	1.09	NM
KKR Global Infrastructure Investors IV	2021	35,000,000	-	-	46,380	-	NM
NYCRS EIG Energy Partners Co-Investment	2021	2,940,000	-	-	-	-	NM
Stonepeak Infrastructure Fund IV	2021	35,000,000	6,768,733	73,301	7,244,970	1.08	NM

Information provided by the New York City Board of Education Retirement System Consultants

## Alternative Assets Manager Performance Detail



Through March 31, 2022

	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
<b>TOTAL OPPORTUNISTIC FIXED INCOME</b>		230,000,000	129,005,471	11,453,040	157,899,904	0.02%	23.05%
Apollo Centre Street Partnership, L.P.	2020	30,000,000	12,865,802	4,814,698	14,257,185	-0.14%	9.39%
KKR-NYC Credit C L.P.	2020	30,000,000	17,550,000	-	19,028,227	0.00%	13.73%
Marathon Centre Street Partnership, L.P. - Asset Class	2020	20,000,000	16,600,000	5,120,000	24,676,078	-0.64%	28.71%
Marathon Centre Street Partnership, L.P. - Asset Class - Subsequent Commitment	2020	10,000,000	7,750,000	-	6,119,345	-4.12%	-24.57%
OHA Centre Street Partnership, L.P.	2020	30,000,000	30,000,000	-	48,755,385	1.05%	37.04%
400 Capital Centre Street LP	2021	40,000,000	23,239,669	-	23,841,018	0.00%	3.24%
Torchlight Debt Fund VII, LP	2021	30,000,000	9,000,000	1,518,342	9,149,330	-0.79%	2.02%
Brightwood Capital Fund V, LP	2022	40,000,000	12,000,000	-	12,073,336	0.00%	0.00%

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

**New York City  
Board of Education Retirement System**

# Appendix D

## Footnotes

### General Notes

- Estimated management fees for public market investments are calculated on an accrual basis without adjustment for management fee caps. Alternative investment (Private Market) fees are recorded on a cash basis and are not inclusive of carried interest paid. Since not all alternative managers currently provide detailed fee disclosure, the alternative investment fees noted here are not comprehensive.
- Returns greater than 1 year are annualized.
- 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

#### Page 13 - 18 - Portfolio Asset Allocation

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

#### Pages 19 - 21 - 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 March 31, 2022

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

*U.S. Equity: Russell 3000 \* 31.49%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI Net \* 9.07%*

*International Active – Global Equity: MSCI ACWI \* 1.65%*

*Emerging Markets: MSCI Emerging Markets \* 5.74%*

*International Emerging Managers FOF: MSCI ACWI Ex US IMI Net \* 0.89%*

*Private Equity: Russell 3000 + 300 b.p. per annum \* 9.00%*

*Private Real Estate – Core: NFI - ODCE Net \* 4.00%*

*Private Real Estate – Non Core: NFI - ODCE Net + 200bps \* 2.33%*

*Infrastructure: CPI + 4% \* 2.34%*

*US Treasury Short Term: FTSE US Government Bond 1-3 Years Index \* 2.28%*

*US Treasury Intermediate: USBIG TSYAGN 1-10 \* 2.67%*

*Active Government: NYC Treasury Agency + 5 \* 1.90%*

*US Treasury Long Duration: FTSE US Government Bond 10+ Years Index \* 0.76%*

*Core FI-Developing Managers : Bloomberg U.S. Aggregate \* 0.00%*

*Mortgage: Bloomberg US Mortgage Backed Securities \* 5.10%*

*ETI: ETI Custom Benchmark \* 0.50%*

*Investment Grade Corporate: NYC Custom IGC Benchmark \* 5.49%*

*High Yield: Bloomberg U.S. HY - 2% Issuer Cap \* 9.62%*



Through March 31, 2022

*Bank Loans: Credit Suisse Leveraged Loan \* 0.00%*

*TIPS: Bloomberg Global Infl-Linked: U.S. TIPS \* 3.41%*

*Opportunistic Fixed: OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum \* 1.76%*

### **Page 22 – 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 underperforming their benchmark and to show the basis point effect that this is having on Plan performance.



Through March 31, 2022

---

[1] NYC Developed Value Benchmark: Beginning 8.2017 benchmark changed from MSCI EAFE Value Net to MSCI World ex USA Net Index.

[2] NYC Developed Growth Benchmark: Beginning 8.2017 benchmark changed from MSCI EAFE Growth to MSCI World ex USA Net Index.

[3] NYC Custom Mortgage Benchmark: Beginning 9.2020 benchmark changed from FTSE Mortgage Index to Bloomberg US Mortgage Backed Securities.



ETI Quarterly Report (Public):

# BERS - Economically Targeted Investments Quarterly Report

## Public/Private Apartment Rehabilitation Program (PPAR)

Lenders	Bank of America		Citi Community Development		Carver Federal Savings Bank		The Community Preservation Corp		JP Morgan Chase		Low Income Investment Fund		NCB Capital Impact		Neighborhood Housing Service		Wells Fargo		Local Initiatives Support Corp		Bellwether Enterprise		NYC HDC	
Contractual Commitment	\$4.00		\$4.00		\$1.00		\$4.00		\$5.00		\$4.00		\$1.00		\$1.00		\$2.00		\$1.00		\$1.00		\$2.00	
Current Market Value	\$1.15		\$2.31		\$0.16		\$1.20		\$3.56		\$1.95		\$0.09		\$0.00		\$0.61		\$0.27		\$0.21		\$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
<b><u>Commitments Q1 (included in total)</u></b>																								
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$0.26	596	\$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	0.03	48	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	0.07	108	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	69	0.00	0	0.00	0
Queens	0.00	0	0.00	0	0.00	0	0.01	30	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	0.07	130	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
<b>Total</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.44</b>	<b>912</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.15</b>	<b>69</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>
<b><u>Delivered Q1 (included in total)</u></b>																								
Bronx	\$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
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	0.00	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
<b>Total</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>
<b><u>Total Commitments</u></b>																								
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$0.46	974	\$0.51	178	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.25	90	\$0.11	101	\$0.00	0
Brooklyn	0.00	0	0.11	0	0.00	0	0.10	531	0.06	67	0.18	95	0.00	0	0.00	0	0.25	130	0.09	74	0.00	0	0.00	0
Manhattan	0.00	0	0.00	0	0.00	0	0.19	347	0.04	28	0.45	173	0.00	0	0.00	0	0.00	0	0.48	178	0.00	0	0.00	0
Queens	0.00	0	0.00	0	0.00	0	0.04	100	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	0.15	325	0.15	74	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
<b>Total</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.11</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.94</b>	<b>2,277</b>	<b>\$0.76</b>	<b>347</b>	<b>\$0.64</b>	<b>268</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.25</b>	<b>130</b>	<b>\$0.83</b>	<b>342</b>	<b>\$0.11</b>	<b>101</b>	<b>\$0.00</b>	<b>0</b>
<b><u>Historical Investments</u></b>																								
Bronx	\$0.26	60	\$1.37	802	\$0.00	0	\$0.43	1,821	\$2.76	1,623	\$0.51	178	\$0.00	0	\$0.00	0	\$0.11	90	\$0.11	48	\$0.00	0	\$0.00	0
Brooklyn	0.28	54	0.87	481	0.00	0	0.56	1,818	0.33	226	0.71	401	0.00	0	0.00	0	0.00	0	0.16	82	0.22	360	0.00	0
Manhattan	0.34	100	0.24	283	0.21	236	0.29	1,328	0.33	333	1.01	407	0.10	123	0.00	0	0.48	203	0.00	0	0.00	0	0.00	0
Queens	0.84	293	0.04	54	0.00	0	0.05	120	0.27	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	0.04	67	0.00	0	0.00	0	0.00	0
Outside of NYC	0.09	39	0.21	41	0.00	0	0.25	641	0.23	123	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
<b>Total</b>	<b>\$1.81</b>	<b>546</b>	<b>\$2.73</b>	<b>1,661</b>	<b>\$0.21</b>	<b>236</b>	<b>\$1.58</b>	<b>5,728</b>	<b>\$3.93</b>	<b>2,469</b>	<b>\$2.23</b>	<b>986</b>	<b>\$0.10</b>	<b>123</b>	<b>\$0.00</b>	<b>0</b>	<b>\$0.63</b>	<b>360</b>	<b>\$0.28</b>	<b>130</b>	<b>\$0.22</b>	<b>360</b>	<b>\$0.00</b>	<b>0</b>

Note: Dollar amount listed in millions

\*\* Total Committed Units decreased by 1 unit under LIIF

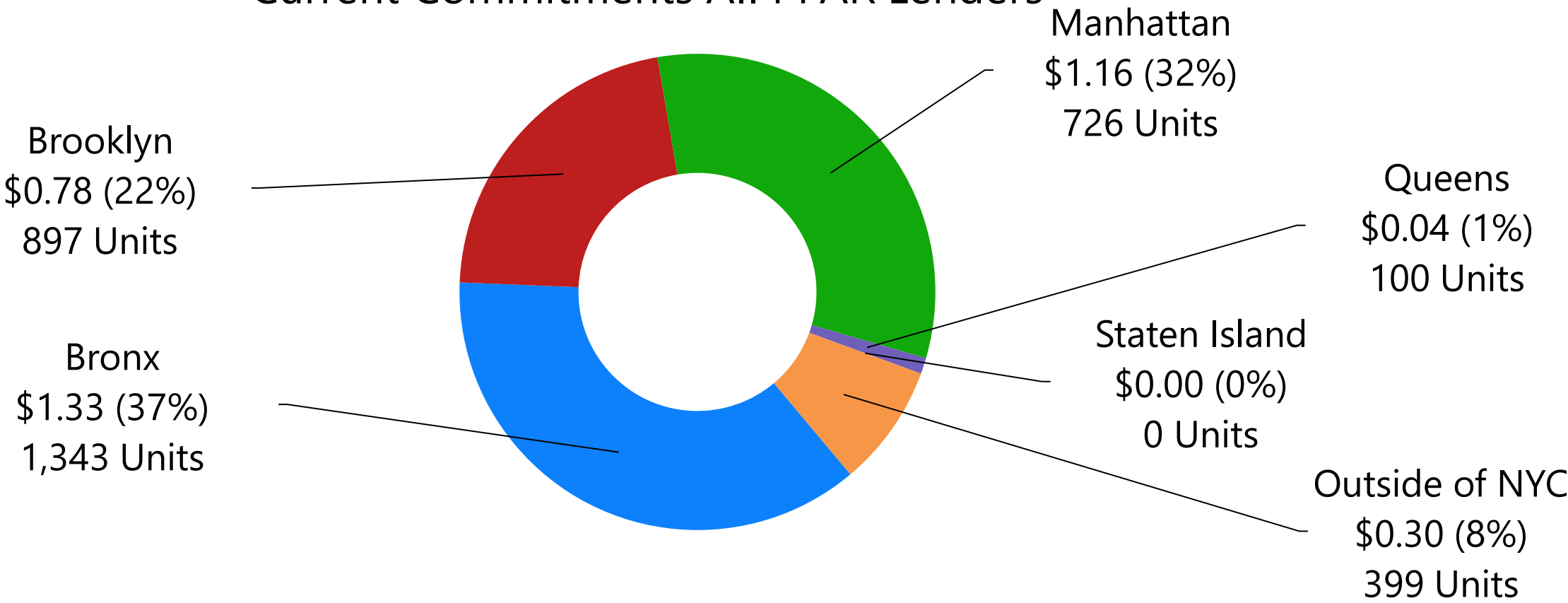
# BERS - Economically Targeted Investments Quarterly Report

## Public/Private Apartment Rehabilitation Program (PPAR)

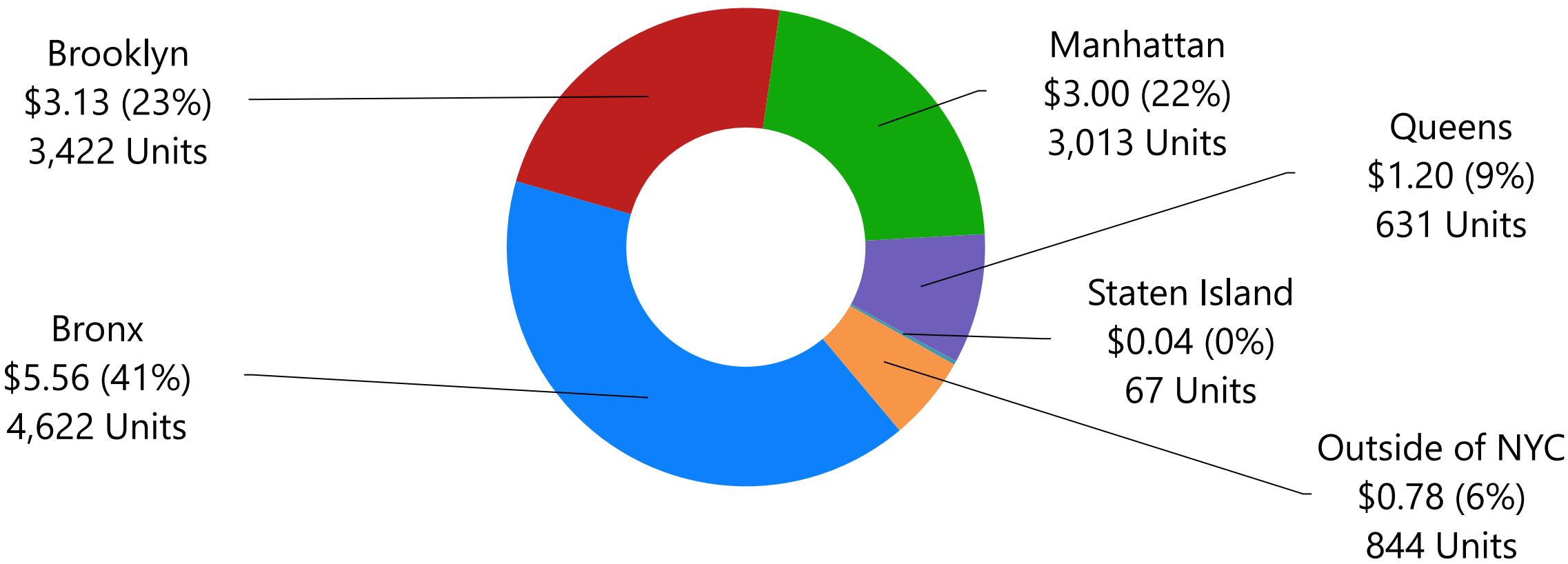
Lenders	All Lender Totals	
Contractual Commitment	\$30.00	
Current Market Value	\$11.51	
	Dollars	Units
<b>Commitments Q1 (included in total)</b>		
Bronx	\$0.26	596
Brooklyn	0.03	48
Manhattan	0.22	177
Queens	0.01	30
Staten Island	0.00	0
Outside of NYC	0.07	130
<b>Total</b>	<b>\$0.59</b>	<b>981</b>
<b>Delivered Q1 (included in total)</b>		
Bronx	\$0.00	0
Brooklyn	0.00	0
Manhattan	0.00	0
Queens	0.00	0
Staten Island	0.00	0
Outside of NYC	0.00	0
<b>Total</b>	<b>\$0.00</b>	<b>0</b>
<b>Total Commitments</b>		
Bronx	\$1.33	1,343
Brooklyn	0.78	897
Manhattan	1.16	726
Queens	0.04	100
Staten Island	0.00	0
Outside of NYC	0.30	399
<b>Total</b>	<b>\$3.62</b>	<b>3,465</b>
<b>Historical Investments</b>		
Bronx	\$5.56	4,622
Brooklyn	3.13	3,422
Manhattan	3.00	3,013
Queens	1.20	631
Staten Island	0.04	67
Outside of NYC	0.78	844
<b>Total</b>	<b>\$13.72</b>	<b>12,599</b>

Note: Dollar amount listed in millions

Current Commitments All PPAR Lenders



Historical Investments Since Inception All PPAR Lenders



# BERS - Economically Targeted Investments Quarterly Report

## AFL-CIO Housing Investment Trust (HIT) Market Value \$17.19 million<sup>1</sup>

### NYC Community Investment Initiative (NYCCII)

Borough	NYCCII Phase I: 2002 - 2005		NYCCII Phase II: 2006 - 2013		Grand Total	
	Investments	Units <sup>2</sup>	Investments	Units <sup>2</sup>	Investments	Units <sup>2</sup>
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
<b>Total</b>	<b>\$249,123,500</b>	<b>12,148</b>	<b>\$454,968,100</b>	<b>9,169</b>	<b>\$704,091,600</b>	<b>21,317</b>

### HIT Home Mortgage Program

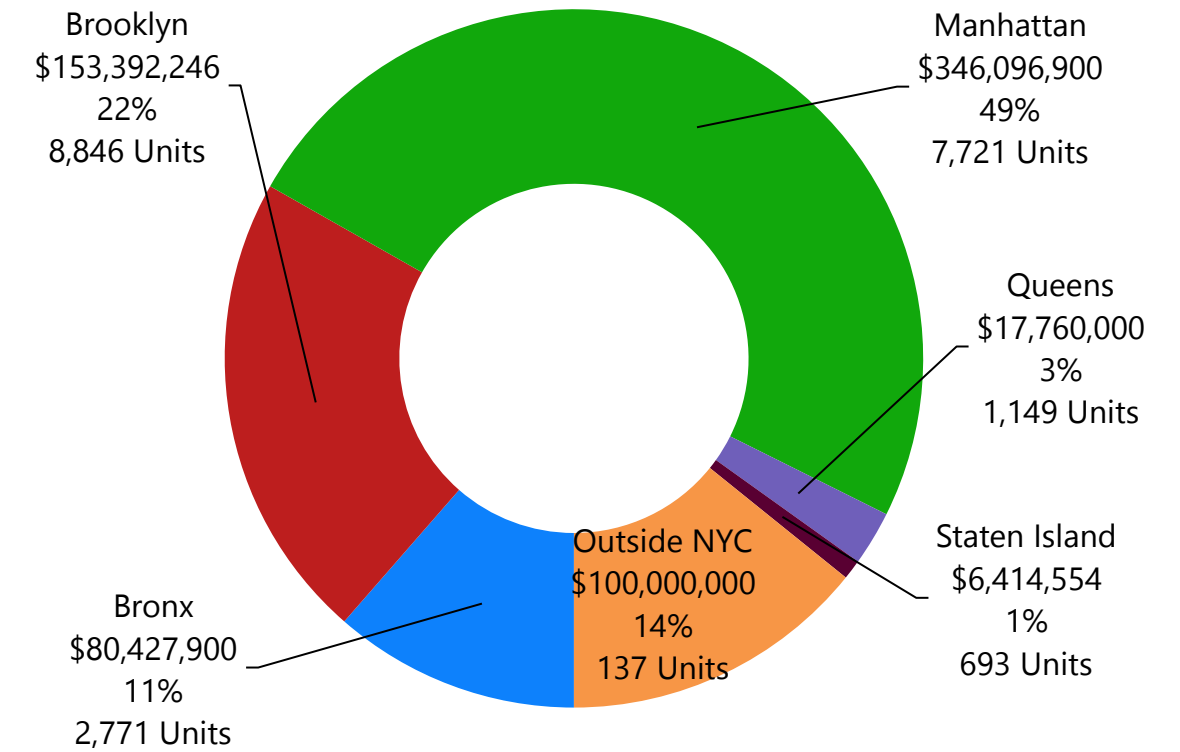
Borough	NYCCII Phase I: 2002 - 2005		NYCCII Phase II: 2006 - 2013		Grand Total	
	\$ Amount	Loans	\$ Amount	Loans	\$ Amount	Loans
Bronx	\$32,544,168	41	\$218,082,108	296	\$250,626,276	337
Brooklyn	116,575,736	138	864,892,271	1,115	981,468,007	1,253
Manhattan	10,742,253	12	214,244,680	265	224,986,933	277
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
<b>Total</b>	<b>\$348,300,563</b>	<b>446</b>	<b>\$2,551,598,937</b>	<b>3,088</b>	<b>\$2,899,899,500</b>	<b>3,534</b>

<b>BERS Loans</b>	<b>Phase I:</b>	<b>0</b>	<b>Phase II:</b>	<b>13</b>	<b>Total:</b>	<b>13</b>
-------------------	-----------------	----------	------------------	-----------	---------------	-----------

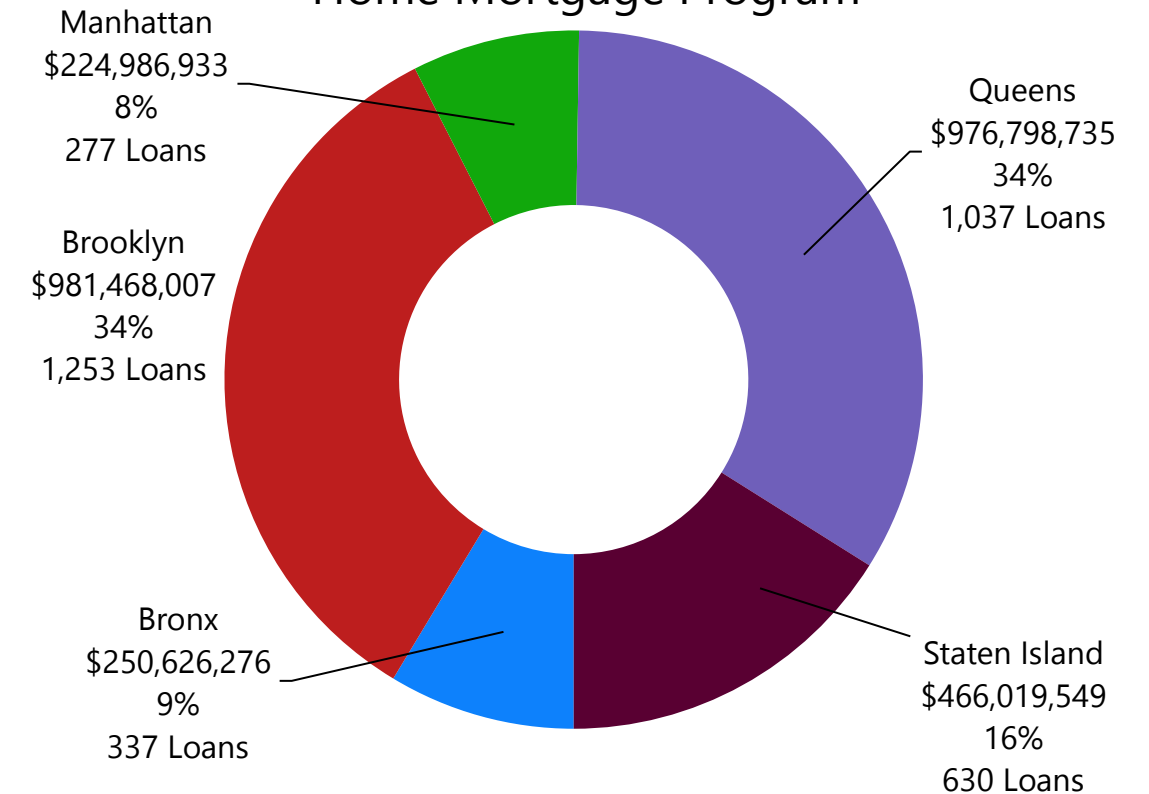
<sup>1</sup>Interest is reinvested

<sup>2</sup>Low/Moderate Income Units

### NYCCII Multifamily Program



### Home Mortgage Program



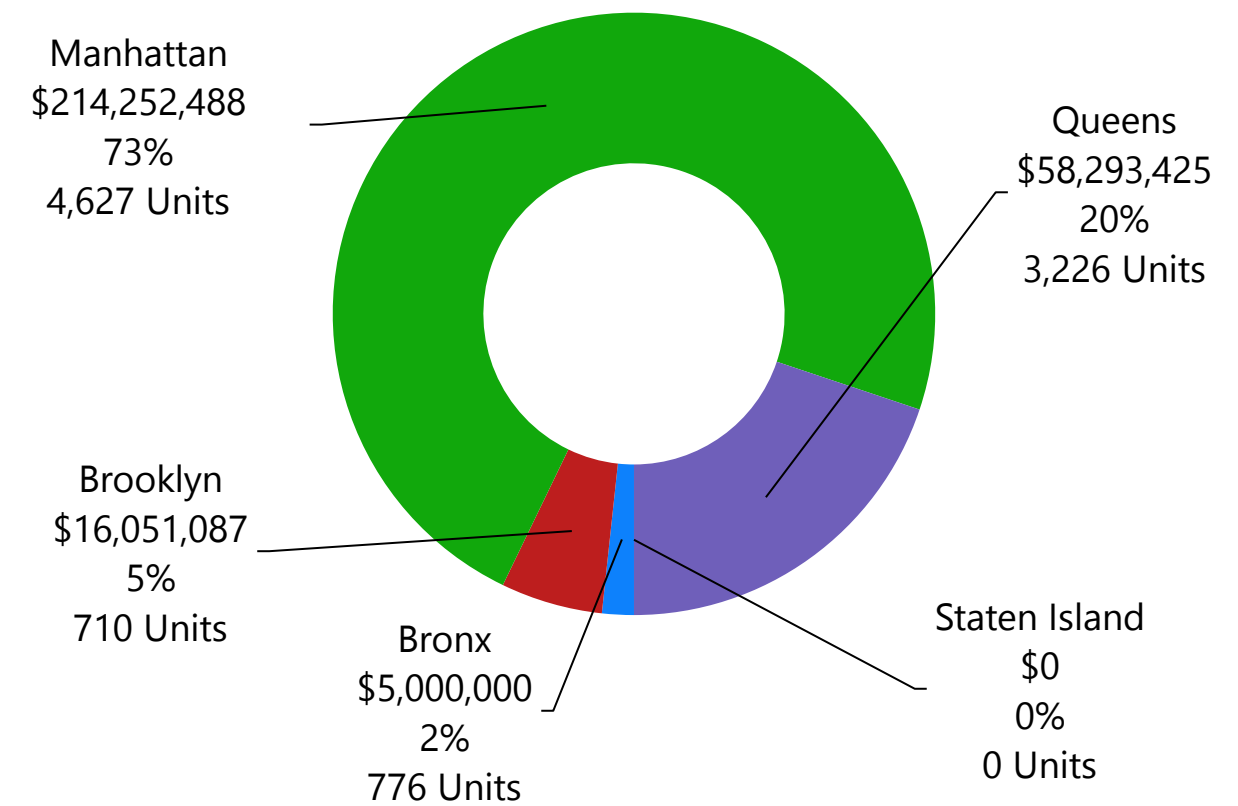
# BERS - Economically Targeted Investments Quarterly Report

## AFL-CIO Housing Investment Trust (HIT)

### NYC Workforce Housing Initiative: 2009 - 2015

Borough	Investments Since Inception	LMI Units Since Inception
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
<b>Total</b>	<b>\$293,597,000</b>	<b>9,339</b>

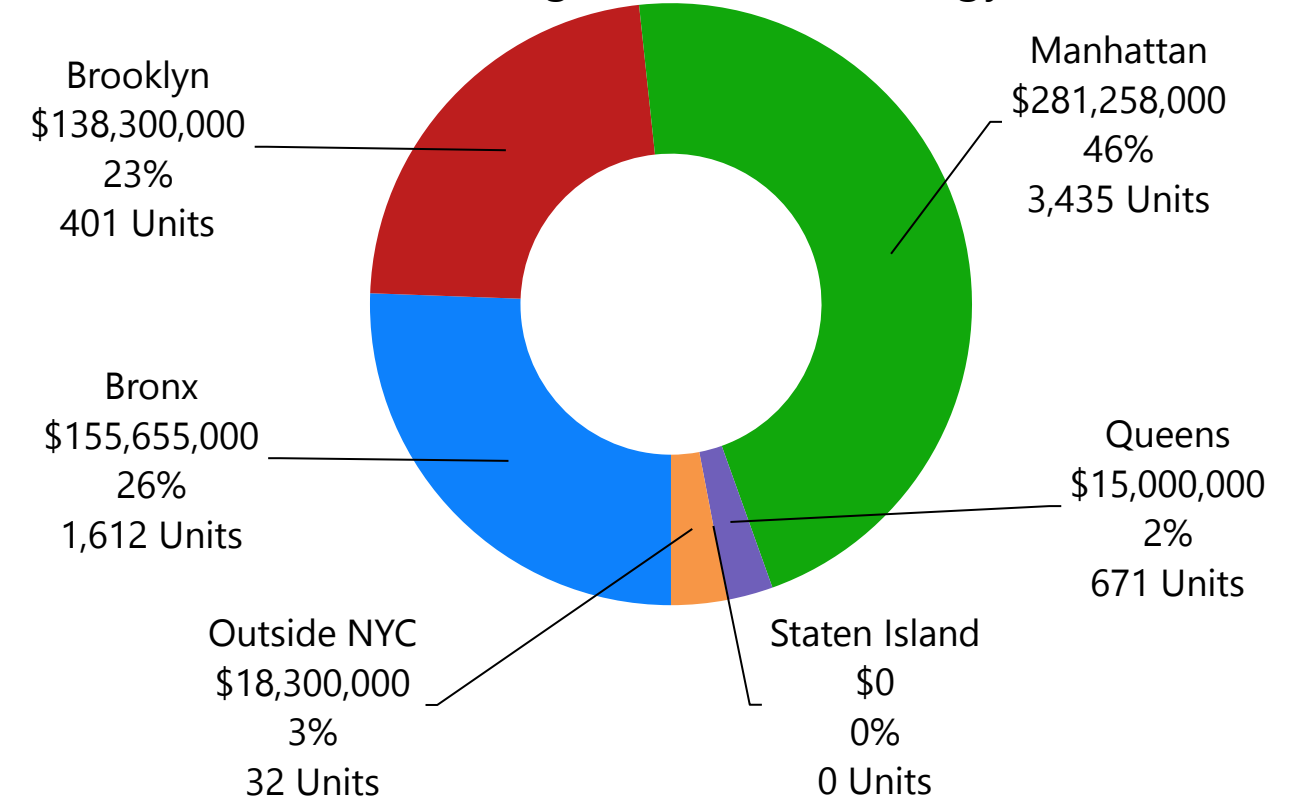
### HIT Workforce Housing Initiative



### HIT Housing Investment Strategy: 2015 - Q1 2022

Borough	Q1 Investments	Investments Since Inception	Q1 Units	LMI Units Since Inception
Bronx	\$0	\$155,655,000	0	1,612
Brooklyn	0	138,300,000	0	401
Manhattan	0	281,258,000	0	3,435
Queens	0	15,000,000	0	671
Staten Island	0	0	0	0
Outside NYC	0	18,300,000	0	32
<b>Total</b>	<b>\$0</b>	<b>\$608,513,000</b>	<b>0</b>	<b>6,151</b>

### HIT Housing Investment Strategy





# BERS - Economically Targeted Investments Quarterly Report

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

**\$10.5 million Allocated (2.34% of total account)**  
**Market Value \$10.25 million**

Multifamily Investments Detail		\$ Invested <sup>1</sup>		Units <sup>2</sup>	
	Q1	Total	Q1	Total	
Bronx	\$0	\$2,890,342	0	19,849	
Brooklyn	0	1,885,963	0	15,373	
Manhattan	0	2,936,335	0	7,281	
Queens	0	504,630	0	920	
Staten Island	0	130,389	0	75	
<b>Total BERS Multifamily Investments</b>	<b>\$0</b>	<b>\$8,347,659</b>	<b>0</b>	<b>43,498</b>	
<b>Multifamily Total All Systems</b>	<b>\$0</b>	<b>\$356,737,572</b>	<b>0</b>	<b>43,498</b>	

Single Family Investments Detail		\$ Invested		Units	
	Q1	Total	Q1	Total	
Bronx	\$120,194	\$1,700,379	10	319	
Brooklyn	100,162	4,270,338	7	725	
Manhattan	9,442	381,429	1	65	
Queens	161,537	6,438,623	14	1,029	
Staten Island	103,410	4,298,600	9	690	
<b>Total BERS Single Family Investments</b>	<b>\$494,745</b>	<b>\$17,089,368</b>	<b>41</b>	<b>2,828</b>	
<b>Single Family Total All Systems</b>	<b>\$21,142,938</b>	<b>\$730,314,884</b>	<b>41</b>	<b>2,828</b>	

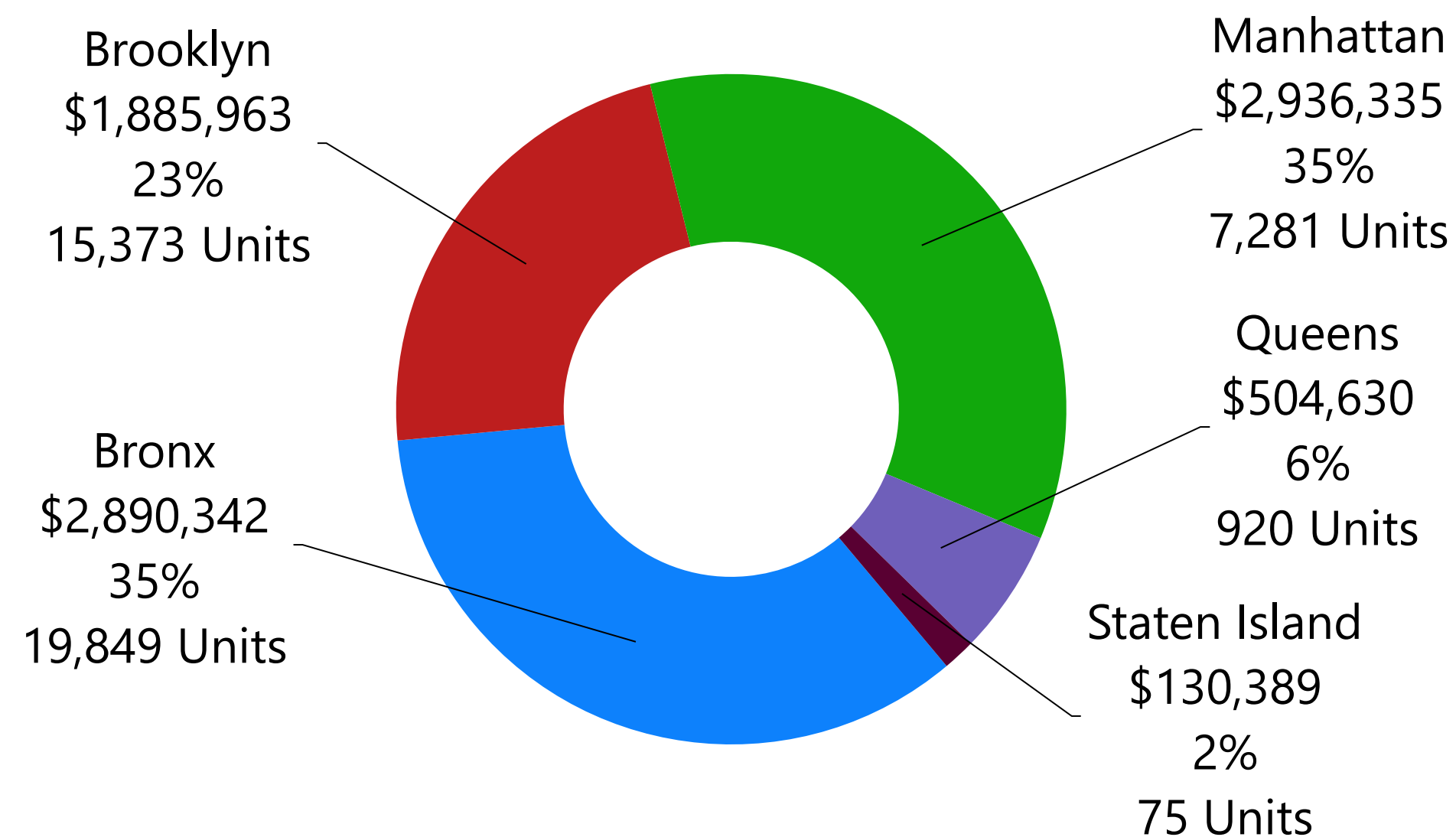
Other Investments Detail		\$ Invested		Loans	
	Q1	Total	Q1	Total	
Bronx	\$0	\$15,795	0	1	
Brooklyn	0	126,135	0	8	
Manhattan	0	56,930	0	5	
Queens	0	12,716	0	3	
Staten Island	0	0	0	0	
<b>Total BERS Other Investments</b>	<b>\$0</b>	<b>\$211,577</b>	<b>0</b>	<b>17</b>	
<b>Other Investments Total All Systems</b>	<b>\$0</b>	<b>\$9,041,740</b>	<b>0</b>	<b>17</b>	

<b>Grand Total BERS</b>	<b>\$494,745</b>	<b>\$25,648,604</b>
<b>Grand Total All Systems</b>	<b>\$21,142,938</b>	<b>\$1,096,094,195</b>

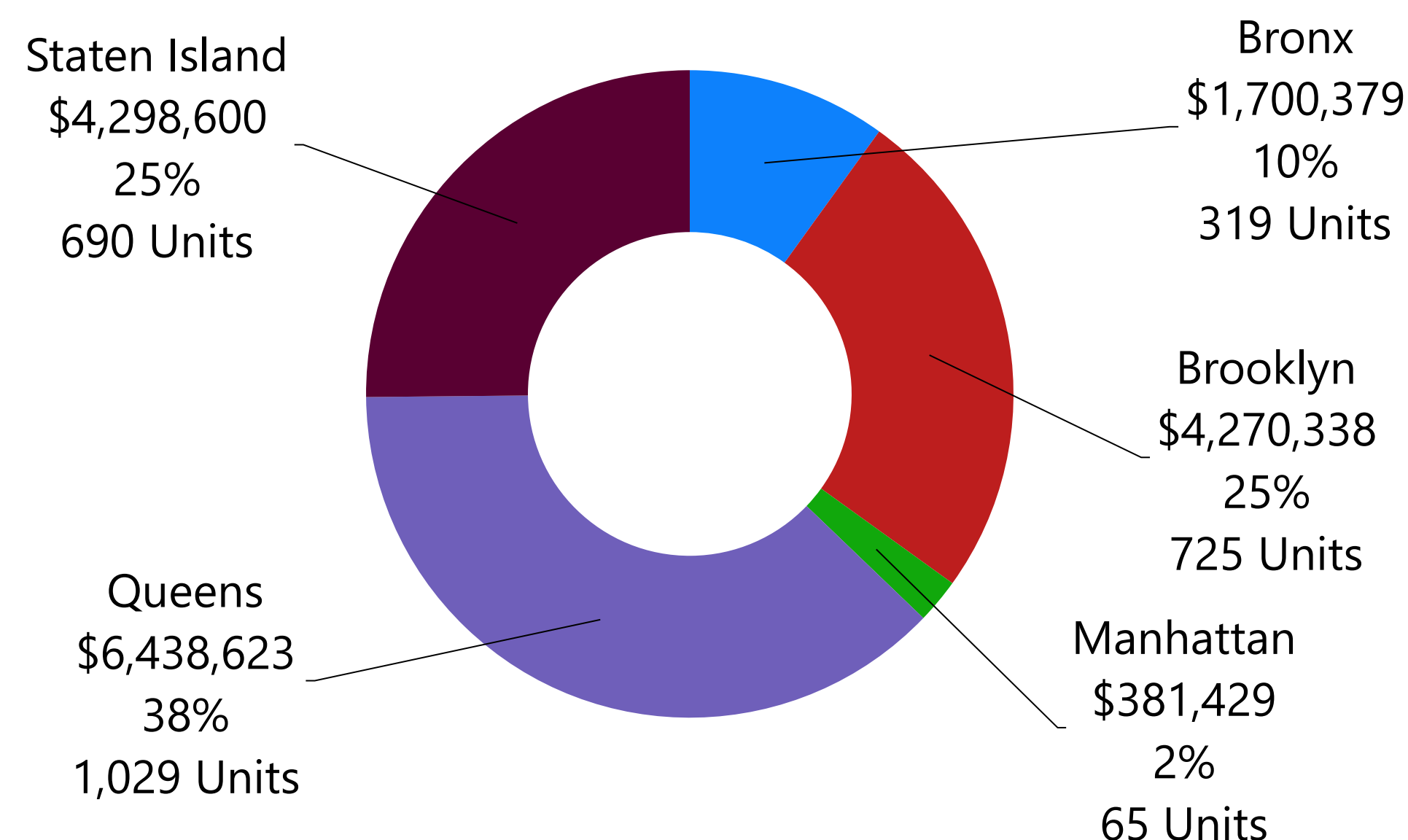
<sup>1</sup> Certain bond investment amounts are allocated pro rata across boroughs based upon unit count.

<sup>2</sup> 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



# BERS - Economically Targeted Investments Quarterly Report

## ETI Real Estate Equity Investments

Total Market Value \$21.31 million

### Hudson Market Value \$6.38 million

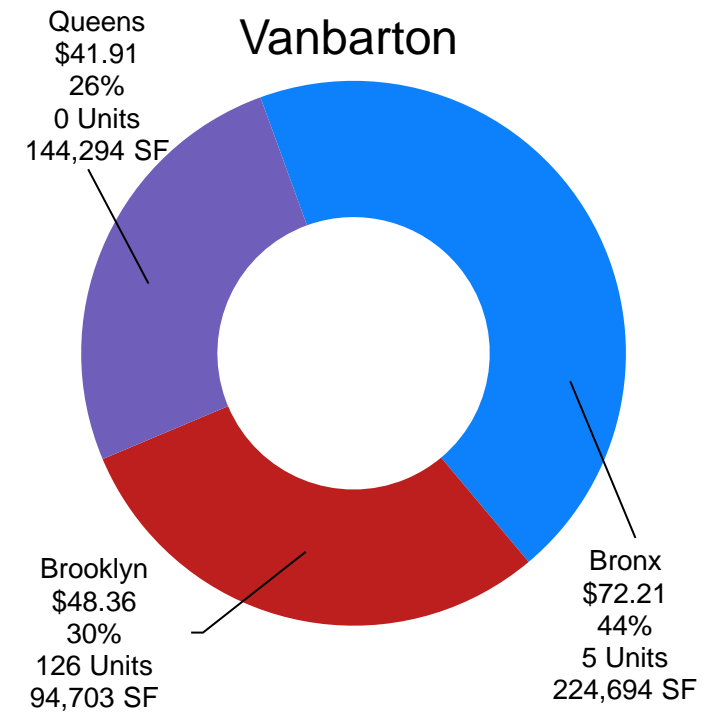
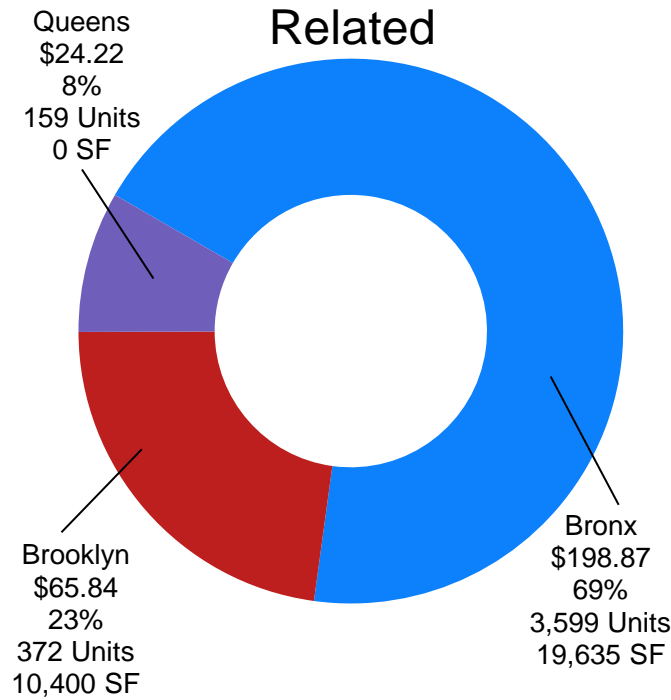
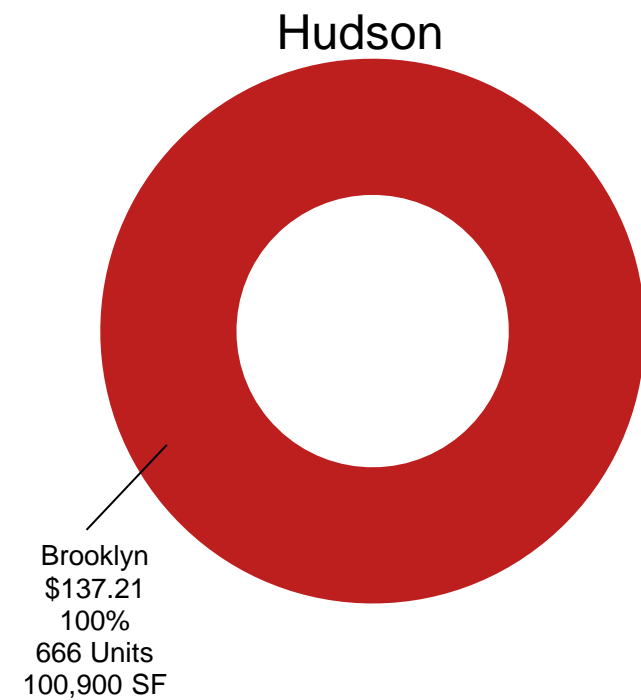
Borough	Gross Capital Invested	Total Units	Workforce Units	Comm. SF
Bronx	\$0.00	0	0	0
Brooklyn	137.21	666	666	100,900
Manhattan	0.00	0	0	0
Queens	0.00	0	0	0
Staten Island	0.00	0	0	0
Outside NYC	0.00	0	0	0
<b>Totals</b>	<b>\$137.21</b>	<b>666</b>	<b>666</b>	<b>100,900</b>

### Related Market Value \$8.35 million

	Gross Capital Invested	Total Units	Workforce Units	Comm. SF
	\$198.87	3,599	3,356	19,635
	65.84	372	212	10,400
	0.00	0	0	0
	24.22	159	151	0
	0.00	0	0	0
	0.00	0	0	0
<b>Totals</b>	<b>\$288.93</b>	<b>4,130</b>	<b>3,719</b>	<b>30,035</b>

### Vanbarton (Emmes) Market Value \$6.59 million

	Gross Capital Invested	Total Units	Workforce Units	Comm. SF
	\$72.21	5	2	224,694
	48.36	126	61	94,703
	0.00	0	0	0
	41.91	0	0	144,294
	0.00	0	0	0
	0.00	0	0	0
<b>Totals</b>	<b>\$162.48</b>	<b>131</b>	<b>63</b>	<b>463,691</b>



\*All information is derived from reports submitted by individual managers and State Street Bank, and is reported on a quarter lag. Performance has not been reviewed by consultants or custodial bank.

\*\*Dollar amounts listed in millions

Private Equity Quarterly Report (Public):



NYC Board of Education Retirement System

NYCBERS - PE

Public Report

As Of December 2021

PRIVATE AND CONFIDENTIAL: These materials are strictly confidential, constitute trade secrets, are intended solely for the use of the individual or entity named herein ("Intended Recipient") and may not be reproduced, distributed, posted electronically or incorporated into other documents in whole or in part except for the personal reference of the Intended Recipient. If you are not the Intended Recipient you are hereby requested to either destroy or return these documents to Aksia LLC, or any of its affiliates.

