














NYC Teachers' Retirement System Investment Meeting (Public)

Schedule Thursday, March 9, 2023 10:00 AM — 2:00 PM EST
Venue Zoom Meeting
Organizer Wilfredo Suarez

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PUBLIC AGENDA -

Welcome and Opening

Asset Allocation Resolution 2023:

Teachers Retirement System of the City of New York

WHEREAS, the Teachers Retirement System of the City of New York (TRS) is one the largest municipal pension funds in the United States with over 225,000 active members and retirees; and

WHEREAS, the Board recognizes that prudently arriving upon and maintaining a sound asset allocation policy is a cornerstone of its fiduciary duty; and

WHEREAS, the Board, with the assistance of the Bureau of Asset Management and the Board’s independent general consultant, Rocaton, undertook an extensive review of the System’s asset allocation in 2019; and

WHEREAS, it is prudent to review asset allocation policy on a regular basis; therefore be it

RESOLVED, that the Board of Trustees hereby commences a review of the System’s asset allocation; and be it further

RESOLVED, that the Board of Trustees directs the Bureau of Asset Management, Rocaton and relevant specialty consultants to undertake the study necessary for the Board to conduct an informed review of TRS’ asset allocation, including but not limited to, projections of risk and return in the various asset classes and the projected correlations among them, and provide their findings and any recommendations to the Board for its consideration.

The foregoing is a true copy of a resolution adopted by the Board of Trustees on March 9th, 2023.

(Signed) _____
Executive Director

NYCRS Strategic Asset Allocation Workplan and Timeline

GOAL

To establish new Strategic Asset Allocations for each of the five pension funds that will guide our investment strategy for the coming years

OBJECTIVE

1. To use the updated Basket Clause as a kicking off point to update each of the five systems' Strategic Asset Allocation (SAA)
2. To use the SAA process to engage and educate trustees
3. To use the SAA process to cross-train and educate BAM staff

WHY IS THIS IMPORTANT?

When asked the question, "which is more important, asset allocation or investment manager decisions?" institutional investors are nearly unanimous in saying that the asset allocation will drive 90% of the performance of any portfolio. Some experts assert that the single most important fiduciary role of trustees is to understand and set a fund's asset allocation. Therefore, we need to be very methodical and thoughtful in approaching our next Strategic Asset Allocation (SAA).

Further, we believe that there are key macro-economic considerations that we must consider as we begin this deliberative process:

1. Changing global inflation drivers
2. Global GDP growth and changes in productivity
3. Uncertainty from geopolitical dynamics and climate transition

These macro considerations are further impacted by the implications of increasing geopolitical tensions around the world; climate change-related catastrophes, adaption, mass migration, commodity shortages, etc.; global demographic shifts associated with post WW2 baby boom retirements; lessons learned and behaviors adjusted following a global pandemic, onshoring-nearshoring-friendshoring, travel, medical technologies, remote working, etc; and the changing dynamics of public/private market investment opportunity set and implications for future returns.

All these themes impact capital flows, economic growth, inflation, risk, return expectations, etc. today and must be appropriately addressed and incorporated into our AA and portfolio strategy thinking.

Additionally, there are a lot of questions that we should include in an asset allocation process to challenge us to think differently and strategically. Some of those include:

Strategic and Implementation Questions (list in formation)

1. How should we consider global diversification across the portfolio? For instance, Public equities is broken down by geography (US, ex-US etc.). Is the Private Equity market mature enough to add a geographic breakdown within the broader asset allocation?
2. Should we be looking at emerging market debt? Convertible bonds? Commodities?
3. Are our current rebalancing ranges appropriate?
4. Are our current benchmarks appropriate?
5. Do we want to add a specific allocation for cash since there is always a small cash balance?
6. What is the appropriate cadence of the periodic SAA process?
7. How should we address the overweight in Private Assets?
8. Is it prudent to take advantage of the increase allowance due to the basket clause?

Process Questions (list in formation)

1. Should the specialty consultants be involved in the asset allocation processes and assumptions for their asset classes? If so, how?
2. How much of this process can be combined between the five systems and how much has to be system-specific?
3. Do we have the capacity to implement a larger allocation to private markets given the increase in the Basket Clause?

The task in front of us will take time and must be conducted with informed judgments backed by qualitative and quantitative analysis. The plan below lays out a proposed timeline and process through which BAM, the trustees and the system consultants can work together to execute that analysis.

PROCESS & TIMELINE

January

1. January 27th STAR Oversight committee
 - a. Review proposed SAA plan and timeline, including outstanding questions
2. Schedule initial meeting with each of the 5 general consultants and BAM staff to discuss the process and timeline. **Open question: is this one meeting with all 5 or 5 separate meetings?*
3. Draft and finalize board resolutions

February

1. Boards vote to officially begin the SAA process
2. 1st monthly SAA training:
 - a. Overview of the Importance of the Asset Allocation Process and role of trustees, staff and consultants
3. Asset Allocation work with consultants begins in earnest

March

1. Provide update on the process at the Operating Committee meeting

2. BAM/Consultant joint update on the process to the Boards, including any questions/discussion deemed relevant/necessary
3. 2nd Monthly SAA training:

April

1. Provide update on the process at the Operating Committee meeting
2. BAM/Consultant joint update on the process to the Boards, including any questions/discussion deemed relevant/necessary
3. 3rd Monthly SAA training:

May

1. Provide update on the process at the Operating Committee meeting
2. BAM/Consultant joint update on the process to the Boards, including any questions/discussion deemed relevant/necessary
3. 4th Monthly SAA training:

June

1. Provide update on the process at the Operating Committee meeting
2. BAM/Consultant joint update on the process to the Boards, including any questions/discussion deemed relevant/necessary
3. 5th Monthly SAA training:

July

1. Provide update on the process at the Operating Committee meeting
2. Draft SAAs presented by BAM and general consultants to the boards for discussion
3. 5th Monthly SAA training:

September/October

1. Provide update on the process at the Operating Committee meeting
2. Boards vote on new Strategic Asset Allocation Plans

October-December

1. BAM and consultants draft 2024 annual plans and pacing based on the new asset allocations to recommend to the boards
2. Trustees vote on 2024 annual pacing plans.

Discussion on NetZero by 2040 Plan:

TRS Net Zero Implementation Plan – January 2022 Draft

The Teachers’ Retirement System of the City of New York (“TRS”, the “System” or the “Board”) adopts this Net Zero Implementation Plan (the “Plan”) building upon TRS’ resolution in 2021 to divest from publicly-traded fossil fuel reserve owners, as part of our commitment to achieve net zero greenhouse gas (GHG) emissions by 2040 across our investment portfolio. The Plan further reflects our Investment Belief that our role as a fiduciary obligates us to “mitigate the risks, take advantage of opportunities, and reduce the contributions our investments make to climate change.” This Plan provides the policy of the Board and its directives to the Bureau of Asset Management (“BAM”) in the Office of the New York City Comptroller (“Comptroller”).

Net Zero by 2040 – TRS Plan Highlights

Goals and Actions	Asset Classes
<u>DISCLOSE</u> Emissions and Risk	
Annually measure and report portfolio emissions (Scope 1, 2, 3) ¹ and progress of plan	Public Markets
Adopt portfolio emissions reduction targets of 32% by 2025 and 59% by 2030 for Scopes 1, 2 + Set targets for Scope 3 by 2025	Public Markets
Plan interim portfolio emissions reduction targets for private equity, real estate, infrastructure, and alternative credit	Private M
<u>ENGAGE</u> for Alignment and Action	
Adopt goal that by 2025 portfolio companies representing 70% of Scopes 1 & 2 portfolio emissions and by 2023 90% of Scopes 1, 2 & 3 portfolio emissions have science-based targets	Public Markets
Engage with high-emitting companies + collaborate with other institutional investors	Public Markets
Aim for all asset managers to have net zero goal or science-based targets and plan by 2025	Public + Private
Integrate assessment of Just Transition in investments	Public + Private
<u>INVEST</u> in Climate Change Solutions	
Increase investments in climate change solutions to \$4.2 billion by 2025 and \$19 billion by 2035	Public + Private
<u>DIVEST</u> to De-Risk	
Consistent with the approved fossil-fuel divestment resolution, ask private managers to exclude investments in the production, exploration, or extraction of fossil fuels	Private Markets
Develop criteria to guide possible future divestment decisions consistent with fiduciary duties, should engagement efforts conclusively fail.	Public + Private

¹ Please see page 8 for detailed explanation of Scopes 1, 2, and 3

Executive Summary

The System has a fiduciary duty to evaluate and address the systemic risks that climate change poses to our investment portfolio. Building on our history of climate leadership, TRS committed on October 20, 2021, to a goal of achieving net zero GHG emissions by 2040 through comprehensive strategies of decreasing the GHG emissions of our investments, increasing investments in climate change solutions, and contributing to the reduction of GHG emissions in the real economy.

The primary elements of the Net Zero Implementation Plan are:

Disclose Emissions and Risk

- **GHG Emissions Reduction Targets for Public and Private Markets**

TRS commits to:

- Targets of reducing Scopes 1 and 2 portfolio emissions in public equity and corporate bonds by 32% by 2025, 59% by 2030, and 100% by 2040, using a baseline of December 31, 2019. Our primary metric is financed emissions (emissions/\$million invested) with Enterprise Value Including Cash (“EVIC,” discussed below on p. 11), and we will strive for comparable progress among all metrics.
- Set interim emissions reduction targets for every five years from 2030 on and may update and revise our Scope 1, 2 and 3 targets as conditions evolve and data, methodologies and analytical tools improve. We will also seek to disaggregate measurements and set separate targets for material non-CO₂ GHG emissions, such as methane, as that data becomes available.
- Develop and adopt interim portfolio emissions reduction targets in private markets and direct BAM to present recommendations as private markets emissions data improves.
- Annually publish a report disclosing the status and progress of implementing this Plan, including interim emissions reduction targets, carbon footprint analysis, climate change solutions investment goals, net zero alignment and science-based target goals, asset manager alignment goals, and any additional climate-related risk analysis and targets approved for disclosure.

On behalf of TRS, BAM will:

- Conduct and report annual carbon footprint analyses of our public equity and corporate bond portfolios measuring Scopes 1, 2 and 3 financed emissions

(emissions/\$million invested) with Enterprise Value Including Cash (“EVIC,” discussed below on p. 11). We will also measure, evaluate and report changes in absolute emissions and weighted average carbon intensity.

- Annually measure, assess and report progress in Scope 3 emissions of our public equity and corporate bond portfolios beginning with 2022 data, with a focus on high-emitting sectors and sectors and companies where Scope 3 emissions are material. We will set interim Scope 3 emissions targets by 2025 as data quality and availability improve.
- Over the next year, evaluate the Scopes 1 and 2 emissions and science-based decarbonization pathways of specific sectors of the portfolio and set prudent interim emissions reductions targets for the most material sectors in the portfolio, taking into account the Paris Aligned Investment Initiative’s Net Zero Investment Framework and supplementary guidance (“NZIF”, discussed below on p. 6).
- Measure, assess and report Scope 3 emissions separately for high-emitting sectors including, at a minimum, energy, utilities, materials, industrials and finance.

Engage for Alignment and Action

- **Portfolio Companies in Public Markets: Science-Based Targets by 2030**
 - Corporate engagement is a central element of the Plan. This engagement will include emphasizing Scope 3 emissions reductions in sectors for which Scope 3 emissions are material.
 - TRS will seek to support real economy emissions reductions by increasing the alignment of our investments with science-based pathways to limit global warming to 1.5° C. Accordingly, it is the goal of the Board that by 2025 companies representing 70% of Scopes 1 and 2 financed emissions in our public equity and corporate bond portfolios , and by 2030 companies representing 90% of Scopes 1, 2 and 3 financed emissions in those portfolios will have adopted science-based targets. Such targets should be approved by the Science-Based Targets Initiative (“SBTi”, discussed below on p. 13) or otherwise independently verified with globally established science-based standards.
 - To focus resources efficiently toward engagement, TRS will focus on portfolio companies in the highest emitting sectors in developed markets as well as the largest emerging markets portfolio companies in those sectors by market capitalization.
 - For 2023, TRS’ shareholder engagement work will focus on banks that have adopted net zero targets, but which continue to finance or underwrite new fossil fuel supply projects, in defiance of the admonition of the International Energy

Agency of the need to cease such funding to limit global temperature rise to 1.5° C.

- TRS directs BAM to continue exploring data, tools, and methodologies for further assessing the net zero alignment of portfolio companies based on whether their plans and capital expenditures are aligned to achieving 1.5° C.
- TRS directs BAM to monitor the recently launched Task Force on Nature-related Financial Disclosures (TNFD) and its developing framework and make recommendations on incorporating its framework in our net zero implementation.

- **Public and Private Asset Managers: Net Zero Plans by 2025**

TRS expects all our public and private markets asset managers to have a net zero goal or science-based targets and implementation plan covering, at a minimum, assets managed for the System, by June 30, 2025. TRS expects all managers to cover Scopes 1 and 2 emissions and material Scope 3 emissions of underlying investments in their targets and plans.

- **Just Transition**

TRS will integrate assessments of how our investments support a just transition to a low-carbon and net zero economy, including stakeholder engagement with local communities, workers and their union representatives, and environmental advocates, to mitigate systemic risk, adhere to human rights standards and support sustainable value creation consistent with the Board's fiduciary duties.

Invest in Climate Change Solutions

- TRS has a goal of achieving a total of \$19 billion in climate change solutions investments by 2035, with an interim goal of \$4.2 billion by 2025, consistent with the Board's fiduciary duties and investment objectives. As of June 30, 2022, TRS has a total of \$2.19 billion in invested and unfunded commitments in climate change solutions across all asset classes.

Divest to De-Risk

- We completed divesting \$2 billion from fossil fuel reserve owners in publicly listed equity and corporate bonds in 2022.
- Consistent with the Board's January 2021 Fossil Fuel Reserve Owner Divestment resolution, BAM shall ask all private markets managers recommended for Board

- approval to commit across the recommended fund to exclude investments in exploration, extraction or production of oil, gas or thermal coal or otherwise provide TRS with the ability to opt out of such investments. If a manager does not agree to either condition, BAM will report the manager's position to the Board, which shall determine whether to approve the investment, consistent with its fiduciary duties.
- TRS prefers engagement to divestment, and BAM will make every effort to collaborate with as many portfolio companies and managers as possible. Should some companies or managers nonetheless consistently refuse to take meaningful action to reduce their GHG emissions, BAM will by 2025 recommend to TRS criteria to consider for possible divestment decisions consistent with fiduciary duty.

We recognize that our goal of achieving net zero by 2040 is ambitious, and that most economic actors, to the extent they are setting net zero goals, are targeting 2050 as their target date. We do this because we believe that bolder action is required to address the risks we face. To be clear, we seek real world decarbonization, not just portfolio decarbonization, and we will not rely on the sleight of hand of poor-quality carbon offsets to appear to lower our carbon footprint.

To achieve this ambitious goal, we will need to collaborate with like-minded investors, governments, non-governmental organizations and companies such as Climate Action 100+, Ceres, and other signatories of the Paris Aligned Investment Initiative Asset Owner's Commitment and Net Zero Asset Owner Alliance. Toward that end, TRS joined the Net Zero Asset Owner Commitment of the Paris Aligned Investment Initiative (PAII) to work collaboratively with other asset owners on this goal. As we prepared this Plan, we reviewed the United Nations' High Level Expert Group on the Net-Zero Commitments of Non-State Actors, which we believe outlines key considerations to avoid "greenwashing" and to adopt genuinely meaningful net-zero plans. We are eager to work ambitiously with others to achieve shared goals.

Implementation Plan

Net Zero Goal Background

On October 20, 2021, TRS voted to commit to achieve net zero greenhouse gas emissions (GHG) emissions by 2040 across our investment portfolio. This action was designed to mitigate the systemic risks of climate change to our investments and the real economy, while taking into account the best available scientific knowledge while acting consistently with TRS’ fiduciary duties. To fulfill this commitment, TRS directed BAM to develop an implementation plan for the net zero goal that prudently considers climate change risk and opportunity as well as material environmental, social and governance (ESG) factors in our investment portfolio, along with all additional risks and investment considerations, and annually report on the plan and its progress.²

To support our efforts to prudently achieve this goal, TRS adopted the Net Zero Asset Owner Commitment³ of the Paris Aligned Investment Initiative (PAII), a formal partner of the United Nations Framework Convention on Climate Change’s (UNFCCC’s) Race to Zero campaign⁴, allowing us to collaborate with and learn from other large asset owners and leading practitioners. As a PAII signatory, TRS shall consider the PAII Net Zero Investment Framework and supplementary guidance (“NZIF”)⁵ in implementing our net zero goal. In addition, BAM will research whether to recommend that TRS consider joining the UN-convened Net Zero Asset Owners Alliance (“NZAOA”), which provides additional resources for asset owners that have set net zero targets, or other comparable coalitions.

This document establishes TRS’ Net Zero Implementation Plan, which will be subject to annual review and updated as needed over time.

Fiduciary Duties

TRS adopts this Plan in accordance with our fiduciary duty to act solely in the best interests of our members and beneficiaries. We seek to fulfill our fiduciary duties and this Plan by achieving a competitive, risk-adjusted, market-rate return, consistent with our asset allocation, while prudently mitigating downside risks to the System’s investments, including those affecting the sustainability of our investments’ long-term returns. As a large, diversified fund with broad exposure across the economy, we have a direct economic interest in the overall strength of the financial markets and broader economy in which the System invests. As a pension fund with

² The Office of the New York City Comptroller serves as the delegated investment advisor and custodian of assets as well as a Trustee to all five New York City Retirement Systems. The Bureau of Asset Management of the Comptroller’s Office is responsible for fulfilling these functions, including providing investment advice, implementing Board decisions and reporting on investment performance.

³ [PAII-Net-Zero-Asset-Owner-Commitment-Statement.pdf \(parisalignedinvestment.org\)](#)

⁴ [Race To Zero Campaign | UNFCCC](#)

⁵ [Net Zero Investment Framework final.pdf \(parisalignedinvestment.org\)](#); [Net Zero Investment Framework Implementation Guide – IIGCC](#)

long-term obligations to our beneficiaries extending for decades, we are obligated to pay attention to long-term risks and opportunities. We have a fiduciary duty, therefore, to protect against downside and systemic risks and foster stable financial markets and long-term economic growth essential to the performance of the System’s investments.

Systemic Risks of Climate Change

Climate change is generating increasingly devastating effects that risk undermining the stability and health of the global economy. We regard these climate change-related risks as systemic—that is, we cannot diversify them away—and severe, as they can lead to the failure of broad segments of the market and economy. The Intergovernmental Panel on Climate Change (IPCC) confirmed, based on the best available scientific knowledge, that limiting temperature rise to 1.5° C is necessary to avoid the worst climate impacts and preserve livable conditions.⁶ To achieve this goal, the world must reach net zero GHG emissions by 2050. Reaching net zero by 2040 substantially improves the probability of limiting warming to 1.5° C and avoiding temporary overshoots of 1.5° C that would have irreparably harmful impacts.⁷ The System’s goal of net zero emissions by 2040 seeks to contribute to more concerted and ambitious action in the real economy and markets toward systemic change needed to protect the interests of our beneficiaries. A low-carbon transition of the economy in line with science and 1.5° C pathways requires greatly increasing financing of climate change solutions, significantly reducing fossil fuel investments and ceasing investments in new fossil fuel supply projects in accordance with established net zero scenarios, and engaging companies, managers, and policymakers to ensure net zero alignment.

DISCLOSE EMISSIONS AND RISKS

Reporting and Risk Management

On behalf of TRS, BAM shall conduct and report annual carbon footprint analyses of our public equity and corporate bond (including investment grade, high yield and convertible bonds) portfolios measuring Scopes 1, 2 and 3 financed emissions (emissions/\$million invested) with Enterprise Value Including Cash (“EVIC” defined below). BAM will also measure, evaluate and report changes in absolute emissions and weighted average carbon intensity.

BAM is exploring appropriate and prudent analytical tools for evaluating climate risks to the portfolio more comprehensively including scenario analysis and ways of assessing 1.5° C pathways, net zero alignment, transition risks and physical risks.

⁶ [Chapter 3 — Global Warming of 1.5 °C \(ipcc.ch\)](#)

⁷ [Chapter 2 — Global Warming of 1.5 °C \(ipcc.ch\)](#)

Portfolio Greenhouse Gas Emissions Reduction Targets

TRS seeks to prudently reduce GHG emissions in our portfolio, taking into account the best available scientific knowledge, including the findings of the Intergovernmental Panel on Climate Change (IPCC), and to contribute to the reduction of real economy emissions. The UNEP Gap Report states that global GHG emissions need to decrease by 7.6% annually between 2020 and 2030 to maintain temperature increase to 1.5°C.⁸ The Net Zero Asset Owners Alliance (NZAOA) Target Setting Protocol, which the PAII Framework endorses, recommends emissions reductions of 22% to 32% from 2020 to 2025 and 49% to 65% from 2020 to 2030 based on IPCC findings.⁹

Definitions of GHG Emissions and their Categories (Scopes 1, 2 and 3)

Scopes 1, 2 and 3 are ways of categorizing the different sources of GHG emissions from a company's direct operations and its wider value chain.

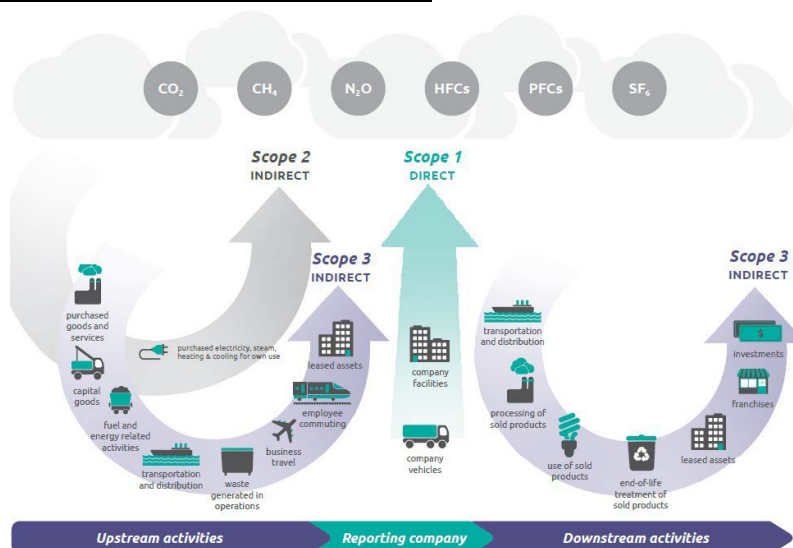
Scope 1	Scope 2	Scope 3
Covers the direct emissions from sources owned or controlled by a company – for example, by running its boilers and vehicles	Covers indirect emissions from the generation of energy a company purchases	Covers all other indirect emissions up and down a company's supply and value chain. For example, a petroleum company's Scope 3 emissions include the emissions from the gasoline they produce when it is burned by a customer's car. A bank's Scope 3 emissions include those from extracting fossil fuels from projects they finance. It is estimated that Scope 3 emissions constitute 75% of firms' emissions on average ¹⁰ .

⁸ [EGR2019.pdf \(unep.org\)](#)

⁹ [Target Setting Protocol Second Edition – United Nations Environment – Finance Initiative \(unepfi.org\)](#)

¹⁰ [CDP-technical-note-scope-3-relevance-by-sector.pdf](#)

Illustration of Scopes 1, 2 and 3 emissions



Source: Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011)

Public Equity and Corporate Bonds Interim Scopes 1 and 2 Emissions Reduction Targets

TRS commits to targets of reducing Scopes 1 and 2 GHG emissions in our public equity and corporate bond (including investment grade, high yield and convertible bond) portfolios by 32% by 2025, 59% by 2030, and 100% by 2040 using a baseline of December 31, 2019. Our primary metric is financed emissions with EVIC, and we will strive for comparable progress among all metrics.

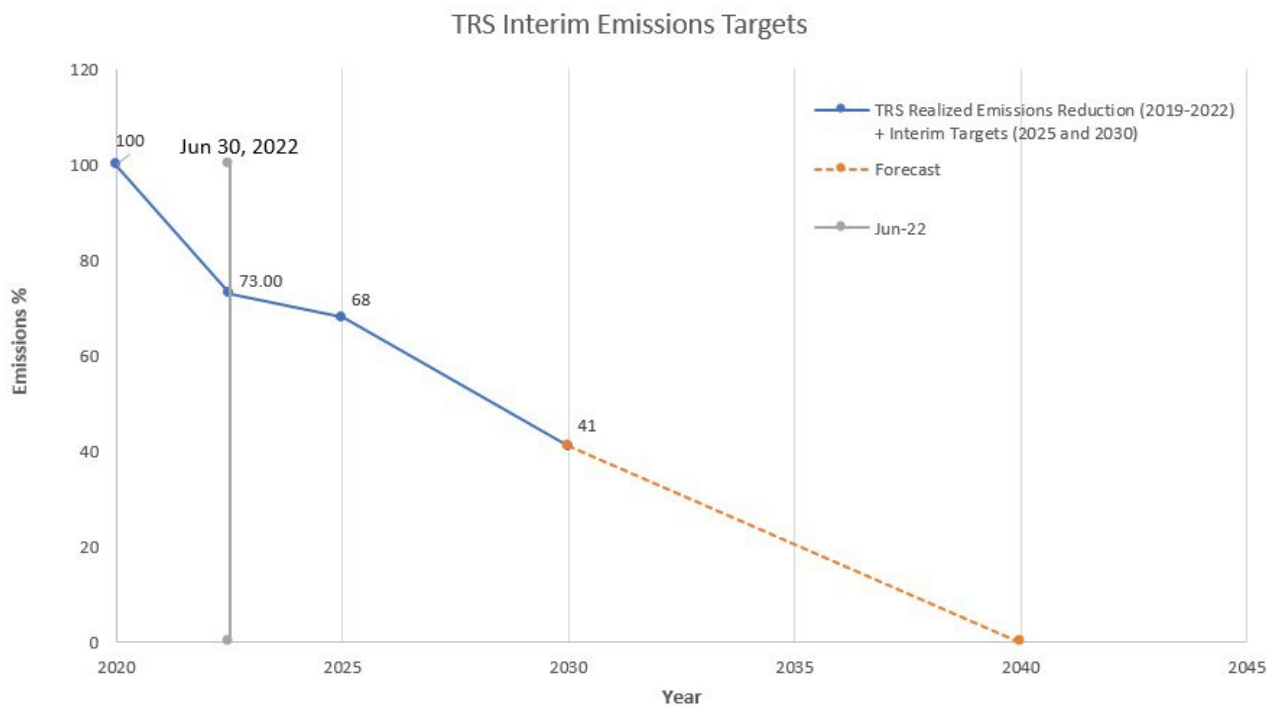
Over the next year, on behalf of TRS, BAM will evaluate the Scopes 1 and 2 emissions and science-based decarbonization pathways of specific sectors of the portfolio and set prudent interim emissions reductions targets for the most material sectors in the portfolio, taking into account the NZIF.

Public equity and corporate bonds make up 52.2% of our total assets as of June 30, 2022. Our adopted targets are aligned with NZAOA's recommendations and lay a pragmatic path to achieve the System's 2040 net zero goal. TRS' financed emissions decreased by 27% during the 2.5 years between December 31, 2019, and June 30, 2022, yielding an average annual reduction of 10.8%. With the interim target of 32% for 2025, the annualized emissions reduction rate could drop to 2% between 2022 and 2025, and then would need to increase to 5.4% for the next 5 years to achieve 59% reduction by 2030.

TRS will seek to reduce our portfolio Scopes 1 and 2 emissions in the amounts of the target percentages relative to the Scopes 1 and 2 emissions of the System's portfolio as of December 31, 2019. This date is recommended by NZIF as the baseline and is consistent with the Paris

Agreement’s Nationally Determined Contributions (NDC) process and timeline. NZIF also recommends setting five-year interim targets consistent with the NDC process.¹¹ Scope 3 emissions are addressed in the next section of this Plan.

Figure 1: TRS - Realized and projected emissions reduction targets



¹¹ Article 4.9 of the Paris Agreement sets a five-year cycle of 2025, 2030, 2035, etc.

For our interim emissions reduction targets, TRS will use **financed emissions (tons of emissions/\$million invested) based on Enterprise Value Including Cash (EVIC)** as our primary metric for emissions. We will also report, measure and evaluate changes in absolute emissions and weighted average carbon intensity and strive toward comparable progress among all metrics.

A financed emissions metric allows better comparison across asset classes, portfolios and companies as it normalizes emissions by value invested. Because financed emissions metrics can be artificially increased or decreased by market movements such as equity and bond volatility, inflation, exchange rates and interest rates without changes in real economy emissions, BAM will evaluate methodologies to adjust financed emissions metrics for factors such as these to obtain a better understanding of real economy emissions changes.¹² In addition, BAM will provide the Trustees with attribution analysis, on a disaggregated basis, of various sources of financed emissions changes¹³.

EVIC is a PAII-recommended metric consistent with the Partnership for Carbon Accounting Financials (“PCAF”) standard and the recent Task Force for Climate-Related Financial Disclosures (“TCFD”) recommendations. **EVIC is defined as “the sum of the market capitalization of ordinary shares at fiscal year-end, the market capitalization of preferred shares at fiscal year-end, and the book values of total debt and minorities’ interests.** No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.”¹⁴ EVIC allows for greater accuracy and comparability of emissions across equity and fixed income.

The interim targets for 2025 and 2030 are informed by a combination of PAII-recommended ranges, science-based net zero emission pathways, and actual emissions trajectories of the System’s investments. As cited above, the NZAOA protocol, which NZIF endorses, finds that absolute emissions reductions for 2020 to 2025 should range between -22% to -32% and for 2020 to 2030 between -49% to -65% or more. Furthermore, IPCC scenarios for 1.5^o Celsius

¹² “PAII aims to establish a best possible solution to reduce the impact of market volatility on these metrics and work towards a level of standardisation for EVIC normalisation across the industry, with the aim to provide additional guidance to investors in the near future. PAII will engage with PCAF to promote an industry-wide approach.” *Net Zero Investment Framework: IIGCC’s Supplementary Guidance on Target Setting*, IIGCC (The Institutional Investors Group on Climate Change), December 17, 2021.

¹³ This attribution analysis may cover sources of emissions changes including but not limited to sectors, strategies, company carbon emissions and reallocations.

¹⁴ [Enterprise Value Including Cash - Open Risk Manual](#)

pathways demonstrate a rapid acceleration of emissions reductions earlier followed by a gradually reduced rate of emissions reduction. This pacing reflects the decarbonization needed earlier in order to avoid temporary overshoots of 1.5°. ¹⁵

The following table shows TRS' financed emissions covering Scopes 1 and 2 emissions for public equity and corporate bonds, including investment grade credit and high yield bonds, for December 31, 2019, and June 30, 2022, compared to the blended market benchmark.

Public Equity & Corporate Bond Scopes 1 and 2 Financed Emissions (tons CO₂e / \$M invested based on EVIC)

	TRS - Financed Emissions/\$m (Scope 1, 2)	Blended Benchmark* - TRS - Financed Emissions/\$m (Scope 1,2)	Portfolio-Benchmark ratio
31-Dec-19	81.62	79.95	1.02
30-Jun-22	59.58	60.70	0.98
Emissions Change %	-27.00	-24.07	

Source: MSCI

*ACWI IMI 80%, MSCI USD IG Corporate Bond 14%, MSCI USD HY Corporate Bond Index 6%

For more details on TRS's carbon footprint analysis, please see Appendix A.

Scope 3 Emissions

On behalf of TRS, BAM will annually measure, assess and report progress in Scope 3 emissions beginning with 2022 data, with a focus on high emitting sectors and sectors and companies where Scope 3 is material. TRS will set interim Scope 3 emissions reduction targets by 2025 as data availability and quality improve.

While measuring Scope 3 emissions presents greater challenges than Scopes 1 and 2, it is essential to track and assess this data due to the vast impact of Scope 3 emissions on real world emissions. Our Scope 3 footprint as of June 30, 2022, is as follows:

¹⁵ For a discussion of the impact of substantial overshoots of 1.5° C., see [SR15 Chapter 1 HR.pdf \(ipcc.ch\)](#), p. 60.

Public Equity & Corporate Bond Scope 3 Financed Emissions
(Tons CO2e / \$M invested based on EVIC)

	TRS - Financed Emissions/\$m (Scope 3)	Blended Benchmark - TRS - Financed Emissions/\$m (Scope 3)	Portfolio-Benchmark ratio
30-Jun-22	241.80	379.00	0.64

TRS will also measure, report and assess Scope 3 emissions separately for high-emitting sectors including, at a minimum, energy, utilities, materials, industrials and finance.

While we do not have Scope 3 emissions data for our portfolio *before* 2022, we note that in 2022 our portfolio Scope 3 financed emissions are 36% lower than the blended benchmark, whereas our portfolio Scopes 1 and 2 emissions are only 2% lower than the blended benchmark. While we continue to analyze possible reasons for this discrepancy, it is reasonable to assume that the divestment of the securities of fossil fuel reserve owners during 2021 and the first half of 2022 may have had a larger impact on our portfolio Scope 3 emissions than on Scopes 1 and 2, since these companies tend to have much larger Scope 3 emissions than Scopes 1 and 2. For example, in 2021 BP had Scopes 1 and 2 emissions of 35.6 MtCO₂e (millions of tons of carbon dioxide emissions), while its estimated Scope 3 emissions were 304 MtCO₂e, or more than eight times as high.¹⁶

Scope 3 emissions are estimated to constitute 75% of companies' emissions on average.¹⁷ For the financial services sector, Scope 3 emissions comprise an average of 99.98% of a company's total emissions. In addition, the disclosure and quality of Scope 3 emissions data will improve and grow in importance over time, with the number of companies reporting Scope 3 emissions consistently growing each year.¹⁸ The European Sustainable Finance Disclosure Regulation (SFDR) begins to require Scope 3 reporting in 2023. The International Sustainability Standards Board (ISSB) of the International Financing Reporting Standards Foundation (IFRS) voted to require company disclosures to include Scope 1, 2 and 3 emissions. The ISSB is a global body formed to create a unified set of sustainability disclosure standards and plans to issue these standards in early 2023.¹⁹ The Science-Based Targets Initiative (SBTi)²⁰ requires companies to

¹⁶ BP Net zero from ambition to action, pp. 14-15 at [bp-net-zero-report-2022.pdf](#)

¹⁷ [CDP-technical-note-scope-3-relevance-by-sector.pdf](#)

¹⁸ [Trends Show Companies Are Ready for Scope 3 Reporting with US Climate Disclosure Rule | World Resources Institute \(wri.org\)](#)

¹⁹ [CDP-technical-note-scope-3-relevance-by-sector.pdf](#)

²⁰ The SBTi is a partnership between the Carbon Disclosure Project (CDP), the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). Its purpose is to define and promote best practice in emissions reductions and net zero target in line with climate science. It provides technical assistance and resources to companies who set science-based targets in line with the latest climate science. [About Us - Science Based Targets.](#)

set Scope 3 targets if they comprise more than 40% of total Scope 1, 2 and 3 emissions, and we adopt that definition of materiality for Scope 3 emissions.

TRS will set interim emissions reduction targets for every five years from 2030 on and may update and revise our Scope 1, 2 and 3 targets as conditions evolve and data, methodologies and analytical tools improve. We will also seek to disaggregate measurements and set separate targets for material non-CO₂ GHG emissions, such as methane, as that data becomes available.

Private Markets Interim Emissions Reduction Targets

TRS commits to develop and adopt interim GHG emissions reduction targets in private markets and directs BAM to present recommendations as private market emissions data improves.

TRS intends to adopt prudent interim emissions reduction targets in our private markets asset classes, including Private Equity, Real Estate, Infrastructure and Alternative Credit. TRS shall collaborate with other asset owners and asset managers to identify prudent and consistent approaches to measuring emissions in private markets asset classes and developing interim emissions reduction targets. BAM is conducting a review of ESG and climate data sources and methodologies, including the ESG Data Convergence Project (Private Equity) and GRESB (Real Assets), and will present recommendations to TRS on data sources and approaches as appropriate.

Disclosure and Reporting

TRS shall annually publish a report, consistent with guidance of the Task Force on Climate-Related Financial Disclosures (TCFD), disclosing the most up-to-date versions of the following:

1. Climate change solutions investment goals and amounts and progress in climate change solutions investments across the portfolio
2. Carbon footprint analysis using financed emissions / \$ million invested, absolute financed emissions, and weighted average carbon intensity (WACI) for Scope 1, 2 and 3 emissions of public equity, investment grade corporate bonds, high yield corporate bonds and additional asset classes as available and determined by TRS with improvement of data quality and availability
3. Progress toward interim emissions reduction targets
4. Progress toward portfolio company science-based target and alignment goals
5. Progress toward asset manager net zero, science-based target and alignment goals
6. Any additional climate-related risk analysis and targets that TRS has reviewed and approved for disclosure
7. Any updates or amendments to the TRS Net Zero Implementation Plan

ENGAGE FOR ALIGNMENT AND ACTION

Portfolio Companies: Science-Based Targets

It is the goal of the Board that by 2025 companies representing 70% of Scopes 1 and 2 financed emissions in our public equity and corporate bond portfolios, and by 2030 companies representing 90% of Scopes 1, 2 and 3 financed emissions in those portfolios will have adopted science-based targets, to be approved by SBTi or otherwise independently verified with globally established science-based standards.

Corporate engagement is central to our ability to achieve the goal of net zero by 2040. TRS will seek to achieve our emissions reduction targets by supporting real economy emissions reductions and increasing the alignment of our investments with science-based pathways to limit global warming to 1.5° C.

Science-based targets are interim targets for emissions reduction that are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to 1.5° C above pre-industrial levels. According to MSCI data, as of June 30, 2022, approximately 22.2% of TRS' Scopes 1 and 2 financed emissions in TRS' publicly traded equity and corporate bonds portfolio were attributed to companies with SBTi-approved targets,

while 77.8% were not. NZIF recommends using SBTi for assessing companies against certain criteria that may identify companies as net zero aligned or aligning to net zero (this is further explained in Appendix B).

To focus resources efficiently toward engagement, TRS will focus on portfolio companies in the highest emitting sectors in developed markets as well as the largest emerging markets portfolio companies in those sectors by market capitalization.

For 2023, TRS' shareholder engagement work will focus on banks which have adopted net zero targets but continue to finance or underwrite new fossil fuel supply projects, in defiance of the admonition of the International Energy Agency of the need to cease such funding to limit global temperature rise to 1.5°C

To focus resources efficiently toward engagement, TRS directs BAM to prioritize identifying and engaging high-emitting corporate portfolio companies in the Russell 1000 and the ACWI World-ex USA IMI, and the largest portfolio companies by market capitalization in the MSCI Emerging Markets indices in the highest emitting sectors. These sectors shall include, at a minimum, energy, utilities, industrials and materials, as the highest emitting sectors of portfolio Scopes 1 and 2 emissions and the financial sector, as a high source of Scope 3 emissions. This does not preclude BAM from engaging with companies outside of this universe but conveys the belief of the Board that focusing on companies in the highest emitting sectors where the System has the most potential influence will generate the greatest impact on reducing real world emissions.

These prudent efforts to enhance shareholder value, particularly in coalition with other asset owners such as our participation in Climate Action 100+, will be based on our proxy voting principles. Climate Action 100+ is an ambitious global investor collaboration through which more than 700 global investors with at least \$68 trillion in assets across 33 markets encourage the world's 166 highest emitting companies — responsible for an estimated 80 percent of global emissions — to take necessary action on climate change. Every year we will strategize and collaborate with other investors, and report on our engagement results in our annual reports (the annual shareholder initiatives post-season report and the annual disclosure report we are committing to in this Plan). For 2023 we will focus on the following:

- We have collaborated with like-minded investors to craft a 2023 proxy season shareholder strategy at banks which have adopted net zero targets but continue to finance or underwrite new fossil fuel supply projects, in defiance of the admonition of the International Energy Agency of the need to cease such funding to achieve net zero by 2050 or sooner. This strategy includes filing shareholder resolutions at certain banks calling for the adoption of absolute (as opposed to intensity) 2030 GHG emissions reductions targets.

- We are currently leading shareholder engagement for Climate Action 100+ on Ford, GM and GE, and co-leading engagement at commercial truck manufacturer PACCAR. At Ford and GM—both of which have set science-based targets for Scopes 1, 2, & 3 emissions approved by SBTi and committed to invest more than \$35 billion to produce electric vehicles—ongoing engagement will focus on advocating for the automakers to reduce emissions from internal combustion engine vehicles (in the period until all of their vehicles are electric) and to support strong fuel efficiency and medium duty vehicle emissions standards in upcoming federal rulemakings.
- In addition, we have active, ongoing, and substantive engagements on climate with three of the highest GHG emitting companies in the U.S., Duke Energy (#2), Southern Company (#3) and Dominion Energy (#14)²¹, as well as Toyota.
- We are joining with other investors to urge the managed phaseout of high-emitting assets, which will require portfolio companies to move away more rapidly from processes involving the extraction and burning of fossil fuels than short-term competition from cleaner processes or renewables might prompt but that will lead to more sustainable long-term profitability.

TRS directs BAM to continue exploring data, tools, and methodologies for further assessing the net zero alignment of portfolio companies based on whether their plans and capital expenditures are aligned to achieving 1.5° C.

TRS directs BAM to continue exploring data, tools, and methodologies for further assessing the net zero alignment of portfolio companies based on how well aligned their plans and capital expenditures are to achieving their science-based targets. The following are examples of frameworks to inform assessment of net zero alignment (please see Appendix B for details of each framework):

- PAII's Net Zero Investment Framework (NZIF) recommends criteria for classifying companies as (1) achieving net zero (2) aligned to a net zero pathway (3) aligning towards a net zero pathway (4) committed to aligning or (5) not aligned.
- Climate Action 100+ has a Net Zero Company Benchmark that assesses the disclosure and alignment of a company's actions with the Paris Agreement's goals. This benchmark considers ten disclosure criteria and separate independently assessed alignment criteria including the company's capital allocation, climate policy engagement and climate accounting and audit.
- The Transition Pathway Initiative is a global initiative led by asset owners and supported by asset managers that measures the management quality and carbon performance of companies and whether they are aligned with the goals of the Paris Agreement.

²¹ Greenhouse 100 Polluters Index from the University of Massachusetts Amherst Political Economy Research Institute, 2021 Report based on 2019 data), [PERI - Greenhouse 100 Polluters Index \(umass.edu\)](https://www.umass.edu/per/index)

TRS directs BAM to monitor the recently launched Task Force on Nature-related Financial Disclosures (TNFD) and its developing framework and make recommendations on incorporating its framework in our net zero implementation plan.

TRS will also assess the role of nature in climate change, both as a vital carbon sink and as a subject of the impact of climate change. Deforestation, loss of biodiversity and ecosystem destruction are all causes and effects of global warming.

Asset Managers: Net Zero Plans by 2025

TRS cannot achieve our net zero goals unless our investment managers, in both public and private markets, actively collaborate in this effort. We shall ensure prudent consideration of climate change risk and opportunity and net zero alignment in the evaluation, due diligence, selection, monitoring and engagement of asset managers in all asset classes, consistent with our fiduciary duties.

TRS expects all our public and private markets asset managers to have a net zero goal or science-based targets and implementation plan covering, at a minimum, assets managed for the System, by June 30, 2025. TRS expects all managers to cover Scopes 1 and 2 emissions and material Scope 3 emissions of underlying investments in their targets and plans.

To help achieve this objective, BAM asks all asset managers during investment due diligence and monitoring whether they (1) measure and report GHG emissions associated with their investments and (2) have climate commitments or targets, including net zero goals and science-based targets, and to provide details on these efforts and targets. BAM presents this information to the Board in every investment memorandum.

TRS expects all managers to cover Scopes 1 and 2 emissions and material Scope 3 emissions of their underlying investments in their targets and plans. Should data be insufficient for Scope 3 emissions, managers are expected to have a plan for measuring Scope 3 emissions and setting material Scope 3 targets as soon as possible. BAM shall provide the Board with an interim report in 2023 on the number of managers across asset classes that have adopted net zero goals or science-based targets and an in-depth progress report in 2024 of all managers' status, including details of net zero implementation plans and progress toward their targets.

- For private markets managers who invest without control over portfolio companies (e.g., certain strategies in Opportunistic Fixed Income, Private Equity growth, and Real Estate debt), BAM will consult with a representative sample of our existing managers to draft a proposal for Board consideration on how such managers may address GHG emissions in their portfolios.

- Private markets general partners that determine not to set long-term net zero goals based on the timeline of such goals exceeding their funds' holding periods are expected to commit in the near term to have all of their controlled portfolio companies adopt science-based targets during their holding period. This approach would align with maintaining temperature increase to 1.5° C to appropriately mitigate climate risks.

TRS also directs BAM to recommend to the Board in 2025 potential actions for managers that have not adopted a net zero goal, science-based targets or accompanying implementation plan, or an acceptable alternative approach appropriate for their investment approach, consistent with our fiduciary duties.

Approximately 73% of the 148 managers for TRS that responded to the BAM annual manager questionnaire in 2022 reported that they already measure emissions and/or have adopted climate targets or plan to measure emissions or adopt targets within the next 12 to 18 months constituting the vast majority of TRS' primary manager relationships.

BAM shall also review the proxy voting record of public markets asset managers related to climate change, including shareholder proposals and director elections; and strengthen processes for monitoring and reporting related to these issues.

Consistent with our fiduciary duties, TRS will continue to seek opportunities to engage with policy-making and regulatory entities to advance legislation, policy, regulations and programs that support achieving net zero emissions in the real economy, and appropriately engage market actors to promote alignment with net zero pathways.

Deliver a Just Transition

TRS will integrate assessments of how our investments support a just transition to a low-carbon and net zero economy, including stakeholder engagement with local communities, workers and their union representatives, and environmental advocates, to mitigate systemic risk, adhere to human rights standards and support sustainable value creation consistent with our fiduciary duties.

The principles of a just transition to a low-carbon and net zero economy to mitigate systemic risk, adhere to human rights standards and support sustainable value creation are embedded in TRS' Investment Beliefs as well as global and national policies. TRS' Investment Beliefs state that we favor "strong human capital practices characterized by standards of good conduct, including fair labor practices, health and safety, responsible contracting, and diversity." TRS currently incorporates these principles in our investment process in numerous ways such as in our Responsible Contractor Policy, integration of wage and labor issues and diversity, equity and inclusion in manager diligence and monitoring and proxy voting guidelines and engagement

to support human capital. Our responsible contractor policy expresses our belief that a diverse, adequately compensated, and trained workforce delivers a higher quality product and service. We support paying workers fair wages and benefits, workforce training and safety and health, and a position of neutrality with regard to union organizing. In addition, the 2015 Paris Agreement states the need to account for “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities.”²²The United Nations’ Intergovernmental Panel on Climate Change (IPCC), an intergovernmental body delegated to assess climate science, addresses the importance of a just transition in mitigating climate change.²³ President Biden by Executive Order 14057 has required the federal government to incorporate just transition goals to advance environmental justice, expand jobs and ensure the flow of benefits from climate mitigation to historically disadvantaged communities.²⁴

TRS will integrate assessments of how our investments support a just transition to a low-carbon and net zero economy to mitigate systemic risk, adhere to human rights standards and support sustainable value creation consistent with our fiduciary duties. TRS directs BAM to develop and apply prudent frameworks for such assessment in the diligence and monitoring of investment managers, shareholder engagement and other appropriate aspects of the investment process. For the purpose of developing such frameworks, BAM shall continue to assess data, methodologies, and standards for evaluating how our investments support a just transition, including but not limited to ensuring genuine stakeholder engagement with local communities, workers and their union representatives, and environmental advocates; providing tangible economic benefits to the communities in which companies operate; and hiring local workers, with a priority if applicable to displaced workers from fossil fuel-related industries.

TRS directs BAM to recommend an initial approach to supporting a just transition in the investment process, consistent with our fiduciary duties, by the fourth quarter of 2023.

Frameworks and standards for assessing investors’ and companies’ contributions to a just transition are growing. Climate Action 100+ will launch Just Transition criteria as part of its Net Zero Company Benchmark in 2023.²⁵ The International Energy Agency convened, in January 2021, the Global Commission on People-Centred Clean Energy Transitions to develop recommendations for how energy policy and planning can address the social and economic impacts of the energy transition, including affordability, equity and inclusion.²⁶ The World

²² The Paris Agreement references the International Labour Organization’s *Guidelines for a Just Transition Toward Environmentally Sustainable Economies and Societies for All* ([ILO Guidelines for a just transition](#) (2015)).

²³ [IPCC AR6 WGIII SPM.pdf](#)

²⁴ [Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability | The White House](#)

²⁵ [Climate Action 100+ opens public consultation on Net Zero Company Benchmark for its next phase | Climate Action 100+](#)

²⁶ [Our Inclusive Energy Future – Programmes - IEA](#)

Benchmarking Alliance, a multidisciplinary organization with many investor and corporate members, intends to publish free and publicly available assessments of 450 companies by 2023 on their work towards a just transition.²⁷ The Council for Inclusive Capitalism, a global group of leaders from business, foundations and nonprofits with over \$10 trillion in assets under management collectively, released *The Just Energy Transition: A Framework for Company Action* in November 2021 to guide companies on how to address social equity in their transition²⁸. In addition, various industry frameworks are available to address business and human rights and other issues related to a just transition.

INVEST IN CLIMATE CHANGE SOLUTIONS

Climate Change Solutions Investments

TRS has a goal of investing a total of \$19 billion in climate change solutions by 2035, with an interim goal of \$4.2 billion by 2025, consistent with our fiduciary duties and our investment objectives. As of June 30, 2022, TRS has a total of \$2.19 billion in invested and unfunded commitments in climate change solutions across all asset classes.

Climate change not only presents risks that must be mitigated. It also presents opportunities to achieve superior risk-adjusted returns through financing and facilitating the energy transition.

TRS shall develop and periodically assess and update climate change solutions investment goals in consultation with our investment advisors, taking into account the System's asset allocation, pipeline and opportunity sets for each asset class, including public and private markets. Climate change solutions are investments in economic activities that contribute substantially to mitigating, remediation, adaptation and/or resilience in relation to climate change impacts. Such activities include but are not limited to renewable energy, energy efficiency, sustainable water, and pollution prevention. TRS directs BAM to periodically review the definitions for climate change solutions investments by asset class to ensure that they accurately reflect investments that are contributing to achieving the goals of the Paris Climate Agreement to keep global warming below 1.5° C. See Appendix C for our current definitions of climate change solutions investments.

As of June 30, 2022, TRS has a total of \$2.19 billion of invested and unfunded commitments in climate change solutions. BAM will report semi-annually to TRS on the status of climate change solutions investments in our portfolio. A full report of our climate change solutions investments by asset class as of June 30, 2022, appears in Appendix C.

²⁷ [Just transition | World Benchmarking Alliance](#)

²⁸ [JET Framework Microsite Home | Council for Inclusive Capitalism](#)

Here are some examples of climate change solutions investments in the TRS portfolio:

Climate change solutions investments in the infrastructure asset class exist within blended and diversified funds.

The Holtwood Portfolio

- a Brookfield Infrastructure Fund III investment in a set of hydroelectric assets in Pennsylvania, including a 252-megawatt facility on the Susquehanna River and a 40-megawatt facility on Lake Wallenpaupack. The total TRS investment in the Holtwood portfolio is \$4,709,000.

Isagen, the owner and operator of renewable energy generation infrastructure in Colombia

- also a portfolio company of Brookfield Infrastructure Fund III which owns and operates six hydroelectric plants in Colombia generating over 14,500 gigawatt hours of clean power, the equivalent of power for eight million homes and 20% of the Colombia's annual electricity production. Since Brookfield's acquisition, Isagen has expanded to develop and own solar and wind assets. The TRS investment in Isagen totals \$8,415,000.

Nitrogen Renewables

- a KKR Global Infrastructure Investors III company which owns and manages utility-scale clean energy projects in the United States. As of 2021, the company consisted of ten large wind and solar generation projects comprised of over 1,190 megawatts. The TRS investment in Nitrogen Renewables is \$3,623,747.

Climate change solutions assets in private equity are companies that generate renewable energy, provide environmental services, or manufacture and distribute products that address a climate-related challenge. Examples include:

GFL Environmental

- a portfolio company of BC European Capital X, L.P. that provides waste management services to businesses, communities, and households in North America. The company offers services in solid and liquid waste management and environmental cleanup (e.g., soil remediation). The total TRS investment in GFL Environmental is \$31,046,588.

Redwood Materials, Inc.

- Creates a closed-loop supply chain for lithium-ion batteries in the United States by recycling used lithium-ion batteries into components of future batteries. Located in Nevada, Redwood Materials is a portfolio company of Valor Equity Partners V L.P. TRS has a total investment of \$345,588.

TRS directs our investment advisors to assess whether and how our strategic asset allocation may be constructed to prudently increase allocations to climate change solutions investments across multiple asset classes consistent with our fiduciary duties and our investment objectives.

DIVEST TO DE-RISK

Public Markets

In 2015, TRS began excluding from our portfolio publicly-traded companies which derive at least 50% of their revenue from thermal coal production, mining and/or processing. In 2018, we voted to divest from fossil fuel owners in publicly traded equity and fixed income securities within five years; we completed that divestment of \$2 billion in 2022. We will explore further potential prudent actions in the thermal coal value chain, including coal infrastructure and coal-powered electricity generation, as part of our engagement strategy, to manage the phaseout of high-risk fossil fuel assets and expedite the transition to a clean energy economy. Such actions may include consideration of additional exclusions of the coal value chain to address the high financial and climate risk of thermal coal but would be subject to investment analysis to ensure compliance with our fiduciary duties and an assessment of Just Transition plans for workers.

Private Markets

Consistent with the Board’s January 2021 Fossil Fuel Reserve Owner Divestment resolution, BAM shall ask all private markets managers recommended for Board approval to commit across the recommended fund to exclude investments in exploration, extraction or production of oil, gas or thermal coal, or to otherwise provide TRS with the ability to opt out of such investments. If a manager does not agree to either condition, BAM will communicate the manager’s position to the Board, which shall determine whether to approve the investment, consistent with our fiduciary duties.

Exclusions

If investment managers or publicly traded companies fail to comply with the parameters to mitigate climate risk and align with science-based pathways to limit global warming to 1.5°C as laid out in this Plan, we will consider excluding them from our portfolio going forward consistent with fiduciary standards.

As our Divestment and Exclusion Policy recognizes, TRS prefers engagement to divestment. This is particularly true where the subject is climate change. Robust and long-term engagement is essential to overcoming the many obstacles—financial, logistical, technological, social, and political—to reaching a net-zero future. There must be space in this conversation for good-faith disagreement about what measures are appropriate and when for the diverse sectors of the global economy.

This Plan lays out the engagement strategies that BAM will pursue on behalf of TRS. TRS directs BAM, as it pursues these strategies, to identify companies and managers that decline to take the steps requested of them, along with the explanations, if any, they provide for their decisions. BAM will report this information annually to TRS.

By 2025, BAM, with the benefit of this information, will recommend to TRS criteria that it will employ to identify companies or managers for possible divestment due to their demonstrated and implacable opposition to taking substantive steps to reduce their GHG emissions consistent with the goal of maintaining global warming to 1.5° C. These criteria will not be exclusive or determinative of any final decision by TRS to divest.

Any subsequent effort by TRS to pursue a divestment from a company or manager identified by BAM on the basis of these criteria will be undertaken consistent with the Divestment and Exclusion policy to ensure that the proposed divestment is prudent in all respects and consistent with fiduciary duty.

CONCLUSION

TRS recognizes the enormity of the challenges that climate change poses:

- to the participants and beneficiaries of the System,
- to the global economy and therefore to our investments, which depend on the health of that economy to deliver the returns that fund the benefits the System will pay out, and
- to the City of New York and its residents who are bearing the fiscal and physical risks that climate change is creating, which will only increase if we are unable to mitigate and reverse its effects.

With this Net Zero Implementation Plan, TRS strives to take a multi-faceted approach to address the investment risks and opportunities of climate change, consistent with our fiduciary duties. With our investment partners, we will carry it out to the best of our abilities, and we pledge to be transparent and accountable to our members and the public at large on our accomplishments and any shortcomings as we move forward. It is our hope that other investors will be aligned with the key elements of this plan, collaborate with us to magnify its impact, and use it as a jumping off point to go even further to address climate change and inspire us and others to redouble our own efforts and effectiveness.

Appendix A

Carbon Footprint Analysis

	TRS - Financed Emissions/\$m (Scope 1, 2)	Blended Benchmark - TRS - Financed Emissions/\$m (Scope 1,2)	Portfolio-Benchmark ratio
31-Dec-19	81.62	79.95	1.02
30-Jun-22	59.58	60.70	0.98
Emissions Change % (2019-2022)	-27.00	-24.07	

	TRS - Total Emissions (Scope 1,2)	Blended Benchmark - TRS - Total Emissions (Scope 1,2)	
31-Dec-19	3,951,681.00	3,844,316.78	
30-Jun-22	2,786,341.00	2,823,438.00	

	TRS - Financed Emissions/\$m (Scope 3)	Blended Benchmark - TRS - Financed Emissions/\$m (Scope 3)	Portfolio-Benchmark ratio
30-Jun-22	241.80	379.00	0.64

	TRS - Total Emissions (Scope 3)	Blended Benchmark - TRS - Total Emissions (Scope 3)	
30-Jun-22	11,346,047.00	17,625,211.00	

The following table shows the Weighted Average Carbon Intensity (WACI) for TRS for the years 2019 and 2022. WACI is the weighted average of financed emissions normalized by company sales

	TRS - WACI (Scope 1, 2)	Blended Benchmark - TRS - WACI (Scope 1,2)
31-Dec-19	233.12	185.33
30-Jun-22	172.35	177.70

	TRS - WACI (Scope 3)	Blended Benchmark - TRS - WACI (Scope 3)
30-Jun-22	642.40	809.30

Appendix B

PAII Net Zero Investment Framework (NZIF) for Assessing Net Zero Alignment in Public Equity and Corporate Fixed Income

For Public Equity and Corporate Fixed Income, the NZIF recommends assessing all companies in “material” sectors for net zero alignment. “Material” sectors are defined as those in NACE code categories A-H and J-L.

The NZIF provides ten criteria for assessing the net zero alignment of companies. Six of these criteria (Criteria 1-6) are core criteria to help determine whether a company has a credible, science-based net zero transition plan. Four criteria (Criteria 7-10) are complementary and contribute to a comprehensive assessment of company alignment.

The NZIF recommends “higher impact” companies to be assessed against the six core (Criteria 1-6) criteria. PAII defines “higher impact” companies as those companies on the Climate Action 100+ focus list, companies in high sectors consistent with Transition Pathway Initiative sectors¹⁴, plus banks and real estate. All other companies in material sectors are deemed “lower impact” by PAII. The PAII Framework recommends assessing “lower impact” companies using Criteria 2, 3 and 4.

The NZIF Net Zero Alignment Criteria for Public Equity and Corporate Fixed Income are:

1. **Ambition**: Has the company adopted a goal of achieving net zero emissions by 2050 or sooner consistent with achieving global net zero emissions?
2. **Targets**: Has the company adopted short- and medium-term emissions reduction targets for Scopes 1 and 2 emissions and material Scope 3 emissions?
3. **Emissions Performance**: How does the company’s current emissions intensity performance (Scopes 1 and 2 and material Scope 3 emissions) compare relative to targets the company has?
4. **Disclosure**: Does the company disclose its Scope 1 and 2 emissions and material Scope 3 emissions?
5. **Decarbonization Strategy**: Does the company have a quantified plan setting out the measures that will be deployed to deliver GHG targets, proportions of revenues that are green and, where relevant, increases in green revenues?
6. **Capital Allocation Alignment**: Does the company clearly demonstrate that its capital expenditures are consistent with achieving net zero by 2050 or earlier?
7. **Climate Policy Engagement**: Does the company have a Paris-Agreement-aligned climate lobbying position and demonstrate alignment of its direct and indirect lobbying activities?
8. **Climate Governance**: Does the company provide clear oversight of net zero transition planning and executive remuneration linked to delivering targets and transition?

9. Just Transition: Does the company consider impacts from transitioning to a lower carbon business model on its workers and communities?
10. Climate risk and accounts: Does the company provide disclosures on risks associated with the transition through TCFD Reporting and incorporate such risks into its financial accounts?

The NZIF recommends classifying companies as (1) achieving net zero (2) aligned to a net zero pathway (3) aligning towards a net zero pathway (4) committed to aligning or (5) not aligned and defines them as follows:

1. Net Zero: a company which is already achieving the emissions intensity required by the sector and regional pathway for 2050 or earlier and whose ongoing investment plan or business model will maintain this performance
2. Aligned: companies in high impact sectors that are achieving all six core criteria; companies in other material sectors that are achieving Criteria 2, 3 and 4.
3. Aligning: Companies achieving 2, 4 and some evidence (partial fulfillment) of Criteria 5.
4. Committed to aligning: Companies that have met Criteria 1 – setting an ambition to achieve net zero.

NZIF recommends using SBTi for assessing companies against alignment criteria 2, 3 and 4 only. Fulfilling criteria 2, 3 and 4 would classify a non-high impact company in material sectors as net zero “aligned”. In addition, fulfilling criteria 2 and 4 and some evidence of 5 would classify all companies in material sectors as net zero “aligning”, including high impact companies.

SBTi-approved science-based targets are consistent with the NZIF criteria for net zero alignment for all material sectors with the exception of high impact sectors. The NZIF criteria for net zero alignment for material sectors include (1) a long-term 2050 goal consistent with achieving net zero; (2) short- and medium-term emissions reduction targets covering Scopes 1, 2 and material scope 3; (3) emissions performance across Scope 1, 2 and material Scope 3 consistent with the interim targets and (4) disclosure of Scope 1, 2 and material Scope 3 emissions.

For high impact sectors, the NZIF sets two additional criteria: (1) A quantified plan setting out the measures to deliver targets, proportions of revenues that are green and, where relevant, increases in green revenues; and (2) a clear demonstration that capital expenditures of the company are consistent with achieving net zero.

“High Impact Sectors” based on Transition Pathway Initiative (TPI) (additional “High Impact” companies as defined by NZIF are those on the Climate Action 100+ focus list and banks and real estate)

TPI Sector	GICS Sector Name	GICS Sub Industry
Electricity utilities	Energy	Integrated Oil & Gas (10102010)
		Electric Utilities (55101010)
	Utilities	Independent Power Producers & Energy Traders (55105010)
		Multi-Utilities (55103010)
Oil & gas	Energy	Integrated Oil & Gas (10102010)
		Oil & Gas Refining & Marketing (10102030)
		Oil & Gas Exploration & Production (10102020)
		Oil & Gas Storage & Transportation (10102040)
	Materials	Diversified Chemicals (15101020)
Oil & gas distribution	Energy	Oil & Gas Storage & Transportation (10102040)
		Oil & Gas Exploration & Production (10102020)
	Materials	Diversified Chemicals (15101020)
Coal mining	Energy	Coal & Consumable Fuels (10102050)
		Oil & Gas Refining & Marketing (10102030)
	Consumer discretionary	Automobile Manufacturers (25102010)
	Industrials	Industrial Conglomerates (20105010)
		Trading Companies & Distributors (20107010)
	Materials	Diversified Metals & Mining (15104020)
Steel (15104050)		
Autos	Consumer discretionary	Automobile Manufacturers (25102010)
Airlines	Industrials	Airlines (20302010)
Shipping	Energy	Oil & Gas Storage & Transportation (10102040)
	Industrials	Marine (20303010)
Aluminium	Materials	Aluminum (15104010)
		Diversified Metals & Mining (15104020)
	Industrials	Trading Companies & Distributors (20107010)
Cement	Materials	Construction Materials (15102010)
Pulp & paper	Materials	Paper Packaging (15103020)
		Paper Products (15105020)
Steel	Materials	Steel (15104050)

TPI Sector	GICS Sector Name	GICS Sub Industry
Chemicals	Materials	Commodity Chemicals (15101010)
		Diversified Chemicals (15101020)
		Fertilizers & Agricultural Chemicals (15101030)
		Industrial Gases (15101040)
		Specialty Chemicals (15101050)
Diversified mining	Materials	Diversified Metals & Mining (15104020)
		Copper (15104025)
		Steel (15104050)
Other industrials	Information technology	Electronic Equipment & Instruments (45203010)
		Technology Hardware, Storage & Peripherals (45202030)
	Industrials	Aerospace & Defense (20101010)
		Construction Machinery & Heavy Trucks (20106010)
		Heavy Electrical Equipment (20104020)
		Electrical Components & Equipment (20104010)
	Consumer discretionary	Consumer Electronics (25201010)
	Materials	Construction Materials (15102010)

Climate Action 100+ Net Zero Company Benchmark ([Structure and Methodologies | Climate Action 100+](#))

The Net Zero Company Benchmark assesses companies' transition to net zero emissions business models based on companies' disclosure practices and alignment of their actions with net zero.

The disclosure criteria are: (1) net zero GHG emissions by 2050 (or sooner) ambition; (2) long-term (2036-2050) GHG reduction target(s); (3) medium-term (2026-2035) GHG reduction target(s); (4) short-term (up to 2025) GHG reduction target(s); (5) decarbonization strategy (target delivery); (6) capital allocation alignment; (7) climate policy alignment; (8) climate governance; (9) just transition; and (10) TCFD disclosure.

Alignment assessment complement the disclosure criteria. They provide independent evaluations of the alignment and adequacy of company actions with the goals of Climate Action 100+ and the Paris Agreement.

The alignment assessments come from different data providers of the Climate Action 100+ Technical Advisory Group including Carbon Tracker Initiative (CTI), the Climate Accounting and Audit Project (CAAP), The Rocky Mountain Institute (RMI) (formerly 2 Degrees Investing Initiative, 2DII) and InfluenceMap. For the March and October 2022 Net Zero Company Benchmark assessments, they cover the following topics and sectors:

CAPITAL ALLOCATION ALIGNMENT (CTI)

For oil and gas focus companies, CTI's alignment assessments analyze companies' potential capital expenditures (CapEX) for unsanctioned upstream oil and gas carbon-emitting assets relative to a range of climate change scenarios. In addition, for electric utility focus companies, CTI's alignment assessments analyze companies' announced retirement schedules for their legacy coal and gas-fired power generation capacity and new planned additional carbon-emitting assets relative to a range of climate change scenarios.

CLIMATE POLICY ENGAGEMENT ALIGNMENT (INFLUENCEMAP)

InfluenceMap's alignment assessments provide detailed analyses of corporate climate policy engagement and the alignment of company climate policy engagement actions (direct and indirect via their industry associations) with the Paris Agreement goals. Their assessments cover nearly all Climate Action 100+ focus companies.

CAPITAL ALLOCATION ALIGNMENT (RMI – FORMERLY 2DII)

For electric utility and autos focus companies, RMI's alignment assessments analyze focus companies' planned CapEX and production capacity relative to a range of climate change scenario pathways for the sectors. In addition, for steel, cement, and aviation focus companies, RMI's alignment assessments analyze companies' planned economic outputs and associated emissions intensities relative to selected climate change scenarios.

CLIMATE ACCOUNTING & AUDIT [PROVISIONAL] (CTI AND CAAP)

CTI and CAAP's alignment assessment evaluates whether a focus company's accounting practices and related disclosures, and the auditor's report thereon, reflect the effects of climate risk, the global move towards a 2050 (or sooner) net zero emissions pathway, and the Paris Agreement goal of limiting global warming to no more than 1.5°C. This assessment covers nearly all focus companies and is considered Provisional, meaning the information will be collected and publicly assessed for the March and October 2022 iterations of the Benchmark, but the framework will be subject to change in future iterations.

Transition Pathway Initiative (TPI) Management Quality and Carbon Performance Framework (90.pdf (transitionpathwayinitiative.org))

TPI assesses companies' progress on the low carbon transition with (1) Management Quality (companies' carbon management practices and governance) and (2) Carbon Performance

(companies' emissions pathways compared to different climate scenarios consistent with the Paris Agreement).

TPI's Management Quality Framework utilizes up to 19 different indicators and question to track the progress of companies through five levels: Level 0: Unaware of (or not Acknowledging) Climate Change as a Business Issue; Level 1: Acknowledging Climate Change as a Business Issue; Level 2: Building Capacity; Level 3: Integrating into Operational Decision-Making; and Level 4: Strategic Assessment.

TPI's Carbon Performance assessment is based on the Sectoral Decarbonization Approach (SDA) comparing individual company emissions performance to sector benchmarks.

DRAFT

Appendix C

TRS Climate Change Solution Investments

Report

TRS Climate Change Solutions Investments (millions of \$) – Dec 31, 2021, to Jun 30, 2022

TRS (4Q 2021)	Total Port	Public Eq.	Public FI	Alt Credit	Private Eq.	Real Est	Infra
Total NAV	103,412.6	50,134.6	32,135.9	8,427.4	7,433.3	3,783.0	1498.3
Climate NAV	2,717.7	1,512.2	120.3	56.1	196.2	487.6	345.3
Climate %	2.63%	3.02%	0.37%	0.67%	2.64%	12.89%	23.05%
TRS (2Q 2022)	Total Port	Public Eq.	Public FI	Alt Credit	Private Eq.	Real Est	Infra
Total NAV	89,531.9	39,177.0	28,738.4	7,649.0	7,778.3	4,458.7	1,730.5
Climate NAV	2,194.2	1,067.4	114.3	66.3	166.5	449.0	330.7
Climate %	2.45%	2.72%	0.40%	0.87%	2.14%	10.07%	19.11%
4Q-21 to 2Q-22	Total Port	Public Eq.	Public FI	Alt Credit	Private Eq.	Real Est	Infra
Total NAV - Change	-13.42%	-21.86%	-10.57%	-9.24%	4.64%	17.86%	15.50%
Climate NAV - Change	-19.26%	-29.42%	-4.95%	18.19%	-15.13%	-7.93%	-4.23%

Definitions of Climate Change Solutions Investments

Public Equity: Companies that derive 50% or more of their revenue from MSCI categories of alternative energy, energy efficiency, green building, pollution prevention, or sustainable water, as analyzed by BAM Risk Management.

Public Fixed Income: Companies that derive 50% or more of their revenue from MSCI categories of alternative energy, energy efficiency, green building, pollution prevention, or sustainable water, as analyzed by BAM Risk Management. It also includes green bonds based on manager surveys conducted by the Fixed Income Team. Managers were allowed discretion in defining green bonds.

Alternative Credit: Opportunistic Fixed Income (OFI) market values are based on manager surveys conducted by the Alternative Credit Team. The definition of climate change solutions used for OFI is “investments in companies that generate 50% or more revenue from clean and renewable

energy technologies and assets including (1) renewable energy such as solar, wind, geothermal and hydropower; (2) energy efficiency and energy smart technologies such as power storage, fuel cells and carbon capture and storage; (3) energy efficient transport and (4) low carbon buildings.” This definition is a summary of the MSCI and Burgiss definitions as well as a reflection of a definition by Ceres.

The non-OFI Alternative Credit assets (High Yield, Bank Loans and Convertible Bonds) data are based on companies that derive 50% or more of their revenue from the MSCI categories, as analyzed by BAM Risk Management.

Private Equity: Companies generating 50% or more of their revenue from the Burgiss category of “Eco Friendly” activities, including renewable energy, biofuel and other clean tech or associated companies, as analyzed by BAM Risk Management.

Real Estate: Properties certified as Energy Star. Includes properties certified as LEED only if they are also certified as Energy Star. All data is based on manager surveys conducted by the Real Estate Team. All data is NAV. Data for 2Q 2022 is based on manager survey conducted for 4Q 2021.

Infrastructure: Climate change solutions identified by Infrastructure Consultant. StepStone uses the GICS Sub-Industry definition for Renewable Electricity: “Companies that engage in generation and distribution of electricity using renewable sources, including, but not limited to companies that produce electricity using biomass, geothermal energy, solar energy, hydropower, and wind power. Excludes companies manufacturing capital equipment used to generate electricity using renewable sources, such as manufacturers of solar power systems and installers of photovoltaic cells and companies involved in the provision of technology, components, and services mainly to this market.”

Economically Targeted Investments (ETI): ETI data is incorporated in the data for Public Fixed Income and Real Estate due to the portfolio’s investment structure.



TRS INVESTMENT MEETING



March 9, 2023

NET ZERO IMPLEMENTATION PLAN

TRS' NET ZERO COMMITMENT

On October 20, 2021, TRS set an aspirational goal to achieve net zero GHG emissions by 2040 across its investment portfolio to mitigate the systemic risks of climate change to its investments and the real economy, taking into account the best available scientific knowledge and fulfilling fiduciary duty.

- ✓ Adopted Net Zero Asset Owner Commitment of the Paris Aligned Investment Initiative (PAII)
- ✓ Adopted preliminary Climate Action Plan that requires development of a Net Zero Implementation Plan in a year



NET ZERO GOAL: BROADER FRAMEWORK

GOAL To decarbonize the market, not just our portfolio, and keep fossil fuels in the ground, consistent with our fiduciary duties.

CONDITIONS We can't do this alone — requires collective action by governments, regulators, companies, and investors on both the demand side and the supply side, in energy and all sectors, especially utilities, transportation, real estate, industrials, and materials, to keep global temperature rise well below 2° C.



NET ZERO PLAN OVERVIEW

1. Disclose emissions & risk
2. Invest in climate change solutions
3. Engage for alignment & action
4. Divest to de-risk



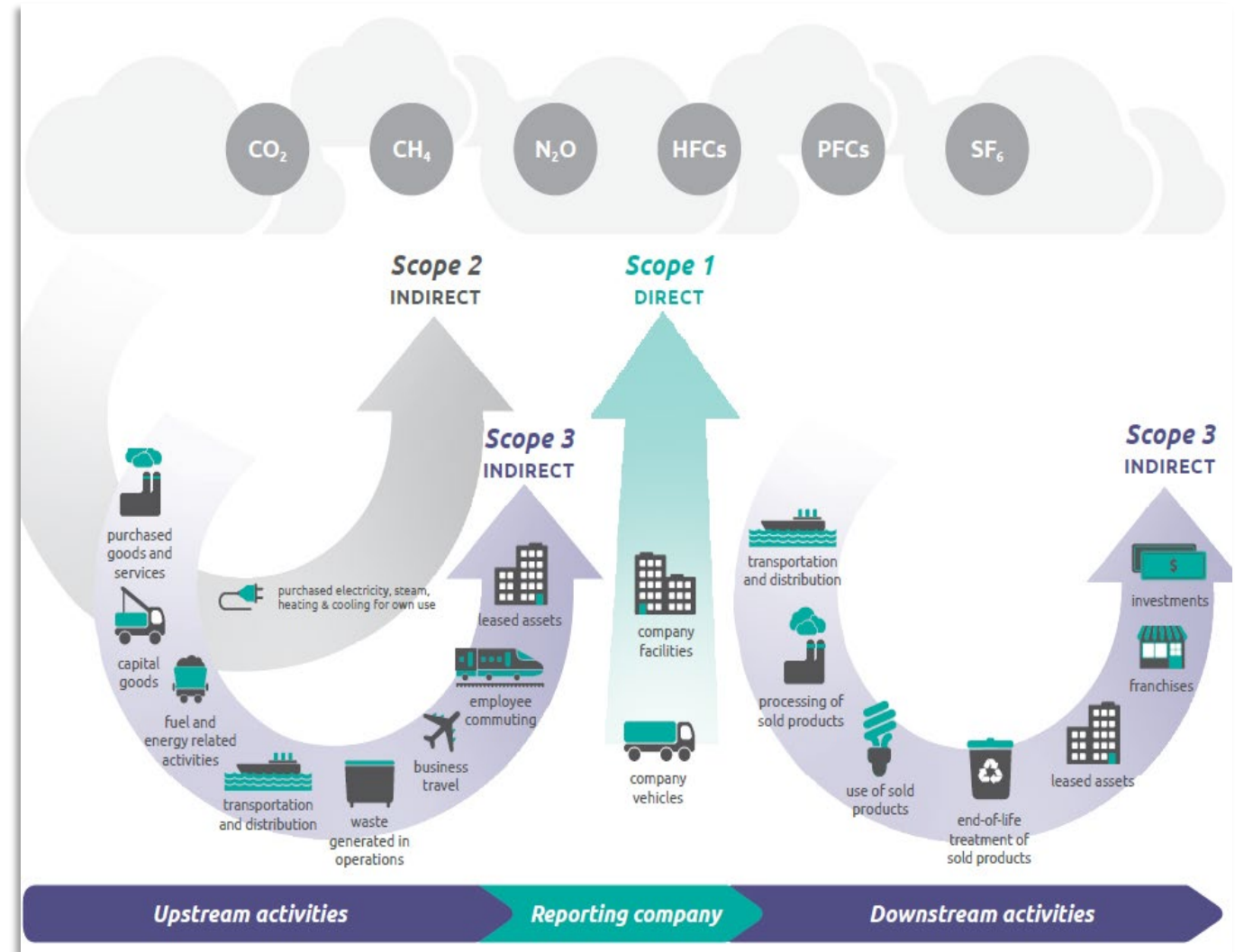
DISCLOSE EMISSIONS & RISK

- Annually measure & report Scopes 1, 2 and 3 public portfolio emissions and progress of plan
- Public markets Scopes 1 & 2 emissions reduction targets: 32% by 2025 and 59% by 2030 + set targets for Scope 3 by 2025
- Develop interim portfolio emissions reduction targets for private markets

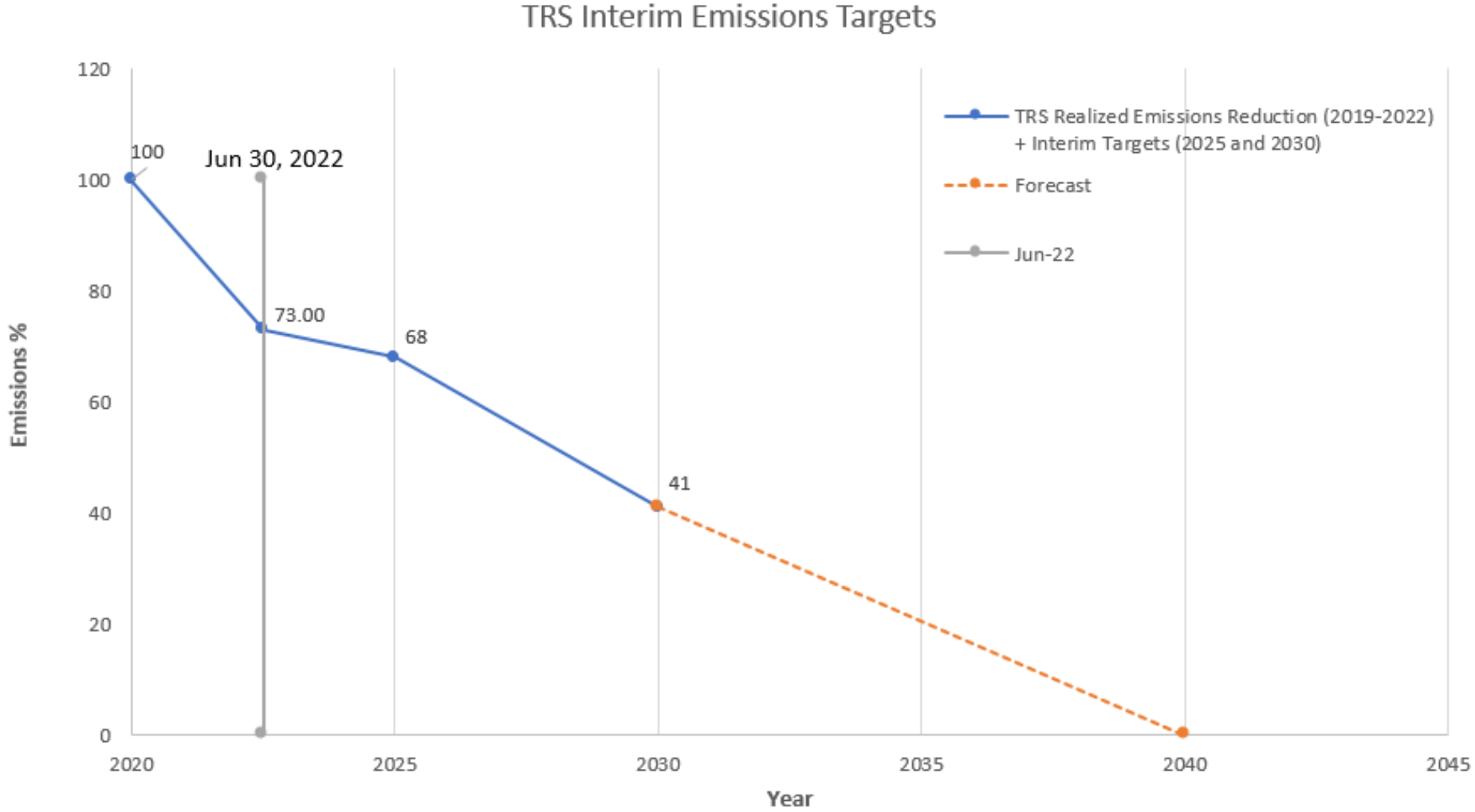


Measure and Disclose

- Annually measure and disclose GHG emissions of public equity and corporate bonds covering Scopes 1, 2 and 3 financed emissions
- Evaluate tools and data for measuring emissions of private markets
- Evaluate tools and data for assessing additional climate risks
- Annual report



DISCLOSE EMISSIONS AND RISK



ENGAGE FOR ALIGNMENT & ACTION

- Increase science-based targets coverage to:
 - 70% of Scopes 1 & 2 portfolio emissions by 2025
 - 90% of Scopes 1, 2 & 3 portfolio emissions by 2030
- Engage highest corporate emitters + collaborate with other institutional investors
- Aim for all managers to have net zero goals or science-based targets and plans by 2025
- Develop Just Transition assessment



MANAGER NET ZERO ALIGNMENT

Aim for all managers to have a net zero goal or science-based targets (SBTs) and implementation plan, consistent with fiduciary duty, covering, at a minimum, assets managed for the System, by June 30, 2025.

Managers should seek to:

- Cover Scopes 1 & 2 and material Scope 3 emissions of investments
- Develop plan for Scope 3 if inadequate data
- For GPs, have control investments adopt SBTs during holding period if no net zero goal

BAM to:

- Develop proposal for non-control investments, in consultation with managers
- Review proxy voting records of public markets managers
- Provide Boards with interim report in 2023 and in-depth progress report in 2024
- Recommend in 2025 potential actions for managers without targets and plans, or an acceptable alternative approach



INVEST IN CLIMATE CHANGE SOLUTIONS

Total Climate Change Solutions Investments: 2Q22 Amounts & Goals

Year	Amount (% of AUM)
2Q 2022 (invested & unfunded)	\$2.2 billion (2.5%)
2025 goals	\$4.2 billion (4.0%)
2035 goals	\$19 billion (13.3%)

Assess whether and how strategic asset allocation may be constructed to prudently increase allocations to climate solutions investments across multiple asset classes consistent with fiduciary duty and our investment objectives.

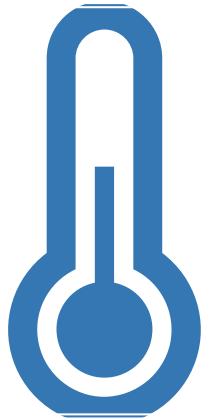


CONSIDERATION OF EXCLUSIONS



Private Markets

- Consistent with the Boards' fossil fuel divestment resolution, ask all private markets managers to exclude exploration, extraction and production of oil, gas and thermal coal or provide opt-out of such investments. If manager does not agree, Boards decide on investment consistent with fiduciary duty.



General

- If investment managers or publicly-traded companies fail to comply with the parameters to align with science-based pathways to maintain global warming to 1.5 degrees Celsius as provided in this implementation plan, Boards may consider potential actions to exclude them from our portfolio prospectively, consistent with fiduciary standards.



Quarterly Presentation (Public):

- Market Overview
- Performance Update
- Risk Update



TRS INVESTMENT MEETING PUBLIC SESSION



March 9, 2023

US AND GLOBAL INFLATION

Euro zone inflation marginally higher in Jan; core also lifted

Euro zone inflation was only a touch higher in January than earlier estimated, Eurostat said on Thursday, confirming that price growth is now well past its peak, even if underlying price pressures still show no signs of abating.

Source: [Reuters](#)

U.K. Inflation Eases to 10.1 Percent, but Food Prices Push Higher

January was the third month of declines in the inflation rate, but the double-digit increase shows Britain's cost-of-living crisis persisting.

Source: [New York Times](#)

Fed Minutes Highlight 'Increased Confidence' That Inflation Will Quickly Fall

"Participants observed that financial conditions remained much tighter than in early 2022. However, several participants observed that some measures of financial conditions had eased over the past few months

Source: [Wall Street Journal](#)

'Stubborn' food inflation leaves U.S. shoppers with slim appetite for other goods

As American shoppers stomach soaring food prices, they are cutting back on purchases of other goods, such as toys, clothing and housewares, in a challenging trend for retailers.

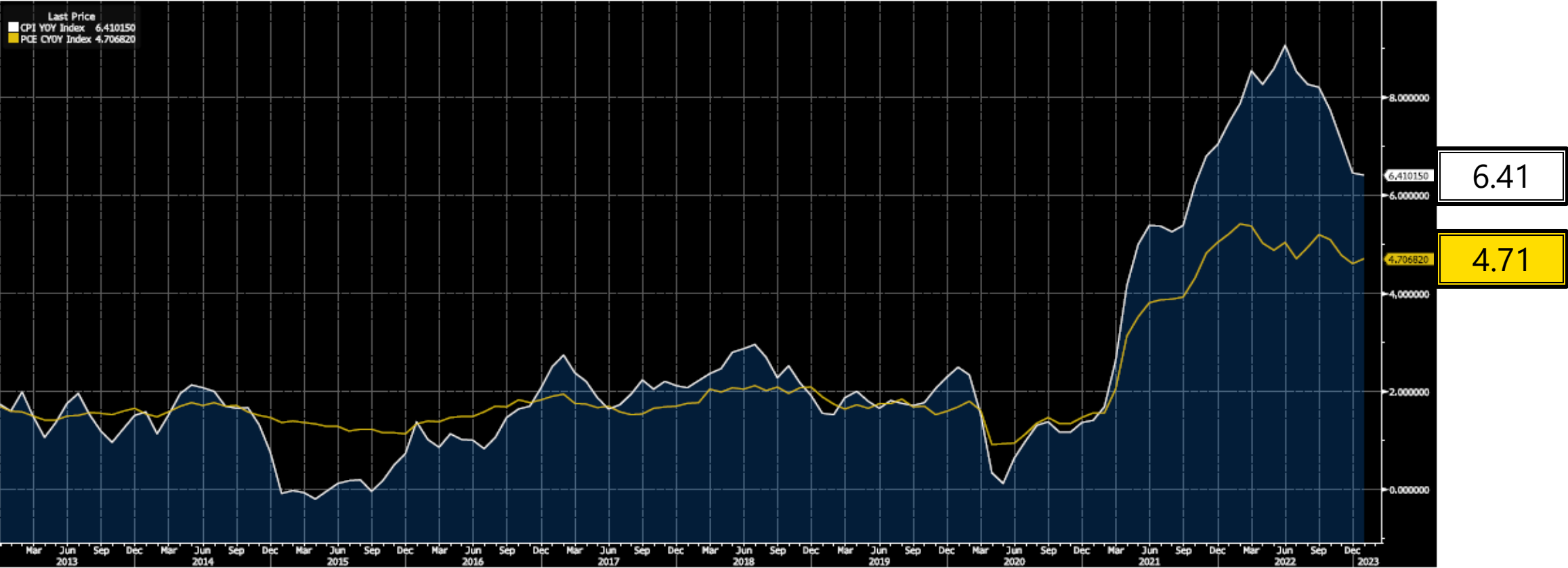
Source: [Reuters](#)



INFLATION

Inflation continues to moderate while personal consumption holds steady.

CPI YOY Index (US CPI Urban Consumers YoY NSA)
PCE CYOY Index (US Personal Consumption Expenditure Core Price Index YoY SA)

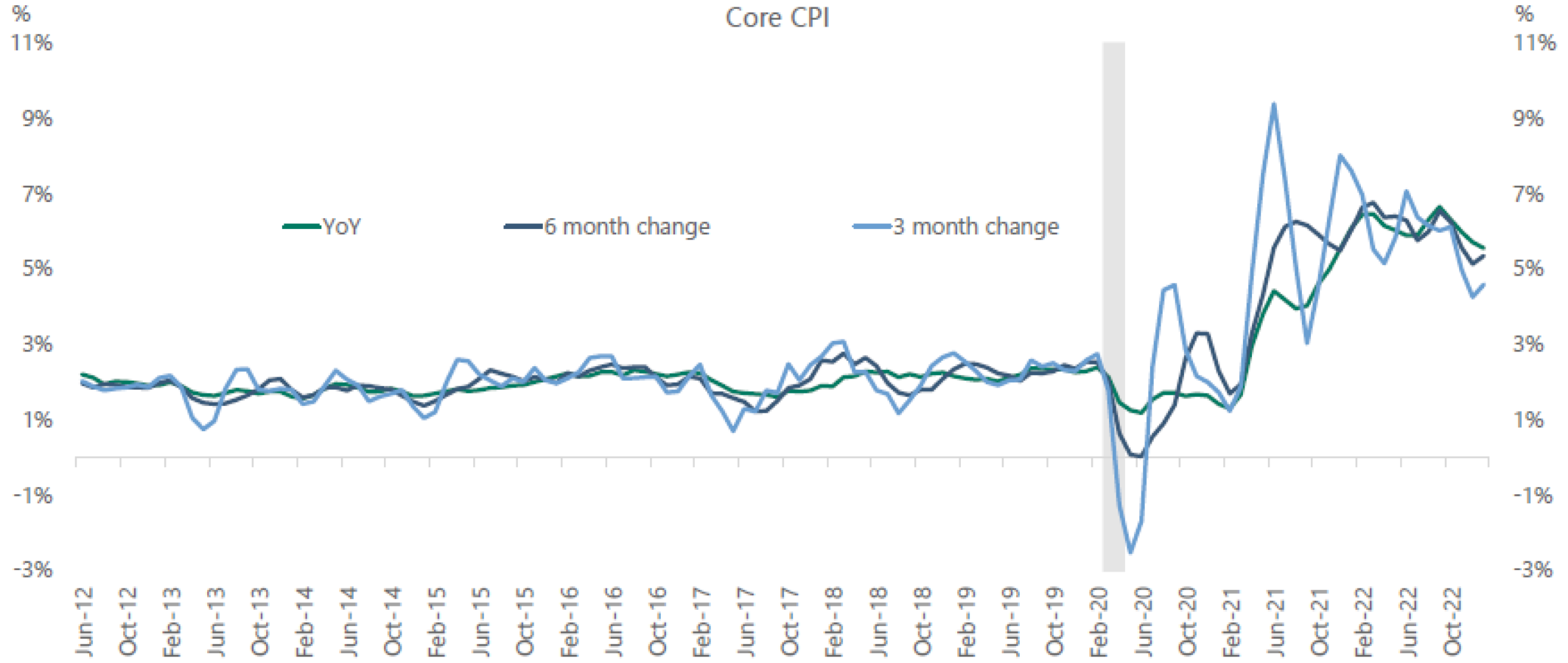


Source: Bloomberg



INFLATION TRENDS

Inflation is sticky at 5%

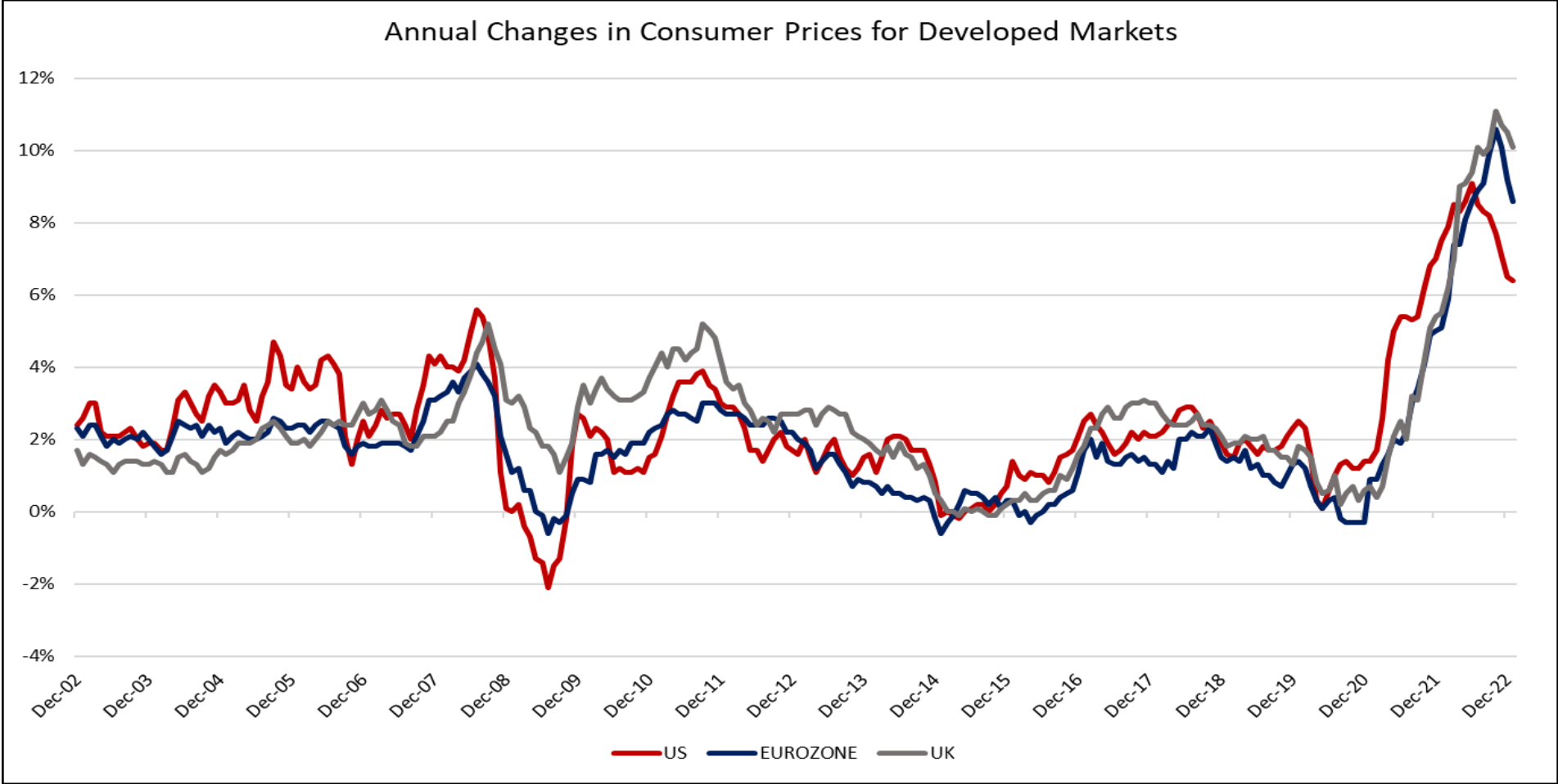


Source: Apollo



INFLATION AROUND THE WORLD

Eurozone and UK following trends in U.S.

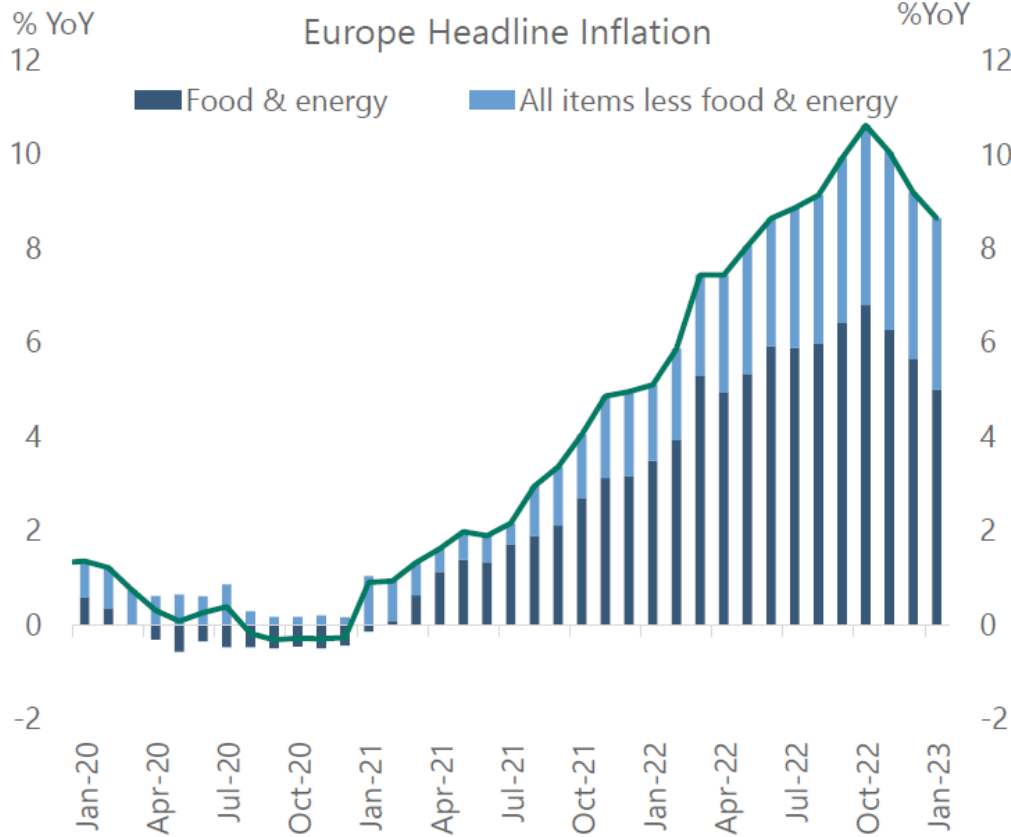
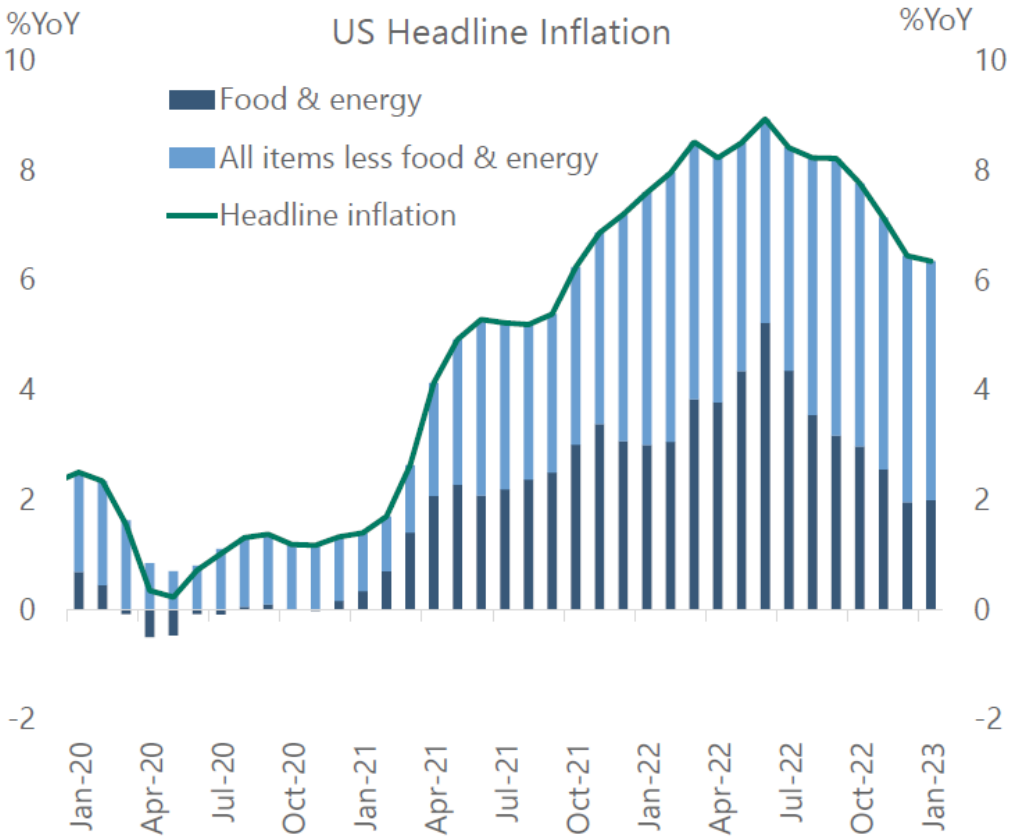


Source: Bloomberg



INFLATION DRIVERS

Euro area inflation is mainly food and energy

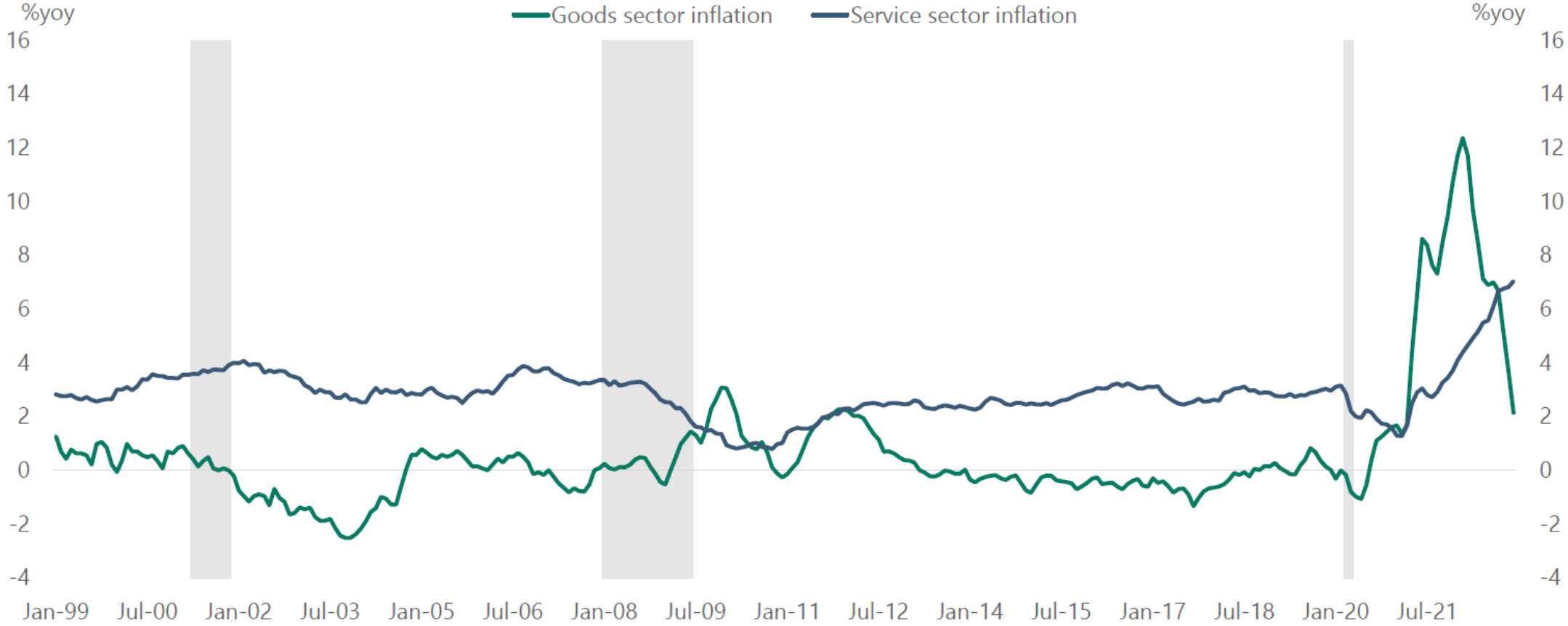


Source: Apollo



INFLATION DRIVERS

Goods sector inflation and service sector inflation

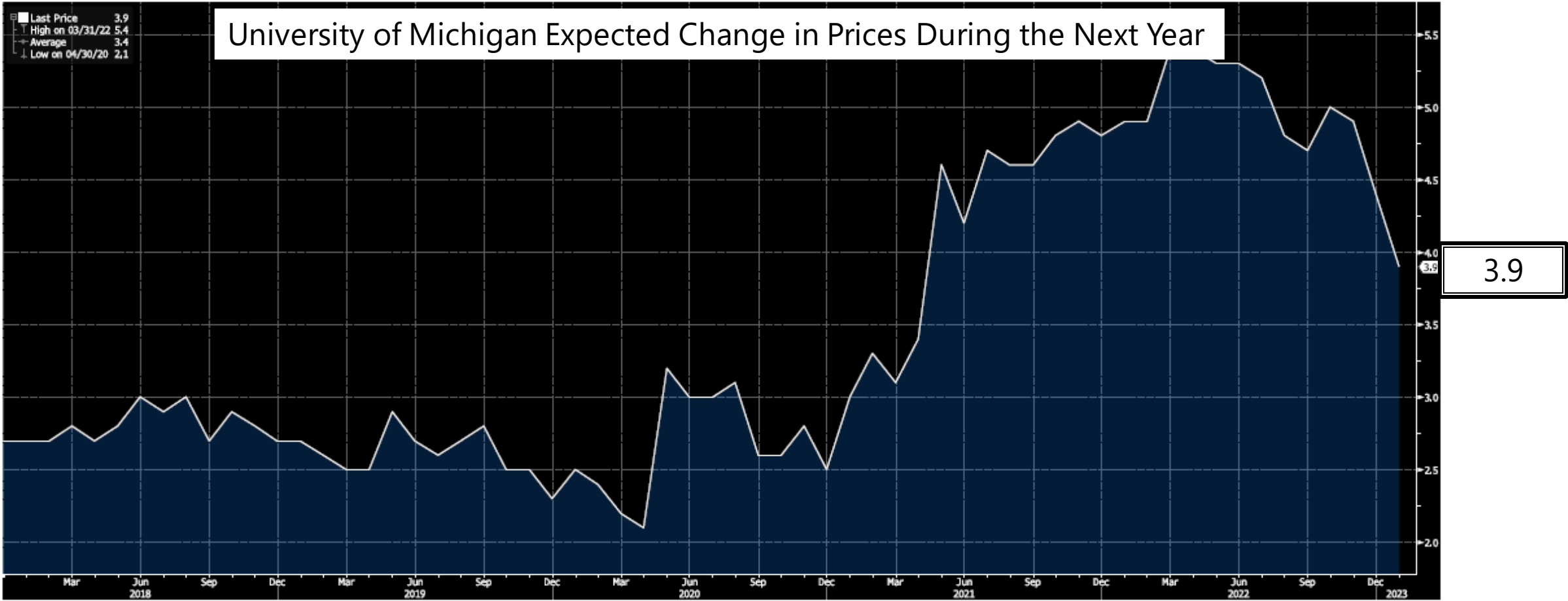


Source: Apollo



EXPECTED U.S. INFLATION

Consumers expect lower inflation in 1 year.



