



City of Cincinnati Retirement System Investment Committee Meeting

Agenda

**February 6, 2024 / 12:00 P.M.
City Hall, Council Chambers and via Zoom**

Members

Bill Moller, Chair
Tom Gamel, Vice Chair
Kathy Rahtz
Mark Menkhaus, Jr.
Monica Morton
Tom West
Seth Walsh
Aliya Riddle
Sonya Morris

Staff

Jon Salstrom

Marquette

Brett Christenson

Law

Kevin Frank

Call to Order

Public Comment

Approval of Minutes

- November 7, 2024

Old Business

- Update Investment Manager Contracts
 - Private Equity

New Business

- JPM Infrastructure Team Presentation
- Current Market Environment Report
- Quarterly Investment Report
- IPS amendment of Policy Benchmark and Bandwidths
- Value Bias Update and Recommendation
- Training – Investment Terms and Concepts

Adjournment

Next Meeting: Thursday, May 1, 2025, 12:00 P.M. City Hall Council Chambers and via Zoom



**City of Cincinnati Retirement System
Investment Committee Meeting
Minutes
November 7, 2024 / 12:00 P.M.
City Hall – Council Chambers and remote**

Committee Members Present

Bill Moller, Chair
Tom Gamel, Vice Chair
Kathy Rahtz
Mark Menkhaus, Jr.
Monica Morton
Seth Walsh
Aliya Riddle

Administration

Jon Salstrom

Marquette

Brett Christenson

CALL TO ORDER

Chair Moller called the meeting to order at 12:03 p.m. and a roll call of attendance was taken. Committee members Moller, Gamel, Rahtz, Menkhaus, Morton, Walsh, Riddle and Morris were present.

PUBLIC COMMENT

No public comment.

APPROVAL OF MINUTES

Approval of the minutes of the Investment Committee meeting of August 1, 2024, was moved by Committee member Gamel and seconded by Committee member Menkhaus. The minutes were approved by unanimous roll call vote.

Old Business

Update Investment Manager Contracts

- *Private Credit Contracts* – Director Salstrom explained that all contracts for the Private Credit Managers have been completed, with Bain being the last to finalize. A significant capital call was made by Twin Brook, calling 90% of the \$30 million target (\$27 million). This brings the total closer to 4.5% of the 6.5% funding target. Capital calls are expected to continue, and it's hoped the target will be met sooner than expected. There's around \$20 million from HIG Bayside, with \$4 million received in the last

quarter. The speed of this capital return could affect reaching the 6.5% target. However, over the next year, progress toward the target is expected.

- *Real Estate – PRISA III* – Director Salstrom explained that the PRISA Reals Estate contract has been completed, but it hasn't been executed on the PRISA side yet. It is expected to close on 12/31, with a slower capital draw anticipated. The goal is to reach the 6.5% target over the next year, although the pace will vary depending on market conditions and the speed at which money is called.

New Business

Brett from Marquette was in attendance to present.

Current Market Environment Report

- **Yield Curve & Fixed Income:**
 - The yield curve has fallen significantly over the past year, largely due to the Federal Reserve's rate cuts, which helped boost Fixed Income returns (the aggregate index rose 11.6% over the last year).
 - The speed of the yield curve's drop was faster than expected, though the Fed's rate cuts have been relatively modest (currently at 4.5% with a potential 0.25% reduction in the coming months).
 - Markets anticipate rates will eventually settle around 3.5% but the likelihood of a significant rate cut has decreased due to the economy's strength.
 - There has been volatility in the bond market reactions to rate expectations, with some big swings in bond returns, particularly in October.
- **Equity Market Performance:**
 - The market has performed well, with the Russell 3000 up 21% YTD, and the 1-year return at 35%. International markets (ACWI ex. US) have also seen strong returns, up 14%.
 - There's a notable gap between large-cap growth and small-cap value, with large-cap growth up 24.5% YTD and small-cap value up only 9.2%.
 - The portfolio has a 2.4% allocation to small-cap value, giving it a 7% overweight in this area. It also has a 2.5% allocation to large-value stocks, which are up 16.7% YTD.
 - The portfolio has a 15% value bias toward U.S. equities, which benefited in Q3. Small caps seem to be favored with the gradual rate decrease cycle, and this bias will continue to be monitored.
- **Real Estate:**
 - The NCREIF NPI showed a slight decline of 30 basis points in Q2, but Q3 results were positive (a small 0.25% return).
 - Income in real estate remains strong at 4-4.5%.
 - All submarkets of real estate have stabilized, except for office spaces, which continue to show weakness. However, office space makes up a smaller portion of the overall portfolio.
 - Overall, it's believed that real estate is nearing the end of its reset phase and will begin to see positive returns in the future.
- **Private Equity:**
 - Valuations: Valuations in Private Equity have been suppressed, similar to real

estate due to the high interest rate environment. Higher rates mean higher debt payments for leveraged companies, which affects valuations.

- Deal Flow: There has been a slowdown in deal flow over the past 18 months, but it's starting to improve as rates are expected to gradually decline.
- Distributions: Distributions from older Private Equity investments have decreased over the last 12-18 months, which is normal across the industry, not just for this portfolio. As deal flow picks up, distributions are expected to ramp up, and valuations should improve slightly.
- Private Credit
 - Investment Strategy: The focus is to get as much of the capital deployed as quickly as possible. The managers are underwriting loans with yields of 12-13%, and they are floating-rate, meaning as interest rates decrease, new loans will be underwritten at lower rates.
 - Yield: Despite the expected rate decreases, the portfolio is still yielding elevated returns, which is favorable for the plan.

Quarterly Investment Report

- Private Equity and Private Debt:
 - Private Equity: The portfolio hasn't made allocations in private equity for a few years, and there's a recommendation to resume these allocations to keep pacing. Recent distribution activity has been lower, but it's expected to pick up as the market improves.
 - Private Credit: The goal is to get capital deployed quickly. Managers like Twin Brook are underwriting loans with high yields (around 12-13%). These floating-rate loans will adjust with interest rate changes but will remain strong in terms of yield.
- Portfolio Activity and Allocations:
 - Redemptions: The portfolio has redeemed significant amounts, including \$5 million from Shenkman and several redemptions for real estate managers, but still has about \$8-9 million overweight in real estate.
 - Private Debt: The commitment to H.I.G. Bayside is in the distribution phase, and \$4-5 million is expected back. New allocations to private debt include \$30 million across five managers, with some funds already deployed by Twin Brook and JP Morgan.
 - Asset Allocation: The portfolio is slightly underweight in private debt and fixed income and overweight in private equity by about \$74 million, though this is a result of past allocations and is expected to be managed as distributions occur.
- Performance & Returns:
 - Portfolio Growth: The portfolio grew from \$2.3 billion to \$2.395 billion year-to-date, with \$220 million in gains and \$120 million in outflows.
 - Asset Allocation vs. Target: The portfolio is underweight by about \$40 million in fixed income and \$91 million in private debt. There's a slight overweight in private equity and real estate.
 - Risk/Return: The portfolio has taken on slightly more risk than the median, but recent adjustments to reduce risk should help improve the return-to-risk profile.
 - Performance by Sector: Equities, fixed income, and private debt all performed

well, with fixed income seeing a significant contribution to returns. Real estate showed positive returns, and private equity distributions are starting to flow again, though at a slower pace.

- Equity and Fixed Income:
 - Equities: The portfolio is outperforming the Russell 3000, especially with large- and small-cap value stocks.
 - Fixed Income: Fixed income returns were strong, with managers like Diamond Hill, Loomis, and Shenkman performing well in the volatile market.
- Real Estate & Infrastructure:
 - Real Estate: Real estate saw positive returns, and while office spaces continue to be a drag, other submarkets have stabilized. The portfolio is seeing improvement after a long period of stagnation.
 - Infrastructure: Infrastructure investments are performing well, with a strong YTD return of 5.2%, though some individual funds like Alinda are still small and volatile.
- Private Equity:
 - The private equity portfolio has been growing over time, with significant allocations starting in 2007-2008 and more consistent investments from 2014 onward. Distributions have slowed in recent years but are starting to pick up again.

Key points to note:

- Private Equity Adjustments: It was acknowledged that private equity is overweight, but also mentioned that distributions have been slow, especially in a higher interest rate environment. With allocations to private debt, CRS is balancing this risk and aiming for more income-producing assets like fixed income and private debt.
- Fixed Income and Duration: The discussion on duration risk, especially with managers like Diamond Hill and Loomis, is crucial in a higher interest rate environment. The higher duration in Loomis means more sensitivity to rate changes, whereas Diamond Hill's portfolio seems a bit more stable in that respect. We're balancing between corporate bonds (Loomis) and more asset-backed securities (Diamond Hill), aiming for stable returns as interest rates fluctuate.
- Performance Overview: The positive returns were highlighted for the quarter, with fixed income seeing strong performance, especially from managers like Shenkman. The value allocations in equities (large-cap and small-cap) are starting to look favorable as well.
- Peer Comparison: On page 17, there's an analysis of how the portfolio stacks up against peers, which helps to give context for performance relative to similar-sized plans. The slight underweight to hedge funds and the overweight to infrastructure might suggest a tilt toward more real assets and income-producing strategies.

Private Equity Pacing Plan '25 / Private Equity Recommendations for 2025 Investing

- Pacing Model Overview: This pacing model is key to maintaining consistent and gradual investments in private equity without overexposing the portfolio to any specific vintage year. The idea is to spread commitments over time (e.g., around \$25 million annually) to ensure that cash flows from capital calls and distributions become more balanced as the program matures.

- **Capital Calls & Distributions:** Private equity commitments are typically drawn down over 3-5 years. Distributions, however, don't come back until investments are liquidated, which can take years. This slow cycle means you can't just commit all your capital at once; you have to pace it to avoid locking in large amounts of capital during market downturns. The pacing model helps mitigate that risk by spreading the capital calls evenly.
- **Managing Private Equity Exposure:** The goal is to maintain an 8% target allocation to private equity over time, even though the portfolio is currently overweight at 11%. With proper pacing and a gradual commitment strategy, the portfolio should ideally return to a more balanced exposure as the funds mature and start making distributions.
- **Adjustments for Market Conditions:** Models can't perfectly predict market conditions (e.g., COVID or the drastic shift in interest rates), so there's some flexibility built into the pacing. Even if distributions take longer than expected, pacing your commitments can help manage risk and stabilize the portfolio's private equity exposure over the long term.
- **Future Projections:** The model suggests gradually decreasing the annual commitment amounts to around \$20-\$25 million as the portfolio matures, ultimately hitting around \$20-\$22 million per year by 2030. This will align more closely with the 8% target over time as older funds begin to distribute more capital.
- **Distributions Lagging:** The recent dip in distributions (compared to expectations) is important to keep in mind, especially given that the pacing model assumes distributions should start to pick up significantly over the next few years. The lag in distributions (especially from newer funds) is something to monitor closely to ensure that the portfolio stays on track for its long-term target.

Chair Moller made a motion to accept the quarterly Investment Report from Marquette, as well as to approve the private equity recommendations: \$12-\$15 million to Siguler Guff Fund VI, \$7-\$10 million to JPM Co-Investment II, and \$5 million to Timber Bay Fund III. Trustee Gamel seconded the motion. The motion was approved by unanimous roll call vote.

IPS addition of Selection and Monitoring procedures

Brett explained the target benchmark approach and how it will allow for flexibility and ensures that the benchmark evolves in tandem with any changes in asset allocation. It helps the committee stay aligned with the investment strategy and gives an updated baseline for performance comparison.

Chair Moller made a motion to update the current target benchmark to better reflect the portfolio's investments. The motion included that the target benchmark be reviewed and updated if necessary after the asset allocation study is completed and accepted by the Board, or at least annually after the 4th quarter Investment Report is accepted. Trustee Morris seconded the motion. The motion was approved by unanimous roll call vote.

Value Bias Update and Recommendation

The goal is to eventually move toward using just the Russell 3000 index as the benchmark for the portfolio. Historically, the portfolio has been trying to outperform this index, but it's been challenging, particularly with the value bias strategy. The value bias used to be much more

significant (over 50%) but has now been reduced to around 8%. The goal is to be more timely with these adjustments, aiming to avoid locking into a strategy that's underperforming. While the long-term target is to simplify to the Russell 3000, Brett suggested that the committee still review the value bias and make adjustments every quarter to ensure the portfolio remains aligned with market conditions and goals.

Chair Moller referenced the Investment Policy in the packet and made a motion to accept the amendments made to the CRS Staff definition and the Investment Manager Selection Monitoring and Communication. Trustee Rahtz seconded the motion. The motion was approved by unanimous roll call vote.

Training – Investment Terms and Concepts

The purpose of the training was to discuss various components of a complex plan, involving a \$2.5 billion fund, with only four meetings per year. This makes it challenging to stay fully on track amidst global changes. The discussion started with broad concepts before delving into infrastructure and private equity.

Brett began with slide 4, outlining the committee's goal of achieving a 7.5% annual rate of return after fees and expenses, while minimizing risk. The primary strategy is to build a diversified portfolio. Asset allocation is key, as it drives 91% of long-term returns, making the choice of subasset classes far more impactful than selecting specific managers or rebalancing. The focus is on achieving returns with the least risk possible.

Brett touched on the power of compound interest-emphasizing that even small differences in returns (e.g., 5% vs. 7% over 40 years) have dramatic effects. However, unlike pension funds, this plan doesn't have the luxury of long-term compounding, as money coming in is typically paid out for benefits. With current payouts around 6.75-7%, earning 7.5% or higher would allow the plan to grow.

Risk was discussed, particularly standard deviation, which measures the variability of dispersion of returns from the expected outcome.

Benefits of Diversification:

- Protects the portfolio across different extremes of the market.
- Reduces risk by spreading investments across various assets and sectors.

Cost Considerations:

- Importance of minimizing management fees, transaction charges, and man-hours of oversight when implementing diversification strategies.
- Emphasis on finding a balance between diversification and associated costs, ensuring cost-effectiveness.

Correlation is the metric used to assess diversification between asset classes.

Correlation scale:

- +1 indicates that two asset classes move in the same direction (highly correlated).
- -1 indicates that two asset classes move in opposite direction negatively correlated).

A correlation less than 1 between asset classes is desirable for diversification purposes, as it means the assets are not perfectly correlated and can help reduce overall portfolio risk. Adding asset classes with favorable risk and return characteristics is beneficial, but only if they have correlations less than 1 with other asset classes in the portfolio. This ensures that each asset class adds true diversification by behaving differently under various market conditions. If an asset class offers good return and low risk, it's a positive addition. However, if another asset class offers the same return and risk characteristics, it may not add value to the portfolio.

The aim is to achieve the optimal portfolio on the risk/return spectrum by combining asset classes. Lower correlation between asset classes reduces overall portfolio risk. Choose the portfolio on the "Efficient Frontier" that meets your organization's target return.

Private Equity Overview:

- Private Equity refers to investments in private business, either directly or through funds. It involves investing in companies that are not publicly traded.
- Private Equity Funds: When investing in Private Equity funds (e.g., Siguler Guff), those funds, in turn, invest in other Private Equity funds that invest in businesses.

Buyouts in Private Equity:

- Leveraged Buyouts focus on gaining control of a business, typically using a significant amount of borrowed funds to finance the acquisition.
- Buyouts represent the largest segment of the Private Equity market.
- The primary goals of buyouts include:
 - Taking control of the business.
 - Offering cash flow to support business growth.
 - Providing strategic advice, tools, and expertise to improve operations and create value.

Complexities of Private Equity:

- Private Equity is relatively complicated due to its structure and the various layers of investment (funds-to-funds structure, control strategies etc..)
- Understanding how Private Equity fits within the portfolio's diversification strategy is critical, as it may introduce unique risk/return profiles and require a more in-depth analysis to assess its impact on overall portfolio performance.

Infrastructure Overview:

- Infrastructure represents the physical assets essential for operating society and supporting economic, industrial, and social growth.
- 10% of the Portfolio: The portfolio has exposure to infrastructure through private investments in key assets.
- Managers: There are 3 managers overseeing the infrastructure investments, focusing on private infrastructure assets.

Why we like Infrastructure Investments:

- Essential assets: Infrastructure assets are crucial for the functioning of society. Without them, economic activity would not be sustainable.

- Long Asset Life: These assets tend to have long lives, offering stability and predictability in terms of cash flows.
- Key Characteristics of Infrastructure Assets:
 - Essential service to society
 - Inflation protection: Infrastructure can act as a hedge against inflation due to steady demand and price adjustments.
 - Long asset life
 - Low elasticity of demand: The demand for these services remains relatively constant.
 - Monopoly or quasi-monopoly: Many infrastructure sectors are dominated by a few players or are naturally monopolistic.
 - Regulatory oversight: These assets are often heavily regulated, offering a degree of protection and predictability.
 - Stable and predictable cash flows: Infrastructure assets tend to generate stable income over time.

Types of Infrastructure:

- Economic Infrastructure: Includes Transportation, Energy & Utilities, and Communications. These are the backbone of economic activities and industrial growth.
- Social Infrastructure: Includes municipalities, universities, schools and hospitals. These assets provide essential services for social well-being.

Infrastructure Characteristics:

- Economic Infrastructure Assets can be categorized into:
 - Throughput assets: Assets that handle the flow of goods/services (e.g., roads, railways).
 - Regulated assets: Assets that are subject to governmental regulation (e.g., utilities).
 - Contracted assets: Assets that operate under long-term contracts (e.g., energy facilities).
- Global Infrastructure Investment: Growing needs for infrastructure in power, roads, and telecommunications may lead to public-private partnerships, expanding investment opportunities.

Infrastructure Benefits vs. Risks:

- Benefits:
 - Expanding opportunity set
 - Long asset life
 - Stable & predictable cash flows
 - Hedge against inflation
 - Strong, consistent performance
 - Low correlation to other asset classes (which aids diversification)
- Risks:
 - Fund-level risks: Specific to management of the fund.
 - System-level risks: Risks related to the broader infrastructure environment.
 - Unsystemic risks: Risks that might be isolated to certain sectors or assets.

Infrastructure Performance:

- Private Infrastructure has consistently generated attractive risk-adjusted returns compared to other asset classes like equities, fixed income, and private real estate.
- Infrastructure Yield: The consistent income growth from underlying infrastructure holdings has resulted in favorable inflation-adjusted yields, outperforming the S&P 500.

Adjournment

Following a motion to adjourn by Trustee Menkhaus and seconded by Trustee Rahtz. The Committee approved the motion by unanimous roll call vote. The meeting was adjourned at 2:01 p.m.

Meeting video link: <https://archive.org/details/crs-investment-comm-11-7-24>

Next Meeting: Thursday, February 6, 2025, at 12:00 P.M. City Hall Council Chambers and via Zoom

Secretary



Cincinnati Retirement

Quarterly Report

Executive Summary
December 31, 2024

Market Tracker

December 2024

U.S. Equity Returns

	Dec	YTD	1 Yr
S&P 500	-2.4%	25.0%	25.0%
Russell 3000	-3.1%	23.8%	23.8%
NASDAQ	0.6%	29.6%	29.6%
Dow Jones	-5.1%	15.0%	15.0%

Non-U.S. Equity Returns

	Dec	YTD	1 Yr
ACWI	-2.4%	17.5%	17.5%
ACWI ex. US	-1.9%	5.5%	5.5%
EAFE Index	-2.3%	3.8%	3.8%
EAFE Local	0.4%	11.3%	11.3%
EAFE Growth	-2.8%	2.0%	2.0%
EAFE Value	-1.8%	5.7%	5.7%
EAFE Small Cap	-2.3%	1.8%	1.8%
Emerging Markets	-0.1%	7.5%	7.5%
EM Small Cap	-1.0%	4.8%	4.8%

Regional Returns

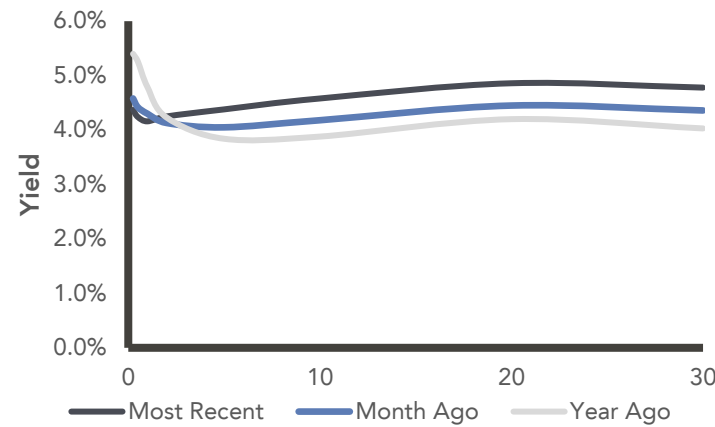
	Dec	YTD	1 Yr
Europe	-2.4%	1.8%	1.8%
Asia ex-Japan	0.1%	12.0%	12.0%
EM Latin America	-6.1%	-26.4%	-26.4%
UK	-2.8%	7.5%	7.5%
Germany	-1.0%	10.2%	10.2%
France	0.1%	-5.3%	-5.3%
Japan	-0.3%	8.3%	8.3%
China	2.7%	19.4%	19.4%
Brazil	-8.2%	-29.8%	-29.8%
India	-2.9%	11.2%	11.2%

Real Estate Returns

	Qtr	YTD	1 Yr
NCREIF NPI National*	0.8%	-0.5%	-3.5%
FTSE NAREIT	-8.2%	4.3%	4.3%

*Returns as of September 30, 2024

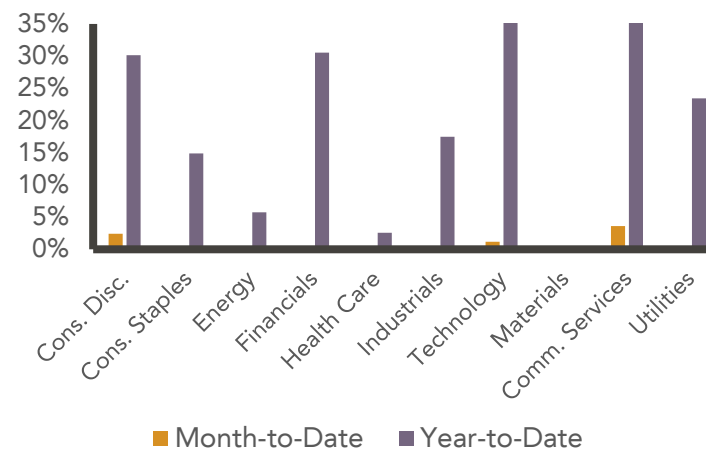
Yield Curve



Style Index Returns

	Month-to-Date			Year-to-Date		
	Value	Core	Growth	Value	Core	Growth
Large	-6.8%	-2.8%	0.9%	14.4%	24.5%	33.4%
Mid	-7.3%	-7.0%	-6.2%	13.1%	15.3%	22.1%
Small	-8.3%	-8.3%	-8.2%	8.1%	11.5%	15.2%

U.S. Equity Sector Returns



Fixed Income Returns

	Dec	YTD	1 Yr
Aggregate	-1.6%	1.3%	1.3%
Universal	-1.5%	2.0%	2.0%
Government	-1.5%	0.6%	0.6%
Treasury	-1.5%	0.6%	0.6%
Int. Gov/Credit	-0.6%	3.0%	3.0%
Long Gov/Credit	-4.8%	-4.2%	-4.2%
TIPS	-1.6%	1.8%	1.8%
Municipal 5 Year	-0.7%	1.2%	1.2%
High Yield	-0.4%	8.2%	8.2%
Bank Loans	0.6%	9.1%	9.1%
Global Hedged	-0.8%	3.4%	3.4%
EM Debt Hard Currency	-1.4%	6.5%	6.5%

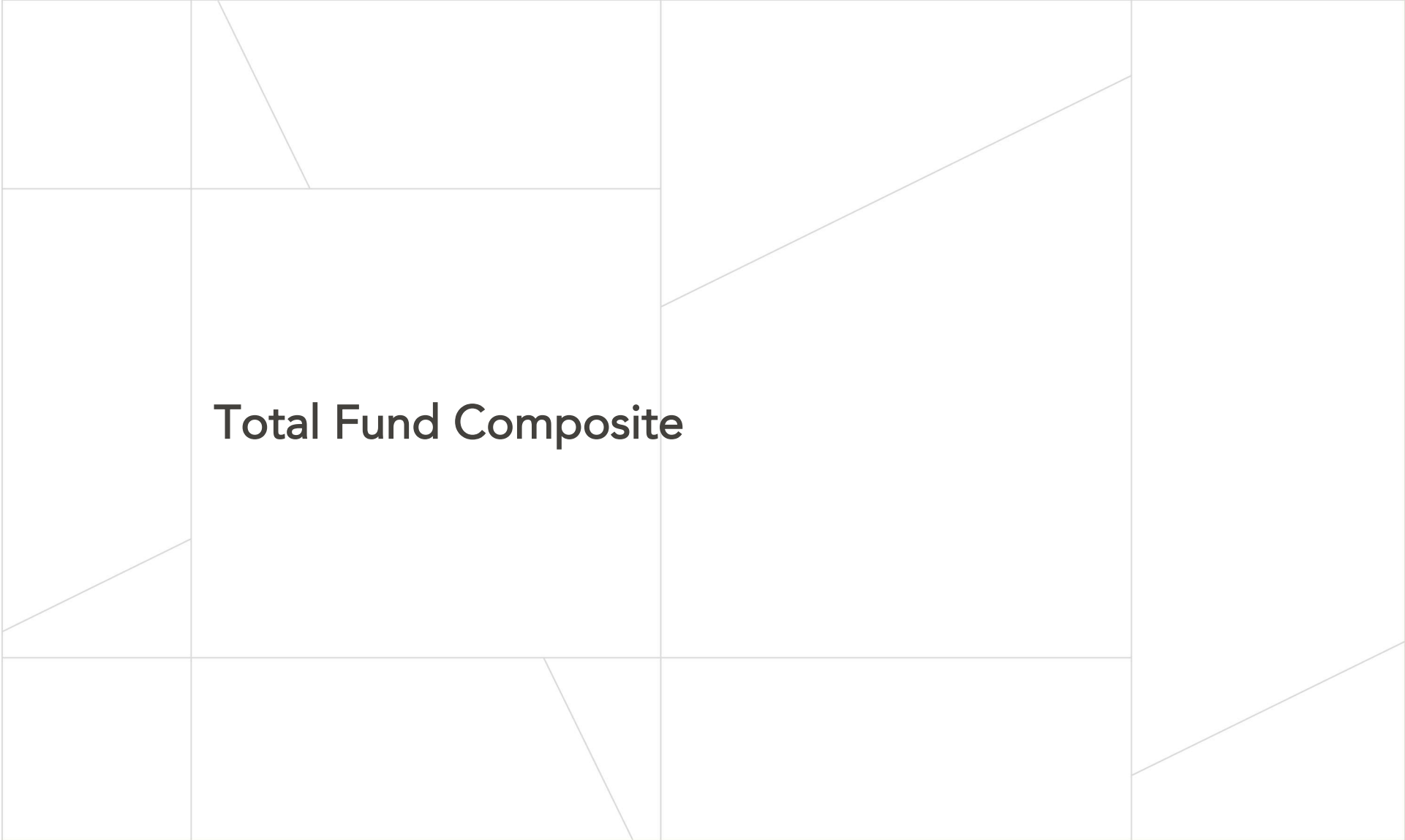
Hedge Fund Returns

	Dec	YTD	1 Yr
HFRX Equal Wtd.	-0.2%	4.6%	4.6%
HFRX Hedged Equity	-0.4%	7.8%	7.8%
HFRX Event Driven	0.4%	3.6%	3.6%
HFRX Macro	0.2%	3.7%	3.7%
HFRX Relative Value	-0.3%	4.9%	4.9%
CBOE PutWrite	-0.1%	17.8%	17.8%

Commodity Returns

	Dec	YTD	1 Yr
GSCI Total	3.3%	9.2%	9.2%
Precious Metals	-2.2%	25.3%	25.3%
Livestock	-0.7%	20.2%	20.2%
Industrial Metals	-3.0%	3.5%	3.5%
Energy	6.5%	1.2%	1.2%
Agriculture	1.2%	-3.9%	-3.9%
WTI Crude Oil	6.1%	13.7%	13.7%
Gold	-1.1%	26.6%	26.6%

- **Fixed Income:** The Fed continued to cut in 4Q, but rates pushed higher out the curve due to inflation and deficit fears. This provided a headwind to fixed assets during the quarter. Spreads remain tight and trade inside long-term averages, but credit fundamentals remain resilient. Spreads could remain tight for an extended period, but fixed income yield remain attractive. Diversification will be key going forward.
- **U.S.:** Given the expectation for strong economic growth, the U.S. equity market remains attractive following two consecutive standout years. If earnings growth broadens out across non-Mag 7 companies, investors may exhibit a rotation out of growth- and momentum-oriented stocks and may increasingly favor small-cap and value equities. Small caps specifically remain attractively valued relative to their large-cap counterparts.
- **Non-U.S.:** Non-U.S. developed large-cap equities face headwinds (e.g., trade policy uncertainty and economic challenges), while non-U.S. developed small caps are poised to benefit from lower rates and may be more insulated from economic turmoil given their domestic revenue bases. EM stocks face a mixed outlook, with tailwinds for countries like Taiwan, Japan, and India, though China and Latin America face short-term struggles.
- **Real Assets:** 2025 appears poised to be an attractive entry point for commercial real estate investment with valuations stabilizing, debt markets improving, and property fundamentals strengthening. Core infrastructure assets in the U.S. remain stable given inflation-linked revenue streams and growing interest in energy transition opportunities.
- **Private Equity:** Buyout valuations remain below public market multiples. 2025 should be a strong year for dealmaking, though inflation and uncertainty surrounding the future path of interest rates could significantly influence exit activity and fundraising this year.
- **Private Credit:** Though new issue spreads have tightened in recent quarters, direct lending yields remain attractive. Increased M&A expectations and pent-up demand for private equity exits supports strong origination volumes in 2025, while indicators of potential credit stress remain benign in aggregate.



December 2024 Marquette Associates Quarterly Investment Report

1. Plan Asset Allocation versus Policy Targets
 - a. See p. 11, Portfolio Allocation

2. Investment results compared to Target Benchmark
 - a. See p. 10, Total Fund Composite, Annualized Performance

3. Investment results compared to Peers
 - a. See p. 22-39, Total Fund Composite, Annualized Performance

4. Investment Policy and Bandwith Discussion

5. Investment Terms & Concepts

Quarterly Activity Summary

- AG Direct Lending made its initial capital call on October 31, 2024
- Bain Global Direct Lending made its initial capital call on December 20, 2024
- Morgan Stanley, Principal, and JPM SPF all continued to make partial payments toward their outstanding redemption amounts. Morgan Stanley's payment occurred in December, the others in early January 2025. The September 2022 Principal redemption will be complete after receipt of these funds.
- The plan's Private Debt funds called \$40.1 million during 4Q24 while distributing \$2.4 million.
- The plan's Private Equity funds called \$7.3 million during 4Q24 while distributing \$12.3 million.

Outstanding Redemptions

	Requested	Submitted	Effective	Received	Outstanding
MS Prime Property	13,500,000	6/27/2022	9/30/2022	9,760,250	3,739,750
Principal Enhanced Property	5,000,000	6/23/2022	9/30/2022	4,215,709	784,291
Principal Enhanced Property	8,000,000	12/14/2022	3/31/2023	6,745,134	1,254,866
JPM Strategic Property Fund	Full Redemption*	11/6/2023	12/31/2023	9,577,805	44,271,867

* Supercedes incomplete partial redemption previously submitted

Outstanding Commitments (Private Debt)

	Commitment	Unfunded
Private Debt	184,900,000	81,169,490
H.I.G. Bayside Opportunity VI	40,000,000	14,146,965
Owl Rock Diversified Lending	30,000,000	11,700,000
Carlyle Direct Lending IV	30,000,000	6,533,181
AG Direct Lending	30,000,000	3,000,000
JP Morgan Lynstone	30,000,000	24,438,880
Bain	24,900,000	21,350,463

Pension Fund-Total Fund Composite

Manager Status

Investment Manager	Asset Class	Status	Reason
NTGI Agg Bond	Core Fixed Income	In Compliance	--
Diamond Hill Core Bond	Core Fixed Income	In Compliance	--
Loomis Sayles Core-Plus	Core Plus Fixed Income	In Compliance	--
Columbus Core Plus Bond	Core Plus Fixed Income	In Compliance	--
Shenkman - Four Points	High Yield Fixed Income	In Compliance	--
H.I.G. Bayside Opportunity VI	Private Debt	In Compliance	--
Owl Rock Diversified Lending	Private Debt	In Compliance	--
Carlyle Direct Lending IV	Private Debt	In Compliance	--
J.P. Morgan Lynstone	Private Debt	In Compliance	--
AG Direct Lending	Private Debt	In Compliance	--
Bain Global Direct Lending	Private Debt	In Compliance	--
NTGI Russell 3000	All-Cap Core	In Compliance	--
NTGI Russell 1000 Value	Large-Cap Value	In Compliance	--
NTGI Russell 2000 Value	Small-Cap Value	In Compliance	--
NTGI ACWI Ex-US	Non-U.S. All-Cap Core	In Compliance	--
Mondrian	Non-U.S. Large-Cap Value	In Compliance	--
Harding Loevner	Non-U.S. Large-Cap Core	In Compliance	--
NB US Index PutWrite	Volatility Risk Premium	In Compliance	--
J.P. Morgan SPF	Core Real Estate	Termination	--
Morgan Stanley P.P.	Core Real Estate	In Compliance	--
PRISA III	Value-Added Real Estate	In Compliance	--
Principal Enhanced	Value-Added Real Estate	In Compliance	--
StepStone RE Intl Partnership I	Non-U.S. Core Real Estate	In Compliance	--
J.P. Morgan Infrastructure	Core Infrastructure	In Compliance	--
IFM Global Infrastructure (U.S)	Global Infrastructure	In Compliance	--
Alinda Fund II	Core Infrastructure	In Compliance	--
Ullico - Infrastructure	Core Infrastructure	In Compliance	--

Pension Fund-Total Fund Composite

Manager Status

Investment Manager	Asset Class	Status	Reason
Fort Washington Fund V	Divers. Private Equity	In Compliance	--
Portfolio Advisors IV - Special Sit	Special Situations PE	In Compliance	--
Fort Washington Fund VI	Divers. Private Equity	In Compliance	--
Portfolio Advisors V - Special Sit	Special Situations PE	In Compliance	--
Fort Washington Fund VIII	Divers. Private Equity	In Compliance	--
Fort Washington Opp Fund III	Secondary PE FoF	In Compliance	--
North Sky Fund V	Divers. Private Equity	In Compliance	--
Fort Washington Fund IX	Divers. Private Equity	In Compliance	--
Fort Washington Fund X	Divers. Private Equity	In Compliance	--
JP Morgan Global Private Equity VIII	Global Divers. PE FoF	In Compliance	--
JP Morgan Global Private Equity IX	Global Divers. PE FoF	In Compliance	--
JP Morgan Global Private Equity X	Global Divers. PE FoF	In Compliance	--
Siguler Guff Small Buyout Opportunities V	LBO Private Equity	In Compliance	--
Blue Chip Fund IV	Venture Private Equity	In Compliance	--
Cash SL	Cash & Equivalents	In Compliance	--
Transition Account Cash	Cash & Equivalents	In Compliance	--
Parametric	Cash Overlay	In Compliance	--

Investment Manager Evaluation Terminology

The following terminology has been developed by Marquette Associates to facilitate efficient communication among the Investment Manager, Investment Consultant, and the Plan Sponsor. Each term signifies a particular status with the Fund and any conditions that may require improvement. In each case, communication is made only after consultation with the Trustees and/or the Investment Committee of the Plan.

In Compliance – Marquette has not been notified of any issues or changes to the investment manager that would materially impede upon its ability to execute the investment strategy or adhere to any applicable investment guidelines.

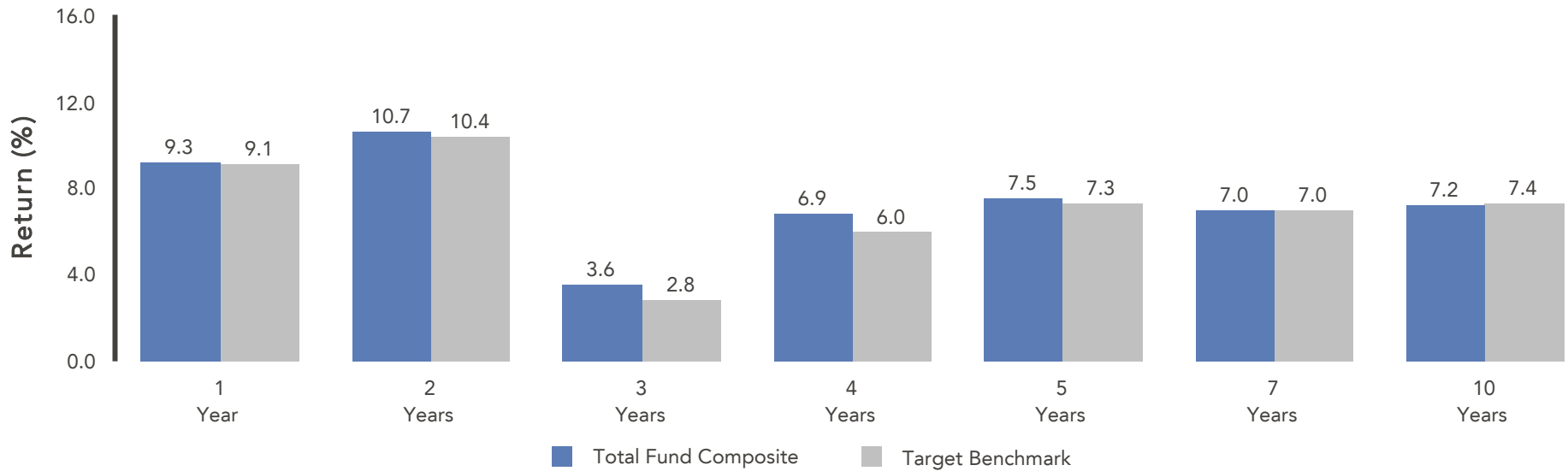
Alert – The investment manager has experienced a problem in performance (usually relative to a benchmark), a change in investment characteristics, an alteration in management style, ownership, or key investment professionals, and/or any other irregularities that may impede upon its ability to execute the investment strategy or adhere to any applicable investment guidelines.

On Notice – The investment manager has experienced continued concern with one or more Alert issues. Failure to improve upon stated issues within a certain time frame may justify termination.

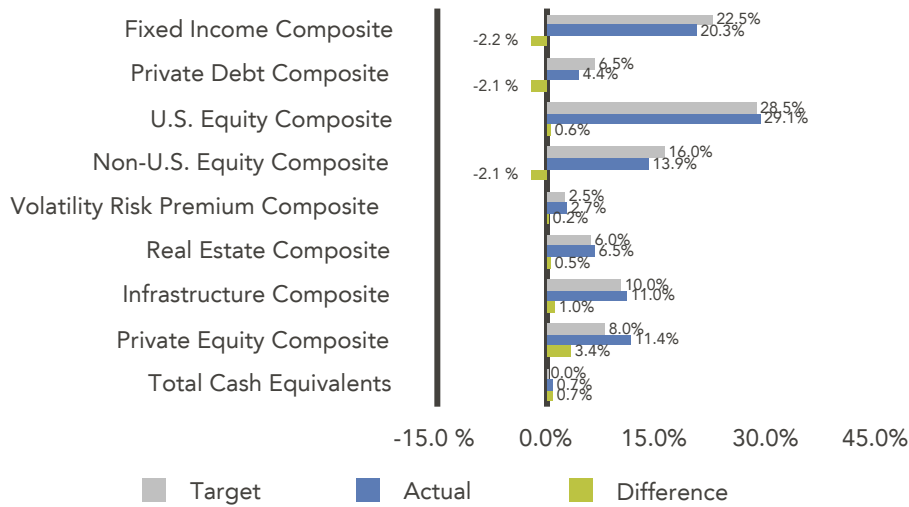
Termination – The investment manager has been terminated and transition plans are in place.

Pension Fund-Total Fund Composite

Performance Summary
As of December 31, 2024



Total Fund Composite vs. Target Allocation



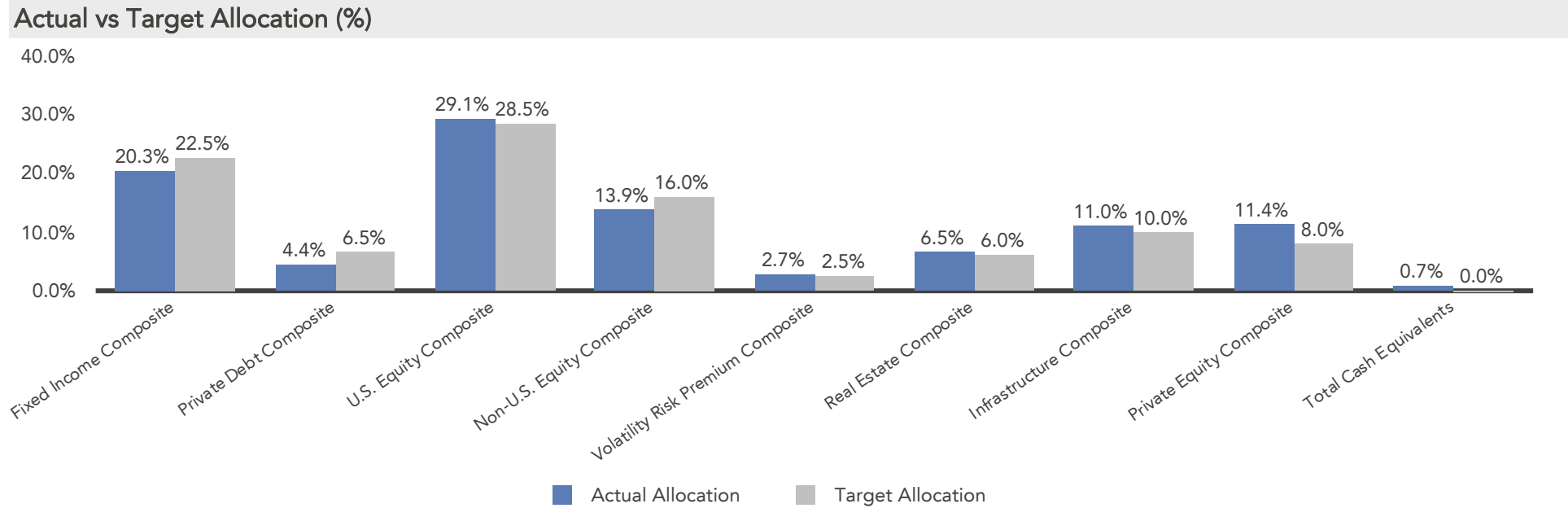
Summary of Cash Flows

	Quarter To Date (\$)	1 Year (\$)
Beginning Market Value	2,405,033,698	2,295,651,897
Net Cash Flow	-37,872,929	-158,922,831
Gain/Loss	-19,454,202	210,977,500
Ending Market Value	2,347,706,566	2,347,706,566

* Certain account values are lagged - see page 28 for details
 ** Burgiss Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

Portfolio Allocation
As of December 31, 2024



	Market Value (\$)	% of Portfolio	Policy %	Target Allocation \$	Difference (\$)
Fixed Income Composite	477,706,668	20.3	22.5	528,233,977	-50,527,310
Private Debt Composite	103,022,681	4.4	6.5	152,600,927	-49,578,246
U.S. Equity Composite	683,846,579	29.1	28.5	669,096,371	14,750,208
Non-U.S. Equity Composite	325,761,049	13.9	16.0	375,633,051	-49,872,002
Volatility Risk Premium Composite	63,178,681	2.7	2.5	58,692,664	4,486,017
Real Estate Composite	152,306,611	6.5	6.0	140,862,394	11,444,217
Infrastructure Composite	257,835,263	11.0	10.0	234,770,657	23,064,606
Private Equity Composite	267,455,274	11.4	8.0	187,816,525	79,638,749
Total Fund Composite	2,347,706,566	100.0	100.0	2,347,706,566	

Pension Fund-Total Fund Composite

Portfolio Allocation
Quarter Ending December 31, 2024

	Asset Class	Market Value (\$)	3 Mo. Net Cash Flow (\$)	% of Portfolio	Policy (%)
Total Fund Composite		2,347,706,566	-37,872,929	100.0	100.0
Fixed Income Composite		477,706,668	-8,670,083	20.3	22.5
NTGI Agg Bond	Core Fixed Income	37,165,893	-8,501,486	1.6	2.0
Diamond Hill Core Bond	Core Fixed Income	124,960,258	-	5.3	7.0
Loomis Sayles Core-Plus	Core Plus Fixed Income	135,300,023	-100,042	5.8	6.0
Columbus Core Plus Bond	Core Plus Fixed Income	132,343,323	-68,555	5.6	5.5
Shenkman - Four Points	High Yield Fixed Income	47,937,171	-	2.0	2.0
Private Debt Composite		103,022,681	37,700,529	4.4	6.5
H.I.G. Bayside Opportunity VI	Private Debt	21,114,530	-1,000,230	0.9	0.0
Owl Rock Diversified Lending	Private Debt	20,654,056	3,000,000	0.9	1.3
Carlyle Direct Lending IV	Private Debt	25,053,989	4,969,503	1.1	1.3
J.P. Morgan Lynstone	Private Debt	5,650,570	181,720	0.2	1.3
AG Direct Lending	Private Debt	27,000,000	27,000,000	1.2	1.3
Bain Global Direct Lending	Private Debt	3,549,537	3,549,537	0.2	1.3
U.S. Equity Composite		683,846,579	-23,026,626	29.1	28.5
NTGI Russell 3000	All-Cap Core	584,344,174	-19,022,054	24.9	24.0
NTGI Russell 1000 Value	Large-Cap Value	49,504,344	-4,002,046	2.1	2.5
NTGI Russell 2000 Value	Small-Cap Value	49,998,061	-2,526	2.1	2.0

Pension Fund-Total Fund Composite

Portfolio Allocation
Quarter Ending December 31, 2024

	Asset Class	Market Value (\$)	3 Mo. Net Cash Flow (\$)	% of Portfolio	Policy (%)
Non-U.S. Equity Composite		325,761,049	-33,038,501	13.9	16.0
NTGI ACWI Ex-US	Non-U.S. All-Cap Core	324,420,807	-33,038,501	13.8	16.0
Volatility Risk Premium Composite		63,178,681	-	2.7	2.5
NB US Index PutWrite	Volatility Risk Premium	63,178,681	-	2.7	2.5
Real Estate Composite		152,306,611	-2,548,219	6.5	6.0
J.P. Morgan SPF	Core Real Estate	44,271,867	-2,381,681	1.9	0.0
Morgan Stanley P.P.	Core Real Estate	32,866,940	-2,134,521	1.4	2.0
PRISA III	Value-Added Real Estate	42,449,732	4,403,308	1.8	2.0
Principal Enhanced	Value-Added Real Estate	31,229,228	-2,435,326	1.3	2.0
StepStone RE Intl Partnership I	Non-U.S. Core Real Estate	1,488,844	-	0.1	0.0
Infrastructure Composite		257,835,263	-3,161,135	11.0	10.0
J.P. Morgan Infrastructure	Core Infrastructure	105,710,635	-2,215,768	4.5	4.0
IFM Global Infrastructure (U.S)	Global Infrastructure	94,455,185	-	4.0	4.0
Alinda Fund II	Core Infrastructure	1	-384,487	0.0	0.0
Ullico - Infrastructure	Core Infrastructure	57,669,441	-560,880	2.5	2.0

Pension Fund-Total Fund Composite

Portfolio Allocation
Quarter Ending December 31, 2024

	Asset Class	Market Value (\$)	3 Mo. Net Cash Flow (\$)	% of Portfolio	Policy (%)
Private Equity Composite		267,455,274	-5,248,755	11.4	8.0
Fort Washington Fund V	Divers. Private Equity	7,492,766	-200,000	0.3	-
Portfolio Advisors IV - Special Sit	Special Situations Private Equity	322,350	-	0.0	-
Fort Washington Fund VI	Divers. Private Equity	3,508,506	-105,000	0.1	-
Portfolio Advisors V - Special Sit	Special Situations Private Equity	370,211	-	0.0	-
Fort Washington Fund VIII	Divers. Private Equity	33,059,969	-2,000,000	1.4	-
Fort Washington Opp Fund III	Secondary PE FoF	4,103,855	-285,000	0.2	-
North Sky Fund V	Divers. Private Equity	26,528,272	-2,785,335	1.1	-
Fort Washington Fund IX	Divers. Private Equity	51,304,869	-3,000,000	2.2	-
Fort Washington Fund X	Divers. Private Equity	41,750,615	2,200,000	1.8	-
JP Morgan Global Private Equity VIII	Global Divers. PE FoF	42,995,754	-2,946,230	1.8	-
JP Morgan Global Private Equity IX	Global Divers. PE FoF	17,790,005	-	0.8	-
JP Morgan Global Private Equity X	Global Divers. PE FoF	21,312,654	1,885,310	0.9	-
Siguler Guff Small Buyout Opportunities V	LBO Private Equity	15,804,480	1,987,500	0.7	-
Blue Chip Fund IV	Venture Private Equity	1,110,968	-	0.0	-
Total Cash Equivalents		16,593,761	119,860	0.7	-

Pension Fund-Total Fund Composite

Portfolio Allocation
As of December 31, 2024

	MA Account Type	Market Value (\$)	% of Portfolio	Policy %	Difference (\$)
Total Fund Composite		2,347,706,566	100.0	100.0	
Fixed Income Composite		477,706,668	20.3	22.5	-50,527,310
NTGI Agg Bond	Core Fixed Income	37,165,893	1.6	2.0	-9,788,238
Diamond Hill Core Bond	Core Fixed Income	124,960,258	5.3	7.0	-39,379,202
Loomis Sayles Core-Plus	Core Plus Fixed Income	135,300,023	5.8	6.0	-5,562,371
Columbus Core Plus Bond	Core Plus Fixed Income	132,343,323	5.6	5.5	3,219,461
Shenkman - Four Points	High Yield Fixed Income	47,937,171	2.0	2.0	983,040
Private Debt Composite		103,022,681	4.4	6.5	-49,578,246
H.I.G. Bayside Opportunity VI	Private Debt	21,114,530	0.9	0.0	20,879,759
Owl Rock Diversified Lending	Private Debt	20,654,056	0.9	1.3	-9,866,129
Carlyle Direct Lending IV	Private Debt	25,053,989	1.1	1.3	-5,466,196
J.P. Morgan Lynstone	Private Debt	5,650,570	0.2	1.3	-24,869,616
AG Direct Lending	Private Debt	27,000,000	1.2	1.3	-3,520,185
Bain Global Direct Lending	Private Debt	3,549,537	0.2	1.3	-26,735,878
U.S. Equity Composite		683,846,579	29.1	28.5	14,750,208
NTGI Russell 3000	All-Cap Core	584,344,174	24.9	24.0	20,894,598
NTGI Russell 1000 Value	Large-Cap Value	49,504,344	2.1	2.5	-9,188,320
NTGI Russell 2000 Value	Small-Cap Value	49,998,061	2.1	2.0	3,043,929
Non-U.S. Equity Composite		325,761,049	13.9	16.0	-49,872,002
NTGI ACWI Ex-US	Non-U.S. All-Cap Core	324,420,807	13.8	16.0	-51,212,244
Volatility Risk Premium Composite		63,178,681	2.7	2.5	4,486,017
NB US Index PutWrite	Volatility Risk Premium	63,178,681	2.7	2.5	4,486,017
Real Estate Composite		152,306,611	6.5	6.0	11,444,217
J.P. Morgan SPF	Core Real Estate	44,271,867	1.9	0.0	44,037,096
Morgan Stanley P.P.	Core Real Estate	32,866,940	1.4	2.0	-14,087,191
PRISA III	Value-Added Real Estate	42,449,732	1.8	2.0	-4,269,629
Principal Enhanced	Value-Added Real Estate	31,229,228	1.3	2.0	-15,490,133
StepStone RE Intl Partnership I	Non-U.S. Core Real Estate	1,488,844	0.1	0.0	1,254,073

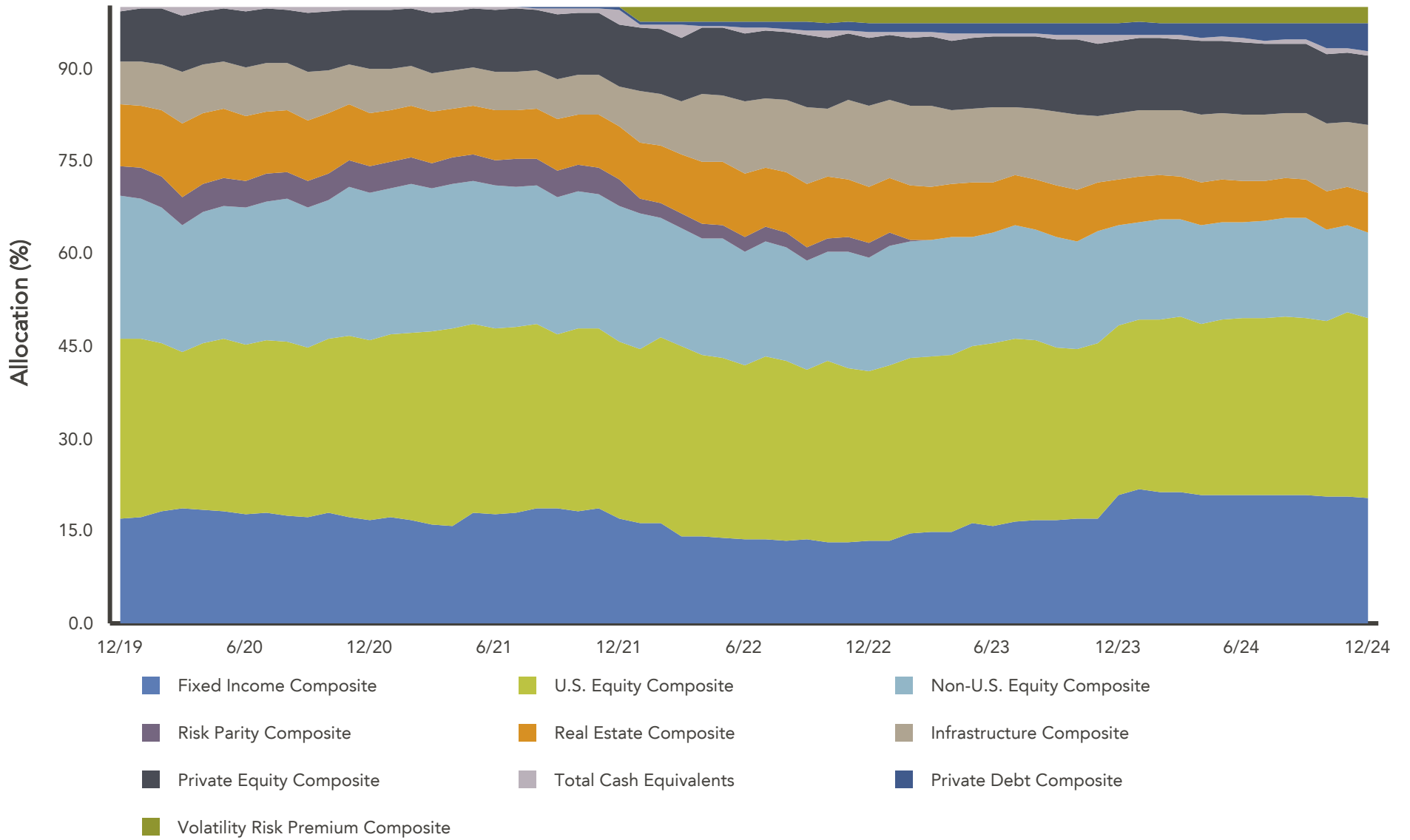
Pension Fund-Total Fund Composite

Portfolio Allocation
As of December 31, 2024

	MA Account Type	Market Value (\$)	% of Portfolio	Policy %	Difference (\$)
Infrastructure Composite		257,835,263	11.0	10.0	23,064,606
J.P. Morgan Infrastructure	Core Infrastructure	105,710,635	4.5	4.0	11,802,373
IFM Global Infrastructure (U.S)	Global Infrastructure	94,455,185	4.0	4.0	546,922
Ullico - Infrastructure	Core Infrastructure	57,669,441	2.5	2.0	10,715,310
Private Equity Composite		267,455,274	11.4	8.0	79,638,749