Table Of Contents

Portfolio Snapshot ..... 3

Portfolio Overview ..... 4

Performance Review ..... 6

Portfolio QoQ Overview ..... 7

TVPI Distribution ..... 8

Portfolio Summary ..... 9

Portfolio Summary by Strategy ..... 12

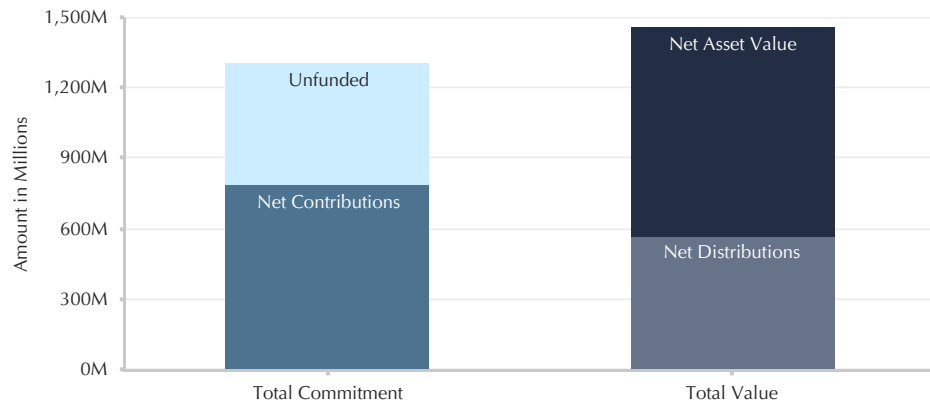
Period Chart Analysis ..... 19

Portfolio IRR vs Benchmarks ..... 20

Portfolio Quartile Analysis by Total Exposure ..... 21

## Portfolio Snapshot

## Summary

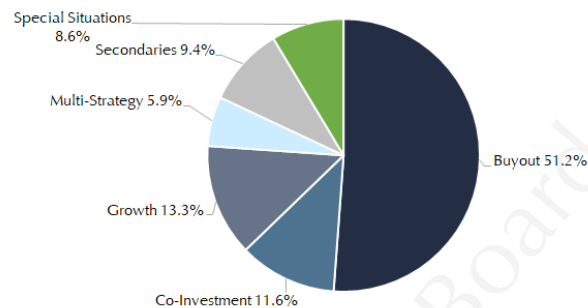


## Portfolio Summary

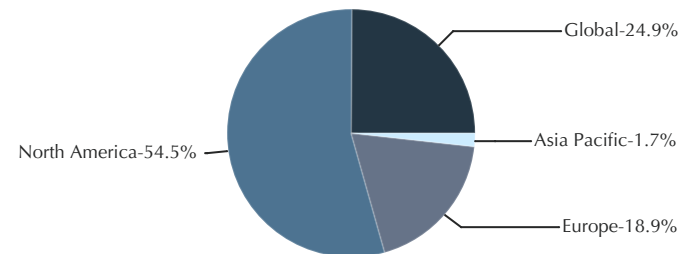
Total Pension Assets	\$9.1 bn as of 12/31/2021		
GP Relationships	46		
Holdings	103		
# of Underlying Active Companies	1199		
% of Public Companies	10.9%		
Total Commitment Amount	\$1.3 bn		
Net Contributions	\$787.0 mm		
Net Distributions	\$566.9 mm		
Net Asset Value	\$881.2 mm		
Weighted Average Age	6.8Y		
Unfunded Commitment	\$516.4 mm		
Minimum Annual Pacing	250.0 mm		
Maximum Annual Pacing	420.0 mm		
Portfolio Allocation	9.6%		
Minimum Target Allocation	5.0%		
Maximum Target Allocation	13.0%		
1Y IRR:	40.6%	2Y IRR:	33.6%
5Y IRR:	23.1%	7Y IRR:	20.2%
10Y IRR:	19.0%	ITD IRR: *	16.1%

\* Mar-2006 - Dec-2021

## Unfunded + NAV by Strategy



## Unfunded + NAV by Region



Position Analytics data based on GP provided information as of Dec-2021

IRR not meaningful for investments held less than 24 months

Weighted Average Age (WAA) is based on contributions

WAA is calculated as the sum of the individual contributions divided by the overall contribution and then multiplied by the age

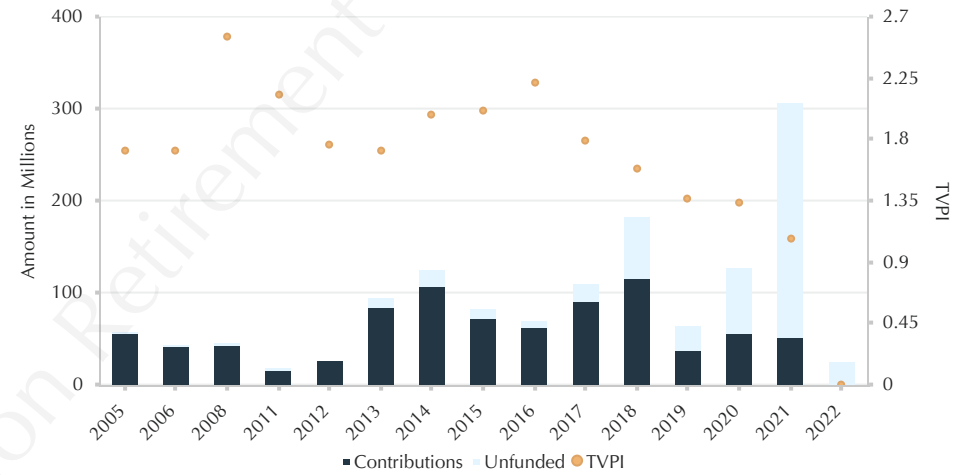
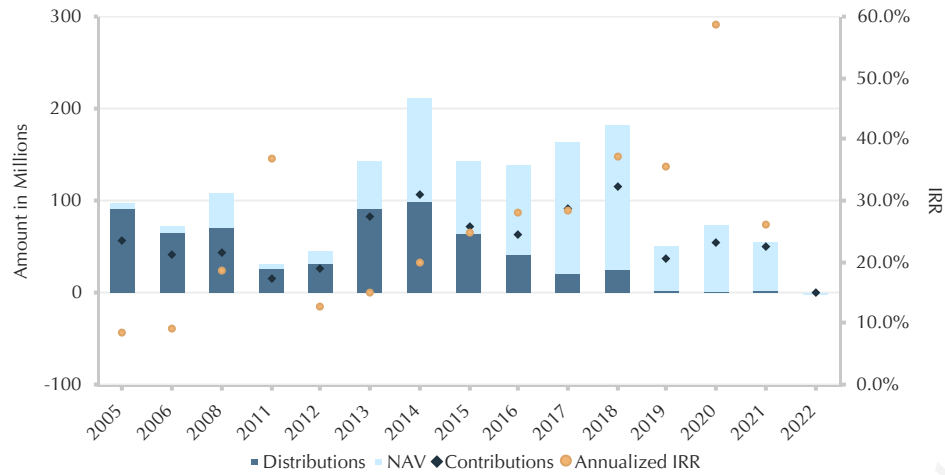
Reporting Period: As Of Dec-2021

[View this portfolio online](#)

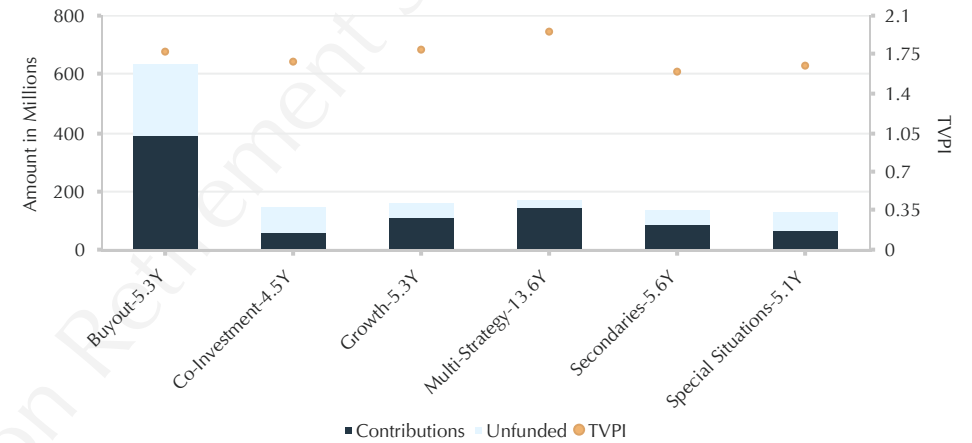
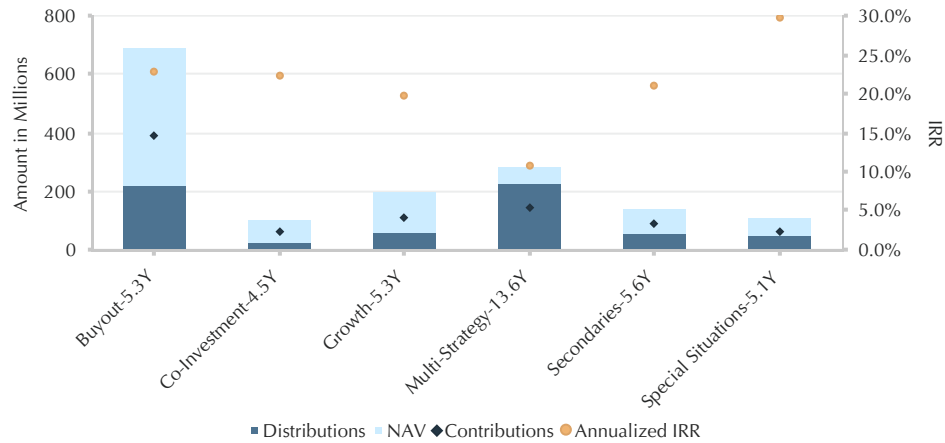
## Strategy Portfolio Summary

	# Of Funds	Weighted Average Age	NAV (\$mm)	Total Commitment (\$mm)	Unfunded Commitment (\$mm)	Unfunded + NAV (\$mm)	Contributions (\$mm)	Distributions (\$mm)	Annualized IRR	TVPI
Buyout	47	5.3	471.1	588.3	244.1	715.1	389.7	219.4	22.7%	1.8x
Co-Investment	21	4.5	75.9	145.7	86.6	162.5	58.7	23.1	22.3%	1.7x
Growth	14	5.3	137.2	154.6	48.7	185.9	108.4	57.4	19.7%	1.8x
Multi-Strategy	4	13.6	55.3	171.0	26.9	82.2	143.8	226.1	10.9%	2.0x
Secondaries	8	5.6	83.4	130.7	48.0	131.4	86.5	54.6	21.1%	1.6x
Special Situations	9	5.1	58.4	118.0	62.1	120.5	64.5	48.6	29.7%	1.7x
<b>NYCBERS - PE</b>	<b>103</b>	<b>6.8</b>	<b>881.2</b>	<b>1,308.2</b>	<b>516.4</b>	<b>1,397.6</b>	<b>851.7</b>	<b>629.1</b>	<b>16.1%</b>	<b>1.8x</b>

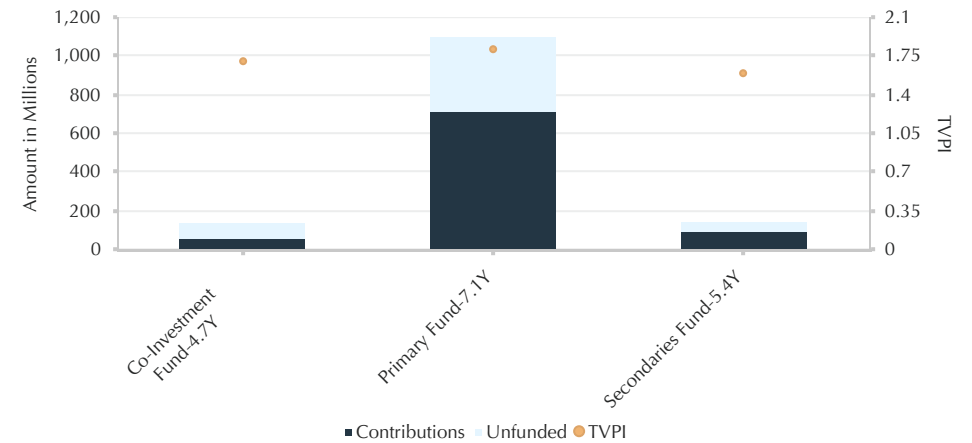
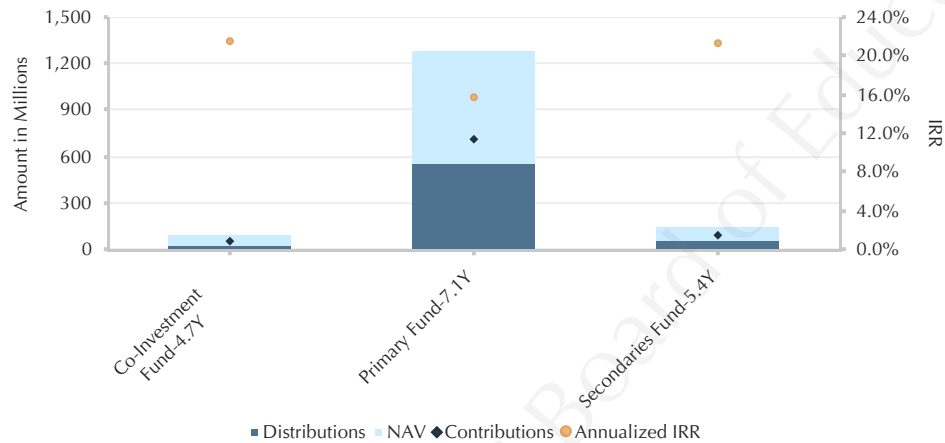
## Performance Review by Vintage Year



## Performance Review by Strategy



## Performance Review by Structure



Weighted Average Age (WAA) is based on contributions

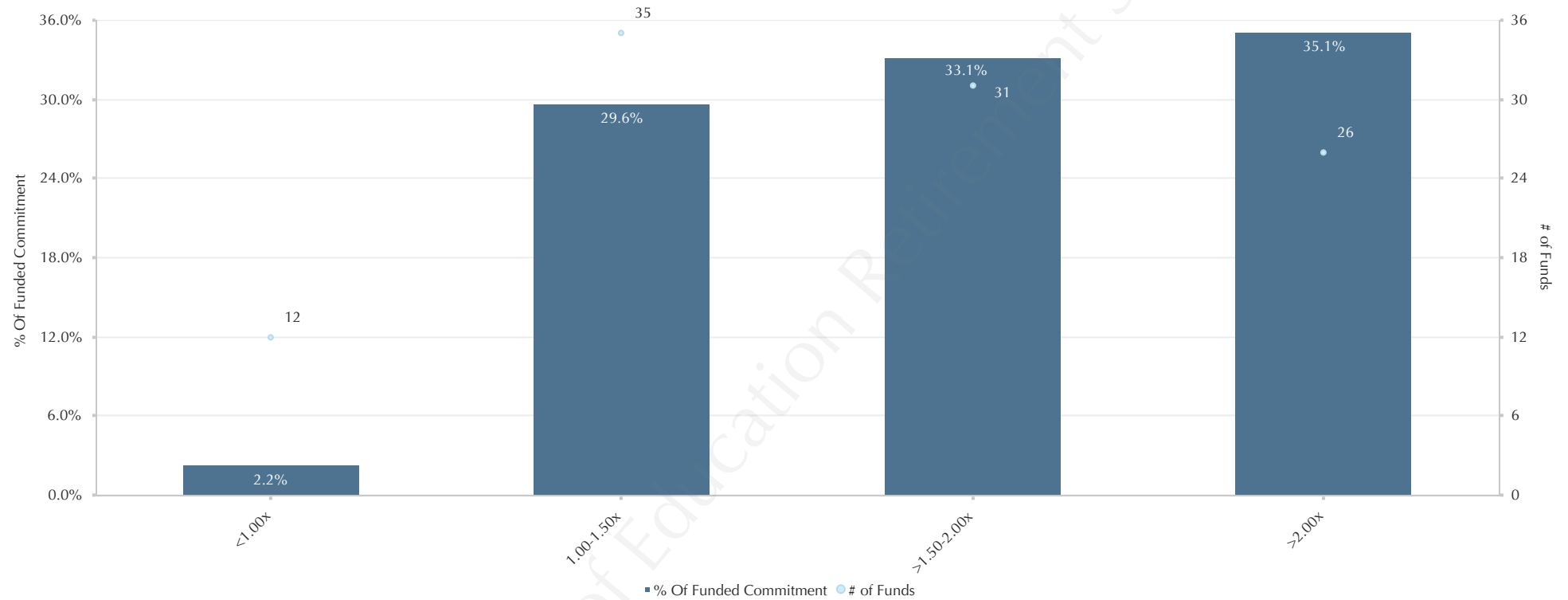
WAA is calculated as the sum of the individual contributions divided by the overall contribution and then multiplied by the age

## Performance Statistics

As Of	Dec-2020	Mar-2021	Jun-2021	Sep-2021	Dec-2021	% Change (YTD)	% Change (Quarter)	% Change (Annual)	Dec-2021 Active	Dec-2021 Liquidated
Committed Capital	1,056.5	1,089.5	1,145.5	1,234.5	1,308.2	23.8%	6.0%	23.8%	1,289.2	19.0
Unfunded Commitment	441.5	449.2	454.7	502.8	516.4	18.1%	2.7%	17.0%	516.4	0.0
Net Contributed Capital	614.1	637.0	688.1	727.8	787.0	27.3%	8.1%	28.2%	768.0	19.0
Net Distributed Capital	388.1	416.1	452.1	505.6	566.9	43.5%	12.1%	46.1%	543.7	23.2
Recallable Capital	46.3	48.8	50.5	55.3	62.2	33.4%	12.5%	34.5%	62.1	0.12
Net Asset Value	632.4	682.5	783.2	824.4	881.2	39.3%	6.9%	39.3%	881.2	0.0
Net Gain/Loss	401.2	456.7	542.2	598.5	658.7	63.0%	10.1%	64.2%	653.1	5.6
Total Value	1,020.5	1,098.6	1,235.2	1,330.0	1,448.1	40.9%	8.9%	41.9%	1,425.0	23.2
Unfunded + NAV (mm)	1,073.9	1,131.7	1,237.9	1,327.2	1,397.6	30.6%	5.3%	30.1%	1,397.6	0.0
DPI	0.7x	0.7x	0.7x	0.7x	0.7x	0.1x	0.0x	0.1x	0.7x	1.3x
Total Value to Paid-In (TVPI)	1.6x	1.7x	1.7x	1.8x	1.8x	0.2x	0.0x	0.2x	1.8x	1.3x
Net Internal Rate of Return (IRR)	13.7%	14.4%	15.3%	15.7%	16.1%	2.4%	0.4%	2.4%	16.7%	4.9%

## TVPI Distribution

## TVPI Distribution





Strategy	NAV Weight	Total Commitment (\$mm)	Capital Calls (\$mm)	Distributions (\$mm)	Unfunded Commitment (\$mm)	Total Exposure (\$mm)	Gain/Loss (\$mm)	NAV (\$mm)	Net IRR	TVPI
Buyout	53.5%	588.3	389.7	219.4	244.1	715.1	300.7	471.1	22.7%	1.8x
Co-Investment	8.6%	145.7	58.7	23.1	86.6	162.5	40.3	75.9	22.3%	1.7x
Growth	15.6%	154.6	108.4	57.4	48.7	185.9	86.2	137.2	19.7%	1.8x
Multi-Strategy	6.3%	171.0	143.8	226.1	26.9	82.2	137.5	55.3	10.9%	2.0x
Secondaries	9.5%	130.7	86.5	54.6	48.0	131.4	51.5	83.4	21.1%	1.6x
Special Situations	6.6%	118.0	64.5	48.6	62.1	120.5	42.5	58.4	29.7%	1.7x
<b>NYCBERS - PE</b>	<b>100.0%</b>	<b>1,308.2</b>	<b>851.7</b>	<b>629.1</b>	<b>516.4</b>	<b>1,397.6</b>	<b>658.7</b>	<b>881.2</b>	<b>16.1%</b>	<b>1.8x</b>

Vintage	NAV Weight	Total Commitment (\$mm)	Capital Calls (\$mm)	Distributions (\$mm)	Unfunded Commitment (\$mm)	Total Exposure (\$mm)	Gain/Loss (\$mm)	NAV (\$mm)	Net IRR	TVPI
2022	0.0%	25.0	0.0	0.0	25.0	24.9	-0.08	-0.08	-	0.0x
2021	5.9%	302.2	51.0	2.6	254.5	306.7	3.9	52.3	n.m. <sup>1</sup>	1.1x
2020	8.2%	124.7	54.9	1.2	71.0	143.0	18.3	72.0	n.m. <sup>1</sup>	1.3x
2019	5.5%	63.3	36.5	1.7	26.7	74.9	13.4	48.2	35.6%	1.4x
2018	17.8%	175.5	115.1	25.4	66.5	223.0	66.9	156.6	37.1%	1.6x
2017	16.2%	101.2	90.7	20.2	18.6	161.1	72.0	142.5	28.4%	1.8x
2016	11.0%	59.4	62.1	41.2	6.8	103.6	75.9	96.8	27.9%	2.2x
2015	8.9%	75.2	71.1	64.1	10.2	88.9	71.8	78.8	24.6%	2.0x
2014	12.8%	106.3	106.1	98.1	18.2	130.9	104.7	112.7	19.9%	2.0x
2013	5.9%	89.4	83.4	91.1	10.9	63.0	59.9	52.1	14.9%	1.7x
2012	1.6%	25.0	25.4	30.8	0.0	13.7	19.1	13.7	12.7%	1.8x
2011	0.5%	15.0	14.6	26.5	3.2	7.9	16.5	4.6	36.9%	2.1x
2008	4.3%	45.0	42.5	70.5	2.9	40.9	66.0	38.0	18.6%	2.6x
2006	0.9%	44.0	42.0	64.6	0.88	8.4	30.1	7.5	9.0%	1.7x
2005	0.6%	57.0	56.2	90.9	1.1	6.6	40.2	5.5	8.4%	1.7x
<b>NYCBERS - PE</b>	<b>100.0%</b>	<b>1,308.2</b>	<b>851.7</b>	<b>629.1</b>	<b>516.4</b>	<b>1,397.6</b>	<b>658.7</b>	<b>881.2</b>	<b>16.1%</b>	<b>1.8x</b>
<b>Structure</b>										
Co-Investment Fund	7.7%	133.2	53.3	23.1	79.6	147.2	37.4	67.6	21.6%	1.7x
Primary Fund	82.3%	1,039.9	708.6	551.5	387.7	1,113.0	568.2	725.3	15.7%	1.8x
Secondaries Fund	10.0%	135.2	89.8	54.6	49.1	137.4	53.0	88.3	21.3%	1.6x
<b>NYCBERS - PE</b>	<b>100.0%</b>	<b>1,308.2</b>	<b>851.7</b>	<b>629.1</b>	<b>516.4</b>	<b>1,397.6</b>	<b>658.7</b>	<b>881.2</b>	<b>16.1%</b>	<b>1.8x</b>

Region	NAV Weight	Total Commitment (\$mm)	Capital Calls (\$mm)	Distributions (\$mm)	Unfunded Commitment (\$mm)	Total Exposure (\$mm)	Gain/Loss (\$mm)	NAV (\$mm)	Net IRR	TVPI
Asia Pacific	0.4%	25.0	4.8	0.0	20.5	24.3	-0.87	3.9	n.m. <sup>1</sup>	0.8x
Europe	23.3%	208.4	159.0	76.2	58.6	264.0	122.5	205.3	26.7%	1.8x
Global	21.5%	323.0	169.5	92.5	158.5	348.1	112.6	189.6	19.8%	1.7x
North America	54.7%	751.8	518.4	460.4	278.7	761.2	424.5	482.4	14.6%	1.8x
<b>NYCBERS - PE</b>	<b>100.0%</b>	<b>1,308.2</b>	<b>851.7</b>	<b>629.1</b>	<b>516.4</b>	<b>1,397.6</b>	<b>658.7</b>	<b>881.2</b>	<b>16.1%</b>	<b>1.8x</b>

<sup>1</sup> IRR not meaningful for investments held less than 24 months

\* Total figures take into account all current and closed portfolio positions Dec-2021

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Buyout</b>											
American Securities Partners VII	USD	1.2%	8.0	7.8	2.9	0.30	10.7	5.5	10.4	17.0%	1.7x
Apax IX	USD	2.6%	13.0	13.1	9.0	1.8	24.5	18.5	22.6	34.3%	2.4x
Apax X	USD	0.8%	12.5	6.0	0.0	6.5	13.7	1.2	7.2	n.m. <sup>1</sup>	1.2x
Apollo Investment Fund IX	USD	2.3%	32.0	19.2	5.8	16.3	36.5	6.8	20.2	28.8%	1.4x
Apollo Investment Fund VIII	USD	1.3%	20.0	19.0	19.1	2.7	14.0	11.3	11.3	12.4%	1.6x
BC European Capital X	USD	1.9%	11.1	11.2	0.44	0.60	17.5	6.1	16.9	17.5%	1.5x
Bridgepoint Europe V	USD	0.8%	8.9	8.1	8.7	0.71	8.2	8.1	7.5	20.9%	2.0x
Bridgepoint Europe VI	USD	1.2%	15.4	8.7	1.1	5.6	16.2	3.0	10.6	24.9%	1.3x
Carlyle Partners VI	USD	2.3%	20.0	21.5	24.8	1.2	21.2	23.3	20.0	18.0%	2.1x
Crestview Partners III	USD	1.4%	15.0	12.7	6.7	5.0	17.7	6.8	12.7	13.9%	1.5x
CVC Capital Partners VI	USD	2.5%	20.0	19.7	17.1	1.7	24.1	19.8	22.3	19.7%	2.0x
CVC Capital Partners VII	USD	3.1%	19.1	17.3	1.2	3.0	30.7	11.5	27.7	35.6%	1.7x
CVC Capital Partners VIII	USD	0.6%	25.5	5.1	0.0	21.0	26.2	0.13	5.2	n.m. <sup>1</sup>	1.0x
EQT IX	USD	1.9%	19.6	14.5	0.63	5.8	22.6	3.0	16.8	n.m. <sup>1</sup>	1.2x
EQT VII	USD	1.6%	17.7	19.6	25.7	1.7	16.2	20.5	14.5	26.6%	2.0x
EQT VIII	USD	2.2%	14.1	12.2	5.9	2.0	21.3	12.9	19.2	49.4%	2.1x
Grain Communications Opportunity Fund II	USD	0.8%	6.5	5.2	0.02	1.1	8.5	2.2	7.4	20.7%	1.4x
Grain Communications Opportunity Fund III	USD	0.1%	3.0	1.1	0.00	1.9	2.9	-0.14	0.95	n.m. <sup>1</sup>	0.9x
Green Equity Investors VII	USD	1.7%	10.0	8.9	5.8	3.1	18.1	11.9	15.0	31.2%	2.3x
Heartwood Partners III	USD	0.3%	2.8	1.8	0.46	0.93	3.1	0.85	2.2	20.7%	1.5x
ICV Partners IV	USD	0.2%	3.0	1.8	1.00	1.2	3.0	1.0	1.8	31.0%	1.6x
Insight Partners XII Buyout Annex Fund	USD	0.3%	6.3	2.3	0.0	3.9	6.3	0.00	2.3	n.m. <sup>1</sup>	1.0x

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
KKR Americas Fund XII	USD	3.3%	16.0	14.9	5.0	2.2	31.0	18.8	28.7	43.7%	2.3x
KKR Americas Fund XIII	USD	0.0%	31.0	0.0	0.0	31.0	30.9	-0.07	-0.07	-	0.0x
KKR Asian Fund IV	USD	0.4%	25.0	4.8	0.0	20.5	24.3	-0.87	3.9	n.m. <sup>1</sup>	0.8x
KKR European Fund V (USD)	USD	0.8%	10.0	6.1	0.56	4.1	11.0	1.3	6.9	n.m. <sup>1</sup>	1.2x
Lindsay Goldberg V	USD	0.5%	10.5	3.1	0.16	7.5	11.7	1.2	4.1	n.m. <sup>1</sup>	1.4x
Mill City Fund II	USD	0.2%	1.2	1.3	0.40	0.04	2.0	1.0	2.0	11.2%	1.8x
NMS Fund II	USD	0.1%	1.2	1.3	1.2	0.16	0.77	0.55	0.61	10.3%	1.4x
NMS Fund III	USD	0.3%	2.0	1.6	0.32	0.70	3.1	1.2	2.4	33.1%	1.7x
One Rock Capital Partners III	USD	0.9%	25.0	7.6	2.6	19.9	27.7	2.7	7.8	n.m. <sup>1</sup>	1.4x
Palladium Equity Partners V	USD	0.8%	10.0	6.1	0.67	4.2	11.2	1.5	7.0	13.2%	1.3x
Patriot Financial Partners II	USD	0.2%	3.5	3.7	4.2	0.12	2.0	2.4	1.9	13.7%	1.7x
Patriot Financial Partners III	USD	0.3%	2.5	2.3	0.13	0.19	3.2	0.86	3.0	14.2%	1.4x
Permira VIII	USD	-	23.7	0.0	0.0	23.9	23.9	0.0	0.0 <sup>2</sup>	-	0.0x
Reverence Capital Partners Opportunities Fund II	USD	0.4%	3.0	2.6	0.19	0.53	4.2	1.3	3.7	36.9%	1.5x
Reverence Capital Partners Opportunities Fund V (FOO) (PE Fund III)	USD	0.0%	7.0	0.0	0.0	7.0	7.0	-0.02	-0.02	-	0.0x
Siris Partners III	USD	0.3%	3.5	3.6	2.7	0.58	3.3	1.9	2.8	14.5%	1.5x
Siris Partners IV	USD	1.0%	10.0	6.4	1.2	4.3	13.2	3.8	9.0	26.3%	1.6x
Vista Equity Partners Fund V	USD	4.1%	25.0	30.9	33.5	5.3	41.9	39.2	36.6	22.1%	2.3x
Vista Equity Partners Fund VI	USD	3.0%	16.0	18.7	13.7	3.0	29.8	21.8	26.9	24.2%	2.2x
Vista Equity Partners Fund VII	USD	2.5%	20.5	15.1	0.13	5.5	27.6	7.1	22.0	27.8%	1.5x
Vistria Fund III	USD	0.4%	3.0	2.5	0.0	0.46	3.7	0.67	3.2	n.m. <sup>1</sup>	1.3x
Vistria Fund IV	USD	0.3%	13.0	2.4	0.0	10.6	12.9	-0.10	2.3	n.m. <sup>1</sup>	1.0x
WCAS XIII	USD	0.8%	10.0	5.9	0.94	3.9	10.9	2.0	7.0	43.2%	1.3x

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
Webster Capital III	USD	0.2%	2.3	2.5	4.2	0.01	2.2	3.9	2.2	23.3%	2.6x
Welsh, Carson, Anderson & Stowe XII	USD	1.4%	10.0	9.4	11.4	0.27	12.7	14.5	12.4	31.6%	2.5x
Total Buyout	USD	53.5%	588.3	389.7	219.4	244.1	715.1	300.7	471.1	22.7%	1.8x

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Co-Investment</b>											
ASF VI B NYC Co-Invest	USD	0.2%	5.0	4.2	5.0	0.76	2.5	2.4	1.7	14.0%	1.6x
ASF VII B NYC Co-Invest	USD	0.4%	6.0	3.9	3.4	2.1	6.0	3.5	4.0	23.7%	1.9x
ASF VIII B NYC Co-Invest	USD	0.6%	10.5	2.3	0.0	8.2	13.5	3.0	5.3	123.6%	2.3x
BCEC X Metro Co-Investment	USD	1.0%	4.4	4.6	0.20	0.18	9.3	4.7	9.1	24.5%	2.0x
Bridgepoint Europe V Co-Invest	USD	0.6%	3.0	2.7	2.3	0.25	5.4	4.8	5.2	31.5%	2.8x
Bridgepoint Europe VI Co-Invest	USD	0.4%	3.8	2.1	0.0	1.5	4.6	0.96	3.1	24.3%	1.5x
Carlyle Partners VI - Side Car	USD	0.2%	2.2	1.6	1.9	0.03	2.0	2.2	2.0	16.7%	2.4x
Crestview IV Co-Invest	USD	0.1%	2.7	0.70	0.00	2.0	3.3	0.60	1.3	n.m. <sup>1</sup>	1.8x
Crestview Partners III (Co-Investment B)	USD	0.8%	5.0	5.2	0.25	0.0	6.8	1.8	6.8	7.0%	1.4x
Crestview Partners IV	USD	0.4%	8.0	2.1	0.01	5.9	9.3	1.3	3.4	n.m. <sup>1</sup>	1.6x
EQT IX (Co-Invest)	USD	0.7%	5.4	5.3	0.0	0.11	6.1	0.71	6.0	n.m. <sup>1</sup>	1.1x
EQT VIII (Co-Invest)	USD	0.5%	4.9	2.6	3.5	2.1	6.5	5.3	4.4	56.1%	3.0x
HarbourVest Centre Street Co-Investment Fund	USD	0.6%	23.0	5.5	0.0	17.5	23.2	0.18	5.6	n.m. <sup>1</sup>	1.0x
ICG Strategic Equity Co-Investment Fund III	USD	0.6%	4.4	3.3	0.0	1.2	6.0	1.6	4.9	n.m. <sup>1</sup>	1.5x
ICG Strategic Equity Co-Investment Fund IV	USD	0.3%	10.0	2.7	0.0	7.3	10.1	0.13	2.8	n.m. <sup>1</sup>	1.0x
Landmark - NYC Fund I	USD	0.4%	6.0	5.5	6.3	0.52	3.7	3.9	3.1 <sup>2</sup>	16.3%	1.7x
Lexington IX Co-Invest	USD	0.4%	4.1	2.0	0.08	2.1	5.3	1.3	3.2	n.m. <sup>1</sup>	1.6x
Platinum Equity Capital Partners IV Co-Investment	USD	0.2%	1.1	1.1	0.21	0.0	1.9	1.1	1.9	26.1%	2.1x
Reverence Capital Partners Opportunities Fund II (Parallel)	USD	0.2%	1.5	1.3	0.10	0.29	2.4	0.92	2.1	53.7%	1.7x
Reverence Capital Partners Opportunities Fund V (PE Fund III)	USD	0.0%	18.0	0.0	0.0	18.0	18.0	-0.04	-0.04	-	0.0x
TPG Rise Climate Co-Invest	USD	-	16.7	0.0	0.0	16.7	16.7	0.0	0.0 <sup>2</sup>	-	0.0x
<b>Total Co-Investment</b>	<b>USD</b>	<b>8.6%</b>	<b>145.7</b>	<b>58.7</b>	<b>23.1</b>	<b>86.6</b>	<b>162.5</b>	<b>40.3</b>	<b>75.9</b>	<b>22.3%</b>	<b>1.7x</b>

Reporting Period: As Of Dec-2021

[View this portfolio online](#)

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Growth</b>											
FTV V	USD	1.1%	3.5	3.9	2.9	0.0	9.7	8.7	9.7	48.5%	3.3x
FTV VI	USD	0.5%	3.5	3.0	0.0	0.46	5.1	1.6	4.6	n.m. <sup>1</sup>	1.5x
Insight Partners XII	USD	0.8%	18.8	6.6	0.0	12.2	18.8	0.06	6.6	n.m. <sup>1</sup>	1.0x
PSG V	USD	0.3%	23.0	3.2	0.0	19.8	22.7	-0.25	2.9	n.m. <sup>1</sup>	0.9x
Raine Partners II	USD	0.7%	3.0	3.0	5.1	0.33	6.3	8.1	6.0	34.6%	3.7x
Raine Partners III	USD	0.9%	8.5	7.4	0.50	1.6	10.0	1.5	8.4	17.2%	1.2x
TPG Rise Climate	USD	0.0%	8.3	0.0	0.0	8.3	8.3	-0.08	-0.08	-	0.0x
Valor Equity Partners III	USD	0.3%	3.5	3.5	4.9	0.02	2.7	4.0	2.7	15.6%	2.1x
Valor Equity Partners IV	USD	1.2%	4.5	4.2	0.07	0.33	10.9	6.5	10.6	34.4%	2.5x
Valor Equity Partners V	USD	0.4%	3.5	2.4	0.0	1.1	4.4	0.90	3.3	n.m. <sup>1</sup>	1.4x
Warburg Pincus Financial Sector	USD	2.2%	13.0	11.7	1.3	1.9	21.4	9.1	19.4	29.1%	1.8x
Warburg Pincus Global Growth	USD	1.9%	15.0	12.7	0.11	2.2	18.9	4.1	16.7	27.4%	1.3x
Warburg Pincus Private Equity XI	USD	1.6%	25.0	25.4	30.8	0.0	13.7	19.1	13.7	12.7%	1.8x
Warburg Pincus Private Equity XII	USD	3.7%	21.5	21.5	11.8	0.29	32.9	22.9	32.6	22.6%	2.1x
<b>Total Growth</b>	<b>USD</b>	<b>15.6%</b>	<b>154.6</b>	<b>108.4</b>	<b>57.4</b>	<b>48.7</b>	<b>185.9</b>	<b>86.2</b>	<b>137.2</b>	<b>19.7%</b>	<b>1.8x</b>



## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Multi-Strategy</b>											
Mesirow Financial Private Equity Partnership Fund III	USD	0.6%	57.0	56.2	90.9	1.1	6.6	40.2	5.5 <sup>2</sup>	8.4%	1.7x
Mesirow Financial Private Equity Partnership Fund IV	USD	0.9%	25.0	24.3	41.3	0.88	8.4	24.5	7.5 <sup>2</sup>	11.6%	2.0x
Mesirow Financial Private Equity Partnership Fund V	USD	4.3%	45.0	42.5	70.5	2.9	40.9	66.0	38.0 <sup>2</sup>	18.6%	2.6x
NYC-Northbound Emerging Managers Program	USD	0.5%	25.0	3.0	0.0	22.0	26.3	1.3	4.3	n.m. <sup>1</sup>	1.4x
Liquidated Holdings (1)	USD	-	19.0	17.7	23.3	0.0	0.0	5.6		4.9%	1.3x
<b>Total Multi-Strategy</b>	<b>USD</b>	<b>6.3%</b>	<b>171.0</b>	<b>143.8</b>	<b>226.1</b>	<b>26.9</b>	<b>82.2</b>	<b>137.5</b>	<b>55.3</b>	<b>10.9%</b>	<b>2.0x</b>
<b>Secondaries</b>											
ASF VI B	USD	0.3%	15.0	12.3	15.8	2.2	4.8	6.1	2.5	13.1%	1.5x
ASF VII B	USD	0.8%	10.0	6.0	3.7	3.8	10.5	4.4	6.7	21.2%	1.7x
ASF VIII B	USD	1.6%	21.0	9.2	1.4	11.8	26.0	6.3	14.1	62.3%	1.7x
ICG Strategic Equity Fund III	USD	1.8%	13.3	9.6	1.8	4.6	20.5	8.0	15.8	n.m. <sup>1</sup>	1.8x
ICG Strategic Equity Fund IV	USD	1.2%	20.0	8.3	0.09	11.7	21.9	2.0	10.2	n.m. <sup>1</sup>	1.2x
Landmark Equity Partners XV	USD	0.9%	19.0	15.3	14.5	3.9	11.9	7.3	8.0	14.0%	1.5x
Lexington Capital Partners IX	USD	1.3%	12.4	7.7	1.5	5.5	16.5	4.8	11.0	86.3%	1.6x
Lexington Capital Partners VIII	USD	1.7%	20.0	18.2	15.7	4.4	19.4	12.6	15.0	19.9%	1.7x
<b>Total Secondaries</b>	<b>USD</b>	<b>9.5%</b>	<b>130.7</b>	<b>86.5</b>	<b>54.6</b>	<b>48.0</b>	<b>131.4</b>	<b>51.5</b>	<b>83.4</b>	<b>21.1%</b>	<b>1.6x</b>

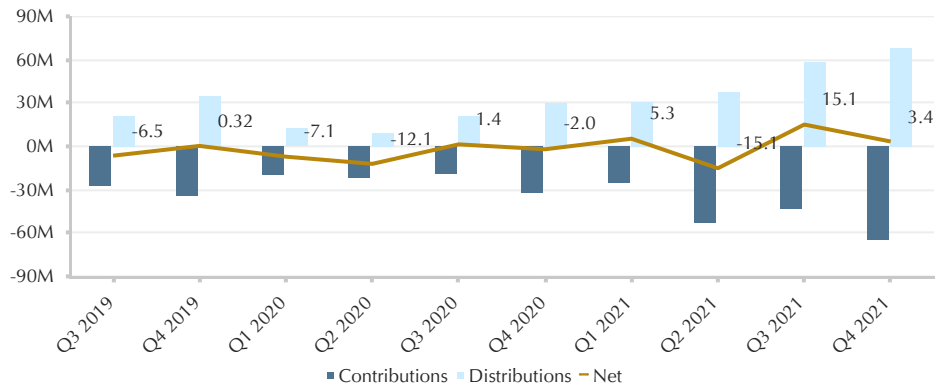
## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Special Situations</b>											
Ares Corporate Opportunities Fund V	USD	1.1%	10.0	10.7	4.3	0.98	11.0	3.6	10.0	12.3%	1.3x
Centerbridge Capital Partners III	USD	0.3%	2.5	3.2	2.3	0.35	3.2	2.0	2.9	20.4%	1.6x
Clearlake Capital Partners VI	USD	1.5%	10.0	8.1	0.34	2.0	14.9	5.2	13.0	n.m. <sup>1</sup>	1.6x
Clearlake Capital Partners VII	USD	0.0%	30.0	0.0	0.0	30.0	29.8	-0.19	-0.19	-	0.0x
Platinum Equity Capital Partners III	USD	0.5%	15.0	14.6	26.5	3.2	7.9	16.5	4.6	36.9%	2.1x
Platinum Equity Capital Partners IV	USD	1.5%	11.5	11.4	10.3	1.2	14.1	11.8	12.9	29.9%	2.0x
Platinum Equity Small Cap Fund	USD	0.7%	10.0	6.3	1.8	4.5	11.0	2.0	6.5	19.3%	1.3x
Stellex Capital Partners	USD	0.3%	4.0	3.9	3.0	1.1	4.1	2.1	3.0	21.8%	1.6x
Stellex Capital Partners II	USD	0.7%	25.0	6.3	0.00	18.7	24.5	-0.54	5.7	n.m. <sup>1</sup>	0.9x
<b>Total Special Situations</b>	<b>USD</b>	<b>6.6%</b>	<b>118.0</b>	<b>64.5</b>	<b>48.6</b>	<b>62.1</b>	<b>120.5</b>	<b>42.5</b>	<b>58.4</b>	<b>29.7%</b>	<b>1.7x</b>
<b>NYCBERS - PE</b>	<b>USD</b>	<b>100.0%</b>	<b>1,308.2</b>	<b>851.7</b>	<b>629.1</b>	<b>516.4</b>	<b>1,397.6</b>	<b>658.7</b>	<b>881.2</b>	<b>16.1%</b>	<b>1.8x</b>

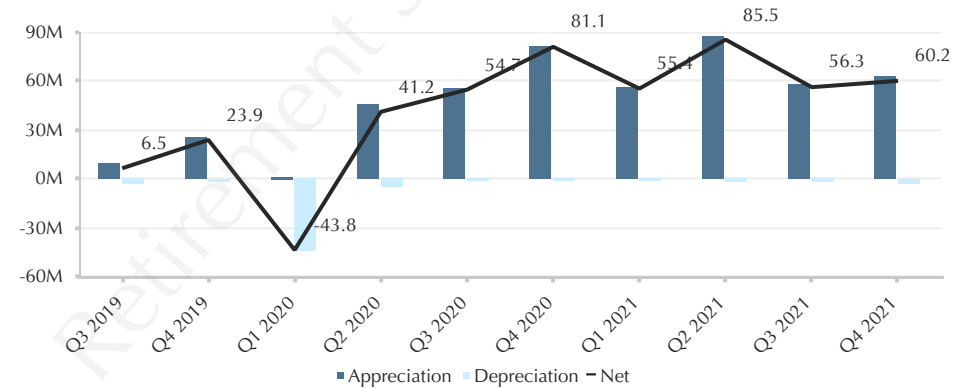
<sup>1</sup> IRR not meaningful for investments held less than 24 months<sup>2</sup> Adjusted for additional contributions and distributions since last valuation

\* Total figures take into account all current and closed portfolio positions Dec-2021

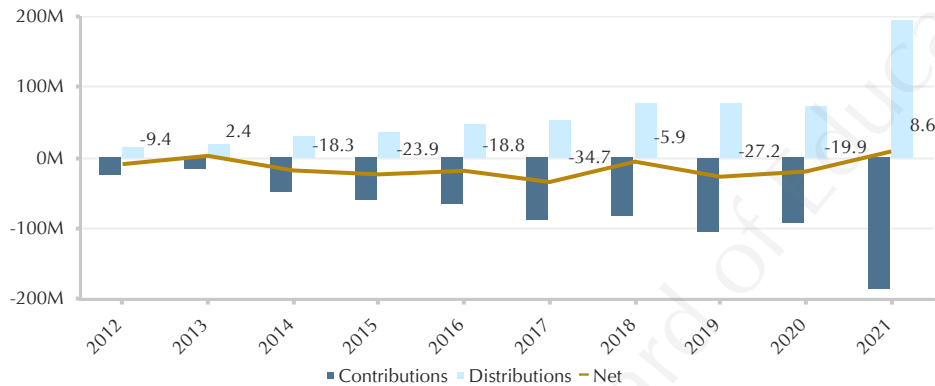
Cash Flows Quarterly



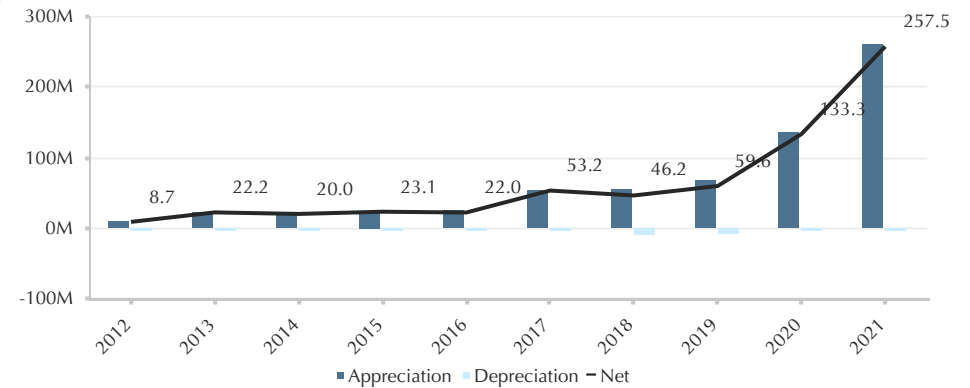
Appreciation/Depreciation Quarterly



Cash Flows Yearly



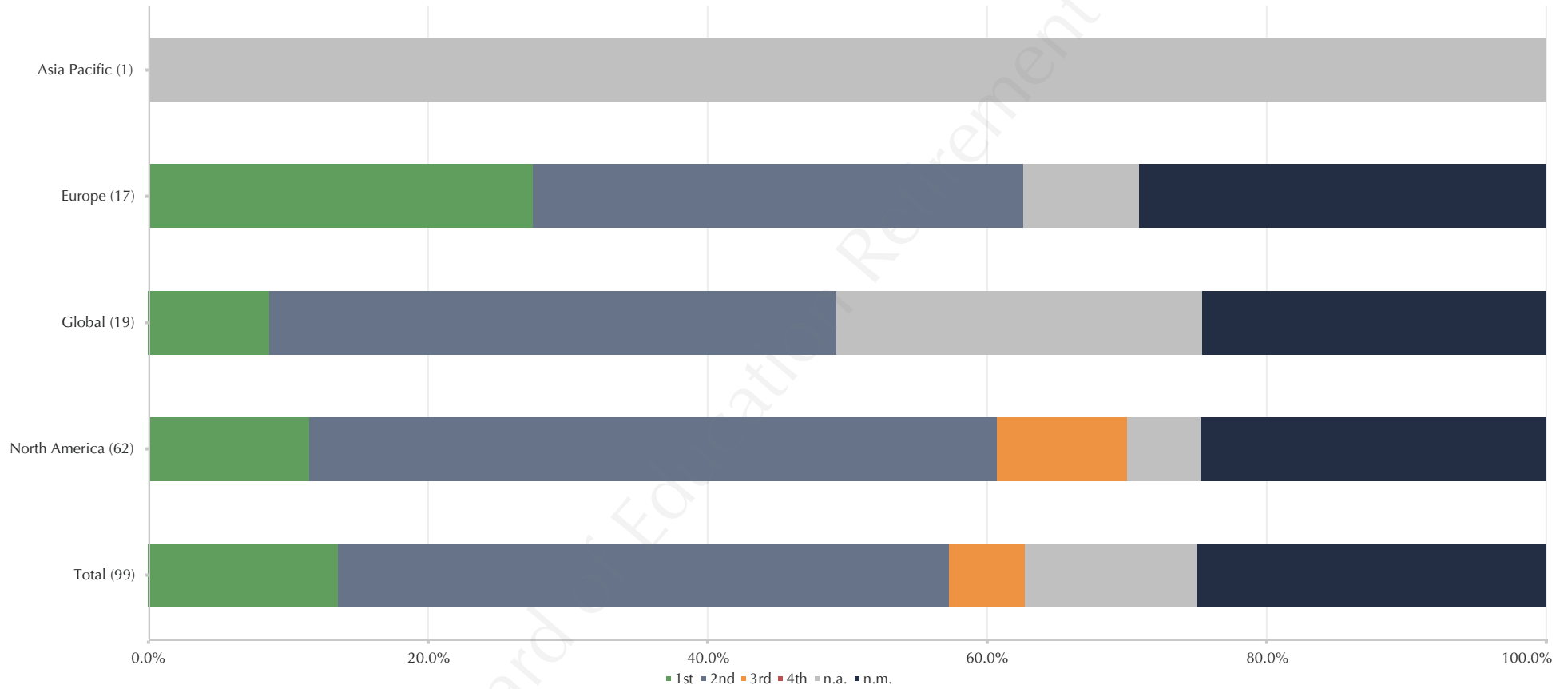
Appreciation/Depreciation Yearly



## Portfolio IRR vs Benchmarks

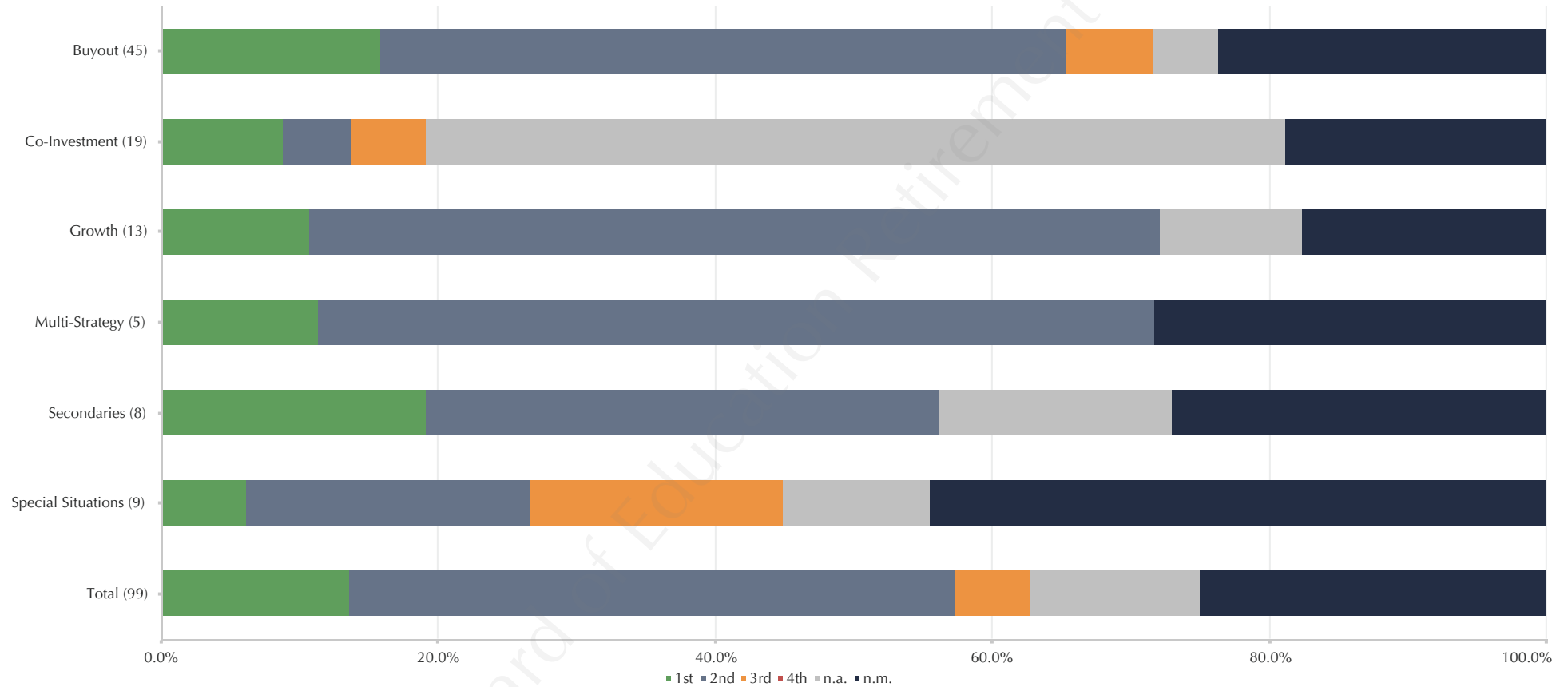
PERFORMANCE VERSUS BENCHMARKS						
12/31/2021	1 QTR	1 YEAR	3 YEAR	5 YEAR	10 YEAR	INCEPTION
<b>Program IRR</b>	32.1%	40.6%	27.1%	23.1%	19.0%	16.1%
<b>Russell 3000 PME+</b>	42.3%	25.5%	25.9%	18.6%	16.7%	14.1%
<i>Difference</i>	-10.2%	15.0%	1.2%	4.5%	2.3%	2.0%
<b>Russell 3000 +300bps PME+</b>	46.6%	29.3%	29.7%	22.0%	20.0%	16.8%
<i>Difference</i>	-14.5%	11.2%	-2.6%	1.1%	-1.0%	-0.7%
9/30/2021	1 QTR	1 YEAR	3 YEAR	5 YEAR	10 YEAR	INCEPTION
<b>Program IRR</b>	31.8%	50.3%	24.9%	22.2%	18.5%	15.7%
<b>Cambridge Associates</b>	5.6%	54.1%	27.7%	24.1%	18.8%	14.5%
<i>Difference</i>	26.2%	-3.8%	-2.8%	-1.8%	-0.3%	1.2%

## By Region



## Portfolio Quartile Analysis by Total Exposure

## By Strategy



**PRIVATE AND CONFIDENTIAL:** These materials are strictly confidential and proprietary, intended solely for the use of the individual or entity to which Aksia LLC, Aksia CA LLC, Aksia Chicago LLC, and/or any of their other affiliates, as applicable (collectively, "Aksia") have sent these materials ("Intended Recipient") and constitute Aksia's trade secrets for all purposes, including for purposes of the Freedom of Information Act or any comparable law or regulation of any government, municipality or regulator. These materials may not be reproduced or distributed, posted electronically or incorporated into other documents in whole or in part except for the personal reference of the Intended Recipient. If you are not the Intended Recipient, you are hereby requested to notify Aksia and either destroy or return these documents to Aksia. The Intended Recipient shall not use Aksia's name or logo or explicitly reference Aksia's research and/or advisory services in the Intended Recipient's materials.

**NO OFFERING:** These materials do not in any way constitute an offer or a solicitation of an offer to buy or sell funds, private investments or securities mentioned herein. These materials are provided only for use in conjunction with Aksia's services, as such services are defined in an executed agreement between Aksia and the Intended Recipient (hereinafter, the "Agreement"). In the event that an executed Agreement does not exist between Aksia and the Intended Recipient, these materials shall not constitute advice or an obligation to provide such services.