Source: Bloomberg



US EMPLOYMENT

US Payrolls Surprise as Jobless Rate Hits 53-Year Low

The US labor market burned red-hot in January as hiring unexpectedly surged and unemployment fell to a 53-year low, defying recession forecasts and adding pressure on the Federal Reserve to keep raising interest rates

Source: [Bloomberg](#)

January's U.S. jobs reports was stunningly good

In ordinary economic times — that is, the past 20 years or so of low inflation, moderate unemployment and slow growth — January's employment numbers would have been a cause of celebration.

Source: [CNBC](#)

A surprising burst of US hiring in January: 517,000 jobs

For nearly a year, the Federal Reserve has been on a mission to cool down the job market to help curb the nation's worst inflation bout in four decades. The job market hasn't been cooperating.

Source: [Associated Press](#)

US jobs total surges by over half a million in January

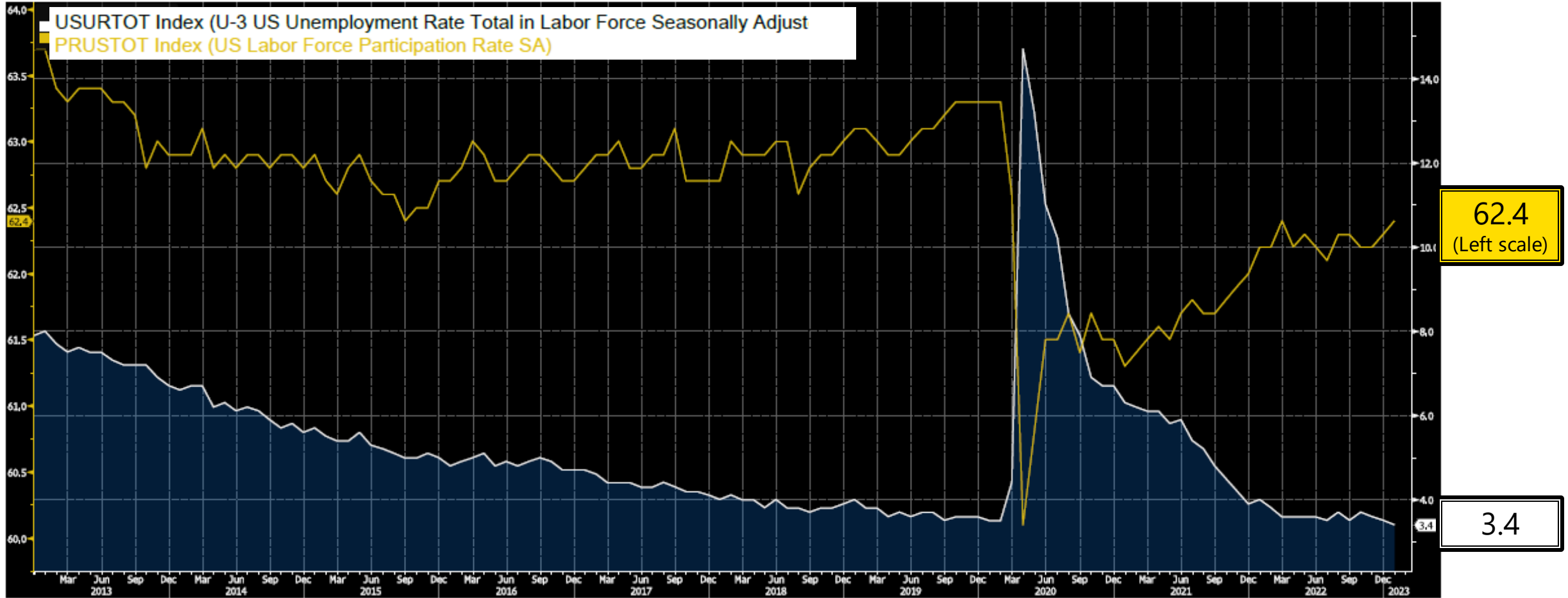
Labour market's resilience leads to bond sell-off as investors reassess Fed's interest rate stance

Source: [Financial Times](#)



UNEMPLOYMENT

Unemployment continues moderate decline and labor participation is picking up.

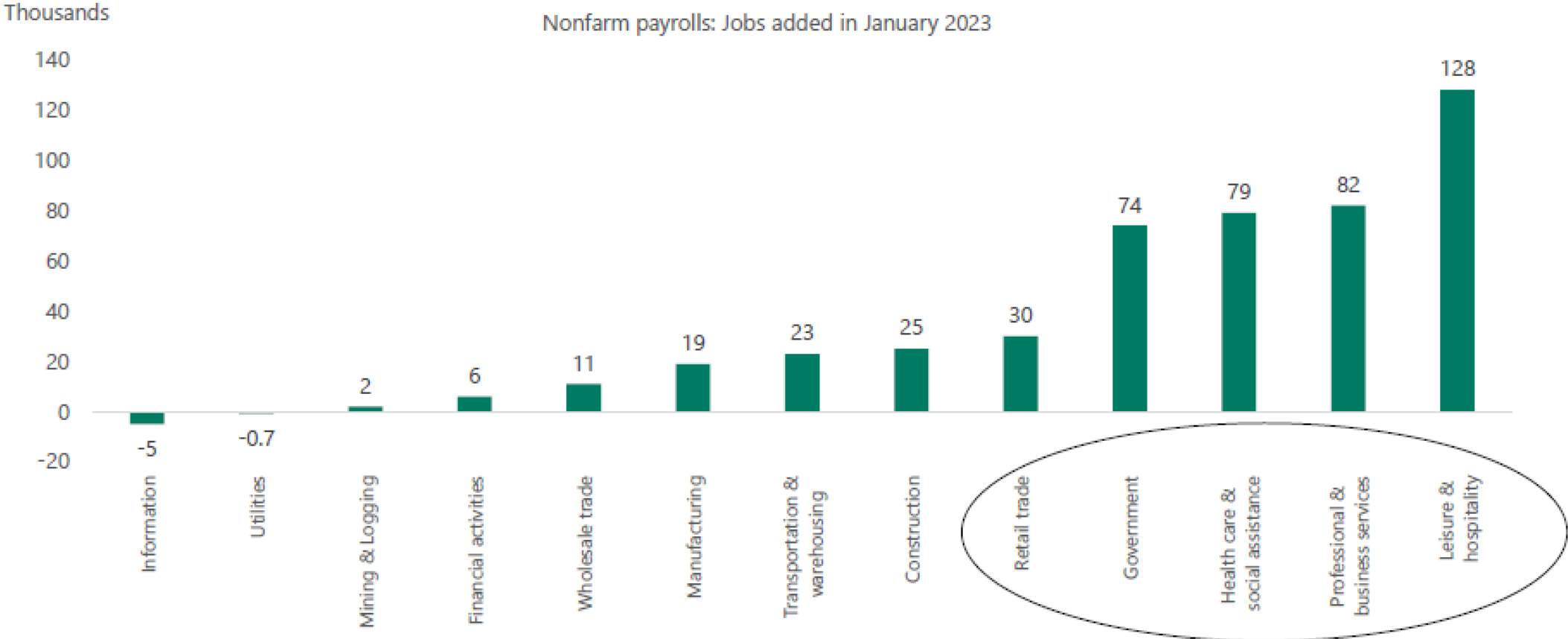


Source: Bloomberg



JANUARY 2023 HIRING BY SECTOR

517K jobs added in January: Hiring particularly strong in the service sector



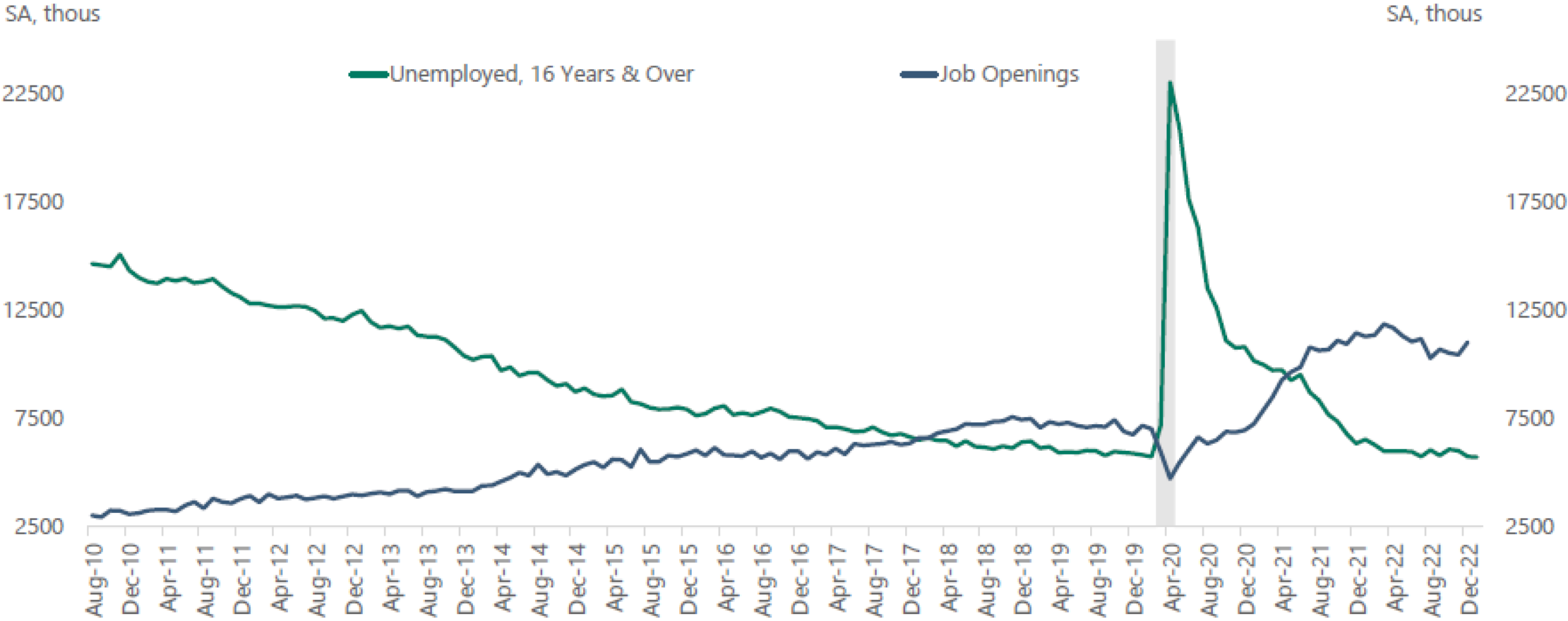
Jobs are being added in the service sector

Source: Apollo



JOB OPENINGS AND UNEMPLOYMENT

11mn job openings and 6mn unemployed



Source: Apollo



US AND NON-US ECONOMIC GROWTH

US Fourth-Quarter GDP Revised Lower on Weaker Consumer Spending

- Revision shows 2.7% annual gain versus 2.9% initial estimate
- Federal Reserve's key inflation metrics were revised higher

Source: [Bloomberg](#)

Sharp, Long-lasting Slowdown to Hit Developing Countries Hard

Global growth is slowing sharply in the face of elevated inflation, higher interest rates, reduced investment, and disruptions caused by Russia's invasion of Ukraine, according to the World Bank's latest Global Economic Prospects report.

Source: [World Bank](#)

IMF lifts 2023 growth forecast on China reopening, strength in U.S., Europe

The International Monetary Fund on Tuesday raised its 2023 global growth outlook slightly due to "surprisingly resilient" demand in the United States and Europe, an easing of energy costs and the reopening of China's economy after Beijing abandoned its strict COVID-19 restrictions.

Source: [Reuters](#)

Economy Showing Strength in Early 2023 After Last Quarter's GDP Gain Revised Modestly Lower

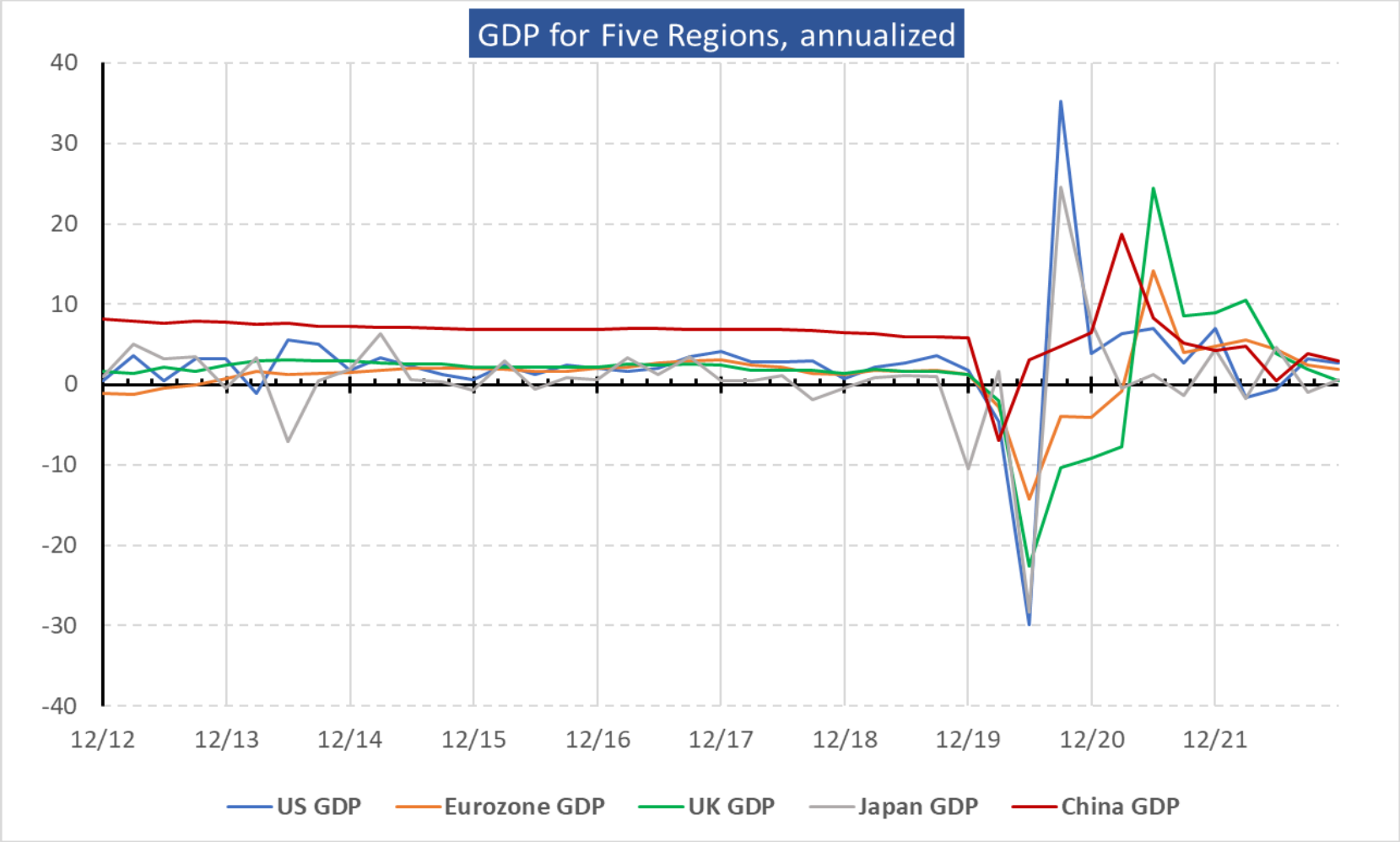
Output expanded at 2.7% rate in final quarter of 2022, Commerce Department says

Source: [Wall Street Journal](#)



ECONOMIC GROWTH

GDP Growth appears to be normalizing.

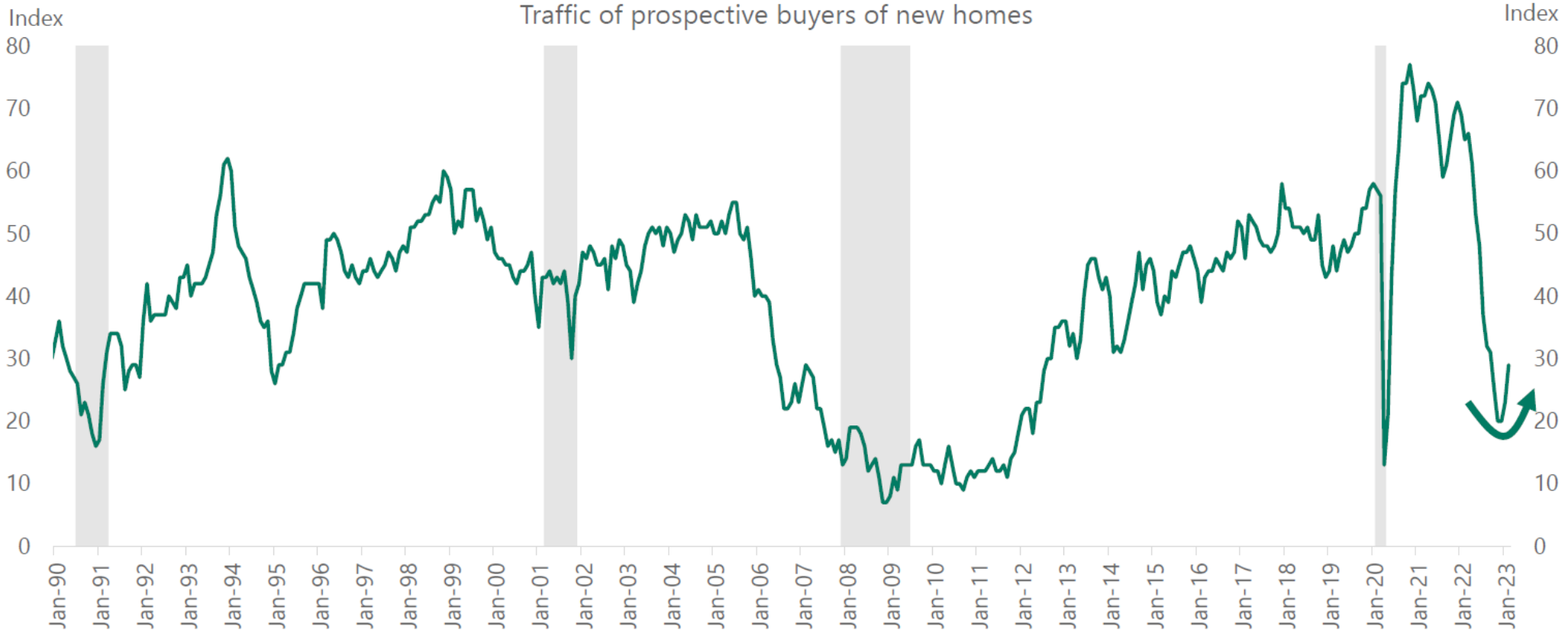


Source: Bloomberg



CONSUMER SENTIMENT

Traffic of prospective homebuyers starting to improve likely driven by strong employment growth, high wage growth, and plenty of excess savings

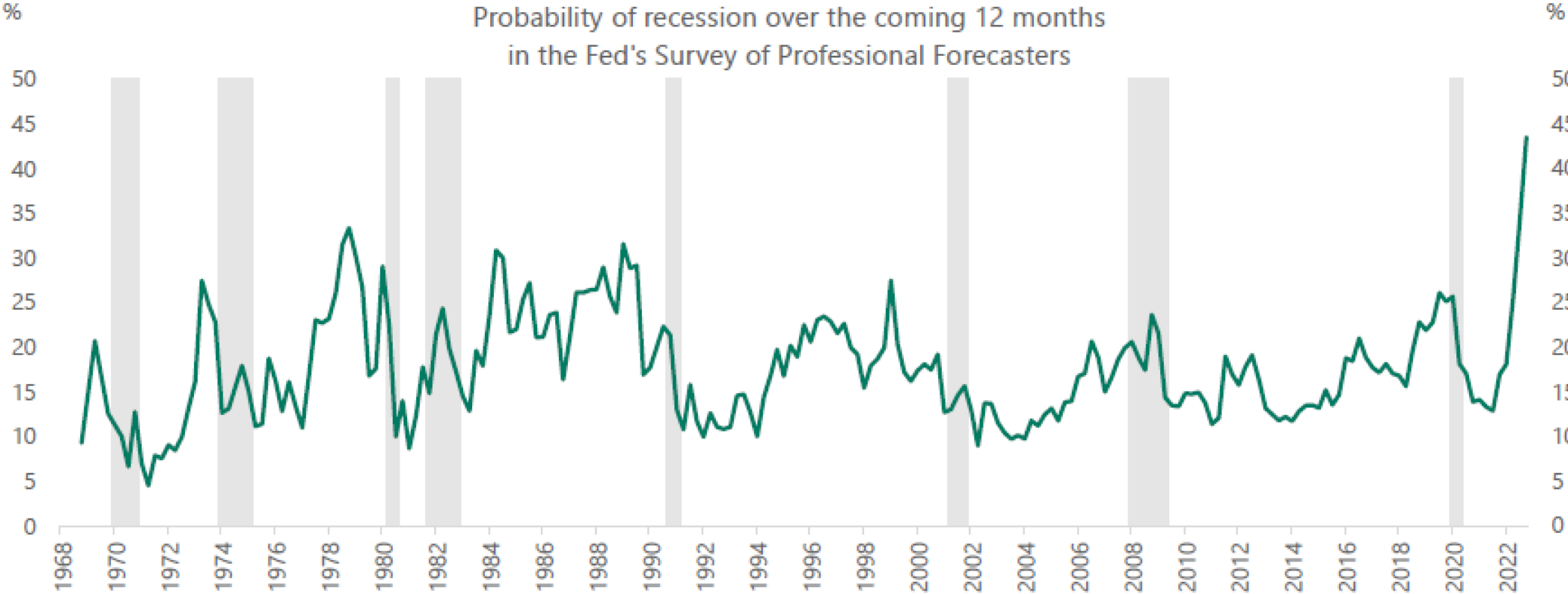


Source: Apollo



INVESTOR SENTIMENT

The most anticipated recession ever: Investors went into 2023 underweight risk

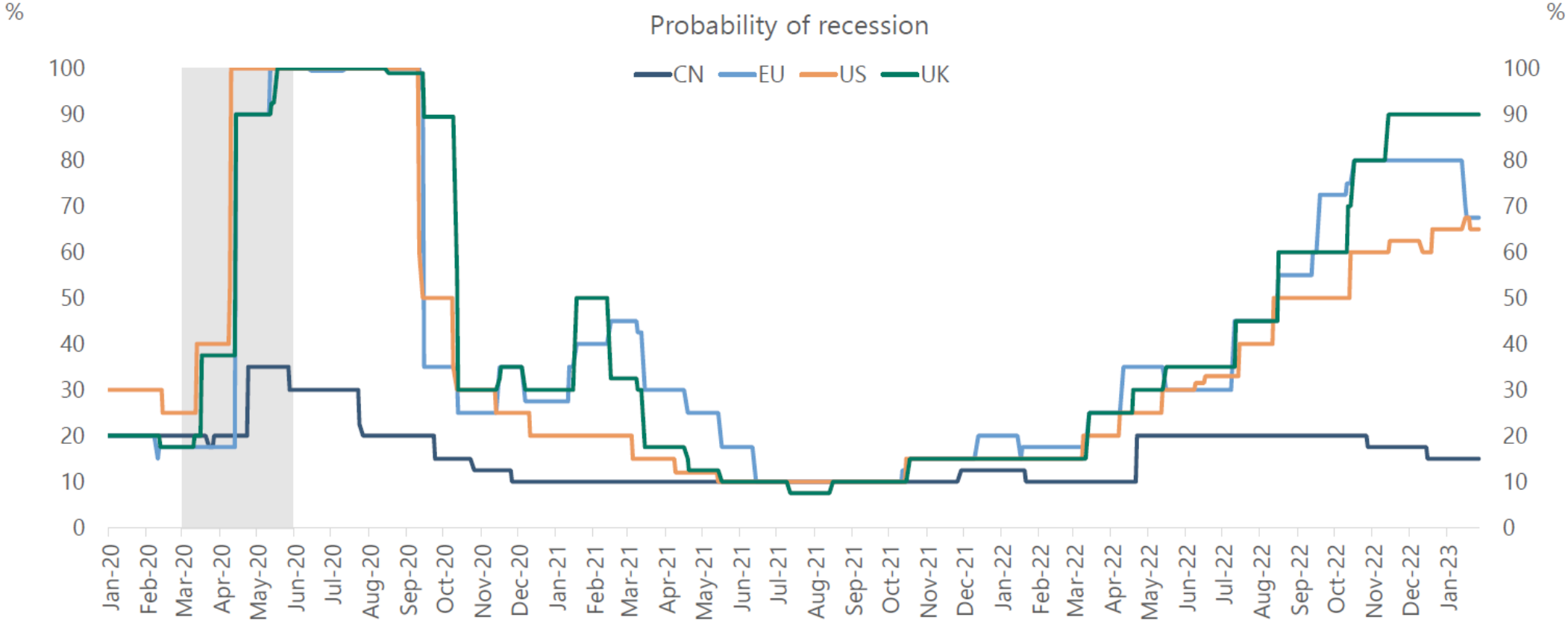


Source: Apollo



ECONOMIC GROWTH OUTLOOK

Probability of recession in the US, EU, and UK



Source: Apollo



US AND GLOBAL INTEREST RATES

We're in danger of falling into 1970s-style inflation without aggressive interest rate hikes, according to a top Fed official

Source: [Yahoo Finance](#)

Interest rates will need to rise again, warns Bank of England rate-setter

Catherine Mann, a hawkish member of the MPC, says high rates necessary to stop inflation becoming embedded in wages and prices

Source: [The Guardian](#)

Expectations for higher peak interest rates gain traction around the world since blowout U.S. jobs report

Source: [Market Watch](#)

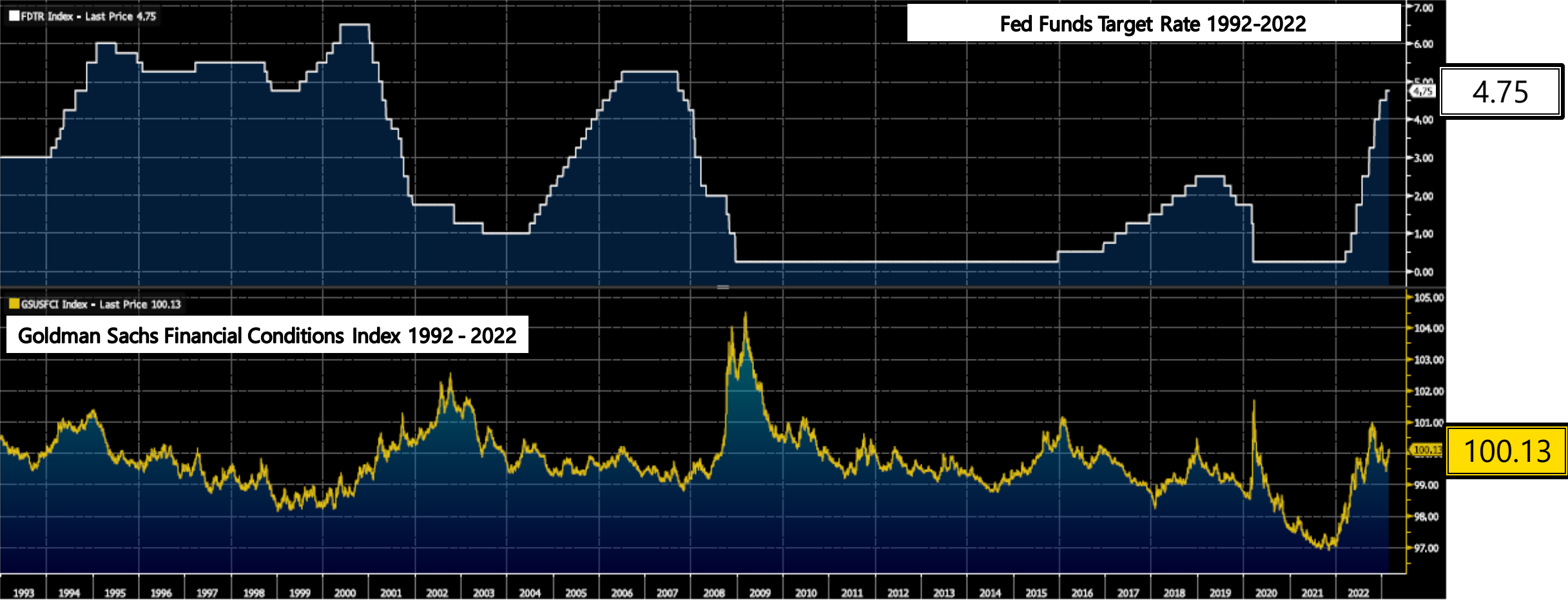
The Fed Will Keep Raising Interest Rates, Their Latest Minutes Show

Source: [Forbes](#)



OFFICIAL U.S. RATES AND FINANCIAL CONDITIONS

Steep rate hikes haven't dampened overall financial conditions significantly.

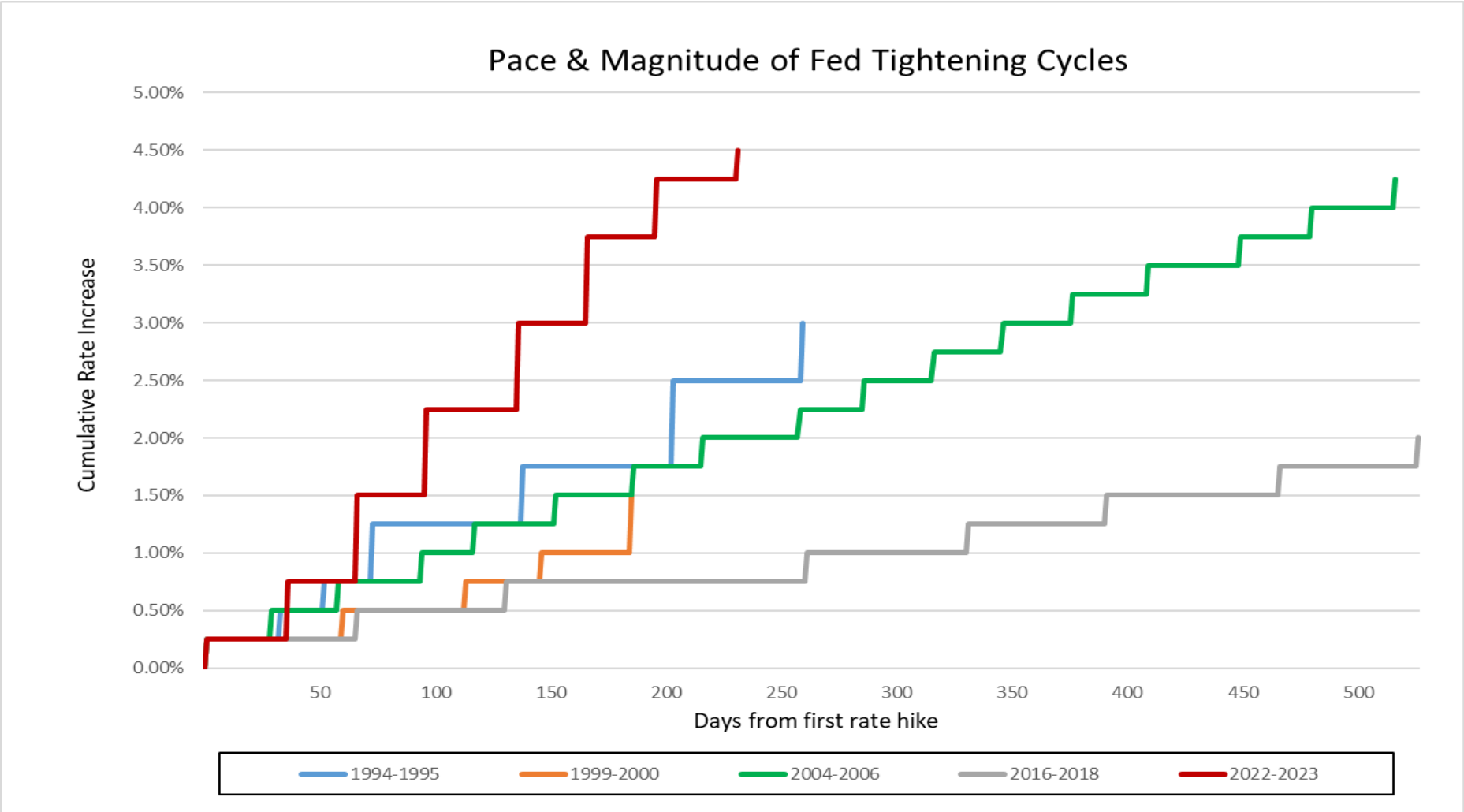


Source: Bloomberg



RAPID PACE OF FED TIGHTENING

Current cycle of rate hikes is the fastest and largest in the last 30 years.

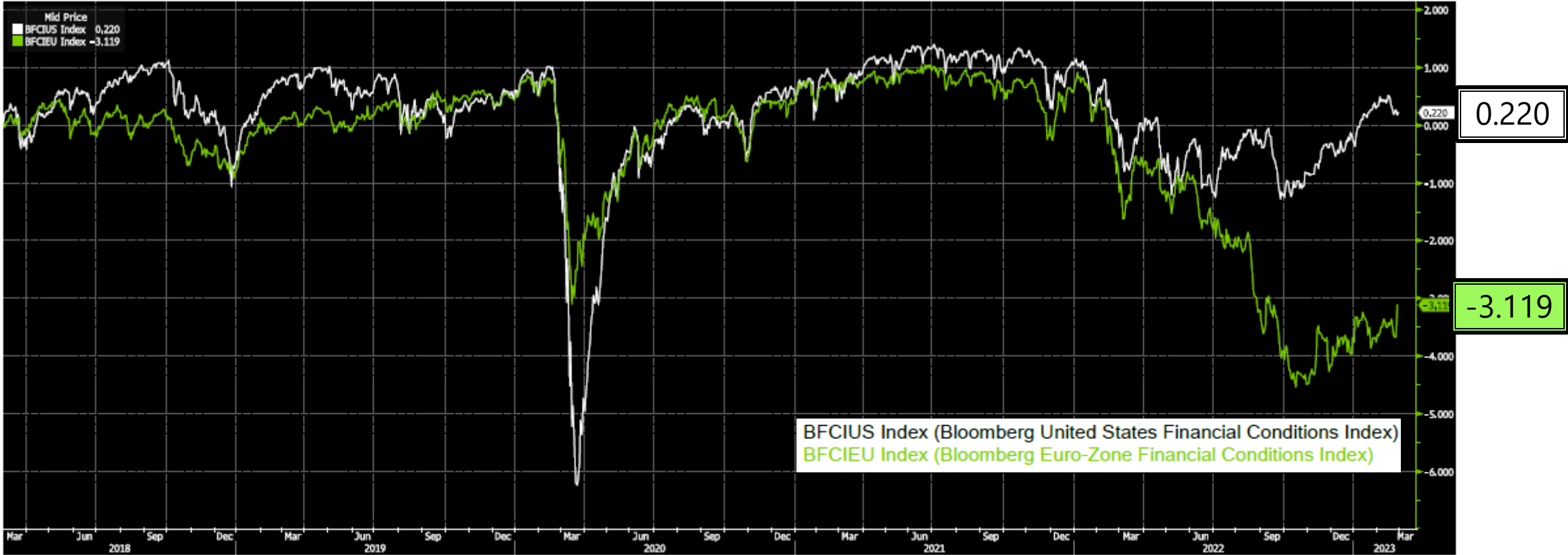


Source: Bloomberg



FINANCIAL CONDITIONS

U.S. is near-neutral while Eurozone faces continued headwinds



Source: Bloomberg



US CREDIT SPREADS AND US TREASURY YIELDS

Rising Bond Yields Rattle 2023 Stock Rally

The 10-year Treasury yield's surge erases an element of support for U.S. share indexes

Source: [The Wall Street Journal](#)

10-year Treasury yield briefly hits highest level since November

Source: [CNBC](#)

Treasury Yields Hit New Heights: Is Inflation Set To Stick Around?

Source: [Forbes](#)

Treasury Yield-Curve Inversion Reaches Deepest Level Since 1980s

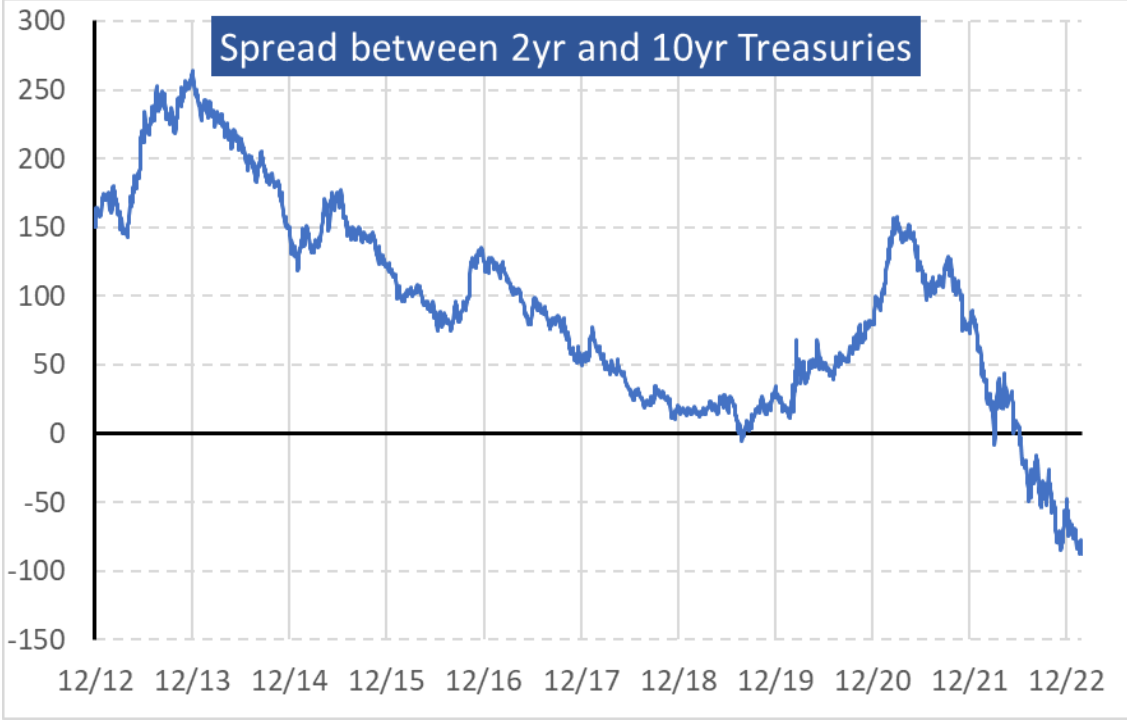
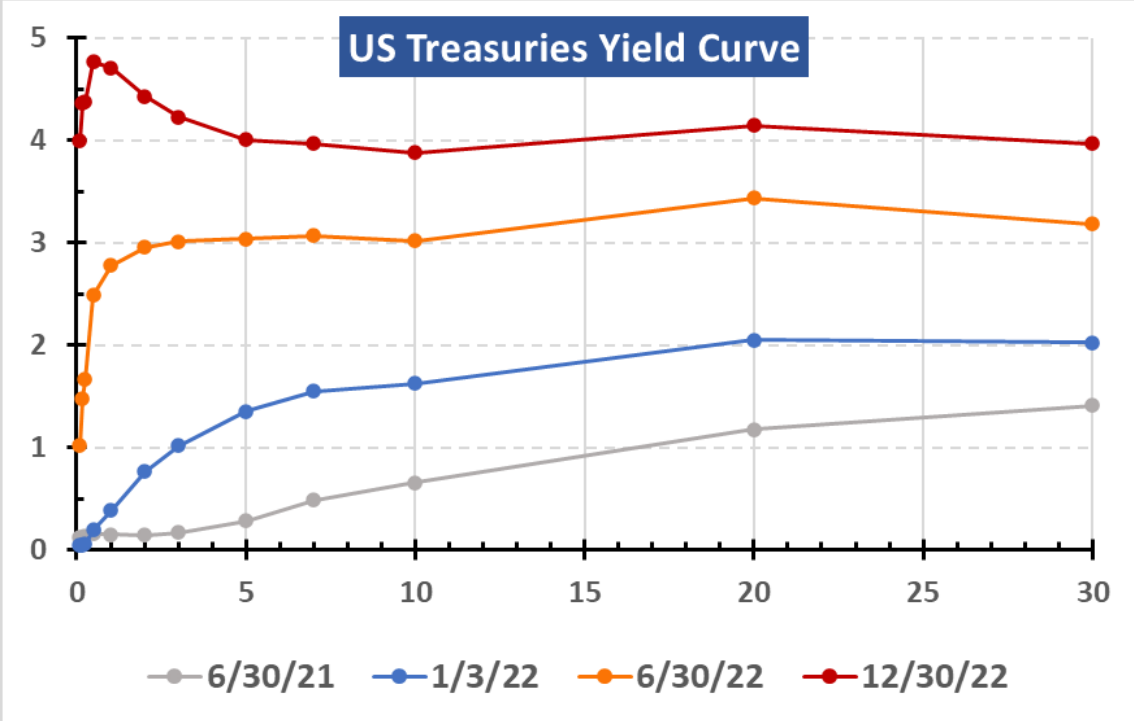
- Two-year yield exceeded 10-year by as much as 86 basis points
- Short-maturity yields track outlook for Fed's policy rate

Source: [Bloomberg](#)



U.S. TREASURY YIELDS AND SPREADS

The US Treasury yield curve has gone from normal to inverted over the last year.



Source: Bloomberg



U.S. TREASURY YIELD HISTORY

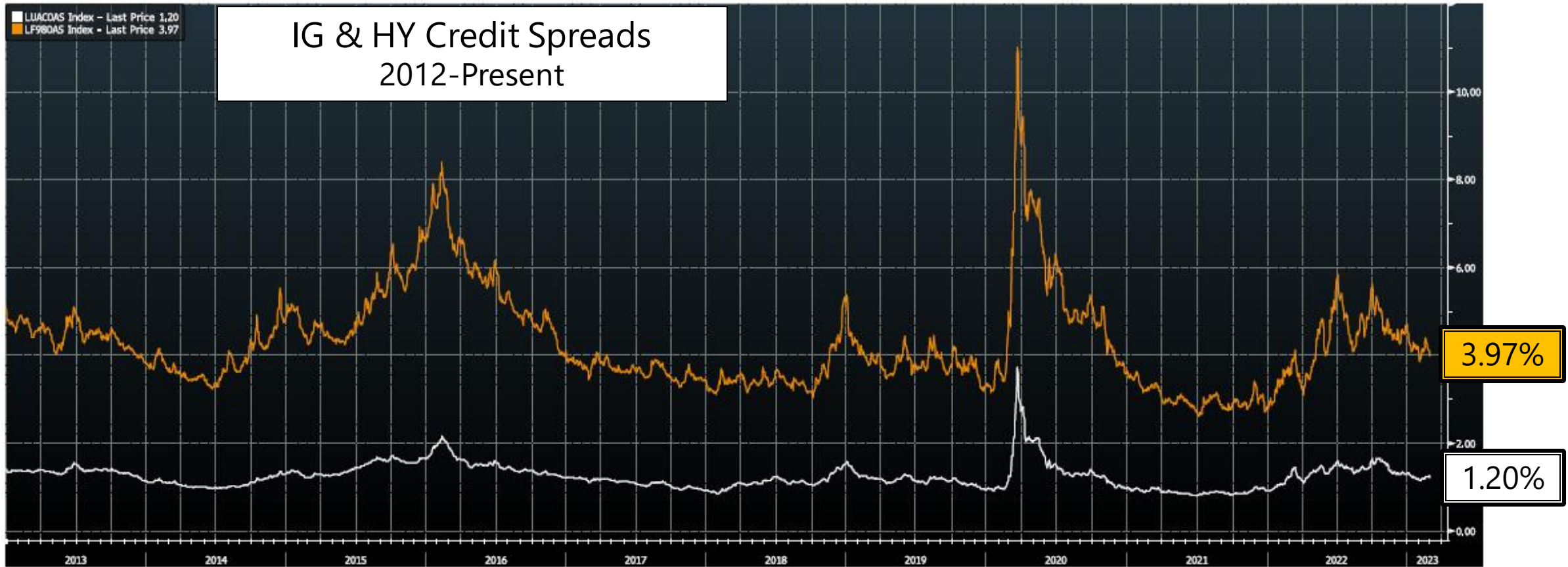


Source: Bloomberg



CREDIT SPREADS

Investment Grade yields remain stable while High Yield spreads moderated somewhat.



Source: Bloomberg



US DOLLAR

U.S. dollar strengthens as Fed minutes signal higher rates

The dollar strengthened on Wednesday after U.S. Federal Reserve meeting minutes showed policymakers are determined to use a slower pace of interest-rate hikes to tame persistently high inflation.

Source: [Reuters](#)

Strong Dollar Still Rattles U.S. Multinational Corporate Earnings

Profits for companies that derive most of their revenue overseas drop sharply

Source: [The Wall Street Journal](#)

Dollar bounces back as US economy defies doubters

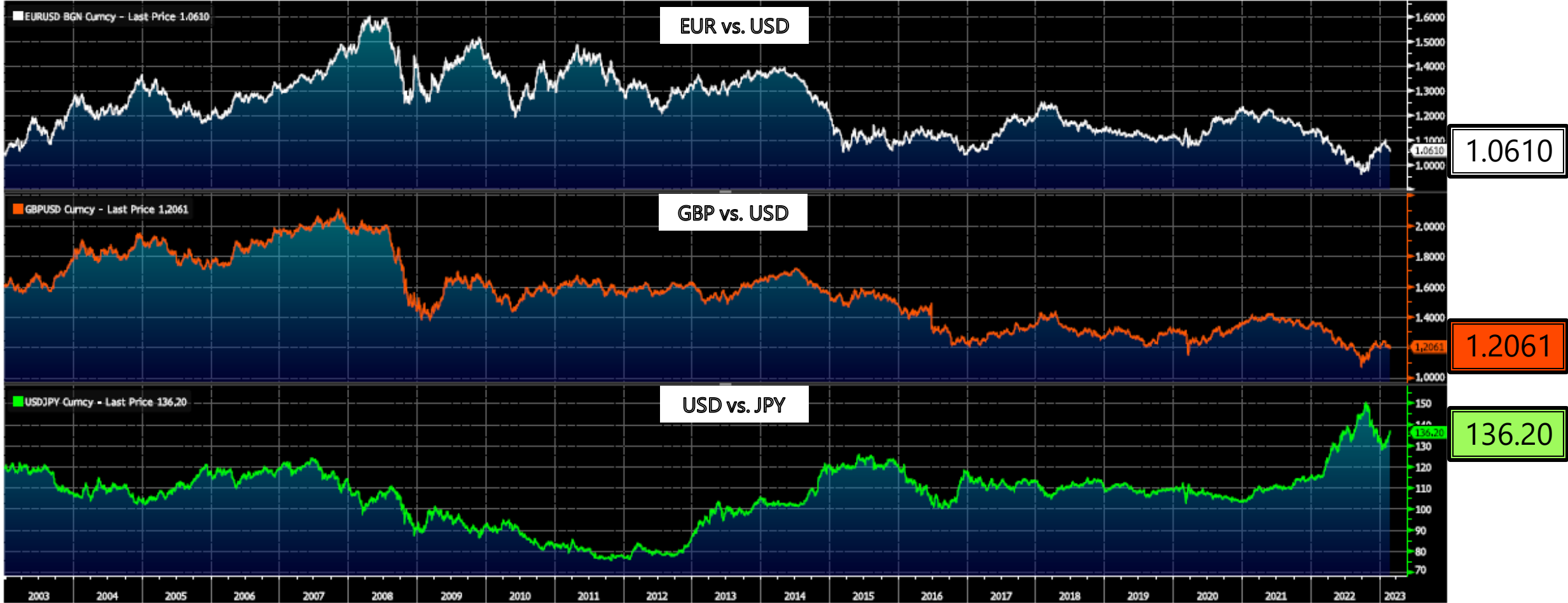
Currency picks up after falling more than 11% since October

Source: [Financial Times](#)



USD VS OTHER DEVELOPED CURRENCIES – LAST 20 YEARS

Dollar is holding strong relative to the Euro, Pound and Yen



Source: Bloomberg



US STOCK AND BOND MARKET RETURNS

The S&P 500 Lost More Than 18% In 2022: Should Retirees Be Worried?

Source: [Forbes](#)

Stocks fall to end Wall Street's worst year since 2008, S&P 500 finishes 2022 down nearly 20%

Source: [CNBC](#)

For U.S. Stocks, 2022 Is a Year With Almost No Record Highs

The S&P 500 finishes 2022 with just one record close, the lowest tally since 2012

Source: [Wall Street Journal](#)

Bond rout of 2022 ended 'golden age' for fixed income

Four decades of equity-like returns were a historical exception, study shows

Source: [Financial Times](#)



WORLD BOND MARKETS

Yields for most regions increased significantly over the past year.

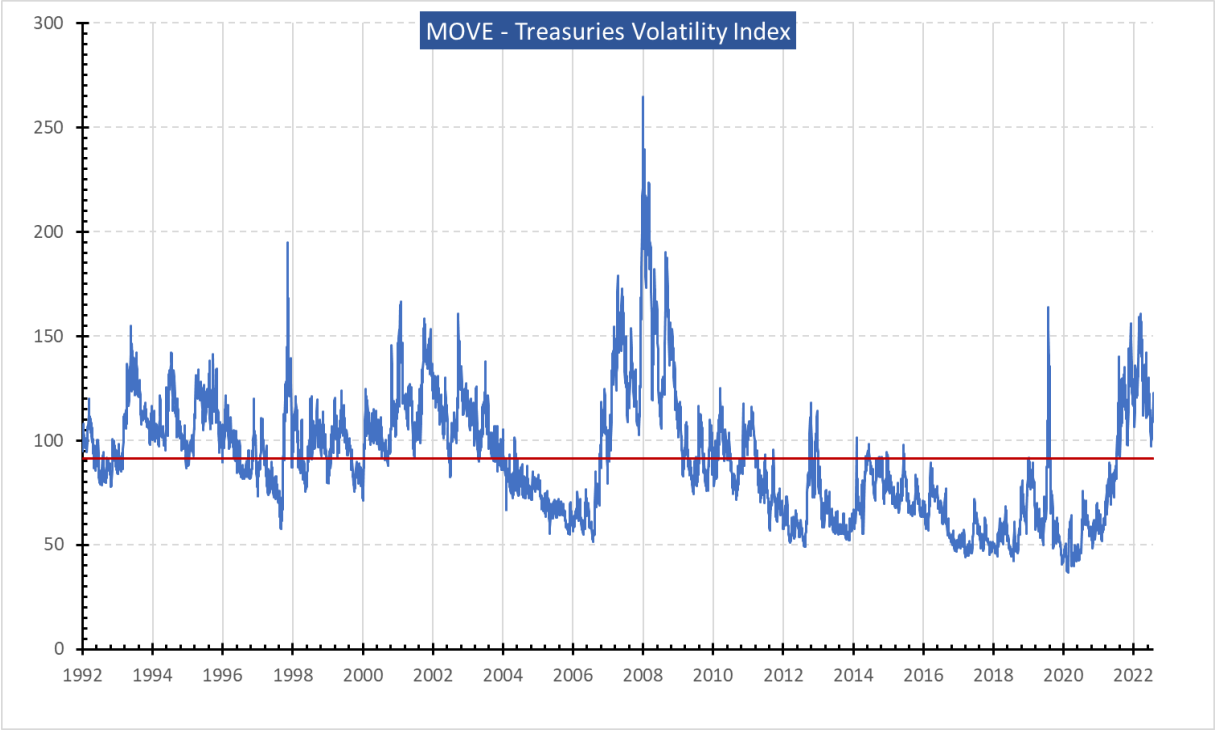
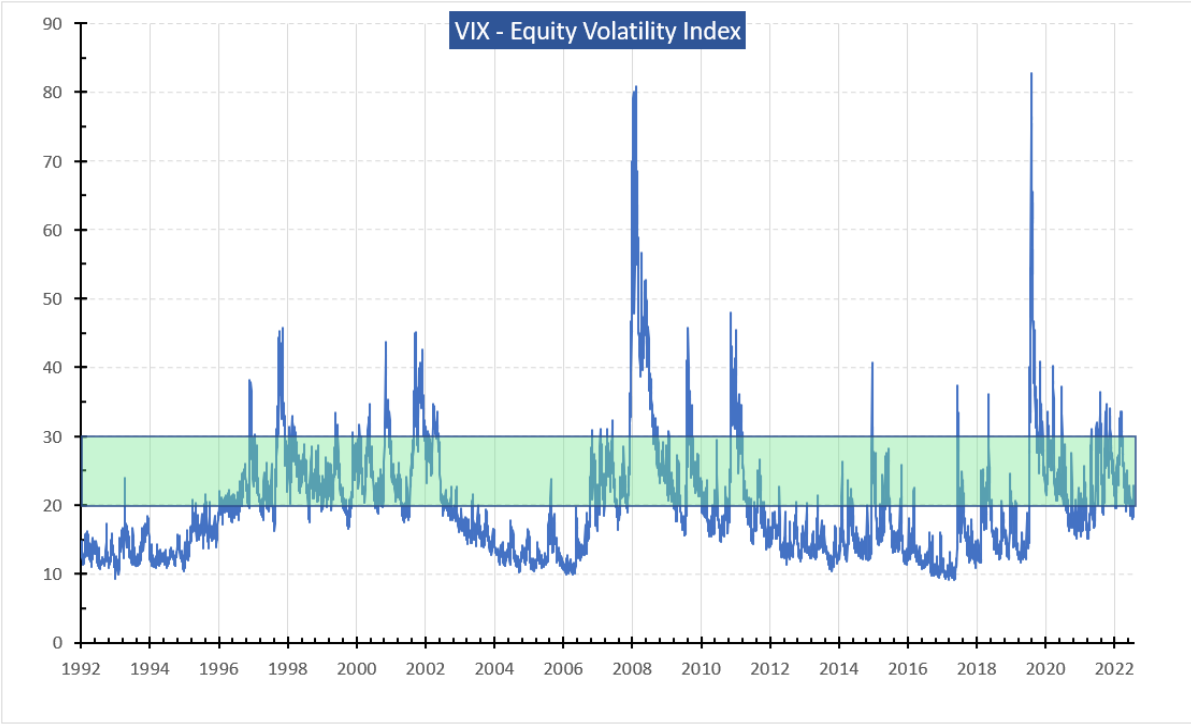
World Bond Markets										
Maturity 10 Year				Data Range 1 Year						
Region	RMI	Security	Yld	Chg	Yld	Low	Range	High	1Y Chg	
						Avg		Now		
1) Americas										
10) United States		T 3 1/2 02/33	3.936	+2.2		1.728		4.242	+211.1	
11) Canada		CAN2 1/2 12/32	3.377	-0.3		1.665		3.671	+156.8	
12) Brazil (USD)		BRAZIL8 1/4 34	6.488	+3.8		4.880		6.825	+155.3	
13) Argentina (USD)		ARGENT8.28 33	0.000	-1786.7						
14) Mexico (USD)		MEX3 1/2 02/34	5.763	+3.8		3.815		6.726	+189.3	
2) EMEA										
20) United Kingdom		UKT3 1/4 01/33	3.824	+2.4		1.125		4.498	+241.8	
21) France		FRTR 2 11/32	3.114	+6.8		.360		3.114	+251.2	
22) Germany		DBR 2.3 02/33	2.645	+7.0		-.080		2.645	+251.5	
23) Italy		BTPS4.4 05/33	4.469	+6.1		1.399		4.777	+276.5	
24) Spain		SPGB 2.55 32	3.594	+6.4		.855		3.635	+248.3	
25) Portugal		PGB1.65 07/32	3.500	+6.9		.719		3.572	+251.2	
26) Sweden		SGB1 3/4 11/33	2.620	-2.1		.363		2.644	+210.2	
27) Netherlands		NETHER2 1/2 33	2.987	+7.5		.150		2.987	+261.6	
28) Switzerland		SWISS 3 1/2 33	1.396	+0.4		.038		1.544	+118.9	
29) Greece		GGB4 1/4 06/33	4.406	+6.0		2.287		5.031	+190.8	
3) Asia/Pacific										
30) Japan		JGB0 1/2 12/32	0.498			.128		.498	+31.7	
31) Australia		ACGB 4 1/2 33	3.848	-2.2		2.070		4.193	+171.5	
32) New Zealand		NZGB 3 1/2 33	4.550	-7.0		2.720		4.688	+181.5	
33) South Korea		KTB4 1/4 12/32	3.581	-1.9		2.553		4.245	+102.8	
34) China		CGB 2.8 11/32	2.910	-0.2		2.619		2.935	+12.3	

Source: Bloomberg



MARKET VOLATILITY

Treasuries showing more volatility relative to equities.

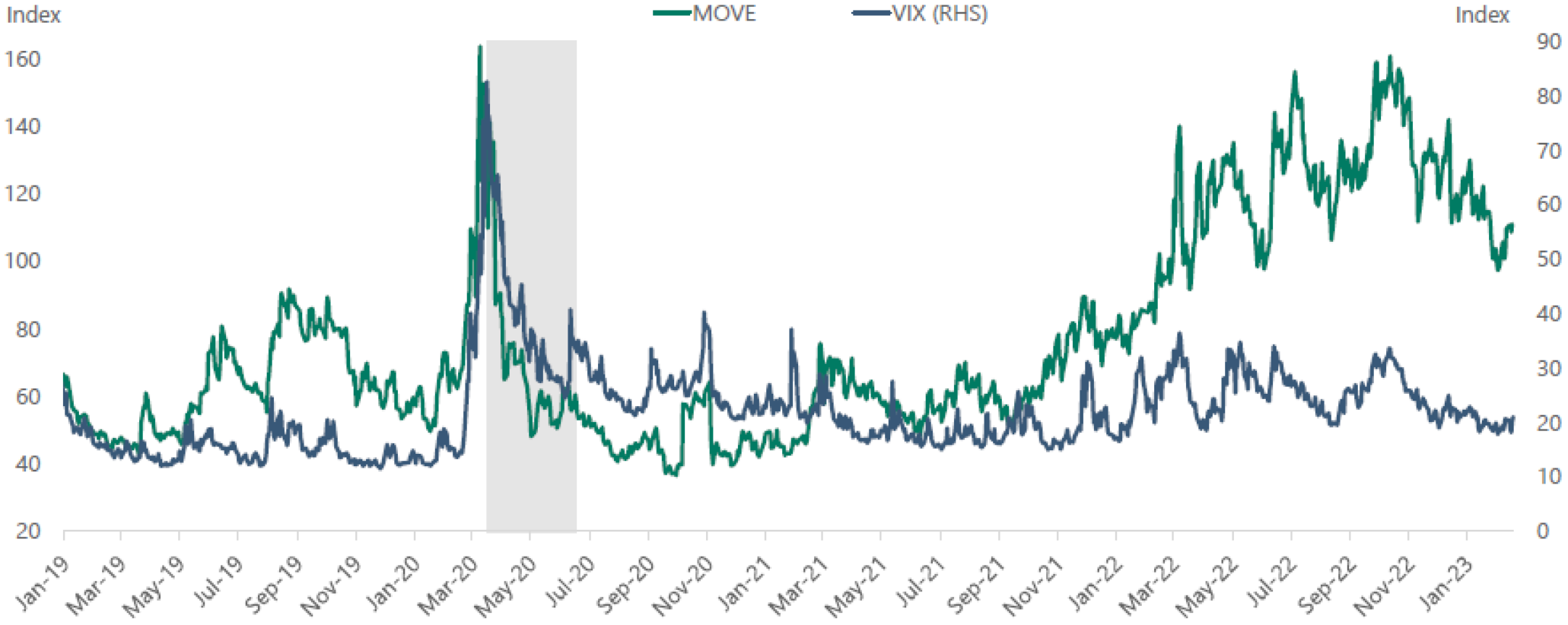


Source: Bloomberg



MARKET VOLATILITY COMPARED

Disconnect between rates markets and equity markets

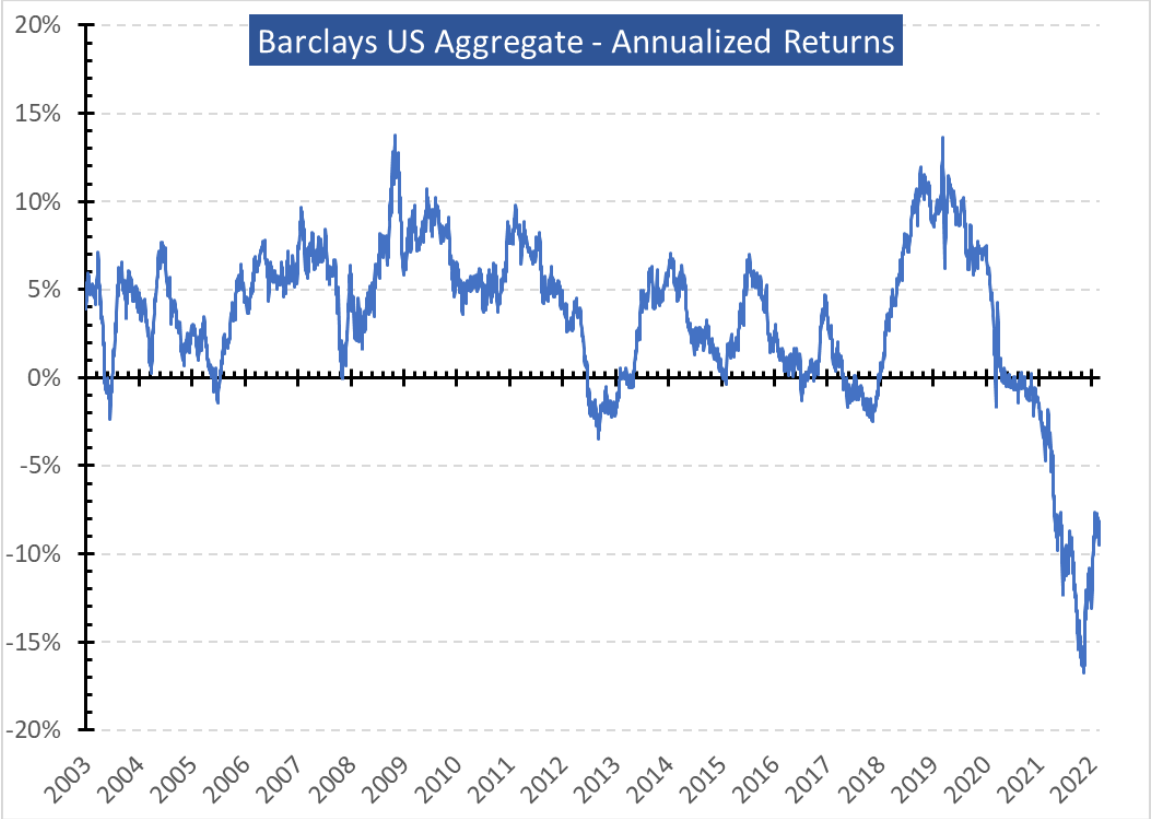
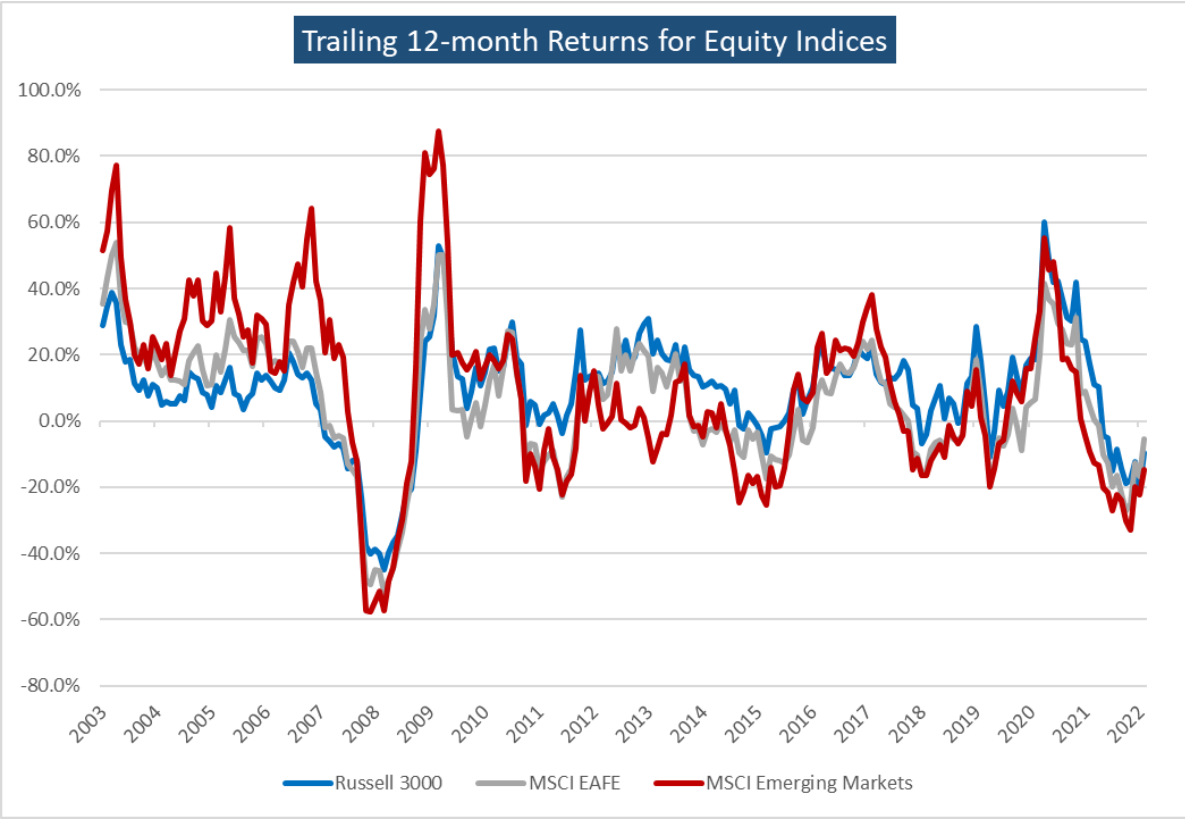


Source: Apollo



MARKET RETURNS

Slight rebound after a challenging year.

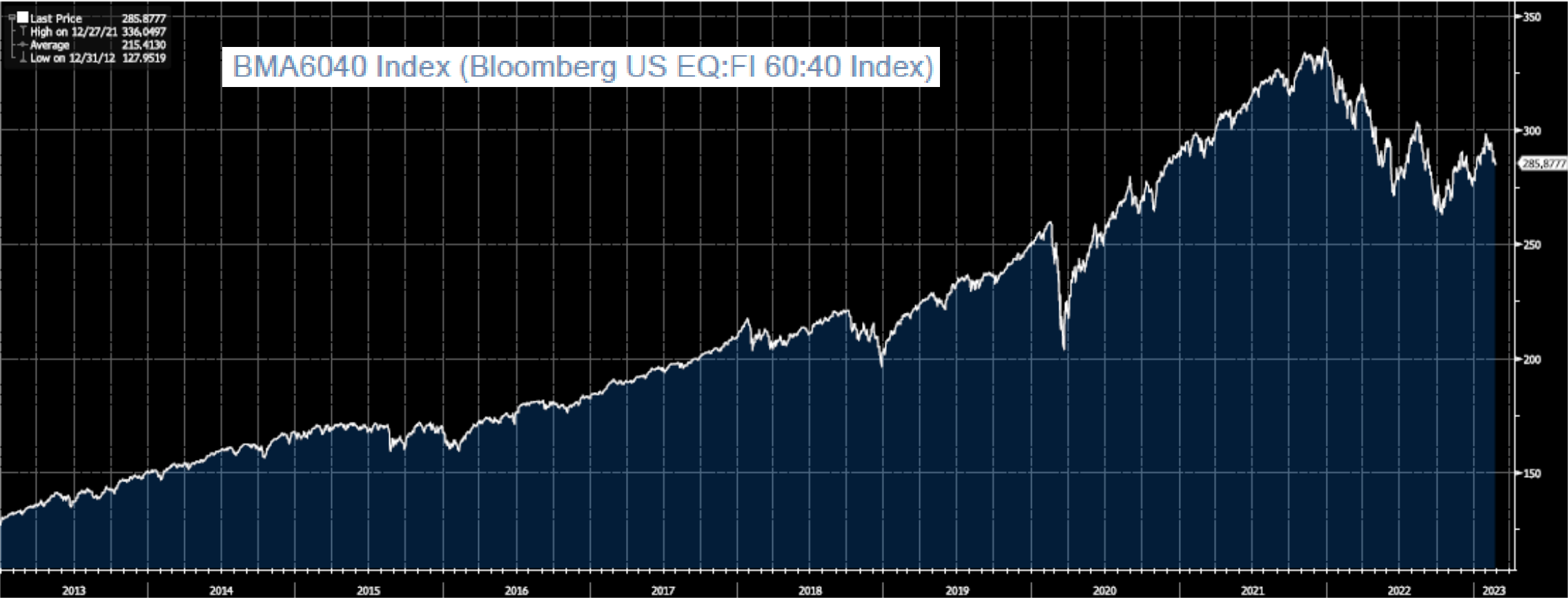


Source: Bloomberg



2022 REFERENCE RETURNS

The Bloomberg 60:40 reference portfolio is 15% off its all-time high in December 2021, but still averages an 8% annual return since December 2012.





Source: Bloomberg




RECENT NEWS

ECONOMY

Why the Recession Is Always Six Months Away


Continued strong hiring and consumer spending are complicating Federal Reserve Chair Jerome Powell's campaign to tame inflation.  29 54 min ago  Long read

The World Economy Is Doing Well—This Is Bad News for Central Bankers

The global economy is showing vigor, with business surveys this week pointing to a widespread revival in growth, a sign that central banks may need longer than anticipated to bring inflation under control.  5 min read




Fed Official Says Hotter Data Will Warrant Higher Rates

Job markets are still "unsustainably hot" and progress on bringing down inflation may have stalled, says Fed governor Christopher Waller.  4 min read



U.S. Jobless Claims Tick Down

Initial jobless claims decreased by 2,000 to a seasonally adjusted 190,000 last week. Weekly claims have remained below the 2019 prepandemic average since the start of the year.  2 min read

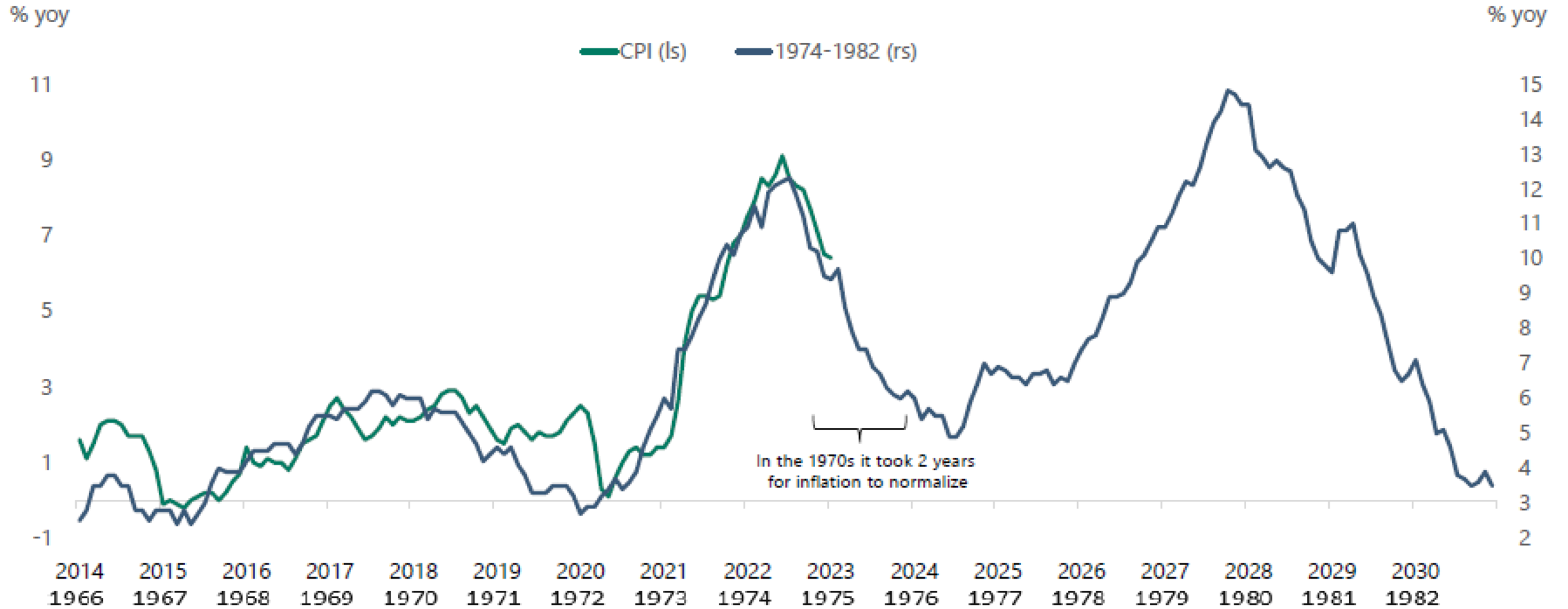


Source: [The Wall Street Journal](#)



FOOD FOR THOUGHT

US inflation: Today vs 1974-84.

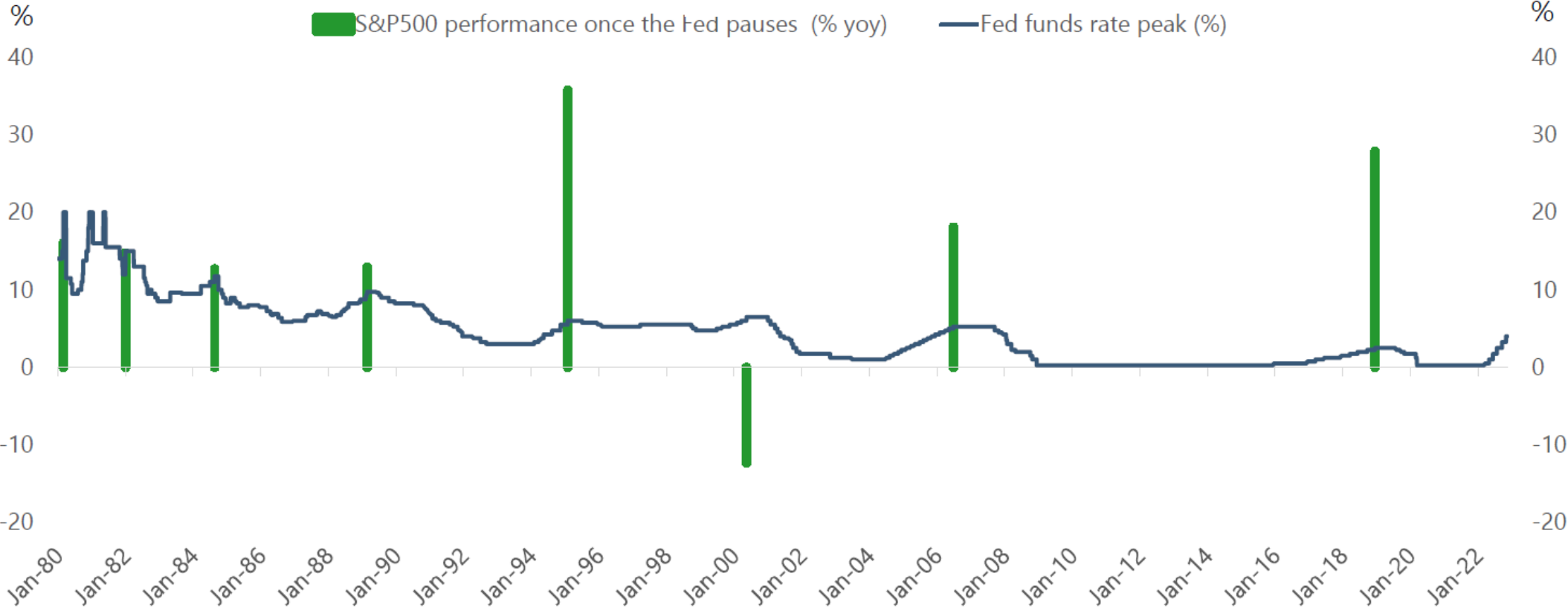


Source: Apollo



FOOD FOR THOUGHT

S&P500 performance in the 12 months following a Fed pause: Up 15%



Source: Apollo



TRS PERFORMANCE REPORTING Q4-2022

PUBLIC MARKET RETURNS, Q4-2022

Asset Class	Index	Q4-22	1 Year	3 Year	5 Year	Expected*
Equities - U.S.	Russell 3000	7.18%	-19.21%	7.07%	8.79%	5.80%
Equities - Developed Intl	MSCI World ex USA IMI Net	16.04%	-15.26%	1.05%	1.59%	6.80%
Equities - Emerging Intl	MSCI EMERGING MARKETS	9.70%	-20.09%	-2.69%	-1.40%	8.30%
Debt - US Govt Long Duration	FTSE Treasury 10+	-1.24%	-29.75%	-7.60%	-2.32%	2.65%
Debt - US Government	NYC Treas/Agency +5	0.02%	-20.58%	-4.81%	-0.99%	2.60%
Debt - Investment Grade	Bloomberg U.S. Corporate IG	3.63%	-15.76%	-2.87%	0.38%	3.60%
Debt - High Yield	Bloomberg U.S. HY -2% Issuer Cap	4.17%	-11.18%	0.03%	2.24%	4.80%

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

Source: State Street, BAM



TRS NET PUBLIC MARKET RETURNS BY STRATEGY AS OF 12/31/22

Investment Strategy	AUM				
	(\$ Millions)	3 Month	1 Year	3 Year	5 Year
U.S. Equity	22,295	7.0	(20.3)	6.6	8.6
World ex-U.S.	8,096	16.1	(20.3)	1.1	2.2
Emerging Markets	8,183	10.6	(22.1)	(3.2)	(2.0)
Core Fixed Income	21,690	1.3	(12.8)	(1.8)	0.7
TIPS	3,100	2.0	(11.9)	1.2	2.1
High Yield	4,613	4.0	(10.5)	0.5	2.6
ETI	617	1.2	(11.5)	(2.1)	0.5
Cash	1,437	1.0	1.4	1.3	1.8

Source: State Street



TRS NET PRIVATE MANAGER RETURNS BY STRATEGY AND PLAN PERFORMANCE AS OF 12/31/22

Investment Strategy	1 Year	3 Year	5 Year	10 Year	Since Inception
Private Equity	1.8	19.6	16.9	14.1	11.9
Private Real Estate Core	21.3	13.7	10.6	11.0	8.9
Private Real Estate Non-Core (Opp.)	12.9	12.9	11.5	12.1	12.9
Infrastructure	9.3	11.4	11.4	n/a	11.7
Opportunistic Fixed*	0.2	7.4	6.9	6.7	7.2

Returns for periods ended September 30, 2022, unless otherwise noted.

* Returns through December 31, 2022.

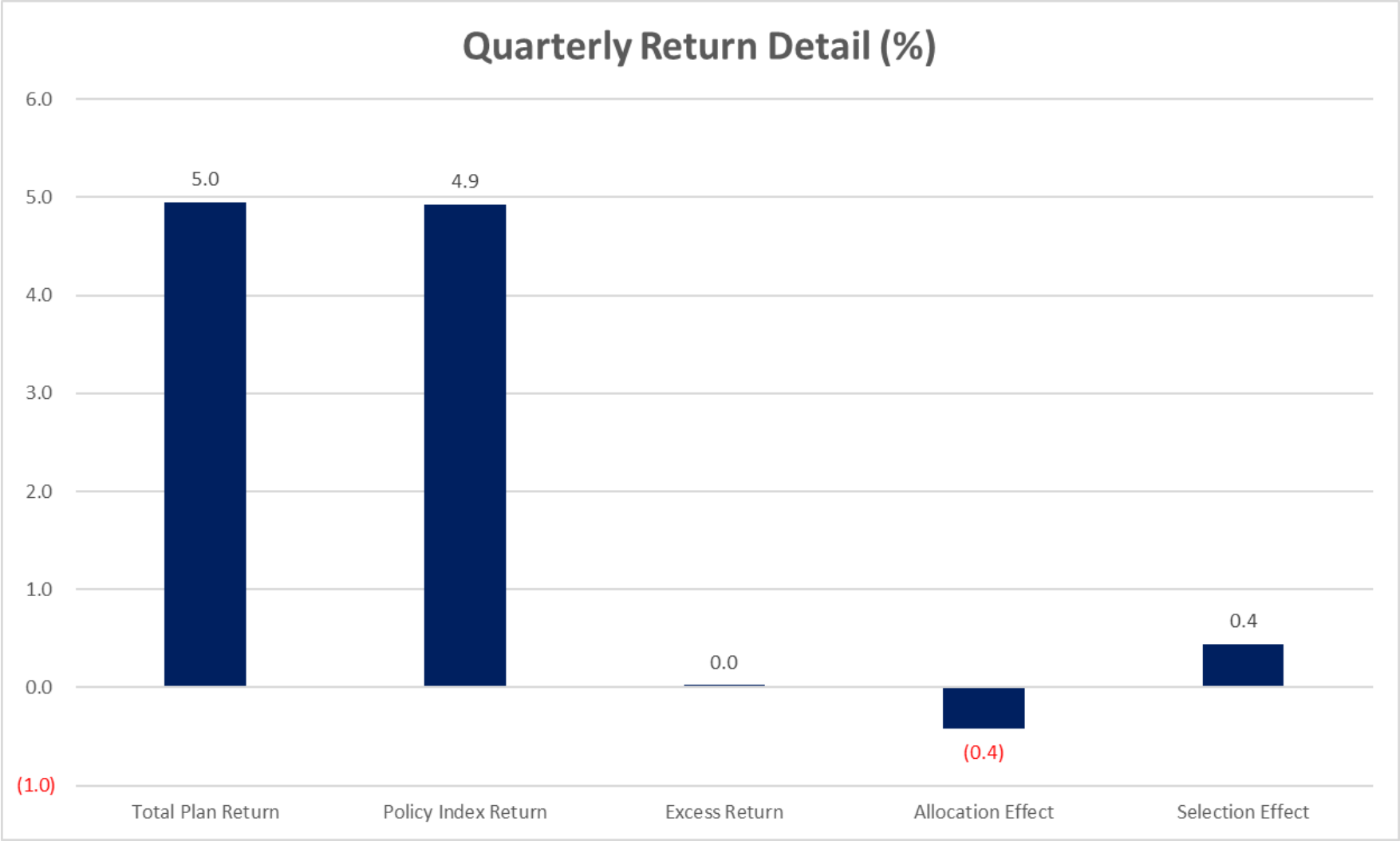
Source: Hamilton Lane, State Street, StepStone Group

Aggregate Performance	3 Month	1 Year	3 Year	5 Year
TRS Total Plan	5.0	(13.0)	3.6	5.0
TRS Policy Return	4.9	(13.6)	3.0	4.7
Public Market Equivalent 65/35 Portfolio	7.6	(15.7)	2.7	4.5
Median Fund TUCS	4.7	(10.2)	5.8	6.2

Source: SSB



TRS RETURN ATTRIBUTION Q4-2022 – TOTAL PORTFOLIO



Source: State Street



TRS PUBLIC MARKETS EXCESS RETURNS IN BP, Q4-2022

Investment Strategy	Benchmark	3 Month Excess	1 Year Excess	3 Year Excess	5 Year Excess
U.S. Equity	Russell 3000	(18)	(109)	(47)	(22)
World ex-U.S.	MSCI World ex-U.S. IMI	7	(506)	7	61
Emerging Markets	MSCI Emerging Markets	86	(201)	(50)	(43)
Core Fixed Income	NYC Custom Structured Index	(18)	7	(73)	(83)
TIPS	BB Global Inflation Linked TIPS	(5)	(2)	(1)	(1)
High Yield	NYC Custom High Yield Benchmark	(16)	73	44	35
ETI	NYC Custom ETI Benchmark	(78)	(0)	37	38
Total TRS	TRS Policy Benchmark	2	58	55	22

Source: State Street



TRS PRIVATE MARKETS EXCESS RETURNS IN BP, Q4-2022

Investment Strategy	Benchmark	1 Year Excess	3 Year Excess	5 Year Excess	10 Year Excess	Since Inception Excess
Private Equity	Russell 3000	2086	1371	914	276	212
Private Real Estate Core	NCREIF ODCE Net	30	230	130	110	260
Private Real Estate Non-Core (Opp.)	NCREIF ODCE Net	(810)	150	220	220	660
Infrastructure	5-year Rolling CPI +400bp	150	362	365	n/a	398
Opportunistic Fixed*	50% JPM Gbl HY/50% CS Levered Loan	584	626	372	270	214

Returns vs. benchmark for periods ended September 30, 2022, unless otherwise noted.

* Returns through December 31, 2022.

Source: Hamilton Lane, State Street, StepStone Group



TRS SUMMARY OF REBALANCING ACTIVITIES

- Activities between October 1, 2022 and December 31, 2022

		From	Amount (\$MM)	To	Amount (\$MM)	
TRS	US Equity	Large & Mid Cap	230	U.S. Equity	Large Cap	200
	Global		50	Global	All Cap	180
	World ex USA	Large & Mid Cap	490			
	World ex USA	Small Cap	90			
	Fixed Income	Intermediate Term Treasury	260	Cash Desk		980
		Mortgage	170	Credit		70
		Tips	200	Mortgages		70
		Credit	70	Intermediate Term Treasury		60
	Total Outflow			1,560	Total Inflow	1,560

Source: BAM Risk



TRS PORTFOLIO UNDER AND OVER WEIGHTS

Strategy	Policy Target	6/30/2022	9/30/2022	12/31/2022
Cash	0.0%	1.8%	0.9%	1.6%
U.S. Treasuries	14.0%	-0.2%	-0.3%	-1.1%
Investment Grade Bonds	5.5%	-0.4%	-0.4%	-0.5%
Mortgage-Backed Securities	5.5%	-0.1%	0.0%	-0.4%
U.S. Equities	25.0%	-1.3%	-1.6%	-1.1%
Developed Markets Equities	10.0%	-0.7%	-0.9%	-0.4%
Emerging Markets Equities	9.5%	-1.2%	-0.8%	-0.3%

Active weights adjusted for Parking Place Investments.