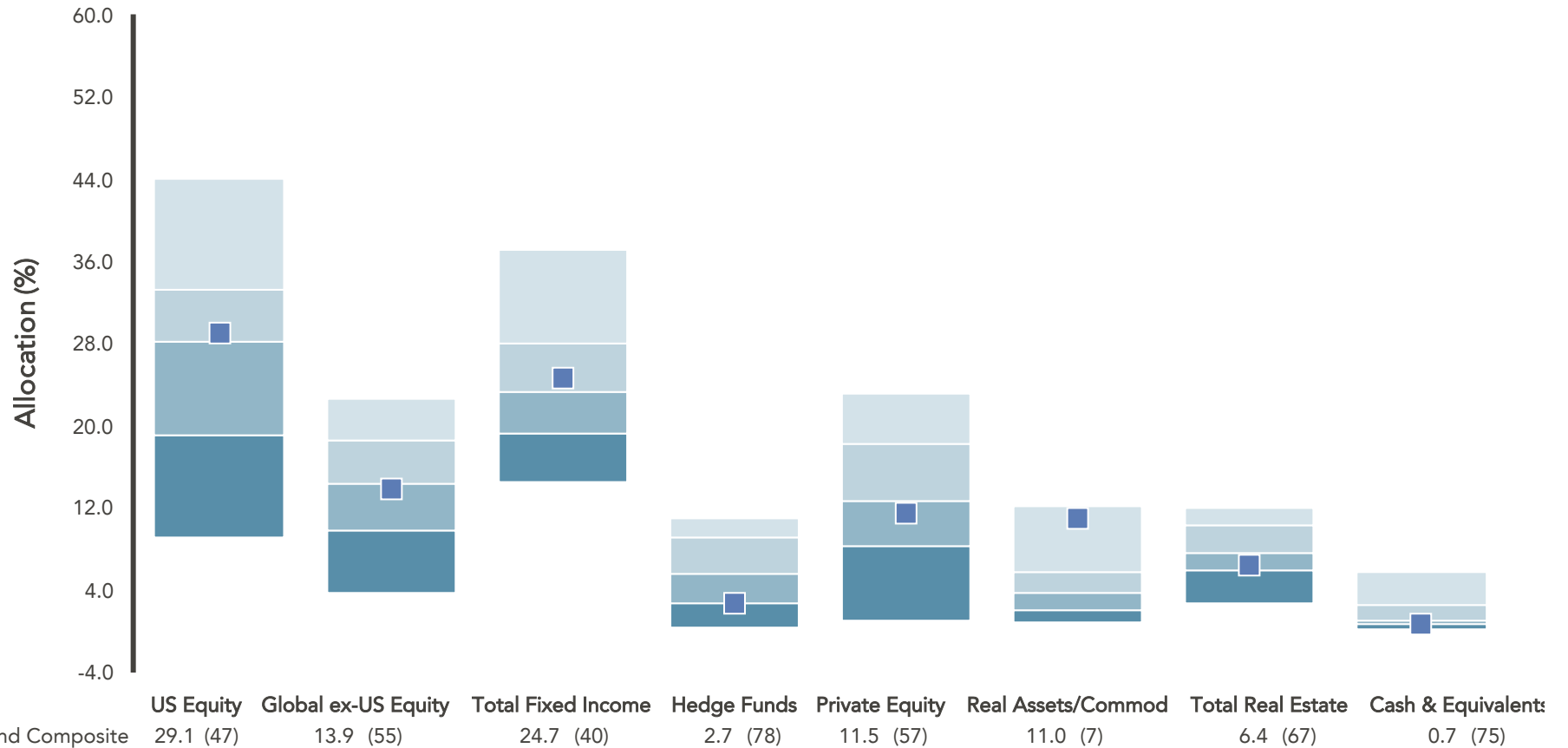
Pension Fund-Total Fund Composite

Historical Asset Allocation
5 Years Ending December 31, 2024



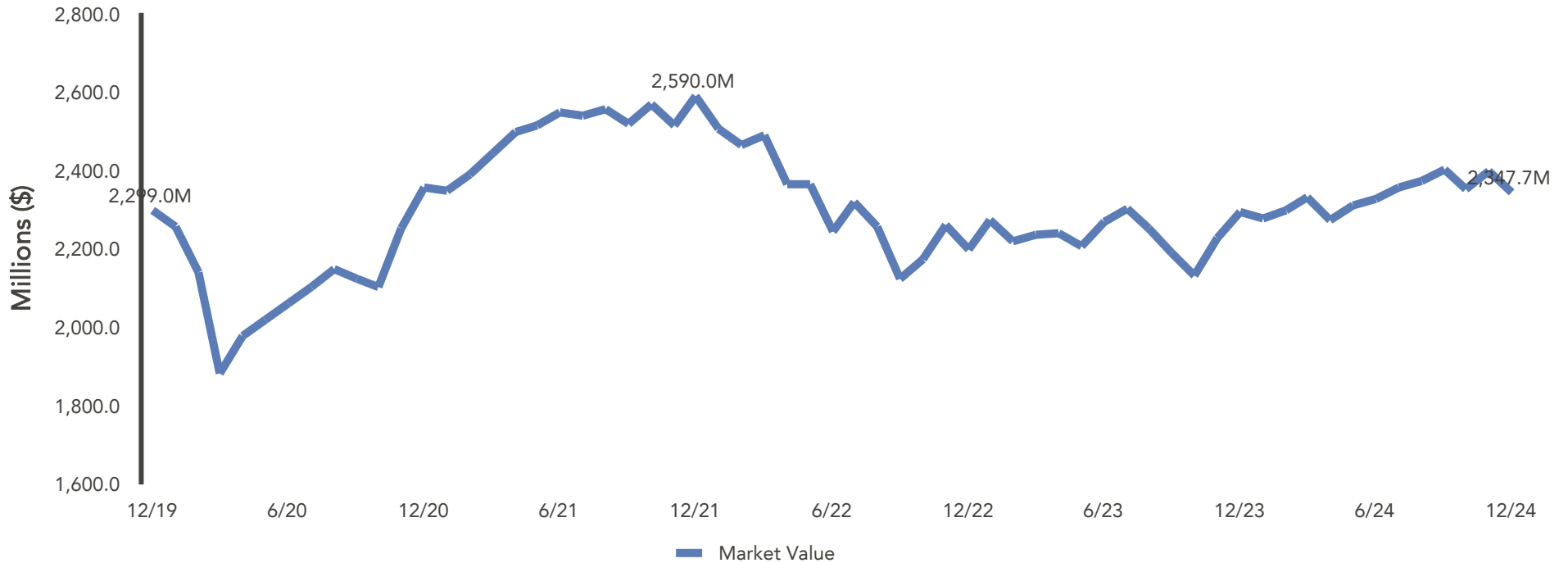
Pension Fund-Total Fund Composite
vs. All Public DB Plans Over \$1B

Asset Allocation
As of December 31, 2024



5th Percentile	44.1	22.6	37.3	11.0	23.2	12.2	12.1	5.8
1st Quartile	33.3	18.7	28.2	9.2	18.4	5.7	10.3	2.5
Median	28.3	14.4	23.3	5.7	12.8	3.8	7.7	1.1
3rd Quartile	19.1	9.9	19.3	2.8	8.3	2.1	6.0	0.7
95th Percentile	9.1	3.8	14.5	0.4	1.1	1.0	2.7	0.2
Population	51	51	52	23	49	30	46	48

Market Value History



Summary of Cash Flows

	Quarter To Date (\$)	1 Year (\$)	3 Years (\$)	5 Years (\$)	7 Years (\$)
Beginning Market Value	2,405,033,698	2,295,651,897	2,589,971,758	2,299,031,093	2,333,959,768
Net Cash Flow	-37,872,929	-158,922,831	-482,419,132	-809,260,507	-1,101,167,153
Net Investment Change	-19,454,202	210,977,500	240,153,940	857,935,980	1,114,913,951
Ending Market Value	2,347,706,566	2,347,706,566	2,347,706,566	2,347,706,566	2,347,706,566

Pension Fund-Total Fund Composite

Attribution

Ending December 31, 2024

	Market Value (\$)	3 Mo Return	Contribution to Return	% Contribution to Return
Total Fund Composite	2,347,706,566	-0.8	-0.8	100.0%
Fixed Income Composite	477,706,668	-2.7	-0.5	-64.9%
NTGI Agg Bond	37,165,893	-3.1	-0.1	-6.4%
Diamond Hill Core Bond	124,960,258	-2.4	-0.1	-15.1%
Loomis Sayles Core-Plus	135,300,023	-3.4	-0.2	-23.2%
Columbus Core Plus Bond	132,343,323	-3.4	-0.2	-23.0%
Shenkman - Four Points	47,937,171	1.6	0.0	3.8%
Private Debt Composite	103,022,681	0.1	0.0	0.2%
U.S. Equity Composite	683,846,579	2.0	0.6	68.9%
NTGI Russell 3000	584,344,174	2.6	0.6	76.5%
NTGI Russell 1000 Value	49,504,344	-2.0	0.0	-5.1%
NTGI Russell 2000 Value	49,998,061	-1.0	0.0	-2.6%
Non-U.S. Equity Composite	325,761,049	-7.5	-1.1	-132.3%
NTGI ACWI Ex-US	324,420,807	-7.5	-1.1	-132.8%

Pension Fund-Total Fund Composite

Attribution

Ending December 31, 2024

	Market Value (\$)	3 Mo Return	Contribution to Return	% Contribution to Return
Volatility Risk Premium Composite	63,178,681	2.4	0.1	7.6%
NB US Index PutWrite	63,178,681	2.4	0.1	7.6%
Real Estate Composite	152,306,611	1.3	0.1	9.6%
J.P. Morgan SPF	44,271,867	1.5	0.0	3.4%
Morgan Stanley P.P.	32,866,940	0.5	0.0	0.9%
PRISA III	42,449,732	1.7	0.0	3.4%
Principal Enhanced	31,229,228	1.2	0.0	1.9%
StepStone RE Intl Partnership I	1,488,844	0.0	0.0	0.0%
Infrastructure Composite	257,835,263	1.9	0.2	24.9%
Alinda Fund II	1	5.0	0.0	0.0%
J.P. Morgan Infrastructure	105,710,635	2.8	0.1	14.7%
IFM Global Infrastructure (U.S)	94,455,185	2.2	0.1	10.4%
Ullico - Infrastructure	57,669,441	0.0	0.0	0.0%
Private Equity Composite	267,455,274	-0.1	0.0	-1.2%
Total Cash Equivalents	16,593,761	-4.2	0.0	-3.5%

Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	15 Yrs (%)	SI (%)	Inception Date
Total Fund Composite	-0.8	9.3	10.7	3.6	7.5	7.0	7.2	8.2	8.8	Jun 85
Target Benchmark	-1.0	9.1	10.4	2.8	7.3	7.0	7.4	-	-	
Actuarial Rate 7.5%	1.8	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
All Public DB Plans Over \$1B Rank	43	39	41	22	22	37	34	25	-	
Fixed Income Composite	-2.7	2.3	4.5	-1.3	1.2	2.1	2.5	3.6	4.9	Dec 95
Blmbg. U.S. Aggregate Index	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	2.4	4.1	
All Public DB Plans-Fixed Income Rank	69	72	56	63	33	34	22	44	-	
Private Debt Composite	0.1	9.3	10.9	7.0	-	-	-	-	4.8	Oct 20
Blmbg. U.S. Aggregate Index	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	2.4	-1.9	
Bloomberg US High Yield TR	0.2	8.2	10.8	2.9	4.2	4.7	5.2	6.4	4.8	
Burgiss Global Private Debt	0.0	6.5	8.3	6.7	8.3	7.6	7.5	8.9	9.8	
U.S. Equity Composite	2.0	21.6	21.9	7.5	12.8	11.4	11.0	12.5	9.8	Mar 89
Russell 3000 Index	2.6	23.8	24.9	8.0	13.9	13.2	12.5	13.6	11.0	
All Public DB Plans-US Equity Rank	31	40	55	36	47	65	65	54	-	
Non-U.S. Equity Composite	-7.5	5.6	10.5	1.1	4.1	2.9	4.7	5.2	5.8	Jun 93
MSCI AC World ex USA (Net)	-7.6	5.5	10.5	0.8	4.1	3.5	4.8	4.7	-	
All Public DB Plans-Intl Equity Rank	55	32	37	27	51	63	60	47	-	
Volatility Risk Premium Composite	2.4	12.4	13.7	6.5	-	-	-	-	6.6	Feb 22
Cboe S&P 500 PutWrite Index	3.9	17.8	16.1	7.5	9.1	7.4	7.7	7.9	8.7	
Real Estate Composite	1.3	-1.1	-5.5	-2.0	3.3	4.3	6.1	8.8	4.8	Sep 07
NFI-ODCE	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	7.5	3.8	
NCREIF Property Index	0.9	0.4	-3.8	-0.8	3.1	4.1	5.7	7.8	5.6	
All Public DB Plans-Private Real Estate Rank	16	23	20	31	28	30	37	-	-	

* Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

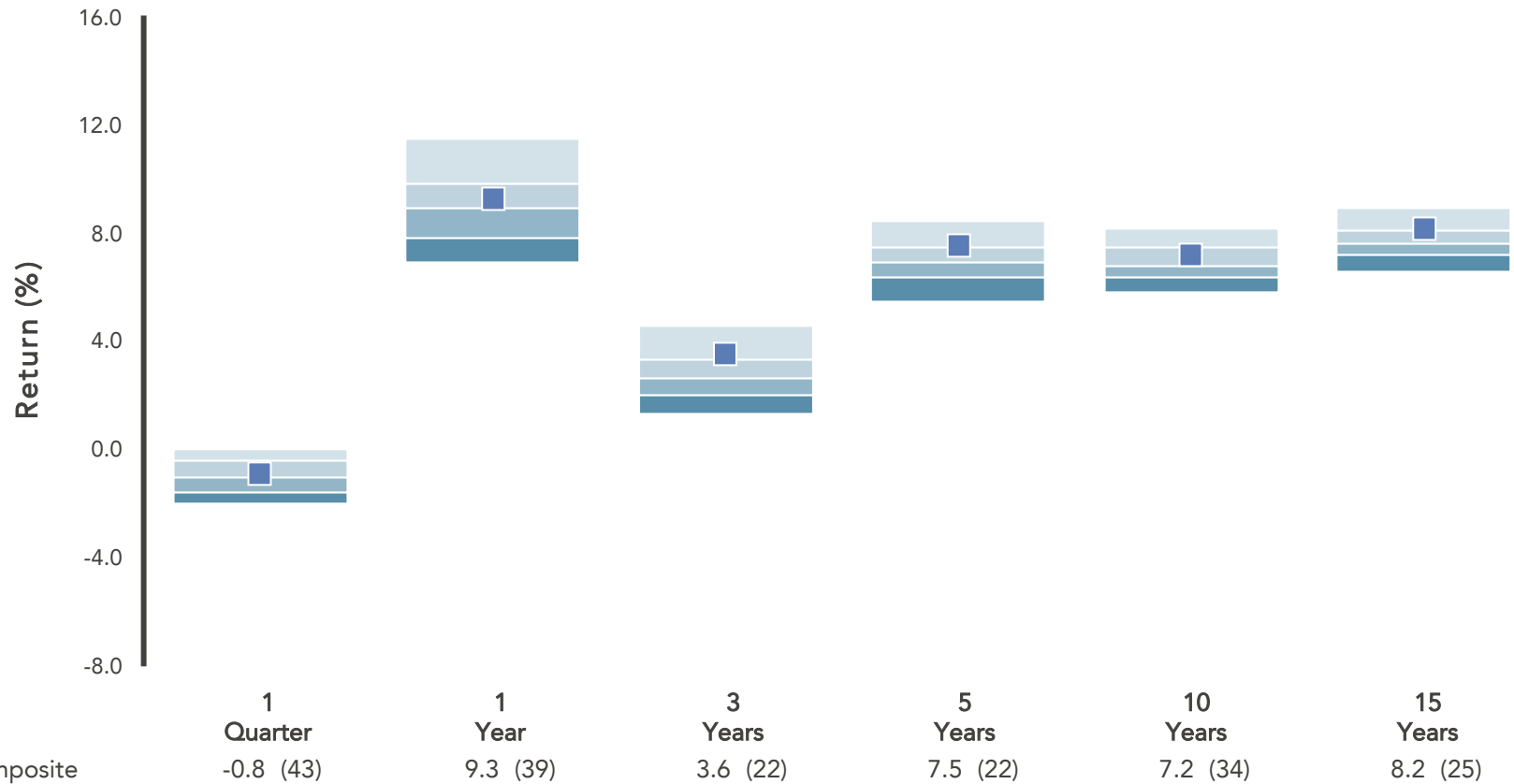
Annualized Performance (Net of Fees)
As of December 31, 2024

	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	15 Yrs (%)	SI (%)	Inception Date
Infrastructure Composite	1.9	7.7	8.8	8.3	8.8	8.5	7.3	8.7	8.4	Sep 08
3 Month T-Bill +4%	2.2	9.5	9.3	8.0	6.6	6.4	5.8	5.3	5.2	
Private Equity Composite	-0.1	5.6	7.7	4.6	13.1	13.2	12.3	13.0	8.8	Aug 93
Burgiss Global All Private Equity	0.0	4.9	5.4	0.6	13.7	14.0	13.7	14.0	15.1	

* Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite
vs. All Public DB Plans Over \$1B

Annualized Performance (Net of Fees)
As of December 31, 2024

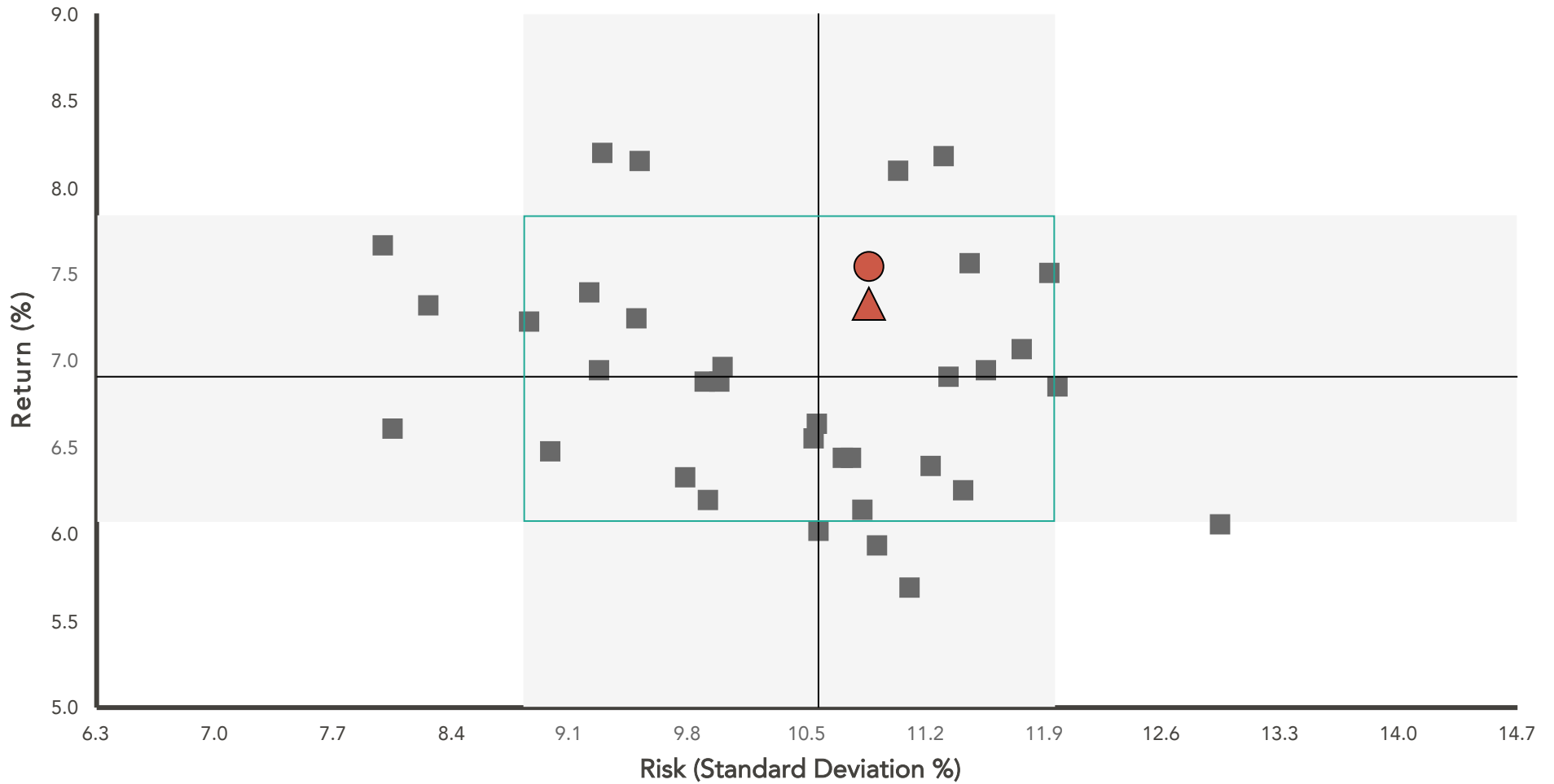


* Certain account values are lagged - see page 28 for details

Pension Fund-Total Fund Composite

All Public DB Plans Over \$1B

5 Years Ending December 31, 2024



	Return	Standard Deviation
● Total Fund Composite	7.5	10.9
▲ Target Benchmark	7.3	10.9
— Median	6.9	10.6

Calculation based on monthly periodicity.

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Total Fund Composite	12.1	-9.3	17.4	10.3	16.8	-4.3	14.9	8.9	-0.1	6.4	17.5
Target Benchmark	11.7	-10.8	16.2	12.7	17.8	-4.0	15.5	8.8	0.5	5.8	17.2
Actuarial Rate 7.5%	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
All Public DB Plans Over \$1B Rank	32	39	23	66	52	73	61	12	50	32	24
Fixed Income Composite	6.7	-12.0	0.6	9.5	9.6	-0.6	5.6	7.2	-2.1	5.6	0.7
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
All Public DB Plans-Fixed Income Rank	62	57	23	12	30	59	48	15	71	36	20
Private Debt Composite	12.5	-0.2	-10.9	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Bloomberg US High Yield TR	13.4	-11.2	5.3	7.1	14.3	-2.1	7.5	17.1	-4.5	2.5	7.4
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
U.S. Equity Composite	22.1	-16.3	30.3	12.5	27.8	-8.6	17.8	16.3	-3.0	10.8	35.4
Russell 3000 Index	26.0	-19.2	25.7	20.9	31.0	-5.2	21.1	12.7	0.5	12.6	33.6
All Public DB Plans-US Equity Rank	69	24	2	93	93	91	95	8	96	50	31
Non-U.S. Equity Composite	15.6	-15.4	10.2	7.5	18.9	-16.2	27.7	7.3	-4.9	-1.4	14.5
MSCI AC World ex USA (Net)	15.6	-16.0	7.8	10.7	21.5	-14.2	27.2	4.5	-5.7	-3.9	15.3
All Public DB Plans-Intl Equity Rank	63	14	25	90	96	79	61	7	78	13	76
Volatility Risk Premium Composite	15.1	-6.8	-	-	-	-	-	-	-	-	-
Cboe S&P 500 PutWrite Index	14.3	-7.7	21.8	2.1	13.5	-5.9	10.8	7.8	6.4	6.4	12.3
Real Estate Composite	-9.8	5.5	22.3	2.2	5.8	7.5	7.9	9.3	14.8	12.4	14.8
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9
NCREIF Property Index	-7.9	5.5	17.7	1.6	6.4	6.7	7.0	8.0	13.3	11.8	11.0
All Public DB Plans-Private Real Estate Rank	33	76	41	9	55	47	52	21	22	45	8

* Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Infrastructure Composite	9.9	7.3	10.8	8.1	11.3	4.8	2.4	0.4	11.2	12.5	4.2
3 Month T-Bill +4%	9.2	5.5	4.0	4.7	6.4	5.9	4.9	4.3	4.1	4.0	4.1
Private Equity Composite	9.8	-1.3	32.5	22.0	11.3	16.0	14.3	8.1	8.2	8.5	26.5
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8

* Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	1 Mo (%)	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
Total Fund Composite	-1.5	-0.8	9.3	10.7	3.6	7.5	7.0	7.2	8.8	Jun 85
Target Benchmark	-1.7	-1.0	9.1	10.4	2.8	7.3	7.0	7.4	-	
Actuarial Rate 7.5%	0.6	1.8	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
All Public DB Plans Over \$1B Rank	26	43	39	41	22	22	37	34	-	
Fixed Income Composite	-1.7	-2.7	2.3	4.5	-1.3	1.2	2.1	2.5	4.9	Dec 95
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	4.1	
All Public DB Plans-Fixed Income Rank	81	69	72	56	63	33	34	22	-	
NTGI Agg Bond	-1.6	-3.0	1.3	3.4	-2.4	-	-	-	-2.0	Feb 21
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	-2.1	
eV US Core Fixed Inc Rank	38	61	81	82	73	-	-	-	76	
Diamond Hill Core Bond	-1.4	-2.4	-	-	-	-	-	-	4.3	Mar 24
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	3.0	
eV US Core Fixed Inc Rank	10	10	-	-	-	-	-	-	4	
Loomis Sayles Core-Plus	-2.0	-3.4	1.3	3.7	-2.0	0.7	1.7	-	2.2	Aug 15
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	1.4	
eV US Core Plus Fixed Inc Rank	95	92	89	83	59	41	44	-	41	
Columbus Core Plus Bond	-2.0	-3.4	-	-	-	-	-	-	1.8	Feb 24
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	1.5	
eV US Core Plus Fixed Inc Rank	95	93	-	-	-	-	-	-	80	
Shenkman - Four Points	-0.4	1.6	8.7	10.5	4.3	5.8	5.8	5.9	6.3	Sep 10
Blmbg. U.S. Corp: High Yield Index	-0.4	0.2	8.2	10.8	2.9	4.2	4.7	5.2	6.2	
eV US High Yield Fixed Inc Rank	54	5	19	32	13	9	7	7	11	

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** Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	1 Mo (%)	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
Private Debt Composite	0.0	0.1	9.3	10.9	7.0	-	-	-	4.8	Oct 20
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	-1.9	
Bloomberg US High Yield TR	-0.4	0.2	8.2	10.8	2.9	4.2	4.7	5.2	4.8	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	9.8	
H.I.G. Bayside Opportunity VI	0.0	0.0	9.2	11.4	7.4	-	-	-	5.1	Oct 20
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	-1.9	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	9.8	
Owl Rock Diversified Lending	0.0	0.0	10.2	9.5	-	-	-	-	11.9	Sep 22
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	1.8	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	8.6	
Carlyle Direct Lending IV	0.0	0.0	9.2	-	-	-	-	-	13.3	Jul 23
Bloomberg US Aggregate TR	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	3.1	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	7.6	
J.P. Morgan Lynstone	0.0	0.7	-	-	-	-	-	-	-2.7	Jul 24
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	2.0	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	2.5	
AG Direct Lending	0.0	-	-	-	-	-	-	-	0.0	Nov 24
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	-0.6	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	0.0	
Bain Global Direct Lending	0.0	-	-	-	-	-	-	-	0.0	Dec 24
Blmbg. U.S. Aggregate Index	-1.6	-3.1	1.3	3.4	-2.4	-0.3	1.0	1.3	-1.6	
Burgiss Global Private Debt	0.0	0.0	6.5	8.3	6.7	8.3	7.6	7.5	0.0	

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** Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	1 Mo (%)	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
U.S. Equity Composite	-3.8	2.0	21.6	21.9	7.5	12.8	11.4	11.0	9.8	Mar 89
Russell 3000 Index	-3.1	2.6	23.8	24.9	8.0	13.9	13.2	12.5	11.0	
All Public DB Plans-US Equity Rank	50	31	40	55	36	47	65	65	-	
NTGI Russell 3000	-3.1	2.6	23.8	24.9	8.0	-	-	-	11.2	Apr 21
Russell 3000 Index	-3.1	2.6	23.8	24.9	8.0	13.9	13.2	12.5	11.2	
eV US Passive All Cap Equity Rank	50	31	39	31	32	-	-	-	28	
NTGI Russell 1000 Value	-6.8	-2.0	14.4	12.9	5.6	8.7	8.5	8.5	9.0	Jan 14
Russell 1000 Value Index	-6.8	-2.0	14.4	12.9	5.6	8.7	8.4	8.5	8.9	
eV US Large Cap Value Equity Rank	79	61	50	55	62	68	66	67	64	
NTGI Russell 2000 Value	-8.3	-1.0	8.2	11.5	2.0	7.4	6.2	7.3	7.0	Jan 14
Russell 2000 Value Index	-8.3	-1.1	8.1	11.3	1.9	7.3	6.1	7.1	6.9	
eV US Small Cap Value Equity Rank	82	69	68	69	84	78	72	72	71	
Non-U.S. Equity Composite	-2.0	-7.5	5.6	10.5	1.1	4.1	2.9	4.7	5.8	Jun 93
MSCI AC World ex USA (Net)	-1.9	-7.6	5.5	10.5	0.8	4.1	3.5	4.8	-	
eV Non-US Diversified All Cap Eq Rank	34	58	38	54	48	58	82	71	87	
NTGI ACWI Ex-US	-2.0	-7.5	5.6	10.5	1.0	-	-	-	2.0	Apr 21
MSCI AC World ex USA (Net)	-1.9	-7.6	5.5	10.5	0.8	4.1	3.5	4.8	1.8	
eV ACWI ex-US All Cap Equity Rank	39	64	40	54	41	-	-	-	43	
Volatility Risk Premium Composite	-1.1	2.4	12.4	13.7	6.5	-	-	-	6.6	Feb 22
Cboe S&P 500 PutWrite Index	-0.1	3.9	17.8	16.1	7.5	9.1	7.4	7.7	8.7	
NB US Index PutWrite	-1.1	2.4	12.4	13.7	-	-	-	-	6.6	Feb 22
Cboe S&P 500 PutWrite Index	-0.1	3.9	17.8	16.1	7.5	9.1	7.4	7.7	8.7	

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** Burgiss Global Private Debt and Global All PE benchmark data is updated through 9/30/24

Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	1 Mo (%)	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
Real Estate Composite	0.8	1.3	-1.1	-5.5	-2.0	3.3	4.3	6.1	4.8	Sep 07
NFI-ODCE	0.3	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	3.8	
NCREIF Property Index	-	0.9	0.4	-3.8	-0.8	3.1	4.1	5.7	5.6	
J.P. Morgan SPF	0.8	1.5	-2.7	-9.2	-5.1	0.6	1.9	4.0	3.7	Feb 08
NFI-ODCE	0.3	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	3.7	
Morgan Stanley P.P.	0.5	0.5	-0.8	-3.3	-0.3	4.1	4.9	6.7	5.4	Sep 07
NFI-ODCE	0.3	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	3.8	
PRISA III	1.7	1.7	-1.2	-3.3	0.3	6.6	7.1	9.5	4.9	Jan 08
NFI-ODCE	0.3	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	3.7	
Principal Enhanced	-0.1	1.2	0.7	-5.2	-1.5	3.9	5.1	7.8	4.2	Apr 08
NFI-ODCE	0.3	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	3.6	
StepStone RE Intl Partnership I	0.0	0.0	0.7	8.3	-0.1	-4.3	-3.8	-2.3	-	Nov 07
NFI-ODCE	0.3	1.0	-2.3	-7.7	-3.1	2.0	3.1	4.9	3.7	

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Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	1 Mo (%)	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
Infrastructure Composite	2.3	1.9	7.7	8.8	8.3	8.8	8.5	7.3	8.4	Sep 08
3 Month T-Bill +4%	0.7	2.2	9.5	9.3	8.0	6.6	6.4	5.8	5.2	
J.P. Morgan Infrastructure CPI +4%	2.8 0.4	2.8 1.1	10.6 7.0	10.6 7.2	10.3 8.4	8.5 8.4	8.1 7.7	- 7.1	8.1 7.7	Jan 18
IFM Global Infrastructure (U.S.) CPI +4%	3.1 0.4	2.2 1.1	5.6 7.0	7.0 7.2	7.4 8.4	8.4 8.4	- 7.7	- 7.1	10.9 7.7	Mar 18
Alinda Fund II 3 Month T-Bill +4%	5.0 0.7	5.0 2.2	3.9 9.5	88.1 9.3	47.3 8.0	20.4 6.6	12.4 6.4	8.8 5.8	9.5 5.2	Sep 08
Ullico - Infrastructure CPI +4%	0.0 0.4	0.0 1.1	5.9 7.0	8.3 7.2	- 8.4	- 8.4	- 7.7	- 7.1	8.1 7.0	Dec 22
Private Equity Composite	-0.1	-0.1	5.6	7.7	4.6	13.1	13.2	12.3	8.8	Aug 93
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	15.1	
Fort Washington Fund V Burgiss Global All Private Equity	0.0 0.0	0.0 0.0	8.4 4.9	5.2 5.4	-2.0 0.6	6.5 13.7	6.7 14.0	6.1 13.7	7.6 11.3	Oct 07
Portfolio Advisors IV - Special Sit Burgiss Global All Private Equity	0.0 0.0	0.0 0.0	-0.1 4.9	-16.4 5.4	-10.4 0.6	-4.7 13.7	-4.4 14.0	-2.4 13.7	1.4 11.4	Jul 07
Fort Washington Fund VI Burgiss Global All Private Equity	0.0 0.0	0.0 0.0	-4.6 4.9	-0.5 5.4	-7.4 0.6	3.3 13.7	7.1 14.0	8.2 13.7	11.3 11.5	May 08
Portfolio Advisors V - Special Sit Burgiss Global All Private Equity	0.0 0.0	0.0 0.0	-6.7 4.9	-5.0 5.4	-3.6 0.6	1.9 13.7	2.1 14.0	2.9 13.7	5.2 11.8	Sep 08

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Pension Fund-Total Fund Composite

Annualized Performance (Net of Fees)
As of December 31, 2024

	1 Mo (%)	3 Mo (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
Fort Washington Fund VIII	0.0	0.0	8.4	6.6	3.2	12.2	12.7	14.5	11.5	Feb 14
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	13.7	
Fort Washington Opp Fund III	0.0	0.0	-12.3	3.1	0.8	0.9	2.1	10.4	11.6	Aug 14
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	13.5	
North Sky Fund V	0.0	0.0	8.7	13.2	8.1	18.2	20.5	15.8	11.9	May 14
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	13.7	
Fort Washington Fund IX	0.0	0.0	1.9	3.5	1.2	13.3	13.0	-	16.9	Oct 16
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	14.6	
Fort Washington Fund X	0.0	0.0	6.9	9.1	8.4	18.6	-	-	16.9	Jun 19
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	14.5	
JP Morgan Global Private Equity VIII	-0.4	-0.4	5.9	9.0	10.2	14.2	-	-	12.7	Jul 19
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	13.8	
JP Morgan Global Private Equity IX	0.0	0.0	9.1	12.5	12.9	-	-	-	18.3	Dec 20
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	13.5	
JP Morgan Global Private Equity X	0.0	-0.4	11.9	11.8	-	-	-	-	3.7	Aug 22
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	3.7	
Siguler Guff Small Buyout Opportunities V	0.0	0.0	8.3	10.7	-	-	-	-	29.8	Sep 22
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	3.9	
Blue Chip Fund IV	0.0	0.0	-38.4	-24.2	-18.1	-6.3	-9.5	-11.5	-3.1	Jan 01
Burgiss Global All Private Equity	0.0	0.0	4.9	5.4	0.6	13.7	14.0	13.7	10.9	

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Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Total Fund Composite	12.1	-9.3	17.4	10.3	16.8	-4.3	14.9	8.9	-0.1	6.4	17.5
Target Benchmark	11.7	-10.8	16.2	12.7	17.8	-4.0	15.5	8.8	0.5	5.8	17.2
Actuarial Rate 7.5%	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
All Public DB Plans Over \$1B Rank	32	39	23	66	52	73	61	12	50	32	24
Fixed Income Composite	6.7	-12.0	0.6	9.5	9.6	-0.6	5.6	7.2	-2.1	5.6	0.7
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
All Public DB Plans-Fixed Income Rank	62	57	23	12	30	59	48	15	71	36	20
NTGI Agg Bond	5.5	-12.9	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
eV US Core Fixed Inc Rank	73	44	-	-	-	-	-	-	-	-	-
Diamond Hill Core Bond	-	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
eV US Core Fixed Inc Rank	-	-	-	-	-	-	-	-	-	-	-
Loomis Sayles Core-Plus	6.2	-12.5	-1.0	11.1	9.5	-0.5	5.2	6.9	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
eV US Core Plus Fixed Inc Rank	70	25	79	11	60	47	23	10	-	-	-
Columbus Core Plus Bond	-	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
eV US Core Plus Fixed Inc Rank	-	-	-	-	-	-	-	-	-	-	-
Shenkman - Four Points	12.3	-7.1	4.6	11.6	13.3	-1.0	7.5	16.1	-4.2	2.6	10.7
Blmbg. U.S. Corp: High Yield Index	13.4	-11.2	5.3	7.1	14.3	-2.1	7.5	17.1	-4.5	2.5	7.4
eV US High Yield Fixed Inc Rank	51	23	63	3	58	26	35	18	70	36	8

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Private Debt Composite	12.5	-0.2	-10.9	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Bloomberg US High Yield TR	13.4	-11.2	5.3	7.1	14.3	-2.1	7.5	17.1	-4.5	2.5	7.4
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
H.I.G. Bayside Opportunity VI	13.5	0.0	-10.9	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
Owl Rock Diversified Lending	8.7	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
Carlyle Direct Lending IV	-	-	-	-	-	-	-	-	-	-	-
Bloomberg US Aggregate TR	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
J.P. Morgan Lynstone	-	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
AG Direct Lending	-	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0
Bain Global Direct Lending	-	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0
Burgiss Global Private Debt	10.0	3.8	15.6	5.8	7.0	5.2	10.9	8.6	2.1	9.3	16.0

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
U.S. Equity Composite	22.1	-16.3	30.3	12.5	27.8	-8.6	17.8	16.3	-3.0	10.8	35.4
Russell 3000 Index	26.0	-19.2	25.7	20.9	31.0	-5.2	21.1	12.7	0.5	12.6	33.6
All Public DB Plans-US Equity Rank	69	24	2	93	93	91	95	8	96	50	31
NTGI Russell 3000	26.0	-19.2	-	-	-	-	-	-	-	-	-
Russell 3000 Index	26.0	-19.2	25.7	20.9	31.0	-5.2	21.1	12.7	0.5	12.6	33.6
eV US Passive All Cap Equity Rank	34	38	-	-	-	-	-	-	-	-	-
NTGI Russell 1000 Value	11.5	-7.6	25.2	3.0	26.6	-8.2	13.8	17.3	-3.6	13.5	-
Russell 1000 Value Index	11.5	-7.5	25.2	2.8	26.5	-8.3	13.7	17.3	-3.8	13.5	32.5
eV US Large Cap Value Equity Rank	56	65	65	56	48	47	83	21	62	22	-
NTGI Russell 2000 Value	14.9	-14.5	28.1	4.9	22.6	-12.7	8.1	31.9	-7.3	4.3	-
Russell 2000 Value Index	14.6	-14.5	28.3	4.6	22.4	-12.9	7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Rank	61	74	53	45	58	34	68	14	71	55	-
Non-U.S. Equity Composite	15.6	-15.4	10.2	7.5	18.9	-16.2	27.7	7.3	-4.9	-1.4	14.5
MSCI AC World ex USA (Net)	15.6	-16.0	7.8	10.7	21.5	-14.2	27.2	4.5	-5.7	-3.9	15.3
All Public DB Plans-Intl Equity Rank	63	14	25	90	96	79	61	7	78	13	76
NTGI ACWI Ex-US	15.5	-15.5	-	-	-	-	-	-	-	-	-
MSCI AC World ex USA (Net)	15.6	-16.0	7.8	10.7	21.5	-14.2	27.2	4.5	-5.7	-3.9	15.3
Volatility Risk Premium Composite	15.1	-6.8	-	-	-	-	-	-	-	-	-
Cboe S&P 500 PutWrite Index	14.3	-7.7	21.8	2.1	13.5	-5.9	10.8	7.8	6.4	6.4	12.3
NB US Index PutWrite	15.1	-	-	-	-	-	-	-	-	-	-
Cboe S&P 500 PutWrite Index	14.3	-7.7	21.8	2.1	13.5	-5.9	10.8	7.8	6.4	6.4	12.3

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Real Estate Composite	-9.8	5.5	22.3	2.2	5.8	7.5	7.9	9.3	14.8	12.4	14.8
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9
NCREIF Property Index	-7.9	5.5	17.7	1.6	6.4	6.7	7.0	8.0	13.3	11.8	11.0
All Public DB Plans-Private Real Estate Rank	33	76	41	9	55	47	52	21	22	45	8
J.P. Morgan SPF	-15.2	3.7	19.8	0.4	3.3	7.0	6.2	7.3	14.1	10.3	14.8
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9
Morgan Stanley P.P.	-5.8	6.1	21.5	1.3	6.2	8.0	8.7	9.2	14.6	14.1	16.2
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9
PRISA III	-5.3	7.8	24.6	9.5	9.1	7.9	9.9	13.2	22.7	16.9	14.9
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9
Principal Enhanced	-10.8	6.3	25.9	0.7	6.8	9.5	9.3	13.5	20.3	13.8	18.0
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9
StepStone RE Intl Partnership I	16.3	-14.8	-10.5	-10.3	2.2	-6.6	1.7	1.8	0.0	6.9	7.9
NFI-ODCE	-12.7	6.5	21.1	0.3	4.4	7.4	6.7	7.8	14.0	11.5	12.9

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Infrastructure Composite	9.9	7.3	10.8	8.1	11.3	4.8	2.4	0.4	11.2	12.5	4.2
3 Month T-Bill +4%	9.2	5.5	4.0	4.7	6.4	5.9	4.9	4.3	4.1	4.0	4.1
J.P. Morgan Infrastructure	10.5	9.6	7.7	4.5	9.1	4.9	-	-	-	-	-
CPI +4%	7.5	10.7	11.3	5.4	6.4	6.0	6.2	6.2	4.8	4.8	5.6
IFM Global Infrastructure (U.S)	8.4	8.2	17.7	2.8	14.6	-	-	-	-	-	-
CPI +4%	7.5	10.7	11.3	5.4	6.4	6.0	6.2	6.2	4.8	4.8	5.6
Alinda Fund II	240.4	-9.6	-14.3	-7.5	3.0	-13.0	-5.4	-4.4	13.1	21.9	0.2
3 Month T-Bill +4%	9.2	5.5	4.0	4.7	6.4	5.9	4.9	4.3	4.1	4.0	4.1
Ullico - Infrastructure	10.7	-	-	-	-	-	-	-	-	-	-
CPI +4%	7.5	10.7	11.3	5.4	6.4	6.0	6.2	6.2	4.8	4.8	5.6
Private Equity Composite	9.8	-1.3	32.5	22.0	11.3	16.0	14.3	8.1	8.2	8.5	26.5
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Fort Washington Fund V	2.2	-15.2	24.2	17.4	5.3	9.0	9.3	2.6	2.7	12.1	22.4
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Portfolio Advisors IV - Special Sit	-29.9	2.9	14.2	-4.5	-4.8	-2.1	7.2	1.4	-1.6	5.3	10.2
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Fort Washington Fund VI	3.8	-19.8	26.5	17.2	16.2	18.0	16.7	0.4	16.8	17.0	24.5
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Portfolio Advisors V - Special Sit	-3.4	-0.6	15.8	6.1	0.5	4.4	4.5	7.7	1.9	14.3	9.6
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8

Pension Fund-Total Fund Composite

Calendar Performance (Net of Fees)

As of December 31, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Fort Washington Fund VIII	4.9	-3.2	28.4	26.0	14.3	13.1	13.6	19.6	24.3	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Fort Washington Opp Fund III	21.1	-3.5	21.8	-16.4	-4.9	16.6	22.0	29.0	47.4	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
North Sky Fund V	17.9	-1.4	38.9	31.4	19.5	34.2	8.7	9.4	-1.3	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Fort Washington Fund IX	5.1	-3.2	41.0	28.0	13.3	11.3	-0.3	-	-	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Fort Washington Fund X	11.5	7.0	50.2	22.7	-	-	-	-	-	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
JP Morgan Global Private Equity VIII	12.2	12.7	28.7	12.6	-	-	-	-	-	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
JP Morgan Global Private Equity IX	16.1	13.5	24.1	-	-	-	-	-	-	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
JP Morgan Global Private Equity X	11.8	-	-	-	-	-	-	-	-	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Siguler Guff Small Buyout Opportunities V	13.2	-	-	-	-	-	-	-	-	-	-
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8
Blue Chip Fund IV	-6.7	-4.3	16.1	13.2	14.8	-40.0	-14.8	-18.0	-15.7	3.4	4.4
Burgiss Global All Private Equity	5.9	-8.4	40.4	33.3	17.6	12.0	20.5	9.0	9.9	12.5	20.8

Cincinnati Retirement

Benchmark Composition
As of December 31, 2024

Target Benchmark	Weight (%)
Jan-2024	
Russell 2000 Value Index	2.00
Russell 1000 Value Index	2.50
Russell 3000 Index	24.00
Blmbg. U.S. Aggregate Index	23.50
Blmbg. U.S. Corp: High Yield Index	2.00
MSCI AC World ex USA (Net)	16.00
Cboe S&P 500 PutWrite Index	2.50
3 Month T-Bill +4%	10.00
Burgiss Global All Private Equity	10.00
NFI-ODCE	7.50



Private Equity Composite

Pension Fund-Total Fund Composite

Private Equity Overview (Net of Fees)
As of December 31, 2024

Investments	Vintage	Commitment (\$)	Unfunded Commitment (\$)	Capital Contributed (\$)	Cumulative Distributions (\$)	Valuation (\$)	Total Value (\$)	DPI	RVPI	TVPI	SI (%)
Private Equity											
Fort Washington Fund V	2007	40,000,000	2,449,299	37,550,701	67,704,062	7,492,766	75,196,828	1.8	0.2	2.0	10.3
Portfolio Advisors IV - Special Sit	2007	18,600,000	1,628,786	16,971,214	23,086,454	322,350	23,408,804	1.4	0.0	1.4	4.9
Fort Washington Fund VI	2008	30,000,000	4,309,950	25,690,050	52,132,158	3,508,506	55,640,664	2.0	0.1	2.2	14.0
Portfolio Advisors V - Special Sit	2008	8,375,000	895,626	7,479,374	11,616,579	370,211	11,986,790	1.5	0.0	1.6	8.4
Fort Washington Fund VIII	2014	50,000,000	13,500,001	36,499,999	49,250,000	33,059,969	82,309,969	1.3	0.9	2.3	14.9
Fort Washington Opp Fund III	2014	30,000,000	7,800,000	22,200,000	33,120,000	4,103,855	37,223,855	1.5	0.2	1.7	13.9
North Sky Fund V	2014	40,000,000	13,600,000	26,400,000	52,994,729	26,528,272	79,523,001	2.0	1.0	3.0	19.8
Fort Washington Fund IX	2016	50,000,000	12,750,000	37,250,000	21,250,000	51,304,869	72,554,869	0.6	1.4	1.9	14.2
Fort Washington Fund X	2019	40,000,000	11,900,000	28,100,000	3,000,000	41,750,615	44,750,615	0.1	1.5	1.6	15.9
JP Morgan Global Private Equity VIII	2019	40,000,000	5,579,659	34,420,341	9,796,716	42,995,754	52,792,470	0.3	1.2	1.5	13.5
JP Morgan Global Private Equity IX	2020	20,000,000	7,049,881	12,950,119	1,666,647	17,790,005	19,456,652	0.1	1.3	1.5	15.3
JP Morgan Global Private Equity X	2022	40,000,000	21,923,293	18,076,707	-	21,312,654	21,312,654	-	1.2	1.2	12.6
Siguler Guff Small Buyout Opportunities V	2022	25,000,000	10,865,717	14,134,283	1,278,774	15,804,480	17,083,254	0.1	1.1	1.2	14.9
Blue Chip Fund IV	2000	25,000,000	-	25,000,000	23,770,550	1,110,968	24,881,518	1.0	0.0	1.0	-0.1
Sub Total		456,975,000	114,252,212	342,722,788	350,666,670	267,455,274	618,121,944	1.0	0.8	1.8	10.3
Real Assets											
Alinda Fund II	2008	65,000,000	4,511,198	60,488,802	94,446,527	1	94,446,528	1.1	0.0	1.1	2.0
Sub Total		65,000,000	4,511,198	60,488,802	94,446,527	1	94,446,528	1.1	0.0	1.1	2.0
Real Estate											
StepStone RE Intl Partnership I	2007	24,386,050	990,696	23,395,354	23,030,765	1,488,844	24,519,609	1.0	0.1	1.0	0.7
Sub Total		24,386,050	990,696	23,395,354	23,030,765	1,488,844	24,519,609	1.0	0.1	1.0	0.7
Total		546,361,050	119,754,106	426,606,944	468,143,961	268,944,119	737,088,081	1.0	0.6	1.6	8.5

Pension Fund-Total Fund Composite

Private Markets Overview
As of December 31, 2024

Investments	Vintage	1 Year	3 Years	5 Years	Since Inception (%)	PME (%)	Kaplan Schoar	PME Benchmark
Private Equity								
Fort Washington Fund V	2007	8.2	-3.1	10.4	10.3	11.5	0.9	Russell 3000 Index
Portfolio Advisors IV - Special Sit	2007	-0.6	-10.5	-3.9	4.9	8.2	0.8	Russell 3000 Index
Fort Washington Fund VI	2008	-5.1	-9.4	6.6	14.0	13.2	1.0	Russell 3000 Index
Portfolio Advisors V - Special Sit	2008	-6.1	-2.0	4.3	8.4	12.2	0.8	Russell 3000 Index
Fort Washington Fund VIII	2014	8.5	2.5	15.1	14.9	14.1	1.0	Russell 3000 Index
Fort Washington Opp Fund III	2014	-10.3	3.1	1.7	13.9	12.2	1.1	Russell 3000 Index
North Sky Fund V	2014	8.9	7.1	22.1	19.8	13.6	1.4	Russell 3000 Index
Fort Washington Fund IX	2016	1.8	1.1	14.5	14.2	14.1	1.0	Russell 3000 Index
Fort Washington Fund X	2019	6.8	8.4	16.4	15.9	14.4	1.0	Russell 3000 Index
JP Morgan Global Private Equity VIII	2019	5.9	10.1	13.9	13.5	12.7	1.0	Russell 3000 Index
JP Morgan Global Private Equity IX	2020	8.5	12.5	-	15.3	13.6	1.0	Russell 3000 Index
JP Morgan Global Private Equity X	2022	11.9	-	-	12.6	12.6	0.9	Russell 3000 Index
Siguler Guff Small Buyout Opportunities V	2022	8.0	-	-	14.9	22.2	0.9	Russell 3000 Index
Blue Chip Fund IV	2000	-38.3	-18.0	-6.3	-0.1	7.2	0.6	Russell 3000 Index
Sub Total		5.6	5.0	14.4	10.3	11.2	0.9	
Real Assets								
Alinda Fund II	2008	3.7	-7.1	-9.8	2.0	15.8	0.6	Russell 3000 Index
Sub Total		3.7	-7.1	-9.8	2.0	15.8	0.6	
Real Estate								
StepStone RE Intl Partnership I	2007	0.7	-0.5	-5.6	0.7	8.2	0.6	FTSE NAREIT Equity REIT Index
Sub Total		0.7	-0.5	-5.6	0.7	8.2	0.6	
Total		5.5	4.7	12.8	8.5	11.8	0.8	

Pension Fund-Total Fund Composite

3Q24 Rankings

Account Name	Burgiss Universe	Vintage	IRR (%)	Rank	Top Quartile (%)	Median (%)	Bottom Quartile (%)	# of Funds
Private Equity								
Fort Washington Fund V	Private Equity - NA	2007	10.3	3rd	16.5	10.8	3.3	188
Portfolio Advisors IV - Special Sit	Private Equity - NA	2007	4.9	3rd	16.5	10.8	3.3	188
Fort Washington Fund VI	Private Equity - NA	2008	14.0	2nd	19.3	10.8	3.1	153
Portfolio Advisors V - Special Sit	Private Equity - NA	2008	8.4	3rd	19.3	10.8	3.1	153
Fort Washington Fund VIII	Private Equity - NA	2014	15.1	3rd	24.4	15.3	7.9	204
Fort Washington Opp Fund III	Private Equity - NA	2014	14.0	3rd	24.4	15.3	7.9	204
North Sky Fund V	Private Equity - NA	2014	20.0	2nd	24.4	15.3	7.9	204
Fort Washington Fund IX	Private Equity - NA	2016	14.7	3rd	23.8	17.5	11.6	194
Fort Washington Fund X	Private Equity - NA	2019	17.1	2nd	22.0	13.8	6.7	282
JP Morgan Global Private Equity VIII	Private Equity - Global	2019	14.6	2nd	20.0	12.6	5.8	464
JP Morgan Global Private Equity IX	Private Equity - Global	2020	16.8	2nd	17.0	9.7	2.7	506
JP Morgan Global Private Equity X	Private Equity - Global	2022						
Siguler Guff Small Buyout Opportunities V	Private Equity - NA	2022						
Blue Chip Fund IV	Private Equity - NA	2000	-0.1	3rd	10.5	1.8	-5.1	213
Real Assets								
Alinda Fund II	Real Assets - NA	2008	2.0	3rd	11.0	8.0	0.2	53
Real Estate								
StepStone RE Intl Partnership I	Real Estate - Global	2007	0.7	3rd	7.4	3.1	-4.7	103