**RECOMMENDATIONS:** Any Aksia recommendation or opinion contained in these materials is a statement of opinion provided in good faith by Aksia and based upon information which Aksia reasonably believes to be true. Recommendations or opinions expressed in these materials reflect Aksia's judgment as of the date shown, and are subject to change without notice. Actual results may differ materially from any forecasts discussed in the materials. Except as otherwise agreed between Aksia and the Intended Recipient, Aksia is under no future obligation to review, revise or update its recommendations or opinions.

**NOT TAX, LEGAL OR REGULATORY ADVICE:** An investor should consult its tax, legal and regulatory advisors before allocating to a private investment fund or other investment opportunity. Aksia is not providing due diligence or tax advice concerning the tax treatments of an investment or an investor's allocations to such private investment fund or opportunity. Tax treatment depends on the individual circumstances of each client and may be subject to change in the future.

**RESPONSIBILITY FOR INVESTMENT DECISIONS:** The Intended Recipient is responsible for performing his, her or its own reviews of any funds or other investment vehicles or opportunities described herein including, but not limited to, a thorough review and understanding of each vehicle's or opportunity's offering materials. The Intended Recipient is advised to consult his, her or its tax, legal and compliance professionals to assist in such reviews. For clients who receive non-discretionary advisory or research services from Aksia: the Intended Recipient acknowledges that it (and not Aksia) is responsible for its investment decisions with respect to any investment vehicles or opportunities described herein.

No assurances can be given that a particular investment or portfolio will meet its investment objectives. Any projections, forecasts or market outlooks provided herein should not be relied upon as events which will occur. *Past performance is not indicative of future results.* Use of advanced portfolio construction processes, risk management techniques and proprietary technology does not assure any level of performance or guarantee against loss of capital.

**PERFORMANCE DATA:** In cases where an investment manager or general partner implements an investment strategy through multiple investment vehicles (for tax purposes, participation in side pockets and new issues, domicile, currency denomination, etc.,) Aksia may use the returns of one class or series of an investment vehicle in a particular program in its reports to represent the returns of all the investment vehicles in such investment program. The returns for the particular class or series used in Aksia's reports may be different from the returns of the class or series in which the Intended Recipient is invested. To obtain the actual performance of the particular class or series in the Intended Recipient's portfolio, the Intended Recipient should contact the investment manager or general partner directly.

**RELIANCE ON THIRD PARTY DATA:** These materials reflect and rely upon information provided by fund managers and other third parties which Aksia reasonably believes to be accurate and reliable. Such information may be used by Aksia without independent verification of accuracy or completeness, and Aksia makes no representations as to its accuracy and completeness. For the avoidance of doubt, these materials have not been produced, reviewed, verified or approved by the fund managers and other third parties to which the materials relate. As such, they do not necessarily reflect the views or opinions of such fund managers and third parties. Furthermore, any reference to EBITDA (or ratios using EBITDA as a component) included in the report, reflect Adjusted EBITDA provided by the fund manager typically as defined in the loan agreements. Adjusted EBITDA can be expected to be higher than EBITDA figures calculated based on GAAP or IFRS compliant financial statements, which will result in relatively lower debt/EBITDA and higher interest coverage ratios. In addition, any fund IRRs shown are as reported by the manager/administrator or calculated using cash flows provided by the manager/administrator, and may benefit from such fund's use of a subscription line.

**RATING DOWNGRADES (LIQUID INVESTMENTS):** Aksia client assets, in aggregate, may represent a large percentage of a manager's or fund's assets under management, and, as such, a rating downgrade by Aksia's research teams could result in redemptions or withdrawals that may have an adverse effect on the performance of a fund.

**CONFLICTS OF INTEREST DISCLOSURE:** Family members of Aksia personnel may from time to time be employed by managers that Aksia recommends to its clients. While this may pose a potential conflict of interest, we monitor such relationships to seek to minimize any impact of such potential conflict.

**PRIVATE INVESTMENT FUND DISCLOSURE:** Investments in private investment funds and other similar investment opportunities involve a high degree of risk and you could lose all or substantially all of your investment. Any person or institution making such investments must fully understand and be willing to assume the risks involved. Some private investment funds and opportunities described herein may not be suitable for all investors. Such investments or investment vehicles may use leverage, hold significant illiquid positions, suspend redemptions indefinitely, provide no opportunity to redeem, modify investment strategy and documentation without notice, short sell securities, incur high fees and contain conflicts of interests. Such private investment funds or opportunities may also have limited operating history, lack transparency, manage concentrated portfolios, exhibit high volatility, depend on a concentrated group or individual for investment management or portfolio management and lack any regulatory oversight.

For a description of the risks associated with a specific private investment fund or investment opportunity, investors and prospective investors are strongly encouraged to review each private investment fund or opportunity's offering materials which contain a more specific description of the risks associated with each investment. Offering materials may be obtained from the fund manager.

**FOR RECIPIENTS OF REPORTS DISTRIBUTED BY AKSIA EUROPE LIMITED:** Aksia Europe Limited is authorized and regulated by the Financial Conduct Authority; such authorization does not indicate endorsement or approval by the FCA of the services offered by Aksia.

Real Estate Quarterly Report (Public):



# NYCBERS - RE

## Public Report

As Of December 2021

Intended Recipient: **NYC Board of Education Retirement System**

PRIVATE AND CONFIDENTIAL: These materials are strictly confidential, constitute trade secrets, are intended solely for the use of the individual or entity named herein ("Intended Recipient") and may not be reproduced, distributed, posted electronically or incorporated into other documents in whole or in part except for the personal reference of the Intended Recipient. If you are not the Intended Recipient you are hereby requested to either destroy or return these documents to Aksia LLC, or any of its affiliates.



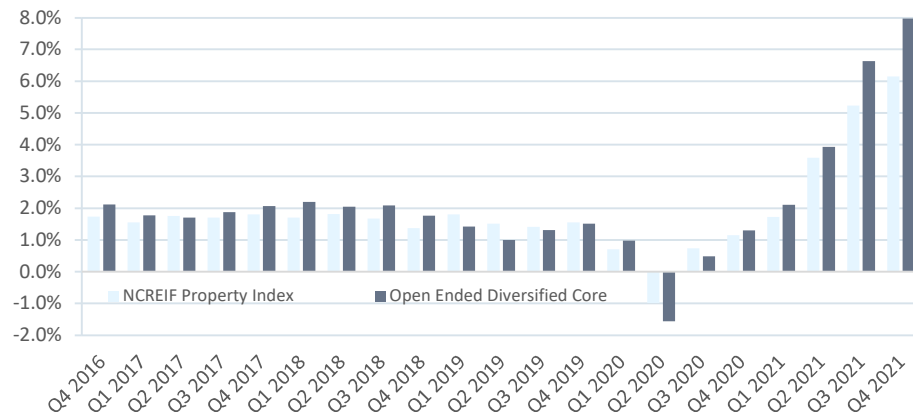
**Board of Education  
Retirement System**

**Aksia** 

Tailwinds	Headwinds
<ul style="list-style-type: none"> <li>Industrial sector is maintaining strength, stemming from secular trend toward more e-commerce, accelerated by pandemic effect.</li> <li>Overall performance of market-rate multifamily assets remains strong. Class A urban multifamily properties are recovering quickly, eliminating generous concessions offered after the onset of COVID in the US.</li> <li>Hotel occupancy and RevPAR for leisure assets have recovered meaningfully, with many "drive-to" resorts reporting higher than pre-pandemic revenues.</li> </ul>	<ul style="list-style-type: none"> <li>Labor shortages are affecting a wide variety of real estate industries, with the highest impact on retail, hospitality and construction. Global supply chain issues have also driven up the cost of material inputs, resulting in rising construction costs and delayed project timelines.</li> <li>Increases in short-term interest rates in early 2022 have resulted in higher cost of debt for many real estate owners. This may also translate to higher yield-requirements (cap rates) for investors, though cap rates often more closely follow changes in long-term interest rates.</li> </ul>

Source: Aksia internal market views, based on Aksia's opinion and not intended as personalized investment advice.

Figure 1: Gross Quarterly Returns | %

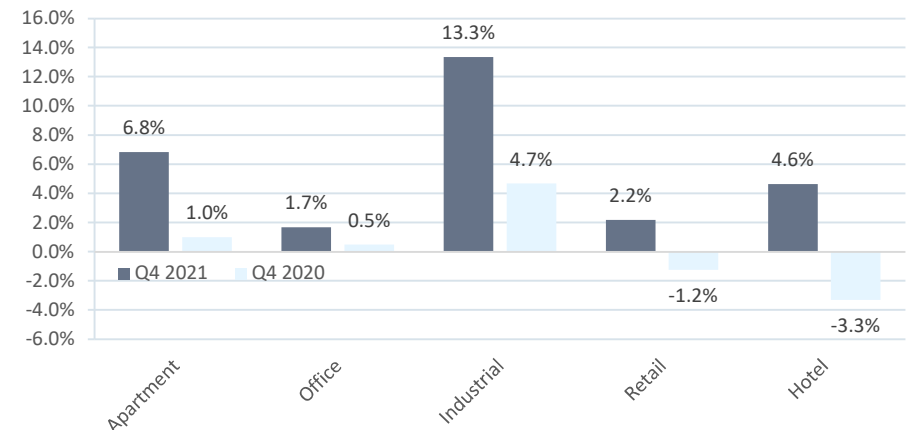


Source: NCREIF

## Performance at a Glance

- The NCREIF Open End Diversified Core ("ODCE") and NCREIF Property Index ("NPI") reported historically-high returns in Q4 2021, returning 7.97% and 6.15%, respectively. The Q4 2021 return for ODCE is the highest in its history (inception of Q1 1978) and the NPI return is the highest since Q4 1979.<sup>1,2</sup>
- Transaction volumes continue to normalize and picked up after being severely depressed during 1H 2020. During Q4 2021, the NPI reported 284 property transactions, which were heavily concentrated in industrial (108) properties, after reporting only a combined 80 transactions during Q1 2020 and Q2 2020.<sup>2</sup>
- By property type, industrial again drastically outpaced the other sectors of the NPI, though each property type reported a positive return during the quarter.<sup>2</sup>
- The ODCE index reported strong positive appreciation during Q4 2021 (+6.99%), in addition to a consistently-positive income return of 0.97%. The overall appreciation return for the trailing 1-year is +17.62%.<sup>1</sup>

Figure 2: Property Index Returns by Component | %



Source: NCREIF

### SOURCES:

1 NATIONAL COUNCIL OF REAL ESTATE INVESTMENT FIDUCIARIES ("NCREIF") OPEN-ENDED DIVERSIFIED CORE EQUITY INDEX ("ODCE"). [WWW.NCREIF.ORG](http://WWW.NCREIF.ORG)

2 NATIONAL COUNCIL OF REAL ESTATE INVESTMENT FIDUCIARIES ("NCREIF") PROPERTY INDEX ("NPI"). [WWW.NCREIF.ORG](http://WWW.NCREIF.ORG)

Reporting Period: As Of Dec-2021

[View this portfolio online](#)

**SPOTLIGHT: Record High Transaction Volumes**

As the economic recovery from the COVID downturn continued, 2021 saw a record level of real estate transaction volume in the United States. CBRE Research reports total real estate investment volume of \$746 billion for the year with \$296 billion in 4Q2021 alone, both record figures<sup>3</sup>. For context, the average quarterly U.S. real estate transaction volume from 2015 to 2019 was only \$132.5 billion<sup>3</sup>. This is evidence of continued demand from capital markets for private real estate assets, as investors seek to diversify away from public markets and into inflation-hedging assets. It is also likely that both buyers and sellers pushed assets to market quicker than anticipated, attempting to get ahead of expected interest rate increases in 2022. While transaction volumes were up across the board for every major property, we note continued bifurcation with industrial and multifamily drastically outpacing other sectors. Multifamily properties led the way, accounting for over \$315 billion of transactions in 2021 (42% of the total), followed by industrial properties at over \$160 billion (21% of the total)<sup>3</sup>. This is evidence of the continued post-COVID trend of investors seeking to increase exposure to these property types, which have exhibited strong underlying fundamentals (supply/demand dynamic and rental rate growth).

## SOURCES:

1 NATIONAL COUNCIL OF REAL ESTATE INVESTMENT FIDUCIARIES ("NCREIF") OPEN-ENDED DIVERSIFIED CORE EQUITY INDEX ("ODCE"). WWW.NCREIF.ORG

2 NATIONAL COUNCIL OF REAL ESTATE INVESTMENT FIDUCIARIES ("NCREIF") PROPERTY INDEX ("NPI"). WWW.NCREIF.ORG

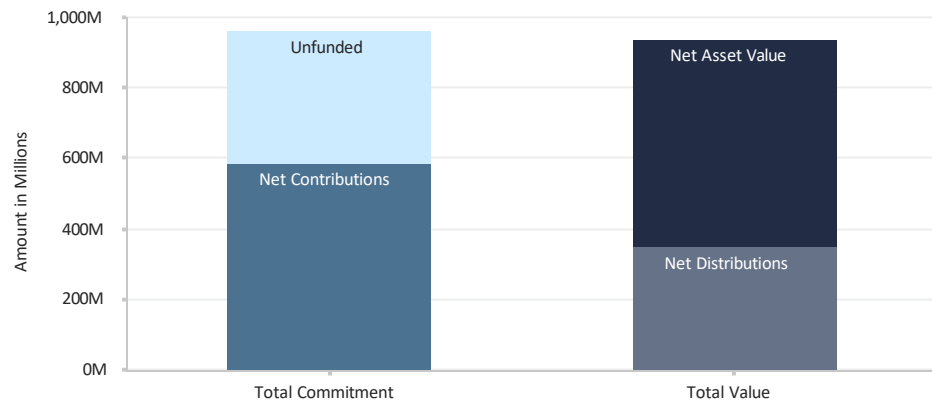
3 CBRE RESEARCH [www.cbre.com/insights/figures/q4-2021-us-capital-markets-figures](http://www.cbre.com/insights/figures/q4-2021-us-capital-markets-figures)

Reporting Period: As Of Dec-2021

[View this portfolio online](#)



## Summary



## Portfolio Summary

Total Pension Assets	\$9.1 bn as of 12/31/2021		
GP Relationships	33		
Holdings	57		
# of Underlying Active Companies	2,044		
% of Public Companies	0.6%		
Total Commitment Amount	\$961.0 mm		
Net Contributions	\$584.5 mm		
Net Distributions	\$347.8 mm		
Net Asset Value	\$590.8 mm		
Weighted Average Age	5.9Y		
Unfunded Commitment	\$376.3 mm		
Minimum Annual Pacing	\$200.0 mm		
Maximum Annual Pacing	\$200.0 mm		
Portfolio Allocation	8.0%		
Minimum Target Allocation	4.0%		
Maximum Target Allocation	12.0%		

1Y IRR:	27.8%	2Y IRR:	14.4%	3Y IRR:	12.0%
5Y IRR:	11.7%	7Y IRR:	11.8%	10Y IRR:	11.9%
ITD IRR: *	11.8%				

\* Sep-2010 - Dec-2021

PERFORMANCE VERSUS BENCHMARKS					
12/31/2021	1 QUARTER	1 YEAR	3 YEAR	5 YEAR	INCEPTION
<b>Total Real Estate TWRR</b>	9.8%	29.1%	11.8%	11.4%	13.8%
<b>NFI-ODCE +100 bps</b>	7.9%	22.0%	9.2%	8.7%	11.1%
<b>Difference</b>	1.9%	7.0%	2.6%	2.7%	2.6%
<b>Core / Core-Plus Real Estate TWRR</b>	8.5%	26.7%	10.4%	9.4%	12.5%
<b>NFI-ODCE</b>	7.7%	21.0%	8.2%	7.7%	10.1%
<b>Difference</b>	0.9%	5.7%	2.2%	1.6%	2.4%
<b>Non-Core Real Estate TWRR</b>	11.9%	32.7%	13.9%	14.4%	10.9%
<b>NFI-ODCE +200 bps</b>	8.2%	23.0%	10.2%	9.7%	12.1%
<b>Difference</b>	3.8%	9.7%	3.7%	4.7%	-1.3%

IRR not meaningful for investments held less than 24 months  
Weighted Average Age (WAA) is based on contributions

Reporting Period: As Of Dec-2021

[View this portfolio online](#)

## Performance Statistics

As Of:	Dec-2020	Mar-2021	Jun-2021	Sep-2021	Dec-2021	% Change (YTD)	% Change (Quarter)	% Change (Annual)	Dec-2021 Active
Committed Capital	665.0	717.0	827.0	852.0	961.0	44.5%	12.8%	44.5%	961.0
Unfunded Commitment	213.6	254.2	325.9	307.0	376.3	83.4%	22.6%	76.2%	376.3
Net Contributed Capital	452.1	462.9	501.4	545.0	584.5	26.9%	7.3%	29.3%	584.5
Net Distributed Capital	265.0	271.8	286.4	306.6	347.8	29.8%	13.4%	31.3%	347.8
Recallable Capital	39.0	40.0	41.1	41.8	44.5	14.0%	6.6%	14.1%	44.5
Net Asset Value	415.6	434.4	485.7	545.0	590.8	42.2%	8.4%	42.2%	590.8
Net Gain/Loss	182.8	196.4	222.4	261.3	307.0	74.0%	17.5%	67.9%	307.0
Total Value	680.5	706.2	772.1	851.6	938.6	37.3%	10.2%	37.9%	938.6
Unfunded + NAV (mm)	629.1	688.6	811.6	852.0	967.2	55.8%	13.5%	53.7%	967.2
DPI	0.6x	0.6x	0.6x	0.6x	0.6x	0.0x	0.0x	0.0x	0.6x
Total Value to Paid-In (TVPI)	1.3x	1.4x	1.4x	1.4x	1.5x	0.1x	0.0x	0.1x	1.5x
Net Internal Rate of Return (IRR)	9.5%	9.7%	10.2%	11.0%	11.8%	2.3%	0.8%	2.3%	11.8%



Region	NAV Weight	Total Commitment (\$mm)	Capital Calls (\$mm)	Distributions (\$mm)	Unfunded Commitment (\$mm)	Total Exposure (\$mm)	Gain/Loss (\$mm)	NAV (\$mm)	Net IRR	TVPI
Asia Pacific	0.6%	10.0	7.3	4.7	6.5	9.8	0.69	3.3	n.m. <sup>1</sup>	1.1x
Europe	9.1%	85.0	72.2	56.3	21.9	75.6	37.7	53.6	15.5%	1.5x
Global	12.0%	217.0	137.8	114.8	94.0	164.9	47.8	70.8	16.6%	1.3x
North America	78.4%	649.0	458.8	216.5	253.9	716.9	220.9	463.1	10.8%	1.5x
<b>NYCBERS - RE</b>	<b>100.0%</b>	<b>961.0</b>	<b>676.1</b>	<b>392.3</b>	<b>376.3</b>	<b>967.2</b>	<b>307.0</b>	<b>590.8</b>	<b>11.8%</b>	<b>1.5x</b>

## Strategy

Core / Core-plus	62.2%	406.4	329.9	131.4	117.1	484.5	168.9	367.4	10.3%	1.5x
Non-Core	37.8%	554.6	346.3	260.9	259.2	482.7	138.1	223.4	14.9%	1.4x
<b>NYCBERS - RE</b>	<b>100.0%</b>	<b>961.0</b>	<b>676.1</b>	<b>392.3</b>	<b>376.3</b>	<b>967.2</b>	<b>307.0</b>	<b>590.8</b>	<b>11.8%</b>	<b>1.5x</b>

Note: The portfolio allocation is based on the fund's strategy. Current portfolio exposure is generally in line with targets, and Aksia is continually working with Staff to strategically add new investments.

<sup>1</sup> IRR not meaningful for investments held less than 24 months

\* Total figures take into account all current and closed portfolio positions Sep-2021

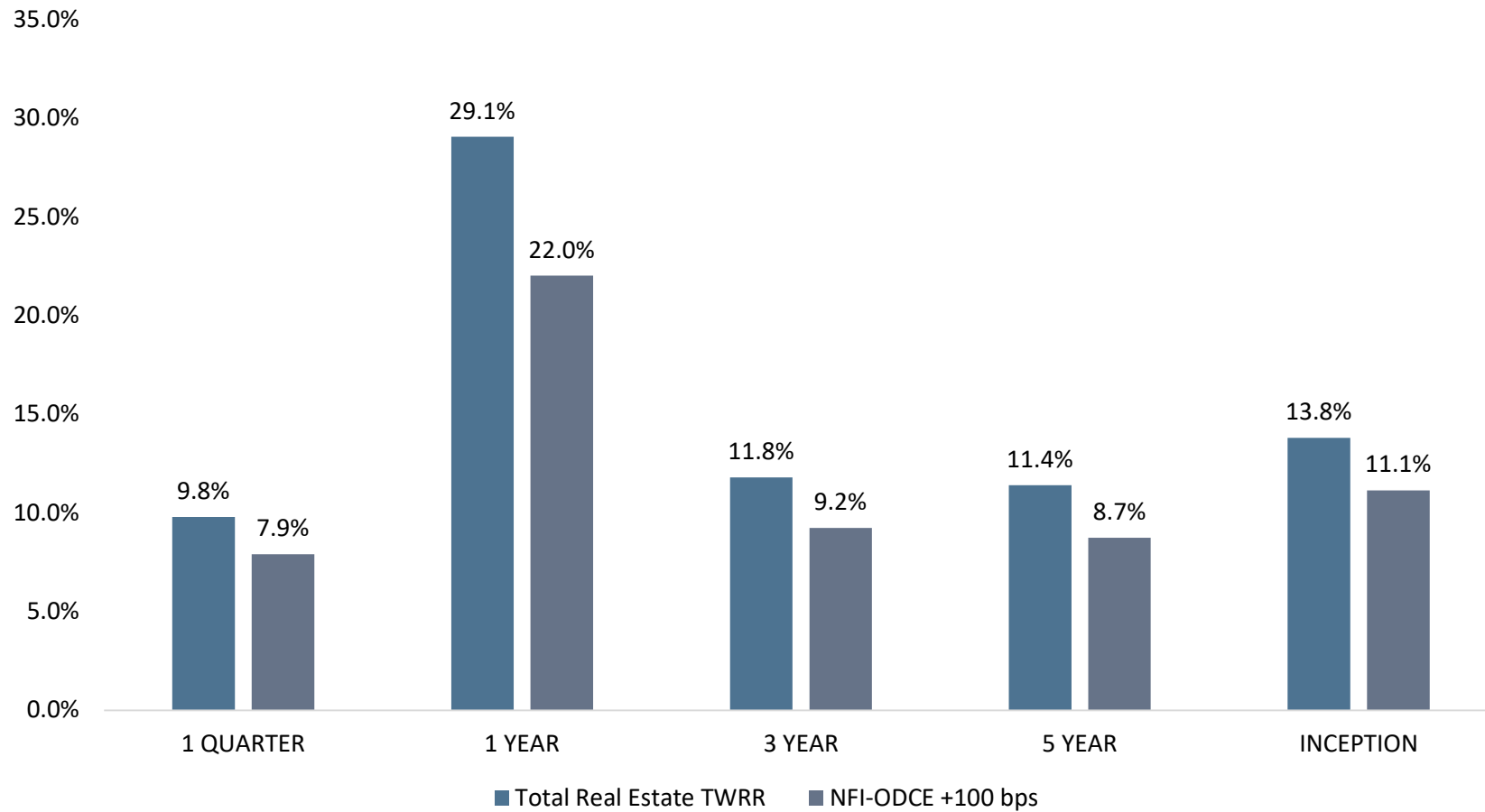
Reporting Period: Sep-2010 - Dec-2021

[View this portfolio online](#)



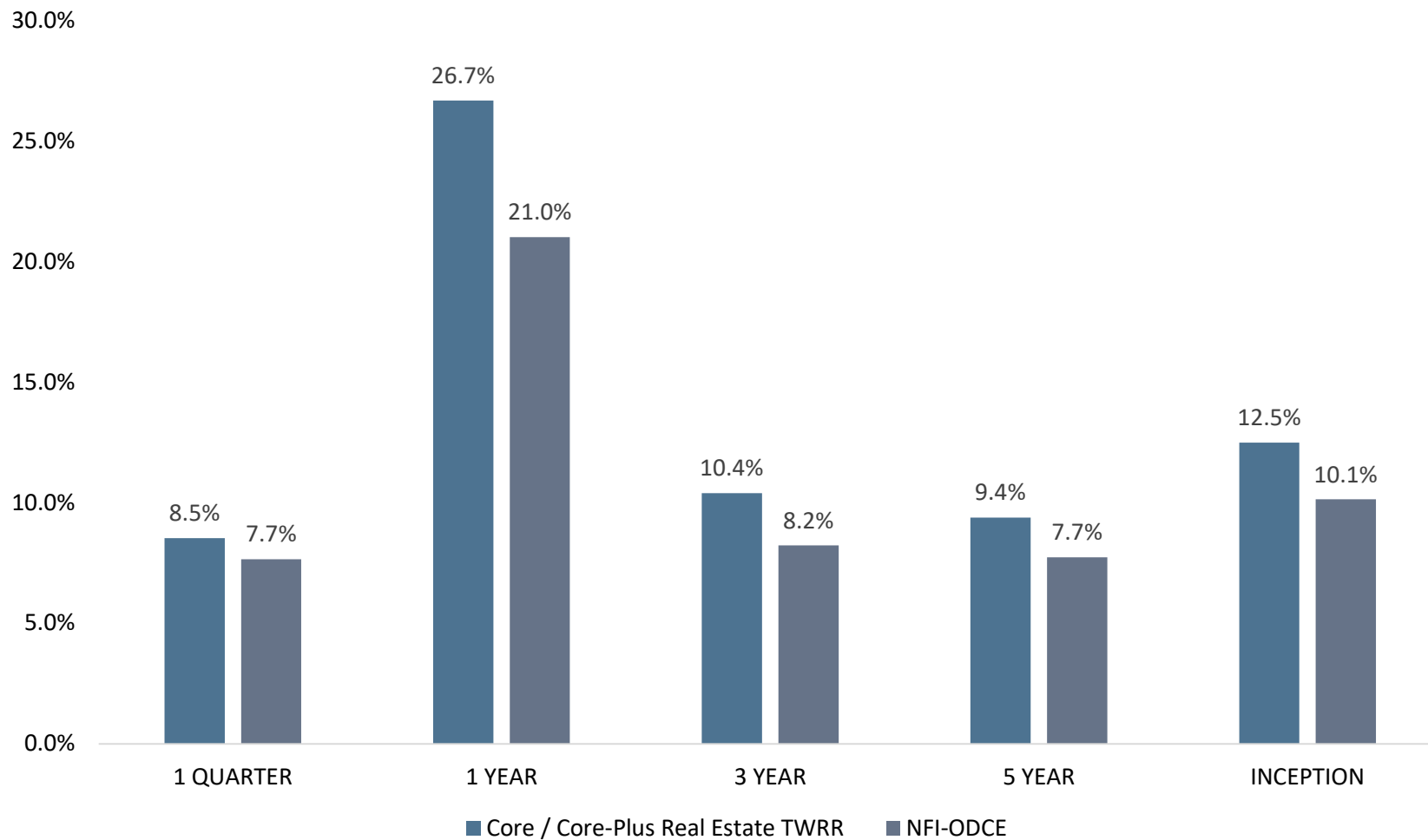
## Total RE Portfolio TWRR

## TOTAL NET TWRR vs. BENCHMARK



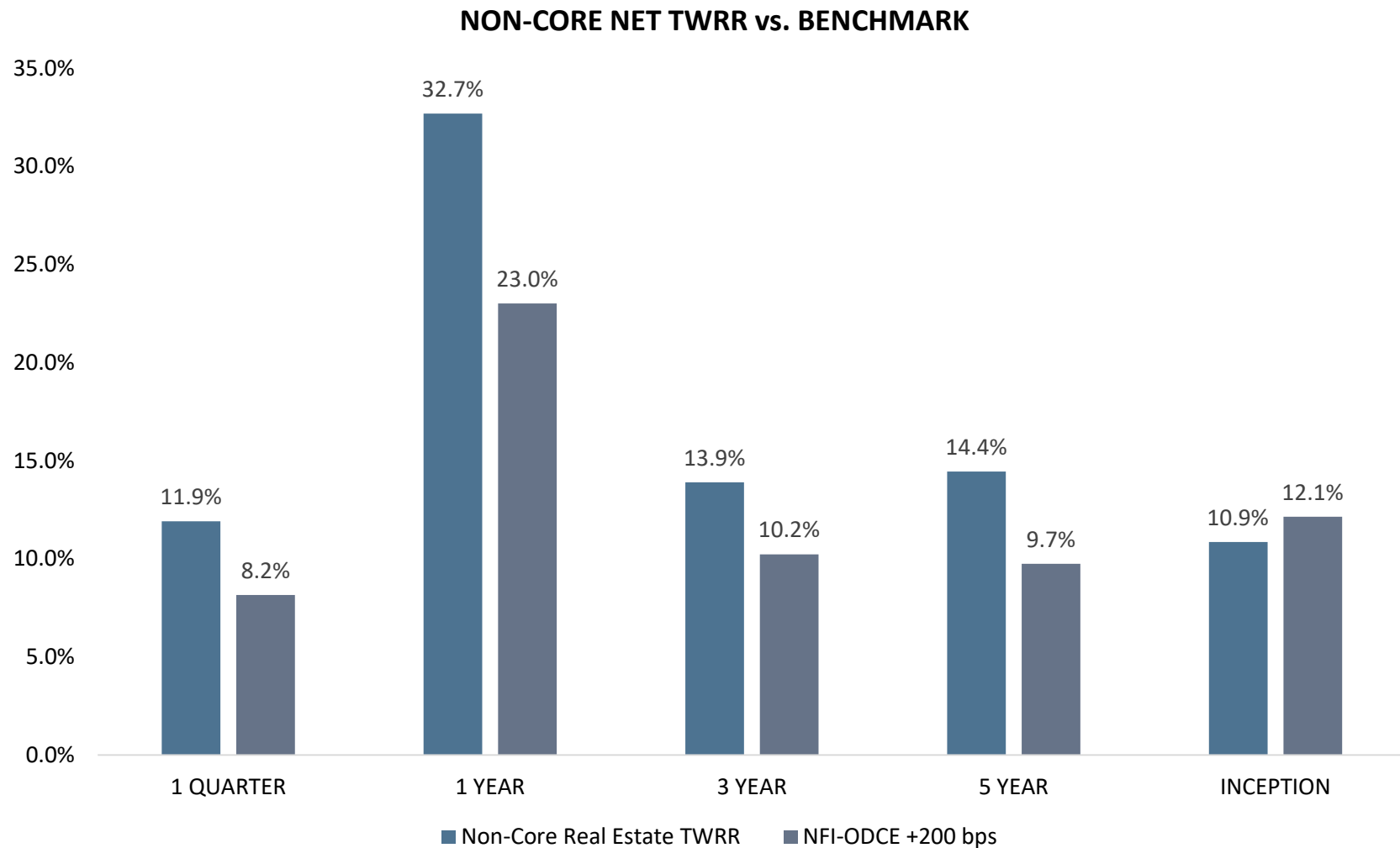
## Core/Core Plus TWRR

## CORE NET TWRR vs. BENCHMARK





## Non-Core TWRR



## Portfolio Compliance Checklist

Category	Requirement	Portfolio Status
Benchmark	Comprised of NFI-ODCE +100 bps	Portfolio returns outperformed the benchmark over the one-quarter, one-year, three-year, five-year, and since-inception periods.
Portfolio Construction	Core / Core-Plus (4%) Non-Core (4%)	Market value plus unfunded commitment place the Portfolio at 50% Core/Core-Plus and 50% Non-Core. Based on market value, the Portfolio is 62% Core/Core-Plus and 38% Non-Core.
Real Estate Allocation	Target 8%	Market value plus unfunded commitment place the Portfolio at 10.6% of total plan assets.
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	All property type allocations are compliant.
Geographic Diversification	Diversified geographically; Max 25% Ex-U.S.	All geographic allocations are compliant.
LTV	65.0%	The leverage (38.4%) is compliant.
Manager Exposure	15% of real estate allocation	All manager allocations are compliant, with Brookfield Asset Management being the highest at 9.7%.



## New Investment Commitments

Fund Name	Month Closed	Strategy	Geographic Focus	Committed capital (\$mil)
Brookfield Strategic Real Estate Partners IV – Non-Core	Nov-21	Non-Core	Global	39
Harrison Street Core Property Fund	Dec-21	Core/Core Plus	North America	70

## Subsequent Investment Commitments

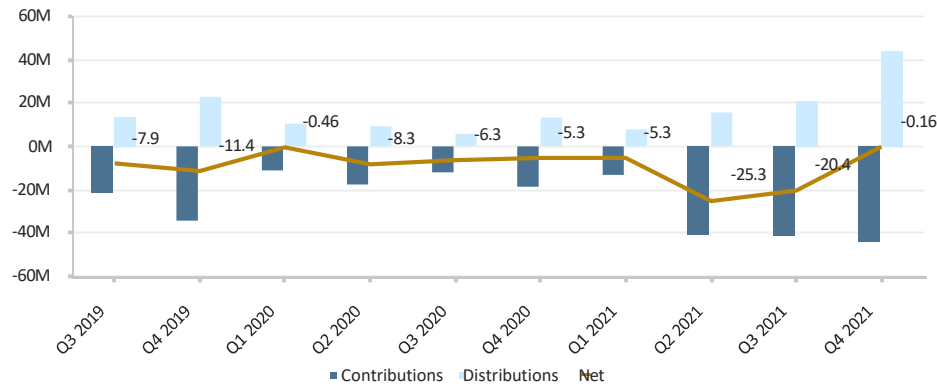
Fund Name	Month Closed	Strategy	Geographic Focus	Committed capital (\$mil)

- During the quarter, commitments totaling \$109.0 million closed.
- After quarter-end, no new commitments closed.

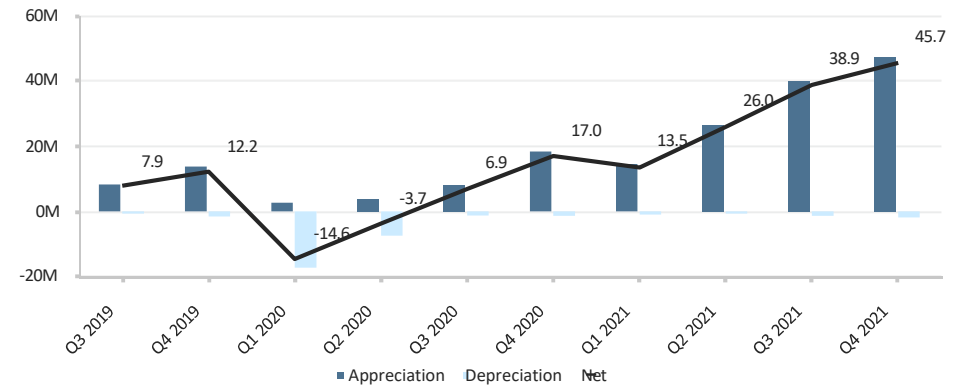
## Movement By Strategy - QTD

	Gain		Loss		NET Gain/Loss		Distributions		Contributions		NAV (mm)
	Total millions	# Of Funds	Total millions	# Of Funds	Net Millions	% Of Total Net	Total millions	%	Total millions	%	
Core / Core-plus	26.44	19	-0.06	1	26.39	57.7%	5.21	11.9%	15.52	35.2%	367.4
Non-Core	21.08	26	-1.74	8	19.34	42.3%	38.70	88.1%	28.56	64.8%	223.4
<b>Total</b>	<b>47.50</b>	<b>45</b>	<b>-1.80</b>	<b>9</b>	<b>45.73</b>	<b>100.0%</b>	<b>43.91</b>	<b>100.0%</b>	<b>44.07</b>	<b>100.0%</b>	<b>590.8</b>

## Cash Flows Quarterly



## Appreciation/Depreciation Quarterly

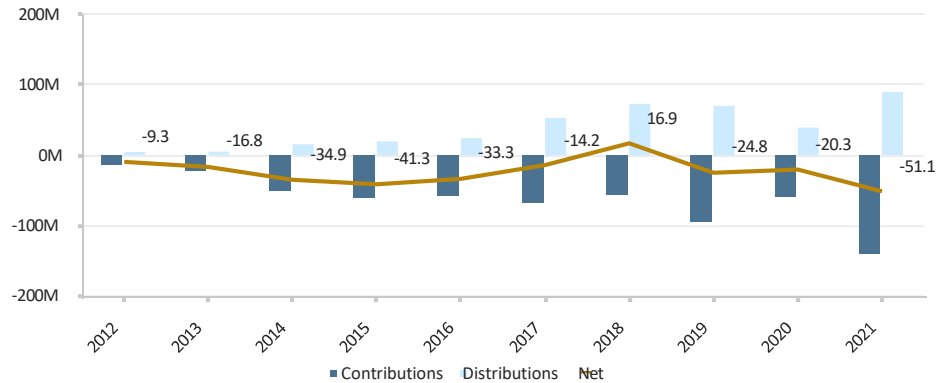


- During the quarter, \$44.1 million was contributed and \$43.9 million was distributed for a net cash outflow of \$0.2 million. 45 funds appreciated (\$47.5 million) and 9 funds depreciated during the quarter (\$1.8 million) for a total net appreciation of \$45.7 million.

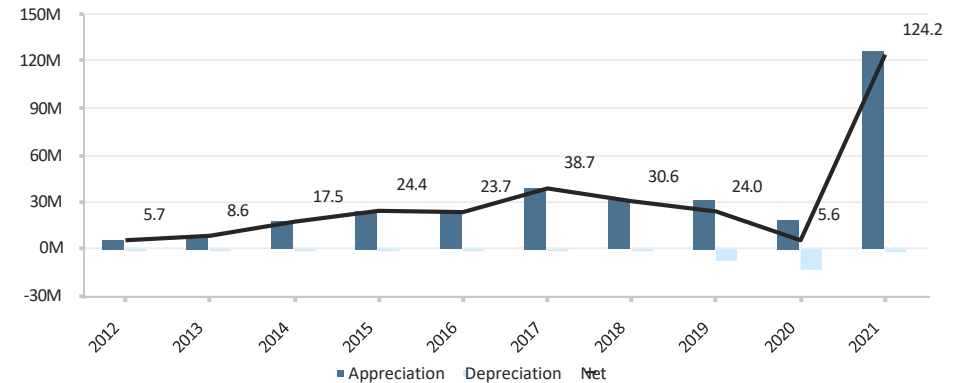
## Movement By Strategy – LTM

	Gain		Loss		NET Gain/Loss		Distributions		Contributions		NAV (mm)
	Total millions	# Of Funds	Total millions	# Of Funds	Net Millions	% Of Total Net	Total millions	%	Total millions	%	
Core / Core-plus	73.76	19	-0.18	2	73.58	59.3%	21.73	24.6%	74.34	53.3%	367.4
Non-Core	52.36	25	-1.77	10	50.58	40.7%	66.57	75.4%	65.07	46.7%	223.4
<b>Total</b>	<b>126.11</b>	<b>44</b>	<b>-1.96</b>	<b>12</b>	<b>124.16</b>	<b>100.0%</b>	<b>88.30</b>	<b>100.0%</b>	<b>139.41</b>	<b>100.0%</b>	<b>590.8</b>

## Cash Flows Yearly



## Appreciation/Depreciation Yearly



- During the last twelve months, the portfolio contributed \$139.4 million and distributed \$88.3 million for a net cash outflow of \$51.1 million. 44 funds appreciated (\$126.1 million) and 12 funds depreciated during the last twelve months (\$2.0 million) for a total net appreciation of \$124.2 million.

Vintage	NAV Weight	Total Commitment (\$mm)	Capital Calls (\$mm)	Distributions (\$mm)	Unfunded Commitment (\$mm)	Total Exposure (\$mm)	Gain/Loss (\$mm)	NAV (\$mm)	Net IRR	TVPI
2021	9.1%	187.0	50.4	1.7	138.2	191.9	5.0	53.7	n.m. <sup>1</sup>	1.1x
2020	6.7%	70.0	38.5	7.6	28.2	68.1	8.8	39.8	n.m. <sup>1</sup>	1.2x
2019	8.4%	132.7	45.4	9.0	94.7	144.5	13.4	49.8	22.7%	1.3x
2018	5.5%	59.3	36.0	13.0	27.2	59.6	9.4	32.4	17.2%	1.3x
2017	15.7%	97.3	97.3	49.6	10.3	102.8	44.7	92.5	16.2%	1.5x
2016	16.2%	82.2	85.1	30.5	4.2	100.1	41.4	95.9	15.4%	1.5x
2015	11.9%	56.9	57.6	26.1	6.7	77.2	39.0	70.5	16.1%	1.7x
2014	5.9%	55.0	53.7	46.0	12.0	47.1	27.4	35.1	10.7%	1.5x
2013	4.9%	61.5	61.3	51.9	11.6	40.7	19.7	29.1	7.4%	1.3x
2012	0.8%	10.0	12.1	19.3	1.1	5.7	11.8	4.6	19.1%	2.0x
2011	5.1%	71.4	100.1	123.3	3.1	33.5	53.6	30.4	9.1%	1.5x
2010	9.7%	38.6	38.6	14.3	0.00	57.3	33.0	57.3	9.8%	1.9x
<b>NYCBERS - RE</b>	<b>100.0%</b>	<b>961.0</b>	<b>676.1</b>	<b>392.3</b>	<b>376.3</b>	<b>967.2</b>	<b>307.0</b>	<b>590.8</b>	<b>11.8%</b>	<b>1.5x</b>

The strong performance of the 2012 vintage year is the result of one non-core investment (Brookfield Strategic Real Estate Partners), while the vintage year with the greatest underperformance (2013) is driven by three NYC Asset Investor portfolios. The 2010 and 2011 vintage years also underperformed. The underperformance of the 2010 vintage year was driven by the performance of LaSalle Property Fund and the 2011 vintage year underperformance is due to Trumbull Property Fund.

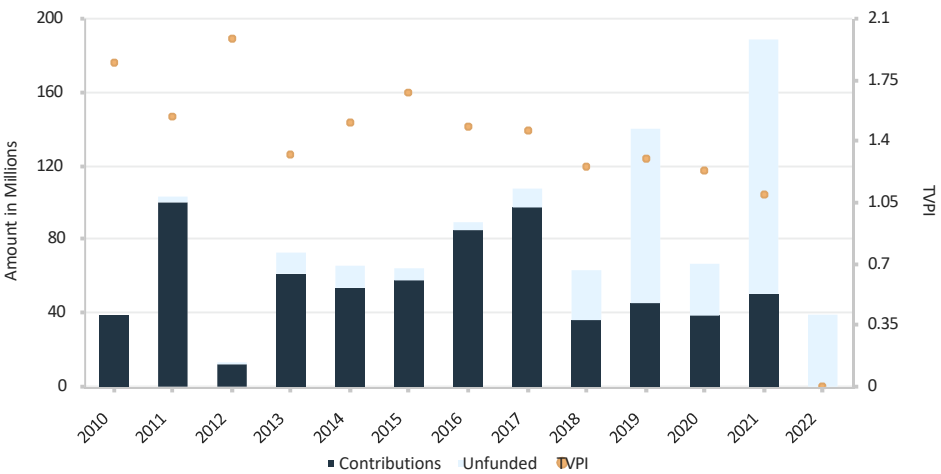
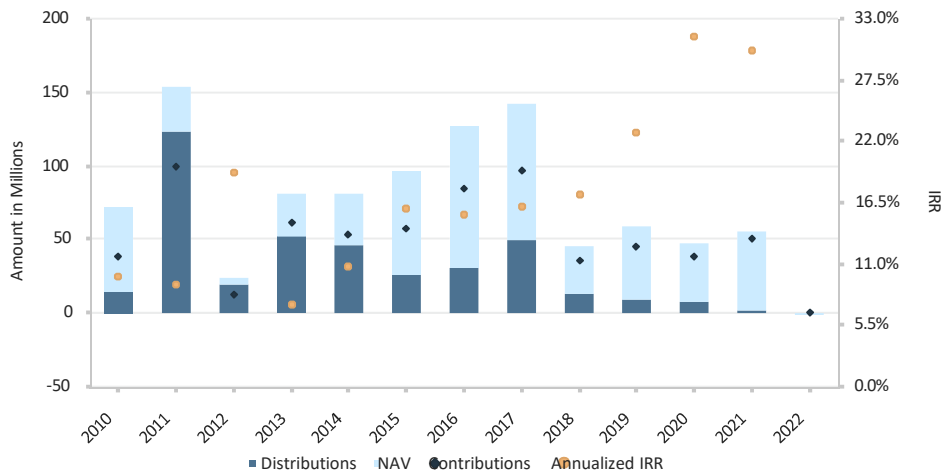


Vintage	Capital Calls (mm)	Distributions (mm)	NAV (mm)	Gain/Loss (mm)	Net TVPI	DPI	RVPI	Net IRR
2021	50.4	1.7	53.7	5.0	1.1x	0.0x	1.1x	n.m. <sup>1</sup>
2020	38.5	7.6	39.8	8.8	1.2x	0.2x	1.0x	n.m. <sup>1</sup>
2019	45.4	9.0	49.8	13.4	1.3x	0.2x	1.1x	22.7%
2018	36.0	13.0	32.4	9.4	1.3x	0.4x	0.9x	17.2%
2017	97.3	49.6	92.5	44.7	1.5x	0.5x	1.0x	16.2%
2016	85.1	30.5	95.9	41.4	1.5x	0.4x	1.1x	15.4%
2015	57.6	26.1	70.5	39.0	1.7x	0.5x	1.2x	16.1%
2014	53.7	46.0	35.1	27.4	1.5x	0.9x	0.7x	10.7%
2013	61.3	51.9	29.1	19.7	1.3x	0.8x	0.5x	7.4%
2012	12.1	19.3	4.6	11.8	2.0x	1.6x	0.4x	19.1%
2011	100.1	123.3	30.4	53.6	1.5x	1.2x	0.3x	9.1%
2010	38.6	14.3	57.3	33.0	1.9x	0.4x	1.5x	9.8%

The strong performance of the 2012 vintage year is the result of one non-core investment (Brookfield Strategic Real Estate Partners), while the vintage year with the greatest underperformance (2013) is driven by three NYC Asset Investor portfolios. The 2010 and 2011 vintage years also underperformed. The underperformance of the 2010 vintage year was driven by the performance of LaSalle Property Fund and the 2011 vintage year underperformance is due to Trumbull Property Fund.