Source: BAM Risk



RISK MANAGEMENT

QUARTERLY REVIEW

TRS: TOTAL PLAN SUMMARY

Summary	1. Market Portfolio		2. Policy Benchmark		3. TRS	
	Q4 '22	Change	Q4 '22	Change	Q4 '22	Change
Portfolio Construction						
Equity Allocation	60.0%	0.0%	62.5%	0.0%	61.3%	+0.9%
Interest Rates Duration (*)	2.5	0.0	1.9	-0.0	2.0	-0.1
Credit Spread Duration (*)	1.5	0.0	1.1	-0.0	0.9	-0.0
Portfolio Risks						
Total Risk	11.8%	+0.2%	11.5%	+0.1%	12.4%	+0.4%
Active Risk	n/a	n/a	n/a	n/a	2.1%	+0.0%
Beta to S&P 500	0.57	-0.00	0.55	-0.01	0.59	+0.01

Notes

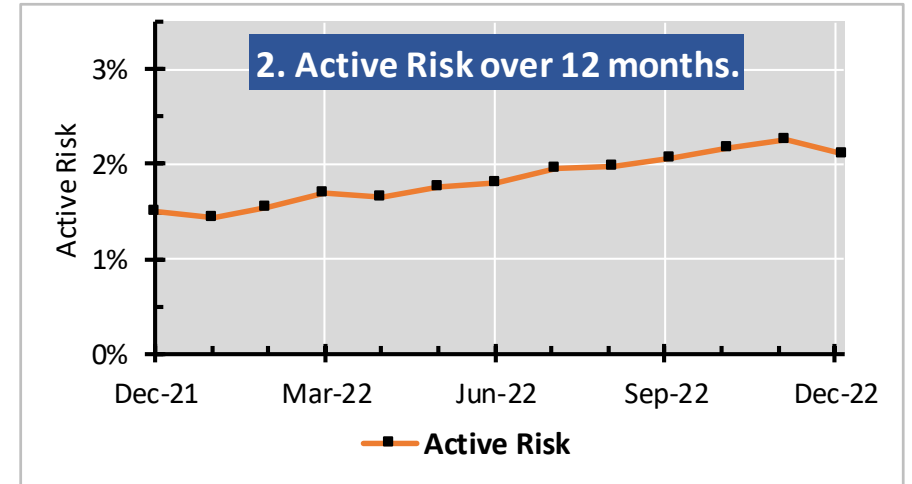
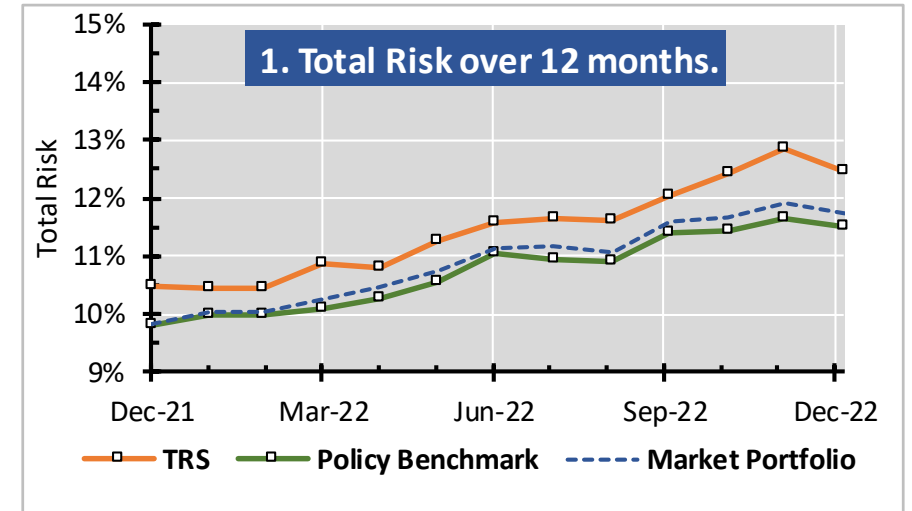
(*) - Public Markets Only

Market Portfolio:

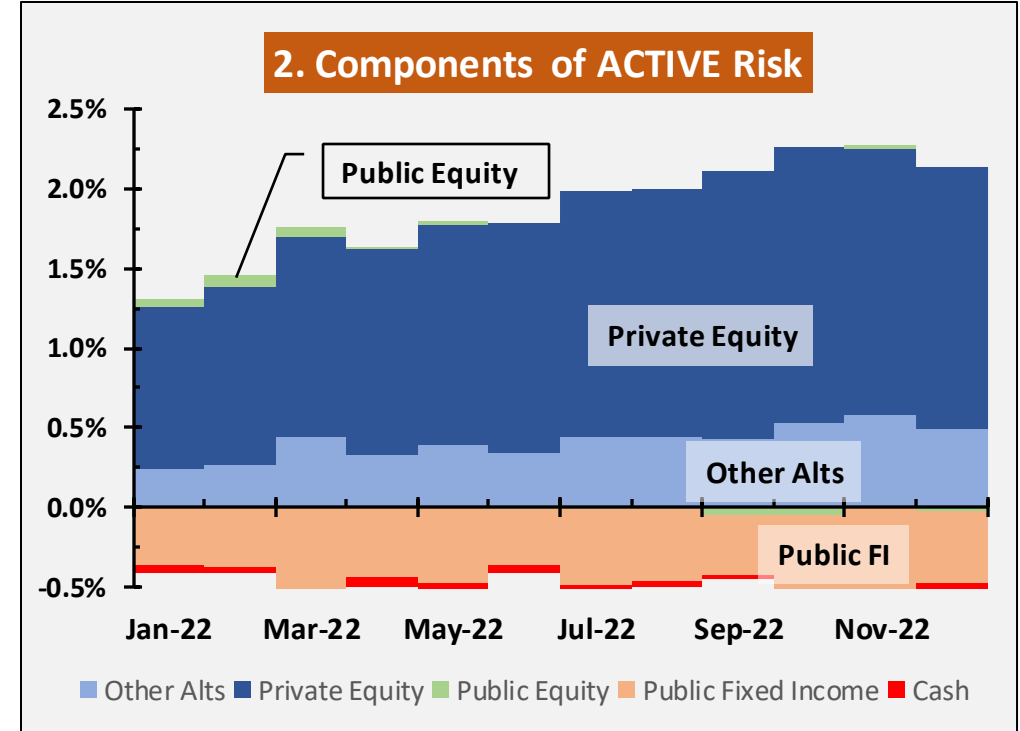
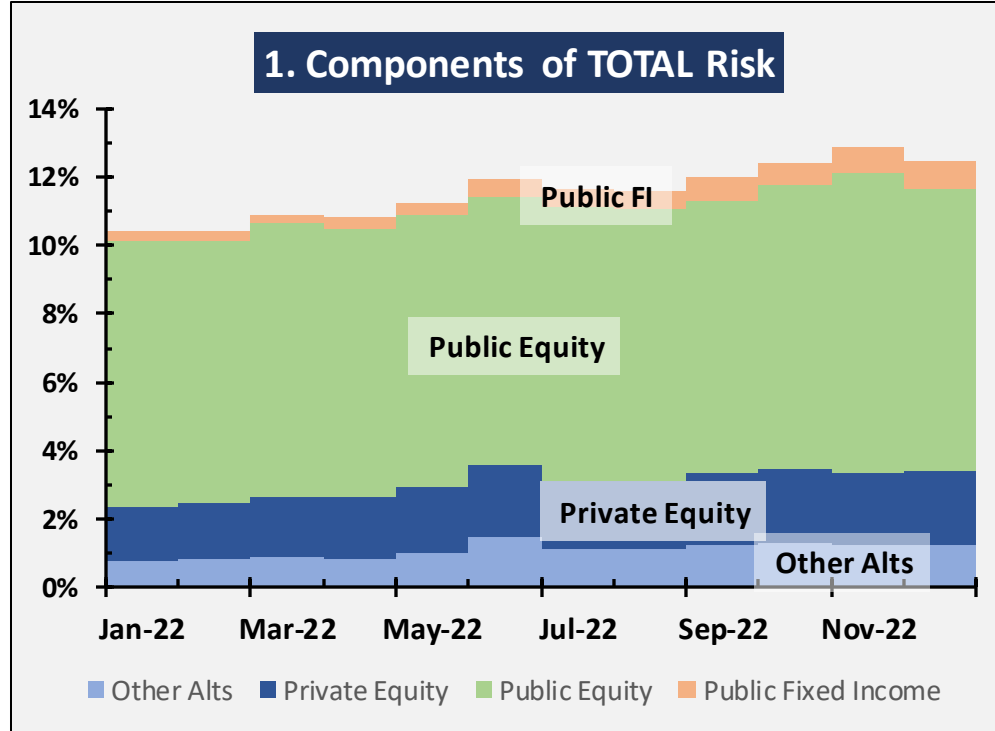
60% MSCI ACWI + 40% Barclays US Agg

Policy Benchmark:

25% US Equity + 10% Developed Equity + 9.5% EM Equity + 25% Core FI + 4.5% HY + 3% Inflation Linked Bonds + 7% Private Equity + 3% RE Core + 4% RE Opportunistic + 4% Infrastructure + 5% Private Credit



TRS: RISK DECOMPOSITION



Total Risk – standard deviation of Total Returns

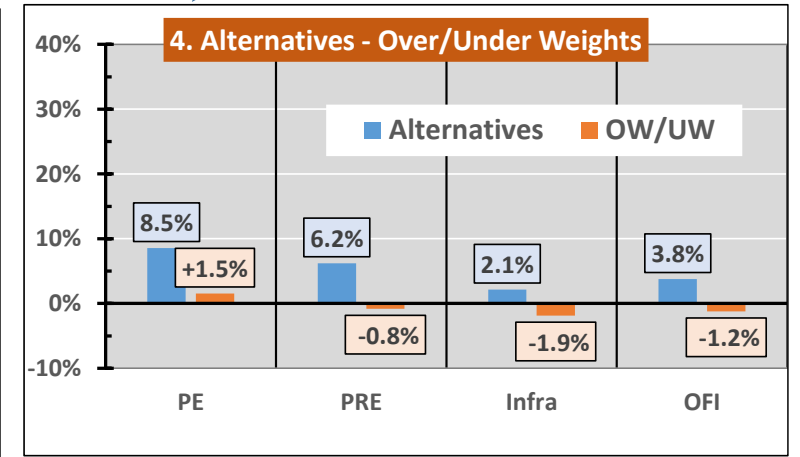
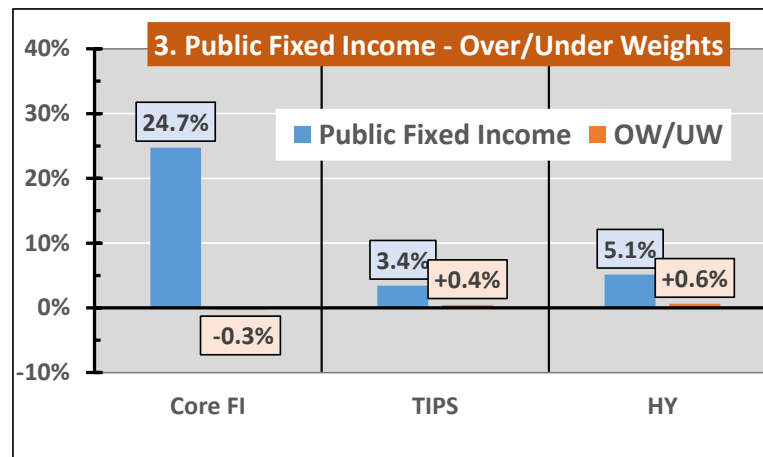
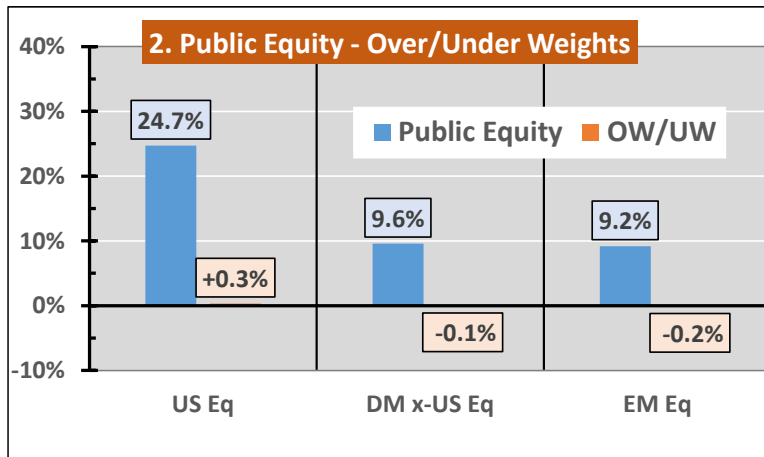
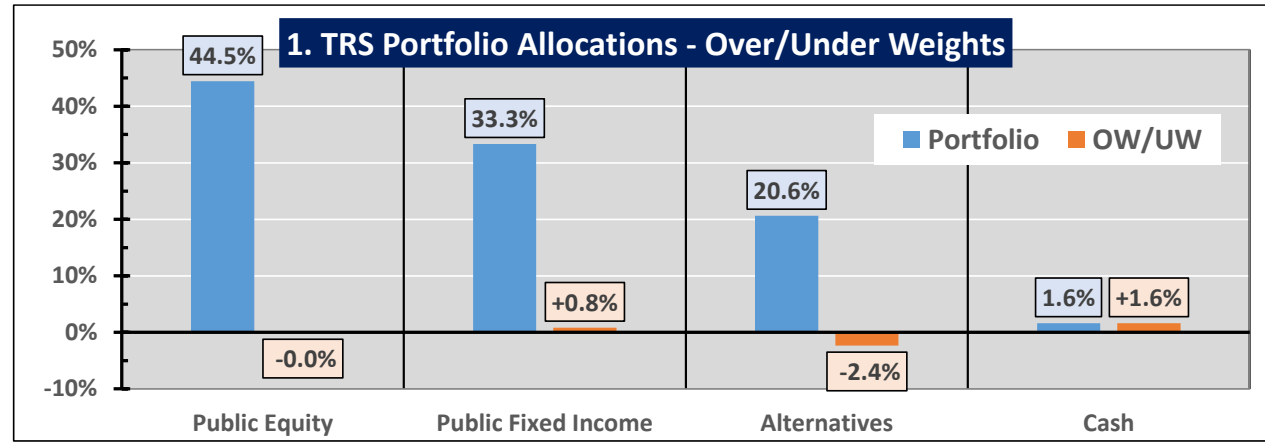
- **Total Risk** provides a forward-looking estimate of **Total Returns**
- **Total Risk is dominated by Equity allocation.**
 Private Equity = 17% of Total Risk
 Public Equity = 66% of Total Risk
- Public FI allocation is contributing only 6% of the Total Risk
- FI risk is additive to the Equity risk
 It's a result of positive stock/bond correlation during high inflation period

Active Risk – standard deviation of Excess Returns

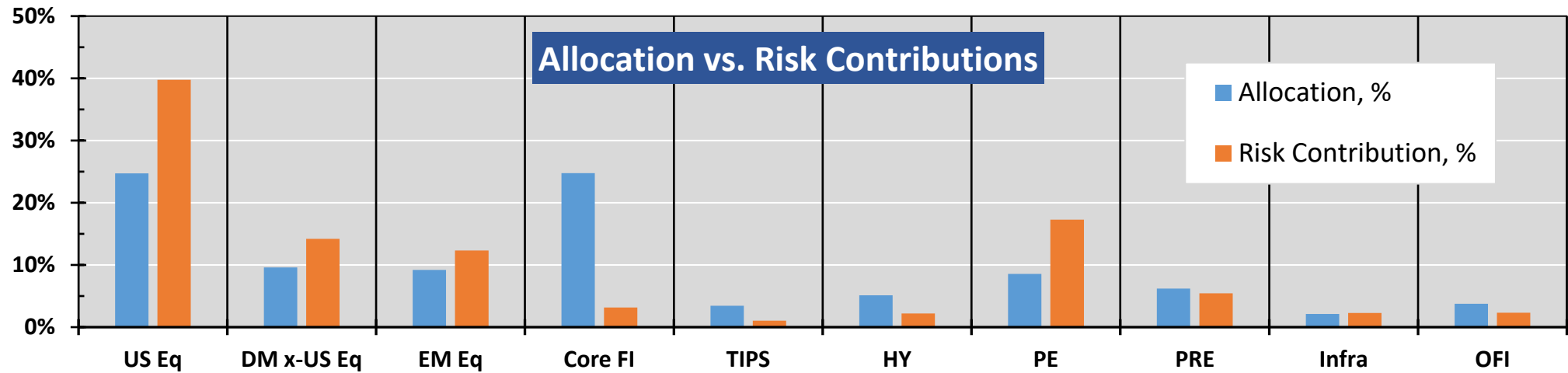
- **Active Risk** provides a forward-looking estimate of **Excess Returns**
- **Active Risk is dominated by Private Equity allocation**
 Private Equity = 78% of Active Risk
 Public Equity = 2% of Active Risk
- Public FI allocation is contributing 21% of Active Risk
- FI and Cash are diversifiers of Active Risk for the portfolio



TRS: ALLOCATION FOR ASSET CLASSES

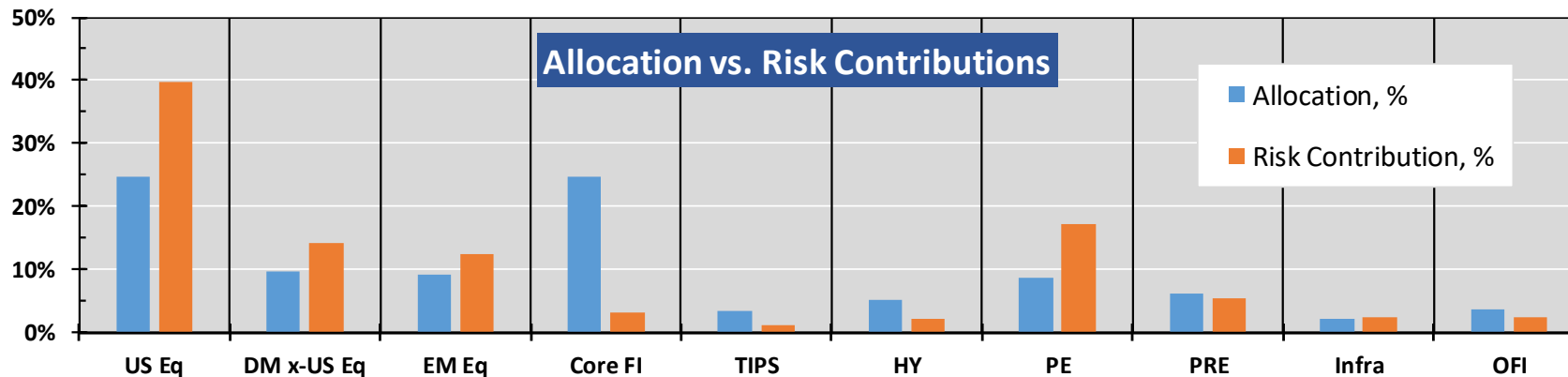


TRS: RISK CONTRIBUTIONS



TRS: 12 MONTH PERFORMANCE AND RISK

Asset Class	1. Allocation, %			2. Total Risk		3. Active Risk	4. Return 12mo	
	Portfolio	Benchmark	OW/UW	Portfolio	Contribution		Absolute	Excess
TRS	100.0%	100.0%	0.0%	12.4%	100.0%	2.1%	-13.0%	+0.6%
Public Equity	44.5%	44.5%	-0.0%	19.1%	66.3%	1.0%	-20.6%	-2.4%
US Equity	24.7%	24.4%	+0.3%	20.4%	39.8%	0.8%	-20.3%	-1.1%
Developed Markets ex-US	9.6%	9.7%	-0.1%	20.0%	14.2%	2.9%	-20.3%	-5.1%
Emerging Markets	9.2%	9.4%	-0.2%	20.3%	12.3%	2.0%	-22.1%	-2.0%
Public Fixed Income	33.3%	32.5%	+0.8%	5.4%	6.4%	0.2%	-12.3%	+0.3%
Core FI	24.7%	25.0%	-0.3%	5.8%	3.2%	0.3%	-12.8%	+0.1%
TIPS	3.4%	3.0%	+0.4%	6.5%	1.0%	0.3%	-11.9%	-0.0%
Enhanced/High Yield	5.1%	4.5%	+0.6%	6.9%	2.2%	0.4%	-10.5%	+0.7%
Alternatives	20.6%	23.0%	-2.4%	18.0%	27.3%	9.9%	n/a	n/a
Private Equity	8.5%	7.0%	+1.5%	28.9%	17.3%	17.0%	+1.8%	+20.9% (as of 9/30/22)
Private Real Estate	6.2%	7.0%	-0.8%	13.7%	5.4%	7.5%	+17.9%	-3.1% (as of 9/30/22)
Infrastructure	2.1%	4.0%	-1.9%	17.0%	2.3%	16.1%	+9.3%	+1.5% (as of 9/30/22)
OFI	3.8%	5.0%	-1.2%	9.1%	2.3%	5.5%	+0.2%	+5.8% (75% reporting)
Cash	1.6%	0.0%	+1.6%	0.0%	0.0%	n/a	+1.4%	-0.1%



Source: BAM Risk;
Hamilton Lane;
MSCI BarraOne;
State Street;
Stepstone Group



FORWARD-LOOKING MARKET ASSUMPTIONS

Goal of Stress Testing

- Identify which markets matter most for performance
- Estimate future performance under various market projections. Find both Total and Excess returns.
- The outcome of stress testing provides additional insights into portfolio construction

Step 1 of Stress Testing:

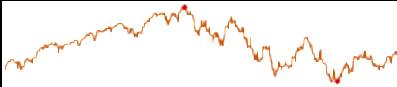

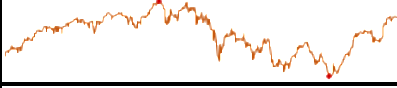
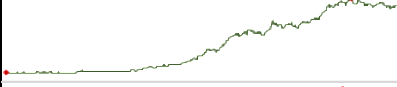

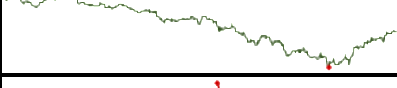



Identify the Expected Market Moves

- Identify nine market factors that capture main dimensions of the global markets and economy.
- For each of these factors, we estimate the worst expected monthly move over the next 12 months.
- The “expectation” of the move is based on the current market environment. It is not a forecast of the future.

Forward-Looking Markets:

Worst Monthly Market Move expected over the next 12 months

(modeled by MSCI BarraOne)

Market Factors		Projected Market Move, %				Historical Prices, trailing 2yr
		Units	Q4 '22	Q3 '22	Change	
Equities	1. S&P 500	Price	27.4%	27.2%	+0.2%	
	2. MSCI EM	Price	27.4%	26.7%	+0.7%	
	3. Euro STOXX 50	Price	31.6%	29.1%	+2.5%	
Rates	4. 2yr Treasury	Yield	1.4%	1.6%	-0.2%	
	5. 10yr Treasury	Yield	1.5%	1.4%	+0.1%	
	6. EUR/USD	Rate	10.8%	10.2%	+0.6%	
Commodities	7. Copper	Price	35.5%	35.5%	+0.0%	
	8. Oil	Price	57.8%	56.8%	+1.0%	
	9. Inflation	Rate	3.0%	2.9%	+0.0%	

Source: MSCI BarraOne
For illustrative purposes only



TRS: FORWARD-LOOKING PERFORMANCE

1. Risk-On - Everything Rallies

Market Factors			Market Stress, %	TRS Performance	
				Total	Excess
Equities	1. S&P 500	Price	+27.4%	16.2%	+1.0%
	2. MSCI EM	Price	+27.4%	13.7%	+1.0%
	3. Euro STOXX 50	Price	+31.6%	15.1%	+1.2%
Rates	4. 2yr Treasury	Yield	-1.4%	1.6%	-0.1%
	5. 10yr Treasury	Yield	-1.5%	2.9%	-0.0%
	6. EUR/USD	Rate	+10.8%	6.8%	+0.7%
Commodities	7. Copper	Price	+35.5%	7.2%	+0.5%
	8. Oil	Price	+57.8%	4.9%	+0.3%
	9. Inflation	Rate	+3.0%	6.1%	+0.3%

2. Risk-Off - Everything Sells Off

Market Factors			Market Stress, %	TRS Performance	
				Total	Excess
Equities	1. S&P 500	Price	-27.4%	-16.1%	-1.0%
	2. MSCI EM	Price	-27.4%	-13.6%	-0.9%
	3. Euro STOXX 50	Price	-31.6%	-15.0%	-1.1%
Rates	4. 2yr Treasury	Yield	+1.4%	-1.4%	+0.1%
	5. 10yr Treasury	Yield	+1.5%	-2.5%	+0.1%
	6. EUR/USD	Rate	-10.8%	-6.8%	-0.7%
Commodities	7. Copper	Price	-35.5%	-7.1%	-0.5%
	8. Oil	Price	-57.8%	-4.9%	-0.3%
	9. Inflation	Rate	-3.0%	-6.1%	-0.3%

Which markets are more likely to move the portfolio?

1. Equities:

- S&P 500 has most influence on Total performance
- Emerging Markets have the least impact

2. Rates:

- The USD rate has most influence on performance
- Relatively low direct exposure to the Fed policy rate

3. Commodities:

- Copper prices have most influence on performance
- Relatively low direct exposure to oil prices

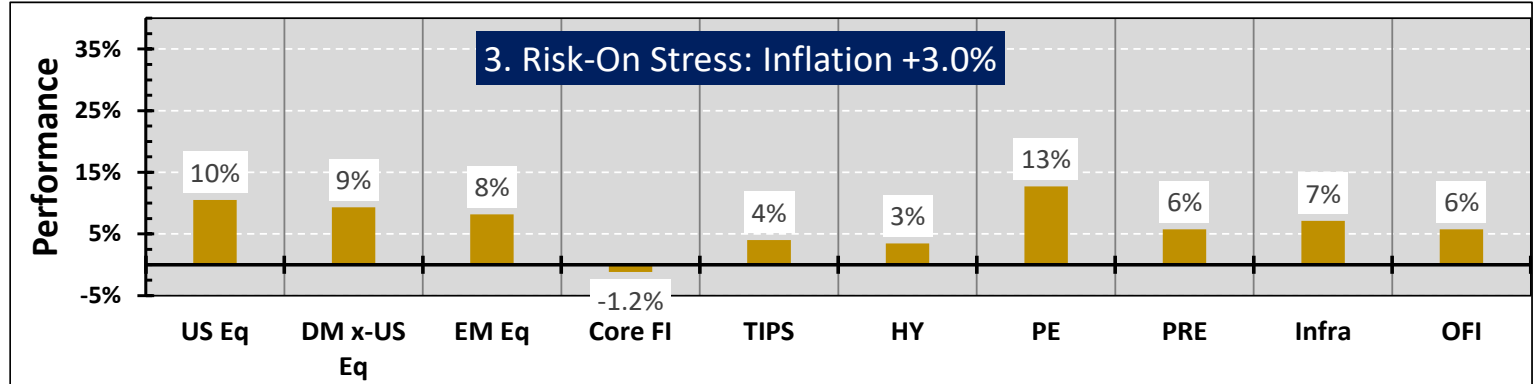
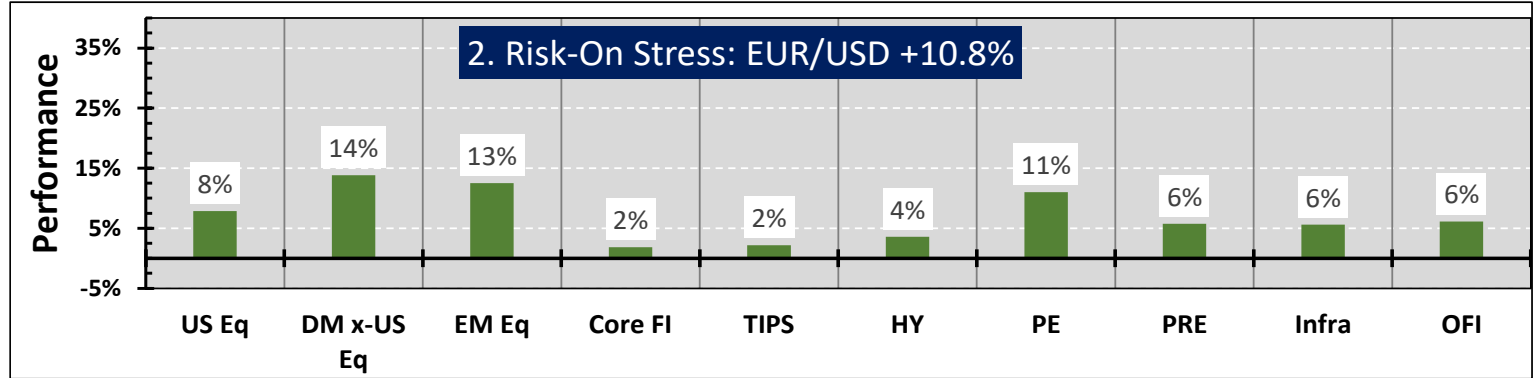
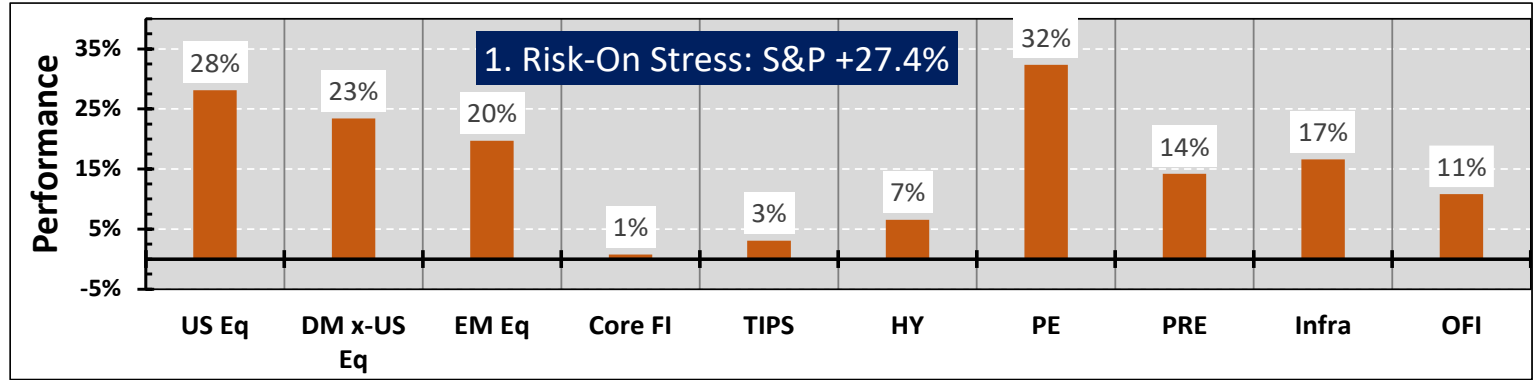
Main conclusions from Stress Testing

1. Confirms that performance under the extreme conditions is projected to be consistent with expectations
2. Portfolio is positioned at a slightly higher risk level vs the benchmark, primarily due to the PE allocation
3. Portfolio has little downside protection under the scenarios tested. Only the S&P and the 10yr Treasury scenarios exhibited small amount of downside protection



TRS: FORWARD-LOOKING PERFORMANCE

1. It is not surprising that a rally in the S&P (Chart 1) will provide most “bang for the buck” for the portfolio.
2. The USD scenario (Chart 2) and Inflation scenario (Chart 3) provide more contribution from the non-Equity asset classes.
3. There is little risk mitigation in the portfolio, i.e. all asset classes tend to move together. Core FI provides a small offset only for the Inflation scenario (chart 3)



Source: MSCI BarraOne
For illustrative purposes only



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

State Street Quarterly Fund Performance Overview (Public):



Teachers' Retirement System
of New York City
Performance Overview as of December 31, 2022

Total Fund Overview



Teachers' Retirement System of New York City

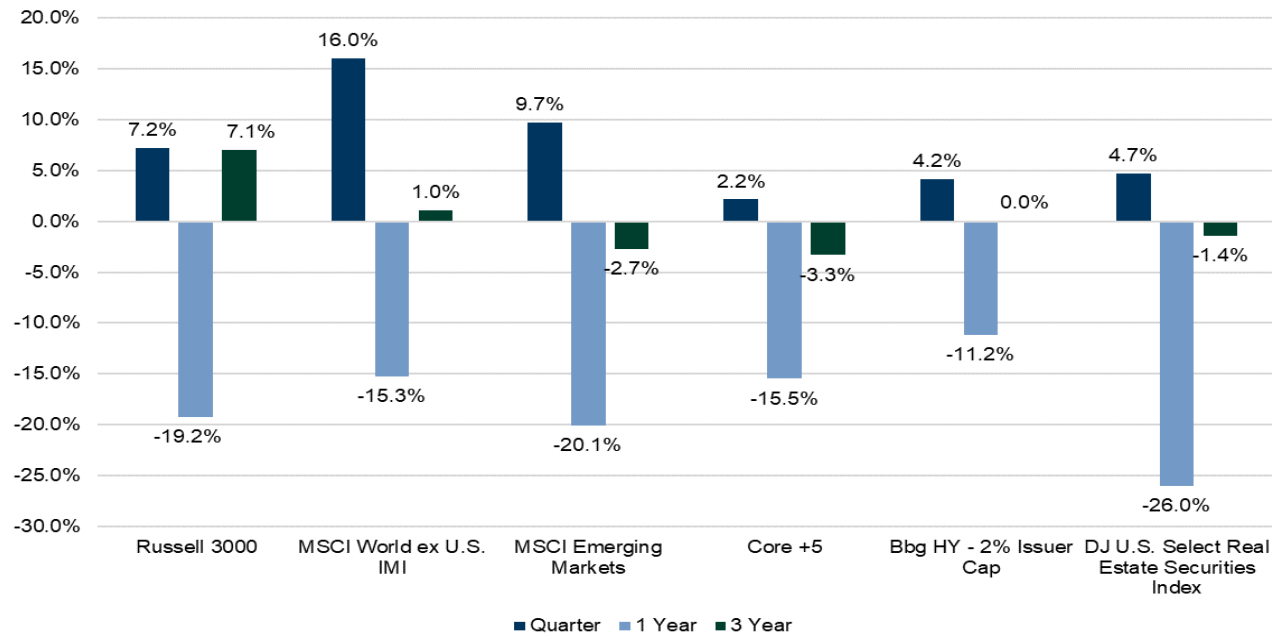
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Through December 31, 2022

Capital Market Performance



Market Backdrop: Closing out a tumultuous year, financial markets had a strong rally in the fourth quarter fueled by easing inflation pressures, but continued hawkish Fed guidance and disappointing economic data weighed on markets in December. U.S. equity markets (as measured by the Russell 3000 Index) returned 7.2% for the quarter, with gains across nearly all styles and sectors. The best performing sector was Energy which was up 20.8% for the quarter ending December 31, 2022. Developed international and emerging equity markets were also positive, with the MSCI EAFE IMI Net Index (in USD terms) up 17.1% and the MSCI Emerging Markets Net Index (in USD terms) up 9.7% for the quarter. Global real estate was up in the fourth quarter as the Dow Jones U.S. Select Real Estate Securities Index returned 4.7%. Bond markets also posted positive returns during the quarter, as the Bloomberg Aggregate Bond Index posted a return of



Through December 31, 2022

1.9% for the period. On a relative basis, the Bloomberg Corporate Index returned 3.6% which underperformed the Bloomberg High Yield Index's 4.2% for the fourth quarter.

Total Fund Performance: The Teachers' Total Fund returned 4.95% (net of fees) for the quarter ending December 31, 2022, generating a return 2 basis points higher than the policy benchmark over the same period. During the quarter, allocations relative to targets contributed -43 basis points to relative performance of the Fund, driven primarily by the negative allocation effects of private equity, private core real estate, domestic equity, and world ex-USA. The negative allocation effect was offset by the manager selection effect which added 45 basis points to relative returns. Manager selection in private equity and private core real estate notably contributed to the overall positive manager selection effect. For the one-year period ending December 31, 2022, the Total Fund returned -12.98% (net of fees), outperforming the policy benchmark by 58 basis points. For the three-year period ending December 31, 2022, the Total Fund returned 3.59% (net of fees), outperforming the policy benchmark by 56 basis points. The Total Fund fees for public market assets for the calendar year ending December 31, 2022, have been estimated at approximately 10 basis points. Please note that all composite and manager performance data in the sections below is reported net of fees.

- **Total Fund Asset Allocation - \$90.1 Billion:** As of December 31, 2022, the Fund had a total market value of \$90.1 billion, up from \$86.0 billion on September 30, 2022. In the Growth segment of the Total Fund, underweights to non-core private real estate of -1.6%, world ex-USA of -1.0%, and opportunistic fixed income of -1.3% were offset by overweights to private equity of 1.5%, global equity of 0.9%, and international emerging equity of 0.7%. This is consistent with the strategy to invest in more liquid assets while awaiting private real estate commitments to be drawn down. In the Deflation Protection segment of the Fund, short term investments and investments in core fixed income-developing managers were above long-term targets by 1.6% and 0.3% respectively. Finally, within the Inflation Protection segment of the Fund, infrastructure remains about -1.9% below target whereas core real estate is 0.8% overweight target, pending new commitments to and capital calls from private funds. As of December 31, 2022, the total private equity, infrastructure, and private real estate invested allocation was 16.9% versus their aggregate long-term allocation of 18.0%.
- **U.S. Equity - \$22.3 Billion, 24.7% of Fund:** The U.S. equity composite return of 7.00% underperformed the broad U.S. equity market, represented by the Russell 3000 Index, which returned 7.18% for the quarter. Approximately 91% of the U.S. equity composite is allocated to passively managed mandates. The actively managed portion of the U.S. equity composite, a majority of which was invested in smaller cap strategies, returned 6.93% during the quarter, underperforming the Russell 3000 Index return by 26 basis points. The small cap sub-composite returned 4.78% during the quarter, underperforming the Russell 2000 Index return of 6.23%. For the one-year period ending December 31, 2022, the U.S. equity composite underperformed the index, returning -20.30% versus the Russell 3000 Index's return of -19.21%. Over the three-year period ending December 31, 2022, the total U.S. equity composite returned 6.59%, underperforming the Russell 3000 Index return of 7.07%.



Through December 31, 2022

- **Developed International Equity - \$8.1 Billion, 9.0% of Fund:** Non-U.S. developed equity markets, as measured by the MSCI World ex-USA Custom Benchmark, returned 16.04% in U.S. dollar terms during the quarter. During the same period, the Fund's total developed international equity composite returned 16.11%, outperforming its custom benchmark by 7 basis points. In contrast to the U.S. equity composite, the developed international equity composite was approximately 81.6% actively managed as of December 31, 2022. For the one-year period ending December 31, 2022, the overall composite returned -20.32%, underperforming the World ex-USA Custom Benchmark return of -15.26%. Over the three-year period ending December 31, 2022, the total developed international composite returned 1.12%, outperforming the benchmark return of 1.05% by 7 basis points.
- **Emerging Markets Equity - \$8.2 Billion, 9.1% of Fund:** Emerging market equities, as measured by the TRS Custom EM Index, returned 9.7% during the fourth quarter of 2022. During the same period, the emerging markets equity composite, which is about 84% actively managed, returned 10.56%, outperforming the TRS Custom EM Benchmark by 86 basis points. For the one-year period ending December 31, 2022, the emerging markets equity composite returned -22.10%, underperforming the benchmark return of -20.09%. For the three-year period ending December 31, 2022, the emerging markets equity composite returned -3.19%, underperforming the benchmark return by 50 basis points.
- **Structured Fixed Income - \$21.4 Billion, 23.8% of Fund:** The structured fixed income composite returned 1.33% while its custom structured benchmark returned 1.51% during the fourth quarter. Over the trailing one-year and three-year periods ending December 31, 2022, the structured fixed income composite returned -12.81% and -1.79%, respectively.
- **Core Fixed Income - \$252.2 Million, 0.3% of Fund:** The core fixed income composite returned 1.89% during the fourth quarter, outperforming the Bloomberg U.S. Aggregate Index return of 1.87% over the same period. Over the trailing one-year and three-year periods ending December 31, 2022, the core fixed income composite returned -12.67% and -1.96%, respectively. Over the same trailing one-year and three-year periods ending December 31, 2022, the Bloomberg U.S. Aggregate Index returned -13.01% and -2.71% respectively.
- **High Yield - \$4.6 Billion, 5.1% of Fund:** The corporate high yield market, as measured by the Bloomberg U.S. High Yield 2% Issuer Cap Index, returned 4.17% during the fourth quarter of 2022. The actively managed high yield composite underperformed the benchmark, returning 4.01% over the same period. For the one-year period ending December 31, 2022, this composite returned -10.45% while the High Yield Custom Benchmark returned -11.18%. Over the three-year period ending December 31, 2022, the composite returned 0.47%, outperforming its custom benchmark by 44 basis points.



Through December 31, 2022

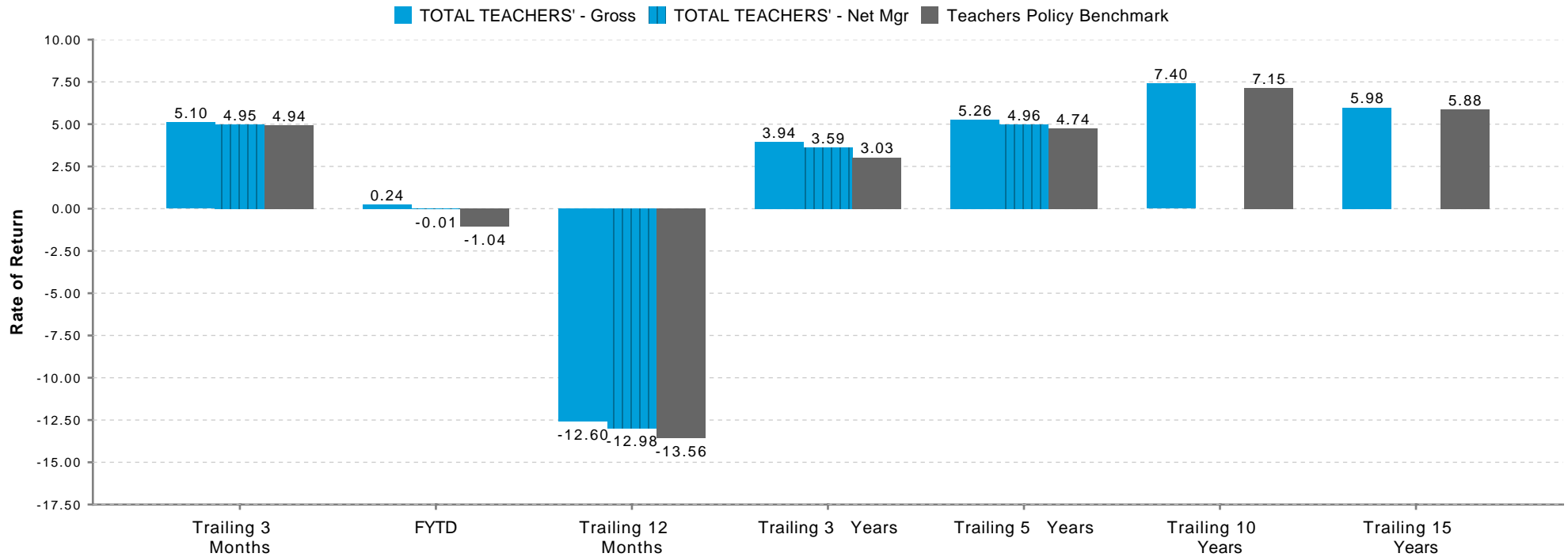
- **TIPS - \$3.1 Billion, 3.4% of Fund:** The broad U.S. TIPS market returned 2.04% during the quarter ending December 31, 2022. The composite of TIPS managers (75% passive/25% active) underperformed the Bloomberg Global Inflation-Linked U.S. TIPS index by 5 basis points, returning 1.99% for the quarter. For the one-year period ending December 31, 2022, the TIPS composite returned -11.87%, while the benchmark returned -11.85%. For the three-year period ending December 31, 2022, the composite returned 1.20% and its benchmark returned 1.21%.
- **Opportunistic Fixed Income - \$3.4 Billion, 3.7% of Fund:** The opportunistic fixed income composite is comprised of investments in thirteen funds, representing 16% of this composite's assets, and fifteen strategic separate account mandates, representing 84% of composite assets. These strategic mandates and funds call down capital as opportunities are identified and are still in the process of being funded. During the fourth quarter of 2022, the overall composite returned -0.03%, underperforming the blended benchmark of 50%/50% J.P Morgan Global High Yield Index and Credit Suisse Leveraged Loan Index +3%, which returned 4.10% over the same period. For the one-year period ending December 31, 2022, the overall composite returned 0.70%, outperforming the -2.79% return of the blended benchmark. Over the longer three-year period ending December 31, 2022, the opportunistic fixed income composite returned 7.61% versus the benchmark return of 4.12%.
- **Private Equity - \$7.7 Billion, 8.5% of Fund:** At the end of the fourth quarter of 2022, the private equity portfolio had \$7.7 billion in invested capital. The Fund currently has investments in 222 partnerships. Performance is reported separately by Teachers' Private Equity consultant.
- **Private Real Estate - \$5.6 Billion, 6.2% of Fund:** At the end of the fourth quarter of 2022, the private real estate portfolio had \$5.6 billion in invested capital. The composite has investments in 99 partnerships. Performance is reported separately by Teachers' Private Real Estate consultant.
- **Private Infrastructure - \$1.9 Billion, 2.1% of Fund:** At the end of the fourth quarter of 2022, the private infrastructure portfolio had \$1.9 billion in invested capital. The composite has investments in 36 partnerships and co-invest pools. Performance is reported separately by Teachers' Private Infrastructure consultant.



Market Value (Billions)

\$90.1

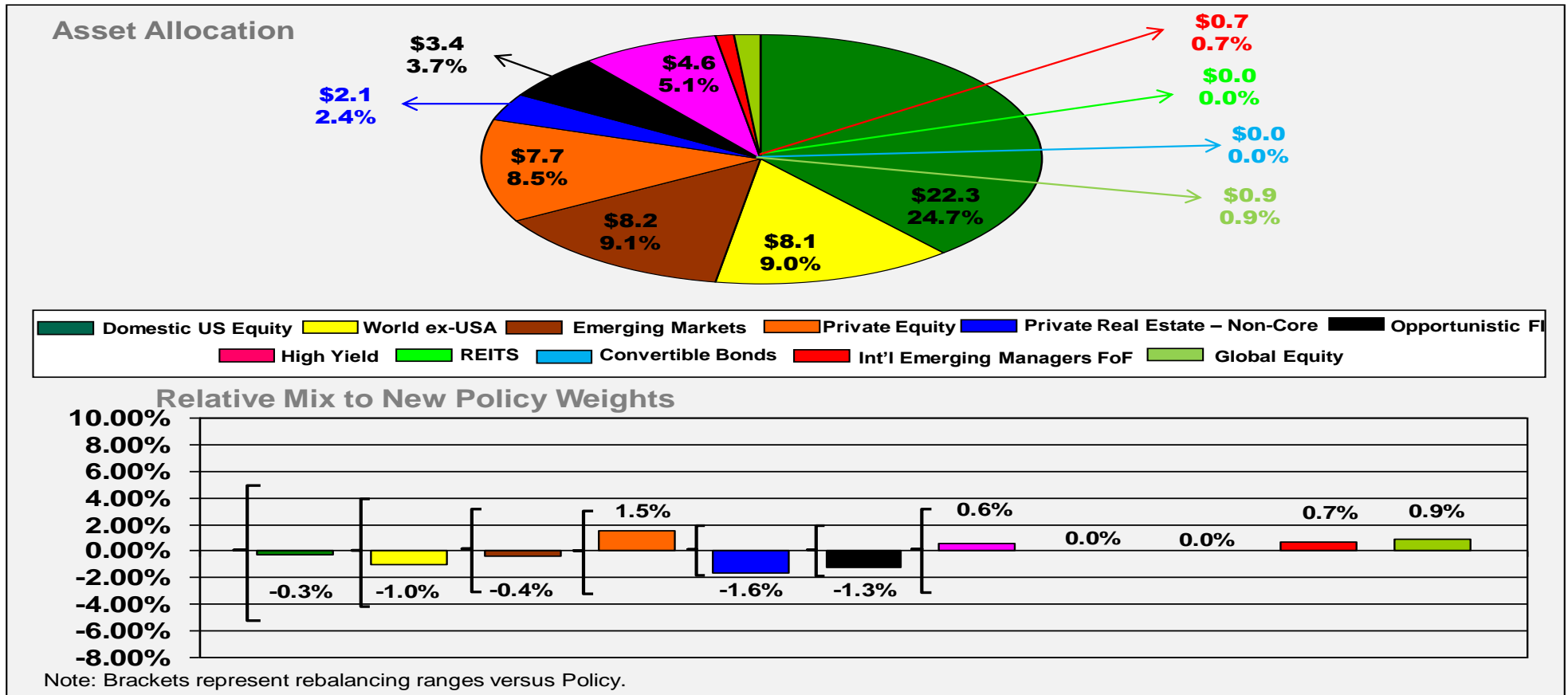
TOTAL TEACHERS'



	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 7 Years	Benchmark 7 Years	Plan 10 Years
Standard Deviation							
TOTAL TEACHERS'	11.4	11.8	5.3	10.2	8.7	9.0	8.1

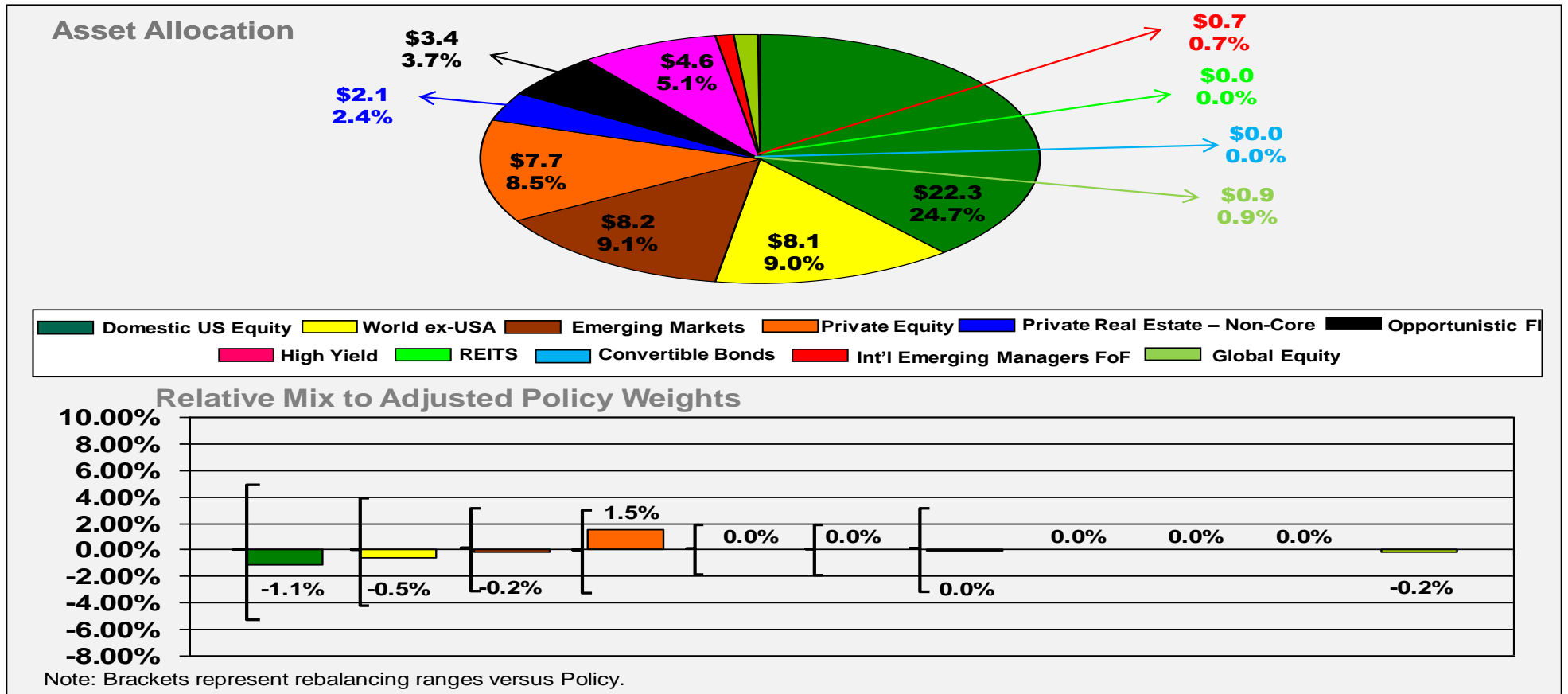


Portfolio Asset Allocation – Growth



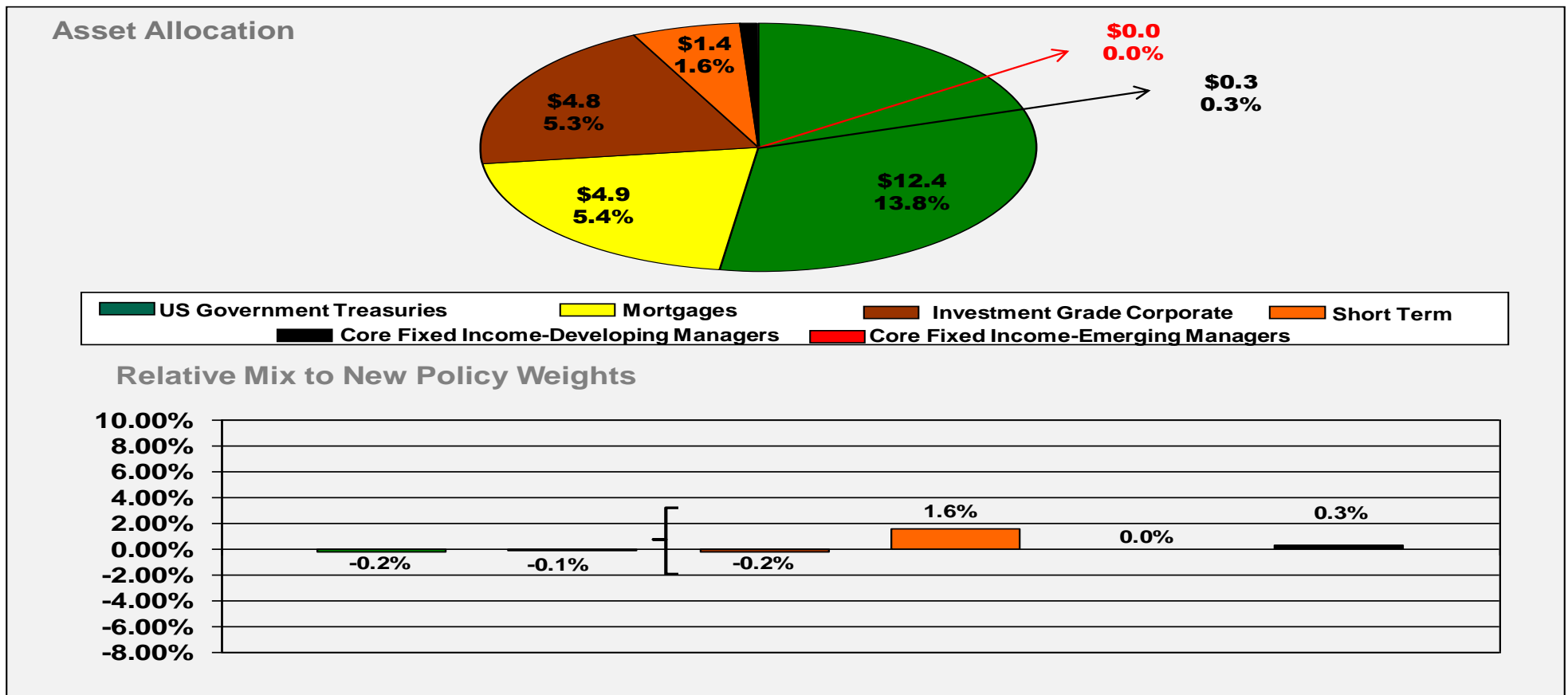


Portfolio Asset Allocation – Growth



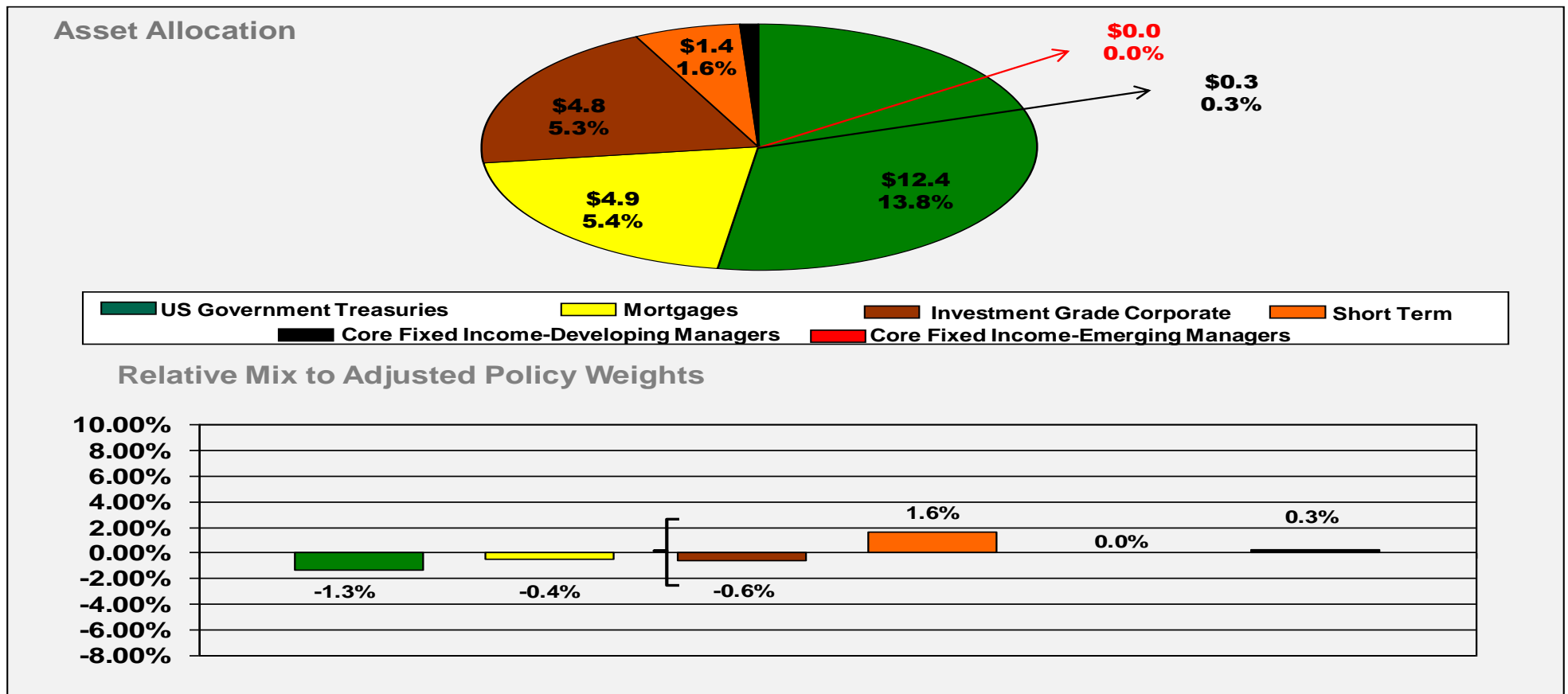


Portfolio Asset Allocation – Deflation Protection



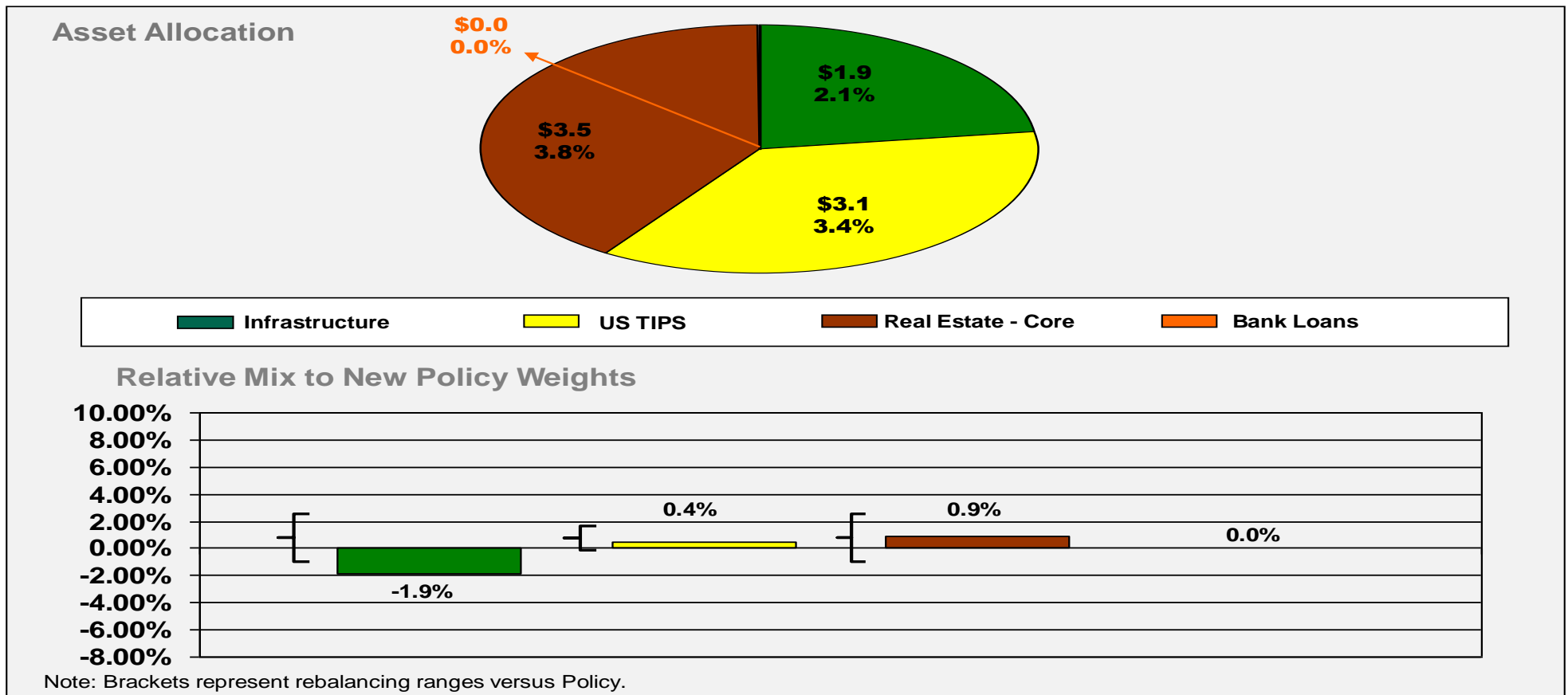


Portfolio Asset Allocation – Deflation Protection



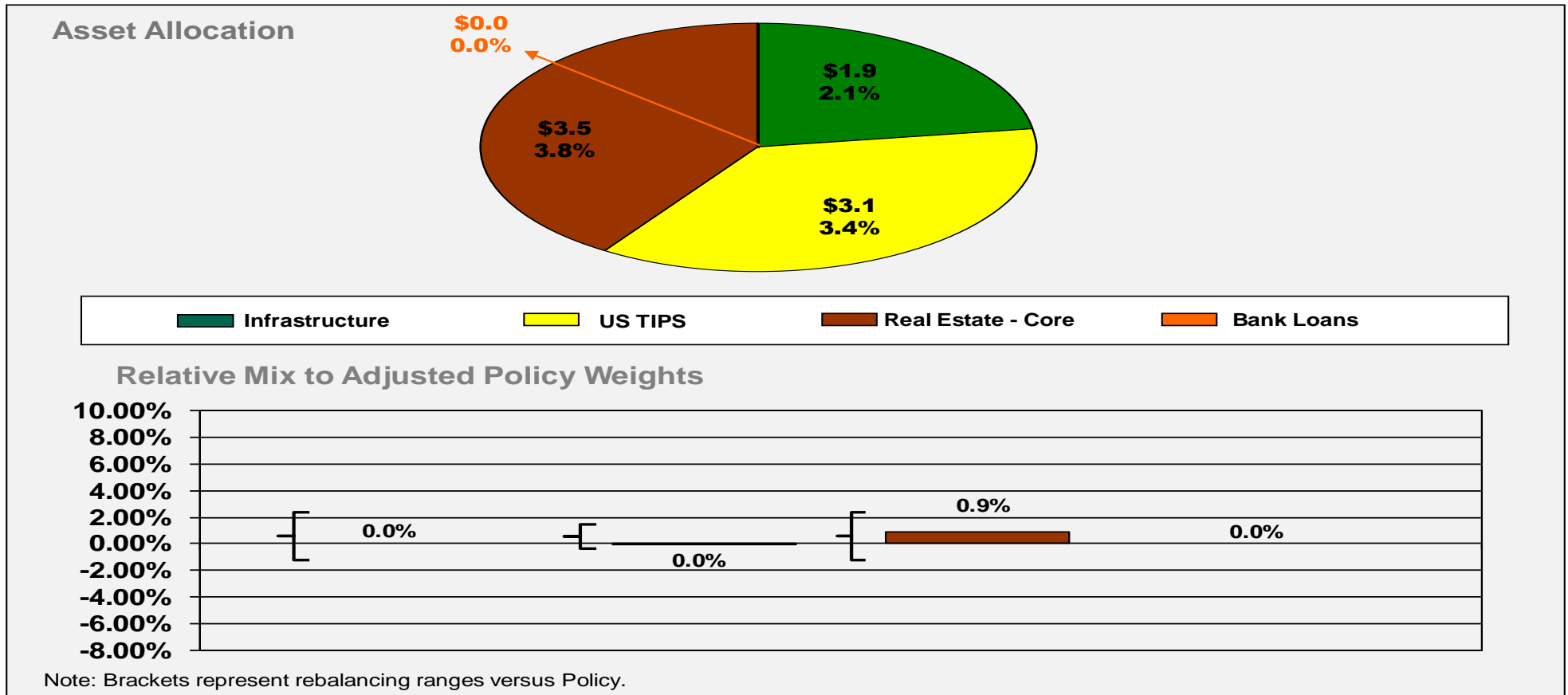


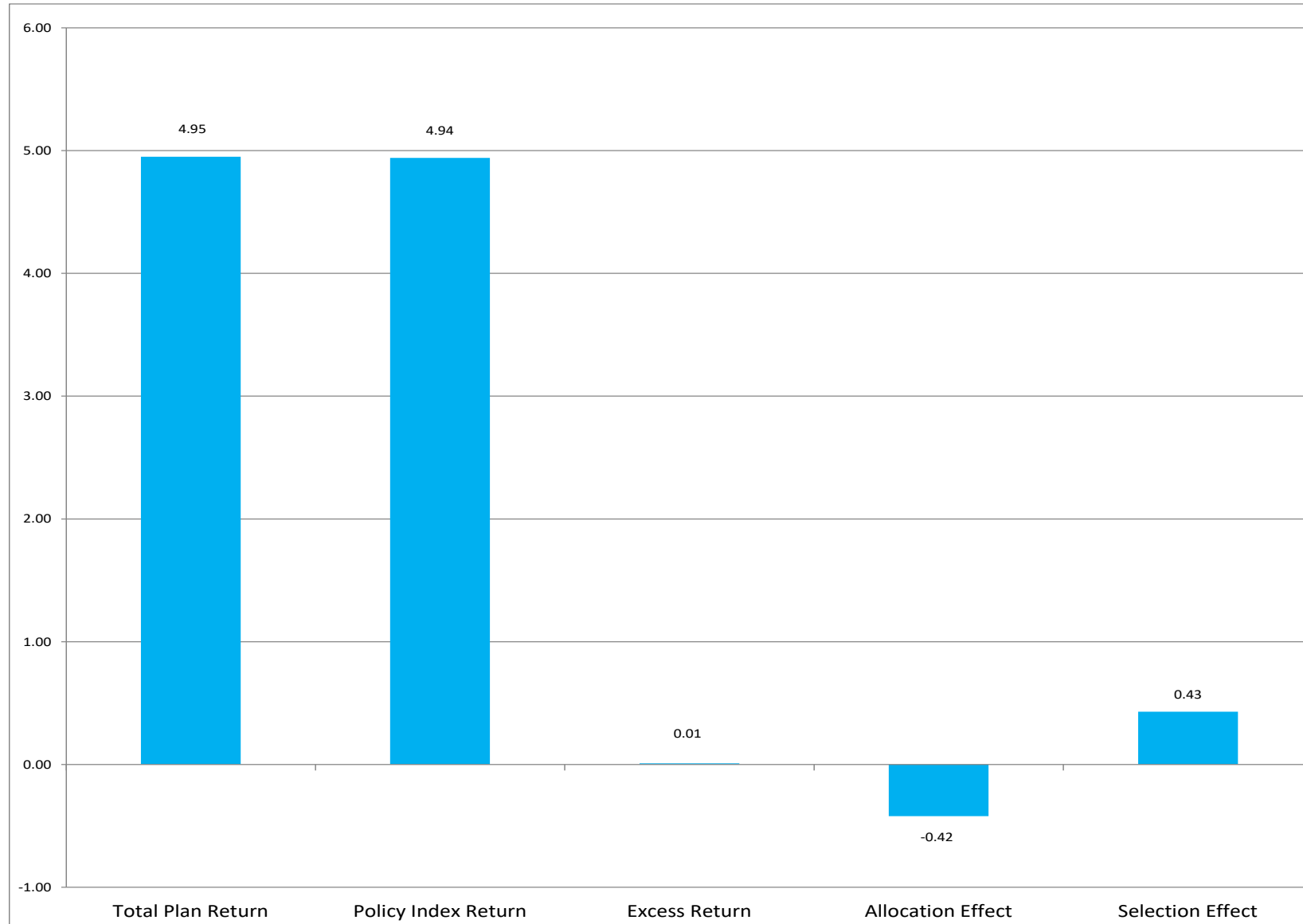
Portfolio Asset Allocation – Inflation Protection

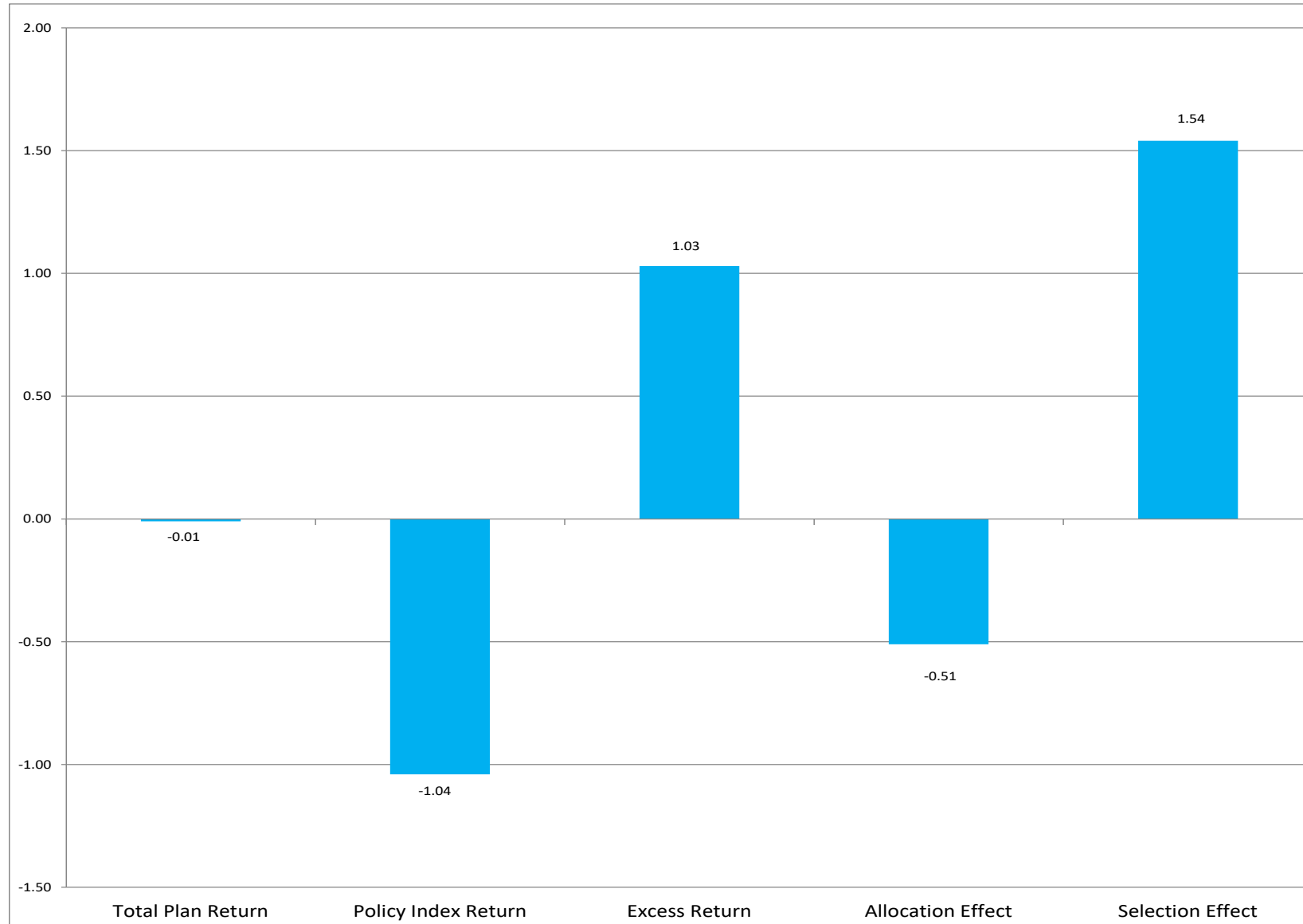


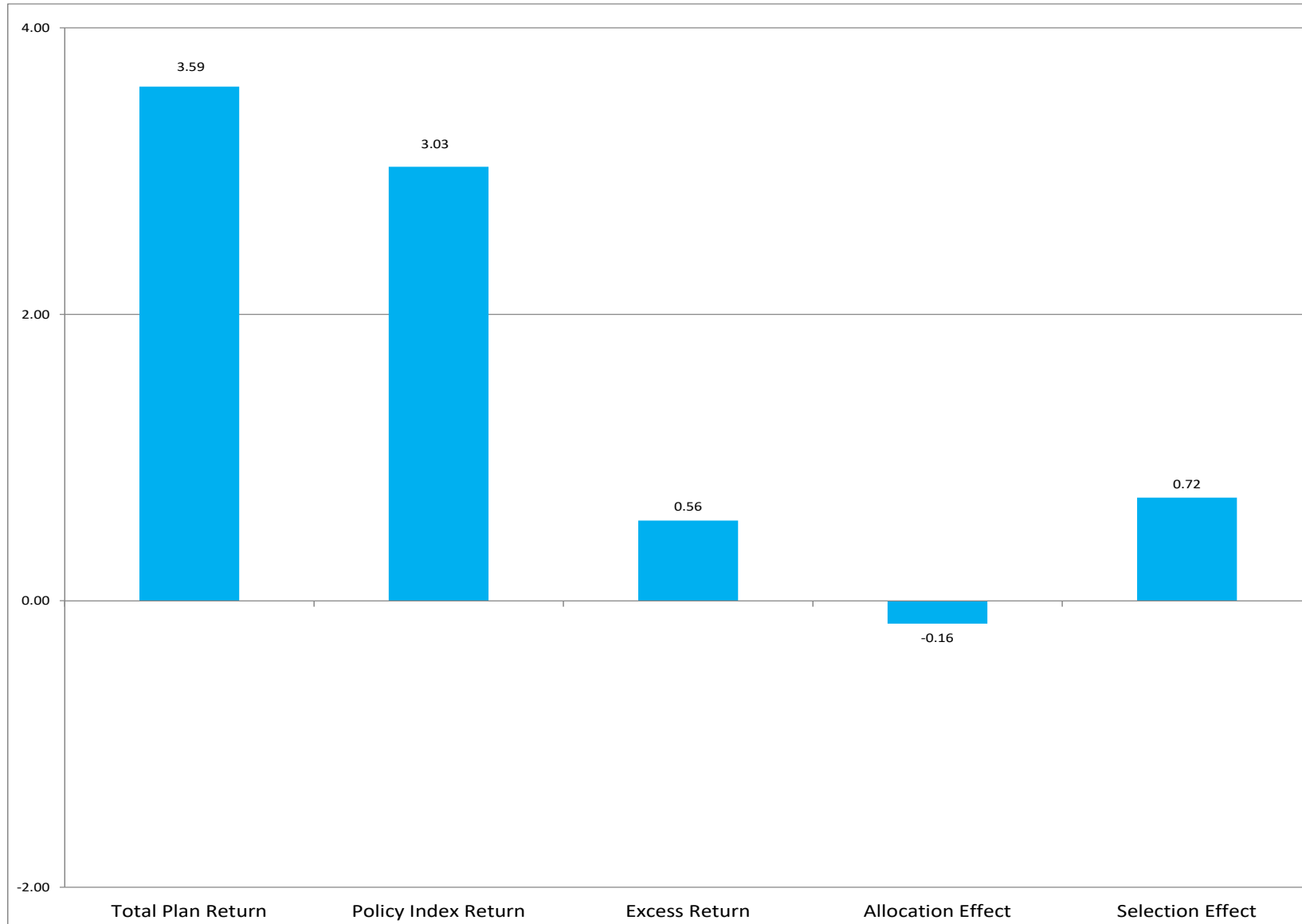


Portfolio Asset Allocation – Inflation Protection











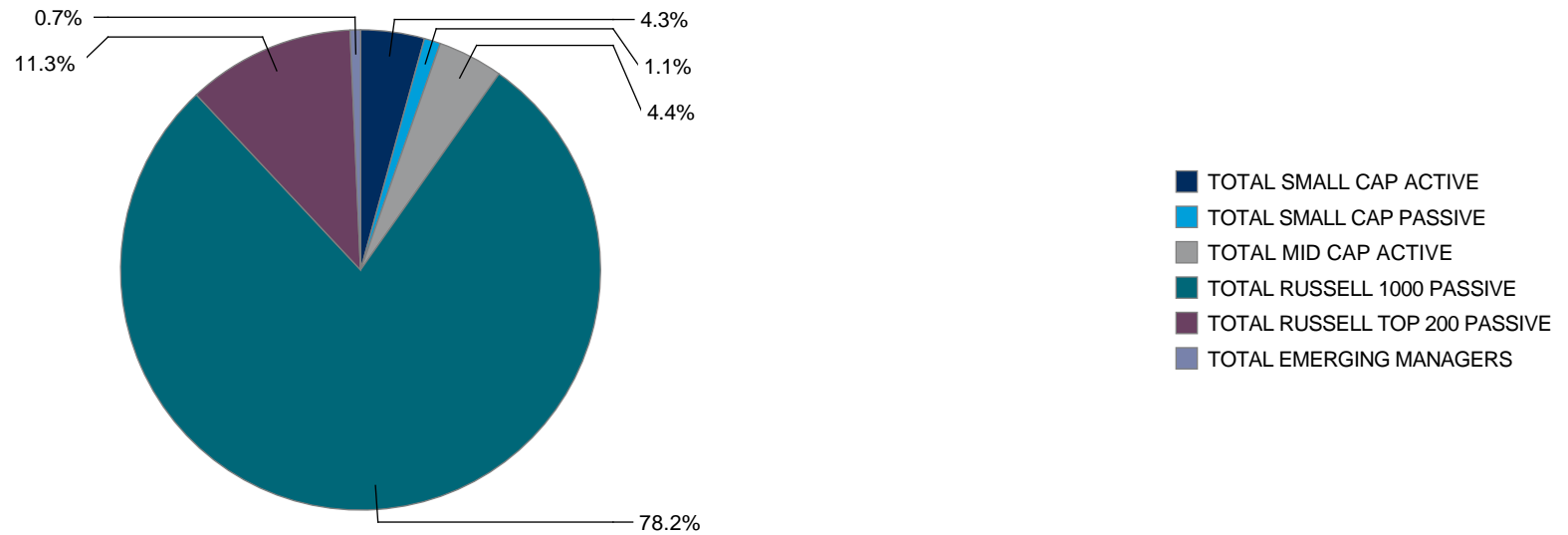
Allocation Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL TEACHERS'	-0.42	-0.51	-0.16	Teachers Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.07	-0.11	-0.07	RUSSELL 3000 (DAILY)
TOTAL WORLD ex-USA	-0.06	-0.05	-0.01	NYC Developed Equity Benchmark
TOTAL GLOBAL EQUITY	-0.01	-0.01	0.00	MSCI World Index
TOTAL EMERGING MARKETS	-0.06	-0.04	0.02	TRS Custom EM Index
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	NYC Blended Custom Benchmark for FoF (TRS)
TOTAL REAL ESTATE SECURITIES	0.00	0.00	-0.13	DJ US SELECT REAL ESTATE SECURITIES INDEX
TOTAL PRIVATE EQUITY	-0.10	-0.27	-0.10	NYC R3000 +3% Lagged
TOTAL PRIVATE REAL ESTATE - CORE	-0.09	-0.04	0.00	NCREIF ODCE NET
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.00	0.00	NCREIF ODCE NET +200
TOTAL INFRASTRUCTURE	0.00	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.03	-0.01	0.23	FTSE US Government Bond 1-3 Years Index
TOTAL US TREASURY INTERMEDIATE	-0.04	-0.03	-0.05	USBIG TSY AGN 1-10
TOTAL ACTIVE GOVERNMENT	-0.01	-0.01	0.39	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	0.03	0.06	-0.41	FTSE US Government Bond 10+ Years Index
TOTAL IG CORPORATE	0.00	0.00	0.04	NYC Custom IGC Benchmark
TOTAL MORTGAGE	0.00	0.00	0.03	NYC Custom Mortgage Benchmark
TOTAL ETI	0.00	0.00	0.00	Teachers Custom Benchmark (No Cash)
TOTAL CORE FI- DEVELOPING MGRS	-0.01	-0.01	-0.02	Bloomberg U.S. Aggregate
TOTAL HIGH YIELD	0.00	-0.02	0.02	High Yield Custom Benchmark
TOTAL BANK LOANS	0.00	0.00	-0.02	CSFB LEVERAGED LOAN INDEX
TOTAL TIPS MANAGERS	-0.01	-0.01	-0.01	Bloomberg Global Infl-Linked: U.S. TIPS
TOTAL OPPORTUNISTIC FIXED	0.00	0.00	0.00	Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	-0.01	0.04	-0.08	

Selection Effect - Asset Class Breakdown				
	Quarter	FYTD	3 Years	Benchmark
TOTAL TEACHERS'	0.43	1.54	0.72	Teachers Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.04	-0.13	-0.12	RUSSELL 3000 (DAILY)
TOTAL WORLD ex-USA	0.01	0.00	0.02	NYC Developed Equity Benchmark
TOTAL GLOBAL EQUITY	0.02	0.02	-0.01	MSCI World Index
TOTAL EMERGING MARKETS	0.06	0.11	-0.01	TRS Custom EM Index
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	NYC Blended Custom Benchmark for FoF (TRS)
TOTAL REAL ESTATE SECURITIES	0.00	0.00	0.02	DJ US SELECT REAL ESTATE SECURITIES INDEX
TOTAL PRIVATE EQUITY	0.25	1.37	0.59	NYC R3000 +3% Lagged
TOTAL PRIVATE REAL ESTATE - CORE	0.21	0.32	0.12	NCREIF ODCE NET
TOTAL PRIVATE REAL ESTATE - NON CORE	0.14	0.10	0.00	NCREIF ODCE NET +200
TOTAL INFRASTRUCTURE	-0.01	-0.04	0.02	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.00	0.00	-0.01	FTSE US Government Bond 1-3 Years Index
TOTAL US TREASURY INTERMEDIATE	0.00	0.01	0.00	USBIG TSY AGN 1-10
TOTAL ACTIVE GOVERNMENT	0.00	0.00	0.01	NYC - Treasury Agency Plus Five
TOTAL US TREASURY LONG DURATION	0.00	0.02	0.00	FTSE US Government Bond 10+ Years Index
TOTAL IG CORPORATE	-0.02	-0.01	0.00	NYC Custom IGC Benchmark
TOTAL MORTGAGE	-0.02	-0.01	0.01	NYC Custom Mortgage Benchmark
TOTAL ETI	-0.01	0.00	0.00	Teachers Custom Benchmark (No Cash)
TOTAL CORE FI- DEVELOPING MGRS	0.00	0.00	0.00	Bloomberg U.S. Aggregate
TOTAL HIGH YIELD	-0.01	-0.01	0.02	High Yield Custom Benchmark
TOTAL BANK LOANS	0.00	0.00	-0.01	CSFB LEVERAGED LOAN INDEX
TOTAL TIPS MANAGERS	0.00	0.00	0.00	Bloomberg Global Infl-Linked: U.S. TIPS
TOTAL OPPORTUNISTIC FIXED	-0.15	-0.21	0.09	Opportunistic Fixed Income JPMGHY / CSFB 50/50 Blend Plus 300
TOTAL CASH	0.00	0.00	0.00	

Total Domestic Equity Asset Allocation: December 31, 2022



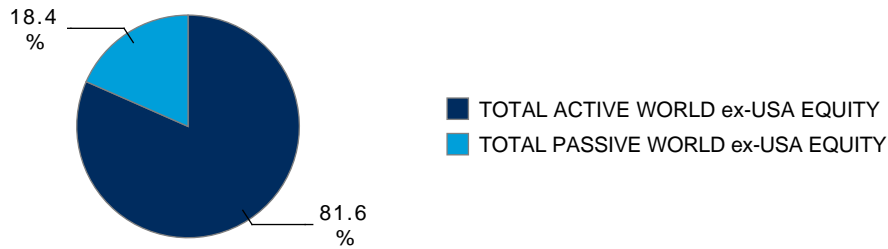
	<u>Market Value (Billions)</u>	<u>% of plan</u>
TOTAL DOMESTIC EQUITY	\$22.3	24.7



	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL SMALL CAP ACTIVE	5.1	4.3	(0.8)	3.9	6.2	(2.4)
TOTAL SMALL CAP PASSIVE	0.6	1.1	0.5	8.6	6.2	2.3
TOTAL MID CAP ACTIVE	4.8	4.4	(0.4)	10.3	9.2	1.1
TOTAL RUSSELL 1000 PASSIVE	74.8	78.3	3.5	7.1	7.2	(0.2)
TOTAL RUSSELL TOP 200 PASSIVE	14.1	11.3	(2.8)	6.4	6.6	(0.2)
TOTAL EMERGING MANAGERS	0.6	0.7	0.1	5.7	6.2	(0.5)



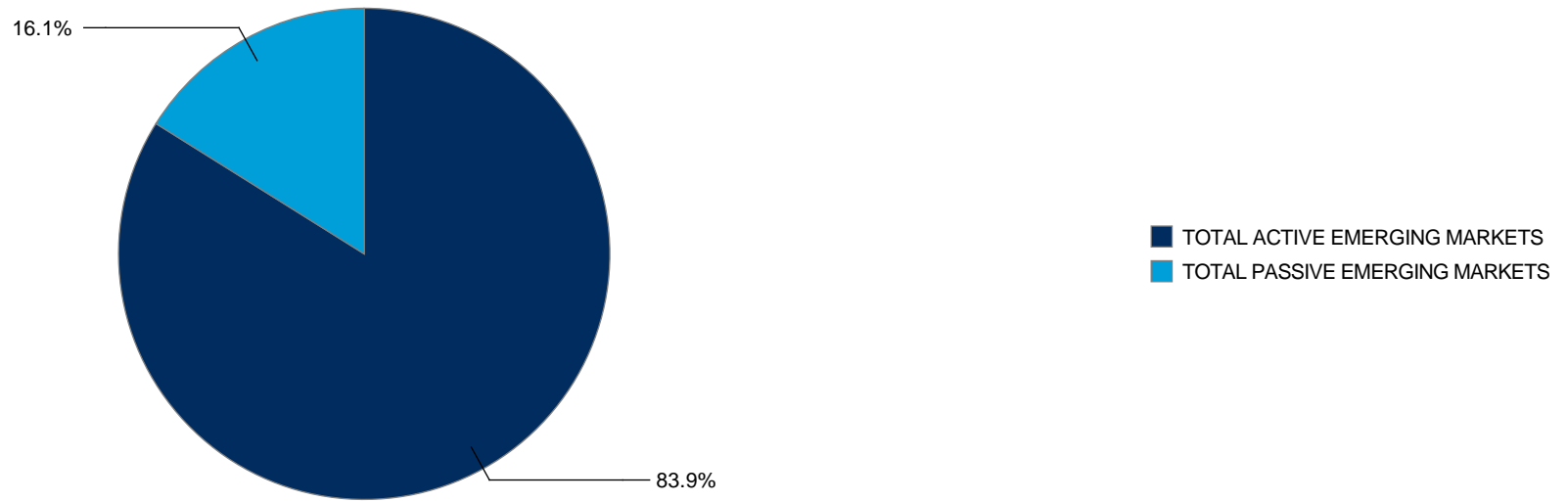
	<u>Market Value (Billions)</u>	<u>% of plan</u>
TOTAL WORLD ex-USA	\$8.1	9.0



	<u>Asset Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL WORLD ex-USA LARGE & MID ACTIVE	71.72	16.37	16.18	0.18
TOTAL WORLD ex-USA SMALL CAP ACTIVE	9.92	16.41	17.12	(0.71)
TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE	13.13	15.37	16.18	(0.81)
TOTAL WORLD ex-USA SMALL CAP PASSIVE	5.24	14.85	15.21	(0.36)
TOTAL WORLD ex-USA	100.00	16.11	16.04	0.07



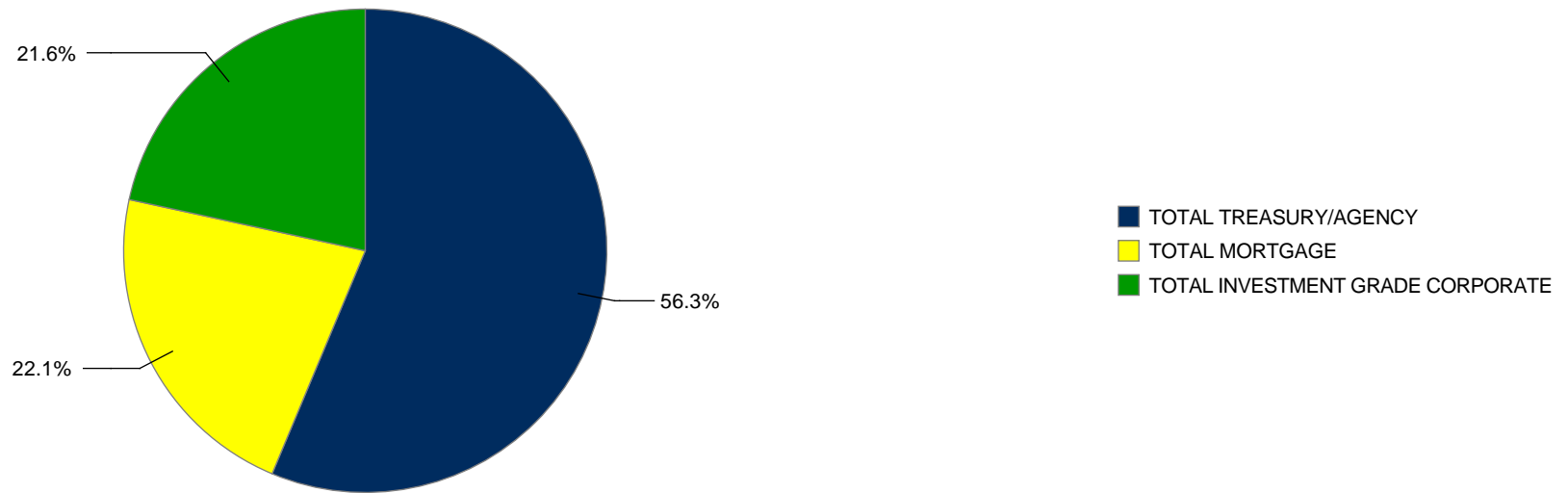
	<u>Market Value (Billions)</u>	<u>% of plan</u>
TOTAL EMERGING MARKETS	\$8.2	9.1



	<u>Asset Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL ACTIVE EMERGING MARKETS	83.94	10.82	9.70	1.12
TOTAL PASSIVE EMERGING MARKETS	16.06	9.20	9.70	(0.50)
TOTAL EMERGING MARKETS	100.00	10.56	9.70	0.86



	<u>Market Value (Billions)</u>	<u>% of plan</u>
TOTAL STRUCTURED + ETI	\$22.1	24.5



	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL TREASURY/AGENCY	56.00	56.27	0.27	0.47	0.44	0.03
TOTAL MORTGAGE	22.00	22.10	0.10	1.60	2.14	(0.54)
TOTAL INVESTMENT GRADE CORPORATE	22.00	21.63	(0.37)	3.34	3.63	(0.29)

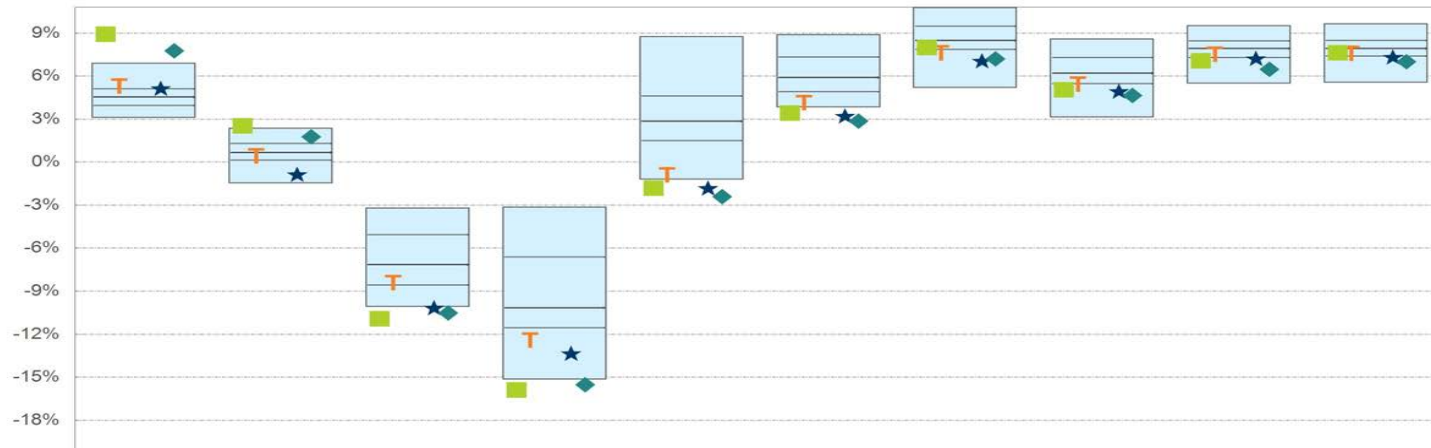


Through December 31, 2022



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$10 Billion
Cumulative Periods Ending : December 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	6.92	2.36	-3.19	-3.13	8.76	8.89	10.78	8.59	9.51	9.64
25th	5.12	1.31	-5.06	-6.61	4.62	7.34	9.49	7.30	8.45	8.49
50th	4.55	0.66	-7.15	-10.16	2.87	5.91	8.48	6.20	7.93	7.92
75th	3.97	0.15	-8.56	-11.54	1.50	4.91	7.88	5.49	7.30	7.40
95th	3.12	-1.43	-10.07	-15.14	-1.18	3.85	5.22	3.15	5.52	5.57
No. Of Obs	52	51	51	51	50	50	47	47	47	47
T Total System - Teacher	5.10 (30)	0.24 (70)	-8.59 (77)	-12.60 (87)	-1.09 (93)	3.94 (93)	7.43 (85)	5.26 (85)	7.35 (70)	7.40 (77)
★ Teachers Policy Benchm	4.94 (40)	-1.04 (91)	-10.37 (97)	-13.55 (91)	-2.02 (95)	3.03 (95)	6.88 (94)	4.74 (94)	7.05 (85)	7.15 (85)
■ Public Mkt Equiv 25	8.71 (1)	2.33 (5)	-11.12 (97)	-16.08 (97)	-2.00 (95)	3.21 (95)	7.80 (79)	4.84 (92)	6.88 (90)	7.43 (70)
◆ Public Mkt Equiv 35	7.58 (1)	1.57 (19)	-10.72 (97)	-15.72 (97)	-2.61 (95)	2.65 (95)	6.99 (92)	4.45 (94)	6.29 (94)	6.79 (90)

Wilshire Trust Universe Comparison Service® (TUCS®)

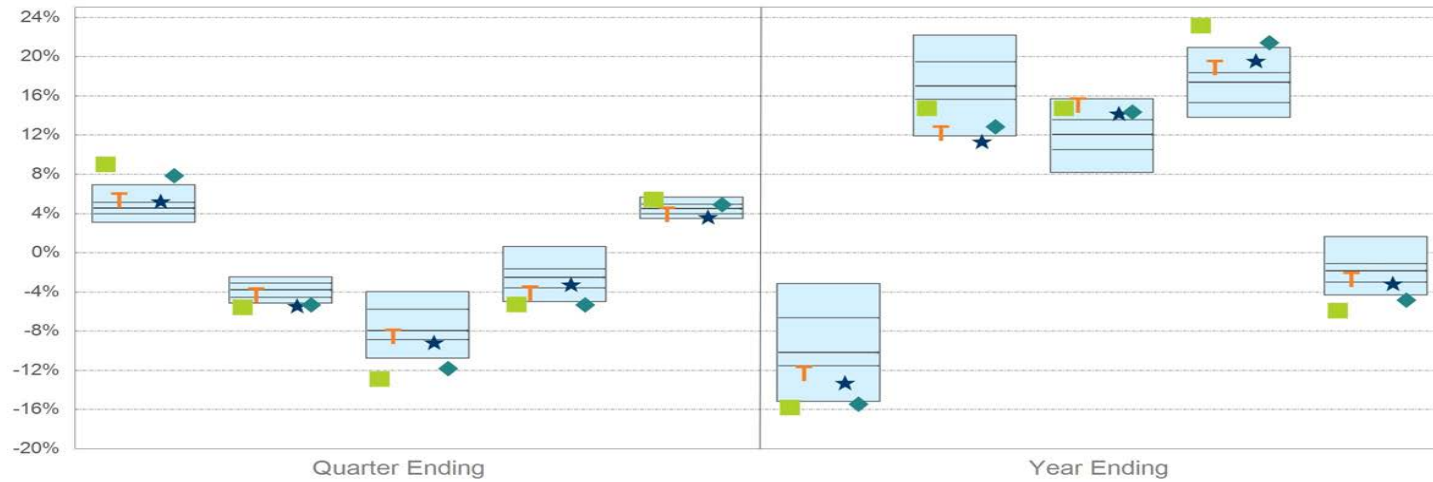


Through December 31, 2022



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$10 Billion
Consecutive Time Periods: December 31, 2022



Percentile Rankings	Dec 22	Sep 22	Jun 22	Mar 22	Dec 21	Dec 22	Dec 21	Dec 20	Dec 19	Dec 18
5th	6.92	-2.48	-3.96	0.62	5.69	-3.13	22.17	15.72	20.92	1.66
25th	5.12	-3.11	-5.77	-1.66	4.97	-6.61	19.46	13.58	18.38	-1.09
50th	4.55	-3.76	-7.95	-2.53	4.53	-10.16	17.02	12.06	17.40	-1.84
75th	3.97	-4.57	-8.86	-3.59	3.96	-11.54	15.65	10.50	15.33	-3.00
95th	3.12	-5.15	-10.77	-4.97	3.49	-15.14	11.94	8.20	13.79	-4.30
No. Of Obs	52	51	51	51	51	51	50	51	48	50
T Total System - Teacher	5.10 (30)	-4.62 (79)	-8.81 (72)	-4.39 (93)	3.66 (93)	-12.60 (87)	11.94 (95)	14.78 (13)	18.63 (21)	-3.00 (75)
★ Teachers Policy Benchm	4.94 (40)	-5.70 (100)	-9.43 (79)	-3.55 (72)	3.34 (97)	-13.55 (91)	11.06 (95)	13.93 (23)	19.30 (9)	-3.41 (79)
■ Public Mkt Equiv 25	8.71 (1)	-5.87 (100)	-13.15 (99)	-5.58 (99)	5.12 (19)	-16.08 (97)	14.46 (81)	14.45 (19)	22.85 (1)	-6.20 (100)
◆ Public Mkt Equiv 35	7.58 (1)	-5.59 (99)	-12.10 (99)	-5.60 (99)	4.59 (46)	-15.72 (97)	12.54 (93)	14.03 (19)	21.14 (1)	-5.12 (100)

Wilshire Trust Universe Comparison Service® (TUCS®)



TEACHERS RETIREMENT SYSTEM
INVESTMENT MANAGEMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2022

INVESTMENT STYLE (EQUITIES)	Avg. Net Asset Value FY 2022 (\$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
Total US Equities	26,873.62	12,293.66	-	4.57	754.19	0.28	13,047.85	4.86
Small Cap Active:								
Small Cap Growth	1,235.53	9,738.32	-	78.82	629.93	18.87	10,368.25	83.92
Small Cap Value	630.76	6,394.38	-	101.38	-	-	6,394.38	101.38
Small Cap Core	271.00	1,127.24	-	41.60	-	-	1,127.24	41.60
Small Cap Fundamental Index	333.77	2,216.70	-	66.41	629.93	18.87	2,846.63	85.29
Mid Cap Active:								
Mid Cap Growth	319.83	1,070.27	-	33.46	-	-	1,070.27	33.46
Mid Cap Value	114.99	380.26	-	33.07	-	-	380.26	33.07
Mid Cap Core	192.65	676.63	-	35.12	-	-	676.63	35.12
Mid Cap Core	12.20	13.39	-	10.98	-	-	13.39	10.98
Other Active:								
Russell 1000 Fundamental	167.81	955.01	-	56.91	124.26	6.46	1,079.27	64.32
Legato (Emerging Manager- Equity)	167.81	955.01	-	56.91	124.26	7.40	1,079.27	64.32
U.S. Environmental Managers	-	-	-	-	-	-	-	-
Total US Active Equities	1,723.17	11,763.60	-	68.27	754.19	4.38	12,517.79	72.64
Small Cap Passive:								
Small Cap Passive	346.77	15.31	-	0.44	-	-	15.31	0.44
Mid Cap Passive:								
Mid Cap Passive	-	-	-	-	-	-	-	-
Russell / S&P Passive:								
Russell 1000 Growth Passive	24,803.68	514.75	-	0.21	-	-	514.75	0.21
Russell 1000 Value Passive	-	-	-	-	-	-	-	-
Russell 1000 Core Passive	24,252.34	489.06	-	0.20	-	-	489.06	0.20
Passive Russell 3000	0.00	-	-	-	-	-	-	-
Passive S&P 500	-	-	-	-	-	-	-	-
Passive Russell Top 200	551.33	25.69	-	0.47	-	-	25.69	0.47
Total US Passive Equities	25,150.45	530.06	-	0.21	-	-	530.06	0.21
Total International Equities	19,727.48	63,503.83	-	32.19	-	-	63,503.83	32.19
Active Total Global Equities								
Global Equity	583.55	3,098.76	-	53.10	-	-	3,098.76	53.10
Active Total World Ex USA:								
World Ex-USA Large & Mid Developed Growth Active	7,842.21	23,469.70	-	29.93	-	-	23,469.70	29.93
World Ex-USA Large & Mid Developed Value Active	3,790.94	10,630.28	-	28.04	-	-	10,630.28	28.04
World Ex-USA Developed Small Cap Active	3,107.87	8,735.66	-	28.11	-	-	8,735.66	28.11
Total World Ex USA	943.40	4,103.77	-	43.50	-	-	4,103.77	43.50
NON-U.S. Activist	0.00	-	-	-	-	-	-	-
NON-U.S. Environmental Managers	-	-	-	-	-	-	-	-
Active Emerging Markets	7,910.63	35,557.30	-	44.95	-	-	35,557.30	44.95
International Fund of Funds	761.83	3,800.97	-	49.89	-	-	3,800.97	49.89
Total Active International Equities	16,514.67	62,827.97	-	38.04	-	-	62,827.97	38.04
Int'l Passive Equities:								
World Ex-USA Small Cap Passive	3,212.81	675.86	-	2.10	-	-	675.86	2.10
World Ex-USA Large & Mid Cap Passive	629.76	191.88	-	3.05	-	-	191.88	3.05
Passive Global	1,498.52	182.42	-	1.22	-	-	182.42	1.22
Passive Emerging Markets	1,084.54	301.55	-	2.78	-	-	301.55	2.78
Total Int'l Passive Equities	3,212.81	675.86	-	2.10	-	-	675.86	2.10
Real Estate Equity Securities	0.03	-	-	-	-	-	-	-
Total Public Equities	47,184.69	78,896.25	-	16.72	754.19	0.16	79,650.44	16.88

Information Classification: Limited Access



TEACHERS RETIREMENT SYSTEM									
INVESTMENT MANAGEMENT FEES INCURRED FOR FISCAL YEAR ENDED JUNE 30, 2022									
INVESTMENT STYLE (FIXED INCOME)	Avg. Net Asset Value FY 2022 (\$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	
Total Fixed Income	36,070.84	26,440.52	-	7.33	513.01	0.14	26,953.53	7.47	
Structured Program:									
Government Treas/Agency Sector	24,816.53	9,000.65	-	3.63	513.01	0.21	9,513.66	3.83	
Long Duration Treasury	11,707.32	1,238.06	-	1.06	-	-	1,238.06	1.06	
Mortgage Sector	2,834.16	283.78	-	1.00	-	-	283.78	1.00	
Investment Grade Credit Sector	4,832.56	3,414.97	-	7.07	513.01	1.06	3,927.98	8.13	
	5,442.49	4,063.84	-	7.47	-	-	4,063.84	7.47	
Developing Managers	279.80	515.55	-	18.43	-	-	515.55	18.43	
Emerging Managers	0.00	-	-	-	-	-	-	-	
TIPS:									
Active TIPS Managers	3,641.43	652.14	-	1.79	-	-	652.14	1.79	
Passive TIPS Managers	952.83	517.77	-	5.43	-	-	517.77	5.43	
	2,688.60	134.38	-	0.50	-	-	134.38	0.50	
High Yield	4,965.88	14,987.21	-	30.18	-	-	14,987.21	30.18	
Bank Loans	2.51	7.74	-	30.86	-	-	7.74	30.86	
Convertible Bonds	-	-	-	-	-	-	-	-	
ETI - Access - RBC	158.35	280.77	-	17.73	-	-	280.77	17.73	
ETI - AFL-CIO HIT	313.44	996.46	-	31.79	-	-	996.46	31.79	
Other ETI Programs (Internally Managed)	216.06	-	-	-	-	-	-	-	
Short Term (Internally Managed & Other)	1,676.83	-	-	-	-	-	-	-	
Total Public Markets	83,255.52	105,336.77	-	12.65	1,267.19	0.15	106,603.96	12.80	
INVESTMENT STYLE (PRIVATE MARKETS)									
Hedge Funds	-	-	-	-	-	-	-	-	
Private Equity	7,272.25	73,151.98	19,217.64	100.59	132,449.65	182.13	224,819.27	309.15	
Private Real Estate	4,579.49	48,363.37	15,247.94	138.90	47,237.46	103.15	110,848.77	242.05	
Infrastructure	1,471.12	27,647.21	7,106.36	236.24	(4,479.29)	(30.45)	30,274.28	205.79	
Opportunistic Fixed Income	3,149.13	22,023.23	10,291.76	102.62	3,004.10	9.54	35,319.09	112.16	
Total Private Markets	16,471.98	171,185.79	51,863.71	135.41	178,211.92	108.19	401,261.42	243.60	
Total Overall	99,727.51	276,522.55	51,863.71	32.93	179,479.12	18.00	507,865.38	50.93	

The overall carried interest and performance incentive fees paid by TEACHERS for the Fiscal Year: 18 BPS

General Footnotes:



**NYC TEACHERS' RETIREMENT SYSTEM
SECURITIES LENDING INCOME
December 31, 2022**

	U. S. FIXED INCOME	U. S. EQUITY	INTERNATIONAL EQUITY	TOTAL
1989	1,185,000	-	-	1,185,000
1990	885,000	-	-	885,000
1991	898,000	-	-	898,000
1992	1,692,000	193,000	300,000	2,185,000
1993	3,701,000	694,000	508,000	4,903,000
1994	4,314,000	1,360,000	696,000	6,370,000
1995	3,395,000	1,621,000	520,000	5,536,000
1996	2,874,000	1,738,000	879,000	5,491,000
1997	2,943,000	3,430,000	1,158,000	7,531,000
1998	4,793,000	4,549,000	1,499,000	10,841,000
1999	4,329,000	4,830,000	1,772,000	10,931,000
2000	4,282,000	4,963,000	2,300,000	11,545,000
2001	7,435,000	6,744,000	3,489,000	17,668,000
2002	4,401,000	5,578,000	2,530,000	12,509,000
2003	2,156,000	3,467,000	2,662,000	8,285,000
2004	2,949,000	4,413,000	2,550,000	9,912,000
2005	4,427,000	6,136,000	3,201,000	13,764,000
2006	4,282,000	9,789,000	2,868,000	16,939,000
2007	9,618,000	15,962,000	3,088,000	28,668,000
2008	27,299,000	27,400,000	5,129,000	59,828,000
2009	10,039,000	17,682,000	3,834,000	31,555,000
2010	4,271,000	11,122,000	3,200,000	18,593,000
2011	5,880,000	15,051,000	6,082,000	27,013,000
2012	8,113,000	18,853,000	4,915,000	31,881,000
2013	5,208,000	21,196,000	3,803,000	30,207,000
2014	2,195,000	9,191,000	6,079,000	17,465,000
2015	2,510,000	6,924,000	7,135,000	16,569,000
2016	2,861,000	10,325,000	5,376,000	18,562,000
2017	3,776,000	5,982,000	4,196,000	13,954,000
2018	3,302,655	3,899,058	6,252,432	13,454,145
2019	2,001,733	3,549,667	5,098,539	10,649,939
2020	1,576,262	2,486,236	3,378,392	7,440,891
2021	1,321,787	1,668,967	3,120,821	6,111,576
2022	2,559,528	1,883,748	2,193,347	6,636,623
Since Inception	<u>153,472,965</u>	<u>232,680,676</u>	<u>99,812,532</u>	<u>485,966,173</u>