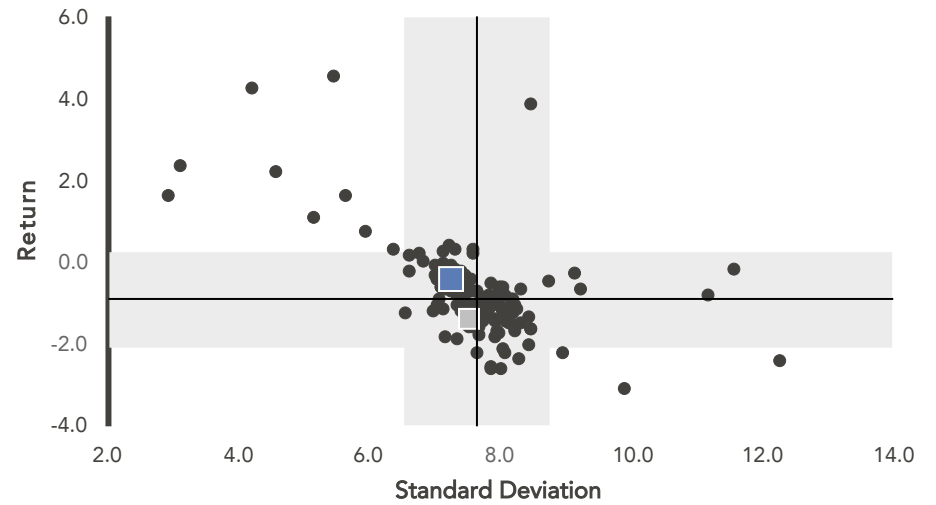
Fixed Income Composite

Fixed Income Composite

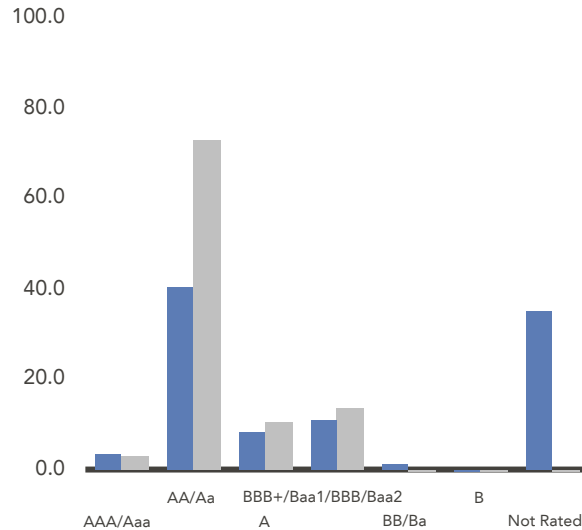
Portfolio Characteristics
As of September 30, 2024

Portfolio Characteristics	Portfolio	Blmbg. U.S. Aggregate Index
Avg. Maturity (yrs.)	9.9	8.3
Avg. Quality	AA	AA
Coupon Rate (%)	3.6	3.5
Modified Duration (yrs.)	6.7	6.0
Effective Duration (yrs.)	7.1	6.0
Yield To Maturity (%)	4.9	4.2
Yield To Worst (%)	4.9	4.2

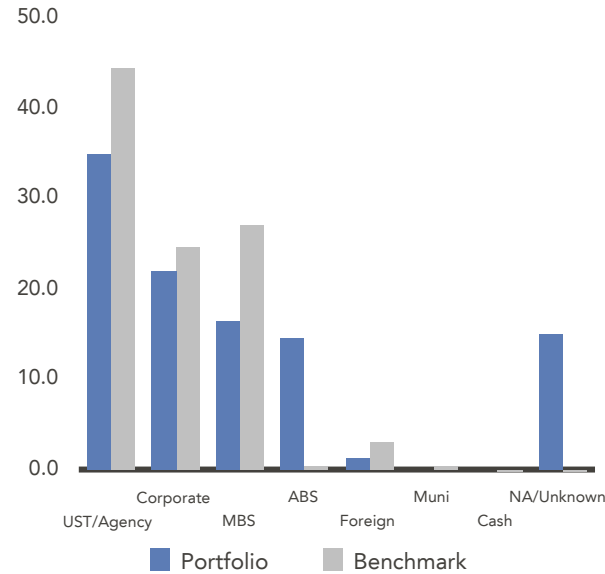
Risk vs. Return - 3 Years



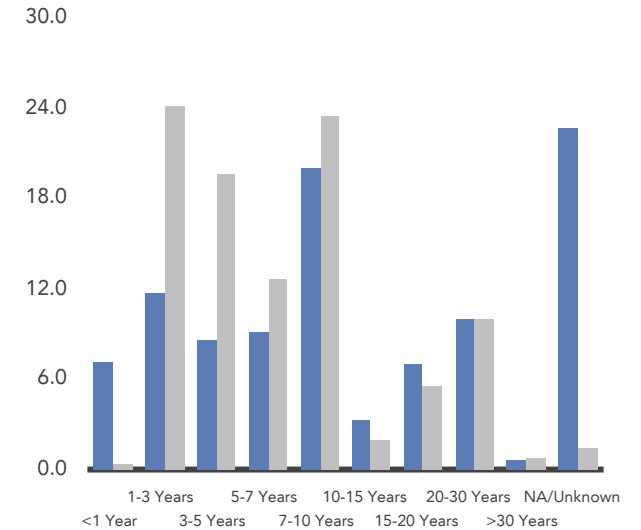
Credit Quality Distribution (%)



Sector Distribution (%)



Maturity Distribution (%)



Fixed Income Composite

Correlation Matrix
3 Years Ending September 30, 2024

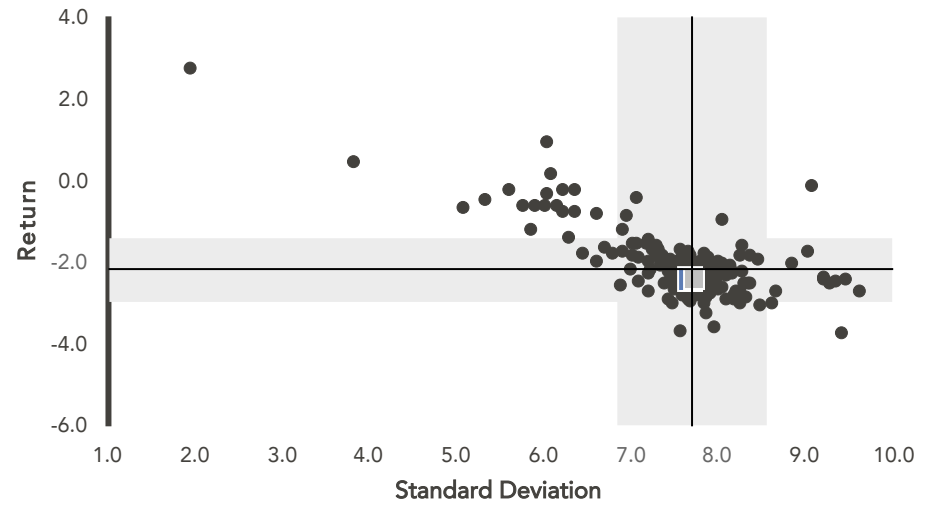
	Fixed Income Composite	NTGI Agg Bond	Diamond Hill Core Bond	Loomis Sayles Core-Plus	Columbus Core Plus Bond	Shenkman - Four Points
Fixed Income Composite	1.00					
NTGI Agg Bond	0.99	1.00				
Diamond Hill Core Bond	-	-	-			
Loomis Sayles Core-Plus	1.00	0.99	-	1.00		
Columbus Core Plus Bond	-	-	-	-	-	
Shenkman - Four Points	0.77	0.70	-	0.74	-	1.00

NTGI Agg Bond

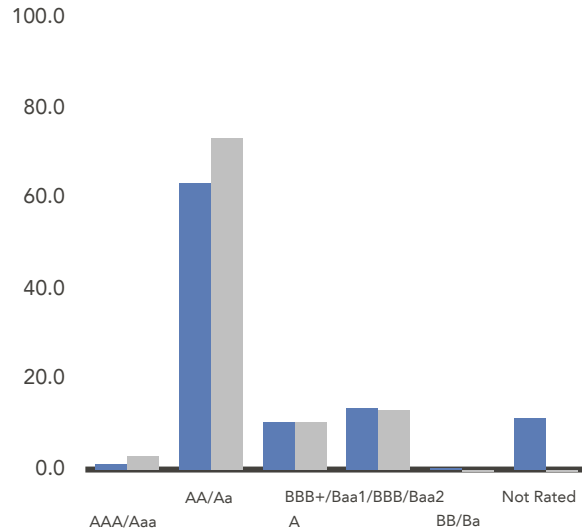
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Blmbg. U.S. Aggregate Index
Avg. Maturity (yrs.)	8.6	8.4
Avg. Quality	AA	AA
Coupon Rate (%)	3.5	3.5
Modified Duration (yrs.)	6.1	6.0
Effective Duration (yrs.)	6.1	5.9
Yield To Maturity (%)	4.8	4.9
Yield To Worst (%)	4.8	4.9

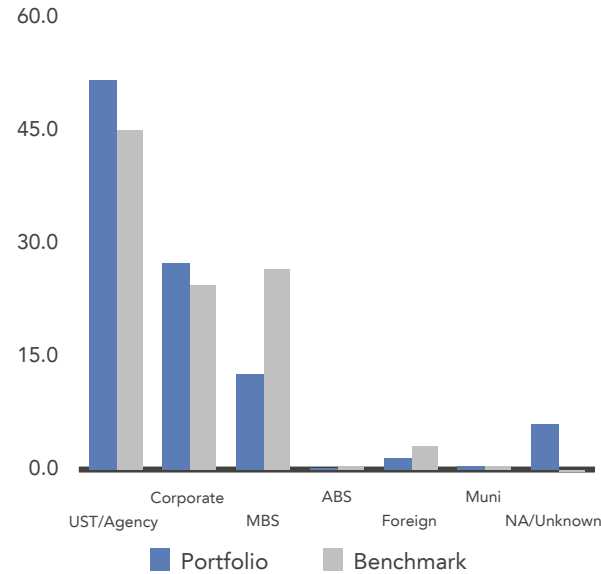
Risk vs. Return - 3 Years



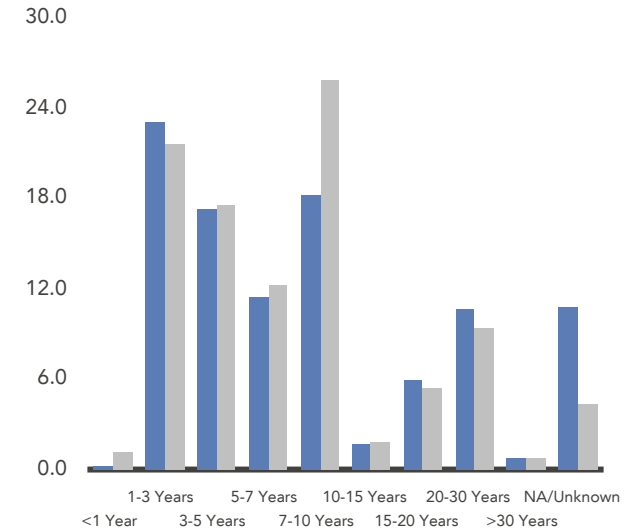
Credit Quality Distribution (%)



Sector Distribution (%)



Maturity Distribution (%)

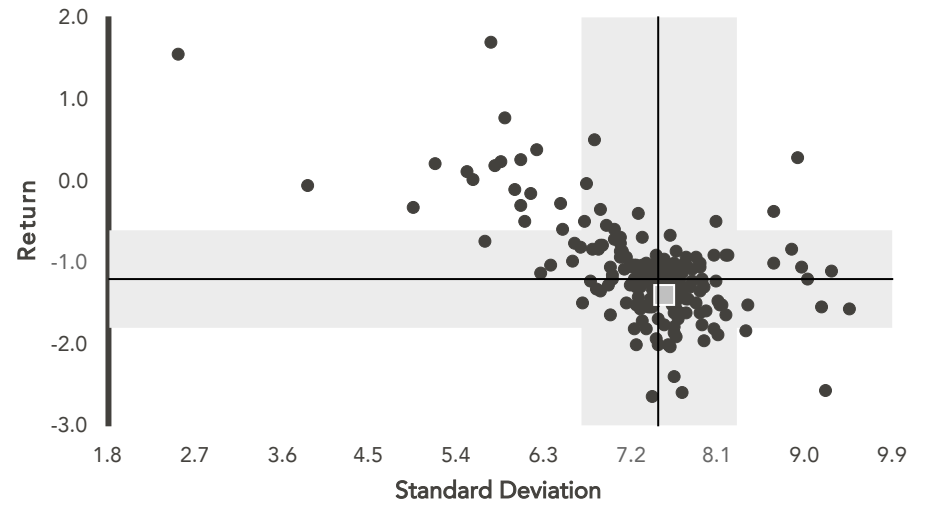


Diamond Hill Core Bond

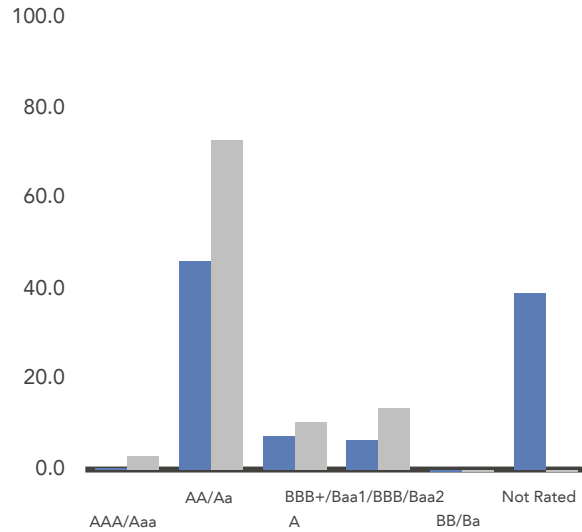
Portfolio Characteristics
As of September 30, 2024

Portfolio Characteristics	Portfolio	Blmbg. U.S. Aggregate Index
Avg. Maturity (yrs.)	8.7	8.3
Avg. Quality	AA	AA
Coupon Rate (%)	3.4	3.5
Modified Duration (yrs.)	6.7	6.0
Effective Duration (yrs.)	7.2	6.0
Yield To Maturity (%)	5.6	4.2
Yield To Worst (%)	5.6	4.2

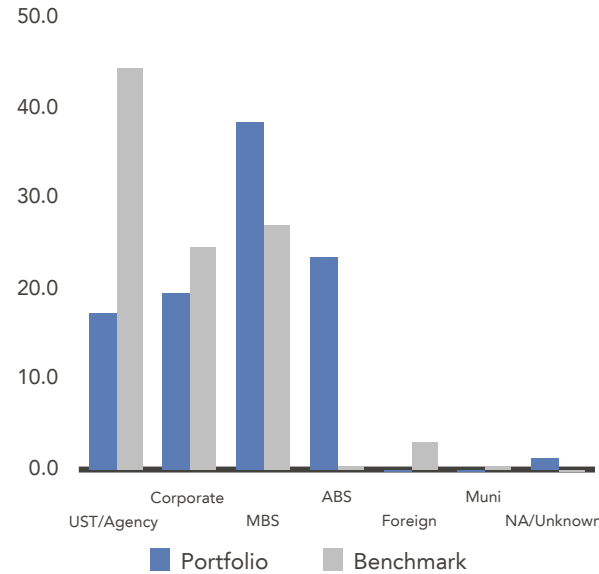
Risk vs. Return - 3 Years



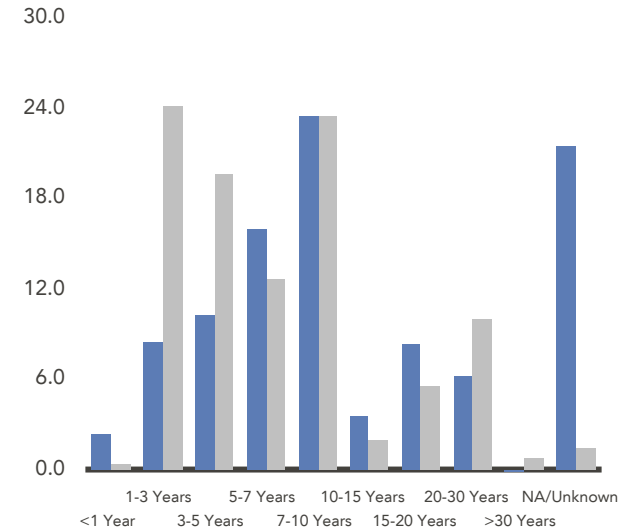
Credit Quality Distribution (%)



Sector Distribution (%)



Maturity Distribution (%)

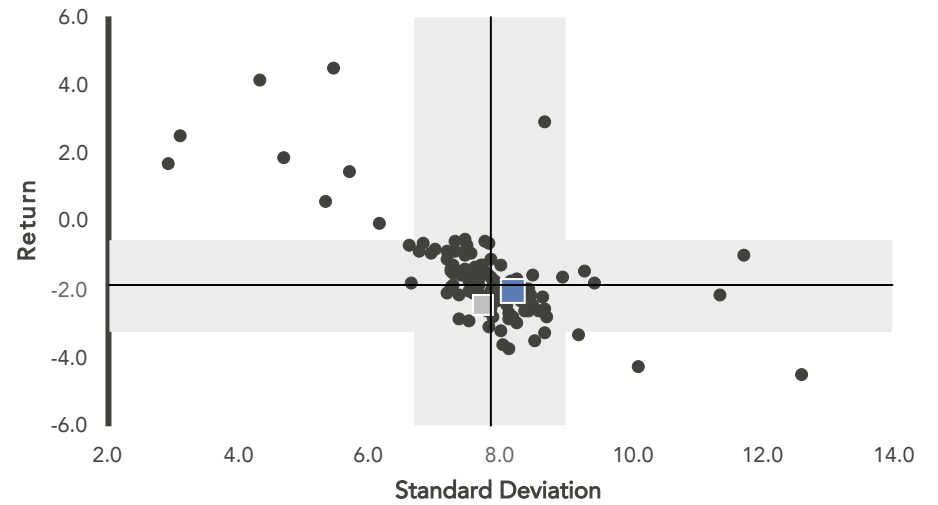


Loomis Sayles Core-Plus

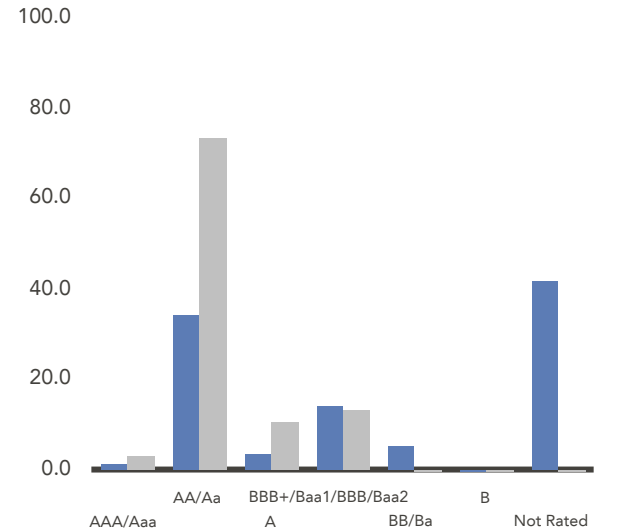
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Blmbg. U.S. Aggregate Index
Avg. Maturity (yrs.)	11.1	8.4
Avg. Quality	A	AA
Coupon Rate (%)	4.1	3.5
Modified Duration (yrs.)	7.2	6.0
Effective Duration (yrs.)	7.3	5.9
Yield To Maturity (%)	5.4	4.9
Yield To Worst (%)	5.4	4.9

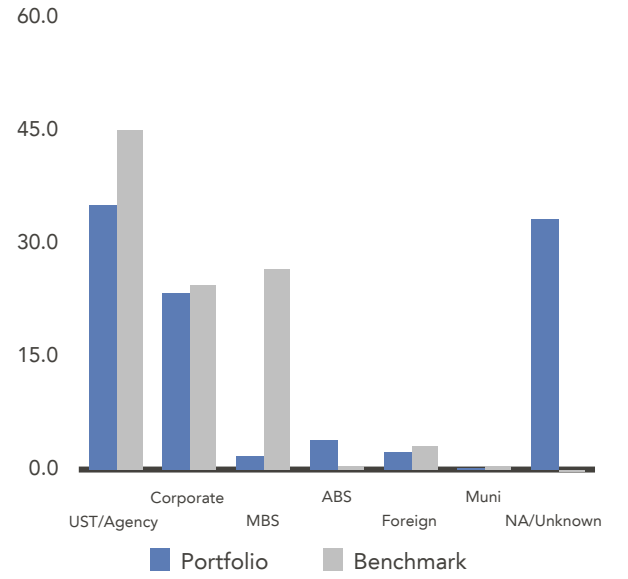
Risk vs. Return - 3 Years



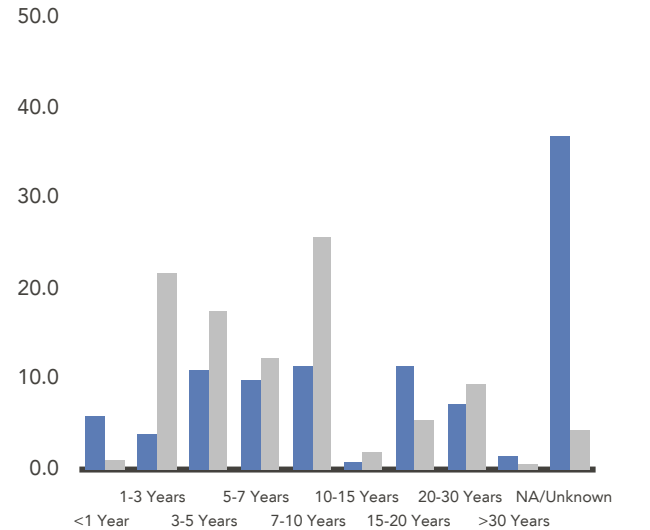
Credit Quality Distribution (%)



Sector Distribution (%)



Maturity Distribution (%)

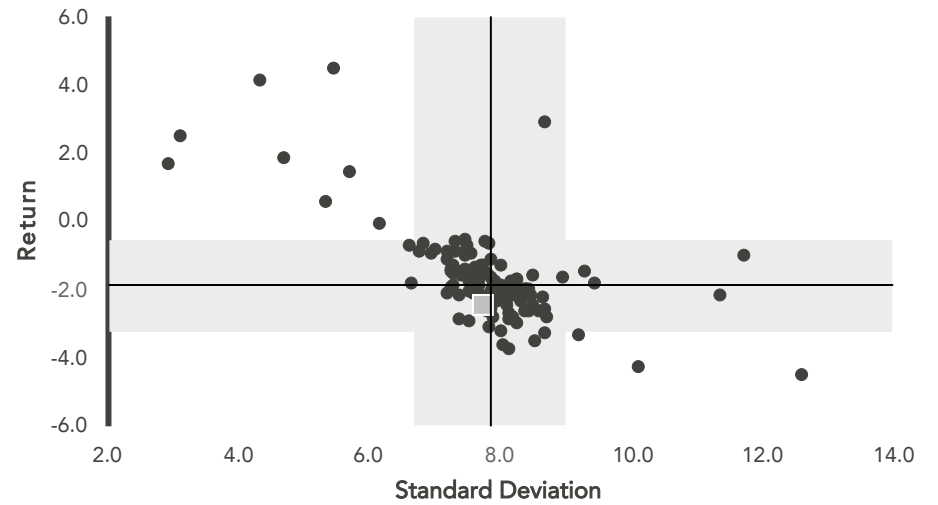


Columbus Core Plus Bond

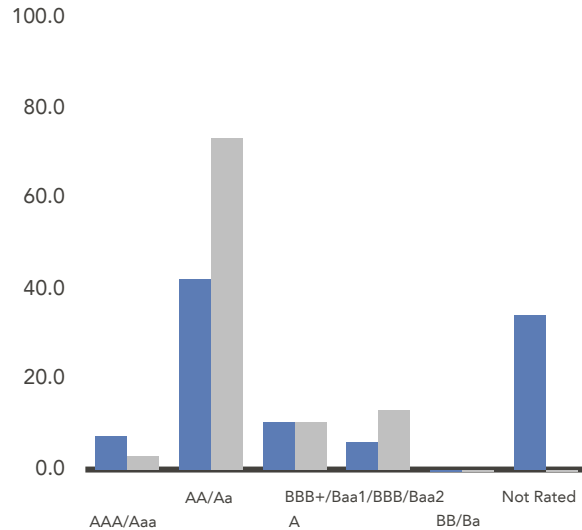
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Blmbg. U.S. Aggregate Index
Avg. Maturity (yrs.)	8.0	8.4
Avg. Quality	AA	AA
Coupon Rate (%)	3.0	3.5
Modified Duration (yrs.)	4.5	6.0
Effective Duration (yrs.)	5.3	5.9
Yield To Maturity (%)	4.8	4.9
Yield To Worst (%)	4.8	4.9

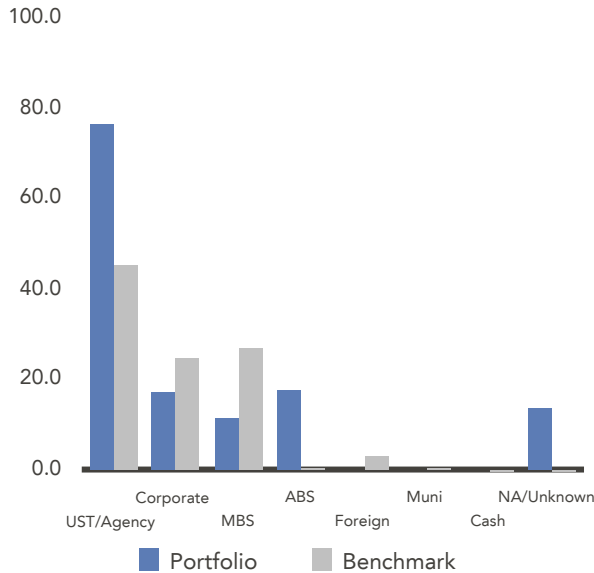
Risk vs. Return - 3 Years



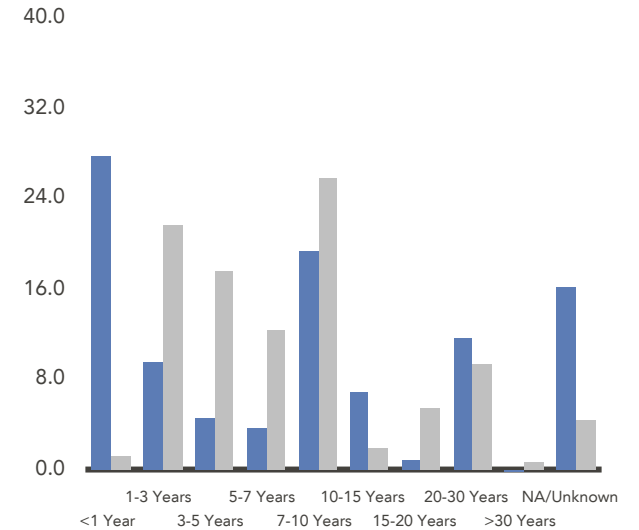
Credit Quality Distribution (%)



Sector Distribution (%)



Maturity Distribution (%)



Manager: Shenkman Capital Management AUM: \$35,243.50 MM
Product: Four Points Multi-Strategy AUM: \$4,118.81 MM
Strategy: Fixed Income - Opportunistic
Date as of: Dec 31st, 2024
Benchmark 1: S&P UBS Leveraged Loan Index
Benchmark 2: Bloomberg High Yield Index
InceptionDate: 9/30/2010

Risk and Returns

3YR	Manager	Benchmark1	Benchmark2
Annualized Return	3.9%	6.8%	2.9%
Standard Deviation	6.0%	3.7%	8.5%
Sharpe Ratio	0.05	0.84	-0.04
Skew	-0.41	-1.27	-0.33
Kurtosis	0.51	2.60	1.27
Up Capture	--	78.9%	69.0%
Down Capture	--	134.9%	55.9%

SINCE INCEPT.	Manager	Benchmark1	Benchmark2
Annualized Return	5.9%	5.3%	6.2%
Standard Deviation	6.4%	4.8%	7.1%
Sharpe Ratio	0.73	0.84	0.69
Skew	-1.72	-4.81	-1.18
Kurtosis	11.39	44.06	6.87
Up Capture	--	126.0%	84.9%
Down Capture	--	143.0%	78.1%

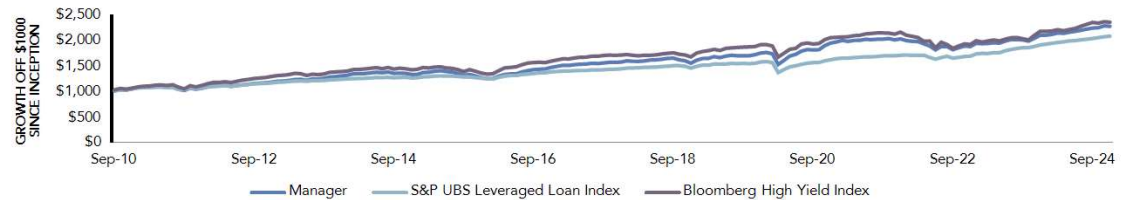
Benchmark Based Return Statistics

3YR	Benchmark1	Benchmark2
Alpha	-5.3%	2.0%
Beta	1.34	0.66
R2	68.8%	87.3%

SINCE INCEPT.	Benchmark1	Benchmark2
Alpha	-0.4%	0.7%
Beta	1.19	0.85
R2	79.4%	88.1%

Investment Strategy:

Shenkman Capital Management was founded in 1985 and is a medium-sized firm dedicated to sub-investment grade credit located in New York. The firm believes that bond ratings agencies are poor arbiters of issuer risk and their ability to service debt, and seeks to find inefficiencies in sub-investment grade debt. The strategy is managed by a large team of credit specialists. The Four Points strategy allocates across high yield bonds, bank loans, convertible bonds and an opportunistic debt bucket that will make long/short pair trades, as well as stressed/distressed debt, and CLO debt and CLO equity. There is no maximum limit across the four segments. The strategy has 90% overlap with the firms MAC strategy but will have a slightly more aggressive risk profile due to the use of the opportunistic debt sleeve.



Monthly Returns: (Net of Fees)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2024	0.1%	0.7%	1.3%	-0.3%	1.1%	0.7%	1.0%	1.1%	0.9%	0.3%	1.6%	-0.4%	8.3%
2023	3.4%	-0.4%	0.3%	0.6%	-0.3%	2.0%	1.5%	0.0%	-0.2%	-1.2%	2.8%	2.9%	11.8%
2022	-1.7%	-0.7%	-0.2%	-2.3%	-2.1%	-4.1%	3.6%	0.0%	-3.3%	2.1%	1.8%	-0.5%	-7.4%
2021	1.1%	1.5%	-0.9%	0.9%	0.1%	1.0%	-0.3%	0.4%	0.1%	0.5%	-1.3%	1.0%	4.2%
2020	0.7%	-1.6%	-12.0%	5.2%	5.4%	1.9%	3.7%	1.6%	-0.3%	0.2%	4.5%	2.6%	11.2%
2019	3.8%	2.1%	0.2%	2.1%	-1.1%	1.8%	1.0%	-0.6%	0.1%	0.0%	1.2%	1.9%	12.9%

Trailing Returns

	3MO	1YR	3YR	5YR	10YR	INCEPT
Manager	1.5%	8.3%	3.9%	5.4%	5.5%	5.9%
S&P UBS Leveraged Loan Index	2.3%	9.1%	6.8%	5.7%	5.1%	5.3%
Bloomberg High Yield Index	0.2%	8.2%	2.9%	4.2%	5.2%	6.2%

Calendar Returns

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Manager	2.2%	-4.6%	15.7%	7.1%	-1.4%	12.9%	11.2%	4.2%	-7.4%	11.8%	8.3%
S&P UBS Leveraged Loan Index	2.1%	-0.4%	9.9%	4.2%	1.1%	8.2%	2.8%	5.4%	-1.1%	13.0%	9.1%
Bloomberg High Yield Index	2.5%	-4.5%	17.1%	7.5%	-2.1%	14.3%	7.1%	5.3%	-11.2%	13.4%	8.2%

Crisis Performance

	FinancialCrisis May '07 - Feb '09	Euro Crisis April '11 - Sept '11	Taper Tantrum April '13 - Aug '13	Oil/ShaleCrash May '15 - Jan '16	COVID-19 Dec '19 - Mar '20
Manager	--	-7.2%	0.7%	-11.1%	-12.8%
S&P UBS Leveraged Loan Index	--	-4.0%	0.8%	-4.2%	-13.2%
Bloomberg High Yield Index	--	-6.5%	-2.0%	-9.7%	-12.7%



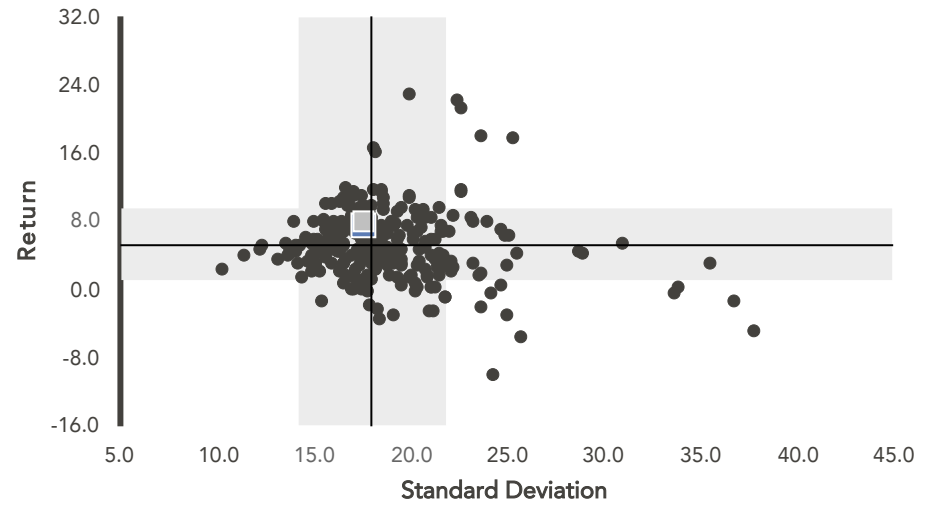
U.S. Equity Composite

U.S. Equity Composite

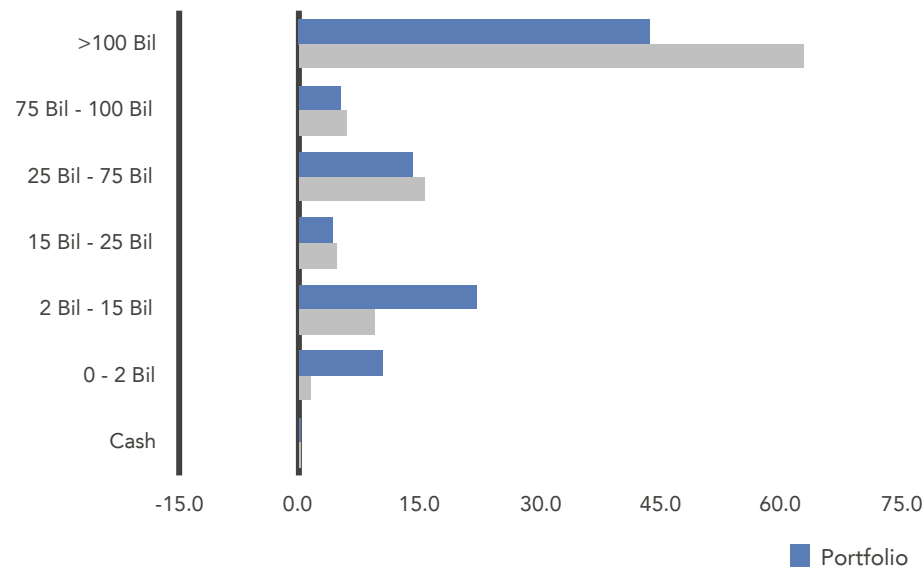
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Russell 3000 Index
Wtd. Avg. Mkt. Cap \$M	\$538,105	\$951,638
Median Mkt. Cap \$M	\$2,406	\$2,248
Price/Earnings ratio	21.1	26.2
Price/Book ratio	3.0	4.7
5 Yr. EPS Growth Rate (%)	14.9	20.1
Current Yield (%)	1.7	1.3
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	2,918	2,973

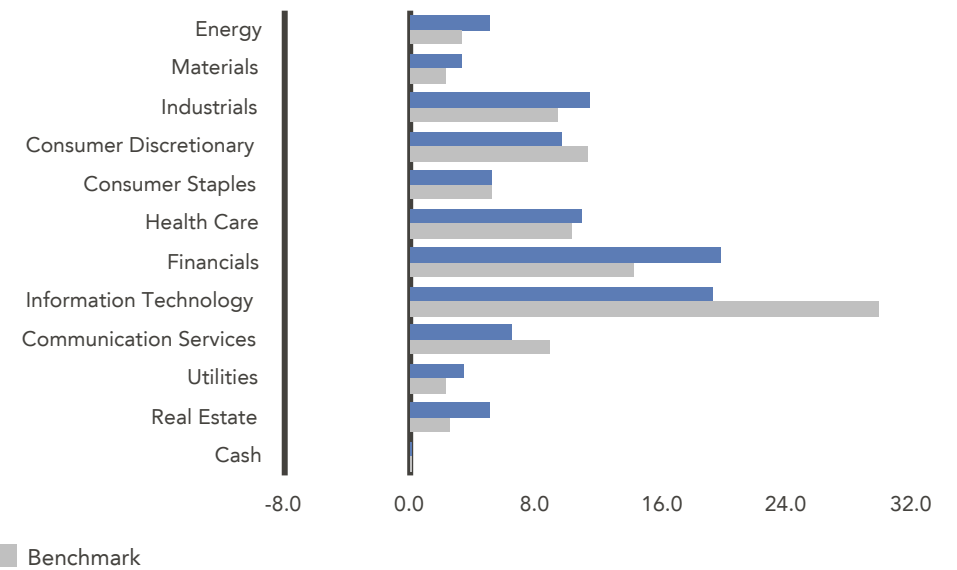
Risk vs. Return - 3 Years



Distribution of Market Capitalization (%)



Sector Weights (%)



U.S. Equity Composite

Correlation Matrix
3 Years Ending December 31, 2024

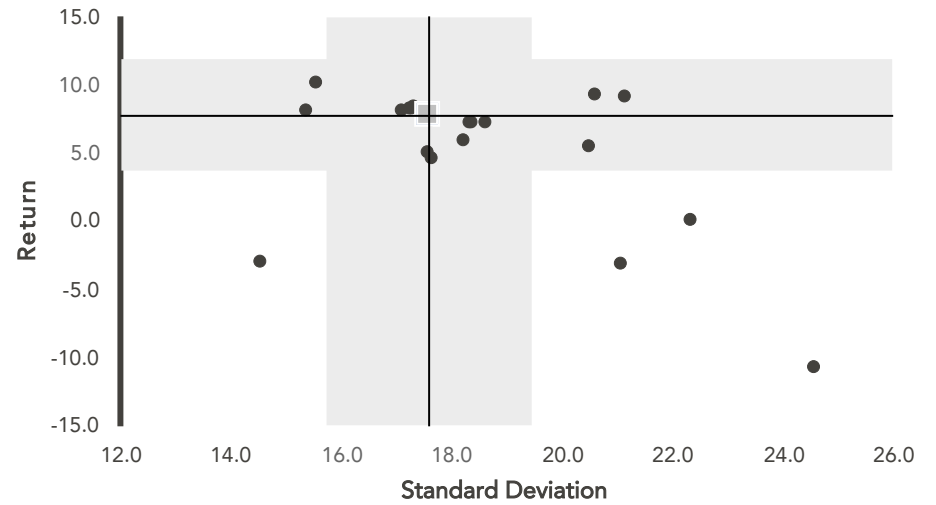
	U.S. Equity Composite	NTGI Russell 3000	NTGI Russell 1000 Value	NTGI Russell 2000 Value
U.S. Equity Composite	1.00			
NTGI Russell 3000	0.99	1.00		
NTGI Russell 1000 Value	0.96	0.93	1.00	
NTGI Russell 2000 Value	0.90	0.85	0.91	1.00

NTGI Russell 3000

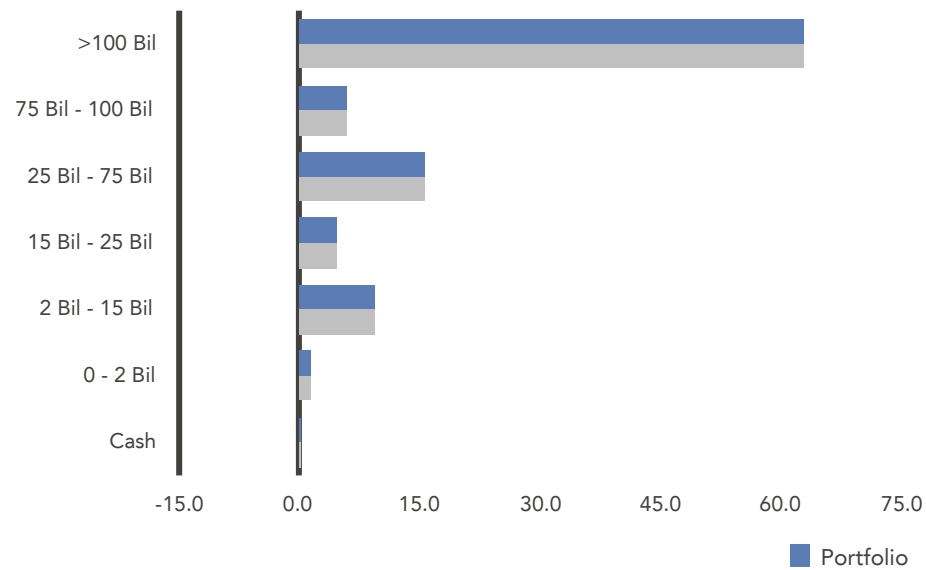
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Russell 3000 Index
Wtd. Avg. Mkt. Cap \$M	\$951,471	\$951,638
Median Mkt. Cap \$M	\$2,825	\$2,248
Price/Earnings ratio	26.2	26.2
Price/Book ratio	4.7	4.7
5 Yr. EPS Growth Rate (%)	20.1	20.1
Current Yield (%)	1.3	1.3
Beta (3 Years, Monthly)	1.0	1.0
Number of Stocks	2,705	2,973

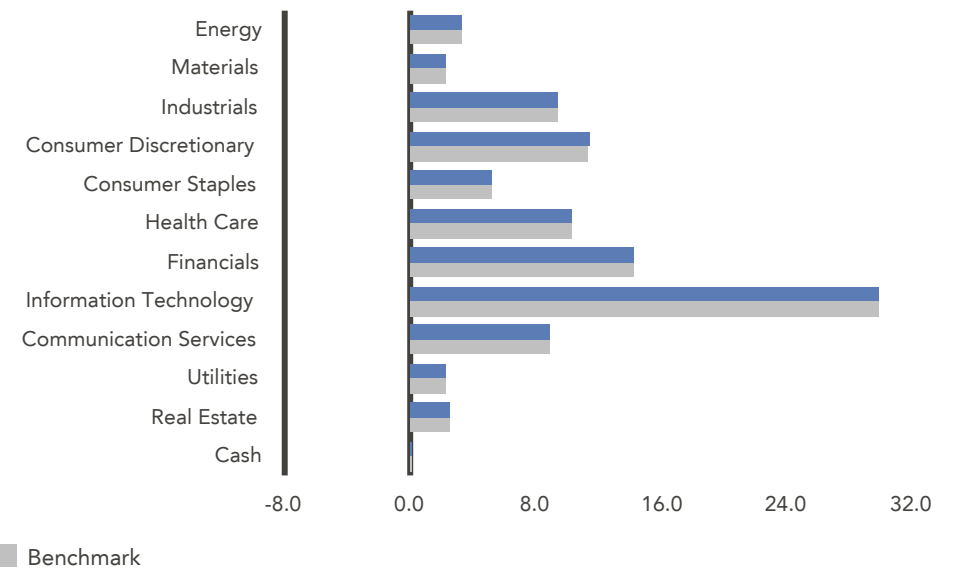
Risk vs. Return - 3 Years



Distribution of Market Capitalization (%)



Sector Weights (%)

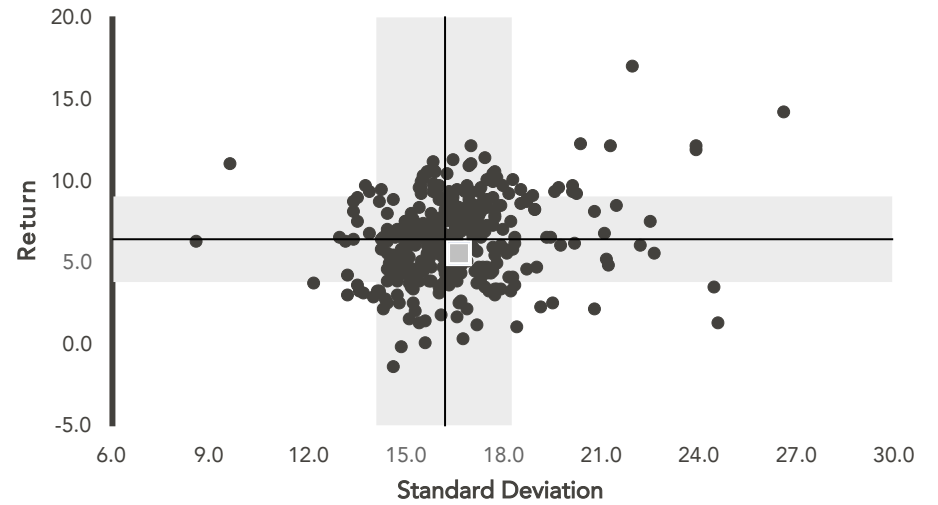


NTGI Russell 1000 Value

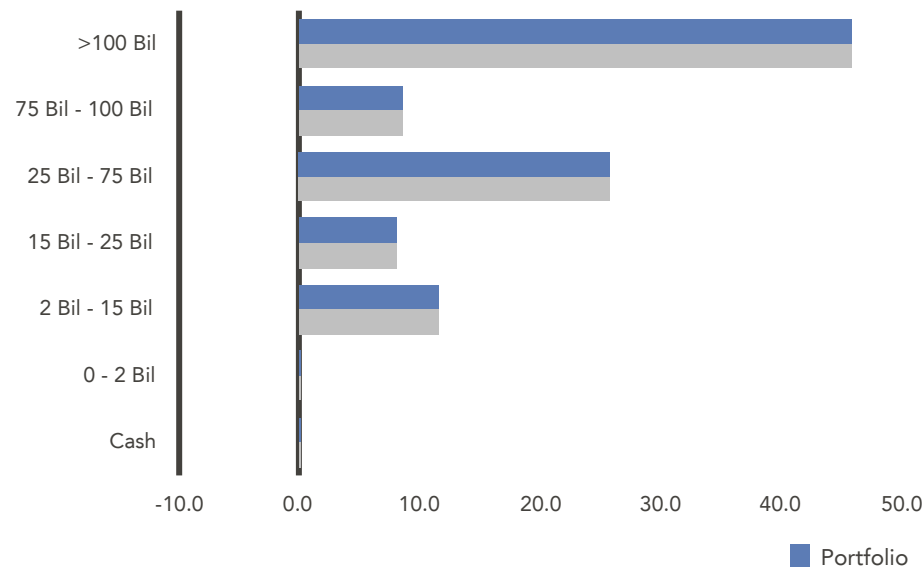
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Russell 1000 Value Index
Wtd. Avg. Mkt. Cap \$M	\$171,891	\$171,891
Median Mkt. Cap \$M	\$14,080	\$14,080
Price/Earnings ratio	19.9	19.9
Price/Book ratio	2.7	2.7
5 Yr. EPS Growth Rate (%)	9.9	9.9
Current Yield (%)	2.1	2.1
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	875	869

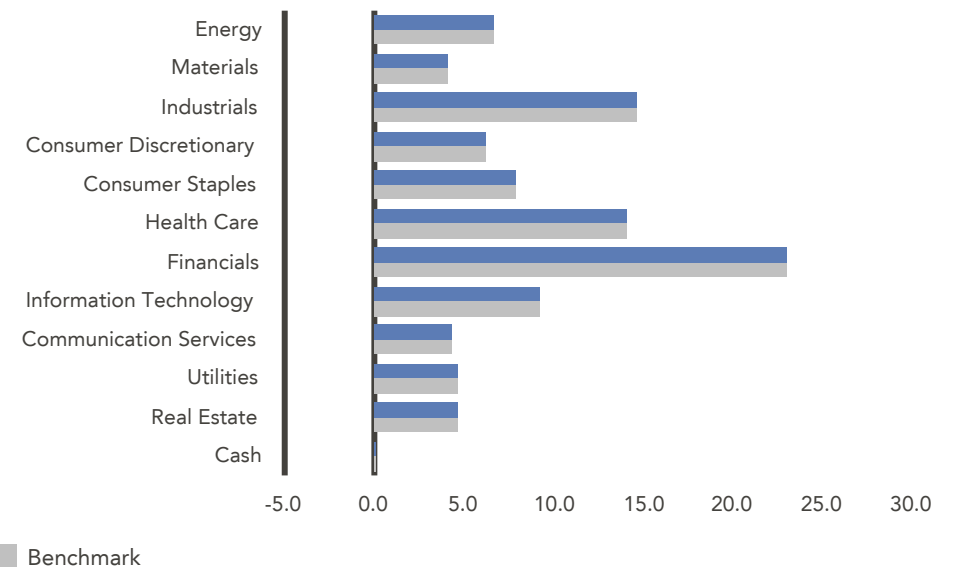
Risk vs. Return - 3 Years



Distribution of Market Capitalization (%)



Sector Weights (%)

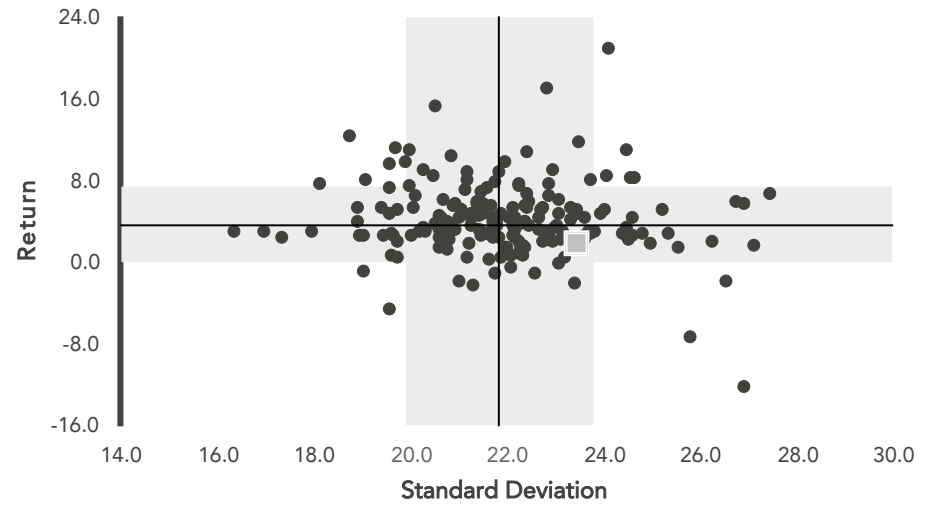


NTGI Russell 2000 Value

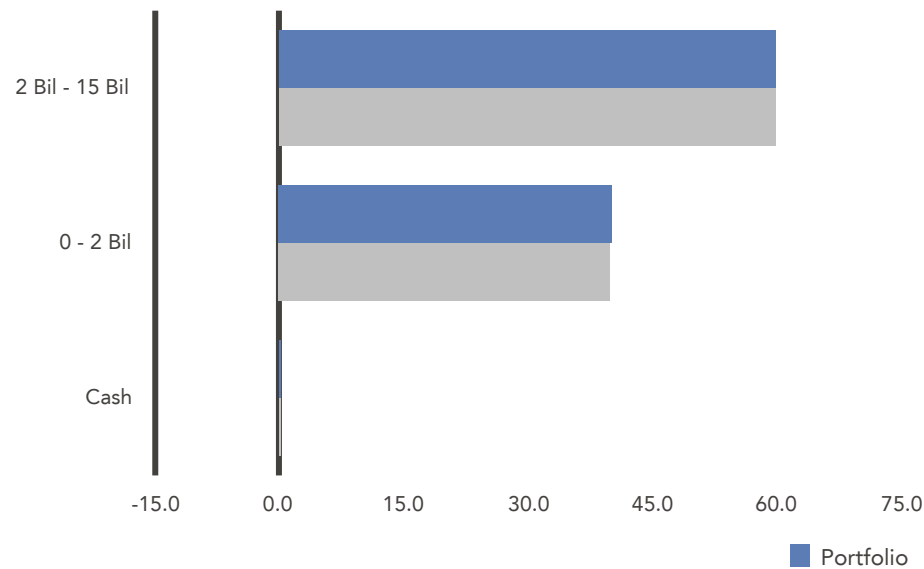
Portfolio Characteristics
As of December 31, 2024

Portfolio Characteristics	Portfolio	Russell 2000 Value Index
Wtd. Avg. Mkt. Cap \$M	\$2,830	\$2,831
Median Mkt. Cap \$M	\$788	\$787
Price/Earnings ratio	14.4	14.4
Price/Book ratio	1.6	1.6
5 Yr. EPS Growth Rate (%)	6.4	6.4
Current Yield (%)	2.1	2.1
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	1,449	1,434

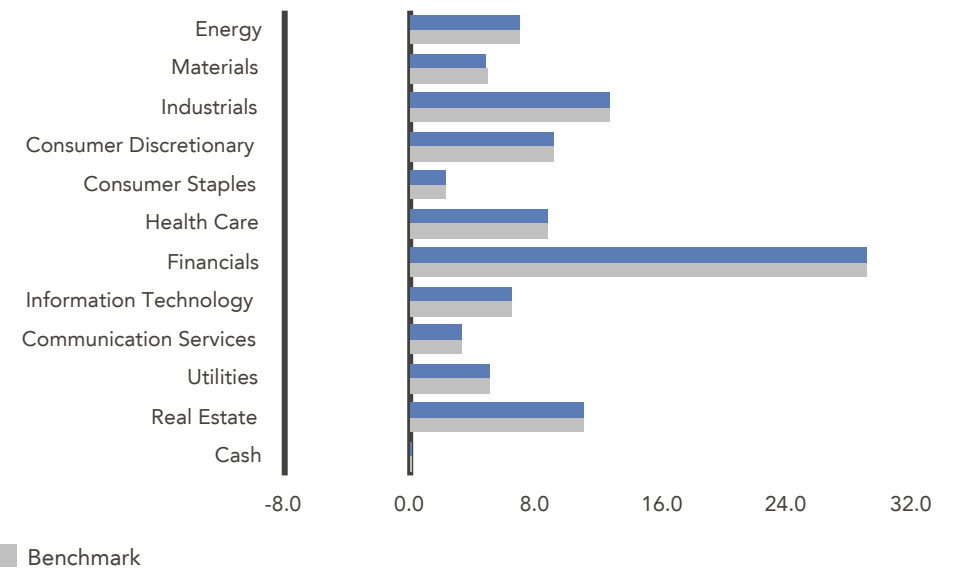
Risk vs. Return - 3 Years



Distribution of Market Capitalization (%)



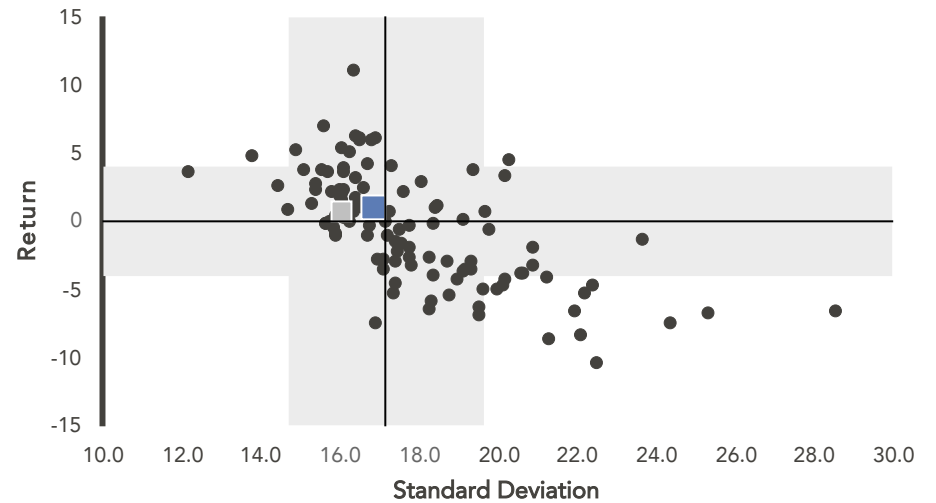
Sector Weights (%)



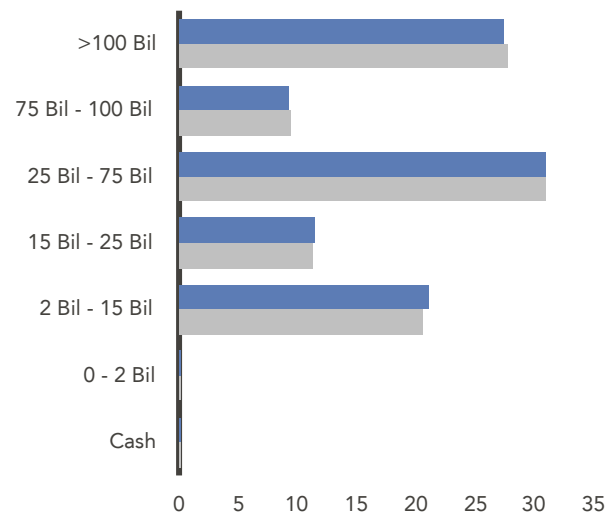
Non-U.S. Equity Composite

Portfolio Characteristics	Portfolio	MSCI AC World ex USA (Net)
Wtd. Avg. Mkt. Cap \$M	\$107,776	\$107,606
Median Mkt. Cap \$M	\$9,718	\$9,818
Price/Earnings ratio	15.9	15.8
Price/Book ratio	2.6	2.5
5 Yr. EPS Growth Rate (%)	12.2	12.0
Current Yield (%)	2.9	3.0
Beta (3 Years, Monthly)	1.0	1.0
Number of Stocks	2,139	2,058

Risk vs. Return - 3 Years



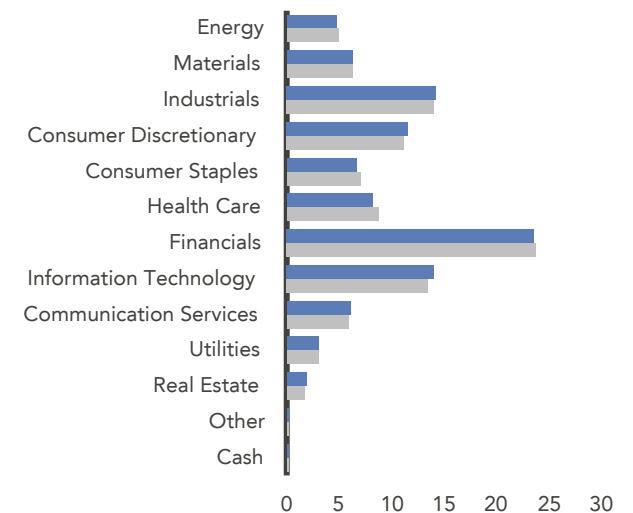
Distribution of Market Capitalization (%)



Region (%)

	Portfolio	Benchmark
Canada	8.4	8.1
United States	0.1	0.1
Europe	38.3	40.5
Asia Pacific	22.8	22.0
Developed Markets	69.5	70.7
Americas	2.0	1.9
Europe	0.7	0.7
Asia Pacific	23.9	23.0
Emerging Markets	26.6	25.6
Cash	0.0	0.0
Other	3.8	3.7
Total	100.0	100.0

Sector Weights (%)



■ Portfolio ■ Benchmark

Volatility Risk Premium Composite

Neuberger Berman US Equity Index Putwrite Fund

Portfolio Characteristics

Manager: Neuberger Berman Group AUM: \$9,273.43 MM
Product: NB US Index PutWrite Strategy AUM: \$7,849.63 MM
Strategy: Hedge Funds - Volatility Risk Premium
Date as of: Dec 31st, 2024
Benchmark1: CBOE Put Write Index
Benchmark2: S&P 500
InceptionDate: 7/31/2011

Risk and Returns 3YR

	Neuberger	Benchmark1	Benchmark2
Annualized Return	5.1%	7.5%	8.9%
Standard Deviation	9.4%	8.9%	17.4%
Sharpe Ratio	0.23	0.54	0.37
Skew	-0.68	-0.72	-0.31
Kurtosis	-0.12	0.06	-0.71
Up Capture	--	88.2%	47.7%
Down Capture	--	104.8%	58.9%

SINCE INCEPT.