Performance Review by Vintage Year

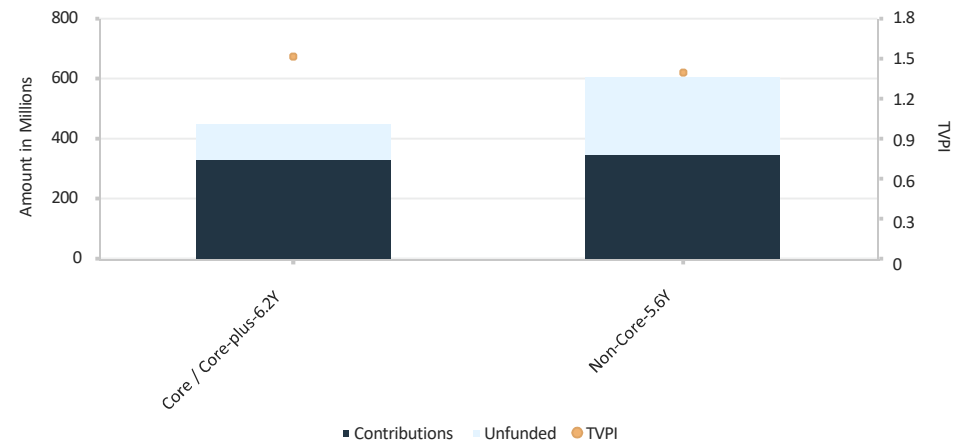
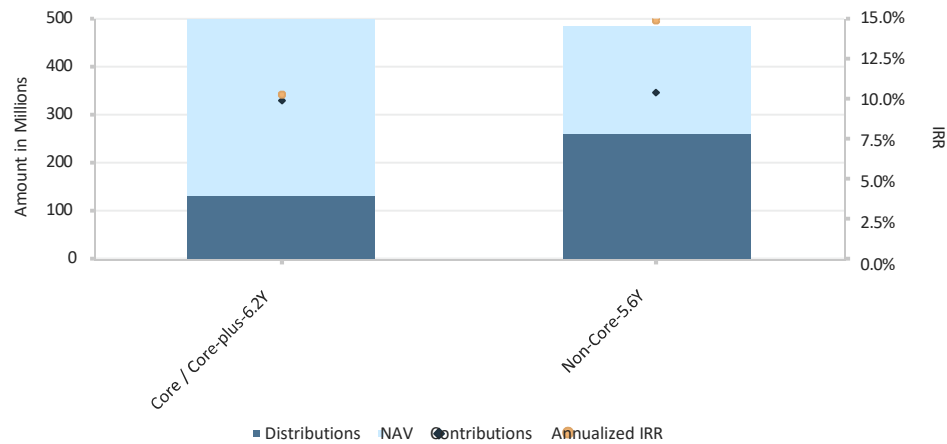




Strategy	Capital Calls (\$mm)	Distributions (\$mm)	NAV (\$mm)	Period Valuation Movements (\$mm)	Net TVPI	DPI	RVPI	Net IRR
Non-Core	346.3	260.9	223.4	138.1	1.4x	0.8x	0.6x	14.9%
Core / Core-plus	329.9	131.4	367.4	168.9	1.5x	0.4x	1.1x	10.3%

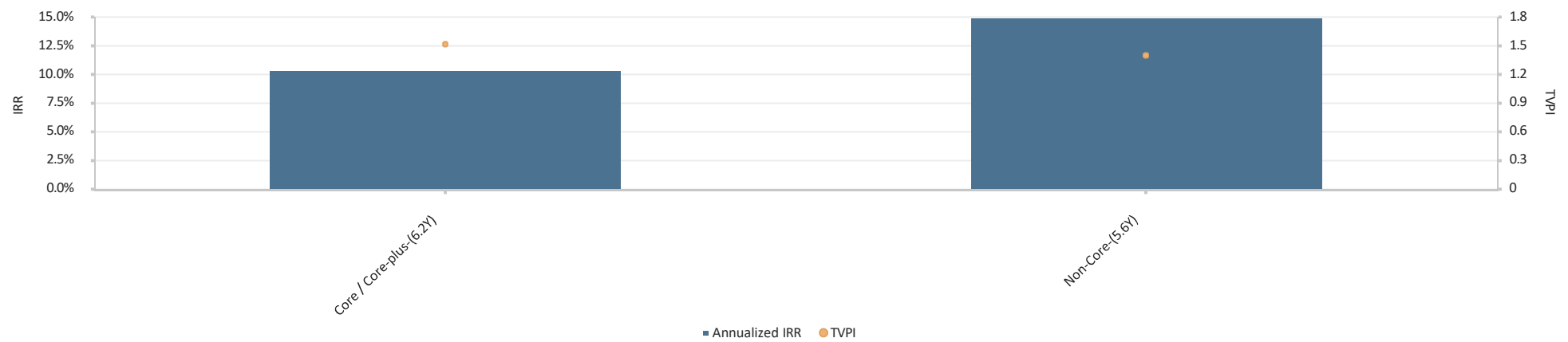
  

EM/Debt	Capital Calls (\$mm)	Distributions (\$mm)	NAV (\$mm)	Period Valuation Movements (\$mm)	Net TVPI	DPI	RVPI	Net IRR
Emerging	18.0	13.1	11.7	6.7	1.4x	0.7x	0.6x	16.7%
Debt	97.5	35.8	76.3	14.6	1.1x	0.4x	0.8x	7.7%



Performance by Strategy

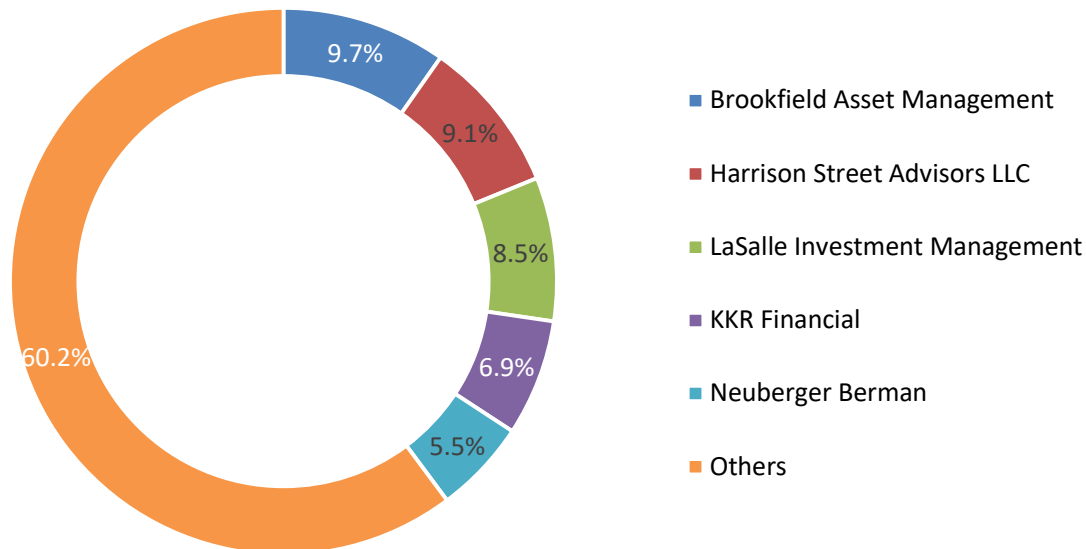
By Strategy



Weighted Average Age (WAA) is based on contributions

	Total Commitments (\$mm)	Unfunded + NAV Commitments (\$mm)	% of Portfolio (Unfunded + NAV)	Contributions \$ (mm)	Distributions \$ (mm)	Number of Holdings	NET TVPI	NET IRR ITD
Brookfield Asset Management	86.0	94.2	9.7%	49.0	23.3	4	1.5x	16.6%
Harrison Street Advisors LLC	85.0	88.1	9.1%	14.3	1.1	2	1.2x	9.6%
LaSalle Investment Management	63.6	82.3	8.5%	44.1	14.3	3	1.7x	9.8%
KKR Financial	78.0	66.6	6.9%	41.9	19.6	5	1.2x	14.9%
Neuberger Berman	52.5	53.7	5.5%	6.3	0.6	4	1.3x	18.3%
<b>Total Portfolio (33)</b>	<b>961.0</b>	<b>967.2</b>	<b>100.0%</b>	<b>676.1</b>	<b>392.3</b>	<b>57</b>	<b>1.5x</b>	<b>11.8%</b>

## EXPOSURE BY MANAGER

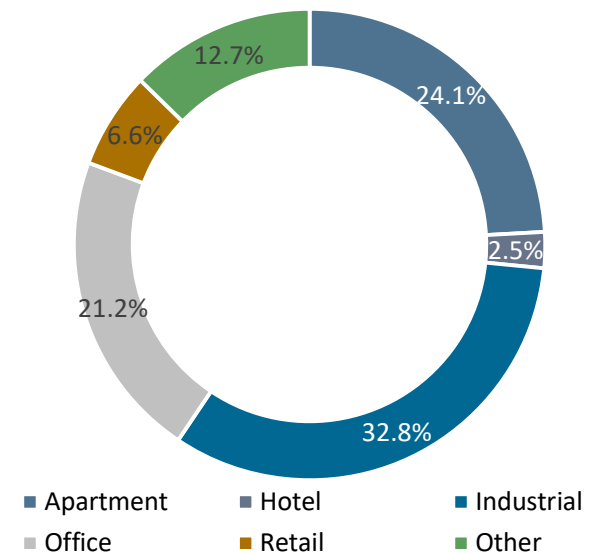
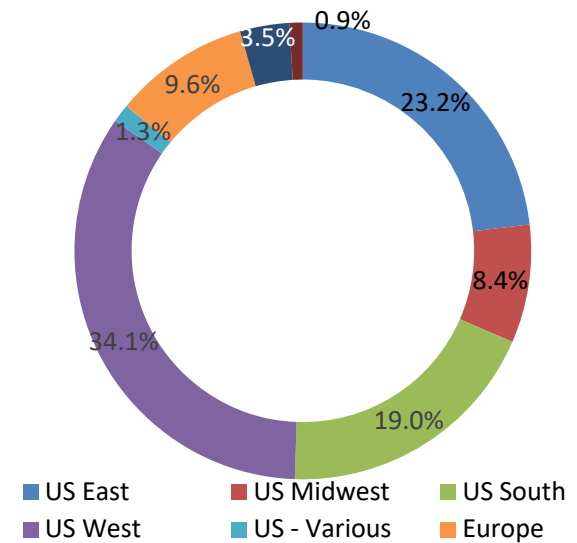


## Geographic Exposure by NAV

	NAV	NFI ODCE
US East North Central	6.8%	6.0%
US Mid East	6.7%	8.0%
US Mountain	6.0%	6.6%
US North East	16.5%	21.3%
US Pacific	28.1%	37.9%
US South East	11.2%	10.1%
US South West	7.8%	9.2%
US West North Central	1.5%	0.9%
US – Various	1.3%	0.0%
Europe	9.6%	N/A
Asia/Pacific	3.5%	N/A
Rest of World	0.9%	N/A

## Property Type Exposure by NAV

	NAV	NFI ODCE
Apartment	24.1%	28.0%
Hotel	2.5%	0.0%
Industrial	32.8%	27.7%
Office	21.2%	26.5%
Retail	6.6%	11.6%
Other	12.7%	6.2%



## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Core / Core-plus</b>											
Almanac Realty Securities VIII	USD	0.7%	10.5	3.7	0.37	6.9	11.0	0.76	4.1	14.7%	1.2x
Almanac Realty Securities VIII (Sidecar II)	USD	0.5%	7.0	2.6	0.25	4.5	7.7	0.91	3.2	25.0%	1.4x
Artemis Real Estate Partners Income and Growth Fund	USD	0.7%	10.0	5.0	1.1	5.6	9.9	0.48	4.3	7.7%	1.1x
Brookfield Premier Real Estate Partners	USD	6.0%	25.0	27.8	2.8	0.00	35.7	10.7	35.7	14.0%	1.4x
Cortland Growth and Income	USD	2.3%	10.0	10.6	0.62	0.00	13.7	3.7	13.7	n.m. <sup>1</sup>	1.3x
Exeter Core Industrial Club Fund II	USD	3.8%	10.0	9.7	2.7	0.26	22.7	15.4	22.4	29.7%	2.6x
Exeter Industrial Core Fund III	USD	2.6%	12.7	11.4	0.28	1.3	16.6	4.2	15.3	n.m. <sup>1</sup>	1.4x
Harrison Street Core Property Fund	USD	2.0%	80.0	11.1	0.90	70.0	81.9	1.7	11.9	7.4%	1.2x
Heitman Core Real Estate Debt Income Trust	USD	4.2%	25.0	24.8	2.4	2.5	27.2	2.4	24.7	6.4%	1.1x
HSRE-Centre Street Core Co-Investment	USD	0.7%	5.0	3.2	0.24	1.8	6.2	1.4	4.3	15.9%	1.4x
Jamestown Premier Property Fund	USD	0.9%	6.2	7.3	2.8	0.00	5.2	0.62	5.2	2.5%	1.1x
LaSalle GPS Co-Investment Program – Core	USD	0.5%	10.0	3.2	0.00	6.8	10.0	0.00	3.2 <sup>2</sup>	n.m. <sup>1</sup>	1.0x
LaSalle Property Fund	USD	9.7%	38.6	38.6	14.3	0.00	57.3	33.0	57.3	9.8%	1.9x
Lion Industrial Trust	USD	6.6%	18.0	21.8	3.8	0.00	38.9	20.9	38.9	20.2%	2.0x
MetLife Core Property Fund	USD	3.9%	15.0	15.0	4.9	0.00	23.1	13.0	23.1	10.3%	1.9x
NYC Asset Investor #2	USD	1.4%	11.0	11.2	4.7	0.35	8.7	1.9	8.3	3.1%	1.2x
NYCRS Artemis Mach II	USD	1.3%	11.0	12.8	11.6	0.82	8.8	6.8	8.0	17.1%	1.5x
RREEF America REIT II	USD	3.3%	17.0	17.0	0.17	0.00	19.7	2.9	19.7	n.m. <sup>1</sup>	1.2x
RREEF Core Plus Industrial Fund	USD	1.7%	25.0	8.8	0.07	16.3	26.5	1.5	10.3	n.m. <sup>1</sup>	1.2x
Trumbull Property Fund	USD	5.0%	41.4	64.1	74.9	0.00	29.5	40.4	29.5	7.7%	1.6x
USAA Eagle Real Estate Feeder 1	USD	4.1%	18.0	20.2	2.2	0.00	24.3	6.4	24.3	7.3%	1.3x
<b>Total Core / Core-plus</b>	<b>USD</b>	<b>62.2%</b>	<b>406.4</b>	<b>329.9</b>	<b>131.4</b>	<b>117.1</b>	<b>484.5</b>	<b>168.9</b>	<b>367.4</b>	<b>10.3%</b>	<b>1.5x</b>

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Non-Core</b>											
Aermont Capital Real Estate Fund IV	USD	0.9%	9.8	5.4	0.00	4.9	10.2	-0.08	5.3	-1.4%	1.0x
Almanac Realty Securities IX	USD	0.0%	23.3	0.00	0.00	23.3	23.3	-0.06	-0.06	-	0.0x
Almanac Realty Securities IX (Sidecar II)	USD	-	11.7	0.00	0.00	11.7	11.7	0.00	0.00 <sup>2</sup>	-	0.0x
BIG Real Estate Fund II	USD	0.6%	25.0	5.2	1.5	21.2	24.9	-0.04	3.7	n.m. <sup>1</sup>	1.0x
Blackstone Real Estate Partners Europe IV (USD)	USD	1.3%	32.5	32.5	40.2	6.0	13.7	15.4	7.7	12.5%	1.5x
Blackstone Real Estate Partners IX	USD	2.2%	15.0	10.1	2.2	6.7	19.8	5.3	13.1	44.2%	1.5x
Blackstone Real Estate Partners VIII	USD	2.6%	16.5	18.5	15.8	2.5	17.8	12.5	15.3	18.1%	1.7x
Brookfield Strategic Real Estate Partners	USD	0.8%	10.0	12.1	19.3	1.1	5.7	11.8	4.6	19.1%	2.0x
Brookfield Strategic Real Estate Partners III	USD	1.7%	12.0	9.2	1.1	3.9	14.1	2.2	10.2	14.8%	1.2x
Brookfield Strategic Real Estate Partners IV	USD	-0.1%	39.0	0.00	0.00	39.0	38.7	-0.33	-0.33	-	0.0x
Carlyle Realty Partners VII	USD	1.2%	25.0	23.1	26.4	12.0	19.4	10.7	7.4	13.4%	1.5x
DivcoWest Fund V	USD	1.4%	10.0	7.7	2.0	2.3	10.5	2.5	8.1	9.4%	1.3x
DivcoWest Fund VI	USD	0.4%	10.0	2.4	0.16	7.7	9.8	-0.13	2.1	n.m. <sup>1</sup>	0.9x
DRA Growth and Income Fund IX	USD	1.4%	10.0	10.8	8.4	0.86	9.1	5.8	8.3	19.2%	1.5x
European Property Investors Special Opportunities 4	USD	1.8%	11.2	10.2	3.6	1.5	12.3	4.2	10.8	10.6%	1.4x
Exeter Industrial Value Fund IV	USD	0.3%	10.0	9.4	19.2	0.56	2.1	11.3	1.5	31.6%	2.2x
Exeter Industrial Value Fund V	USD	0.9%	5.0	3.5	0.00	1.5	7.0	2.0	5.5	n.m. <sup>1</sup>	1.6x
Franklin Templeton Private Real Estate Fund	USD	0.2%	30.0	36.0	48.4	3.1	4.0	13.3	0.90	19.2%	1.4x
Greenoak Asia (USD) III	USD	0.6%	10.0	7.3	4.7	6.5	9.8	0.69	3.3	n.m. <sup>1</sup>	1.1x
H/2 Special Opportunities III	USD	0.8%	15.0	15.6	14.7	0.00	4.7	3.8	4.7	7.5%	1.2x
H/2 Special Opportunities IV	USD	2.1%	10.0	10.1	0.55	0.00	12.7	3.1	12.7	12.4%	1.3x
KKR Real Estate Partners Americas II	USD	0.9%	10.0	10.2	10.1	1.4	6.6	5.1	5.2	26.4%	1.5x

## NYCBERS - RE

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
KKR Real Estate Partners Americas III	USD	1.5%	35.0	9.0	0.00	26.1	34.9	-0.20	8.8	n.m. <sup>1</sup>	1.0x
KKR Real Estate Partners Europe II	USD	0.8%	10.0	4.6	0.00	5.3	10.1	0.14	4.8	n.m. <sup>1</sup>	1.0x
KKR Real Estate Securities Dislocation Opportunity Co-Investment Fund	USD	0.4%	10.0	6.0	5.7	0.06	2.4	2.0	2.3	n.m. <sup>1</sup>	1.3x
LaSalle GPS Co-investment Program - Non-Core	USD	0.4%	15.0	2.4	0.00	12.6	15.0	-0.01	2.4 <sup>2</sup>	n.m. <sup>1</sup>	1.0x
Lone Star Real Estate Fund V	USD	0.5%	11.0	7.7	3.9	3.5	6.5	-0.80	3.0	-6.9%	0.9x
Mesirow Financial Real Estate Value Fund IV	USD	1.0%	25.0	4.8	0.00	20.2	25.9	0.90	5.7	n.m. <sup>1</sup>	1.2x
NYC Asset Investor #1	USD	1.1%	10.0	11.9	5.9	2.9	9.4	0.56	6.6	1.0%	1.0x
NYC Asset Investor #3	USD	1.1%	8.0	5.7	1.0	2.3	8.8	1.9	6.5	6.1%	1.3x
NYCRS-KKR CMBS Retention Partners	USD	1.9%	13.0	12.1	3.7	1.4	12.7	2.9	11.3	7.3%	1.2x
Pramerica Real Estate Capital VI	USD	0.8%	10.3	10.7	8.1	1.5	6.3	2.2	4.9	11.3%	1.2x
PW Real Estate Fund III	USD	3.4%	11.2	8.8	4.4	2.6	22.8	15.8	20.2	36.0%	2.8x
Rialto Real Estate Fund IV - Debt	USD	1.9%	25.0	11.4	1.0	13.7	25.1	1.1	11.4	n.m. <sup>1</sup>	1.1x
Westbrook Real Estate Co-Investment Partnership X	USD	0.7%	10.0	9.7	8.1	0.81	4.6	2.3	3.8	11.0%	1.2x
Westbrook Real Estate Fund XI	USD	0.3%	10.0	2.3	0.69	8.4	10.3	0.22	1.9	n.m. <sup>1</sup>	1.1x
<b>Total Non-Core</b>	<b>USD</b>	<b>37.8%</b>	<b>554.6</b>	<b>346.3</b>	<b>260.9</b>	<b>259.2</b>	<b>482.7</b>	<b>138.1</b>	<b>223.4</b>	<b>14.9%</b>	<b>1.4x</b>
<b>NYCBERS - RE</b>	<b>USD</b>	<b>100.0%</b>	<b>961.0</b>	<b>676.1</b>	<b>392.3</b>	<b>376.3</b>	<b>967.2</b>	<b>307.0</b>	<b>590.8</b>	<b>11.8%</b>	<b>1.5x</b>

<sup>1</sup> IRR not meaningful for investments held less than 24 months<sup>2</sup> Adjusted for additional contributions and distributions since last valuation

\* Total figures take into account all current and closed portfolio positions Dec-2021

	Currency	Vintage	Capital Calls (mm)	Distributions (mm)	NAV (mm)	Gain/Loss (mm)	TVPI	DPI	RVPI	IRR
<b>Core / Core-plus</b>										
Almanac Realty Securities VIII	USD	2018	3.7	0.37	4.1	0.76	1.2x	0.1x	1.1x	14.7%
Almanac Realty Securities VIII (Sidecar II)	USD	2018	2.6	0.25	3.2	0.91	1.4x	0.1x	1.3x	25.0%
Artemis Real Estate Partners Income and Growth Fund	USD	2018	5.0	1.1	4.3	0.48	1.1x	0.2x	0.9x	7.7%
Brookfield Premier Real Estate Partners	USD	2016	27.8	2.8	35.7	10.7	1.4x	0.1x	1.3x	14.0%
Cortland Growth and Income	USD	2020	10.6	0.62	13.7	3.7	1.3x	0.1x	1.3x	n.m. <sup>1</sup>
Exeter Core Industrial Club Fund II	USD	2016	9.7	2.7	22.4	15.4	2.6x	0.3x	2.3x	29.7%
Exeter Industrial Core Fund III	USD	2019	11.4	0.28	15.3	4.2	1.4x	0.0x	1.3x	n.m. <sup>1</sup>
Harrison Street Core Property Fund	USD	2019	11.1	0.90	11.9	1.7	1.2x	0.1x	1.1x	7.4%
Heitman Core Real Estate Debt Income Trust	USD	2017	24.8	2.4	24.7	2.4	1.1x	0.1x	1.0x	6.4%
HSRE-Centre Street Core Co-Investment	USD	2019	3.2	0.24	4.3	1.4	1.4x	0.1x	1.3x	15.9%
Jamestown Premier Property Fund	USD	2016	7.3	2.8	5.2	0.62	1.1x	0.4x	0.7x	2.5%
LaSalle GPS Co-Investment Program – Core	USD	2021	3.2	0.00	3.2 <sup>2</sup>	0.00	1.0x	0.0x	1.0x	n.m. <sup>1</sup>
LaSalle Property Fund	USD	2010	38.6	14.3	57.3	33.0	1.9x	0.4x	1.5x	9.8%
Lion Industrial Trust	USD	2017	21.8	3.8	38.9	20.9	2.0x	0.2x	1.8x	20.2%
MetLife Core Property Fund	USD	2014	15.0	4.9	23.1	13.0	1.9x	0.3x	1.5x	10.3%
NYC Asset Investor #2	USD	2013	11.2	4.7	8.3	1.9	1.2x	0.4x	0.7x	3.1%
NYCRS Artemis Mach II	USD	2016	12.8	11.6	8.0	6.8	1.5x	0.9x	0.6x	17.1%
RREEF America REIT II	USD	2021	17.0	0.17	19.7	2.9	1.2x	0.0x	1.2x	n.m. <sup>1</sup>
RREEF Core Plus Industrial Fund	USD	2021	8.8	0.07	10.3	1.5	1.2x	0.0x	1.2x	n.m. <sup>1</sup>
Trumbull Property Fund	USD	2011	64.1	74.9	29.5	40.4	1.6x	1.2x	0.5x	7.7%
USAA Eagle Real Estate Feeder 1	USD	2015	20.2	2.2	24.3	6.4	1.3x	0.1x	1.2x	7.3%
<b>Total Core / Core-plus</b>	<b>USD</b>		<b>329.9</b>	<b>131.4</b>	<b>367.4</b>	<b>168.9</b>	<b>1.5x</b>	<b>0.4x</b>	<b>1.1x</b>	<b>10.3%</b>



	Currency	Vintage	Capital Calls (mm)	Distributions (mm)	NAV (mm)	Gain/Loss (mm)	TVPI	DPI	RVPI	IRR
<b>Non-Core</b>										
Aermont Capital Real Estate Fund IV	USD	2018	5.4	0.00	5.3	-0.08	1.0x	0.0x	1.0x	-1.4%
Almanac Realty Securities IX	USD	2021	0.00	0.00	-0.06	-0.06	0.0x	0.0x	0.0x	-
Almanac Realty Securities IX (Sidecar II)	USD	2021	0.00	0.00	0.00 <sup>2</sup>	0.00	0.0x	0.0x	0.0x	-
BIG Real Estate Fund II	USD	2021	5.2	1.5	3.7	-0.04	1.0x	0.3x	0.7x	n.m. <sup>1</sup>
Blackstone Real Estate Partners Europe IV (USD)	USD	2013	32.5	40.2	7.7	15.4	1.5x	1.2x	0.2x	12.5%
Blackstone Real Estate Partners IX	USD	2019	10.1	2.2	13.1	5.3	1.5x	0.2x	1.3x	44.2%
Blackstone Real Estate Partners VIII	USD	2015	18.5	15.8	15.3	12.5	1.7x	0.9x	0.8x	18.1%
Brookfield Strategic Real Estate Partners	USD	2012	12.1	19.3	4.6	11.8	2.0x	1.6x	0.4x	19.1%
Brookfield Strategic Real Estate Partners III	USD	2018	9.2	1.1	10.2	2.2	1.2x	0.1x	1.1x	14.8%
Brookfield Strategic Real Estate Partners IV	USD	2022	0.00	0.00	-0.33	-0.33	0.0x	0.0x	0.0x	-
Carlyle Realty Partners VII	USD	2014	23.1	26.4	7.4	10.7	1.5x	1.1x	0.3x	13.4%
DivcoWest Fund V	USD	2016	7.7	2.0	8.1	2.5	1.3x	0.3x	1.1x	9.4%
DivcoWest Fund VI	USD	2020	2.4	0.16	2.1	-0.13	0.9x	0.1x	0.9x	n.m. <sup>1</sup>
DRA Growth and Income Fund IX	USD	2017	10.8	8.4	8.3	5.8	1.5x	0.8x	0.8x	19.2%
European Property Investors Special Opportunities 4	USD	2015	10.2	3.6	10.8	4.2	1.4x	0.4x	1.1x	10.6%
Exeter Industrial Value Fund IV	USD	2017	9.4	19.2	1.5	11.3	2.2x	2.0x	0.2x	31.6%
Exeter Industrial Value Fund V	USD	2020	3.5	0.00	5.5	2.0	1.6x	0.0x	1.6x	n.m. <sup>1</sup>
Franklin Templeton Private Real Estate Fund	USD	2011	36.0	48.4	0.90	13.3	1.4x	1.3x	0.0x	19.2%
Greenoak Asia (USD) III	USD	2019	7.3	4.7	3.3	0.69	1.1x	0.6x	0.5x	n.m. <sup>1</sup>
H/2 Special Opportunities III	USD	2014	15.6	14.7	4.7	3.8	1.2x	0.9x	0.3x	7.5%
H/2 Special Opportunities IV	USD	2016	10.1	0.55	12.7	3.1	1.3x	0.1x	1.3x	12.4%
KKR Real Estate Partners Americas II	USD	2018	10.2	10.1	5.2	5.1	1.5x	1.0x	0.5x	26.4%
KKR Real Estate Partners Americas III	USD	2021	9.0	0.00	8.8	-0.20	1.0x	0.0x	1.0x	n.m. <sup>1</sup>
KKR Real Estate Partners Europe II	USD	2020	4.6	0.00	4.8	0.14	1.0x	0.0x	1.0x	n.m. <sup>1</sup>

	Currency	Vintage	Capital Calls (mm)	Distributions (mm)	NAV (mm)	Gain/Loss (mm)	TVPI	DPI	RVPI	IRR
KKR Real Estate Securities Dislocation Opportunity Co-In	USD	2020	6.0	5.7	2.3	2.0	1.3x	1.0x	0.4x	n.m. <sup>1</sup>
LaSalle GPS Co-investment Program - Non-Core	USD	2021	2.4	0.00	2.4 <sup>2</sup>	-0.01	1.0x	0.0x	1.0x	n.m. <sup>1</sup>
Lone Star Real Estate Fund V	USD	2017	7.7	3.9	3.0	-0.80	0.9x	0.5x	0.4x	-6.9%
Mesirow Financial Real Estate Value Fund IV	USD	2021	4.8	0.00	5.7	0.90	1.2x	0.0x	1.2x	n.m. <sup>1</sup>
NYC Asset Investor #1	USD	2013	11.9	5.9	6.6	0.56	1.0x	0.5x	0.6x	1.0%
NYC Asset Investor #3	USD	2013	5.7	1.0	6.5	1.9	1.3x	0.2x	1.1x	6.1%
NYCRS-KKR CMBS Retention Partners	USD	2017	12.1	3.7	11.3	2.9	1.2x	0.3x	0.9x	7.3%
Pramerica Real Estate Capital VI	USD	2017	10.7	8.1	4.9	2.2	1.2x	0.8x	0.5x	11.3%
PW Real Estate Fund III	USD	2015	8.8	4.4	20.2	15.8	2.8x	0.5x	2.3x	36.0%
Rialto Real Estate Fund IV - Debt	USD	2020	11.4	1.0	11.4	1.1	1.1x	0.1x	1.0x	n.m. <sup>1</sup>
Westbrook Real Estate Co-Investment Partnership X	USD	2016	9.7	8.1	3.8	2.3	1.2x	0.8x	0.4x	11.0%
Westbrook Real Estate Fund XI	USD	2019	2.3	0.69	1.9	0.22	1.1x	0.3x	0.8x	n.m. <sup>1</sup>
<b>Total Non-Core</b>	<b>USD</b>		<b>346.3</b>	<b>260.9</b>	<b>223.4</b>	<b>138.1</b>	<b>1.4x</b>	<b>0.8x</b>	<b>0.6x</b>	<b>14.9%</b>
<b>NYCBERS - RE</b>	<b>USD</b>		<b>676.1</b>	<b>392.3</b>	<b>590.8</b>	<b>307.0</b>	<b>1.5x</b>	<b>0.6x</b>	<b>0.9x</b>	<b>11.8%</b>

<sup>1</sup> IRR not meaningful for investments held less than 24 months<sup>2</sup> Adjusted for additional contributions and distributions since last valuation

\* Total figures take into account all current and closed portfolio positions Dec-2021

**PRIVATE AND CONFIDENTIAL:** These materials are strictly confidential and proprietary, intended solely for the use of the individual or entity to which Aksia LLC, and/or its affiliates, as applicable (collectively, “Aksia”) has sent these materials (“Intended Recipient”) and constitute Aksia’s trade secrets for all purposes, including for purposes of the Freedom of Information Act or any comparable law or regulation of any government, municipality or regulator. These materials may not be reproduced or distributed, posted electronically or incorporated into other documents in whole or in part except for the personal reference of the Intended Recipient. If you are not the Intended Recipient, you are hereby requested to notify Aksia and either destroy or return these documents to Aksia. The Intended Recipient shall not use Aksia’s name or logo or explicitly reference Aksia’s research and/or advisory services in the Intended Recipient’s materials.

**NO OFFERING:** These materials do not in any way constitute an offer or a solicitation of an offer to buy or sell funds, private investments or securities mentioned herein. These materials are provided only for use in conjunction with Aksia’s research and/or advisory services, as such services are defined in an executed agreement between Aksia and the Intended Recipient (hereinafter, the “Agreement”). In the event that an executed Agreement does not exist between Aksia and the Intended Recipient, these materials shall not constitute advice or an obligation to provide such services.

**RECOMMENDATIONS:** Any Aksia recommendation or opinion contained in these materials is a statement of opinion provided in good faith by Aksia and based upon information which Aksia reasonably believes to be true. Recommendations or opinions expressed in these materials reflect Aksia’s judgment as of the date shown, and are subject to change without notice. Actual results may differ materially from any forecasts discussed in the materials. Except as otherwise agreed between Aksia and the Intended Recipient, Aksia is under no future obligation to review, revise or update its recommendations or opinions.

**NOT TAX, LEGAL OR REGULATORY ADVICE:** An investor should consult its tax, legal and regulatory advisors before allocating to a private investment fund or other investment opportunity. Aksia is not providing due diligence or tax advice concerning the tax treatments of an investment or an investor’s allocations to such private investment fund or opportunity. Tax treatment depends on the individual circumstances of each client and may be subject to change in the future.

**RESPONSIBILITY FOR INVESTMENT DECISIONS:** The Intended Recipient is responsible for performing his, her or its own reviews of any funds or other investment vehicles or opportunities described herein including, but not limited to, a thorough review and understanding of each vehicle’s or opportunity’s offering materials. The Intended Recipient is advised to consult his, her or its tax, legal and compliance professionals to assist in such reviews. For clients who receive only research services or non-discretionary advisory services from Aksia: the Intended Recipient acknowledges that he, she or it (and not Aksia) is responsible for his, her or its investment decisions with respect to any investment vehicles or opportunities described herein.

No assurances can be given that a particular investment or portfolio will meet its investment objectives. Any projections, forecasts or market outlooks provided herein should not be relied upon as events which will occur. Past performance is not indicative of future results. Use of advanced portfolio construction processes, risk management techniques and proprietary technology does not assure any level of performance or guarantee against loss of capital.

**PERFORMANCE DATA:** In cases where an investment manager or general partner implements an investment strategy through multiple investment vehicles (for tax purposes, participation in side pockets and new issues, domicile, currency denomination, etc.) Aksia may use the returns of one class or series of an investment vehicle in a particular program in its reports to represent the returns of all the investment vehicles in such investment program. The returns for the particular class or series used in Aksia’s reports may be different from the returns of the class or series in which the Intended Recipient is invested. To obtain the actual performance of the particular class or series in the Intended Recipient’s portfolio, the Intended Recipient should contact the investment manager or general partner directly.

**RELIANCE ON THIRD PARTY DATA:** These materials reflect and rely upon information provided by fund managers and other third parties which Aksia reasonably believes to be accurate and reliable. Such information may be used by Aksia without independent verification of accuracy or completeness, and Aksia makes no representations as to its accuracy and completeness. For the avoidance of doubt, these materials have not been produced, reviewed, verified or approved by the fund managers and other third parties to which the materials relate. As such, they do not necessarily reflect the views or opinions of such fund managers and third parties. Furthermore, any reference to EBITDA (or ratios using EBITDA as a component) included in the report, reflect Adjusted EBITDA provided by the fund manager typically as defined in the loan agreements. Adjusted EBITDA can be expected to be higher than EBITDA figures calculated based on GAAP or IFRS compliant financial statements, which will result in relatively lower debt/EBITDA and higher interest coverage ratios. In addition, any fund IRRs shown are as reported by the manager/administrator or calculated using cash flows provided by the manager/administrator, and may benefit from such fund’s use of a subscription line.

**RATING DOWNGRADES:** Aksia client assets, in aggregate, may represent a large percentage of a manager’s or fund’s assets under management, and, as such, a rating downgrade by Aksia’s research teams could result in redemptions or withdrawals that may have an adverse effect on the performance of a fund.

**CONFLICTS OF INTEREST DISCLOSURE:** Family members of Aksia personnel may from time to time be employed by managers that Aksia recommends to its clients. While this may pose a potential conflict of interest, we monitor such relationships to seek to minimize any impact of such potential conflict.

**PRIVATE INVESTMENT FUND DISCLOSURE:** Investments in private investment funds and other similar investment opportunities involve a high degree of risk and you could lose all or substantially all of your investment. Any person or institution making such investments must fully understand and be willing to assume the risks involved. Some private investment funds and opportunities described herein may not be suitable for all investors. Such investments or investment vehicles may use leverage, hold significant illiquid positions, suspend redemptions indefinitely, provide no opportunity to redeem, modify investment strategy and documentation without notice, short sell securities, incur high fees and contain conflicts of interests. Such private investment funds or opportunities may also have limited operating history, lack transparency, manage concentrated portfolios, exhibit high volatility, depend on a concentrated group or individual for investment management or portfolio management and lack any regulatory oversight.

For a description of the risks associated with a specific private investment fund or investment opportunity, investors and prospective investors are strongly encouraged to review each private investment fund or opportunity’s offering materials which contain a more specific description of the risks associated with each investment. Offering materials may be obtained from the fund manager.

**FOR RECIPIENTS OF REPORTS DISTRIBUTED BY AKSIA EUROPE LIMITED:** Aksia Europe Limited is authorized and regulated by the Financial Conduct Authority; such authorization does not indicate endorsement or approval by the FCA of the services offered by Aksia.

## Infrastructure Quarterly Report (Public):

# NYCBERS - INFRA

## Public Report

As Of December 2021

Report created: May 2022

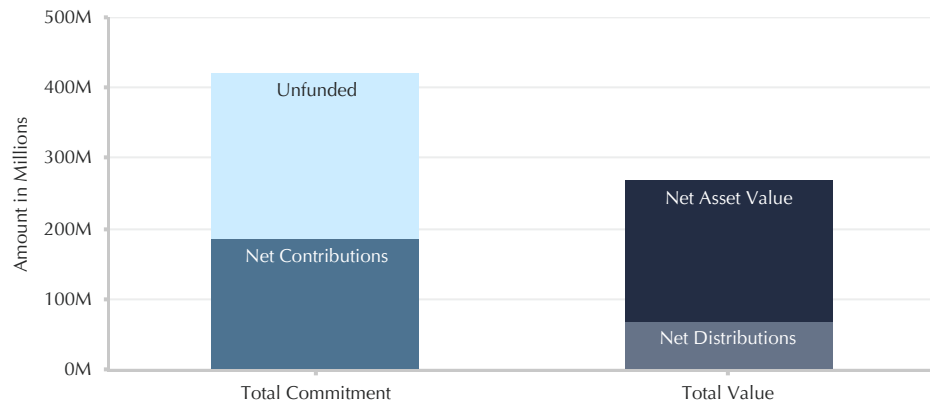
Intended Recipient: **NYC Board of Education Retirement System**

PRIVATE AND CONFIDENTIAL: These materials are strictly confidential, constitute trade secrets, are intended solely for the use of the individual or entity named herein ("Intended Recipient") and may not be reproduced, distributed, posted electronically or incorporated into other documents in whole or in part except for the personal reference of the Intended Recipient. If you are not the Intended Recipient you are hereby requested to either destroy or return these documents to Aksia LLC, or any of its affiliates.

## Table Of Contents

Portfolio Snapshot .....	3
Portfolio Overview .....	4
Performance Review .....	5
Portfolio QoQ Overview .....	6
TVPI Distribution .....	7
Capital Account Change .....	8
Portfolio Summary .....	10
Portfolio Summary by Strategy .....	12
Period Chart Analysis .....	14
Movement By Strategy - QTD .....	15
Movement by Fund - QTD .....	16
Movement By Strategy - LTM .....	17
Movement by Fund - LTM .....	18
Portfolio IRR vs Benchmarks .....	19
Performance Statistics by Strategy .....	20
Portfolio Diversification .....	22
Portfolio Composition - Top 10 Investments .....	24

## Summary



## Portfolio Summary

Total Pension Assets	\$9.1 bn as of 12/31/2021
GP Relationships	11
Holdings	27
Total Commitment Amount	\$419.8 mm
Net Contributions	\$185.0 mm
Net Distributions	\$67.0 mm
Net Asset Value	\$200.9 mm
Weighted Average Age	4.8Y
Unfunded Commitment	\$234.7 mm
Minimum Annual Pacing	\$140.0 mm
Target Pacing	\$175.0 mm
Maximum Annual Pacing	\$210.0 mm
Minimum Target Allocation	2.0%
Target Allocation	4.0%
Maximum Target Allocation	6.0%
1 Y IRR	16.3%
2 Y IRR	13.4%
3 Y IRR	13.4%
5 Y IRR	14.2%
7 Y IRR	13.5%
ITD IRR (Jul-2013 - Dec-2021)	13.4%

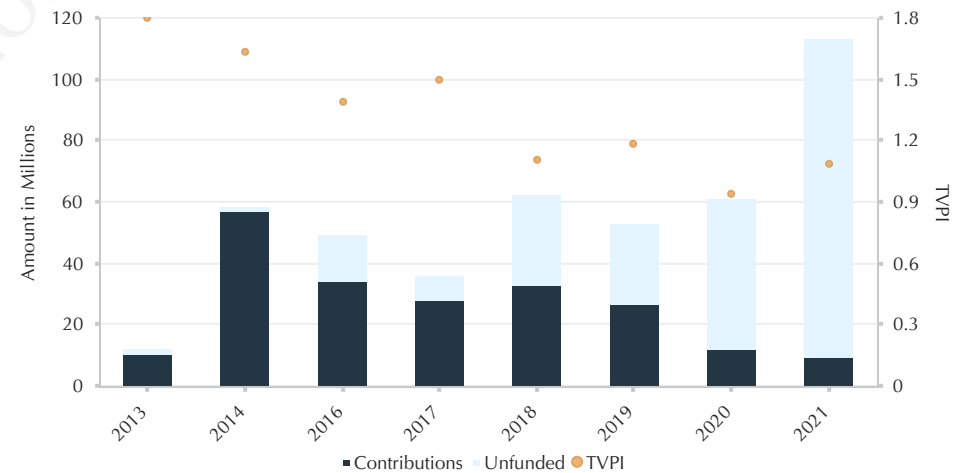
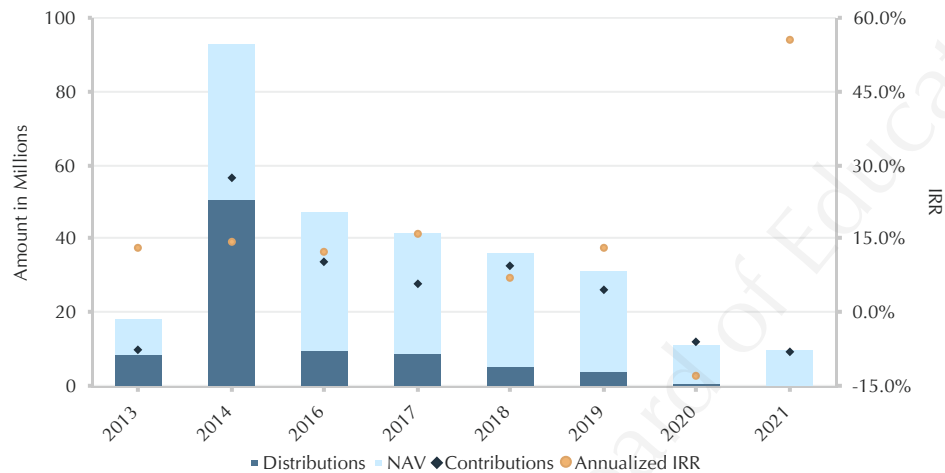
IRR not meaningful for investments held less than 24 months  
 Weighted Average Age (WAA) is based on contributions

## Strategy Portfolio Summary

	# Of Funds	Weighted Average Age	NAV (\$mm)	Total Commitment (\$mm)	Unfunded Commitment (\$mm)	Unfunded + NAV (\$mm)	Contributions (\$mm)	Distributions (\$mm)	Annualized IRR	TVPI
Core	21	5.2	149.9	321.3	176.7	326.7	161.8	76.2	12.9%	1.4x
Non-Core	6	3.2	51.0	98.4	58.0	109.0	46.2	10.2	16.7%	1.3x
<b>NYCBERS - INFRA</b>	<b>27</b>	<b>4.8</b>	<b>200.9</b>	<b>419.8</b>	<b>234.7</b>	<b>435.7</b>	<b>208.0</b>	<b>86.4</b>	<b>13.4%</b>	<b>1.4x</b>

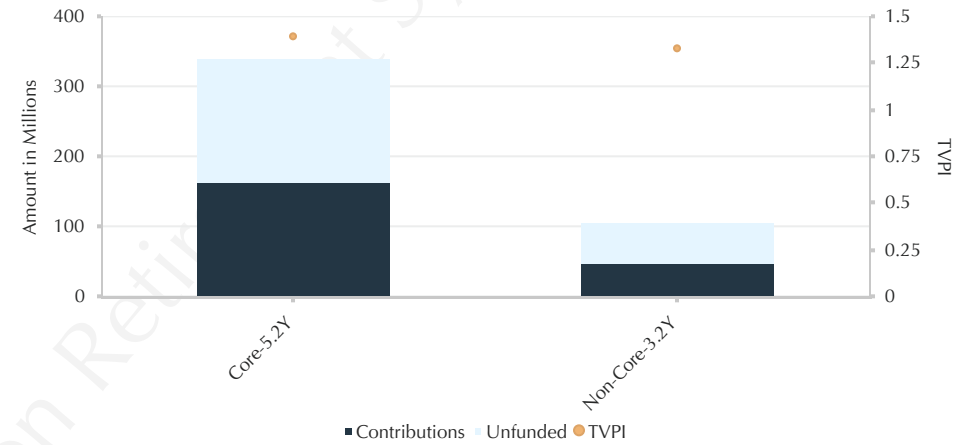
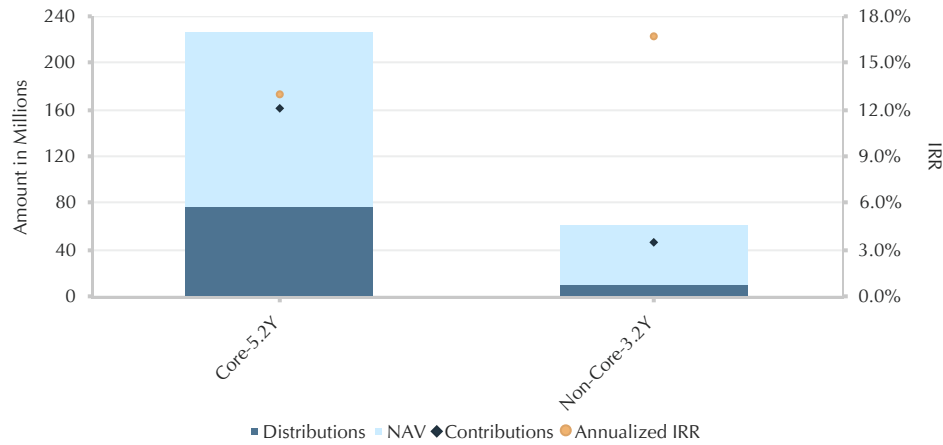
<sup>1</sup> IRR not meaningful for investments held less than 24 months

## Performance Review by Vintage Year

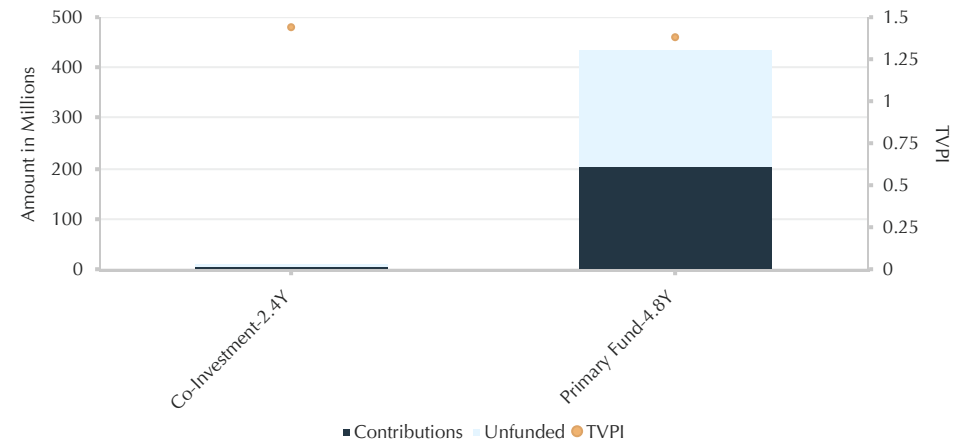
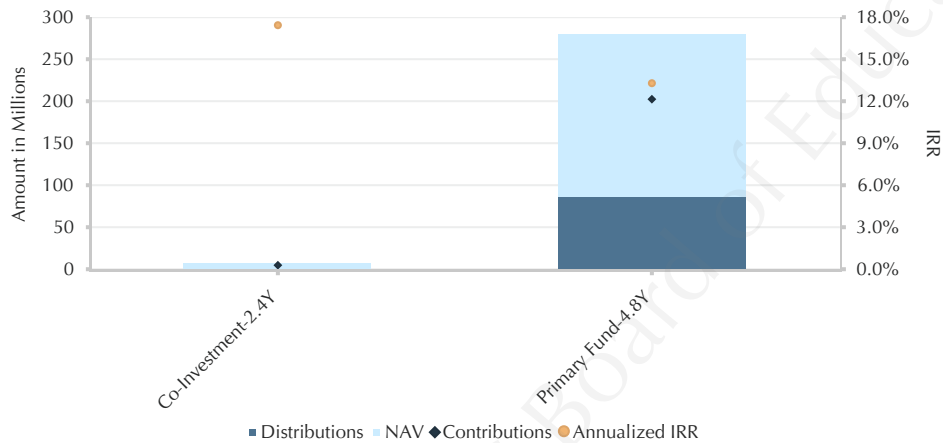




## Performance Review by Strategy



## Performance Review by Structure



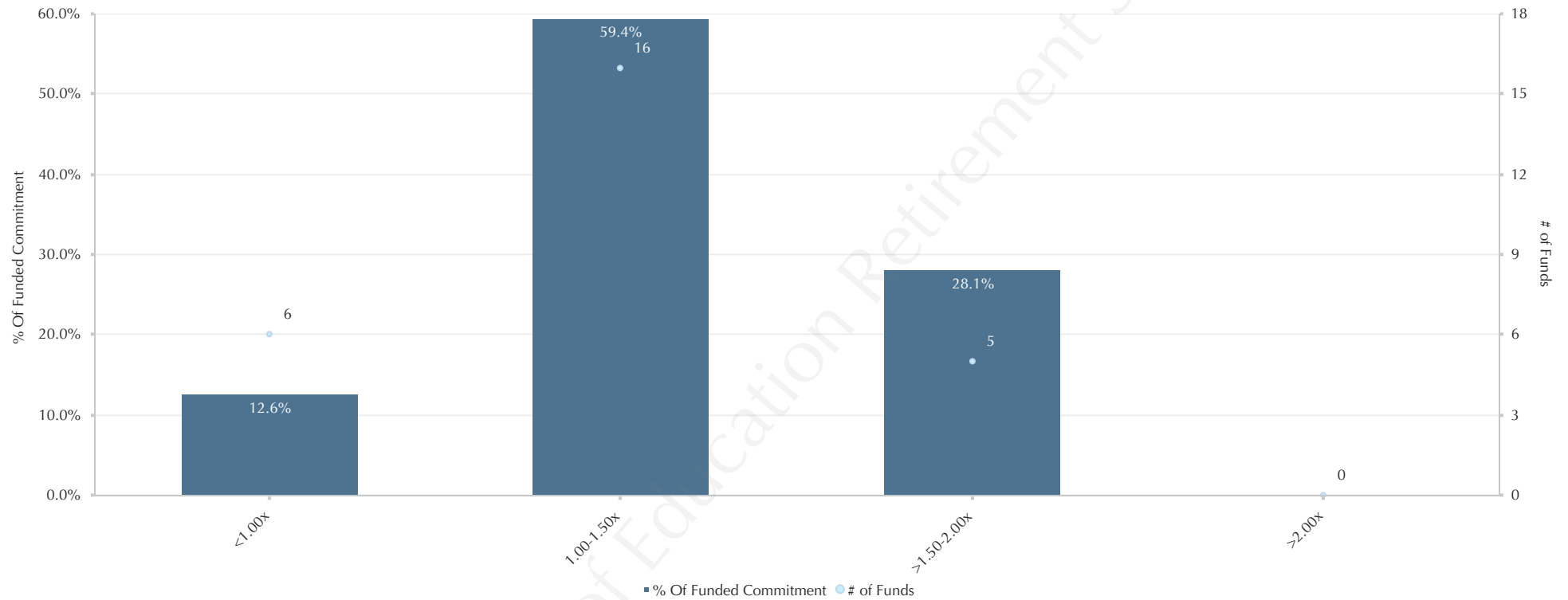
Weighted Average Age (WAA) is based on contributions

## Performance Statistics

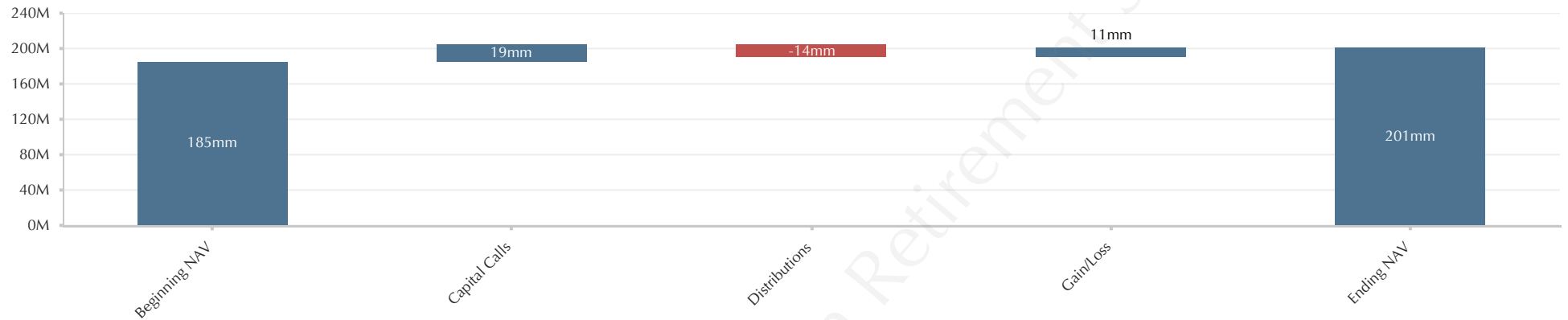
As of:	Dec-2020	Mar-2021	Jun-2021	Sep-2021	Dec-2021	% Change (quarter)	% Change (annual)	Dec-2021 Active	Dec-2021 Liquidated
Committed Capital	309.8	344.8	379.8	379.8	419.8	10.5%	35.5%	419.8	-
Unfunded Commitment	165.8	196.3	227.5	211.7	234.7	10.9%	41.6%	234.7	-
Net Contributed Capital	145.0	148.8	152.8	168.3	185.0	9.9%	27.6%	185.0	-
Net Distributed Capital	41.1	43.1	48.6	54.7	67.0	22.4%	63.1%	67.0	-
Recallable Capital	16.1	16.4	17.5	17.7	19.4	9.7%	20.7%	19.4	-
Net Asset Value	159.9	166.9	171.0	185.1	200.9	8.5%	25.7%	200.9	-
Net Gain/Loss	52.5	57.4	62.9	68.7	79.3	15.5%	51.1%	79.3	-
Total Value	201.0	210.0	219.6	239.9	267.9	11.7%	33.3%	267.9	-
Unfunded + NAV (mm)	325.7	363.2	398.5	396.8	435.7	9.8%	33.8%	435.7	-
DPI	0.3x	0.4x	0.4x	0.4x	0.4x	0.0x	0.1x	0.4x	-
Total Value to Paid-In (TVPI)	1.3x	1.3x	1.4x	1.4x	1.4x	0.0x	0.1x	1.4x	-
Net Internal Rate of Return (IRR)	12.6%	12.6%	12.7%	12.8%	13.4%	0.7%	0.8%	13.4%	-