**Teachers' Retirement System
of New York City**

Appendix A

Consolidated Performance Report



Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2022	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date	
SYSTEM RETURN SUMMARY																
5	TRS-TOTAL PORTFOLIO - GROSS	90,123	100.00	5.10	0.24	(12.60)	(9.39)	11.94	14.78	18.63	(12.60)	3.94	5.26	7.40	8.17	07/01/1987
	TRS - ESTIMATED INVESTMENT FEES			(0.14)	(0.25)	(0.38)	(0.38)	(0.43)	(0.24)	(0.26)	(0.38)	(0.35)	(0.30)			
	EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.03)	(0.05)	(0.10)	(0.10)	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)			
	EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.11)	(0.20)	(0.28)	(0.28)	(0.32)	(0.13)	(0.15)	(0.28)	(0.24)	(0.19)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	TRS-TOTAL PORTFOLIO - NET MGR			4.95	(0.01)	(12.98)	(9.77)	11.51	14.54	18.38	(12.98)	3.59	4.96			
	TRS POLICY BENCHMARK			4.94	(1.04)	(13.56)	(9.54)	11.06	13.93	19.30	(13.56)	3.03	4.74	7.15		
	EXCESS RETURN			0.02	1.03	0.58	(0.23)	0.45	0.62	(0.93)	0.58	0.55	0.22	0.24		
EQUITY RETURN SUMMARY																
18	TRS-TOTAL EQUITY (INCLUDES ALTERNATIVES & REITS) - GROSS	55,297	61.36	7.32	1.66	(13.95)	(10.54)	19.66	18.12	24.09	(13.95)	6.74	7.43	10.00	8.02	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.22)	(0.38)	(0.56)	(0.57)	(0.68)	(0.33)	(0.35)	(0.56)	(0.53)	(0.43)			
	EST MANAGEMENT FEES			(0.22)	(0.38)	(0.56)	(0.57)	(0.68)	(0.33)	(0.35)	(0.56)	(0.53)	(0.43)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	TRS-TOTAL EQUITY (INCLUDES ALTERNATIVES & REITS) - NET MGR			7.09	1.28	(14.52)	(11.10)	18.98	17.80	23.74	(14.52)	6.21	7.00			
26	TRS-TOTAL EQUITY - GROSS	40,079	44.47	9.78	2.15	(20.48)	(19.63)	16.26	20.44	27.22	(20.48)	3.65	5.22	8.88		12/01/1990
	ESTIMATED INVESTMENT FEES			(0.05)	(0.09)	(0.14)	(0.13)	(0.20)	(0.18)	(0.17)	(0.14)	(0.17)	(0.16)			
	EST MANAGEMENT FEES			(0.05)	(0.09)	(0.14)	(0.13)	(0.20)	(0.18)	(0.17)	(0.14)	(0.17)	(0.16)			
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	TRS-TOTAL EQUITY - NET MGR			9.74	2.06	(20.61)	(19.76)	16.06	20.26	27.05	(20.61)	3.48	5.06			
34	TRS-TOTAL DOMESTIC EQUITY - GROSS	22,295	24.74	7.01	1.88	(20.26)	(14.49)	25.40	21.28	31.01	(20.26)	6.64	8.61	12.03	10.28	12/01/1990
	ESTIMATED INVESTMENT FEES			(0.01)	(0.03)	(0.04)	(0.04)	(0.06)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)			
	TRS-TOTAL DOMESTIC EQUITY - NET MGR			7.00	1.85	(20.30)	(14.53)	25.35	21.23	30.98	(20.30)	6.59	8.57			
	RUSSELL 3000 (DAILY)			7.18	2.40	(19.21)	(13.87)	25.66	20.89	31.02	(19.21)	7.07	8.79	12.13	10.33	
	EXCESS RETURN			(0.18)	(0.55)	(1.09)	(0.66)	(0.31)	0.34	(0.04)	(1.09)	(0.47)	(0.22)	(0.10)	(0.05)	
44	TRS-TOTAL SMALL CAP - GROSS	1,198	1.33	4.93	1.49	(25.40)	(26.00)	11.25	23.70	26.55	(25.40)	0.88	3.99	10.63	14.03	05/01/2009
	ESTIMATED INVESTMENT FEES			(0.14)	(0.28)	(0.45)	(0.45)	(0.67)	(0.68)	(0.46)	(0.45)	(0.59)	(0.52)			
	TRS-TOTAL SMALL CAP - NET MGR			4.78	1.21	(25.85)	(26.45)	10.57	23.02	26.08	(25.85)	0.29	3.48			
	RUSSELL 2000 (DAILY)			6.23	3.91	(20.44)	(25.20)	14.82	19.96	25.52	(20.44)	3.10	4.13	9.01	11.34	
	EXCESS RETURN			(1.45)	(2.70)	(5.41)	(1.25)	(4.25)	3.06	0.56	(5.41)	(2.81)	(0.65)	1.62	2.69	
54	TRS-TOTAL MID CAP - GROSS	971	1.08	10.43	4.42											02/01/2011
	ESTIMATED INVESTMENT FEES			(0.10)	(0.20)											
	TRS-TOTAL MID CAP - NET MGR			10.33	4.22											
	RUSSELL MIDCAP (DAILY)			9.18	5.43		(17.30)	22.58	17.10	30.54						
	EXCESS RETURN			1.15	(1.21)											
64	TRS-TOTAL RUSSELL 1000 - GROSS	17,460	19.37	7.06	1.90	(19.91)	(13.66)	26.37	21.08	31.38	(19.91)	7.01		9.60	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)		
	TRS-TOTAL RUSSELL 1000 - NET MGR			7.06	1.90	(19.91)	(13.66)	26.37	21.08	31.38	(19.91)	7.01		9.60		
	RUSSELL 1000 (DAILY)			7.24	2.30	(19.13)	(13.04)	26.45	20.96	31.43	(19.13)	7.35		9.79		
	EXCESS RETURN			(0.18)	(0.40)	(0.79)	(0.63)	(0.09)	0.11	(0.05)	(0.79)	(0.34)		(0.19)		



Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2022	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
EQUITY RETURN SUMMARY															
76	TRS-TOTAL RUSSELL TOP 200 PASSIVE - GROSS	2,514	2.79	6.39	0.50									(15.24)	03/01/2022
	ESTIMATED INVESTMENT FEES			(0.00)	(0.00)									(0.00)	
	TRS-TOTAL RUSSELL TOP 200 PASSIVE - NET MGR			6.39	0.50									(15.25)	
	RUSSELL TOP 200 INDEX (DAILY)			6.56	1.22									(12.51)	
	EXCESS RETURN			(0.18)	(0.72)									(2.74)	
86	TRS-TOTAL EMERGING MANAGER - GROSS	152	0.17	5.83	4.82	(15.86)	(17.06)	25.59	19.96	24.01	(15.86)	8.22	7.71	8.23	05/01/2017
	ESTIMATED INVESTMENT FEES			(0.13)	(0.26)	(0.48)	(0.48)	(0.70)	(0.60)	(0.62)	(0.48)	(0.59)	(0.57)	(0.57)	
	TRS-TOTAL EMERGING MANAGER - NET MGR			5.70	4.56	(16.35)	(17.54)	24.89	19.36	23.40	(16.35)	7.64	7.14	7.66	
	RUSSELL 2000 (DAILY)			6.23	3.91	(20.44)	(25.20)	14.82	19.96	25.52	(20.44)	3.10	4.13	5.50	
	EXCESS RETURN			(0.53)	0.65	4.09	7.66	10.07	(0.60)	(2.13)	4.09	4.54	3.02	2.16	
96	TRS-TOTAL WORLD ex-USA - GROSS	8,096	8.98	16.18	5.31	(20.14)	(24.34)	8.97	19.66	26.33	(20.14)	1.36	2.44	5.93	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.07)	(0.13)	(0.19)	(0.18)	(0.26)	(0.28)	(0.28)	(0.19)	(0.24)	(0.24)		
	TRS-TOTAL WORLD ex-USA - NET MGR			16.11	5.18	(20.32)	(24.52)	8.71	19.38	26.05	(20.32)	1.12	2.20		
	WORLD EX-USA CUSTOM BM			16.04	5.33	(15.26)	(17.73)	12.39	8.32	22.91	(15.26)	1.05	1.59	5.03	5.07
	EXCESS RETURN			0.07	(0.15)	(5.06)	(6.79)	(3.69)	11.05	3.15	(5.06)	0.07	0.61	0.90	1.02
106	TRS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - GROSS	5,807	6.44	16.45	5.66	(20.90)	(25.98)	7.09	23.66	27.98	(20.90)	1.56	3.00	4.52	11/01/2013
	ESTIMATED INVESTMENT FEES			(0.08)	(0.15)	(0.22)	(0.20)	(0.30)	(0.34)	(0.35)	(0.22)	(0.28)	(0.29)	(0.29)	
	TRS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - NET MGR			16.37	5.51	(21.12)	(26.19)	6.79	23.31	27.62	(21.12)	1.28	2.71	4.23	
	NYC CUSTOM WORLD EX-USA LG & MID ACT INDEX			16.18	5.50	(14.29)	(16.76)	12.62	7.59	22.49	(14.29)	1.27	1.79	3.18	
	EXCESS RETURN			0.18	0.01	(6.83)	(9.43)	(5.83)	15.73	5.13	(6.83)	0.01	0.92	1.05	
116	TRS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - GROSS	803	0.89	16.54	5.49	(20.69)	(23.55)	16.97	15.42	22.84	(20.69)	2.31	1.37	6.77	05/01/2013
	ESTIMATED INVESTMENT FEES			(0.13)	(0.24)	(0.34)	(0.33)	(0.51)	(0.52)	(0.54)	(0.34)	(0.45)	(0.45)		
	TRS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - NET MGR			16.41	5.25	(21.03)	(23.87)	16.46	14.90	22.30	(21.03)	1.86	0.92		
	S&P EPAC SMALL CAP USD NET			17.12	3.80	(22.69)	(26.27)	8.06	13.78	23.71	(22.69)	(1.68)	(0.87)	4.70	
	EXCESS RETURN			(0.71)	1.46	1.67	2.40	8.40	1.11	(1.41)	1.67	3.53	1.79	2.07	
126	TRS-TOTAL WORLD ex-USA SMALL CAP PASSIVE - GROSS	424	0.47	14.85	3.91	(21.25)	(23.36)	11.26	13.80	25.61	(21.25)	(0.10)	0.59	4.75	02/01/2014
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)	(0.02)	(0.03)	(0.04)	(0.03)	
	TRS-TOTAL WORLD ex-USA SMALL CAP PASSIVE - NET MGR			14.85	3.90	(21.27)	(23.38)	11.23	13.77	25.56	(21.27)	(0.13)	0.55	4.72	
	WORLD EX USA SC PASSIVE CUSTOM BM			15.21	4.31	(20.58)	(23.02)	11.14	12.78	25.41	(20.58)	(0.15)	0.45	4.45	
	EXCESS RETURN			(0.36)	(0.41)	(0.69)	(0.36)	0.09	0.98	0.15	(0.69)	0.03	0.10	0.27	
136	TRS-TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE - GROSS	1,063	1.18	15.38	4.40	(15.63)	(17.41)	12.52	8.43	22.69	(15.63)	0.97	1.77	4.80	07/01/2011
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)		
	TRS-TOTAL WORLD ex-USA LARGE & MID CAP PASSIVE - NET MGR			15.37	4.39	(15.64)	(17.42)	12.51	8.41	22.67	(15.64)	0.96	1.76		
	NYC CUSTOM WORLD EX US INDEX			16.18	5.50	(14.29)	(16.76)	12.62	7.59	22.49	(14.29)	1.27	1.79	4.72	3.93
	EXCESS RETURN			(0.81)	(1.11)	(1.35)	(0.66)	(0.12)	0.83	0.18	(1.35)	(0.31)	(0.03)	0.07	0.11



Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2022	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date	
EQUITY RETURN SUMMARY																
148	TRS-TOTAL EMERGING MARKETS - GROSS	8,183	9.08	10.66	(1.43)	(21.77)	(28.02)	(0.24)	17.61	16.30	(21.77)	(2.82)	(1.63)	0.84	0.22	02/01/2011
	ESTIMATED INVESTMENT FEES			(0.10)	(0.23)	(0.33)	(0.28)	(0.40)	(0.39)	(0.37)	(0.33)	(0.37)	(0.35)			
	TRS-TOTAL EMERGING MARKETS - NET MGR			10.56	(1.66)	(22.10)	(28.30)	(0.64)	17.22	15.93	(22.10)	(3.19)	(1.97)			
	TRS CUSTOM EM INDEX			9.70	(2.99)	(20.09)	(25.28)	(2.54)	18.31	15.98	(20.09)	(2.69)	(1.54)	1.20		
	EXCESS RETURN			0.86	1.34	(2.01)	(3.02)	1.90	(1.09)	(0.04)	(2.01)	(0.50)	(0.43)	(0.36)		
158	TRS-TOTAL ACTIVE EMERGING MARKETS - GROSS	6,869	7.62	10.94	(1.11)	(21.95)	(28.39)	0.07	16.37	16.47	(21.95)	(3.13)	(1.87)	0.85	1.17	04/01/2012
	ESTIMATED INVESTMENT FEES			(0.12)	(0.27)	(0.38)	(0.31)	(0.45)	(0.53)	(0.51)	(0.38)	(0.45)	(0.44)			
	TRS-TOTAL ACTIVE EMERGING MARKETS - NET MGR			10.82	(1.38)	(22.33)	(28.70)	(0.38)	15.84	15.96	(22.33)	(3.58)	(2.32)			
	TRS CUSTOM EM INDEX			9.70	(2.99)	(20.09)	(25.28)	(2.54)	18.31	15.98	(20.09)	(2.69)	(1.54)	1.20	1.39	
	EXCESS RETURN			1.12	1.62	(2.24)	(3.41)	2.16	(2.46)	(0.02)	(2.24)	(0.89)	(0.78)	(0.34)	(0.22)	
168	TRS-TOTAL PASSIVE EMERGING MARKETS - GROSS	1,314	1.46	9.21	(3.00)	(19.87)	(25.35)	(2.47)	18.17	15.74	(19.87)	(2.62)	(1.41)	0.68	0.02	04/01/2011
	ESTIMATED INVESTMENT FEES			(0.01)	(0.01)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)			
	TRS-TOTAL PASSIVE EMERGING MARKETS - NET MGR			9.20	(3.02)	(19.89)	(25.38)	(2.50)	18.14	15.70	(19.89)	(2.64)	(1.43)			
	TRS CUSTOM EM PASSIVE INDEX			9.70	(2.99)	(20.09)	(25.28)	(2.54)	18.31	15.98	(20.09)	(2.69)	(1.45)			
	EXCESS RETURN			(0.50)	(0.02)	0.20	(0.09)	0.04	(0.17)	(0.27)	0.20	0.05	0.01			
178	TRS-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	653	0.72	14.28	3.50	(19.50)	(22.64)	10.27	13.94	24.43	(19.50)	0.38	1.34	3.69	05/01/2017	
	ESTIMATED INVESTMENT FEES			(0.14)	(0.26)	(0.40)	(0.38)	(0.68)	(0.59)	(0.63)	(0.40)	(0.55)	(0.54)	(0.55)		
	TRS-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR			14.13	3.24	(19.90)	(23.02)	9.59	13.34	23.79	(19.90)	(0.17)	0.80	3.14		
	NYC BLENDED CUSTOM BENCHMARK FOR FOF (TRS)			14.15	3.09	(16.58)	(19.86)	8.53	11.44	21.62	(16.58)	0.29	0.99	3.34		
	EXCESS RETURN			(0.01)	0.15	(3.32)	(3.17)	1.06	1.91	2.18	(3.32)	(0.46)	(0.18)	(0.20)		
188	TRS-TOTAL GLOBAL EQUITY - GROSS	851	0.94	11.69	5.64	(25.10)	(23.42)	22.67	21.32	34.96	(25.10)	3.69		7.75	08/01/2018	
	ESTIMATED INVESTMENT FEES			(0.14)	(0.27)	(0.39)	(0.42)	(0.70)	(0.70)	(0.85)	(0.39)	(0.58)		(0.61)		
	TRS-TOTAL GLOBAL EQUITY - NET MGR			11.55	5.37	(25.49)	(23.83)	21.97	20.62	34.11	(25.49)	3.11		7.14		
	MSCI WORLD INDEX			9.77	2.97	(18.14)	(14.34)	21.82	15.90	27.67	(18.14)	4.94		6.13		
	EXCESS RETURN			1.78	2.40	(7.35)	(9.49)	0.16	4.72	6.44	(7.35)	(1.83)		1.01		

Consolidated Performance Report



Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2022	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date	
ALTERNATIVE EQUITY RETURN DETAIL																
200	TRS-TOTAL REAL ESTATE SECURITIES - GROSS	-							24.92						01/01/2003	
	ESTIMATED INVESTMENT FEES								(0.50)							
	TRS-TOTAL REAL ESTATE SECURITIES - NET MGR								24.42							
	DJ US SELECT REAL ESTATE SECURITIES INDEX					(6.41)		(11.20)	23.10							
	EXCESS RETURN								1.31							
210	TRS-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - GROSS	7,696	8.54	0.71	(2.50)	4.56	28.95	48.10	19.19	13.28	4.56	22.66	19.89	16.05	14.12	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.52)	(1.07)	(2.04)	(3.30)	(3.97)	(1.11)	(1.21)	(2.04)	(2.28)	(1.76)			
	TRS-TOTAL PRIVATE EQUITY (TIME WEIGHTED) - NET MGR			0.19	(3.57)	2.51	25.65	44.13	18.08	12.07	2.51	20.38	18.13			
	NYC R3000 +3% LAGGED			(3.74)	(19.19)	(15.11)	15.25	35.74	18.42	6.00	(15.11)	10.92	11.86	14.64	12.71	
	EXCESS RETURN			3.93	15.62	17.63	10.40	8.38	(0.34)	6.06	17.63	9.47	6.27	1.41	1.40	
220	TRS-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED) - GROSS	5,590	6.20	1.07	3.37	18.67	31.26	23.44	0.23	5.43	18.67	13.66	11.47	12.15	10.36	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.49)	(0.80)	(1.98)	(2.46)	(1.83)	(0.69)	(0.78)	(1.98)	(1.45)	(1.12)			
	TRS-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED) - NET MGR			0.58	2.57	16.69	28.80	21.61	(0.45)	4.65	16.69	12.21	10.34			
	NCREIF NFI-ODCE NET + 100 BP			(4.93)	(4.39)	7.61	29.57	22.21	1.35	5.43	7.61	10.05	8.79	10.19		
	EXCESS RETURN			5.50	6.96	9.08	(0.76)	(0.59)	(1.80)	(0.78)	9.08	2.16	1.56	1.96		
230	TRS-TOTAL INFRASTRUCTURE (TIME WEIGHTED) - GROSS	1,932	2.14	2.97	3.68	13.72	17.45	18.02	9.70	13.40	13.72	13.77	14.07	14.42	12/01/2013	
	ESTIMATED INVESTMENT FEES			(1.67)	(2.28)	(3.82)	(3.07)	(2.86)	(1.26)	(1.34)	(3.82)	(2.63)	(2.09)	(2.62)		
	TRS-TOTAL INFRASTRUCTURE (TIME WEIGHTED) - NET MGR			1.30	1.40	9.90	14.38	15.16	8.44	12.06	9.90	11.13	11.98	11.79		
	CPI + 4%			1.82	3.46	10.70	13.29	11.48	5.37	6.41	10.70	9.15	7.98	6.84		
	EXCESS RETURN			(0.52)	(2.06)	(0.80)	1.09	3.68	3.06	5.66	(0.80)	1.98	4.00	4.96		



Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2022	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN SUMMARY															
242 TRS-TOTAL FIXED INCOME - GROSS	34,826	38.64	1.65	(2.02)	(10.69)	(7.79)	0.38	9.59	10.16	(10.69)	(0.59)	1.56	2.60	7.30	02/01/1980
ESTIMATED INVESTMENT FEES			(0.02)	(0.05)	(0.08)	(0.08)	(0.09)	(0.11)	(0.12)	(0.08)	(0.09)	(0.10)			
EST MANAGEMENT FEES			(0.02)	(0.05)	(0.08)	(0.08)	(0.09)	(0.11)	(0.12)	(0.08)	(0.09)	(0.10)			
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
TRS-TOTAL FIXED INCOME - NET MGR			1.63	(2.06)	(10.77)	(7.87)	0.29	9.48	10.04	(10.77)	(0.68)	1.46			
250 TRS-TOTAL FIXED INCOME (ex OFI & CASH) - GROSS	30,021	33.31	1.82	(2.25)	(12.26)	(9.57)	(0.89)	10.35	10.68	(12.26)	(1.36)	1.07		2.35	11/01/2013
ESTIMATED INVESTMENT FEES			(0.02)	(0.04)	(0.07)	(0.07)	(0.08)	(0.11)	(0.12)	(0.07)	(0.08)	(0.09)		(0.13)	
EST MANAGEMENT FEES			(0.02)	(0.04)	(0.07)	(0.07)	(0.08)	(0.11)	(0.12)	(0.07)	(0.08)	(0.09)		(0.13)	
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
TRS-TOTAL FIXED INCOME (ex OFI & CASH) - NET MGR			1.80	(2.29)	(12.33)	(9.64)	(0.97)	10.24	10.56	(12.33)	(1.45)	0.98		2.22	
258 TRS-TOTAL STRUCTURED FIXED INCOME - GROSS	21,437	23.79	1.34	(3.22)	(12.78)	(9.78)	(3.21)	12.32	10.50	(12.78)	(1.76)	0.78	1.83	6.61	01/01/1985
ESTIMATED INVESTMENT FEES			(0.01)	(0.02)	(0.03)	(0.03)	(0.04)	(0.05)	(0.05)	(0.03)	(0.04)	(0.04)			
TRS-TOTAL STRUCTURED FIXED INCOME - NET MGR			1.33	(3.24)	(12.81)	(9.81)	(3.25)	12.27	10.46	(12.81)	(1.79)	0.74			
NYC CUSTOM STRUCTURED INDEX-TRS			1.51	(3.31)	(12.88)	(9.75)	(3.01)	14.64	12.99	(12.88)	(1.05)	1.57	2.27		
EXCESS RETURN			(0.18)	0.07	0.07	(0.06)	(0.24)	(2.37)	(2.54)	0.07	(0.74)	(0.83)	(0.44)		
268 TRS-TOTAL GOVERNMENT - GROSS	12,409	13.77	0.47	(3.67)	(11.77)	(8.22)	(5.12)	13.36	10.19	(11.77)	(1.73)	0.69	1.33	6.30	01/01/1987
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.03)	(0.01)	(0.01)	(0.02)			
TRS-TOTAL GOVERNMENT - NET MGR			0.47	(3.67)	(11.78)	(8.23)	(5.13)	13.34	10.16	(11.78)	(1.74)	0.67			
CUSTOM GOVERNMENT BENCHMARK - TEACHERS			0.44	(3.99)	(12.19)	(8.26)	(4.62)	19.49	14.89	(12.19)	0.03	2.44	2.65		
EXCESS RETURN			0.03	0.32	0.41	0.04	(0.50)	(6.16)	(4.73)	0.41	(1.77)	(1.77)	(1.32)		
278 TRS-TOTAL MORTGAGE - GROSS	4,257	4.72	1.67	(3.48)	(12.04)	(9.21)	(1.10)	4.95	6.79	(12.04)	(2.99)	(0.31)	0.94	5.47	02/01/1987
ESTIMATED INVESTMENT FEES			(0.02)	(0.03)	(0.05)	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)	(0.06)			
TRS-TOTAL MORTGAGE - NET MGR			1.65	(3.51)	(12.10)	(9.28)	(1.16)	4.89	6.74	(12.10)	(3.05)	(0.37)			
NYC CUSTOM MORTGAGE BENCHMARK			2.14	(3.32)	(11.81)	(9.03)	(1.04)	3.91	6.68	(11.81)	(3.21)	(0.46)	0.77	5.30	
EXCESS RETURN			(0.49)	(0.19)	(0.29)	(0.25)	(0.12)	0.98	0.07	(0.29)	0.16	0.09	0.17	0.17	
288 TRS-TOTAL INVESTMENT GRADE CORPORATE - GROSS	4,771	5.29	3.36	(1.82)	(16.20)	(14.43)	(0.84)	10.21	14.49	(16.20)	(2.89)	0.50	2.12	6.12	01/01/1987
ESTIMATED INVESTMENT FEES			(0.02)	(0.04)	(0.06)	(0.06)	(0.09)	(0.11)	(0.12)	(0.06)	(0.08)	(0.09)			
TRS-TOTAL INVESTMENT GRADE CORPORATE - NET MGR			3.34	(1.86)	(16.26)	(14.49)	(0.93)	10.10	14.37	(16.26)	(2.97)	0.40			
NYC CUSTOM IGC BENCHMARK			3.63	(1.61)	(15.76)	(14.19)	(0.85)	9.70	13.40	(15.76)	(2.87)	0.38	1.76		
EXCESS RETURN			(0.29)	(0.25)	(0.50)	(0.30)	(0.08)	0.40	0.98	(0.50)	(0.10)	0.02	0.36		
298 TRS-TOTAL CORE FI- DEVELOPING MGRS - GROSS	252	0.28	1.94	(2.24)	(12.51)	(10.44)	(0.85)	9.24	10.11	(12.51)	(1.78)	0.64		1.43	06/01/2015
ESTIMATED INVESTMENT FEES			(0.05)	(0.09)	(0.16)	(0.16)	(0.18)	(0.20)	(0.21)	(0.16)	(0.18)	(0.19)		(0.19)	
TRS-TOTAL CORE FI- DEVELOPING MGRS - NET MGR			1.89	(2.34)	(12.67)	(10.61)	(1.04)	9.03	9.90	(12.67)	(1.96)	0.46		1.24	
BLOOMBERG U.S. AGGREGATE			1.87	(2.97)	(13.01)	(10.29)	(1.54)	7.51	8.72	(13.01)	(2.71)	0.02	0.76		
EXCESS RETURN			0.02	0.63	0.34	(0.31)	0.51	1.53	1.19	0.34	0.75	0.62		0.67	



Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	FYE 2022	CYE 2021	CYE 2020	CYE 2019	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
FIXED INCOME RETURN SUMMARY															
320 TRS-TOTAL TIPS - GROSS	3,100	3.44	1.99	(3.28)	(11.85)	(5.12)	5.87	11.12	8.46	(11.85)	1.22	2.12	1.14	3.41	06/01/2005
ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)			
TRS-TOTAL TIPS - NET MGR			1.99	(3.29)	(11.87)	(5.14)	5.85	11.09	8.44	(11.87)	1.20	2.10			
BLOOMBERG GLOBAL INFL-LINKED: U.S. TIPS			2.04	(3.21)	(11.85)	(5.14)	5.96	10.99	8.43	(11.85)	1.21	2.11	1.12	3.30	
EXCESS RETURN			(0.05)	(0.08)	(0.02)	0.00	(0.10)	0.10	0.01	(0.02)	(0.01)	(0.01)	0.03	0.11	
340 TRS-TOTAL TARGETED INVESTMENTS (NO CASH) - GROSS	617	0.68	1.27	(2.58)	(11.33)	(8.82)	(0.51)	6.90	8.81	(11.33)	(1.93)	0.72	2.25	7.05	12/01/1984
ESTIMATED INVESTMENT FEES			(0.05)	(0.10)	(0.17)	(0.17)	(0.18)	(0.20)	(0.21)	(0.17)	(0.18)	(0.20)	(0.23)	(0.14)	
TRS-TOTAL TARGETED INVESTMENTS (NO CASH) - NET MGR			1.21	(2.67)	(11.49)	(8.99)	(0.69)	6.70	8.60	(11.49)	(2.12)	0.52	2.02	6.92	
TEACHERS CUSTOM BENCHMARK (NO CASH)			2.00	(2.76)	(11.49)	(9.03)	(1.15)	5.98	7.65	(11.49)	(2.49)	0.13	1.16		
EXCESS RETURN			(0.78)	0.09	(0.00)	0.04	0.46	0.72	0.95	(0.00)	0.37	0.39	0.86		
350 TRS-TOTAL HIGH YIELD - GROSS	4,613	5.12	4.09	3.48	(10.18)	(11.72)	6.04	7.47	15.22	(10.18)	0.78	2.92	4.15	5.50	08/01/1998
ESTIMATED INVESTMENT FEES			(0.08)	(0.16)	(0.27)	(0.26)	(0.33)	(0.35)	(0.36)	(0.27)	(0.31)	(0.32)			
TRS-TOTAL HIGH YIELD - NET MGR			4.01	3.32	(10.45)	(11.99)	5.71	7.12	14.86	(10.45)	0.47	2.60			
HIGH YIELD CUSTOM BENCHMARK			4.17	3.50	(11.18)	(12.82)	5.26	7.05	14.32	(11.18)	0.03	2.24	3.74	5.13	
EXCESS RETURN			(0.16)	(0.18)	0.73	0.84	0.45	0.07	0.54	0.73	0.44	0.35	0.41	0.37	
360 TRS- TOTAL BANK LOANS - GROSS	1	-					(7.84)	1.39	7.94						11/01/2012
ESTIMATED INVESTMENT FEES							(0.29)	(0.29)	(0.34)						
TRS-TOTAL BANK LOANS - NET MGR							(8.13)	1.10	7.60						
CSFB LEVERAGED LOAN INDEX						(2.68)	5.40	2.78	8.17						
EXCESS RETURN							(13.53)	(1.68)	(0.57)						
370 TRS-TOTAL OPPORTUNISTIC FIXED INCOME - GROSS	3,368	3.74	0.02	(0.68)	0.96	8.50	18.09	5.21	5.28	0.96	7.85	7.03	7.45	7.15	10/01/2007
ESTIMATED INVESTMENT FEES			(0.05)	(0.15)	(0.26)	(0.26)	(0.29)	(0.15)	(0.18)	(0.26)	(0.23)	(0.20)			
TRS-TOTAL OPPORTUNISTIC FIXED INCOME - NET MGR			(0.03)	(0.83)	0.70	8.24	17.81	5.06	5.10	0.70	7.61	6.83			
OPPORTUNISTIC FIXED INCOME JPMGHY / CSFB 50/50 BLEND PLUS 300			4.10	5.22	(2.79)	(4.95)	8.29	7.22	14.66	(2.79)	4.12	5.79	7.05	8.18	
EXCESS RETURN			(4.13)	(6.05)	3.48	13.19	9.51	(2.17)	(9.56)	3.48	3.49	1.04	0.40	(1.03)	
CASH SUMMARY															
382 Short Term TRS - GROSS	1,437	1.59	0.92	1.27	1.24	(0.03)	0.08	0.56	2.25	1.24	0.63	1.22	0.91		04/01/1982
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 TRS - NET MGR			0.92	1.27	1.24	(0.03)	0.08	0.56	2.25	1.24	0.63	1.22	0.91		
386 Cash Account	0	0.00													
388 Securities Lending	0	0.00													
390 KKR Cash Account															



**Teachers' Retirement System
of New York City**

Appendix B

Public Markets Manager Performance Detail

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
EQUITY SUMMARY										
US EQUITY										
Cooke and Bieler-US SCV	118	0.13	12.04	4.14	(17.98)	17.89	9.36			
RUSSELL 2000 VALUE DAILY			8.42	3.42	(14.48)	28.27	4.63			
Excess			3.62	0.72	(3.50)	(10.38)	4.73			
T Rowe Price-US SCV	121	0.13	5.79	2.22	(18.54)	23.26				
RUSSELL 2000 VALUE DAILY			8.42	3.42	(14.48)	28.27				
Excess			(2.63)	(1.19)	(4.06)	(5.01)				
PanAgora-US SCC	223	0.25	10.26	7.92	(17.32)	21.35	14.49			
RUSSELL 2000 (DAILY)			6.23	3.91	(20.44)	14.82	19.96			
Excess			4.03	4.01	3.12	6.53	(5.47)			
Wellington-US SCC	101	0.11	5.90	3.85	(24.16)					
RUSSELL 2000 (DAILY)			6.23	3.91	(20.44)					
Excess			(0.33)	(0.06)	(3.73)					
BlackRock US SCG R2000	10	0.01	5.17	5.16	(26.13)	5.02	34.23	28.70	(9.26)	22.34
RUSSELL 2000 GROWTH DAILY			4.13	4.38	(26.36)	2.83	34.63	28.48	(9.31)	22.17
Excess			1.04	0.78	0.22	2.18	(0.41)	0.22	0.05	0.18
BlackRock US SCV R2000	232	0.26	8.73	3.70	(15.36)	27.54	4.81	22.73	(12.74)	7.86
RUSSELL 2000 VALUE DAILY			8.42	3.42	(14.48)	28.27	4.63	22.39	(12.86)	7.84
Excess			0.32	0.28	(0.88)	(0.74)	0.18	0.34	0.13	0.02
Brown Asset Mgmt US SCG	392	0.43	(2.54)	(5.31)	(37.62)	(3.56)	45.20	30.13	1.18	29.74
RUSSELL 2000 GROWTH DAILY			4.13	4.38	(26.36)	2.83	34.63	28.48	(9.31)	22.17
Excess			(6.67)	(9.69)	(11.27)	(6.39)	10.56	1.64	10.49	7.57
BlackRock US LMC R1000 Core	17,460	19.37	7.06	1.90	(19.91)	26.37	21.08	31.38		
RUSSELL 1000 (DAILY)			7.24	2.30	(19.13)	26.45	20.96	31.43		
Excess			(0.18)	(0.40)	(0.79)	(0.09)	0.11	(0.05)		

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
Earnest-US MCC	150	0.17	8.85	2.20						
RUSSELL MIDCAP (DAILY)			9.18	5.43						
Excess			(0.33)	(3.23)						
MFS-US MCG	189	0.21	7.58	2.88						
RUSSELL MIDCAP GROWTH (DAILY)			6.90	6.20						
Excess			0.67	(3.32)						
Westfield-US MCG	181	0.20	6.85	3.17						
RUSSELL MIDCAP GROWTH (DAILY)			6.90	6.20						
Excess			(0.05)	(3.03)						
Cooke and Bieler-US MCV	215	0.24	13.48	2.34						
RUSSELL MIDCAP VALUE (DAILY)			10.45	5.01						
Excess			3.02	(2.67)						
Victory-US MCV	237	0.26	13.59	9.40						
RUSSELL MIDCAP VALUE (DAILY)			10.45	5.01						
Excess			3.13	4.39						
SSGA-US LC Russell TOP 200 Core	2,514	2.79	6.39	0.50						
RUSSELL TOP 200 INDEX (DAILY)			6.56	1.22						
Excess			(0.18)	(0.72)						
INTERNATIONAL FOF										
FUND OF FUNDS										
TOTAL FUNDS OF FUNDS	152	0.17	5.70	4.56	(16.35)	24.89	19.36	23.40	(8.24)	
RUSSELL 2000 (DAILY)			6.23	3.91	(20.44)	14.82	19.96	25.52	(11.01)	
Excess			(0.53)	0.65	4.09	10.07	(0.60)	(2.13)	2.77	
TRS-TOTAL LEGATO	152	0.17	5.70	4.56	(16.35)	24.89	19.36	23.40	(8.17)	
RUSSELL 2000 (DAILY)			6.23	3.91	(20.44)	14.82	19.96	25.52	(11.01)	
Excess			(0.53)	0.65	4.09	10.07	(0.60)	(2.13)	2.84	

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
NON - US EQUITY										
Causeway WorldxUS LMCC	1,424	1.58	21.33	8.48	(7.75)	11.10	2.49	24.15	(18.74)	26.91
NYC Developed Value Benchmark ^[1]			16.18	5.50	(14.29)	12.62	7.59	22.49	(14.09)	22.77
Excess			5.14	2.98	6.55	(1.52)	(5.09)	1.66	(4.65)	4.15
Sprucegrove WorldxUS LMCC	1,497	1.66	17.46	6.13	(11.52)	8.57	4.07	20.72	(14.09)	26.17
NYC Developed Value Benchmark ^[1]			16.18	5.50	(14.29)	12.62	7.59	22.49	(14.09)	22.77
Excess			1.27	0.63	2.77	(4.05)	(3.52)	(1.77)	(0.00)	3.40
Baillie Gifford WorldxUS LMCC	1,242	1.38	12.57	2.77	(38.93)	(2.83)	59.46	36.88	(14.96)	39.93
NYC Developed Growth Benchmark ^[2]			16.18	5.50	(14.29)	12.62	7.59	22.49	(14.09)	27.77
Excess			(3.62)	(2.73)	(24.64)	(15.45)	51.87	14.39	(0.87)	12.16
Walter Scott WorldxUS LMCC	1,643	1.82	14.27	4.58	(21.44)	13.17	19.92	27.75	(7.69)	27.53
NYC Developed Growth Benchmark ^[2]			16.18	5.50	(14.29)	12.62	7.59	22.49	(14.09)	27.77
Excess			(1.92)	(0.92)	(7.14)	0.54	12.34	5.25	6.40	(0.24)
Acadian WorldxUS SCC	448	0.50	16.46	5.36	(19.95)	19.94	14.96	20.79	(19.67)	38.42
S&P EPAC Small Cap USD NET			17.12	3.80	(22.69)	8.06	13.78	23.71	(18.58)	33.47
Excess			(0.66)	1.57	2.75	11.88	1.17	(2.92)	(1.09)	4.96
Fidelity WorldxUS SCC	232	0.26	15.87	4.59	(22.67)	12.90	17.77	25.49	(18.23)	31.25
S&P EPAC Small Cap USD NET			17.12	3.80	(22.69)	8.06	13.78	23.71	(18.58)	33.47
Excess			(1.24)	0.79	0.02	4.84	3.98	1.78	0.35	(2.21)
Algert EAFE SCC	123	0.14	17.24	6.12	(21.74)	11.63	9.66			
MSCI EAFE SMALL CAP NET (DAILY)			15.79	4.41	(21.39)	10.10	12.34			
Excess			1.45	1.72	(0.35)	1.53	(2.68)			
SSGA WorldxUS LMC NYC Custom IDX	1,063	1.18	15.37	4.39	(15.64)	12.51	8.41	22.67	(13.55)	24.51
NYC Custom World ex US Index ^[3]			16.18	5.50	(14.29)	12.62	7.59	22.49	(14.09)	24.12
Excess			(0.81)	(1.11)	(1.35)	(0.12)	0.83	0.18	0.54	0.40

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
SSGA WorldxUS SC Custom IDX ⁽⁴⁾	424	0.47	14.85	3.90	(21.27)	11.23	13.77	25.56	(17.82)	33.64
World ex USA SC PASSIVE CUSTOM BM ⁽⁵⁾			15.21	4.31	(20.58)	11.14	12.78	25.41	(18.07)	33.31
Excess			(0.36)	(0.41)	(0.69)	0.09	0.98	0.15	0.25	0.33
EMERGING MARKETS										
Acadian EM	1,443	1.60	12.68	(2.34)	(19.47)	9.37	13.62	19.36		
TRS Custom EM Index ⁽⁶⁾			9.70	(2.99)	(20.09)	(2.54)	18.31	15.98		
Excess			2.97	0.65	0.62	11.91	(4.68)	3.38		
AQR-EM SCC	393	0.44	12.13	3.55	(15.05)	21.19				
MSCI EM Small Cap - Net Return			8.20	2.52	(18.02)	18.75				
Excess			3.93	1.03	2.97	2.44				
Baillie Gifford EM	1,804	2.00	11.14	(2.89)	(29.91)	(8.43)	30.48	23.71	(14.39)	41.33
TRS Custom EM Index ⁽⁶⁾			9.70	(2.99)	(20.09)	(2.54)	18.31	15.98	(13.39)	34.19
Excess			1.44	0.10	(9.81)	(5.89)	12.18	7.73	(1.00)	7.13
DFA EM	1,479	1.64	11.06	(0.68)	(12.30)	11.45	4.07	9.16	(13.17)	34.29
TRS Custom EM Index ⁽⁶⁾			9.70	(2.99)	(20.09)	(2.54)	18.31	15.98	(13.39)	34.19
Excess			1.36	2.31	7.79	14.00	(14.23)	(6.82)	0.23	0.09
Parametric EM	0	0.00						10.51	(14.52)	32.02
TRS Custom EM Index ⁽⁶⁾								15.98	(13.39)	34.19
Excess								(5.47)	(1.12)	(2.17)
RBC-EM ACG	741	0.82	13.49	1.42	(13.64)	(3.65)				
MSCI EMERGING MARKETS			9.70	(2.99)	(20.09)	(2.54)				
Excess			3.79	4.41	6.45	(1.11)				
Sands-EM LCG	459	0.51	2.34	(2.24)	(34.22)	(8.99)				
MSCI EMERGING MARKETS			9.70	(2.99)	(20.09)	(2.54)				
Excess			(7.36)	0.76	(14.13)	(6.45)				

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
UBS-EM ACC	550	0.61	7.68	(2.12)	(24.77)	(9.24)				
MSCI EMERGING MARKETS			9.70	(2.99)	(20.09)	(2.54)				
Excess			(2.02)	0.87	(4.68)	(6.69)				
BlackRock MSCI EM Core	1,314	1.46	9.20	(3.02)	(19.89)	(2.50)	18.14	15.70	(12.87)	32.99
TRS Custom EM Passive Index ^[7]			9.70	(2.99)	(20.09)	(2.54)	18.31	15.98	(12.99)	33.05
Excess			(0.50)	(0.02)	0.20	0.04	(0.17)	(0.27)	0.12	(0.05)
TRS-TOTAL INTERNATIONAL FOF	653	0.72	14.13	3.24	(19.90)	9.59	13.34	23.79	(15.50)	
NYC Blended Custom Benchmark for FoF (TRS) ^[8]			14.15	3.09	(16.58)	8.53	11.44	21.62	(14.39)	
Excess			(0.01)	0.15	(3.32)	1.06	1.91	2.18	(1.11)	
TRS-TOTAL INTERNATIONAL BIVIUM	225	0.25	16.05	3.87	(18.84)	11.52	12.42	25.83	(18.16)	
NYC Blended Custom Benchmark for FoF (TRS) ^[8]			14.15	3.09	(16.58)	8.53	11.44	21.62	(14.39)	
Excess			1.91	0.78	(2.25)	3.00	0.98	4.21	(3.77)	
TRS-TOTAL INTERNATIONAL XPONANCE	225	0.25	13.56	3.90	(17.65)	8.79	15.00	21.96	(14.12)	
NYC Blended Custom Benchmark for FoF (TRS) ^[8]			14.15	3.09	(16.58)	8.53	11.44	21.62	(14.39)	
Excess			(0.59)	0.81	(1.07)	0.26	3.57	0.34	0.27	
TRS-TOTAL INTERNATIONAL LEADING EDGE	203	0.22	12.79	1.92	(23.27)	8.43	12.62	23.62	(14.15)	
NYC Blended Custom Benchmark for FoF (TRS) ^[8]			14.15	3.09	(16.58)	8.53	11.44	21.62	(14.39)	
Excess			(1.36)	(1.16)	(6.69)	(0.09)	1.18	2.01	0.24	
GLOBAL EQUITY										
Fiera-Global	331	0.37	12.86	5.70	(17.90)	26.22	20.62	34.11		
MSCI World Index			9.77	2.97	(18.14)	21.82	15.90	27.67		
Excess			3.09	2.73	0.24	4.40	4.72	6.44		
Nordea-Global MCG	187	0.21	10.71	4.37						
MSCI World Index			9.77	2.97						
Excess			0.94	1.40						

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
Morgan Stanley-Global	141	0.16	5.24	1.88	(40.38)					
MSCI AC WORLD (Daily Const)			9.76	2.28	(18.36)					
Excess			(4.52)	(0.39)	(22.01)					
Pictet-Global ACC	193	0.21								
MSCI World Index										
Excess										
REAL ESTATE SECURITIES										
TRS-TOTAL MORGAN STANLEY REITS	0	0.00						19.02	(7.88)	9.25
Morgan Stanley Custom RESI Index								23.10	(4.22)	8.64
Excess								(4.08)	(3.66)	0.62
FIXED INCOME SUMMARY										
STRUCTURED FIXED INCOME										
BlackRock Mortgages	2,266	2.51	1.78	(3.32)	(11.66)	(0.93)	5.00	6.88	1.00	2.63
NYC Custom Mortgage Benchmark ⁽⁹⁾			2.14	(3.32)	(11.81)	(1.04)	3.91	6.68	1.01	2.47
Excess			(0.36)	(0.00)	0.15	0.11	1.09	0.21	(0.01)	0.16
BlackRock Mortgages NA	2	0.00								
NYC Custom Mortgage Benchmark ⁽⁹⁾										
Excess										
PIMCO MORT	1,216	1.35	1.47	(3.79)	(12.93)	(1.64)				
Bloomberg US Mortgage Backed Securities			2.14	(3.32)	(11.81)	(1.04)				
Excess			(0.68)	(0.46)	(1.12)	(0.59)				
Ramirez-Mortgages - Bivium	35	0.04								
Bloomberg US Mortgage Backed Securities										
Excess										

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
Semper-Mortgages - Bivium	35	0.04								
Bloomberg US Mortgage Backed Securities										
Excess										
Wellington Mortgages	703	0.78	1.62	(3.55)	(11.90)	(0.95)				
Bloomberg US Mortgage Backed Securities			2.14	(3.32)	(11.81)	(1.04)				
Excess			(0.52)	(0.23)	(0.09)	0.09				
BlackRock Corporate	1	0.00					10.12	14.06	(1.99)	6.31
NYC Custom IGC Benchmark ^[10]							9.70	13.40	(1.90)	6.04
Excess							0.42	0.66	(0.09)	0.27
Neuberger Berman-Corporate	1,351	1.50	3.49	(1.48)	(16.17)					
Bloomberg U.S. Corporate Inv Grade			3.63	(1.61)	(15.76)					
Excess			(0.15)	0.13	(0.41)					
Pinebridge-Corporate	739	0.82	3.08	(2.22)	(15.64)					
NYC Custom IGC Benchmark ^[10]			3.63	(1.61)	(15.76)					
Excess			(0.55)	(0.62)	0.12					
T Rowe Price-Corporate	1,769	1.96	3.35	(2.03)	(16.53)	(0.68)	9.63	14.61	(2.41)	6.85
NYC Custom IGC Benchmark ^[10]			3.63	(1.61)	(15.76)	(0.85)	9.70	13.40	(1.90)	6.04
Excess			(0.29)	(0.42)	(0.76)	0.17	(0.07)	1.22	(0.51)	0.81
Voya-Corporate	841	0.93	3.47	(1.63)	(16.26)					
Bloomberg U.S. Corporate Inv Grade			3.63	(1.61)	(15.76)					
Excess			(0.17)	(0.02)	(0.49)					
Barksdale-Credit - Bivium	20	0.02								
Bloomberg U.S. Corporate Inv Grade										
Excess										

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
Ducenta Squared-Credit - Bivium	25	0.03								
Bloomberg U.S. Corporate Inv Grade										
Excess										
Integrity-Credit - Bivium	25	0.03								
Bloomberg U.S. Corporate Inv Grade										
Excess										
New Century-IT Treasury - Bivium	30	0.03								
NYC - Treasury Agency Plus Five										
Excess										
HGK Asset Management-IT Treasury- Bivium	30	0.03								
NYC - Treasury Agency Plus Five										
Excess										
SSGA LI Treasury	93	0.10	(0.04)	(6.96)	(20.75)	(3.76)	13.46	10.50	(0.20)	5.13
NYC - Treasury Agency Plus Five			0.02	(7.25)	(20.58)	(3.78)	12.85	10.40	(0.05)	4.66
Excess			(0.06)	0.28	(0.17)	0.02	0.60	0.11	(0.15)	0.48
BlackRock LI Treasury	53	0.06	0.05	(6.92)	(20.61)	(3.85)	12.37	10.35	(0.18)	4.97
NYC - Treasury Agency Plus Five			0.02	(7.25)	(20.58)	(3.78)	12.85	10.40	(0.05)	4.66
Excess			0.04	0.33	(0.03)	(0.07)	(0.49)	(0.05)	(0.13)	0.31
SSGA ST Treasury 1-3Y	1,624	1.80	0.70	(0.79)	(3.65)	(0.60)	2.63	3.56	1.51	0.40
FTSE US Government Bond 1-3 Years Index			0.69	(0.88)	(3.74)	(0.58)	3.09	3.56	1.56	0.42
Excess			0.00	0.09	0.09	(0.03)	(0.46)	0.00	(0.05)	(0.02)
SSGA LT Treasury 10Y Plus	2,144	2.38	(1.38)	(10.88)	(29.60)	(4.87)	17.63	14.88	(1.84)	8.44
FTSE US Government Bond 10+ Years Index			(1.24)	(11.39)	(29.75)	(4.63)	17.72	14.89	(1.89)	8.60
Excess			(0.14)	0.51	0.15	(0.24)	(0.09)	(0.01)	0.05	(0.17)

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
SSGA IT Treasury 1-10Y ⁽¹⁾	8,434	9.36	0.90	(2.19)	(7.77)	(1.78)	5.74	5.08	2.05	
USBIG TSY AGN 1-10			0.87	(2.31)	(7.79)	(1.66)	5.72	5.18	1.42	
Excess			0.03	0.12	0.01	(0.12)	0.03	(0.09)	0.63	
Brigade High Yield	605	0.67	2.12	0.18	(13.16)	8.58	7.70	15.73		
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32		
Excess			(2.05)	(3.32)	(1.98)	3.32	0.65	1.41		
Eaton Vance High Yield	751	0.83	3.99	3.74	(9.36)	4.83	5.86	14.52		
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32		
Excess			(0.17)	0.24	1.82	(0.43)	(1.18)	0.21		
Neuberger Berman High Yield	764	0.85	4.21	3.88	(11.14)	4.38	6.07	14.16	(2.01)	5.74
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32	(2.08)	7.50
Excess			0.04	0.38	0.04	(0.88)	(0.98)	(0.16)	0.08	(1.76)
Nomura High Yield	615	0.68	4.48	3.66	(10.81)	6.55	8.45	13.99		
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32		
Excess			0.31	0.16	0.37	1.29	1.41	(0.33)		
Oaktree High Yield	480	0.53	5.07	4.37	(9.70)	4.71	7.22	14.01	(3.49)	5.75
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32	(2.08)	7.50
Excess			0.90	0.87	1.48	(0.55)	0.18	(0.31)	(1.41)	(1.75)
Stone Harbor High Yield	0	0.00							(2.65)	5.85
Bloomberg U.S. HY - 2% Issuer Cap									(2.08)	7.50
Excess									(0.56)	(1.65)
T Rowe Price High Yield	613	0.68	4.40	3.95	(10.96)	6.20	7.16	15.55	(2.30)	7.70
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32	(2.08)	7.50
Excess			0.23	0.44	0.22	0.94	0.11	1.23	(0.22)	0.19

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
Mackay Shields High Yield	784	0.87	4.01	3.50	(8.39)	5.48	7.94	13.96		
Bloomberg U.S. HY - 2% Issuer Cap			4.17	3.50	(11.18)	5.26	7.05	14.32		
Excess			(0.15)	(0.00)	2.79	0.22	0.90	(0.36)		
BANK LOANS										
Barings Bank Loans	1	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
Credit Suisse Bank Loans	0	0.00					1.81	8.31	1.04	4.66
CSFB LEVERAGED LOAN INDEX							2.78	8.17	1.14	4.25
Excess							(0.96)	0.13	(0.10)	0.41
Voya Bank Loans	0	0.00				(11.20)	(0.06)	7.74	0.33	3.19
CSFB LEVERAGED LOAN INDEX						5.40	2.78	8.17	1.14	4.25
Excess						(16.60)	(2.84)	(0.44)	(0.81)	(1.06)
Pinebridge Bank Loans	0	0.00								
CSFB LEVERAGED LOAN INDEX										
Excess										
TIPS										
SSGA TIPS	2,336	2.59	1.97	(3.31)	(11.89)	5.90	11.15	8.44	(1.30)	3.06
Bloomberg Global Infl-Linked: U.S. TIPS			2.04	(3.21)	(11.85)	5.96	10.99	8.43	(1.26)	3.01
Excess			(0.07)	(0.10)	(0.04)	(0.05)	0.15	0.02	(0.04)	0.05
BlackRock TIPS	764	0.85	1.91	(3.36)	(11.92)	5.72	11.01	8.42	(1.18)	2.98
Bloomberg Global Infl-Linked: U.S. TIPS			2.04	(3.21)	(11.85)	5.96	10.99	8.43	(1.26)	3.01
Excess			(0.13)	(0.15)	(0.07)	(0.23)	0.02	(0.01)	0.08	(0.02)

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
CORE FI - DEVELOPING MANAGERS										
LM Capital-Core Plus	114	0.13	1.93	(2.22)	(12.38)	(1.07)	9.27	9.76	(1.35)	3.89
Bloomberg U.S. Aggregate			1.87	(2.97)	(13.01)	(1.54)	7.51	8.72	0.01	3.54
Excess			0.05	0.74	0.63	0.47	1.76	1.04	(1.36)	0.35
GIA-Core Plus	85	0.09	1.92	(2.20)	(12.66)	(0.80)	7.78	10.13	(1.01)	4.37
Bloomberg U.S. Aggregate			1.87	(2.97)	(13.01)	(1.54)	7.51	8.72	0.01	3.54
Excess			0.05	0.77	0.35	0.74	0.27	1.41	(1.02)	0.82
Pugh-CorePlus	54	0.06	1.79	(2.78)	(13.29)	(1.32)				
Bloomberg U.S. Aggregate			1.87	(2.97)	(13.01)	(1.54)				
Excess			(0.08)	0.18	(0.28)	0.22				
ECONOMICALLY TARGETED INVESTMENTS										
AFL-CIO Housing Investment Trust	279	0.31	0.92	(4.10)	(13.55)	(1.04)	6.20	7.78	0.16	3.17
Bloomberg U.S. Aggregate			1.87	(2.97)	(13.01)	(1.54)	7.51	8.72	0.01	3.54
Excess			(0.95)	(1.13)	(0.54)	0.50	(1.31)	(0.94)	0.15	(0.38)
RBC Access MBS	140	0.15	1.67	(3.37)	(12.00)	(1.03)	6.14	7.21	0.49	2.64
Access RBC Benchmark			1.64	(2.97)	(10.38)	(1.46)	4.69	6.05	1.17	1.96
Excess			0.04	(0.40)	(1.61)	0.43	1.45	1.16	(0.69)	0.69
CPC Construction Facility	15	0.02	1.79	2.24	3.80	3.89	0.67	6.87	4.14	6.07
CPC CONST BENCHMARK			1.28	2.33	3.75	2.42	2.73	4.09	3.99	3.34
Excess			0.51	(0.09)	0.04	1.46	(2.06)	2.78	0.15	2.73
BOA PPAR FNMA	4	0.00	1.60	0.40	(8.50)	(1.89)	6.12	13.54	2.33	5.21
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80	1.86	3.61
Excess			(0.98)	3.07	2.78	(1.52)	0.98	5.74	0.47	1.60
Citibank PPAR FNMA	19	0.02	1.27	(0.55)	(11.34)	(1.56)	7.06	19.71	2.63	5.26
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80	1.86	3.61
Excess			(1.32)	2.12	(0.06)	(1.19)	1.92	11.91	0.77	1.65

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
Citibank PPAR GNMA	4	0.00	1.83	0.60	(5.04)	(1.10)	8.31	5.33	1.90	3.10
GNMA Plus 65bps			2.43	(2.62)	(10.14)	(0.82)	4.31	6.73	1.63	2.53
Excess			(0.60)	3.22	5.10	(0.29)	4.00	(1.41)	0.27	0.57
CFSB PPAR FNMA	0	0.00	1.17	(0.90)	(12.29)	(2.05)				
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)				
Excess			(1.42)	1.78	(1.01)	(1.67)				
CFSB PPAR GNMA	2	0.00	1.32	0.08	(5.29)	0.03	8.01	5.91	0.99	3.83
GNMA Plus 65bps			2.43	(2.62)	(10.14)	(0.82)	4.31	6.73	1.63	2.53
Excess			(1.11)	2.70	4.85	0.84	3.69	(0.82)	(0.65)	1.30
CPC PPAR FNMA	84	0.09	1.29	(0.46)	(10.21)	1.14	7.00	13.18	2.31	5.06
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80	1.86	3.61
Excess			(1.29)	2.21	1.07	1.51	1.87	5.38	0.45	1.45
ECLF PPAR FNMA	2	0.00	1.22	(0.75)	(11.97)	(1.65)				
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)				
Excess			(1.37)	1.93	(0.69)	(1.28)				
TRS-CPC PPAR GNMA	44	0.05	1.30	0.15	(5.12)	(0.62)	8.04	4.89	0.77	2.85
GNMA Plus 65bps			2.43	(2.62)	(10.14)	(0.82)	4.31	6.73	1.63	2.53
Excess			(1.14)	2.77	5.02	0.20	3.73	(1.85)	(0.86)	0.32
LIIF PPAR FNMA	10	0.01	1.33	0.73	(9.29)	(1.75)	6.44	16.35	2.27	9.55
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80	1.86	3.61
Excess			(1.26)	3.41	1.99	(1.37)	1.30	8.55	0.41	5.94
LIIF PPAR GNMA	2	0.00	1.20	0.60	(2.79)	0.84	6.19	5.54	2.53	2.52
GNMA Plus 65bps			2.43	(2.62)	(10.14)	(0.82)	4.31	6.73	1.63	2.53
Excess			(1.23)	3.22	7.35	1.65	1.87	(1.19)	0.89	(0.01)

Public Markets Manager Performance Detail



Net Returns Through December 31, 2022

	Market Value (\$MM)	% of Total	3 Months	FYTD	CYTD	2021	2020	2019	2018	2017
LISC PPAR FNMA	4	0.00	(2.35)	(5.95)	(16.45)	(1.69)	31.93	14.95		
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80		
Excess			(4.93)	(3.28)	(5.17)	(1.32)	26.80	7.15		
NCBCI PPAR FNMA	0	0.00	1.40	0.30	(4.39)	0.66	8.49	4.08	2.00	1.75
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80	1.86	3.61
Excess			(1.19)	2.98	6.89	1.03	3.36	(3.72)	0.15	(1.86)
NCBCI PPAR GNMA	1	0.00	1.28	0.25	(4.17)	0.95	8.16	3.69	1.23	3.01
GNMA Plus 65bps			2.43	(2.62)	(10.14)	(0.82)	4.31	6.73	1.63	2.53
Excess			(1.15)	2.87	5.97	1.77	3.85	(3.04)	(0.41)	0.48
NHS PPAR GNMA	0	0.00	1.35	0.44	(3.56)	1.26	7.11	2.90	0.54	(2.93)
GNMA Plus 65bps			2.43	(2.62)	(10.14)	(0.82)	4.31	6.73	1.63	2.53
Excess			(1.08)	3.06	6.58	2.08	2.80	(3.84)	(1.09)	(5.46)
Wells Fargo PPAR FNMA	8	0.01	1.53	(0.52)	(11.70)	(1.86)	28.61	21.71		
FNMA Plus 85bps			2.59	(2.67)	(11.28)	(0.37)	5.14	7.80		
Excess			(1.06)	2.16	(0.42)	(1.48)	23.48	13.91		
CASH										
Short Term TRS	1,437	1.59	0.92	1.27	1.24	0.08	0.56	2.25	1.96	1.21
ICE BofA US 3-Month Treasury Bill			0.84	1.31	1.46	0.05	0.67	2.28	1.87	0.86
Excess			0.07	(0.04)	(0.21)	0.03	(0.11)	(0.03)	0.09	0.35
Cash Account	0	0.00								
Securities Lending	(0)	(0.00)								



**Teachers' Retirement System
of New York City**

Appendix C

Alternative Assets Manager Performance Detail

Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
TOTAL PRIVATE EQUITY		14,524,287,416	11,006,003,756	9,910,820,076	7,518,693,477	1.58x	11.85%
TOTAL LIQUIDATED		1,009,137,062	1,027,714,291	1,255,367,975	-	1.22x	
TOTAL ACTIVE		13,515,150,355	9,978,289,465	8,655,452,101	7,518,693,477	1.62x	
TOTAL ACTIVE							
Cypress Merchant Banking Partners II, LP	1999	50,000,000	53,983,573	50,623,035	19,373	0.94x	-1.18%
SCP Private Equity Partners II, L.P.	2000	20,000,000	22,196,012	8,429,680	1,393,373	0.44x	-8.78%
Apollo Investment Fund V, L.P.	2001	30,000,000	46,758,049	92,244,552	255,663	1.98x	38.77%
RRE Ventures III, L.P.	2001	20,000,000	26,269,971	34,025,652	1,152,141	1.34x	5.35%
Ares Corporate Opportunities Fund, L.P.	2003	15,000,000	18,004,666	26,835,382	24,075	1.49x	13.07%
Blackstone Capital Partners IV, L.P.	2003	30,000,000	30,690,321	77,506,027	181,063	2.53x	37.80%
FS Equity Partners V, L.P.	2003	25,000,000	20,204,332	40,645,843	1,479,185	2.08x	15.21%
Leeds Weld Equity Partners IV, L.P.	2003	15,000,000	15,441,454	20,171,550	26,608	1.31x	4.23%
FdG Capital Partners II, L.P.	2004	35,000,000	37,720,808	44,959,148	770,176	1.21x	3.66%
Lexington Capital Partners X, L.P.	2004	96,000,000	-	-	2,877,925	N/A	N/A
New York/Fairview Emerging Managers (Tranche A), L.P.	2004	24,000,000	24,646,553	26,675,851	363,562	1.10x	1.56%
Yucaipa American Alliance Fund I, L.P.	2004	55,000,000	80,825,203	95,185,290	392,376	1.18x	3.98%
JP Morgan Fleming (Tranche A), L.P.	2005	31,000,000	31,385,264	36,642,635	5,490,830	1.34x	5.20%
Lincolnshire Equity Fund II, L.P.	2005	15,000,000	14,446,100	28,316,507	256,967	1.98x	24.57%
New Mountain Partners II, L.P.	2005	23,225,800	21,482,843	40,969,939	131,849	1.91x	13.58%
Palladium Equity Partners III, L.P.	2005	35,000,000	37,538,632	70,080,011	93,814	1.87x	14.65%
Snow Phipps Group, L.P.	2005	15,000,000	18,281,012	16,489,268	7,462,749	1.31x	5.02%
USPF II Institutional Fund, L.P.	2005	35,000,000	46,164,567	55,381,287	412,568	1.21x	3.25%
Aisling Capital II, L.P.	2006	4,500,000	5,099,563	5,112,601	178,208	1.04x	0.67%
Ampersand 2006, L.P.	2006	15,000,000	15,000,000	46,844,870	145,086	3.13x	16.91%
Apollo Investment Fund VI, L.P.	2006	35,000,000	45,048,207	67,409,336	635,387	1.51x	8.64%
Ares Corporate Opportunities Fund II, L.P.	2006	30,000,000	32,905,774	54,882,374	51,674	1.67x	13.06%
BDCM Opportunity Fund II, L.P.	2006	25,000,000	37,325,097	102,347,045	2,145,973	2.80x	18.35%
Blackstone Capital Partners V, L.P.	2006	75,600,000	76,564,529	129,564,127	494,273	1.70x	8.51%
Catterton Partners VI, L.P.	2006	30,000,000	34,300,531	59,205,324	7,228,961	1.94x	11.48%
Cinven Fourth Fund	2006	43,264,875	45,626,616	65,913,468	28,797	1.45x	7.37%
Fairview Ventures Fund III, L.P.	2006	20,000,000	21,468,431	52,994,437	99,758	2.47x	14.92%
First Reserve Fund XI, L.P.	2006	30,000,000	34,241,400	22,947,827	30,579	0.67x	-9.75%
GF Capital Private Equity Fund, L.P.	2006	15,000,000	15,773,790	20,491,630	8,874,904	1.86x	11.69%
Landmark Equity Partners XIII, L.P.	2006	25,000,000	23,702,196	31,569,537	5,719	1.33x	5.01%
MidOcean Partners III, L.P.	2006	40,000,000	46,609,945	102,326,401	1,663,824	2.23x	13.57%
RRE Ventures IV, L.P.	2006	25,000,000	31,745,125	47,182,024	9,315,422	1.78x	6.82%
Thomas, McNerney & Partners II, L.P.	2006	15,000,000	14,867,607	33,330,365	118,795	2.25x	16.41%
Carlyle Partners V, L.P.	2007	50,000,000	50,852,090	87,486,774	6,002,410	1.84x	13.41%

Information provided by the New York City Teachers' Retirement System Consultants

Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Co-Investment Partners Europe, L.P.	2007	26,370,276	29,219,332	35,984,150	347,856	1.24x	4.31%
Constellation Ventures III, L.P.	2007	15,000,000	17,324,813	15,025,182	104,007	0.87x	-1.82%
FTVentures III, L.P.	2007	14,081,947	14,882,466	25,170,138	3,618,142	1.93x	10.99%
GSO Capital Opportunities Fund, L.P.	2007	30,000,000	48,291,339	67,124,625	604,467	1.40x	17.31%
Halyard Capital Fund II, L.P.	2007	15,000,000	13,095,098	16,133,696	3,743,271	1.52x	6.85%
Markstone Capital Partners, L.P.	2007	35,000,000	40,766,689	17,074,753	163,685	0.42x	-32.74%
Montreux Equity Partners IV, L.P.	2007	15,000,000	14,930,359	8,224,849	12,535,607	1.39x	3.95%
Nautic Partners VI, L.P.	2007	20,000,000	21,669,686	49,419,361	4,182,510	2.47x	18.59%
New Mountain Partners III, L.P.	2007	35,000,000	37,361,887	88,420,577	1,477,432	2.41x	14.59%
PCG Clean Energy & Technology Fund East, L.P.	2007	60,000,000	51,863,265	15,962,869	3,191,162	0.37x	-12.48%
Pegasus Partners IV, L.P.	2007	20,000,000	26,489,188	20,637,860	2,885,031	0.89x	-2.35%
Pine Brook Capital Partners, L.P.	2007	22,500,000	24,896,117	33,888,331	592,484	1.38x	8.36%
Quaker BioVentures II, L.P.	2007	15,000,000	14,977,775	16,616,973	276,216	1.13x	2.58%
RLJ Equity Partners Fund I, L.P.	2007	15,000,000	15,531,821	19,184,523	3,021,816	1.43x	7.71%
SCP Vitalife Partners II, L.P.	2007	15,000,000	15,074,774	1,184	2,998,180	0.20x	-13.36%
StarVest Partners II, L.P.	2007	20,000,000	20,106,956	10,249,653	5,620,833	0.79x	-2.89%
Trilantic Capital Partners IV L.P.	2007	53,311,339	54,491,733	83,191,204	2,772,873	1.58x	13.44%
USPF III Institutional Fund, L.P.	2007	30,000,000	35,493,985	45,473,987	1,448,385	1.32x	4.53%
Vista Equity Partners Fund III, L.P.	2007	25,000,000	26,942,774	63,903,684	1,846,610	2.44x	26.78%
Aisling Capital III, L.P.	2008	10,500,000	11,846,807	28,176,543	69,587	2.38x	26.46%
Apollo Investment Fund VII, L.P.	2008	50,000,000	61,146,779	107,038,377	608,542	1.76x	23.15%
Ares Corporate Opportunities Fund III, L.P.	2008	60,000,000	71,462,853	155,339,754	1,098,101	2.19x	20.89%
Avista Capital Partners II, L.P.	2008	50,000,000	65,983,085	103,339,707	5,500,785	1.65x	14.45%
Blue Wolf Capital Fund II, L.P.	2008	20,000,000	22,032,020	37,201,244	105,033	1.69x	10.72%
Bridgepoint Europe IV, L.P.	2008	26,211,351	24,946,822	34,548,608	4,228,725	1.55x	9.50%
First Reserve Fund XII, L.P.	2008	30,000,000	33,919,785	17,607,913	(123,178)	0.52x	-27.92%
GCM Grosvenor TRSCNY Emerging Manager Fund, L.P.	2008	59,373,737	75,302,431	89,992,417	28,099,350	1.57x	10.26%
GI Partners III, L.P.	2008	30,000,000	32,411,558	50,818,605	12,993	1.57x	12.96%
Landmark Equity Partners XIV, L.P.	2008	50,000,000	48,702,046	60,913,811	3,838,601	1.33x	8.85%
Leeds Equity Partners V, L.P.	2008	40,000,000	39,871,980	94,886,224	3,811,243	2.48x	18.47%
Levine Leichtman Capital Partners IV, L.P.	2008	25,000,000	26,635,586	42,262,426	2,175,615	1.67x	17.76%
Lexington Capital Partners VIII, L.P.	2008	150,000,000	136,208,391	129,077,421	98,041,231	1.67x	17.61%
LightBay Investment Partners II	2008	30,000,000	2,684,795	-	2,442,395	0.91x	N/M
New York/Fairview Emerging Managers (Tranche B), L.P.	2008	35,000,000	35,461,815	77,013,595	18,890,555	2.70x	18.07%
NGN BioMed Opportunity II, L.P.	2008	15,000,000	14,363,866	11,509,657	7,728,410	1.34x	3.62%
Onex Partners III, L.P.	2008	40,000,000	43,891,696	65,151,603	6,908,855	1.64x	11.35%
Paladin III (NY City), L.P.	2008	20,000,000	27,139,705	57,154,221	5,774,946	2.32x	13.95%
Riverstone/Carlisle Global Energy & Power Fund IV	2008	32,500,000	35,116,069	39,553,479	81,693	1.13x	3.20%

Information provided by the New York City Teachers' Retirement System Consultants

Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Yucaipa American Alliance Fund II, L.P.	2008	75,000,000	104,010,896	112,116,531	59,876,689	1.65x	7.97%
Yucaipa Corporate Initiatives Fund II, L.P.	2008	35,000,000	32,157,997	28,759,946	483,494	0.91x	-1.24%
Welsh, Carson, Anderson & Stowe XI, L.P.	2009	30,000,000	30,000,000	47,826,193	2,169,293	1.67x	11.57%
JP Morgan Fleming (Tranche B), L.P.	2010	10,000,000	10,683,912	12,880,718	9,195,530	2.07x	12.30%
Trident V, L.P.	2010	35,000,000	41,525,744	54,950,964	21,814,007	1.85x	11.74%
American Securities Partners VI, L.P.	2011	100,000,000	111,957,792	196,059,692	61,795,534	2.30x	22.29%
Ampersand 2011, L.P.	2011	17,500,000	17,500,000	56,677,681	187,010	3.25x	21.81%
AXA Secondary Fund V L.P.	2011	160,000,000	85,770,811	132,424,082	(36,196)	1.54x	13.55%
BC European Capital IX, L.P.	2011	68,909,283	75,551,014	91,497,089	29,235,248	1.60x	10.96%
Blackstone Capital Partners VI, L.P.	2011	60,000,000	62,000,499	77,830,278	26,158,338	1.68x	11.01%
EQT VI, L.P.	2011	48,343,299	52,360,171	91,208,152	100,098	1.74x	13.64%
Pegasus Partners V, L.P.	2011	20,789,916	26,525,296	15,150,824	15,262,103	1.15x	2.86%
Platinum Equity Capital Partners III, L.P.	2011	115,000,000	112,426,463	210,938,913	24,001,519	2.09x	36.14%
Vista Equity Partners Fund IV, L.P.	2011	100,000,000	100,264,948	127,859,045	71,735,030	1.99x	14.93%
Ares Corporate Opportunities Fund IV, L.P.	2012	105,000,000	116,013,103	165,734,898	49,742,988	1.86x	14.96%
Green Equity Investors VI, L.P.	2012	100,000,000	112,739,745	117,686,356	102,122,387	1.95x	14.19%
<u>NYCTRS - 2012 Emerging Manager Program</u>	<u>2012</u>	<u>158,050,000</u>	<u>169,469,793</u>	<u>266,709,195</u>	<u>109,570,301</u>	<u>2.22x</u>	<u>N/M</u>
Trilantic Capital Partners V (North America), L.P.	2012	70,000,000	73,623,036	89,427,867	34,627,628	1.69x	15.64%
Warburg Pincus Private Equity XI, L.P.	2012	175,000,000	180,379,074	221,230,044	62,861,266	1.57x	10.58%
Apollo Investment Fund VIII, L.P.	2013	200,000,000	191,832,409	201,538,536	83,886,416	1.49x	10.19%
ASF VI, L.P.	2013	112,000,000	89,722,667	115,535,453	16,506,468	1.47x	12.42%
Carlyle Partners VI, L.P.	2013	125,000,000	135,718,503	204,879,444	63,735,620	1.98x	16.48%
Crestview Partners III, L.P.	2013	75,000,000	67,410,929	34,032,699	74,482,070	1.61x	14.04%
Landmark Equity Partners XV, L.P.	2013	113,000,000	90,758,387	105,058,757	23,615,005	1.42x	12.03%
Landmark NYC Fund I, L.P.	2013	37,000,000	33,782,342	39,721,812	21,885,638	1.82x	18.59%
Lincolnshire Equity Fund IV, L.P.	2013	12,500,000	12,881,737	15,522,307	3,488,860	1.48x	8.33%
ASF VI NYC Co-Invest, L.P.	2014	38,000,000	31,601,981	38,984,762	8,395,039	1.50x	12.41%
Bridgepoint Europe V, L.P.	2014	85,381,113	81,011,404	114,399,874	49,469,540	2.02x	20.27%
Carlyle Partners VI, L.P. - Side Car	2014	7,072,349	10,025,467	12,511,285	8,911,003	2.14x	13.84%
Crestview Partners III (Co-Investment B), L.P.	2014	25,000,000	25,908,372	1,253,803	32,533,390	1.30x	5.28%
CVC Capital Partners VI, L.P.	2014	203,410,411	189,716,631	182,685,651	190,100,149	1.96x	17.13%
Olympus Growth Fund VI, L.P.	2014	100,000,000	101,514,849	89,858,834	92,480,957	1.80x	16.49%
Vista Equity Partners Fund V, L.P.	2014	125,000,000	156,265,436	183,480,625	160,086,409	2.20x	20.03%
ASF VII B NYC Co-Invest, L.P.	2015	67,000,000	40,959,670	39,503,664	35,666,153	1.84x	21.37%
ASF VII, L.P.	2015	134,000,000	85,233,899	63,552,060	76,626,438	1.64x	18.19%
Bridgepoint Europe V Co-Invest	2015	25,038,062	23,183,477	47,949,859	13,550,820	2.65x	27.39%
Centerbridge Capital Partners III, L.P.	2015	33,500,000	43,686,963	38,242,969	36,073,658	1.70x	19.82%
<u>NYCTRS - 2015 Emerging Manager Program</u>	<u>2015</u>	<u>217,250,000</u>	<u>184,100,814</u>	<u>66,126,068</u>	<u>267,650,387</u>	<u>1.81x</u>	<u>N/M</u>

Information provided by the New York City Teachers' Retirement System Consultants

Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Siris Partners III, L.P.	2015	45,000,000	47,413,992	35,827,533	37,088,811	1.54x	13.48%
Welsh, Carson, Anderson & Stowe XII, L.P.	2015	110,500,000	104,892,257	127,787,154	132,662,521	2.48x	28.46%
American Securities Partners VII, L.P.	2016	111,000,000	109,260,078	43,665,360	159,245,426	1.86x	16.88%
Apax IX USD, L.P.	2016	178,000,000	192,004,776	178,879,124	209,775,666	2.02x	24.94%
BC European Capital X Metro Co-Investment L.P.	2016	49,066,823	51,166,779	13,256,025	75,181,944	1.73x	15.28%
Platinum Equity Capital Partners IV, L.P.	2016	156,000,000	153,921,080	145,889,766	183,574,822	2.14x	27.73%
Vista Equity Partners Fund VI, L.P.	2016	223,000,000	279,274,122	230,398,035	312,142,005	1.94x	19.47%
Ares Corporate Opportunities Fund V, L.P.	2017	134,000,000	144,689,576	63,269,777	135,538,487	1.37x	11.25%
BC European Capital X, L.P.	2017	125,984,511	118,485,137	17,131,557	142,221,215	1.34x	8.98%
CVC Capital Partners VII, L.P.	2017	151,191,576	139,249,686	19,985,095	202,023,203	1.59x	22.52%
Green Equity Investors VII, L.P.	2017	134,000,000	128,098,121	77,531,669	197,938,871	2.15x	25.06%
KKR Americas Fund XII, L.P.	2017	223,000,000	210,194,595	81,732,283	280,011,824	1.72x	23.18%
Lincolnshire Equity Fund III, L.P.	2017	25,000,000	25,003,156	35,566,467	8,935,419	1.78x	27.35%
Lindsay Goldberg V, L.P.	2017	79,000,000	35,737,223	10,777,267	37,734,913	1.36x	32.45%
Palladium Equity Partners V, L.P.	2017	26,666,667	16,670,573	2,818,667	17,326,139	1.21x	8.18%
Apollo Investment Fund IX, L.P.	2018	256,000,000	207,540,676	67,621,847	216,907,191	1.37x	24.91%
ASF VIII, L.P.	2018	158,000,000	74,250,518	13,852,552	98,775,489	1.52x	31.09%
Bridgepoint Europe VI, L.P.	2018	94,325,673	77,330,008	7,601,026	94,956,952	1.33x	18.20%
EQT VIII SCSP	2018	71,152,136	81,176,695	40,220,639	96,930,059	1.69x	25.49%
EQT VIII SCSP (Co-Invest)	2018	31,502,821	30,497,733	23,418,388	36,815,455	1.98x	40.08%
ICG Strategic Equity Fund III LP	2018	41,111,763	26,066,607	8,957,920	38,448,138	1.82x	46.36%
Platinum Equity Capital Partners IV, L.P. (Co-Invest)	2018	22,000,000	15,429,959	3,069,976	25,639,581	1.86x	18.10%
Platinum Equity Small Cap Fund, L.P.	2018	32,500,000	23,353,237	5,394,771	33,228,241	1.65x	27.81%
Siris Partners IV, L.P.	2018	71,000,000	57,512,306	8,378,291	80,936,440	1.55x	21.84%
Vista Equity Partners Fund VII, L.P.	2018	142,000,000	114,249,159	1,299,080	152,105,326	1.34x	14.96%
Apax X, L.P.	2019	95,000,000	53,673,119	5,975,954	56,391,881	1.16x	N/M
ASF VIII B NYC Co-Invest, L.P.	2019	79,000,000	30,215,691	5,704,678	40,758,288	1.54x	53.31%
Blackstone Capital Partners VIII, L.P.	2019	99,000,000	45,259,912	1,868,715	50,516,473	1.16x	15.69%
Bridgepoint Europe VI Co-Invest	2019	23,666,721	18,469,641	-	27,761,482	1.50x	21.21%
Crestview Partners IV (FF), L.P.	2019	19,000,000	8,853,801	2,577,460	12,119,209	1.66x	N/M
Crestview Partners IV, L.P.	2019	57,000,000	26,561,402	6,639,813	32,516,727	1.47x	N/M
KKR European Fund V, L.P. - USD	2019	89,000,000	76,950,014	14,960,125	67,937,222	1.08x	5.29%
LCP IX Co-Invest Partners B, L.P.	2019	28,375,000	13,905,169	4,809,732	18,077,843	1.65x	48.16%
<u>NYCTRS - 2019 Emerging Manager Program</u>	<u>2019</u>	<u>240,000,000</u>	<u>41,605,284</u>	<u>2,751,142</u>	<u>66,056,745</u>	<u>1.65x</u>	<u>N/M</u>
Platinum Equity Capital Partners V, L.P.	2019	142,000,000	136,519,680	15,777,636	181,426,986	1.44x	30.83%
Trilantic Capital Partners VI (North America), L.P.	2019	46,000,000	36,374,887	3,667,973	49,245,994	1.45x	26.69%
Warburg Pincus Global Growth, L.P.	2019	114,000,000	100,053,805	1,027,094	133,176,025	1.34x	17.43%
WCAS XIII, L.P.	2019	71,000,000	60,248,303	5,058,323	73,420,228	1.30x	26.48%

Information provided by the New York City Teachers' Retirement System Consultants



Through September 30, 2022

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
BC European Capital XI, L.P.	2020	99,000,000	37,556,758	-	33,825,848	0.90x	N/M
Clearlake Capital Partners VI, L.P.	2020	42,000,000	42,498,706	3,518,078	59,063,266	1.47x	N/M
EQT IX (NO.2) USD SCSP	2020	83,678,500	73,856,015	7,664,544	75,114,427	1.12x	N/M
EQT IX Co-Invest Platform (No. 3) SCSp	2020	22,821,500	22,658,760	380,528	23,487,502	1.05x	N/M
FTV VI, L.P.	2020	24,000,000	22,560,000	-	37,816,850	1.68x	N/M
Green Equity Investors VIII Coinvest N, L.P.	2020	33,000,000	23,581,916	-	26,109,849	1.11x	N/M
Green Equity Investors VIII, L.P.	2020	99,000,000	86,278,168	108,404	92,564,207	1.07x	N/M
Hg Genesis 9 L.P.	2020	43,639,335	29,802,943	7,664,042	24,257,999	1.07x	N/M
ICG Strategic Equity Co-Investment Fund III LP	2020	20,555,881	15,192,897	8,343,947	16,939,467	1.66x	N/M
KKR Asian Fund IV SCSp	2020	94,000,000	29,544,601	260,381	26,723,352	0.91x	N/M
NYC-Northbound Emerging Managers Program, L.P.	2020	192,000,000	49,419,353	1,101,099	60,277,711	1.24x	N/M
T2 Energy Transition Co-Invest	2020	19,439,584	13,878,253	188,398	13,283,586	0.97x	N/M
T2 Energy Transition Fund	2020	36,171,915	23,727,343	1,672,883	21,612,959	0.98x	N/M
Valor Equity Partners V, L.P.	2020	23,500,000	19,293,774	-	26,283,470	1.36x	N/M
Apax Digital II L.P.	2021	45,000,000	-	-	(1,138,014)	N/A	N/A
Ares Corporate Opportunities Fund VI, L.P.	2021	100,000,000	72,965,606	16,948,809	63,691,181	1.11x	N/M
Ares Private Opportunities (NYC), L.P.	2021	60,000,000	17,925,311	-	17,892,616	1.00x	N/M
BC European Capital XI Metro Co-Investment 2, L.P.	2021	45,000,000	23,949,441	-	22,243,914	0.93x	N/M
Centerbridge Capital Partners IV - N Co-Invest, L.P.	2021	32,000,000	9,427,333	-	16,410,332	1.74x	N/M
Centerbridge Capital Partners IV, L.P.	2021	64,000,000	27,377,998	-	37,717,747	1.38x	N/M
Clearlake Capital Partners VII, L.P.	2021	144,000,000	49,654,934	3,505	48,821,717	0.98x	N/M
CVC Capital Partners VIII, L.P.	2021	142,343,604	49,816,327	-	53,347,883	1.07x	N/M
Grain Communications Opportunity Fund III, L.P.	2021	21,000,000	11,742,739	16,931	10,215,782	0.87x	N/M
HarbourVest Centre Street Co-Investment Fund, L.P.	2021	156,000,000	67,937,261	-	65,690,690	0.97x	N/M
ICG Strategic Equity Co-Investment Fund IV-A LP	2021	47,000,000	26,096,453	-	27,818,270	1.07x	N/M
ICG Strategic Equity Fund IV LP	2021	94,000,000	27,967,154	6,179,364	34,602,132	1.46x	N/M
Insight Partners XII Buyout Annex Fund, L.P.	2021	32,000,000	17,600,000	-	16,396,372	0.93x	N/M
Insight Partners XII, L.P.	2021	96,000,000	56,692,775	106,087	46,680,087	0.83x	N/M
KKR North America Fund XIII SCSp	2021	160,000,000	35,448,795	-	27,826,748	0.78x	N/M
Lexington Capital Partners IX, L.P.	2021	85,125,000	57,462,399	15,588,358	75,581,420	1.59x	44.62%
One Rock Capital Partners III, L.P.	2021	39,000,000	26,046,998	3,992,437	25,948,577	1.15x	N/M
PECP V Co-Investment, L.P.	2021	35,500,000	35,026,005	5,380,151	59,198,108	1.84x	N/M
Permira VIII	2021	125,910,031	-	-	(2,700)	N/A	N/A
Reverence Capital Partners Opportunities Fund V (FOO) (PE Fund III),	2021	13,000,000	2,957,190	8,512	2,927,762	0.99x	N/M
Reverence Capital Partners Opportunities Fund V (PE Fund III), L.P.	2021	35,000,000	8,460,356	22,919	8,036,276	0.95x	N/M
Stellax Capital Partners II, L.P.	2021	46,500,000	15,686,094	1,634	17,619,253	1.12x	N/M
The Resolute Fund V, L.P.	2021	65,500,000	36,968,155	589,103	65,410,872	1.79x	N/M
TPG Rise Climate Co-Invest, L.P.	2021	91,666,667	15,087,282	-	15,918,621	1.06x	N/M

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Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
TPG Rise Climate, L.P.	2021	45,833,333	6,348,747	-	5,615,328	0.88x	N/M
Vistria Fund IV, LP	2021	48,000,000	29,506,068	676,551	29,680,637	1.03x	N/M
Warburg Pincus Financial Sector II, L.P.	2021	84,500,000	30,429,260	-	37,811,202	1.24x	N/M
Apax XI, L.P.	2022	128,000,000	-	-	-	N/A	N/A
Co-Invest Platform (NO.12) SCSP	2022	36,000,000	-	-	-	N/A	N/A
EQT X USD SCSP	2022	108,000,000	-	-	(887,811)	N/A	N/A
FTV VII, L.P.	2022	53,036,100	14,319,747	-	13,730,882	0.96x	N/M
GEI IX Co-invest N, L.P.	2022	40,000,000	-	-	-	N/A	N/A
Green Equity Investors IX, L.P.	2022	120,000,000	-	-	-	N/A	N/A
Growth VII-Centre, L.P.	2022	11,933,120	3,447,346	-	3,447,346	1.00x	N/M
Hg Genesis 10 L.P.	2022	61,600,241	245,812	-	201,108	0.82x	N/M
Hg N1 Co-Invest L.P.	2022	24,000,000	7,871,157	-	7,816,063	0.99x	N/M
Hg Saturn 3, L.P.	2022	48,000,000	243,288	-	(120,390)	-0.49x	N/M
LCP X Co-Invest Partners B, L.P.	2022	32,000,000	3,752,427	-	4,565,981	1.22x	N/M
N11 Co-Investment, SCSP	2022	34,490,530	-	-	-	N/A	N/A
Nordic Capital Fund XI, L.P.	2022	78,387,568	-	-	-	N/A	N/A
PECP VI Co-Investment, L.P.	2022	50,750,000	-	-	-	N/A	N/A
Platinum Equity Capital Partners VI, L.P.	2022	152,250,000	-	-	(294,398)	N/A	N/A
Thoma Bravo Co-Invest Opportunities XV-1, L.P.	2022	40,000,000	16,169,399	-	16,065,975	0.99x	N/M
Thoma Bravo Fund XV, L.P.	2022	120,000,000	36,724,625	16,589	36,237,401	0.99x	N/M
Warburg Pincus Global Growth 14, L.P.	2022	91,740,000	9,375,702	-	8,554,179	0.91x	N/M
WCAS XIV N Co-Invest, L.P.	2022	32,000,000	-	-	-	N/A	N/A
WCAS XIV, L.P.	2022	96,000,000	-	-	(1,532,330)	N/A	N/A
WPGG 14 Co-Invest-N, L.P.	2022	55,050,000	5,566,404	-	5,462,522	0.98x	N/M

Information provided by the New York City Teachers' Retirement System Consultants

Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL PRIVATE REAL ESTATE			8,725,489,368	6,283,359,083	3,588,025,250	5,514,574,210	1.45	10.0%
TOTAL PRIVATE REAL ESTATE								
JP Morgan Strategic Property Fund	2006	Core Portfolio	86,000,000	142,977,749	182,916,625	92,907,372	1.93	7.6%
PRISA	2006	Core Portfolio	36,000,000	38,793,503	20,784,435	65,522,302	2.22	5.9%
Prologis Targeted US Logistics Fund	2006	Core Portfolio	20,000,000	24,117,144	7,357,489	47,907,570	2.29	9.4%
RREEF America REIT II	2006	Core Portfolio	85,000,000	96,527,452	32,216,353	131,145,875	1.69	7.1%
UBS Trumbull Property Fund	2006	Core Portfolio	106,000,000	165,514,484	201,101,827	64,039,490	1.60	6.4%
Heitman America Real Estate Trust, L.P.	2007	Core Portfolio	48,000,000	86,871,097	44,538,895	144,895,894	2.18	8.5%
JP Morgan Special Situation Property Fund	2007	Core Portfolio	15,000,000	27,121,923	17,848,923	27,389,683	1.67	5.7%
PRISA II	2007	Core Portfolio	63,374,139	67,585,272	32,485,182	124,956,472	2.33	6.9%
LaSalle Property Fund	2010	Core Portfolio	104,000,000	103,620,297	33,520,659	163,565,380	1.90	10.9%
Almanac Realty Securities VI	2012	Core Portfolio	100,000,000	62,409,719	68,779,049	13,347,061	1.32	9.0%
Almanac Realty Securities VI (Sidecar III)	2012	Core Portfolio	35,000,000	11,751,378	10,959,011	5,355,222	1.39	9.2%
NYC Asset Investor #2	2013	Core Portfolio	145,000,000	147,467,377	62,588,614	114,842,694	1.20	3.4%
MetLife Core Property Fund	2014	Core Portfolio	80,000,000	80,000,000	30,350,434	137,330,111	2.10	11.2%
Almanac Realty Securities VII	2015	Core Portfolio	65,000,000	65,102,907	51,287,214	38,192,908	1.37	11.8%
Almanac Realty Securities VII (Sidecar III)	2015	Core Portfolio	20,000,000	16,473,263	11,688,890	11,287,602	1.39	12.6%
USAA Eagle Real Estate Fund	2015	Core Portfolio	98,000,000	109,502,628	16,577,003	147,542,620	1.50	8.1%
Artemis Co-Investment1	2016	Core Portfolio	70,000,000	81,753,778	96,899,912	33,254,723	1.59	17.2%
Brookfield Premier Real Estate Partners	2016	Core Portfolio	171,000,000	210,116,387	39,116,388	316,917,509	1.69	14.3%
Exeter Core Industrial Club Fund II	2016	Core Portfolio	37,000,000	36,036,053	14,674,637	70,669,154	2.37	22.9%
Jamestown Premier Property Fund	2016	Core Portfolio	64,961,594	76,448,693	30,693,452	53,937,552	1.11	2.7%
Carlyle Property Investors	2017	Core Portfolio	119,000,000	150,105,758	31,105,758	228,114,229	1.73	14.0%
Lion Industrial Trust	2017	Core Portfolio	98,000,000	138,923,418	30,702,584	299,994,765	2.38	22.4%
Almanac Realty Securities VIII	2018	Core Portfolio	51,000,000	28,125,753	6,687,054	26,927,169	1.20	13.1%
Almanac Realty Securities VIII (Sidecar II)	2018	Core Portfolio	34,000,000	19,370,933	5,009,393	20,537,892	1.32	20.7%
Heitman Core Real Estate Debt Income Trust2	2018	Core Portfolio	112,000,000	130,690,346	18,690,346	129,530,388	1.13	5.9%
Artemis Income and Growth Fund	2019	Core Portfolio	101,000,000	68,257,595	19,226,505	55,196,446	1.09	6.1%
Harrison Street Core Property Fund	2019	Core Portfolio	100,000,000	115,386,841	12,546,643	132,492,952	1.26	9.0%
Harrison Street Core Property Fund Co-Investment	2019	Core Portfolio	50,000,000	47,993,430	3,396,708	64,117,321	1.41	16.2%
Cortland Growth and Income, L.P.	2020	Core Portfolio	123,000,000	136,428,596	13,428,596	201,895,250	1.58	25.5%
Exeter Core Industrial Fund III	2020	Core Portfolio	84,800,000	83,333,333	8,093,333	88,008,273	1.15	11.3%
LaSalle GPS Co-Investment Program - Core	2021	Core Portfolio	92,000,000	56,333,866	1,148,666	62,274,694	1.13	NM
RREEF Core Plus Industrial Fund	2021	Core Portfolio	112,500,000	114,465,436	1,965,436	139,783,243	1.24	NM
TPG Real Estate Thematic Advantage Core-Plus JV IV, L.P.	2021	Core Portfolio	150,000,000	62,837,412	60,319	64,522,950	1.03	NM
EQT Exeter Industrial Core-Plus Fund IV	2022	Core Portfolio	157,000,000	15,134,800	-	13,731,278	0.91	NM
Blackstone Real Estate Partners IV L.P.	2004	Non-Core Portfolio	25,000,000	31,994,609	45,673,605	249,702	1.44	10.3%
Apollo Real Estate Investment Fund V	2006	Non-Core Portfolio	5,000,000	5,000,000	5,811,917	5,426	1.16	1.9%
American Value Partners Fund I1	2007	Non-Core Portfolio	25,000,000	17,872,806	18,979,573	464,884	1.09	1.8%
Blackstone Real Estate Partners VI L.P.	2007	Non-Core Portfolio	50,000,000	54,622,277	109,116,057	234,084	2.00	13.4%
Carlyle Realty Partners V, L.P.	2007	Non-Core Portfolio	12,750,000	19,084,009	28,366,497	29,174	1.49	8.9%

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Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Metropolitan Workforce Housing Fund1	2007	Non-Core Portfolio	10,500,000	10,509,770	12,558,389	323,805	1.23	4.0%
Blackstone Real Estate Partners Europe III - USD	2008	Non-Core Portfolio	50,000,000	43,525,907	71,245,067	1,848,461	1.68	15.7%
Capri Urban Investors	2008	Non-Core Portfolio	40,000,000	40,000,000	25,446,264	214,087	0.64	-5.7%
Silverpeak Legacy Partners III	2008	Non-Core Portfolio	30,000,000	12,312,686	4,260,608	1,061,050	0.43	-11.2%
Stockbridge Real Estate III	2008	Non-Core Portfolio	22,500,000	22,498,458	14,024,794	15,197,539	1.30	3.0%
Thor Urban Property Fund II	2008	Non-Core Portfolio	12,500,000	17,123,783	17,824,777	177,318	1.05	1.7%
Westbrook Real Estate Fund VIII, L.P.	2009	Non-Core Portfolio	50,000,000	59,833,246	68,952,803	7,018,645	1.27	9.6%
Carlisle Realty Partners VI, L.P.	2011	Non-Core Portfolio	70,000,000	76,216,565	108,897,052	5,795,500	1.50	19.9%
H2 Special Opportunities Fund II2	2011	Non-Core Portfolio	40,000,000	40,045,335	58,385,494	620,598	1.47	13.2%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	125,000,000	134,585,341	189,159,420	32,799,414	1.65	14.1%
Taconic New York City Investment Fund	2012	Non-Core Portfolio	70,000,000	29,272,728	47,996,467	4,739,893	1.80	15.5%
Lone Star Real Estate Fund III, L.P.2	2013	Non-Core Portfolio	190,000,000	181,714,995	244,593,474	999,819	1.35	14.2%
NYC Asset Investor #1	2013	Non-Core Portfolio	60,000,000	76,895,852	44,215,774	37,743,833	1.07	1.3%
NYC Asset Investor #3	2013	Non-Core Portfolio	96,000,000	68,873,469	18,400,124	72,963,937	1.33	5.4%
Carlisle Realty Partners VII, L.P.	2014	Non-Core Portfolio	120,000,000	111,430,584	133,798,649	29,834,079	1.47	13.0%
DivcoWest Fund IV	2014	Non-Core Portfolio	25,000,000	24,750,416	40,753,579	1,666,954	1.71	25.2%
DRA Growth and Income Fund VIII	2014	Non-Core Portfolio	75,000,000	91,861,224	95,290,642	26,295,567	1.32	8.6%
H2 Special Opportunities III2	2014	Non-Core Portfolio	65,000,000	67,503,668	67,443,994	17,225,796	1.25	7.5%
European Property Investors Special Opportunities 4 LP	2015	Non-Core Portfolio	64,600,879	59,315,022	24,489,629	53,586,716	1.32	7.4%
DivcoWest Fund V	2016	Non-Core Portfolio	78,000,000	62,207,874	22,767,479	56,767,301	1.28	7.3%
H2 Special Opportunities IV2	2016	Non-Core Portfolio	119,000,000	119,915,211	27,934,952	113,432,162	1.18	5.9%
PW Real Estate Fund III	2016	Non-Core Portfolio	63,972,555	50,758,862	29,908,903	113,322,442	2.82	30.7%
Westbrook Real Estate Fund X	2016	Non-Core Portfolio	47,000,000	45,574,874	40,065,416	17,391,725	1.26	10.9%
Basis Investment Group Real Estate Fund II,2	2017	Non-Core Portfolio	19,400,000	20,381,808	10,693,684	15,225,834	1.27	11.3%
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	56,000,000	61,449,158	56,769,258	42,753,021	1.62	19.0%
Exeter Industrial Value Fund IV, L.P.	2017	Non-Core Portfolio	34,000,000	31,961,900	65,421,713	4,742,359	2.20	30.9%
NYCRS-KKR CMBS Retention Partners2	2017	Non-Core Portfolio	159,000,000	144,278,014	55,809,045	131,298,891	1.30	7.3%
Pramerica Real Estate Capital VI2	2017	Non-Core Portfolio	68,701,132	70,381,478	57,520,690	22,660,600	1.14	7.3%
KKR Real Estate Partners Americas II	2018	Non-Core Portfolio	135,380,000	136,969,892	172,087,871	51,818,358	1.63	28.2%
Aermont Capital Real Estate Fund IV	2019	Non-Core Portfolio	79,676,074	50,604,313	-	43,925,851	0.87	-8.4%
Blackstone Real Estate Partners Europe VI L.P.	2019	Non-Core Portfolio	111,000,000	58,304,681	30,741,041	41,557,206	1.24	16.2%
Blackstone Real Estate Partners IX L.P.	2019	Non-Core Portfolio	184,000,000	181,393,931	57,649,238	207,826,885	1.46	34.6%
Brookfield Strategic Real Estate Partners III, L.P.	2019	Non-Core Portfolio	193,000,000	159,831,010	71,057,229	130,591,710	1.26	14.8%
Grosvenor Real Estate Emerging Manager SMA1	2019	Non-Core Portfolio	264,000,000	133,712,153	16,320,957	125,147,406	1.06	5.8%
Westbrook Real Estate Fund XI	2019	Non-Core Portfolio	92,000,000	42,143,234	16,349,669	32,982,159	1.17	25.4%
DivcoWest Fund VI	2020	Non-Core Portfolio	93,000,000	37,806,411	1,518,454	37,382,636	1.03	3.2%
DRA Growth and Income Fund X	2020	Non-Core Portfolio	67,000,000	48,266,918	16,255,984	48,815,468	1.35	35.2%
ElmTree U.S. Net Lease Fund IV, L.P.	2020	Non-Core Portfolio	78,000,000	48,445,633	2,552,300	52,576,924	1.14	16.5%
Exeter Industrial Value Fund V, L.P.	2020	Non-Core Portfolio	56,000,000	39,200,000	-	62,137,638	1.59	40.8%
GreenOak Asia III	2020	Non-Core Portfolio	99,000,000	79,148,243	52,218,998	34,743,318	1.10	12.6%
KKR RE Europe II	2020	Non-Core Portfolio	89,000,000	30,882,352	12,784,681	50,931,979	2.06	NM
KKR Real Estate Securities Dislocation Opportunity Co-Investment Stra	2020	Non-Core Portfolio	113,000,000	67,694,181	76,157,980	7,859,121	1.24	34.5%

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Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Pramerica Real Estate Capital VIII2	2020	Non-Core Portfolio	99,000,000	20,239,467	915,276	21,154,762	1.09	NM
Aermont Capital Real Estate Fund V	2021	Non-Core Portfolio	112,722,995	-	-	(749,636)	NM	NM
Almanac Realty Securities IX Sidecar II	2021	Non-Core Portfolio	50,000,000	-	-	29,311	NM	NM
Almanac Realty Securities IX, L.P.	2021	Non-Core Portfolio	100,000,000	14,622,911	-	13,403,206	0.92	NM
Basis Investment Group Real Estate Fund II2	2021	Non-Core Portfolio	57,000,000	27,016,420	7,177,410	19,920,132	1.00	NM
Brookfield Strategic Real Estate Partners IV	2021	Non-Core Portfolio	150,000,000	23,993,321	-	26,908,419	1.12	NM
Carlyle Realty Partners IX, L.P.	2021	Non-Core Portfolio	150,000,000	-	-	(1,061,172)	NM	NM
Cerberus Institutional Real Estate Partners V SMA	2021	Non-Core Portfolio	106,000,000	64,431,361	-	76,208,639	1.18	NM
KKR Real Estate Partners Americas III SCSp	2021	Non-Core Portfolio	150,000,000	85,826,160	5,773,757	80,135,256	1.00	NM
LaSalle GPS Co-investment Program - Non-Core	2021	Non-Core Portfolio	138,000,000	50,093,117	1,581,347	52,903,124	1.09	NM
LBA Logistics Value Fund IX	2021	Non-Core Portfolio	95,000,000	19,487,180	-	18,071,155	0.93	NM
Mesirow Financial Real Estate Value Fund IV	2021	Non-Core Portfolio	40,500,000	13,831,277	237,600	15,342,851	1.13	NM
NYC Hudson Multifamily Green Fund	2021	Non-Core Portfolio	130,650,000	42,771,013	12,803,700	29,758,797	1.00	NM
Rialto Real Estate Fund IV - Debt, LP2	2021	Non-Core Portfolio	120,000,000	69,026,189	9,018,039	65,735,151	1.08	NM
Artemis Real Estate Partners Healthcare Fund II	2022	Non-Core Portfolio	103,000,000	16,287,165	3,801,598	10,904,194	0.90	NM
Blackstone Real Estate Partners X, LP	2022	Non-Core Portfolio	195,000,000	-	-	-	NM	NM
Cerberus Institutional Real Estate Partners VI SMA	2022	Non-Core Portfolio	155,000,000	-	-	(1,602,075)	NM	NM
EQT Exeter Industrial Value Fund VI, LP	2022	Non-Core Portfolio	150,000,000	-	-	-	NM	NM
TPG Real Estate Partners IV, L.P.	2022	Non-Core Portfolio	157,000,000	-	-	(1,609,225)	NM	NM