	Neuberger	Benchmark1	Benchmark2
Annualized Return	8.3%	7.9%	13.8%
Standard Deviation	7.9%	9.5%	14.5%
Sharpe Ratio	0.89	0.69	0.87
Skew	-0.95	-1.27	-0.38
Kurtosis	2.38	5.25	0.71
Up Capture	--	87.7%	50.0%
Down Capture	--	77.2%	54.0%

Benchmark Based Return Statistics

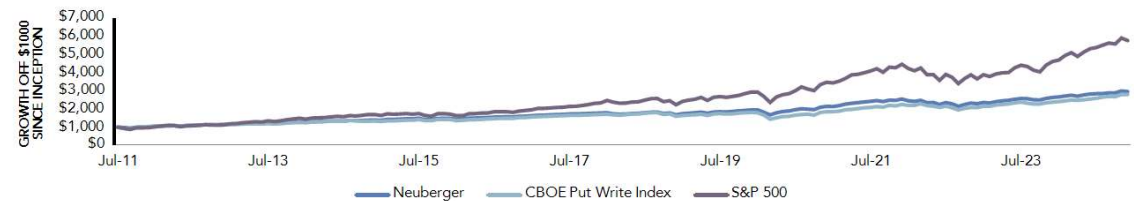
3YR	Benchmark1	Benchmark2
Alpha	-2.3%	0.4%
Beta	0.98	0.52
R2	85.5%	93.5%

SINCE INCEPT.

	Benchmark1	Benchmark2
Alpha	2.3%	1.1%
Beta	0.76	0.52
R2	83.7%	90.0%

Investment Strategy:

Neuberger Berman bought the index option strategy, run by Doug Kramer and Derek Devins, from Horizon Kinetics on Jan 1, 2016. The team, track record and clients all moved over to Neuberger. The team uses a systematic approach to selling options to capture the structural mispricing in the options market. The strategy only sells put options since the premium collection from put writing is generally greater than calls. The strategy uses a constant moneyness approach (i.e. fixed strike prices). Neuberger has both U.S. and Global put writing strategies.



Monthly Returns: (Net of Fees)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2024	1.1%	1.9%	1.7%	-1.9%	2.7%	1.6%	0.7%	0.3%	1.4%	0.0%	3.5%	-1.1%	12.4%
2023	3.1%	-1.2%	3.1%	1.8%	1.3%	2.2%	1.8%	-0.5%	-2.3%	-0.4%	3.4%	2.0%	15.1%
2022	-3.7%	-1.4%	2.4%	-5.3%	0.5%	-4.7%	4.7%	-2.9%	-5.9%	4.6%	3.4%	-1.5%	-10.2%
2021	-0.5%	2.3%	3.9%	2.0%	1.6%	1.7%	1.3%	1.8%	-2.2%	3.3%	-0.4%	3.0%	19.0%
2020	0.2%	-6.9%	-8.0%	6.9%	3.8%	1.6%	3.8%	2.7%	-1.1%	-1.3%	6.7%	2.3%	10.0%
2019	3.6%	1.5%	1.5%	1.7%	-3.2%	3.7%	0.8%	-0.6%	1.5%	1.7%	1.4%	1.4%	16.2%

Trailing Returns

	3MO	1YR	3YR	5YR	10YR	INCEPT
Neuberger	2.4%	12.4%	5.1%	8.7%	7.9%	8.3%
CBOE Put Write Index	3.9%	17.8%	7.5%	9.1%	7.7%	7.9%
S&P 500	2.4%	25.0%	8.9%	14.5%	13.1%	13.8%

Calendar Returns

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Neuberger	7.8%	6.9%	8.5%	10.8%	-5.6%	16.2%	10.0%	19.0%	-10.2%	15.1%	12.4%
CBOE Put Write Index	6.3%	6.4%	7.8%	10.8%	-5.9%	13.5%	2.1%	21.8%	-7.7%	14.3%	17.8%
S&P 500	13.7%	1.4%	12.0%	21.8%	-4.4%	31.5%	18.4%	28.7%	-18.1%	26.3%	25.0%

Crisis Performance

	Financial Crisis May '07 - Feb '09	Euro Crisis April '11 - Sept '11	Taper Tantrum April '13 - Aug '13	Oil/Shale Crash May '15 - Jan '16	COVID-19 Dec '19 - Mar '20
Neuberger	--	-9.7%	1.2%	-1.6%	-14.1%
CBOE Put Write Index	--	-17.6%	-0.6%	-1.9%	-20.7%
S&P 500	--	-22.0%	3.0%	-6.7%	-19.6%



Real Estate Composite

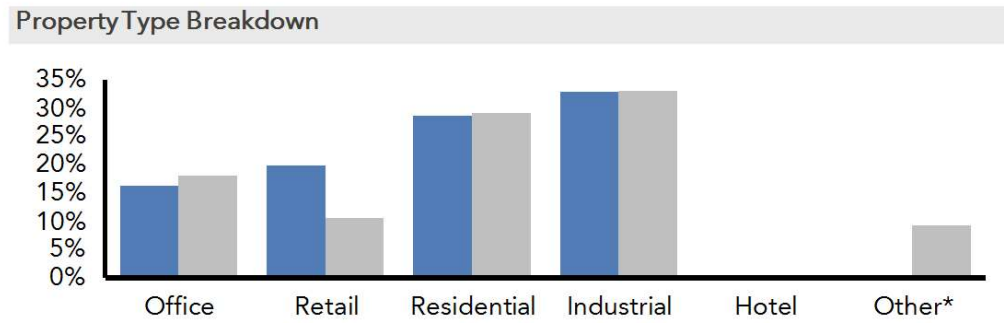
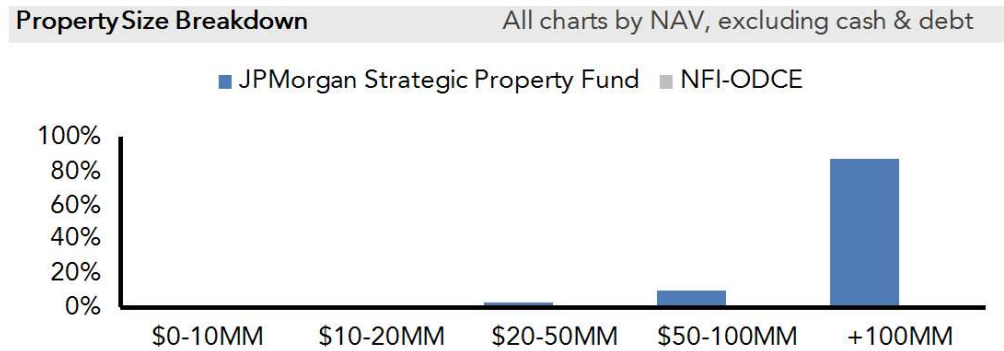
JPMorgan Strategic Property Fund

Portfolio Characteristics

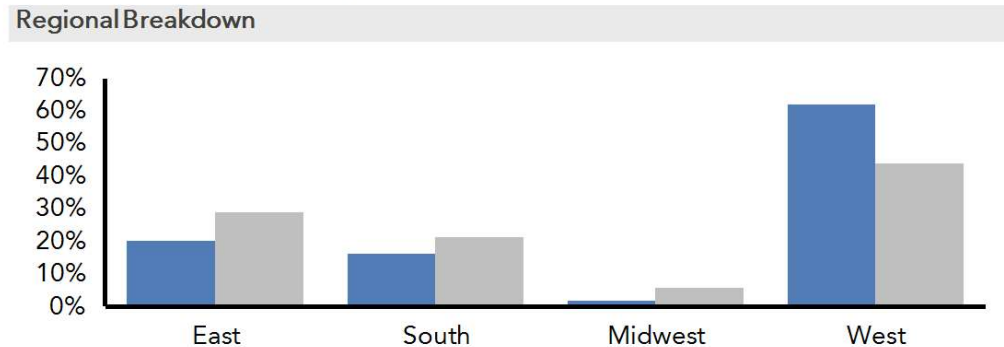
Characteristics	
Fund GAV (\$MM)	\$36,038.7
Fund NAV (\$MM)	\$25,305.0
Cash (% of NAV)	3.6%
# of Investments	140
% in Top 10 by NAV	33.5%
Leverage %	30.4%
Occupancy	90.5%
# of MSAs	54
1-Year Dividend Yield	3.9%
As of Date	9/30/2024

Top 10 Holdings	Location	% of NAV
Black Creek Build to Core	Various	5.4%
Edens - SPF	Various	4.5%
Valley Fair Mall	San Jose, CA	4.4%
Royal Hawaiian Center	Honolulu, HI	3.1%
Century Plaza Towers	Los Angeles, CA	2.9%
Greater Los Angeles Indus	Various, CA	2.8%
University Towne Center	San Diego, CA	2.7%
RealTerm Portfolio	Various	2.6%
Toyota Campus	Torrance, CA	2.6%
Vineyard Industrial I	Ontario, CA	2.5%
Total		33.5%

Property Status	% of Portfolio
Pre-Development	2.1%
Development	6.7%
Initial Leasing	3.2%
Operating	87.9%
Re-Development	0.1%
Other	



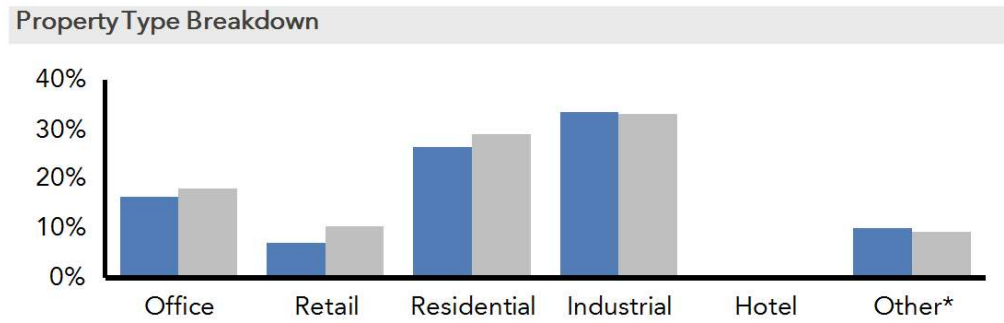
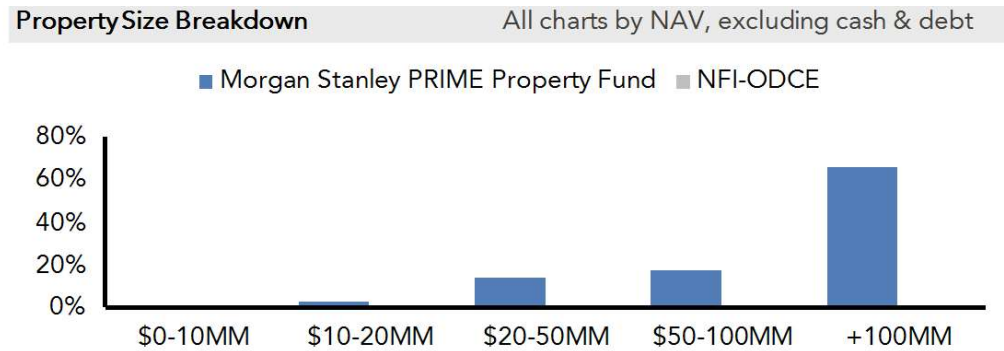
*Other includes Land and Self-Storage



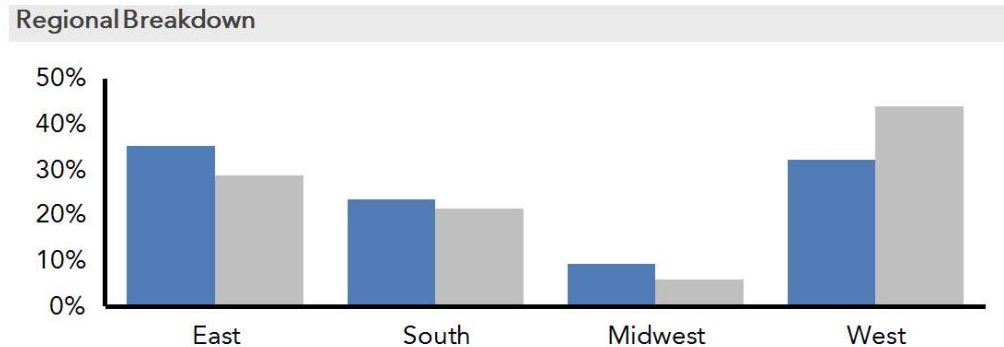
Characteristics	
Fund GAV (\$MM)	\$41,273.3
Fund NAV (\$MM)	\$30,436.8
Cash (% of NAV)	0.1%
# of Investments	532
% in Top 10 by NAV	13.8%
Leverage %	26.4%
Occupancy	91.7%
# of MSAs	53
1-Year Dividend Yield	4.0%
As of Date	9/30/2024

Top 10 Holdings	Location	% of NAV
One Post Office Square	Boston, MA	2.4%
Fashion Valley Mall	San Diego, CA	1.8%
Hills Plaza	San Francisco, CA	1.6%
155 North Wacker	Chicago, IL	1.3%
One Maritime Plaza	San Francisco, CA	1.2%
AMLI Midtown Miami	Miami, FL	1.2%
151 N. Franklin	Chicago, IL	1.1%
200 Cambridge Park Drive	Cambridge, MA	1.1%
Ywo Park Avenue	New York, NY	1.1%
Waterview Tower	Washington, DC	1.0%
Total		13.8%

Property Status	% of Portfolio
Pre-Development	0.5%
Development	2.8%
Initial Leasing	2.6%
Operating	93.6%
Re-Development	0.5%
Other	



*Other includes Healthcare (41 investments at 6.8%) and Student Housing (45 investments at 3.2%).

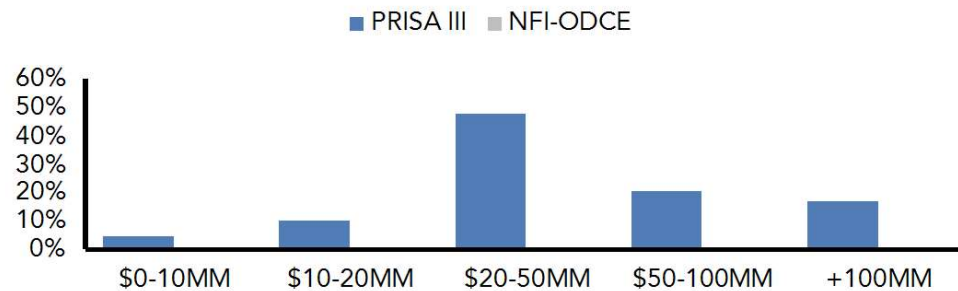


Characteristics	
Fund GAV (\$MM)	\$6,693.9
Fund NAV (\$MM)	\$2,939.8
Cash (% of NAV)	1.5%
# of Investments	95
% in Top 10 by NAV	31.8%
Leverage %	45.6%
Occupancy	79.0%
# of MSAs	41
1-Year Dividend Yield	0.7%
As of Date	9/30/2024

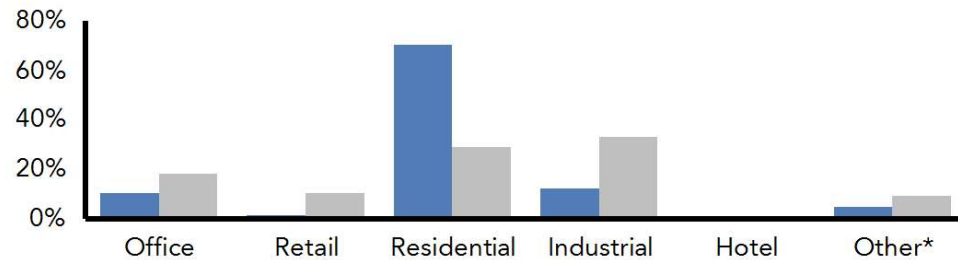
Top 10 Holdings	Location	% of NAV
Esterra Commons Apartment	Redmond, WA	5.0%
295 Fifth Avenue (Textile)	New York, NY	4.1%
One Esterra Park	Redmond, WA	3.9%
Arkadia Tower	Chicago, IL	3.9%
Park 7 Student Housing Po	Waco, TX	3.2%
The Lindley	San Diego, CA	2.7%
Setanta	Charlotte, NC	2.7%
Modera Revere Beach	Revere, MA	2.2%
Lakewood Ranch Multifamil	Bradenton, FL	2.1%
Modera Woodbridge	Woodbridge, NJ	2.0%
Total		31.8%

Property Status	% of Portfolio
Pre-Development	4.3%
Development	26.7%
Initial Leasing	16.5%
Operating	42.0%
Re-Development	2.3%
Other	8.2%

Property Size Breakdown All charts by NAV, excluding cash & debt

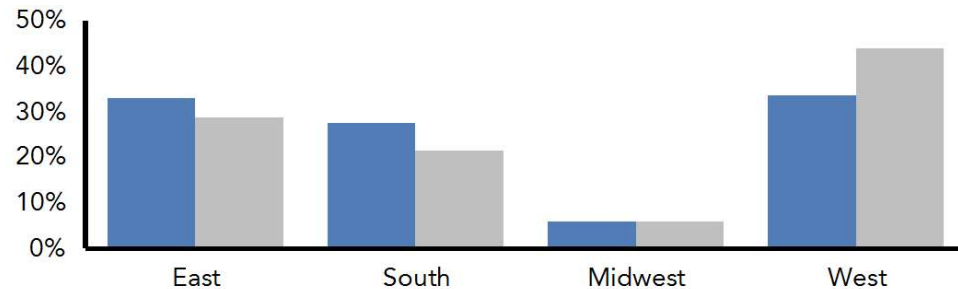


Property Type Breakdown



*Land.

Regional Breakdown



Principal Enhanced Property Fund

Portfolio Characteristics

Characteristics	
Fund GAV (\$MM)	\$4,555.0
Fund NAV (\$MM)	\$2,787.0
Cash (% of NAV)	2.9%
# of Investments	54
% in Top 10 by NAV	35.4%
Leverage %	34.1%
Occupancy	87.6%
# of MSAs	23
1-Year Dividend Yield	4.0%
As of Date	9/30/2024

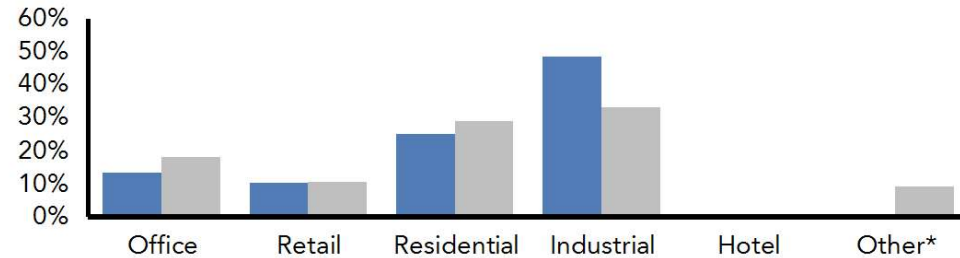
Top 10 Holdings	Location	% of NAV
Bay Center	Oakland, CA	6.7%
Bay Area Business Park (P	Houston, TX	5.6%
Mid-South Logistics Cente	Nashville, TN	5.5%
Bay Area Business Park (P	Houston, TX	4.8%
Bay Area Business Park (P	Houston, TX	3.5%
San Leandro Business Cent	Oakland, CA	3.0%
Spectator	Atlanta, GA	2.9%
7190 Optima Kierland	Phoenix, AZ	2.8%
Oakesdale	Seattle, WA	2.6%
Baybrook Square	Houston, TX	2.6%
Total		40.0%

Property Status	% of Portfolio
Pre-Development	0.0%
Development	1.3%
Initial Leasing	9.6%
Operating	89.0%
Re-Development	0.0%
Other	0.2%

Property Size Breakdown All charts by NAV, excluding cash & debt

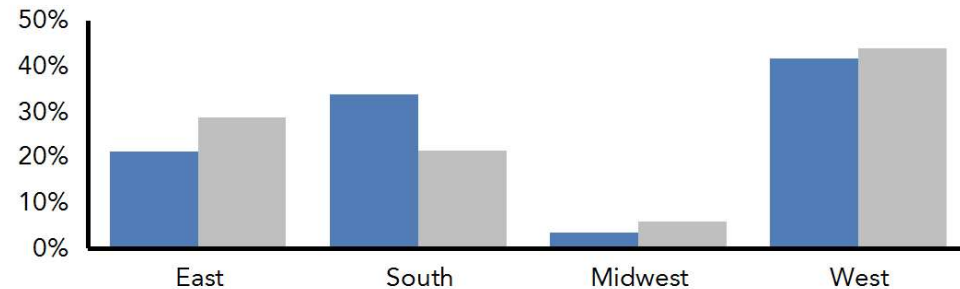


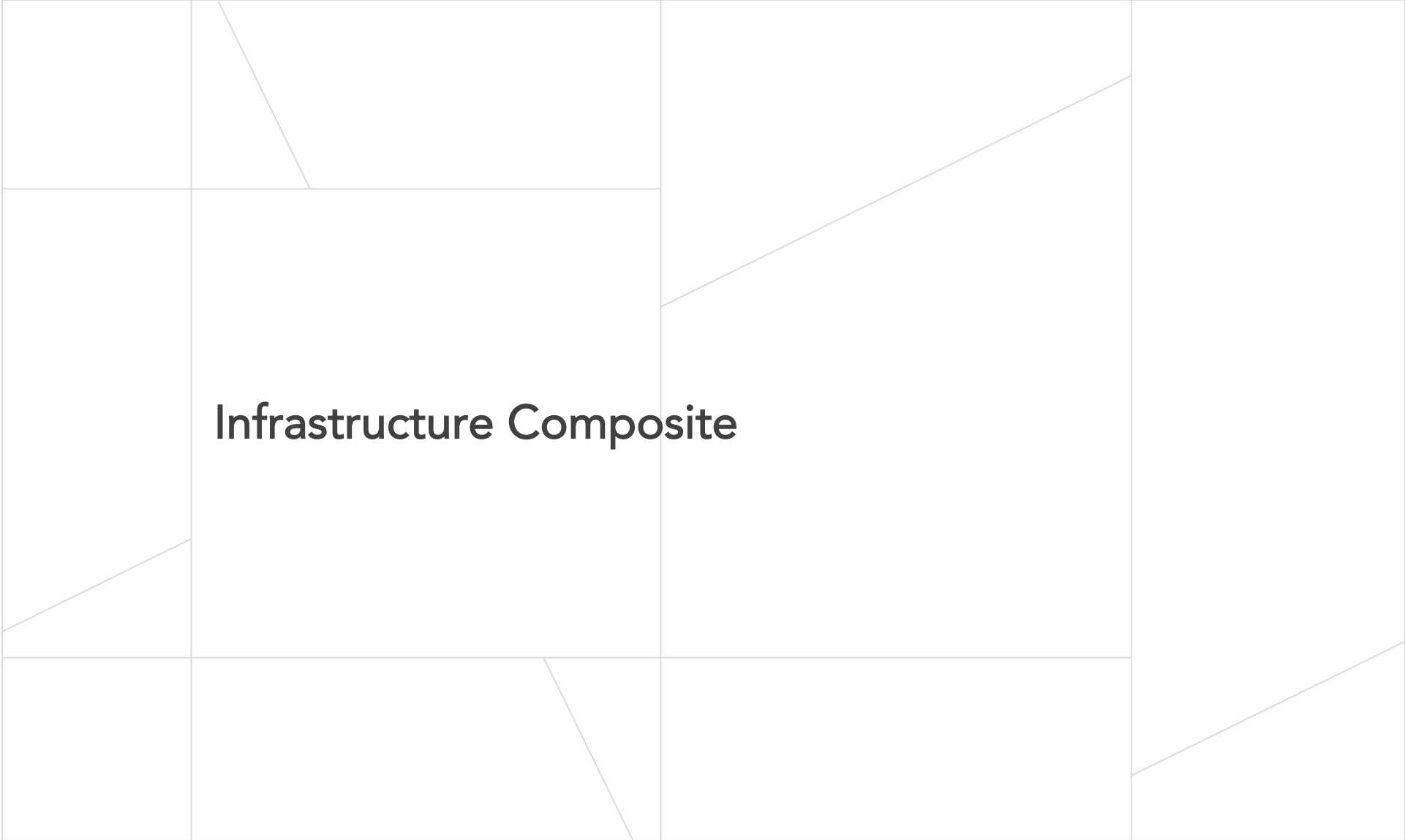
Property Type Breakdown



*Other = Land & Data Center

Regional Breakdown





Characteristics

Fund Inception/Vintage Year	2007
Total Fund GAV (\$M)	\$77,649.0
Total Fund NAV (\$M)	\$40,767.0
Cash Balance % of NAV	
% in Top 10 by NAV	81.9%
As of Date	9/30/2024

Strategy Breakdown

# of Investments	18
# of Investors	1365
# OECD Countries	26
Trailing 12-month Dividend Yield	6.3%

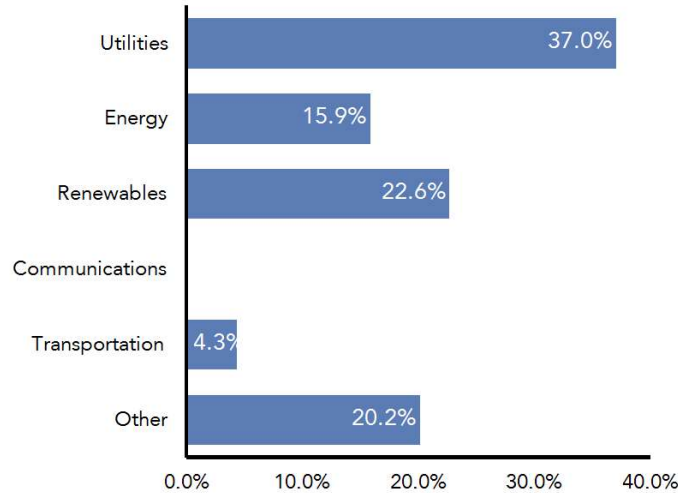
Queue Expectations

Contribution Queue (\$MM)	\$700.0
Redemption Queue (\$MM)	\$553.0

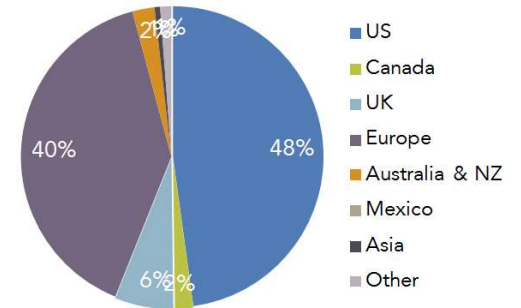
Top 10 Holdings Investment Detail - Investments by NAV

Investment	Location	Sector	Investment (\$MM)	Fair Mkt Val (\$MM)	% of Portfolio
South Jersey Industries	United States	Gas		\$5,993.9	14.0%
GETEC	Europe	Other		\$5,317.5	13.0%
Nadara	UK/Europe/US	Wind		\$5,106.2	12.0%
El Paso Electric	United States	Electric		\$3,180.2	8.0%
Onward Energy	United States	Wind		\$3,048.4	7.0%
Summit Utilities	United States	Gas		\$2,943.8	7.0%
Chane	Netherlands	Storage		\$2,521.2	6.0%
Sonnedix Power Holdings	Various OECD	Solar		\$2,488.0	6.0%
Adven	Finland/Sweden	Other		\$1,996.8	5.0%
BWC Terminals	United States	Storage		\$1,486.0	4.0%
Total			\$0.0	\$34,082.0	82.0%

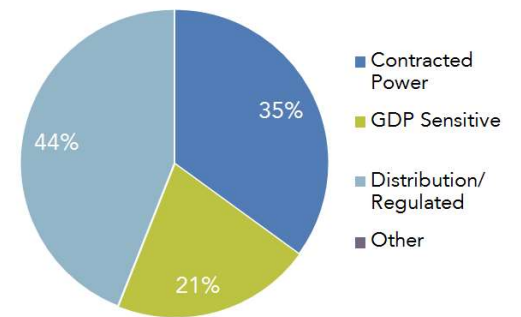
Sector Breakdown by NAV (Excluding Cash & Debt)



Country Breakdown by NAV (Excluding Cash & Debt)



Regional Breakdown by NAV (Excluding Cash & Debt)



IFM Core Infrastructure Fund

Portfolio Characteristics

Characteristics

Fund Inception/Vintage Year	2004
Total Fund GAV (\$M)	\$91,430.7
Total Fund NAV (\$M)	\$50,000.0
Cash Balance % of NAV	2.3%
% in Top 10 by NAV	30.7%
As of Date	9/30/2024

Strategy Breakdown

# of Investments	23
# of Investors	649
# OECD Countries	23
Trailing 12-month Dividend Yield	4.8%

Queue Expectations

Contribution Queue (\$MM)	\$1,700.0
Redemption Queue (\$MM)	\$0.0

Top 10 Holdings Investment Detail investments by NAV

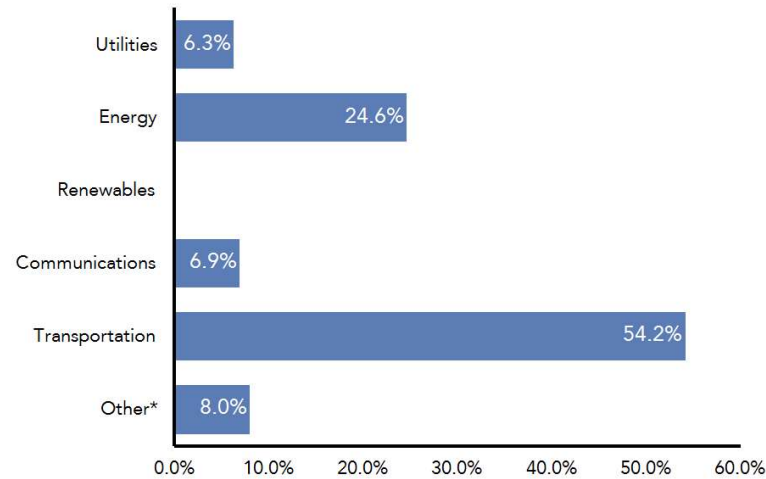
Investment	Location	Sector	Investment (\$MM)	Fair Mkt Val (\$MM)	% of Portfolio
Aleatica	Mexico	Toll Roads	\$7,275.6	\$10,949.3	19.0%
Buckeye Partners	United States	Midstream Services	\$4,763.6	\$9,092.1	15.8%
Indiana Toll Road	United States	Toll Roads	\$4,216.4	\$7,477.0	13.0%
Manchester Airports Group	United Kingdom	Airports	\$1,648.2	\$3,918.4	6.8%
Sydney Airport	Australia	Airports	\$3,142.4	\$3,629.7	6.3%
Switch, Inc.	United States	Wireless Towers	\$2,639.9	\$2,979.0	5.2%
Naturgy Energy Group S.A.	Spain	Diversified	\$2,510.0	\$2,691.0	4.7%
Aqualia	Spain	Water	\$1,206.6	\$2,398.6	4.2%
Freeport Train 2	United States	Midstream Services	\$1,300.7	\$2,395.3	4.2%
Vienna Airport	Austria	Airports	\$1,020.4	\$2,010.8	3.5%
Total			\$29,723.8	\$47,541.2	82.5%

**Other" represents energy transition, district energy, and diversified utilities.

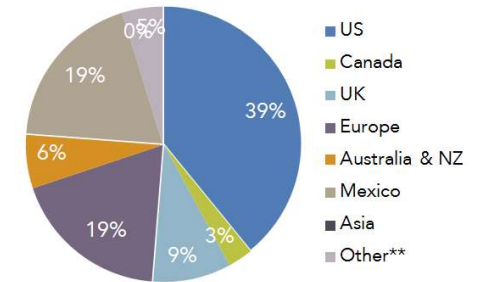
***Other" represents assets with a global footprint. Differences due to rounding.

***Portfolio companies are a combination of various revenue streams.

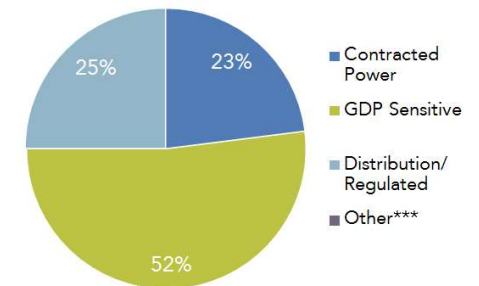
Sector Breakdown by NAV (Excluding Cash & Debt)



Country Breakdown by NAV (Excluding Cash & Debt)



Regional Breakdown by NAV (Excluding Cash & Debt)



ULLICO Core Infrastructure Fund

Portfolio Characteristics

Characteristics

Fund Inception/Vintage Year	2012
Total Fund GAV (\$M)	\$10,147.2
Total Fund NAV (\$M)	\$5,832.5
Cash Balance % of NAV	3.0%
% in Top 10 by NAV	83.4%
As of Date	9/30/2024

Strategy Breakdown

# of Investments	25
# of Investors	283
# OECD Countries	2
Trailing 12-month Dividend Yield	5.3%

Queue Expectations

Contribution Queue (\$MM)	\$350.3
Redemption Queue (\$MM)	\$64.9

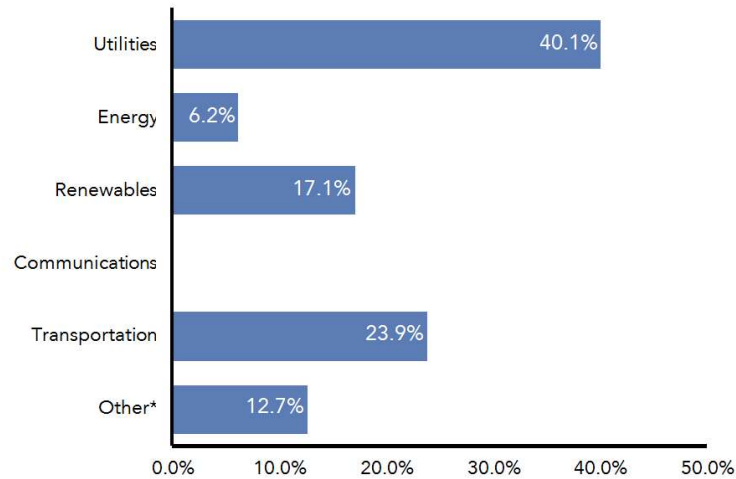
Top 10 Holdings Investment Detail investments by NAV

Investment	Location	Sector	Investment (\$MM)	Fair Mkt Val (\$MM)	% of Portfolio
Hearthstone Holdings	United States	Gas	\$879.1	\$1,233.0	21.8%
Autopistas Metropolitanas de Puerto Rico, LLC	United States	Toll Roads	\$311.7	\$598.7	10.6%
JFK New Terminal One	United States	Airports	\$443.1	\$528.8	9.3%
CenTrio Energy	United States	Other	\$352.7	\$437.1	7.7%
AES Southland Energy, LLC	United States	Electric	\$436.5	\$427.8	7.6%
Neptune Regional Transmission System	United States	Electric	\$229.1	\$395.1	7.0%
Southern Star Central Gas Pipeline, Inc.	United States	Midstream Services	\$238.1	\$352.7	6.2%
Student Transportation, Inc.	United States	Other	\$226.5	\$272.6	4.8%
AES Clean Energy	United States	Solar	\$175.0	\$251.2	4.4%
Tidewater Transportation Terminals	United States	Other	\$195.0	\$227.8	4.0%
Total			\$3,486.8	\$4,724.8	83.5%

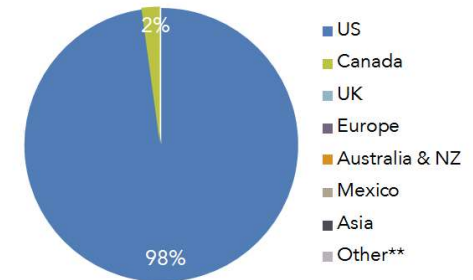
*Transportation, Data Transmission, District Energy

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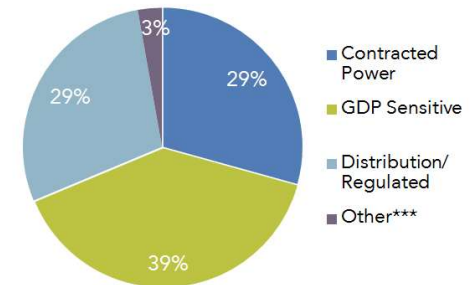
Sector Breakdown by NAV (Excluding Cash & Debt)



Country Breakdown by NAV (Excluding Cash & Debt)



Regional Breakdown by NAV (Excluding Cash & Debt)

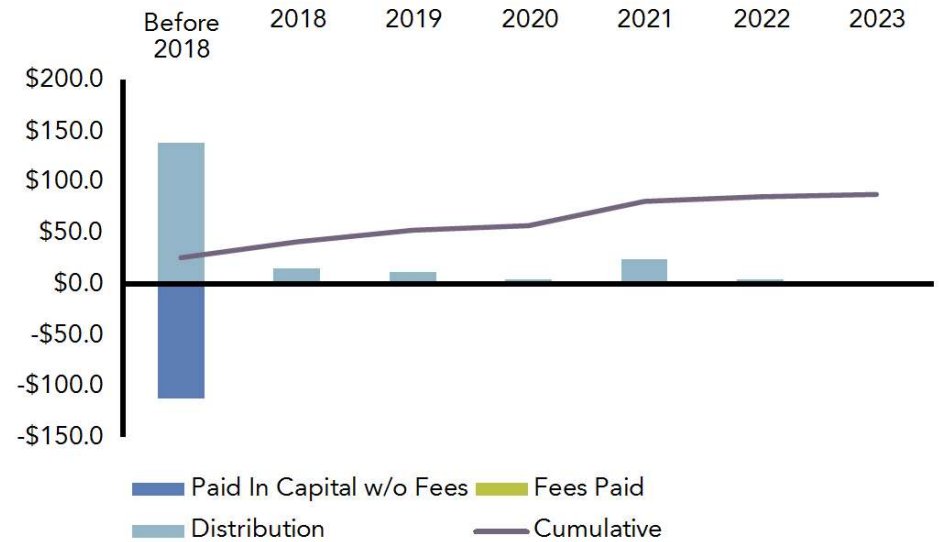




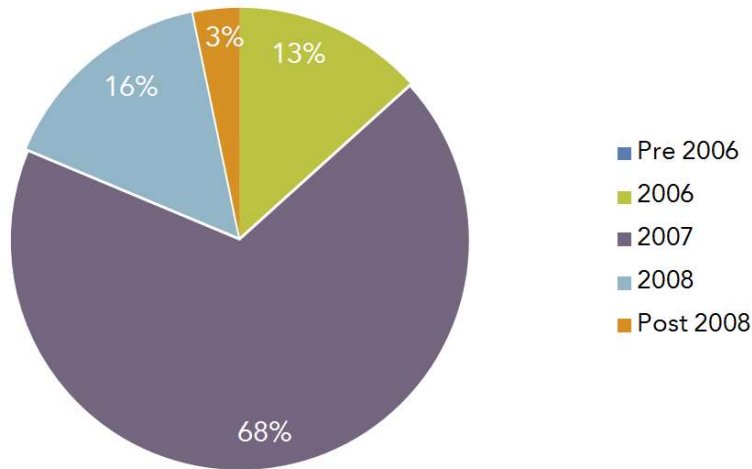
Private Equity Composite

Characteristics	
Fund Vintage Year	2006
Total Size of Fund (\$M)	\$135.8
Total Capital Called to Date (\$M)	\$112.2
% of Committed Capital Called	93.9%
Capital Distributed (\$M)	\$218.3
Capital Distributed (as a % of Capital Called)	\$93.9
Total Underlying Commitments	\$132.1
# of Underlying Commitments	\$32.0
% of Capital Committed	\$1.0
Fund NAV (\$M)	\$25.3
Net Multiple	2.0x
Net IRR	10.2%
As of Date	12/31/2023

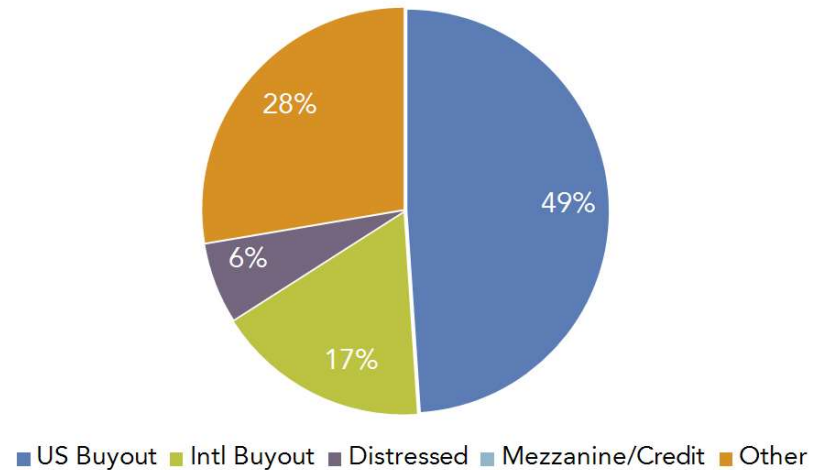
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

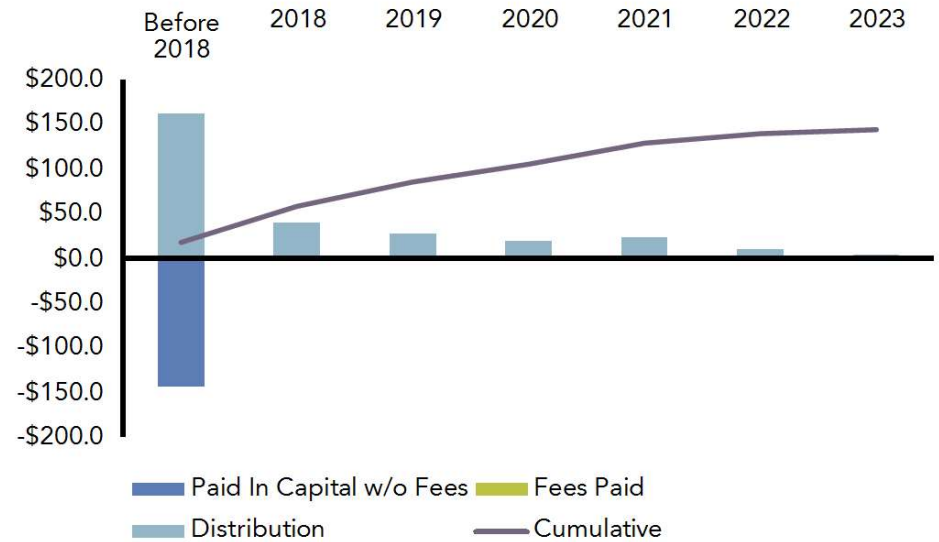


Strategy Exposure

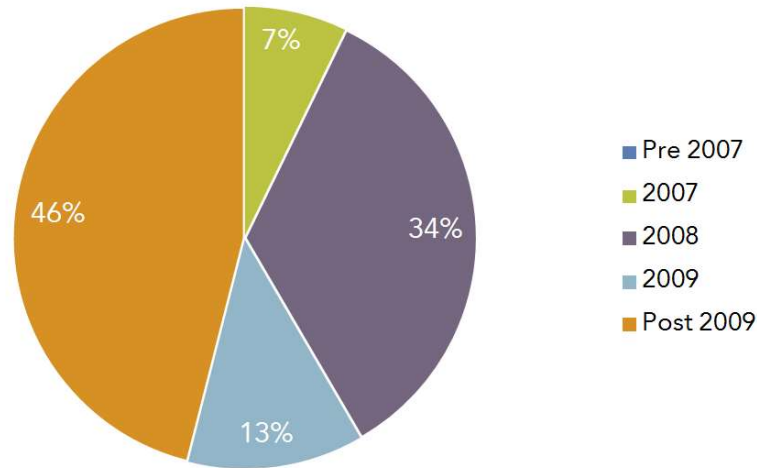


Characteristics	
Fund Vintage Year	2007
Total Size of Fund (\$M)	\$169.1
Total Capital Called to Date (\$M)	\$144.1
% of Committed Capital Called	85.6%
Capital Distributed (\$M)	\$338.6
Capital Distributed (as a % of Capital Called)	\$85.6
Total Underlying Commitments	\$184.1
# of Underlying Commitments	\$41.0
% of Capital Committed	\$1.1
Fund NAV (\$M)	\$30.0
Net Multiple	2.2x
Net IRR	14.2%
As of Date	12/31/2023

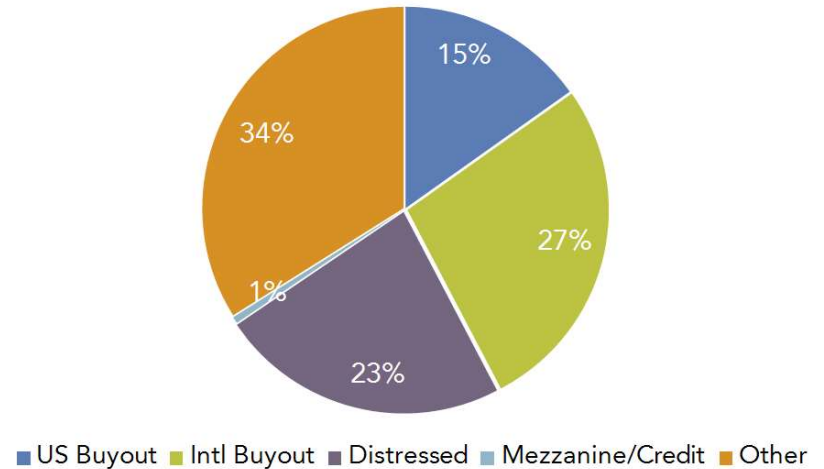
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

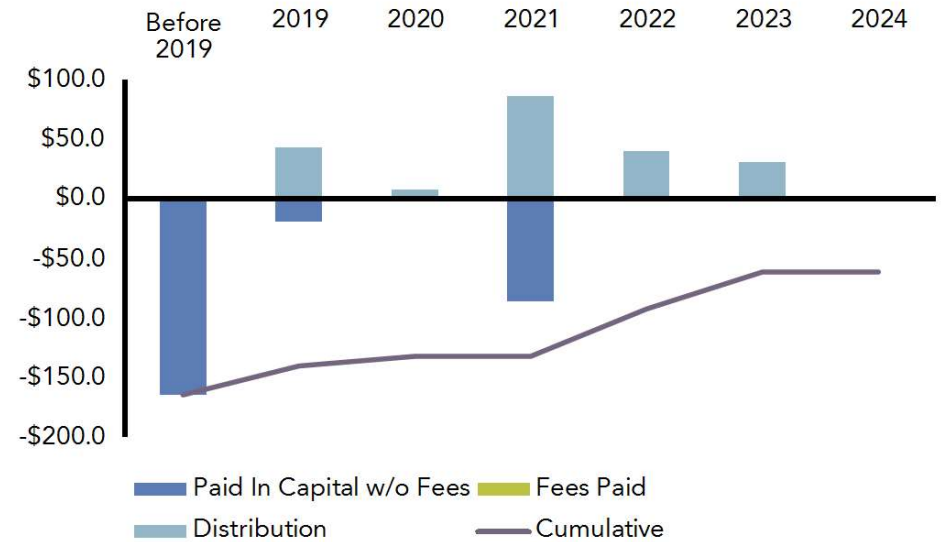


Strategy Exposure

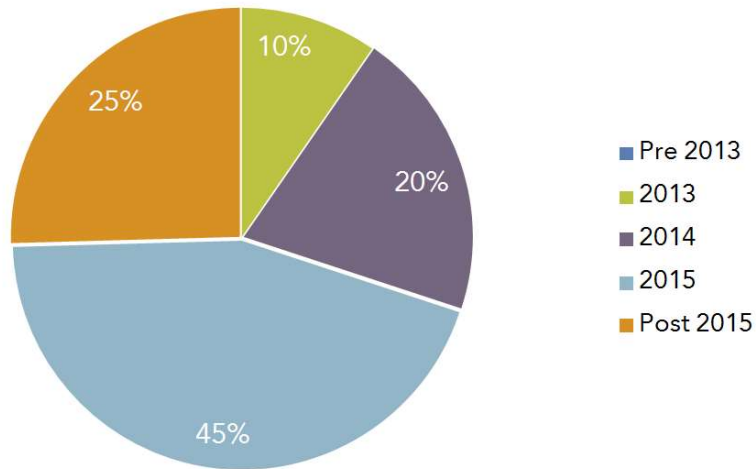


Characteristics	
Fund Vintage Year	2013
Total Size of Fund (\$M)	\$271.4
Total Capital Called to Date (\$M)	\$197.1
% of Committed Capital Called	73.0%
Capital Distributed (\$M)	\$365.2
Capital Distributed (as a % of Capital Called)	\$73.0
Total Underlying Commitments	\$305.0
# of Underlying Commitments	\$42.0
% of Capital Committed	\$1.1
Fund NAV (\$M)	\$192.7
Net Multiple	2.2x
Net IRR	15.1%
As of Date	6/30/2024

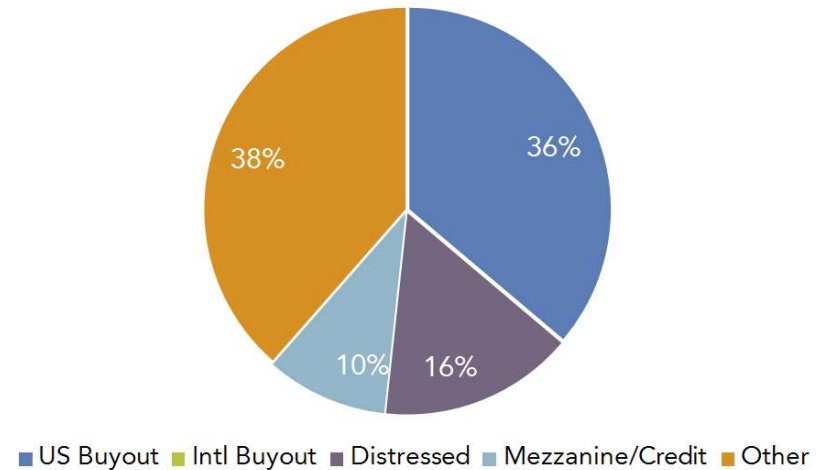
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