## TVPI Distribution

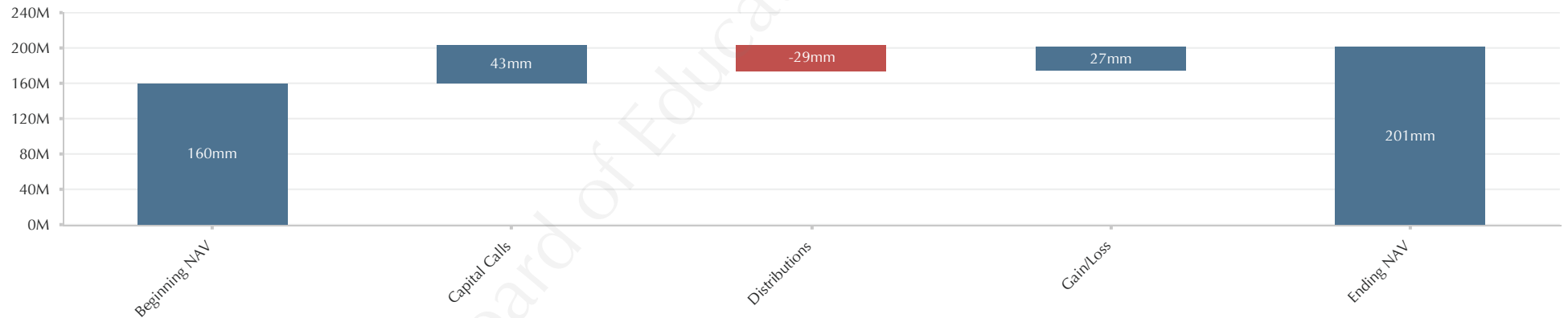
## TVPI Distribution



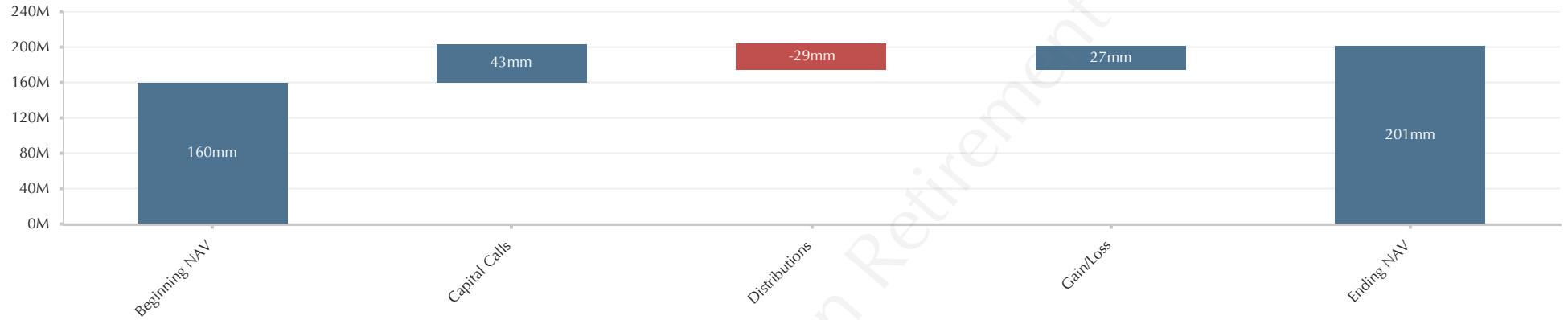
## Quarterly Valuation Bridge (Oct-2021 to Dec-2021)



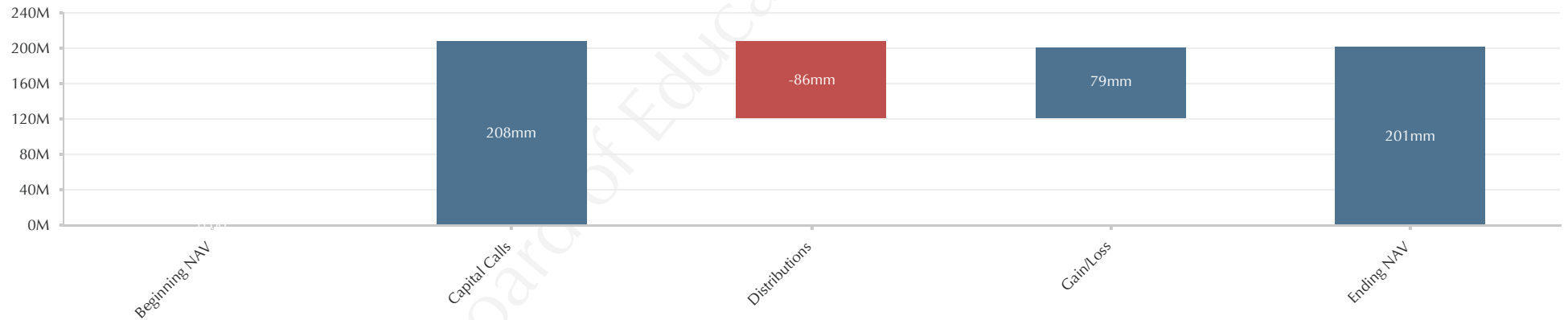
## YTD Valuation Bridge (Jan-2021 to Dec-2021)



Last 12 Months Valuation Bridge (Jan-2021 to Dec-2021)



LTD Valuation Bridge (Jul-2013 to Dec-2021)



Strategy	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
Core	74.6%	321.3	161.8	76.2	176.7	326.7	64.3	149.9	12.9%	1.4x
Non-Core	25.4%	98.4	46.2	10.2	58.0	109.0	15.0	51.0	16.7%	1.3x
<b>NYCBERS - INFRA</b>	<b>100.0%</b>	<b>419.8</b>	<b>208.0</b>	<b>86.4</b>	<b>234.7</b>	<b>435.7</b>	<b>79.3</b>	<b>200.9</b>	<b>13.4%</b>	<b>1.4x</b>

Vintage	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
2021	4.9%	112.9	9.1	0.07	104.0	113.8	0.80	9.8	n.m. <sup>1</sup>	1.1x
2020	5.3%	60.6	11.7	0.37	48.9	59.5	-0.74	10.6	n.m. <sup>1</sup>	0.9x
2019	13.6%	51.3	26.3	3.8	26.3	53.7	4.9	27.3	13.2%	1.2x
2018	15.4%	58.1	32.6	5.1	29.4	60.2	3.4	30.9	7.0%	1.1x
2017	16.3%	33.2	27.7	8.8	7.9	40.7	13.9	32.8	16.1%	1.5x
2016	18.8%	44.6	34.0	9.4	15.0	52.7	13.2	37.7	12.2%	1.4x
2014	21.0%	49.0	56.7	50.4	1.3	43.6	36.0	42.3	14.5%	1.6x
2013	4.8%	10.0	10.0	8.4	1.8	11.4	8.0	9.6	13.2%	1.8x
<b>NYCBERS - INFRA</b>	<b>100.0%</b>	<b>419.8</b>	<b>208.0</b>	<b>86.4</b>	<b>234.7</b>	<b>435.7</b>	<b>79.3</b>	<b>200.9</b>	<b>13.4%</b>	<b>1.4x</b>
<b>Structure</b>										
Co-Investment	3.5%	8.4	5.5	0.86	2.9	10.0	2.4	7.1	17.4%	1.4x
Primary Fund	96.5%	411.3	202.5	85.6	231.8	425.6	76.9	193.8	13.4%	1.4x
<b>NYCBERS - INFRA</b>	<b>100.0%</b>	<b>419.8</b>	<b>208.0</b>	<b>86.4</b>	<b>234.7</b>	<b>435.7</b>	<b>79.3</b>	<b>200.9</b>	<b>13.4%</b>	<b>1.4x</b>
<b>Region</b>										
Global	25.5%	138.8	47.7	18.1	97.3	148.5	21.7	51.2	14.5%	1.5x
North America	14.9%	65.8	28.4	5.7	38.5	68.4	7.3	29.9	11.7%	1.3x
OECD	59.6%	215.1	132.0	62.6	98.9	218.8	50.4	119.8	13.3%	1.4x
<b>NYCBERS - INFRA</b>	<b>100.0%</b>	<b>419.8</b>	<b>208.0</b>	<b>86.4</b>	<b>234.7</b>	<b>435.7</b>	<b>79.3</b>	<b>200.9</b>	<b>13.4%</b>	<b>1.4x</b>

<sup>1</sup> IRR not meaningful for investments held less than 24 months

\* Total figures take into account all current and closed portfolio positions Dec-2021

## Portfolio Summary by Strategy

	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Core</b>											
Ardian Infrastructure Fund V B	USD	2.0%	14.7	3.6	0.23	11.1	15.1	0.63	4.0	14.8%	1.2x
ASF VII Infrastructure	USD	5.0%	12.0	7.6	0.96	4.6	14.8	3.5	10.1	19.9%	1.5x
ASF VIII Infrastructure B	USD	1.2%	40.0	2.3	0.00	37.7	40.2	0.21	2.5	n.m. <sup>1</sup>	1.1x
AxInfra US II	USD	2.6%	4.8	5.0	1.1	0.00	5.3	1.4	5.3	8.7%	1.3x
Axiom Infrastructure Canada II (Intl)	USD	4.2%	7.4	7.7	1.6	0.00	8.5	2.4	8.5	10.8%	1.3x
Brookfield Infrastructure Fund II	USD	4.8%	10.0	10.0	8.4	1.8	11.4	8.0	9.6	13.2%	1.8x
Brookfield Infrastructure Fund III	USD	3.3%	10.0	6.5	2.1	4.2	10.8	2.2	6.6	10.1%	1.3x
Brookfield Infrastructure Fund IV	USD	6.5%	19.0	12.7	1.9	7.0	20.2	2.4	13.1	12.7%	1.2x
Brookfield Infrastructure Fund IV (BIF IV): Co-Inves	USD	1.3%	2.0	2.0	0.21	0.00	2.5	0.72	2.5	16.5%	1.4x
Cardinal NR Sidecar Holdings	USD	1.3%	1.9	1.9	0.55	0.00	2.7	1.3	2.7	19.9%	1.7x
Global Energy & Power Infrastructure Fund II	USD	3.2%	15.0	16.1	15.0	0.57	7.0	5.4	6.4	17.0%	1.3x
Global Energy & Power Infrastructure Fund III F	USD	3.8%	15.6	7.9	1.4	8.2	15.9	1.1	7.6	11.9%	1.1x
Global Infrastructure Partners III	USD	6.2%	12.0	11.1	2.9	2.3	14.7	4.3	12.5	10.4%	1.4x
Global Infrastructure Partners IV	USD	2.3%	22.6	4.9	0.00	18.6	23.2	-0.27	4.6	-6.5%	0.9x
IFM Global Infrastructure Fund	USD	13.4%	15.0	20.0	9.0	0.00	26.9	15.9	26.9	12.1%	1.8x
KKR Global Infrastructure Investors II	USD	4.4%	19.0	20.6	26.4	0.77	9.7	14.7	8.9	17.4%	1.7x
KKR Global Infrastructure Investors III	USD	3.5%	15.6	10.2	2.1	6.4	13.3	-1.1	7.0	-7.6%	0.9x
KKR Global Infrastructure Investors IV	USD	0.0%	35.0	0.00	0.00	35.0	35.0	0.05	0.05	-	0.0x
NYCRS EIG Energy Partners	USD	1.8%	11.8	5.1	2.2	7.3	10.9	0.79	3.7	7.9%	1.2x
NYCRS EIG Energy Partners Co-Investment	USD	-	2.9	0.00	0.00	2.9	2.9	0.00	0.00 <sup>2</sup>	-	0.0x
Stonepeak Infrastructure Fund IV	USD	3.6%	35.0	6.8	0.07	28.3	35.6	0.55	7.2	n.m. <sup>1</sup>	1.1x
<b>Total Core</b>	<b>USD</b>	<b>74.6%</b>	<b>321.3</b>	<b>161.8</b>	<b>76.2</b>	<b>176.7</b>	<b>326.7</b>	<b>64.3</b>	<b>149.9</b>	<b>12.9%</b>	<b>1.4x</b>

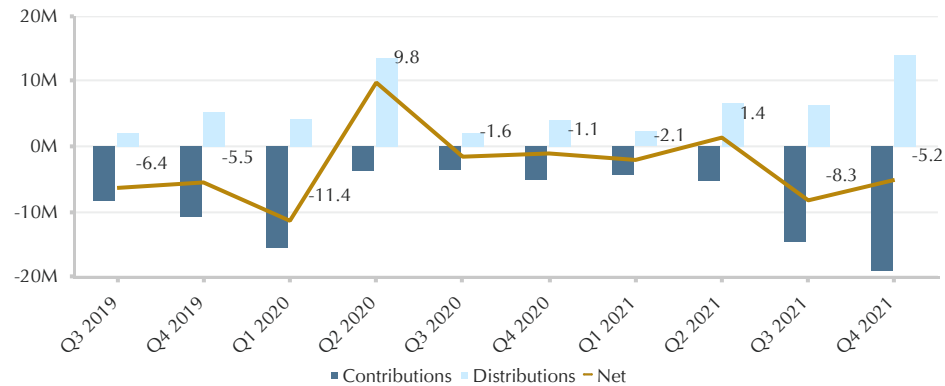


	Currency	NAV Weight	Total Commitment (mm)	Capital Calls (mm)	Distributions (mm)	Unfunded Commitment (mm)	Total Exposure (mm)	Gain/Loss (mm)	NAV (mm)	Net IRR	TVPI
<b>Non-Core</b>											
Actis Energy 4	USD	4.2%	10.6	8.8	3.4	4.0	12.4	3.1	8.5	12.3%	1.4x
Actis Energy 5	USD	-0.1%	27.0	0.46	0.00	26.5	26.3	-0.71	-0.25	-	-0.5x
EQT Infrastructure III	USD	7.6%	9.2	10.0	3.9	0.65	16.0	9.3	15.3	24.6%	1.9x
EQT Infrastructure IV - USD Fund	USD	8.3%	18.0	15.7	2.5	4.4	21.0	3.4	16.6	14.9%	1.2x
EQT Infrastructure IV Co-Investment (Saber)	USD	0.9%	1.6	1.6	0.10	0.00	1.9	0.37	1.9	n.m. <sup>1</sup>	1.2x
EQT Infrastructure V	USD	4.4%	32.0	9.6	0.27	22.4	31.3	-0.40	8.9	n.m. <sup>1</sup>	1.0x
<b>Total Non-Core</b>	<b>USD</b>	<b>25.4%</b>	<b>98.4</b>	<b>46.2</b>	<b>10.2</b>	<b>58.0</b>	<b>109.0</b>	<b>15.0</b>	<b>51.0</b>	<b>16.7%</b>	<b>1.3x</b>
<b>NYCBERS - INFRA</b>	<b>USD</b>	<b>100.0%</b>	<b>419.8</b>	<b>208.0</b>	<b>86.4</b>	<b>234.7</b>	<b>435.7</b>	<b>79.3</b>	<b>200.9</b>	<b>13.4%</b>	<b>1.4x</b>

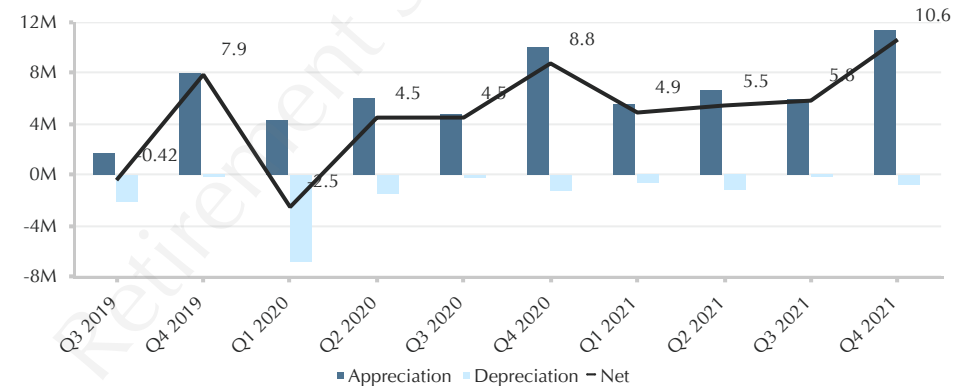
<sup>1</sup> IRR not meaningful for investments held less than 24 months<sup>2</sup> Adjusted for additional contributions and distributions since last valuation

\* Total figures take into account all current and closed portfolio positions Dec-2021

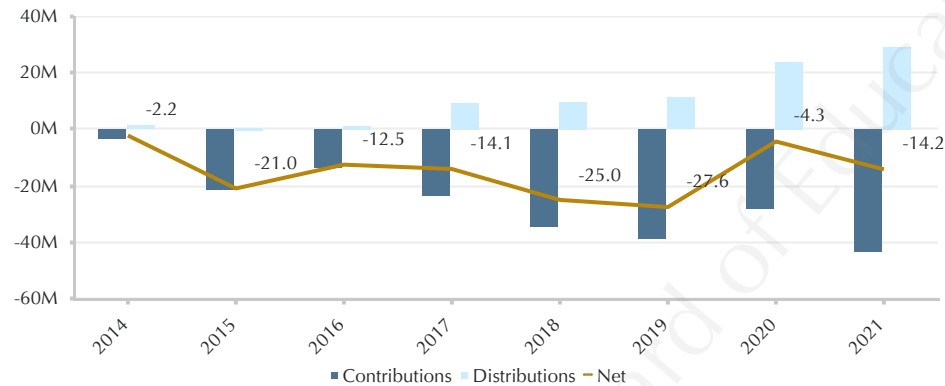
Cash Flows Quarterly



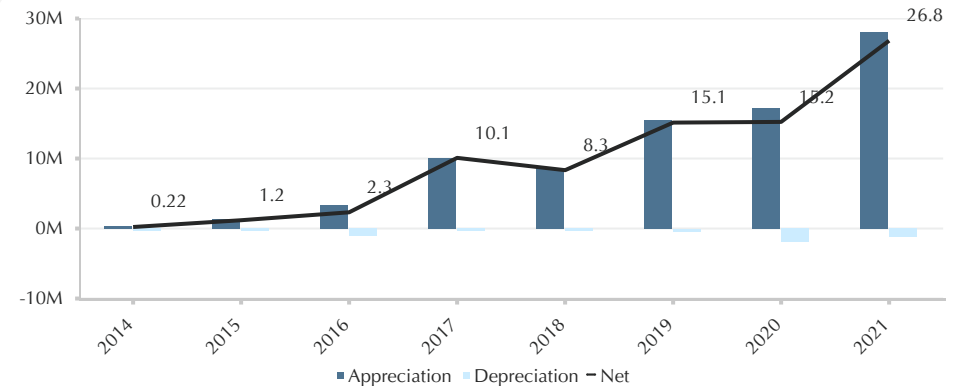
Appreciation/Depreciation Quarterly



Cash Flows Yearly



Appreciation/Depreciation Yearly



## Movement By Strategy - QTD

	Appreciation		Depreciation		Net Gain/Loss		Distributions		Contributions		NAV (mm)
	Total millions	# Of Funds	Total millions	# Of Funds	Net Millions	% Of Total Net	Total millions	%	Total millions	%	
Core	7.02	19	-0.04	1	6.98	65.5%	9.95	71.1%	11.17	58.3%	149.9
Non-Core	4.39	5	-0.71	1	3.69	34.5%	4.05	28.9%	7.98	41.7%	51.0

Above reporting references active funds only

Reporting Period: Oct-2021 - Dec-2021

[View this portfolio online](#)

## Appreciation

	Strategy	Vintage Year	Region	Appreciation (mm)
EQT Infrastructure III	Non-Core	2017	Global	3.0
Global Infrastructure Partners III	Core	2016	OECD	1.5
IFM Global Infrastructure Fund	Core	2014	OECD	0.92
ASF VII Infrastructure	Core	2016	OECD	0.92
Brookfield Infrastructure Fund II	Core	2013	Global	0.75

## Depreciation

	Strategy	Vintage Year	Region	Depreciation (mm)
Actis Energy 5	Non-Core	2020	Global	-0.71
KKR Global Infrastructure Investors III	Core	2018	OECD	-0.04

## Contributions

	Strategy	Vintage Year	Region	Contributions (mm)
EQT Infrastructure IV - USD Fund	Non-Core	2018	OECD	4.0
Stonepeak Infrastructure Fund IV	Core	2021	North America	4.0
EQT Infrastructure V	Non-Core	2020	Global	3.4
ASF VIII Infrastructure B	Core	2021	Global	2.3
Brookfield Infrastructure Fund IV	Core	2019	OECD	1.5

## Distributions

	Strategy	Vintage Year	Region	Distributions (mm)
KKR Global Infrastructure Investors II	Core	2014	OECD	5.1
EQT Infrastructure III	Non-Core	2017	Global	2.5
Global Energy & Power Infrastructure Fund II	Core	2014	OECD	1.9
KKR Global Infrastructure Investors III	Core	2018	OECD	1.3
EQT Infrastructure IV - USD Fund	Non-Core	2018	OECD	1.3

Above reporting references active funds only  
Each Category displays maximum 5 positions

## Movement By Strategy - LTM

	Appreciation		Depreciation		Net Gain/Loss		Distributions		Contributions		NAV (mm)
	Total millions	# Of Funds	Total millions	# Of Funds	Net Millions	% Of Total Net	Total millions	%	Total millions	%	
Core	20.60	19	-0.05	1	20.11	75.0%	23.31	79.7%	27.58	63.5%	149.9
Non-Core	7.45	4	-0.76	2	6.73	25.1%	6.00	20.3%	15.88	36.5%	51.0

Above reporting references active funds only

Reporting Period: Jan-2021 - Dec-2021

[View this portfolio online](#)

## Appreciation

	Strategy	Vintage Year	Region	Appreciation (mm)
EQT Infrastructure III	Non-Core	2017	Global	4.6
IFM Global Infrastructure Fund	Core	2014	OECD	4.0
KKR Global Infrastructure Investors II	Core	2014	OECD	3.2
Global Infrastructure Partners III	Core	2016	OECD	2.5
EQT Infrastructure IV - USD Fund	Non-Core	2018	OECD	2.3

## Depreciation

	Strategy	Vintage Year	Region	Depreciation (mm)
Actis Energy 5	Non-Core	2020	Global	-0.71
Global Energy & Power Infrastructure Fund II	Core	2014	OECD	-0.49
EQT Infrastructure V	Non-Core	2020	Global	-0.05

## Contributions

	Strategy	Vintage Year	Region	Contributions (mm)
EQT Infrastructure V	Non-Core	2020	Global	9.6
Stonepeak Infrastructure Fund IV	Core	2021	North America	6.8
EQT Infrastructure IV - USD Fund	Non-Core	2018	OECD	4.8
Global Infrastructure Partners IV	Core	2018	OECD	4.2
Brookfield Infrastructure Fund IV	Core	2019	OECD	3.2

## Distributions

	Strategy	Vintage Year	Region	Distributions (mm)
KKR Global Infrastructure Investors II	Core	2014	OECD	9.1
Brookfield Infrastructure Fund II	Core	2013	Global	3.5
EQT Infrastructure III	Non-Core	2017	Global	2.5
Global Energy & Power Infrastructure Fund II	Core	2014	OECD	2.3
EQT Infrastructure IV - USD Fund	Non-Core	2018	OECD	2.1

Above reporting references active funds only  
Each Category displays maximum 5 positions

## Portfolio IRR vs Benchmarks

PERFORMANCE VERSUS BENCHMARKS					
12/31/2021	1 QTR	1 YEAR	3 YEAR	5 YEAR	INCEPTION
<b>Program IRR</b>	24.4%	16.3%	13.4%	14.2%	13.4%
<b>50% Russell 3000 &amp; 50% Barclays U.S. Aggregate PME+</b>	19.4%	11.4%	15.3%	11.9%	11.1%
<i>Difference</i>	5.0%	4.9%	-1.9%	2.4%	2.4%
<b>CPI +400bps PME+</b>	10.9%	11.4%	7.7%	7.3%	7.1%
<i>Difference</i>	13.5%	4.9%	5.7%	6.9%	6.3%

## Performance

	Currency	Vintage	Capital Calls (mm)	Distributions (mm)	NAV (mm)	Gain/Loss (mm)	TVPI	DPI	RVPI	IRR
<b>Core</b>										
Ardian Infrastructure Fund V B	USD	2019	3.6	0.23	4.0	0.63	1.2x	0.1x	1.1x	14.8%
ASF VII Infrastructure	USD	2016	7.6	0.96	10.1	3.5	1.5x	0.1x	1.3x	19.9%
ASF VIII Infrastructure B	USD	2021	2.3	0.00	2.5	0.21	1.1x	0.0x	1.1x	n.m. <sup>1</sup>
AxInfra US II	USD	2017	5.0	1.1	5.3	1.4	1.3x	0.2x	1.1x	8.7%
Axiom Infrastructure Canada II (Intl)	USD	2017	7.7	1.6	8.5	2.4	1.3x	0.2x	1.1x	10.8%
Brookfield Infrastructure Fund II	USD	2013	10.0	8.4	9.6	8.0	1.8x	0.8x	1.0x	13.2%
Brookfield Infrastructure Fund III	USD	2016	6.5	2.1	6.6	2.2	1.3x	0.3x	1.0x	10.1%
Brookfield Infrastructure Fund IV	USD	2019	12.7	1.9	13.1	2.4	1.2x	0.2x	1.0x	12.7%
Brookfield Infrastructure Fund IV (BIF IV): Co-Invest	USD	2019	2.0	0.21	2.5	0.72	1.4x	0.1x	1.3x	16.5%
Cardinal NR Sidecar Holdings	USD	2018	1.9	0.55	2.7	1.3	1.7x	0.3x	1.4x	19.9%
Global Energy & Power Infrastructure Fund II	USD	2014	16.1	15.0	6.4	5.4	1.3x	0.9x	0.4x	17.0%
Global Energy & Power Infrastructure Fund III F	USD	2019	7.9	1.4	7.6	1.1	1.1x	0.2x	1.0x	11.9%
Global Infrastructure Partners III	USD	2016	11.1	2.9	12.5	4.3	1.4x	0.3x	1.1x	10.4%
Global Infrastructure Partners IV	USD	2018	4.9	0.00	4.6	-0.27	0.9x	0.0x	0.9x	-6.5%
IFM Global Infrastructure Fund	USD	2014	20.0	9.0	26.9	15.9	1.8x	0.5x	1.3x	12.1%
KKR Global Infrastructure Investors II	USD	2014	20.6	26.4	8.9	14.7	1.7x	1.3x	0.4x	17.4%
KKR Global Infrastructure Investors III	USD	2018	10.2	2.1	7.0	-1.1	0.9x	0.2x	0.7x	-7.6%
KKR Global Infrastructure Investors IV	USD	2021	0.00	0.00	0.05	0.05	0.0x	0.0x	0.0x	-
NYCRS EIG Energy Partners	USD	2017	5.1	2.2	3.7	0.79	1.2x	0.4x	0.7x	7.9%
NYCRS EIG Energy Partners Co-Investment	USD	2021	0.00	0.00	0.00 <sup>2</sup>	0.00	0.0x	0.0x	0.0x	-
Stonepeak Infrastructure Fund IV	USD	2021	6.8	0.07	7.2	0.55	1.1x	0.0x	1.1x	n.m. <sup>1</sup>
<b>Total Core</b>	<b>USD</b>		<b>161.8</b>	<b>76.2</b>	<b>149.9</b>	<b>64.3</b>	<b>1.4x</b>	<b>0.5x</b>	<b>0.9x</b>	<b>12.9%</b>



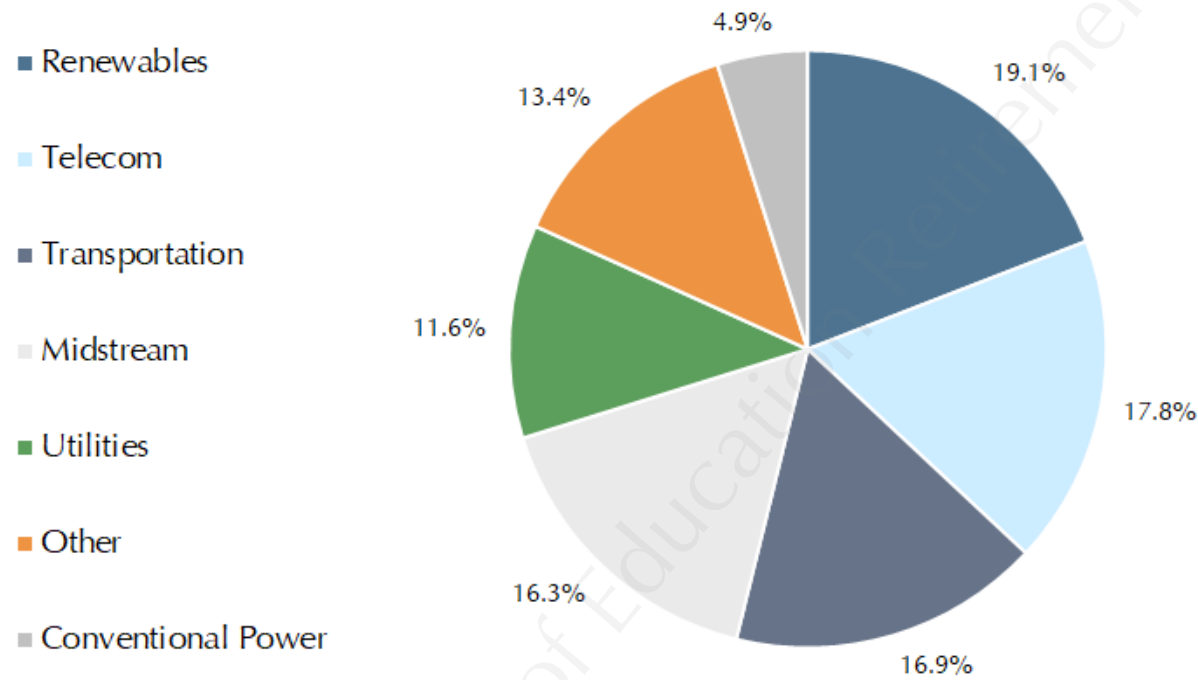
	Currency	Vintage	Capital Calls (mm)	Distributions (mm)	NAV (mm)	Gain/Loss (mm)	TVPI	DPI	RVPI	IRR
<b>Non-Core</b>										
Actis Energy 4	USD	2016	8.8	3.4	8.5	3.1	1.4x	0.4x	1.0x	12.3%
Actis Energy 5	USD	2020	0.46	0.00	-0.25	-0.71	-0.5x	0.0x	-0.5x	-
EQT Infrastructure III	USD	2017	10.0	3.9	15.3	9.3	1.9x	0.4x	1.5x	24.6%
EQT Infrastructure IV - USD Fund	USD	2018	15.7	2.5	16.6	3.4	1.2x	0.2x	1.1x	14.9%
EQT Infrastructure IV Co-Investment (Saber)	USD	2020	1.6	0.10	1.9	0.37	1.2x	0.1x	1.2x	n.m. <sup>1</sup>
EQT Infrastructure V	USD	2020	9.6	0.27	8.9	-0.40	1.0x	0.0x	0.9x	n.m. <sup>1</sup>
Total Non-Core	USD		46.2	10.2	51.0	15.0	1.3x	0.2x	1.1x	16.7%
<b>NYCBERS - INFRA</b>	<b>USD</b>		<b>208.0</b>	<b>86.4</b>	<b>200.9</b>	<b>79.3</b>	<b>1.4x</b>	<b>0.4x</b>	<b>1.0x</b>	<b>13.4%</b>

<sup>1</sup> IRR not meaningful for investments held less than 24 months<sup>2</sup> Adjusted for additional contributions and distributions since last valuation

\* Total figures take into account all current and closed portfolio positions Dec-2021

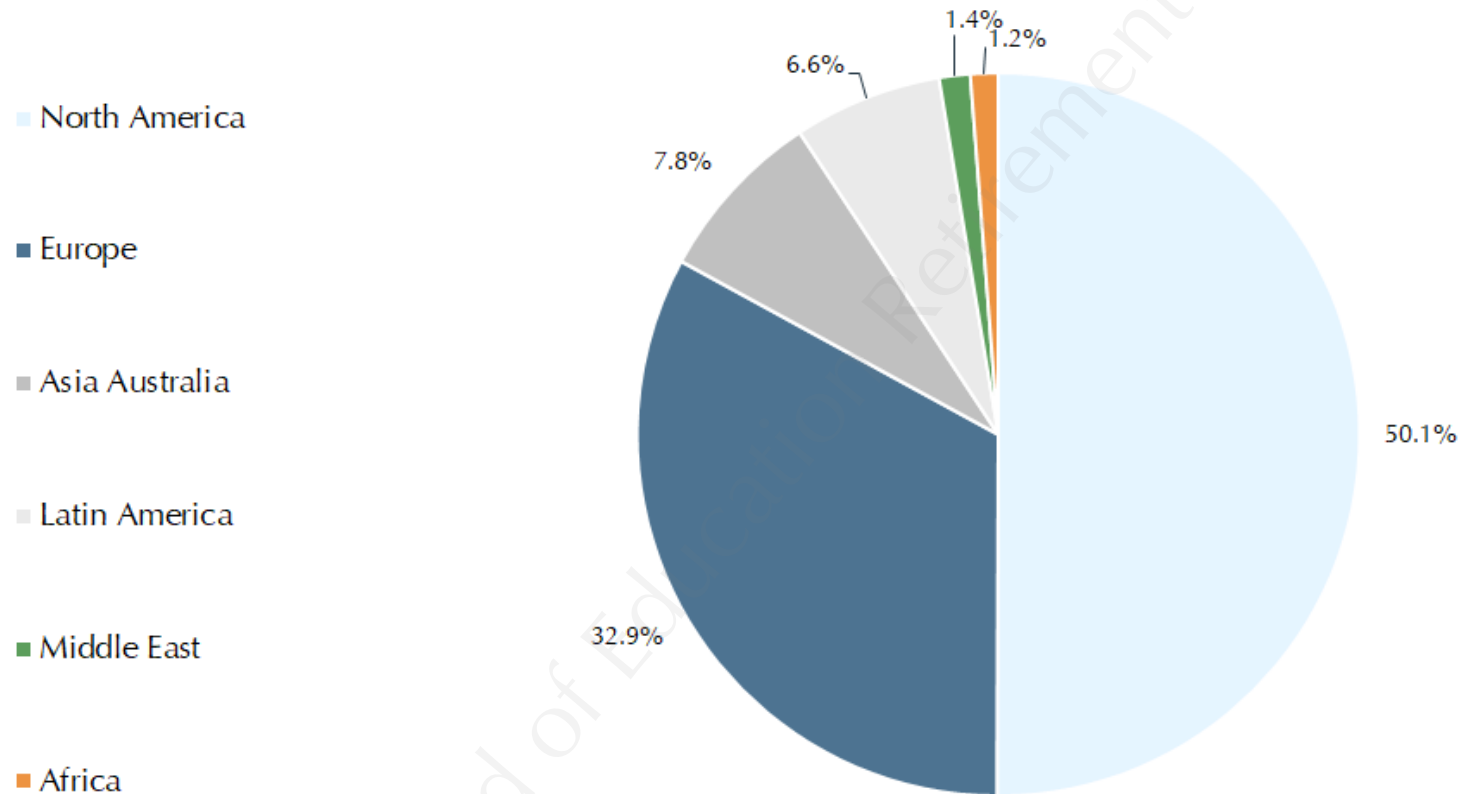
## Portfolio Composition - Industry

## Industry Exposure by NAV



Position Analytics data based on GP provided information as of Dec-2021

## Region Exposure by NAV



Company headquarters represents location provided by the manager at initial investment date.  
Position Analytics data based on GP provided information as of Dec-2021

Investment Name	Investment Date	Holding Period	Country	Region	Public Company	Total Invested Capital	Distributed Capital	Current Cost	Net Asset Value	TVPI	Gross IRR	GICS Sector	GICS Sub-Sector
GETEC Group	Feb-2017	4.8	Germany	Europe	No	\$1.2mm	\$0.0mm	\$1.2mm	\$6.0mm	-	42.0%	Utilities	Electric Utilities
Indiana Toll Road	May-2015	6.6	United States	North America	No	\$2.8mm	\$1.9mm	\$2.8mm	\$4.7mm	2.4x	18.9%	Transportation	Highways and Railtracks
Robin (ASF VIII Infra)	Sep-2021	0.3	Other Developed North America	North America	No	\$4.2mm	\$0.0mm	\$0.0mm	\$4.6mm	1.1x	N/M	Other	None Specified
Buckeye Partners, L.P.	Nov-2019	2.2	United States	North America	No	\$2.9mm	\$0.1mm	\$2.9mm	\$4.5mm	1.6x	20.7%	Midstream	Oil and Gas Storage and Transportation
Aleatica	Apr-2015	6.7	Mexico	Latin America	Yes	\$3.7mm	\$1.0mm	\$3.7mm	\$4.1mm	1.4x	14.9%	Transportation	Highways and Railtracks
GlobalConnect Group	Dec-2019	2.1	Sweden	Europe	No	\$2.3mm	\$0.0mm	\$2.3mm	\$3.6mm	1.5x	18.0%	Telecom	None Specified
DeltaFiber	Feb-2017	4.8	Netherlands	Europe	No	\$1.2mm	\$0.0mm	\$1.2mm	\$3.5mm	-	28.0%	Telecom	Internet Services and Infrastructure
GlobalConnect Group	Dec-2017	4.1	Sweden	Europe	No	\$1.8mm	\$0.2mm	\$1.7mm	\$3.3mm	-	17.0%	Telecom	None Specified
Peace (ASF VII Infra)	Apr-2019	2.8	United States	North America	No	\$2.0mm	\$0.0mm	\$0.0mm	\$3.2mm	1.6x	19.4%	Other	None Specified
Equis Energy Developments Pte Ltd	Jan-2018	4.0	Singapore	Asia Australia	No	\$1.6mm	\$0.1mm	\$1.6mm	\$3.1mm	2.0x	N/M	Renewables	Renewable Electricity
Naturgy Energy Group S.A.	Sep-2016	5.3	Spain	Europe	Yes	\$1.8mm	\$1.2mm	\$1.6mm	\$3.1mm	2.3x	N/M	Utilities	Gas Utilities
Zayo Group	Mar-2020	1.8	United States	North America	No	\$2.6mm	\$0.0mm	\$2.6mm	\$3.1mm	1.2x	10.0%	Telecom	Alternative Carriers
MAP Energy, LLC	Dec-2020	1.0	United States	North America	No	\$2.5mm	\$0.0mm	\$2.5mm	\$2.8mm	1.1x	N/M	Renewables	Renewable Electricity
Atlas Renewable Energy Chile SpA	Dec-2016	5.0	Chile	Latin America	No	\$2.2mm	\$0.1mm	\$2.1mm	\$2.8mm	1.3x	N/M	Renewables	Renewable Electricity
Fenix Marine Services	Dec-2017	4.1	United States	North America	No	\$0.9mm	\$0.0mm	\$0.9mm	\$2.8mm	-	29.0%	Transportation	Marine Ports and Services
Echoenergia Participações S.A.	May-2017	4.6	Brazil	Latin America	No	\$2.4mm	\$0.7mm	\$1.7mm	\$2.7mm	1.4x	N/M	Renewables	Renewable Electricity
Deutsche Glasfaser	May-2020	1.6	Germany	Europe	No	\$2.0mm	\$0.0mm	\$2.0mm	\$2.7mm	1.4x	15.0%	Telecom	Cable and Satellite
Canadian Midstream (Inter Pipeline)	Aug-2021	0.4	Canada	North America	Yes	\$2.1mm	\$0.0mm	\$2.1mm	\$2.7mm	1.3x	N/M	Midstream	Oil and Gas Storage and Transportation
U.S. Renewable Power Portfolio	Sep-2013	8.3	United States	North America	No	\$1.3mm	\$0.8mm	\$1.3mm	\$2.6mm	2.7x	16.9%	Renewables	Renewable Electricity

Company headquarters represents location provided by the manager at initial investment date.  
Position Analytics data based on GP provided information as of Dec-2021

Reporting Period: As Of Dec-2021

[View this portfolio online](#)

## Portfolio Top 20 Investments by NAV

Investment Name	Investment Date	Holding Period	Geography	Region	Public Company	Total Invested Capital	Distributed Capital	Current Cost	Net Asset Value	TVPI	Gross IRR	GICS Sector	GICS Sub-Sector
EnerCare, Inc.	Oct-2018	3.2	Canada	North America	No	\$1.8mm	\$0.5mm	\$1.8mm	\$2.6mm	1.7x	20.0%	Utilities	Specialized Consumer Services
Totals	-	3.5	-	-	-	\$43.3mm	\$6.7mm	\$36.1mm	\$68.4mm	1.4x	269.8%	-	-

Company headquarters represents location provided by the manager at initial investment date.  
Position Analytics data based on GP provided information as of Dec-2021

**PRIVATE AND CONFIDENTIAL:** These materials are strictly confidential and proprietary, intended solely for the use of the individual or entity to which Aksia LLC, Aksia CA LLC, Aksia Chicago LLC, and/or any of their other affiliates, as applicable (collectively, "Aksia") have sent these materials ("Intended Recipient") and constitute Aksia's trade secrets for all purposes, including for purposes of the Freedom of Information Act or any comparable law or regulation of any government, municipality or regulator. These materials may not be reproduced or distributed, posted electronically or incorporated into other documents in whole or in part except for the personal reference of the Intended Recipient. If you are not the Intended Recipient, you are hereby requested to notify Aksia and either destroy or return these documents to Aksia. The Intended Recipient shall not use Aksia's name or logo or explicitly reference Aksia's research and/or advisory services in the Intended Recipient's materials.

**NO OFFERING:** These materials do not in any way constitute an offer or a solicitation of an offer to buy or sell funds, private investments or securities mentioned herein. These materials are provided only for use in conjunction with Aksia's services, as such services are defined in an executed agreement between Aksia and the Intended Recipient (hereinafter, the "Agreement"). In the event that an executed Agreement does not exist between Aksia and the Intended Recipient, these materials shall not constitute advice or an obligation to provide such services.

**RECOMMENDATIONS:** Any Aksia recommendation or opinion contained in these materials is a statement of opinion provided in good faith by Aksia and based upon information which Aksia reasonably believes to be true. Recommendations or opinions expressed in these materials reflect Aksia's judgment as of the date shown, and are subject to change without notice. Actual results may differ materially from any forecasts discussed in the materials. Except as otherwise agreed between Aksia and the Intended Recipient, Aksia is under no future obligation to review, revise or update its recommendations or opinions.

**NOT TAX, LEGAL OR REGULATORY ADVICE:** An investor should consult its tax, legal and regulatory advisors before allocating to a private investment fund or other investment opportunity. Aksia is not providing due diligence or tax advice concerning the tax treatments of an investment or an investor's allocations to such private investment fund or opportunity. Tax treatment depends on the individual circumstances of each client and may be subject to change in the future.

**RESPONSIBILITY FOR INVESTMENT DECISIONS:** The Intended Recipient is responsible for performing his, her or its own reviews of any funds or other investment vehicles or opportunities described herein including, but not limited to, a thorough review and understanding of each vehicle's or opportunity's offering materials. The Intended Recipient is advised to consult his, her or its tax, legal and compliance professionals to assist in such reviews. For clients who receive non-discretionary advisory or research services from Aksia: the Intended Recipient acknowledges that it (and not Aksia) is responsible for its investment decisions with respect to any investment vehicles or opportunities described herein.

No assurances can be given that a particular investment or portfolio will meet its investment objectives. Any projections, forecasts or market outlooks provided herein should not be relied upon as events which will occur. *Past performance is not indicative of future results.* Use of advanced portfolio construction processes, risk management techniques and proprietary technology does not assure any level of performance or guarantee against loss of capital.

**PERFORMANCE DATA:** In cases where an investment manager or general partner implements an investment strategy through multiple investment vehicles (for tax purposes, participation in side pockets and new issues, domicile, currency denomination, etc.,) Aksia may use the returns of one class or series of an investment vehicle in a particular program in its reports to represent the returns of all the investment vehicles in such investment program. The returns for the particular class or series used in Aksia's reports may be different from the returns of the class or series in which the Intended Recipient is invested. To obtain the actual performance of the particular class or series in the Intended Recipient's portfolio, the Intended Recipient should contact the investment manager or general partner directly.

**RELIANCE ON THIRD PARTY DATA:** These materials reflect and rely upon information provided by fund managers and other third parties which Aksia reasonably believes to be accurate and reliable. Such information may be used by Aksia without independent verification of accuracy or completeness, and Aksia makes no representations as to its accuracy and completeness. For the avoidance of doubt, these materials have not been produced, reviewed, verified or approved by the fund managers and other third parties to which the materials relate. As such, they do not necessarily reflect the views or opinions of such fund managers and third parties. Furthermore, any reference to EBITDA (or ratios using EBITDA as a component) included in the report, reflect Adjusted EBITDA provided by the fund manager typically as defined in the loan agreements. Adjusted EBITDA can be expected to be higher than EBITDA figures calculated based on GAAP or IFRS compliant financial statements, which will result in relatively lower debt/EBITDA and higher interest coverage ratios. In addition, any fund IRRs shown are as reported by the manager/administrator or calculated using cash flows provided by the manager/administrator, and may benefit from such fund's use of a subscription line.

**RATING DOWNGRADES (LIQUID INVESTMENTS):** Aksia client assets, in aggregate, may represent a large percentage of a manager's or fund's assets under management, and, as such, a rating downgrade by Aksia's research teams could result in redemptions or withdrawals that may have an adverse effect on the performance of a fund.

**CONFLICTS OF INTEREST DISCLOSURE:** Family members of Aksia personnel may from time to time be employed by managers that Aksia recommends to its clients. While this may pose a potential conflict of interest, we monitor such relationships to seek to minimize any impact of such potential conflict.

**PRIVATE INVESTMENT FUND DISCLOSURE:** Investments in private investment funds and other similar investment opportunities involve a high degree of risk and you could lose all or substantially all of your investment. Any person or institution making such investments must fully understand and be willing to assume the risks involved. Some private investment funds and opportunities described herein may not be suitable for all investors. Such investments or investment vehicles may use leverage, hold significant illiquid positions, suspend redemptions indefinitely, provide no opportunity to redeem, modify investment strategy and documentation without notice, short sell securities, incur high fees and contain conflicts of interests. Such private investment funds or opportunities may also have limited operating history, lack transparency, manage concentrated portfolios, exhibit high volatility, depend on a concentrated group or individual for investment management or portfolio management and lack any regulatory oversight.

For a description of the risks associated with a specific private investment fund or investment opportunity, investors and prospective investors are strongly encouraged to review each private investment fund or opportunity's offering materials which contain a more specific description of the risks associated with each investment. Offering materials may be obtained from the fund manager.

**FOR RECIPIENTS OF REPORTS DISTRIBUTED BY AKSIA EUROPE LIMITED:** Aksia Europe Limited is authorized and regulated by the Financial Conduct Authority; such authorization does not indicate endorsement or approval by the FCA of the services offered by Aksia.