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Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL INFRASTRUCTURE		3,510,322,143	1,941,653,434	825,120,868	1,782,871,452	1.3x	11.7%
TOTAL INFRASTRUCTURE INVESTMENTS							
Brookfield Infrastructure Fund II, L.P.	2013	140,000,000	121,800,271	125,905,164	115,194,361	2.0x	13.2%
Global Energy & Power Infrastructure Fund II	2014	90,000,000	98,339,677	96,730,420	33,106,323	1.3x	15.2%
IFM Global Infrastructure Fund	2014	140,000,000	196,505,133	95,165,334	235,065,880	1.7x	10.2%
KKR Global Infrastructure Investors II L.P.	2014	100,000,000	107,003,939	147,650,075	48,152,486	1.8x	18.4%
Actis Energy 4	2016	72,600,000	66,573,661	60,507,768	38,270,000	1.5x	14.7%
ASF VII Infrastructure L.P.	2016	65,000,000	42,674,175	14,585,612	49,180,900	1.5x	16.9%
Brookfield Infrastructure Fund III, L.P.	2016	119,000,000	73,594,959	29,720,040	72,650,211	1.4x	10.2%
Global Infrastructure Partners III-A/B, L.P.	2016	139,000,000	137,255,292	46,357,744	152,155,010	1.4x	10.4%
Axiom Infrastructure North America (2017)	2017	66,030,248	68,737,682	19,182,751	71,263,294	1.3x	8.4%
EQT Infrastructure III (No.2) SCSp	2017	64,001,383	70,231,490	98,279,693	30,195,075	1.8x	20.6%
NYCRS EIG Energy Partners, L.P.	2017	64,710,000	38,915,751	19,852,726	24,294,573	1.1x	7.4%
Cardinal NR Sidecar Holdings L.P.	2018	9,000,000	9,060,788	2,992,090	13,087,546	1.8x	17.5%
EQT Infrastructure IV (No.2) USD SCSp	2018	87,000,000	76,366,138	13,603,576	79,670,606	1.2x	10.4%
Global Infrastructure Partners IV-A/B, L.P.	2018	113,200,000	72,337,998	53,732	76,088,766	1.1x	6.2%
KKR Global Infrastructure Investors III L.P.	2018	75,000,000	63,925,877	16,067,572	50,514,214	1.0x	2.4%
Ardian Infrastructure Fund V B	2019	68,135,969	38,221,629	1,661,477	38,678,465	1.1x	5.0%
Brookfield Infrastructure Fund IV Co-Investment (Snow)	2019	10,000,000	10,042,407	1,061,124	13,749,532	1.5x	15.4%
Brookfield Infrastructure Fund IV, L.P.	2019	97,000,000	78,483,585	12,376,986	85,304,622	1.2x	13.1%
Global Energy & Power Infrastructure Fund III, L.P.	2019	75,000,000	50,791,196	9,093,582	50,575,429	1.2x	11.7%
Actis Energy 5	2020	148,000,000	6,896,538	-	(894,000)	-0.1x	0.0%
BIS NYC Infrastructure Emerging Manager Opportunities Fund, L.P.	2020	69,500,000	9,922,509	-	10,125,302	1.0x	2.2%
EQT Infrastructure IV Co-Investment (B) SCSp (Saber)	2020	8,100,000	8,181,000	491,627	10,010,365	1.2x	10.5%
EQT Infrastructure IV Co-Investment (F) SCSp (Connect)	2020	20,500,000	18,447,000	-	27,009,771	1.5x	26.0%
EQT Infrastructure IV Co-Investment (G) SCSp (Lightspeed)	2020	16,658,113	16,712,983	-	19,833,843	1.2x	8.0%
EQT Infrastructure V (No.2) USD SCSp	2020	177,000,000	90,132,109	11,546,169	78,570,960	1.0x	0.0%
ASF VIII Infrastructure B L.P.	2021	166,000,000	19,419,124	178,813	20,495,306	NM	NM
Axiom Infrastructure North America (2021)	2021	112,350,297	37,534,223	578,984	38,200,398	NM	NM
Basalt Infrastructure Partners III	2021	140,000,000	78,752,237	-	80,550,391	NM	NM
BIP III Ride Co-Investment L.P. (Project Ride)	2021	20,379,329	20,379,329	-	20,008,682	NM	NM
KKR Global Infrastructure Investors IV (USD) SCSp	2021	249,000,000	64,983,540	892,590	54,101,586	NM	NM

Information provided by the New York City Teachers' Retirement System Consultants

Alternative Assets Manager Performance Detail



Through September 30, 2022

	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
Stonepeak Infrastructure Fund IV, L.P.	2021	207,000,000	75,380,538	585,219	79,810,471	NM	NM
Stonepeak Patagonia (Co-Invest) Holdings LP (Project Panther)	2021	9,059,000	8,173,009	-	8,172,260	NM	NM
Stonepeak Tiger (Co-Invest) Holdings (I-B) LP	2021	28,500,000	24,106,729	-	25,185,981	NM	NM
Ardian Infra Fund V Co-Invest Eden	2022	28,440,456	28,440,456	-	24,636,094	NM	NM
Blackrock Global Infrastructure Fund IV	2022	159,000,000	-	-	-	NM	NM
Brookfield Infrastructure Fund V, LP	2022	198,360,000	-	-	(672,961)	NM	NM
InfraVia European Fund V SCSp	2022	141,617,349	13,330,463	-	10,529,710	NM	NM
NYCRS EIG Energy Partners Co-Investment, L.P.	2022	16,180,000	-	-	-	-	0.0%

Information provided by the New York City Teachers' Retirement System Consultants



Through December 31, 2022

	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
TOTAL OPPORTUNISTIC FIXED INCOME		3,993,174,564	4,342,289,692	2,296,034,982	3,369,038,512	0.83%	6.98%
Avenue Special Situations Fund V, L.P.	2007	25,261,658	25,650,392	33,533,622	-		10.89%
Avenue Europe Special Sit. Fund, L.P.	2008	19,564,421	18,559,393	35,192,684	-		12.68%
PIMCO DiSCO Fund, L.P.	2008	150,000,000	150,427,750	204,457,599	-		11.23%
Torchlight Debt Opportunity Fund III, LLC	2009	50,000,000	53,306,159	79,307,054	-		13.36%
Avenue Special Situations Fund VI (A), L.P.	2011	70,000,000	71,766,544	72,515,200	7,148,776	0.00%	2.21%
GoldenTree Managed Account	2011	140,000,000	140,878,192	-	246,027,156	4.09%	5.75%
Marathon Centre Street Partnership, L.P. - Asset Class	2011	218,750,000	405,562,500	238,218,750	304,532,395	-1.62%	5.46%
AG Centre Street Partnership, L.P. - CC Asset Class	2012	180,000,000	217,878,984	47,626,130	237,670,582	0.00%	4.40%
Apollo Centre Street Partnership, L.P.	2012	340,416,667	735,318,661	466,460,450	405,316,569	0.59%	6.17%
FCO MA Centre Street L.P.	2012	140,000,000	279,911,140	284,877,174	99,765,181	0.00%	8.87%
OHA Centre Street Partnership, L.P.	2012	262,500,000	332,455,346	73,107,049	438,470,782	3.12%	8.07%
Contrarian Centre Street Partnership, L.P. - Asset Class	2013	90,000,000	90,000,000	-	102,538,651	2.86%	1.69%
Lone Star Fund VIII (U.S.), L.P.	2013	130,000,000	127,970,674	130,628,052	21,649,652	0.00%	8.17%
Oaktree Opportunities Fund IX, L.P.	2013	100,000,000	100,000,000	77,467,707	76,587,180	0.00%	6.59%
Ares Centre Street Partnership, L.P.	2014	140,000,000	140,000,000	-	250,161,870	0.00%	8.64%
Brightwood Capital Fund III, L.P.	2015	35,000,000	28,403,806	28,595,535	10,837,212	0.00%	6.95%
Torchlight Debt Opportunity Fund V, LP	2015	67,000,000	53,600,000	64,215,398	6,525,526	0.48%	10.61%
Brightwood Capital Fund IV, LP	2016	87,500,000	87,500,000	33,619,475	78,536,042	0.00%	7.58%
ICG Centre Street Partnership, L.P.	2017	120,000,000	186,686,620	121,622,643	97,131,364	0.00%	8.29%
KKR OFI SMA	2017	294,000,000	227,150,593	66,181,026	219,448,538	0.00%	7.61%
Maranon Centre Street Partnership, L.P. -	2018	112,000,000	106,398,791	2,811,639	138,477,674	1.89%	8.78%
FCO MA Centre Street II (TR) LP	2019	140,000,000	175,065,052	105,655,571	98,742,669	0.00%	14.28%
Torchlight Debt Fund VI, LP -	2019	95,000,000	116,926,883	71,761,742	68,280,973	0.83%	8.80%
FCO MA Centre Street II EXP (TR) LP	2020	70,000,000	31,715,126	7,386,904	27,052,142	0.00%	8.68%
GCM Grosvenor NYC Emerging OFI Managers, L.P. - Class A	2020	133,000,000	110,560,658	35,753,103	104,383,311	0.00%	22.68%
KKR-NYC Credit C L.P.	2020	55,681,818	39,177,596	1,948,060	34,470,255	0.00%	-6.03%
Marathon Centre Street Partnership, L.P. - Asset Class - Subsequent Commitmen	2020	87,500,000	67,812,500	-	77,001,415	1.14%	8.08%
Torchlight Debt Fund VII, LP	2020	90,000,000	49,555,026	4,555,026	47,592,229	-0.60%	4.96%
400 Capital Centre Street LP	2021	76,000,000	59,211,096	5,798,274	56,603,899	0.00%	4.89%
Barings Centre Street CLO Equity Partnership L.P.	2022	95,000,000	20,090,634	2,449,922	17,837,970	0.00%	3.72%
Brightwood Capital Fund V, LP	2022	59,000,000	23,708,170	-	25,899,835	0.00%	11.25%
Centre Street CarVal Partnership LP	2022	115,000,000	28,750,000	-	29,107,726	1.57%	5.25%

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

Alternative Assets Manager Performance Detail



Through December 31, 2022

	Vintage Year	Commitment - Closing (Base)	Contributions Cumulative (Local)	Distributions Cumulative	Final Market Value	3 Month Base%	Inception IRR%
GCM Grosvenor NYC EM OFI 2022-1	2022	95,000,000	2,627,540	-	2,627,540		0.00%
KLCP Domestic Fund III LP	2022	110,000,000	37,663,865	289,194	38,613,397	0.00%	9.09%

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



**Teachers' Retirement System
of New York City**

Appendix D

Footnotes



Through December 31, 2022

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

Pages 8 - 13 - Portfolio Asset Allocation

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

Pages 14 - 16 - Performance Attribution: Total Plan

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



Through December 31, 2022

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

The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 25.90%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI Net * 9.55%*

*International Active- Global: MSCI World Net Dividends Index * 1.10%*

*Emerging Markets: MSCI Custom TRS Emerging Markets (Net) * 9.27%*

*International Emerging Managers FoF: NYC Blended Custom Benchmark for FoF * 0.72%*

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

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

*Private Real Estate – Core: NFI - ODCE Net * 3.00%*

*Private Real Estate – Non-Core: NFI - ODCE Net + 200bps * 2.26%*

*Infrastructure : CPI + 4% * 2.00%*

*US Treasury Short Term: FTSE US Government Bond 1-3 Years Index * 2.70%*

*US Treasury Intermediate: USBIG TSY AGN 1-10 * 9.18%*

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

*US Treasury Long Duration: FTSE US Government Bond 10+ Years Index * 3.24%*

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

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

*Mortgage: Bloomberg US Mortgage Backed Securities * 5.19%*



Through December 31, 2022

*ETI: ETI Custom Benchmark * 0.68%*

*Investment Grade Corporate: NYC Custom IGC Benchmark * 5.87%*

*High Yield: Bloomberg U.S. HY - 2% Issuer Cap * 5.18%*

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

*TIPS: Bloomberg Global Infl-Linked: U.S. TIPS * 3.50%*

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

*Opportunistic Fixed: OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum * 3.65%*

Page 17 – Allocation and Selection Effects - Asset Class Breakdown

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



Through December 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 World ex US Index: Beginning 2.2017 benchmark changed from MSCI EAFE to MSCI World ex USA Net Index.
- [4] Name changed from SSGA MSCI EAFE Small Cap Index 12.2017
- [5] World ex USA SC PASSIVE CUSTOM BM: Beginning 12.2017 benchmark changed from MSCI EAFE Small Cap Net to MSCI World ex US Small Cap (Net).
- [6] TRS Custom EM Index: Beginning 7.2018 benchmark changed from FTSE Custom NYC Teachers Emerging Index to MSCI Custom TRS Emerging Markets (Net). Beginning 11.2019 benchmark changed to MSCI Emerging Markets.
- [7] TRS Custom EM Passive Index: Beginning 11.2019 benchmark changed from MSCI Custom TRS Emerging Markets (Net) to MSCI Emerging Markets.
- [8] NYC Blended Custom Benchmark for FoF (TRS): Beginning 2.2020 benchmark composition changed from 85% MSCI World ex USA IMI NR / 15% MSCI Custom TRS Emerging Markets (Net) to MSCI ACWI ex USA IMI Net.
- [9] NYC Custom Mortgage Benchmark: Beginning 9.2020 benchmark changed from FTSE Mortgage Index to Bloomberg US Mortgage Backed Securities.
- [10] NYC Custom IGC Benchmark: Beginning 3.2021 benchmark changed from NYC - Investment Grade Credit to Bloomberg U.S. Corporate Inv Grade..
- [11] Assets were in transition from 9/29/17 to 2/11/19

ETI Quarterly Report (Public):

Teachers' Retirement System - 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		Low Income Investment Fund		NCB Capital Impact*		Neighborhood Housing Service		Wells Fargo		Local Initiatives Support Corp		Enterprise Cmty Loan Fund		NYC HDC	
Contractual Commitment	\$30.00		\$40.00		\$9.00		\$250.00		\$25.00		\$0.00		\$3.00		\$20.00		\$10.00		\$10.00		\$10.00	
Current Market Value	\$3.92		\$22.40		\$2.12		\$127.91		\$11.74		\$1.26		\$0.17		\$7.86		\$4.30		\$0.00		\$0.00	
Commitments Q4 (included in total)	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units	Dollars	Units
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$2.14	117	\$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
Manhattan	0.00	0	0.00	0	0.00	0	0.45	9	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
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
Outside of NYC	0.00	0	0.00	0	0.00	0	1.79	45	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$0.00	0	\$0.00	0	\$0.00	0	\$4.37	171	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
Delivered Q4 (included in total)																						
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$1.35	25	\$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	1.56	65	0.00	0	0.00	0	0.00	0
Manhattan	0.00	0	0.00	0	0.00	0	0.50	25	0.00	0	0.00	0	0.00	0	0.00	0	2.08	65	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
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
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
Total	\$0.00	0	\$0.00	0	\$0.00	0	\$1.85	50	\$0.00	0	\$0.00	0	\$0.00	0	\$1.56	65	\$2.08	65	\$0.00	0	\$0.00	0
Total Commitments																						
Bronx	\$0.00	0	\$0.00	0	\$0.00	0	\$28.95	1,000	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$2.67	90	\$1.09	101	\$0.00	0
Brooklyn	0.00	0	1.05	0	0.00	0	7.66	198	1.11	95	0.00	0	0.00	0	0.00	0	0.86	74	0.00	0	0.00	0
Manhattan	0.00	0	0.00	0	0.00	0	11.33	289	1.08	82	0.00	0	0.00	0	0.00	0	2.29	113	0.46	26	0.00	0
Queens	0.00	0	0.00	0	0.00	0	3.16	120	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
Outside of NYC	0.00	0	0.00	0	0.00	0	12.97	326	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$0.00	0	\$1.05	0	\$0.00	0	\$64.07	1,933	\$2.19	177	\$0.00	0	\$0.00	0	\$0.00	0	\$5.83	277	\$1.55	127	\$0.00	0
Historical Investments																						
Bronx	\$1.75	60	\$14.08	802	\$0.00	0	\$80.70	5,323	\$3.11	178	\$0.00	0	\$0.00	0	\$1.13	90	\$1.09	48	\$0.00	0	\$0.00	0
Brooklyn	1.86	54	9.21	481	0.00	0	99.92	4,582	5.46	401	0.00	0	0.33	7	2.49	130	1.59	82	2.11	360	0.00	0
Manhattan	2.24	100	3.24	283	3.12	236	55.87	3,701	8.61	498	1.59	123	0.25	15	4.83	203	2.08	65	0.00	0	0.00	0
Queens	5.62	293	0.66	54	0.00	0	24.89	1,007	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	0.23	8	0.00	0	0.00	0	0.00	0	0.36	67	0.00	0	0.00	0	0.00	0
Outside of NYC	0.60	39	2.11	41	0.00	0	20.18	724	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Total	\$12.06	546	\$29.29	1,661	\$3.12	236	\$281.78	15,345	\$17.17	1,077	\$1.59	123	\$0.58	22	\$8.80	490	\$4.75	195	\$2.11	360	\$0.00	0

Note: Dollar amount listed in millions

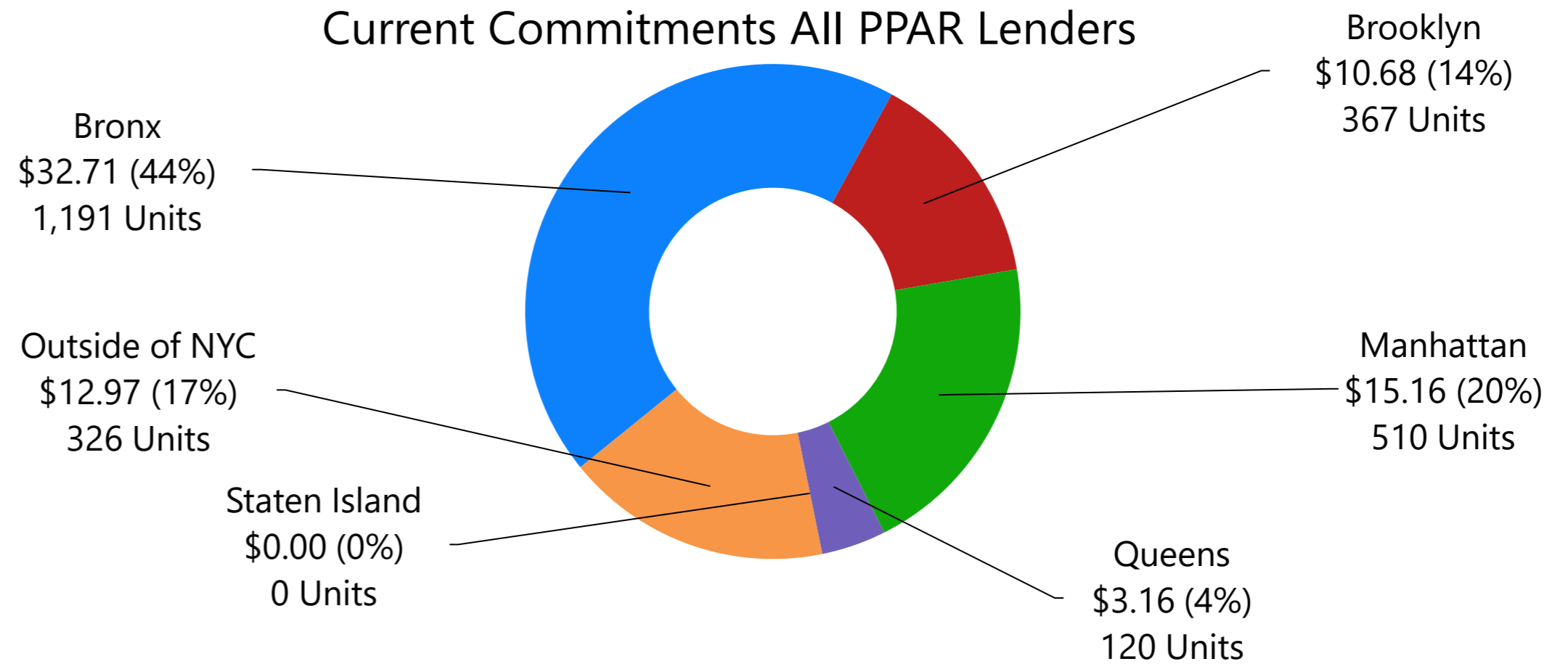
* NCB Capital Impact's Buy-Sell Agreement terminated effective 7/29/2014.

Teachers' Retirement System - Economically Targeted Investments Quarterly Report

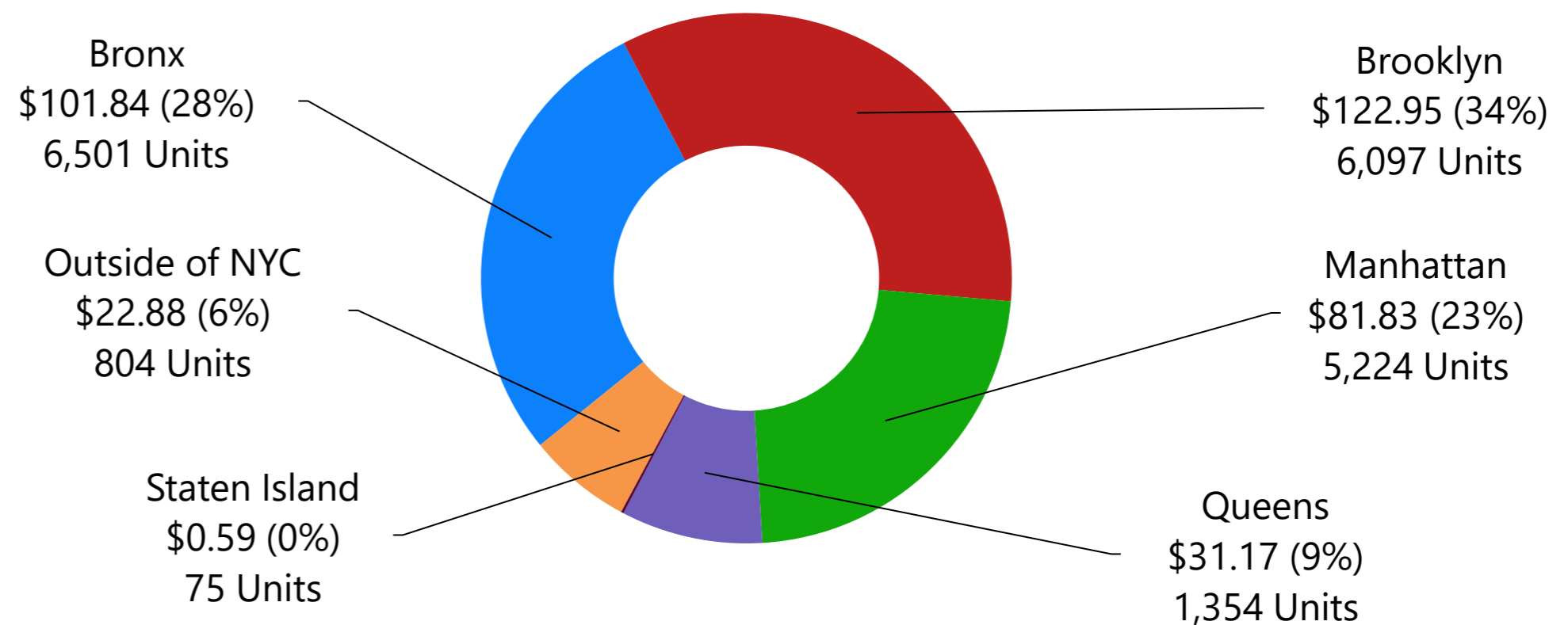
Public/Private Apartment Rehabilitation Program (PPAR)

Lenders	All Lender Totals	
Contractual Commitment ¹	\$407.00	
Current Market Value ¹	\$181.67	
Commitments Q4 (included in total)	Dollars	Units
Bronx	\$2.14	117
Brooklyn	0.00	0
Manhattan	0.45	9
Queens	0.00	0
Staten Island	0.00	0
Outside of NYC	1.79	45
Total	\$4.37	171
Delivered Q4 (included in total)		
Bronx	\$1.35	25
Brooklyn	1.56	65
Manhattan	2.58	90
Queens	0.00	0
Staten Island	0.00	0
Outside of NYC	0.00	0
Total	\$5.50	180
Total Commitments		
Bronx	\$32.71	1,191
Brooklyn	10.68	367
Manhattan	15.16	510
Queens	3.16	120
Staten Island	0.00	0
Outside of NYC	12.97	326
Total	\$74.68	2,514
Historical Investments		
Bronx	\$101.84	6,501
Brooklyn	122.95	6,097
Manhattan	81.83	5,224
Queens	31.17	1,354
Staten Island	0.59	75
Outside of NYC	22.88	804
Total	\$361.26	20,055

Current Commitments All PPAR Lenders



Historical Investments Since Inception All PPAR Lenders



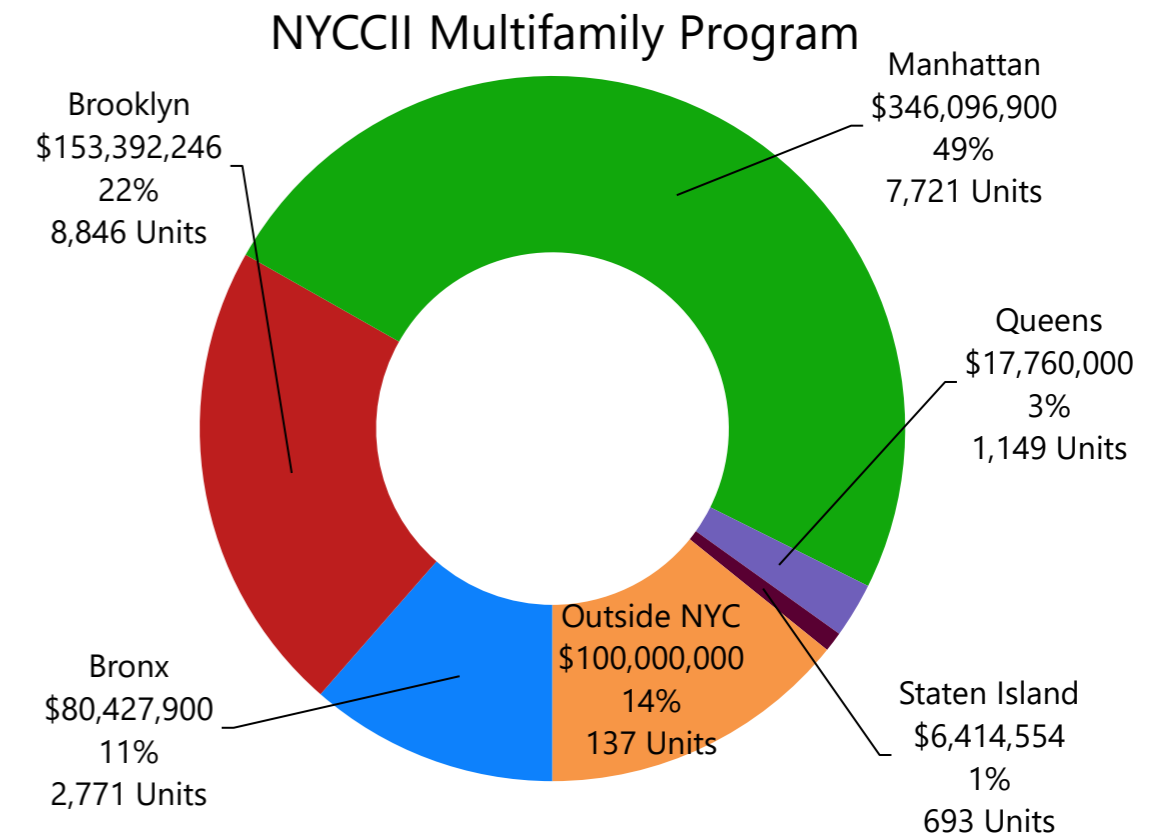
Note: Dollar amount listed in millions

Teachers' Retirement System - Economically Targeted Investments Quarterly Report

AFL-CIO Housing Investment Trust (HIT) Market Value \$279.09 million¹

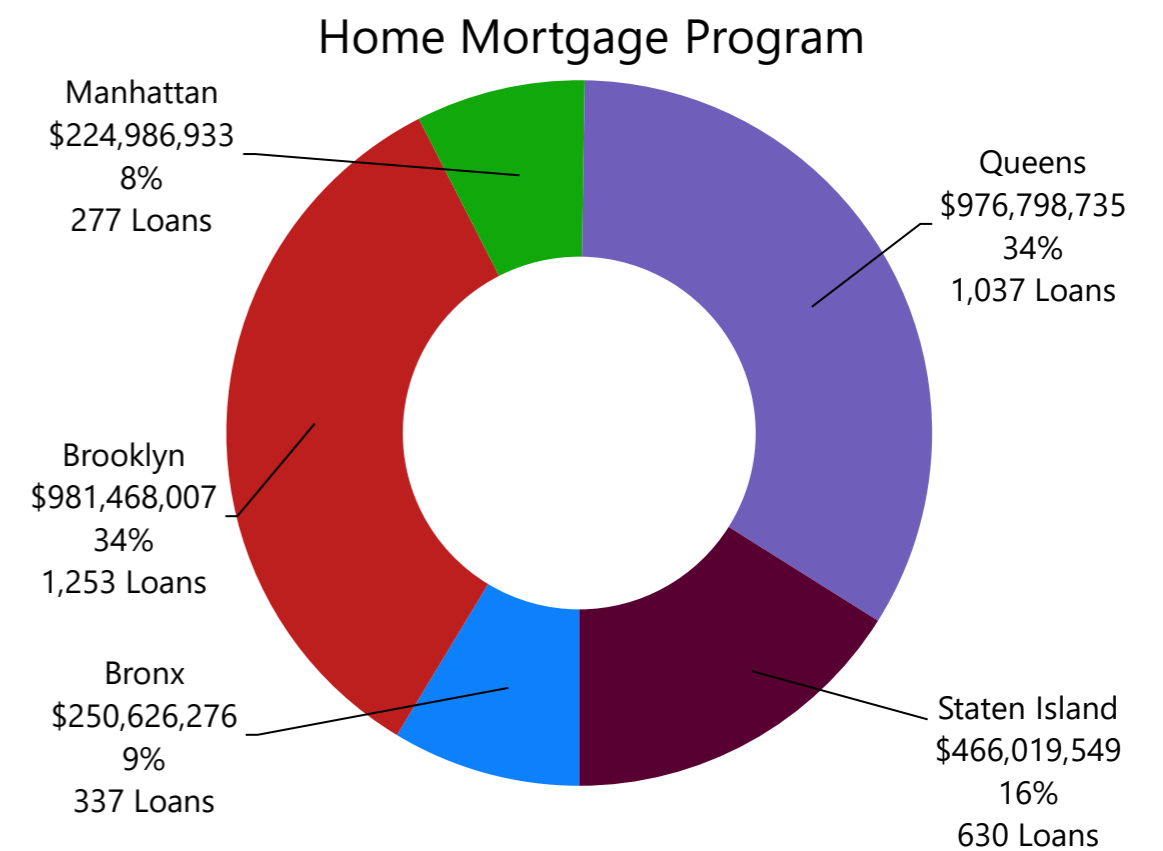
NYC Community Investment Initiative (NYCCII)

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



HIT Home Mortgage Program

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
Total	\$348,300,563	446	\$2,551,598,937	3,088	\$2,899,899,500	3,534



TEACHERS Loans	Phase I:	133	Phase II:	2,022	Total:	2,155
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¹Interest is reinvested

²Low/Moderate Income Units

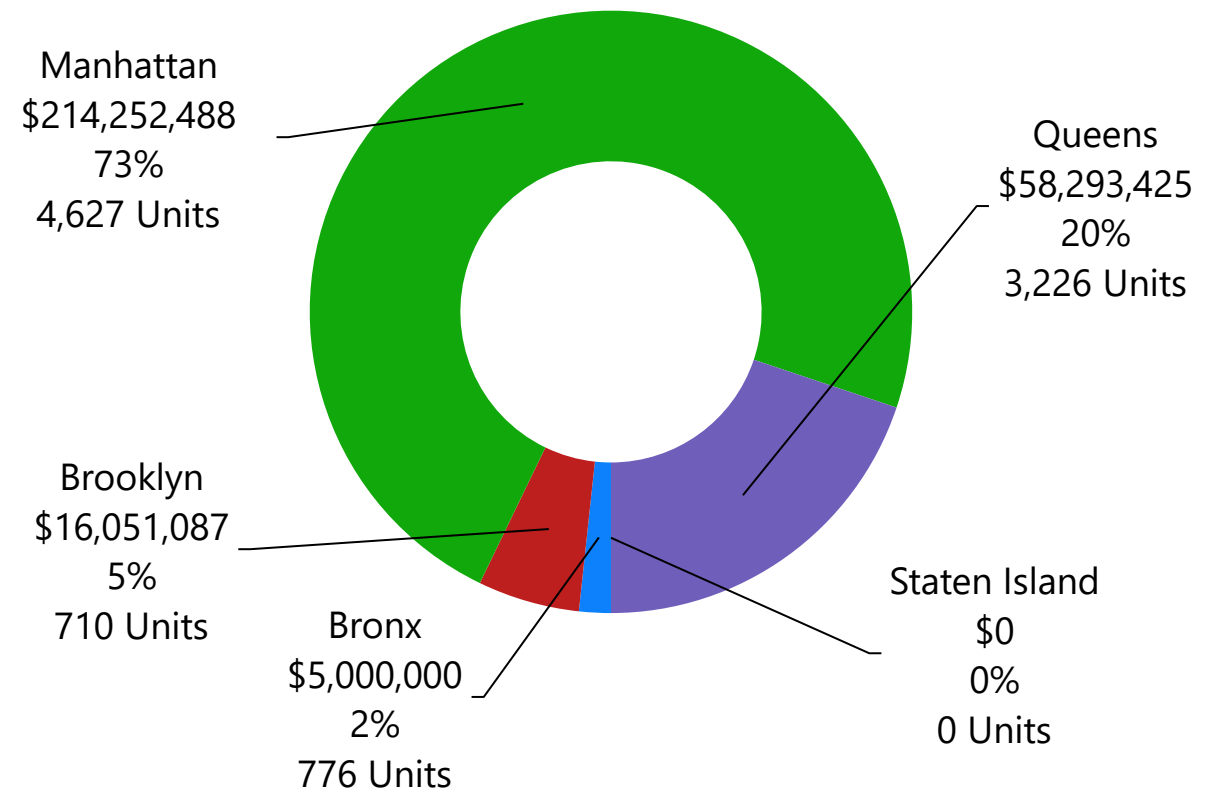
Teachers' Retirement System - Economically Targeted Investments Quarterly Report

AFL-CIO Housing Investment Trust (HIT)

NYC Workforce Housing Investments: 2009 - 2015

Borough	Investments	LMI Units
	Since Inception	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
Total	\$293,597,000	9,339

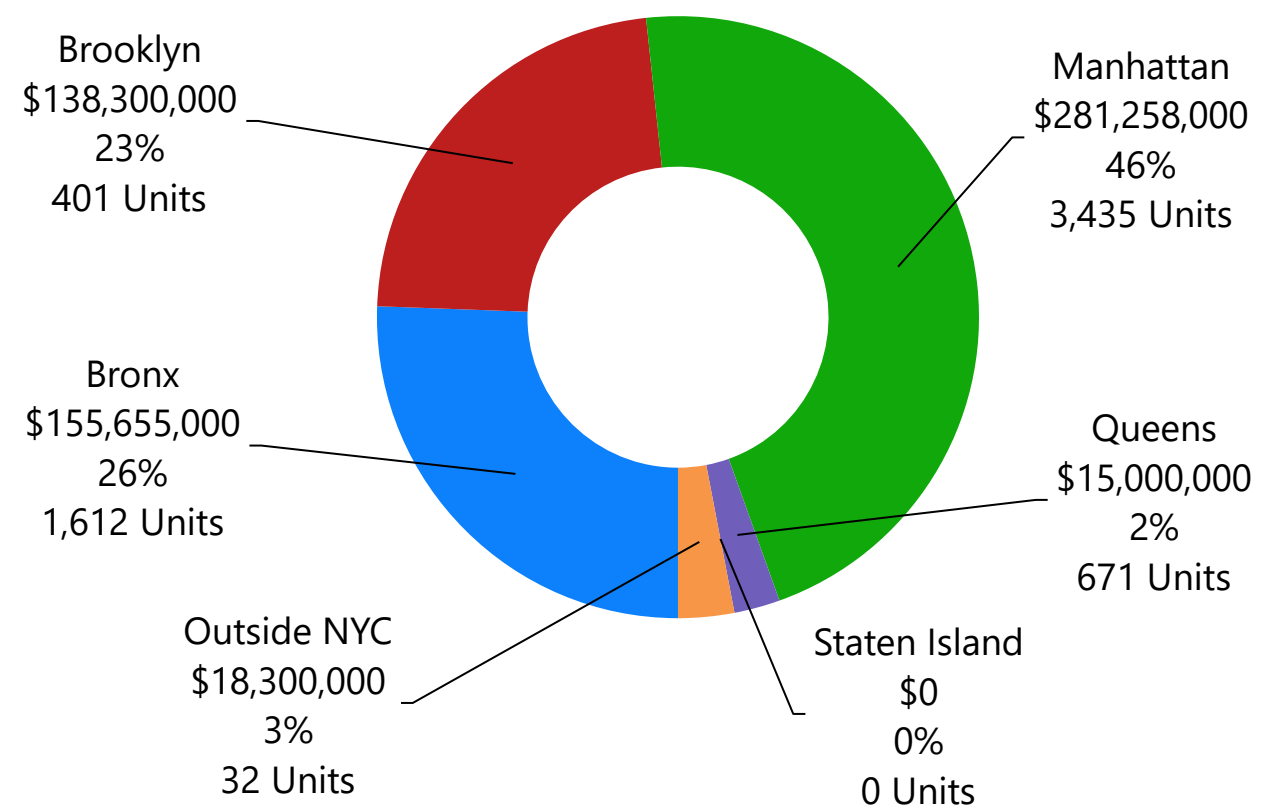
NYC Workforce Housing Investments



HIT Housing Investment Strategy: 2015 - Q4 2022

Borough	Q4 Investments	Investments	Q4	LMI Units
		Since Inception	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
Total	\$0	\$608,513,000	0	6,151

HIT Housing Investment Strategy



Teachers' Retirement System - Economically Targeted Investments Quarterly Report

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

\$157.5 million Allocated (35% of total account)
Market Value \$139.59 million

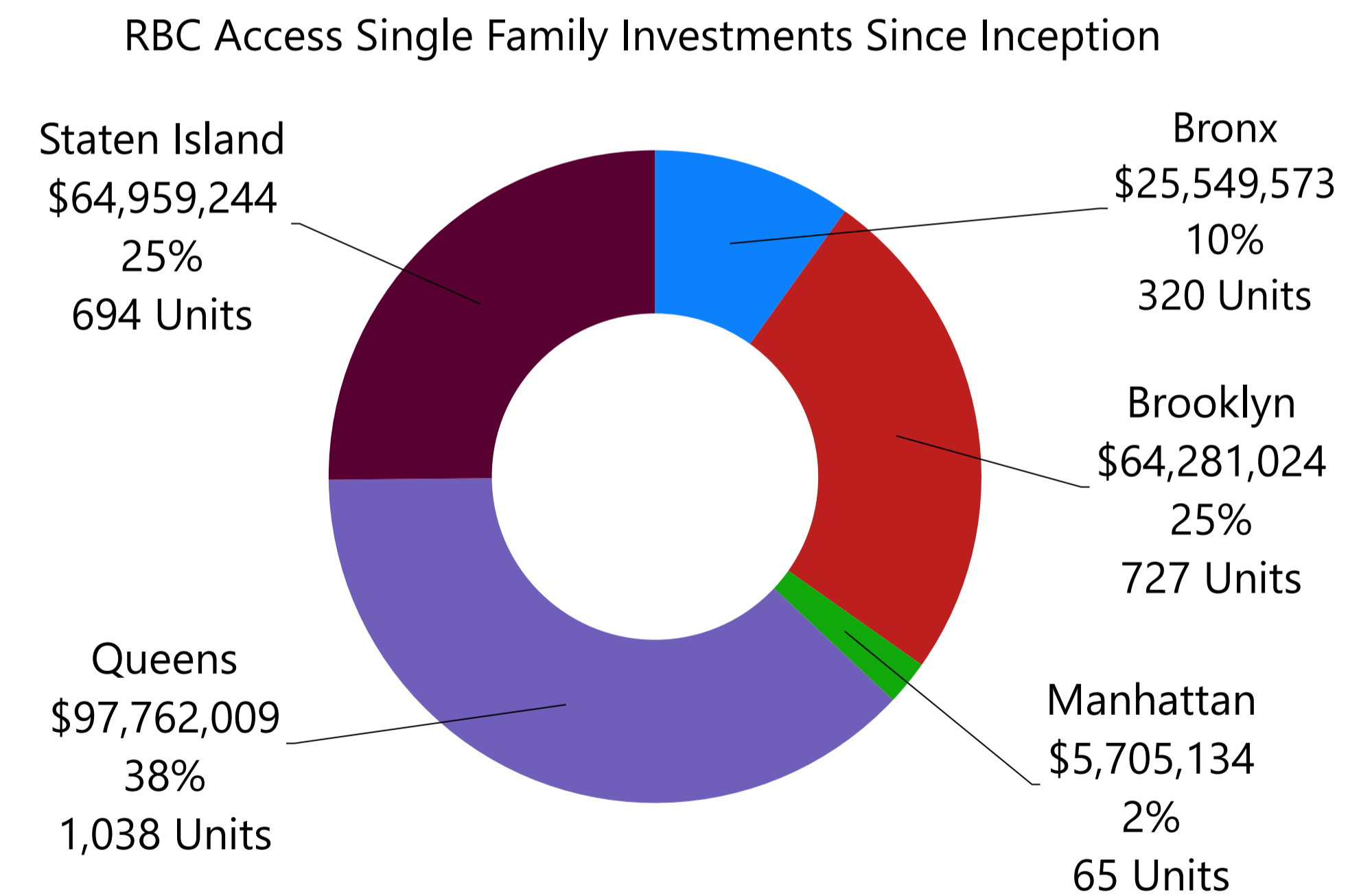
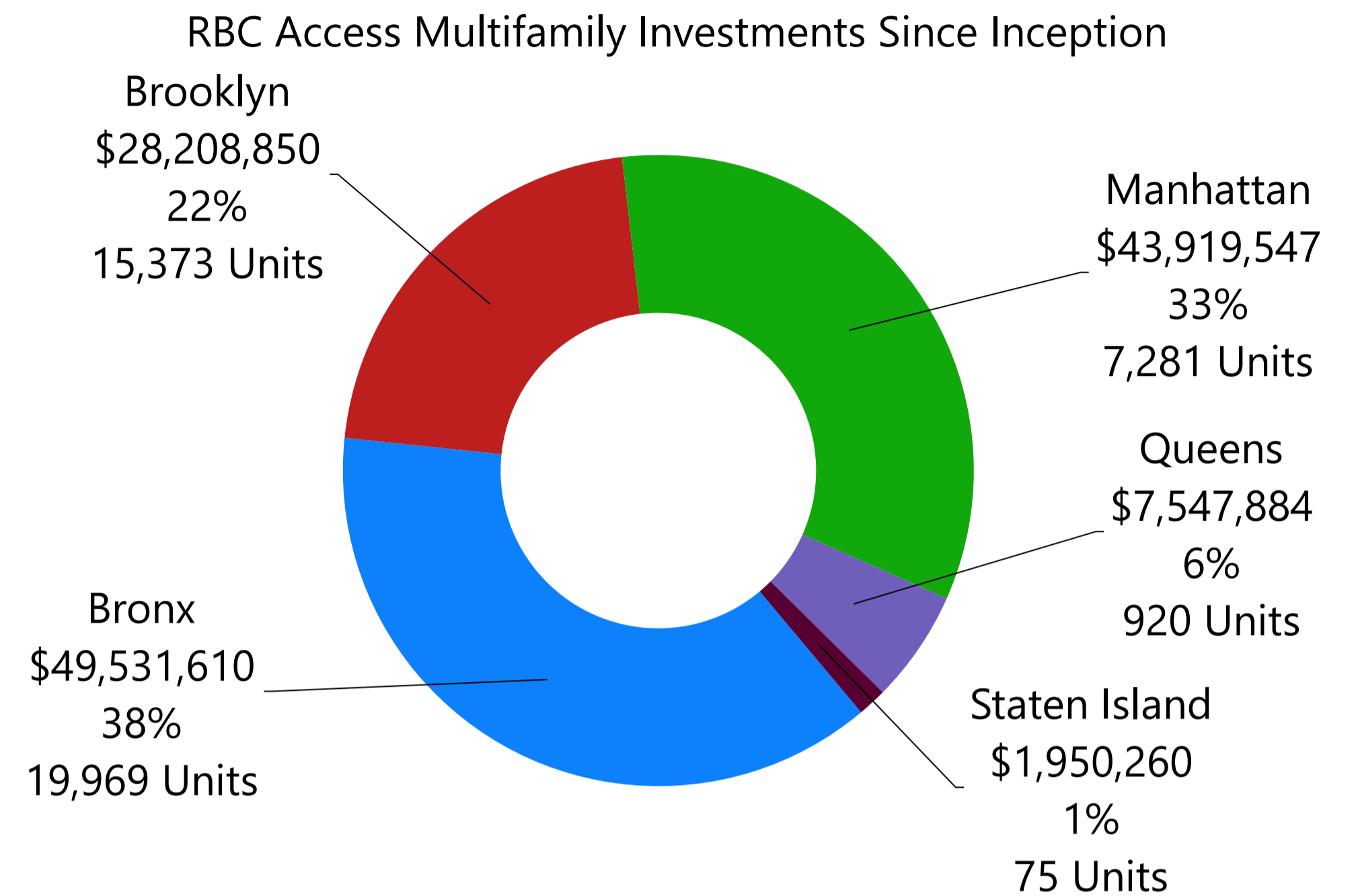
Multifamily Investments Detail	\$ Invested ¹		Units ²	
	Q4	Total	Q4	Total
Bronx	\$0	\$49,531,610	0	19,969
Brooklyn	0	28,208,850	0	15,373
Manhattan	0	43,919,547	0	7,281
Queens	0	7,547,884	0	920
Staten Island	0	1,950,260	0	75
Total TEACHERS Multifamily Investments	\$0	\$131,158,150	0	43,618
Multifamily Total All Systems	\$0	\$374,737,572	0	43,618

Single Family Investments Detail	\$ Invested		Units	
	Q4	Total	Q4	Total
Bronx	\$116,550	\$25,549,573	1	320
Brooklyn	0	64,281,024	0	727
Manhattan	0	5,705,134	0	65
Queens	0	97,762,009	0	1,038
Staten Island	0	64,959,244	0	694
Total TEACHERS Single Family Investments	\$116,550	\$258,256,985	1	2,844
Single Family Total All Systems	\$333,000	\$737,877,099	1	2,844

Other Investments Detail	\$ Invested		Loans	
	Q4	Total	Q4	Total
Bronx	\$0	\$236,250	0	1
Brooklyn	0	1,886,641	0	8
Manhattan	0	851,517	0	5
Queens	0	190,201	0	3
Staten Island	0	0	0	0
Total TEACHERS Other Investments	\$0	\$3,164,609	0	17
Other Investments Total All Systems	\$0	\$9,041,740	0	17

Grand Total TEACHERS	\$116,550	\$392,579,744
Grand Total All Systems	\$333,000	\$1,121,656,410

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



Teachers' Retirement System - Economically Targeted Investments Quarterly Report

ETI Real Estate Equity Investments

Total Market Value \$225.42 million

Hudson Market Value \$72.83 million

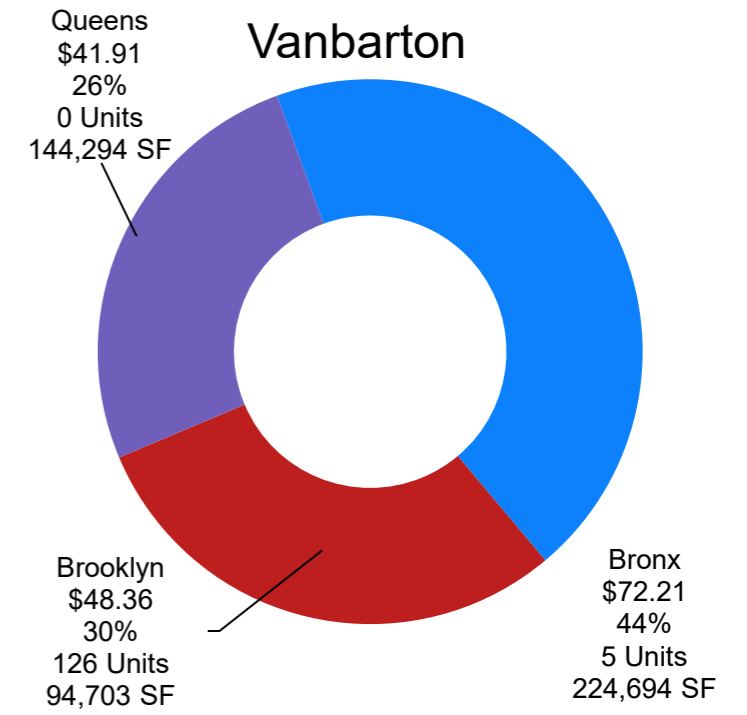
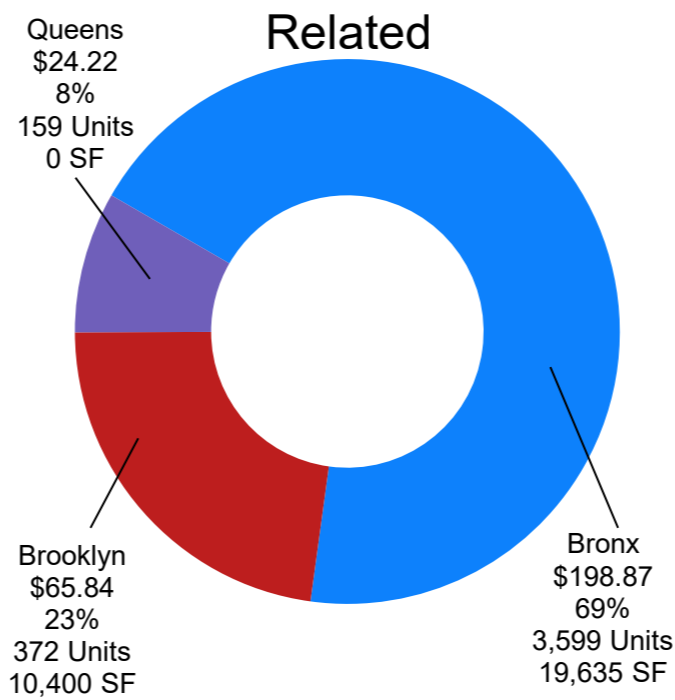
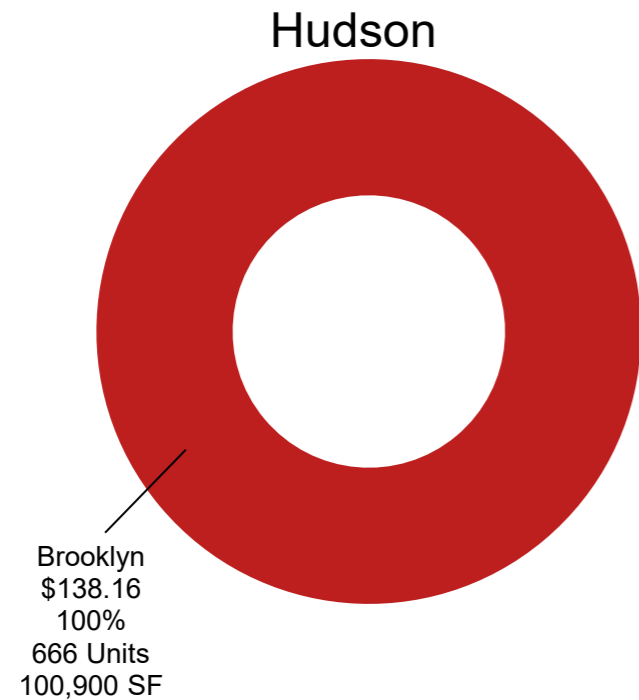
Borough	Gross			
	Capital Invested	Total Units	Workforce Units	Comm. SF
Bronx	\$0.00	0	0	0
Brooklyn	138.16	666	666	100,900
Manhattan	0.00	0	0	0
Queens	0.00	0	0	0
Staten Island	0.00	0	0	0
Outside NYC	0.00	0	0	0
Totals	\$138.16	666	666	100,900

Related Market Value \$114.84 million

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

Vanbarton (Emmes) Market Value \$37.74 million

Borough	Gross			
	Capital Invested	Total Units	Workforce Units	Comm. SF
Bronx	\$72.21	5	2	224,694
Brooklyn	48.36	126	61	94,703
Manhattan	0.00	0	0	0
Queens	41.91	0	0	144,294
Staten Island	0.00	0	0	0
Outside NYC	0.00	0	0	0
Totals	\$162.48	131	63	463,691



*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):



Hamilton Lane®

Teachers' Retirement System of the City of New York – Public Material

Third Quarter 2022 Report

Teachers' Retirement System of the City of New York
Third Quarter 2022 Report

Content

Section 1 – Portfolio Update

Section 2 – Portfolio Assessment

Appendix A – Glossary of Terms

Appendix B – Disclosure Statements

Teachers' Retirement System of the City of New York

Third Quarter 2022 Report



Section 1:

Portfolio Update



Portfolio Snapshot

Hamilton Lane was engaged by the Teachers' Retirement System of the City of New York ("TRS") in October 2010 to provide alternative investment consulting services in accordance with the investment objectives of the TRS Private Equity portfolio (the "Portfolio"). This report represents the review by Hamilton Lane of TRS's Portfolio and is based upon information made available to Hamilton Lane by the general partners sponsoring each of the partnership investments in the Portfolio as of September 30, 2022, with highlights through December 31, 2022.

Portfolio Snapshot			
\$ millions	6/30/2022	9/30/2022	Change
Active Partnerships	230	233	3
Active GP Relationships	97	97	-
Capital Committed ⁽¹⁾	\$13,112.1	\$13,357.2	\$245.1
Liquidated Commitments	\$713.7	\$728.7	\$15.0
Commitments Sold	\$288.5	\$288.5	-
Unfunded Commitment	\$4,453.9	\$4,433.6	(\$20.3)
Capital Contributed	\$10,705.7	\$11,006.0	\$300.3
Capital Distributed	\$9,735.0	\$9,910.8	\$175.8
Market Value	\$7,390.3	\$7,518.7	\$128.4
Total Value Multiple	1.60x	1.58x	(0.02x)
Since Inception IRR	12.04%	11.85%	(19 bps)
Avg. Age of Active Commitments	6.6 years	6.7 years	-

⁽¹⁾ The "change" in capital committed and active commitments from the prior quarter reflects currency adjustments from existing foreign denominated funds and nine new commitments made during the quarter.

Private Equity Allocation: TRS has a target allocation of 7.0% +/- 3.0% to Private Equity. As of September 30, 2022, Private Equity constituted 8.7% of TRS plan. (Plan value is \$85.956 billion as of September 30, 2022)

Performance: As of September 30, 2022, the Portfolio consists of 233 partnerships and 97 underlying fund managers. The Portfolio has generated a since inception internal rate of return ("IRR") of 11.85% and a total value multiple of 1.58x.

Portfolio Exposures: The Corporate Finance/Buyout strategy represents 60% of the Portfolio's total exposure, Special Situations/Turnaround represent 17%, Secondaries represents 10%, Growth Equity accounts for 9%, Multi-Strategy represents 4%, and Other represents 1%. The Portfolio has significant exposure to North America, with 70% of the underlying company market value based in the region.



Portfolio Overview

Commitments

The table below highlights the funds that have closed year-to-date as of September 30, 2022.

Year to Date Commitments as of September 30, 2022			
Closing Date	Partnership	Strategy	Commitment Amount (\$ in Millions)
1/13/2022	FTV VII, L.P.	Growth Equity	\$53.0
1/13/2022	Growth VII-Centre, L.P.	Growth Equity	\$11.9
2/3/2022	Raine Partners IV LP	Growth Equity	\$32.0
2/23/2022	WCAS XIV, L.P.	Buyout	\$96.0
2/23/2022	WCAS XIV N Co-Invest, L.P.	Buyout	\$32.0
3/1/2022	Green Equity Investors IX, L.P.	Buyout	\$120.0
4/13/2022	Thoma Bravo Fund XV, L.P.	Buyout	\$120.0
4/13/2022	Thoma Bravo Co-Invest Opportunities XV-1, L.P.	Buyout	\$40.0
4/20/2022	GEI IX Co-invest N, L.P.	Buyout	\$40.0
4/22/2022	Platinum Equity Capital Partners VI, L.P.	Special Situations	\$152.3
4/22/2022	PECP VI Co-Investment, L.P.	Special Situations	\$50.8
4/28/2022	Lexington Capital Partners X, L.P.	Secondaries	\$96.0
4/28/2022	LCP X Co-Invest Partners B, L.P.	Secondaries	\$32.0
4/29/2022	Nordic Capital Fund XI, L.P.	Buyout	\$78.4
4/29/2022	LightBay Investment Partners II	Special Situations	\$30.0
5/13/2022	Hg Genesis 10 L.P.	Buyout	\$61.6
5/13/2022	Hg N1 Co-Invest L.P.	Buyout	\$24.0
5/13/2022	Hg Saturn 3, L.P.	Buyout	\$48.0
6/16/2022	EQT X USD SCSP	Buyout	\$108.0
6/16/2022	EQT X Co-Invest	Buyout	\$36.0
7/1/2022	Apax XI, L.P.	Buyout	\$128.0
7/28/2022	Warburg Pincus Global Growth 14, L.P.	Growth Equity	\$91.7
7/28/2022	WPGG 14 Co-Invest-N, L.P.	Growth Equity	\$55.1
9/16/2022	N11 Co-Investment, SCSp	Buyout	\$34.5
Total			\$1,571.3

During the third quarter, the Portfolio closed on four new investments, totaling \$309.3 million, which are detailed below:

Apax XI, L.P. (\$128.0 million) The fund targets companies across the technology, consumer, healthcare and services sectors, primarily in North America and Europe.

Warburg Pincus Global Growth 14, L.P. (\$91.7 million) The fund invests across a diversified set of investment stages, ranging from late-stage venture through early buyout. The General Partner expects to target technology,



industrials & business services, financial services, healthcare, real estate, consumer, and energy transition, but does not have target exposures set for the fund.

WPGG 14 Co-Invest-N, L.P. (\$55.1 million) The fund is a co-investment sleeve alongside Warburg Pincus Global Growth 14, L.P.

N11 Co-Investment, SCSp (\$34.5 million) The fund is a co-investment sleeve alongside Nordic Capital Fund XI, L.P.



Subsequent Closings

Subsequent to the end of the third quarter of 2022, and through the end of Q4 2022, the Portfolio made three commitments totaling \$113.0 million.

Subsequent Commitments After September 30, 2022			
Closing Date	Partnership	Strategy	Commitment Amount (\$ in Millions)
11/10/2022	Integrum Capital Partners LP	Buyout	\$20.0
11/10/2022	Integrum NYC Co-Invest LP	Multi-Strategy	\$12.0
11/10/2022	KKR European Fund VI (USD) SCSp	Buyout	\$81.0
Total			\$113.0

Integrum Capital Partners L.P. (\$20.0 million) The Fund targets technology-enabled services companies in North America within four sub-sectors and expects to allocate approximately 40% of the Fund to insurance services, 30% to corporate & business services, and 30% to financial technology & payments and traditional financial services.

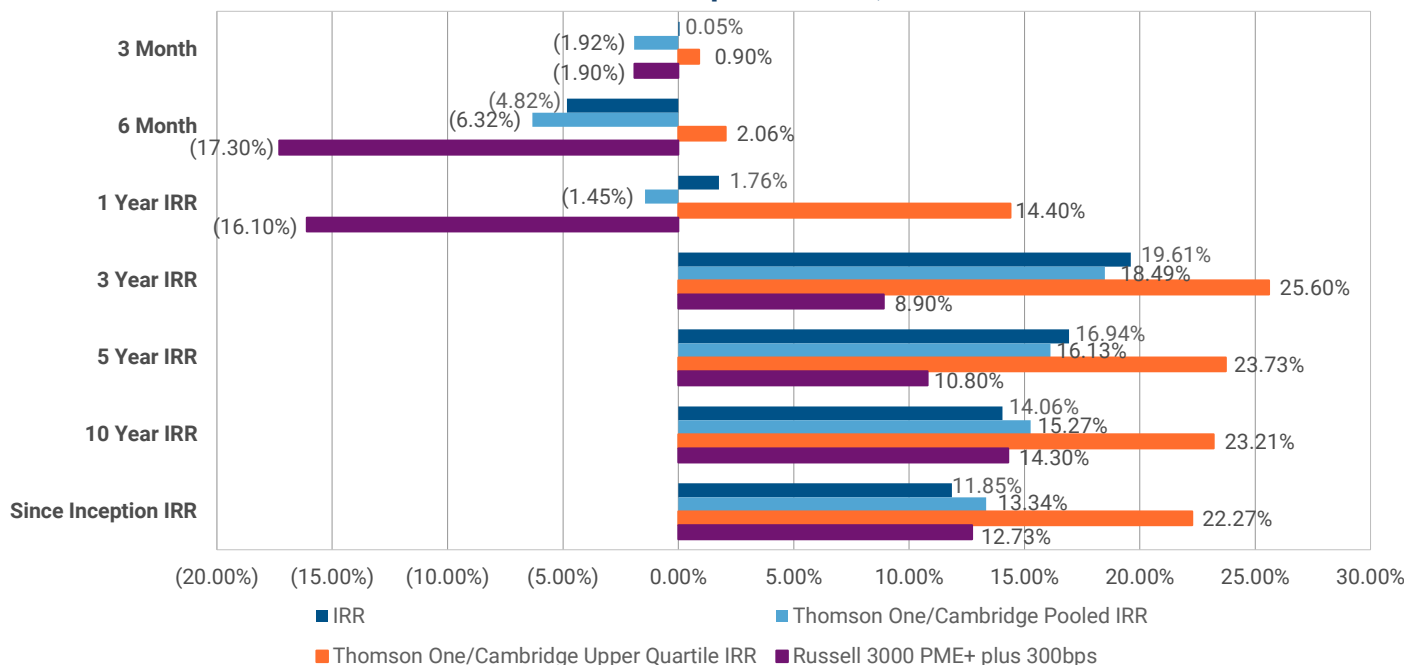
Integrum NYC Co-Invest L.P. (\$12.0 million) The Fund is a co-investment sleeve alongside Integrum Capital Partners L.P.

KKR European Fund VI (USD) SCSp (\$81.0 million) The Fund employs a thematic approach to investing in the technology, media & communication, consumer, business services, financial services, healthcare and industrials sectors with a combined sector/region approach.



Portfolio Performance Summary

NYC Teachers IRR Performance vs. Benchmarks as of September 30, 2022



The chart below is a graphical depiction of the IRR performance of the Portfolio with respect to 3-Month, 6-Month, 1-Year, 3-Year, 5-Year, 10-Year and Since Inception time periods. The Portfolio is benchmarked against the Cambridge Associates Pooled IRR, Cambridge Associates Upper Quartile IRR and the Russell 3000 Public Market Equivalent (“PME+”) plus 300 basis points.

Note: Private Equity benchmark is provided by ThomsonOne/Cambridge and reflects U.S. Buyout Funds Pooled IRR and Upper Quartile IRR as of September 30, 2022 for funds with vintage years 1999 to 2020. PME+ is the Russell 3000 Total Return Index and incorporates the PME + methodology. This calculation includes a 3% premium.

- As private equity is a long-term asset class, the most significant time horizon is the since inception time period. Performance on a since inception basis for the third quarter of 2022 decreased 19 basis points from the prior quarter, with the Portfolio generating an IRR of 11.85%.
 - Relative to the benchmarks, the since inception IRR is underperforming the Cambridge Associates Pooled IRR by 149 basis points, the Cambridge Associates Upper Quartile IRR by 1,042 basis points, and Russell 3000 PME+ plus 300 basis points by 88 basis points.
- Performance on a one-year basis for the third quarter of 2022 decreased by 689 basis points from the prior quarter, with the Portfolio generating an IRR of 1.76% as of September 30, 2022.
 - Relative to the benchmarks, the one-year IRR is outperforming the Cambridge Associates Pooled IRR by 321 basis points and the Russell 3000 PME+ plus 300 basis points by 1,786 basis points but is underperforming the Cambridge Associates Upper Quartile IRR by 1,264 basis points.



Quarterly Value Analysis

The table below details quarterly performance of the Portfolio for the year ending September 30, 2022.

Portfolio Summary					
\$ millions	Quarter Ended				Year Ended
	12/31/2021	3/31/2022	6/30/2022	9/30/2022	9/30/2022
Beginning Market Value	\$7,223.0	\$7,743.3	\$7,713.6	\$7,390.3	\$7,223.0
Paid-In Capital	558.5	241.7	318.4	300.3	1,418.9
Distributions	(567.9)	(244.2)	(263.0)	(175.8)	(1,250.9)
Net Value Change	\$529.7	(\$27.2)	(\$378.7)	\$3.9	\$127.7
Ending Market Value	\$7,743.3	\$7,713.6	\$7,390.3	\$7,518.7	\$7,518.7
Unfunded Commitments	\$3,703.3	\$3,828.4	\$4,453.9	\$4,433.6	\$4,433.6
Total Exposure	\$11,446.6	\$11,542.0	\$11,844.2	\$11,952.3	\$11,952.3
Point-to-Point IRR	7.29%	(0.35%)	(4.89%)	0.05%	1.76%
Since Inception IRR	12.79%	12.57%	12.04%	11.85%	11.85%

- Over the past twelve months, the Portfolio has experienced a total of \$127.7 million in net value appreciation.
- Contributions of \$1,418.9 million outpaced distributions of \$1,250.9 million during the twelve months ending September 30, 2022.
- The Portfolio experienced a point-to-point IRR of 1.76% over the year.



Performance by Strategy

The table below details IRR performance of the Portfolio with respect to Investment Strategy. The Portfolio is benchmarked against the Cambridge Associates Median Quartile IRR, and the Cambridge Associates Upper Quartile IRR.

Performance by Investment Strategy				
Investment Strategy	Capital Committed ⁽¹⁾	IRR	Cambridge Associates Median IRR ⁽²⁾	Cambridge Associates Upper IRR ⁽²⁾
Buyout	\$7,414,996,116	12.35%	13.57%	22.27%
Mega Buyout	3,714,234,261	15.46%	13.22%	19.49%
Large Buyout	1,958,258,049	15.60%	14.91%	23.24%
Middle-Market Buyout	1,025,203,806	9.79%	12.06%	20.94%
Small Buyout	717,300,000	8.52%	14.10%	23.14%
Growth Equity	1,086,742,582	12.48%	10.53%	21.32%
Multi-Strategy	593,744,013	5.75%	10.36%	20.03%
Secondaries	1,567,167,644	15.03%	15.98%	25.21%
Special Situations	2,226,000,000	20.19%	11.91%	20.37%
Other	432,500,000	3.17%	10.36%	20.03%

⁽¹⁾ Commitments in the above table do not include liquidated/sold investments.

⁽²⁾ Multi-Strategy and Other benchmarks reflect the Cambridge Associates Global All Private Equity benchmark



Vintage Year Performance

The table below details IRR performance of the Portfolio with respect to Vintage Year. The Portfolio is benchmarked against the Cambridge Associates Median Quartile IRR, Cambridge Associates Upper Quartile IRR, and the Russell 3000 Public Market Equivalent (“PME+”).

Performance by Vintage Year						
Vintage Year	Capital Committed ⁽¹⁾	IRR	Cambridge Associates Median IRR ⁽²⁾	Cambridge Associates Upper IRR ⁽²⁾	PME Return ⁽³⁾	PME Spread ⁽⁴⁾
1999	\$65,000,000	7.49%	9.29%	14.15%	6.34%	1.15%
2000	20,000,000	5.59%	14.31%	22.32%	5.50%	0.09%
2001	50,000,000	18.79%	20.53%	30.28%	7.64%	11.15%
2002	-	N/A	N/A	N/A	N/A	N/A
2003	85,000,000	19.64%	13.59%	19.24%	6.53%	13.11%
2004	174,000,000	2.48%	10.84%	14.02%	7.72%	(5.24%)
2005	139,225,800	5.22%	8.12%	12.36%	6.97%	(1.76%)
2006	428,364,875	8.15%	9.02%	16.40%	9.09%	(0.94%)
2007	496,263,562	6.33%	13.79%	17.67%	11.64%	(5.31%)
2008	703,585,088	11.30%	14.09%	20.39%	13.37%	(2.08%)
2009	42,500,000	9.57%	22.96%	26.64%	14.83%	(5.26%)
2010	45,000,000	11.87%	15.39%	22.52%	12.15%	(0.29%)
2011	690,542,498	16.92%	17.06%	23.48%	12.94%	3.98%
2012	467,750,000	13.42%	17.27%	24.56%	11.81%	1.60%
2013	746,600,000	13.71%	17.16%	30.55%	11.85%	1.86%
2014	789,563,873	17.95%	19.49%	23.32%	10.72%	7.23%
2015	443,038,062	22.80%	18.73%	25.39%	10.02%	12.78%
2016	741,066,823	21.81%	20.90%	26.91%	9.16%	12.65%
2017	852,842,754	18.81%	24.77%	35.42%	5.45%	13.37%
2018	1,046,842,393	23.49%	20.96%	32.07%	1.16%	22.33%
2019	1,037,166,721	25.86%	23.05%	31.04%	(7.67%)	33.53%
2020	852,806,714	N/M	N/M	N/M	N/M	N/M
2021	1,868,753,635	N/M	N/M	N/M	N/M	N/M
2022	1,571,237,559	N/M	N/M	N/M	N/M	N/M

⁽¹⁾ Commitments in the above table do not include liquidated/sold investments

⁽²⁾ Cambridge Associates Benchmark - US Buyouts as of 9/30/2022

⁽³⁾ PME Return is the Russell 3000 Total Return Index and incorporates the PME+ methodology

⁽⁴⁾ PME Spread is the percentage difference between the IRR and PME Benchmark for each respective vintage year



Performance by Geographic Focus

The table below details IRR performance of the Portfolio with respect to Geographic Focus.

Performance Summary by Region ⁽¹⁾⁽²⁾						
Region	Capital Committed	Paid-In Capital	Capital Distributed	Reported Market Value	IRR	Total Value Multiple
North America	\$8,053,979,636	\$7,443,004,883	\$7,278,383,612	\$4,912,672,694	12.50%	1.64x
Western Europe	2,078,979,519	1,506,198,220	900,504,739	1,322,008,622	11.17%	1.48x
Global/Rest of World	3,224,191,200	2,056,800,653	1,731,931,725	1,284,012,161	10.76%	1.47x
Total	\$13,357,150,355	\$11,006,003,756	\$9,910,820,076	\$7,518,693,477	11.85%	1.58x

Note: Commitments in the above table do not include liquidated/sold investments.

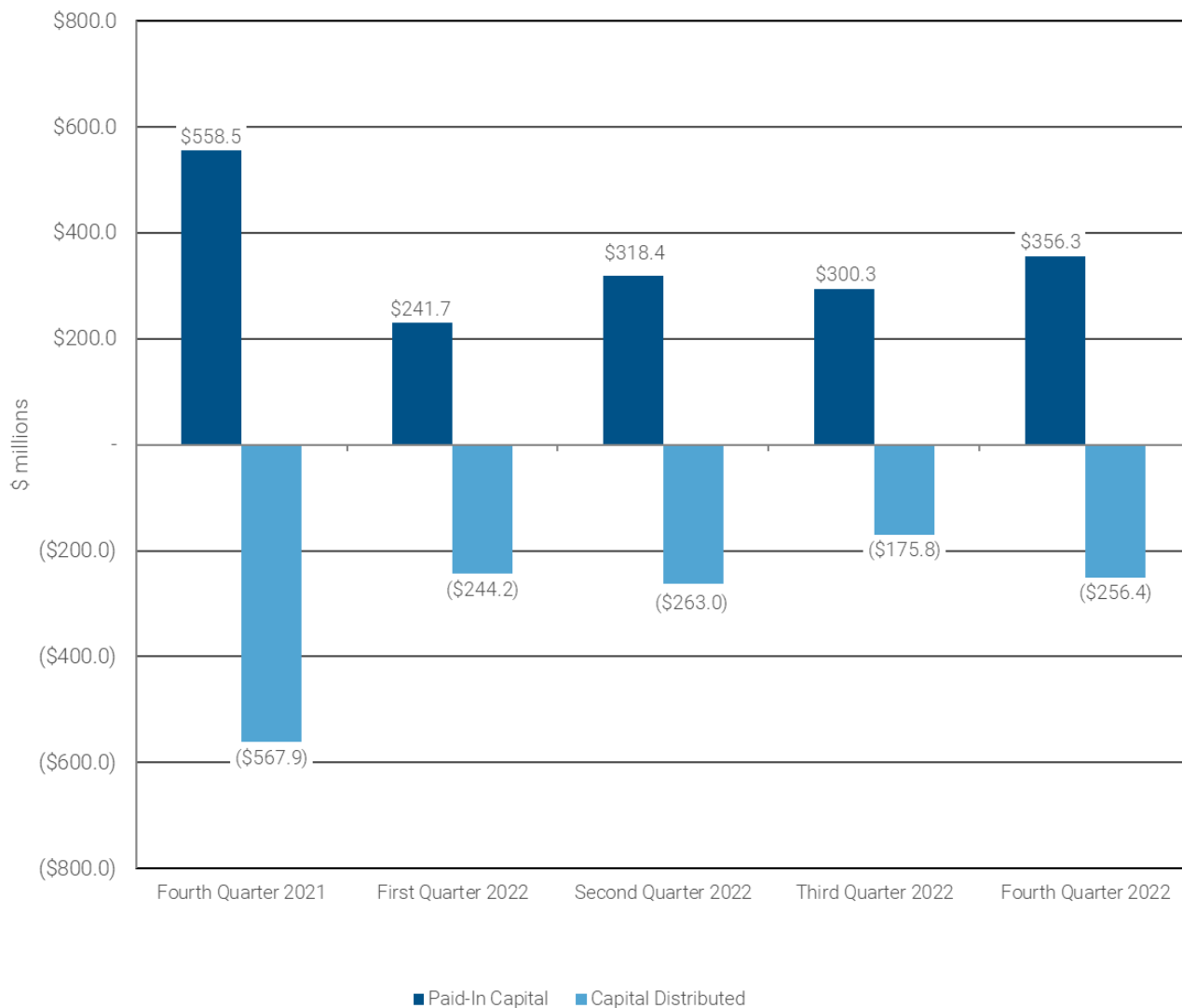
⁽¹⁾Prior to a partnership being 75% drawn, region focus is based on the GP-stated geographic strategy. Subsequent to a partnership being 75% drawn, fund geographic focus is based on actual portfolio company exposure by total invested. Partnerships with less than 75% of total invested capital allocated to one geographic region are classified as Global.

⁽²⁾Fund Geographic Focus is based on a number of factors, including the GP-stated geographic focus, the number of investments within each region, invested capital by region, the location of the firm's offices and investment professionals, and the underlying fund currency.



Cash Flow Drivers

The chart below highlights the cash flows of the Portfolio over the past five quarters ended December 31, 2022.

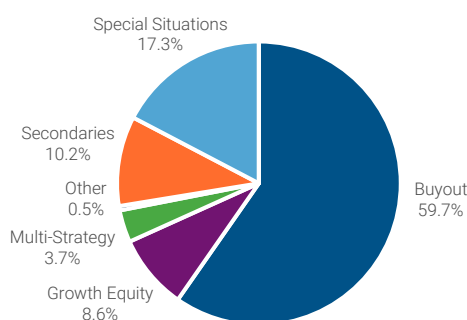




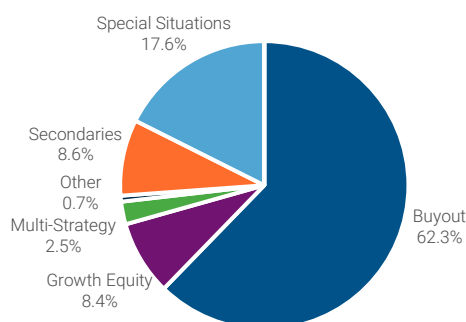
Portfolio Exposures

The pie charts below represent the strategic and geographic diversification of the Portfolio as of September 30, 2022. Strategy is measured by market value and by total exposure, which is the sum of the market value and the unfunded commitments and provides a snapshot of the Portfolio's future diversification. Geography is measured by the Portfolio's exposed market value of the underlying portfolio companies.

**Strategic Diversification
by Total Exposure
As of September 30, 2022**



**Strategic Diversification
by Market Value
As of September 30, 2022**



As of September 30, 2022

	Sum of Current Exposed Market Value	% of Total
North America	\$5,901.3	70%
U.S. (non-NY State)	\$5,364.9	63%
U.S. (NY State)	\$536.4	7%
New York City	\$159.3	2%
Non-New York City	\$377.1	5%
Western Europe	\$1,817.9	21%
Rest of World	\$565.8	7%
Asia	\$212.5	3%
Total	\$8,497.4	100%

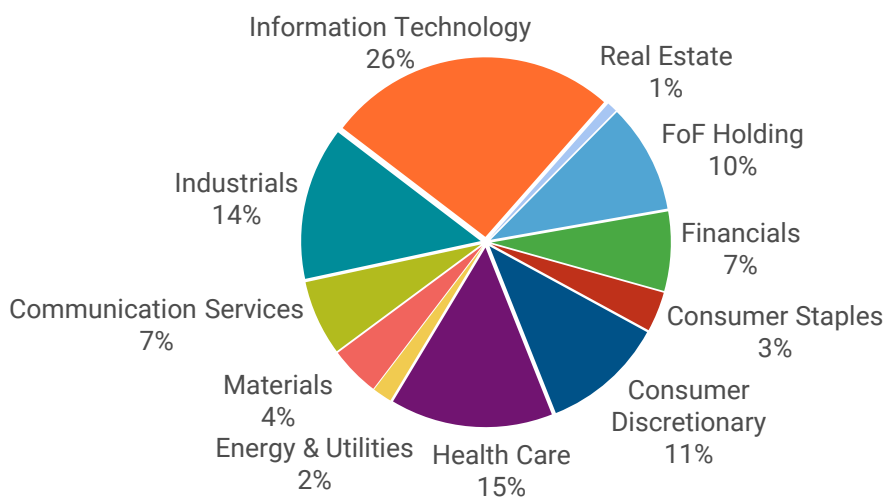
- The Portfolio is focused in the Corporate Finance/Buyout strategy, with 60% of the total exposure attributable to this strategy.
- With respect to geography, the Portfolio is concentrated in North America, with 70% of the Portfolio's underlying market value attributable to this region.
 - The remaining 30% of the Portfolio's exposure is diversified between Western Europe, Asia and 'Rest-of-World'.
 - Roughly 6% of the Portfolio's current exposed market value is based in New York.



- About 2%, or roughly \$153.4 million, of the Portfolio’s current exposed market value is based in New York City.

The pie chart below represents the industry diversification of the Portfolio as of September 30, 2022. Industry diversification is measured by the Portfolio’s exposed market value of the underlying portfolio companies.

**Underlying Investment Diversification
by Industry
As of September 30, 2022**



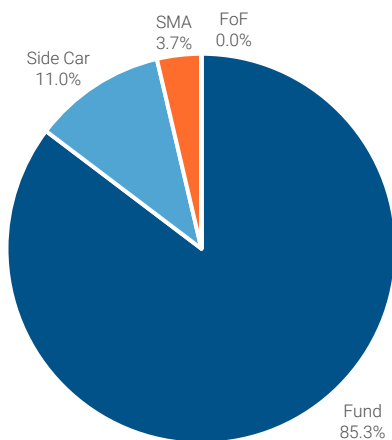
Note: FoF Holding primarily comprised of secondary purchases made through investments with a Secondaries strategy



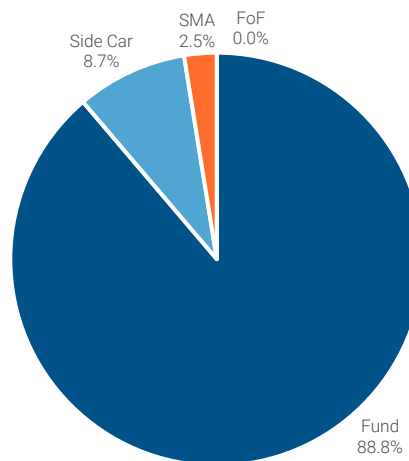
Portfolio Exposures by Structure

The pie charts below represent the diversification of the Portfolio by structure as of September 30, 2022.

Structure Diversification
by Total Exposure
as of September 30, 2022



Structure Diversification
by Market Value
as of September 30, 2022



Teachers' Retirement System of the City of New York

Third Quarter 2022 Report



Section 2:

Portfolio Assessment

Teachers' Retirement System of the City of New York
Private Equity Portfolio
As of September 30, 2022 (in USD)

Vintage Year	Investment	First Drawdown	Committed Capital	Paid-In Capital	Distributed Capital	Market Value	Multiple	IRR ²	PME Benchmark ³	PME Spread ⁴
Active Investments										
1999	Cypress Merchant Banking Partners II, LP	7/8/1999	\$50,000,000	\$53,983,573	\$50,623,035	\$19,373	0.94x	(1.18%)	5.55%	(6.72%)
2005	Lincolnshire Equity Fund II, L.P.	2/26/2001	15,000,000	14,446,100	28,316,507	256,967	1.98x	24.57%	6.97%	17.60%
2000	SCP Private Equity Partners II, L.P.	3/17/2000	20,000,000	22,196,012	1,393,373	0.44x	0.67x	(8.78%)	5.54%	(14.32%)
2001	Apollo Investment Fund V, L.P.	8/2/2001	30,000,000	46,758,049	92,244,552	255,663	1.98x	39.77%	8.33%	30.44%
2001	RRE Ventures III, L.P.	6/13/2002	20,000,000	26,269,971	34,025,652	1,152,141	1.34x	5.35%	6.54%	(1.19%)
2003	Ares Corporate Opportunities Fund, L.P.	5/4/2004	15,000,000	18,004,666	26,835,382	24,075	1.49x	13.07%	7.37%	5.69%
2003	Blackstone Capital Partners IV, L.P.	1/10/2003	30,000,000	30,690,321	77,506,027	181,063	2.53x	37.80%	8.23%	29.57%
2003	FS Equity Partners V, L.P.	5/30/2003	25,000,000	20,204,332	40,645,843	1,479,185	2.08x	15.21%	4.88%	10.33%
2003	Leeds Weld Equity Partners IV, L.P.	12/13/2004	15,000,000	15,441,454	20,171,550	26,608	1.31x	4.23%	5.50%	(1.27%)
2004	FdG Capital Partners II, L.P.	8/30/2004	35,000,000	37,720,808	44,599,148	770,176	1.21x	3.66%	6.73%	(3.08%)
2017	Lincolnshire Equity Fund III, L.P.	12/23/2004	25,000,000	25,003,156	35,566,467	8,935,419	1.78x	27.35%	11.08%	16.27%
2007	Markstone Capital Partners, L.P.	7/21/2004	35,000,000	40,766,689	17,074,753	163,685	0.42x	(32.74%)	10.79%	(43.53%)
2004	New York/Fairview Emerging Managers (Tranche A), L.P.	10/21/2004	24,000,000	24,646,553	26,755,851	363,562	1.10x	1.56%	8.69%	(7.14%)
2004	Yucaipa American Alliance Fund I, L.P.	10/1/2004	55,000,000	80,825,203	95,185,290	392,376	1.18x	3.98%	10.70%	(6.72%)
2005	JP Morgan Fleming (Tranche A), L.P.	12/21/2005	31,000,000	31,385,254	36,642,635	5,490,830	1.34x	5.20%	10.78%	(5.58%)
2005	New Mountain Partners II, L.P.	1/12/2005	23,225,800	21,482,843	40,669,939	131,849	1.91x	13.58%	4.42%	9.16%
2005	Palladium Equity Partners III, L.P.	8/10/2005	35,000,000	37,538,632	70,080,011	93,814	1.87x	14.65%	11.10%	3.56%
2005	Snow Phipps Group, L.P.	8/2/2007	15,000,000	18,281,012	16,489,268	7,462,749	1.31x	5.02%	10.15%	(5.79%)
2005	USPF II Institutional Fund, L.P.	11/23/2005	35,000,000	46,164,567	55,381,287	412,568	1.21x	3.25%	7.65%	(4.40%)
2006	Aising Capital II, L.P.	1/12/2006	4,500,000	5,099,563	5,112,604	178,208	1.04x	0.67%	7.94%	(7.27%)
2006	Ampersand 2006, L.P.	7/6/2007	15,000,000	15,000,000	46,844,870	145,086	3.13x	16.91%	8.92%	7.99%
2006	Apollo Investment Fund VI, L.P.	5/10/2006	35,000,000	45,048,207	67,409,336	635,387	1.51x	8.64%	7.57%	1.07%
2006	Ares Corporate Opportunities Fund II, L.P.	5/23/2006	30,000,000	32,905,774	54,882,374	51,674	1.67x	13.06%	3.80%	9.25%
2006	BDCM Opportunity Fund II, L.P.	12/28/2006	25,000,000	37,325,097	102,347,045	2,145,973	2.80x	18.35%	11.67%	6.68%
2006	Blackstone Capital Partners V, L.P.	4/13/2006	75,600,000	76,564,529	129,564,127	494,273	1.70x	8.51%	8.40%	0.11%
2006	Catterton Partners VI, L.P.	12/14/2006	30,000,000	34,300,531	59,205,324	7,228,961	1.94x	11.48%	8.98%	2.50%
2006	Onven Fourth Fund, L.P.	1/22/2007	43,254,875	45,626,816	65,913,468	28,797	1.45x	7.37%	7.64%	(0.28%)
2006	Fairview Ventures Fund III, L.P.	7/1/2007	20,000,000	21,448,431	52,994,437	99,758	2.47x	14.92%	12.92%	2.00%
2006	First Reserve Fund XI, L.P.	12/22/2006	30,000,000	34,241,000	22,947,827	30,579	0.67x	(9.75%)	6.27%	(16.02%)
2006	GF Capital Private Equity Fund, L.P.	3/20/2008	15,000,000	15,773,790	20,491,630	88,794,904	1.86x	11.69%	11.90%	(0.21%)
2006	Landmark Equity Partners XIII, L.P.	5/15/2006	25,000,000	23,702,196	31,569,537	5,719	1.33x	5.01%	6.91%	(9.90%)
2006	MidOcean Partners III, L.P.	6/19/2007	40,000,000	46,609,945	102,326,401	1,663,824	2.23x	13.57%	9.96%	3.61%
2006	RRE Ventures IV, L.P.	10/25/2006	25,000,000	31,745,125	47,182,024	9,315,422	1.78x	6.82%	11.55%	(4.74%)
2006	Thomas, McNamee & Partners II, L.P.	11/30/2006	15,000,000	14,867,607	33,330,365	118,795	2.25x	16.41%	11.55%	4.86%
2006	Carlyle Partners V, L.P.	9/28/2007	50,000,000	50,852,090	87,486,774	6,002,410	1.84x	13.41%	10.94%	2.47%
2007	Co-Investment Partners Europe, L.P.	12/5/2008	26,370,276	29,219,332	35,984,150	347,856	1.24x	4.31%	15.21%	(10.90%)
2007	Constellation Ventures III, L.P.	11/20/2008	15,000,000	17,324,813	15,025,182	104,007	0.87x	(1.82%)	16.36%	(18.17%)
2007	FTVentures III, L.P.	3/1/2007	14,081,947	14,882,466	25,170,126	3,618,142	1.93x	10.99%	10.00%	0.98%
2007	GSO Capital Opportunities Fund, L.P.	8/15/2008	30,000,000	48,291,339	67,124,625	504,467	1.40x	17.31%	10.11%	7.20%
2007	Halvard Capital Partners I, L.P.	11/15/2008	15,000,000	13,095,098	16,133,697	1,524	0.87x	(6.83%)	9.78%	(2.83%)
2007	Montreux Equity Partners IV, L.P.	3/27/2007	15,000,000	14,930,359	8,224,849	12,535,607	1.29x	3.95%	9.70%	(5.75%)
2007	Nautic Partners VI, L.P.	6/30/2008	20,000,000	21,669,686	49,419,361	4,182,510	2.47x	18.59%	11.89%	6.70%
2007	New Mountain Partners III, L.P.	9/25/2007	35,000,000	37,361,887	88,420,577	1,477,432	2.41x	14.59%	13.17%	1.42%
2007	PCG Clean Energy & Technology Fund East, L.P.	4/25/2008	60,000,000	51,863,265	15,962,869	3,191,162	0.37x	(12.48%)	12.83%	(25.31%)
2007	Pegasus Partners IV, L.P.	10/9/2007	20,000,000	26,489,188	20,637,660	2,885,031	0.89x	(2.35%)	11.04%	(13.39%)
2007	Pine Brook Capital Partners, L.P.	4/7/2008	22,500,000	24,896,117	33,888,331	592,484	1.38x	8.36%	12.07%	(3.72%)
2007	Quaker BioVentures II, L.P.	4/18/2008	15,000,000	14,977,775	16,616,973	276,216	1.13x	2.58%	12.59%	(10.01%)
2007	RLJ Equity Partners Fund I, L.P.	4/14/2009	15,000,000	15,531,821	19,184,523	3,021,816	1.43x	7.71%	13.56%	(5.85%)
2007	SCP Vitalife Partners II, L.P.	1/10/2008	15,000,000	15,074,774	1,184	2,998,180	0.20x	(13.36%)	(0.08%)	(13.28%)
2007	StarVest Partners II, L.P.	12/8/2008	20,000,000	20,106,956	10,249,653	5,620,833	0.79x	(2.89%)	13.47%	(15.25%)
2007	Trilantic Capital Partners IV, L.P.	10/22/2007	53,311,339	54,491,733	83,191,204	2,772,873	1.58x	13.44%	11.19%	2.25%
2007	USPF II Institutional Fund, L.P.	7/10/2007	30,000,000	35,493,995	45,473,987	1,448,385	1.32x	4.53%	9.92%	(5.39%)
2007	Vista Equity Partners Fund III, L.P.	7/10/2007	25,000,000	26,942,774	63,903,684	1,846,610	2.44x	26.78%	9.77%	17.02%
2008	Aising Capital III, L.P.	11/20/2008	10,500,000	11,846,807	28,176,543	69,587	2.38x	26.46%	14.31%	12.15%
2008	Apollo Investment Fund VII, L.P.	4/16/2008	50,000,000	61,146,779	107,038,377	608,542	1.76x	23.15%	13.72%	9.44%
2008	Ares Corporate Opportunities Fund III, L.P.	7/30/2008	60,000,000	71,462,853	155,339,754	1,098,101	2.19x	20.89%	12.06%	8.82%
2008	Avista Capital Partners II, L.P.	12/31/2008	50,000,000	65,983,085	103,339,707	5,500,785	1.65x	14.45%	14.51%	(0.16%)
2008	Blue Wolf Capital Fund II, L.P.	11/14/2008	20,000,000	22,032,020	37,201,244	105,033	1.69x	10.72%	15.36%	(4.64%)
2008	Bridgepoint Europe IV, L.P.	9/30/2008	26,211,351	24,946,822	34,548,608	4,228,725	1.55x	9.50%	14.60%	(5.10%)
2008	First Reserve Fund XII, L.P.	11/14/2008	30,000,000	33,919,785	17,607,913	(123,178)	0.52x	(27.92%)	17.21%	(45.13%)
2008	GCM Grosvenor TRSNCV Emerging Manager Fund, L.P.	8/22/2008	59,373,737	75,302,431	89,992,417	28,099,350	1.57x	10.26%	12.94%	(2.69%)
2008	GI Partners III, L.P.	7/29/2008	30,000,000	32,411,558	50,818,665	12,993	1.57x	12.96%	15.32%	(2.36%)
2008	Landmark Equity Partners XIV, L.P.	9/19/2008	50,000,000	48,702,046	60,913,811	3,838,601	1.33x	8.85%	13.01%	(4.15%)
2008	Leeds Equity Partners V, L.P.	7/28/2008	40,000,000	39,871,980	94,886,224	3,811,243	2.48x	18.47%	13.85%	5.42%
2008	Levin Leichtman Capital Partners IV, L.P.	5/1/2008	25,000,000	26,635,886	42,429,495	2,175,615	1.67x	17.76%	14.13%	3.62%
2008	New York/Fairview Emerging Managers (Tranche B), L.P.	5/28/2008	35,000,000	35,461,815	77,013,595	18,890,555	2.70x	18.07%	12.66%	4.61%
2008	NGN BioMed Opportunity II, L.P.	10/31/2008	15,000,000	14,363,866	11,509,557	7,728,410	1.34x	3.62%	14.55%	(10.92%)
2008	Onex Partners III, L.P.	3/31/2009	40,000,000	43,891,696	65,151,603	6,908,855	1.64x	11.35%	14.90%	(3.55%)
2008	Paladin III (NY City), L.P.	1/8/2008	20,000,000	27,139,705	57,154,221	5,774,946	2.32x	13.95%	12.05%	1.90%
2008	Riverstone/Carlyle Global Energy & Power Fund IV	9/29/2008	32,500,000	35,116,069	39,553,479	81,693	1.13x	3.20%	13.89%	(10.70%)
2008	Yucaipa American Alliance Fund II, L.P.	3/28/2008	75,000,000	104,010,896	112,116,531	59,876,689	1.65x	7.97%	11.87%	(3.89%)
2008	Yucaipa Corporate Initiatives Fund II, L.P.	6/23/2008	35,000,000	32,157,997	28,759,946	483,494	0.91x	(1.24%)	12.44%	(13.68%)
2013	Lincolnshire Equity Fund IV, L.P.	8/7/2009	12,500,000	12,881,737	15,522,307	3,488,860	1.48x	8.33%	13.75%	(4.84%)
2009	Welsh, Carson, Anderson & Stowe XI, L.P.	2/10/2009	30,000,000	30,000,000	47,826,193	2,169,293	1.67x	11.57%	14.95%	(3.38%)
2010	JP Morgan Fleming (Tranche B), L.P.	3/31/2008	10,000,000	10,683,912	12,880,718	9,195,530	2.07x	12.30%	12.41%	(0.10%)
2010	Trident V, L.P.	12/30/2010	35,000,000	41,525,744	54,950,964	2,814,007	1.85x	11.74%	12.08%	(0.34%)
2011	American Securities Partners VI, L.P.	11/10/2012	100,000,000	111,957,792	196,599,602	61,295,534	2.30x	22.29%	9.92%	9.92%
2011	Ampersand 2011, L.P.	3/7/2011	17,500,000	17,500,000	66,599,811	187,010	3.25x	21.81%	12.99%	8.82%
2011	AXA Secondary Fund V, L.P.	8/11/2011	160,000,000	85,770,811	132,422,082	(36,196)	1.54x	13.55%	15.22%	(1.77%)
2011	BC European Capital IX, L.P.	9/19/2011	68,999,283	75,551,014	91,497,089	29,235,248	1.6			

Teachers' Retirement System of the City of New York
Private Equity Portfolio
As of September 30, 2022 (in USD)

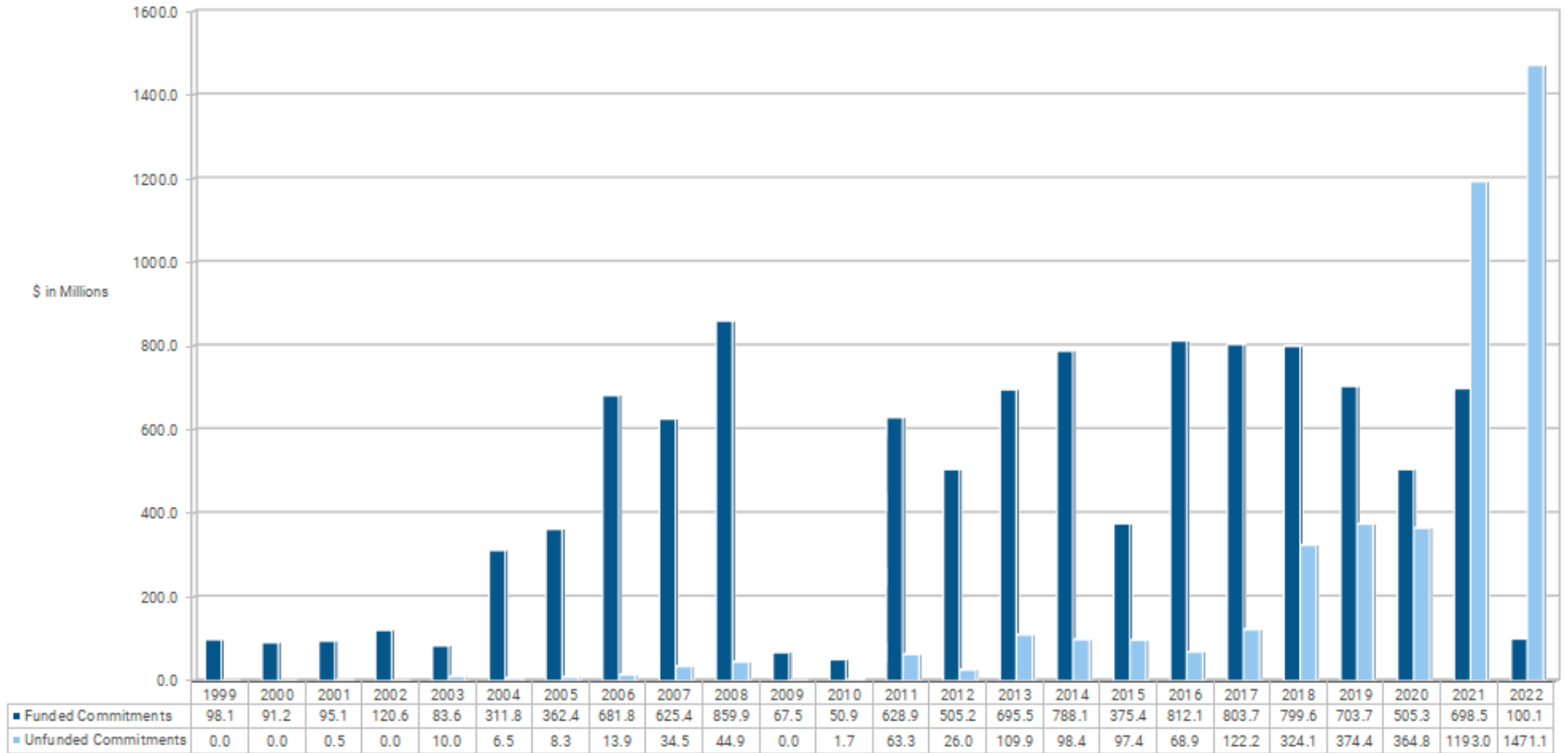
Vintage Year	Investment	First Drawdown	Committed Capital	Paid-In Capital	Distributed Capital	Market Value	Multiple	IRR ²	PME Benchmark ³	PME Spread ⁴
2017	CVC Capital Partners VII, L.P.	6/30/2018	151,191,576	139,249,686	19,985,095	202,023,203	1.59x	22.52%	0.23%	22.29%
2018	Apollo Investment Fund IX, L.P.	3/15/2019	256,000,000	207,540,676	67,621,847	216,907,191	1.37x	24.91%	(2.72%)	27.63%
2018	Bridgepoint Europe VI, L.P.	4/1/2019	94,325,673	77,330,008	7,601,026	94,956,952	1.33x	18.20%	2.72%	15.48%
2018	EQT VIII SCSP	8/1/2018	71,152,136	81,176,695	40,220,639	96,930,059	1.69x	25.49%	6.85%	18.65%
2019	Bridgepoint Europe VI Co-Invest	5/7/2019	23,666,721	18,469,641	-	27,761,482	1.50x	21.21%	4.85%	16.35%
2018	Siris Partners IV, L.P.	3/15/2019	71,000,000	57,512,306	8,778,291	80,936,440	1.55x	21.84%	2.03%	19.82%
2018	Platinum Equity Capital Partners IV, L.P. (Co-Invest)	9/7/2018	22,000,000	15,429,959	3,069,976	25,639,581	1.86x	18.10%	7.61%	10.49%
2018	Platinum Equity Small Cap Fund, L.P.	6/27/2018	32,500,000	23,533,237	5,394,771	33,228,241	1.65x	27.81%	(2.01%)	29.83%
2018	EQT VIII SCSP (Co-Invest)	11/2/2018	31,502,821	30,497,733	23,418,388	36,815,455	1.98x	40.08%	2.75%	37.34%
2018	Vista Equity Partners Fund VII, L.P.	2/13/2019	142,000,000	114,249,159	1,299,080	152,105,326	1.34x	14.96%	1.26%	13.70%
2019	Crestview Partners IV (FF), L.P.	10/28/2020	19,000,000	8,853,801	2,577,460	12,119,209	1.66x	N/M	N/M	N/M
2019	Crestview Partners IV, L.P.	10/28/2020	57,000,000	26,561,402	6,639,813	32,516,727	1.47x	N/M	N/M	N/M
2019	KKR European Fund V, L.P. - USD	1/15/2020	89,000,000	76,950,014	14,960,125	67,937,222	1.08x	5.29%	(0.15%)	5.45%
2021	Lexington Capital Partners IX, L.P.	12/20/2019	85,125,000	57,462,399	15,588,358	75,581,420	1.59x	44.62%	(6.36%)	50.98%
2018	ASF VIII, L.P.	3/15/2019	158,000,000	74,250,518	13,852,552	98,775,489	1.52x	31.09%	1.22%	29.86%
2019	ASF VIII B NYC Co-Invest, L.P.	3/15/2019	79,000,000	30,215,691	5,704,678	40,758,288	1.54x	53.31%	(12.57%)	65.88%
2019	Warburg Pincus Global Growth, L.P.	3/26/2019	114,000,000	100,053,905	1,027,094	133,176,025	1.34x	17.43%	(1.17%)	18.60%
2019	LCP IX Co-Invest Partners B, L.P.	9/23/2020	28,375,000	13,905,169	4,909,732	18,077,843	1.65x	48.16%	(11.03%)	59.20%
2017	Lindsay Goldberg V, L.P.	4/29/2020	79,000,000	35,737,223	10,777,267	37,734,913	1.26x	32.45%	7.06%	39.91%
2019	WCAS XIII, L.P.	3/14/2019	71,000,000	60,248,303	5,058,323	73,420,228	1.30x	26.48%	(9.76%)	36.24%
2019	Apax X, L.P.	11/10/2020	95,000,000	53,673,119	5,975,954	56,391,881	1.16x	N/M	N/M	N/M
2019	Platinum Equity Capital Partners V, L.P.	12/27/2019	142,000,000	136,519,680	15,777,636	181,426,986	1.44x	30.83%	(11.84%)	42.67%
2021	PECP V Co-Investment, L.P.	7/1/2021	35,500,000	35,026,005	5,380,151	59,198,108	1.84x	N/M	N/M	N/M
2019	Trilantic Capital Partners VI (North America), L.P.	8/8/2019	46,000,000	36,374,887	3,667,973	49,245,994	1.45x	26.69%	(6.64%)	33.33%
2019	Blackstone Capital Partners VIII, L.P.	5/19/2020	99,000,000	45,259,912	1,868,715	50,516,473	1.16x	15.69%	(18.36%)	34.05%
2019	NYCTRS - 2019 Emerging Manager Program**	9/25/2019	240,000,000	41,605,284	2,751,142	66,056,745	1.65x	N/M	N/M	N/M
2018	ICG Strategic Equity Fund III LP	3/4/2020	41,111,763	26,066,607	8,957,920	38,448,138	1.82x	46.36%	(6.43%)	52.80%
2020	Green Equity Investors VIII Co-Invest N, L.P.	5/20/2020	33,000,000	23,581,916	-	26,109,849	1.11x	N/M	N/M	N/M
2020	Green Equity Investors VIII, L.P.	10/21/2020	99,000,000	86,278,168	1,084,404	92,564,207	1.07x	N/M	N/M	N/M
2020	Clearlake Capital Partners VI, L.P.	5/22/2020	42,000,000	42,498,706	3,518,078	59,063,266	1.47x	N/M	N/M	N/M
2020	FTV VI, L.P.	3/18/2020	24,000,000	22,560,000	-	37,816,850	1.68x	N/M	N/M	N/M
2021	CVC Capital Partners VIII, L.P.	12/14/2021	142,343,604	49,816,327	-	53,347,883	1.07x	N/M	N/M	N/M
2020	Hg Genesis 9 L.P.	3/2/2021	43,639,335	29,802,943	7,664,042	24,257,999	1.07x	N/M	N/M	N/M
2020	ICG Strategic Equity Co-Investment Fund III LP	11/27/2020	20,555,881	15,192,897	8,243,947	16,939,467	1.66x	N/M	N/M	N/M
2020	NYC-Northbound Emerging Managers Program, L.P.	5/5/2021	192,000,000	49,419,353	1,101,099	60,277,711	1.24x	N/M	N/M	N/M
2021	One Rock Capital Partners III, L.P.	6/21/2021	39,000,000	26,046,998	3,992,437	25,948,577	1.15x	N/M	N/M	N/M
2021	Stellax Capital Partners II, L.P.	4/22/2021	46,500,000	15,686,094	1,634	17,619,253	1.12x	N/M	N/M	N/M
2021	BC European Capital XI Metro Co-Investment 2, L.P.	4/13/2021	45,000,000	23,949,441	-	22,243,914	0.93x	N/M	N/M	N/M
2020	BC European Capital XI, L.P.	7/30/2021	99,000,000	37,556,758	-	33,825,848	0.90x	N/M	N/M	N/M
2020	EQT IX (NO.2) USD SCSP	2/5/2021	83,678,500	73,856,015	7,664,544	75,114,427	1.12x	N/M	N/M	N/M
2020	EQT IX Co-Invest Platform (No. 3) SCSP	4/12/2021	22,821,500	22,658,760	380,528	23,487,502	1.05x	N/M	N/M	N/M
2020	KKR Asian Fund IV SCSP	5/27/2021	94,000,000	29,544,601	260,381	26,723,352	0.91x	N/M	N/M	N/M
2020	T2 Energy Transition Co-Invest	2/19/2021	149,539,584	13,878,253	188,398	13,283,586	0.97x	N/M	N/M	N/M
2020	T2 Energy Transition Fund	3/5/2021	36,171,915	23,727,343	1,672,883	21,612,959	0.98x	N/M	N/M	N/M
2021	The Resolute Fund V, L.P.	9/7/2021	65,500,000	36,968,155	599,103	65,410,872	1.79x	N/M	N/M	N/M
2020	Valor Equity Partners V, L.P.	1/28/2021	23,500,000	19,293,774	-	26,283,470	1.26x	N/M	N/M	N/M
2021	Grain Communications Opportunity Fund III, L.P.	4/30/2021	21,000,000	11,742,739	-	16,931	0.87x	N/M	N/M	N/M
2021	ICG Strategic Equity Co-Investment Fund IV-A LP	4/15/2021	47,000,000	26,096,453	-	27,818,270	1.07x	N/M	N/M	N/M
2021	ICG Strategic Equity Fund IV LP	5/21/2021	94,000,000	27,967,154	6,179,364	34,602,132	1.46x	N/M	N/M	N/M
2021	Centerbridge Capital Partners IV, L.P.	12/6/2021	64,000,000	27,377,998	-	37,717,747	1.38x	N/M	N/M	N/M
2021	HarbourVest Centre Street Co-Investment Fund, L.P.	8/12/2021	156,000,000	67,937,261	-	65,690,690	0.97x	N/M	N/M	N/M
2021	Vistria Fund IV, LP	10/14/2021	48,000,000	29,506,068	676,551	29,680,637	1.03x	N/M	N/M	N/M
2021	Apax Digital II L.P.	N/A	45,000,000	-	-	(1,138,014)	N/A	N/A	N/A	N/A
2021	Ares Corporate Opportunities Fund VI, L.P.	10/13/2021	100,000,000	72,965,606	16,948,809	63,691,181	1.11x	N/M	N/M	N/M
2021	Ares Private Opportunities (NYC), L.P.	9/23/2022	60,000,000	17,925,311	-	17,892,616	1.00x	N/M	N/M	N/M
2021	Centerbridge Capital Partners IV - N Co-Invest, L.P.	10/28/2021	32,000,000	9,427,333	-	16,410,332	1.74x	N/M	N/M	N/M
2021	Clearlake Capital Partners VII, L.P.	4/26/2022	144,000,000	49,654,934	3,505	48,821,717	0.98x	N/A	N/A	N/A
2021	Insight Partners XII Buyout Amex Fund, L.P.	8/25/2021	32,000,000	17,600,000	-	16,396,372	0.93x	N/M	N/M	N/M
2021	Insight Partners XII, L.P.	8/27/2021	96,000,000	56,692,775	106,087	46,680,087	0.83x	N/M	N/M	N/M
2021	KKR North America Fund XIII SCSP	5/5/2022	160,000,000	35,448,795	-	27,826,748	0.78x	N/M	N/M	N/M
2021	Warburg Pincus Financial Sector II, L.P.	7/26/2021	84,500,000	30,429,260	-	37,811,202	1.24x	N/M	N/M	N/M
2021	Pemira VIII	N/A	125,910,031	-	-	(2,700)	N/A	N/A	N/A	N/A
2021	Reverence Capital Partners Opportunities Fund V (FOO) (PE Fund III), L.P.	6/7/2022	13,000,000	2,957,190	8,512	2,927,762	0.99x	N/M	N/M	N/M
2021	Reverence Capital Partners Opportunities Fund V (PE Fund III), L.P.	6/7/2022	35,000,000	8,460,356	22,919	8,036,276	0.95x	N/M	N/M	N/M
2021	TPG Rise Climate Co-Invest, L.P.	3/2/2022	91,666,667	15,087,282	-	15,918,621	1.06x	N/M	N/M	N/M
2021	TPG Rise Climate, L.P.	6/14/2022	45,833,333	6,348,747	-	5,615,328	0.88x	N/M	N/M	N/M
2022	FTV VII, L.P.	1/14/2022	53,036,100	14,319,747	-	13,730,882	0.96x	N/M	N/M	N/M
2022	Green Equity Investors IX, L.P.	N/A	120,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	Growth VII Centre, L.P.	3/21/2022	11,933,120	3,447,346	-	3,447,346	1.00x	N/M	N/M	N/M
2022	WCAS XIV N Co-Invest, L.P.	N/A	32,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	WCAS XIV, L.P.	N/A	96,000,000	-	-	-	(1,532,330)	N/A	N/A	N/A
2022	Co-Invest Platform (NO.12) SCSP	N/A	36,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	EQT X USD SCSP	N/A	108,000,000	-	-	-	(887,811)	N/A	N/A	N/A
2022	GEI IX Co-Invest N, L.P.	N/A	40,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	Hg Genesis 10 L.P.	9/23/2022	61,600,241	245,812	-	201,108	0.82x	N/M	N/M	N/M
2022	Hg N1 Co-Invest L.P.	6/30/2022	24,000,000	7,871,157	-	7,816,063	0.99x	N/M	N/M	N/M
2022	Hg Saturn 3, L.P.	7/5/2022	48,000,000	243,288	-	(120,390)	-0.49x	N/M	N/M	N/M
2022	LCP X Co-Invest Partners B, L.P.	6/29/2022	32,000,000	3,752,427	-	4,565,981	1.22x	N/M	N/M	N/M
2024	Lexington Capital Partners X, L.P.	N/A	96,000,000	-	-	-	2,877,925	N/A	N/A	N/A
2020	LightBay Investment Partners II	9/29/2022	30,000,000	2,684,795	-	2,442,395	0.91x	N/M	N/M	N/M
2022	Nordic Capital Fund XI, L.P.	N/A	78,387,568	-	-	-	N/A	N/A	N/A	N/A
2022	PECP VI Co-Investment, L.P.	N/A	50,750,000	-	-	-	N/A	N/A	N/A	N/A
2022	Platinum Equity Capital Partners VI, L.P.	N/A	152,250,000	-	-	-	(294,398)	N/A	N/A	N/A
2022	Thoma Bravo Co-Invest Opportunities XV-1, L.P.	6/10/2022	40,000,000	16,169,399	-	16,065,975	0.99x	N/M	N/M	N/M
2022	Thoma Bravo Fund XV, L.P.	6/10/2022	120,000,000	36,724,625	16,589	36,237,401	0.99x	N/M	N/M	N/A
2022	Apax XI, L.P.	N/A	128,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	N11 Co-Investment, SCSP	N/A	34,490,530	-	-	-	N/A	N/A	N/A	N/A
2022	Warburg Pincus Global Growth 14, L.P.	8/15/2022	91,740,000	9,375,702	-	8,554,179	0.91x	N/M	N/M	N/A
2022	WPGG 14 Co-Invest-N, L.P.	9/9/2022	55,050,000	5,566,404	-	5,462,522	0.98x	N/M	N/M	N/M
Total Active Investments			13,515,150,355	9,978,289,465	8,655,452,101	7,518,693,477	1.62x	11.85%	9.73%	2.12%
Total Exited Investments			1,009,137,062	1,027,714,291	1,255,367,975	-	1.22x	-	-	-
Total Portfolio⁵			14,524,287,416	\$11,006,003,756	\$9,910,820,076	\$7,518,693,477	1.58x	11.85%	9.73%	2.12%
Vintage Year	Investment	First Drawdown	Committed Capital	Paid-In Capital	Distributed Capital	Market Value	Multiple	IRR ²	PME Benchmark ³	PME Spread ⁴
Commitments Closed Subsequent to September 30, 2022										
2022	Integrum Capital Partners LP	N/A	20,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	Integrum NYC Co-Invest LP	N/A	12,000,000	-	-	-	N/A	N/A	N/A	N/A
2022	KKR European Fund VI (USD) SCSP	N/A	81,000,000	-	-	-	N/A	N/A	N/A	N/A
Total Commitments Closed Subsequent to as of Date										

*Please note that the NYCTRS - 2012 Emerging Manager Program includes the total commitment amount of \$165.05 million. The Program's original commitment amount of \$175 million was subsequently revised to \$165.05 million, all of which has been committed as of September 30, 2022. The remaining \$9.95 million was reallocated to the NYCTRS - 2015 Emerging Manager Program.