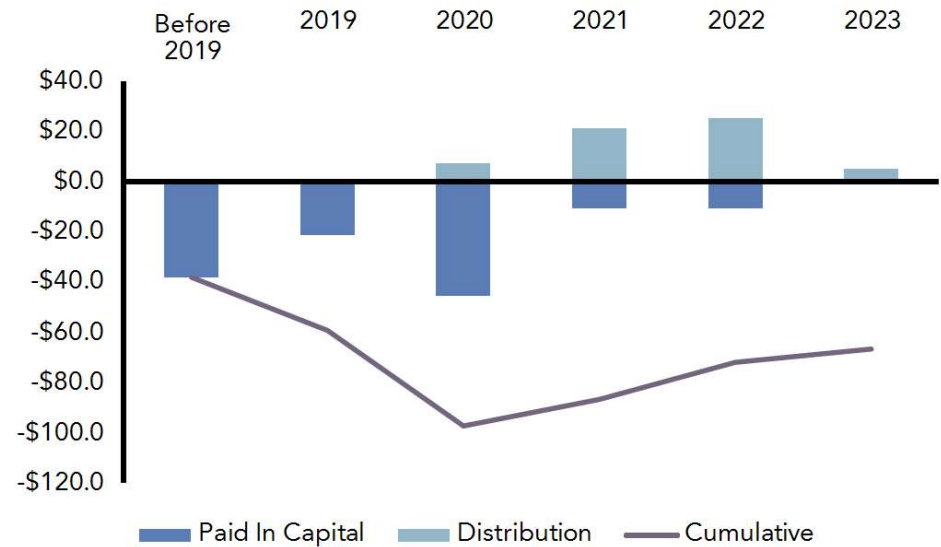


Strategy Exposure

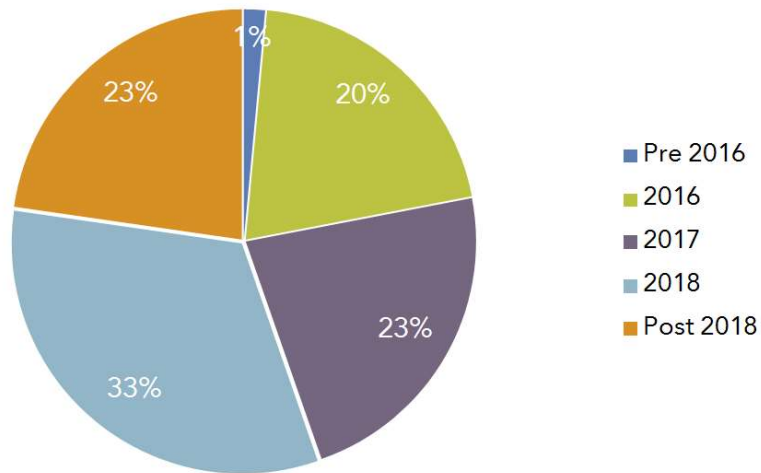


Characteristics	
Fund Vintage Year	2016
Total Size of Fund (\$M)	\$212.6
Total Capital Called to Date (\$M)	\$157.6
% of Committed Capital Called	74.5%
Capital Distributed (\$M)	\$158.8
Capital Distributed (as a % of Capital Called)	100.8%
Total Underlying Commitments (\$M)	\$243.5
# of Underlying Commitments	50
% of Capital Committed	1.1%
Fund NAV (\$M)	\$238.8
Net Multiple	1.9x
Net IRR	14.7%
As of Date	6/30/2024

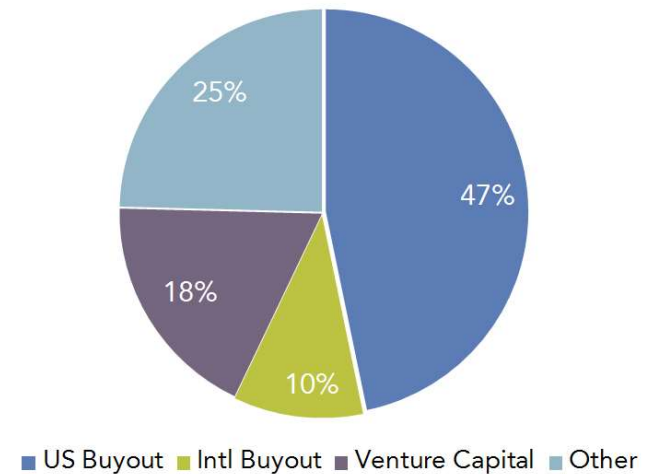
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

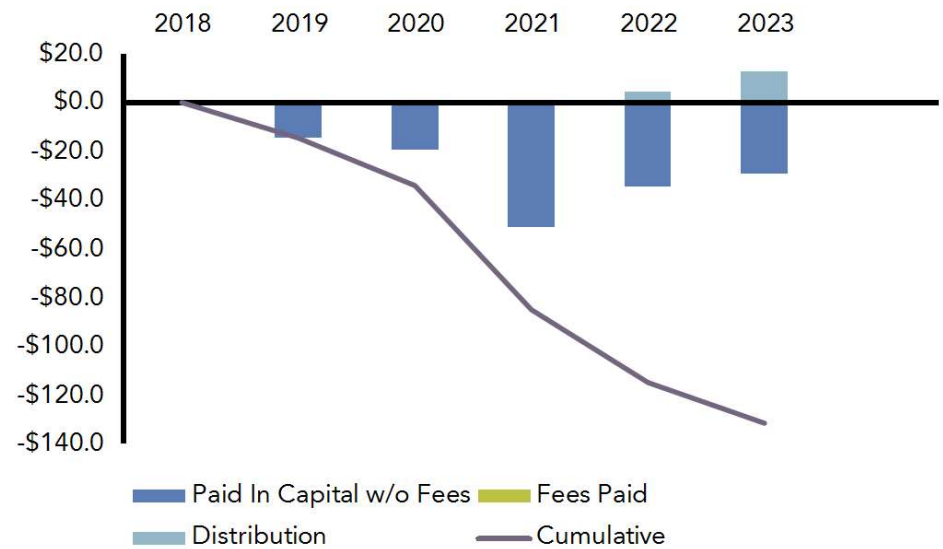


Strategy Exposure

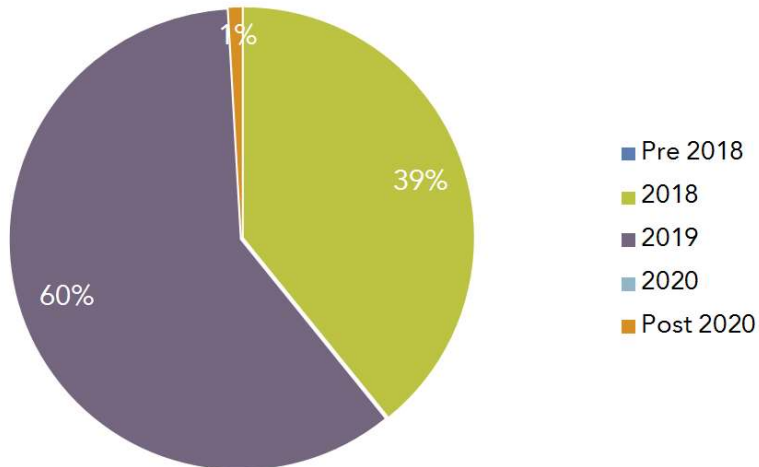


Characteristics	
Fund Vintage Year	2018
Total Size of Fund (\$M)	\$372.3
Total Capital Called to Date (\$M)	\$142.5
% of Committed Capital Called	62.0%
Capital Distributed (\$M)	\$59.1
Capital Distributed (as a % of Capital Called)	\$62.0
Total Underlying Commitments	\$253.2
# of Underlying Commitments	48.0
% of Capital Committed	\$0.7
Fund NAV (\$M)	\$205.8
Net Multiple	1.5x
Net IRR	21.2%
As of Date	12/31/2023

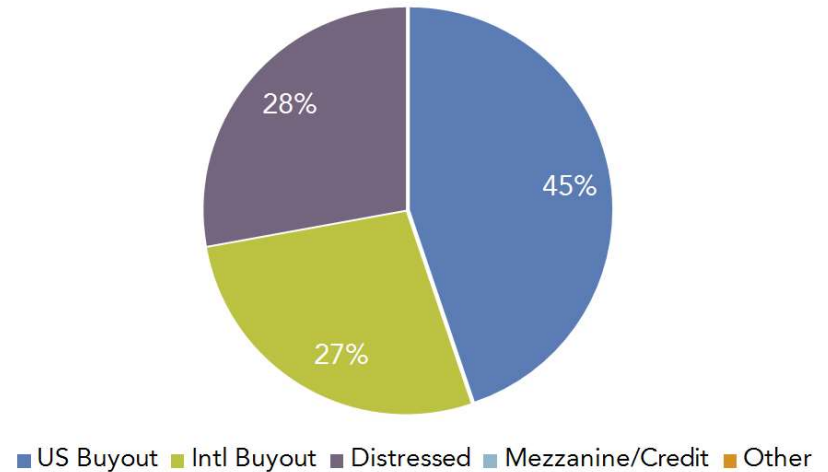
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

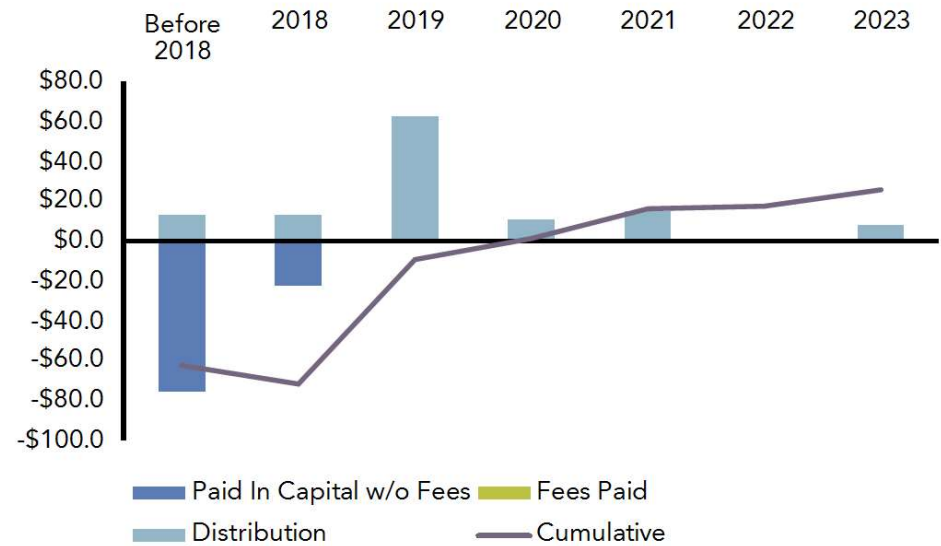


Strategy Exposure

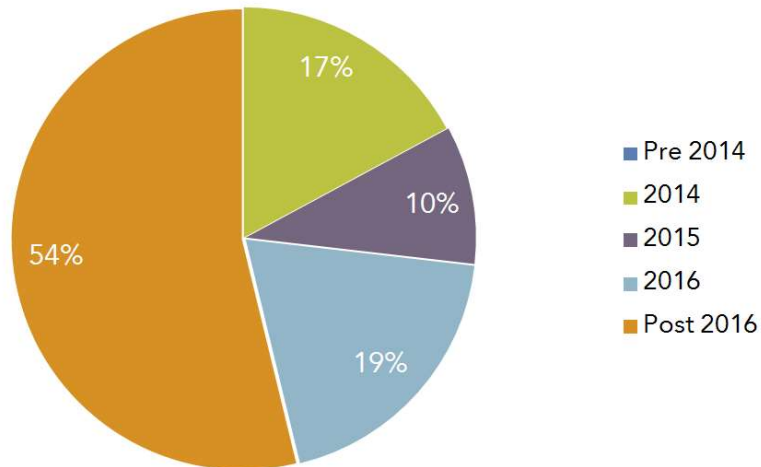


Characteristics	
Fund Vintage Year	2014
Total Size of Fund (\$M)	\$150.0
Total Capital Called to Date (\$M)	\$98.3
% of Committed Capital Called	74.0%
Capital Distributed (\$M)	\$136.3
Capital Distributed (as a % of Capital Called)	\$74.0
Total Underlying Commitments	\$105.3
# of Underlying Commitments	\$14.0
% of Capital Committed	\$0.7
Fund NAV (\$M)	\$53.9
Net Multiple	1.7x
Net IRR	14.4%
As of Date	12/31/2023

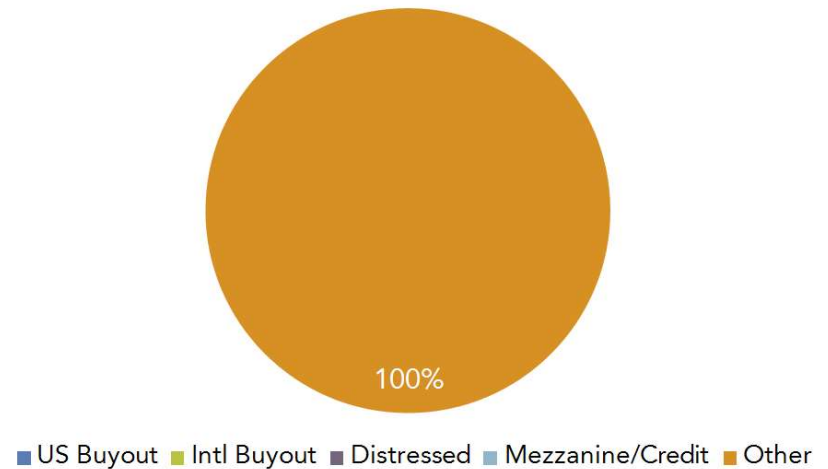
Annual Cash Flow Summary (\$M)



Vintage Year Exposure



Strategy Exposure

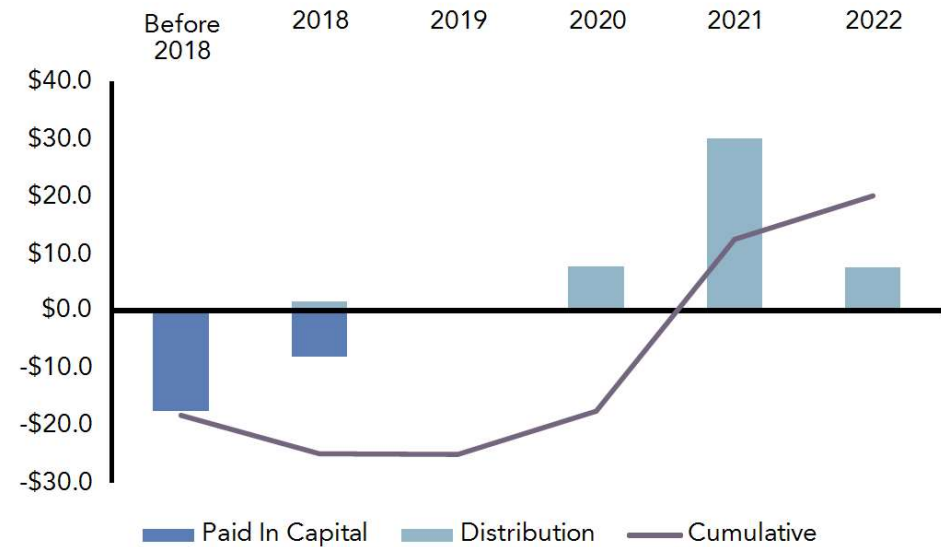


North Sky Fund V

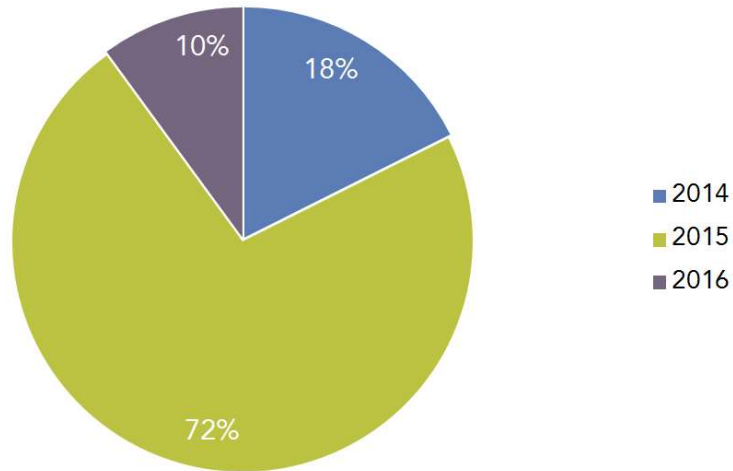
Portfolio Characteristics

Characteristics	
Fund Vintage Year	2014
Total Size of Fund (\$M)	\$53.0
Total Capital Called to Date (\$M)	\$33.6
% of Committed Capital Called	66.0%
Capital Distributed (\$M)	\$50.5
Capital Distributed (as a % of Capital Called)	150.3%
Total Underlying Commitments (\$M)	\$53.0
# of Underlying Commitments	11
% of Capital Committed	100.0%
Fund NAV (\$M)	\$44.0
Net Multiple	2.3x
Net IRR	20.3%
As of Date	3/31/2023

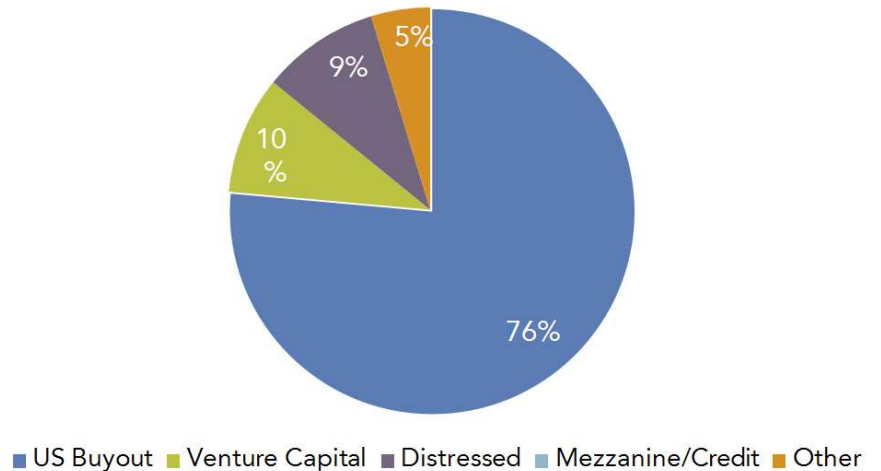
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

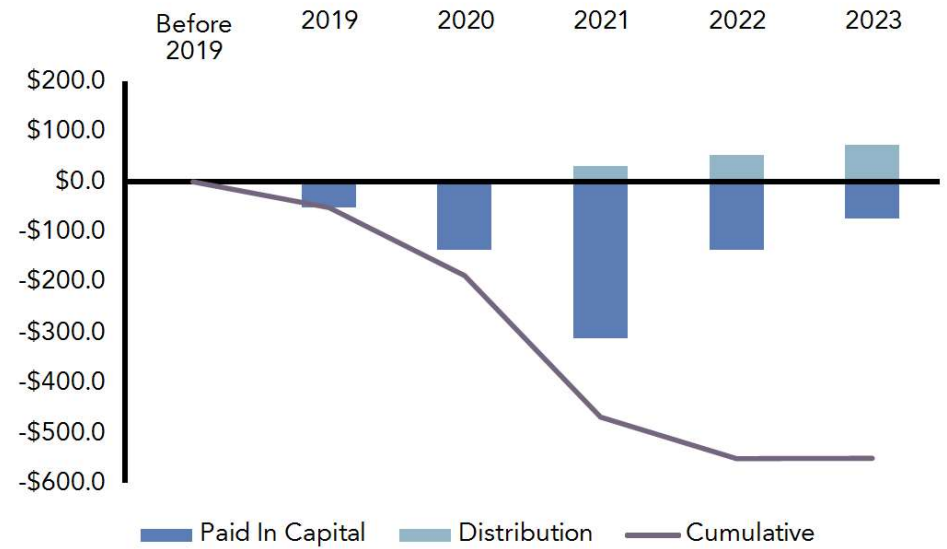


Strategy Exposure

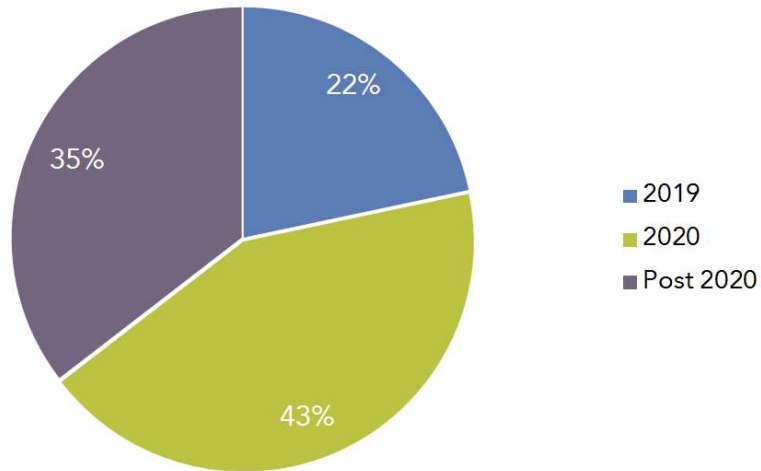


Characteristics	
Fund Vintage Year	2018
Total Size of Fund (\$M)	\$850.0
Total Capital Called to Date (\$M)	\$766.8
% of Committed Capital Called	86.9%
Capital Distributed (\$M)	\$270.0
Capital Distributed (as a % of Capital Called)	35.2%
Total Underlying Commitments (\$M)	\$881.9
# of Underlying Commitments	67
% of Capital Committed	1.0%
Fund NAV (\$M)	\$948.7
Net Multiple	1.6x
Net IRR	14.9%
As of Date	9/30/2024

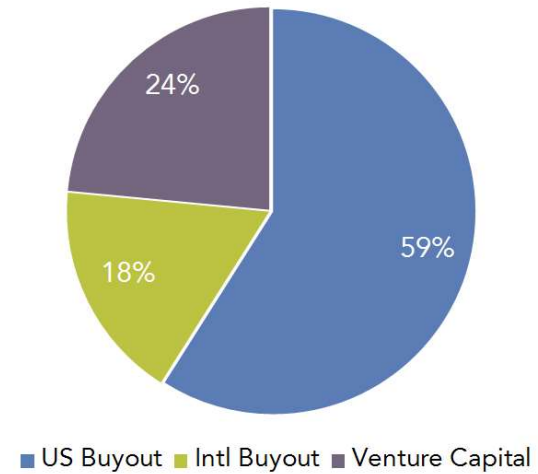
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

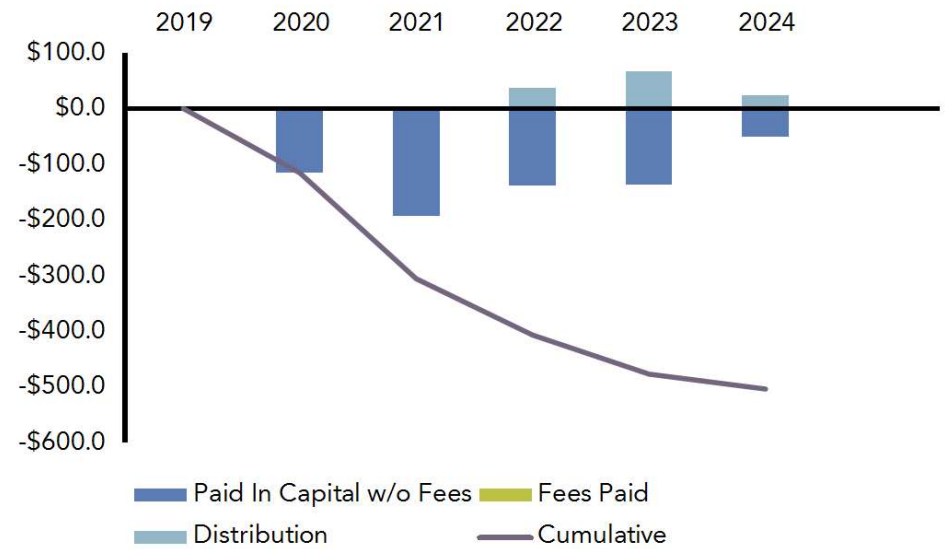


Strategy Exposure

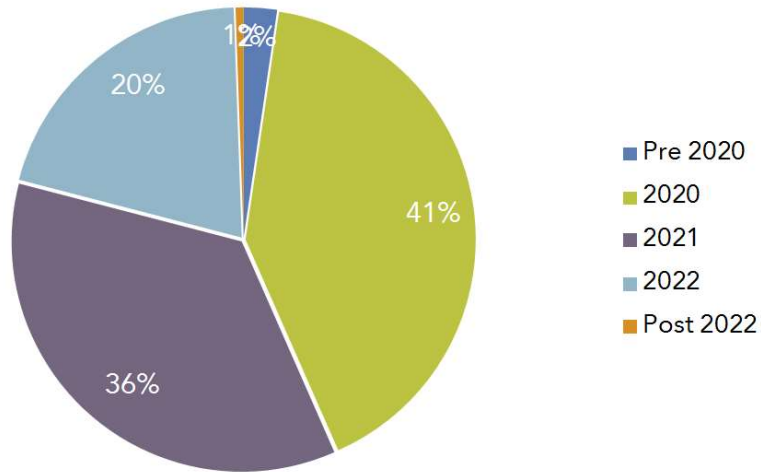


Characteristics	
Fund Vintage Year	2020
Total Size of Fund (\$M)	\$905.0
Total Capital Called to Date (\$M)	\$639.4
% of Committed Capital Called	68.0%
Capital Distributed (\$M)	\$130.4
Capital Distributed (as a % of Capital Called)	\$68.0
Total Underlying Commitments	\$947.0
# of Underlying Commitments	\$70.0
% of Capital Committed	\$1.0
Fund NAV (\$M)	\$807.0
Net Multiple	1.5x
Net IRR	19.1%
As of Date	6/30/2024

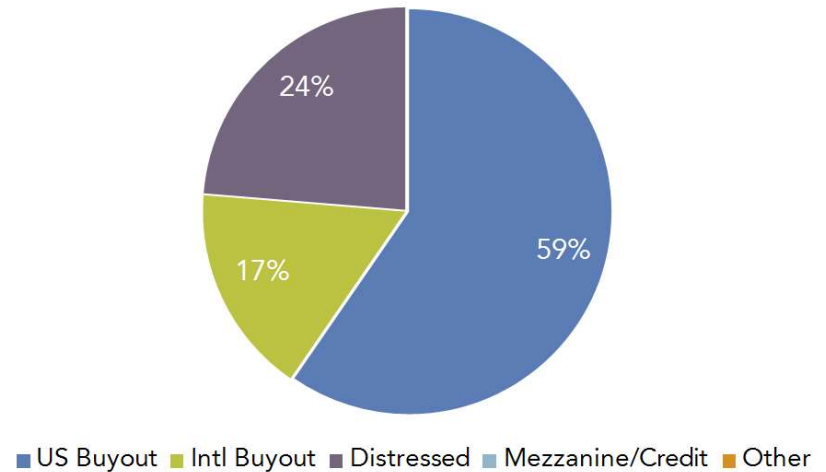
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

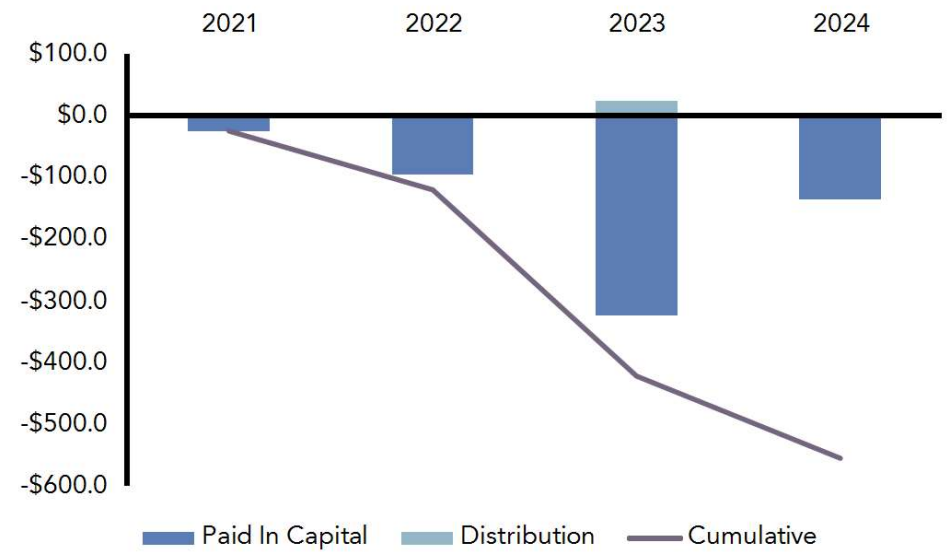


Strategy Exposure

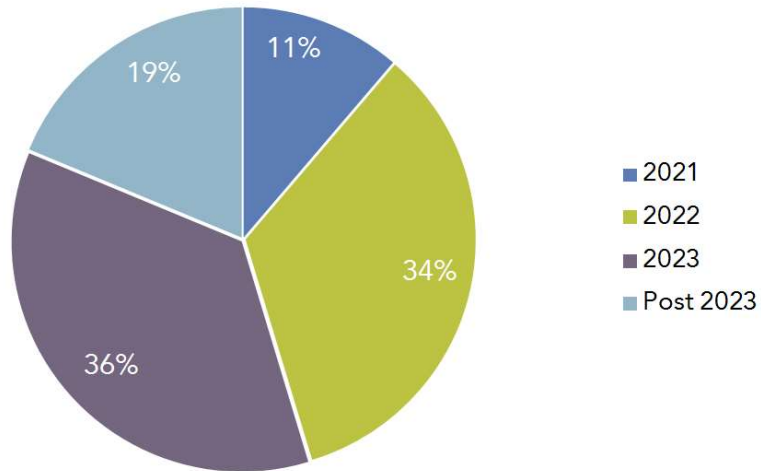


Characteristics	
Fund Vintage Year	2021
Total Size of Fund (\$M)	\$1,273.0
Total Capital Called to Date (\$M)	\$669.8
% of Committed Capital Called	52.8%
Capital Distributed (\$M)	\$29.8
Capital Distributed (as a % of Capital Called)	4.4%
Total Underlying Commitments (\$M)	\$1,269.1
# of Underlying Commitments	71
% of Capital Committed	1.0%
Fund NAV (\$M)	\$739.7
Net Multiple	1.3x
Net IRR	21.1%
As of Date	9/30/2024

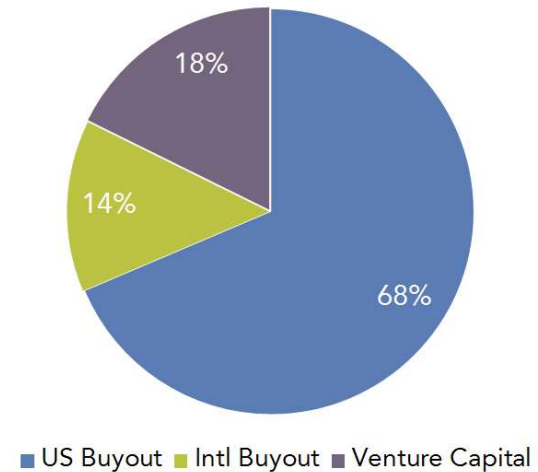
Annual Cash Flow Summary (\$M)



Vintage Year Exposure

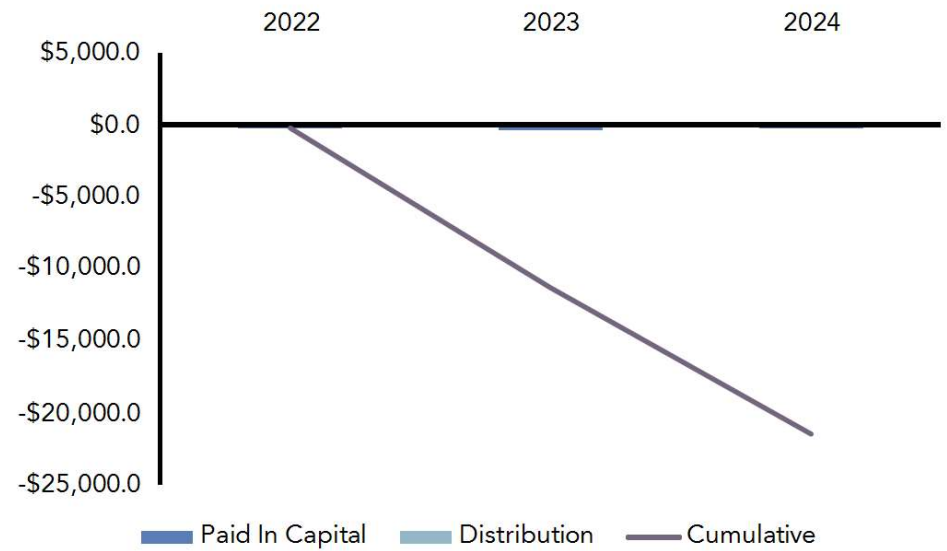


Strategy Exposure

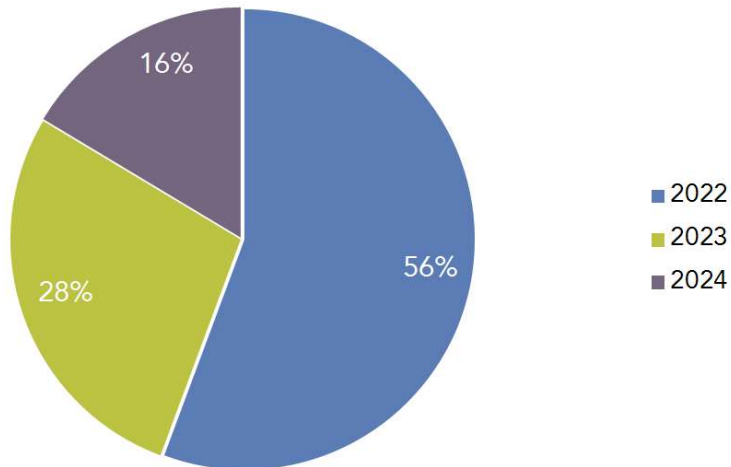


Characteristics	
Fund Vintage Year	2022
Total Size of Fund (\$M)	\$1,537.1
Total Capital Called to Date (\$M)	\$863.2
% of Committed Capital Called	43.9%
Capital Distributed (\$M)	\$100.5
Capital Distributed (as a % of Capital Called)	11.6%
Total Underlying Commitments (\$M)	\$1,537.1
# of Underlying Commitments	79
% of Capital Committed	100.0%
Fund NAV (\$M)	\$938.6
Net Multiple	1.2x
Net IRR	21.3%
As of Date	6/30/2024

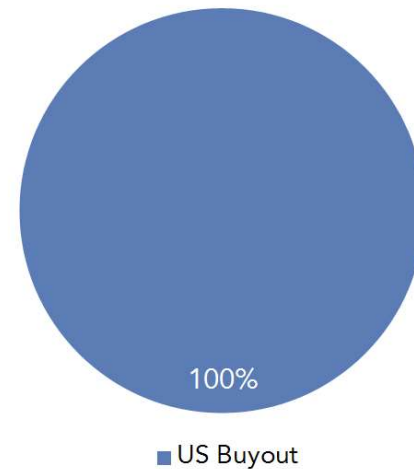
Annual Cash Flow Summary (\$M)



Vintage Year Exposure



Strategy Exposure



Pension Fund-Total Fund Composite

Quarter	2024 BNY Mellon Securities Lending
Q1	-43,907
Q2	-47,405
Q3	-40,605
Q4	-37,186
Total YTD	-169,103

Year	Historic BNY Mellon Securities Lending
2023	-171,822
2022	-32,661
2021	14,480
2020	297
2019	-76,416
2018	-29,442
2017	125,636
2016	351,379
2015	542,312
2014	562,374
2013	321,534
Pre-2013	9,582,836
Total	11,021,405

Securities Lending Income

Quarter	Northern Trust Securities Lending
Q1	19,406
Q2	24,596
Q3	21,123
Q4	
Total YTD	65,124

Year	Historic Northern Trust Securities Lending
2023	146,087
2022	161,561
2021	196,183
2020	373,741
2019	426,454
2018	384,112
2017	390,918
2016	
2015	
2014	
2013	
Pre-2013	
Total	2,144,180

3/31/2013 Beginning Balance: \$10,427,650.13				
Calendar Year	Beginning Balance	Securities Lending Income (Loss)	Monthly Loan Payments	Ending Balance
2013	10,427,650	284,392	0	10,143,259
2014	10,143,259	539,863	0	9,603,396
2015	9,603,396	575,942	0	9,027,454
2016	9,027,454	356,642	0	8,670,812
2017	8,670,812	143,015	0	8,527,797
2018	8,527,797	-16,909	1,400,000	7,144,706
2019	7,144,706	-85,053	650,000	6,579,758
2020	6,579,758	296	600,000	5,979,462
2021	5,979,462	14,480	600,000	5,364,983
2022	5,364,983	-32,661	600,000	4,797,644
2023	4,797,644	-171,822	600,000	4,369,465
2024	4,369,465	-131,917	600,000	3,901,382
		1,476,268	5,050,000	

Pension Fund-Total Fund Composite

Fee Schedule
As of December 31, 2024

Asset Class	Est. Annual Fee ¹	Expense Ratio	Industry Median ²
Fixed Income	\$1,146,165	0.24%	0.29%
Private Debt	\$1,043,514	1.01%	1.50%
US Equity	\$134,294	0.02%	0.06%
Non-US Equity	\$129,768	0.04%	0.08%
Volatility Risk Premium	\$189,536	0.30%	1.00%
Real Estate	\$1,565,751	1.03%	1.00%
Infrastructure	\$2,637,962	1.02%	1.07%
Private Equity	\$1,622,954	0.61%	1.00%
Total Investment Management Fees	\$8,469,946	0.36%	0.49%

¹ Expense Ratio & Estimated Annual Fee are Based on Market Value at Quarter End.

² Source: Marquette Associates Investment Management Fee Study.

Pension Fund-Total Fund Composite

Fee Schedule
As of December 31, 2024

Asset Class	Investment Manager	Fee Schedule	Est. Annual Fee ¹	Expense Ratio	Industry Median ²
Core Fixed Income	NTGI Agg Bond	0.0125% on the balance	\$4,646	0.01%	0.06%
Core Fixed Income	Diamond Hill Core Bond	0.18% on the balance	\$224,928	0.18%	0.25%
Core Plus Fixed Income	Loomis Sayles Core-Plus	0.30% on the first \$100 million 0.25% on the next \$100 million 0.20% on the next \$200 million 0.15% on the balance	\$388,250	0.29%	0.30%
Core Plus Fixed Income	Columbus Core Plus Bond	0.20% on the balance	\$264,687	0.20%	0.30%
High Yield Fixed Income	Shenkman - Four Points	0.55% on the balance	\$263,654	0.55%	0.50%
Private Debt	H.I.G. Bayside Opportunity VI	1.50% on invested assets 0.25% on the difference between aggregate commitments and invested assets	\$316,718	1.50%	1.50%
Private Debt	Owl Rock Diversified Lending	1.25% of called capital Plus 10% incentive fee over 6% preferred return (beg. 1/1/26)	\$186,509	0.90%	1.50%
Private Debt	Carlyle Direct Lending IV	0.80% on invested capital	\$200,432	0.80%	1.50%
Private Debt	J.P. Morgan Lynstone	1.4% on the balance Plus 15% carried interest 6% preferred return	\$79,108	1.40%	1.50%
Private Debt	AG Direct Lending	0.90% on the balance Plus 15% incentive fee over 7% preferred return	\$243,000	0.90%	1.50%
Private Debt	Bain Global Direct Lending	0.50% on the balance Plus 15% incentive fee over 7% preferred return	\$17,748	0.50%	1.50%
All-Cap Core	NTGI Russell 3000	0.02% on the balance	\$116,869	0.02%	0.06%
Large-Cap Value	NTGI Russell 1000 Value	0.015% on the balance	\$7,426	0.02%	0.06%
Small-Cap Value	NTGI Russell 2000 Value	0.02% on the balance	\$10,000	0.02%	0.05%

¹ Expense Ratio & Estimated Annual Fee are Based on Market Value at Quarter End.

² Source: Marquette Associates Investment Management Fee Study.

Pension Fund-Total Fund Composite

Fee Schedule
As of December 31, 2024

Asset Class	Investment Manager	Fee Schedule	Est. Annual Fee ¹	Expense Ratio	Industry Median ²
Non-U.S. All-Cap Core	NTGI ACWI Ex-US	0.04% on the balance	\$129,768	0.04%	0.08%
Volatility Risk Premium	NB US Index PutWrite	0.30% on the balance	\$189,536	0.30%	1.00%
Core Real Estate	J.P. Morgan SPF	1.00% on the first \$25 million 0.95% on the next \$25 million 0.85% on the next \$50 million	\$433,083	0.98%	1.00%
Core Real Estate	Morgan Stanley P.P.	0.84% on the balance Incentive Fee: 5%*NAV*(Return-NCREIF)	\$276,082	0.84%	1.00%
Value-Added Real Estate	PRISA III	1.10% on assets 0.10% on cash balance 0.40% on distributions All expenses capped at 2.0%	\$466,947	1.10%	1.00%
Value-Added Real Estate	Principal Enhanced	1.20% on the balance 15% performance fee on returns > 11%	\$374,751	1.20%	1.00%
Non-U.S. Core Real Estate	StepStone RE Intl Partnership I	1.00% on the balance (Following seventh anniversary, fee drops to 90% of prior years fee). (8% preferred internal rate of return to investor) 5% carry with 100% catch up provision	\$14,888	1.00%	1.50%
Core Infrastructure	J.P. Morgan Infrastructure	0.86% on the Balance Performance Fee: 15% with 7% Hurdle	\$909,111	0.86%	1.07%
Global Infrastructure	IFM Global Infrastructure (U.S)	0.77% on the Balance Performance Fee: 10% of return above 8%, with 33.3% catch-up	\$727,305	0.77%	1.07%
Core Infrastructure	Alinda Fund II	0.765% on ordinary capital contributions (20% incentive over 8% preferred return)	\$0	0.77%	1.50%
Core Infrastructure	Ullico - Infrastructure	1.75% on the first \$50 million 1.65% on the next \$25 million 1.50% on the Balance	\$1,001,546	1.74%	1.07%

¹ Expense Ratio & Estimated Annual Fee are Based on Market Value at Quarter End.

² Source: Marquette Associates Investment Management Fee Study.

Pension Fund-Total Fund Composite

Fee Schedule
As of December 31, 2024

Asset Class	Investment Manager	Fee Schedule	Est. Annual Fee ¹	Expense Ratio	Industry Median ²
Divers. Private Equity	Fort Washington Fund V	0.14% on committed assets (5% incentive over 8% return) After the 7th anniversary of the initial closing date, fee declines 10% per year	\$57,628	0.77%	3.20%
Special Situations Private Equity	Portfolio Advisors IV - Special Sit	0.5% on balance	\$1,612	0.50%	0.60%
Divers. Private Equity	Fort Washington Fund VI	0.27% on committed assets (5% incentive over 8% return) After the 6th anniversary of the initial closing date, fee declines 10% per year	\$79,723	2.27%	5.13%
Special Situations Private Equity	Portfolio Advisors V - Special Sit	0.7% on balance	\$2,591	0.70%	0.60%
Divers. Private Equity	Fort Washington Fund VIII	0.32% on committed assets	\$157,728	0.48%	0.91%
Secondary PE FoF	Fort Washington Opp Fund III	0.17% on committed assets (15% incentive over 8% preferred return)	\$51,673	1.26%	4.39%
Divers. Private Equity	North Sky Fund V	0.65% on committed assets Yrs 1-3 0.55% on committed assets Yrs 4-6 0.45% on committed assets Yrs 7-9 0.35% on committed assets thereafter	\$140,000	0.53%	0.90%
Divers. Private Equity	Fort Washington Fund IX	0.09% on committed assets Yr 1 0.18% on committed assets Yr 2 0.27% on committed assets Yr 3 0.36% on committed assets Yrs 4-10	\$180,000	0.35%	0.58%
Divers. Private Equity	Fort Washington Fund X	0.15% on committed assets Yr 1 0.30% on committed assets Yr 2 0.45% on committed assets Yr 3 0.60% on committed assets Yrs 4-10	\$240,000	0.57%	0.57%
Global Divers. PE FoF	JP Morgan Global Private Equity VIII	0.31% on committed capital (est.) Performance Fee (Hurdle Rate 8%): Primary: 5% Secondary: 10% Direct: 15%	\$124,000	0.29%	0.56%

¹ Expense Ratio & Estimated Annual Fee are Based on Market Value at Quarter End.

² Source: Marquette Associates Investment Management Fee Study.

Pension Fund-Total Fund Composite

Fee Schedule
As of December 31, 2024

Asset Class	Investment Manager	Fee Schedule	Est. Annual Fee ¹	Expense Ratio	Industry Median ²
Global Divers. PE FoF	JP Morgan Global Private Equity IX	0.34% on committed capital (est.) Performance Fee (Hurdle Rate 8%): Primary: 5% Secondary: 10% Direct: 15%	\$68,000	0.38%	1.12%
Global Divers. PE FoF	JP Morgan Global Private Equity X	0.55% on Commitment Years 1-5 0.55% is reduced by 5% per year after year 5 Plus performance fee after 8% preferred return: 5% for primary partnerships 10% for secondary investments 15% for direct investments	\$220,000	1.03%	1.88%
LBO Private Equity	Siguler Guff Small Buyout Opportunities V	0.80% on the Committed Capital 5% carried interest on fund investments 15% carried interest on direct investments 8% preferred return	\$200,000	1.27%	3.16%
Venture Private Equity	Blue Chip Fund IV	\$100,000 annual fee for administrative expenses Plus 20% of profits after all capital returned	\$100,000	9.00%	0.60%
Total Investment Management Fees			\$8,469,946	0.36%	0.49%

¹ Expense Ratio & Estimated Annual Fee are Based on Market Value at Quarter End.

² Source: Marquette Associates Investment Management Fee Study.

DISCLOSURES

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Account and Composite characteristics data is derived from underlying holdings uploaded to the Investment Metrics Platform ("Platform"); the Platform then uses data for the noted time period from Standard & Poor's (equity holdings) and ICE (fixed income holdings) to populate the reporting templates. Some securities, including cash equivalents, may not be accurately classified during this population process due to missing identifiers or unavailable data. As a result, characteristics in this report may differ from other data sources. For example, Bloomberg indices may include additional rating information which may differ from the S&P rating used by the Platform.

Forward-looking statements, including without limitation any statement or prediction about a future event contained in this presentation, are based on a variety of estimates and assumptions by Marquette, including, but not limited to, estimates of future operating results, the value of assets and market conditions. These estimates and assumptions, including the risk assessments and projections referenced, are inherently uncertain and are subject to numerous business, industry, market, regulatory, geo-political, competitive, and financial risks that are outside of Marquette's control. There can be no assurance that the assumptions made in connection with any forward-looking statement will prove accurate, and actual results may differ materially.

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Cincinnati
Retirement System

Statement of Investment Policy

November 2024

Definition of Terms

"System" Defined

In this Policy, the "System" refers to the pool of assets held in trust under the terms of a Trust Agreement established by the Cincinnati Retirement System, which will be used to pay qualified employee, disability, and health benefits (see Addendum C).

"Board of Trustees" Defined

In this Policy, the "Board of Trustees" refers to the named fiduciary appointed to administer the System pursuant to the Trust Agreement (see Addendum E).

"Investment Professionals" Defined

In this Policy, the "Investment Professionals" refers to investment managers, the cash equitization manager, the investment consultant(s), the custodian, the securities lending provider, commission re-capturing agent(s), and third-party proxy voting service provider.

"Investment Manager" Defined

In this Policy, the "Investment Manager" refers to any firm, fund, or individual that analyzes, selects, and executes the purchase or sale of individual securities. The investment manager may manage the assets of the System in separate accounts held by a third-party custodian, a commingled fund, a limited partnership, or a mutual fund.

"Investment Consultant" Defined

In this Policy, the "Investment Consultant" refers to any firm that provides investment advice and information and assists the Board of Trustees in fulfilling their fiduciary responsibilities as Trustees.

"Cash Equitization Manager" Defined

In this policy the "Cash Equitization Manager" refers to any firm, fund, or individual that executes the purchase or sale of futures contracts in order to replicate the returns of the equity markets on the cash holdings in the equity manager portfolios.

"Custodian" Defined

In this Policy, the "Custodian" refers to any third-party firm that safe-keeps the assets of the System.

"Securities Lending Provider" Defined

In this Policy, the "Securities Lending Provider" refers to any third-party firm or investment manager that lends the assets of the System to other parties in exchange for collateral and interest.

"CRS Staff" Defined

In this Policy, the "CRS Staff" refers to the retirement division's Executive Director that provides investment advice and information and assists the Board of Trustees in fulfilling their fiduciary responsibilities as Trustees.

"Trust Account" Defined

In this Policy, the "Trust Account" refers to cash and short-term cash investments managed by our third-party custodian bank that may be used by CRS to expeditiously conduct transactions without involving outside funds.

Investment Beliefs

The Board of Trustees has adopted the following Investment Beliefs:

Fiduciary Duty – The Board of Trustees has a fiduciary responsibility solely to the active and retired members of CRS. The Board of Trustees shall invest and manage assets as a prudent investor.

Time Horizon – The Board of Trustees maintains a long-term investment horizon, recognizing that our obligations extend far into the future. Investment decisions are aimed at providing sustainable returns over the long term, rather than focusing solely on short-term market fluctuations.

Strategic Asset Allocation – A long-term strategic asset allocation will be adopted, and assets will be rebalanced regularly. However, in times of extreme market dislocations, tactical adjustments will be considered. The Board of Trustees recognizes that, if properly compensated for the risk, tactical shifts could benefit the portfolio.

Diversification –The Board of Trustees recognizes the importance of diversification across asset classes, geographies, and investment strategies. Diversification helps to mitigate risk and enhance the resilience of our portfolio against market volatility. However, over diversification is to be avoided, and investments must be sizable enough to impact the overall portfolio.

Efficient Markets – The Board of Trustees subscribes to modern portfolio theory which means that generally over long periods of time, major market segment asset prices reflect all available information and that consistently exceeding market returns on a risk adjusted basis is improbable.

Risk – An appropriate level of risk is necessary to achieve desired long-term investment returns. Risk should be discussed in terms of balancing desired returns with tolerance for volatility, tracking error, beta, value at risk, and maximum draw down. The portfolio risk should be evaluated based on the System’s investment capacity to recover from adverse market volatility. Since no single metric adequately conveys risk, the Board of Trustees will evaluate risk holistically, incorporating quantitative and qualitative assessments into management of the portfolio.

Active vs. Passive – In markets where evidence suggests that security prices are efficiently set, passive (indexed) market strategies will be employed. Conversely, in less efficiently priced markets, the Board of Trustees will use active management strategies.

Private Markets/Illiquid Strategies – Private markets/illiquid strategies can add value when an appropriate illiquidity premium is expected to be captured. The Board of Trustees has the ability and risk tolerance to invest in illiquid strategies.

Liquidity Management – The Board of Trustees will strive to maintain appropriate levels of liquidity to meet our short-term cash flow needs and take advantage of investment opportunities as they arise. Adequate liquidity ensures that we can navigate market disruptions and capitalize

on attractive investment prospects without compromising our long-term objectives.

Performance Evaluation – Performance will be evaluated over long periods of time in the context of the actuarial assumed rate of return, the Statement of Investment Policy, and peer systems relative performance. The influence of the market environment should be considered when evaluating performance.

Alignment of Interest – The Board of Trustees seeks Investment Managers whose interests align with those of the System as a public pension system and reflect the Statement of Investment Policy. Investment Managers must recognize the long-term success of the System, thereby fostering a culture of accountability and shared purpose.

Governance– The Investment Committee is responsible for oversight of the System and will provide recommendations to the Board of Trustees regarding implementation of the Statement of Investment Policy. The Board of Trustees will engage the expertise of an Investment Consultant for assistance in meeting its fiduciary duty. The Investment Consultant will assist the Investment Committee and the Board of Trustees in establishing investment objectives, asset allocation, selection of investment managers, and investment performance.

The Statement of Purpose

The System's Purpose

The System was established in 1931 as a defined benefit System and provides for both monthly pension benefits and medical benefits to qualified retirees, survivors of retirees, and disabled retirees of the City as well as retired members from closed groups (University Hospital, University of Cincinnati, and Hamilton County). The System is governed by Section 203 of the Cincinnati Municipal Code as adopted by the City of Cincinnati Council. A Board of Trustees has been established to oversee the operation of the System.

The Purpose of the Investment Policy

This investment policy is set forth by the Board of Trustees in order to:

- Define and assign the responsibilities of all involved parties.
- Establish a clear understanding of all involved parties of the investment goals and objectives of System.
- Establish the relevant investment horizon for which the System assets will be managed.
- Establish a target asset allocation and re-balancing procedures.
- Establish a methodology and criteria for hiring and firing investment professionals.
- Offer guidance and limitations to all investment managers regarding the investment of System.
- Establish a basis for evaluating investment results.

In general, the purpose of this Policy is to outline a philosophy which will guide the investment management of the assets toward the desired results. It is intended to be sufficiently specific to be meaningful, yet flexible enough to be practical. This document is intended to serve as a reference tool, an operating code, and a communications link between the Board of Trustees, its staff, and its investment professionals.

Distinction of Responsibilities

The Board of Trustees' Authority and Responsibilities

Chapter 203-65 of the Cincinnati Municipal Code assigns a Board of Trustees with the responsibility for managing the assets of the System. The Board of Trustees must discharge its duties solely in the interest of the System and the System participants. The standards of care for the System are specified in Section 203-65 of the Cincinnati Municipal Code and conform to the standards described in Section 5809.02 of the Ohio Revised Code.

The Board of Trustees will generally be responsible for the following:

- 1) Complying with applicable laws, regulations, and rulings, including the Collaborative Settlement Agreement between the City of Cincinnati and various plaintiff groups representing certain active and retired members of the System that was approved by the Court on October 5, 2015 and generally effective January 1, 2016.
- 2) Selecting all qualified investment professionals.
- 3) Monitoring and evaluating investment performance and compliance with this Policy.
- 4) Reviewing and suggesting changes, as needed, to this Policy.
- 5) Establishing and reviewing the appropriateness of the System's asset allocation policy.
- 6) Taking action according to this Policy.

The Investment Manager's Authority and Responsibilities

The Board of Trustees will hire competent, registered professional investment managers to manage the assets of the System. Investment managers have the following responsibilities:

- 1) Vote proxy issues on securities held, unless a third-party proxy voting service provider has been retained by the System. All proxies will be voted exclusively for the best interests of the System and its participants. Managers will maintain written policies for proxy voting and keep a proper record of all proxies to which the Program is entitled. Managers will provide an annual report that includes their current proxy voting policy, a summary and detailed records of all proxies voted, and a statement indicating whether proxies were voted in conformance with the manager's internal proxy voting guidelines.
- 2) Provide written reports to the plan sponsor and consultant on at least a quarterly basis detailing performance for the most recent period as well as the current outlook of the markets.

- 3) Notify the client and the Investment Consultant on a timely basis of any significant changes in the ownership, organizational structure, investment strategy, portfolio design, or configuration of the investment team.
- 4) The investment firm shall notify the client annually when, in aggregate as a firm, the organization owns more than 10% of the outstanding shares in a single stock.
- 5) All qualified investment managers retained by the Board of Trustees will exercise discretion within the parameters set forth in these guidelines for the portfolio(s) they manage on behalf of the System (see Addendum A).

The Investment Consultant/Staff Authority and Responsibilities

The Board of Trustees will hire an Investment Consultant to assist the Board of Trustees in fulfilling their fiduciary responsibilities and in fulfilling their responsibilities in accord with this Policy. The Investment Consultant will generally be responsible for the following:

- 1) Complying with applicable laws, regulations, and rulings.
- 2) Maintaining databases of qualified investment managers, custodians, securities lending providers, and any other pertinent professionals that may assist in oversight of assets.
- 3) If needed, the Investment Consultant will assist the Board of Trustees with the search and selection of investment managers, custodians, and securities lending providers.
- 4) Calculate investment performance and reconcile that performance with the investment managers.
- 5) Providing written reports that summarize the performance and analysis of the System's investments to the Board of Trustees no later than 45 days after the end of each calendar quarter.
- 6) Monitoring and evaluating investment performance and compliance with this Policy. This includes meeting with the System's investment managers on a regular basis.
- 7) Make long-term assumptions on the capital markets for the purpose of evaluating the System's asset allocation policy.
- 8) Establishing and reviewing the appropriateness of the System's asset allocation policy.
- 9) Reviewing and suggesting changes, as needed, to this Policy.