NYC BERS Infrastructure Portfolio as of Q4 2021										
Vintage Year	Investment	Closing Date	Committed Capital	Contributed Capital	Distributed Capital	Unfunded Commitment	Market Value	TVPI	IRR	
Active Investments:										
2016	Actis Energy 4	12/16/2016	\$ 10,600,000	\$ 8,802,787	\$ 3,446,388	\$ 3,980,058	\$ 8,469,000	1.35	12.28%	
2020	Actis Energy 5	6/30/2020	\$ 27,000,000	\$ 459,227	\$ -	\$ 26,540,773	\$ (247,000)	-0.54	n.m.	
2019	Ardian Infrastructure Fund V B	3/4/2019	\$ 14,737,491	\$ 3,640,953	\$ 231,243	\$ 11,070,969	\$ 4,041,480	1.17	14.75%	
2016	ASF VII Infrastructure	4/24/2017	\$ 12,000,000	\$ 7,595,344	\$ 958,946	\$ 4,624,123	\$ 10,140,940	1.46	19.88%	
2021	ASF VIII Infrastructure B	11/1/2021	\$ 40,000,000	\$ 2,283,318	\$ -	\$ 37,738,827	\$ 2,490,679	1.09	n.m.	
2017	Axiom Infrastructure North America	8/14/2017	\$ 12,221,338	\$ 12,636,845	\$ 2,709,984	\$ -	\$ 13,769,136	1.30	9.89%	
2013	Brookfield Infrastructure Fund II	7/8/2013	\$ 10,000,000	\$ 9,989,871	\$ 8,351,914	\$ 1,796,509	\$ 9,593,909	1.80	13.25%	
2016	Brookfield Infrastructure Fund III	4/15/2016	\$ 10,000,000	\$ 6,493,868	\$ 2,111,299	\$ 4,164,069	\$ 6,614,829	1.34	10.09%	
2019	Brookfield Infrastructure Fund IV	5/10/2019	\$ 19,000,000	\$ 12,677,789	\$ 1,922,050	\$ 7,035,888	\$ 13,126,222	1.19	12.69%	
2019	Brookfield Infrastructure Fund IV (BIF IV): Co-Invest	10/22/2019	\$ 2,000,000	\$ 2,008,481	\$ 212,225	\$ -	\$ 2,520,374	1.36	16.48%	
2018	Cardinal NR Sidecar Holdings	10/11/2018	\$ 1,880,001	\$ 1,892,695	\$ 552,066	\$ 1	\$ 2,689,102	1.71	19.92%	
2017	EQT Infrastructure III	2/21/2017	\$ 9,214,756	\$ 10,016,958	\$ 3,933,941	\$ 652,904	\$ 15,339,070	1.92	24.60%	
2018	EQT Infrastructure IV - USD Fund	12/20/2018	\$ 18,000,000	\$ 15,698,325	\$ 2,481,965	\$ 4,407,559	\$ 16,625,568	1.22	14.91%	
2020	EQT Infrastructure IV Co-Investment (Saber)	3/1/2020	\$ 1,600,000	\$ 1,616,000	\$ 97,112	\$ -	\$ 1,892,127	1.23	n.m.	
2020	EQT Infrastructure V	10/29/2020	\$ 32,000,000	\$ 9,615,413	\$ 270,662	\$ 22,401,303	\$ 8,939,764	0.96	n.m.	
2014	Global Energy & Power Infrastructure Fund II	4/16/2014	\$ 15,000,000	\$ 16,058,941	\$ 15,024,350	\$ 570,191	\$ 6,447,956	1.34	17.01%	
2019	Global Energy & Power Infrastructure Fund III F	7/3/2018	\$ 15,600,000	\$ 7,933,925	\$ 1,433,879	\$ 8,228,187	\$ 7,641,539	1.14	11.90%	
2016	Global Infrastructure Partners III	1/29/2016	\$ 12,000,000	\$ 11,071,847	\$ 2,916,253	\$ 2,265,127	\$ 12,481,067	1.39	10.37%	
2018	Global Infrastructure Partners IV	3/11/2019	\$ 22,600,000	\$ 4,861,156	\$ 0	\$ 18,589,445	\$ 4,594,406	0.95	-6.53%	
2014	IFM Global Infrastructure Fund	1/2/2014	\$ 15,000,000	\$ 20,027,335	\$ 9,014,484	\$ -	\$ 26,944,512	1.80	12.14%	
2014	KKR Global Infrastructure Investors II	6/12/2015	\$ 19,000,000	\$ 20,603,353	\$ 26,383,497	\$ 769,410	\$ 8,897,521	1.71	17.38%	
2018	KKR Global Infrastructure Investors III	3/29/2018	\$ 15,600,000	\$ 10,180,672	\$ 2,107,037	\$ 6,376,554	\$ 6,954,642	0.89	-7.60%	
2021	KKR Global Infrastructure Investors IV	5/24/2021	\$ 35,000,000	\$ -	\$ -	\$ 35,000,000	\$ 46,380	0.00	n.m.	
2017	NYCRS EIG Energy Partners	8/14/2017	\$ 11,760,000	\$ 5,064,203	\$ 2,180,826	\$ 7,269,152	\$ 3,671,762	1.16	7.91%	
2021	NYCRS EIG Energy Partners Co-Investment	1/12/2018	\$ 2,940,000	\$ -	\$ -	\$ 2,940,000	\$ -	0.00	n.m.	
2021	Stonepeak Infrastructure Fund IV	2/16/2021	\$ 35,000,000	\$ 6,768,733	\$ 73,301	\$ 28,305,693	\$ 7,244,970	1.08	n.m.	
Total			\$ 419,753,586	\$ 207,998,038	\$ 86,413,422	\$ 234,726,743	\$ 200,929,956	1.38	13.44%	

**Risk Quarterly Report (Public):**



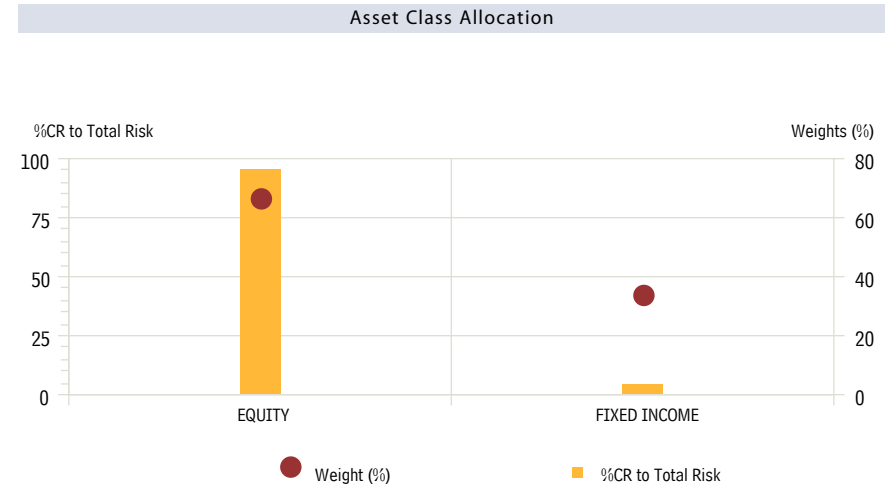
# BarraOne Total Plan Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

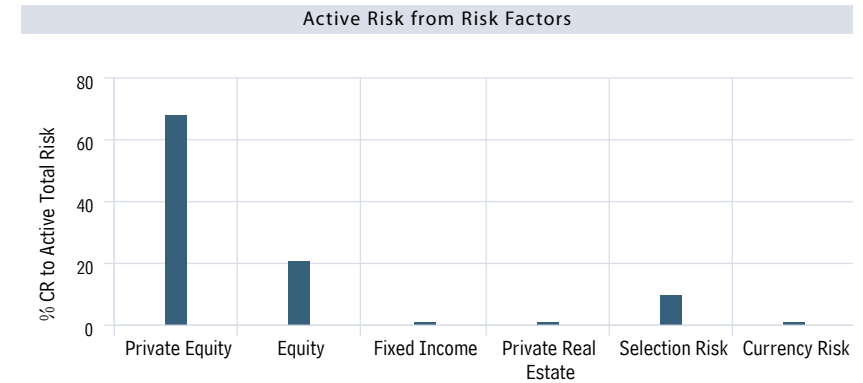
## Total Plan Summary

Risk Summary		Asset Class Contribution to Risk				
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution
Total Risk	12.22	<b>Total</b>	<b>8,674,972,836</b>	<b>100.00</b>	<b>12.22</b>	<b>12.22</b>
Benchmark Risk	11.75	EQUITY	5,766,500,303	66.47	17.61	11.66
Active Risk	1.87	FIXED INCOME	2,908,472,533	33.53	3.71	0.56
Portfolio Beta	1.03					
Effective Duration	1.95					



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>12.22</b>	<b>100.00</b>	<b>1.00</b>	<b>1.87</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	11.82	96.69	1.00	1.86	99.43	1.00
Common Factor Risk	11.76	96.22	1.00	1.68	89.90	0.95
Equity	10.59	86.64	0.98	0.39	20.64	0.44
Fixed Income	0.46	3.80	0.36	0.02	1.09	0.11
Private Real Estate	0.51	4.20	0.72	0.01	0.70	0.05
Private Equity	0.19	1.57	0.13	1.26	67.47	0.82
Selection Risk	0.06	0.47	0.07	0.18	9.53	0.31
Currency Risk	0.40	3.31	0.47	0.01	0.57	0.10



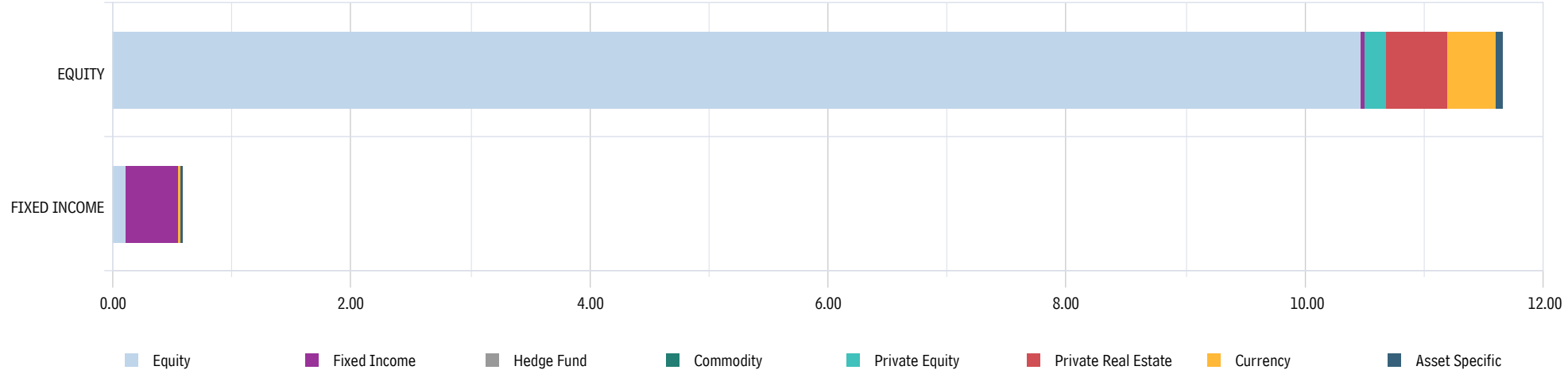
# BarraOne Total Plan Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

## 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	8,674,972,836	100.00	-	12.22	100.00	12.22	10.59	0.46	0.00	0.00	0.51	0.19	0.40	0.06
EQUITY	5,766,500,303	66.47	-	17.61	95.38	11.66	10.48	0.02	0.00	0.00	0.51	0.19	0.40	0.06
FIXED INCOME	2,908,472,533	33.53	-	3.71	4.62	0.56	0.11	0.44	0.00	0.00	0.00	0.00	0.00	0.00



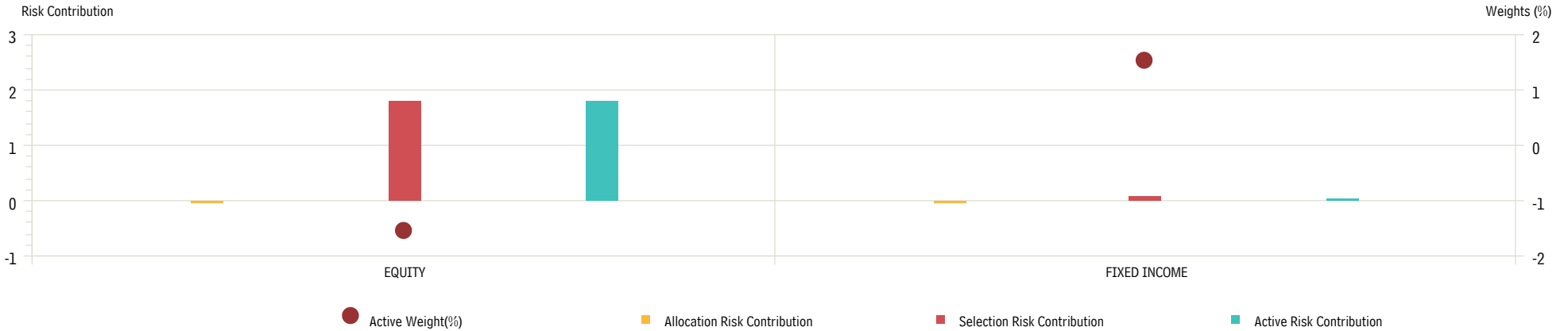
# BarraOne Total Plan Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

## Allocation Selection

Asset Class	Active Weight(%)	Allocation			Selection			Active	
		Volatility	Correlation	Risk Contribution	Volatility	Correlation	Risk Contribution	Risk Contribution	Risk Contribution
<b>Active Total Risk</b>				<b>-0.05</b>			<b>1.91</b>		<b>1.87</b>
EQUITY	-1.53	5.13	0.19	<b>-0.01</b>	2.77	0.99	<b>1.83</b>		<b>1.81</b>
FIXED INCOME	1.53	10.90	-0.19	<b>-0.03</b>	0.79	0.33	<b>0.09</b>		<b>0.06</b>



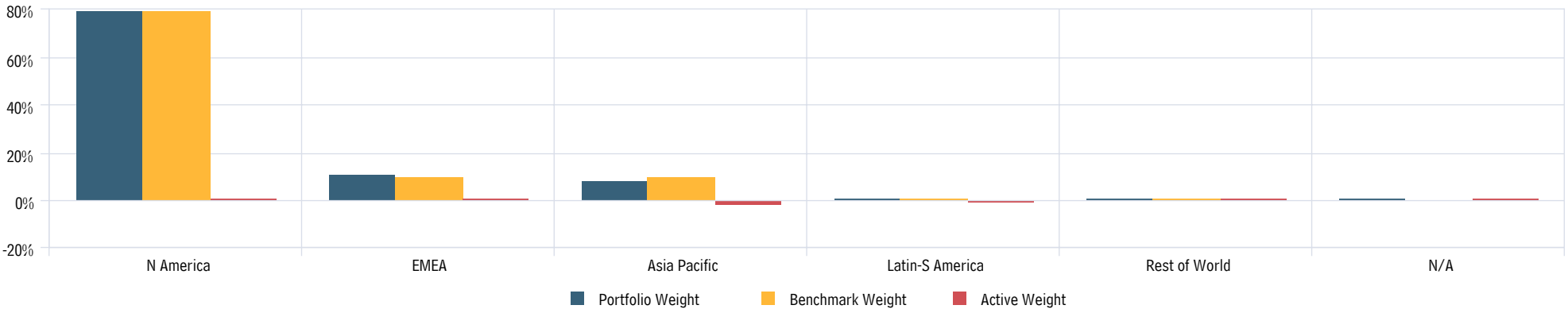
# BarraOne Total Plan Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

## Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>12.22</b>	<b>1.87</b>	<b>100.00</b>	<b>0.02</b>
N America	79.58	79.24	0.34	11.59	1.62	86.59	0.01
EMEA	10.98	9.79	1.19	18.20	0.22	11.60	0.02
Asia Pacific	8.15	9.87	-1.72	17.22	0.03	1.58	0.00
Latin-S America	0.67	0.71	-0.03	26.97	0.00	0.00	0.01
Rest of World	0.40	0.39	0.01	7.89	0.00	0.09	-0.01
N/A	0.22	0.00	0.22	17.93	0.00	0.15	0.01



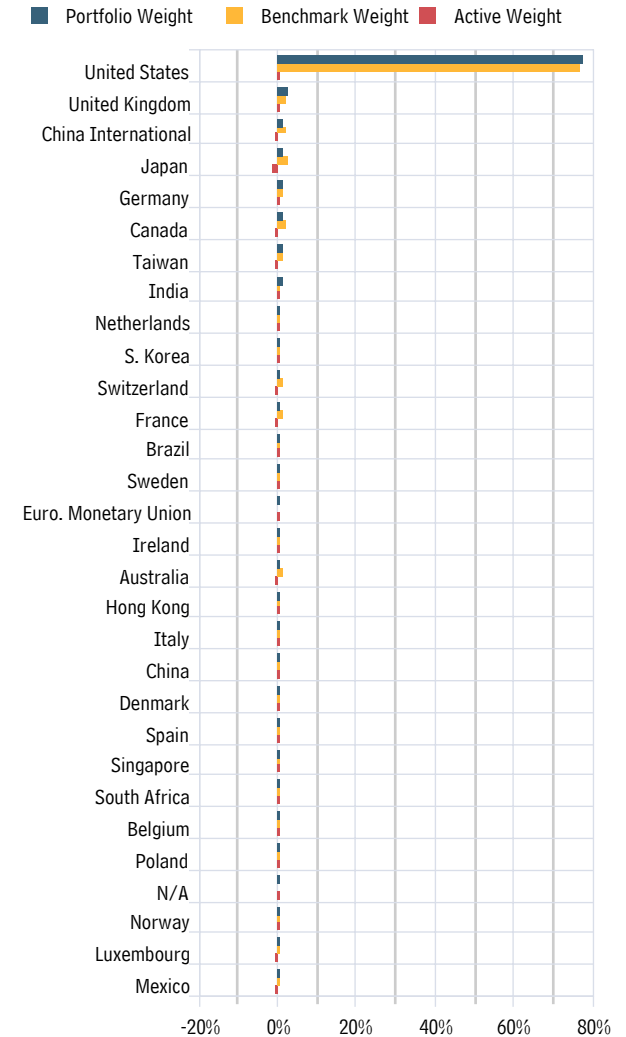
# BarraOne Total Plan Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>12.22</b>	<b>1.87</b>	<b>100.00</b>	<b>0.02</b>
United States	77.69	76.87	0.82	11.52	1.57	84.38	0.01
United Kingdom	2.77	2.28	0.49	19.18	0.09	4.83	0.02
China International	1.67	1.82	-0.15	24.12	-0.01	-0.50	-0.00
Japan	1.55	2.81	-1.26	17.43	0.01	0.79	0.00
Germany	1.37	1.05	0.32	19.67	0.01	0.77	0.03
Canada	1.17	2.13	-0.96	15.19	0.03	1.42	0.01
Taiwan	1.17	1.18	-0.01	23.45	0.01	0.29	0.01
India	1.04	0.95	0.09	25.70	0.01	0.36	0.01
Netherlands	0.96	0.69	0.27	22.32	0.01	0.77	0.03
S. Korea	0.95	0.92	0.03	22.91	0.00	0.04	0.01
Switzerland	0.88	1.29	-0.40	17.98	0.02	1.22	0.01
France	0.85	1.44	-0.59	18.85	-0.01	-0.76	0.03
Brazil	0.61	0.44	0.17	34.51	0.01	0.30	0.02
Sweden	0.55	0.43	0.12	28.01	0.02	0.94	0.05
Euro. Monetary Union	0.53	0.00	0.53	26.60	0.03	1.61	0.05
Ireland	0.53	0.21	0.33	9.80	-0.00	-0.09	0.00
Australia	0.53	1.03	-0.50	23.06	0.00	0.02	0.01
Hong Kong	0.52	0.36	0.16	21.30	0.00	0.07	-0.01
Italy	0.50	0.35	0.15	23.99	0.01	0.51	0.03
China	0.43	0.39	0.04	31.70	0.01	0.33	-0.01
Denmark	0.38	0.32	0.06	24.45	0.01	0.79	0.03
Spain	0.36	0.32	0.04	15.12	-0.00	-0.10	0.01
Singapore	0.31	0.15	0.16	19.16	0.00	0.08	0.01
South Africa	0.30	0.30	0.01	27.94	0.00	0.03	0.02
Belgium	0.26	0.18	0.08	21.34	0.01	0.31	0.02
Poland	0.23	0.05	0.18	30.39	0.01	0.47	0.04
N/A	0.22	0.00	0.22	17.93	0.00	0.15	0.01
Norway	0.18	0.10	0.08	26.44	0.01	0.30	0.02
Luxembourg	0.17	0.19	-0.02	3.99	0.00	0.00	-0.02
Mexico	0.15	0.20	-0.05	19.94	-0.00	-0.09	0.01



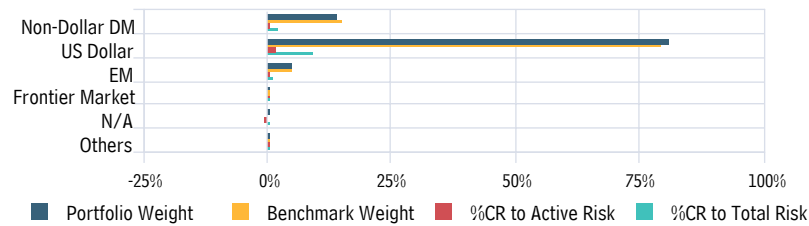
# BarraOne Total Plan Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

## Portfolio Allocation by Currency

Exposure by Market



Developed Market Currency

Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	6,999,026,746.70	84.94	73.06
Euro	413,997,053.31	3.48	7.20
British Pound Sterling	194,025,564.65	4.95	3.57
Hong Kong Dollar	162,514,739.49	-0.14	2.19
Japanese Yen	134,145,092.39	0.60	1.56

Emerging Market Currency

Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
New Taiwan Dollar	101,149,678.16	0.29	1.43
Indian Rupee	90,063,901.79	0.36	1.31
Korean Won	72,405,339.45	0.06	1.22
Brazilian Real	51,894,543.62	0.28	0.97
Chinese Yuan	36,910,986.88	0.30	0.49

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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>12.22</b>	<b>12.22</b>	<b>100.00</b>	<b>1.87</b>	<b>100.00</b>
US Dollar	80.68	79.45	1.23	11.23	8.93	73.06	1.59	84.94
Euro	4.77	3.76	1.01	21.13	0.88	7.20	0.07	3.48
British Pound Sterling	2.24	1.81	0.42	23.61	0.44	3.57	0.09	4.95
Hong Kong Dollar	1.87	2.08	-0.20	25.70	0.27	2.19	-0.00	-0.14
Japanese Yen	1.55	2.65	-1.11	17.43	0.19	1.56	0.01	0.60
New Taiwan Dollar	1.17	1.18	-0.01	23.45	0.17	1.43	0.01	0.29
Indian Rupee	1.04	0.95	0.09	25.70	0.16	1.31	0.01	0.36
Swiss Franc	0.85	1.24	-0.39	18.62	0.13	1.09	0.02	1.19
Korean Won	0.83	0.92	-0.08	24.07	0.15	1.22	0.00	0.06
Canadian Dollar	0.69	1.56	-0.86	24.99	0.15	1.22	0.02	1.33
Brazilian Real	0.60	0.42	0.18	34.76	0.12	0.97	0.01	0.28
Australian Dollar	0.49	0.97	-0.48	24.90	0.10	0.85	-0.00	-0.01
Chinese Yuan	0.43	0.37	0.06	32.24	0.06	0.49	0.01	0.30
Swedish Krona	0.42	0.42	-0.01	27.02	0.09	0.77	0.01	0.43
Danish Krone	0.38	0.32	0.06	24.45	0.07	0.55	0.01	0.79

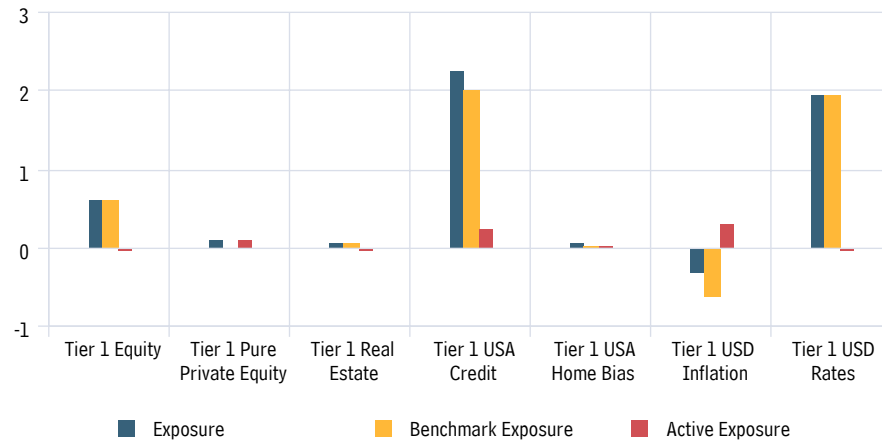
# BarraOne Tier 1 USA Factor Summary

Tier 1 factors describe the most important drivers of the markets and provide a platform for the factor-based asset-allocation framework. They provide a lens for strategic asset allocation and are designed for board level reporting.

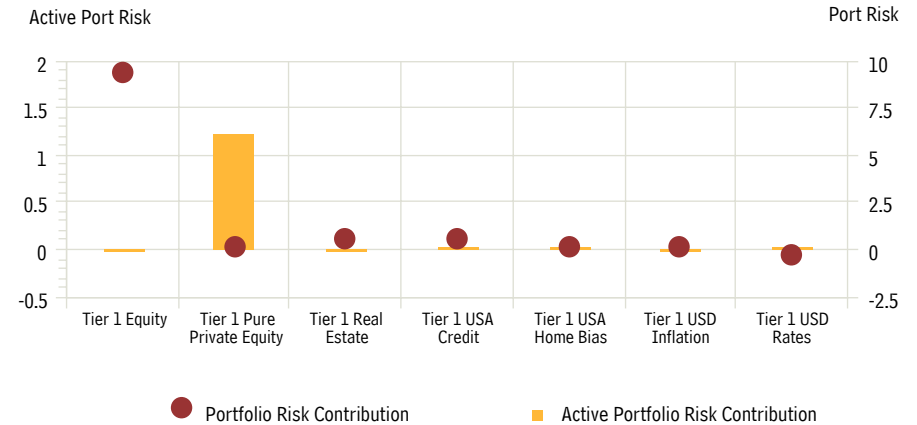
COMPANY: NYCRC - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217  
MODEL: MAC.L Tier 1 USA

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

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
<b>Total Risk</b>	-	-	-	<b>12.22</b>	<b>100.00</b>	<b>1.87</b>	<b>100.00</b>
Local Market Risk	-	-	-	11.82	96.69	1.86	99.43
Common Factor Risk	-	-	-	11.76	96.22	1.68	89.90
Factor Residual Risk	-	-	-	1.03	8.44	0.47	25.24
Interaction within Common Factor Risk	-	-	-	N/A	-	N/A	-
Unassigned Factors	-	-	-	10.73	87.78	1.21	64.66
Tier 1 Equity	0.61	0.62	-0.01	9.42	77.10	-0.04	-1.90
Tier 1 Pure Private Equity	0.10	0.00	0.10	0.19	1.52	1.21	64.99
Tier 1 Real Estate	0.06	0.06	-0.00	0.50	4.08	-0.00	-0.02
Tier 1 USA Credit	2.26	2.00	0.25	0.62	5.06	0.02	1.08
Tier 1 USA Home Bias	0.06	0.04	0.02	0.17	1.36	0.02	1.24
Tier 1 USD Inflation	-0.31	-0.63	0.32	0.09	0.77	-0.01	-0.74
Tier 1 USD Rates	1.95	1.95	-0.00	-0.26	-2.11	0.00	0.01
Specific Risk	-	-	-	0.06	0.47	0.18	9.53
Currency Risk	-	-	-	0.40	3.31	0.01	0.57
Currency/Market Interaction	-	-	-	N/A	-	N/A	-

Tier 1 Macro Factor Scheme has six factors

Tier 1 Factor	Exposure Type	Description
Equity	Membership (weights)	USA Equity
Pure Private Equity	Membership (weights)	USA Private Equity
Real Estate	Membership (weights)	USA Real Estate
USA Credit	Sensitivities (durations)	Sensitive to USA credit spreads
USD Inflation	Sensitivities (durations)	Sensitive to USD inflation protected assets
USD Rates	Sensitivities (durations)	Sensitive to Govt rate exposure
Commodities	Membership (weights)	Sensitive to Commodities
USA Home Bias		USA Home Bias factor returns is very similar to that of a portfolio long the MSCI USA IMI index and short the currency-hedged MSCI ACWI ex-US IMI index.

Factor Residual Risk

Risk Source	Portfolio Risk Contribution	% Portfolio Risk	Active Portfolio Risk Contribution	% Active Risk
Equity	1.00	8.18	0.40	21.30
Fixed Income	0.01	0.08	0.01	0.74
Interaction within Factor Residual Risk	N/A	-	N/A	-
Private Equity	0.01	0.06	0.05	2.48
Private Real Estate	0.02	0.12	0.01	0.72



For further documentation on Macro factors please refer to the Research Insight, Risk from Any Altitude: Using the BarraOne Macro Factors - March 2014 <https://support.msci.com/docs/DOC-8681>

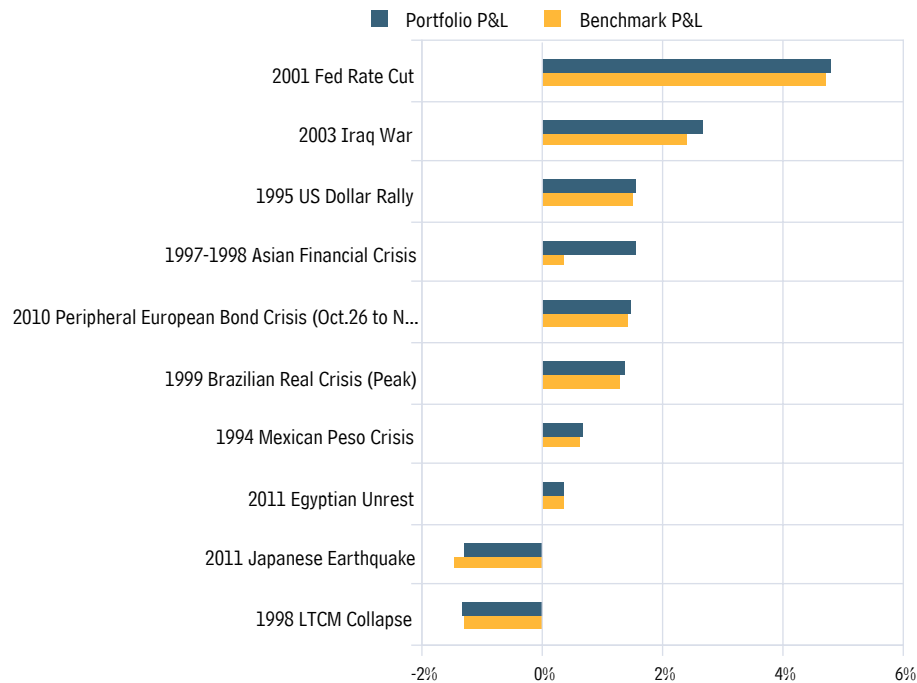
# BarraOne Total Plan Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: BERS\_Total Plan  
BENCHMARK: BERS\_Policy  
POSITIONS: 8,217  
MODEL: MAC.L

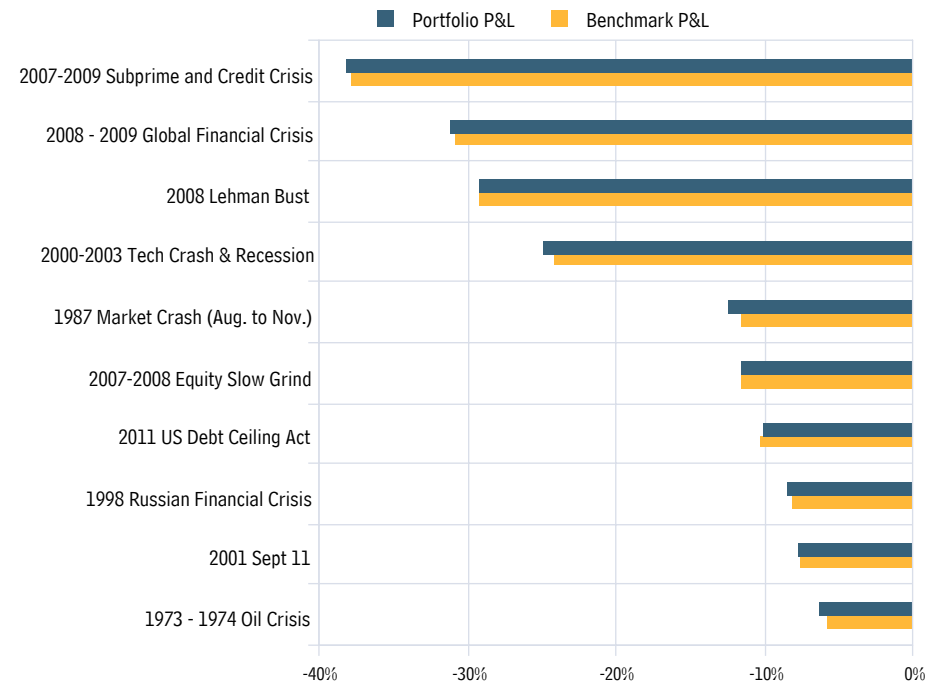
CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 8,674,972,836  
ACCEPTED: 8,140

## Stress Scenarios

Top 10 Best Scenarios			
Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2001 Fed Rate Cut	4.79	4.71	415,258,364
2003 Iraq War	2.67	2.39	231,715,990
1995 US Dollar Rally	1.57	1.50	135,818,573
1997-1998 Asian Financial Crisis	1.56	0.36	135,335,546
2010 Peripheral European Bond Crisis (Oc	1.46	1.43	126,759,210
1999 Brazilian Real Crisis (Peak)	1.37	1.28	119,259,219
1994 Mexican Peso Crisis	0.68	0.64	59,340,671
2011 Egyptian Unrest	0.36	0.35	31,513,444
2011 Japanese Earthquake	-1.30	-1.47	-112,714,092
1998 LTCM Collapse	-1.35	-1.30	-117,211,246



Top 10 Worst Scenarios			
Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2007-2009 Subprime and Credit Crisis	-38.15	-37.80	-3,309,788,658
2008 - 2009 Global Financial Crisis	-31.23	-30.87	-2,709,290,549
2008 Lehman Bust	-29.18	-29.12	-2,531,636,463
2000-2003 Tech Crash & Recession	-24.82	-24.19	-2,153,537,066
1987 Market Crash (Aug. to Nov.)	-12.37	-11.56	-1,073,114,382
2007-2008 Equity Slow Grind	-11.58	-11.46	-1,004,673,984
2011 US Debt Ceiling Act	-10.09	-10.23	-875,579,397
1998 Russian Financial Crisis	-8.49	-8.17	-736,570,853
2001 Sept 11	-7.74	-7.53	-671,591,636
1973 - 1974 Oil Crisis	-6.31	-5.79	-547,714,884





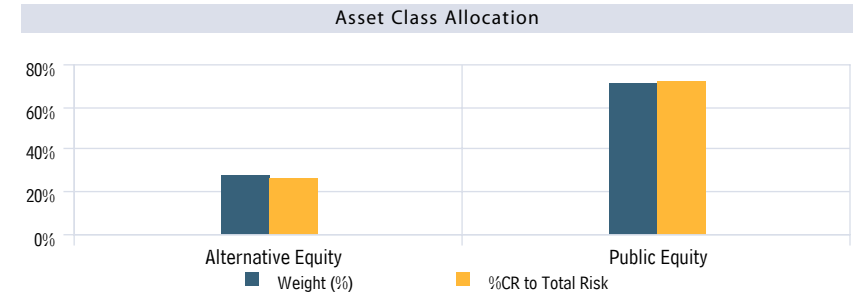
# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: EQUITY  
BENCHMARK: EQUITY  
POSITIONS: 4,603  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 5,766,500,303  
ACCEPTED: 4,559

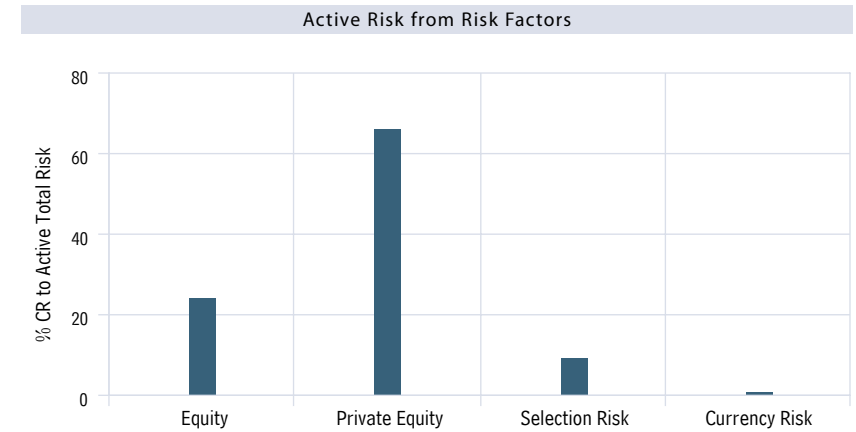
## Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	17.61	<b>Total</b>	<b>5,766,500,303</b>	<b>100.00</b>	<b>17.61</b>	<b>17.61</b>	<b>100.00</b>
Benchmark Risk	16.68	Alternative Equity	1,642,525,330	28.48	18.06	4.78	27.15
Active Risk	2.77	Public Equity	4,123,974,973	71.52	18.14	12.83	72.85
Portfolio Beta	1.04						



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>17.61</b>	<b>100.00</b>	<b>1.00</b>	<b>2.77</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	17.03	96.68	1.00	2.76	99.43	1.00
Common Factor Risk	16.94	96.18	1.00	2.50	90.16	0.95
Equity	15.86	90.06	0.99	0.67	24.29	0.48
Style	0.53	2.99	0.56	0.50	17.90	0.44
Industry	0.23	1.28	0.25	0.11	4.03	0.26
Country	-0.01	-0.03	-0.04	0.00	0.01	0.00
Market	15.12	85.82	0.98	0.07	2.35	0.16
Fixed Income	0.02	0.12	0.19	0.00	0.07	0.02
Inflation	0.00	0.00	0.00	-0.01	-0.19	-0.12
Spread	0.05	0.30	0.67	0.02	0.67	0.23
Term Structure	-0.03	-0.18	-0.25	-0.01	-0.42	-0.11
Private Real Estate	0.77	4.36	0.72	0.00	0.13	0.01
Private Equity	0.29	1.63	0.13	1.82	65.68	0.81
Selection Risk	0.09	0.50	0.07	0.26	9.27	0.30
Currency Risk	0.58	3.32	0.46	0.02	0.57	0.10



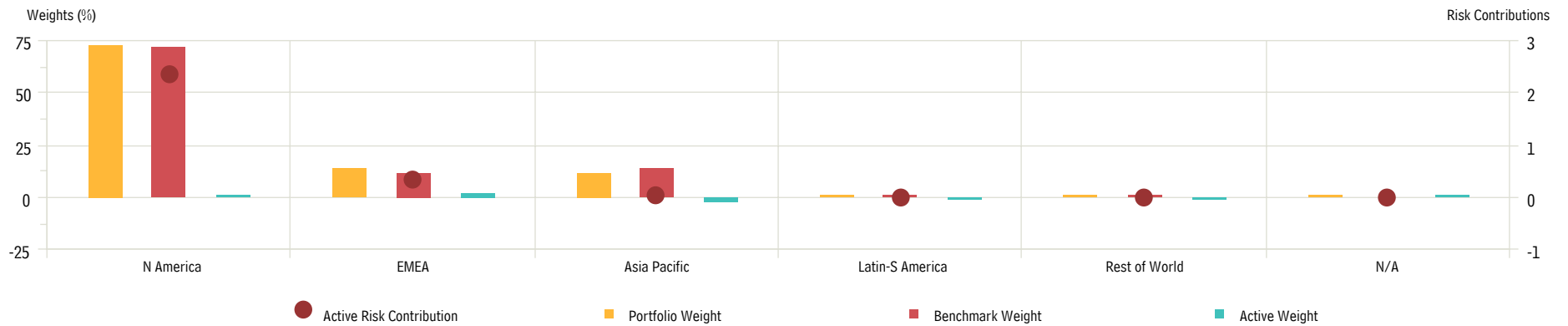
# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: EQUITY  
BENCHMARK: EQUITY  
POSITIONS: 4,603  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 5,766,500,303  
ACCEPTED: 4,559

## Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>17.61</b>	<b>2.77</b>	<b>100.00</b>	<b>0.03</b>
Asia Pacific	12.13	14.08	-1.95	17.40	0.06	2.23	-0.01
EMEA	13.98	12.36	1.63	21.03	0.32	11.67	0.02
Latin-S America	0.84	0.95	-0.11	31.73	0.00	0.10	0.01
N America	72.87	72.28	0.59	18.18	2.38	85.76	0.03
N/A	0.00	0.00	0.00	16.88	-0.00	-0.00	-0.02
Rest of World	0.18	0.34	-0.16	15.73	0.01	0.25	-0.02



# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: EQUITY  
BENCHMARK: EQUITY  
POSITIONS: 4,603  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 5,766,500,303  
ACCEPTED: 4,559

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>17.61</b>	<b>2.77</b>	<b>100.00</b>	<b>0.03</b>
United States	70.69	69.63	1.05	18.17	2.31	83.42	0.08
United Kingdom	3.42	2.67	0.75	23.17	0.13	4.84	0.06
China International	2.52	2.68	-0.16	24.12	-0.02	-0.71	0.03
Japan	2.33	3.90	-1.57	17.42	0.04	1.44	0.03
Germany	1.84	1.44	0.39	21.41	0.02	0.57	0.07
Taiwan	1.75	1.73	0.02	23.45	0.01	0.37	0.04
India	1.56	1.40	0.17	25.70	0.01	0.30	0.04
S. Korea	1.37	1.35	0.02	23.95	0.00	0.08	0.05
Switzerland	1.28	1.82	-0.54	18.60	0.04	1.57	0.04
France	1.15	1.99	-0.84	19.95	-0.02	-0.56	0.06
Canada	1.11	2.29	-1.18	23.53	0.05	1.85	0.05
Netherlands	1.10	0.76	0.34	27.75	0.02	0.65	0.08
Brazil	0.90	0.62	0.28	34.76	0.00	0.17	0.05
Sweden	0.82	0.62	0.20	28.19	0.03	0.93	0.09
Euro. Monetary Union	0.78	0.00	0.78	27.43	0.04	1.32	0.09
Hong Kong	0.77	0.50	0.27	21.56	-0.00	-0.09	0.02
Australia	0.74	1.42	-0.68	24.91	0.01	0.31	0.05
Italy	0.71	0.42	0.30	24.94	0.01	0.38	0.06
China	0.65	0.54	0.11	31.71	0.01	0.29	0.02
Denmark	0.57	0.47	0.10	24.45	0.02	0.81	0.06
Singapore	0.46	0.21	0.25	19.16	-0.00	-0.06	0.04
South Africa	0.46	0.43	0.02	27.94	0.00	0.01	0.05
Spain	0.39	0.40	-0.01	20.48	-0.00	-0.04	0.05
Poland	0.35	0.08	0.27	30.39	0.01	0.36	0.08
Belgium	0.33	0.16	0.17	25.06	0.01	0.23	0.06
Ireland	0.29	0.10	0.18	22.23	-0.00	-0.03	0.06
Norway	0.27	0.14	0.14	27.40	0.01	0.28	0.06
Thailand	0.20	0.20	-0.00	27.68	0.00	0.05	0.05
Mexico	0.16	0.25	-0.09	25.82	-0.00	-0.04	0.05
Indonesia	0.13	0.19	-0.05	26.89	0.00	0.06	0.03

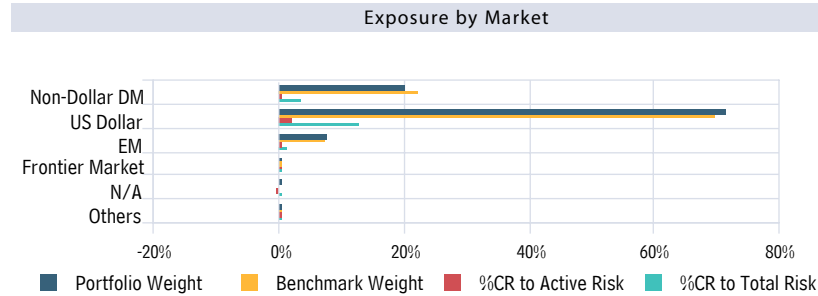


# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: EQUITY  
BENCHMARK: EQUITY  
POSITIONS: 4,603  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 5,766,500,303  
ACCEPTED: 4,559

## 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	4,122,742,117.04	83.42	72.31	New Taiwan Dollar	101,149,678.16	0.37	1.47
Euro	382,201,704.09	2.84	7.09	Indian Rupee	90,063,901.79	0.30	1.35
British Pound Sterling	193,921,733.55	4.98	3.74	Korean Won	72,405,339.45	0.09	1.26
Hong Kong Dollar	162,514,739.49	-0.19	2.28	Brazilian Real	51,894,543.62	0.17	1.01
Japanese Yen	134,151,742.19	1.44	1.62	Chinese Yuan	36,910,986.88	0.31	0.51

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>17.61</b>	<b>17.61</b>	<b>100.00</b>	<b>2.77</b>	<b>100.00</b>
US Dollar	71.49	69.78	1.71	18.10	12.74	72.31	2.31	83.42
Euro	6.63	5.53	1.10	21.62	1.25	7.09	0.08	2.84
British Pound Sterling	3.36	2.67	0.69	23.62	0.66	3.74	0.14	4.98
Hong Kong Dollar	2.82	3.06	-0.24	25.70	0.40	2.28	-0.01	-0.19
Japanese Yen	2.33	3.90	-1.57	17.42	0.29	1.62	0.04	1.44
New Taiwan Dollar	1.75	1.73	0.02	23.45	0.26	1.47	0.01	0.37
Indian Rupee	1.56	1.40	0.17	25.70	0.24	1.35	0.01	0.30
Swiss Franc	1.28	1.82	-0.54	18.62	0.20	1.14	0.04	1.57
Korean Won	1.26	1.35	-0.09	24.07	0.22	1.26	0.00	0.09
Canadian Dollar	1.04	2.29	-1.25	25.05	0.23	1.28	0.05	1.96
Brazilian Real	0.90	0.62	0.28	34.76	0.18	1.01	0.00	0.17
Australian Dollar	0.74	1.42	-0.68	24.91	0.16	0.88	0.01	0.31
Chinese Yuan	0.64	0.54	0.10	32.24	0.09	0.51	0.01	0.31
Swedish Krona	0.63	0.62	0.01	27.02	0.14	0.80	0.01	0.47
Danish Krone	0.57	0.47	0.10	24.45	0.10	0.57	0.02	0.81

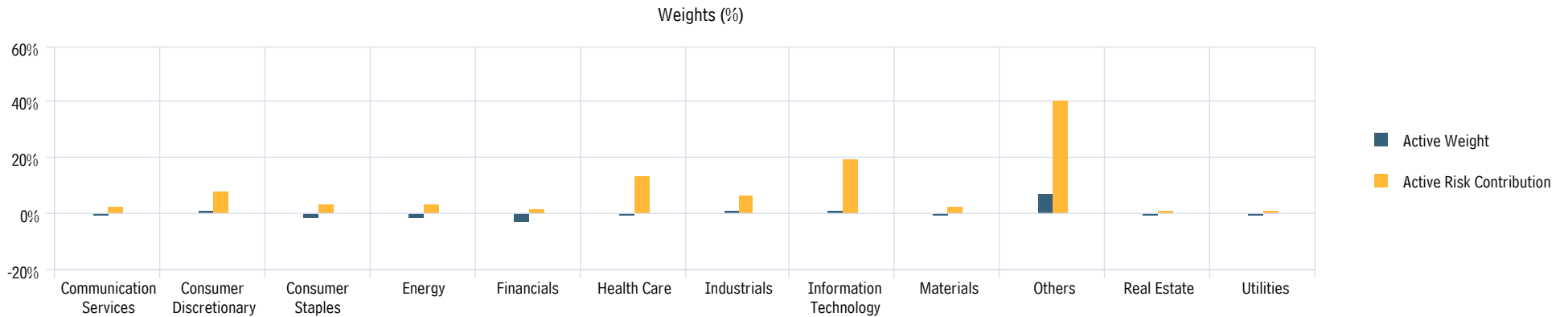
# BarraOne Equity Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: EQUITY  
BENCHMARK: EQUITY  
POSITIONS: 4,603  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 5,766,500,303  
ACCEPTED: 4,559

## Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>17.61</b>	<b>2.77</b>	<b>100.00</b>	<b>0.03</b>
Communication Services	6.38	7.08	-0.71	19.75	0.06	2.22	0.06
Consumer Discretionary	10.85	10.48	0.37	25.81	0.21	7.63	0.10
Consumer Staples	4.31	5.88	-1.58	13.29	0.08	2.72	0.03
Energy	2.31	3.96	-1.65	22.49	0.09	3.30	0.02
Financials	10.50	13.34	-2.84	18.62	0.05	1.91	0.05
Health Care	10.68	10.82	-0.15	17.05	0.36	12.86	0.08
Industrials	9.21	8.91	0.30	19.33	0.17	6.19	0.07
Information Technology	21.22	20.27	0.95	22.39	0.54	19.62	0.10
Materials	3.92	4.27	-0.35	20.75	0.06	2.23	0.05
Others	16.35	9.53	6.82	16.01	1.13	40.62	0.05
Real Estate	2.07	2.88	-0.82	17.42	0.02	0.59	0.04
Utilities	2.20	2.57	-0.36	12.33	0.00	0.11	0.02



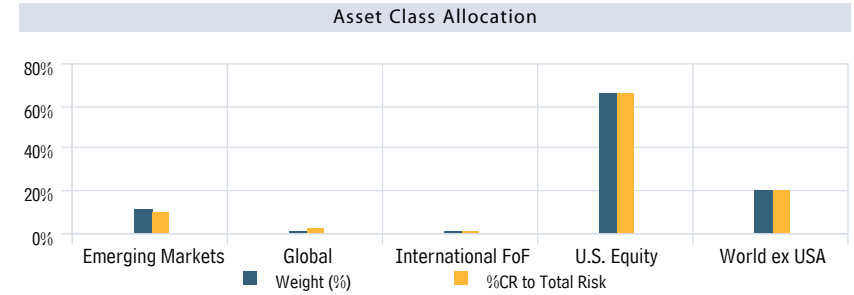
# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public Equity  
BENCHMARK: Public  
POSITIONS: 4,399  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 4,123,974,973  
ACCEPTED: 4,355

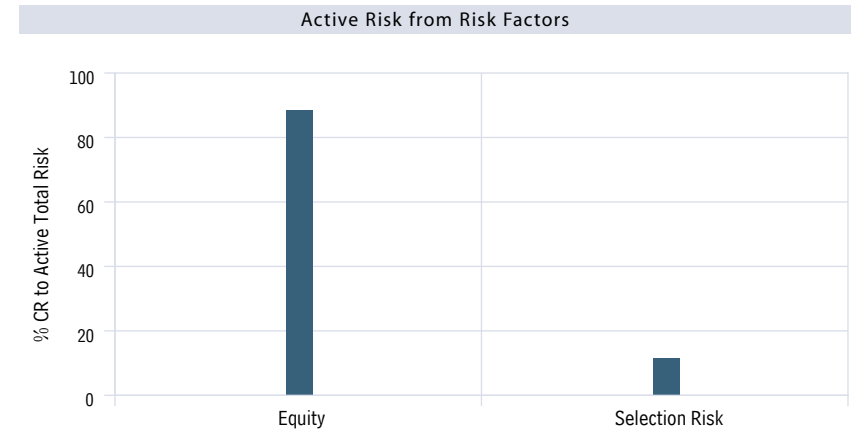
## Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	18.14	<b>Total</b>	<b>4,123,974,973</b>	<b>100.00</b>	<b>18.14</b>	<b>18.14</b>	<b>100.00</b>
Benchmark Risk	17.38	Emerging Markets	460,035,679	11.16	18.86	1.78	9.79
Active Risk	1.43	Global	73,668,069	1.79	26.97	0.45	2.47
Portfolio Beta	1.04	International FoF	67,234,177	1.63	18.84	0.28	1.55
		U.S. Equity	2,707,623,811	65.66	18.43	11.87	65.44
		World ex USA	815,413,237	19.77	20.27	3.76	20.74



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>18.14</b>	<b>100.00</b>	<b>1.00</b>	<b>1.43</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	17.55	96.74	1.00	1.43	100.23	0.98
Common Factor Risk	17.43	96.11	0.99	1.27	88.74	0.92
Equity	17.43	96.11	0.99	1.27	88.73	0.92
Style	0.45	2.46	0.59	0.67	46.63	0.71
Industry	0.28	1.57	0.26	0.35	24.46	0.60
Market	16.71	92.09	0.99	0.25	17.48	0.43
Selection Risk	0.11	0.63	0.08	0.16	11.50	0.34
Currency Risk	0.59	3.26	0.46	-0.00	-0.23	-0.01



# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public Equity  
BENCHMARK: Public  
POSITIONS: 4,399  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 4,123,974,973  
ACCEPTED: 4,355

## Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.14</b>	<b>1.43</b>	<b>100.00</b>	<b>0.01</b>
Asia Pacific	15.35	17.09	-1.74	18.06	0.22	15.09	-0.03
EMEA	11.94	15.00	-3.06	22.98	0.55	38.20	-0.00
Latin-S America	0.98	1.15	-0.17	31.93	0.01	0.76	-0.03
N America	71.56	66.34	5.22	18.61	0.64	44.86	0.02
Rest of World	0.17	0.41	-0.25	15.43	0.02	1.08	-0.06



# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public Equity  
BENCHMARK: Public  
POSITIONS: 4,399  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 4,123,974,973  
ACCEPTED: 4,355

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.14</b>	<b>1.43</b>	<b>100.00</b>	<b>0.01</b>
United States	69.26	63.13	6.13	18.58	0.52	36.55	0.12
China International	3.50	3.25	0.25	24.10	-0.07	-4.55	0.05
Japan	2.75	4.74	-1.99	19.58	0.15	10.76	0.05
Taiwan	2.45	2.10	0.35	23.45	0.02	1.53	0.07
United Kingdom	2.24	3.24	-1.00	26.05	0.19	13.57	0.07
India	1.88	1.70	0.19	25.88	0.01	0.50	0.05
S. Korea	1.85	1.64	0.21	24.28	0.00	0.18	0.07
Germany	1.83	1.75	0.08	25.45	0.06	4.06	0.11
Netherlands	1.39	0.93	0.46	29.72	0.04	3.00	0.12
Switzerland	1.30	2.21	-0.91	19.70	0.09	6.19	0.06
France	1.11	2.42	-1.31	22.79	0.02	1.49	0.08
Brazil	1.10	0.75	0.35	34.52	-0.01	-0.44	0.05
Hong Kong	1.07	0.61	0.46	21.70	-0.01	-0.76	0.04
Canada	0.87	2.78	-1.91	27.35	0.12	8.20	0.05
Australia	0.80	1.73	-0.93	27.56	0.06	3.88	0.08
Italy	0.78	0.51	0.27	28.61	0.03	2.00	0.09
Sweden	0.76	0.75	0.00	30.72	0.03	2.04	0.13
South Africa	0.61	0.53	0.08	28.45	0.00	0.12	0.07
Singapore	0.60	0.26	0.35	19.58	-0.01	-0.67	0.06
Denmark	0.57	0.57	0.00	24.39	0.02	1.67	0.08
China	0.56	0.65	-0.10	42.52	0.03	2.31	0.04
Belgium	0.31	0.20	0.11	28.78	0.01	0.43	0.08
Poland	0.29	0.10	0.19	34.86	0.00	0.13	0.09
Thailand	0.28	0.24	0.03	27.71	0.00	0.06	0.06
Ireland	0.27	0.12	0.14	29.43	0.00	0.03	0.10
Norway	0.26	0.16	0.09	30.32	0.01	0.42	0.06
Spain	0.23	0.49	-0.25	27.60	0.02	1.08	0.07
Mexico	0.21	0.30	-0.09	27.80	0.00	0.14	0.07
Indonesia	0.16	0.23	-0.07	28.84	0.00	0.33	0.04
Israel	0.12	0.11	0.01	28.84	0.00	0.08	0.07



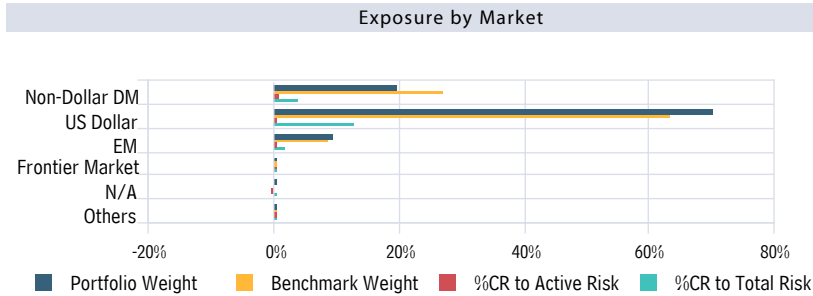


# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public Equity  
BENCHMARK: Public  
POSITIONS: 4,399  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 4,123,974,973  
ACCEPTED: 4,355