**Please note that the NYCTRS - 2015 Emerging Manager Program includes the total commitment amount of \$198.5 million. The Program's original commitment amount of \$209.95 million, which included the original \$200 million commitment and the \$9.95 million reallocation from the NYCTRS - 2012 Emerging Manager Program, was subsequently revised to \$198.5 million. As of September 30, 2022, all \$198.5 million has been committed, and the remaining \$11.45 million was reallocated to the NYCTRS - 2019 Emerging Manager Program.

***Please note that the NYCTRS - 2019 Emerging Manager Program commitment amount of total \$251

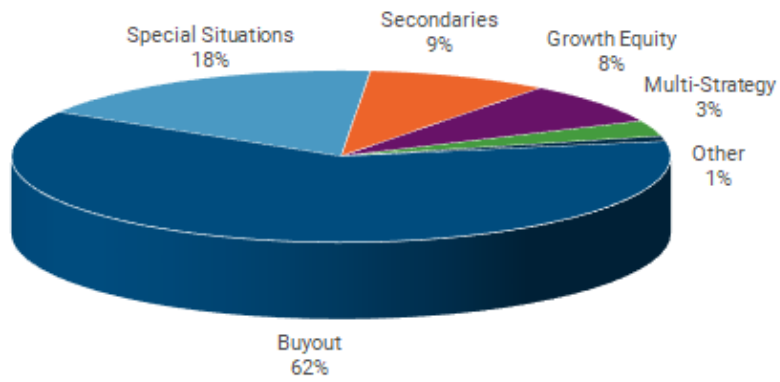
Teachers' Retirement System of the City of New York Commitments By Vintage Year As of September 30, 2022



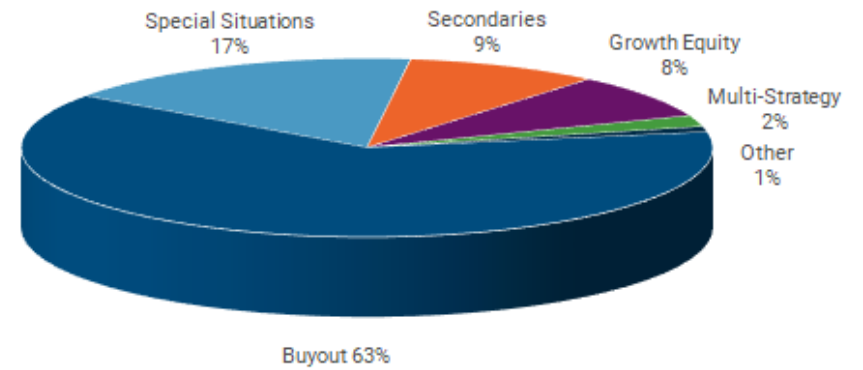
Funded Commitments exclude additional fees.
Unfunded Commitments include recallable returns of capital.

Teachers' Retirement System of the City of New York Portfolio Strategic Diversification As Measured By Reported Market Value As of September 30, 2022

As of September 30, 2022

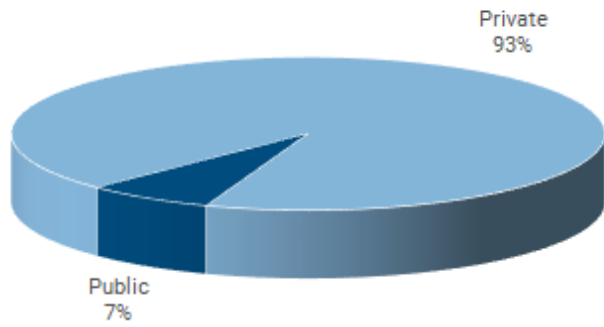


As of June 30, 2022

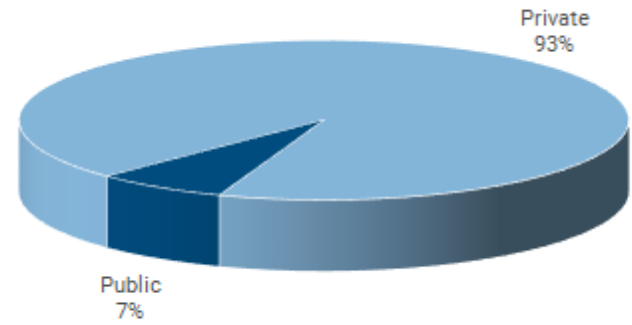


Teachers' Retirement System of the City of New York Public Vs. Private Holdings As of September 30, 2022

Based on Number of Companies ⁽¹⁾



Based on Reported Market Value ⁽¹⁾



Teachers' Retirement System of the City of New York

Third Quarter 2022 Report



Appendix A:

Glossary of Terms

Teachers' Retirement System of the City of New York

Third Quarter 2022 Report

Additional Fees: The amount of capital an investor pays into a fund/investment that does not count against the investors' commitment. Additional fees typically consist of management fees or late-closing interest expense.

Capital Committed: An investor's financial obligation to provide a set amount of capital to the investment.

Capital Contributed: Capital contributed from an investor's capital commitment to fund partnership investments, organizational expenses and management fees.

Capital Distributed: Cash or stock disbursed to the investors of an investment.

Co/Direct Investment: A direct investment is a purchased interest of an operating company. A co-investment is a direct investment made alongside a partnership.

Corporate Finance/Buyout: Funds seeking to make controlling and non-controlling investments in established companies which have the potential to achieve greater value through improved performance.

Cost Basis: Capital contributions less return of principal.

Fund-of-Funds: An investment vehicle which invests in other private equity partnerships.

Fund/Investment Size: The total amount of capital committed by investors to a fund.

Investment Category: Used to identify investments in one of the following categories: co/direct investments, fund-of-funds, primary funds, secondary fund-of-funds or secondary purchases.

Investment Strategy: A sub-classification of a partnership's investment type, such as Co/Direct Investment, Corporate Finance/Buyout, Mezzanine, Real Estate, Special Situation, Venture Capital.

Life Cycle Period: The current stage of a partnership depending on the percentage contributed to date. Life cycle periods are investment and realization.

Mezzanine: An investment strategy involving the purchase of subordinated debt. These securities exist between the senior debt and equity of a holding's capital structure. Subordinated debt carries a lower level of risk than pure equity structures because they generate current income and have a more senior position in the company's capital structure.

Net Internal Rate Of Return ("IRR"): The discount rate that equates the net present value of the partnership's cash outflows with its inflows and residual value at the time of calculation. The calculation is net of management fees and the general partner's carried interest.

Originator: The institution responsible for recommending a client commit to an investment.

Ownership Percentage: The investor's percent of ownership as measured by capital committed divided by fund/investment size.

Paid-In Capital: The amount of capital an investor has contributed to a partnership, which includes capital contributions and additional fees.

Pooled Average IRR: An IRR calculation which aggregates cash flows (paid-in capital and capital distributed) and the reported market values of each investment within a portfolio to create one portfolio investment and return.

Portfolio Holding Exposure: The limited partner's pro rata allocation to an underlying investment based on the ownership percentage of the partnership.

Teachers' Retirement System of the City of New York

Third Quarter 2022 Report

Primary Fund: Defines when the investor acquired an interest in the partnership. Primary fund is the investment category when an investor participates in a closing at the inception of the partnership.

Private Equity Partnership: A professionally managed pool of capital that generally invests in unlisted companies or securities. Common investment strategies include corporate finance/buyout, mezzanine, special situations and venture capital.

Realized Multiple: Ratio of cumulative distributions to paid-in capital.

Return On Investment ("ROI"): A calculation based on the total value (market value plus distributions) divided by paid-in capital for an investment.

Reported Market Value: The investment's capital account balance at quarter end, which includes the general partner's reported value of the underlying holdings and other assets and liabilities.

Secondary Fund-of-Funds: A private equity vehicle formed to purchase active partnership interests from an investor.

Secondary Purchase: A purchase of an existing partnership interest or pool of partnership interests from an investor.

Special Situation: Partnerships that invest using a unique strategy. Examples include distressed and turnaround, industry focused and multi-stage partnerships.

Total Exposure: Calculated by the summation of market value and unfunded commitments.

Venture Capital: An investment strategy that provides start-up or growth capital to companies in the early stages of development. Venture investments generally involve a greater degree of risk, but have the potential for higher returns.

Vintage Year: The year in which a partnership makes its first capital call for an investment into a portfolio company/holding.

Teachers' Retirement System of the City of New York
Third Quarter 2022 Report



Appendix B:
Disclosure Statement

Teachers' Retirement System of the City of New York

Third Quarter 2022 Report

Non-public information contained in this report is confidential and intended solely for dissemination to Teachers' Retirement System of the City of New York and/or its Affiliates. Hamilton Lane has prepared this report to enable Teachers' Retirement System of the City of New York and/or its Affiliates to assess the performance and status of its alternative investment portfolio. The calculations contained in this document are made by Hamilton Lane based on information provided by the general partner (e.g. cash flows and valuations), and have not been prepared, reviewed or approved by the general partners. Hamilton Lane hereby disclaims any liability resulting from any unauthorized dissemination of the attached information.

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Any tables, graphs or charts relating to past performance included in this report are intended only to illustrate the performance of the funds or the portfolio companies referred to for the historical periods shown. Such tables, graphs and charts are not intended to predict future performance and should not be used as the basis for an investment decision.



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Real Estate Quarterly Report (Public):



Quarterly Real Estate Report

For the period ended September 30, 2022

Prepared at the Specific Request of:

Client:

New York City Public Pension Funds

Portfolio:

NYC TRS - Real Estate



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An investment involves a number of risks and there are conflicts of interest.

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All data is as of September 30, 2022 unless otherwise noted.

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

EXECUTIVE SUMMARY

StepStone Group LP (“StepStone”) was engaged by Teachers' Retirement System of the City of New York (“NYCERS”) to provide Real Estate services for prospective investment opportunities, as well as portfolio management on NYCERS' portfolio (the “Portfolio”). Inception date of the Portfolio was on December 2002.

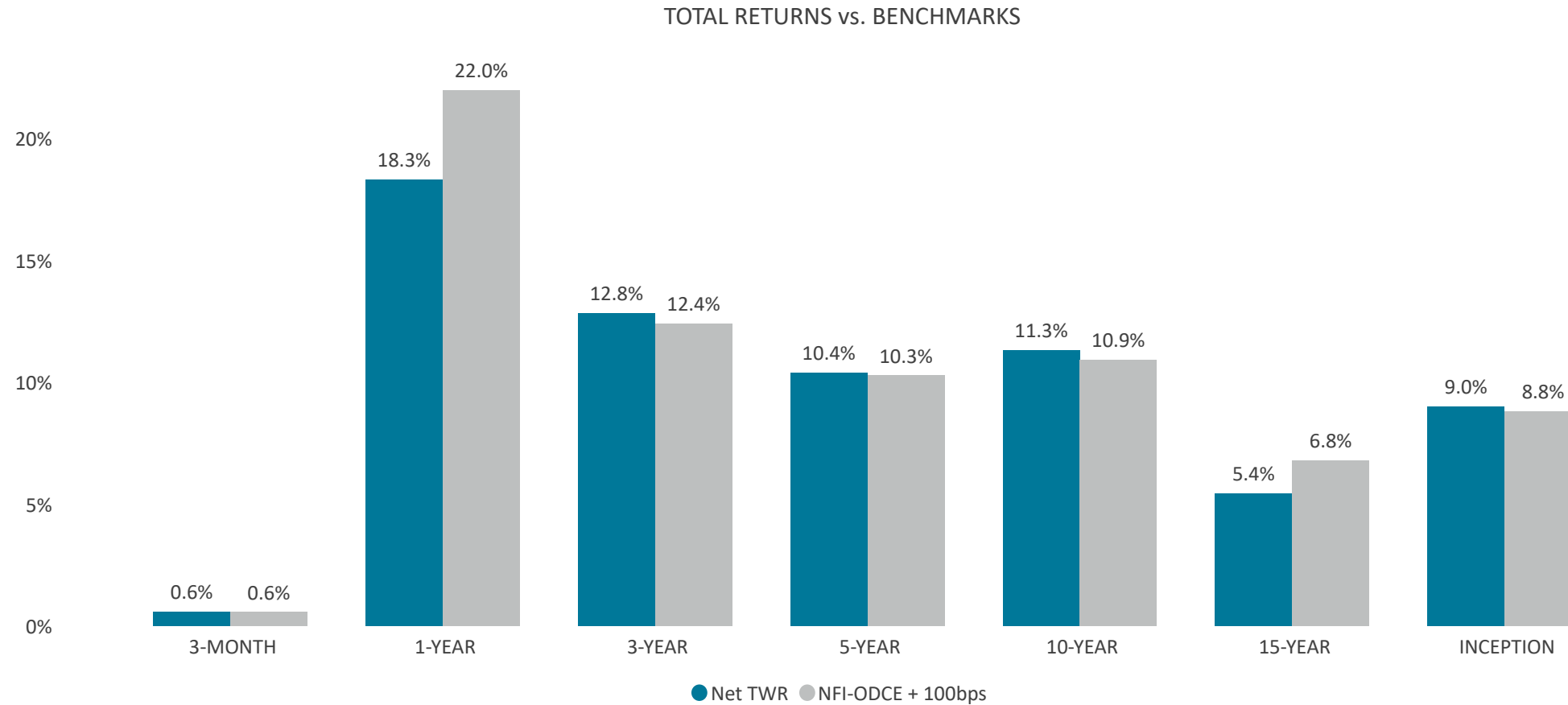
The following table illustrates the Portfolio's since inception investment performance as of September 30, 2022, as well as the quarter-over-quarter and year-over-year change.

\$US in millions ▲	INCEPTION TO CURRENT QUARTER	INCEPTION TO PRIOR QUARTER	INCEPTION TO PRIOR YEAR	QUARTERLY Δ	ANNUAL Δ
Number of Managers	56	56	54	0	2
Number of Investments	113	111	104	2	9
Number of Active Managers	47	47	47	0	0
Number of Active Investments	100	98	93	2	7
Active Investments Only					
Committed Capital	\$8,725.5	\$8,429.5	\$7,569.8	\$296.0	\$1,155.6
Unfunded Commitment	3,219.2	3,154.4	2,813.8	\$64.8	\$405.4
Total Exposure	8,733.8	8,476.4	7,183.6	\$257.4	\$1,550.2
Total Contributed	6,283.4	5,999.2	5,317.7	\$284.1	\$965.7
Total Distributed	3,588.0	3,466.1	2,977.3	\$121.9	\$610.8
Total Market Value	5,514.6	5,322.0	4,369.8	\$192.6	\$1,144.8
Since Inception G/L	2,819.2	2,788.9	2,029.4	30.4	789.9
Since Inception Returns, Includes Liquidated Investments					
Net DPI	0.63x	0.63x	0.61x	-0.01x	0.01x
Gross TVM	1.56x	1.57x	1.49x	(0.02x)	0.06x
Gross IRR	13.3%	13.5%	12.5%	(22 bps)	79 bps
Net TVM	1.45x	1.47x	1.40x	-0.02x	0.05x
Net IRR	10.4%	10.6%	9.6%	(22 bps)	81 bps

Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses. IRR and TVPI for certain vehicles may have been impacted by StepStone's or the underlying GP's use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital. Unless otherwise indicated, all underlying investment attribution and performance information presented is net of fees and expenses charged by the underlying investment, but gross of StepStone vehicle/account fees and expenses. Where indicated, net return figures presented for StepStone vehicle/account performance include fees and expenses paid to StepStone.

PORTFOLIO PERFORMANCE VS BENCHMARKS

The following table illustrates the Portfolio's periodic returns as of September 30, 2022 compared to benchmarks. The NFI-ODCE contains data from 26 core, open-ended funds investing in the United States. For the current quarter, the NFI-ODCE contained performance data from 3,553 investments, totaling over \$356.3 billion of gross real estate assets.



The NFI-ODCE differs from the NCREIF Property Index because it includes leverage, reports returns gross and net of fees, and all reporting funds must qualify according to the NFI-ODCE diversification and other standards (e.g., fund level leverage below 40%). The referenced benchmark is shown for general market comparison and is not meant to represent any particular fund. An investor cannot directly invest in the NFI-ODCE index. Moreover, the benchmark does not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

PORTFOLIO DIVERSIFICATION

The following charts outline the Portfolio's diversification by strategy and geographic regions, the limits of which are governed by the Policy Statement and Annual Plan. Funds that do not yet have NAVs are not included in the Allocation by Region analysis.

As of September 30, 2022. In USD millions.

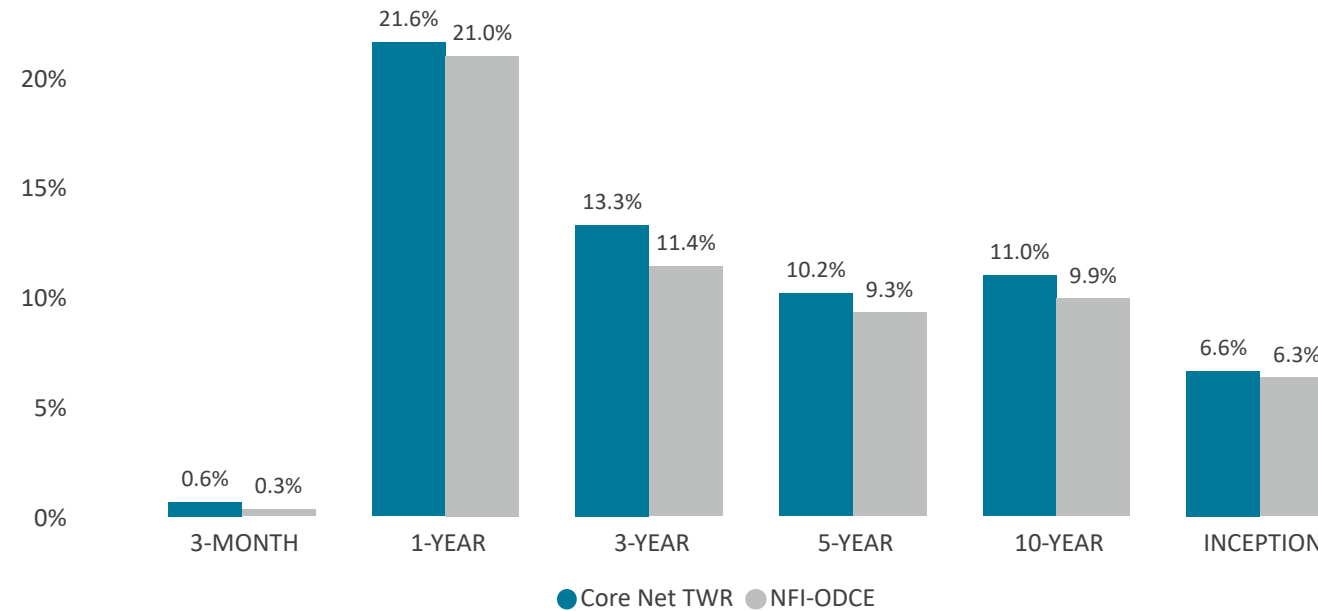
Allocation by Strategy	Net Asset Value	Net Asset Value (%)	Unfunded	Unfunded (%)	Total Exposure	Total Exposure (%)
Core	3,332.1	60%	379.9	12%	3,712.0	43%
Non-Core	2,182.4	40%	2,839.3	88%	5,021.8	57%
Total	5,514.6	100%	3,219.2	100%	8,733.8	100%
Emerging	174.4	3%	162.1	5%	336.5	4%
Debt	537.8	10%	206.8	6%	744.6	9%

Allocation by Region	Net Asset Value	%	Unfunded	%	Total Exposure	%
North America	4,865.6	88%	2,840.8	88%	7,705.7	88%
Europe	505.8	9%	295.3	9%	801.2	9%
Asia	126.4	2%	73.8	2%	200.3	2%
Rest of World	16.8	0%	9.8	0%	26.6	0%
Total	5,514.6	100%	3,219.2	100%	8,733.8	100%

CORE AND NON-CORE PERFORMANCE VS BENCHMARKS

The following graphs measure the Portfolio's Core and Non-Core performance against chosen benchmarks. The Portfolio's Core Time Weighted Returns are benchmarked against the NFI-ODCE. The Portfolio uses IRR by vintage year as a measurement of its Non-Core performance. A public market equivalent ("PME") of 60% Russell 3000 and 40% Barclays Capital Aggregate Bond Index is used to measure the Portfolio's Non-Core Performance. The PME is calculated using the Portfolio cash flows to produce a return that would have been earned if the Portfolio cash flows were invested in the PME. Core Portfolio inception date is 4Q 2006.

CORE NET TWR vs. BENCHMARK



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Core PME	9.8%	6.8%	8.2%	8.0%	7.5%	7.6%	9.8%	10.9%	7.7%	9.1%	8.2%	7.0%	7.4%	6.6%	5.8%	5.3%	3.6%	(1.2%)	(4.2%)	(21.1%)	(29.5%)
Non-Core Net IRR	11.1%	9.8%	25.1%	(10.4%)	1.9%	8.2%	1.9%	9.3%	11.9%	17.0%	14.4%	9.2%	11.4%	8.3%	14.3%	12.3%	28.2%	17.4%	31.4%	9.0%	NM

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

NON-CORE NET IRR VS PME RETURNS

The following graph measures the Portfolio's Non-Core performance against chosen benchmarks. The Portfolio uses IRR by vintage year as a measurement of its Non-Core performance. A public market equivalent ("PME") of 60% Russell 3000 and 40% Barclays Capital Aggregate Bond Index is used to measure the Portfolio's Non-Core Performance. The PME is calculated using the Portfolio cash flows to produce a return that would have been earned if the Portfolio cash flows were invested in the PME.

Vintage Year	First Quartile	Second Quartile	Third Quartile	Quartile Ranking	Net IRR	PME+
2002	29.2%	19.2%	8.1%	Third	11.1%	9.8%
2003	18.3%	12.1%	3.3%	Third	9.8%	6.8%
2004	15.4%	3.7%	(3.4%)	First	25.1%	8.2%
2005	4.7%	1.4%	(7.6%)	Fourth	(10.4%)	8.0%
2006	3.8%	(2.3%)	(7.8%)	Second	1.9%	7.5%
2007	7.1%	2.9%	(5.7%)	First	8.2%	7.6%
2008	10.9%	5.6%	(2.5%)	Third	1.9%	9.8%
2009	13.5%	9.8%	5.5%	Third	9.3%	10.9%
2010	16.8%	11.4%	6.8%	Second	11.9%	7.7%
2011	18.9%	13.1%	7.0%	Second	17.0%	9.1%
2012	17.8%	12.0%	8.7%	Second	14.4%	8.2%
2013	15.4%	10.9%	4.5%	Third	9.2%	7.0%
2014	13.6%	9.5%	4.5%	Second	11.4%	7.4%
2015	14.1%	9.1%	3.8%	Third	8.3%	6.6%
2016	16.9%	11.1%	7.2%	Second	14.3%	5.8%
2017	20.5%	12.7%	6.2%	Third	12.3%	5.3%
2018	21.1%	12.5%	6.5%	First	28.2%	3.6%
2019	19.4%	10.9%	1.9%	Second	17.4%	(1.2%)
2020	32.3%	11.7%	2.7%	Second	31.4%	(4.2%)
2021	28.6%	14.6%	0.4%	Third	9.0%	(21.1%)
2022	16.9%	10.6%	4.1%	NM	NM	(29.5%)

PORTFOLIO PROFILE

New York City Employees Retirement Systems has allocated 7.5% of the total plan to Real Estate. The Real Estate Portfolio's objective is to generate a total net return that exceeds the Benchmark NFI-ODCE +100 bps total net return measured over full market cycles. Note: Beginning in Q1-2020, Total, Core/Core-Plus, and Non-Core real estate allocations changed to 7.5%, 3.5%, and 4%, respectively

As of September 30, 2022. In USD millions.

NYC ERS - Real Estate	
Total Plan Assets (\$)	\$85,956,570,559
Real Estate Allocation (%)	7.5%
Real Estate Allocation (\$)	6,446,742,792
Real Estate Core Allocation (%)	3.5%
Real Estate Core Allocation (\$)	3,008,479,970
Real Estate Non-Core Allocation (%)	4.0%
Real Estate Non-Core Allocation (\$)	3,438,262,822
Number of Active Managers	47
Number of Active Investments	100

Total Portfolio - Active Investments Only	
Net Asset Value	\$5,514,574,210
Unfunded	3,219,214,111
Commitment	8,725,489,368
Total Exposure	8,733,788,320
Total Exposure as a % of Target	135.5%
NAV as a % of Target	85.5%
% Plan Assets (NAV / Exposure)	6.4% / 10.2%

Core / Core-Plus - Active Investments Only	
Net Asset Value	\$3,332,134,045
Unfunded	379,883,097
Commitment	2,833,635,733
Total Exposure	3,712,017,142
Total Exposure as a % of Target	123.4%
NAV as a % of Target	110.8%
% Plan Assets (NAV / Exposure)	3.9% / 4.3%

Non-Core - Active Investments Only	
Net Asset Value	\$2,182,440,165
Unfunded	2,839,331,013
Commitment	5,891,853,635
Total Exposure	5,021,771,179
Total Exposure as a % of Target	146.1%
NAV as a % of Target	63.5%
% Plan Assets (NAV / Exposure)	2.5% / 5.8%

Net Returns - Active and Liquidated Investments

Quarterly Net TWR	0.6%
1-Year Net TWR	18.3%
2-Year Net TWR	20.2%
3-Year Net TWR	12.8%
5-Year Net TWR	10.4%
10-Year Net TWR	11.3%
15-Year Net TWR	5.4%
ITD Net TWR	9.0%
NFI-ODCE +100bps	8.8%
Net IRR	10.4%
Net TVM	1.5x

Category	Requirement	Portfolio Status
Benchmark	Comprised of NFI-ODCE (Net) +100 bps	Portfolio returns outperform the benchmark over the quarter-to-date, three, five, and ten-year time periods, while underperforming the one and fifteen-year benchmark.
Portfolio Construction	Core/Core-Plus (3%)	Market value plus unfunded commitment place the Portfolio at 42.5% Core/Core-Plus and 57.5% Non-Core. Based on market value, the Portfolio is 60.4% Core/Core-Plus and 39.6% Non-Core.
	Non-Core (4%)	
Real Estate Allocation	Target 7%	Market value plus committed capital place the Portfolio at 10.2% of total plan assets. Based on market value, the Portfolio is 6.4% of total plan assets' market value.
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 (39.2%) is compliant.
Manager Exposure	20% of real estate allocation	All manager allocations are compliant.

Note: Beginning in Q1-2020, Total, Core/Core-Plus, and Non-Core real estate allocations changed to 7%, 3%, and 4%, respectively.

PORTFOLIO REVIEW

Quarterly Highlights

Cash Flow Activity

During the third quarter of 2022, the Portfolio made \$284.1 million of contributions and received \$121.9 million of distributions, for a net cash outflow of (\$162.2) million, compared to a net cash outflow of (\$67.2) million during the second quarter of 2022. Contributions increased 10.2% from the prior quarter and decreased (10.3%) from the third quarter of 2021. The last twelve month (“LTM”) quarterly average of the Portfolio's contributions is \$273.6 million. Distributions decreased (36.1%) from the prior quarter and decreased (34.3%) from the third quarter of 2021. The LTM quarterly average of the Portfolio's distributions is \$187.3 million.

Recent Portfolio Activity

During the third quarter of 2022, net of cash flow activity, the Portfolio's value increased \$30.4 million, or 0.6% from the prior quarter. During the LTM period, net of cash flow activity, the Portfolio's value increased \$1,490.0 million, or 34.1%, from the third quarter of 2021.

New Investment Commitments

During the third quarter of 2022, the Portfolio closed on 2 new investments, totaling \$307.0 million of committed capital.

Fund Name	Month Closed	Sub-Strategy	Geographic Focus	Committed Capital
EQT Exeter Industrial Value Fund VI, LP	Jul, 2022	Non-Core	US	150.0
EQT Exeter Industrial Core-Plus Fund IV	Sep, 2022	Core	US	157.0

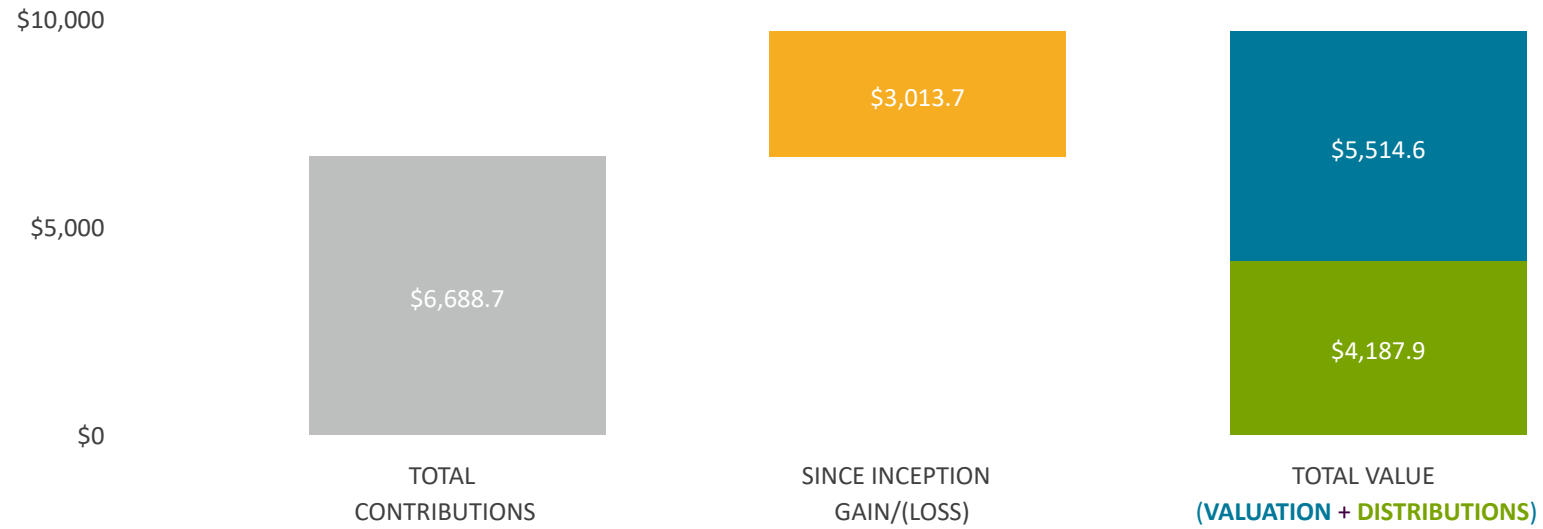
Subsequent Investment Commitments

During the fourth quarter of 2022, the Portfolio closed on zero new investments.

Fund Name	Month Closed	Sub-Strategy	Geographic Focus	Committed Capital
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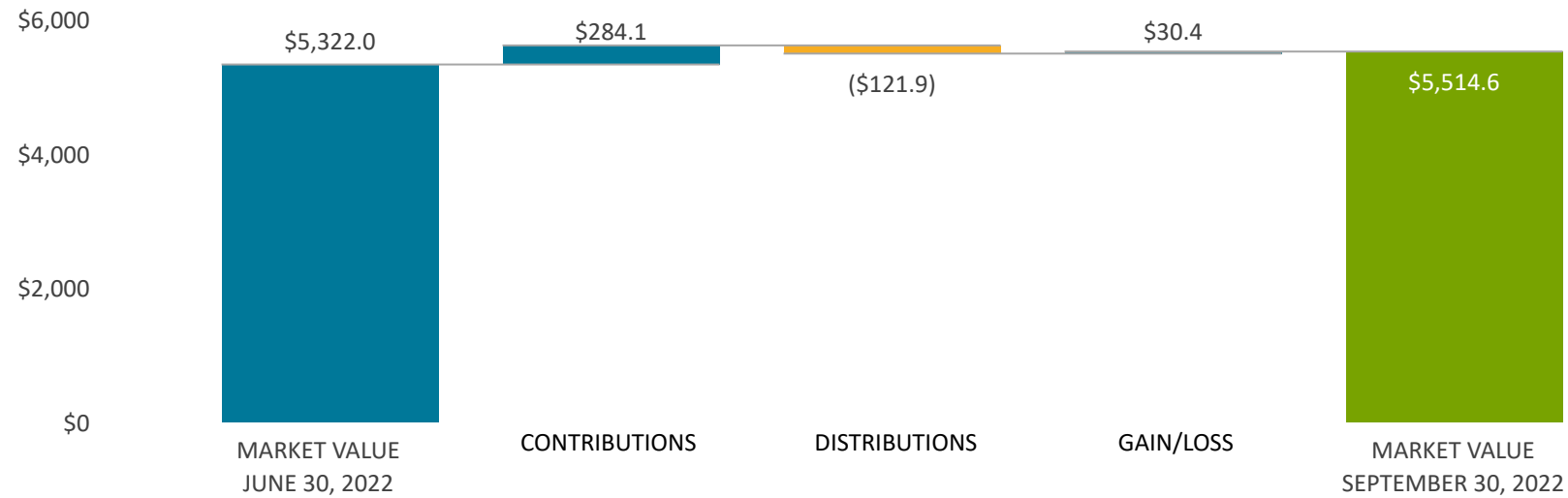
SINCE INCEPTION VALUATION MOVEMENT

Through September 30, 2022, NYC TRS - Real Estate's portfolio has generated a gain of \$3,013.7 million.



QUARTERLY VALUATION MOVEMENT

During the third quarter of 2022, the value of NYC TRS - Real Estate's portfolio increased by \$30.4 million, or 0.6%.



Quarterly Top Investment Gains and Losses

As of September 30, 2022. In USD millions.

INVESTMENT	\$	%
Lion Industrial Trust	\$14.4	5%
PW Real Estate Fund III	\$10.4	10%
NYCRS-KKR CMBS Retention Partners	\$8.9	7%
Brookfield Premier Real Estate Partners	\$8.6	3%
Brookfield Strategic Real Estate Partners III, L.P.	\$4.6	4%
Largest Increases in Value	\$46.9	5%

INVESTMENT	\$	%
Exeter Core Industrial Fund III	(\$12.4)	(12%)
Exeter Core Industrial Club Fund II	(\$7.3)	(9%)
H2 Special Opportunities IV	(\$5.4)	(5%)
Blackstone Real Estate Partners Europe VI L.P.	(\$4.2)	(10%)
Exeter Industrial Value Fund V, L.P.	(\$3.7)	(6%)
Largest Decreases in Value	(\$33.0)	(8%)

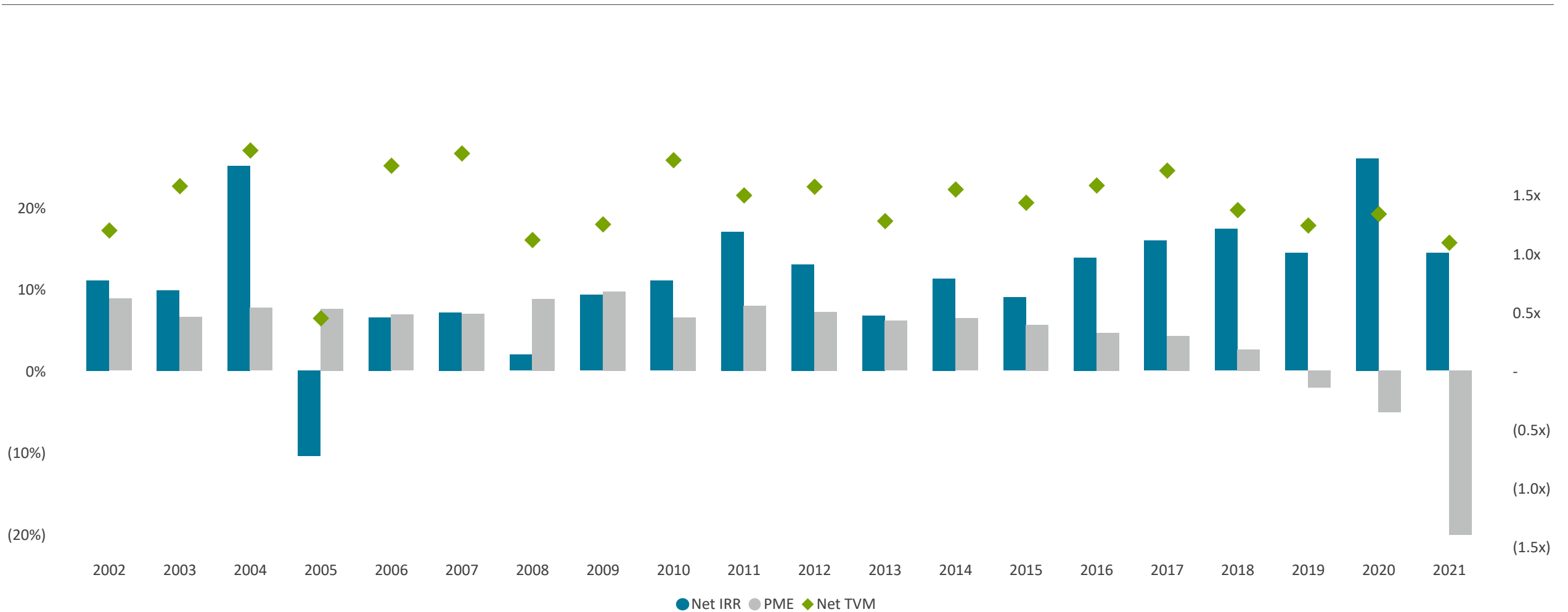
PERFORMANCE BY VINTAGE YEAR

The following table and chart illustrate the Portfolio's since inception investment performance by vintage year, relative to a blended PME benchmark comprised of Russell 3000 and Barclays Capital Aggregate Bond Index at a 50/50 ratio. The PME benchmark is used to measure the Portfolio's performance, using the respective vintage year Portfolio cash flows to produce a return that would have been earned if those same vintage year cash flows were invested in the PME.

As of September 30, 2022. In USD millions.

Vintage Year	Commitment	Contributions	Distributions	NAV	Unfunded	Exposure	Net TVM	Net DPI	Net IRR	PME Returns	PME Spread
2002	15.0	13.7	16.4	0.0	0.0	0.0	1.2x	1.2x	11.1%	8.8%	2.3%
2003	15.0	15.0	23.6	0.0	0.0	0.0	1.6x	1.6x	9.8%	6.6%	3.3%
2004	245.0	222.7	417.8	0.2	(0.0)	0.2	1.9x	1.9x	25.1%	7.7%	17.4%
2005	30.0	27.0	12.0	0.0	0.0	0.0	0.4x	0.4x	(10.4%)	7.6%	(18.0%)
2006	353.0	491.4	456.9	401.5	0.5	402.0	1.7x	0.9x	6.5%	6.9%	(0.3%)
2007	250.6	308.9	273.6	298.3	12.3	310.6	1.9x	0.9x	7.1%	6.9%	0.2%
2008	171.4	139.7	137.0	18.5	14.1	32.6	1.1x	1.0x	1.9%	8.8%	(6.8%)
2009	90.0	103.6	122.1	7.0	4.3	11.3	1.2x	1.2x	9.3%	9.7%	(0.4%)
2010	129.0	128.6	67.2	163.6	0.0	163.6	1.8x	0.5x	11.0%	6.5%	4.5%
2011	110.0	116.3	167.3	6.4	23.0	29.4	1.5x	1.4x	17.0%	8.0%	9.1%
2012	330.0	238.0	316.9	56.2	62.7	119.0	1.6x	1.3x	13.0%	7.2%	5.8%
2013	561.0	506.8	419.4	226.6	60.8	287.3	1.3x	0.8x	6.8%	6.1%	0.7%
2014	365.0	375.5	367.6	212.4	61.4	273.8	1.5x	1.0x	11.3%	6.4%	4.9%
2015	257.6	260.8	122.7	250.6	21.5	272.1	1.4x	0.5x	9.0%	5.6%	3.4%
2016	650.9	682.8	302.1	775.7	39.0	814.6	1.6x	0.4x	13.9%	4.6%	9.2%
2017	554.1	617.5	308.0	744.8	34.1	778.9	1.7x	0.5x	15.9%	4.3%	11.7%
2018	332.4	315.2	202.5	228.8	60.1	288.9	1.4x	0.6x	17.4%	2.6%	14.8%
2019	1,174.7	857.6	227.3	833.8	465.2	1,299.0	1.2x	0.3x	14.4%	(2.0%)	16.5%
2020	901.8	591.4	183.9	605.5	334.7	940.2	1.3x	0.3x	26.0%	(5.1%)	31.1%
2021	1,754.4	644.7	39.8	663.2	1,135.9	1,799.1	1.1x	0.1x	14.4%	(20.1%)	34.5%
2022	917.0	31.4	3.8	21.4	889.6	911.0	0.8x	0.1x	NM	(28.7%)	NM
TOTAL	9,207.8	6,688.7	4,187.9	5,514.6	3,219.2	8,733.8	1.5x	0.6x	10.4%	5.7%	4.7%

PERFORMANCE BY VINTAGE YEAR (CONT.)



The PME Spread is calculated as the IRR minus the blended PME. Performance of funds that are less than one year old are not meaningful. Note that Russell 3000 and Barclays Capital Aggregate Bond Index data are continuously updated and are therefore subject to change. Performance of funds that are less than one year old are not meaningful and therefore left blank.

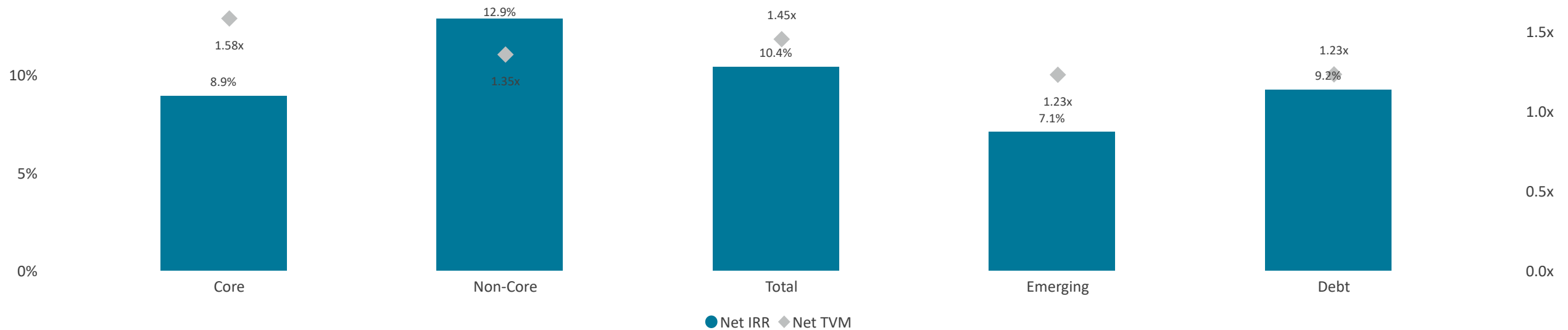
PERFORMANCE BY STRATEGY¹

The following table illustrates the Portfolio's since inception investment performance by strategy and sub-strategy as of September 30, 2022.

As of September 30, 2022. In USD millions.

Strategy	# of Inv	Commitment	Contributions	Distributions	NAV	Unfunded	Exposure	Net TVM	Net IRR	Leverage
Core	36	2,863.6	2,851.1	1,173.7	3,332.1	379.9	3,712.0	1.58x	8.9%	36.1%
Non-Core	77	6,344.2	3,837.7	3,014.2	2,182.4	2,839.3	5,021.8	1.35x	12.9%	43.9%
Total	113	9,207.8	6,688.7	4,187.9	5,514.6	3,219.2	8,733.8	1.45x	10.4%	39.2%
Emerging	7	409.9	284.9	175.2	174.4	162.1	336.5	1.23x	7.1%	11.4%
Debt	11	1,049.1	891.2	558.2	537.8	206.8	744.6	1.23x	9.2%	27.8%

The following chart illustrates the IRR and TVM of the Portfolio's various strategies and sub-strategies side by side. Both metrics are important to measure investment returns. IRR takes into account the time value of money and is generally favored by investors that are more yield driven over shorter investment horizons. The TVM equity multiple is the ratio of distributions plus current market value over the amount of capital contributed.



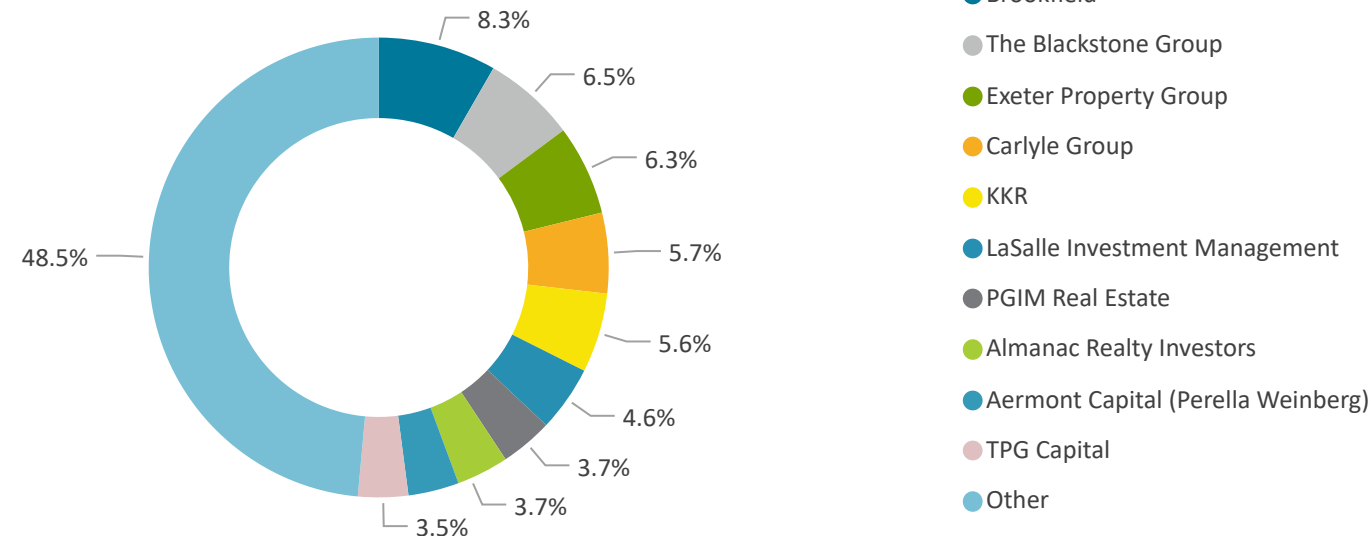
¹Russell 3000 and Barclays Capital Aggregate Bond Index are blended at the ratios of 40/60, 60/40 and 50/50 for the core, non-core and total portfolio PMEs, respectively.

TOP 10 - MANAGER HOLDINGS

As of the third quarter of 2022, the Portfolio is well diversified by manager, with 47 active managers and US\$8.7 billion total exposure.

Manager	No. of Investments	Commitment	Contributions	Distributions	NAV	Unfunded	Exposure	% of Portfolio	Net IRR	Net TVM	Net DPI
Brookfield	4	639.0	528.5	299.3	507.2	218.8	726.1	8.3%	14.3%	1.5x	0.6x
The Blackstone Group	6	615.0	369.8	314.4	251.7	317.7	569.4	6.5%	15.0%	1.5x	0.9x
Exeter Property Group	6	518.8	205.7	88.2	239.3	313.0	552.3	6.3%	24.3%	1.6x	0.4x
Carlyle Group	5	471.8	356.8	302.2	262.7	231.9	494.6	5.7%	14.1%	1.6x	0.8x
KKR	5	646.4	465.7	322.6	322.0	166.5	488.6	5.6%	16.8%	1.4x	0.7x
LaSalle Investment Management	3	334.0	210.0	36.3	278.7	123.6	402.3	4.6%	11.2%	1.5x	0.2x
PGIM Real Estate	4	267.1	197.0	111.7	234.3	86.8	321.1	3.7%	6.6%	1.8x	0.6x
Almanac Realty Investors	8	455.0	217.9	154.4	129.1	191.2	320.3	3.7%	10.6%	1.3x	0.7x
Aermont Capital (Perella Weinberg)	3	256.4	101.4	29.9	156.5	155.0	311.5	3.6%	23.9%	1.8x	0.3x
TPG Capital	2	307.0	62.8	0.1	62.9	244.9	307.8	3.5%	NM	1.0x	0.0x
TOTAL - Top 10 Managers	46	4,510.4	2,715.6	1,659.1	2,444.5	2,049.4	4,493.9	51.5%	12.4%	1.5x	0.6x

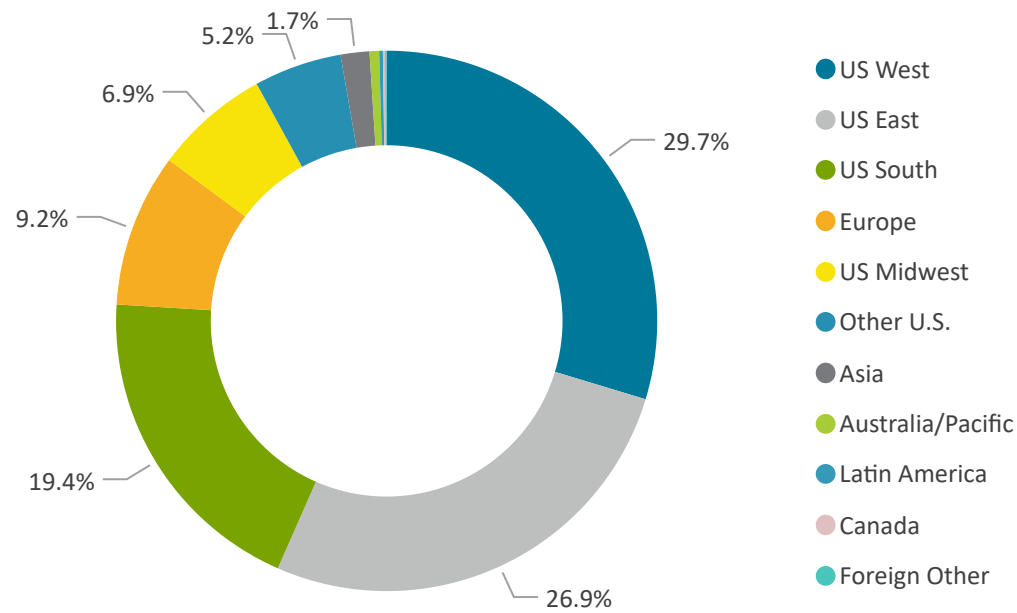
As of September 30, 2022. In USD millions.



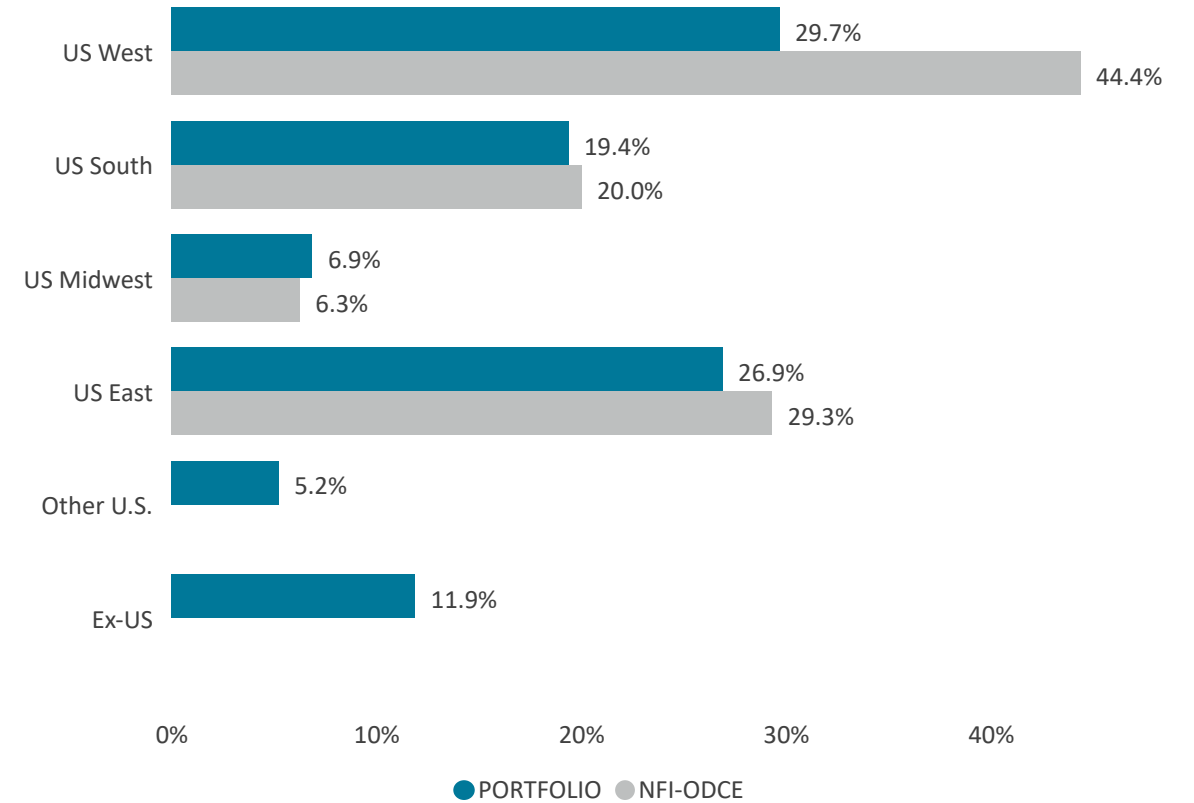
PORTFOLIO UNDERLYING HOLDINGS DIVERSIFICATION - GEOGRAPHY

The following chart illustrates the portfolio's current exposure vs. benchmarks as of September 30, 2022.

GEOGRAPHIC DIVERSIFICATION



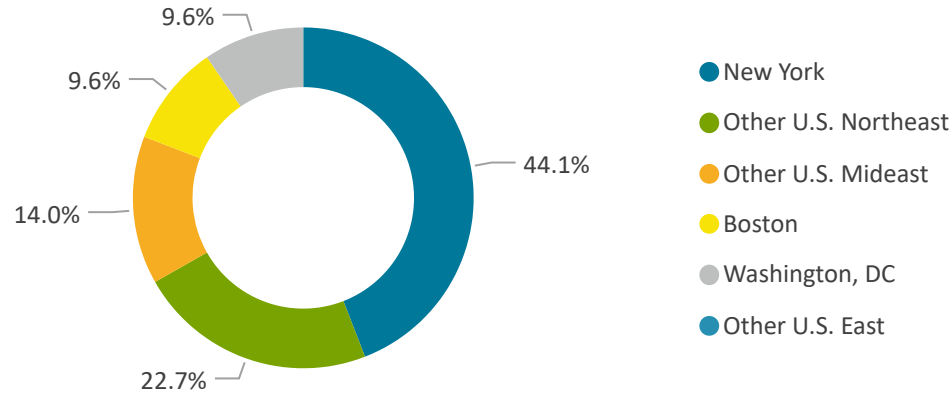
GEOGRAPHIC EXPOSURE VS. BENCHMARK



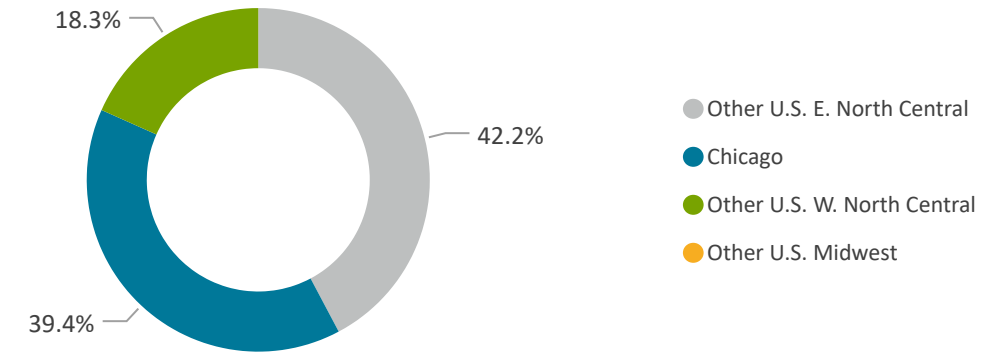
PORTFOLIO UNDERLYING HOLDINGS DIVERSIFICATION - GEOGRAPHY DETAILED

The following chart illustrates the portfolio's current exposure as of September 30, 2022.

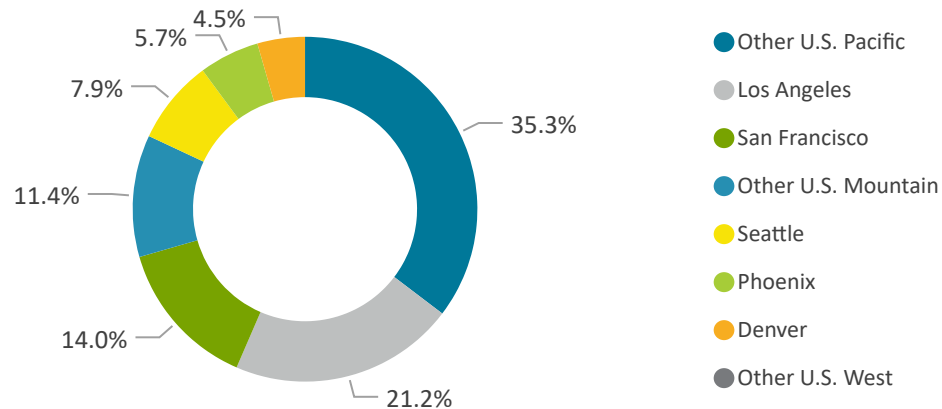
U.S. EAST EXPOSURE DETAIL 26.9%



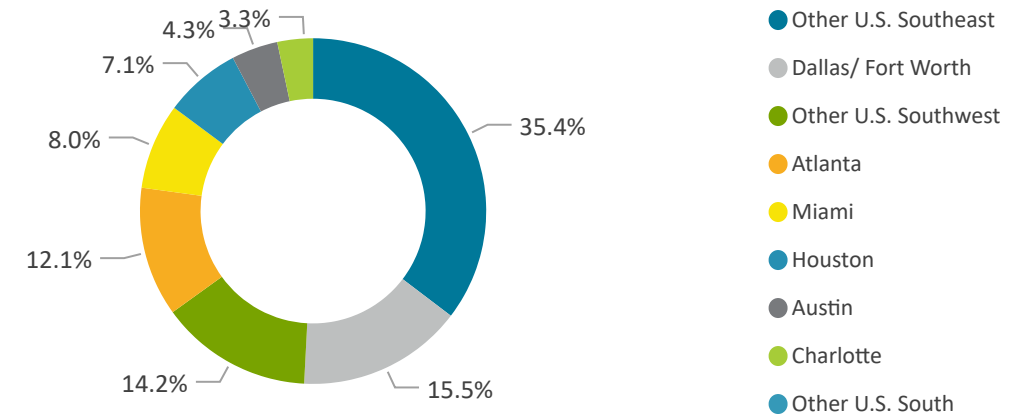
U.S. MIDWEST EXPOSURE DETAIL 6.9%



U.S. WEST EXPOSURE DETAIL 29.7%

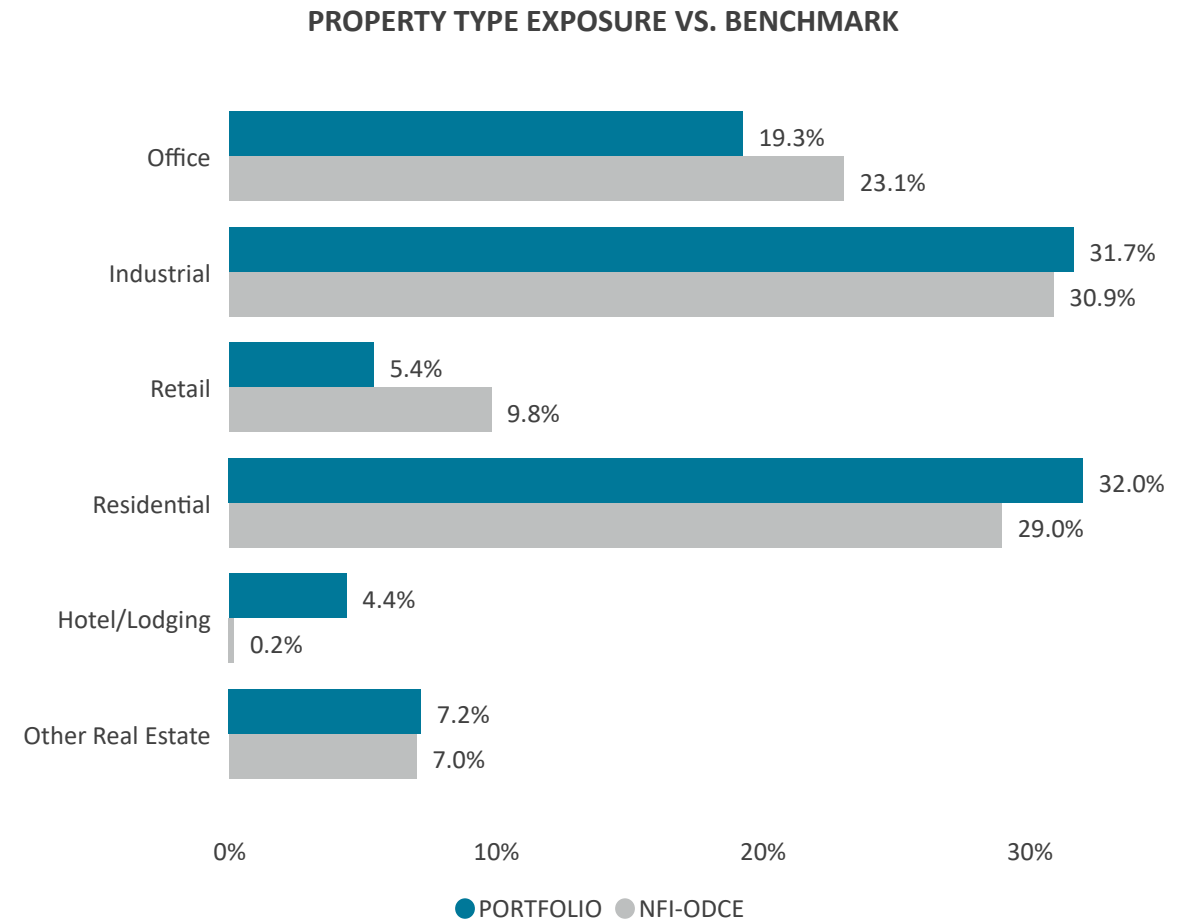
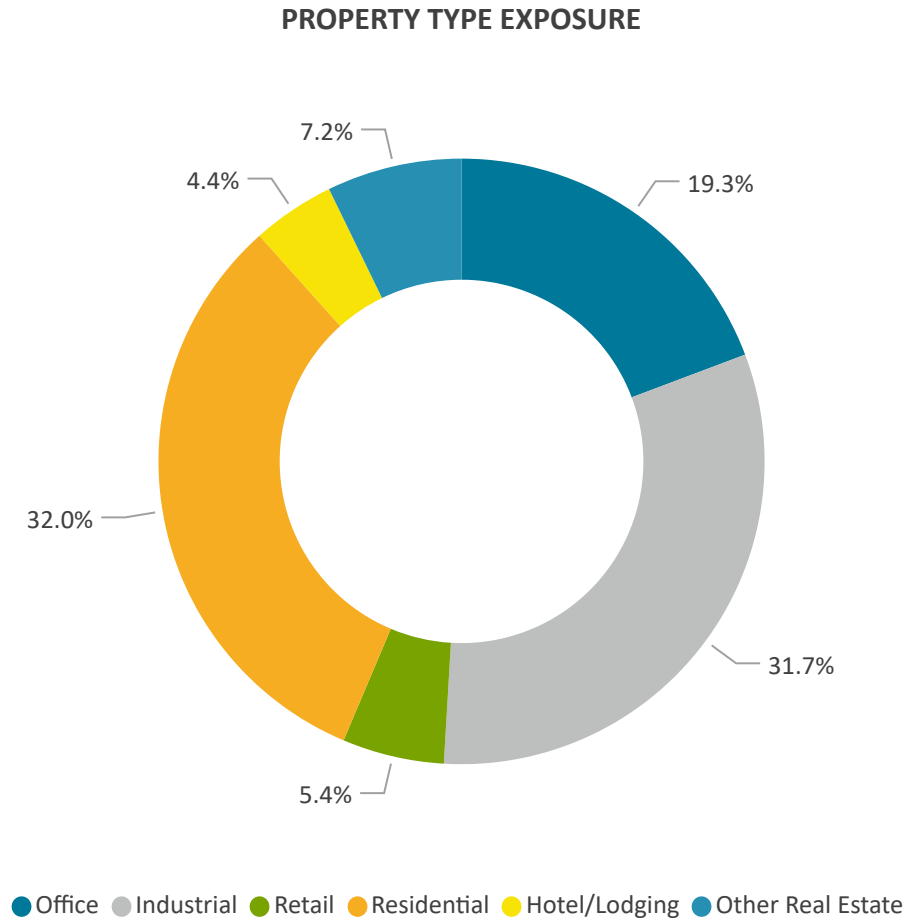


U.S. SOUTH EXPOSURE DETAIL 19.4%



PORTFOLIO UNDERLYING HOLDINGS DIVERSIFICATION - PROPERTY TYPE

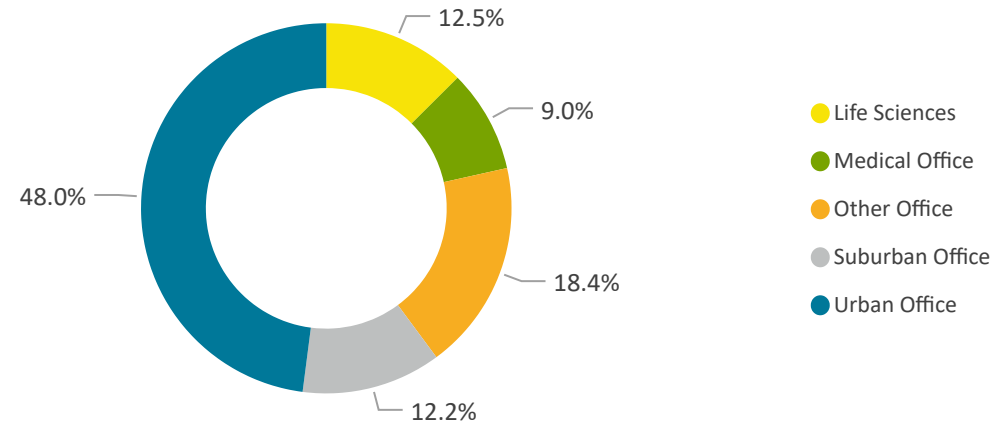
The following chart illustrates the portfolio's current exposure vs. benchmarks as of September 30, 2022.



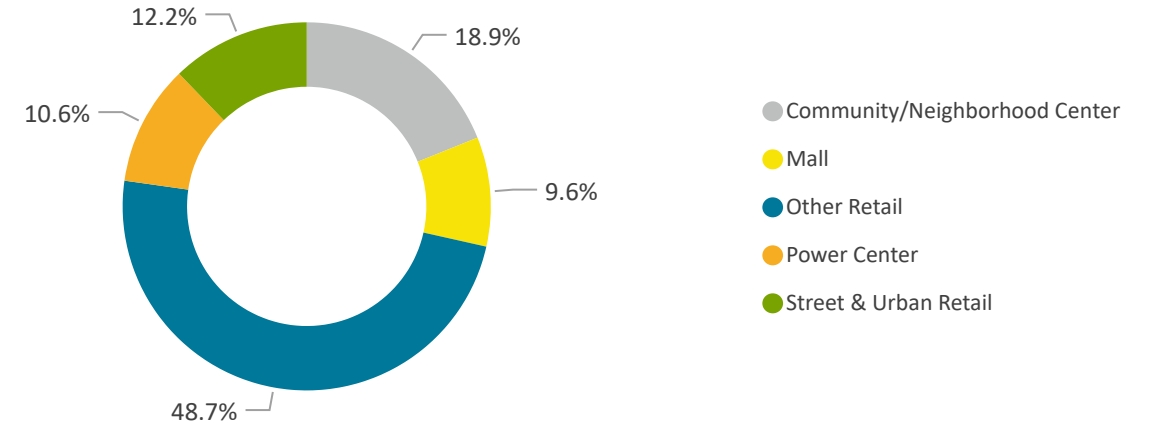
PORTFOLIO UNDERLYING HOLDINGS DIVERSIFICATION - PROPERTY TYPE DETAILED

The following chart illustrates the portfolio's current exposure as of September 30, 2022.

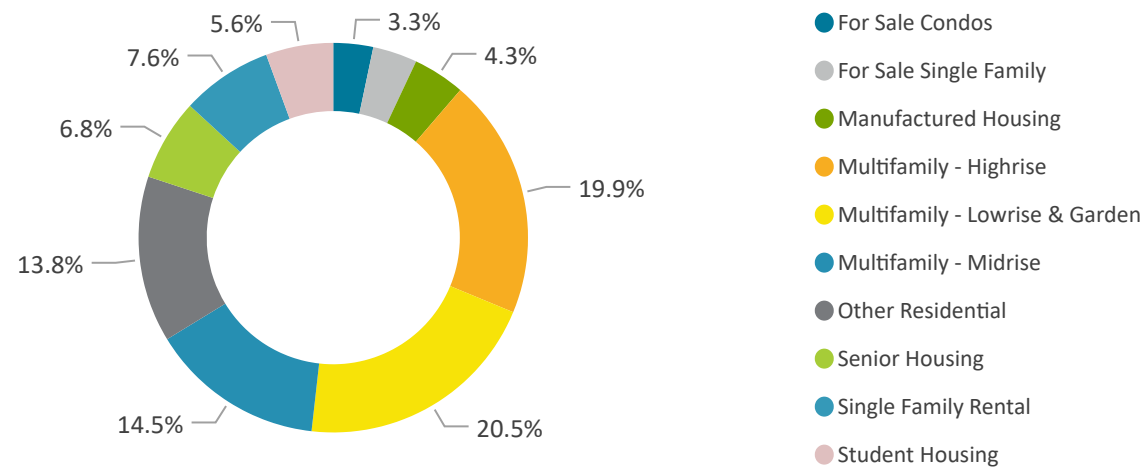
OFFICE EXPOSURE - PROPERTY SUB-TYPE DETAIL 19.2%



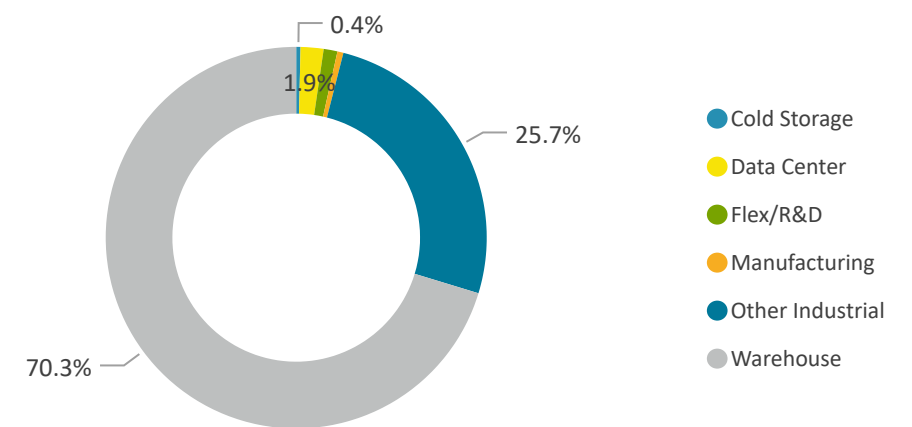
RETAIL EXPOSURE - PROPERTY SUB-TYPE DETAIL 5.4%



RESIDENTIAL EXPOSURE - PROPERTY SUB-TYPE DETAIL 32.0%



INDUSTRIAL EXPOSURE - PROPERTY SUB-TYPE DETAIL 31.6%



ACTIVE CORE PORTFOLIO PERFORMANCE

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
JP Morgan Strategic Property Fund	2006	12/5/2006	\$86.0	\$143.0	\$182.9	\$92.9	\$0.0	\$92.9	1.3x	1.9x	7.6%
PRISA	2006	9/28/2006	\$36.0	\$38.8	\$20.8	\$65.5	\$0.0	\$65.5	0.5x	2.2x	5.9%
Prologis Targeted US Logistics Fund	2006	10/1/2006	\$20.0	\$24.1	\$7.4	\$47.9	\$0.0	\$47.9	0.3x	2.3x	9.4%
RREEF America REIT II	2006	10/2/2006	\$85.0	\$96.5	\$32.2	\$131.1	\$0.0	\$131.1	0.3x	1.7x	7.1%
UBS Trumbull Property Fund	2006	9/28/2006	\$106.0	\$165.5	\$201.1	\$64.0	\$0.0	\$64.0	1.2x	1.6x	6.4%
Heitman America Real Estate Trust, L.P.	2007	3/29/2007	\$48.0	\$86.9	\$44.5	\$144.9	\$0.0	\$144.9	0.5x	2.2x	8.5%
JP Morgan Special Situation Property Fund	2007	1/5/2007	\$15.0	\$27.1	\$17.8	\$27.4	\$0.0	\$27.4	0.7x	1.7x	5.7%
PRISA II	2007	6/29/2007	\$63.4	\$67.6	\$32.5	\$125.0	\$0.0	\$125.0	0.5x	2.3x	6.9%
LaSalle Property Fund	2010	7/1/2010	\$104.0	\$103.6	\$33.5	\$163.6	\$0.0	\$163.6	0.3x	1.9x	10.9%
Almanac Realty Securities VI	2012	6/6/2012	\$100.0	\$62.4	\$68.8	\$13.3	\$0.0	\$13.3	1.1x	1.3x	9.0%
Almanac Realty Securities VI (Sidecar III)	2012	8/10/2012	\$35.0	\$11.8	\$11.0	\$5.4	\$0.0	\$5.4	0.9x	1.4x	9.2%
NYC Asset Investor #2	2013	7/9/2013	\$145.0	\$147.5	\$62.6	\$114.8	\$4.7	\$119.5	0.4x	1.2x	3.4%
MetLife Core Property Fund	2014	7/1/2014	\$80.0	\$80.0	\$30.4	\$137.3	\$0.0	\$137.3	0.4x	2.1x	11.2%
Almanac Realty Securities VII	2015	4/24/2015	\$65.0	\$65.1	\$51.3	\$38.2	\$9.5	\$47.7	0.8x	1.4x	11.8%
Almanac Realty Securities VII (Sidecar III)	2015	12/9/2015	\$20.0	\$16.5	\$11.7	\$11.3	\$4.3	\$15.6	0.7x	1.4x	12.6%
USAA Eagle Real Estate Fund	2015	12/1/2015	\$98.0	\$109.5	\$16.6	\$147.5	\$0.0	\$147.5	0.2x	1.5x	8.1%
Artemis Co-Investment	2016	2/24/2016	\$70.0	\$81.8	\$96.9	\$33.3	\$5.2	\$38.4	1.2x	1.6x	17.2%
Exeter Core Industrial Club Fund II	2016	5/20/2016	\$37.0	\$36.0	\$14.7	\$70.7	\$1.0	\$71.6	0.4x	2.4x	22.9%
Jamestown Premier Property Fund	2016	2/4/2016	\$65.0	\$76.4	\$30.7	\$53.9	\$0.0	\$53.9	0.4x	1.1x	2.7%

Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses. IRR and TVPI for certain vehicles may have been impacted by StepStone's or the underlying GP's use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital. Unless otherwise indicated, all underlying investment attribution and performance information presented is net of fees and expenses charged by the underlying investment, but gross of StepStone vehicle/account fees and expenses. Where indicated, net return figures presented for StepStone vehicle/account performance include fees and expenses paid to StepStone.

ACTIVE CORE PORTFOLIO PERFORMANCE (CONT.)

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
Brookfield Premier Real Estate Partners	2016	11/22/2016	\$171.0	\$210.1	\$39.1	\$316.9	\$0.0	\$316.9	0.2x	1.7x	14.3%
Carlyle Property Investors	2017	7/3/2017	\$119.0	\$150.1	\$31.1	\$228.1	\$0.0	\$228.1	0.2x	1.7x	14.0%
Lion Industrial Trust	2017	1/3/2017	\$98.0	\$138.9	\$30.7	\$300.0	\$0.0	\$300.0	0.2x	2.4x	22.4%
Almanac Realty Securities VIII	2018	12/21/2018	\$51.0	\$28.1	\$6.7	\$26.9	\$26.5	\$53.5	0.2x	1.2x	13.1%
Almanac Realty Securities VIII (Sidecar II)	2018	12/21/2018	\$34.0	\$19.4	\$5.0	\$20.5	\$15.5	\$36.0	0.3x	1.3x	20.7%
Heitman Core Real Estate Debt Income Trust	2018	11/7/2018	\$112.0	\$130.7	\$18.7	\$129.5	\$0.0	\$129.5	0.1x	1.1x	5.9%
Artemis Income and Growth Fund	2019	10/18/2019	\$101.0	\$68.3	\$19.2	\$55.2	\$43.8	\$99.0	0.3x	1.1x	6.1%
Harrison Street Core Property Fund	2019	10/4/2019	\$100.0	\$115.4	\$12.5	\$132.5	\$0.0	\$132.5	0.1x	1.3x	9.0%
Harrison Street Core Property Fund Co-Investment	2019	5/13/2019	\$50.0	\$48.0	\$3.4	\$64.1	\$2.6	\$66.7	0.1x	1.4x	16.2%
Cortland Growth and Income, L.P.	2020	7/1/2020	\$123.0	\$136.4	\$13.4	\$201.9	\$0.0	\$201.9	0.1x	1.6x	25.5%
Exeter Core Industrial Fund III	2020	2/19/2020	\$84.8	\$83.3	\$8.1	\$88.0	\$1.5	\$89.5	0.1x	1.2x	11.3%
LaSalle Centre Street GPS Co-Investment Program - Core	2021	8/17/2021	\$92.0	\$56.3	\$1.1	\$62.3	\$35.7	\$97.9	0.0x	1.1x	19.5%
RREEF Core Plus Industrial Fund	2021	4/5/2021	\$112.5	\$114.5	\$2.0	\$139.8	\$0.0	\$139.8	0.0x	1.2x	29.2%
TPG Real Estate Thematic Advantage Core-Plus JV IV, L.P.	2021	3/29/2022	\$150.0	\$62.8	\$0.1	\$64.5	\$87.9	\$152.4	0.0x	1.0x	NM
EQT Exeter Industrial Core-Plus Fund IV	2022	9/30/2022	\$157.0	\$15.1	\$0.0	\$13.7	\$141.9	\$155.6	0.0x	0.9x	NM
Total: Active Core Investments			\$2,833.6	\$2,817.6	\$1,158.4	\$3,332.1	\$379.9	\$3,712.0	0.4x	1.6x	9.2%

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ACTIVE NON-CORE PORTFOLIO PERFORMANCE

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
Blackstone Real Estate Partners IV L.P.	2004	5/14/2004	\$25.0	\$32.0	\$45.7	\$0.2	(\$0.0)	\$0.2	1.4x	1.4x	10.3%
Apollo Real Estate Investment Fund V	2006	6/15/2006	\$5.0	\$5.0	\$5.8	\$0.0	\$0.5	\$0.5	1.2x	1.2x	1.9%
American Value Partners Fund I	2007	10/18/2007	\$25.0	\$17.9	\$19.0	\$0.5	\$7.1	\$7.6	1.1x	1.1x	1.8%
Blackstone Real Estate Partners VI L.P.	2007	7/28/2006	\$50.0	\$54.6	\$109.1	\$0.2	\$3.9	\$4.1	2.0x	2.0x	13.4%
Carlyle Realty Partners V, L.P.	2007	8/27/2007	\$12.8	\$19.1	\$28.4	\$0.0	\$1.2	\$1.3	1.5x	1.5x	8.9%
Metropolitan Workforce Housing Fund	2007	7/12/2007	\$10.5	\$10.5	\$12.6	\$0.3	\$0.0	\$0.3	1.2x	1.2x	4.0%
Blackstone Real Estate Partners Europe III - USD	2008	10/24/2008	\$50.0	\$43.5	\$71.2	\$1.8	\$9.5	\$11.3	1.6x	1.7x	15.7%
Capri Urban Investors	2008	6/3/2008	\$40.0	\$40.0	\$25.4	\$0.2	\$0.0	\$0.2	0.6x	0.6x	(5.7%)
Silverpeak Legacy Partners III	2008	6/4/2008	\$30.0	\$12.3	\$4.3	\$1.1	\$0.0	\$1.1	0.3x	0.4x	(11.2%)
Stockbridge Real Estate III	2008	9/9/2008	\$22.5	\$22.5	\$14.0	\$15.2	\$0.0	\$15.2	0.6x	1.3x	3.0%
Thor Urban Property Fund II	2008	10/30/2008	\$12.5	\$17.1	\$17.8	\$0.2	\$4.6	\$4.8	1.0x	1.1x	1.7%
Westbrook Real Estate Fund VIII, L.P.	2009	12/28/2009	\$50.0	\$59.8	\$69.0	\$7.0	\$4.3	\$11.3	1.2x	1.3x	9.6%
Carlyle Realty Partners VI, L.P.	2011	9/28/2011	\$70.0	\$76.2	\$108.9	\$5.8	\$23.0	\$28.8	1.4x	1.5x	19.9%
H2 Special Opportunities Fund II	2011	2/14/2011	\$40.0	\$40.0	\$58.4	\$0.6	\$0.0	\$0.6	1.5x	1.5x	13.2%
Brookfield Strategic Real Estate Partners	2012	9/20/2012	\$125.0	\$134.6	\$189.2	\$32.8	\$22.0	\$54.8	1.4x	1.6x	14.1%
Taconic New York City Investment Fund	2012	7/5/2012	\$70.0	\$29.3	\$48.0	\$4.7	\$40.7	\$45.5	1.6x	1.8x	15.5%
Lone Star Real Estate Fund III, L.P.	2013	2/28/2014	\$190.0	\$181.7	\$244.6	\$1.0	\$11.9	\$12.9	1.3x	1.4x	14.2%
NYC Asset Investor #1	2013	6/25/2013	\$60.0	\$76.9	\$44.2	\$37.7	\$17.1	\$54.9	0.6x	1.1x	1.3%

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ACTIVE NON-CORE PORTFOLIO PERFORMANCE (CONT.)

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
NYC Asset Investor #3	2013	9/20/2013	\$96.0	\$68.9	\$18.4	\$73.0	\$27.1	\$100.1	0.3x	1.3x	5.4%
Carlyle Realty Partners VII, L.P.	2014	7/1/2014	\$120.0	\$111.4	\$133.8	\$29.8	\$57.6	\$87.5	1.2x	1.5x	13.0%
DivcoWest Fund IV	2014	1/15/2014	\$25.0	\$24.8	\$40.8	\$1.7	\$2.2	\$3.9	1.6x	1.7x	25.2%
DRA Growth and Income Fund VIII	2014	9/29/2014	\$75.0	\$91.9	\$95.3	\$26.3	\$1.6	\$27.9	1.0x	1.3x	8.6%
H2 Special Opportunities III	2014	12/29/2014	\$65.0	\$67.5	\$67.4	\$17.2	\$0.0	\$17.2	1.0x	1.3x	7.5%
European Property Investors Special Opportunities 4 LP	2015	12/18/2015	\$64.6	\$59.3	\$24.5	\$53.6	\$7.7	\$61.3	0.4x	1.3x	7.4%
DivcoWest Fund V	2016	12/21/2016	\$78.0	\$62.2	\$22.8	\$56.8	\$15.8	\$72.6	0.4x	1.3x	7.3%
H2 Special Opportunities IV	2016	11/15/2016	\$119.0	\$119.9	\$27.9	\$113.4	\$0.0	\$113.4	0.2x	1.2x	5.9%
PW Real Estate Fund III	2016	10/7/2016	\$64.0	\$50.8	\$29.9	\$113.3	\$13.2	\$126.5	0.6x	2.8x	30.7%
Westbrook Real Estate Fund X	2016	7/18/2016	\$47.0	\$45.6	\$40.1	\$17.4	\$3.8	\$21.2	0.9x	1.3x	10.9%

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ACTIVE NON-CORE PORTFOLIO PERFORMANCE (CONT.)

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
Basis Investment Group Real Estate Fund I	2017	11/16/2017	\$19.4	\$20.4	\$10.7	\$15.2	\$2.8	\$18.1	0.5x	1.3x	11.3%
DRA Growth and Income Fund IX	2017	3/9/2017	\$56.0	\$61.4	\$56.8	\$42.8	\$4.8	\$47.6	0.9x	1.6x	19.0%
Exeter Industrial Value Fund IV, L.P.	2017	9/20/2017	\$34.0	\$32.0	\$65.4	\$4.7	\$1.9	\$6.6	2.0x	2.2x	30.9%
NYCRS-KKR CMBS Retention Partners	2017	9/27/2017	\$159.0	\$144.3	\$55.8	\$131.3	\$17.2	\$148.5	0.4x	1.3x	7.3%
Pramerica Real Estate Capital VI	2017	4/20/2017	\$68.7	\$70.4	\$57.5	\$22.7	\$7.4	\$30.0	0.8x	1.1x	7.3%
KKR Real Estate Partners Americas II	2018	2/9/2018	\$135.4	\$137.0	\$172.1	\$51.8	\$18.1	\$69.9	1.3x	1.6x	28.2%
Aermont Capital Real Estate Fund IV	2019	4/18/2019	\$79.7	\$50.6	\$0.0	\$43.9	\$29.1	\$73.0	0.0x	0.9x	(8.4%)
Blackstone Real Estate Partners Europe VI L.P.	2019	11/20/2019	\$111.0	\$58.3	\$30.7	\$41.6	\$70.6	\$112.1	0.5x	1.2x	16.2%
Blackstone Real Estate Partners IX L.P.	2019	9/23/2019	\$184.0	\$181.4	\$57.6	\$207.8	\$38.7	\$246.6	0.3x	1.5x	34.6%
Brookfield Strategic Real Estate Partners III, L.P.	2019	4/12/2019	\$193.0	\$159.8	\$71.1	\$130.6	\$70.8	\$201.4	0.4x	1.3x	14.8%
Grosvenor Real Estate Emerging Manager SMA	2019	5/19/2020	\$264.0	\$133.7	\$16.3	\$125.1	\$146.9	\$272.1	0.1x	1.1x	5.8%

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ACTIVE NON-CORE PORTFOLIO PERFORMANCE (CONT.)

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
Westbrook Real Estate Fund XI	2019	12/22/2020	\$92.0	\$42.1	\$16.3	\$33.0	\$62.7	\$95.7	0.4x	1.2x	25.4%
DivcoWest Fund VI	2020	11/6/2020	\$93.0	\$37.8	\$1.5	\$37.4	\$55.9	\$93.3	0.0x	1.0x	3.2%
DRA Growth and Income Fund X	2020	3/25/2020	\$67.0	\$48.3	\$16.3	\$48.8	\$29.2	\$78.0	0.3x	1.3x	35.2%
ElmTree U.S. Net Lease Fund IV, L.P.	2020	7/16/2020	\$78.0	\$48.4	\$2.6	\$52.6	\$29.9	\$82.5	0.1x	1.1x	16.5%
Exeter Industrial Value Fund V, L.P.	2020	10/23/2020	\$56.0	\$39.2	\$0.0	\$62.1	\$16.8	\$78.9	0.0x	1.6x	40.8%
GreenOak Asia III	2020	4/16/2020	\$99.0	\$79.1	\$52.2	\$34.7	\$57.9	\$92.6	0.7x	1.1x	12.6%
KKR RE Europe II	2020	9/1/2021	\$89.0	\$30.9	\$12.8	\$50.9	\$63.3	\$114.2	0.4x	2.1x	117.5%
KKR Real Estate Securities Dislocation Opportunity Co-Investment Strategy	2020	10/9/2020	\$113.0	\$67.7	\$76.2	\$7.9	\$0.7	\$8.6	1.1x	1.2x	34.5%
Pramerica Real Estate Capital VII (USD)	2020	1/28/2021	\$99.0	\$20.2	\$0.9	\$21.2	\$79.4	\$100.6	0.0x	1.1x	11.3%
Aermont Capital Real Estate Fund V	2021		\$112.7	\$0.0	\$0.0	(\$0.7)	\$112.7	\$112.0	0.0x	0.0x	NM
Almanac Realty Securities IX Sidecar II	2021		\$50.0	\$0.0	\$0.0	\$0.0	\$50.0	\$50.0	0.0x	0.0x	NM
Brookfield Strategic Real Estate Partners IV	2021	8/11/2022	\$150.0	\$24.0	\$0.0	\$26.9	\$126.0	\$152.9	0.0x	1.1x	NM
Carlyle Realty Partners IX, L.P.	2021		\$150.0	\$0.0	\$0.0	(\$1.1)	\$150.0	\$148.9	0.0x	0.0x	NM
Cerberus Institutional Real Estate Partners V SMA	2021	7/19/2021	\$106.0	\$64.4	\$0.0	\$76.2	\$41.6	\$117.8	0.0x	1.2x	29.4%
LaSalle Centre Street GPS Co-investment Program - Non-Core	2021	9/28/2021	\$138.0	\$50.1	\$1.6	\$52.9	\$87.9	\$140.8	0.0x	1.1x	14.7%
LBA Logistics Value Fund IX	2021	2/22/2022	\$95.0	\$19.5	\$0.0	\$18.1	\$75.5	\$93.6	0.0x	0.9x	NM

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ACTIVE NON-CORE PORTFOLIO PERFORMANCE (CONT.)