The Investment Consultant retained by the Board of Trustees will exercise discretion within the parameters set forth in these guidelines on behalf of the System (see Addendum A).

The Custodian's Authority and Responsibilities

The Board of Trustees may utilize a third-party custodian for the following:

- 1) hold and safeguard the assets of the System,
- 2) collect the interest, dividends, distributions, redemptions or other amounts due,
- 3) provide monthly reporting to all necessary parties,
- 4) forward any proxies to the investment manager, the client, or their designee,

- 5) sweep all interest and dividend payments and any other un-invested cash into a short-term money market fund for re-deployment, and
- 6) other duties as detailed in the respective custodial agreement.

The custodian retained by the Board of Trustees will exercise discretion within the parameters set forth in these guidelines on behalf of the System (see Addendum A).

The Cash Equitization Manager's Authority and Responsibilities

The Board of Trustees may utilize a cash equitization manager to replicate the investment returns of the equity markets on the cash held in the equity managers' portfolios. The cash equitization manager will purchase and sell futures contracts whose market value is based on the returns of specific equity markets. The notional value of the futures contracts will be closely equivalent to the aggregate cash holdings of all equity managers employed by the Board of Trustees. In addition, the Board may utilize a cash equitization manager to replicate the investment returns of the overall portfolio on the cash held in the margin account and/or checking accounts. These cash holdings will be monitored on a daily basis and futures contracts will be bought or sold accordingly (see Addendum A and B).

The Securities Lending Provider's Authority and Responsibilities

The Board of Trustees may utilize a securities lending provider to create income through the lending of the assets of the System. Securities lending providers will provide reports on a monthly basis to all necessary parties. The securities lending provider will be responsible for ensuring that adequate collateral will be provided to the System for the securities that are lent and that the interest rate generated by the securities lending program is fair and reasonable. Furthermore, the securities lending provider will attempt to return all lent securities to the System's appropriate account before any transactions on the lent securities are executed. The securities lending provider retained by the Board of Trustees will exercise discretion within the parameters set forth in these guidelines on behalf of the System (see Addendum A).

Investment Objectives

Return Objectives

The primary return objectives of the System are to:

- (a) preserve the safety of principal,
- (b) earn the highest possible total return consistent with prudent levels of risk, and
- (c) create a stream of investment returns to insure the systematic and adequate funding of actuarially determined benefits through contributions and professional management of the System assets.

To achieve these goals, the System has been optimized to meet its actuarial assumed rate of return (see Addendum C). The performance objective for the System is to exceed, after investment management fees, a customized blended benchmark. To evaluate success, the Board of Trustees will compare the performance of the System to the actuarial assumed rate of return and the performance of a custom benchmark. This benchmark represents a passive implementation of the historical investment policy targets, and it is re-balanced regularly.

Risk Tolerance

While achieving the return objectives, the System is able to tolerate certain levels of risk, which are:

- (a) to accept prudent levels of short and long-term volatility consistent with the near-term cash flow needs, funding level, and long-term liability structure of the System,
- (b) to tolerate appropriate levels of downside risk relative to the System's actuarial assumed rate of return (see Addendum C). In doing so, the Board of the Trustees will attempt to minimize the probability of underperforming the System's actuarial assumed rate of return over the long-term and to minimize the shortfall in the event such underperformance occurs,
- (c) to accept prudent variances in the asset allocation structure of the System relative to the broad financial markets and peer groups, and
- (d) to tolerate prudent levels of short-term underperformance by the System's investment managers.

Constraints on the Investment Objectives

The investment objectives of the System are constrained by Federal law, State law, Section 203 of the Cincinnati Municipal Code, time, taxes, and liquidity. The System has a long-term time horizon as the assets are used to pay qualified participant and disability benefits. The System is a tax-exempt entity but can be subject to taxes involving unrelated business taxable income ("UBTI"). UBTI is income earned by a tax-exempt entity that does not result from tax-exempt activities. The liquidity needs of the System are to meet the regular cash flow requirements of the System.

Investment Philosophy

Fixed Income

The fixed income portion of the portfolio is intended to offset the volatility of equities, particularly during market downturns, as well as generate yield and provide deflation protection. The System's current fixed income investment philosophy is to allocate approximately 40% to core plus fixed income (core investment grade bonds with the ability of the manager to add high yield and global bonds to the portfolio), approximately 30% to core fixed income, approximately 7% to opportunistic fixed income (comprised mostly of non-investment grade bonds and loans), and approximately 23% to private debt (non-publicly traded fixed income offering higher returns, offset by less liquidity). This approach allows the fixed income portfolio to provide higher yield (and therefore a higher expected return) than a core fixed income portfolio while also providing diversification to the rest of the portfolio.

U.S. Equity

U.S. equities are a source of long-term growth for the portfolio. The System's current U.S. equity investment philosophy is to allocate 71% to large cap stocks, 17% to mid cap stocks, and 12% to small cap stocks. Considering the overall U.S. public equity market is roughly 74% large cap, 20% mid cap, and 6% small cap, the System's U.S. equity allocation is roughly in line with the broad market with a slight overweight to small cap stocks. Further, because value stocks are expected to outperform growth stocks over the long-term (and this is more pronounced in small), a value bias is also targeted, with approximately 58% of small cap equities managed in a value style, approximately and approximately 12% of large cap managed in a value style. This results in a total U.S. equity portfolio overweight to value of 16%. Due to the efficiency of the U.S. equity market, the assets are passively managed, which also significantly lowers management fees.

International Equities

International equities also provide long-term growth for the portfolio. Today nearly half of the world's public equity market capitalization is outside the U.S., and therefore, allocating to non-U.S. stocks reduces overall portfolio volatility, expands the universe of stocks and countries to invest, and potentially increases expected returns with higher risk emerging markets. The System's current investment philosophy is to allocate approximately 85% to large cap stocks and 15% to mid cap stocks, replicating the portfolio construction of the MSCI ACWI ex. U.S. Separately, the System is targeting 30% to emerging markets. Due to the efficiency of the Non-U.S. equity market, the assets are passively managed, which also significantly lowers management fees.

Private Equity

The allocation to private equity is meant to capture outperformance of over 2 percentage points, net of fees, above the traditional equity portfolio. The System will utilize a Fund of Funds approach of multiple managers and allocate as evenly as possible among calendar years to properly diversify. Although private equity funds are illiquid and incur higher fees, the expected benefits of higher returns should outweigh these costs.

Real Estate

The allocation to real estate is meant to capture consistent yield in excess of fixed income, as well as provide some inflation protection and diversification from other asset classes. The System currently uses open-end core real estate funds to maintain maximum liquidity and minimum risk in the asset class.

Infrastructure

The allocation to infrastructure is meant to capture consistent yield in excess of fixed income as well as provide diversification from other asset classes. The System is moving to an open-end, core investment philosophy in infrastructure for maximum liquidity and minimum risk in the asset class.

Volatility Risk Premium

The allocation to volatility risk premium is meant to add diversification to the overall portfolio by capturing premiums via selling S&P 500 puts to generate consistent monthly premiums on the equity market with volatility that has historically been 50-75% less than the equity markets.

Asset Allocation and Re-Balancing Procedures

General Methods and Frequency of Evaluating the Asset Allocation

The Board of Trustees, with the assistance of the Investment Consultant, will conduct a strategic asset allocation study and an asset/liability study every 3 to 5 years. Tactical studies may take place more frequently in times of extreme market dislocations. They will take into consideration applicable statutes, the actuarial rate of return of the System, the long-term nature of the asset pool, the cash flow needs of the System, and the general asset allocation structure of their peers. They will make assumptions on the capital markets over the long-term and optimize the asset allocation to best meet the actuarial and cash flow needs of the System at a prudent level of risk.

Asset Allocation/Rebalancing

The minimum and maximum allocation range for each specific asset class is also shown in the table set forth below:

Exhibit 1 – Asset Allocation (~~November~~ May 2, 2024)

Asset Class	Target	Minimum*	Maximum*
Core Plus Bonds	11.5%	8 9.0%	14.0%
Core Bonds	9.0%	6 7.0%	11.0%
Opportunistic Credit	2.0%	1.0%	3.0%
Private Debt	<u>6.5%</u>	<u>0.0%</u>	<u>7.5</u> 8.0%
Total Fixed Income	<u>29.0%</u>	<u>24</u> 15.0%	<u>36</u> 4.0%
All-Cap Core Equity	24.0%	16.5%	26.5%
Large-Cap Value Equity	2.5%	1 .05%	5.5%
Small-Cap Value Equity	<u>2.0%</u>	<u>1</u> .05%	<u>5</u> .5%
Total Domestic Equity	<u>28.5%</u>	<u>23</u> .5 <u>18.5</u> %	<u>35.5%</u>
All-Cap Non-U.S.	16.0%	11 3.0%	23.0%
Total Non-U.S. Equity	<u>16.0%</u>	<u>11</u> 3.0%	<u>23.0%</u>
Real Estate Core	<u>6.0%</u>	<u>2</u> 3.0%	<u>8</u> .0%
Total Real Estate	<u>6.0%</u>	<u>2</u> 3.0%	<u>8</u> .0%
Infrastructure	<u>10.0%</u>	<u>5</u> .0%	<u>15</u> .0%
Total Infrastructure	<u>10.0%</u>	<u>5</u> .0%	<u>15</u> .0%
Volatility Risk Premium	<u>2.5%</u>	<u>1</u> .0%	<u>4</u> .0%
Total Volatility Risk Premium	<u>2.5%</u>	<u>1</u> .0%	<u>4</u> .0%
Private Equity - Fund of Funds	<u>8.0%</u>	<u>0</u> .0%	<u>14</u> .0%
Total Private Equity	<u>8.0%</u>	<u>0</u> .0%	<u>14</u> .0%
TOTAL	100.0%		

*May not equal 100%

The purpose of rebalancing procedures is to minimize the unintended drift from CRS strategic asset allocation, thus ensuring compliance with the Investment Policy. Systematic rebalancing is intended reduce volatility and increase portfolio returns over the long term.

CR staff, with the assistance of the Investment Consultant, will review the Asset Allocation at least quarterly and adjust the portfolio to comply with the Asset Allocation Target and Minimum and Maximum ranges (Exhibit 1). Given the ongoing cash flow needs of CRS, it is anticipated by the Board of Trustees, in consultation with the Investment Consultant, that the Asset Allocation will be achieved under most market conditions.

The CRS staff will monitor the Asset Allocation structure of the portfolio and attempt to stay within the ranges allowed for each Asset Class (Exhibit 1). CRS staff, with advice from the Investment Consultant, will develop a plan of action to rebalance when necessary. The process for any rebalancing will include, but not limited to, evaluating the most recent market values and liquidity for all investments compared to the Strategic Asset Allocation assumptions. The CRS Staff and the Investment Consultant will decide on the best course of action based on the analysis and implement the plan. Historically, the System has experienced net negative annual cash flows, therefore some rebalancing typically takes place monthly within the Asset Allocation Minimum and Maximum ranges to raise cash for benefits.

Cash Management and Liquidity Policy

The purpose of the policy is to establish general guidelines for cash flow management to ensure that sufficient cash is available for the day-to-day operational need of the CRS system.

To facilitate liquidity requirements, CRS established and maintains a Trust Account with the Custodian Bank to:

- 1) Monitor cashflow from investments
- 2) Pay financial obligations of the System
- 3) Facilitate funding of capital calls
- 4) Provide the margin and liquidity necessary for the cash overlay program that is maintained by the cash overlay manager
- 5) Daily sweep of cash balance

The Trust Account will be funded to contain a sufficient reserve, an amount which CRS staff deems necessary to meet short-term commitments. The Trust Account will be monitored daily and replenished when necessary. The funding sources of the Trust Account will be in accordance with the CRS strategy asset allocation. When cash is needed in the Trust Account, in consultation with CRS's Investment Consultant, CRS staff will determine the appropriate funding sources. The funding sources may include accounts with greater liquidity, lower transaction costs or accounts which are overweight compared to their target allocation.

CRS recognizes that certain investments which entail a greater degree of illiquidity, such as private equity, real estate, and infrastructure offer the potential for greater return and /or enhanced diversification. As a long-term investor, CRS has the ability to hold illiquid investments. When considering illiquid asset class allocations, the staff and the Investment Consultant will work with the Board of Trustees to incorporate net annual cash flows requirements of CRS in determining a prudent allocation of illiquid assets.

Investment Manager & Specialty Advisors Selection, Monitoring, and Communication

Investment Manager Selection

Introduction - This policy establishes general guidelines for selecting and monitoring external investment managers, actuarial services and custodians for effectiveness, identifying issues of concern, and for making decisions concerning retention.

Manager Selection – The manager selection process requires the evaluation of all aspects of a firm’s organization and investment process to assess the probability that the identified firm’s product will successfully meet the objectives of a given investment mandate going forward. A series of quantitative and qualitative factors should be analyzed when evaluating prospective firms. When possible, a suitable manager universe for a given mandate should be screened for potential manager candidates. The following, as applicable, should be considered in the manager selection process:

1. Organizational Factors
 - a. Stable Structure
 - b. Sound strategic direction
 - c. Business viability
 - d. Manageable assets under management
2. Investment Philosophy
 - a. Well defined and understood philosophy and process
 - b. Clear competitive advantage executed over a market cycle or the life of the fund
 - c. Demonstrated consistent adherence to philosophy and approach with no style drift
3. Investment Professionals
 - a. Experienced investment professionals managing this type of mandate
 - b. Continuity of team and process – Limited turnover overall and a PM team that has worked over a market cycle together
 - c. Requisite investment skillset required to perform mandate
 - d. Well-resourced team and a team with the strategic pathway to execute on their stated philosophy and process over an investment cycle
4. Historical Performance (Public Markets)
 - a. Performance vs. relevant benchmarks/peers
 - b. Consistency – no style drift
 - c. Appropriate level of risk to match the investment style
 - d. Performance attribution showcasing skill and investment style true to the philosophy
5. Historical Performance (Private Markets)
 - a. Performance vs. relevant benchmarks/peers
 - b. Overall fund performance consistent to stated goals and objectives
 - c. Prior funds showcase appropriately balanced approach to risk management
 - d. Performance attribution that makes investment style and objectives

- e. Reasonable sequential growth of AUM with each new fund

No investment managers shall be hired who are a party in interest or who have not, by their record and experience, demonstrated their fiduciary responsibility, their investment expertise, their investment experience, and their capacity to undertake the mandate for which they are being considered. Investment manager candidates must be GIPS® compliant and have a track record of at least three years. (The GIPS® compliance and three-year track record requirements do not apply to managers of real estate, private equity, infrastructure, hedge funds, risk parity, and overlay managers.) The firm's GIPS® compliance must be audited at least every 4 years.

Manager Monitoring / Termination - Each manager should be analyzed on an individual basis, taking into account any specific circumstances affecting the particular relationship. At minimum, the CRS Staff and Investment Consultant shall review all managers on a quarterly basis. The review process should include, while not being limited to, the following factors:

1. Performance:

1. **Public Markets:** An evaluation of performance should focus primarily on trailing three- and five-year periods, taking into account the manager's expected tracking error versus the agreed-upon benchmark. Over these time horizons, active manager performance, net of fees, is generally expected to outperform the agreed upon benchmark and fall within the top two quartiles of an appropriate peer group.
2. **Private Markets:** Performance is measured on an ongoing basis and is evaluated using several different performance calculation metrics. Funds are monitored for progress of acquisitions, asset management, and disposition of assets. The appropriate time horizon for evaluating private market investments is generally the full term of the fund. At the end of a fund's term, it is expected that it will achieve or exceed its initial performance targets and fall within the top two quartiles of an appropriate peer group. Investment in subsequent fund offerings will be based, in large part, on actual versus expected performance of existing fund investments at the time consideration is being given to subsequent fund offerings.
2. **Adherence to Stated Philosophy, Process and Style:** The default expectation would be continued adherence to the manager's stated philosophy, process, and style in existence at the time of hiring.
3. **Organizational Matters:** Stability is the basic expectation. Any material change in the manager's organizational structure, ownership or personnel should be carefully considered.
4. **Guidelines:** Managers are expected to maintain compliance with guidelines established by the CRS and Investment Consultant. As circumstances warrant, the manager may provide recommended revisions to the guidelines in writing to CRS staff and Investment Consultant; however, CRS staff and the Investment Consultant shall be under no obligation to accept such recommendations.
5. **Service and Responsiveness:** Managers are expected to be reasonably responsive to the needs of the CRS staff and investment consultant, including requests for information and/or analysis, requests for periodic meetings to review performance, etc.

Frequency of Measurement and Meetings

The Board of Trustees, with the assistance of the Investment Consultant & Staff, expects to measure investment performance quarterly.

Investment Manager Communication and Evaluation Terminology

The following terminology has been developed to facilitate efficient communication between the investment managers, investment consultant, and staff. Each term signifies a particular status with the System and any conditions that may require improvement over time (rolling 12-month window). In each case, communication is made only after consultation with the Board of Trustees.

Actuarial Services

The Board retains an actuary for the purpose of forecasting asset and liability growth and the many complex factors included in estimating future health care cost and the solvency period for CRS. The actuary shall be held to the highest standards and shall provide periodic reports on the fund and shall provide recommendations to the Board including, among other things, the estimated level of contributions necessary to maintain a target funded ratio.

Investment actuary selection and monitoring policies are designed to ensure that qualified professionals are chosen, and their performance is continuously evaluated to maintain financial stability and fiduciary responsibility. CRS generally employs the following policies:

- **Qualifications and Expertise:** Examples include Professional certifications (e.g., Fellow of the Society of Actuaries, Enrolled Actuary), experience with public pension plans, and demonstrated knowledge of applicable laws and actuarial standards.

Monitoring Policies

- **Annual Performance Reviews:** CRS staff to review and evaluate the actuary's performance annually to the Board of Trustees
- **Ongoing Communication:** Regular meetings between the actuary and the pension board help monitor actuarial assumptions, changes in demographics, and investment returns.
- **Compliance with Actuarial Standards:** The actuary must adhere to the standards of practice established by the Actuarial Standards Board (ASB) and other regulatory bodies.

Replacement and Transition

- **Cause for Replacement:** An actuary may be replaced for reasons such as poor performance, failure to meet deadlines, or significant errors in actuarial valuations. Major shifts in the pension plan's financial status may also trigger a re-evaluation of the actuary's services.
- **Succession Planning:** A clear transition plan ensures the smooth handover of actuarial responsibilities if a new actuary is selected, minimizing disruption to the pension plan's financial planning.

<u>STATUS</u>	<u>DESCRIPTION</u>
A. <i>"In Compliance"</i>	The investment manager is acting in accordance with the Investment Policy Guidelines.
B. <i>"Alert"</i>	The investment manager is notified of a problem in performance (usually related to a benchmark or volatility measure), a change in investment characteristics, an alteration in management style or key investment professionals, and/or any other irregularities. The investment manager will be completing a monthly compliance checklist from the investment consultant to ensure thorough oversight.
C. <i>"On Notice"</i>	The investment manager is notified of continued concern with one or more Alert issues. Failure to improve upon stated issues within a specific time frame justifies termination. The investment manager will be completing a monthly compliance checklist from the investment consultant to ensure thorough oversight.
D. <i>"Termination"</i>	The program's management has decided to terminate the investment manager. The investment manager is notified and transition plans are in place.

Operational Guidelines

Investment Policy Guidelines for the Core Plus Bond Manager(s)

This document contains the guidelines and restrictions that apply to the core plus bond investment manager(s) of the Pension Fund (see Addendum A).

Permissible Investments

1. No single issuer should comprise more than 5% of the market value of the portfolio, as determined at the time of purchase. The only exception is for securities issued by the U.S. Treasury, its agencies, instrumentalities or government sponsored entities (such as FNMA and FHLMC), and G-7 sovereigns.
2. Up to 20% of the market value of the portfolio may be invested in securities rated below investment grade. If the ratings assigned to a security by Standard & Poor's, Moody's, and/or Fitch are not the same, the highest rating of these rating agencies will be used. If an issue is not rated by any of these agencies, then the investment manager will determine a rating. If an investment grade security already held in the portfolio is downgraded to below investment and a breach of the 20% limit occurs, prompt client notification is required concerning intent to hold the issue going forward. The minimum average portfolio quality shall be A-.
3. At least 75% of the market value of the portfolio must be invested in U.S. dollar denominated securities, counting cash and cash equivalents toward this percentage, as determined at the time of purchase. Included in this limit are U.S. dollar denominated securities issued in the U.S. by foreign domiciled issuers and traded in U.S. markets. Non-U.S. dollar denominated bonds may be held up to 25% of the portfolio.
4. Effective aggregate currency exposure is limited to a maximum of 10% of portfolio market value. This includes direct currency exposure (long and short foreign currency positions held without owning securities denominated in such currencies).
5. Local currency emerging market debt (defined using the World Bank definition, which is based on GNP per capita) is limited to 10% of portfolio market value. Emerging market yankee bonds limited to 20% of portfolio market value.
6. In aggregate, investment in convertible, convertible preferred and preferred securities (including trust preferreds) may not exceed 25% of the market value of the portfolio, as determined at the time of purchase.
7. Common stock may only be held if it is acquired as a result of a financial restructuring, bankruptcy or from an exchange or conversion of a permissible security held in the portfolio. The investment manager will provide notification concerning the intent to hold the issue going forward.

8. The portfolio may invest up to 75% of the market value of the portfolio, as determined at the time of purchase, in securities issued pursuant to Rule 144(a), including those issued with and without registration rights.
9. Eligible derivatives include contracts to buy or sell futures on securities, indices, interest rates and currencies ("Futures"); structured notes; forward contracts for securities, indices, interest rates and currencies; credit default swaps (long and short) and swap contracts on indices, interest rates and currencies ("Swaps"); put and call options on securities, indices, interest rates, Futures, Swaps, and currencies ("Options"), foreign currency exchange contracts, and senior loans. Futures cannot be used to create economic leverage. Additionally, there is a 50% gross notional limit on futures.
10. Put and call options on exchange-traded options on Treasury Futures may be written if they are fully covered. Call options are considered covered if the manager owns an amount equal to the exercise cost in high-quality fixed income securities (A- rated or higher) with maturities that are comparable to the maturities in the deliverable basket for the Treasury futures contract. Put options are considered covered if cash equivalent assets in an amount equal to the exercise cost are maintained in the account. Investment managers may purchase back options on exchange-traded Treasury future contracts in order to close out positions. The aggregate value of each manager's option positions shall not exceed 25% on an absolute basis of the account's market value.
11. The average effective duration of the portfolio is not to vary more than +/-30% of the duration of the portfolio's benchmark index.
12. The investment manager may hold up to 15% of its portfolio in cash and cash equivalents. The only exception to this rule is during trading activity associated with the initial start-up phase of the portfolio. The portfolio should be fully-invested and construction completed within 60 days of the start date. The investment manager is not responsible for investments made pursuant to any cash sweep arrangement with the custodian.
13. If any of the parameters described above are breached as a result of market movements, capital additions, or withdrawals, the investment manager shall have a reasonable period, not to exceed sixty (60) days, to bring the portfolio into compliance with the applicable investment guidelines. The investment manager must receive written permission to permit such a breach to continue past this 60-day window.
14. Eligible investments include public or private debt obligations issues or guaranteed by U.S. or foreign issuers, including but not limited to corporations, governments (including their agencies, instrumentalities and sponsored entities, partnerships and trusts (such obligations may be issued at fixed, variable, adjustable or zero coupon rates or convertible into equity securities); private debt obligations are limited to those issued pursuant to regulations S and Rule 144A; preferred, hybrid, mortgage-backed, commercial mortgage-backed or asset-backed securities issues by any of the above-names entities; senior loans; interests specified under

"Eligible Commingled Investments"; derivatives specified under "Eligible Derivatives" and cash equivalents specified under "Eligible Cash Equivalents."

Investment Objective

Over reasonable measurement periods (3 to 5 years), the portfolio's return net of fees should exceed the return of the appropriate benchmark index (see Addendum A).

Investment Policy Guidelines for the Separately-Managed, U.S. Equity Manager(s)

This document contains the guidelines and restrictions that apply to the separately-managed equity investment manager(s) of the System (see Addendum A).

Permissible Investments

1. The investment manager may hold up to 5% of its portfolio in a money market and/or cash. The only exception to this rule is during trading activity, which can only be maintained for very short time periods, i.e. less than 30 days.
2. Options, financial futures, private placements, restricted stock, issues related to the investment manager, or venture capital may not be purchased. The purchase of securities on margin and short selling is prohibited.
3. No investments should be made in securities not traded on an U.S. exchange or traded in U.S. dollars.
4. The combined holdings of preferred stocks and convertible bonds shall not exceed 5% of the portfolio.
5. No single security in the manager's portfolio, including Exchange Traded Funds, will comprise more than 10% of the portfolio at market.
6. Investments in Rule 144a securities are permitted if the securities have registration rights requiring the issuer to swap the securities for fully registered publicly traded bonds and if the investment is otherwise consistent with the above guidelines. The combined holdings of these investments may not exceed 10% of the portfolio's overall asset allocation.
7. At no point in time should the aggregate position (within each equity investment manager's portfolio in the System) in any company exceed 5% of the fair market value of the outstanding stock in the company.

Investment Objective

Over reasonable measurement periods (3 to 5 years), the portfolio's return net of fees should exceed the return of the appropriate benchmark index (see Addendum A).

Investment Policy Guidelines for the Separately-Managed, Non-U.S. Equity Manager(s)

This document contains the guidelines and restrictions that apply to the separately-managed non-U.S. equity investment manager(s) of the System (see Addendum A).

Permissible Investments

1. The investment manager may hold up to 5% of its portfolio in a money market and/or cash. The only exception to this rule is during trading activity, which can only be maintained for very short time periods, i.e. less than 30 days.
2. Options, financial futures, private placements, restricted stock, issues related to the investment manager, or venture capital may not be purchased. The purchase of securities on margin and short selling is prohibited.
3. The maximum investment in companies classified by MSCI in the United States is 5%. Investment in ADRs and GDRs, which are classified by MSCI in non-U.S. countries, are excluded from the calculation. ADRs, or American Deposit Receipts, is a stock that trades in the United States but represents a specified number of shares in a foreign corporation. GDRs, or Global Deposit Receipts, are the global equivalent of ADRs.,
4. The combined holdings of preferred stocks and convertible bonds shall not exceed 5% of the portfolio.
5. No single security in the investment manager's portfolio, including Exchange Traded Funds, will comprise more than 10% of the portfolio at market.
6. Investments in Rule 144a securities are permitted if the securities trade on a recognized exchange; are fully fungible with securities traded on a recognized exchange; or will be, when seasoned, fully fungible with securities traded on a recognized exchange, provided that the investment is otherwise consistent with the other guidelines. The combined holdings of these investments may not exceed 10% of the portfolio's overall asset allocation.
7. At no point in time should the aggregate position (within each equity manager's portfolio in the System) in any company exceed 1.5% of the fair market value of the outstanding stock in the company.
8. Currency hedging for defensive purposes will be permitted. Forward currency contracts may be used to hedge currencies. This includes hedging back into the base currency. Cross currency hedging is permitted.
9. The combined holdings of emerging and frontier market equities as defined by MSCI in aggregate shall not exceed 30% of the portfolio at market.
10. The combined holdings of Canada stocks and convertible bonds shall not exceed 10% of the portfolio at market.

Investment Objective

Over reasonable measurement periods (3 to 5 years), the portfolio's return net of fees should exceed the return of the appropriate benchmark index (see Addendum A).

Investment Policy Guidelines for Limited Partnership, Commingled Fund, Collective Trusts, Limited Liability Companies, Mutual Fund, and any other type of Commingled Fund Manager(s) ("Commingled Funds")

This document contains the guidelines and restrictions that apply to all commingled fund investment manager(s) of the System (see Addendum A).

Permissible Investments

1. These funds are governed by the guidelines and restrictions contained in any of the following applicable documents: prospectus', subscription agreements, limited partnership agreements, and confidential information memorandums.

Investment Objective

Over reasonable measurement periods (3 to 5 years), the portfolio's return net of fees should exceed the return of the appropriate benchmark index (see Addendum A).

Investment Policy Guidelines for the Cash Equitization Manager

This document contains the guidelines and restrictions that apply to the cash equitization investment manager of the System (see Addendum A).

Permissible Investments

1. The cash equitization program is governed by Addendum B.

Investment Objective

The cash equitization program should maintain a futures program for unallocated cash and cash reserves in accordance with the guidelines set forth in Addendum B.

Investment Policy Modification and Revision

Policy Modification

The Board of Trustees, with the assistance of the investment consultant, will review this Policy annually. Key environmental or operational occurrences, which could result in a Policy modification, include:

- (1) significant changes in expected patterns of the System's liability stream,
- (2) impractical time horizons or changes,
- (3) change in the System's priorities,
- (4) convincing arguments for change presented by investment professionals,
- (5) legislation, and
- (6) areas found to be important, but not covered by the Policy.

Modification of Addendums

Changes to investment professionals, Board of Trustees, or plan information contained within Addendums A-D can and should be modified, as necessary, without a complete review by the Board of Trustees.

**Addendum A-
Defining the Investment Professionals and Benchmark Indexes**

Asset Class	Investment Manager	Benchmark Index
Core Bonds	Northern Trust	Bloomberg U.S. Aggregate
Core Bonds	Diamond Hill	Bloomberg U.S. Aggregate
Core Plus Bonds	Loomis	Bloomberg U.S. Aggregate
Core Plus Bonds	Reams	Bloomberg U.S. Aggregate
Opportunistic Bonds	Shenkman	Bloomberg High Yield Bond
Private Debt	H.I.G.	Bloomberg U.S. Aggregate
Private Debt	Carlyle	Bloomberg U.S. Aggregate
Private Debt	Blue Owl	Bloomberg U.S. Aggregate
Private Debt	TPG	Bloomberg U.S. Aggregate
Private Debt	JP Morgan	Bloomberg U.S. Aggregate
Private Debt	Bain Capital	Bloomberg U.S. Aggregate
U.S. Large-Cap Value Equity	Northern Trust	Russell 1000 Value
Broad U.S. Equity	Northern Trust	Russell 3000
U.S. Small-Cap Value Equity	Northern Trust	Russell 2000 Value
Broad Non-U.S. Core Equity	Northern Trust	MSCI ACWI ex. U.S.
Real Estate - Core	Morgan Stanley	NCREIF ODCE
Real Estate - Core	J.P. Morgan	NCREIF ODCE
Real Estate- Value Added	Prudential	NCREIF ODCE
Real Estate - Value Added	Principal	NCREIF ODCE
Real Estate-Non U.S.	StepStone	NCREIF ODCE
Private Equity Fund of Funds	Fort Washington	Cambridge All PE
Private Equity Fund of Funds	North Sky	Cambridge All PE
Private Equity Fund of Funds	JPM PEG	Cambridge All PE
Private Equity Fund of Funds	Portfolio Advisors	Cambridge All PE
Private Equity Fund of Funds	Siguler Guff	Cambridge All PE
Private Equity	Timber Bay	Cambridge All PE
Private Equity	JPMorgan Co Investment	Cambridge All PE
Infrastructure	JP Morgan	T-Bill + 4%
Infrastructure	IFM	T-Bill + 4%
Infrastructure	Ullico	T-Bill + 4%
Volatility Risk Premium	Neuberger Berman	CBOE Put/Write Index

Investment Professional	Service Provider
Custodian	Bank of New York Mellon
Investment Consultant	Marquette Associates
Cash Equitization Manager	Parametric
Securities Lending Provider	Bank of New York Mellon

The Total Fund customized benchmark is currently 20.57% Bloomberg U.S. Aggregate Index, 2% 50/50 Bloomberg US High Yield Index/S&P Leveraged Loan Index, 4% S&P Leveraged Loan Index, 24.0% Russell 3000 Index, 2.5% Russell 1000 Value Index, 2.0% Russell 2000 Value Index, 16% MSCI

ACWI ex. U.S. Index, ~~2.5%~~ ~~60/40 S&P 500/Bloomberg U.S. Aggregate~~ 2.5% CBOE Put/Write Index, 76.0% NCREIF ODCE Index, 10.0% T-Bill+4%, ~~9.58.0%~~ Cambridge Associates All Private Equity Index.

<u>CRS Policy Benchmark</u>	-	<u>Weight (%)</u>
-	-	-
<u>Russell 3000 Index</u>	<u>US Equities</u>	<u>31.50%</u>
<u>MSCI AC World ex US</u>	<u>Intl Equities</u>	<u>16.00%</u>
<u>US Aggregate Index</u>	<u>Core/Core Plus FI</u>	<u>20.50%</u>
<u>50/50 Blmbg US High Yield & S&P Leveraged Loan Index</u>	<u>Below Investment Grade Credit</u>	<u>2.00%</u>
<u>S&P Leveraged loan Index</u>	<u>Private Credit</u>	<u>4.00%</u>
<u>NFI-ODCE</u>	<u>Real Estate</u>	<u>7.00%</u>
<u>3 Month T-bill + 4%</u>	<u>Infrastructure</u>	<u>10.00%</u>
<u>Burgiss Global All Private Equity</u>	<u>Private Equity</u>	<u>9.50%</u>

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**Addendum B-
Cash Equitization Guidelines**

The System will select the assets to be overlaid by Parametric's PIOS program. Specifically, that portion shall consist of those funds designated by the System as cash reserves at its custodian as well as cash held from time to time by other investment managers for the System (the investment manager portfolio(s)).

The asset class allocation targets and associated benchmark indexes are as follows:

<u>Asset Class</u>	<u>Target %</u>	<u>Benchmark Index</u>
Domestic Equity	28.5%	Russell 3000
International Equity-Dev.	16.0%	MSCI ACWI ex. U.S.
Fixed Income	29.0%	Bloomberg U.S. Aggregate
Real Estate	6.0%	NCREIFODCE
Infrastructure	10.0%	T-Bill + 4%
VRP	2.5%	CBOE Put/Write
Private Equity	8.0%	Cambridge All PE
Total	100.0%	

It is the System's responsibility to establish and revise as necessary the asset class categories.

INVEST UNALLOCATED CASH COMPONENT OF CASH/MARGIN ACCOUNTS:

Unallocated cash will be synthetically invested as follows:

<u>Asset Class</u>	<u>Target %</u>	<u>Benchmark Index</u>
Domestic Equity	39.0%	Russell 3000 MSCI
International Equity	16.0%	ACWI ex. U.S.
Fixed Income	45.0%	Bloomberg U.S. Aggregate
Total	100%	

INVEST UNALLOCATED CASH COMPONENT OF EQUITY ACCOUNTS:

Unallocated cash will be synthetically invested as follows:

<u>Asset Class</u>	<u>Target %</u>	<u>Benchmark Index</u>
Domestic Equity	100.0%	Russell 3000 MSCI
International Equity	100.0%	ACWI ex. U.S.

**Addendum C-
Summary of Plan Information**

Plan Name:	<u>City of Cincinnati Retirement System</u>
Type of Plan:	<u>Defined Benefit</u>
Plan Adoption Date:	<u>1931</u>
Plan Year-End Date:	<u>December 31st</u>
Assumed Actuarial Rate of Return (Net-of-fees):	<u>7.50%</u>

**Addendum D-
Investment Professional Adoption of Policy**

This Policy document was adopted by the Board of Trustees for the Cincinnati Retirement System on May 2, 2024.

Investment Professional's Acknowledgments:

The firm has received this copy of the System's Policy. The firm has studied its provisions and believes that we can both abide by its restrictions and fulfill its goals and expectations over the timetables set forth in the Policy.

Firm Name

Investment Professional

**Addendum E-
Board of Trustees Adoption of Policy**

This Policy document was adopted by the Board of Trustees for the System on May 2, 2024.

Board of Trustees' Acknowledgments:

The Board of Trustees of the Cincinnati Retirement System has approved the System's Policy.

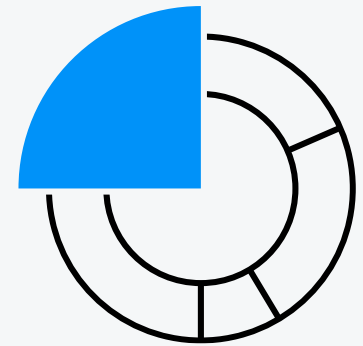
Secretary of the CRS Board of Trustees

February 2025

Infrastructure Investments Fund

(“IIF” or “Fund”) *Established 2006*

Open-Ended Private Infrastructure



City of Cincinnati on behalf of the Cincinnati Retirement System



This is a marketing communication. Please refer to the legal and regulatory documents before making any final investment decisions.
As of September 30, 2024 and in U.S. dollar terms unless otherwise specified.

For Institutional / Wholesale / Professional Clients and Qualified Investors Only — Not for Retail Use or Distribution

J.P.Morgan
135
ASSET MANAGEMENT

What is Core/Core+ Infrastructure?

Essential services that often operate on a monopolistic basis either by regulatory structure or contract, which we believe drives visibility into cashflow & uncorrelated return potential

Distribution/Regulated Assets

Guideline: 30-60% of Portfolio¹

Monopolistic regulatory frameworks



Contracted/Power Assets

Guideline: 30-60% of Portfolio¹

Long-term contracts typically, with volume minimums



GDP-Sensitive Assets

Guideline: 10-30% of Portfolio¹

Mature assets with significant demand history often underpinned by contracts



For illustrative purposes only.

Source: J.P. Morgan. All data as of September 30, 2024 unless otherwise stated. Photo source: JPMAM

Diversification does not guarantee investment returns and does not eliminate the risk of loss.

1. Represents target guideline ranges. The Investment Adviser seeks to achieve the stated objectives. There can be no guarantee the objectives will be met.

Infrastructure Investments Fund ("IIF or Fund") – Overview

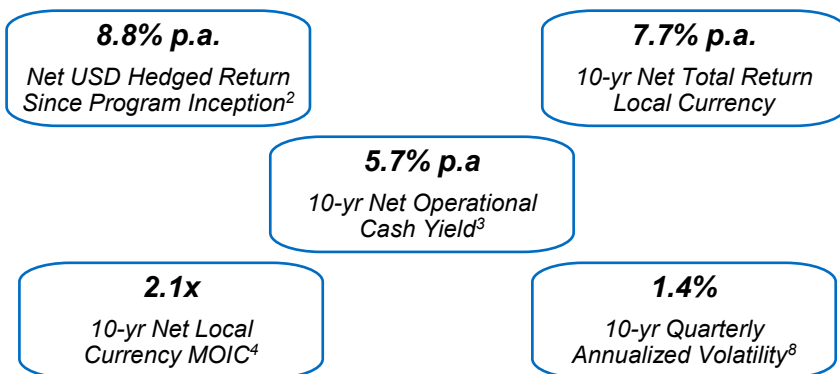
Summary

- **Experience:** 17 years of operating experience managing a diversified \$40.8 billion portfolio with 18 portfolio companies and 997 assets
- **Track Record:** History of low volatile relative returns with a focus on multiple of invested capital
- **Asset Management:** Target a systematic approach driven by control, people & continuous business improvement
- **Platform Investment:** Deployment strategy that seeks lower execution risk and return enhancement via on-going investment

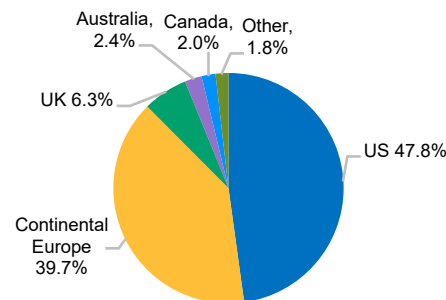
Key Strategy Elements

Net Asset Value	■ USD 40.8 billion
Leverage	■ 47% LTV
Portfolio	■ 18 private operating companies ■ 997 assets - Primarily control positions
Commitment Queue	■ Estimated ~3 months or less ⁵

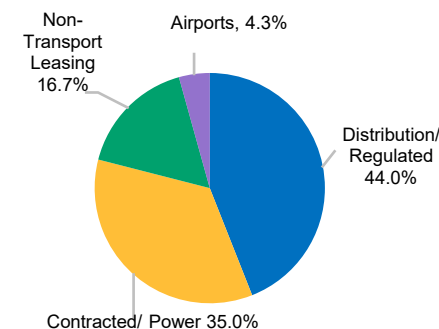
Key Metrics¹



Portfolio Geography^{6,7}



Portfolio Sectors⁷



All data as of September 30, 2024 unless otherwise stated. The Investment Adviser seeks to achieve the stated objectives. There can be no guarantee the objectives will be met. **Past performance is not a reliable indicator of current and future results. All performance numbers have been calculated in US dollar terms unless otherwise stated. Please refer to the Fund's return snapshot and quarterly reporting for more information and detail. Full performance table shown in appendix. The performance shown is for a direct investment into the Fund. It is not net of additional fees, expenses and costs that may be applicable if investing through an external distributor, advisor, and/or feeder.** ¹Performance numbers represent a composite return of the combined fund investor vehicles (FIVs) in existence as of September 30, 2024. Specific FIV and investor returns are shown on the quarterly investor statements. Investment performance does not include hedging gains/(losses) resulting from the Hedging Program. Returns for periods greater than one quarter are time-weighted rates of return calculated by linking quarterly returns. Returns of greater than one year are annualized. ²Reflects the composite hedged returns of USD hedged investors in all Hedged FIVs. IIF's hedging program was inception in October 2018. Returns of other hedging currencies (AUD, CAD, EUR, GBP, JPY & SEK) are available upon request. ³Represents a composite of the total cash distributed to investors divided by the NAV of the Fund on the applicable date for all fund investor vehicles (FIVs). All fees, taxes, and expenses are deducted from each Investor's NAV, not distributions, unless otherwise elected by such investor to deduct from their distribution for their operational convenience. Also excludes any holdback related to the optional currency hedging program where applicable. ⁴ Multiple of investment at the beginning of the period compounded quarterly at the applicable reported composite rate of return. ⁵The investment queue is an estimate only and subject to change. ⁶Other includes Japan and Chile. ⁷ Numbers are subject to rounding. ⁸ Quarterly annualized net local currency return volatility.

Dedicated Team with Long-Tenured Leadership and a Deep Bench of Talent



Paul Ryan, Managing Director
Chief Executive Officer and Portfolio Manager
New York



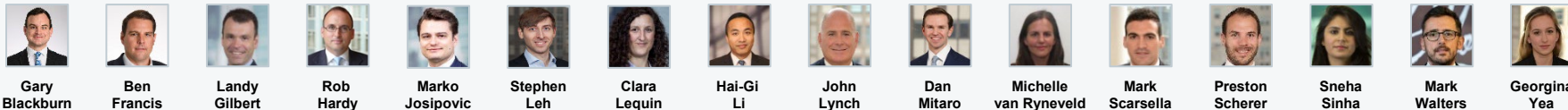
Matt Leblanc, Managing Director
Chief Investment Officer
New York



Brian Goodwin, Managing Director
Chief Operating Officer and Head of Portfolio
Asset Management
New York

Investment Team – London and New York

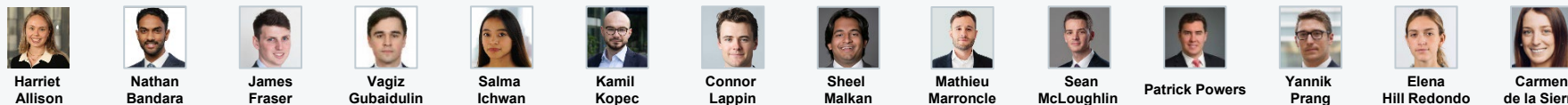
LEAD INVESTMENT PRINCIPALS (MANAGING & EXECUTIVE DIRECTORS)



VICE PRESIDENTS



ASSOCIATES

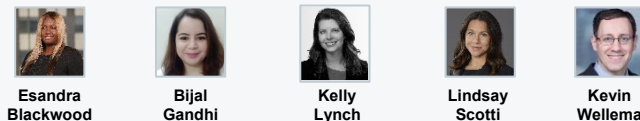


Client Team

SENIOR PRINCIPALS (MANAGING & EXECUTIVE DIRECTORS)



VICE PRESIDENTS

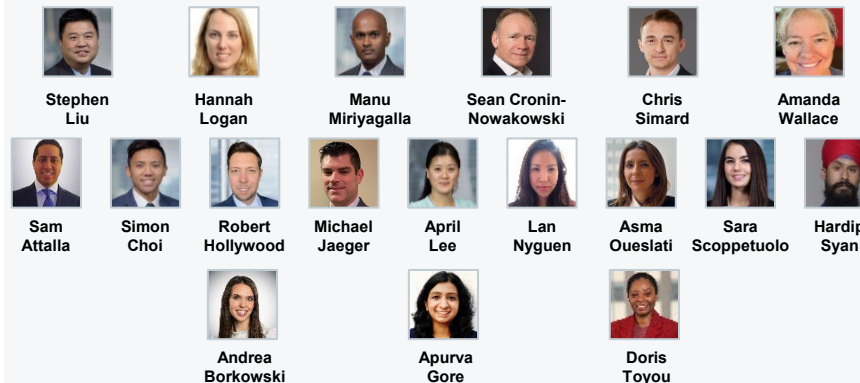


ASSOCIATES



Includes fundraising, investor relations, and client service

Specialist Team



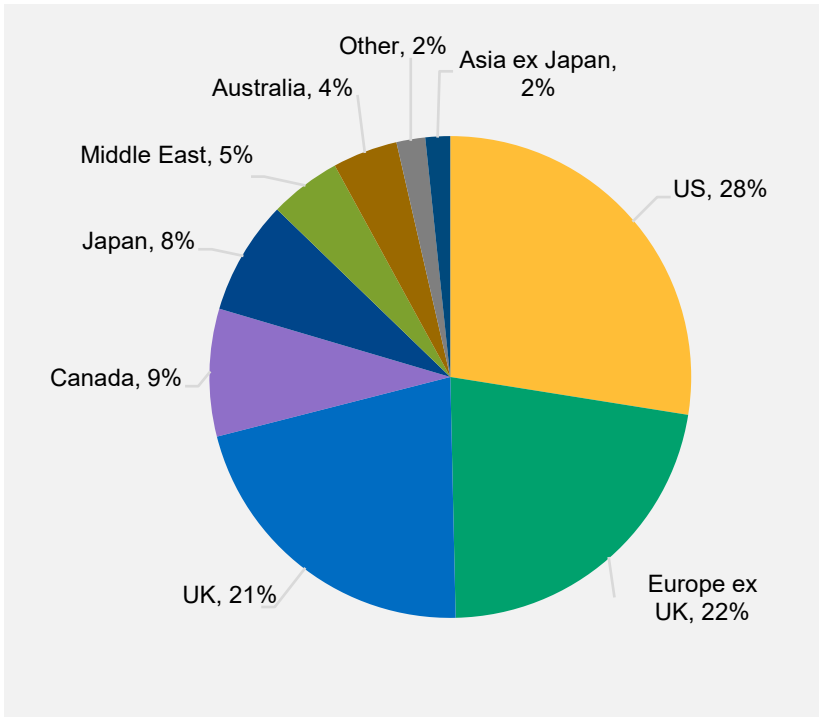
Includes execution, controls, finance, reporting, tax, and technology

All listed individuals are employees of JPMAM. There can be no assurance that the professionals currently employed by JPMAM will continue to be employed by JPMAM or that the past performance or success of any such professional serves as an indicator of such professional's future performance or success.
Source: JPMAM, as of October 2024. Photo source: JPMAM

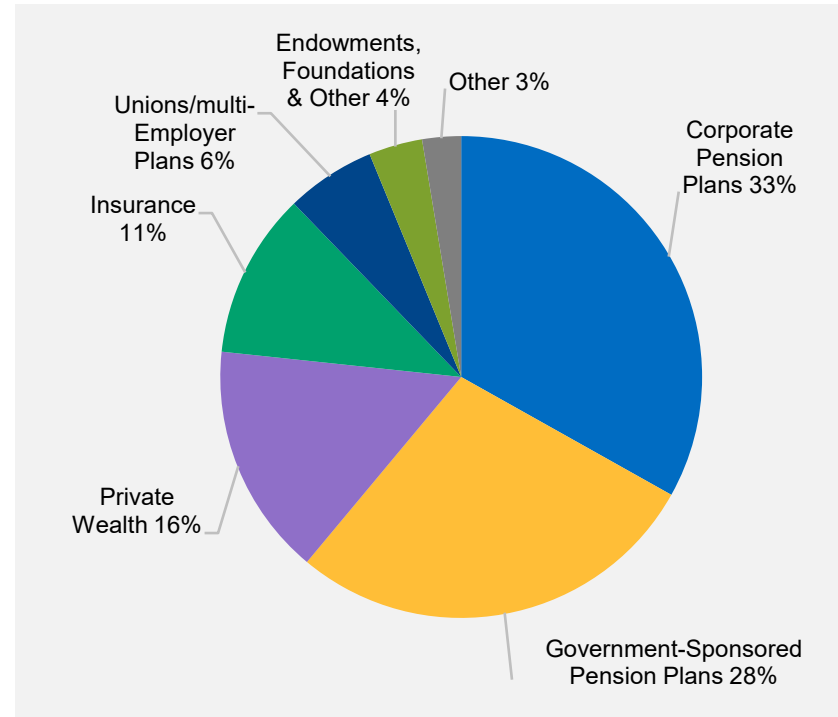
Investor Base

IIF has commitments from ~1,365 direct client accounts across 53 countries

Commitments By Geography



Commitments by Investor Type

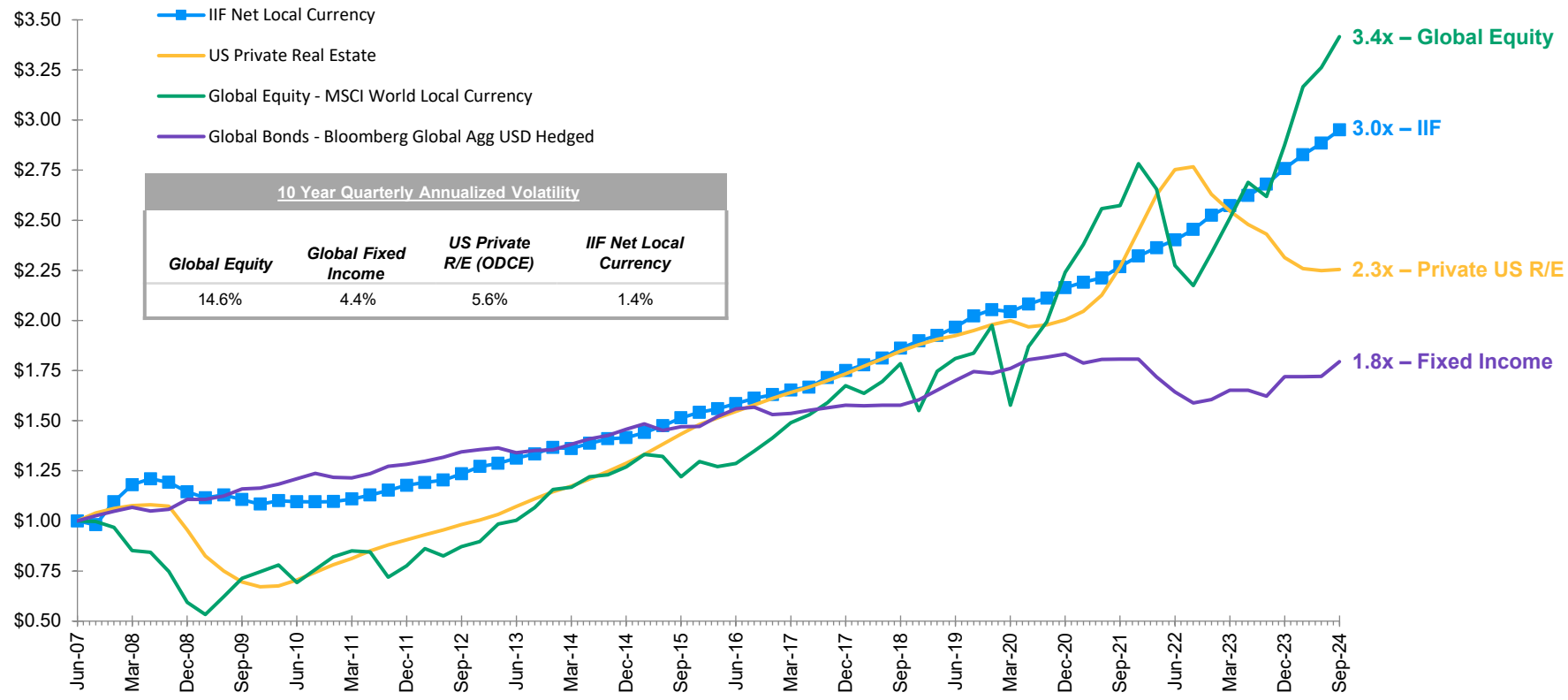


Based on committed client accounts as of September 30, 2024. Opinions, estimates, forecasts, and projections are based on current market conditions, constitute IIF's judgment and are subject to change without notice. There can be no guarantee they will be met. Past performance is no guarantee of comparable future results.

Demonstrated History of Diversification Potential

IIF has historically delivered an uncorrelated low volatility through markets and cycles

Evolution of USD 1 Invested in Q2 2007 to Q3 2024 – Quarterly Total Returns



Past performance is not a reliable indicator of current and future results. All performance numbers have been calculated in US dollar terms unless otherwise stated. Please refer to the Fund's return snapshot and quarterly reporting for more information and detail. The performance shown is for a direct investment into the Fund. It is not net of additional fees, expenses and costs that may be applicable if investing through an external distributor, advisor, and/or feeder.

Source: Bloomberg, J.P.Morgan Asset Management. Net total return local currency represents the return of the portfolio companies in their home currency. IIF Local Currency Returns are net of fees, taxes and expenses. Global equity & global bonds, are measured by MSCI World Local Currency and Bloomberg Global Aggregate USD Hedged, respectively. Real Estate data from NCREIF ODCE Index. All non IIF series are total return indices (reinvestment of yield). Data as of September 30, 2024. Indices do not include fees or operating expenses and are not available for actual investment.

Historical Performance

History of low volatility with a focus on multiple of invested capital

Composite Fund Performance - Annualized Returns for Period Ended September 30, 2024^{1,2}

	1-Yr	3-Yr	5-Yr	10-Yr	10-yr Return Vol.
Net Operational Cash Yield ³	6.6%	5.7%	6.2%	5.7%	
Net Total Return Local Currency ⁴	10.1%	9.2%	7.9%	7.7%	1.4% ⁷
Net Multiple of Invested Capital (MOIC)⁵			1.5x	2.1x	

FX Hedging Options - Annualized USD Hedged Returns for Period Ended September 30, 2024^{1,2}

Since October 1st, 2018	1-Yr	3-Yr	5-Yr	Program Inception
Net Total USD Hedged Return ⁶	11.0%	10.0%	8.4%	8.8%

Source: J.P. Morgan. All data as of September 30, 2024 unless otherwise stated.

Past performance is not a reliable indicator of current and future results. All performance numbers have been calculated in US dollar terms unless otherwise stated. Please refer to the Fund's return snapshot and quarterly reporting for more information and detail. The performance shown is for a direct investment into the Fund. It is not net of additional fees, expenses and costs that may be applicable if investing through an external distributor, advisor, and/or feeder.

¹ Performance numbers represent a composite return of the combined fund investor vehicles (FIVs) in existence as of September 30, 2024. Specific FIV and investor returns are shown on the quarterly investor statements. Non-hedged investment performance does not include hedging gains/(losses) resulting from the Hedging Program.

² Returns for periods greater than one quarter are time-weighted rates of return calculated by linking quarterly returns. Returns of greater than one year are annualized.