## 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	2,885,617,109.73	37.43	70.37	New Taiwan Dollar	101,120,340.98	1.53	2.04
Euro	245,958,239.20	12.96	7.08	Indian Rupee	77,562,439.45	0.50	1.60
Hong Kong Dollar	161,519,973.56	-2.01	3.21	Korean Won	69,991,815.68	0.40	1.71
Japanese Yen	113,354,004.98	10.76	2.15	Brazilian Real	45,299,521.09	-0.44	1.20
British Pound Sterling	91,789,088.23	13.90	2.67	South African Rand	25,163,668.59	0.12	0.64

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.14</b>	<b>18.14</b>	<b>100.00</b>	<b>1.43</b>	<b>100.00</b>
US Dollar	69.97	63.31	6.67	18.56	12.77	70.37	0.54	37.43
Euro	5.96	6.71	-0.75	24.38	1.28	7.08	0.19	12.96
Hong Kong Dollar	3.92	3.71	0.21	25.75	0.58	3.21	-0.03	-2.01
Japanese Yen	2.75	4.74	-1.99	19.58	0.39	2.15	0.15	10.76
New Taiwan Dollar	2.45	2.10	0.35	23.45	0.37	2.04	0.02	1.53
British Pound Sterling	2.23	3.24	-1.01	26.36	0.49	2.67	0.20	13.90
Indian Rupee	1.88	1.70	0.19	25.88	0.29	1.60	0.01	0.50
Korean Won	1.70	1.64	0.06	24.42	0.31	1.71	0.01	0.40
Swiss Franc	1.30	2.21	-0.91	19.70	0.22	1.20	0.09	6.19
Brazilian Real	1.10	0.75	0.35	34.52	0.22	1.20	-0.01	-0.44
Canadian Dollar	0.87	2.78	-1.91	27.34	0.20	1.12	0.12	8.20
Australian Dollar	0.80	1.73	-0.93	27.56	0.19	1.03	0.06	3.88
South African Rand	0.61	0.53	0.08	28.45	0.12	0.64	0.00	0.12
Singapore Dollar	0.60	0.26	0.35	19.58	0.09	0.47	-0.01	-0.67
Danish Krone	0.57	0.57	0.00	24.39	0.10	0.54	0.02	1.67

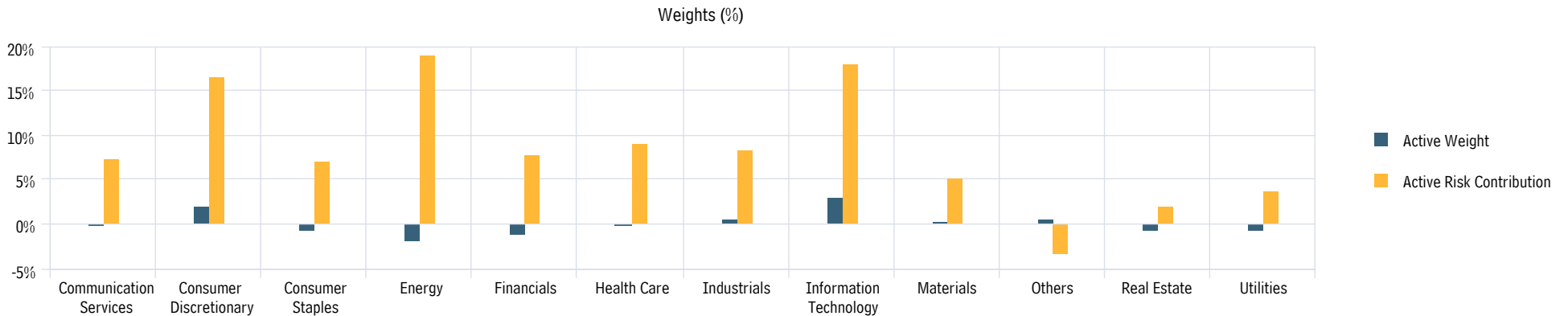
# BarraOne Equity Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public Equity  
BENCHMARK: Public  
POSITIONS: 4,399  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 4,123,974,973  
ACCEPTED: 4,355

## Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.14</b>	<b>1.43</b>	<b>100.00</b>	<b>0.01</b>
Communication Services	7.66	7.76	-0.10	20.65	0.11	7.38	0.09
Consumer Discretionary	13.42	11.57	1.85	25.46	0.24	16.57	0.14
Consumer Staples	5.75	6.59	-0.84	13.16	0.10	6.96	0.04
Energy	2.59	4.42	-1.83	25.26	0.27	18.99	-0.00
Financials	13.72	15.05	-1.33	18.60	0.11	7.69	0.07
Health Care	11.67	11.81	-0.14	16.11	0.13	8.90	0.08
Industrials	10.40	9.93	0.46	19.67	0.12	8.26	0.10
Information Technology	24.81	21.94	2.87	22.00	0.26	17.92	0.13
Materials	5.03	4.93	0.10	20.90	0.07	5.15	0.07
Others	0.57	0.00	0.57	1.34	-0.05	-3.46	0.00
Real Estate	2.30	3.15	-0.85	19.51	0.03	1.92	0.06
Utilities	2.07	2.85	-0.78	17.10	0.05	3.72	0.03



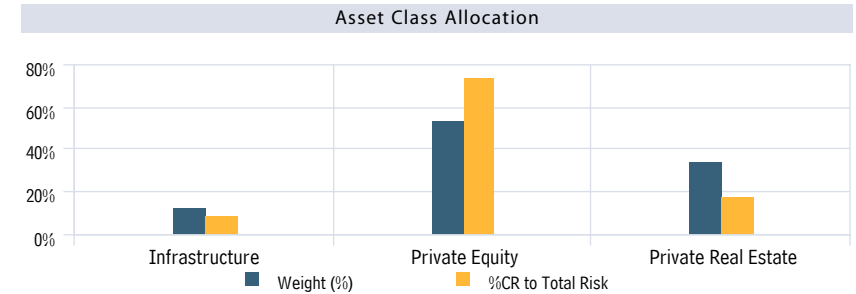
# BarraOne Equity Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: Alternative Equity  
BENCHMARK: Alternative  
POSITIONS: 204  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 1,642,525,330  
ACCEPTED: 204

## 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	18.06	<b>Total</b>	<b>1,642,525,330</b>	<b>100.00</b>	<b>18.06</b>	<b>18.06</b>	<b>100.00</b>
Benchmark Risk	14.74	Infrastructure	212,123,382	12.91	14.22	1.55	8.59
Active Risk	9.71	Private Equity	865,772,244	52.71	25.66	13.28	73.49
Portfolio Beta	1.03	Private Real Estate	564,629,703	34.38	12.32	3.24	17.92



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>18.06</b>	<b>100.00</b>	<b>1.00</b>	<b>9.71</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	17.55	97.13	1.00	9.40	96.82	0.99
Common Factor Risk	17.21	95.27	0.99	8.58	88.38	0.95
Equity	10.99	60.82	0.87	1.53	15.80	0.33
Style	0.71	3.93	0.43	0.51	5.25	0.29
Industry	0.13	0.71	0.14	0.05	0.51	0.07
Country	-0.01	-0.07	-0.11	-0.01	-0.09	-0.07
Market	10.16	56.26	0.87	0.98	10.14	0.28
Fixed Income	0.08	0.42	0.19	-0.00	-0.04	-0.01
Inflation	0.00	0.00	0.00	-0.03	-0.35	-0.13
Spread	0.16	0.89	0.58	0.07	0.73	0.26
Term Structure	-0.09	-0.47	-0.20	-0.04	-0.43	-0.13
Private Real Estate	2.70	14.92	0.72	0.63	6.47	0.16
Private Equity	3.45	19.10	0.44	6.42	66.15	0.81
Selection Risk	0.34	1.86	0.14	0.82	8.44	0.29
Currency Risk	0.52	2.87	0.39	0.31	3.18	0.23



# BarraOne Equity Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: Alternative Equity  
BENCHMARK: Alternative  
POSITIONS: 204  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 1,642,525,330  
ACCEPTED: 204

## Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.06</b>	<b>9.71</b>	<b>100.00</b>	<b>0.10</b>
Asia Pacific	4.04	0.00	4.04	13.43	0.09	0.93	0.02
EMEA	19.11	0.00	19.11	19.25	1.33	13.67	0.07
Latin-S America	0.48	0.00	0.48	39.88	0.03	0.34	0.07
N America	76.16	100.00	-23.84	19.63	8.24	84.89	0.04
N/A	0.01	0.00	0.01	16.88	0.00	0.00	0.03
Rest of World	0.20	0.00	0.20	26.05	0.02	0.16	0.08



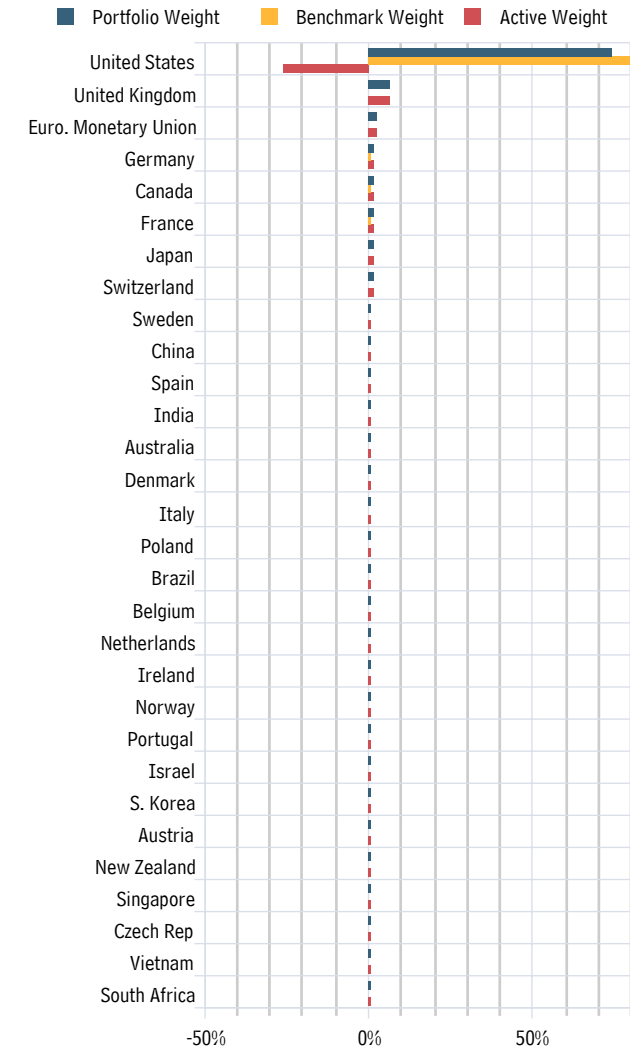
# BarraOne Equity Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: Alternative Equity  
BENCHMARK: Alternative  
POSITIONS: 204  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 1,642,525,330  
ACCEPTED: 204

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.06</b>	<b>9.71</b>	<b>100.00</b>	<b>0.10</b>
United States	74.26	100.00	-25.74	19.73	8.07	83.14	0.05
United Kingdom	6.38	0.00	6.38	22.49	0.50	5.16	0.09
Euro. Monetary Union	2.76	0.00	2.76	27.32	0.22	2.31	0.09
Germany	1.84	0.00	1.84	14.46	0.06	0.64	0.04
Canada	1.70	0.00	1.70	20.15	0.16	1.68	0.10
France	1.27	0.00	1.26	16.45	0.06	0.58	0.05
Japan	1.27	0.00	1.27	12.58	0.00	0.03	0.01
Switzerland	1.23	0.00	1.23	20.35	0.08	0.87	0.08
Sweden	1.00	0.00	1.00	27.77	0.10	0.99	0.10
China	0.89	0.00	0.89	19.58	0.02	0.20	0.03
Spain	0.78	0.00	0.78	19.96	0.03	0.27	0.04
India	0.76	0.00	0.76	26.86	0.04	0.37	0.06
Australia	0.59	0.00	0.59	20.05	0.02	0.16	0.03
Denmark	0.55	0.00	0.55	32.12	0.06	0.62	0.12
Italy	0.55	0.00	0.55	16.68	0.02	0.21	0.04
Poland	0.52	0.00	0.52	28.98	0.05	0.47	0.10
Brazil	0.40	0.00	0.40	46.75	0.03	0.33	0.09
Belgium	0.39	0.00	0.39	28.58	0.03	0.32	0.09
Netherlands	0.39	0.00	0.39	15.79	0.01	0.14	0.04
Ireland	0.33	0.00	0.33	12.41	0.01	0.06	0.02
Norway	0.30	0.00	0.30	24.54	0.02	0.25	0.09
Portugal	0.21	0.00	0.21	17.40	0.01	0.10	0.06
Israel	0.16	0.00	0.16	29.30	0.02	0.16	0.10
S. Korea	0.15	0.00	0.15	17.39	0.00	0.04	0.03
Austria	0.13	0.00	0.13	21.25	0.01	0.08	0.07
New Zealand	0.12	0.00	0.12	24.73	0.00	0.04	0.04
Singapore	0.12	0.00	0.12	20.49	0.00	0.04	0.04
Czech Rep	0.11	0.00	0.11	25.84	0.01	0.10	0.09
Vietnam	0.08	0.00	0.08	35.54	0.00	0.02	0.03
South Africa	0.07	0.00	0.07	22.93	0.00	0.03	0.04

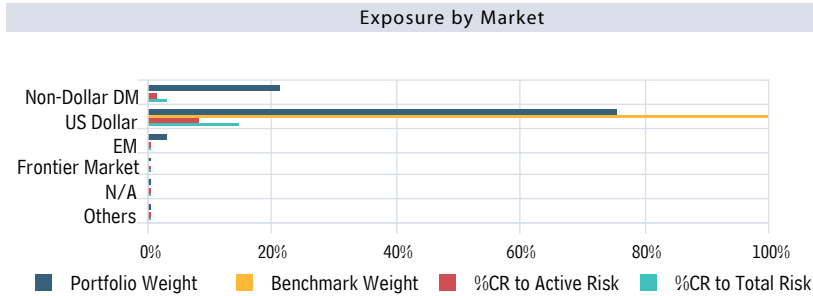


# BarraOne Equity Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: Alternative Equity  
BENCHMARK: Alternative  
POSITIONS: 204  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 1,642,525,330  
ACCEPTED: 204

## 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	1,237,125,007.32	83.15	79.95	Chinese Yuan	13,989,398.43	0.20	0.35
Euro	136,243,464.89	4.81	6.13	Indian Rupee	12,501,462.34	0.37	0.58
British Pound Sterling	102,132,645.32	5.18	5.86	Polish Zloty	8,471,880.57	0.47	0.44
Canadian Dollar	24,046,418.04	1.70	1.61	Brazilian Real	6,595,022.52	0.33	0.43
Japanese Yen	20,797,737.21	0.03	0.24	Korean Won	2,413,523.77	0.04	0.08

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.06</b>	<b>18.06</b>	<b>100.00</b>	<b>9.71</b>	<b>100.00</b>
US Dollar	75.32	100.00	-24.68	19.49	14.44	79.95	8.07	83.15
Euro	8.29	0.00	8.29	18.10	1.11	6.13	0.47	4.81
British Pound Sterling	6.22	0.00	6.22	23.06	1.06	5.86	0.50	5.18
Canadian Dollar	1.46	0.00	1.46	23.37	0.29	1.61	0.17	1.70
Japanese Yen	1.27	0.00	1.27	12.58	0.04	0.24	0.00	0.03
Swiss Franc	1.23	0.00	1.23	20.42	0.16	0.89	0.08	0.87
Swedish Krona	1.00	0.00	1.00	27.77	0.21	1.14	0.10	0.99
Chinese Yuan	0.85	0.00	0.85	20.44	0.06	0.35	0.02	0.20
Indian Rupee	0.76	0.00	0.76	26.86	0.10	0.58	0.04	0.37
Australian Dollar	0.59	0.00	0.59	20.05	0.08	0.42	0.02	0.16
Danish Krone	0.55	0.00	0.55	32.12	0.11	0.60	0.06	0.62
Polish Zloty	0.52	0.00	0.52	28.98	0.08	0.44	0.05	0.47
Brazilian Real	0.40	0.00	0.40	46.75	0.08	0.43	0.03	0.33
Norwegian Krone	0.26	0.00	0.26	28.55	0.05	0.30	0.02	0.25
New Israeli Sheqel	0.16	0.00	0.16	29.30	0.03	0.18	0.02	0.16

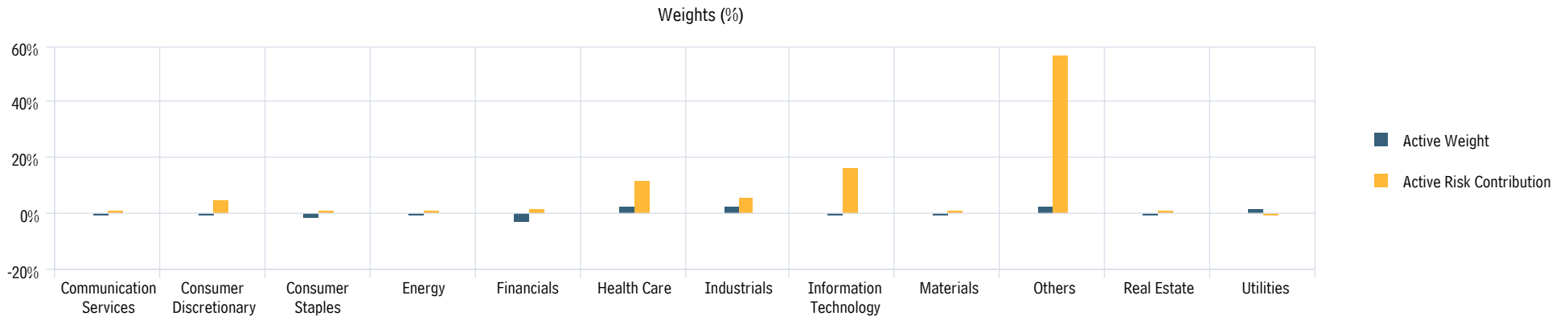
# BarraOne Equity Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: Alternative Equity  
BENCHMARK: Alternative  
POSITIONS: 204  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 1,642,525,330  
ACCEPTED: 204

## Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>18.06</b>	<b>9.71</b>	<b>100.00</b>	<b>0.10</b>
Communication Services	3.14	3.90	-0.76	17.62	0.10	1.05	0.06
Consumer Discretionary	4.41	5.42	-1.01	31.97	0.46	4.78	0.11
Consumer Staples	0.68	2.60	-1.91	23.13	0.06	0.63	0.03
Energy	1.61	1.79	-0.18	13.21	0.01	0.13	0.06
Financials	2.43	5.39	-2.97	21.49	0.12	1.20	0.07
Health Care	8.18	6.23	1.95	24.75	1.13	11.62	0.10
Industrials	6.23	4.12	2.11	19.98	0.55	5.68	0.09
Information Technology	12.22	12.49	-0.27	28.24	1.60	16.50	0.10
Materials	1.12	1.17	-0.05	24.30	0.10	1.06	0.09
Others	55.98	54.00	1.98	16.41	5.52	56.82	0.03
Real Estate	1.47	1.64	-0.17	12.65	0.05	0.54	0.03
Utilities	2.53	1.24	1.29	6.82	-0.00	-0.01	0.01



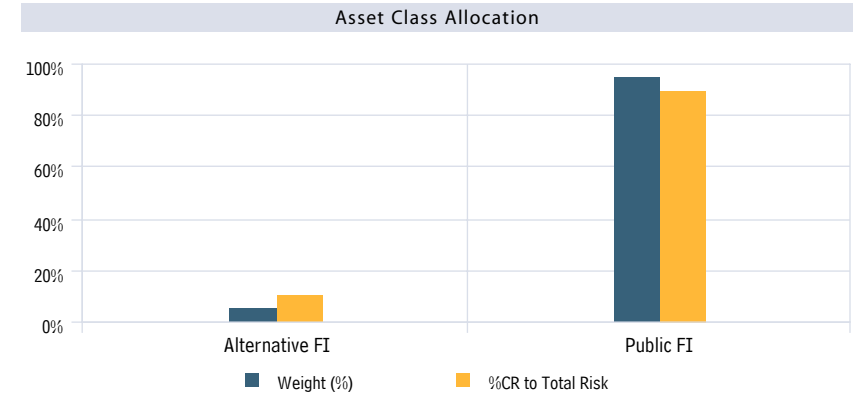
# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: FIXED INCOME  
BENCHMARK: Fixed Income  
POSITIONS: 3,614  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,908,472,533  
ACCEPTED: 3,581

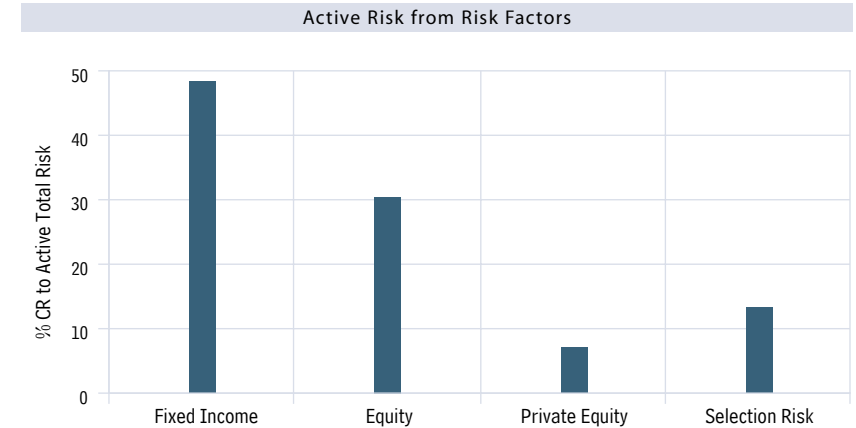
## Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	3.71	<b>Total</b>	<b>2,908,472,533</b>	<b>100.00</b>	<b>3.71</b>	<b>3.71</b>	<b>100.00</b>
Benchmark Risk	3.92	Alternative FI	157,899,896	5.43	17.04	0.38	10.24
Active Risk	0.79	Public FI	2,750,572,637	94.57	3.63	3.33	89.76
Portfolio Beta	0.93						
Cont. to Eff. Duration	5.58						
Convexity	0.48						
Yield to Worst (%)	3.67						
OAS to Swap (bp)	162.00						



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>3.71</b>	<b>100.00</b>	<b>1.00</b>	<b>0.79</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	3.70	99.62	1.00	0.79	99.59	1.00
Common Factor Risk	3.67	98.98	1.00	0.68	86.27	0.93
Equity	0.11	3.04	0.24	0.24	30.52	0.51
Style	0.02	0.65	0.15	0.04	5.54	0.27
Industry	-0.00	-0.11	-0.01	0.09	11.68	0.32
Market	0.09	2.51	0.33	0.11	13.33	0.38
Fixed Income	3.55	95.61	0.99	0.38	48.53	0.65
Implied Volatility	0.08	2.21	0.49	0.00	0.11	0.04
Inflation	0.09	2.47	0.15	0.05	6.66	0.09
Spread	0.85	23.03	0.37	0.14	18.35	0.52
Term Structure	2.52	67.93	0.66	0.18	23.38	0.45
Private Equity	0.01	0.33	0.06	0.06	7.22	0.27
Selection Risk	0.02	0.64	0.08	0.11	13.32	0.37
Currency Risk	0.01	0.38	0.29	0.00	0.41	0.07



While this Report was prepared using sources, models, information and data believed to be reliable, the information contained herein, including, without limitation, any results or data provided to you by MSCI, Inc. ("MSCI"), are provided to you AS IS. All expressed or implied representations or warranties of any kind with respect to the Report or the information contained herein, including, without limitation, warranties as to accuracy, completeness, timeliness, suitability, merchantability or use for a particular purpose are hereby disclaimed. Neither MSCI nor MSCI's software or data providers shall be responsible or liable for results obtained from use of the Report, or any information or analyses contained therein, or any losses, (whether direct, indirect, in contract, tort or otherwise) arising from any decision made or action taken by any party in reliance upon the Report, or for any delays, inaccuracies, errors in, or omissions of the Report.



# BarraOne Fixed Income Summary

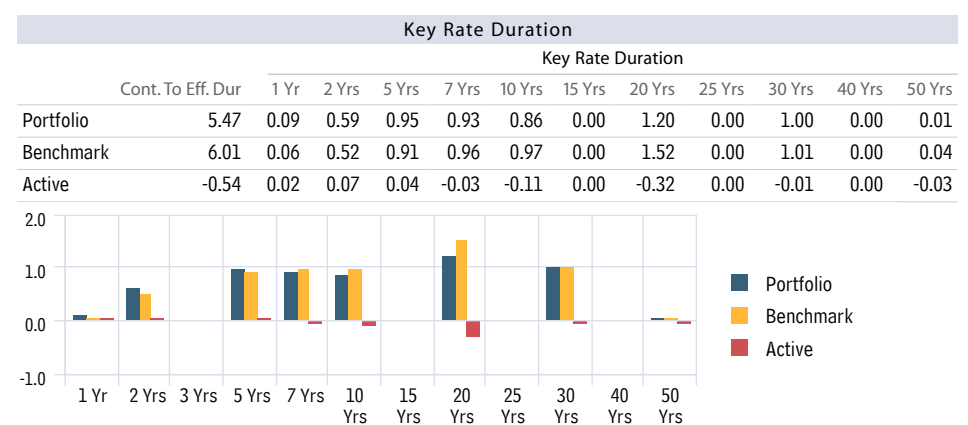
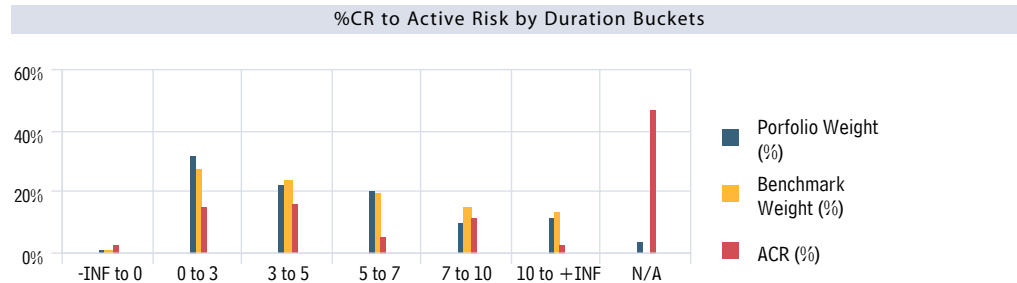
COMPANY: NYCRS - BERS  
PORTFOLIO: FIXED INCOME  
BENCHMARK: Fixed Income  
POSITIONS: 3,614  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,908,472,533  
ACCEPTED: 3,581

## 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 Consumer Discretionary HY S	45.53	0.98	0.63	0.35	0.18	0.40	0.15	0.06	8.23
US Agency MBS 30Y OAS	0.27	0.60	0.99	-0.39	-0.00	-0.21	0.04	0.02	2.84
US Corporate HY Spread	39.18	0.14	0.00	0.14	0.16	0.41	0.02	0.02	2.78
US Health Care HY Spread	42.91	0.26	0.14	0.12	0.16	0.38	0.03	0.02	2.40
US IG Steepener	34.01	-0.44	-0.69	0.25	0.08	0.22	-0.06	0.02	2.39
EU Consumer Discretionary Spre	48.83	0.12	0.01	0.11	0.16	0.33	0.02	0.02	2.32
US Agency MBS GNMA 30Y OAS	0.36	0.09	0.26	-0.17	-0.00	-0.23	0.01	0.01	1.78
US Industrials HY Spread	40.44	0.34	0.25	0.08	0.17	0.41	0.04	0.01	1.75
US Financials HY Spread	36.86	0.42	0.33	0.08	0.16	0.43	0.04	0.01	1.66
US Bank Loan Consumer Discreti	21.68	0.97	0.71	0.26	0.05	0.23	0.07	0.01	1.64

Top 10 Term Structure									
Term Structure	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
USD Rate 20Y	0.70	1.15	1.52	-0.36	-0.00	-0.44	0.50	0.11	14.43
USD Rate 10Y	0.78	1.19	1.36	-0.17	-0.00	-0.46	0.61	0.06	7.70
USD Rate 5Y	0.80	1.44	1.49	-0.04	-0.00	-0.43	0.74	0.02	1.91
USD Rate 30Y	0.67	0.97	1.01	-0.04	-0.00	-0.43	0.41	0.01	1.62
USD Rate 50Y	0.67	0.01	0.04	-0.03	-0.00	-0.43	0.00	0.01	0.98
USD Rate 1M	0.51	0.02	0.02	-0.00	-0.00	-0.10	-0.00	0.00	0.00
EUR Rate 1M	0.44	-0.00	0.00	-0.00	-0.00	-0.10	0.00	0.00	0.00
NOK Rate 1M	0.57	-0.00	0.00	-0.00	-0.00	-0.09	-0.00	0.00	0.00
EUR Rate 6M	0.24	-0.00	0.00	-0.00	-0.00	-0.15	-0.00	0.00	0.00
GBP Rate 2Y	0.61	-0.00	0.00	-0.00	-0.00	-0.28	-0.00	0.00	0.00



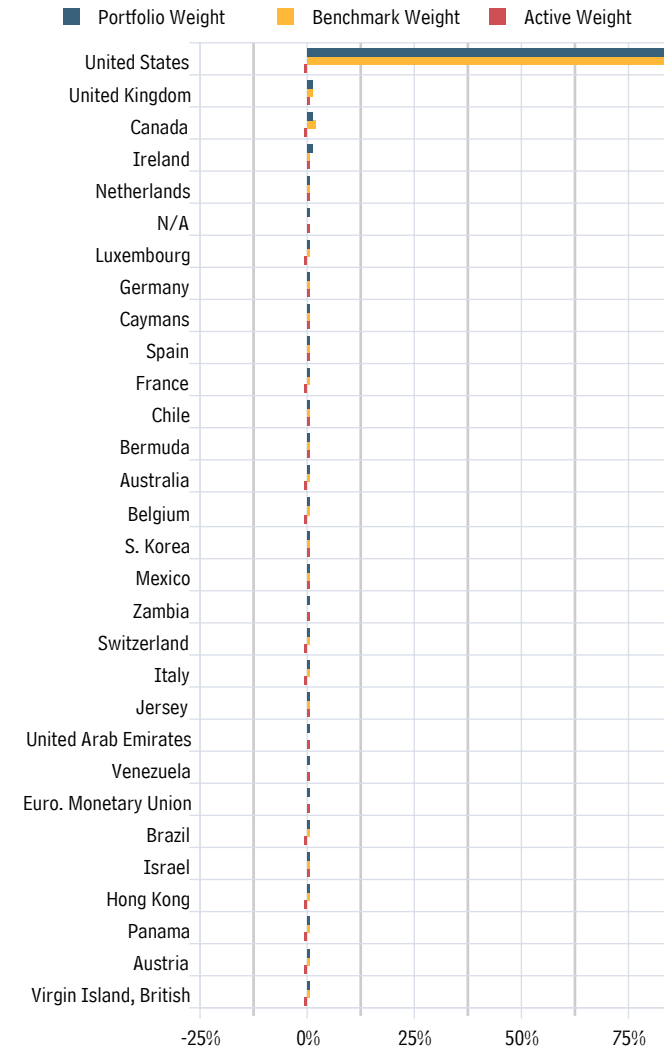
# BarraOne Fixed Income Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: FIXED INCOME  
BENCHMARK: Fixed Income  
POSITIONS: 3,614  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,908,472,533  
ACCEPTED: 3,581

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>3.71</b>	<b>0.79</b>	<b>100.00</b>	<b>0.01</b>
United States	91.58	92.25	-0.67	3.73	0.67	85.12	-0.01
United Kingdom	1.48	1.46	0.02	3.39	0.00	0.48	-0.01
Canada	1.29	1.79	-0.50	3.85	-0.00	-0.52	-0.01
Ireland	1.02	0.43	0.59	5.37	0.01	1.51	0.00
Netherlands	0.68	0.54	0.14	8.24	0.01	1.79	0.01
N/A	0.64	0.00	0.64	17.97	0.05	6.90	0.07
Luxembourg	0.50	0.60	-0.09	4.00	-0.00	-0.37	0.00
Germany	0.45	0.21	0.24	8.51	0.01	1.39	0.01
Caymans	0.42	0.10	0.32	11.23	0.01	1.40	0.02
Spain	0.29	0.13	0.16	3.59	0.00	0.20	-0.00
France	0.25	0.28	-0.03	19.48	0.01	1.38	0.03
Chile	0.15	0.02	0.13	3.12	0.00	0.18	-0.00
Bermuda	0.13	0.06	0.07	7.55	0.00	0.41	0.01
Australia	0.12	0.21	-0.08	5.86	0.00	0.06	-0.00
Belgium	0.12	0.21	-0.08	12.41	0.00	0.04	-0.02
S. Korea	0.12	0.01	0.11	6.59	0.00	0.12	-0.01
Mexico	0.12	0.09	0.03	8.52	0.00	0.07	-0.00
Zambia	0.11	0.00	0.11	2.68	0.00	0.27	0.01
Switzerland	0.10	0.16	-0.06	10.17	0.00	0.08	-0.01
Italy	0.07	0.21	-0.14	12.31	-0.00	-0.24	0.01
Jersey	0.07	0.01	0.06	0.34	0.00	0.10	0.00
United Arab Emirates	0.06	0.00	0.06	7.45	0.00	0.26	0.02
Venezuela	0.04	0.00	0.04	9.01	0.00	0.19	0.02
Euro. Monetary Union	0.04	0.00	0.04	20.06	-0.00	-0.11	0.01
Brazil	0.03	0.04	-0.02	36.56	0.00	0.34	0.04
Israel	0.02	0.01	0.01	7.77	0.00	0.04	0.00
Hong Kong	0.02	0.06	-0.04	11.31	-0.00	-0.04	-0.01
Panama	0.02	0.04	-0.02	10.51	-0.00	-0.04	0.00
Austria	0.01	0.02	-0.01	3.78	0.00	0.00	-0.00
Virgin Island, British	0.01	0.03	-0.02	8.67	-0.00	-0.07	0.01

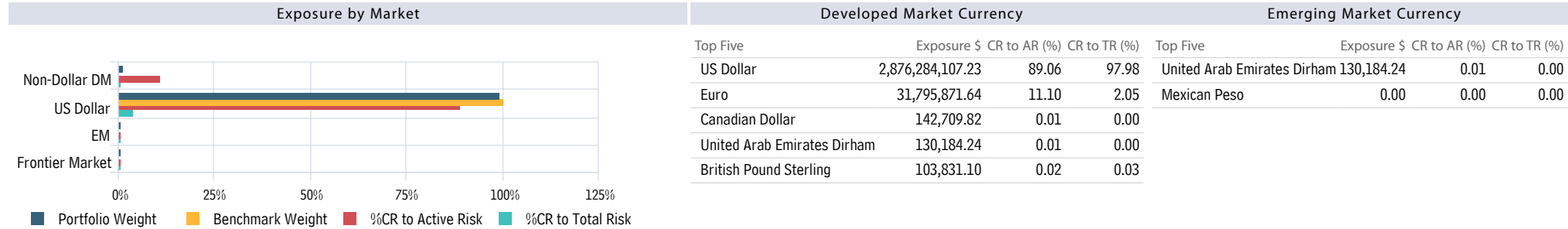


# BarraOne Fixed Income Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: FIXED INCOME  
BENCHMARK: Fixed Income  
POSITIONS: 3,614  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,908,472,533  
ACCEPTED: 3,581

## Portfolio Allocation by Currency



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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>3.71</b>	<b>3.71</b>	<b>100.00</b>	<b>0.79</b>	<b>100.00</b>
US Dollar	98.89	100.00	-1.11	3.68	3.63	97.98	0.70	89.06
Euro	1.09	0.00	1.09	16.65	0.08	2.05	0.09	11.10
Canadian Dollar	0.00	0.00	0.00	11.65	0.00	0.00	0.00	0.01
United Arab Emirates Dirham	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01
British Pound Sterling	0.00	0.00	0.00	80.66	0.00	0.03	0.00	0.02
Australian Dollar	0.00	0.00	0.00	9.86	0.00	0.00	0.00	0.00
Norwegian Krone	0.00	0.00	0.00	2,337.69	-0.00	-0.05	-0.00	-0.20
Swiss Franc	0.00	0.00	0.00	6.20	0.00	0.00	0.00	0.00
Singapore Dollar	0.00	0.00	0.00	4.07	0.00	0.00	0.00	0.00
Mexican Peso	0.00	0.00	0.00	13.64	0.00	0.00	0.00	0.00
Japanese Yen	-0.00	0.00	-0.00	6.40	-0.00	-0.00	0.00	0.00

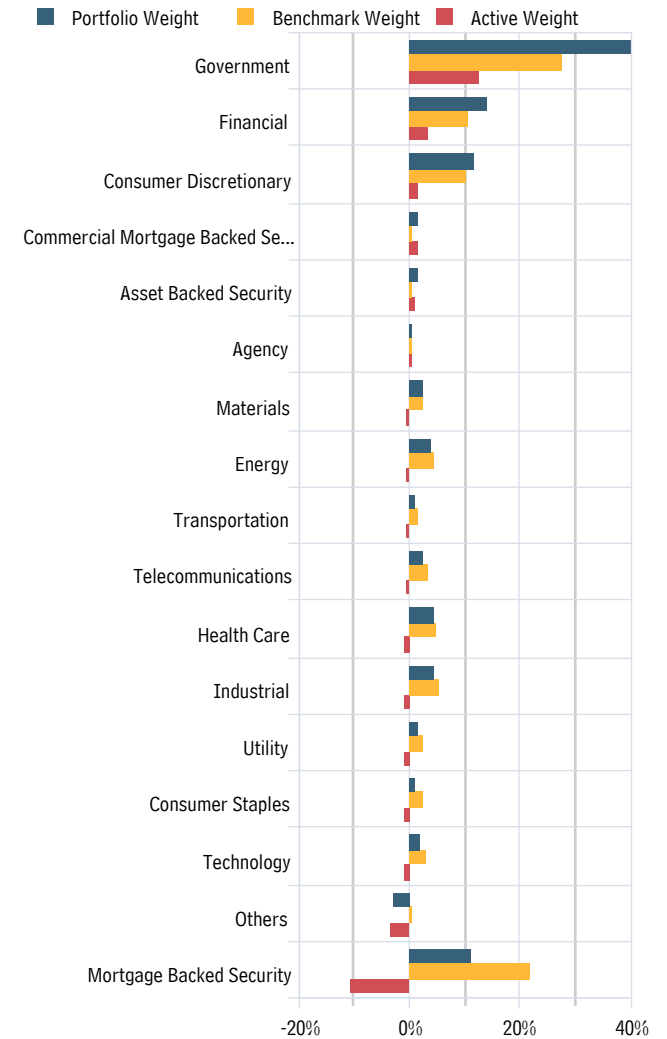
# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: FIXED INCOME  
BENCHMARK: Fixed Income  
POSITIONS: 3,614  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,908,472,533  
ACCEPTED: 3,581

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>5.47</b>	<b>3.71</b>	<b>0.79</b>	<b>100.00</b>	<b>0.01</b>
Government	39.98	27.57	12.40	2.47	3.79	0.14	17.19	-0.02
Financial	13.99	10.55	3.44	0.55	2.93	0.05	6.18	-0.00
Consumer Discretionary	11.63	9.96	1.67	0.51	5.70	0.10	12.05	0.01
Mortgage Backed Security	11.15	21.70	-10.55	0.66	5.11	0.08	10.31	-0.02
Industrial	4.19	5.15	-0.96	0.14	4.94	0.01	1.55	0.01
Health Care	4.13	4.91	-0.78	0.27	5.37	0.01	1.22	-0.01
Energy	3.93	4.19	-0.26	0.16	5.00	0.02	2.41	0.00
Telecommunications	2.60	3.31	-0.70	0.15	5.24	-0.00	-0.41	-0.00
Materials	2.42	2.54	-0.12	0.08	3.57	0.01	0.84	0.00
Technology	1.77	2.86	-1.08	0.11	7.13	0.03	4.21	-0.00
Commercial Mortgage Backed	1.52	0.10	1.42	0.04	2.08	0.01	1.75	-0.01
Utility	1.32	2.38	-1.06	0.09	4.68	0.01	1.50	-0.02
Asset Backed Security	1.22	0.12	1.10	0.07	4.45	0.00	0.12	-0.01
Consumer Staples	1.20	2.27	-1.08	0.08	5.24	0.00	0.36	-0.01
Transportation	0.83	1.32	-0.48	0.04	4.70	0.00	0.03	-0.00
Agency	0.56	0.19	0.36	0.04	5.27	-0.00	-0.49	-0.02
Collateralized Loan Obligat	0.19	0.00	0.19	-0.01	18.27	0.02	1.92	0.06
Local/Provincial	0.05	0.13	-0.08	0.00	7.63	-0.00	-0.03	-0.02
Others	-2.68	0.53	-3.21	0.04	22.30	0.31	39.38	0.02



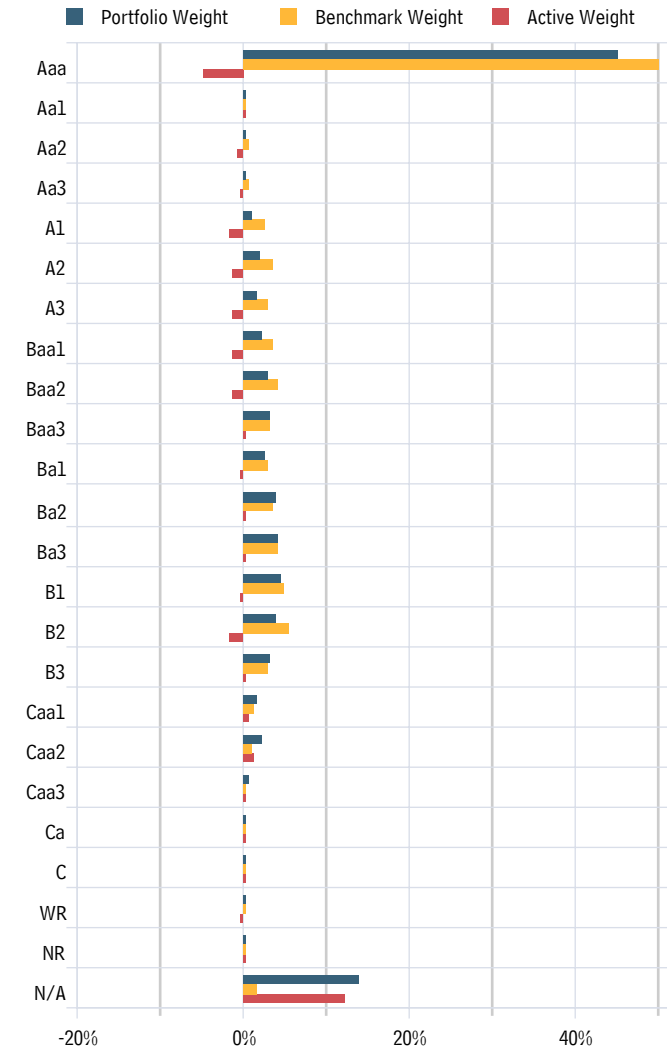
# BarraOne Fixed Income Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: FIXED INCOME  
BENCHMARK: Fixed Income  
POSITIONS: 3,614  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,908,472,533  
ACCEPTED: 3,581

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>5.47</b>	<b>5.95</b>	<b>3.71</b>	<b>0.79</b>	<b>100.00</b>
Aaa	45.23	50.14	-4.90	2.97	6.73	4.15	0.23	29.19
Aa1	0.07	0.04	0.03	0.00	2.28	1.64	0.00	0.16
Aa2	0.15	0.70	-0.55	0.03	17.76	12.03	0.00	0.22
Aa3	0.07	0.54	-0.47	0.01	10.65	6.99	0.00	0.49
A1	0.95	2.53	-1.58	0.09	9.38	6.73	0.00	0.53
A2	2.09	3.46	-1.38	0.19	9.23	6.26	-0.00	-0.12
A3	1.50	2.83	-1.34	0.14	9.20	6.11	0.00	0.22
Baa1	2.30	3.65	-1.34	0.20	8.76	5.86	0.01	1.16
Baa2	2.79	4.15	-1.35	0.23	8.27	5.59	-0.00	-0.05
Baa3	3.38	3.24	0.15	0.20	5.90	4.24	0.00	0.16
Ba1	2.59	2.94	-0.35	0.13	5.18	4.04	-0.01	-0.93
Ba2	3.90	3.58	0.31	0.16	4.32	4.11	0.00	0.56
Ba3	4.35	4.23	0.12	0.18	4.30	4.36	-0.00	-0.01
B1	4.40	4.69	-0.28	0.17	3.90	4.39	-0.01	-1.63
B2	3.94	5.61	-1.67	0.14	3.74	5.06	-0.04	-5.29
B3	3.09	3.04	0.05	0.10	3.47	5.78	0.01	0.76
Caa1	1.75	1.23	0.52	0.05	2.98	5.71	0.01	1.78
Caa2	2.31	1.08	1.23	0.04	3.02	8.28	0.05	6.13
Caa3	0.50	0.19	0.31	0.01	2.78	13.71	0.02	2.36
Ca	0.26	0.04	0.21	0.00	2.55	15.25	0.01	1.37
C	0.04	0.01	0.02	0.00	0.91	5.90	0.00	0.01
WR	0.35	0.39	-0.04	0.00	1.15	4.50	0.00	0.01
NR	0.14	0.01	0.13	-0.01	40.90	20.55	0.01	1.42
Not Rated	13.85	1.68	12.17	0.46	4.73	5.76	0.49	61.49



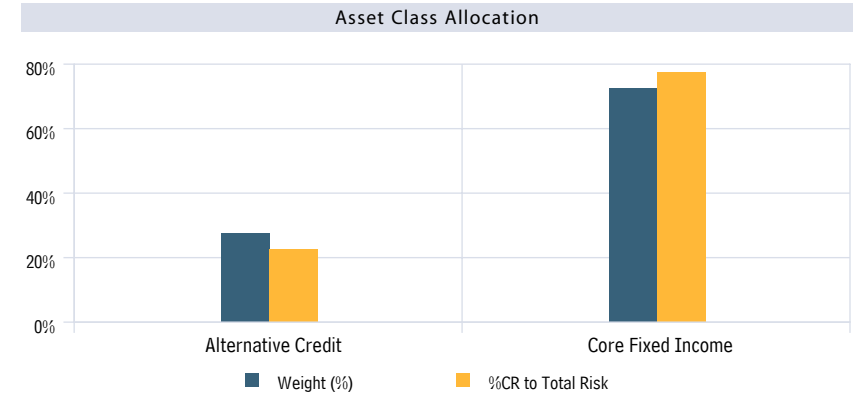
# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public FI  
BENCHMARK: Public  
POSITIONS: 3,606  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,750,572,637  
ACCEPTED: 3,573

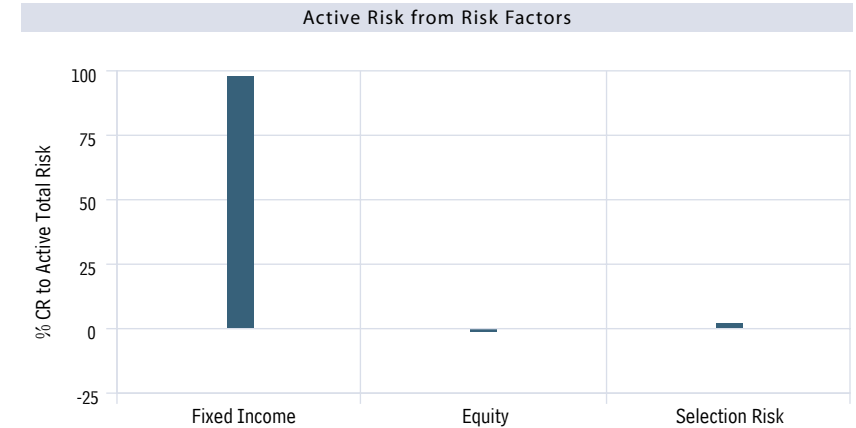
## Total Plan Summary

Risk Summary		Asset Class Contribution to Risk				
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution
Total Risk	3.63	<b>Total</b>	<b>2,750,572,637</b>	<b>100.00</b>	<b>3.63</b>	<b>3.63</b>
Benchmark Risk	3.92	Alternative Credit	761,608,682	27.69	4.53	0.82
Active Risk	0.74	Core Fixed Income	1,988,963,955	72.31	4.10	2.81
Portfolio Beta	0.91					
Cont. to Eff. Duration	5.69					
Convexity	0.43					
Yield to Worst (%)	3.48					
OAS to Swap (bp)	99.83					



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>3.63</b>	<b>100.00</b>	<b>1.00</b>	<b>0.74</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	3.63	100.00	1.00	0.74	100.00	1.00
Common Factor Risk	3.63	99.86	1.00	0.72	97.55	0.99
Equity	0.00	0.01	0.02	-0.01	-0.82	-0.42
Fixed Income	3.63	99.85	1.00	0.73	98.37	0.99
Implied Volatility	0.08	2.14	0.44	-0.01	-0.93	-0.24
Inflation	0.01	0.14	0.01	0.45	61.14	0.81
Spread	0.35	9.74	0.19	0.30	41.24	0.77
Term Structure	3.19	87.86	0.80	-0.02	-3.13	-0.09
Selection Risk	0.00	0.14	0.04	0.02	2.45	0.16



# BarraOne Fixed Income Summary

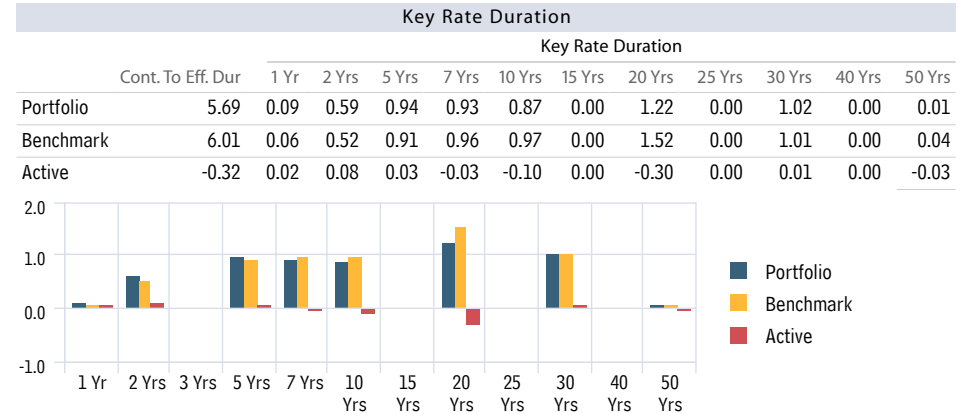
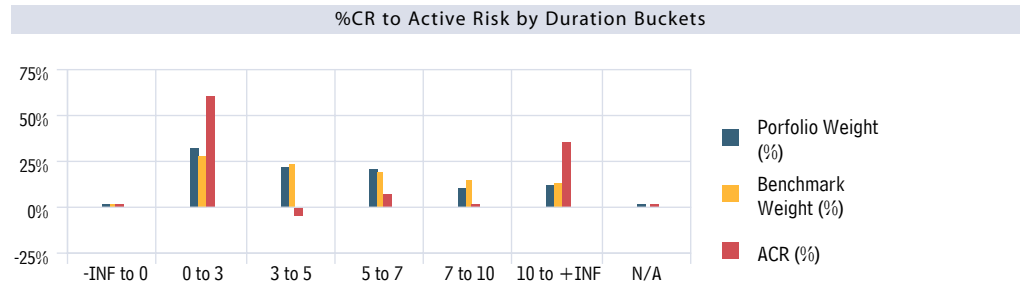
COMPANY: NYCERS - BERS  
PORTFOLIO: Public FI  
BENCHMARK: Public  
POSITIONS: 3,606  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,750,572,637  
ACCEPTED: 3,573