As of September 30, 2022. In USD millions.

INVESTMENT	VINTAGE YEAR	First Cash Flow	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
Almanac Realty Securities IX, L.P.	2021	6/13/2022	\$100.0	\$14.6	\$0.0	\$13.4	\$85.4	\$98.8	0.0x	0.9x	NM
Basis Investment Group Real Estate Fund II	2021	6/30/2021	\$57.0	\$27.0	\$7.2	\$19.9	\$36.7	\$56.6	0.3x	1.0x	0.7%
KKR Real Estate Partners Americas III SCSp	2021	11/23/2021	\$150.0	\$85.8	\$5.8	\$80.1	\$67.3	\$147.4	0.1x	1.0x	NM
Mesirow Financial Real Estate Value Fund IV	2021	6/10/2021	\$40.5	\$13.8	\$0.2	\$15.3	\$27.3	\$42.6	0.0x	1.1x	19.3%
NYC Hudson Multifamily Green Fund	2021	7/1/2021	\$130.7	\$42.8	\$12.8	\$29.8	\$100.7	\$130.4	0.3x	1.0x	(0.8%)
Rialto Real Estate Fund IV - Debt, LP	2021	1/14/2021	\$120.0	\$69.0	\$9.0	\$65.7	\$51.3	\$117.1	0.1x	1.1x	8.6%
Artemis Real Estate Partners Healthcare Fund II	2022	7/15/2022	\$103.0	\$16.3	\$3.8	\$10.9	\$90.7	\$101.6	0.2x	0.9x	NM
Blackstone Real Estate Partners X, LP	2022		\$195.0	\$0.0	\$0.0	\$0.0	\$195.0	\$195.0	0.0x	0.0x	NM
Cerberus Institutional Real Estate Partners VI SMA	2022		\$155.0	\$0.0	\$0.0	(\$1.6)	\$155.0	\$153.4	0.0x	0.0x	NM
EQT Exeter Industrial Value Fund VI, LP	2022		\$150.0	\$0.0	\$0.0	\$0.0	\$150.0	\$150.0	0.0x	0.0x	NM
TPG Real Estate Partners IV, L.P.	2022		\$157.0	\$0.0	\$0.0	(\$1.6)	\$157.0	\$155.4	0.0x	0.0x	NM
Total: Active Non-Core Investments			\$5,891.9	\$3,465.8	\$2,429.6	\$2,182.4	\$2,839.3	\$5,021.8	0.7x	1.3x	11.4%

Total Active Investments	COMMIT	CONT	DIST	NAV	UNFUNDED	EXPOSURE	NET DPI	NET TVM	NET IRR
NYC TRS - Real Estate	\$8,725.5	\$6,283.4	\$3,588.0	\$5,514.6	\$3,219.2	\$8,733.8	0.6x	1.4x	10.0%

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FOOTNOTES

[Executive Summary - pg. 3](#)

Number of Managers and Investments include active funds. Liquidated funds are not included. Committed Capital represents original commitments to partnership investments. Unfunded Commitment represents the aggregate remaining commitments to partnership investments. Total Exposure represents the sum of Market Value and Unfunded Commitment. DPI, or Distributed to Paid-In Multiple, is a performance metric that measures distributions received relative to capital interest. DPI is calculated as Distributions divided by Contributions. TVM, or Total Value Multiple, is a performance metric that measures total value created by the Portfolio relative to Contributions, without consideration for time. TVM is calculated as Total Value, which is comprised of Market Value plus Distributions, divided by Contributions. -IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio's daily cash flows and market value as of quarter end. IRR is net of fund manager's fees, expenses, and carried interest. TVM and IRR Net of fees represent TVM and IRR net of fees. DPI, TVM and IRR are since inceptions values up until the current quarter.

Infrastructure Quarterly Report (Public):



Infrastructure Monitoring Report

For the period ended September 30, 2022

Prepared at the Specific Request of:

Client: Teachers' Retirement System of the City of New York

Portfolio: NYC TRS Infrastructure



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Important Information

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On September 20, 2021, StepStone Group Inc. acquired Greenspring Associates, Inc. ("Greenspring"). Upon the completion of this acquisition, the management agreement of each Greenspring vehicle was assigned to StepStone Group LP.

The presentation is being made based on the understanding that each recipient has sufficient knowledge and experience to evaluate the merits and risks of investing in private market products. All expressions of opinion are intended solely as general market commentary and do not constitute investment advice or a guarantee of returns. All expressions of opinion are as of the date of this document, are subject to change without notice and may differ from views held by other businesses of StepStone.

All valuations are based on current values calculated in accordance with StepStone's Valuation Policies and may include both realized and unrealized investments. Due to the inherent uncertainty of valuation, the stated value may differ significantly from the value that would have been used had a ready market existed for all of the portfolio investments, and the difference could be material. The long-term value of these investments may be lesser or greater than the valuations provided.

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Prospective investors should inform themselves and take appropriate advice as to any applicable legal requirements and any applicable taxation and exchange control regulations in the countries of their citizenship, residence or domicile which might be relevant to the subscription, purchase, holding, exchange, redemption or disposal of any investments. Each prospective investor is urged to discuss any prospective investment with its legal, tax and regulatory advisors in order to make an independent determination of the suitability and consequences of such an investment.

An investment involves a number of risks and there are conflicts of interest.

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All data is as of September 30, 2022 unless otherwise noted.

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

I. Executive Summary

The Teachers’ Retirement System of the City of New York (“NYC TRS”) established the Infrastructure Program (the “Program”) in December of 2012 on behalf of its beneficiaries to participate in attractive long-term investment opportunities and to provide diversification to its overall pension investment portfolio.

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

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

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

Since inception through September 30, 2022, the Program has committed US\$3,510.3 million to 38 partnership investments (the “Portfolio”). This quarterly monitoring report covers the performance of the Portfolio as of September 30, 2022 as well as significant activity that occurred during the third quarter of 2022.

Allocation Summary

NYC TRS has an Infrastructure allocation target of 4% of total pension assets. As of September 30, 2022, the market value of NYC TRS Infrastructure Program represented approximately 2.1% of total pension assets, a 35-basis point increase from the prior quarter.

<i>US\$ in millions*</i>	September 30, 2022	June 30, 2022	September 30, 2021	Quarterly Change	Yearly Change
Total Pension Assets*	\$85,956.6	\$99,460.0	\$101,152.0	(\$13,503.4)	(\$15,195.4)
Total Infrastructure Assets	\$1,782.9	\$1,715.4	\$1,389.9	\$67.5	\$392.9
% Allocation to Infrastructure (Target of 4%)	2.1%	1.7%	1.4%	+35 bps	+70 bps

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

Performance Summary

As of September 30, 2022, the Infrastructure Program has achieved a Total Value to Paid-In multiple of 1.3x invested capital and an IRR of 11.7%.

US\$ in millions*	September 30, 2022	June 30, 2022	September 30, 2021	Quarterly Change	Yearly Change
Number of Managers	13	13	12	0	1
Number of Investments	38	36	32	2	6
Committed Capital ¹	\$3,510.3	\$3,307.2	\$2,965.1	\$203.2	\$545.3
Contributed Capital	\$1,941.7	\$1,816.6	\$1,390.7	\$125.0	\$551.0
Distributed Capital	\$825.1	\$775.2	\$527.9	\$49.9	\$297.2
Market Value	\$1,782.9	\$1,715.4	\$1,389.9	\$67.5	\$392.9
Total Value	\$2,608.0	\$2,490.6	\$1,917.9	\$117.4	\$690.1
Total Gain/(Loss)	\$666.3	\$673.9	\$527.2	(\$7.6)	\$139.1
Unfunded Commitment	\$1,755.8	\$1,666.0	\$1,726.0	\$89.8	\$29.8
Exposure ²	\$3,538.7	\$3,381.4	\$3,115.9	\$157.3	\$422.8
Net DPI ³	0.4x	0.4x	0.4x	0.0x	0.0x
Net TVPI ⁴	1.3x	1.4x	1.4x	0.0x	0.0x
Net IRR ⁵	11.7%	12.5%	12.4%	-0.8%	-0.6%
TVPI Net of StepStone Fees ⁶	1.3x	1.4x	1.4x	-0.1x	-0.1x
IRR Net of StepStone Fees ⁶	11.7%	12.5%	12.3%	-0.8%	-0.6%

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

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

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

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

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

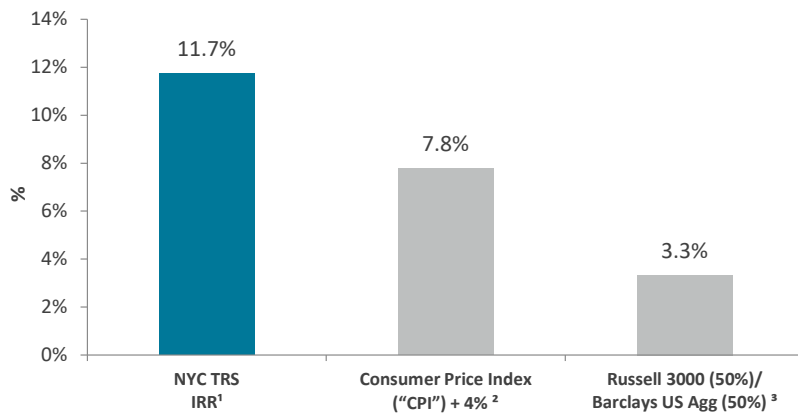
⁵ IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of fund managers' fees, expenses and carried interest.

⁶ TVPI and IRR Net of StepStone fees represent TVPI and IRR net of fees paid by NYC TRS to StepStone through the quarter-end date. IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

Portfolio Performance vs. Benchmarks

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

The following graph illustrates Portfolio IRR performance versus benchmarks as of September 30, 2022.



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

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

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

Portfolio Diversification

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

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

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

	Market Value		Unfunded Commitment		Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
<i>As of September 30, 2022. (US\$ In millions)</i>						
By Strategy:						
Core	1,500.2	84.1%	1,465.9	83.5%	2,966.1	83.8%
Non-Core	282.7	15.9%	289.9	16.5%	572.6	16.2%
Total	1,782.9	100.0%	1,755.8	100.0%	3,538.7	100.0%
By Geographic Focus:						
Global	540.0	30.3%	962.3	54.8%	1,502.3	42.5%
North America	259.3	14.5%	455.7	26.0%	715.0	20.2%
OECD	983.5	55.2%	337.8	19.2%	1,321.3	37.3%
Total	1,782.9	100.0%	1,755.8	100.0%	3,538.7	100.0%
By Industry Focus:						
Communication	114.8	6.4%	7.4	0.4%	122.2	3.5%
Diversified	1,419.2	79.6%	1,337.6	76.2%	2,756.8	77.9%
Energy	145.4	8.2%	240.8	13.7%	386.1	10.9%
Secondaries	69.7	3.9%	170.1	9.7%	239.8	6.8%
Transportation	33.8	1.9%	-	0.0%	33.8	1.0%
Total	1,782.9	100.0%	1,755.8	100.0%	3,538.7	100.0%

II. Infrastructure Market Overview

UK & Europe Infrastructure Activity

During the quarter, the UK and European infrastructure market continued to exhibit strong deal flow. Most notably, several large transactions were completed in the telecommunications, power and utilities and social infrastructure sectors.

In the telecommunications sector, Virgin Media O2 (“VMO2”) launched a joint venture with InfraVia Capital Partners to execute a ~£4.5 billion capex program to roll out fibre-to-the-premises on its existing network with the aim to connect up to seven million premises. VMO2 is one of the largest entertainment and telecommunications operators in the United Kingdom.

In the power and utilities sector, Meridiam reached financial close on neuConnect, a 1.4GW greenfield, high-voltage direct current electricity interconnection cable, which will connect the UK and German power markets upon completion in 2028. NeuConnect has a capex requirement of €3.3 billion and will span 650km. In September, Diamond Transmission Partners (Mitsubishi) won the contract to own and operate the transmission link connecting the Hornsea 2 offshore wind farm to the shore. The Hornsea Two Offshore Transmission Owner assets are estimated to be worth more than £1.2 billion. In the UK water sector, KKR Infrastructure has agreed to acquire a 25% stake in Northumbrian Water from CKI for £867 million. Northumbrian Water provides water and sewerage services to 2.7 million people in Northeast England and water-only services to 1.9 million in Southeast England.

In the social infrastructure sector, Energy Capital Partners (“ECP”) completed a take-private of Biffa, a UK waste management business. ECP agreed to the final takeover price of 410 pence/share, corresponding to an enterprise value of ~£1.9 billion. Biffa provides waste collection and recycling services to businesses and households across the UK.

In the transport sector, Concessioni Autostradali Lombarde launched a €566 million motorway concession between the cities of Brescia and Milan. The project will involve the 63-year design, build, finance and operation of the motorway link, involving the construction of a 19km 2x2 tolled motorway. In Spain, the sponsors of Madrid’s Metro Ligero Oeste concessionaire launched a ~€600 million debt refinancing, after Basalt Infrastructure Partners exited the sponsor group.

In the European airport market, Athens International Airport, (jointly owned by a consortium of PSP, the Greek Government and a local developer) raised €1.1 billion of new 144A bonds in August to refinance the airport following COVID-19 with a consortium of Greek banks acting as book-runners for the issuance. Ferrovial has reached an agreement to acquire 60% stake in Dalaman International Airport from Turkish developer YDA Group for €140 million. The airport ranks as the fourth largest in Turkey for international traffic and serves mainly tourist passengers visiting Turkey’s Mediterranean coast.

North America Infrastructure Activity

During the quarter, 104 infrastructure transactions closed in North America with an aggregate value of US\$36.4 billion. The energy sector was the most active with 57 transactions (28 in renewable energy and 29 in traditional energy) and US\$12.4 billion in total value. The second most active sector, utilities, saw 16 deals with a total value of US\$1.3 billion, with deal volumes having decreased compared to the previous quarter. The telecommunications sector saw an increase in deal volumes with nine transactions completed. The transportation sector saw an increase in value from the previous quarter with 13 transactions totalling US\$3.1 billion.

The traditional energy sector experienced a significant increase in quarter-over-quarter deal activity. In July, Targa Resources Corp. closed its acquisition of Lucid Energy Group, a gas gathering and processing business in the Delaware Basin, from

Riverstone and Goldman Sachs Asset Management for US\$3.6 billion. In August, Apollo Infrastructure (~80% stake) and New Fortress Energy (~20%) formed a joint venture, Energos infrastructure, to acquire 11 maritime LNG fleets that are currently owned by New Fortress Energy. Apollo bought its stake for US\$1.6 billion. In the same month, a joint venture between Pembina Pipeline Corporation and KKR closed its acquisition of a 51% stake in Energy Transfer Canada ULC from Energy Transfer Partners for US\$1.2 billion.

The renewable energy sector experienced a decline in deal volumes from the previous quarter. In September, XL Fleet closed its US\$600 million acquisition of Spruce Power, a Solar PV company, from HPS Investor Group. During the same month, Brookfield Renewables closed its acquisition of Standard Solar from Energir for US\$540 million with an option to invest an additional US\$160 million after acquisition. Standard Solar owns and operates approximately 500 MW of operating and under construction assets and has a ~2.0 GW development pipeline. At the end of September, Brookfield Renewable also announced the acquisition Scout Clean Energy, a Colorado-based solar and wind developer owned by Quinbrook Infrastructure Partners, for US\$1 billion. Scout's portfolio includes over 1,200 MW of operating wind assets and a pipeline of over 22,000 MW of renewables projects.

The telecommunications sector saw an increase in deal activity with respect to aggregate transaction value from the preceding quarter. In August, Stonepeak closed its acquisition of a 29% stake in American Tower Corporation's US data centre business for US\$2.5 billion. American Tower Corporation operates data centres in key US metropolitan areas, with a portfolio of 27 data centres in ten markets. In the same month, Swiss Life Asset Management, EDF Invest, and other investors bought a 35% stake in DataBank from Allstate, Teachers Insurance and Annuity Association, and DigitalBridge Group for ~US\$1.5 billion. DataBank currently has over 65 operational data centres in more than 27 markets.

In the utilities sector, OMERS completed the sale of the 1,633 MW Midland Cogeneration Venture facility, a natural gas-fired cogeneration facility, to a joint venture between Manulife Investment Management (50% stake) and Capital Power Corporation (50%) for an enterprise value of US\$894 million.

In the transport sector, Signature Aviation acquired TAC Air from The Arnold Companies for US\$1.1 billion. TAC Air is a Dallas-headquartered fixed-base operator. In September, TeraWatt Infrastructure raised ~US\$1 billion of institutional capital to support the buildout of its fleet-focused charging centres and operations. Funds managed by Vision Ridge Partners have invested in TeraWatt Infrastructure alongside existing investors Keyframe Capital and Cyrus Capital, both of which increased their commitments to the company. In September, Atlas Arteria announced the acquisition of a 66.67% stake in the Chicago Skyway from OMERS Infrastructure and CPP Investments for US\$2 billion. The deal involves the sale of the long-term lease tied to the Chicago Skyway toll road.

Australia and New Zealand Infrastructure Activity

Deal flow in the Australian and New Zealand markets remained robust during the third quarter of 2022, continuing the trend of strong deal-flow observed during the first half of the year.

In the telecommunications sector, Spark NZ finalised its formal sale process for a 70% stake in Spark TowerCo, selecting Ontario Teachers Pension Plan to acquire the portfolio of 1,500 mobile sites on towers, buildings and light poles. The NZD\$900 million acquisition represented a FY2023 pro-forma EBITDA multiple of 33.8x, which was in-line with the recent acquisition by OMERS of 100% of TPG Telecom's 1,230 passive mobile tower assets, at an implied 32.1x EV/EBITDA. Diversified telecommunications provider Uniti Group, which provides a range of services such as last-mile fibre, telco services and broadband, was taken-private by a consortium comprised of Morrison & Co., Brookfield and Commonwealth Superannuation Corporation. Uniti Group was acquired at an enterprise value of ~AU\$3.7 billion, implying a 25.7x FY2022 EBITDA multiple. Telecommunications sector activity wasn't limited to M&A, with Quinbrook Infrastructure Partners securing Foreign Investment Review Board and planning permission for the development of four hyperscale data centres, as part of its

Supernode Project. Supernode is a planned AU\$2.5 billion data centre, renewables and battery storage development project in Queensland, Australia.

The largest transaction to close during the quarter was the part-privatisation of the Victoria Motor Vehicle Registry (“VMR”) by a consortium comprised of Australian Retirement Trust, Aware Super and Macquarie Infrastructure and Real Assets. VMR is a registration, licensing and custom plates business of the Victorian State Department of Transport. VMR was acquired at a ~AU\$7.9 billion valuation, receiving a financing package of AU\$4.2 billion for the transaction from over nineteen banks. The consortium will hold a 40-year concession to operate the underlying businesses

In the transport sector, Amber Infrastructure Group made its foray into the Australian market during the quarter by acquiring Australia’s third largest rolling stock owner and lessor, Rail First Asset Management, from Anchorage Capital Partners. Amber Infrastructure Group teamed up with DIF Capital Partners, in a deal estimated to be worth AU\$425 million, representing an 11x EV/EBITDA. Also in the transport sector, the Australian Competition and Consumer Commission, approved the sale of OneRail following an agreement reached between Macquarie Asset Management and PGGM (sellers) and Aurizon (acquiror) in October 2021. The bulk freight and coal rail haulage business was acquired for AU\$2.35 billion.

In the renewables sector, Partners Group shortlisted proponents to acquire its Australian CWP Renewables assets, in a deal estimated to be worth AU\$4 billion. Palisade Investment Partners also launched a process to raise AU\$1.5 million to refinance debt linked to its renewables portfolio.

III. Portfolio Review

Quarterly Highlights

- **New Investment Commitments** – During the third quarter of 2022, the Program closed on two new investment commitments totaling US\$218.7 million.

US\$ in millions

Investment	Month and Year Closed	Vintage Year	Strategy	Geographic Focus	Industry Focus	Committed Capital
BIP III Ride Co-Investment L.P. (Project Ride)	August 2022	2022	Infrastructure	Europe	Diversified	\$20.4
Brookfield Infrastructure Fund V, LP	July 2022	2022	Infrastructure	North America	Diversified	\$198.4
Total						\$218.7

- **Subsequent Investment Commitment** – Subsequent to quarter-end, the Program closed on one new investment commitment totaling US\$18.9 million.

US\$ in millions

Investment	Month and Year Closed	Vintage Year	Strategy	Geographic Focus	Industry Focus	Committed Capital
Ardian InfraLemon SCA Fund	December 2022	2022	Infrastructure	Europe	Energy Transition	\$18.9
Total						\$18.9

- **Cash Outflow Increased** – During the third quarter of 2022, the Program made US\$125.0 million of contributions and received US\$49.9 million of distributions, for a net cash outflow of US\$75.1 million. This compared to a net cash outflow of US\$24.7 million during the prior quarter.
- **Valuation Decreased** – During the third quarter of 2022, net of cash flow activity, the valuation of the Portfolio decreased by approximately US\$7.6 million, or 0.4%, from the prior quarter. The valuation decrease primarily reflects the decrease in value of underlying investments in KKR Global Infrastructure Investors IV and IFM Global Infrastructure Fund.
- **New Underlying Fund Investments** – During the third quarter of 2022, 16 investment positions were added to the Portfolio. Below is a list of the top ten based on invested capital.

US\$ in millions

Company	Fund(s)	Investment Date	Stage	Industry	Country	Exposed Invested Capital	Exposed Market Value	TVM
Refresco Group N.V.	KKR Global Infrastructure Investors IV (USD) SCSp	Aug-22	Private	Other	Netherlands	16.5	15.0	0.9x
Omega Energia Renovável S.A.	Actis Energy 5	Jul-22	Public	Sustainability	Brazil	16.1	(0.0)	0.0x
Albioma	KKR Global Infrastructure Investors IV (USD) SCSp	Aug-22	Private	Sustainability	France	15.6	15.2	1.0x
Atlas Arteria Limited	IFM Global Infrastructure Fund	Aug-22	Public	Transportation	Australia	14.3	5.1	0.4x
Vanguard Renewables LLC	Global Energy & Power Infrastructure Fund III, L.P.	Aug-22	Private	Sustainability	United States	10.4	8.4	0.8x
BP Gas Marketing Limited	InfraVia European Fund V SCSp	Jul-22	Private	Midstream	United Kingdom	8.6	2.0	0.2x
Cirion Technologies	Stonepeak Infrastructure Fund IV, L.P.	Aug-22	Private	Telecom	United States	7.2	7.8	1.1x
Univet Limited	InfraVia European Fund V SCSp	Jul-22	Private	Other	Ireland	4.5	1.0	0.2x
Australian Fiber (Uniti)	Brookfield Infrastructure Fund IV, L.P.	Aug-22	Private	Telecom	Australia	3.8	3.6	1.0x
Levande	EQT Infrastructure V (No.2) USD SCSp	Aug-22	Private	Social	Australia	2.1	2.9	1.4x

- **Company Exits** – During the third quarter of 2022, five investment positions exited the Portfolio.

US\$ in millions

Company	Fund(s)	Investment Date	Exit Date	Stage	Industry	Country	Invested Capital	Total Value	TVM
Arrowhead Gulf Coast Holdings	Global Energy & Power Infrastructure Fund II	May-16	Jul-22	Private	Midstream	United States	4.2	6.2	1.5x
Fenix Marine Services	EQT Infrastructure III (No.2) SCSp	Dec-17	Aug-22	Private	Transportation	United States	5.8	15.4	2.7x
Lines of Credit – KKR Global Infra III	KKR Global Infrastructure Investors III L.P.	Nov-18	Jul-22	Private	Other	United States	(0.0)	(0.0)	0.0x
PEMEX Midstream	KKR Global Infrastructure Investors II L.P.	Jun-16	Aug-22	Private	Midstream	Mexico	4.4	6.3	1.4x
Spring Energy	Actis Energy 4	Jan-17	Aug-22	Private	Renewables	India	10.2	18.1	1.8x

Performance by Vintage Year

The following table illustrates the Portfolio's since-inception investment performance by vintage year as of September 30, 2022. Note that the performance of funds that are less than two years old is not meaningful.

As of September 30, 2022 (US\$ in millions)

Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/(Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
2013	\$140.0	\$121.8	\$125.9	\$115.2	\$241.1	\$119.3	\$28.0	\$143.2	1.0x	2.0x	13.2%
2014	330.0	401.8	339.5	316.3	655.9	254.0	7.1	323.4	0.8x	1.6x	12.6%
2016	395.6	320.1	151.2	312.3	463.4	143.3	119.2	431.5	0.5x	1.4x	11.8%
2017	194.7	177.9	137.3	125.8	263.1	85.2	34.3	160.1	0.8x	1.5x	14.0%
2018	284.2	221.7	32.7	219.4	252.1	30.4	80.7	300.0	0.1x	1.1x	8.1%
2019	250.1	177.5	24.2	188.3	212.5	35.0	80.4	268.7	0.1x	1.2x	11.9%
2020	439.8	150.3	12.0	144.7	156.7	6.4	299.4	444.1	0.1x	1.0x	3.7%
2021	911.9	308.3	2.2	306.5	308.8	0.4	604.8	911.4	NM	NM	NM
2022	564.0	62.2	-	54.5	54.5	(7.6)	501.9	556.4	NM	NM	NM
Total	\$3,510.3	\$1,941.7	\$825.1	\$1,782.9	\$2,608.0	\$666.3	\$1,755.8	\$3,538.7	0.4x	1.3x	11.7%

Performance by Strategy and Industry Focus

The following table illustrates the Portfolio's since-inception investment performance by strategy and industry focus as of September 30, 2022.

As of September 30, 2022 (US\$ in millions)

Strategy/Industry	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/(Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
Core	\$2,916.5	\$1,588.1	\$640.7	\$1,500.2	\$2,140.9	\$552.8	\$1,465.9	\$2,966.1	0.4x	1.3x	11.4%
Communication	66.0	60.7	-	58.0	58.0	-	5.3	63.3	NM	1.0x	-
Diversified	2,343.2	1,246.8	499.2	1,230.8	1,730.0	483.2	1,215.6	2,446.4	0.4x	1.4x	11.2%
Energy	245.9	188.0	125.7	108.0	233.7	45.6	74.9	182.9	0.7x	1.2x	13.1%
Secondaries	231.0	62.1	14.8	69.7	84.4	22.3	170.1	239.8	0.2x	1.4x	16.8%
Transportation	30.4	30.4	1.1	33.8	34.8	4.4	-	33.8	0.0x	1.1x	13.2%
Non-Core	593.9	353.5	184.4	282.7	467.1	113.6	289.9	572.6	0.5x	1.3x	14.2%
Communication	45.3	43.3	0.5	56.9	57.3	14.0	2.1	\$59.0	0.0x	1.3x	14.7%
Diversified	328.0	236.7	123.4	188.4	311.9	75.1	121.9	310.4	0.5x	1.3x	15.2%
Energy	220.6	73.5	60.5	37.4	97.9	24.4	165.9	\$203.2	0.8x	1.3x	11.6%
Total	\$3,510.3	\$1,941.7	\$825.1	\$1,782.9	\$2,608.0	\$666.3	\$1,755.8	\$3,538.7	0.4x	1.3x	11.7%

Performance by Geographic Focus

The following table and charts illustrate the Portfolio's since-inception investment performance by geographic focus as of September 30, 2022.

As of September 30, 2022 (US\$ in millions)

Geographic Focus	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	Total Gain/(Loss)	Unfunded Commitment	Exposure	DPI	TVPI	IRR
Global	\$1,534.6	\$630.8	\$328.1	\$540.0	\$868.1	\$237.3	\$962.3	\$1,502.3	0.5x	1.4x	12.7%
North America	711.2	261.9	43.2	259.3	302.5	40.6	455.7	715.0	0.2x	1.2x	8.8%
OECD	1,265.1	984.9	416.6	946.7	1,363.3	381.2	400.0	1,346.7	0.4x	1.4x	11.6%
Total	\$3,510.3	\$1,941.7	\$825.1	\$1,782.9	\$2,608.0	\$666.3	\$1,755.8	\$3,538.7	0.4x	1.3x	11.7%

Past performance is not necessarily indicative of future results and there can be no assurance that the fund will achieve comparable results or avoid substantial losses. Unless otherwise indicated, all underlying investment attribution and performance information presented is net of fees and expenses charged by the underlying investment, but gross of StepStone vehicle/account fees and expenses. Where indicated, net return figures presented for StepStone vehicle/account performance include fees and expenses paid to StepStone.

Portfolio Diversification

By Strategy, Geography and Industry Focus

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

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

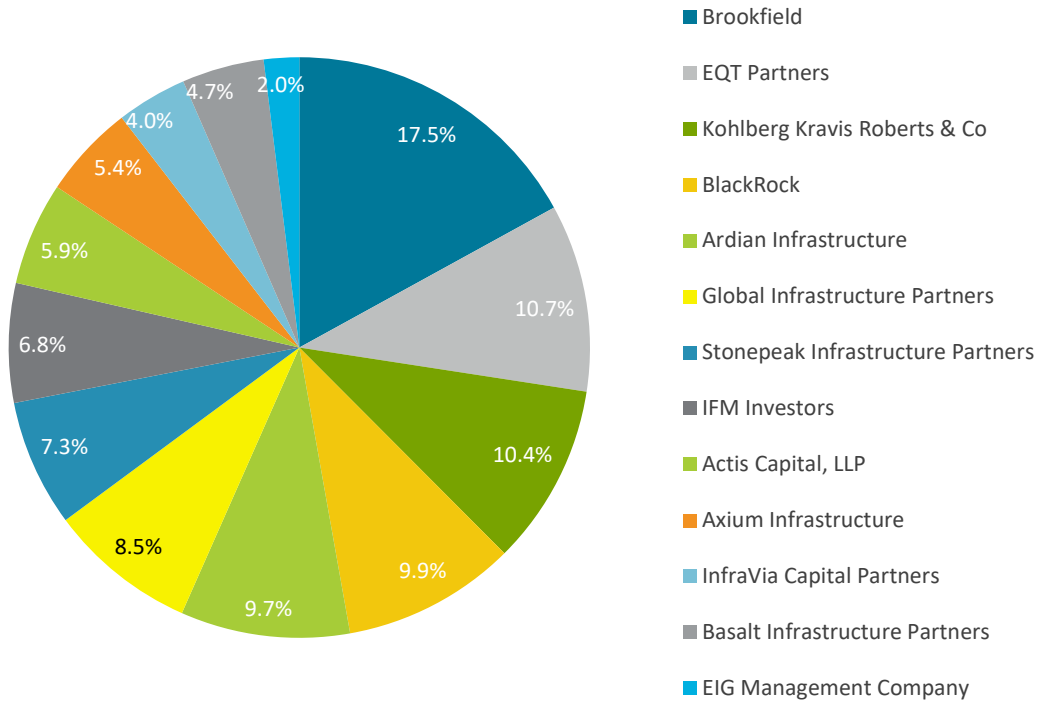
Actual percentages may differ substantially from these targets during the initial years of the Program. The following table illustrates the current diversification of the Portfolio by fund strategy, geography and industry focus.

As of September 30, 2022. (US\$ In millions)

	Market Value		Unfunded Commitment		Exposure	
	\$	% of Total	\$	% of Total	\$	% of Total
By Strategy:						
Core	1,500.2	84.1%	1,465.9	83.5%	2,966.1	83.8%
Non-Core	282.7	15.9%	289.9	16.5%	572.6	16.2%
Total	1,782.9	100.0%	1,755.8	100.0%	3,538.7	100.0%
By Geographic Focus:						
Global	540.0	30.3%	962.3	54.8%	1,502.3	42.5%
North America	259.3	14.5%	455.7	26.0%	715.0	20.2%
OECD	983.5	55.2%	337.8	19.2%	1,321.3	37.3%
Total	1,782.9	100.0%	1,755.8	100.0%	3,538.7	100.0%
By Industry Focus:						
Communication	114.8	6.4%	7.4	0.4%	122.2	3.5%
Diversified	1,419.2	79.6%	1,337.6	76.2%	2,756.8	77.9%
Energy	145.4	8.2%	240.8	13.7%	386.1	10.9%
Secondaries	69.7	3.9%	170.1	9.7%	239.8	6.8%
Transportation	33.8	1.9%	-	0.0%	33.8	1.0%
Total	1,782.9	100.0%	1,755.8	100.0%	3,538.7	100.0%

By Investment Manager

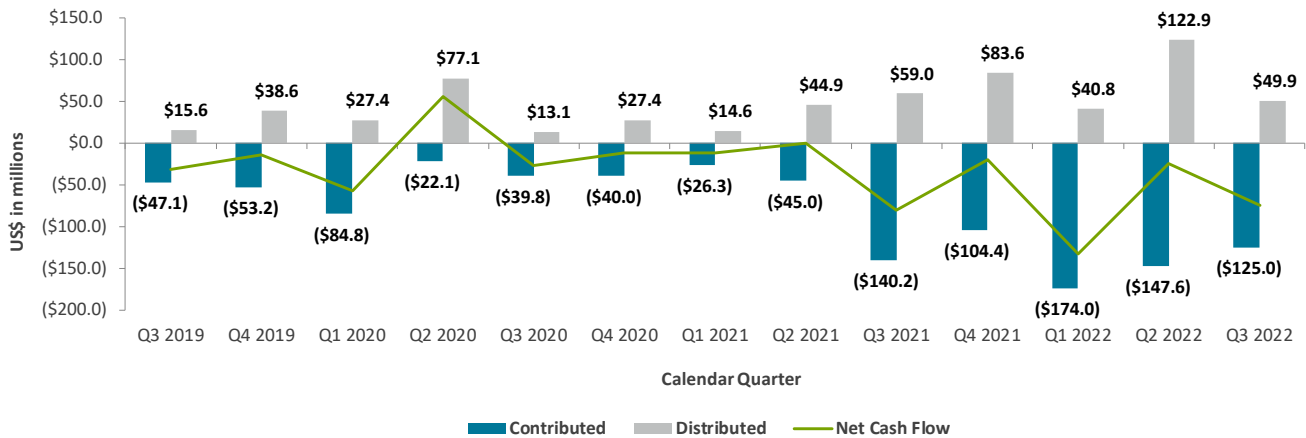
As of September 30, 2022, the Program had made 38 investment commitments to 13 managers. NYC TRS seeks to limit its exposure to any single manager to no more than 20% of the total Infrastructure Program when fully invested. As the Program matures and closes on additional commitments, the single manager exposure is expected to decline significantly. Below is the Portfolio’s current exposure by manager.



Portfolio Cash Flow Analysis

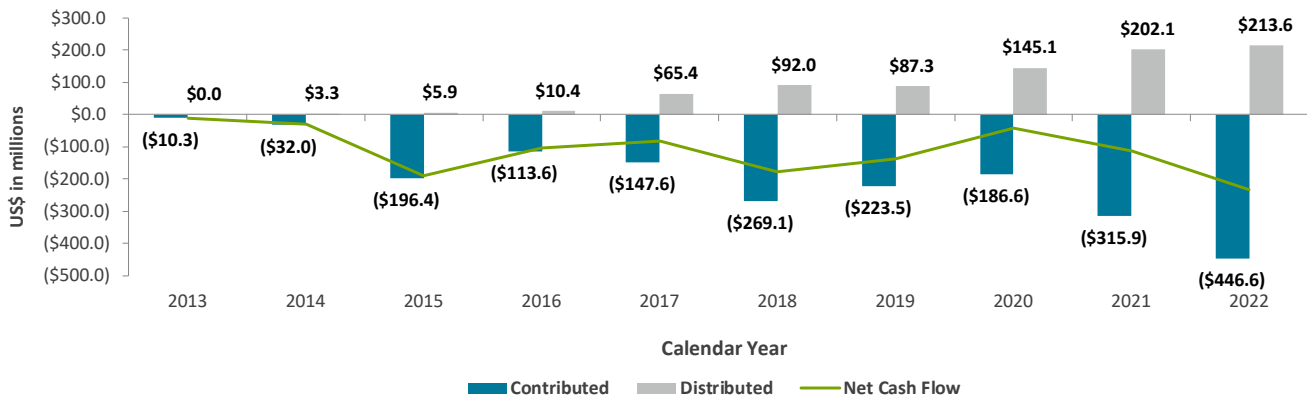
Quarterly Cash Flow Activity

During the third quarter of 2022, the Program made US\$125.0 million of contributions and received US\$49.9 million of distributions, for a net cash outflow of US\$75.1 million. As of September 30, 2022, 26 fund investments in the Portfolio had cash flow activity. As the Program’s commitment and investment activity increases, net cash outflow is expected to increase. The graph below illustrates cash flow activity since inception by calendar quarter.



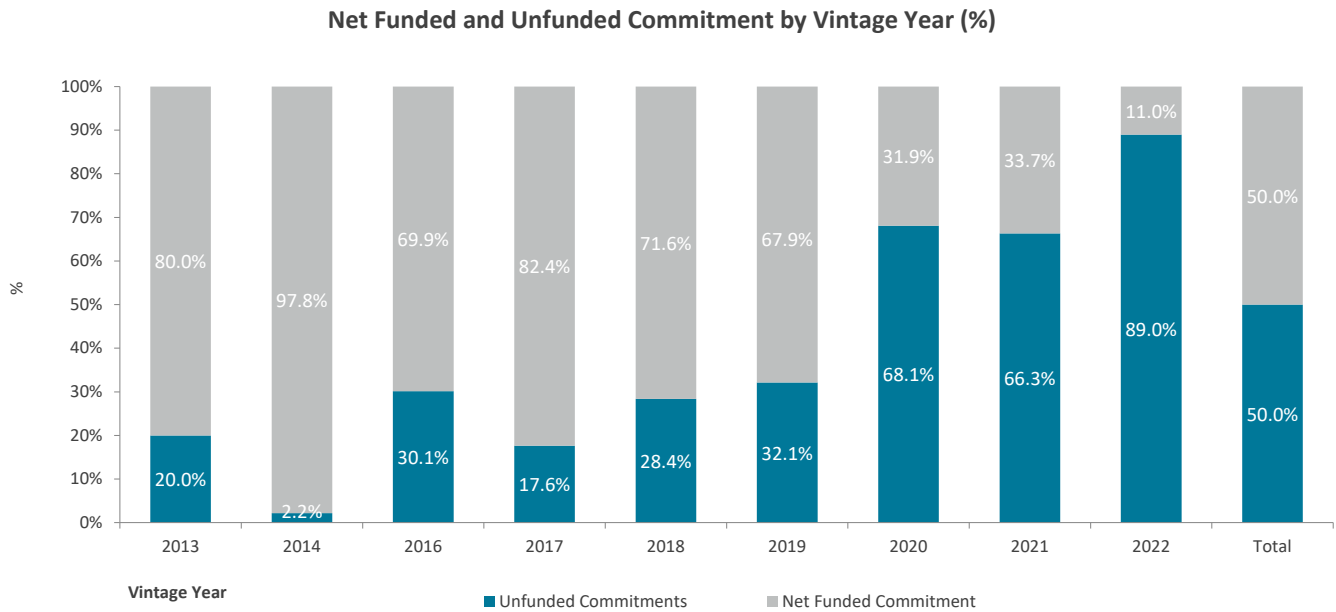
Annual Cash Flow Activity

During the previous nine months, the Program made US\$446.6 million of contributions and received US\$213.6 million of distributions, for a net cash outflow of US\$233.0 million. The graph below illustrates cash flow activity since inception by calendar year.

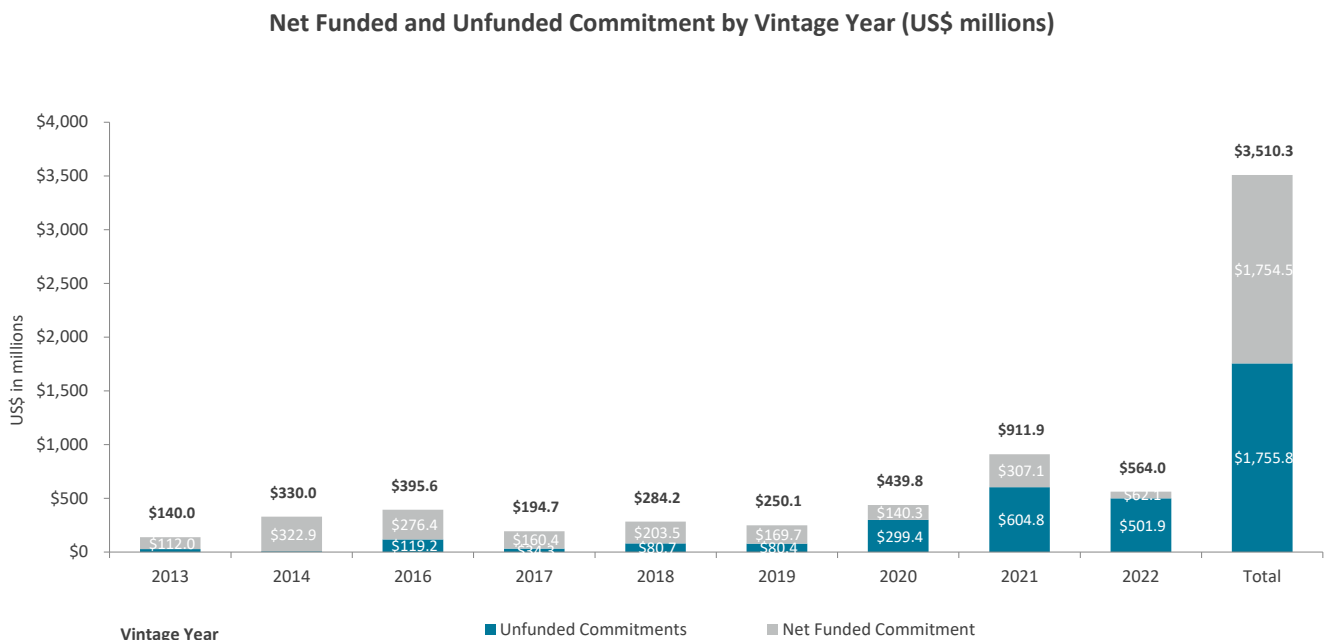


Net Funded and Unfunded Commitments by Vintage Year

The following chart illustrates the Portfolio’s net funded commitments (defined as total contributions inside commitment less any returns of excess capital and recallable distributions) as a percentage of total capital commitments, by fund vintage year, as of September 30, 2022. Overall, the Portfolio was 50.0% unfunded as of quarter-end.



The following chart illustrates the Portfolio’s net funded commitments relative to total capital commitments, by fund vintage year, as of September 30, 2022. Overall, the Portfolio had US\$1,755.8 million of unfunded commitments as of quarter-end.

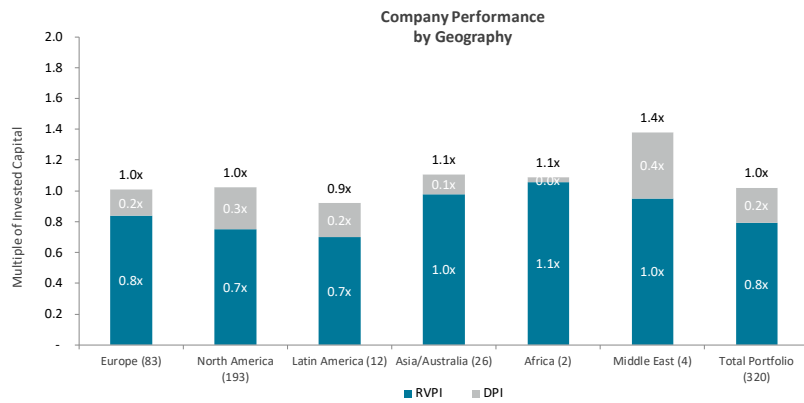
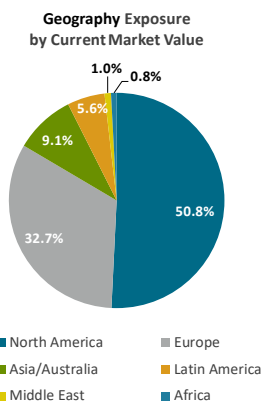


Portfolio Company-Level Analysis

As of quarter-end, the Portfolio had exposure to 320 unrealized portfolio companies/investment positions. As the Portfolio matures, the number of portfolio companies/investment positions is expected to increase significantly. On the individual fund level, all current investments are within the single investment limitation of 15% of total fund size. The Program's individual portfolio investment exposure is relatively concentrated as a result of the relative immaturity of the Program.

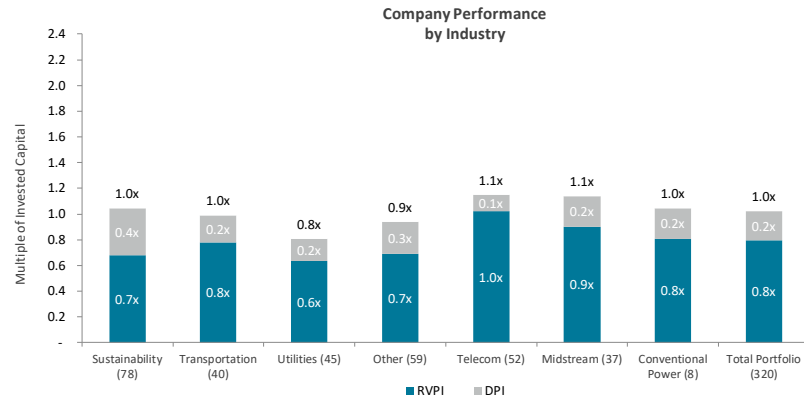
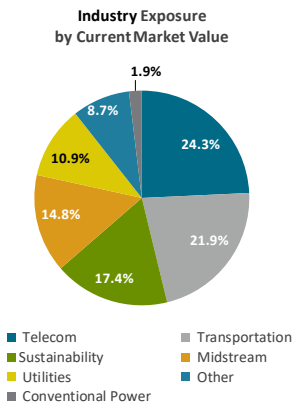
Geographic Exposure and Performance

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



Industry Exposure and Performance

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

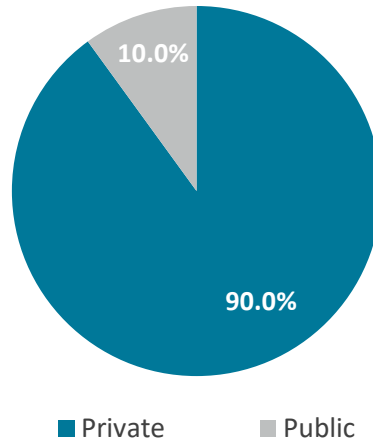


*Multiples may not add to total multiple due to rounding.

Public Market Exposure

As of quarter-end, publicly traded investments comprised 10.0% of the Portfolio's exposed market value. The following chart illustrates the current public market exposure at the portfolio company level.

Public Market Exposure Current Market Value



IV. Risk Management Matrix

Category	Requirement	Status	Status Notes
Allocation	NYC TRS has an Infrastructure allocation target of 4% of total pension assets.	✓	The market value of NYC TRS Infrastructure Program represents approximately 2.1% of total pension assets.
Performance vs. Benchmarks	<p>The performance benchmark for the Infrastructure Portfolio is to meet or exceed: (i) The Consumer Price Index (“CPI”) plus 4% net of fees over a rolling 5-year period and (ii) A dollar-weighted PME+ (“PME”) calculation of daily changes in 50% of the Russell 3000® Index and 50% of the Barclays U.S. Aggregate® Index.</p> <p>The Infrastructure Portfolio is expected to generate a total return, net of investment management fees, of at least 6.5%.</p>	✓	As of September 30, 2022, the Portfolio outperformed the CPI and PME benchmark by 3.9% and 8.4%, respectively.
Strategy Diversification	<p>Core Infrastructure Investments: 60-100% Non-Core Infrastructure Investments: 0-40%</p> <p>Actual percentages may differ substantially from these targets during the initial years of the Program.</p>	✓	The Program is in compliance with the Core/Non-Core allocation ranges. Currently the Program has 83.8% exposure to Core investments and 16.2% exposure to Non-Core investments.
Asset Type & Location Diversification	The Program will seek diversification by asset type, revenue drivers, and geography. The portfolio may include a variety of assets including but not limited to electricity transmission, pipelines, airports, toll roads, communication towers and electric generators, windmills etc. to vary the sources of revenue to the portfolio.	✓	The asset types and geographic location of current Portfolio investments are in compliance with the Program’s Investment Policy Statement and Permissible Markets.
Leverage	The average leverage of all investments in the Program is to be no higher than 65%.	✓	The Program is in compliance with the average leverage limitation. The current leverage level is 33.0% ¹ .
Single Investment Size & Manager Diversification	<p>The maximum commitment to a single investment is limited to no more than 15% of the aggregate committed capital of each fund.</p> <p>The maximum commitment to a single manager is limited to 20% of the total Infrastructure Program allocation when fully invested.</p>	✓	<p>On the individual fund level, all current investments are in compliance with the single investment limitation of 15% of total fund size.</p> <p>The Program is in compliance with the single manager limitation of 20% of the total Infrastructure Program.</p>

¹The Program’s leverage level is calculated by using a weighted average of each underlying investment’s leverage and Net Asset Value as of September 30, 2022.

Teachers' Retirement System of the City of New York
Infrastructure Portfolio
As of September 30, 2022

Vintage Year	Investment	Closing Date	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Unfunded	TVPI	IRR
Active Investments:									
2013	Brookfield Infrastructure Fund II, L.P.	7/8/2013	\$140,000,000	\$121,800,271	\$125,905,164	\$115,194,361	\$27,977,540	2.0x	13.2%
2014	IFM Global Infrastructure Fund	1/2/2014	\$140,000,000	\$196,505,133	\$95,165,334	\$235,065,880	-	1.7x	10.2%
2014	Global Energy & Power Infrastructure Fund II	4/16/2014	\$90,000,000	\$98,339,677	\$96,730,420	\$33,106,323	\$2,165,274	1.3x	15.2%
2014	KKR Global Infrastructure Investors II L.P.	6/12/2015	\$100,000,000	\$107,003,939	\$147,650,075	\$48,152,486	\$4,938,841	1.8x	18.4%
2016	Global Infrastructure Partners III-A/B, L.P.	1/29/2016	\$139,000,000	\$137,255,292	\$46,357,744	\$152,155,010	\$17,855,661	1.4x	10.4%
2016	Brookfield Infrastructure Fund III, L.P.	4/15/2016	\$119,000,000	\$73,594,959	\$29,720,040	\$72,650,211	\$53,097,872	1.4x	10.2%
2016	Actis Energy 4	12/16/2016	\$72,600,000	\$66,573,661	\$60,507,768	\$38,270,000	\$24,761,696	1.5x	14.7%
2017	EQT Infrastructure III (No.2) SCSp	2/18/2017	\$64,001,383	\$70,231,490	\$98,279,693	\$30,195,075	\$5,307,892	1.8x	20.6%
2016	ASF VII Infrastructure L.P.	4/24/2017	\$65,000,000	\$42,674,175	\$14,585,612	\$49,180,900	\$23,502,719	1.5x	16.9%
2017	Axiom Infrastructure North America (2017)	8/14/2017	\$66,030,248	\$68,737,682	\$19,182,751	\$71,263,294	-	1.3x	8.4%
2017	NYCRS EIG Energy Partners, L.P.	8/14/2017	\$64,710,000	\$38,915,751	\$19,852,726	\$24,294,573	\$29,033,292	1.1x	7.4%
2022	NYCRS EIG Energy Partners Co-Investment, L.P.	1/12/2018	\$16,180,000	-	-	-	\$16,180,000	-	0.0%
2018	KKR Global Infrastructure Investors III L.P.	3/29/2018	\$75,000,000	\$63,925,877	\$16,067,572	\$50,514,214	\$14,820,092	1.0x	2.4%
2019	Global Energy & Power Infrastructure Fund III, L.P.	7/3/2018	\$75,000,000	\$50,791,196	\$9,093,582	\$50,575,429	\$27,540,177	1.2x	11.7%
2018	Cardinal NR Sidecar Holdings L.P.	10/5/2018	\$9,000,000	\$9,060,788	\$2,992,090	\$13,087,546	-	1.8x	17.5%
2018	EQT Infrastructure IV (No.2) USD SCSp	12/20/2018	\$87,000,000	\$76,366,138	\$13,603,576	\$79,670,606	\$20,005,070	1.2x	10.4%
2019	Ardian Infrastructure Fund V B	3/4/2019	\$68,135,969	\$38,221,629	\$1,661,477	\$38,678,465	\$30,199,961	1.1x	5.0%
2018	Global Infrastructure Partners IV-A/B, L.P.	3/11/2019	\$113,200,000	\$72,337,998	\$53,732	\$76,088,766	\$45,828,829	1.1x	6.2%
2019	Brookfield Infrastructure Fund IV, L.P.	5/10/2019	\$97,000,000	\$78,483,585	\$12,376,986	\$85,304,622	\$22,650,492	1.2x	13.1%
2020	EQT Infrastructure IV Co-Investment (B) SCSp (Saber)	7/30/2019	\$8,100,000	\$8,181,000	\$491,627	\$10,010,365	-	1.2x	10.5%
2019	Brookfield Infrastructure Fund IV Co-Investment (Snow)	10/25/2019	\$10,000,000	\$10,042,407	\$1,061,124	\$13,749,532	-	1.5x	15.4%
2020	EQT Infrastructure IV Co-Investment (G) SCSp (Lightspeed)	6/11/2020	\$16,658,113	\$16,712,983	-	\$19,833,843	-	1.2x	8.0%
2020	Actis Energy 5	6/30/2020	\$148,000,000	\$6,896,538	-	(\$894,000)	\$141,103,462	-0.1x	0.0%
2020	BIS NYC Infrastructure Emerging Manager Opportunities Fund, L.P.	7/3/2020	\$69,500,000	\$9,922,509	-	\$10,125,302	\$59,577,491	1.0x	2.2%
2020	EQT Infrastructure IV Co-Investment (F) SCSp (Connect)	8/18/2020	\$20,500,000	\$18,447,000	-	\$27,009,771	\$2,114,644	1.5x	26.0%
2020	EQT Infrastructure V (No.2) USD SCSp	10/29/2020	\$177,000,000	\$90,132,109	\$11,546,169	\$78,570,960	\$96,633,297	1.0x	0.0%
2021	Basalt Infrastructure Partners III	2/5/2021	\$140,000,000	\$78,752,237	-	\$80,550,391	\$61,247,763	NM	NM
2021	Stonepeak Infrastructure Fund IV, L.P.	2/16/2021	\$207,000,000	\$75,380,538	\$585,219	\$79,810,471	\$131,632,293	NM	NM
2021	Stonepeak Tiger (Co-Invest) Holdings (I-B) LP	4/16/2021	\$28,500,000	\$24,106,729	-	\$25,185,981	\$4,393,271	NM	NM
2021	KKR Global Infrastructure Investors IV (USD) SCSp	5/24/2021	\$249,000,000	\$64,983,540	\$892,590	\$54,101,586	\$184,919,782	NM	NM
2021	ASF VIII Infrastructure B L.P.	8/3/2021	\$166,000,000	\$19,419,124	\$178,813	\$20,495,306	\$146,580,876	NM	NM
2021	Axiom Infrastructure North America (2021)	9/3/2021	\$112,350,297	\$37,534,223	\$578,984	\$38,200,398	\$75,186,817	NM	NM
2021	Stonepeak Patagonia (Co-Invest) Holdings LP (Project Panther)	12/10/2021	\$9,059,000	\$8,173,009	-	\$8,172,260	\$885,991	NM	NM
2022	Ardian Infra Fund V Co-Invest Eden	2/21/2022	\$28,440,456	\$28,440,456	-	\$24,636,094	-	NM	NM
2022	InfraVia European Fund V SCSp	2/25/2022	\$141,617,349	\$13,330,463	-	\$10,529,710	\$128,310,331	NM	NM
2022	Blackrock Global Infrastructure Fund IV	6/30/2022	\$159,000,000	-	-	-	\$159,000,000	NM	NM
2022	Brookfield Infrastructure Fund V, LP	7/18/2022	\$198,360,000	-	-	(\$672,961)	\$198,360,000	NM	NM
2021	BIP III Ride Co-Investment L.P. (Project Ride)	8/2/2022	\$20,379,329	\$20,379,329	-	\$20,008,682	-	NM	NM
Total			\$3,510,322,143	\$1,941,653,434	\$825,120,868	\$1,782,871,452	\$1,755,811,425	1.3x	11.7%

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

Risk Quarterly Report (Public):

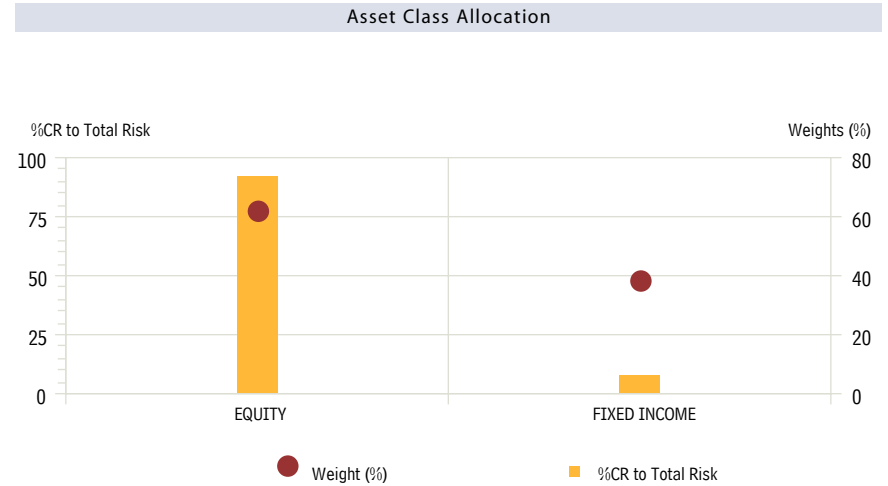
BarraOne Total Plan Summary

COMPANY: NYCRC - TEACHERS
PORTFOLIO: TEACHERS_Total Plan
BENCHMARK: TEACHERS_Policy
POSITIONS: 29,510

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 89,893,320,378
ACCEPTED: 28,996

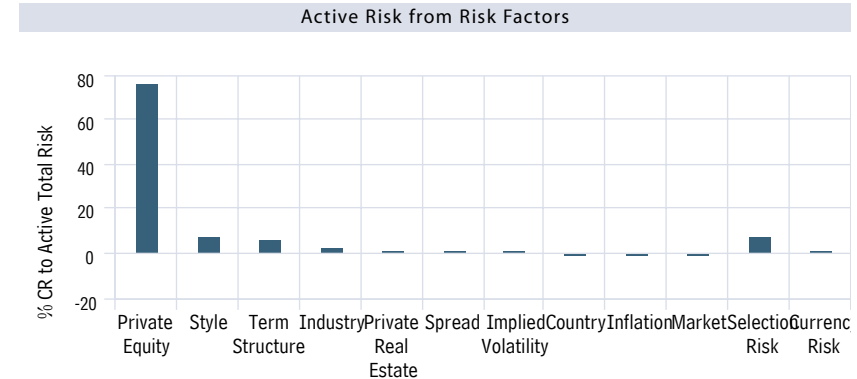
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	12.47	Total	89,893,320,378	100.00	12.47	12.47	100.00
Benchmark Risk	12.21	EQUITY	55,168,529,201	61.37	18.79	11.41	91.54
Active Risk	1.92	FIXED INCOME	34,724,791,178	38.63	5.07	1.06	8.46
Portfolio Beta	1.01						
Effective Duration	2.09						



Risk Factor Breakdown

Risk Source	Risk Decomposition			Risk Decomposition		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	12.47	100.00	1.00	1.92	100.00	1.00
Local Market Risk	11.74	94.13	1.00	1.88	98.29	0.99
Common Factor Risk	11.71	93.86	1.00	1.75	91.28	0.96
Private Real Estate	0.53	4.23	0.72	0.02	0.79	0.11
Implied Volatility	0.02	0.15	0.44	0.00	0.00	0.00
Industry	0.08	0.66	0.20	0.05	2.76	0.19
Inflation	0.07	0.60	0.42	-0.00	-0.25	-0.07
Market	9.62	77.11	0.97	-0.02	-0.82	-0.04
Private Equity	0.22	1.78	0.13	1.44	75.36	0.87
Spread	0.56	4.53	0.72	0.01	0.39	0.08
Style	0.33	2.63	0.70	0.13	7.04	0.26
Term Structure	0.28	2.22	0.14	0.12	6.03	0.25
Selection Risk	0.03	0.27	0.05	0.13	7.01	0.26
Currency Risk	0.73	5.87	0.60	0.03	1.71	0.17



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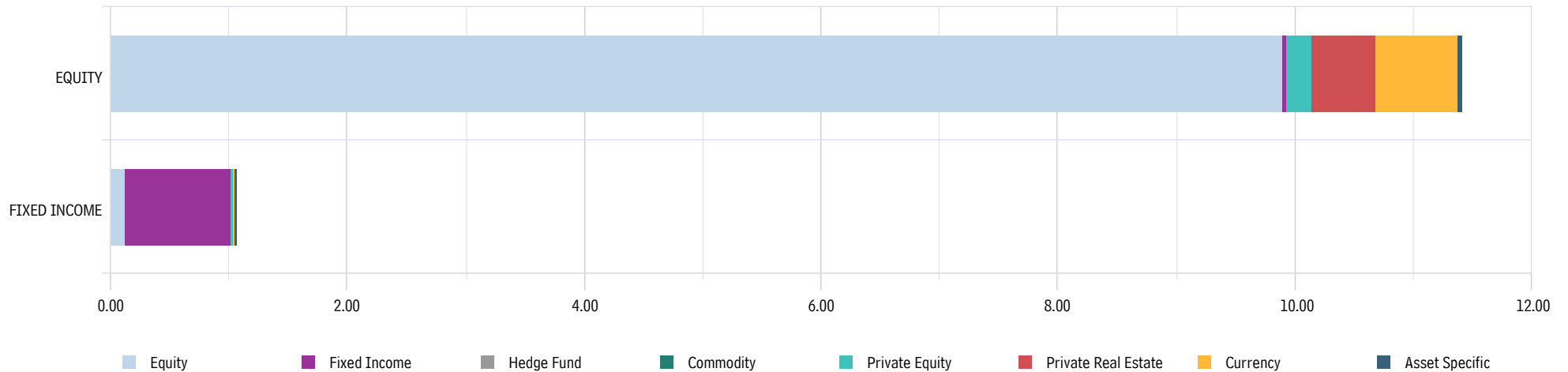
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Risk Contribution Breakdown by Risk Type

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	89,893,320,378	100.00	-	12.47	100.00	12.47	10.02	0.93	0.00	0.00	0.00	0.53	0.22	0.73	0.03
EQUITY	55,168,529,201	61.37	-	18.79	91.54	11.41	9.89	0.05	0.00	0.00	0.00	0.53	0.21	0.71	0.03
FIXED INCOME	34,724,791,178	38.63	-	5.07	8.46	1.06	0.13	0.89	0.00	0.00	0.00	0.00	0.01	0.02	0.00



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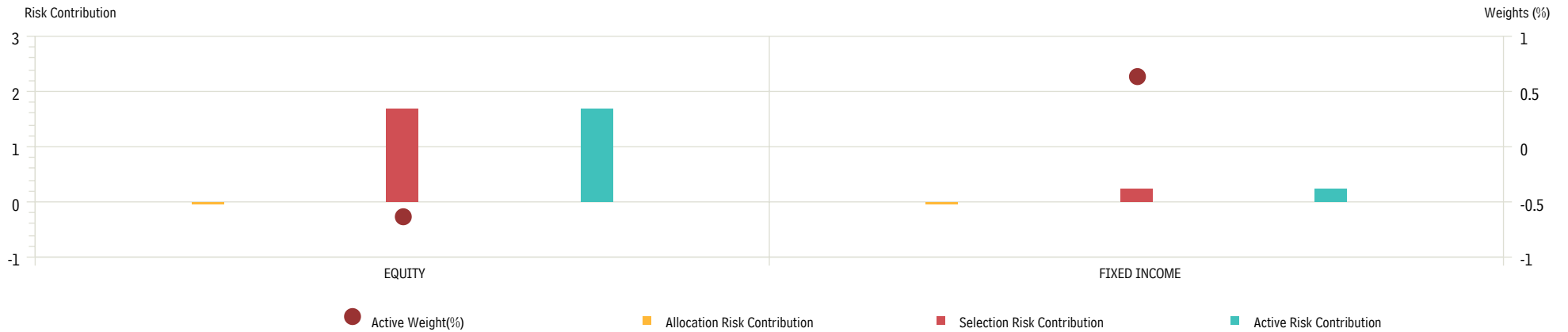
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Allocation Selection

Asset Class	Active Weight(%)	Allocation			Selection			Active	
		Volatility	Correlation	Risk Contribution	Volatility	Correlation	Risk Contribution	Risk Contribution	
Active Total Risk				-0.02			1.93	1.92	
EQUITY	-0.63	6.64	0.17	-0.01	2.88	0.96	1.69	1.69	
FIXED INCOME	0.63	10.84	-0.17	-0.01	1.54	0.40	0.24	0.23	



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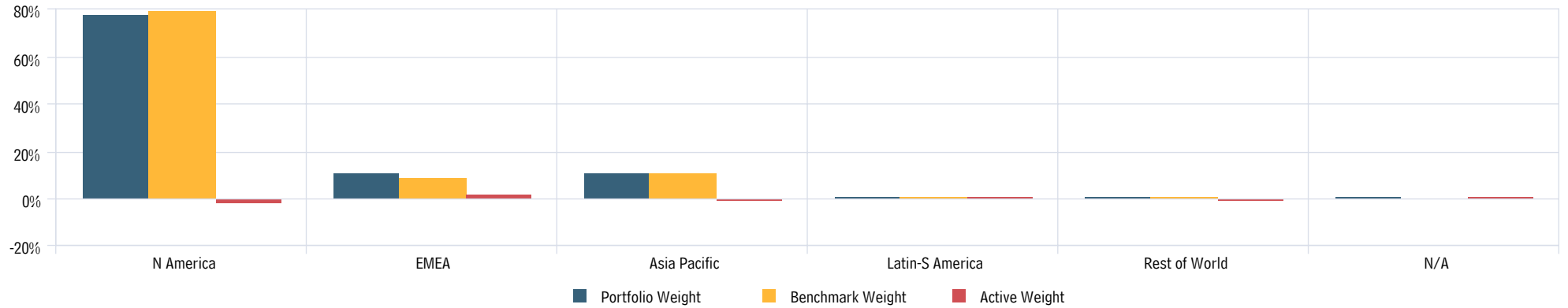
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Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	12.47	1.92	100.00	0.02
N America	77.28	79.16	-1.88	11.51	1.69	87.96	0.01
EMEA	10.86	9.00	1.86	19.63	0.19	9.96	0.03
Asia Pacific	10.51	10.65	-0.14	18.58	0.03	1.40	0.01
Latin-S America	0.84	0.77	0.08	30.01	0.01	0.35	0.03
Rest of World	0.32	0.42	-0.10	12.64	0.00	0.15	0.01
N/A	0.18	0.00	0.18	18.71	0.00	0.18	0.02



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ACCEPTED: 28,996

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	12.47	1.92	100.00	0.02
United States	75.45	77.06	-1.61	11.43	1.65	86.11	0.01
United Kingdom	2.73	2.00	0.73	20.54	0.07	3.83	0.03
China International	2.72	2.41	0.32	29.44	0.00	0.01	0.02
Japan	1.94	2.44	-0.50	18.15	0.00	0.25	0.01
India	1.54	1.28	0.26	22.19	0.01	0.51	0.02
Germany	1.34	0.92	0.42	22.64	0.02	1.23	0.04
France	1.26	1.34	-0.08	20.14	0.01	0.28	0.03
Canada	1.25	1.84	-0.59	16.16	0.02	1.08	0.02
Taiwan	1.19	1.23	-0.03	25.17	-0.00	-0.00	0.01
S. Korea	1.18	1.01	0.18	26.04	0.01	0.26	0.02
Switzerland	1.04	1.11	-0.07	17.37	0.01	0.40	0.02
Netherlands	0.92	0.61	0.31	24.58	0.02	1.01	0.03
Brazil	0.60	0.47	0.13	37.98	0.01	0.48	0.04
Hong Kong	0.56	0.38	0.19	24.32	0.01	0.30	0.01
Australia	0.55	0.91	-0.36	21.95	-0.00	-0.18	0.02
Denmark	0.49	0.31	0.18	23.31	0.01	0.53	0.03
Italy	0.46	0.31	0.15	23.87	0.01	0.62	0.04
Sweden	0.41	0.36	0.05	29.43	0.01	0.40	0.05
Spain	0.40	0.29	0.11	17.05	0.00	0.14	0.03
Ireland	0.30	0.21	0.08	16.71	0.00	0.23	0.03
Indonesia	0.29	0.17	0.12	23.26	0.00	0.09	0.01
Mexico	0.29	0.22	0.07	24.54	0.00	0.14	0.03
South Africa	0.28	0.33	-0.05	29.48	-0.00	-0.06	0.03
Belgium	0.24	0.16	0.08	18.26	0.00	0.15	0.02
Singapore	0.22	0.15	0.07	17.35	0.00	0.05	0.02
Thailand	0.21	0.20	0.01	23.54	0.00	0.02	0.02
China	0.19	0.47	-0.29	52.46	0.00	0.14	0.00
Euro. Monetary Union	0.18	0.00	0.18	29.54	0.01	0.54	0.04
N/A	0.18	0.00	0.18	18.71	0.00	0.18	0.02
Poland	0.15	0.06	0.09	31.38	0.01	0.31	0.06



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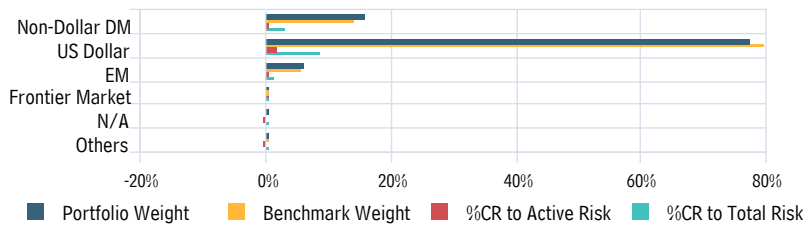
BarraOne Total Plan Summary

COMPANY: NYCRC - TEACHERS
PORTFOLIO: TEACHERS_Total Plan
BENCHMARK: TEACHERS_Policy
POSITIONS: 29,510

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 89,893,320,378
ACCEPTED: 28,996

Portfolio Allocation by Currency

Exposure by Market



Developed Market Currency

Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	69,633,568,822.49	86.67	68.55
Euro	4,572,169,087.28	4.81	7.94
Hong Kong Dollar	2,484,691,756.69	0.31	3.39
British Pound Sterling	2,116,236,635.61	3.92	3.75
Japanese Yen	1,712,150,775.10	0.20	2.09

Emerging Market Currency

Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
Indian Rupee	1,376,503,009.37	0.51	1.73
New Taiwan Dollar	1,070,211,254.39	-0.00	1.60
Korean Won	1,055,102,046.63	0.26	1.91
Brazilian Real	535,462,306.61	0.47	0.96
CNH	311,632,471.27	-0.05	0.06

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)								
	Portfolio	Benchmark	Active	Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)	
Total	100.00	100.00	-0.00	12.47	12.47	100.00	1.92	100.00	
US Dollar	77.46	79.54	-2.07	11.26	8.55	68.55	1.66	86.67	
Euro	5.09	3.41	1.68	22.03	0.99	7.94	0.09	4.81	
Hong Kong Dollar	2.76	2.59	0.17	32.02	0.42	3.39	0.01	0.31	
British Pound Sterling	2.35	1.61	0.75	23.38	0.47	3.75	0.08	3.92	
Japanese Yen	1.90	2.31	-0.41	18.48	0.26	2.09	0.00	0.20	
Indian Rupee	1.53	1.27	0.26	22.30	0.22	1.73	0.01	0.51	
New Taiwan Dollar	1.19	1.22	-0.03	25.17	0.20	1.60	-0.00	-0.00	
Korean Won	1.17	1.00	0.17	26.14	0.24	1.91	0.00	0.26	
Swiss Franc	1.00	1.07	-0.07	18.07	0.15	1.21	0.01	0.40	
Canadian Dollar	0.86	1.27	-0.41	21.37	0.16	1.31	0.02	0.96	
Brazilian Real	0.60	0.46	0.13	38.32	0.12	0.96	0.01	0.47	
Australian Dollar	0.51	0.84	-0.33	23.66	0.10	0.84	-0.00	-0.20	
Danish Krone	0.49	0.31	0.18	23.37	0.09	0.72	0.01	0.53	
Swedish Krona	0.36	0.35	0.01	28.55	0.09	0.70	0.00	0.18	
CNH	0.35	0.00	0.35	5.72	0.01	0.06	-0.00	-0.05	



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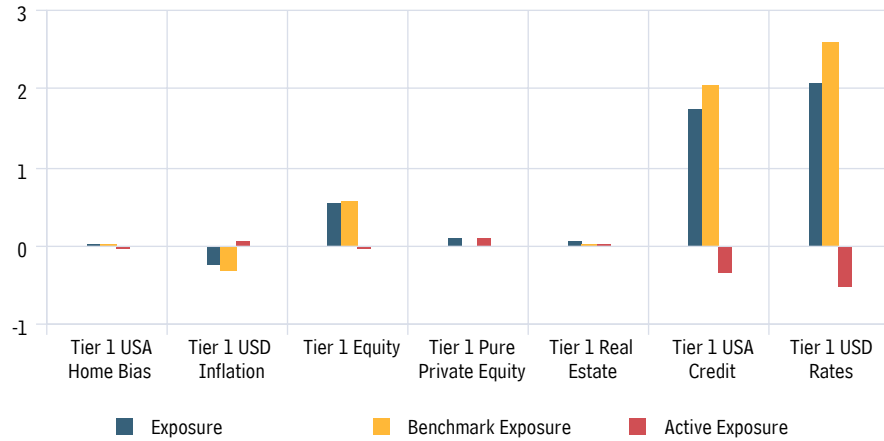
BarraOne Tier 1 USA Factor Summary

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.

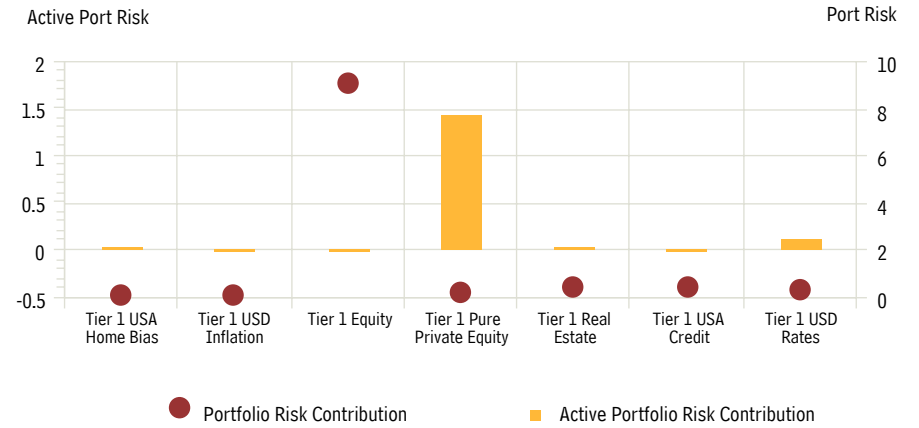
COMPANY: NYCERS - TEACHERS
 PORTFOLIO: TEACHERS_Total Plan
 BENCHMARK: TEACHERS_Policy
 POSITIONS: 29,510
 MODEL: MAC.L Tier 1 USA

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 89,893,320,378
 ACCEPTED: 28,996

Macro Factor Exposures



Macro Factor Risk Contribution



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: NYCERS - TEACHERS
PORTFOLIO: TEACHERS_Total Plan
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POSITIONS: 29,510
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CURRENCY: USD
ANALYSIS DATE: December 31, 2022
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ACCEPTED: 28,996

Risk Source	Risk Decomposition						
	Exposure			Contribution			
	Exposure	Benchmark Exposure	Active Exposure	Portfolio Risk Contribution	% Portfolio Risk	Active Portfolio Risk Contribution	% Active Risk
Total Risk	-	-	-	12.47	100.00	1.92	100.00
Local Market Risk	-	-	-	11.74	94.13	1.88	98.29
Common Factor Risk	-	-	-	11.71	93.86	1.75	91.28
Country	-	-	-	0.06	0.46	0.00	0.08
Tier 1 USA Home Bias	0.02	0.03	-0.01	0.06	0.46	0.00	0.08
Factor Residual Risk	-	-	-	1.06	8.53	0.28	14.44
Inflation	-	-	-	0.06	0.49	-0.01	-0.26
Tier 1 USD Inflation	-0.23	-0.30	0.07	0.06	0.49	-0.01	-0.26
Interaction within Common Factor	-	-	-	N/A	-	N/A	-
Market	-	-	-	9.05	72.54	-0.04	-2.22
Tier 1 Equity	0.56	0.58	-0.02	9.05	72.54	-0.04	-2.22
Private Equity	-	-	-	0.22	1.76	1.42	74.35
Tier 1 Pure Private Equity	0.10	0.00	0.10	0.22	1.76	1.42	74.35
Private Real Estate	-	-	-	0.49	3.93	0.01	0.65
Tier 1 Real Estate	0.06	0.04	0.02	0.49	3.93	0.01	0.65
Spread	-	-	-	0.47	3.77	-0.02	-1.17
Tier 1 USA Credit	1.73	2.06	-0.33	0.47	3.77	-0.02	-1.17
Term Structure	-	-	-	0.30	2.39	0.10	5.41
Tier 1 USD Rates	2.10	2.59	-0.50	0.30	2.39	0.10	5.41
Specific Risk	-	-	-	0.03	0.27	0.13	7.01
Currency Risk	-	-	-	0.73	5.87	0.03	1.71
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
Basis	-0.00	-0.00	-0.00	-0.00
Country	-0.00	-0.04	-0.00	-0.02
Implied Volatility	0.02	0.15	0.00	0.00
Industry	0.08	0.66	0.05	2.76
Inflation	0.01	0.11	0.00	0.01
Interaction within Factor Residual Risk	N/A	-	N/A	-
Market	0.51	4.11	0.03	1.32
Private Equity	0.00	0.02	0.02	1.01
Private Real Estate	0.04	0.30	0.00	0.14
Spread	0.09	0.76	0.03	1.56
Style	0.33	2.63	0.13	7.04
Term Structure	-0.02	-0.17	0.01	0.62



BarraOne Total Plan Summary

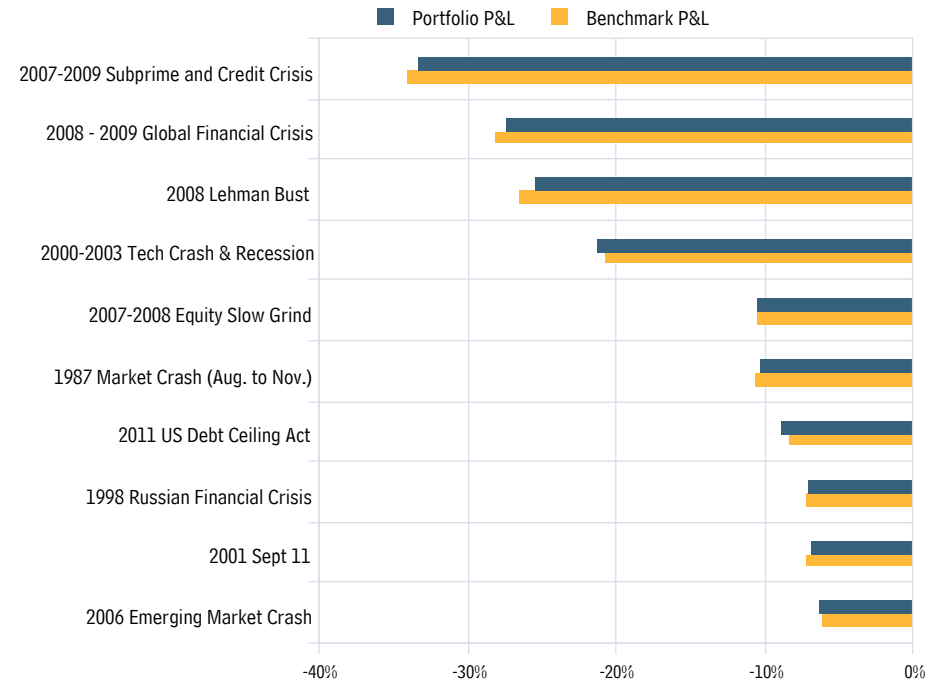
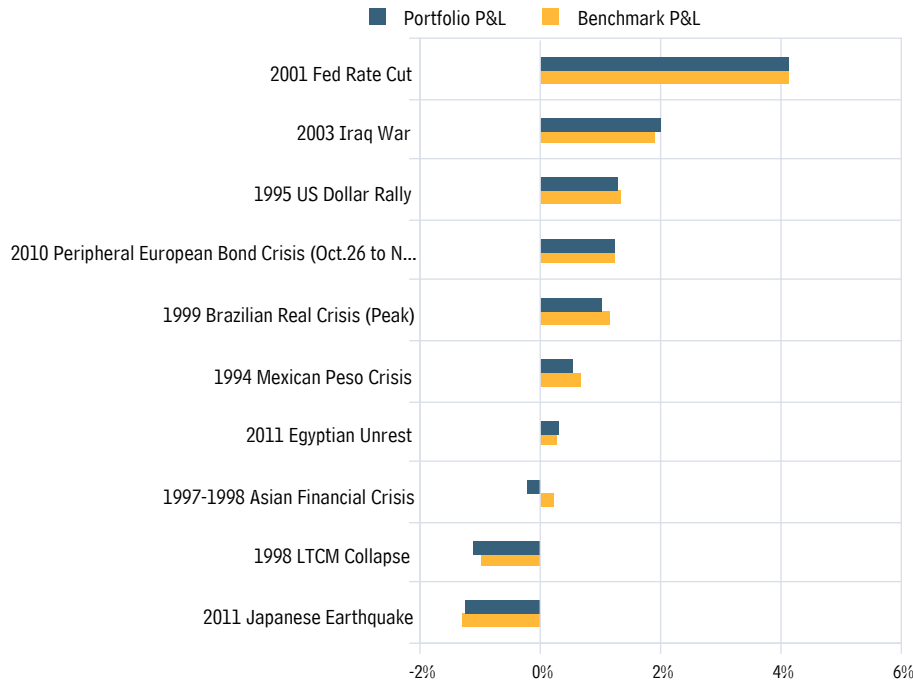
COMPANY: NYCERS - TEACHERS
PORTFOLIO: TEACHERS_Total Plan
BENCHMARK: TEACHERS_Policy
POSITIONS: 29,510
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 89,893,320,378
ACCEPTED: 28,996

Stress Scenarios

Top 10 Best Scenarios			
Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2001 Fed Rate Cut	4.15	4.15	3,726,652,112
2003 Iraq War	1.99	1.91	1,790,211,783
1995 US Dollar Rally	1.28	1.34	1,149,477,698
2010 Peripheral European Bond Crisis (Oc	1.25	1.26	1,125,199,508
1999 Brazilian Real Crisis (Peak)	1.04	1.17	938,155,870
1994 Mexican Peso Crisis	0.51	0.66	462,710,736
2011 Egyptian Unrest	0.31	0.26	281,673,519
1997-1998 Asian Financial Crisis	-0.20	0.20	-183,580,555
1998 LTCM Collapse	-1.12	-0.98	-1,006,072,795
2011 Japanese Earthquake	-1.22	-1.28	-1,100,840,016

Top 10 Worst Scenarios			
Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2007-2009 Subprime and Credit Crisis	-33.41	-34.08	-30,034,699,121
2008 - 2009 Global Financial Crisis	-27.42	-28.14	-24,651,304,741
2008 Lehman Bust	-25.47	-26.41	-22,898,687,542
2000-2003 Tech Crash & Recession	-21.30	-20.65	-19,143,737,941
2007-2008 Equity Slow Grind	-10.37	-10.42	-9,320,465,301
1987 Market Crash (Aug. to Nov.)	-10.22	-10.55	-9,184,213,886
2011 US Debt Ceiling Act	-8.84	-8.22	-7,948,525,162
1998 Russian Financial Crisis	-7.08	-7.18	-6,364,077,751
2001 Sept 11	-6.93	-7.12	-6,231,857,822
2006 Emerging Market Crash	-6.39	-6.19	-5,745,980,769



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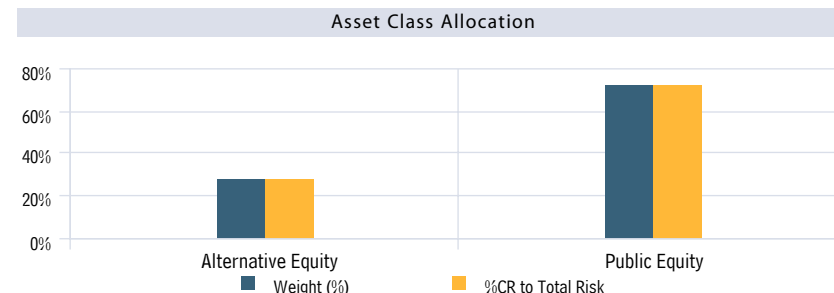
BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 18,825
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 55,168,529,201
ACCEPTED: 18,558

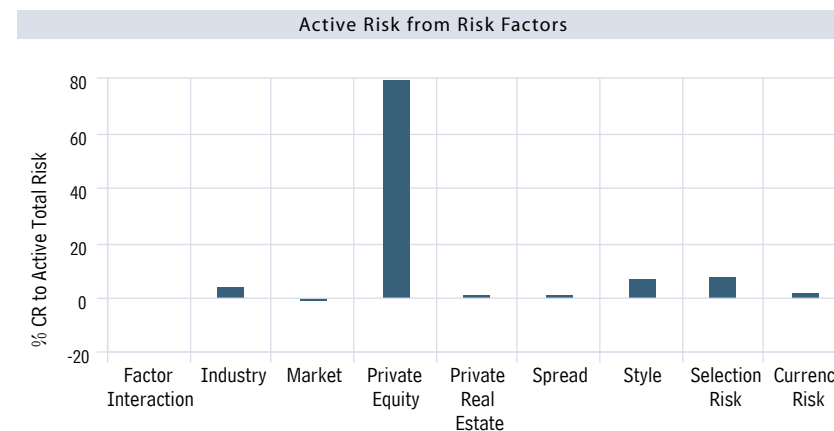
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	18.79	Total	55,168,529,201	100.00	18.79	18.79	100.00
Benchmark Risk	18.24	Alternative Equity	15,208,198,559	27.57	20.29	5.16	27.44
Active Risk	2.88	Public Equity	39,960,330,642	72.43	19.06	13.64	72.56
Portfolio Beta	1.02						



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	18.79	100.00	1.00	2.88	100.00	1.00
Local Market Risk	17.70	94.17	1.00	2.84	98.46	1.00
Common Factor Risk	17.64	93.86	0.99	2.61	90.47	0.96
Private Real Estate	0.86	4.56	0.72	0.03	1.05	0.13
Country	-0.01	-0.05	-0.06	0.00	0.01	0.00
Industry	0.13	0.68	0.19	0.10	3.53	0.21
Market	15.74	83.73	0.98	-0.02	-0.86	-0.04
Private Equity	0.35	1.87	0.14	2.29	79.59	0.89
Spread	0.05	0.29	0.69	0.01	0.39	0.14
Style	0.52	2.76	0.71	0.19	6.68	0.24
Selection Risk	0.06	0.31	0.06	0.23	7.98	0.28
Currency Risk	1.10	5.83	0.58	0.04	1.54	0.17



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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 18,825
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 55,168,529,201
ACCEPTED: 18,558

Portfolio Allocation by Region

Region	Weight (%)			Active	Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Benchmark					
Total	100.00	100.00	-0.00	18.79	2.88	100.00	0.03	
Asia Pacific	16.93	16.68	0.25	18.78	0.04	1.34	0.01	
EMEA	15.33	12.47	2.86	21.34	0.27	9.36	0.02	
Latin-S America	1.30	1.17	0.13	31.67	0.01	0.21	0.01	
N America	66.09	69.21	-3.12	20.02	2.56	88.92	0.03	
N/A	0.00	0.00	0.00	17.89	-0.00	-0.00	-0.01	
Rest of World	0.36	0.47	-0.11	16.67	0.00	0.17	-0.00	



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Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	18.79	2.88	100.00	0.03
United States	63.64	66.74	-3.09	20.10	2.51	86.92	0.06
China International	4.44	3.88	0.55	29.44	-0.01	-0.24	0.03
United Kingdom	3.72	2.59	1.12	23.51	0.11	3.78	0.05
Japan	3.10	3.73	-0.63	18.49	0.01	0.45	0.02
India	2.50	2.06	0.44	22.30	0.01	0.39	0.03
France	1.95	2.02	-0.07	20.92	0.01	0.47	0.04
Taiwan	1.94	1.97	-0.03	25.17	0.00	0.03	0.03
S. Korea	1.92	1.62	0.30	26.14	0.01	0.17	0.03
Germany	1.83	1.39	0.45	22.62	0.02	0.73	0.05
Switzerland	1.62	1.72	-0.10	18.06	0.01	0.49	0.04
Canada	1.52	2.06	-0.54	20.99	0.04	1.50	0.03
Netherlands	1.11	0.72	0.39	28.68	0.02	0.61	0.05
Brazil	0.97	0.75	0.22	38.32	0.01	0.28	0.03
Hong Kong	0.89	0.51	0.38	24.98	0.00	0.17	0.03
Australia	0.83	1.35	-0.52	23.62	0.00	0.08	0.03
Denmark	0.78	0.50	0.27	23.48	0.01	0.50	0.05
Italy	0.75	0.40	0.35	24.05	0.01	0.52	0.05
Sweden	0.67	0.57	0.10	29.55	0.01	0.42	0.06
Spain	0.53	0.41	0.12	20.47	0.01	0.20	0.04
Indonesia	0.48	0.27	0.21	23.26	0.00	0.00	0.02
South Africa	0.45	0.53	-0.07	29.45	-0.00	-0.04	0.03
Mexico	0.44	0.33	0.12	26.20	0.00	0.06	0.03
Singapore	0.36	0.23	0.13	17.48	0.00	0.01	0.03
Thailand	0.35	0.33	0.02	23.54	-0.00	-0.03	0.02
Belgium	0.32	0.17	0.14	21.47	0.00	0.14	0.04
Ireland	0.31	0.12	0.19	24.17	0.00	0.12	0.04
China	0.30	0.73	-0.43	52.46	0.01	0.32	0.02
Euro. Monetary Union	0.30	0.00	0.30	28.47	0.01	0.40	0.06
Poland	0.24	0.10	0.14	31.82	0.01	0.30	0.07
Finland	0.19	0.17	0.01	26.54	0.00	0.16	0.05



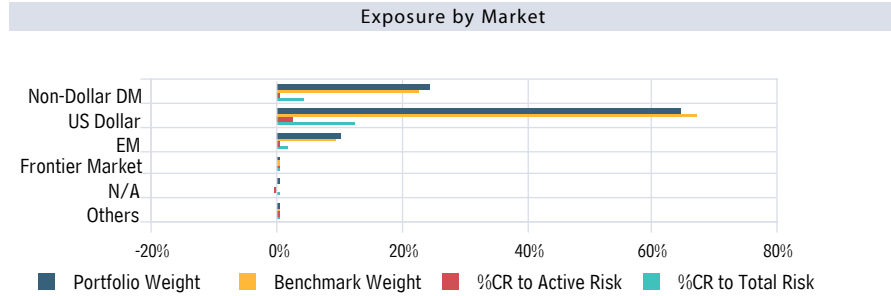
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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 18,825
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 55,168,529,201
ACCEPTED: 18,558

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	35,504,293,203.69	86.93	66.93	Indian Rupee	1,376,503,009.37	0.39	1.88
Euro	4,100,442,913.87	3.64	7.82	New Taiwan Dollar	1,070,211,203.57	0.03	1.70
Hong Kong Dollar	2,484,691,756.69	0.22	3.63	Korean Won	1,055,102,033.11	0.17	2.04
British Pound Sterling	2,016,276,674.44	3.91	3.95	Brazilian Real	535,462,306.61	0.28	1.08
Japanese Yen	1,710,286,069.68	0.45	2.21	CNH	311,632,471.27	-0.28	0.06

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	18.79	18.79	100.00	2.88	100.00
US Dollar	64.36	66.99	-2.64	20.00	12.58	66.93	2.51	86.93
Euro	7.43	5.49	1.94	22.25	1.47	7.82	0.10	3.64
Hong Kong Dollar	4.50	4.18	0.33	32.02	0.68	3.63	0.01	0.22
British Pound Sterling	3.65	2.59	1.06	23.81	0.74	3.95	0.11	3.91
Japanese Yen	3.10	3.73	-0.63	18.49	0.42	2.21	0.01	0.45
Indian Rupee	2.50	2.06	0.44	22.30	0.35	1.88	0.01	0.39
New Taiwan Dollar	1.94	1.97	-0.03	25.17	0.32	1.70	0.00	0.03
Korean Won	1.91	1.62	0.29	26.14	0.38	2.04	0.00	0.17
Swiss Franc	1.62	1.72	-0.10	18.07	0.25	1.31	0.01	0.49
Canadian Dollar	1.39	2.05	-0.66	21.52	0.27	1.43	0.04	1.51
Brazilian Real	0.97	0.75	0.22	38.32	0.20	1.08	0.01	0.28
Australian Dollar	0.83	1.35	-0.52	23.62	0.17	0.91	0.00	0.08
Danish Krone	0.78	0.50	0.27	23.48	0.14	0.75	0.01	0.50
Swedish Krona	0.58	0.57	0.01	28.56	0.14	0.76	0.01	0.23
CNH	0.56	0.00	0.56	5.72	0.01	0.06	-0.01	-0.28



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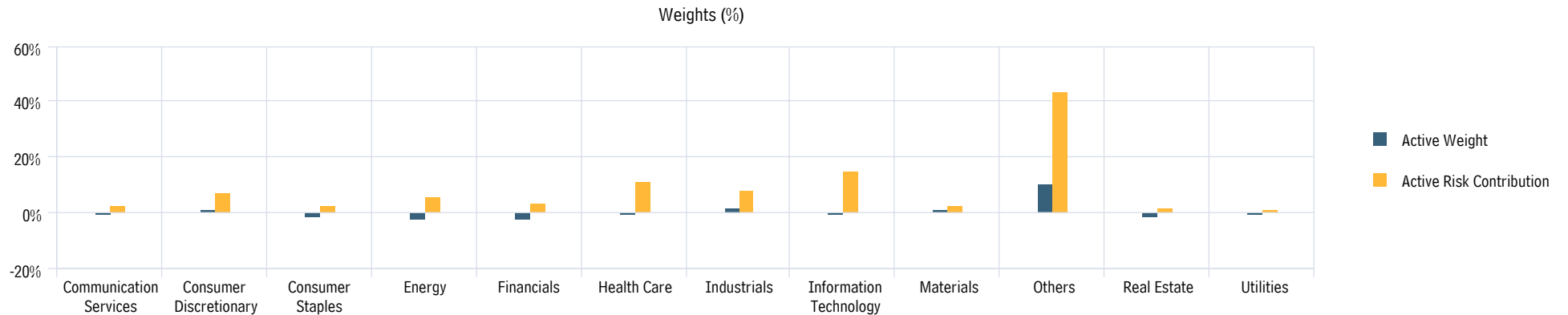
BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: EQUITY
BENCHMARK: EQUITY
POSITIONS: 18,825
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 55,168,529,201
ACCEPTED: 18,558

Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	18.79	2.88	100.00	0.03
Communication Services	5.29	6.15	-0.86	22.92	0.07	2.50	0.05
Consumer Discretionary	9.84	9.76	0.07	25.48	0.20	7.04	0.07
Consumer Staples	5.14	6.62	-1.48	13.80	0.06	2.17	0.02
Energy	2.33	4.97	-2.63	25.88	0.15	5.12	-0.00
Financials	11.67	14.22	-2.56	19.10	0.09	2.95	0.03
Health Care	11.10	11.95	-0.85	17.30	0.30	10.54	0.05
Industrials	10.51	9.33	1.18	20.01	0.23	7.83	0.05
Information Technology	17.83	18.25	-0.41	25.16	0.42	14.52	0.07
Materials	4.78	4.58	0.20	22.15	0.07	2.53	0.04
Others	16.78	7.05	9.72	17.73	1.25	43.34	0.05
Real Estate	2.34	4.24	-1.90	18.54	0.04	1.23	0.03
Utilities	2.39	2.88	-0.49	15.06	0.01	0.24	0.01



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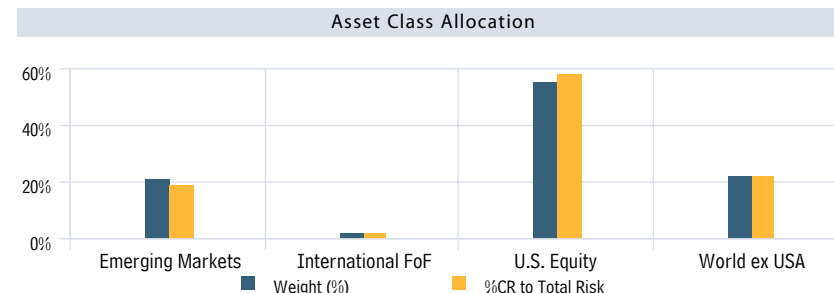
BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 18,437
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 39,960,330,642
ACCEPTED: 18,172

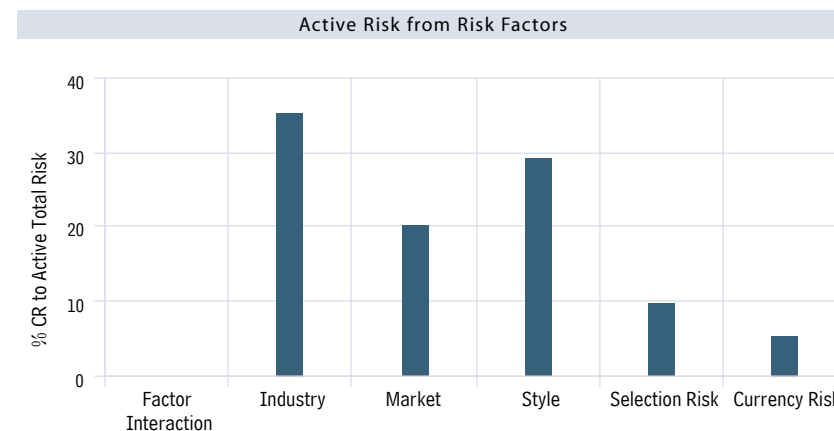
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	19.06	Total	39,960,330,642	100.00	19.06	19.06	100.00
Benchmark Risk	18.75	Emerging Markets	8,197,410,200	20.51	20.34	3.55	18.64
Active Risk	1.15	International FoF	623,170,842	1.56	18.94	0.28	1.46
Portfolio Beta	1.01	U.S. Equity	22,251,788,296	55.68	20.41	10.99	57.65
		World ex USA	8,695,424,527	21.76	20.03	4.14	21.73



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	19.06	100.00	1.00	1.15	100.00	1.00
Local Market Risk	17.83	93.52	1.00	1.09	94.63	0.99
Common Factor Risk	17.77	93.21	0.99	0.98	85.03	0.94
Country	-0.01	-0.05	-0.05	0.00	0.36	0.08
Industry	0.14	0.71	0.18	0.41	35.34	0.64
Market	17.16	90.05	0.99	0.23	20.02	0.37
Style	0.48	2.50	0.70	0.34	29.30	0.50
Selection Risk	0.06	0.31	0.06	0.11	9.60	0.31
Currency Risk	1.24	6.48	0.59	0.06	5.37	0.42



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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 18,437
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 39,960,330,642
ACCEPTED: 18,172

Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	19.06	1.15	100.00	0.01
Asia Pacific	22.04	19.83	2.21	19.28	0.32	28.25	0.03
EMEA	14.97	14.82	0.15	22.34	0.33	29.06	0.03
Latin-S America	1.64	1.39	0.25	31.78	0.01	1.07	0.01
N America	60.91	63.40	-2.49	20.33	0.47	41.23	-0.03
Rest of World	0.43	0.56	-0.13	17.20	0.00	0.39	-0.03



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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 18,437
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 39,960,330,642
ACCEPTED: 18,172

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	19.06	1.15	100.00	0.01
United States	58.23	60.47	-2.23	20.40	0.37	32.65	0.01
China International	6.12	4.61	1.51	29.44	0.08	6.89	0.13
Japan	3.73	4.44	-0.70	20.05	0.06	5.03	0.05
India	3.26	2.44	0.82	22.40	0.04	3.63	0.07
United Kingdom	3.23	3.08	0.15	24.00	0.12	10.43	0.07
Taiwan	2.68	2.35	0.33	25.18	0.02	1.66	0.08
S. Korea	2.58	1.92	0.66	26.38	0.03	2.80	0.09
France	2.06	2.40	-0.33	22.34	0.02	1.79	0.07
Germany	1.85	1.65	0.20	26.11	0.05	4.37	0.11
Switzerland	1.83	2.05	-0.22	18.68	0.01	1.18	0.06
Canada	1.40	2.45	-1.05	23.29	0.06	5.23	0.02
Netherlands	1.28	0.86	0.42	31.55	0.04	3.42	0.11
Brazil	1.23	0.89	0.34	38.19	0.01	1.26	0.05
Hong Kong	1.22	0.61	0.62	25.05	0.05	4.78	0.11
Denmark	0.93	0.60	0.33	23.50	0.02	1.61	0.08
Australia	0.87	1.60	-0.73	25.34	0.02	1.57	0.05
Italy	0.73	0.47	0.25	25.70	0.02	1.34	0.08
Indonesia	0.65	0.32	0.33	23.40	-0.00	-0.05	0.04
Sweden	0.64	0.67	-0.03	32.03	0.01	1.01	0.11
South Africa	0.60	0.63	-0.03	30.08	0.00	0.03	0.06
Mexico	0.59	0.39	0.20	26.94	0.00	0.37	0.06
Spain	0.52	0.49	0.03	22.92	0.01	0.91	0.06
Singapore	0.49	0.27	0.21	17.57	0.00	0.18	0.06
Thailand	0.48	0.39	0.09	23.55	-0.00	-0.25	0.05
Ireland	0.31	0.14	0.17	30.22	0.01	0.93	0.10
Belgium	0.29	0.21	0.08	22.87	0.00	0.08	0.06
China	0.25	0.87	-0.62	80.04	0.03	2.47	0.05
Finland	0.22	0.21	0.01	27.01	0.01	0.63	0.09
United Arab Emirates	0.21	0.23	-0.02	23.03	0.00	0.05	0.02
Malaysia	0.20	0.27	-0.06	18.45	-0.00	-0.02	0.05