³ Represents a composite of the total cash distributed to investors divided by the NAV of the Fund on the applicable date for all fund investor vehicles (FIVs). All fees, taxes, and expenses are deducted from each investor's NAV, not distributions, unless otherwise elected by such investor to deduct from their distribution for their operational convenience. Also excludes any holdback related to the optional currency hedging program where applicable. Return of Capital represents the cost basis of the sale of any investments or the cost basis of any refinancing proceeds. Any other proceeds are included in Operational Cash Yield.

⁴ Net total return local currency represents the return of the portfolio companies in their home currency. USD Currency Unhedged Net Returns over a Quarterly, 1, 3, 5 & 10-year time period are: 4.2%, 13.1%, 8.1%, 8.0% and 6.4% p.a., respectively

⁵ Multiple of investment at the beginning of the period compounded quarterly at the applicable reported composite rate of return.

⁶ Reflects the composite hedged returns of USD hedged investors in all Hedged FIVs. IIF's hedging program was inception in October 2018. Returns of other hedging currencies (AUD, CAD, EUR, GBP, JPY & SEK) are available on request.

⁷ Quarterly annualized net local currency return volatility.

Q3-2024 Investor Statement

Management fees recently reduced from 78bps to 74bps

Period End Date:	09/30/2024
Inception Date:	01/02/2018
Client Investor Code:	JPMN0641
Fund Currency:	USD
Home Currency:	USD
Internal Client ID:	310890

Account Description: CITY OF CINCINNATI ON BEHALF OF THE CINCINNATI RETIREMENT SYSTEM

IIF HEDGED LP

Performance Summary

	3 Month ¹	YTD ¹	1 Year ¹	3 Year ¹	5 Year ¹	10 Year ^{1 2}	ITD ^{1 2}
Cash yield ³	1.2%	3.8%	6.9%	6.4%	8.4%	N/A	8.4%
Net Local Currency Return	2.2%	7.0%	9.9%	8.9%	7.5%	N/A	7.9%
Net Hedged Return	2.4%	7.5%	10.6%	9.9%	8.3%	N/A	8.6%
Inception to Date				USD		Home Currency	
Commitment Drawn				94,000,000.00		94,000,000.00	
NAV as of 09/30/2024				102,831,357.44		102,831,357.44	
Distributions Paid since Inception				3,517,696.17		3,517,696.17	
Accrued Distribution				2,215,767.80		2,215,767.80	
NAV + Distributions				108,564,821.41		108,564,821.41	
Redemptions paid since inception				23,000,000.00		23,000,000.00	

Source: J.P. Morgan. All data as of September 30, 2024 unless otherwise stated.

Past performance is not a reliable indicator of current and future results. All performance numbers have been calculated in US dollar terms unless otherwise stated. Please refer to the Fund's return snapshot and quarterly reporting for more information and detail.

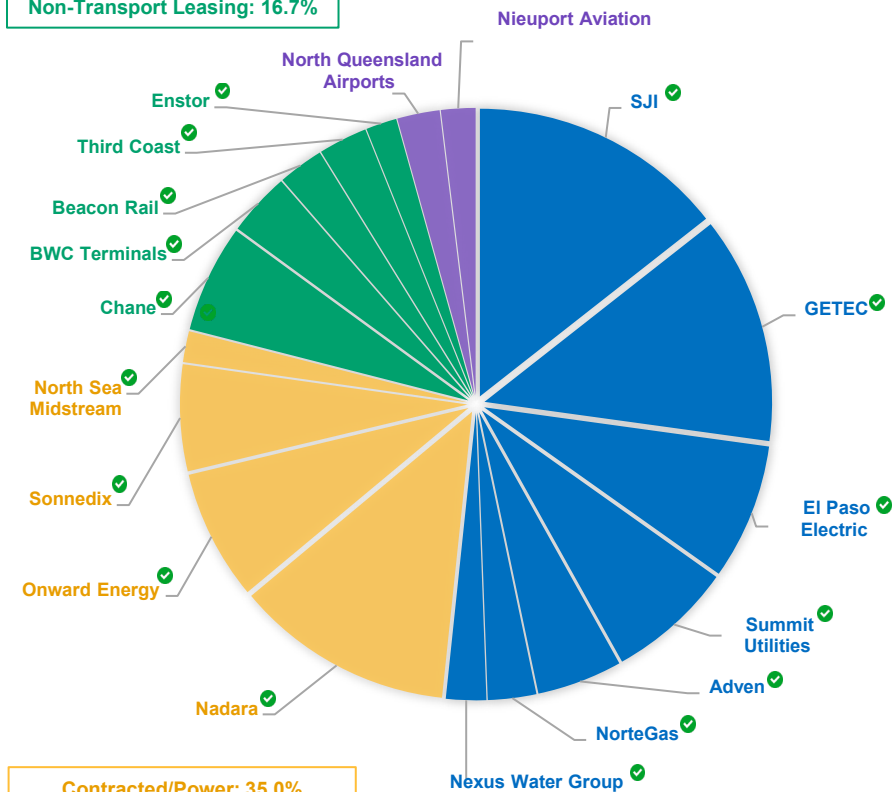
- For investors that have transferred FIVs, Performance Summary is calculated from the investor's inception date in the fund
- Certain performance attribution may not be available as the new investor performance attribution format was implemented as of Q2 2017
- Cash yield is before consideration of distributions withheld to pay F/X hedging settlement, if necessary

Diversified Portfolio Focused on Essential Services

USD 40.8bn Portfolio ~26 Countries with 997 Assets

Portfolio/Operating Companies

Airports: 4.3%
 Distribution/Regulated : 44.0%
 Non-Transport Leasing: 16.7%

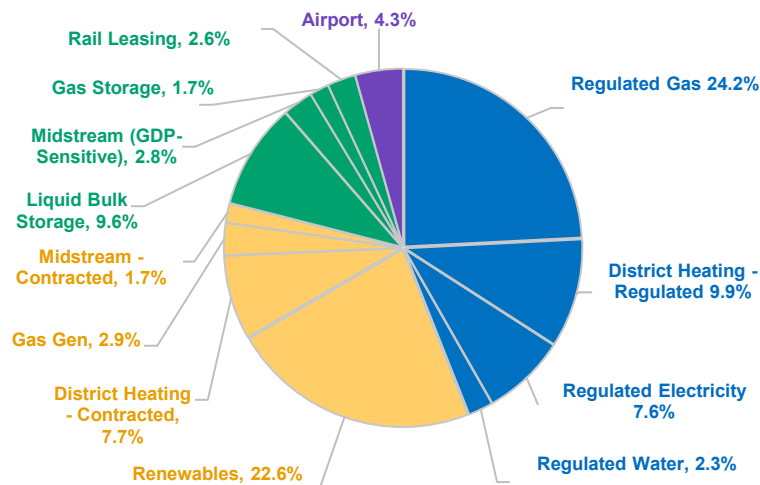


✔ Denotes companies targeted to be Strategic Platform Investments

Portfolio Highlights

- NAV: USD 40.8bn
- Sectors: 44% Regulated, 35% Contracted, 17% Non-Transport Leasing, 4% Airports
- Geographies: 50% US & Canada, 46% Western Europe & UK, 4% Other OECD
- Leverage: 47% LTV, ~80%¹ fixed/index, ~8 yrs¹ avg. maturity

Portfolio Sub-Sectors



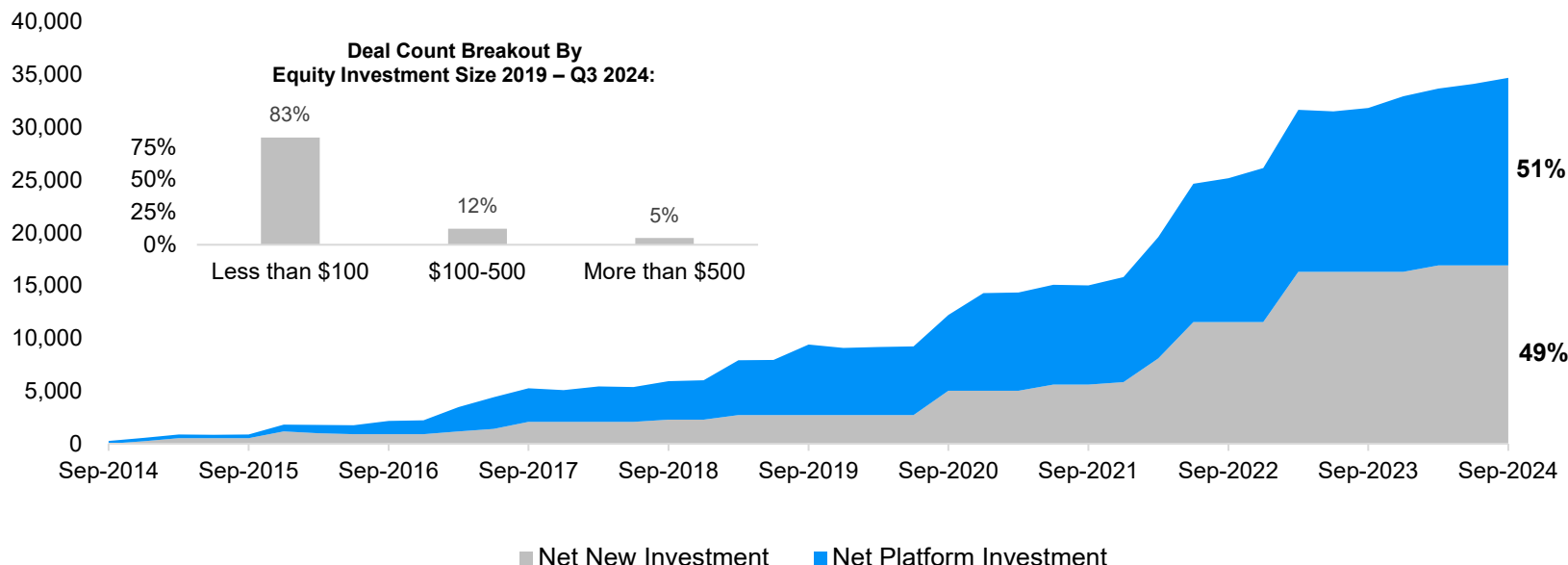
Source: J.P. Morgan. All data as of September 30, 2024 unless otherwise stated. ¹As at June 30, 2024. Diversification does not guarantee investment returns and does not eliminate the risk of loss. Opinions, estimates, forecasts, and projections are based on current market conditions, constitute IIF's judgment and are subject to change without notice. Adven and GETEC sector allocation split across both distribution/regulated and contracted/power. 60/40 and 55/45 respectively. Onward is split as 60% renewables and 40% gas generation.

Seek Consistent Accretive Growth Through Platform Investment

Existing operating businesses have potential for competitive advantages relative to financial investors

- Portfolio companies targeted for platform investment represent over 95% of IIF portfolio by NAV
- Local or regional add-ons to existing companies create potential for more efficient and de-risked capital deployment
- Since 2014, ~51% of deployment behind platform investments – generally anticipated to be higher moving forward
- More than 200 separate investments and over 100 closed acquisitions, with average equity check size < \$100m since 2014

Cumulative Net Investment (\$MM) 2014 – Q3 2024 – Platform vs. New



Source: JPMAM. All data as of September 30, 2024 unless otherwise stated. Net capital invested into platforms includes (a) IIF equity provided to portfolio companies for acquisitions and capital improvements and (b) IIF equity used for the acquisition of portfolio company ownership interests from co-shareholders (c) Investments that were acquired with a plan in place to combine with an existing portfolio company. Net Investment includes the sale and co-investments at the asset level. Opinions, estimates, forecasts, and projections are based on current market conditions, constitute IIF's judgment and are subject to change without notice.

Past performance is not a reliable indicator of current and future results.



Investment Snapshot | El Paso Electric

SUMMARY

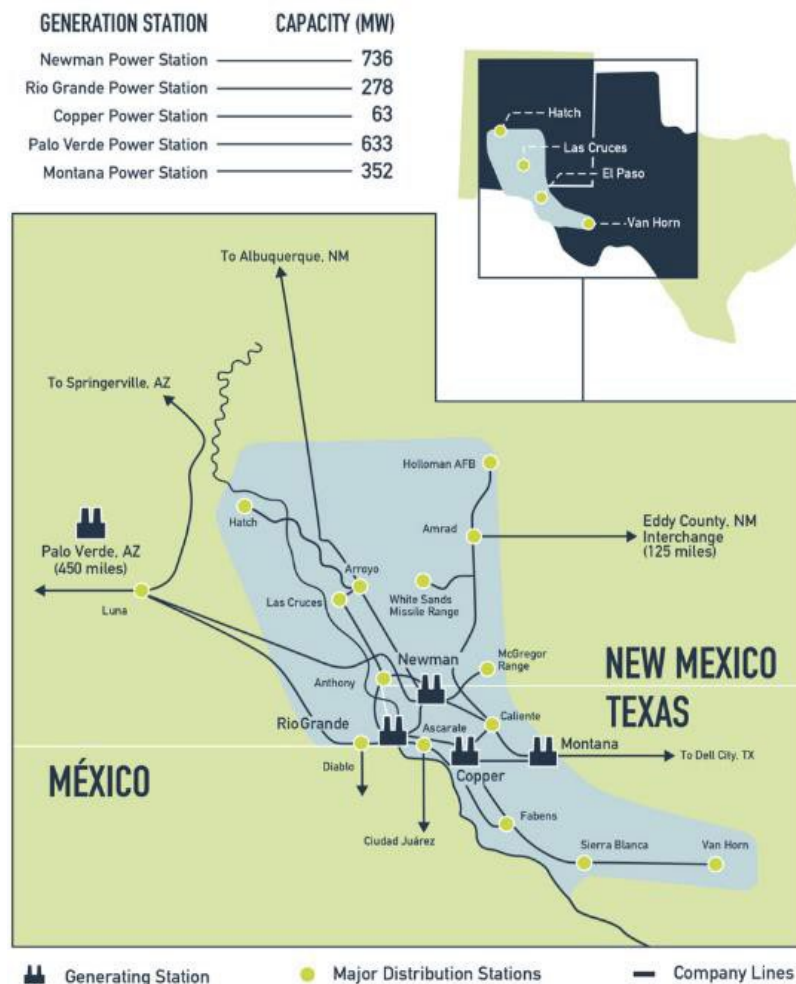
- Acquisition: July 2020
- Ownership: IIF – 100.0%

BUSINESS OVERVIEW

- Vertically integrated electric utility serving over 450,000 residential, commercial, industrial, public authority and wholesale customers in Texas and New Mexico
- Over 2 GW of owned generation capacity and ~1,100 employees

INVESTMENT THESIS

- Regulated electric utility platform with expected opportunity for follow-on capital deployment in support of organic growth
- Service territory with economic development potential and historic above industry-average customer and load growth
- Relatively close proximity to historically underutilized, renewable resources



As of June 30, 2024.

This example is included solely to illustrate the investment process and strategies which have been utilized by the investment adviser. It should not be assumed that investments within the portfolio have or will perform in a similar manner to the investment above. Please note that this investment is not necessarily representative of future investments that the manager will make. There can be no guarantee of future success. The companies above are shown for illustrative purposes only. Their inclusion should not be interpreted as a recommendation to buy or sell. The use of their logos is in no way an endorsement of those companies by J.P. Morgan Asset Management, nor is it intended to indicate an endorsement of J.P. Morgan Asset Management by those companies.

Investment Snapshot | Onward Energy



SUMMARY

- Acquisition: Thermal assets - July 2008 (Southwest Generation); June 2022 (Brandywine & Broad River); Renewable assets - December 2014 (Novatus); December 2008 (Coastal); January 2023 (Atlas)
- Ownership: IIF – 97.2% (IIF advised – 100.0%)



BUSINESS OVERVIEW

- Owns over 6.2 GW of operating thermal and renewable assets across 22 states and 8 power markets
- Dedicated management and operations teams that operates and manages the plants and is focused on expanding the current platform through acquisitions and organic development opportunities within the existing portfolio



INVESTMENT THESIS

- Diverse portfolio of contracted thermal, wind and solar projects throughout the U.S.
- Portfolio primarily consists of long-term contracts with counterparties providing visible cash flows

As of June 30, 2024.

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Appendix

Investment Risks

Target Returns: The target returns discussed herein have been established as of the date of this presentation. The target returns have been established based on assumptions and calculations using available data and investment opportunities and is subject to the risks set forth herein and set forth more fully in the applicable Fund's Memorandum. A more detailed explanation along with the data supporting the target returns is on file with the investment adviser and is available for inspection upon request. The target returns are for illustration/discussion purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns similar to the target returns shown above. The target returns are estimates based on the assumptions, as well as past and current market conditions, which are subject to change. The Fund has the discretion to change the target returns at any time. Because of the inherent limitations of the target returns, potential investors should not rely on them when making a decision on whether or not to invest in any Fund. The target returns cannot account for the impact that economic and market factors have on the implementation of an actual investment program. Unlike actual performance, the target returns do not reflect actual trading, liquidity constraints, fees, expenses, and other factors that could impact the future returns of a Fund. The Fund's ability to achieve the target returns is subject to risk factors over which the Fund or the investment adviser may have no or limited control. No representation is made that a Fund will achieve the target return or its investment objective. Actual returns could be higher or lower than the target returns. The data supporting the Target Return is on file with J.P. Morgan and is available for inspection upon request.

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Retirement 201 - Investment Education

Agenda

- Basic Concepts
- Active vs. Passive
- Rebalancing
- Bonds
 - Core plus
 - Private Credit
- Stocks
- Real Estate
- Infrastructure
- Private Equity

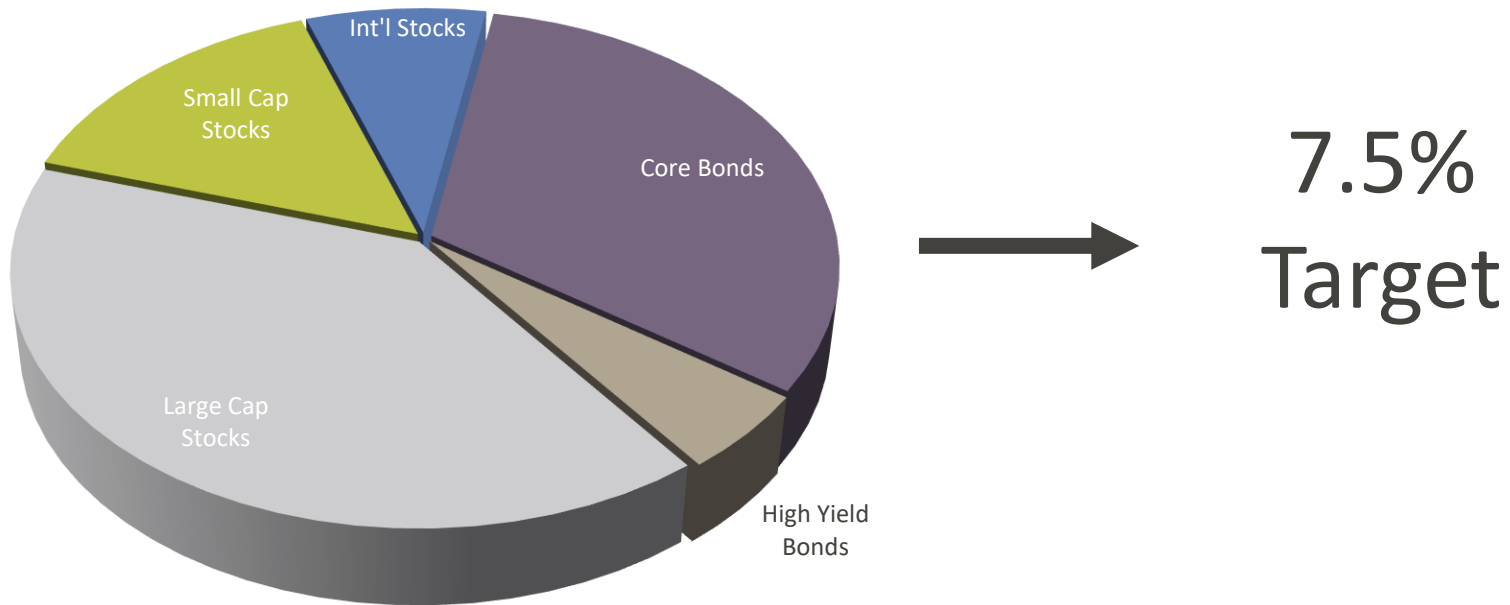
Basic Concepts

- Return
- Risk
- Diversification & Correlation
- Portfolio Construction

What's the goal?

The goal of portfolio construction is to build a portfolio of investments in different asset classes to achieve your target return while minimizing risk

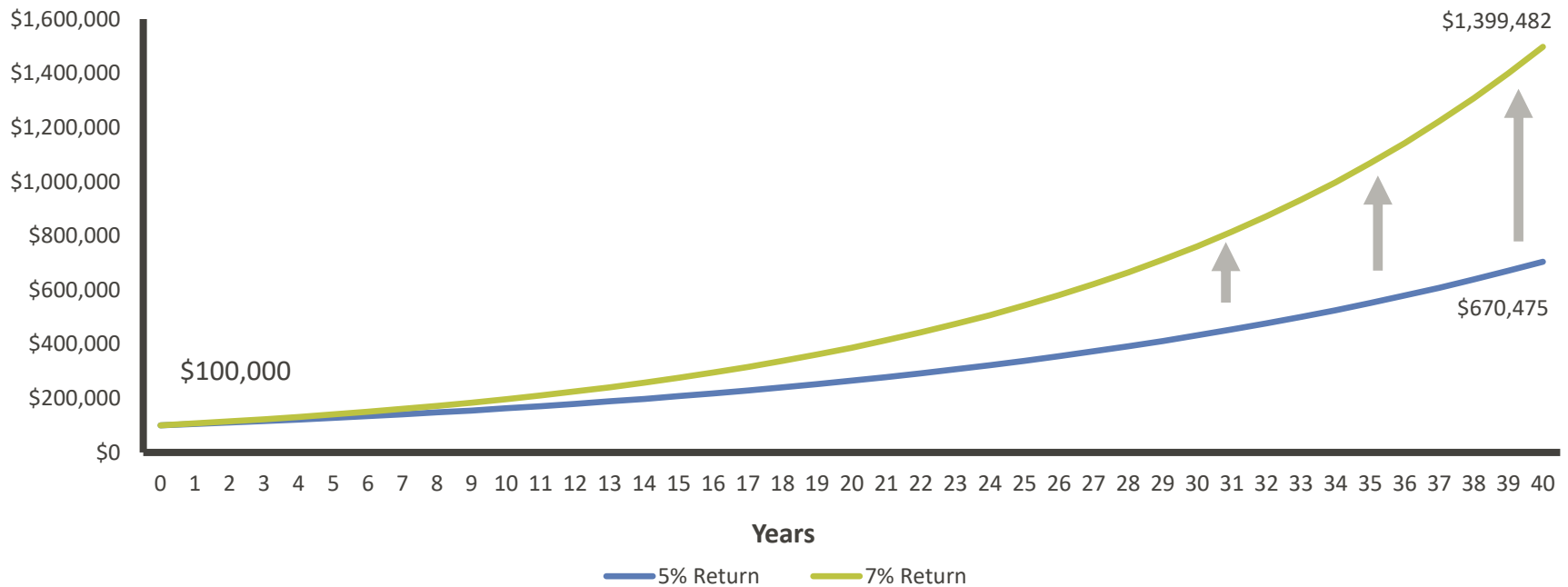
Asset allocation



The eighth wonder of the world

Compound interest exponentially increases return over long periods of time

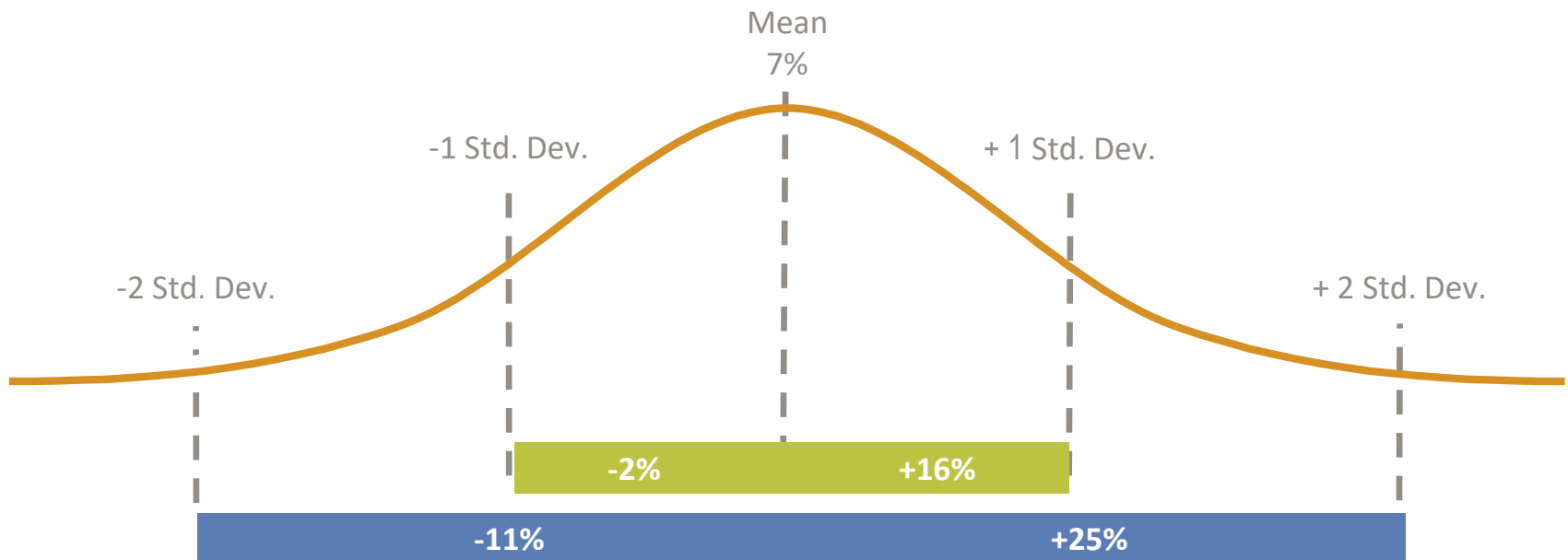
Illustrative example



How is risk measured?

Standard deviation is the deviation from the expected return, or, a measure of dispersion around the mean

▣ 7% return with 9% standard deviation



Diversification

- Not putting all your eggs in one basket has the benefit of protecting your portfolio at different extremes of the market
- Diversify while minimizing costs in terms of management fees, transaction charges and man-hours of oversight



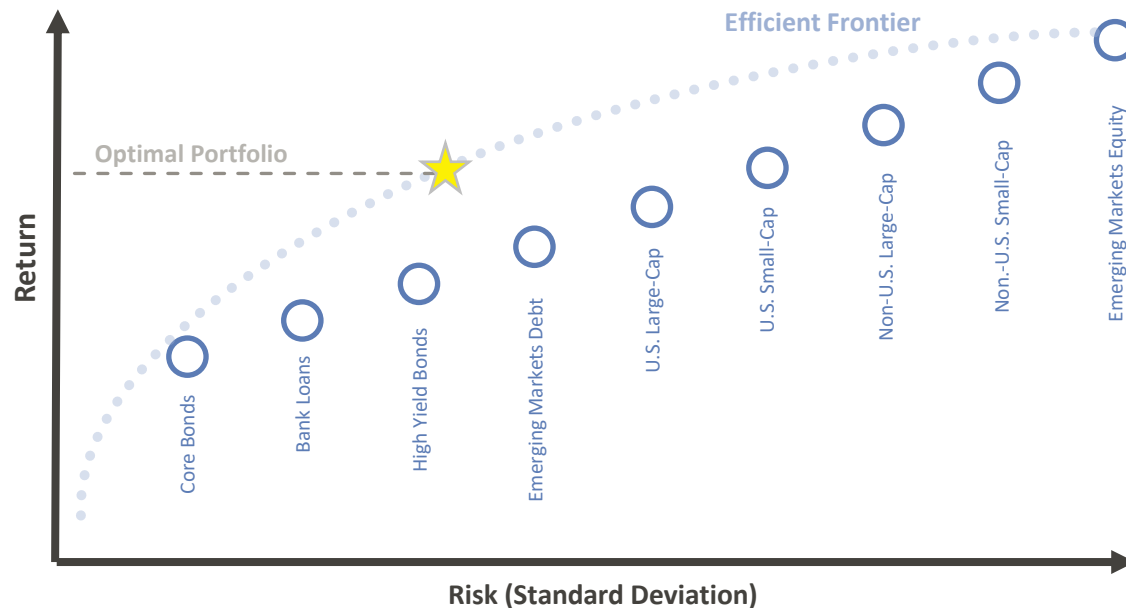
What is correlation?

Correlation is how closely two investments behave in relation to one another

	Fixed Income	Non-U.S. Equity	U.S. Equity
Fixed Income	1.0	0.2	0.2
Non-U.S. Equity	0.1	1.0	0.6
U.S. Equity	0.2	0.6	1.0

Source: eVestment Jan 1976 – Mar 2019. Fixed income is represented by the BbgBarc US Aggregate index, Non-U.S. Equity is the MSCI EAFE, U.S. Equity is the S&P 500.

Putting it all together



- The aim is to achieve the optimal portfolio on the risk/return spectrum by combining asset classes
- Lower correlation between asset classes reduces overall portfolio risk
- Choose the portfolio on the “Efficient Frontier” that meets your organization’s target return

Active vs. Passive





- What is an index?
- What is active vs. passive management?
- Why use one over the other?

What is an index?

Key index criteria

1. **Replicable and investable** – investors should be able to invest in and closely replicate the performance of a given index
2. **Representative of the investment universe** – a well constructed index will approximate the characteristics and performance of the market it is meant to represent
3. **Maintained** – an index must be maintained to address changes to the companies in the index (mergers, acquisitions, bankruptcies)

Glossary of indices

	S&P 500	Russell 3000	Russell 2000	MSCI EAFE	MSCI ACWI
Representative Market	U.S. Large-Cap Stocks	All U.S. Stocks	U.S. Small-Cap Stocks	Developed World Non-U.S. Large-Cap Stocks	All Large-Cap Global Stocks
Geography	United States	United States	United States	Non-U.S.	Global
Market Value	\$21 Trillion	\$27 Trillion	\$2 Trillion	\$16 Trillion	\$53 Trillion
Holdings	505	2,925	1,990	921	2,774
Methodology	Cap-weighted	Cap-weighted	Cap-weighted	Cap-weighted	Cap-weighted
Index Provider	S&P Dow Jones Indices <small>A Division of S&P Global</small>				

What is
active vs. passive
management?

What exactly is active and passive management?

	Active Management	Passive Management
Objective	To outperform the index on an absolute or risk-adjusted basis	To match the return of the index
Return	Based on individual securities	Equal to the broad market
Risk	Less or more than the broad market	Equal to the broad market
Approach	Stock-picking through a top-down or bottom-up approach	Rules-based through replication or sampling
Decision Makers	Portfolio Managers and Analysts	Index Provider or Committee
Portfolio Construction	Conviction-Weighted	Market-Cap Weighted
Cost	Higher	Lower
Taxes	Varies by manager turnover	More tax efficient

Each management style in practice

S&P 500	S&P 500 Weight (%)	Active Manager Weight (%)	Passive Manager Weight (%)
1. Apple	3.81	0.00	3.80
2. Microsoft	2.89	4.33	2.83
3. Amazon.com	2.05	2.05	1.99
4. Facebook	1.84	2.02	1.84
5. Johnson & Johnson	1.67	0.00	1.65
6. Berkshire Hathaway	1.64	1.64	1.60
7. JP Morgan Chase	1.63	3.75	1.60
8. Exxon Mobil	1.55	0.00	1.55
9. Alphabet A	1.38	2.50	1.34
10. Alphabet C	1.38	1.38	1.34

Why choose one over
the other?

Active management

Advantages

- Possibility of higher than index returns
- Ability to own securities not within the benchmark (index) securities
 - i.e., recently listed, new IPOs, etc.

Disadvantages

- Higher fees and operating expenses
- Managers can underperform and make mistakes
- Active management is a zero-sum game; investors in aggregate cannot outperform the market

Passive management

Advantages

- Lower fees
- Highly consistent performance – passive funds are designed to meet the returns of the index

Disadvantages

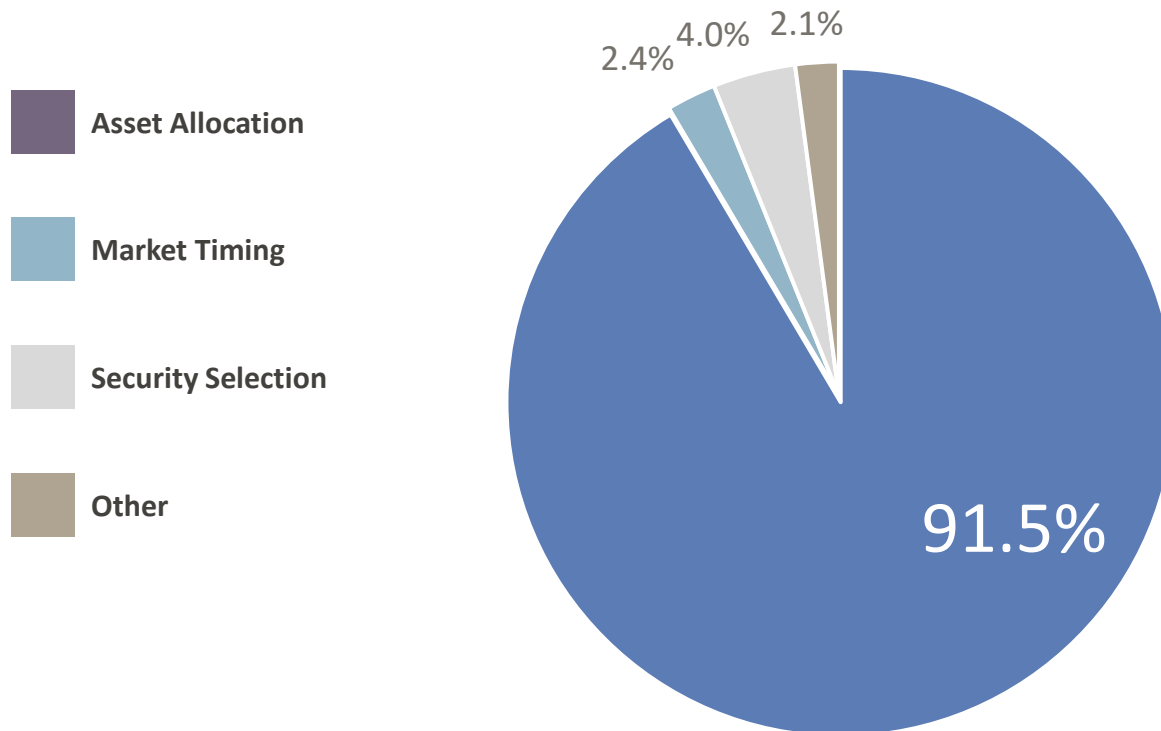
- Investors can only achieve market returns
- Not all asset classes are accessible with passive management

Rebalancing

- What is rebalancing?
- Why rebalancing is important
- How to rebalance

Asset allocation controls portfolio risk

Investing is more than just choosing securities and market timing

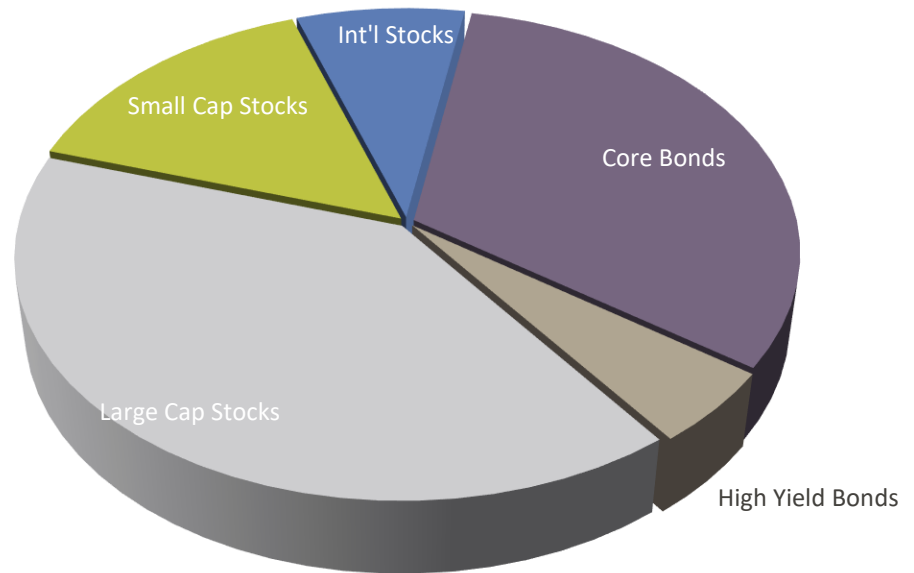


Source: Gary P. Brinson, L. Randolph Hood, and Gilbert L. Beebower, "Determinants of Portfolio Performance," Financial Analysts Journal. Gary P. Brinson, Brian D. Singer, and Gilbert L. Beebower, "Determinants of Portfolio Performance II: An Update," Financial Analysts Journal.

Asset allocation defined

The diversification of the portfolio and how much of it is in each investment

- Achieve your goals while minimizing risk
- Weightings change over time based on performance

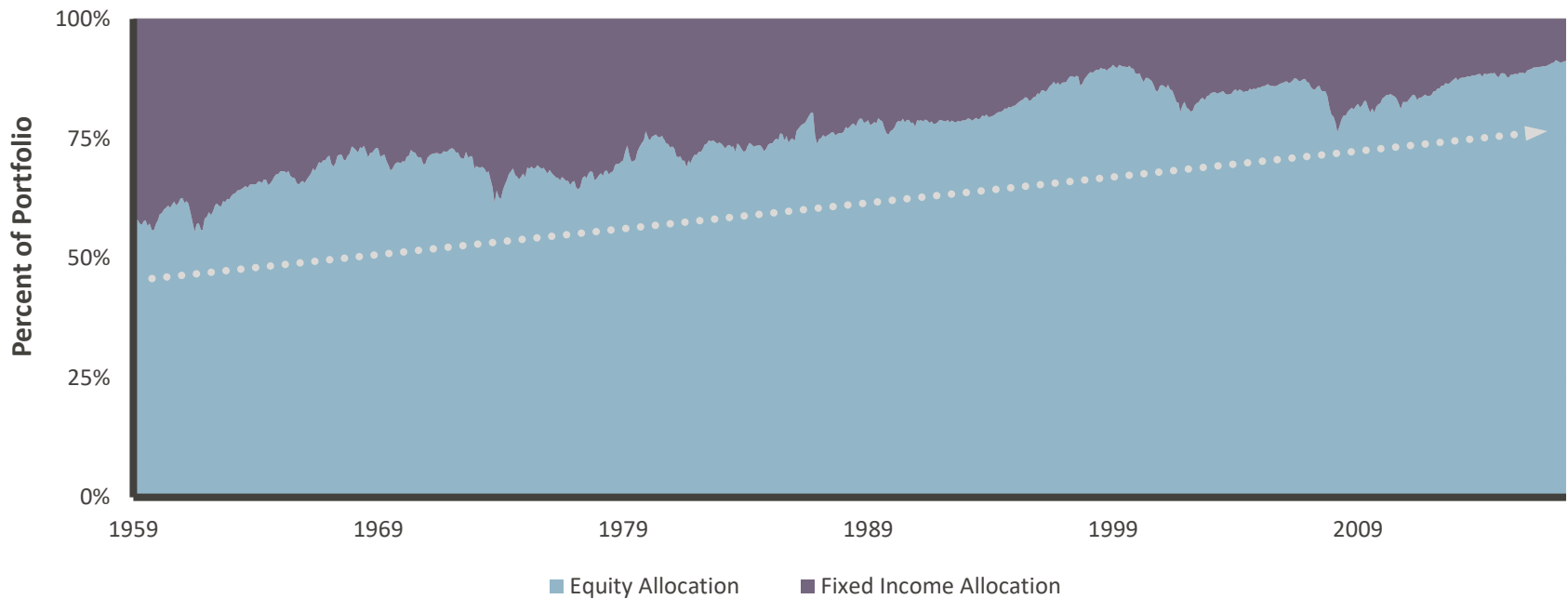


Why rebalance?

Portfolio drift

Equities gradually have greater weight in a portfolio due to higher performance

▣ Allocation since 1960 for a portfolio that is not rebalanced

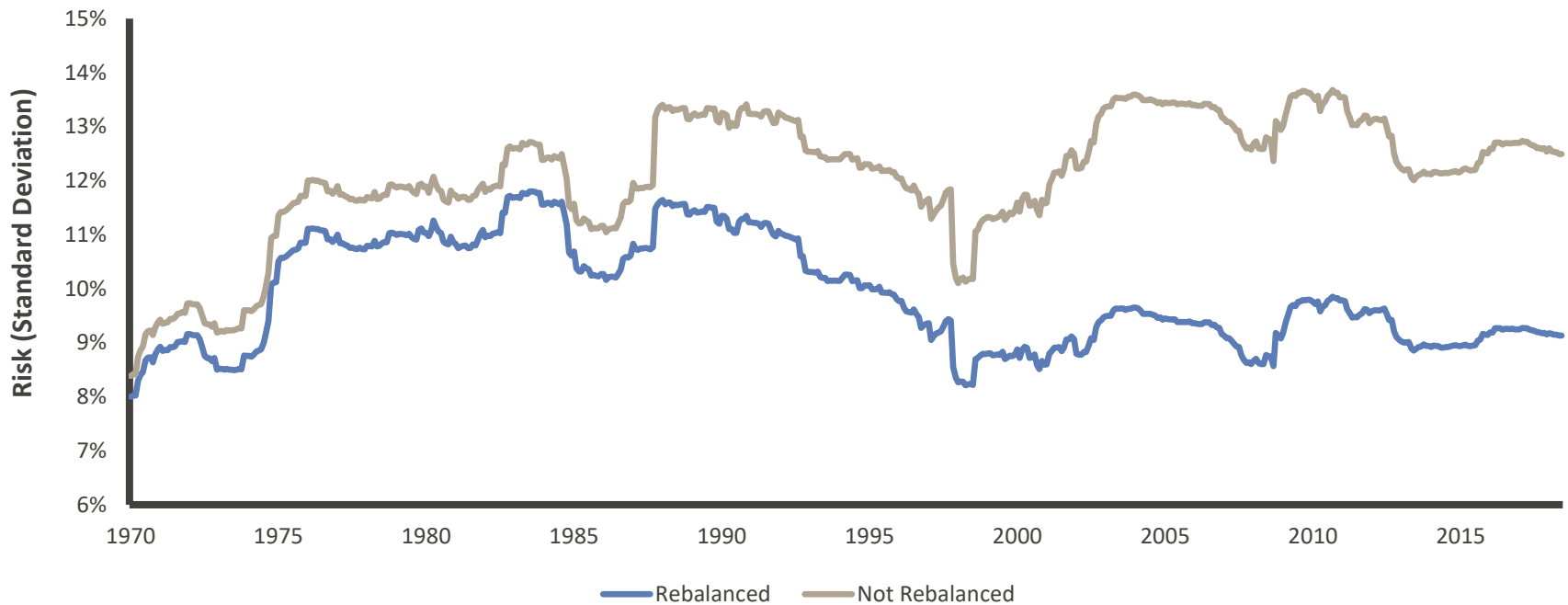


Illustrative example representing a simple portfolio made up of 60% stocks and 40% bonds, starting in 1960

Risk tolerance

Portfolios that are not rebalanced feature higher standard deviation over time

Example 10-Year Rolling Standard Deviation

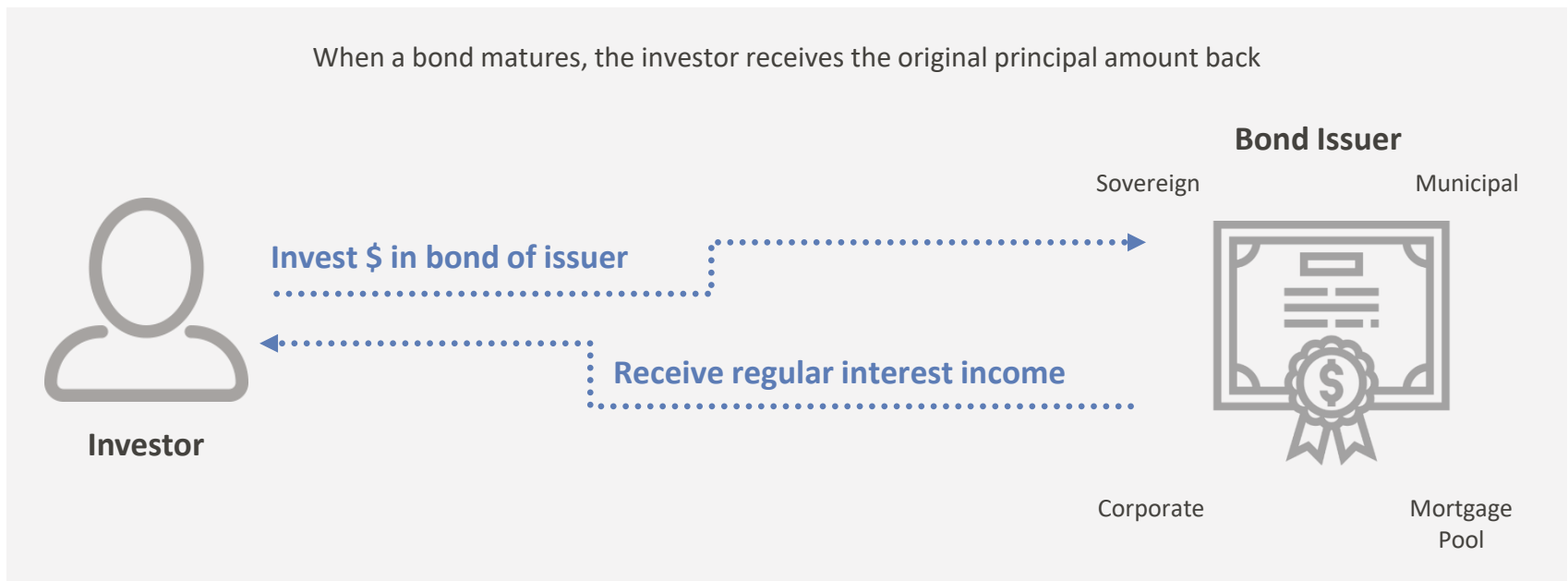


Bonds

- What is a bond?
- Categories
- Common terms

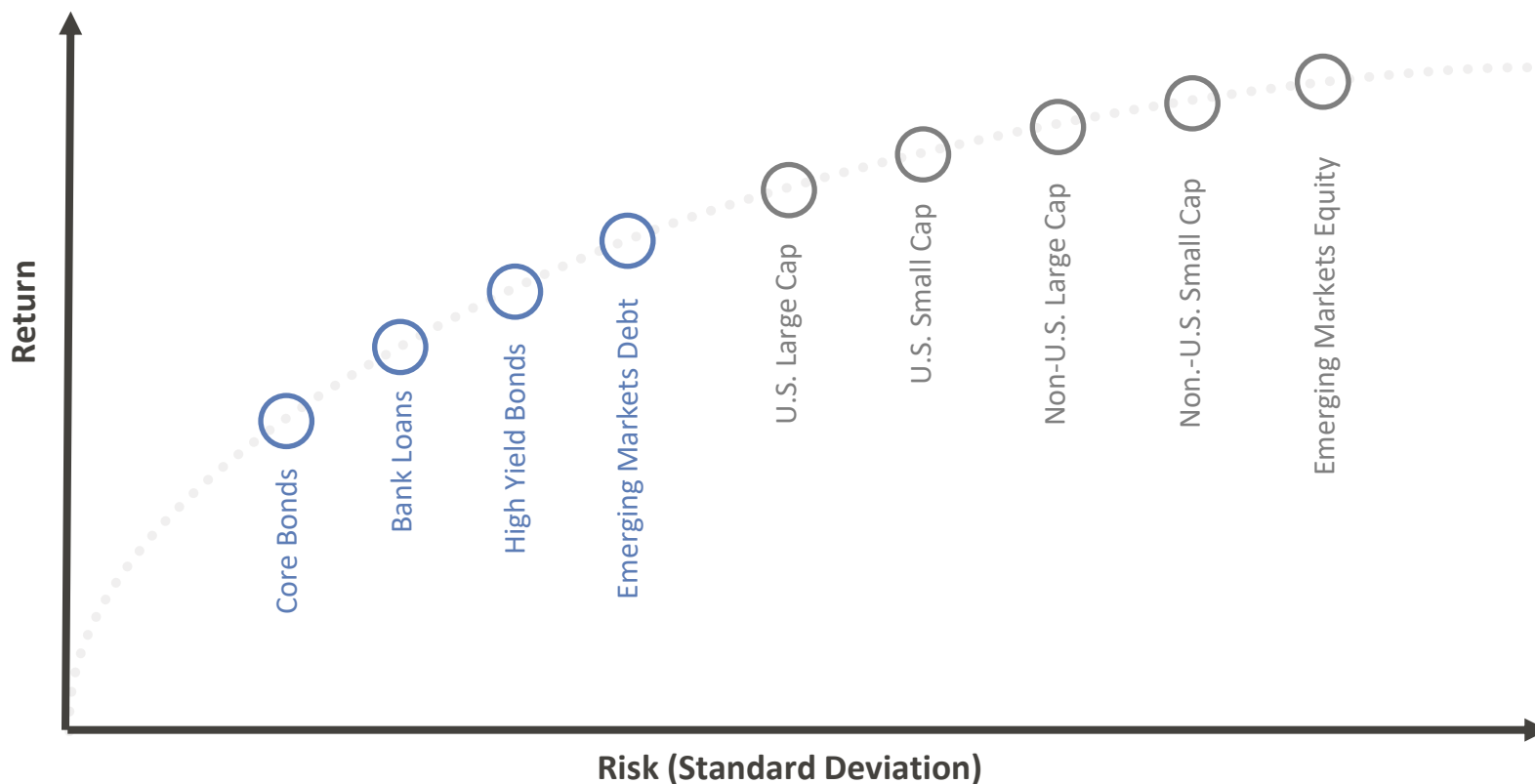
What is a bond?

- A bond is a loan to a government, a company or a group of individuals
- Investors choose bonds primarily to receive regular interest income



Risk/return profile of bonds

The fixed income spectrum ranges from core bonds to emerging markets debt



Non-U.S. bonds

Provide diversification through non-U.S. interest rates, credit and currency risk and return

Emerging Markets Debt



- Hard Currency Sovereign Bonds
- Local Currency Sovereign Bonds
- Hard Currency Corporate Bonds

Global Bonds



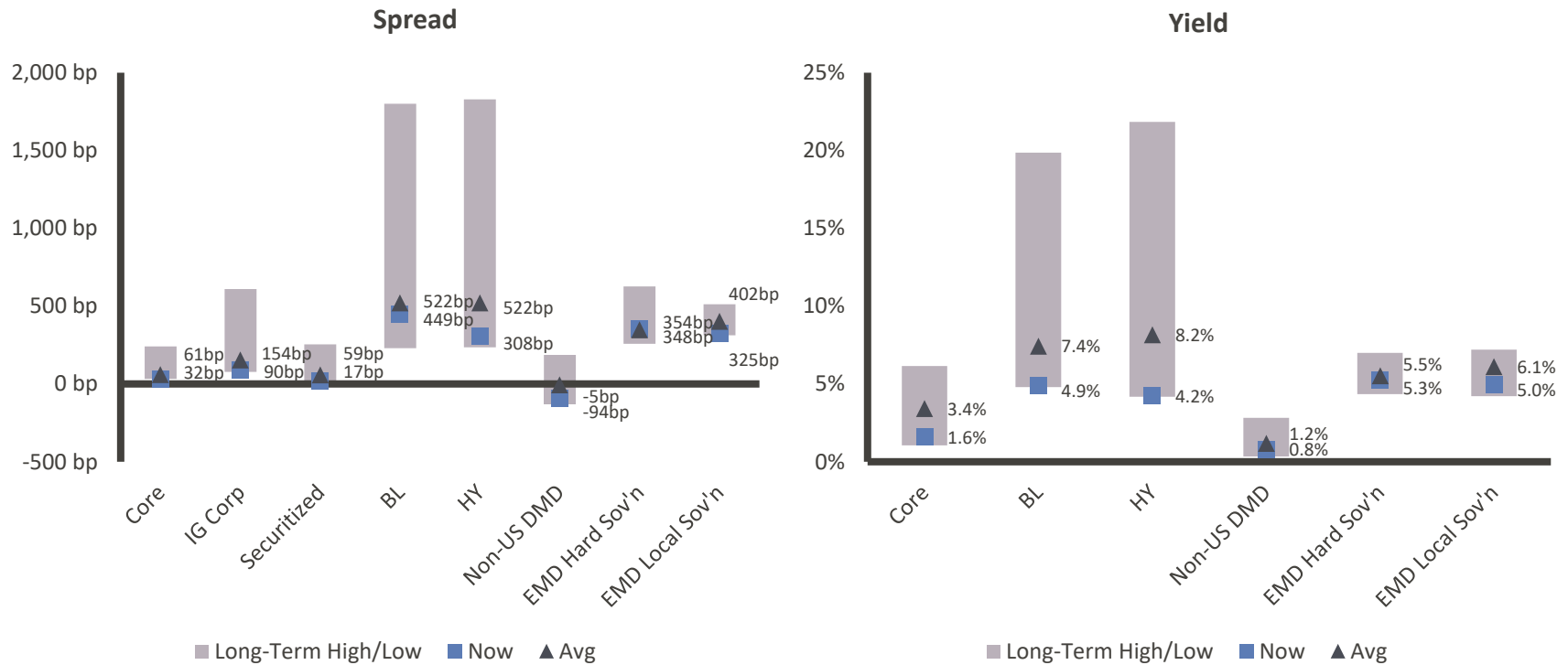
- Includes U.S., non-U.S developed markets, and emerging markets debt
- May be hedged or unhedged

Common Terms

Spread and yield

A spread is the difference between the yield over its base rate

Bond yield is the bond's return to an investor



Note: Long-term high, low and average based on longest available data for each index
Sources: Bloomberg Barclays, Credit Suisse, Deutsche, JPMorgan, as of March 31, 2021

Duration and maturity

Maturity is the time until the bond pays back principal



Duration is a bond's price sensitivity to interest rate changes

An inverse relationship: assume a bond has a duration of 7.2 years

- If interest rates drop by 1% (100 basis points), its price will rise by 7.2%
- If interest rates rise by 1% (100 basis points), its price will drop by 7.2%

Note: Duration measures the time it takes to recover half the present value of all future cash flows from the bond

Aggregate Investing

The Center of a Fixed Income Portfolio

Presented by

The Aggregate Index

The Agg

The Bloomberg Aggregate is a broad-based flagship benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market.