## 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 Bank Loan Consumer Discreti	21.68	0.07	0.71	-0.64	-0.15	-0.70	0.00	0.10	13.33	
US Bank Loan Industrials Sprea	20.31	0.01	0.40	-0.39	-0.14	-0.70	0.00	0.06	7.55	
US Bank Loan Financials Spread	22.83	0.01	0.30	-0.29	-0.16	-0.70	0.00	0.05	6.35	
US Agency MBS 30Y OAS	0.27	0.63	0.99	-0.36	-0.00	-0.43	0.03	0.04	5.74	
US Agency MBS GNMA 30Y OAS	0.36	0.09	0.26	-0.17	-0.00	-0.44	0.00	0.03	3.61	
US Bank Loan All Spread	20.94	0.01	0.17	-0.16	-0.15	-0.71	0.00	0.02	3.29	
US Bank Loan Health Care Sprea	19.52	0.02	0.21	-0.18	-0.13	-0.67	0.00	0.02	3.27	
US Bank Loan Telecommunication	22.05	0.02	0.15	-0.14	-0.16	-0.71	0.00	0.02	2.94	
US Utilities - Electric Utilit	38.50	0.05	0.14	-0.10	-0.19	-0.49	0.00	0.02	2.47	
US Bank Loan Materials Spread	21.09	0.00	0.13	-0.13	-0.14	-0.68	0.00	0.02	2.44	

Top 10 Term Structure										
Term Structure	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)			
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%	
USD Rate 2Y	0.78	0.59	0.52	0.08	0.00	0.20	0.29	0.01	1.60	
USD Rate 1Y	0.68	0.09	0.06	0.02	0.00	0.27	0.03	0.00	0.59	
USD Rate 6M	0.61	0.02	0.02	0.01	0.00	0.35	0.00	0.00	0.20	
USD Rate 5Y	0.80	1.50	1.49	0.01	0.00	0.13	0.93	0.00	0.12	
USD Rate 30Y	0.67	1.02	1.01	0.01	0.00	0.10	0.52	0.00	0.09	
USD Rate 1M	0.51	0.01	0.02	-0.01	0.00	0.41	-0.00	-0.00	-0.23	
USD Rate 50Y	0.67	0.01	0.04	-0.03	0.00	0.10	0.00	-0.00	-0.24	
USD Rate 10Y	0.78	1.24	1.36	-0.12	0.00	0.10	0.77	-0.01	-1.24	
USD Rate 20Y	0.70	1.22	1.52	-0.30	0.00	0.14	0.65	-0.03	-4.03	



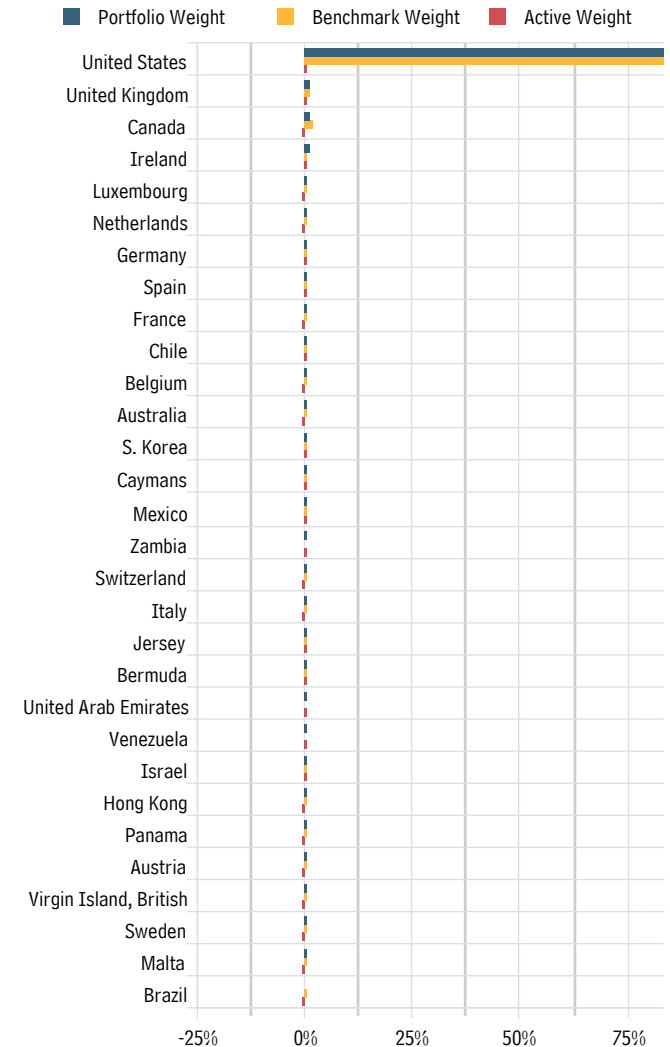
# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public FI  
BENCHMARK: Public  
POSITIONS: 3,606  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,750,572,637  
ACCEPTED: 3,573

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>3.63</b>	<b>0.74</b>	<b>100.00</b>	<b>0.01</b>
United States	92.97	92.25	0.72	3.68	0.73	98.32	-0.01
United Kingdom	1.46	1.46	0.00	3.41	0.01	0.79	-0.01
Canada	1.27	1.79	-0.52	3.99	-0.00	-0.19	-0.01
Ireland	1.04	0.43	0.61	4.64	0.00	0.55	-0.01
Luxembourg	0.51	0.60	-0.08	4.01	0.01	0.86	-0.02
Netherlands	0.46	0.54	-0.08	5.15	0.00	0.11	-0.01
Germany	0.35	0.21	0.14	4.30	0.00	0.28	-0.01
Spain	0.31	0.13	0.18	3.59	0.00	0.49	-0.01
France	0.19	0.28	-0.09	5.92	-0.00	-0.11	-0.01
Chile	0.16	0.02	0.14	3.12	0.00	0.28	-0.01
Belgium	0.13	0.21	-0.08	12.41	-0.00	-0.06	-0.01
Australia	0.13	0.21	-0.08	5.88	-0.00	-0.18	-0.01
S. Korea	0.13	0.01	0.12	6.59	0.00	0.38	0.00
Caymans	0.12	0.10	0.03	6.22	0.00	0.10	-0.02
Mexico	0.12	0.09	0.03	8.24	0.00	0.08	-0.03
Zambia	0.12	0.00	0.12	2.68	0.00	0.15	-0.01
Switzerland	0.10	0.16	-0.06	10.17	-0.00	-0.12	-0.01
Italy	0.08	0.21	-0.14	12.31	-0.00	-0.04	-0.02
Jersey	0.07	0.01	0.06	0.00	0.00	0.20	-0.00
Bermuda	0.07	0.06	0.01	7.48	-0.00	-0.07	-0.02
United Arab Emirates	0.06	0.00	0.06	8.02	-0.00	-0.05	-0.02
Venezuela	0.04	0.00	0.04	8.98	-0.00	-0.06	-0.03
Israel	0.02	0.01	0.01	7.77	-0.00	-0.03	-0.02
Hong Kong	0.02	0.06	-0.04	11.31	-0.00	-0.07	-0.01
Panama	0.02	0.04	-0.02	10.51	0.00	0.02	-0.03
Austria	0.01	0.02	-0.01	3.78	-0.00	-0.00	-0.01
Virgin Island, British	0.01	0.03	-0.02	8.67	0.00	0.07	-0.04
Sweden	0.01	0.03	-0.02	3.83	0.00	0.03	-0.02
Malta	0.01	0.01	-0.00	4.58	-0.00	-0.00	-0.01
Brazil	0.00	0.04	-0.04	0.00	0.00	0.08	-0.03



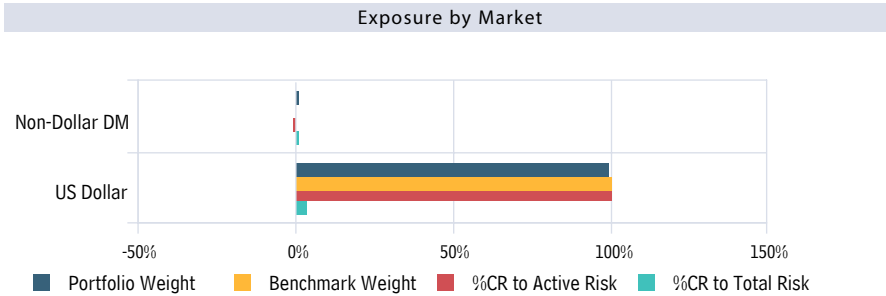


# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public FI  
BENCHMARK: Public  
POSITIONS: 3,606  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,750,572,637  
ACCEPTED: 3,573

## Portfolio Allocation by Currency



Developed Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	2,750,473,431.01	100.04	100.00
British Pound Sterling	98,296.64	-0.04	0.00
Swiss Franc	909.57	0.00	0.00
Euro	0.00	0.00	0.00

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

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						
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>3.63</b>	<b>3.63</b>	<b>100.00</b>	<b>0.74</b>	<b>100.00</b>
US Dollar	100.00	100.00	-0.00	3.63	3.63	100.00	0.74	100.04
British Pound Sterling	0.00	0.00	0.00	72.08	0.00	0.00	-0.00	-0.04
Swiss Franc	0.00	0.00	0.00	6.20	0.00	0.00	0.00	0.00
Euro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

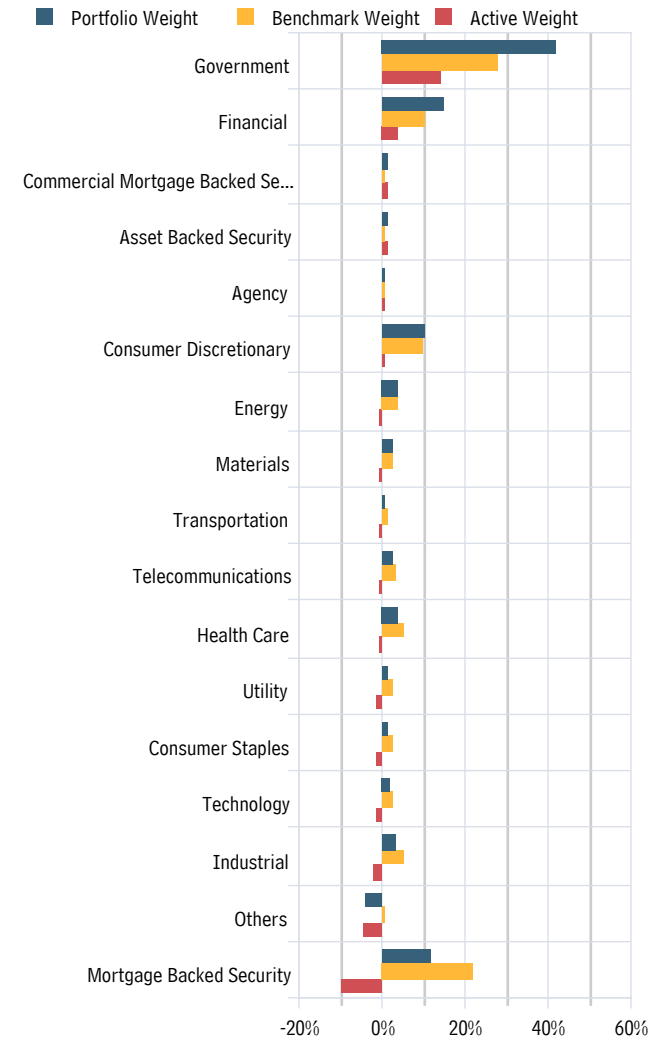
# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public FI  
BENCHMARK: Public  
POSITIONS: 3,606  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,750,572,637  
ACCEPTED: 3,573

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>5.69</b>	<b>3.63</b>	<b>0.74</b>	<b>100.00</b>	<b>0.01</b>
Government	42.07	27.57	14.50	2.60	3.78	0.76	103.71	-0.01
Financial	14.70	10.55	4.15	0.58	2.93	0.10	13.21	-0.01
Mortgage Backed Security	11.79	21.70	-9.91	0.69	5.11	-0.14	-19.28	-0.00
Consumer Discretionary	10.23	9.96	0.27	0.51	5.18	0.03	3.60	-0.02
Health Care	4.07	4.91	-0.84	0.28	5.21	-0.00	-0.47	-0.02
Energy	4.06	4.19	-0.13	0.16	4.98	0.01	0.72	-0.03
Industrial	3.05	5.15	-2.11	0.14	4.60	0.02	2.19	-0.02
Telecommunications	2.66	3.31	-0.65	0.16	5.19	0.01	1.56	-0.02
Materials	2.41	2.54	-0.13	0.08	3.51	0.01	1.31	-0.02
Technology	1.71	2.86	-1.15	0.12	5.12	-0.01	-2.03	-0.01
Commercial Mortgage Backed	1.61	0.10	1.51	0.04	2.08	0.02	2.49	-0.01
Utility	1.38	2.38	-0.99	0.09	4.66	-0.01	-0.99	-0.01
Asset Backed Security	1.28	0.12	1.16	0.07	4.46	0.01	1.54	-0.01
Consumer Staples	1.24	2.27	-1.04	0.08	5.33	-0.01	-1.00	-0.01
Transportation	0.78	1.32	-0.54	0.04	4.22	0.00	0.43	-0.02
Agency	0.58	0.19	0.39	0.04	5.30	0.01	1.07	0.00
Local/Provincial	0.05	0.13	-0.08	0.00	7.63	-0.00	-0.19	-0.00
Others	-3.66	0.53	-4.20	0.01	0.27	-0.06	-7.54	-0.00



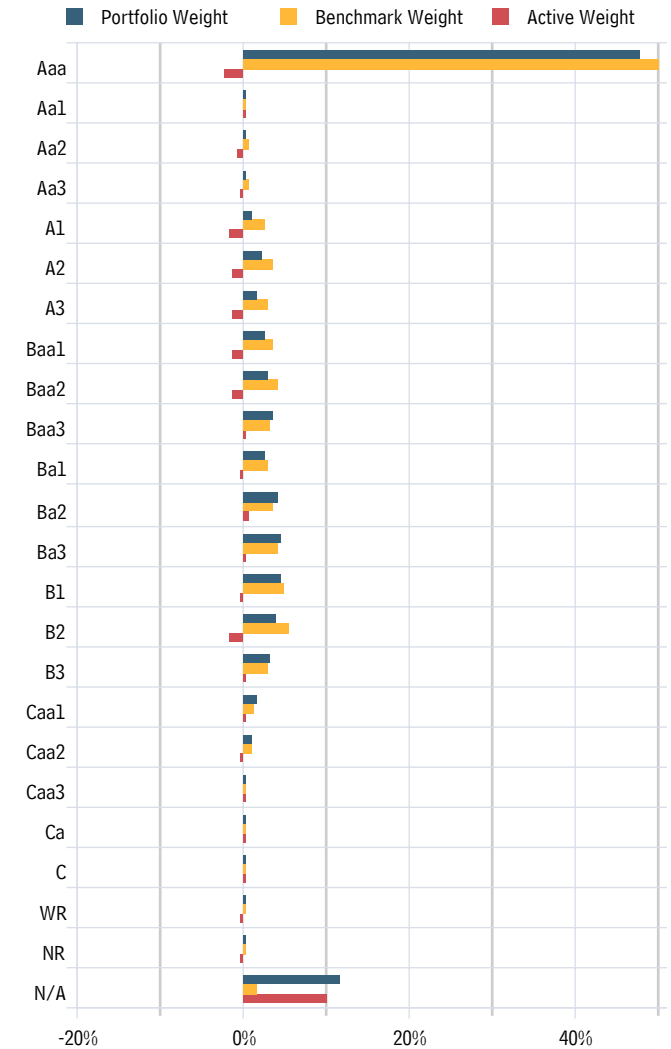
# BarraOne Fixed Income Summary

COMPANY: NYCERS - BERS  
PORTFOLIO: Public FI  
BENCHMARK: Public  
POSITIONS: 3,606  
MODEL: MAC.I

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 2,750,572,637  
ACCEPTED: 3,573

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>5.69</b>	<b>5.86</b>	<b>3.63</b>	<b>0.74</b>	<b>100.00</b>
Aaa	47.83	50.14	-2.31	3.14	6.73	4.15	0.50	67.44
Aa1	0.07	0.04	0.03	0.00	2.28	1.64	0.00	0.11
Aa2	0.15	0.70	-0.55	0.03	17.76	12.03	-0.01	-1.03
Aa3	0.07	0.54	-0.47	0.01	10.65	6.99	-0.01	-0.79
A1	1.00	2.53	-1.53	0.09	9.38	6.73	-0.03	-3.76
A2	2.21	3.46	-1.26	0.20	9.23	6.26	-0.02	-3.15
A3	1.58	2.83	-1.25	0.14	9.20	6.11	-0.01	-1.99
Baa1	2.44	3.65	-1.21	0.21	8.76	5.86	-0.01	-1.23
Baa2	2.95	4.15	-1.19	0.24	8.27	5.59	-0.00	-0.10
Baa3	3.58	3.24	0.34	0.21	5.90	4.24	0.02	2.27
Ba1	2.74	2.94	-0.20	0.14	5.18	4.04	0.02	3.10
Ba2	4.12	3.58	0.54	0.17	4.32	4.11	0.00	0.66
Ba3	4.60	4.23	0.37	0.19	4.29	4.36	0.01	1.06
B1	4.63	4.69	-0.06	0.17	3.91	4.39	0.02	3.25
B2	4.00	5.61	-1.60	0.15	3.81	5.12	0.06	7.51
B3	3.13	3.04	0.09	0.11	3.51	5.77	0.00	0.53
Caa1	1.51	1.23	0.28	0.05	3.24	5.86	0.00	0.51
Caa2	1.07	1.08	-0.00	0.04	3.50	7.62	0.01	0.76
Caa3	0.21	0.19	0.01	0.01	2.48	10.27	0.00	0.51
Ca	0.09	0.04	0.05	0.00	1.11	6.36	0.00	0.33
C	0.04	0.01	0.02	0.00	0.89	6.14	0.00	0.14
WR	0.22	0.39	-0.17	0.00	0.75	1.14	0.00	0.58
NR	0.01	0.01	-0.00	0.00	5.08	3.83	-0.00	-0.01
Not Rated	11.75	1.68	10.07	0.41	3.71	2.76	0.17	23.28



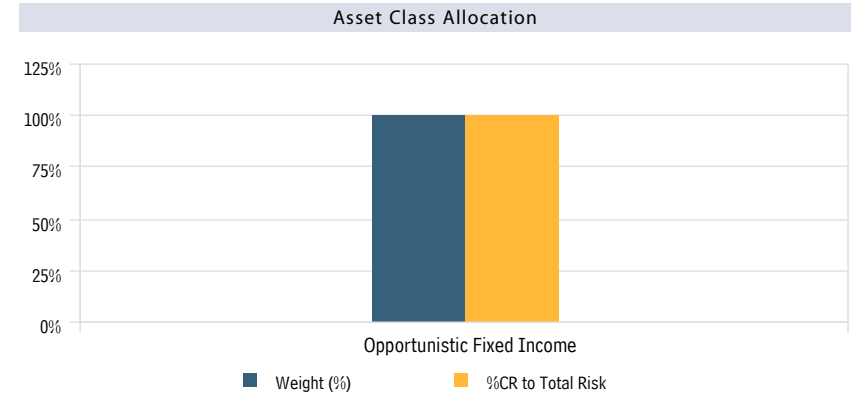
# BarraOne Fixed Income Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: Alternative FI  
BENCHMARK: 50\_HY-50\_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan  
POSITIONS: 8  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 157,899,896  
ACCEPTED: 8

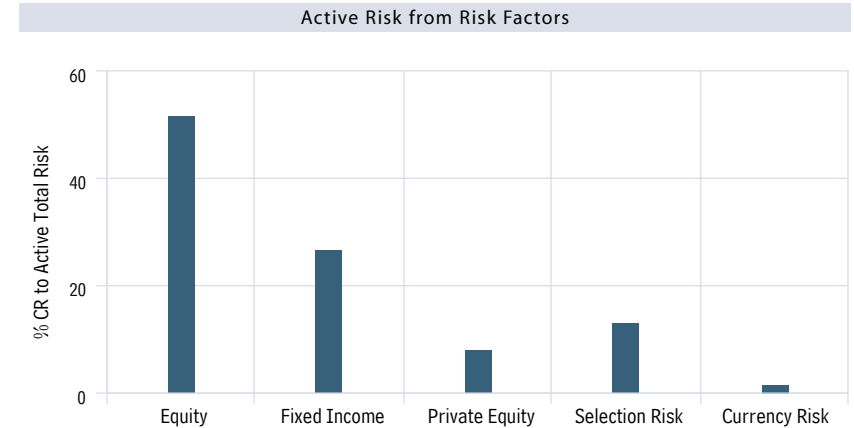
## Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	17.04	<b>Total</b>	<b>157,899,896</b>	<b>100.00</b>	<b>17.04</b>	<b>17.04</b>	<b>100.00</b>
Benchmark Risk	4.40	Opportunistic Fixed Income	157,899,896	100.00	17.04	17.04	100.00
Active Risk	13.75						
Portfolio Beta	3.11						
Cont. to Eff. Duration	3.71						
Convexity	1.79						
Yield to Worst (%)	8.63						
OAS to Swap (bp)	760.01						



## Risk Factor Breakdown

Risk Decomposition						
Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
<b>Total Risk</b>	<b>17.04</b>	<b>100.00</b>	<b>1.00</b>	<b>13.75</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	16.82	98.74	1.00	13.56	98.60	1.00
Common Factor Risk	15.40	90.40	0.96	11.80	85.82	0.93
Equity	6.86	40.27	0.80	7.06	51.34	0.83
Style	1.26	7.39	0.44	1.30	9.46	0.45
Industry	2.04	11.98	0.39	2.40	17.43	0.46
Country	-0.01	-0.05	-0.06	-0.01	-0.06	-0.06
Market	3.57	20.95	0.72	3.37	24.51	0.68
Fixed Income	7.65	44.87	0.83	3.63	26.40	0.71
Implied Volatility	0.01	0.03	0.32	-0.04	-0.26	-0.25
Spread	8.02	47.09	0.83	3.49	25.37	0.70
Term Structure	-0.38	-2.26	-0.35	0.18	1.29	0.31
Private Equity	0.90	5.26	0.23	1.11	8.08	0.28
Selection Risk	1.42	8.34	0.29	1.76	12.79	0.36
Currency Risk	0.22	1.26	0.24	0.19	1.40	0.21



# BarraOne Fixed Income Summary

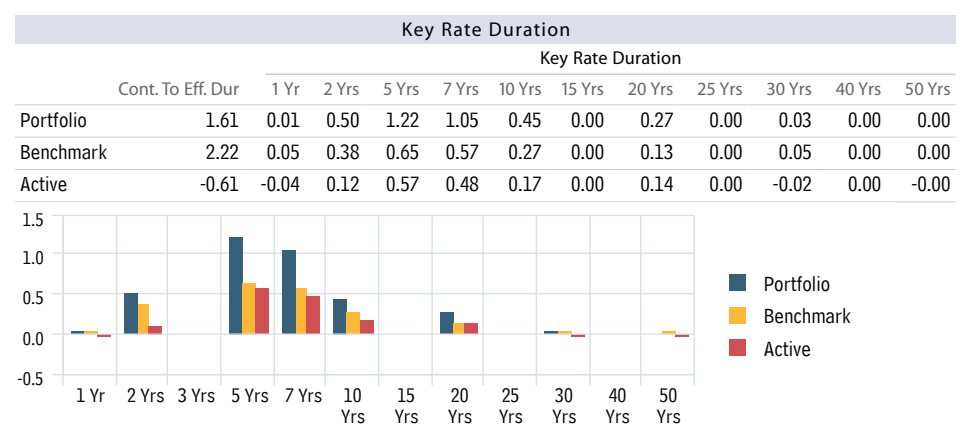
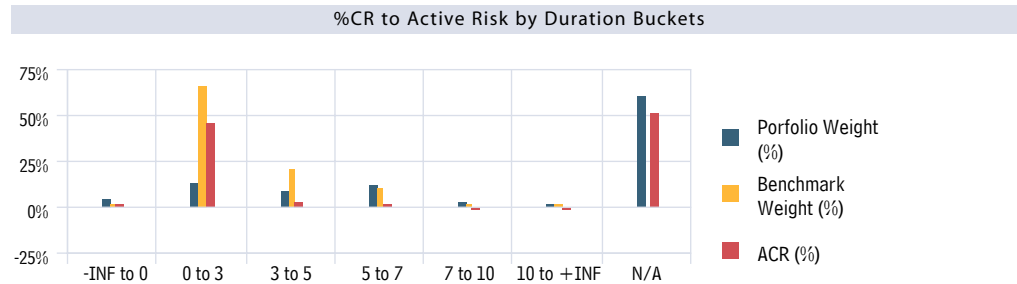
COMPANY: NYCRS - BERS  
PORTFOLIO: Alternative FI  
BENCHMARK: 50\_HY-50\_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan  
POSITIONS: 8  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 157,899,896  
ACCEPTED: 8

## 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 Bank Loan Consumer Discreti	21.68	16.65	3.77	12.88	0.15	0.69	2.86	1.93	14.05	
US Bank Loan Industrials Sprea	20.31	7.11	2.10	5.01	0.14	0.69	1.13	0.70	5.08	
US Corporate HY Spread	39.18	2.22	0.00	2.22	0.27	0.70	0.68	0.61	4.42	
EU Consumer Discretionary Spre	48.83	1.63	0.02	1.61	0.27	0.55	0.50	0.43	3.15	
US Bank Loan Health Care Sprea	19.52	2.50	1.10	1.40	0.13	0.67	0.38	0.18	1.34	
US Industrials HY Spread	40.44	1.26	0.66	0.61	0.28	0.68	0.39	0.17	1.22	
US Bank Loan Transportation Sp	23.46	1.12	0.35	0.77	0.15	0.64	0.19	0.12	0.84	
US Bank Loan Materials Spread	21.09	1.37	0.67	0.69	0.14	0.68	0.22	0.10	0.72	
EU Health Care Spread	46.63	0.40	0.06	0.34	0.26	0.55	0.12	0.09	0.64	
EM BR Spread	47.94	0.27	0.00	0.27	0.26	0.55	0.08	0.07	0.52	

Top 10 Term Structure										
Term Structure	Volatility	Exposure (Residual)				Correlation	Contribution (Residual)			
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%	
USD Rate 5Y	0.80	0.53	0.99	-0.45	-0.00	-0.35	-0.13	0.13	0.93	
USD Rate 10Y	0.78	0.26	0.50	-0.24	-0.00	-0.35	-0.06	0.07	0.47	
USD Rate 2Y	0.78	0.22	0.38	-0.16	-0.00	-0.36	-0.05	0.05	0.33	
USD Rate 20Y	0.70	0.04	0.13	-0.10	-0.00	-0.36	-0.01	0.02	0.18	
USD Rate 1Y	0.68	0.01	0.05	-0.04	-0.00	-0.39	-0.00	0.01	0.07	
USD Rate 30Y	0.67	0.01	0.05	-0.03	-0.00	-0.32	-0.00	0.01	0.05	
USD Rate 50Y	0.67	0.00	0.00	-0.00	-0.00	-0.32	-0.00	0.00	0.00	
EUR Rate 1M	0.44	-0.00	0.00	-0.00	-0.00	-0.14	0.00	0.00	0.00	
EUR Rate 6M	0.24	-0.00	0.00	-0.00	-0.00	-0.23	0.00	0.00	0.00	
NOK Rate 1M	0.57	-0.00	0.00	-0.00	-0.00	-0.12	0.00	0.00	0.00	



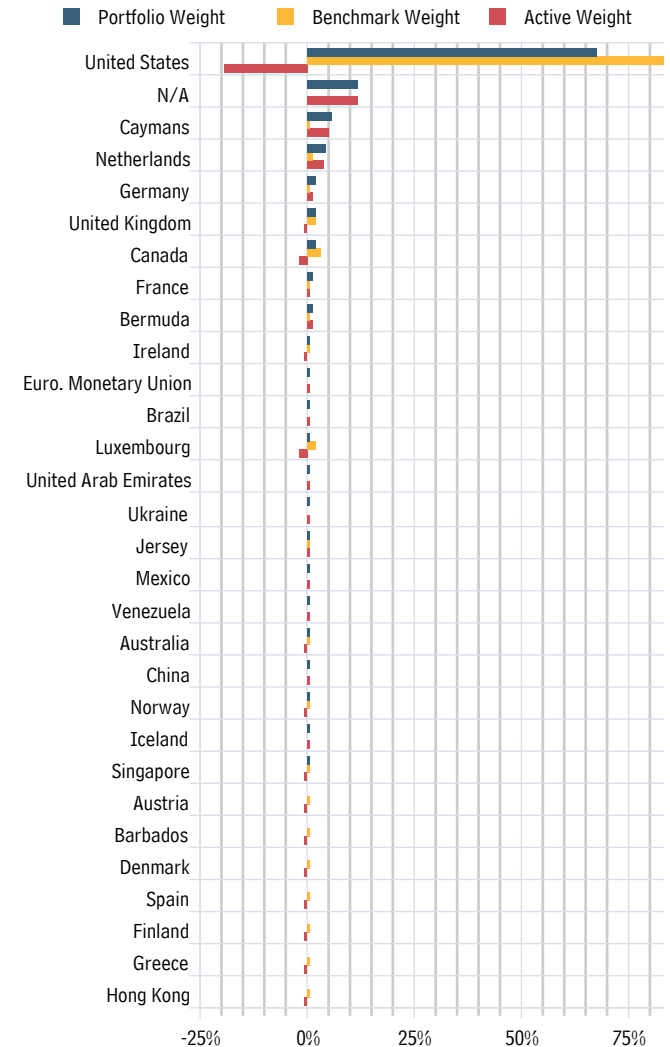
# BarraOne Fixed Income Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: Alternative FI  
BENCHMARK: 50\_HY-50\_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan  
POSITIONS: 8  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 157,899,896  
ACCEPTED: 8

## 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				
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>17.04</b>	<b>13.75</b>	<b>100.00</b>	<b>0.14</b>
United States	67.41	86.59	-19.19	20.70	11.59	84.30	0.05
N/A	11.71	0.00	11.71	17.97	1.12	8.15	0.13
Caymans	5.63	0.33	5.30	14.77	0.17	1.21	0.06
Netherlands	4.54	1.10	3.44	16.19	0.27	1.95	0.07
Germany	2.10	0.55	1.55	24.51	0.22	1.61	0.11
United Kingdom	1.68	1.99	-0.31	10.39	0.05	0.35	0.03
Canada	1.65	3.39	-1.74	3.91	0.01	0.07	0.02
France	1.44	0.56	0.87	59.86	0.24	1.73	0.15
Bermuda	1.28	0.10	1.18	9.76	0.01	0.11	0.04
Ireland	0.73	0.88	-0.15	26.70	0.07	0.52	0.07
Euro. Monetary Union	0.71	0.00	0.71	20.06	-0.05	-0.36	0.04
Brazil	0.54	0.00	0.54	36.56	0.09	0.62	0.19
Luxembourg	0.31	2.18	-1.88	9.68	0.01	0.08	0.03
United Arab Emirates	0.08	0.00	0.08	0.03	-0.00	-0.02	-0.00
Ukraine	0.07	0.00	0.07	18.85	0.00	0.04	0.10
Jersey	0.06	0.03	0.03	7.45	-0.00	-0.00	0.02
Mexico	0.06	0.00	0.06	37.21	0.01	0.05	0.15
Venezuela	0.01	0.00	0.01	24.66	0.00	0.00	0.09
Australia	0.01	0.33	-0.32	9.86	0.00	0.04	0.02
China	0.01	0.00	0.01	2.62	-0.00	-0.00	0.01
Norway	0.01	0.05	-0.04	2,337.69	-0.07	-0.50	-1.32
Iceland	0.00	0.00	0.00	10.13	-0.00	-0.00	0.03
Singapore	0.00	0.05	-0.05	4.07	0.00	0.01	0.01
Austria	0.00	0.03	-0.03	0.00	0.00	0.00	0.02
Barbados	0.00	0.02	-0.02	0.00	0.00	0.00	0.02
Denmark	0.00	0.01	-0.01	0.00	0.00	0.00	0.02
Spain	0.00	0.05	-0.05	0.00	-0.00	-0.01	0.04
Finland	0.00	0.06	-0.06	0.00	0.00	0.01	0.02
Greece	0.00	0.01	-0.01	0.00	0.00	0.00	0.03
Hong Kong	0.00	0.16	-0.16	0.00	0.00	0.03	0.00

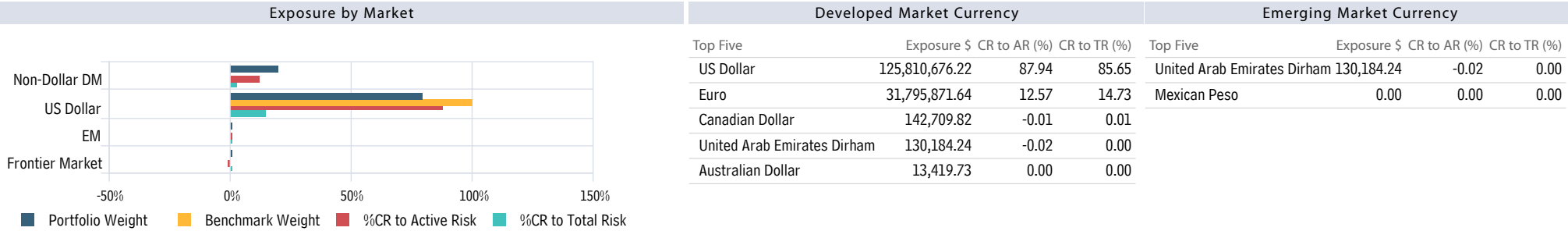


# BarraOne Fixed Income Summary

COMPANY: NYCRS - BERS  
 PORTFOLIO: Alternative FI  
 BENCHMARK: 50\_HY-50\_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan  
 POSITIONS: 8  
 MODEL: MAC.L

CURRENCY: USD  
 ANALYSIS DATE: March 31, 2022  
 MARKET VALUE: 157,899,896  
 ACCEPTED: 8

## Portfolio Allocation by Currency



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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>17.04</b>	<b>17.04</b>	<b>100.00</b>	<b>13.75</b>	<b>100.00</b>
US Dollar	79.68	100.00	-20.32	18.52	14.59	85.65	12.09	87.94
Euro	20.14	0.00	20.14	16.65	2.51	14.73	1.73	12.57
Canadian Dollar	0.09	0.00	0.09	11.65	0.00	0.01	-0.00	-0.01
United Arab Emirates Dirham	0.08	0.00	0.08	0.03	0.00	0.00	-0.00	-0.02
Australian Dollar	0.01	0.00	0.01	9.86	0.00	0.00	0.00	0.00
Norwegian Krone	0.01	0.00	0.01	2,337.69	-0.07	-0.41	-0.07	-0.50
British Pound Sterling	0.00	0.00	0.00	787.53	0.00	0.02	0.00	0.01
Singapore Dollar	0.00	0.00	0.00	4.07	0.00	0.00	-0.00	-0.00
Mexican Peso	0.00	0.00	0.00	13.64	0.00	0.00	0.00	0.00
Swiss Franc	-0.00	0.00	-0.00	6.20	-0.00	-0.00	0.00	0.00
Japanese Yen	-0.00	0.00	-0.00	6.40	0.00	0.00	0.00	0.00



While this Report was prepared using sources, models, information and data believed to be reliable, the information contained herein, including, without limitation, any results or data provided to you by MSCI, Inc. ("MSCI"), are provided to you AS IS. All expressed or implied representations or warranties of any kind with respect to the Report or the information contained herein, including, without limitation, warranties as to accuracy, completeness, timeliness, suitability, merchantability or use for a particular purpose are hereby disclaimed. Neither MSCI nor MSCI's software or data providers shall be responsible or liable for results obtained from use of the Report, or any information or analyses contained therein, or any losses, (whether direct, indirect, in contract, tort or otherwise) arising from any decision made or action taken by any party in reliance upon the Report, or for any delays, inaccuracies, errors in, or omissions of the Report.

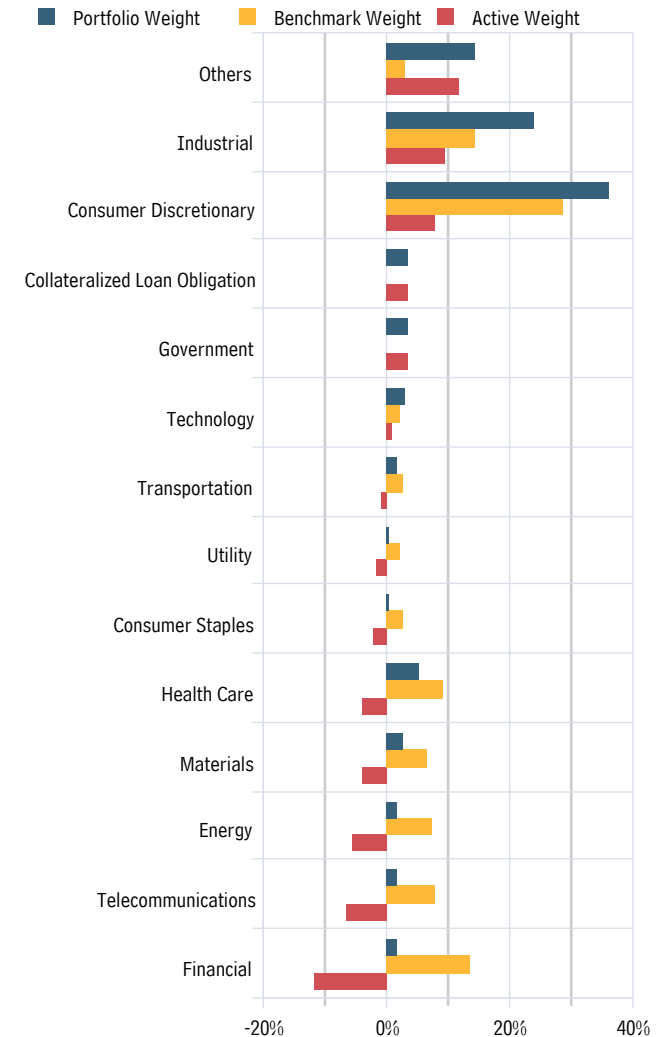
# BarraOne Fixed Income Summary

COMPANY: NYCRC - BERS  
PORTFOLIO: Alternative FI  
BENCHMARK: 50\_HY-50\_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan  
POSITIONS: 8  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 157,899,896  
ACCEPTED: 8

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>1.61</b>	<b>17.04</b>	<b>13.75</b>	<b>100.00</b>	<b>0.14</b>
Consumer Discretionary	36.12	28.49	7.63	0.43	11.47	1.78	12.93	0.06
Industrial	24.10	14.32	9.78	0.25	7.65	0.42	3.07	0.04
Others	14.51	2.84	11.67	0.64	75.04	10.00	72.75	0.06
Health Care	5.23	9.16	-3.93	0.07	14.86	0.36	2.64	0.05
Collateralized Loan Obligat	3.56	0.00	3.56	-0.18	18.27	0.29	2.09	0.11
Government	3.45	0.00	3.45	0.28	6.05	-0.18	-1.29	-0.02
Technology	2.96	2.19	0.77	0.02	48.63	0.71	5.20	0.16
Materials	2.47	6.57	-4.10	0.01	11.05	0.08	0.57	0.03
Transportation	1.76	2.79	-1.03	0.00	17.72	0.07	0.54	0.05
Financial	1.63	13.31	-11.67	0.01	10.17	0.03	0.24	0.03
Telecommunications	1.62	8.00	-6.37	0.02	15.19	0.14	1.00	0.04
Energy	1.58	7.38	-5.80	0.04	8.70	-0.02	-0.16	0.04
Consumer Staples	0.50	2.78	-2.28	0.00	5.35	0.02	0.17	0.02
Utility	0.19	2.08	-1.90	0.01	13.57	0.02	0.13	0.03
Asset Backed Security	0.18	0.00	0.18	0.00	6.08	-0.00	-0.01	0.03
Sovereign	0.07	0.00	0.07	0.00	28.15	0.00	0.04	0.10
Agency	0.06	0.00	0.06	0.01	37.21	0.01	0.05	0.15





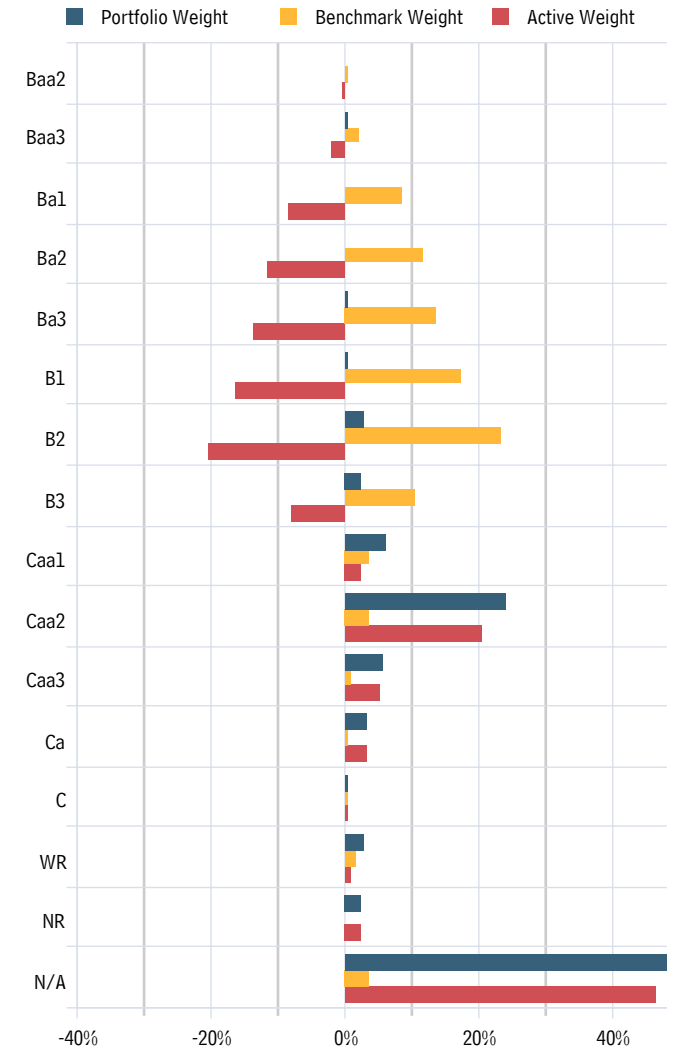
# BarraOne Fixed Income Summary

COMPANY: NYCRS - BERS  
PORTFOLIO: Alternative FI  
BENCHMARK: 50\_HY-50\_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan  
POSITIONS: 8  
MODEL: MAC.L

CURRENCY: USD  
ANALYSIS DATE: March 31, 2022  
MARKET VALUE: 157,899,896  
ACCEPTED: 8

## 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					
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>-0.00</b>	<b>1.61</b>	<b>9.62</b>	<b>17.04</b>	<b>13.75</b>	<b>100.00</b>
Baa2	0.00	0.08	-0.08	0.00	0.00	0.00	0.00	0.01
Baa3	0.02	1.87	-1.85	0.00	7.55	13.29	0.03	0.24
Ba1	0.00	8.32	-8.32	0.00	0.00	0.00	0.08	0.59
Ba2	0.00	11.61	-11.61	0.00	0.00	0.00	0.10	0.70
Ba3	0.10	13.77	-13.68	0.01	7.07	22.25	0.09	0.63
B1	0.55	17.17	-16.63	0.01	3.07	7.12	0.04	0.26
B2	2.89	23.24	-20.36	0.01	1.92	6.62	-0.09	-0.62
B3	2.34	10.42	-8.07	0.04	2.51	7.97	-0.02	-0.12
Caa1	5.92	3.71	2.21	0.02	1.83	8.38	0.03	0.23
Caa2	23.91	3.51	20.40	0.11	2.64	10.15	0.81	5.89
Caa3	5.70	0.67	5.03	0.16	2.96	17.57	0.30	2.16
Ca	3.20	0.14	3.05	0.03	3.23	21.24	0.26	1.90
C	0.04	0.03	0.00	0.00	1.30	10.85	-0.00	-0.00
WR	2.62	1.64	0.98	0.01	1.73	10.47	0.05	0.34
NR	2.38	0.00	2.38	-0.20	42.97	21.83	0.22	1.62
Not Rated	50.36	3.81	46.55	1.40	-15.92	26.83	11.85	86.18



## APPENDICES:

- Basket Clause
- Liquidity Analysis

# BASKET CLAUSE ANALYSIS

Trustee Reporting  
As of 03/31/2022

<b>Basket Limit</b>	<b>25.00%</b>
<b>Basket Consumed</b>	<b>19.52%</b>
<b>Remaining Capacity</b>	<b>5.48%</b>

		Basket-Eligible Assets*			
	Non-Basket Assets	Non-Contributing	Contributing	Basket Assets	Total
<b>FIXED INCOME</b>	<b>25.40%</b>	<b>6.61%</b>	<b>0.00%</b>	<b>4.65%</b>	<b>36.65%</b>
<b>U.S. Fixed</b>	<b>10.41%</b>	<b>5.94%</b>	<b>0.00%</b>	<b>3.46%</b>	<b>19.82%</b>
Cash/Equivalent	4.68%	---	---	0.00%	4.68%
TIPS	3.36%	---	---	----	3.36%
OFI	---	---	---	1.72%	1.72%
High Yield	0.72%	5.87%	0.00%	1.71%	8.30%
Bank Loans	0.00%	---	---	0.00%	0.00%
ETI Investments	0.45%	---	---	0.01%	0.45%
Core/Core Plus	1.21%	0.07%	---	0.03%	1.31%
<b>U.S. Structured</b>	<b>14.99%</b>	<b>0.67%</b>	<b>---</b>	<b>1.18%</b>	<b>16.84%</b>
Credit	3.68%	0.67%	---	0.12%	4.46%
Mortgages	4.31%	---	---	1.07%	5.38%
ST Treasury	2.37%	---	---	----	2.37%
Treasury/Agency	1.21%	---	---	----	1.21%
MT Treasury	2.62%	---	---	----	2.62%
LT Treasury	0.80%	---	---	----	0.80%
<b>EQUITY</b>	<b>29.62%</b>	<b>18.86%</b>	<b>5.31%</b>	<b>9.56%</b>	<b>63.35%</b>
<b>Public Equity</b>	<b>29.59%</b>	<b>10.00%</b>	<b>5.31%</b>	<b>0.04%</b>	<b>44.93%</b>
U.S. Equity	28.12%	0.89%	0.47%	0.00%	29.47%
EAFE	0.21%	5.46%	2.90%	0.01%	8.58%
Emerging Markets	0.17%	3.24%	1.72%	0.02%	5.15%
Global	1.09%	0.41%	0.22%	0.01%	1.72%
<b>Alternative Investments</b>	<b>0.04%</b>	<b>8.86%</b>	<b>---</b>	<b>9.52%</b>	<b>18.42%</b>
Infrastructure	---	2.31%	---	0.00%	2.31%
Private RE/Core	---	4.07%	---	----	4.07%
Private RE/Non-Core	0.01%	2.49%	---	----	2.49%
Private Equity	0.03%	---	---	9.52%	9.55%
<b>TOTAL ASSETS</b>	<b>55.02%</b>	<b>25.47%</b>	<b>5.31%</b>	<b>14.21%</b>	<b>100.00%</b>
	<b>Non-Basket:</b>	<b>80.48%</b>	<b>Basket:</b>	<b>19.52%</b>	

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 REPORTS

Trustee Reporting  
As of 03/31/2022

AUM as of March 31, 2022

	Current MV	Liquid Assets		
		Today	1 Year	2 Years
<b>PUBLIC EQUITY</b>	<b>\$4,138</b>	<b>\$4,138</b>	<b>\$4,138</b>	<b>\$4,138</b>
U.S.	2,712	2,712	2,712	2,712
EAFE Equity	735	735	735	735
Emerging Markets	533	533	533	533
Global Equity	158	158	158	158
<b>PUBLIC FIXED INCOME</b>	<b>\$2,738</b>	<b>\$2,713</b>	<b>\$2,723</b>	<b>\$2,723</b>
Short Term Securities	102	102	102	102
U.S. Government	644	644	644	644
Mortgages				
Core Mortgages	353	353	353	353
ETI	42	17	28	28
Credit - Investment Grade	525	525	525	525
Corporate - Hight Yield	762	762	762	762
Corporate - Bank Loans	0	0	0	0
UST - Inflation Protected	309	309	309	309
<b>ALTERNATIVE ASSETS</b>	<b>\$1,853</b>	<b>\$118</b>	<b>\$158</b>	<b>\$158</b>
Private Equity	879	0	0	0
Private Real Estate	604	0	0	0
Infrastructure	212	0	0	0
Opportunistic Fixed Income	158	118	158	158
<b>Total Assets</b>	<b>\$8,728</b>	<b>\$6,970</b>	<b>\$7,019</b>	<b>\$7,019</b>
<b>Total Illiquid \$</b>		\$1,759	\$1,709	\$1,709
<b>Total Illiquid %</b>		20.2%	19.6%	19.6%
Unfunded OFI Commitments	\$101			
Unfunded INF Commitments	\$247			
Unfunded PE Commitments	\$585			
Unfunded RE Commitments	\$389			
<b>Total commitments \$</b>	<b>\$1,322</b>			
<b>Total commitments %</b>	<b>15.1%</b>			



## BERS Liquidity Profile - Static Analysis

03/31/22

AUM as of March 31, 2022

## Denominator Effect - Decrease AUM by One-Third

<b>Total Illiquid \$</b>	\$1,759	\$1,709	\$1,709
<b>Total Illiquid %</b>	30.2%	29.4%	29.4%

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
<b>Total Assets</b>	<b>\$8,728</b>	<b>\$6,970</b>	<b>\$7,019</b>	<b>\$7,019</b>

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

Unfunded OFI Commitments	\$20	\$40
Unfunded INF Commitments	\$49	\$99
Unfunded PE Commitments Drawn	\$117	\$234
Unfunded RE Commitments Drawn	\$78	\$156
<b>Total commitments \$</b>	<b>\$264</b>	<b>\$529</b>
<b>Total commitments %</b>	3.0%	6.1%

<b>Total Illiquid \$</b>	\$1,973	\$2,238
<b>Total Illiquid %</b>	22.6%	25.6%

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

See Assumptions Page for Full Details



## Denominator Effect - Decrease AUM by One-Third

<b>Total Illiquid \$</b>	\$1,759	\$1,973	\$2,238
<b>Total Illiquid %</b>	30.2%	33.9%	38.5%

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



**Additional Assumptions**

Alternative Assets Liquidation Estimates: Private Equity, Private Real Estate, and Infrastructure: assumes no liquidations in 2-year horizon; Opportunistic Fixed Income: assumes 75% immediate availability and 100% availability within one year.

Illiquid Ratio: Illiquid investment value for each of the three time horizons as a percentage of current AUM. The ratio is calculated under three scenarios: 1) Unadjusted estimated illiquid value to current total assets. 2) Unadjusted estimated illiquid values to current total assets after a 33% decline. 3) Estimated illiquid value after Fixed Income Stress Case to current total assets after a 33% decline.

Unfunded Commitments: Uses custodian value at month end.

Denominator Effect: Measures Illiquid Ratio for each time horizon after an assumed 33% decline in portfolio value.

Fixed Income Stress Case: Measures impact of new commitments to illiquid asset classes assuming no capital calls and a level 5-year pacing schedule.