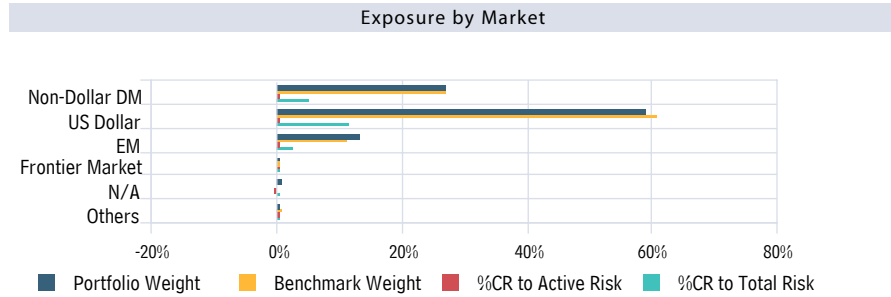
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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 18,437
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 39,960,330,642
ACCEPTED: 18,172

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	23,536,401,268.60	34.36	60.98	Indian Rupee	1,301,796,133.24	3.62	2.48
Euro	2,946,715,300.59	13.32	8.42	New Taiwan Dollar	1,069,972,855.03	1.66	2.39
Hong Kong Dollar	2,481,341,163.88	13.65	5.33	Korean Won	1,027,869,826.47	2.76	2.80
Japanese Yen	1,492,313,943.92	5.03	2.94	Brazilian Real	491,015,012.74	1.26	1.37
British Pound Sterling	1,270,599,564.29	10.45	3.47	CNH	311,632,471.27	-1.86	0.09

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	19.06	19.06	100.00	1.15	100.00
US Dollar	58.90	60.77	-1.87	20.37	11.62	60.98	0.39	34.36
Euro	7.37	6.53	0.84	24.08	1.61	8.42	0.15	13.32
Hong Kong Dollar	6.21	4.97	1.24	32.04	1.02	5.33	0.16	13.65
Japanese Yen	3.73	4.44	-0.70	20.05	0.56	2.94	0.06	5.03
Indian Rupee	3.26	2.44	0.81	22.40	0.47	2.48	0.04	3.62
British Pound Sterling	3.18	3.08	0.10	24.13	0.66	3.47	0.12	10.45
New Taiwan Dollar	2.68	2.35	0.33	25.17	0.46	2.39	0.02	1.66
Korean Won	2.57	1.92	0.65	26.38	0.53	2.80	0.03	2.76
Swiss Franc	1.84	2.05	-0.21	18.68	0.29	1.52	0.01	1.18
Canadian Dollar	1.32	2.43	-1.12	22.59	0.26	1.38	0.06	5.12
Brazilian Real	1.23	0.89	0.34	38.19	0.26	1.37	0.01	1.26
Danish Krone	0.93	0.60	0.33	23.50	0.17	0.87	0.02	1.61
Australian Dollar	0.87	1.60	-0.73	25.34	0.19	1.02	0.02	1.57
CNH	0.78	0.00	0.78	5.72	0.02	0.09	-0.02	-1.86
Indonesian Rupiah	0.65	0.32	0.33	23.40	0.09	0.49	-0.00	-0.05



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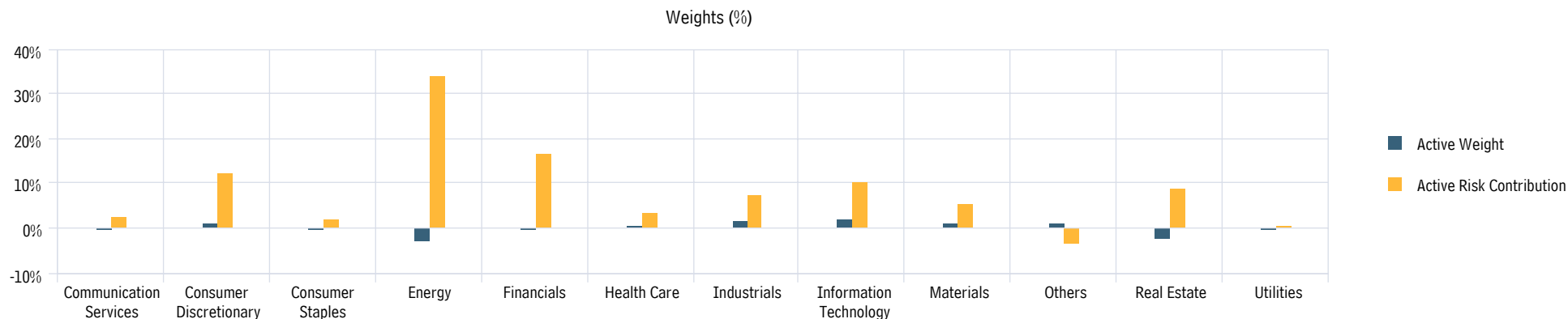
BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public Equity
BENCHMARK: Public
POSITIONS: 18,437
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 39,960,330,642
ACCEPTED: 18,172

Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	19.06	1.15	100.00	0.01
Communication Services	5.96	6.60	-0.65	23.89	0.03	2.52	0.07
Consumer Discretionary	11.74	10.56	1.19	24.98	0.14	12.19	0.11
Consumer Staples	6.69	7.18	-0.49	13.49	0.02	2.04	0.04
Energy	2.58	5.35	-2.77	28.46	0.39	34.22	-0.06
Financials	15.41	15.62	-0.21	19.10	0.19	16.66	0.06
Health Care	12.78	12.56	0.22	16.43	0.04	3.46	0.06
Industrials	11.76	10.07	1.69	20.08	0.08	7.09	0.07
Information Technology	21.14	19.14	2.01	24.53	0.12	10.10	0.09
Materials	6.13	5.13	1.00	22.00	0.06	5.53	0.06
Others	0.86	0.00	0.86	1.91	-0.04	-3.21	0.01
Real Estate	2.48	4.69	-2.21	20.83	0.10	8.90	0.03
Utilities	2.47	3.10	-0.63	18.57	0.01	0.50	0.01



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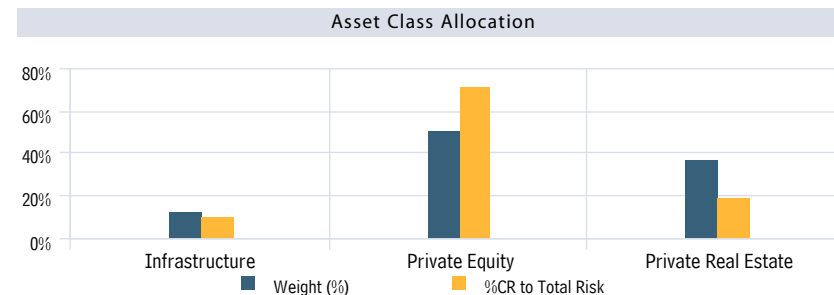
BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Alternative Equity
BENCHMARK: Alternative
POSITIONS: 388
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 15,208,198,559
ACCEPTED: 386

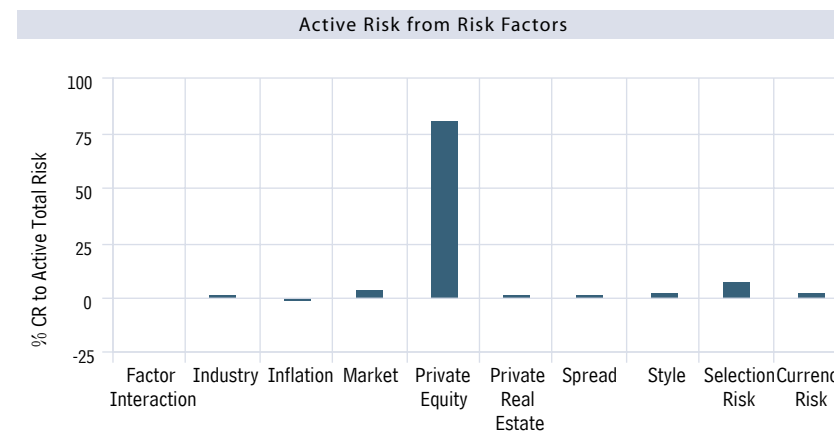
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	20.29	Total	15,208,198,559	100.00	20.29	20.29	100.00
Benchmark Risk	16.51	Infrastructure	1,932,114,473	12.70	16.98	1.95	9.61
Active Risk	10.38	Private Equity	7,687,457,881	50.55	28.95	14.36	70.78
Portfolio Beta	1.06	Private Real Estate	5,588,626,205	36.75	13.66	3.98	19.62



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	20.29	100.00	1.00	10.38	100.00	1.00
Local Market Risk	19.61	96.65	1.00	10.08	97.06	0.99
Common Factor Risk	19.29	95.08	0.99	9.29	89.52	0.95
Private Real Estate	3.10	15.28	0.72	0.17	1.63	0.08
Country	-0.01	-0.02	-0.05	-0.00	-0.03	-0.03
Industry	0.15	0.73	0.17	0.06	0.58	0.09
Inflation	0.00	0.00	0.00	-0.02	-0.20	-0.07
Market	10.96	54.03	0.86	0.37	3.52	0.22
Private Equity	4.29	21.14	0.46	8.38	80.74	0.90
Spread	0.17	0.83	0.58	0.05	0.52	0.19
Style	0.61	3.02	0.48	0.29	2.75	0.21
Term Structure	0.01	0.07	0.03	-0.00	-0.00	-0.00
Selection Risk	0.32	1.58	0.13	0.78	7.54	0.27
Currency Risk	0.68	3.35	0.46	0.30	2.94	0.21



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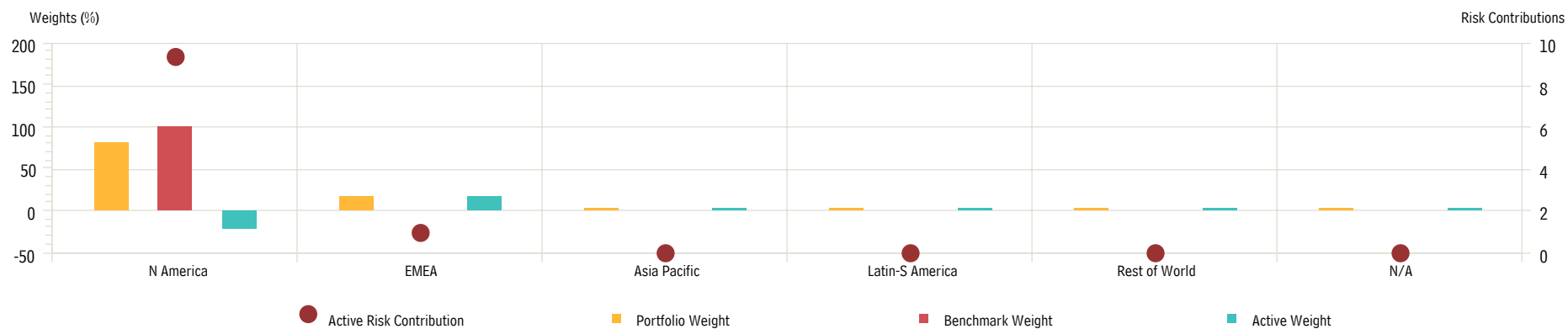
BarraOne Equity Summary

COMPANY: NYCRC - TEACHERS
 PORTFOLIO: Alternative Equity
 BENCHMARK: Alternative
 POSITIONS: 388
 MODEL: MAC.L

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 15,208,198,559
 ACCEPTED: 386

Portfolio Allocation by Region

Region	Weight (%)			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	20.29	10.38	100.00	0.10
Asia Pacific	3.50	0.00	3.50	12.99	0.04	0.36	0.01
EMEA	16.25	0.00	16.25	20.59	0.95	9.18	0.06
Latin-S America	0.39	0.00	0.39	36.37	0.01	0.14	0.04
N America	79.68	100.00	-20.32	21.94	9.36	90.18	0.05
N/A	0.01	0.00	0.01	17.89	0.00	0.00	0.02
Rest of World	0.16	0.00	0.16	31.39	0.02	0.15	0.10



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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Alternative Equity
BENCHMARK: Alternative
POSITIONS: 388
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 15,208,198,559
ACCEPTED: 386

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	20.29	10.38	100.00	0.10
United States	77.86	99.98	-22.12	22.07	9.21	88.71	0.06
United Kingdom	4.99	0.00	4.99	24.98	0.36	3.44	0.09
Canada	1.84	0.01	1.83	18.53	0.15	1.47	0.10
Germany	1.79	0.00	1.79	15.61	0.06	0.55	0.05
France	1.66	0.00	1.66	18.74	0.08	0.75	0.06
Japan	1.43	0.00	1.43	13.41	-0.00	-0.01	0.01
Euro. Monetary Union	1.08	0.00	1.08	28.49	0.06	0.56	0.07
Switzerland	1.07	0.00	1.07	19.05	0.05	0.50	0.06
Italy	0.80	0.00	0.80	23.73	0.05	0.51	0.08
Sweden	0.73	0.00	0.73	27.44	0.05	0.49	0.08
Australia	0.71	0.00	0.71	21.08	0.01	0.12	0.03
Netherlands	0.66	0.00	0.66	19.13	0.04	0.34	0.07
Spain	0.57	0.00	0.57	17.39	0.02	0.20	0.05
India	0.49	0.00	0.49	22.69	0.01	0.10	0.04
Poland	0.46	0.00	0.46	31.09	0.04	0.36	0.10
China	0.45	0.00	0.45	18.44	0.00	0.05	0.03
Belgium	0.41	0.00	0.41	25.81	0.02	0.20	0.07
Denmark	0.38	0.00	0.38	31.00	0.04	0.34	0.11
Ireland	0.32	0.00	0.32	12.93	0.00	0.02	0.02
Brazil	0.29	0.00	0.29	47.36	0.01	0.14	0.06
Norway	0.24	0.00	0.23	23.61	0.01	0.13	0.07
Portugal	0.19	0.00	0.19	18.38	0.01	0.07	0.05
S. Korea	0.18	0.00	0.18	20.37	0.00	0.03	0.04
Greece	0.16	0.00	0.16	36.86	0.02	0.17	0.12
New Zealand	0.15	0.00	0.15	23.65	0.00	0.03	0.04
Austria	0.14	0.00	0.14	20.97	0.01	0.06	0.06
Czech Rep	0.13	0.00	0.13	25.85	0.01	0.09	0.09
Israel	0.12	0.00	0.12	31.59	0.01	0.09	0.10
Finland	0.11	0.00	0.11	34.81	0.01	0.11	0.12
South Africa	0.08	0.00	0.08	21.32	0.00	0.01	0.03



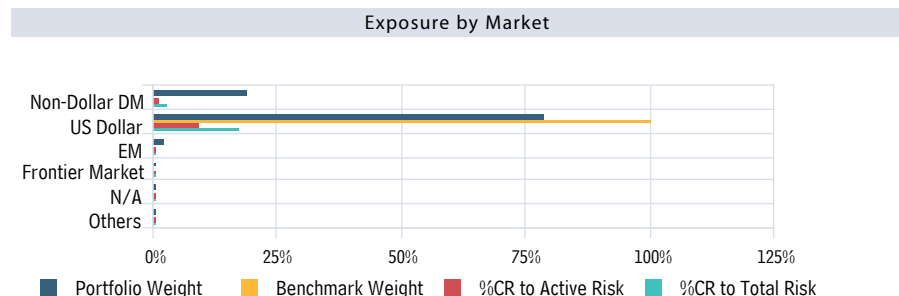
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BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Alternative Equity
BENCHMARK: Alternative
POSITIONS: 388
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 15,208,198,559
ACCEPTED: 386

Portfolio Allocation by Currency



Developed Market Currency				Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)	Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	11,967,891,935.09	88.49	83.88	Indian Rupee	74,706,876.13	0.10	0.28
Euro	1,153,727,613.28	3.63	5.35	Polish Zloty	69,594,262.90	0.36	0.42
British Pound Sterling	745,677,110.15	3.58	4.56	Chinese Yuan	63,305,465.49	0.05	0.16
Canadian Dollar	238,337,219.76	1.51	1.47	Brazilian Real	44,447,293.87	0.14	0.26
Japanese Yen	217,972,125.75	-0.01	0.30	Korean Won	27,232,206.64	0.03	0.10

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	20.29	20.29	100.00	10.38	100.00
US Dollar	78.69	100.00	-21.31	21.84	17.02	83.88	9.19	88.49
Euro	7.59	0.00	7.59	18.99	1.09	5.35	0.38	3.63
British Pound Sterling	4.90	0.00	4.90	25.61	0.92	4.56	0.37	3.58
Canadian Dollar	1.57	0.00	1.57	21.47	0.30	1.47	0.16	1.51
Japanese Yen	1.43	0.00	1.43	13.41	0.06	0.30	-0.00	-0.01
Swiss Franc	1.06	0.00	1.06	19.13	0.13	0.66	0.05	0.50
Swedish Krona	0.73	0.00	0.73	27.44	0.15	0.73	0.05	0.49
Australian Dollar	0.71	0.00	0.71	21.08	0.10	0.49	0.01	0.12
Indian Rupee	0.49	0.00	0.49	22.69	0.06	0.28	0.01	0.10
Polish Zloty	0.46	0.00	0.46	31.09	0.08	0.42	0.04	0.36
Chinese Yuan	0.42	0.00	0.42	19.77	0.03	0.16	0.01	0.05
Danish Krone	0.38	0.00	0.38	31.00	0.08	0.40	0.04	0.34
Brazilian Real	0.29	0.00	0.29	47.36	0.05	0.26	0.01	0.14
Norwegian Krone	0.20	0.00	0.20	28.22	0.04	0.20	0.01	0.14
Korean Won	0.18	0.00	0.18	20.37	0.02	0.10	0.00	0.03



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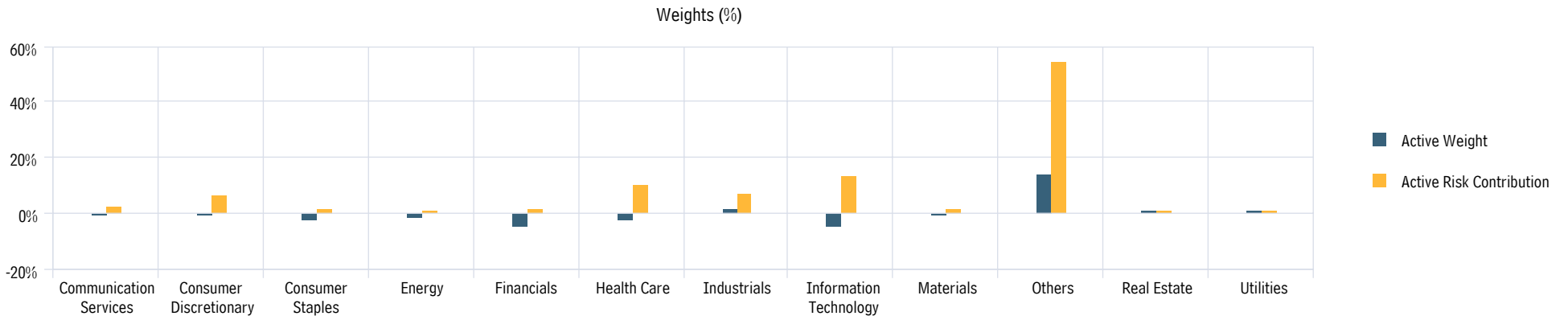
BarraOne Equity Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Alternative Equity
BENCHMARK: Alternative
POSITIONS: 388
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 15,208,198,559
ACCEPTED: 386

Portfolio Allocation by GICS Sector

GICS Sector	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	20.29	10.38	100.00	0.10
Communication Services	3.53	3.75	-0.22	22.31	0.25	2.43	0.08
Consumer Discretionary	4.83	5.55	-0.72	33.44	0.66	6.36	0.11
Consumer Staples	1.06	3.66	-2.60	24.70	0.15	1.48	0.04
Energy	1.68	2.92	-1.23	17.40	0.05	0.46	0.05
Financials	1.84	6.84	-5.00	23.21	0.13	1.30	0.06
Health Care	6.67	8.68	-2.01	26.71	1.06	10.18	0.08
Industrials	7.23	5.42	1.81	22.70	0.76	7.30	0.09
Information Technology	9.15	13.53	-4.38	33.66	1.39	13.35	0.10
Materials	1.24	1.67	-0.43	31.83	0.19	1.81	0.11
Others	58.62	44.44	14.17	18.39	5.64	54.36	0.04
Real Estate	1.99	1.84	0.15	14.09	0.10	0.98	0.05
Utilities	2.16	1.70	0.46	8.49	0.00	0.01	0.01



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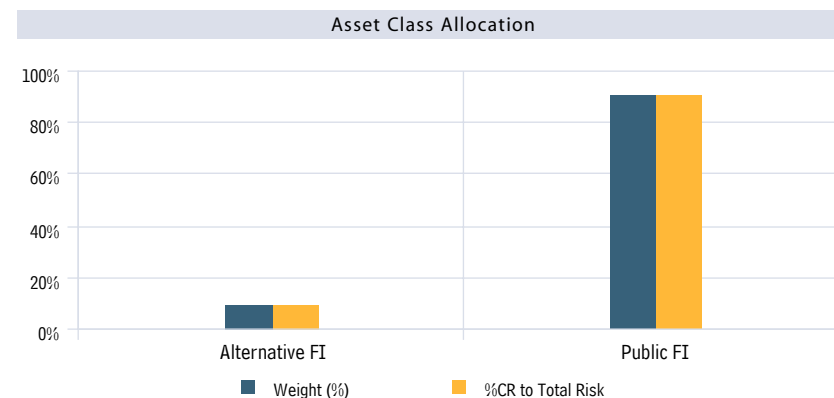
BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 10,685
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 34,724,791,178
ACCEPTED: 10,438

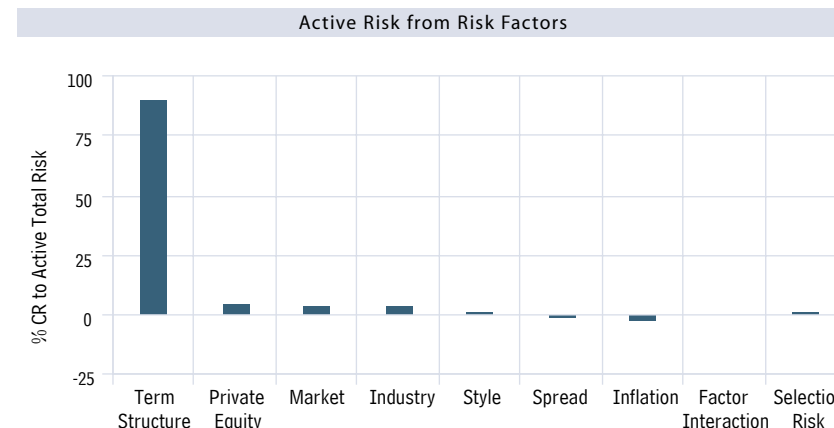
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	5.07	Total	34,724,791,178	100.00	5.07	5.07	100.00
Benchmark Risk	6.23	Alternative FI	3,364,966,708	9.69	9.09	0.47	9.26
Active Risk	1.54	Public FI	31,359,824,469	90.31	5.16	4.60	90.74
Portfolio Beta	0.80						
Cont. to Eff. Duration	5.34						
Convexity	0.59						
Yield to Worst (%)	4.99						
OAS to Swap (bp)	119.24						



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	5.07	100.00	1.00	1.54	100.00	1.00
Local Market Risk	5.01	98.99	1.00	1.54	100.07	1.00
Common Factor Risk	5.01	98.86	1.00	1.52	98.86	0.99
Implied Volatility	0.06	1.10	0.53	-0.00	-0.05	-0.11
Industry	-0.01	-0.28	-0.08	0.05	3.25	0.30
Inflation	0.02	0.33	0.04	-0.04	-2.41	-0.36
Market	0.10	2.02	0.35	0.06	3.76	0.20
Private Equity	0.02	0.39	0.06	0.06	4.20	0.21
Spread	0.60	11.84	0.31	-0.03	-1.66	-0.09
Style	0.01	0.23	0.13	0.02	1.51	0.25
Term Structure	4.22	83.25	0.86	1.39	90.39	0.93
Selection Risk	0.01	0.13	0.04	0.02	1.21	0.11
Currency Risk	0.05	1.01	0.40	-0.00	-0.07	-0.01



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BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 10,685
MODEL: MAC.L

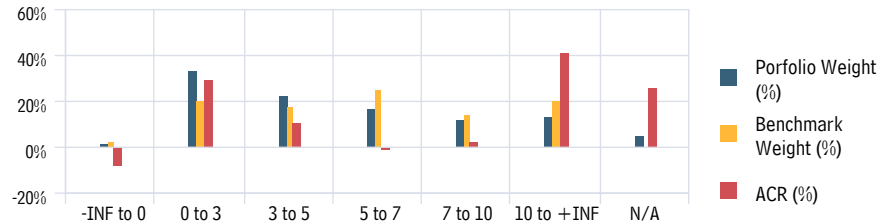
CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 34,724,791,178
ACCEPTED: 10,438

Portfolio by Factor Breakdowns

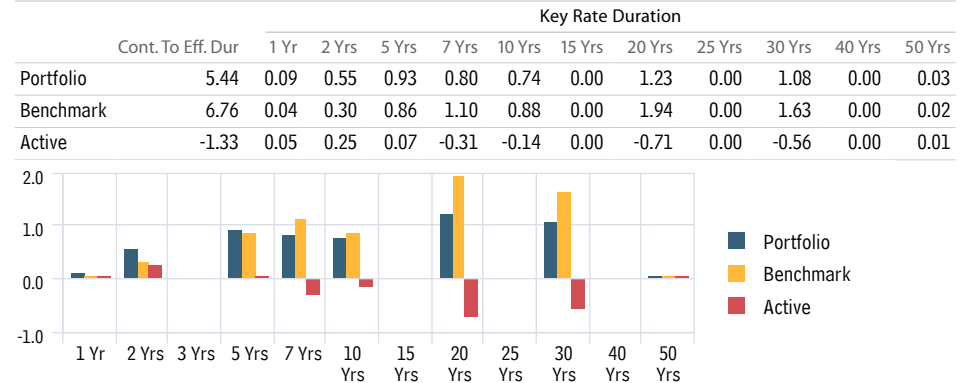
Spread Factor	Volatility	Top 10 Spread Factor				Correlation	Contribution (Residual)			
		Exposure (Residual)					Active Port	to TR	to AR	to AR%
		Portfolio	Benchmark	Active	MCAR					
EU Consumer Discretionary Spre	52.25	0.30	0.01	0.29	0.09	0.17	0.05	0.02	1.63	
US Corporate HY Spread	41.67	0.13	0.00	0.13	0.13	0.30	0.01	0.02	1.05	
US Agency MBS 15Y OAS	0.56	0.00	0.06	-0.06	-0.00	-0.24	0.00	0.01	0.50	
US Financials - Banking IG Spr	49.08	0.18	0.11	0.06	0.08	0.15	0.03	0.00	0.32	
US ABS Home Equity Spread	32.06	0.06	0.00	0.06	0.07	0.23	0.00	0.00	0.29	
US MBS All Spread	0.39	0.08	0.00	0.08	0.00	0.14	0.01	0.00	0.27	
US ABS Miscellaneous Spread	31.30	0.04	0.00	0.04	0.08	0.25	0.00	0.00	0.21	
US Agency MBS Prepayment 15Y	0.80	0.01	-0.00	0.01	0.00	0.41	-0.00	0.00	0.15	
US Financials HY Spread	38.69	0.35	0.33	0.02	0.11	0.29	0.03	0.00	0.15	
US Financials - Capital Market	47.38	0.08	0.05	0.03	0.07	0.15	0.01	0.00	0.13	

Term Structure	Volatility	Top 10 Term Structure				Correlation	Contribution (Residual)			
		Exposure (Residual)					Active Port	to TR	to AR	to AR%
		Portfolio	Benchmark	Active	MCAR					
USD Rate 20Y	0.92	1.17	1.94	-0.77	-0.01	-0.92	0.88	0.65	42.34	
USD Rate 30Y	0.90	1.02	1.63	-0.61	-0.01	-0.92	0.75	0.50	32.59	
USD Rate 10Y	1.05	1.01	1.32	-0.31	-0.01	-0.89	0.91	0.29	18.58	
USD Rate 5Y	1.07	1.33	1.52	-0.19	-0.01	-0.78	1.16	0.16	10.11	
USD Rate 6M	0.98	-0.00	0.00	-0.00	-0.00	-0.37	-0.00	0.00	0.05	
USD Rate 1M	1.04	0.01	0.01	-0.00	-0.00	-0.15	0.00	0.00	0.01	
GBP Rate 1Y	1.17	-0.00	0.00	-0.00	-0.00	-0.27	-0.00	0.00	0.00	
CAD Rate 10Y	1.06	-0.00	0.00	-0.00	-0.01	-0.74	-0.00	0.00	0.00	
CAD Rate 20Y	0.92	-0.00	0.00	-0.00	-0.01	-0.76	-0.00	0.00	0.00	
AUD Rate 5Y	1.09	-0.00	0.00	-0.00	-0.01	-0.57	-0.00	0.00	0.00	

%CR to Active Risk by Duration Buckets



Key Rate Duration



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BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 10,685
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 34,724,791,178
ACCEPTED: 10,438

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	5.07	1.54	100.00	0.02
United States	94.22	93.91	0.31	5.01	1.46	94.85	-0.04
United Kingdom	1.16	1.02	0.14	7.36	0.02	1.11	-0.02
Canada	0.84	1.49	-0.65	5.54	-0.02	-1.54	-0.02
Netherlands	0.62	0.41	0.20	17.80	0.02	1.35	-0.01
Germany	0.55	0.15	0.40	28.32	0.04	2.42	0.02
N/A	0.46	0.00	0.46	18.74	0.04	2.39	0.03
Luxembourg	0.37	0.56	-0.19	7.23	-0.01	-0.45	-0.01
Ireland	0.27	0.37	-0.09	6.72	-0.00	-0.23	-0.02
Spain	0.20	0.09	0.10	5.74	0.00	0.23	-0.03
France	0.16	0.23	-0.07	9.42	-0.00	-0.08	-0.02
Belgium	0.12	0.13	-0.01	14.44	-0.00	-0.07	-0.08
Switzerland	0.12	0.12	-0.00	8.36	-0.00	-0.01	-0.04
Australia	0.11	0.19	-0.07	6.25	-0.00	-0.06	-0.03
Israel	0.11	0.01	0.10	2.19	0.00	0.31	-0.01
Japan	0.10	0.32	-0.22	6.09	-0.01	-0.39	-0.04
United Arab Emirates	0.05	0.00	0.05	5.56	0.00	0.16	-0.00
Mexico	0.05	0.05	0.00	5.38	0.00	0.13	-0.05
Caymans	0.05	0.09	-0.05	11.95	-0.00	-0.13	0.00
Chile	0.05	0.01	0.04	12.63	0.00	0.11	-0.01
Greece	0.04	0.00	0.04	23.64	0.00	0.22	0.03
Denmark	0.04	0.00	0.04	44.81	0.00	0.25	0.04
Hong Kong	0.04	0.16	-0.12	9.38	-0.00	-0.17	-0.03
Bermuda	0.04	0.03	0.01	5.82	0.00	0.03	-0.02
Malta	0.03	0.02	0.02	16.18	0.00	0.05	-0.00
Zambia	0.03	0.00	0.03	4.91	0.00	0.08	0.00
Macao	0.03	0.06	-0.04	8.04	-0.00	-0.09	-0.01
India	0.02	0.01	0.02	8.43	0.00	0.06	0.00
New Zealand	0.02	0.03	-0.01	6.23	-0.00	-0.03	-0.01
Brazil	0.02	0.02	-0.01	17.42	0.00	0.05	-0.00
S. Korea	0.01	0.01	0.00	6.12	0.00	0.00	-0.03



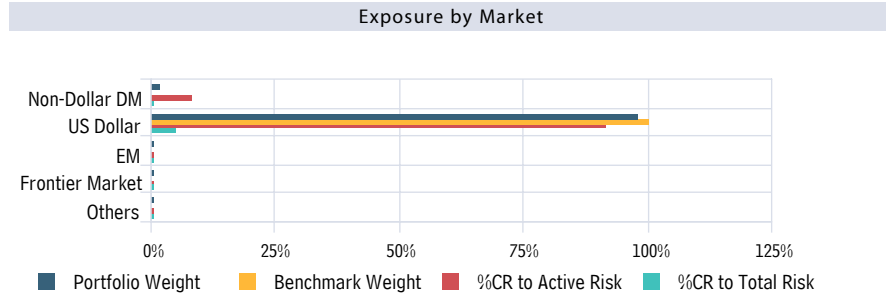
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BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 10,685
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 34,724,791,178
ACCEPTED: 10,438

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	34,129,275,618.80	91.74	96.42	South African Rand	875,187.89	0.02	0.00
Euro	471,726,173.41	6.71	2.99	Albanian Lek	5,439.23	0.00	0.00
British Pound Sterling	99,959,961.17	1.14	0.49	New Taiwan Dollar	50.82	0.00	0.00
Danish Krone	12,943,121.07	0.25	0.05	Korean Won	13.52	0.00	0.00
Canadian Dollar	8,079,644.74	0.10	0.02	United Arab Emirates Dirham	0.00	0.00	0.00

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	5.07	5.07	100.00	1.54	100.00
US Dollar	98.29	100.00	-1.71	4.98	4.88	96.42	1.41	91.74
Euro	1.36	0.00	1.36	22.91	0.15	2.99	0.10	6.71
British Pound Sterling	0.29	0.00	0.29	17.76	0.02	0.49	0.02	1.14
Danish Krone	0.04	0.00	0.04	48.95	0.00	0.05	0.00	0.25
Canadian Dollar	0.02	0.00	0.02	11.33	0.00	0.02	0.00	0.10
Japanese Yen	0.01	0.00	0.01	16.98	0.00	0.01	0.00	0.01
South African Rand	0.00	0.00	0.00	79.53	0.00	0.00	0.00	0.02
Norwegian Krone	0.00	0.00	0.00	43.84	0.00	0.00	0.00	0.01
Swedish Krona	0.00	0.00	0.00	34.80	0.00	0.00	0.00	0.01
Australian Dollar	0.00	0.00	0.00	421.80	0.00	0.00	0.00	0.01
Albanian Lek	0.00	0.00	0.00	8.49	0.00	0.00	0.00	0.00
New Taiwan Dollar	0.00	0.00	0.00	4.98	0.00	0.00	0.00	0.00
Korean Won	0.00	0.00	0.00	9.73	0.00	0.00	0.00	0.00
Singapore Dollar	0.00	0.00	0.00	4.79	0.00	0.00	0.00	0.00
United Arab Emirates Dirham	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00



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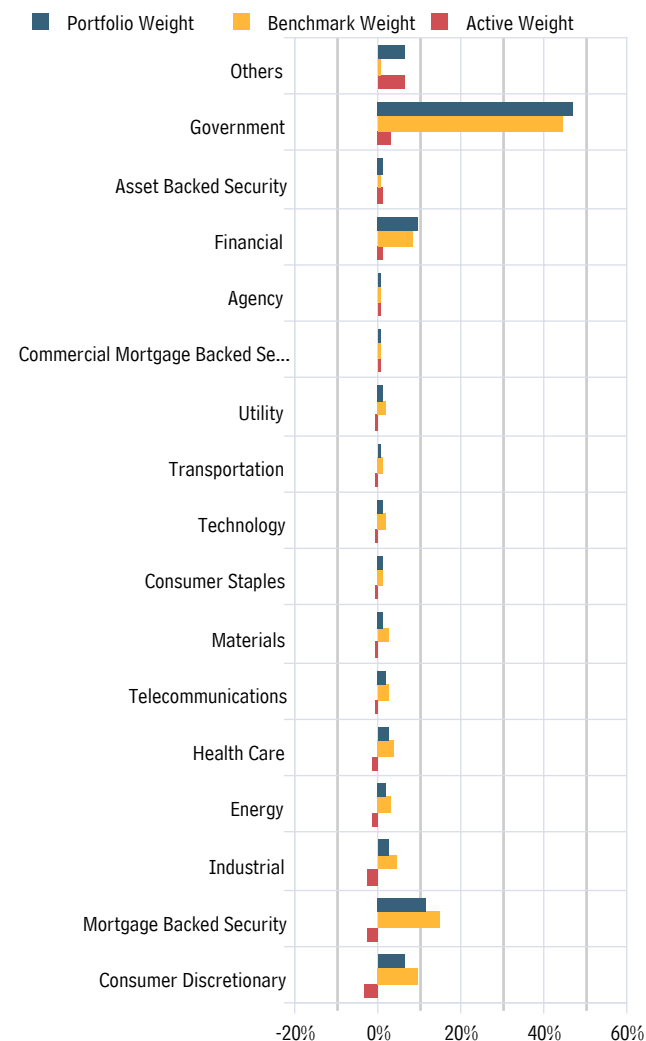
BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 10,685
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 34,724,791,178
ACCEPTED: 10,438

Portfolio Allocation by Bond Sector

Sector	Weight (%)			Cont. To Eff. Dur	Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	5.44	5.07	1.54	100.00	0.02
Government	47.28	44.25	3.04	2.91	5.15	1.42	92.63	-0.05
Mortgage Backed Security	11.81	14.61	-2.80	0.80	7.11	-0.06	-4.17	-0.06
Financial	9.54	8.31	1.23	0.36	4.33	0.05	3.29	-0.02
Others	6.55	0.00	6.55	0.03	9.15	0.50	32.23	0.02
Consumer Discretionary	6.28	9.49	-3.21	0.31	9.54	-0.15	-9.59	-0.01
Health Care	2.64	3.61	-0.97	0.18	7.56	-0.05	-3.32	-0.03
Industrial	2.46	4.73	-2.27	0.10	6.56	-0.10	-6.59	-0.01
Energy	1.94	3.08	-1.14	0.09	6.32	-0.02	-1.60	-0.02
Telecommunications	1.75	2.67	-0.92	0.12	8.16	-0.05	-3.53	-0.03
Technology	1.61	2.08	-0.47	0.13	8.53	-0.01	-0.91	-0.05
Utility	1.58	1.74	-0.16	0.11	6.52	0.01	0.41	-0.05
Materials	1.55	2.32	-0.77	0.07	6.61	-0.03	-2.02	-0.01
Asset Backed Security	1.42	0.07	1.35	0.06	4.23	0.03	1.74	-0.03
Consumer Staples	1.06	1.58	-0.52	0.08	7.22	-0.01	-0.80	-0.05
Agency	0.77	0.10	0.67	0.03	3.10	0.02	1.14	-0.02
Transportation	0.67	1.11	-0.44	0.03	5.95	-0.02	-1.15	-0.02
Commercial Mortgage Backed	0.65	0.05	0.60	0.02	2.75	0.02	1.24	-0.02
Local/Provincial	0.21	0.08	0.13	0.02	7.45	-0.00	-0.11	-0.06
Collateralized Loan Obligat	0.13	0.00	0.13	-0.00	16.03	0.01	0.80	0.05
Sovereign	0.10	0.05	0.05	0.00	5.62	0.01	0.41	-0.01
Supranational	0.01	0.07	-0.06	0.00	1.68	-0.00	-0.10	-0.02



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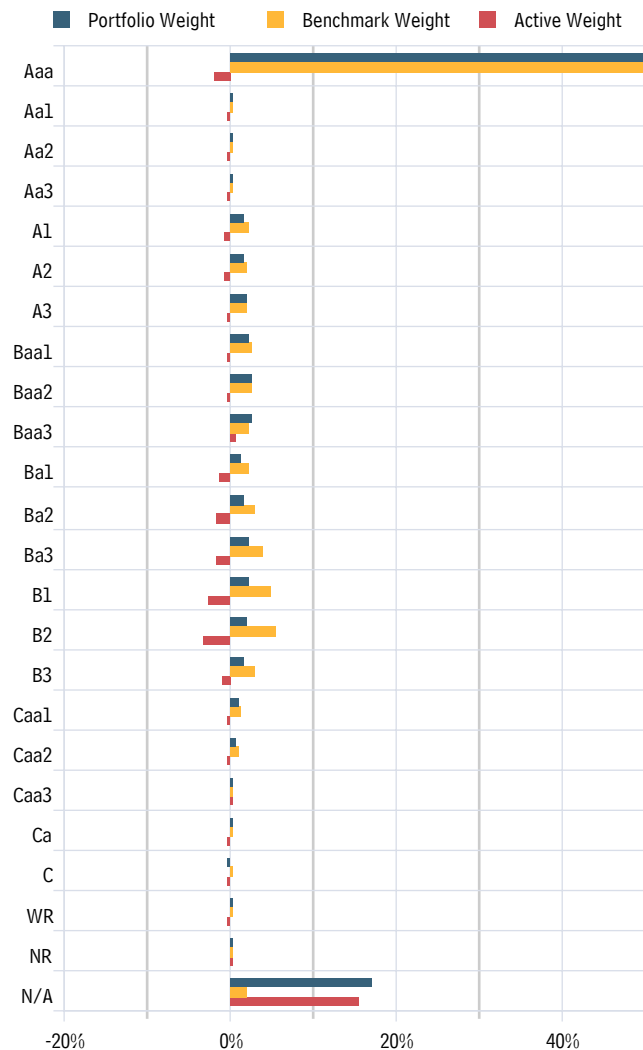
BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: FIXED INCOME
BENCHMARK: Fixed Income
POSITIONS: 10,685
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 34,724,791,178
ACCEPTED: 10,438

Portfolio Allocation by Moody's Rating

Rating	Weight (%)			Cont. To Eff. Dur	Spread Duration	Total Risk	Active Risk CR	%CR to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	5.44	5.67	5.07	1.54	100.00
Aaa	56.81	58.84	-2.03	3.56	6.13	5.42	1.37	89.06
Aa1	0.02	0.02	-0.01	0.00	2.41	2.23	0.00	0.10
Aa2	0.13	0.41	-0.28	0.02	11.52	10.19	0.00	0.19
Aa3	0.16	0.39	-0.23	0.02	9.79	9.03	0.00	0.06
A1	1.65	2.15	-0.50	0.13	7.53	7.28	-0.01	-0.69
A2	1.47	1.95	-0.49	0.11	7.63	7.33	-0.01	-0.41
A3	1.98	2.04	-0.06	0.16	7.66	7.29	-0.00	-0.06
Baa1	2.21	2.49	-0.28	0.19	8.47	8.20	-0.00	-0.17
Baa2	2.52	2.62	-0.10	0.18	7.38	7.17	0.01	0.44
Baa3	2.67	2.16	0.51	0.15	5.48	5.94	0.01	0.75
Ba1	1.22	2.36	-1.14	0.07	5.88	6.47	-0.04	-2.84
Ba2	1.51	2.99	-1.48	0.07	4.49	6.33	-0.06	-4.17
Ba3	2.10	3.82	-1.72	0.09	4.01	5.81	-0.08	-5.32
B1	2.33	4.77	-2.44	0.10	4.16	6.61	-0.13	-8.32
B2	2.10	5.48	-3.39	0.07	3.69	7.04	-0.19	-12.27
B3	1.71	2.81	-1.09	0.06	3.51	7.16	-0.07	-4.44
Caa1	0.90	1.14	-0.24	0.03	3.56	11.64	-0.02	-1.09
Caa2	0.72	1.05	-0.33	0.03	3.72	12.53	-0.02	-1.52
Caa3	0.22	0.15	0.07	0.00	1.77	19.10	0.01	0.43
Ca	0.04	0.11	-0.07	0.00	3.71	21.57	-0.00	-0.29
C	-0.01	0.02	-0.02	0.00	14.89	121.70	-0.00	-0.04
WR	0.29	0.43	-0.13	0.01	1.89	5.21	-0.01	-0.47
NR	0.10	0.01	0.09	-0.00	16.82	13.75	0.01	0.60
Not Rated	17.14	1.78	15.36	0.42	3.51	5.67	0.78	50.48



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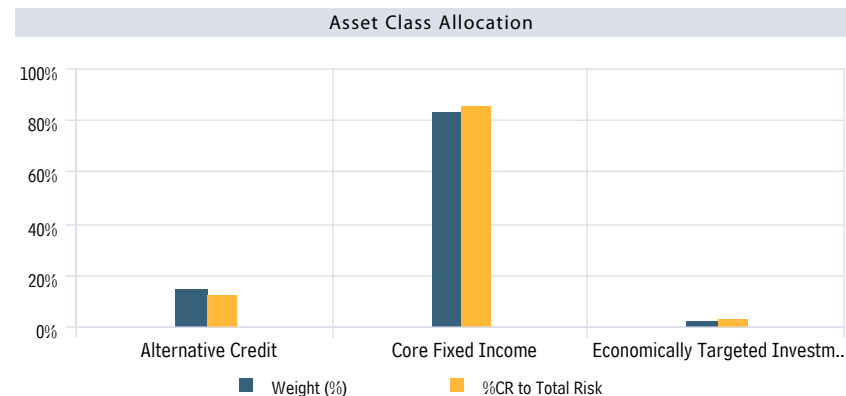
BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public FI
BENCHMARK: Fixed Income
POSITIONS: 10,651
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 31,359,824,469
ACCEPTED: 10,405

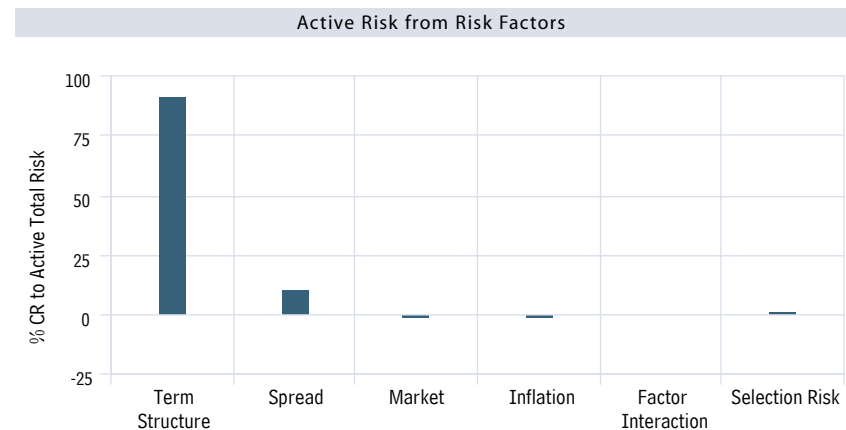
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	5.16	Total	31,359,824,469	100.00	5.16	5.16	100.00
Benchmark Risk	6.23	Alternative Credit	4,583,657,017	14.62	6.90	0.63	12.27
Active Risk	1.18	Core Fixed Income	26,158,950,042	83.42	5.34	4.39	85.05
Portfolio Beta	0.83	Economically Targeted Investments	617,217,410	1.97	7.26	0.14	2.68
Cont. to Eff. Duration	5.63						
Convexity	0.63						
Yield to Worst (%)	4.92						
OAS to Swap (bp)	103.19						



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	5.16	100.00	1.00	1.18	100.00	1.00
Local Market Risk	5.16	100.00	1.00	1.18	100.01	1.00
Common Factor Risk	5.15	99.96	1.00	1.17	99.57	1.00
Implied Volatility	0.05	1.04	0.49	-0.00	-0.31	-0.33
Inflation	-0.02	-0.46	-0.05	-0.01	-0.70	-0.15
Market	0.01	0.11	0.25	-0.01	-0.43	-0.23
Spread	0.32	6.20	0.19	0.12	10.11	0.24
Term Structure	4.80	93.13	0.92	1.07	90.91	0.90
Selection Risk	0.00	0.04	0.02	0.01	0.44	0.07



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BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public FI
BENCHMARK: Fixed Income
POSITIONS: 10,651
MODEL: MAC.L

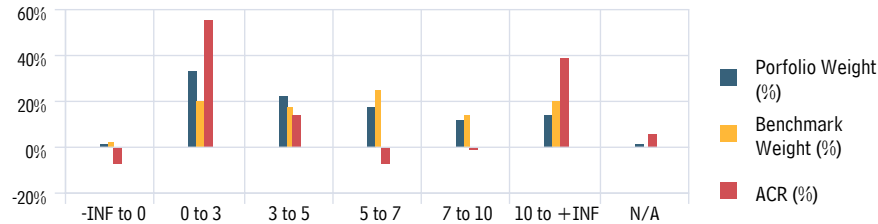
CURRENCY: USD
ANALYSIS DATE: December 31, 2022
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ACCEPTED: 10,405

Portfolio by Factor Breakdowns

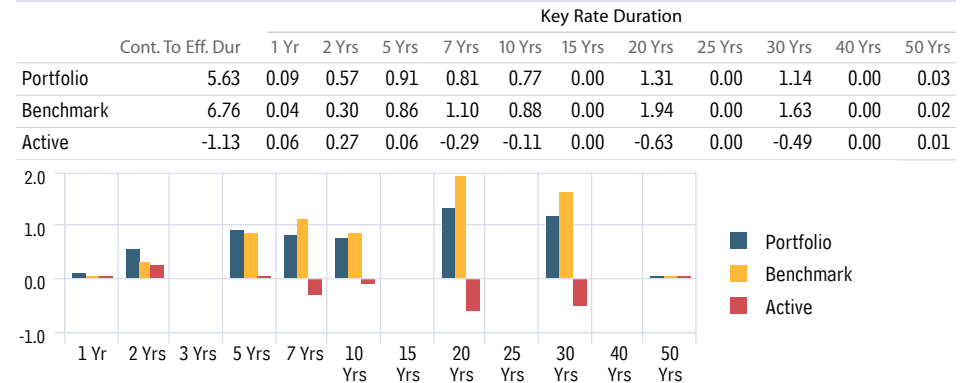
Spread Factor	Volatility	Top 10 Spread Factor								
		Exposure (Residual)				Correlation	Contribution (Residual)			
		Portfolio	Benchmark	Active	MCAR	Active Port	to TR	to AR	to AR%	
US Bank Loan Consumer Discreti	26.40	0.05	0.66	-0.61	-0.07	-0.28	0.00	0.05	3.86	
US Bank Loan Industrials Sprea	24.58	0.01	0.38	-0.37	-0.07	-0.27	0.00	0.02	2.10	
US Bank Loan Financials Spread	27.76	0.02	0.29	-0.27	-0.08	-0.27	0.00	0.02	1.74	
US Agency MBS 15Y OAS	0.56	0.00	0.06	-0.06	-0.00	-0.44	0.00	0.01	1.16	
US Bank Loan Health Care Sprea	25.77	0.03	0.17	-0.14	-0.08	-0.31	0.00	0.01	0.95	
US Bank Loan Telecommunication	26.83	0.01	0.14	-0.14	-0.08	-0.30	0.00	0.01	0.93	
US Bank Loan Materials Spread	26.57	0.01	0.13	-0.12	-0.07	-0.27	0.00	0.01	0.76	
US IG Steepener	38.21	-0.44	-0.38	-0.06	-0.13	-0.35	-0.05	0.01	0.70	
US Bank Loan Transportation Sp	29.26	0.01	0.07	-0.07	-0.07	-0.24	0.00	0.00	0.40	
US Energy HY Spread	47.24	0.18	0.28	-0.10	-0.04	-0.08	0.00	0.00	0.30	

Term Structure	Volatility	Top 10 Term Structure								
		Exposure (Residual)				Correlation	Contribution (Residual)			
		Portfolio	Benchmark	Active	MCAR	Active Port	to TR	to AR	to AR%	
USD Rate 20Y	0.92	1.29	1.94	-0.65	-0.01	-0.87	1.04	0.52	44.10	
USD Rate 30Y	0.90	1.13	1.63	-0.50	-0.01	-0.89	0.89	0.40	34.24	
USD Rate 10Y	1.05	1.07	1.32	-0.24	-0.01	-0.85	1.03	0.22	18.26	
USD Rate 5Y	1.07	1.38	1.52	-0.13	-0.01	-0.70	1.30	0.10	8.48	
USD Rate 1M	1.04	0.00	0.01	-0.00	-0.00	-0.04	0.00	0.00	0.01	
USD Muni Rates 1Y	1.04	0.00	0.00	0.00	-0.00	-0.47	0.00	-0.00	-0.01	
USD Muni Rates 2Y	1.09	0.00	0.00	0.00	-0.01	-0.51	0.00	-0.00	-0.01	
USD Rate 6M	0.98	0.00	0.00	0.00	-0.00	-0.29	0.00	-0.00	-0.01	
USD Muni Rates 5Y	1.10	0.00	0.00	0.00	-0.01	-0.59	0.00	-0.00	-0.05	
USD Muni Rates 10Y	1.07	0.00	0.00	0.00	-0.01	-0.67	0.00	-0.00	-0.20	

%CR to Active Risk by Duration Buckets



Key Rate Duration



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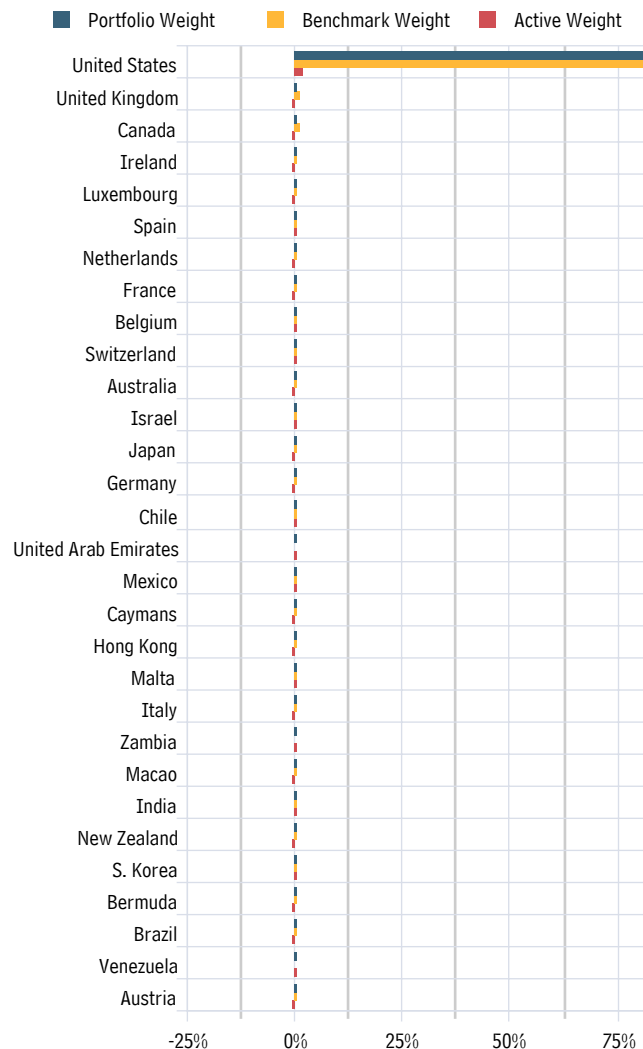
BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public FI
BENCHMARK: Fixed Income
POSITIONS: 10,651
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 31,359,824,469
ACCEPTED: 10,405

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	0.00	5.16	1.18	100.00	0.01
United States	95.97	93.91	2.05	5.18	1.23	104.25	-0.04
United Kingdom	0.90	1.02	-0.12	5.45	0.00	0.18	-0.04
Canada	0.83	1.49	-0.66	5.56	-0.02	-2.10	-0.03
Ireland	0.28	0.37	-0.08	6.20	-0.00	-0.28	-0.03
Luxembourg	0.24	0.56	-0.32	9.46	-0.01	-0.95	-0.03
Spain	0.22	0.09	0.13	5.73	0.00	0.36	-0.04
Netherlands	0.20	0.41	-0.21	8.81	-0.00	-0.33	-0.04
France	0.17	0.23	-0.07	8.77	-0.00	-0.01	-0.04
Belgium	0.13	0.13	0.00	14.44	-0.00	-0.16	-0.10
Switzerland	0.12	0.12	0.00	8.22	0.00	0.02	-0.05
Australia	0.12	0.19	-0.07	5.74	-0.00	-0.09	-0.04
Israel	0.11	0.01	0.11	1.69	0.01	0.49	-0.01
Japan	0.11	0.32	-0.22	6.04	-0.01	-0.69	-0.03
Germany	0.09	0.15	-0.06	8.96	-0.00	-0.30	-0.03
Chile	0.06	0.01	0.04	2.92	0.00	0.18	-0.02
United Arab Emirates	0.05	0.00	0.05	5.44	0.00	0.19	-0.02
Mexico	0.05	0.05	0.00	4.78	0.00	0.19	-0.06
Caymans	0.05	0.09	-0.05	12.22	-0.00	-0.16	-0.02
Hong Kong	0.04	0.16	-0.12	9.37	-0.00	-0.28	-0.03
Malta	0.04	0.02	0.02	16.18	0.00	0.04	-0.04
Italy	0.03	0.17	-0.14	13.86	-0.00	-0.11	-0.05
Zambia	0.03	0.00	0.03	4.91	0.00	0.10	-0.01
Macao	0.03	0.06	-0.04	8.11	-0.00	-0.06	-0.04
India	0.02	0.01	0.02	8.77	0.00	0.05	-0.02
New Zealand	0.02	0.03	-0.01	6.34	-0.00	-0.02	-0.02
S. Korea	0.01	0.01	0.01	6.12	0.00	0.00	-0.03
Bermuda	0.01	0.03	-0.01	11.11	-0.00	-0.07	-0.05
Brazil	0.01	0.02	-0.02	5.77	0.00	0.01	-0.05
Venezuela	0.01	0.00	0.01	2.41	0.00	0.04	-0.01
Austria	0.01	0.01	-0.00	11.78	-0.00	-0.03	-0.05



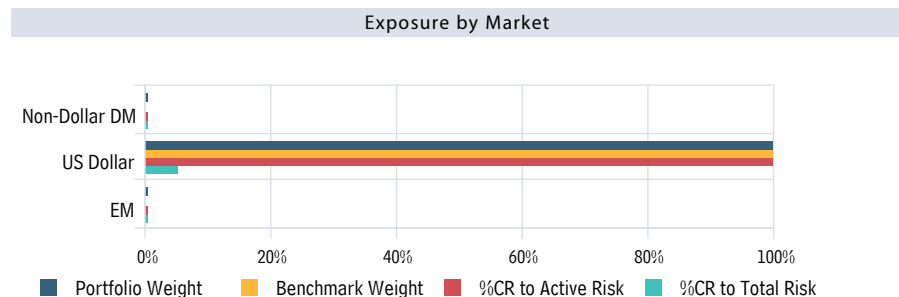
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BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public FI
BENCHMARK: Fixed Income
POSITIONS: 10,651
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 31,359,824,469
ACCEPTED: 10,405

Portfolio Allocation by Currency



Developed Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
US Dollar	31,359,758,522.39	100.00	100.00
British Pound Sterling	65,727.66	0.00	0.00
Euro	154.74	0.00	0.00
Canadian Dollar	0.00	0.00	0.00
Danish Krone	0.00	0.00	0.00

Emerging Market Currency			
Top Five	Exposure \$	CR to AR (%)	CR to TR (%)
New Taiwan Dollar	50.82	0.00	0.00
Korean Won	13.52	0.00	0.00

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	5.16	5.16	100.00	1.18	100.00
US Dollar	100.00	100.00	-0.00	5.16	5.16	100.00	1.18	100.00
British Pound Sterling	0.00	0.00	0.00	58.91	0.00	0.00	0.00	0.00
Euro	0.00	0.00	0.00	7.77	0.00	0.00	0.00	0.00
New Taiwan Dollar	0.00	0.00	0.00	4.98	0.00	0.00	0.00	0.00
Korean Won	0.00	0.00	0.00	9.73	0.00	0.00	0.00	0.00
Canadian Dollar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Danish Krone	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



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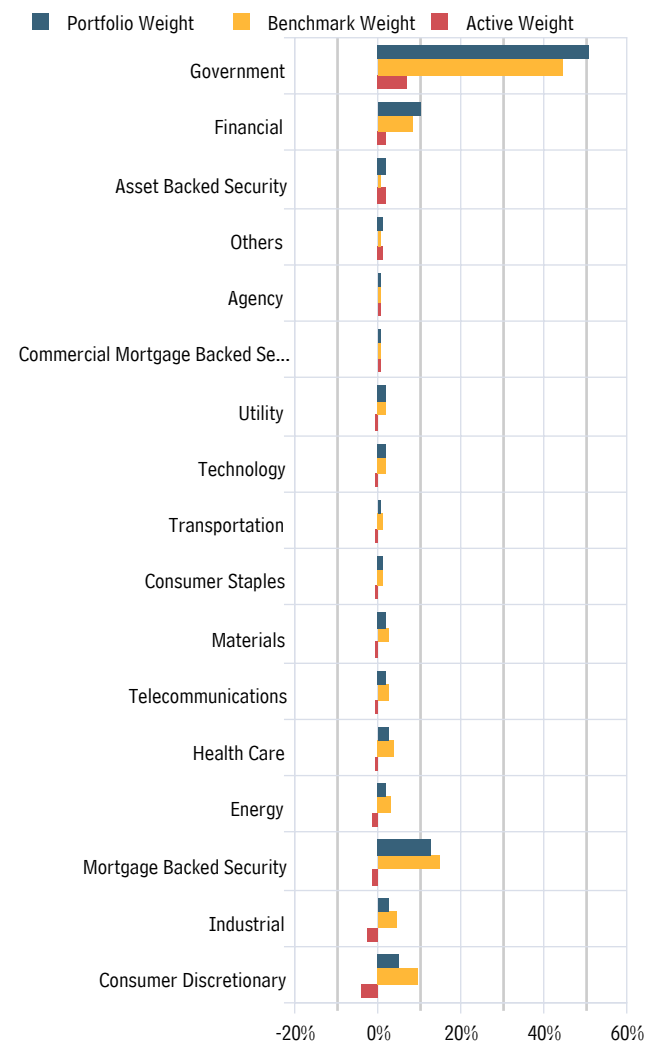
BarraOne Fixed Income Summary

COMPANY: NYCRS - TEACHERS
PORTFOLIO: Public FI
BENCHMARK: Fixed Income
POSITIONS: 10,651
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 31,359,824,469
ACCEPTED: 10,405

Portfolio Allocation by Bond Sector

Sector	Weight (%)			Cont. To Eff. Dur	Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	5.63	5.16	1.18	100.00	0.01
Government	51.06	44.25	6.81	3.04	5.15	1.48	125.59	-0.04
Mortgage Backed Security	13.07	14.61	-1.53	0.86	7.11	-0.08	-7.20	-0.06
Financial	10.13	8.31	1.82	0.38	4.37	0.08	6.79	-0.03
Consumer Discretionary	5.35	9.49	-4.14	0.28	7.89	-0.19	-15.82	-0.04
Health Care	2.70	3.61	-0.91	0.19	7.75	-0.05	-4.60	-0.05
Industrial	2.27	4.73	-2.46	0.10	6.35	-0.09	-7.96	-0.03
Energy	2.00	3.08	-1.08	0.09	6.30	-0.01	-1.06	-0.04
Telecommunications	1.83	2.67	-0.84	0.12	8.24	-0.05	-3.92	-0.05
Technology	1.70	2.08	-0.38	0.13	8.33	-0.02	-2.00	-0.06
Asset Backed Security	1.70	0.07	1.63	0.07	4.03	0.04	3.69	-0.03
Materials	1.63	2.32	-0.69	0.07	6.55	-0.02	-1.74	-0.03
Utility	1.63	1.74	-0.11	0.11	6.85	0.00	0.25	-0.06
Others	1.19	0.00	1.19	0.01	0.87	0.06	5.37	-0.00
Consumer Staples	1.10	1.58	-0.48	0.08	7.46	-0.01	-1.05	-0.06
Agency	0.86	0.10	0.75	0.03	3.10	0.03	2.18	-0.02
Commercial Mortgage Backed	0.72	0.05	0.67	0.02	2.74	0.03	2.14	-0.02
Transportation	0.71	1.11	-0.40	0.04	6.23	-0.01	-0.82	-0.05
Local/Provincial	0.23	0.08	0.15	0.02	7.46	-0.00	-0.22	-0.07
Sovereign	0.10	0.05	0.05	0.00	0.48	0.01	0.53	-0.03
Supranational	0.01	0.07	-0.06	0.00	1.68	-0.00	-0.17	-0.02



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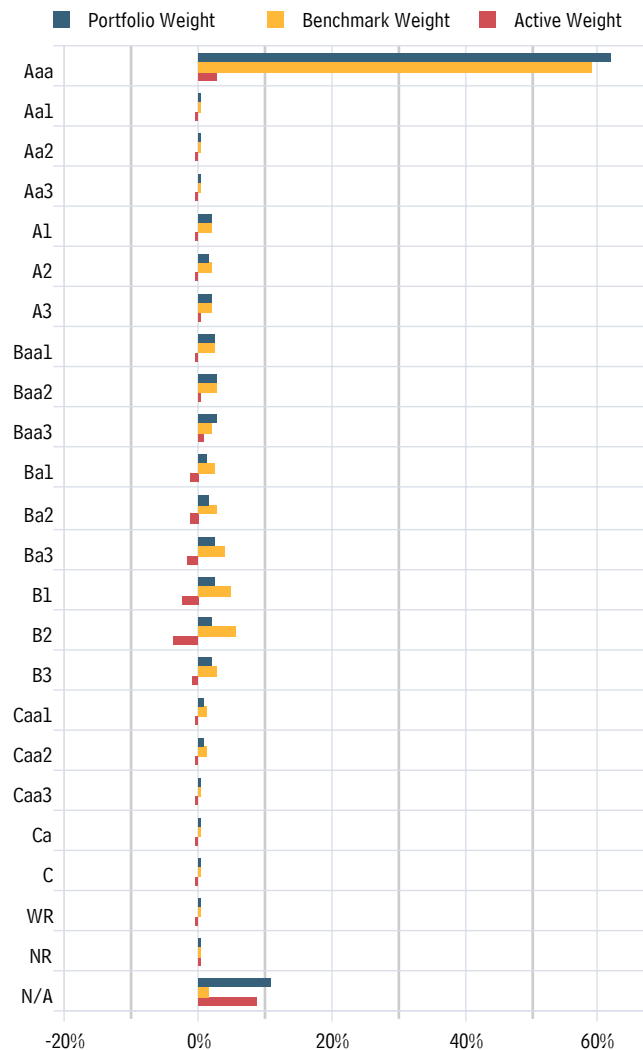
BarraOne Fixed Income Summary

COMPANY: NYCERS - TEACHERS
PORTFOLIO: Public FI
BENCHMARK: Fixed Income
POSITIONS: 10,651
MODEL: MAC.L

CURRENCY: USD
ANALYSIS DATE: December 31, 2022
MARKET VALUE: 31,359,824,469
ACCEPTED: 10,405

Portfolio Allocation by Moody's Rating

Rating	Weight (%)			Cont. To Eff. Dur	Spread Duration	Total Risk	Active Risk CR	%CR to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	0.00	5.63	5.85	5.16	1.18	100.00
Aaa	61.74	58.84	2.90	3.74	6.15	5.43	1.39	117.89
Aa1	0.02	0.02	-0.00	0.00	2.41	2.23	0.00	0.15
Aa2	0.14	0.41	-0.26	0.02	11.52	10.19	0.00	0.14
Aa3	0.18	0.39	-0.21	0.02	9.79	9.03	-0.00	-0.01
A1	1.83	2.15	-0.32	0.14	7.53	7.28	-0.02	-1.55
A2	1.63	1.95	-0.33	0.12	7.64	7.33	-0.01	-0.96
A3	2.20	2.04	0.15	0.17	7.66	7.29	-0.00	-0.34
Baa1	2.42	2.49	-0.08	0.20	8.58	8.28	-0.01	-1.08
Baa2	2.77	2.62	0.15	0.19	7.35	7.14	0.00	0.36
Baa3	2.91	2.16	0.74	0.15	5.44	5.87	0.01	1.25
Ba1	1.28	2.36	-1.08	0.07	5.79	6.37	-0.03	-2.77
Ba2	1.62	2.99	-1.36	0.07	4.42	6.26	-0.05	-4.21
Ba3	2.23	3.82	-1.59	0.09	3.98	5.77	-0.06	-5.38
B1	2.43	4.77	-2.33	0.10	4.19	6.64	-0.10	-8.56
B2	2.06	5.48	-3.42	0.07	3.78	7.16	-0.15	-12.53
B3	1.93	2.81	-0.88	0.06	3.52	8.40	-0.04	-3.45
Caa1	0.92	1.14	-0.22	0.03	3.71	11.94	-0.01	-1.06
Caa2	0.67	1.05	-0.38	0.02	3.82	12.02	-0.01	-0.78
Caa3	0.09	0.15	-0.06	0.00	2.09	13.01	0.00	0.00
Ca	0.04	0.11	-0.06	0.00	3.97	22.72	-0.00	-0.08
C	0.02	0.02	-0.00	0.00	1.57	31.82	-0.00	-0.01
WR	0.12	0.43	-0.31	0.00	3.04	7.33	-0.02	-1.29
NR	0.02	0.01	0.01	0.00	1.46	1.29	0.00	0.07
Not Rated	10.73	1.78	8.95	0.37	4.13	3.47	0.28	24.20



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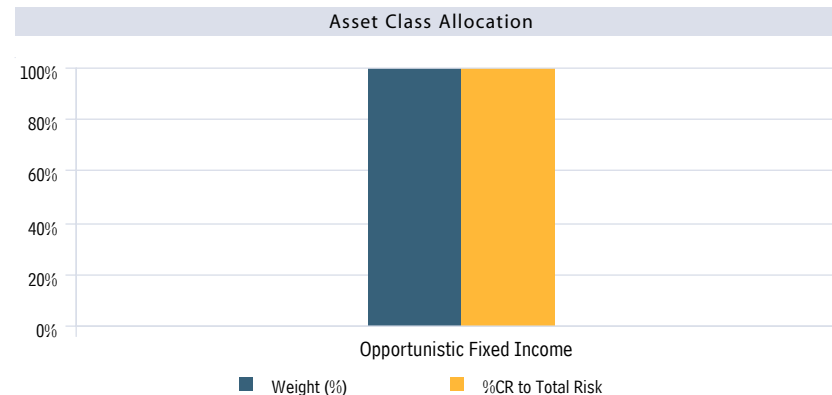
BarraOne Fixed Income Summary

COMPANY: NYCRC - TEACHERS
 PORTFOLIO: Alternative FI
 BENCHMARK: 50_HY-50_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan
 POSITIONS: 34
 MODEL: MACL

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 3,364,966,708
 ACCEPTED: 33

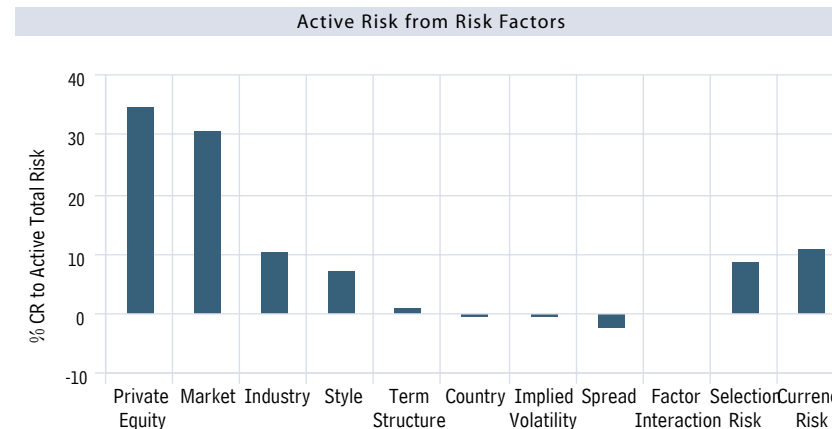
Total Plan Summary

Risk Summary		Asset Class Contribution to Risk					
Statistic	Value	Asset Class	Mkt Value	Weight (%)	Total Risk	Risk Contribution	%CR to TR
Total Risk	9.09	Total	3,364,966,708	100.00	9.09	9.09	100.00
Benchmark Risk	5.39	Opportunistic Fixed Income	3,364,966,708	100.00	9.09	9.09	100.00
Active Risk	5.51						
Portfolio Beta	1.40						
Cont. to Eff. Duration	2.06						
Convexity	0.12						
Yield to Worst (%)	7.13						
OAS to Swap (bp)	510.30						



Risk Factor Breakdown

Risk Source	Portfolio			Active		
	Risk Contribution	% Risk	Correlation	Risk Contribution	% Risk	Correlation
Total Risk	9.09	100.00	1.00	5.51	100.00	1.00
Local Market Risk	8.41	92.52	0.99	4.92	89.29	0.97
Common Factor Risk	8.13	89.46	0.98	4.45	80.82	0.93
Country	-0.00	-0.01	-0.01	-0.01	-0.10	-0.06
Implied Volatility	0.03	0.35	0.46	-0.02	-0.36	-0.24
Industry	0.44	4.81	0.26	0.57	10.27	0.33
Market	2.17	23.89	0.78	1.68	30.46	0.60
Private Equity	1.16	12.80	0.36	1.92	34.88	0.59
Spread	3.62	39.84	0.80	-0.14	-2.47	-0.09
Style	0.50	5.53	0.52	0.41	7.37	0.42
Term Structure	0.20	2.23	0.10	0.04	0.76	0.11
Selection Risk	0.28	3.06	0.18	0.47	8.47	0.29
Currency Risk	0.68	7.48	0.52	0.59	10.71	0.45



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BarraOne Fixed Income Summary

COMPANY: NYCRC - TEACHERS
 PORTFOLIO: Alternative FI
 BENCHMARK: 50_HY-50_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan
 POSITIONS: 34
 MODEL: MAC.L

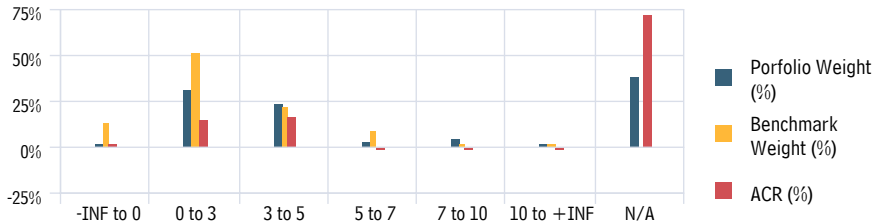
CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 3,364,966,708
 ACCEPTED: 33

Portfolio by Factor Breakdowns

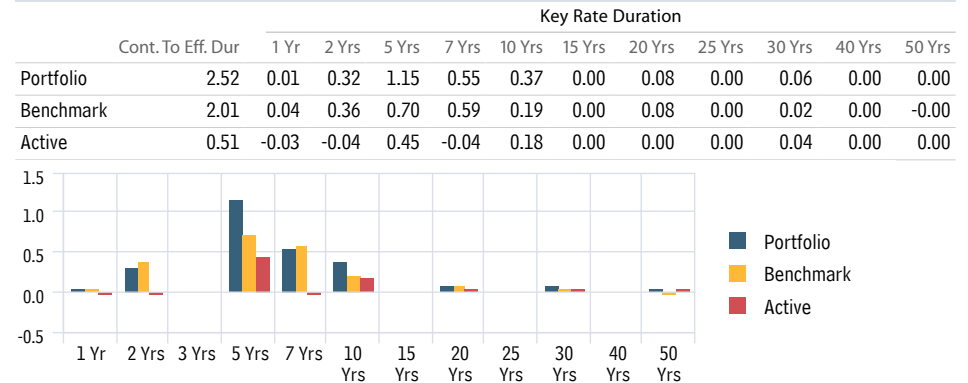
Spread Factor	Volatility	Top 10 Spread Factor Exposure (Residual)				Correlation Active Port	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
		EU Consumer Discretionary Spre	52.25	2.94	0.03		2.91	0.24	0.45
US Corporate HY Spread	41.67	1.18	0.00	1.18	0.17	0.42	0.38	0.21	3.73
GB Consumer Discretionary Spre	39.48	0.27	0.02	0.24	0.15	0.37	0.07	0.04	0.65
EM Europe Spread	54.52	0.09	0.00	0.09	0.21	0.39	0.03	0.02	0.34
EU Health Care Spread	49.92	0.10	0.04	0.06	0.22	0.43	0.03	0.01	0.24
NL Corporate Spread	5.54	1.23	0.07	1.16	0.01	0.20	0.02	0.01	0.24
US HY Steepener	30.38	-0.03	-0.15	0.12	0.10	0.34	-0.01	0.01	0.23
EM Brazil Corporate Spread DTS	57.74	0.04	0.00	0.04	0.17	0.30	0.01	0.01	0.12
US Health Care - Equipment & S	42.90	0.03	0.00	0.03	0.17	0.39	0.01	0.01	0.10
US Information Technology - So	50.59	0.02	0.00	0.02	0.20	0.39	0.01	0.00	0.08

Term Structure	Volatility	Top 10 Term Structure Exposure (Residual)				Correlation Active Port	Contribution (Residual)		
		Portfolio	Benchmark	Active	MCAR		to TR	to AR	to AR%
		EUR Rate 5Y	1.05	0.35	0.00		0.35	0.00	0.06
GBP Rate 5Y	1.46	0.03	0.00	0.03	0.00	0.13	0.01	0.00	0.09
GBP Rate 2Y	1.47	0.03	0.00	0.03	0.00	0.12	0.01	0.00	0.09
EUR Rate 10Y	0.98	0.05	0.00	0.05	0.00	0.07	0.01	0.00	0.06
GBP Rate 10Y	1.29	0.02	0.00	0.02	0.00	0.13	0.01	0.00	0.06
USD Rate 5Y	1.07	0.84	1.05	-0.22	-0.00	-0.01	0.06	0.00	0.03
USD Rate 2Y	1.06	0.27	0.36	-0.09	-0.00	-0.01	0.01	0.00	0.02
EUR Rate 2Y	1.00	0.01	0.00	0.01	0.00	0.04	0.00	0.00	0.01
USD Rate 1M	1.04	0.01	0.02	-0.01	-0.00	-0.06	-0.00	0.00	0.01
USD Rate 6M	0.98	-0.02	0.01	-0.03	-0.00	-0.00	-0.00	0.00	0.00

%CR to Active Risk by Duration Buckets



Key Rate Duration



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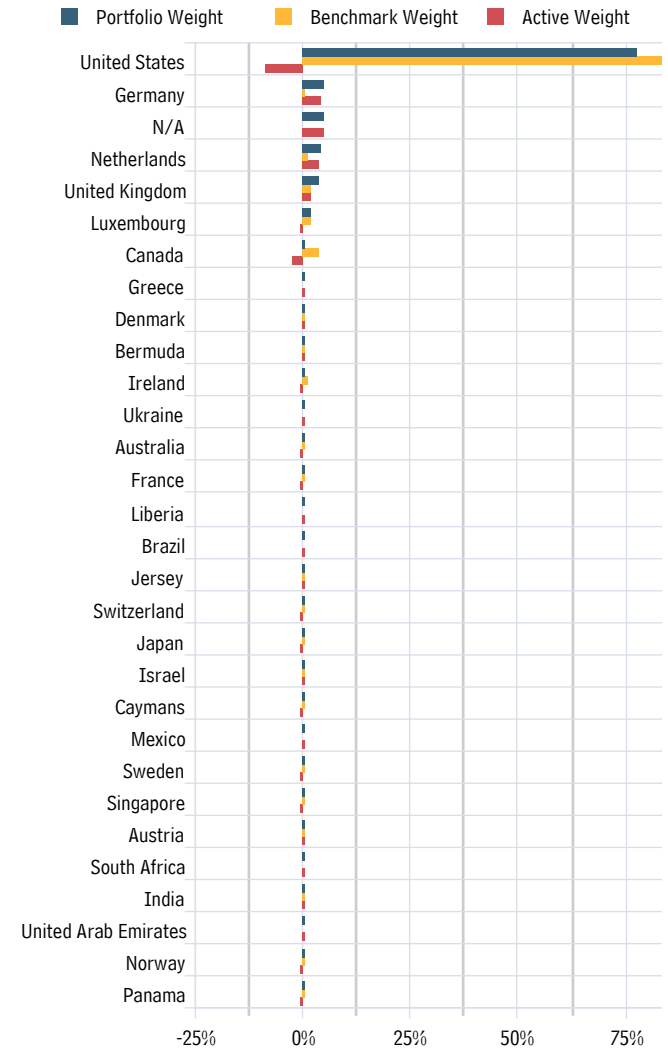
BarraOne Fixed Income Summary

COMPANY: NYCERS - TEACHERS
 PORTFOLIO: Alternative FI
 BENCHMARK: 50_HY-50_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan
 POSITIONS: 34
 MODEL: MAC.L

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 3,364,966,708
 ACCEPTED: 33

Top 30 Countries by Weight%

Country of Exposure	Weight (%)			Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active				
Total	100.00	100.00	-0.00	9.09	5.51	100.00	0.06
United States	77.92	86.37	-8.45	7.60	3.35	60.82	0.04
Germany	4.78	0.46	4.32	32.23	0.79	14.31	0.16
N/A	4.72	0.00	4.72	18.74	0.47	8.51	0.12
Netherlands	4.48	1.04	3.44	22.53	0.45	8.10	0.10
United Kingdom	3.57	1.75	1.82	15.14	0.24	4.33	0.06
Luxembourg	1.57	2.08	-0.51	5.60	-0.00	-0.04	0.02
Canada	0.93	3.51	-2.59	7.78	0.04	0.73	0.02
Greece	0.43	0.00	0.43	23.64	0.05	0.86	0.13
Denmark	0.39	0.01	0.38	47.93	0.05	0.86	0.13
Bermuda	0.28	0.06	0.21	5.01	-0.00	-0.02	0.01
Ireland	0.18	1.08	-0.90	18.33	0.01	0.26	0.02
Ukraine	0.11	0.00	0.11	52.41	0.02	0.35	0.20
Australia	0.11	0.36	-0.25	16.92	0.01	0.13	0.03
France	0.11	0.60	-0.49	20.96	-0.00	-0.02	0.04
Liberia	0.10	0.00	0.10	3.61	-0.00	-0.03	0.00
Brazil	0.10	0.00	0.10	28.51	0.01	0.10	0.08
Jersey	0.07	0.01	0.05	9.47	0.00	0.01	0.05
Switzerland	0.06	0.23	-0.17	13.80	0.00	0.02	0.02
Japan	0.06	0.10	-0.05	16.98	0.00	0.06	0.02
Israel	0.05	0.02	0.03	12.99	0.00	0.01	0.04
Caymans	0.05	0.35	-0.29	18.95	0.00	0.05	0.03
Mexico	0.05	0.00	0.05	17.51	0.00	0.03	0.06
Sweden	0.05	0.09	-0.04	14.90	0.00	0.05	0.04
Singapore	0.05	0.06	-0.02	1.68	0.00	0.01	-0.00
Austria	0.04	0.01	0.02	16.40	0.00	0.03	0.04
South Africa	0.03	0.00	0.03	79.53	0.00	0.08	0.19
India	0.02	0.02	0.00	6.19	-0.00	-0.00	0.02
United Arab Emirates	0.02	0.00	0.02	9.23	-0.00	-0.00	0.02
Norway	0.02	0.04	-0.03	45.52	0.00	0.06	0.05
Panama	0.02	0.14	-0.13	7.32	0.00	0.02	0.01



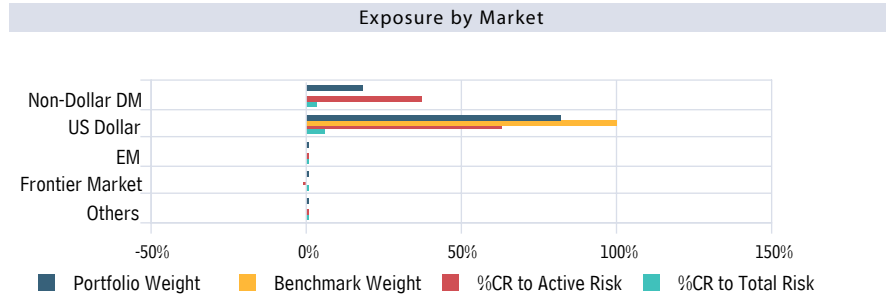
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 BENCHMARK: 50_HY-50_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan
 POSITIONS: 34
 MODEL: MAC.L

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 3,364,966,708
 ACCEPTED: 33

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	2,769,517,096.41	62.67	64.39	South African Rand	875,187.89	0.08	0.07
Euro	471,726,018.67	31.50	29.96	Albanian Lek	5,439.23	0.00	0.00
British Pound Sterling	99,894,233.52	4.39	4.39	United Arab Emirates Dirham	0.00	-0.00	0.00
Danish Krone	12,943,121.07	0.86	0.74	Mexican Peso	-17,776.23	-0.00	-0.00
Canadian Dollar	8,079,644.74	0.23	0.21	Chilean Peso	-673,647.40	0.10	0.07

Top 15 Currencies by Weight%

Currency of Exposure	Weight (%)			Total Risk	CR to TR	CR to TR (%)	CR to AR	CR to AR (%)
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	9.09	9.09	100.00	5.51	100.00
US Dollar	82.30	100.00	-17.70	7.47	5.86	64.39	3.45	62.67
Euro	14.02	0.00	14.02	22.91	2.72	29.96	1.74	31.50
British Pound Sterling	2.97	0.00	2.97	17.76	0.40	4.39	0.24	4.39
Danish Krone	0.38	0.00	0.38	48.95	0.07	0.74	0.05	0.86
Canadian Dollar	0.24	0.00	0.24	11.33	0.02	0.21	0.01	0.23
Japanese Yen	0.06	0.00	0.06	16.98	0.00	0.04	0.00	0.03
South African Rand	0.03	0.00	0.03	79.53	0.01	0.07	0.00	0.08
Norwegian Krone	0.02	0.00	0.02	43.84	0.00	0.04	0.00	0.05
Swedish Krona	0.01	0.00	0.01	34.80	0.00	0.03	0.00	0.02
Australian Dollar	0.00	0.00	0.00	421.80	0.01	0.06	0.00	0.07
Albanian Lek	0.00	0.00	0.00	8.49	0.00	0.00	0.00	0.00
Singapore Dollar	0.00	0.00	0.00	4.79	0.00	0.00	0.00	0.00
United Arab Emirates Dirham	0.00	0.00	0.00	0.05	0.00	0.00	-0.00	-0.00
Swiss Franc	-0.00	0.00	-0.00	8.09	-0.00	-0.00	0.00	0.00
Mexican Peso	-0.00	0.00	-0.00	11.83	-0.00	-0.00	-0.00	-0.00



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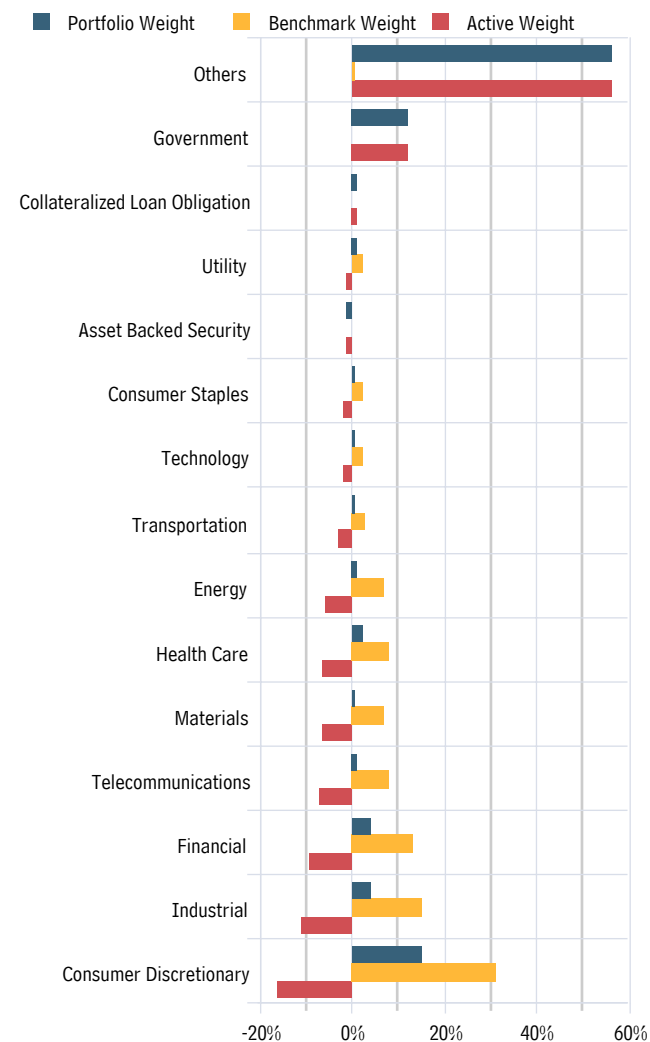
BarraOne Fixed Income Summary

COMPANY: NYCRC - TEACHERS
 PORTFOLIO: Alternative FI
 BENCHMARK: 50_HY-50_LEVLOAN, BB U.S. Corp HY/CS Lvgd Loan
 POSITIONS: 34
 MODEL: MACL

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 3,364,966,708
 ACCEPTED: 33

Portfolio Allocation by Bond Sector

Sector	Weight (%)			Cont. To Eff. Dur	Total Risk	Active Risk CR	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	2.52	9.09	5.51	100.00	0.06
Others	56.45	0.00	56.45	0.36	10.85	4.27	77.48	0.08
Consumer Discretionary	14.92	31.09	-16.17	0.73	18.29	1.28	23.29	0.05
Government	12.13	0.00	12.13	0.98	5.13	-0.26	-4.68	-0.00
Industrial	4.21	15.29	-11.08	0.08	10.66	0.11	1.91	0.02
Financial	4.00	13.51	-9.52	0.07	4.64	-0.00	-0.06	0.02
Health Care	2.09	8.27	-6.18	0.08	7.85	0.02	0.41	0.02
Energy	1.34	7.09	-5.75	0.08	7.14	-0.02	-0.27	0.02
Collateralized Loan Obligat	1.30	0.00	1.30	-0.06	16.03	0.04	0.77	0.06
Utility	1.10	2.12	-1.02	0.03	2.75	-0.01	-0.13	0.01
Telecommunications	1.05	7.85	-6.80	0.05	8.65	0.02	0.29	0.02
Materials	0.82	7.07	-6.26	0.03	8.75	0.00	0.02	0.02
Technology	0.74	2.37	-1.63	0.04	25.90	0.06	1.06	0.05
Consumer Staples	0.67	2.24	-1.57	0.02	4.76	0.00	0.05	0.02
Transportation	0.30	2.97	-2.67	0.01	17.15	-0.02	-0.30	0.03
Sovereign	0.11	0.00	0.11	0.01	50.81	0.02	0.35	0.19
Local/Provincial	0.02	0.11	-0.10	0.00	8.92	0.00	0.03	0.01
Collateralized Debt Obligat	-0.01	0.00	-0.01	-0.00	4.29	0.00	0.00	0.00
Trust Preferred Security	-0.01	0.00	-0.01	0.00	1.70	0.00	0.00	0.00
Commercial Mortgage Backed	-0.03	0.00	-0.03	-0.00	2.23	0.00	0.01	0.00
Asset Backed Security	-1.21	0.00	-1.21	-0.00	6.66	-0.01	-0.23	0.03



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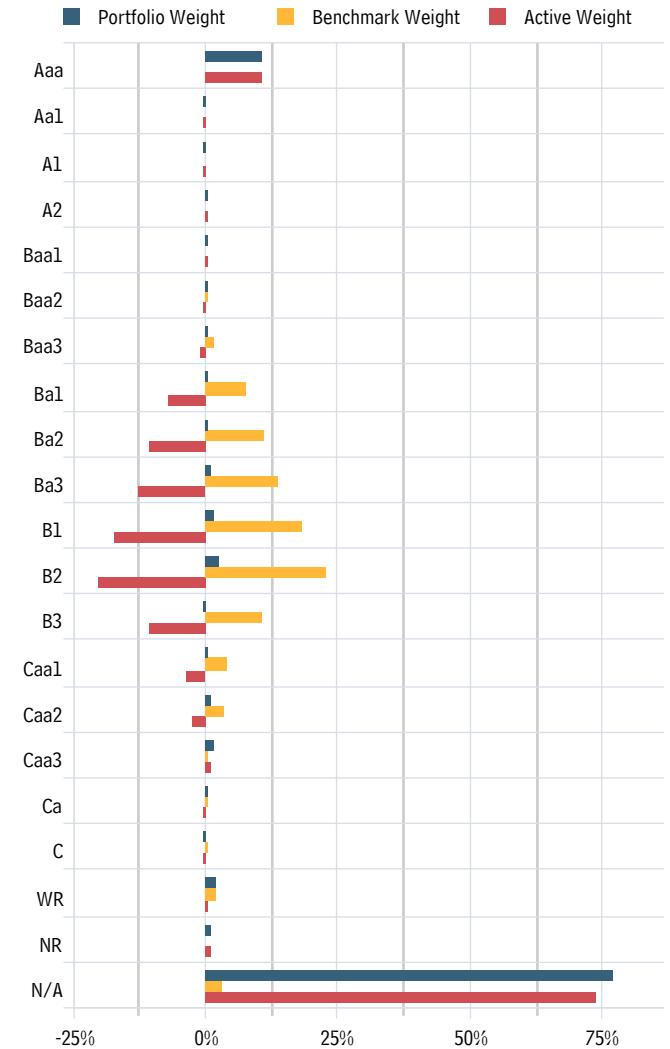
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 POSITIONS: 34
 MODEL: MAC.L

CURRENCY: USD
 ANALYSIS DATE: December 31, 2022
 MARKET VALUE: 3,364,966,708
 ACCEPTED: 33

Portfolio Allocation by Moody's Rating

Rating	Weight (%)			Cont. To Eff. Dur	Spread Duration	Total Risk	Active Risk CR	%CR to Active TR
	Portfolio	Benchmark	Active					
Total	100.00	100.00	-0.00	2.52	3.04	9.09	5.51	100.00
Aaa	10.84	0.00	10.84	0.85	4.91	4.96	-0.23	-4.20
Aa1	-0.00	0.00	-0.00	0.00	8.41	1.81	0.00	0.00
A1	-0.00	0.00	-0.00	0.00	8.87	2.76	0.00	0.00
A2	0.00	0.00	0.00	-0.00	3.71	10.61	0.00	0.00
Baa1	0.34	0.00	0.34	0.01	1.42	13.43	0.01	0.15
Baa2	0.15	0.26	-0.12	0.02	12.69	15.26	0.01	0.14
Baa3	0.52	1.67	-1.14	0.07	7.48	10.37	0.01	0.26
Ba1	0.64	7.64	-7.00	0.07	7.58	9.13	0.04	0.72
Ba2	0.44	11.15	-10.72	0.05	6.90	9.74	0.04	0.73
Ba3	0.94	13.73	-12.79	0.06	4.63	6.99	0.06	1.02
B1	1.34	18.39	-17.05	0.06	3.73	6.38	0.06	1.02
B2	2.40	22.66	-20.26	0.07	2.98	6.66	0.07	1.24
B3	-0.25	10.60	-10.85	-0.04	4.43	215.90	-0.18	-3.24
Caa1	0.72	4.11	-3.39	0.02	1.70	10.09	-0.07	-1.26
Caa2	1.16	3.76	-2.60	0.05	3.18	18.41	-0.05	-0.90
Caa3	1.37	0.56	0.81	0.04	1.57	26.12	0.06	1.04
Ca	0.03	0.39	-0.36	0.00	0.01	14.35	-0.01	-0.19
C	-0.23	0.07	-0.30	0.00	5.82	20.71	0.01	0.23
WR	1.93	1.89	0.04	0.03	1.22	4.44	0.01	0.22
NR	0.80	0.00	0.80	-0.07	20.47	17.08	0.02	0.43
Not Rated	76.88	3.13	73.75	1.22	2.08	10.98	5.65	102.59



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APPENDICES:

-Basket Clause

-Liquidity Analysis

BASKET CLAUSE ANALYSIS

Trustee Reporting
As of 12/31/2022

Basket Limit	35.00%
Basket Consumed	23.34%
Remaining Capacity	11.66%

	Basket-Eligible Assets*			Basket Assets	Total
	Non-Basket Assets	Non-Contributing	Contributing		
FIXED INCOME	29.98%	4.09%	0.00%	5.18%	39.25%
U.S. Fixed	7.04%	3.59%	0.00%	4.68%	15.31%
Cash/Equivalent	2.12%	---	---	0.00%	2.12%
TIPS	3.41%	---	---	---	3.41%
Convertible Bonds	---	---	---	---	---
OFI	0.03%	0.11%	0.00%	3.61%	3.75%
High Yield	0.56%	3.46%	0.00%	1.06%	5.08%
Bank Loans	0.00%	---	---	0.00%	0.00%
ETI Investments	0.67%	---	---	0.01%	0.68%
Core/Core Plus	0.25%	0.02%	---	0.01%	0.28%
U.S. Structured	22.95%	0.51%	---	0.49%	23.95%
Credit	4.51%	0.51%	---	0.23%	5.25%
Mortgages	4.79%	---	---	0.27%	5.06%
ST Treasury	1.79%	---	---	---	1.79%
Treasury/Agency	0.16%	---	---	---	0.16%
MT Treasury	9.34%	---	---	---	9.34%
LT Treasury	2.36%	---	---	---	2.36%
EQUITY	24.33%	18.26%	9.64%	8.51%	60.75%
Public Equity	24.33%	10.00%	9.64%	0.03%	44.00%
U.S. Equity	23.35%	0.58%	0.56%	0.00%	24.50%
EAFE	0.16%	4.74%	4.57%	0.01%	9.48%
Emerging Markets	0.25%	4.48%	4.32%	0.02%	9.08%
Global	0.56%	0.19%	0.19%	0.00%	0.94%
Real Estate Equity	---	---	---	---	---
Alternative Investments	0.00%	8.26%	---	8.48%	16.74%
Infrastructure	0.00%	2.12%	---	0.00%	2.12%
Private RE/Core	0.00%	3.70%	---	0.01%	3.71%
Private RE/Non-Core	0.00%	2.44%	---	0.00%	2.44%
Private Equity	0.00%	---	---	8.47%	8.47%
TOTAL ASSETS	54.31%	22.35%	9.64%	13.69%	100.00%
	Non-Basket:	76.66%	Basket:	23.34%	

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.



AUM as of December 31, 2022

	Current MV	Liquid Assets		
		Today	1 Year	2 Years
PUBLIC EQUITY	\$40,079	\$40,079	\$40,079	\$40,079
U.S.	22,295	22,295	22,295	22,295
EAFE Equity	8,096	8,096	8,096	8,096
Emerging Markets	8,836	8,836	8,836	8,836
Global Equity	851	851	851	851
PUBLIC FIXED INCOME	\$31,459	\$31,136	\$31,430	\$31,430
Short Term Securities	1,437	1,437	1,437	1,437
U.S. Government	12,409	12,409	12,409	12,409
Long Duration Treasury	0	0	0	0
Mortgages				
Core Mortgages	4,257	4,257	4,257	4,257
ETI	617	295	588	588
Credit - Investment Grade	5,023	5,023	5,023	5,023
Corporate - High Yield	4,613	4,613	4,613	4,613
Corporate - Bank Loans	1	1	1	1
UST - Inflation Protected	3,100	3,100	3,100	3,100
ALTERNATIVE ASSETS	\$18,586	\$2,526	\$3,368	\$3,368
Private Equity	7,696	0	0	0
Private Real Estate	5,590	0	0	0
Infrastructure	1,932	0	0	0
Opportunistic Fixed Income	3,368	2,526	3,368	3,368
Total Assets	\$90,123	\$73,740	\$74,876	\$74,876
Total Illiquid \$		\$16,383	\$15,247	\$15,247
Total Illiquid %		18.2%	16.9%	16.9%
Unfunded OFI Commitments	\$975			
Unfunded INF Commitments	\$1,424			
Unfunded PE Commitments	\$3,536			
Unfunded RE Commitments	\$2,787			
Total commitments \$	\$8,722			
Total commitments %	9.7%			



TRS Liquidity Profile - Static Analysis

AUM as of December 31, 2022

Denominator Effect - Decrease AUM by One Third

Total Illiquid \$	\$16,383	\$15,247	\$15,247
Total Illiquid %	27.3%	25.4%	25.4%

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
Total Assets	\$90,123	\$73,740	\$74,876	\$74,876

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

Unfunded OFI Commitments		\$195	\$390
Unfunded INF Commitments		\$285	\$570
Unfunded PE Commitments Drawn		\$707	\$1,414
Unfunded RE Commitments Drawn		\$557	\$1,115
Total commitments \$		\$1,744	\$3,489
Total commitments %		1.9%	3.9%

Total Illiquid \$		\$16,991	\$18,736
Total Illiquid %		18.9%	20.8%

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

Total Illiquid \$	\$16,383	\$16,991	\$18,736
Total Illiquid %	27.3%	28.3%	31.2%

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; Hedge Funds: estimates provided by consultant.

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.