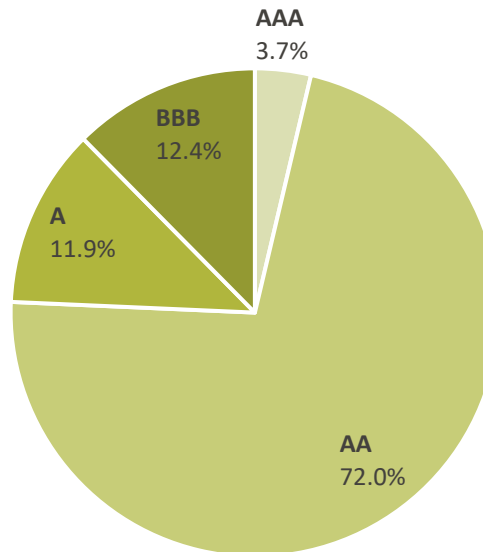
Inception	1/1/1976
Weighting	Market Value
Rebalancing	Monthly

Members	13,380
Market Value	\$26.34T
Amount Outstanding	\$28.89T

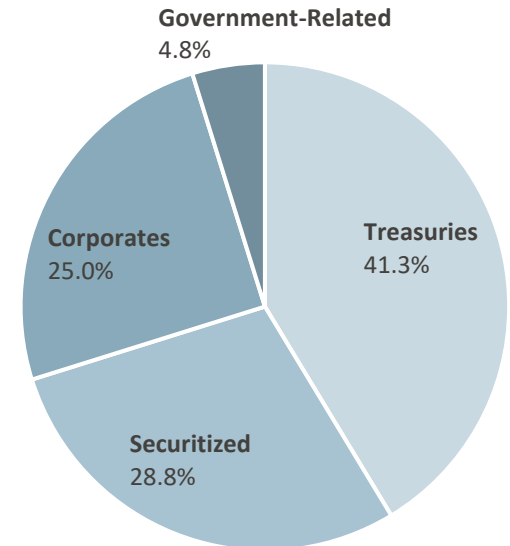
YTW	4.53%
OAS	42 bps
Duration	6.24

Dollar Price	\$91.70
Coupon	3.09%
Maturity	8.46
Quality	AA+/AA

Credit Quality



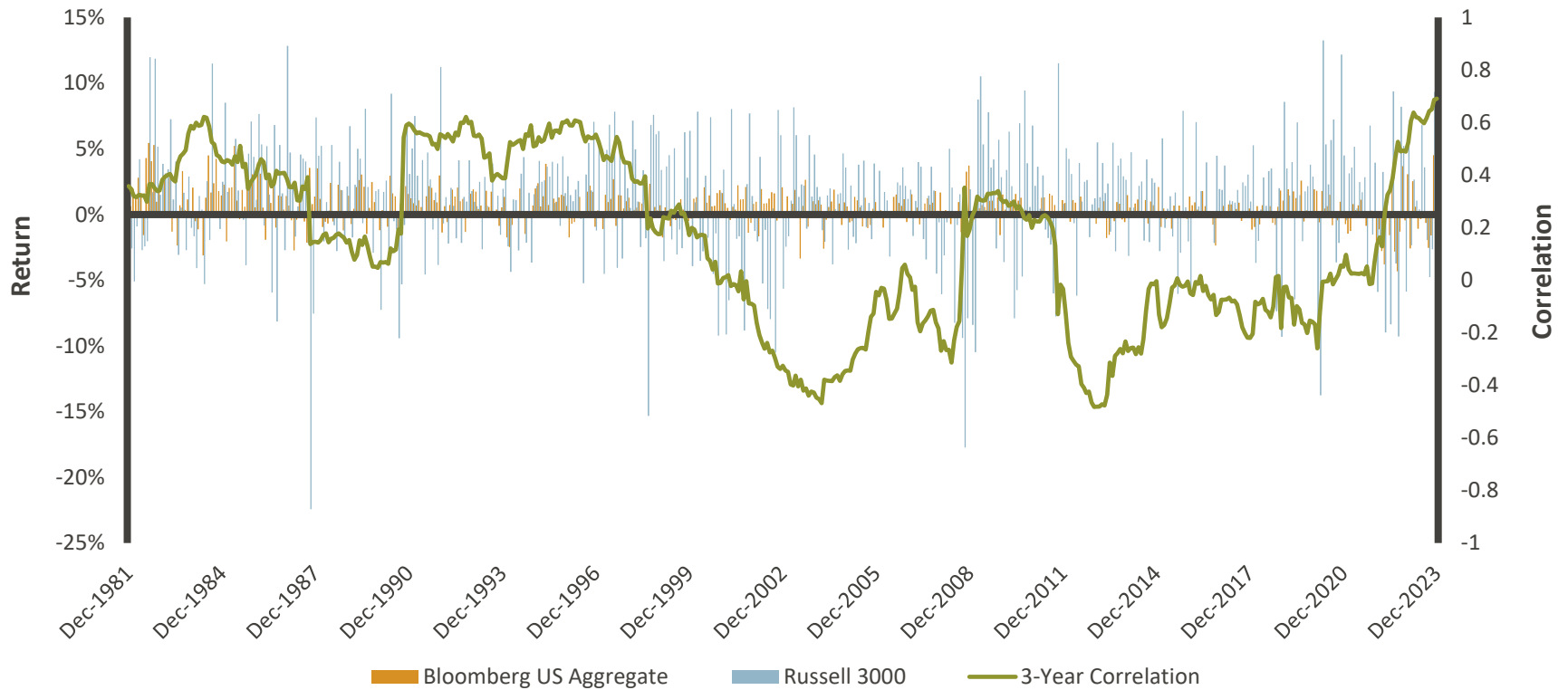
Level 1 Sector Breakdown



Source: Bloomberg as of December 31, 2023

An anchor to windward

Investment grade fixed income provides diversification to risk assets



Source: eVestment as of December 31, 2023

Spectrum of aggregate mandates

The difference is active risk and return objectives relative to the reference index; core plus strategies offer greater upside



Mandate	Index	Enhanced Index	Core	Core Plus	Total Return	Absolute Return
Return Objective (bps)	0	25–50	50–100	100–150	150–300	400–600
Risk Objective (bps)	0–25	50–100	100–200	200–300	300–600	400–600

For illustrative purposes only. These are generalized ranges based on managers' stated objectives. For example, core mandates generally have a stated performance objective of 50–100bps with a risk objective of 100–200. These objectives are viewed over a full market cycle.

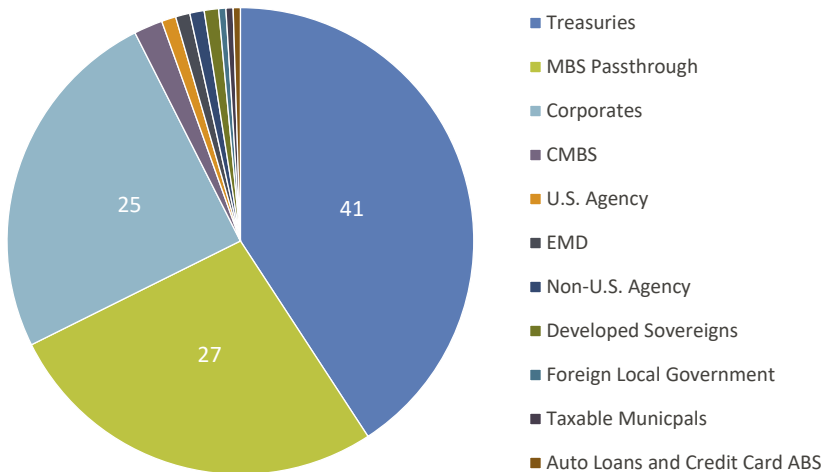
Methods of generating active risk

Strategy	Types of Active Risk	Value
Top-Down	Duration Decision	High Return/Low IR
	Yield Curve Structure	
	Sector Allocation	
	Security Selection	
Bottom-Up	Trading	Low Return/High IR

The difference is not the use of “Plus Sectors”

Non-index sectors are utilized in both objectives, but core plus may utilize more frequently to add greater value vs. benchmark

Bloomberg Aggregate Sector Breakdown

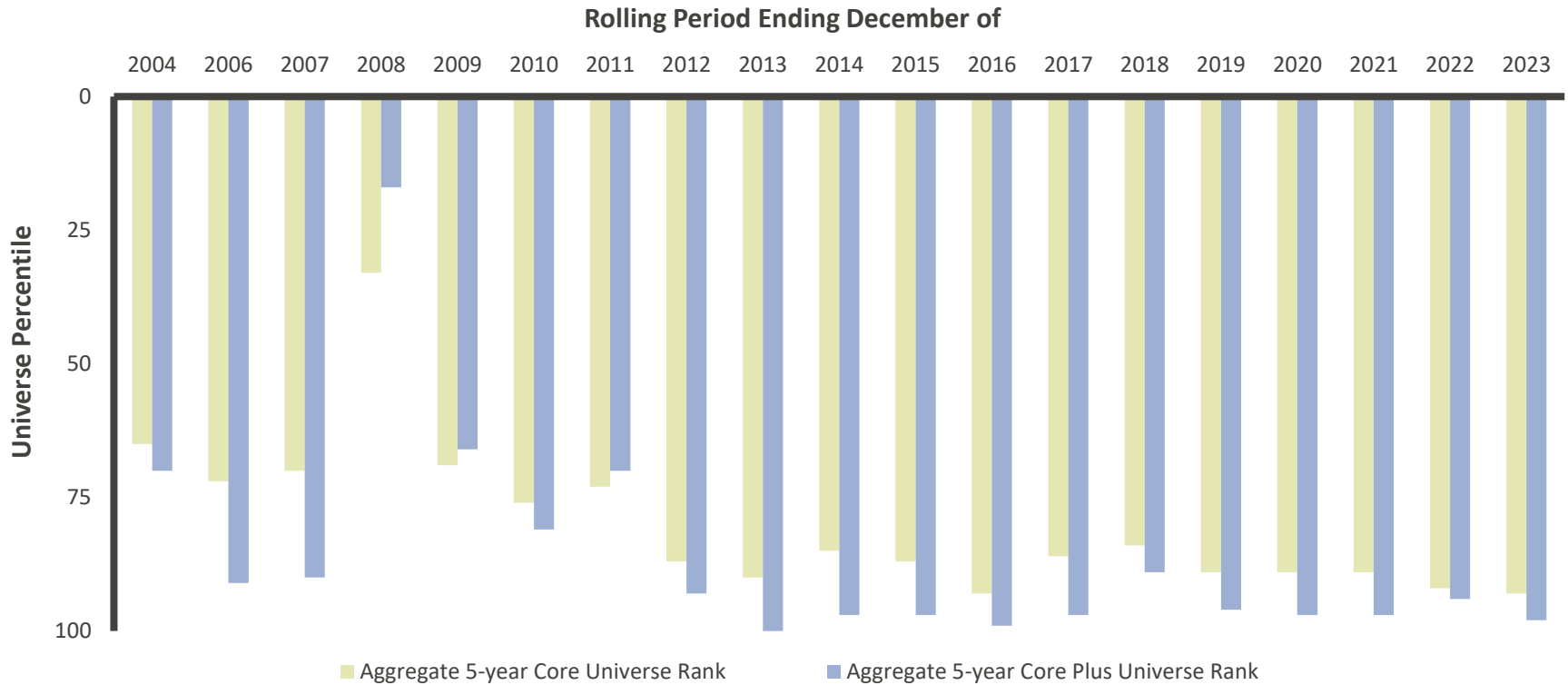


NON-BLOOMBERG AGGREGATE INDEX SECTORS		
Government	Credit	Securitized
<ul style="list-style-type: none"> Currencies Developed Sovereigns Local EMD STRIPS TIPS 	<ul style="list-style-type: none"> 144a w/o Registration Rights Convertables Bank Loans High Yield Corporates Non-Dollar Bonds Non-IG EMD Tax-Exempt Municipals 	<ul style="list-style-type: none"> Non-Traditional Asset Backed Collateralized Loan Obligations Collateralized Mortgage Obligation Non-Agency Mortgages
Small issue size and floating rate securities		

Source: Bloomberg as of December 31, 2023

Active management pays off

Active management generally outperforms, particularly for core plus strategies



Source: eVestment as of December 31, 2023

Indexed fee savings is muted

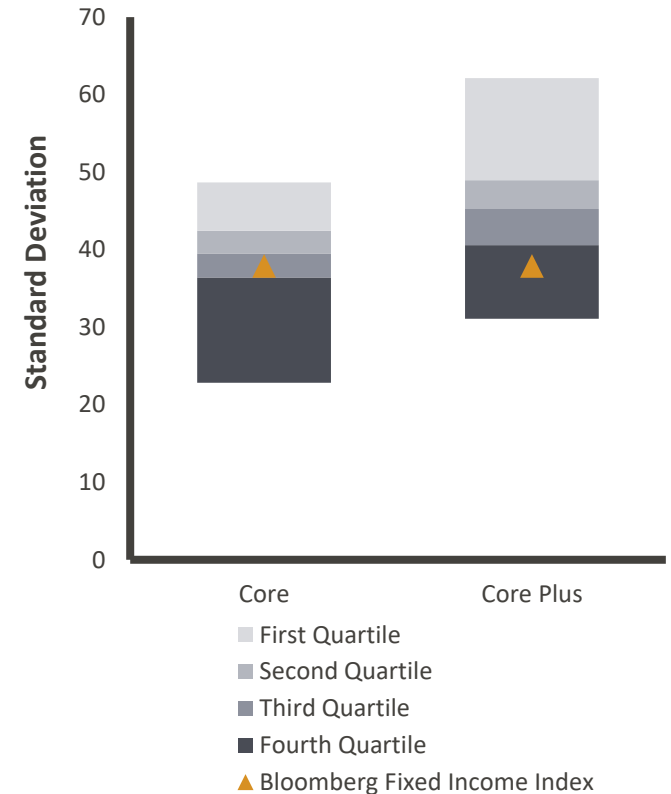
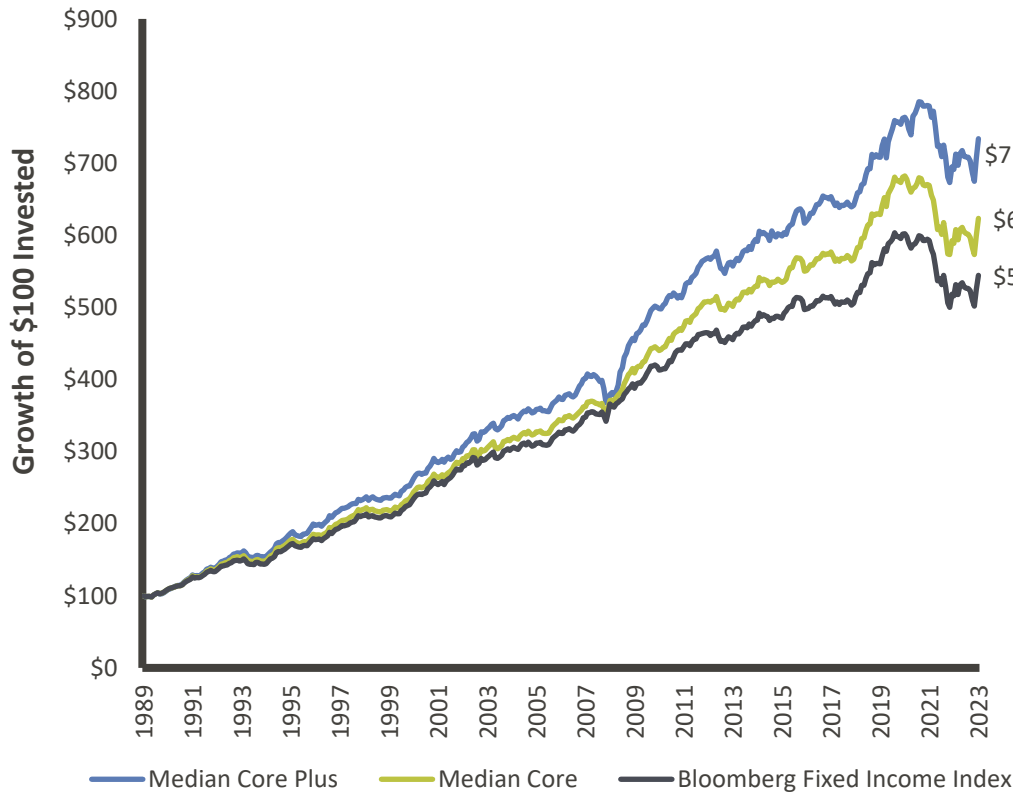
All three strategies are available via separate account, commingled fund, and mutual fund

	MINIMUM (\$)			FEES (BPS)			LIQUIDITY		
	SA	CF	MF	SA	CF	MF	SA	CF	MF
Indexed	50	1	0.5	7	5	10	Daily	Daily	Daily
Core	10	5	1	28	26	44	Daily	Daily	Daily
Core Plus	25	5	1	30	31	46	Daily	Daily	Daily

Source: eVestment as of December 31, 2023. Median minimums and fees shown. Mutual funds have daily liquidity. Commingled funds generally have daily liquidity, but some do have weekly, bi-weekly, or monthly liquidity. Most bonds held in separate accounts have daily liquidity, but select bonds will have less liquidity.

Core plus: More upside, similar downside

Core plus may provide additional return with a similar level of risk



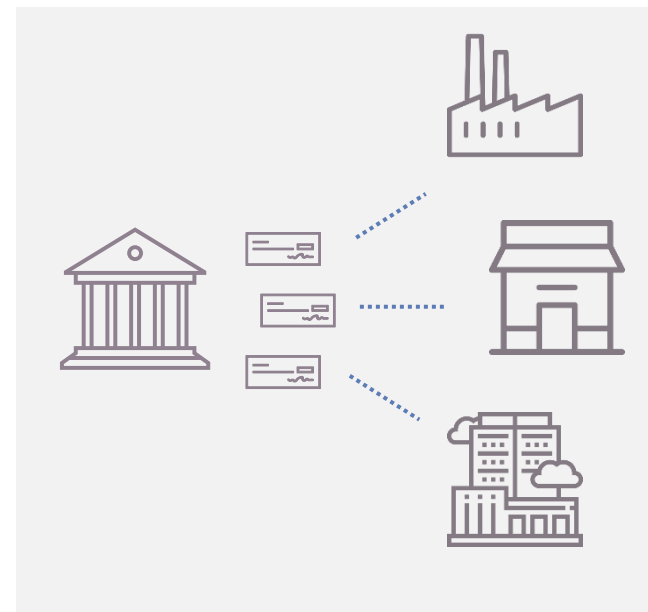
Source: eVestment as of December 31, 2023

Private Credit Education Materials

Presented by

Background

- Private credit comprises lending to private companies across the debt capital structure
- Private credit has existed for decades, often provided by national and regional banks, as financing to support private businesses
- Since the GFC, private credit has grown as banks have pulled bank and tightened lending standards
- Private credit has consistently offered a yield premium over public credit, features floating rate loans, and offers intermediate loan maturities



Private credit characteristics

	High Yield Bonds	Private Credit Direct Lending, Mezzanine, Distressed, Special Situations, Venture Debt	Leveraged Loans
Maturity	5–10+ years	3–4 years	3–7 years
Seniority	Subordinate	Senior & subordinate	Senior
Securitization	Unsecured	Secured & unsecured	Secured
Rate Structure	Fixed rate	Floating rate	Floating rate
Target Company Size	\$300M–\$2B EBITDA	\$5M–\$100M EBITDA (middle market)	\$300M–\$2B EBITDA
Target Company Enterprise Value	>\$1000	\$100 to \$500 (middle market)	\$500 to \$1000
# of lenders	10 – 50+	1-5+ (middle market) 5-20+ (upper middle market)	5-20+
Financial Covenants	No	Yes (middle market) Limited (upper middle market)	Yes
Total Return Drivers	Interest income (fixed coupon) Capital appreciation Principal losses	Interest income (SOFR + spread) Origination fees Principal losses	Interest income (SOFR + spread) Capital appreciation Principal losses
Origination	Bank origination / syndicated	Non-bank / direct origination	Bank origination / syndicated

Source: Preqin, Maranon Capital

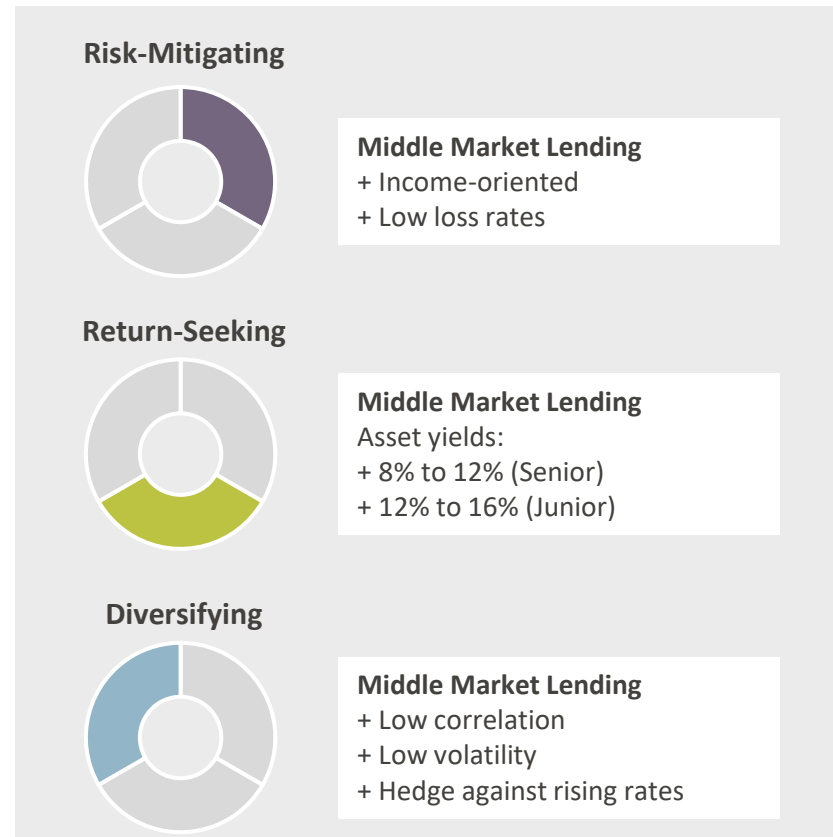
Private credit landscape by strategy

Direct lending represents the largest area within private credit

	Strategy Types	Primary Return Drivers	Market Conditions	Inflation Protection	Downside Protection
Direct Lending	U.S. or Global Sponsored Non-sponsor	Yield/income	All-weather	High	Structural seniority, financial covenants
Distressed & Special Situations	Opportunistic, Stressed Credit, Distressed, Event-driven, NPLs, Rescue Financing	Yield, capital gains, equity upside	Recession, contraction	Limited	Event catalyst, restructuring
Real Estate Debt	CRE Debt (Core, Transitional, Bridge Financing)	Yield/income, equity upside	Stable, expansion	Moderate	Equity buffer, bankruptcy
Specialty Finance	Receivables, Regulatory Capital Relief, Royalties, Venture Lending, Litigation Finance, NAV Loans	Yield/income, prepayments	Uncorrelated	High	Asset-based collateral, subordination
Real Assets Debt	Infrastructure, Energy Credit, Trade Finance, Transportation	Yield/income	Stable, expansion	High	Asset-based collateral
Mezzanine	Subordinated Debt, Structured Equity, PIK	Yield + equity upside	Stable, expansion	Limited	Higher coupons, equity ownership

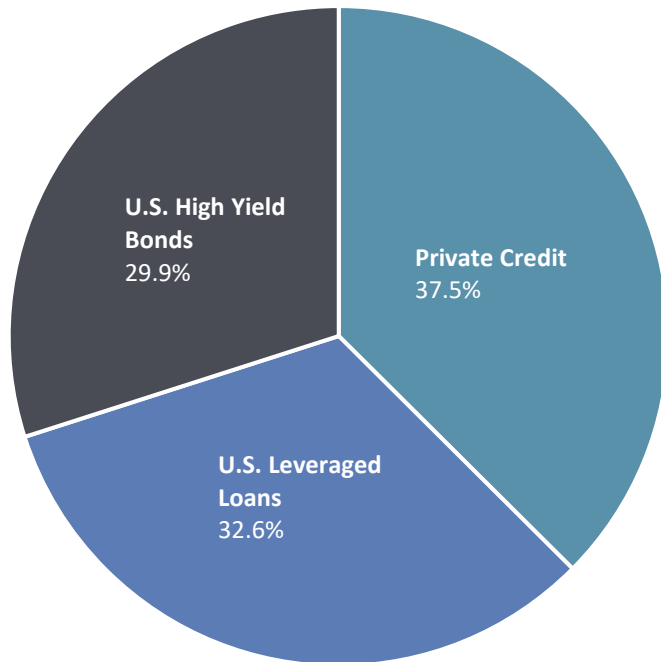
Private credit within a portfolio

Middle market private credit can play a variety of roles in a portfolio

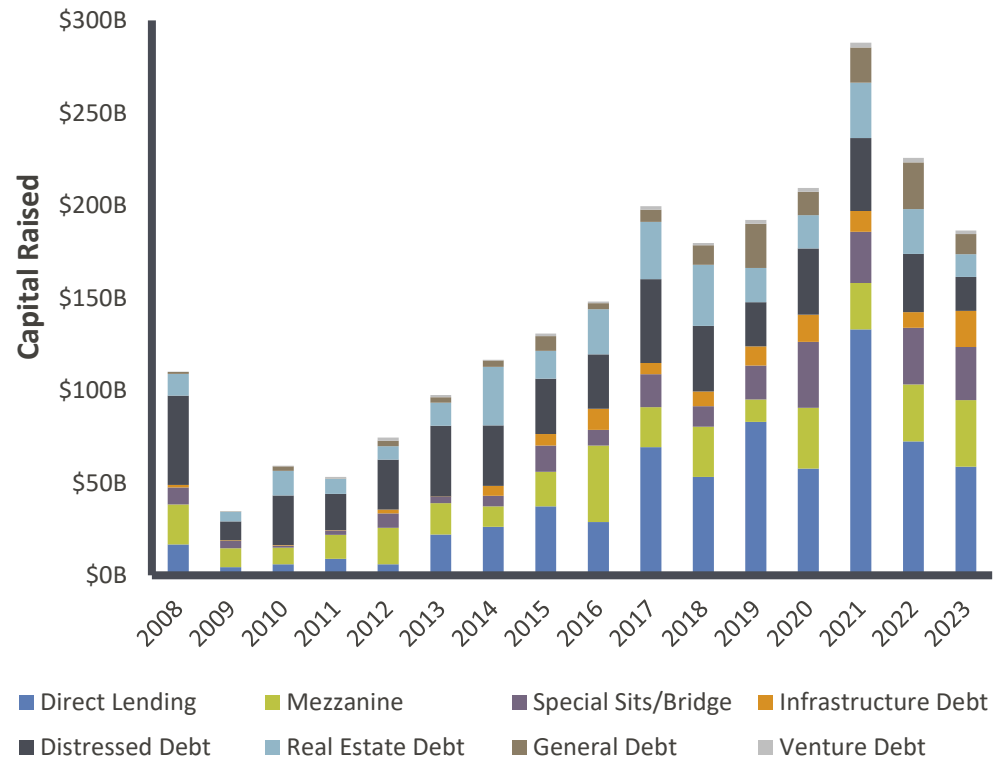


Private credit market

The U.S. non-investment grade credit market is ~\$4.3 trillion



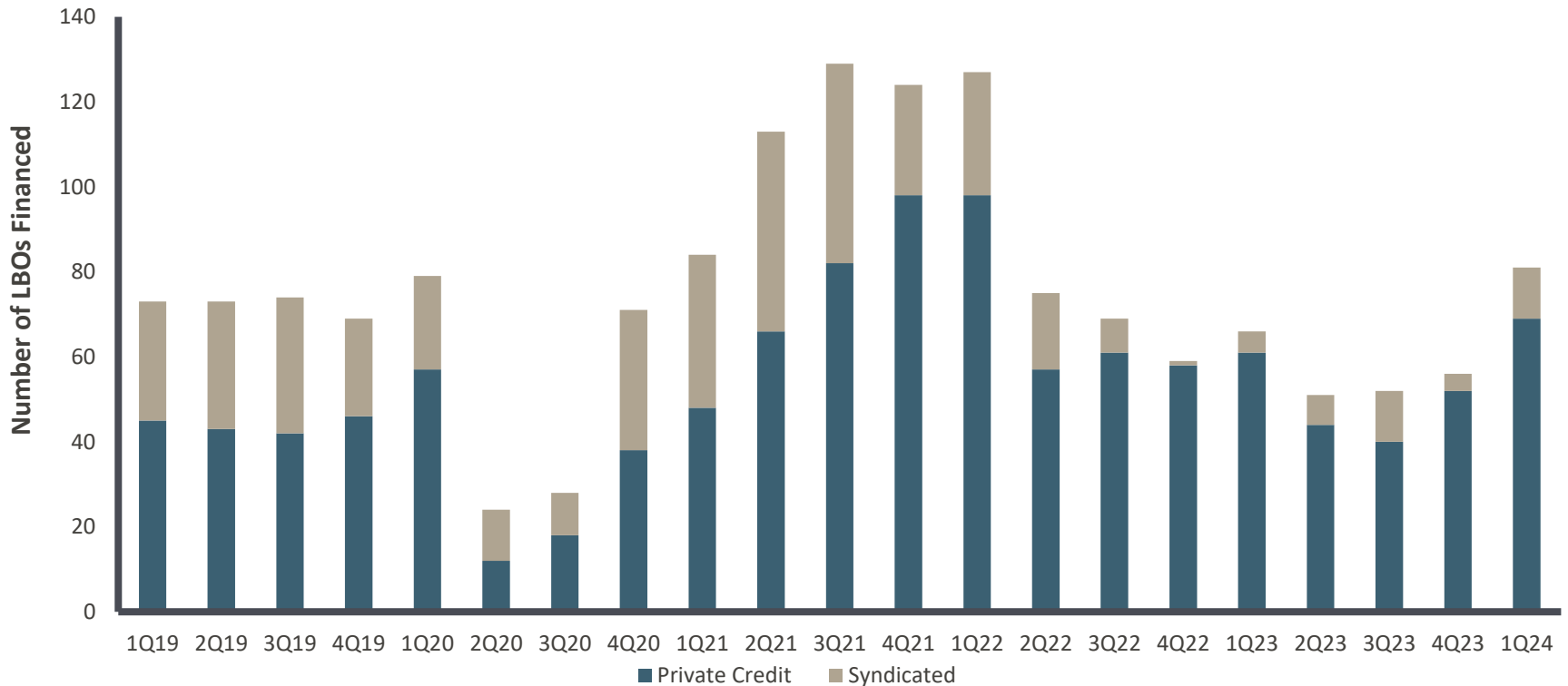
Direct lending remains the largest segment, but other areas are seeing increased demand



Source: PitchBook LCD, JP Morgan as of December 31, 2023

Private credit market share

Private credit has become the primary source of leveraged buyout financing due to the execution certainty offered by private lenders



Source: PitchBook LCD as of March 31, 2024

Private credit: Benefits

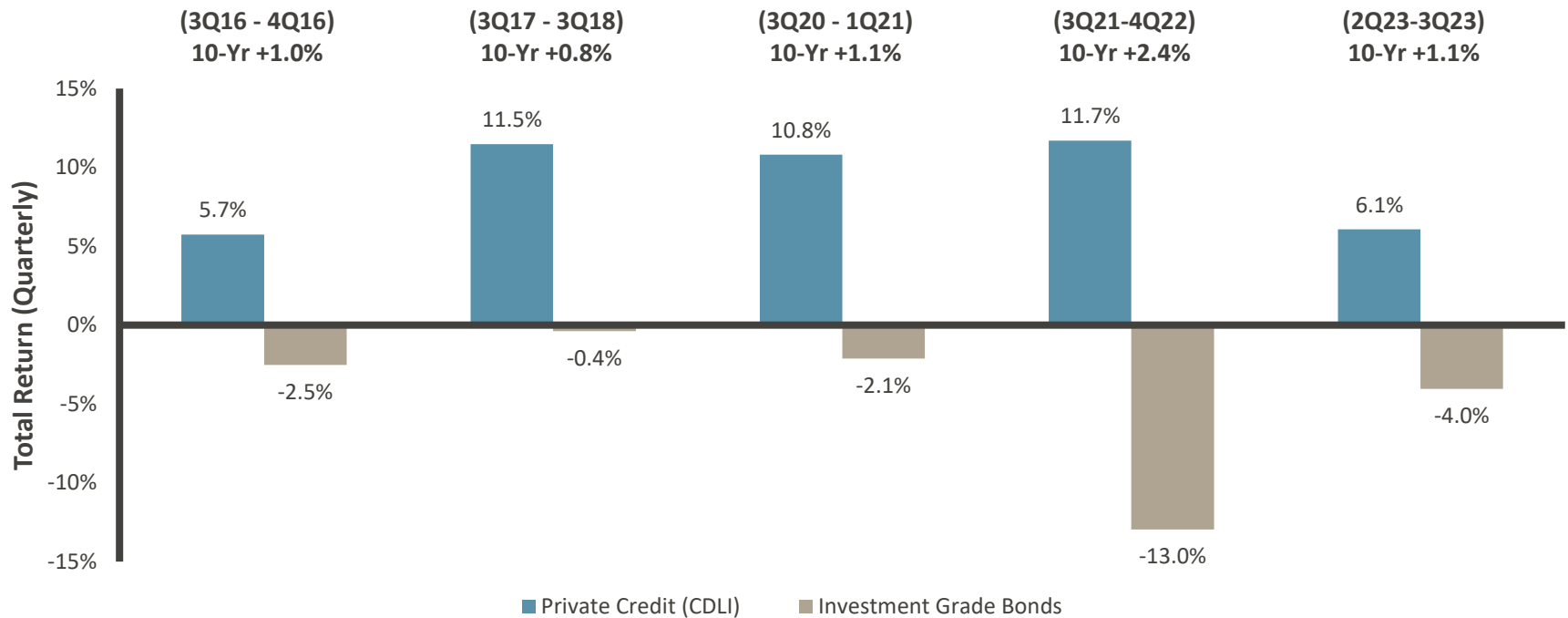
Private credit has unique benefits relative to traditional public credit markets

- ↘ **Market Dynamics** Increased regulatory burden on traditional corporate lenders and continued demand for private credit capital by private equity sponsors has created a growing opportunity set for the asset class
- ↘ **Floating Rate** In a rising rate environment, the return profile for private credit is enhanced due to the floating rate nature of the coupon interest collected, whereas traditional fixed income falls in value when rates rise
- ↘ **Limited Correlation** Private credit has exhibited limited correlation to both public equity and traditional fixed income markets
- ↘ **Structural Protections** Lenders typically receive at least one covenant, which may improve the recovery rates under a default scenario, unlike the typically covenant-lite broadly syndicated loan market.

Performance in a rising rate environment

Private credit has historically outperformed investment grade fixed income during periods of rising rates

▣ Historical returns when 10-year U.S. treasury rates have risen 75+ bps

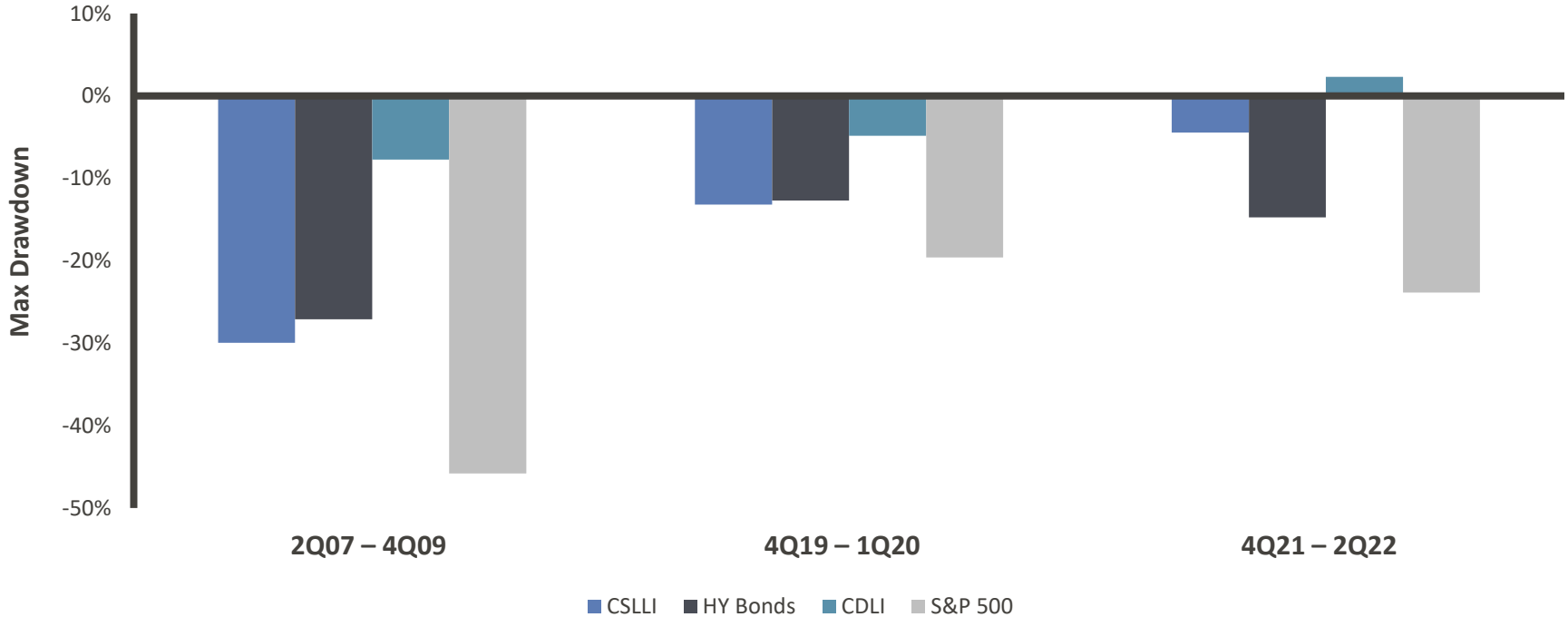


Source: Bloomberg, Cliffwater as of December 31, 2023. Investment grade bonds represents the Bloomberg U.S. Aggregate index. Private credit represents the Cliffwater Direct Lending Index.

Outperformance during downturns

Private credit has historically provided downside protection during both public credit and equity downturns

▣ Top 3 largest drawdowns in liquid markets (liquid credit and equities) since 2004



Source: Bloomberg, Cliffwater as of December 31, 2023. Cliffwater Direct Lending Index (CDLI), Credit Suisse Leveraged Loan Index (CSLLI), Bloomberg US Corporate High Yield Index (HY Bonds).

Asset-based lending vs. cash flow lending

Asset-Based Lending

- Structure based on the liquidation value of a company's current, fixed, and sometimes intangible assets (asset collateral)
- Monitoring and reporting requirements for asset-based loans are fewer and contain less restrictive covenants
- No financial covenants provided the company stays above an excess availability threshold

WELLS
FARGO



CapitalOne



WINTRUST

Corporate Direct Lending (Cash Flow-Based)

- Based on a company's earnings or EBITDA
- Many companies opt for unsecured or cash flow loans due to:
 - Employing an asset-light business model
 - Inability to offer assets as collateral and the potential ongoing collateral examination, appraisal and reporting requirement

GOLUB CAPITAL

ARES



MONROE
CAPITAL

BainCapital
CREDIT

H. I. G.
CAPITAL

Source: Oaktree

Investment vehicle options

Private credit can be accessed in various vehicle structures, each with different liquidity characteristics

Closed-End Funds	<ul style="list-style-type: none">▪ 3–4 year investment period and approximately 7-year fund term▪ Re-underwriting process and commitment for each fundraising (every 18–24 months)
Commingled Evergreen Funds	<ul style="list-style-type: none">▪ Terms can vary in terms of an initial ramp-up period versus full investment day-one▪ Some funds offer quarterly liquidity, others offer annual or rolling liquidity options▪ Most funds allow investors to enter a liquidating share class (no gating risk) and an option to receive quarterly income distributions
Business Development Companies (BDCs) & Interval Funds	<ul style="list-style-type: none">▪ Investors are fully invested on day-one in an existing portfolio of loans▪ Typically offers quarterly liquidity, subject to fund-level redemption limits

- Marquette has seen a clear shift in preference for evergreen fund options due to preferable liquidity terms, favorable fee structures, and increased efficiency relative to closed-end options

Stocks

- What is a stock?
- How to categorize stocks
- How to invest in stocks

What is a stock?

- A stock is a share of ownership in a company
- Shares give an investor voting rights on the direction of the company
- Investors choose stocks primarily for price appreciation opportunity



Stock categories

Size (market cap)

Large-Cap
(over \$30B)



Mid-Cap
(\$5-\$30B)



Small-Cap
(\$500M-\$5B)

Abercrombie & Fitch

Micro-Cap
(<\$500M)



Style

Growth



Core

Refers to a blend of
growth & value

Value

J.P.Morgan

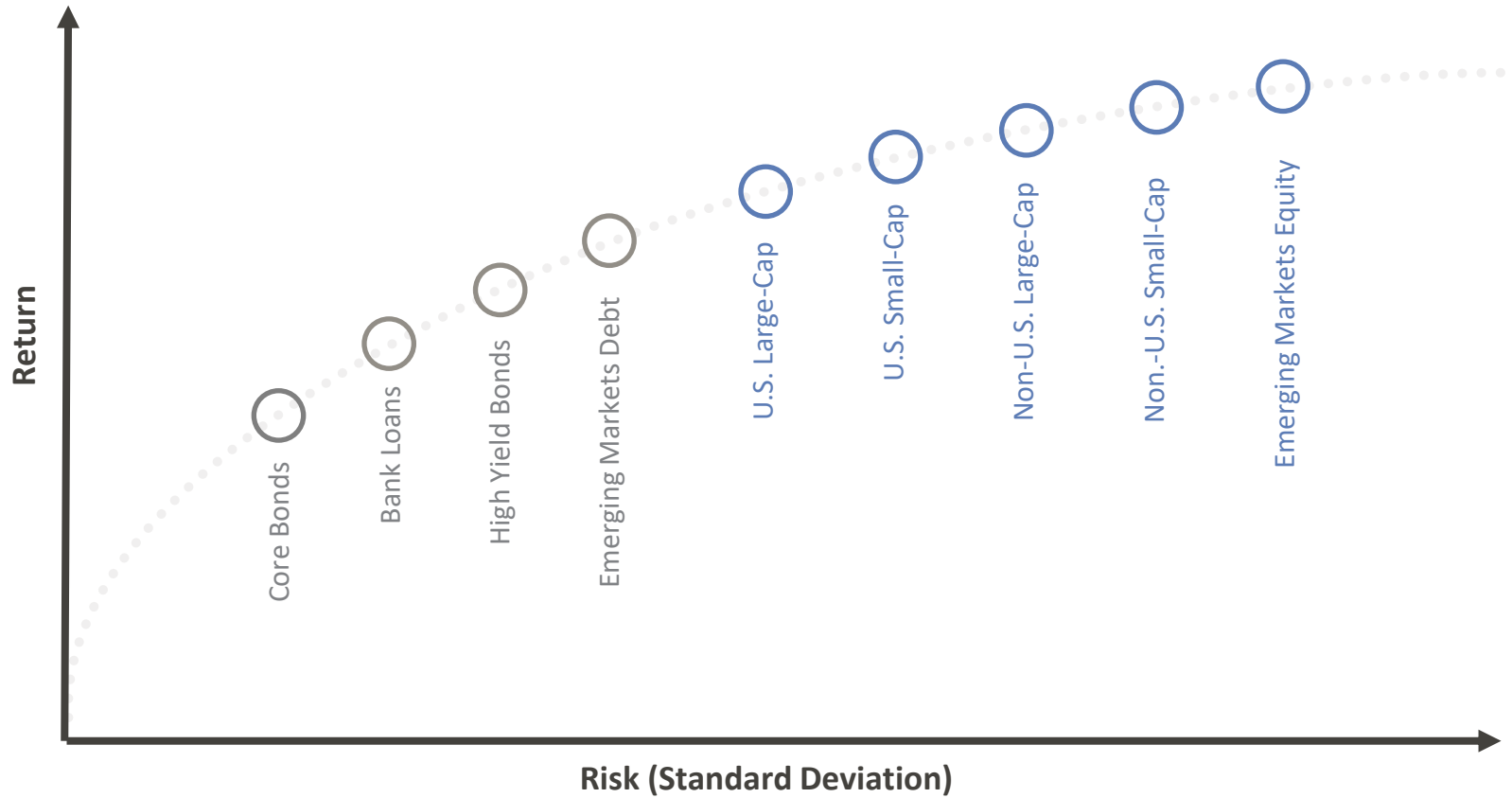
Stock categorization

	Value	Core	Growth
Large			amazon
Mid			
Small			

Non-U.S. stock categorization

MSCI ACWI INDEX					
MSCI WORLD INDEX			MSCI EMERGING MARKETS INDEX		
DEVELOPED MARKETS			EMERGING MARKETS		
Americas	Europe & Middle East	Pacific	Americas	Europe, Middle East & Africa	Asia
Canada United States	Austria Belgium Denmark Finland France Germany Ireland Israel Italy Netherlands Norway Portugal Spain Sweden Switzerland United Kingdom	Australia Hong Kong Japan New Zealand Singapore	Brazil Chile Columbia Mexico Peru	Czech Republic Egypt Greece Hungary Poland Qatar Russia Saudi Arabia South Africa Turkey United Arab Emirates	China India Indonesia Korea Malaysia Philippines Taiwan Thailand

Risk/return profile of stocks



More possibilities, but more risk

Pros

- Higher returns than bonds and cash
- Possibility of income and capital appreciation
- Voting rights
- Favorable liquidity
- Transparent financial reporting

Cons

- Higher volatility than cash and bonds
- Last in line to be paid in a bankruptcy
- No guaranteed return

Ways to access stocks

- **Mutual Funds** – most expensive, lowest investment minimum
- **Commingled Funds** – similar to a mutual fund but private and cheaper, less liquid, larger minimums
- **Separate Accounts** – highest minimums, direct investments, customizable



Real Estate

- Real estate primer
- How to invest in real estate
- Real estate in a diversified portfolio

Property types

Traditional

Multifamily (Apartments)

High-Rise, Garden, Special Purpose

Industrial

Warehouse, R&D, Flex

Office

Commercial Business District (CBD), Suburban, Special Purpose

Retail

Shopping Malls, Lifestyle Centers, Neighborhood & Community Centers



Non-traditional

Hotel

Self-Storage

Senior Living

Student Housing

Life Science

Cold Storage



2024 real estate sector overview

Multifamily:



- Supported by demographic trends amid unfavorable home buying conditions
- Certain markets may be impacted by higher deliveries, though a drop in starts will benefit supply/demand dynamics over the next few years

Industrial:



- Strong demand continues to outpace new supply as a result of e-commerce penetration and supply chain initiatives

Office:



- Secular (remote working) and cyclical demand headwinds
- Large demand spread between CBD vs. suburban assets / high quality vs. low quality assets

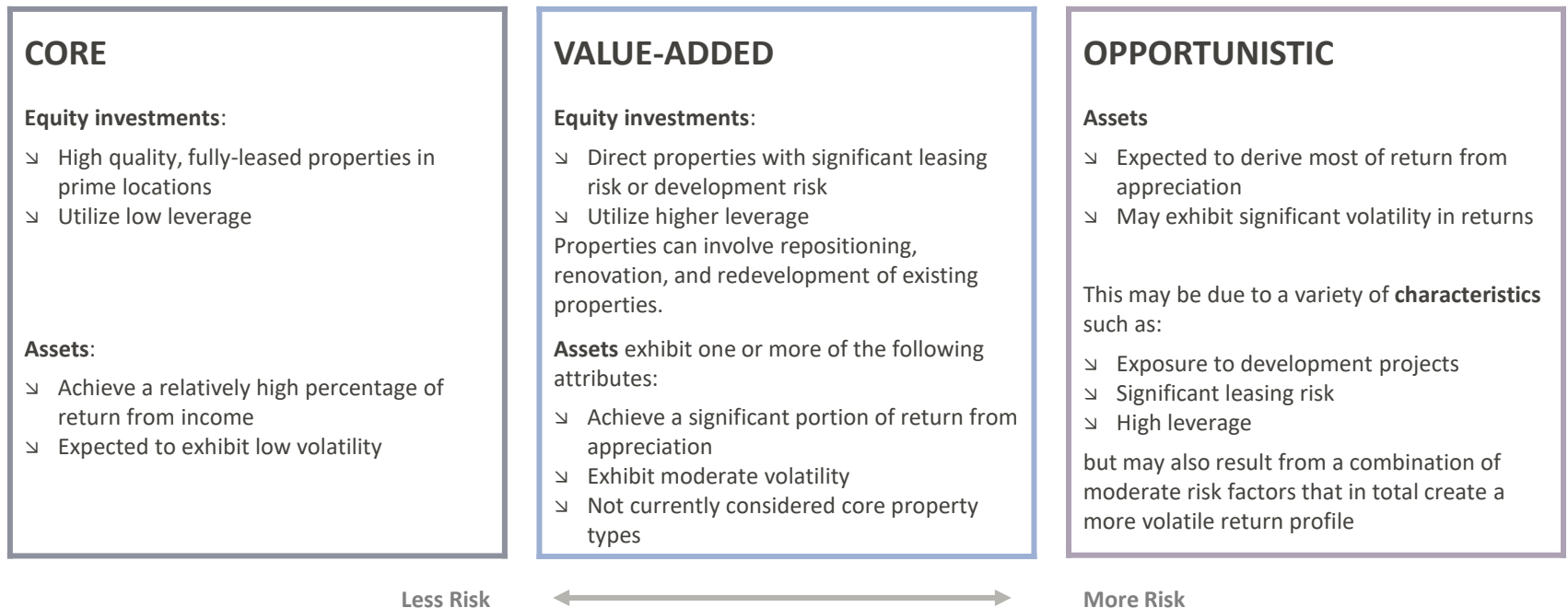
Retail:



- Relatively stable, excluding traditional malls, after years of property redevelopment and little new development
- Focus on grocery-anchored “essential” assets and daily-needs retailers

Real estate investment styles

NCREIF has identified three distinct real estate investment styles



Source: NCREIF "Real Estate Investment Styles"

Real estate portfolio characteristics

	CORE	VALUE-ADDED	OPPORTUNISTIC
Expected return	7% - 10%	10% - 15%	>13%
Property Types	4 Major	Major + Specialty	All
Property Life Cycle	80%+ Operating	Operating, leasing, redevelopment	All stages
Occupancy	80%+	N/A	N/A
Holding Period	7+ years	3-5 years	1-4 years
Markets	Primary/Domestic	Primary/Secondary/Tertiary	Primary/Secondary/Tertiary/ International
Leverage	0-40%	40-70%	70%+
Income return as % of total return	70%+	40-60%	<30%
Investment vehicles available	Generally open-end	Most closed-end, few open-end	Closed-end
Typical fees	100 bps	180 – 200 bps all in	2% and 20%

Source: NCREIF "Real Estate Investment Styles"

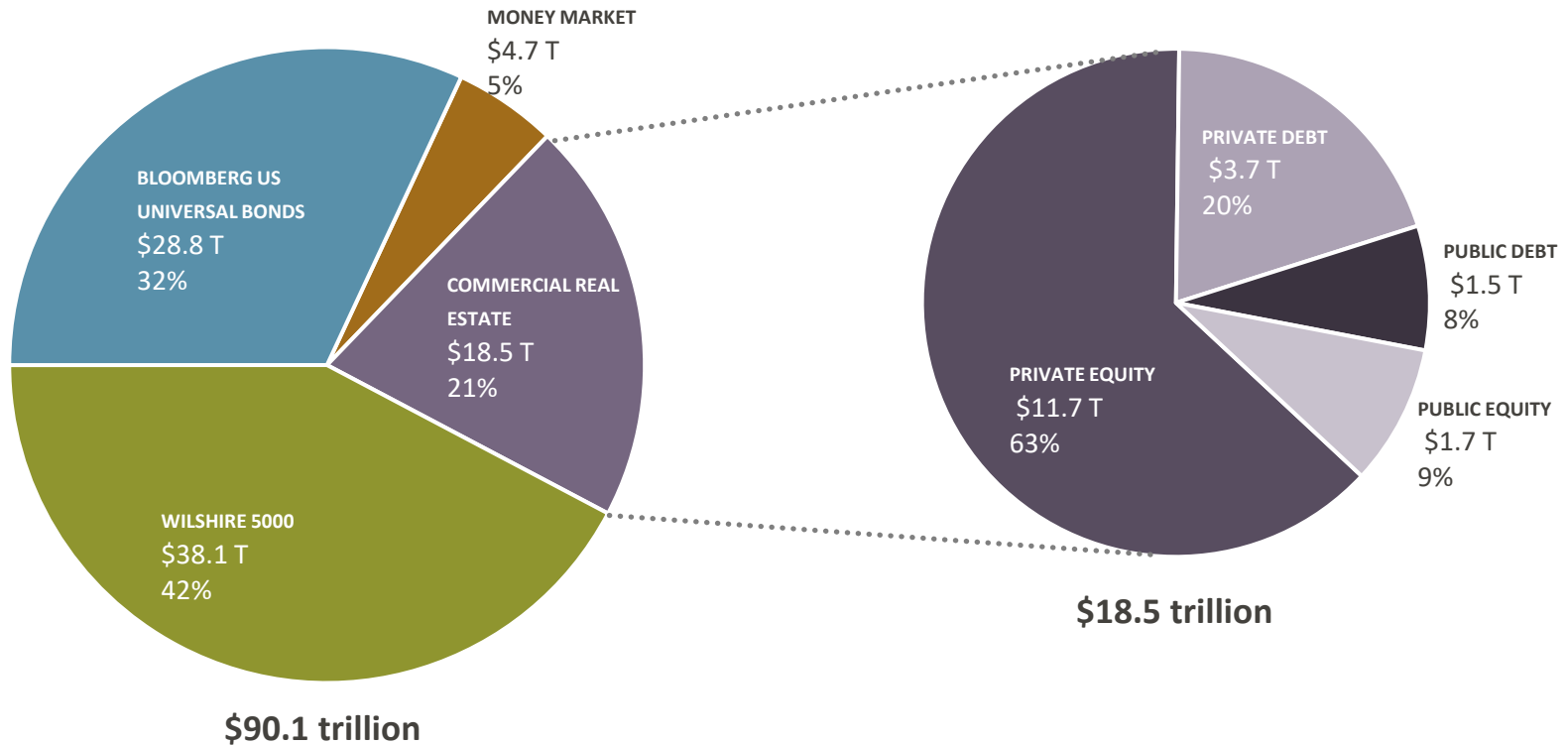
Property level attributes

	CORE	VALUE-ADDED	OPPORTUNISTIC
Property Type	Multifamily, Industrial, Office, Retail (Major)	Major + Specialty Hospitality, Senior Living, Storage	Non-traditional, speculative development, raw land
Lifecycle	Fully operating	Operating, leasing, redevelopment	Development and new construction
Occupancy	High	Moderate-to-well leased, substantially pre-leased development	Low economic occupancy
Rollover (resale) concentration	Low; held for a long period of time	Moderate	High
Near-term rollover	Low	Moderate	High
Leverage	Low	Moderate	High
Market Recognition	Easily recognized institutional markets/properties	Up-and-coming and institutional real estate markets	Secondary, tertiary, and international markets
Investment structure/control	Meaningful or direct control	Moderate control with preferred liquidation positions	Minimal control with unsecured positions

Source: NCREIF "Real Estate Investment Styles"

Investable universe

The CRE market, comprised of public and private debt and equity, totals \$18.5T, representing 21% of the total investable universe



Source: Federal Reserve, NAREIT, CoStar Advisory Services, Principal Real Estate as of December 31, 2023

Benefits of real estate

Healthy current income

- ▾ Privately-held and publicly-traded real estate generate attractive current income

Superior risk-adjusted performance

- ▾ Compelling long-term returns with low volatility

Diversification

- ▾ Low correlation with public market returns
- ▾ Driven by local economic factors and supply dynamics

Large investable universe

- ▾ Wide range of strategies and opportunities

Inflation hedge

- ▾ Potential hedge against inflation

Risks of real estate

Liquidity

- ✎ Less liquid than publicly-traded assets
- ✎ Industry market cycles and capital availability from lenders or investors can impact liquidity

Transparency

- ✎ Less transparent than publicly-traded assets
- ✎ Property financials and operational details are distributed at the discretion of the investment manager

Valuation Methodology

- ✎ Appraisal methodology is highly subjective
- ✎ Marked values tend to lag intrinsic market value

Leverage

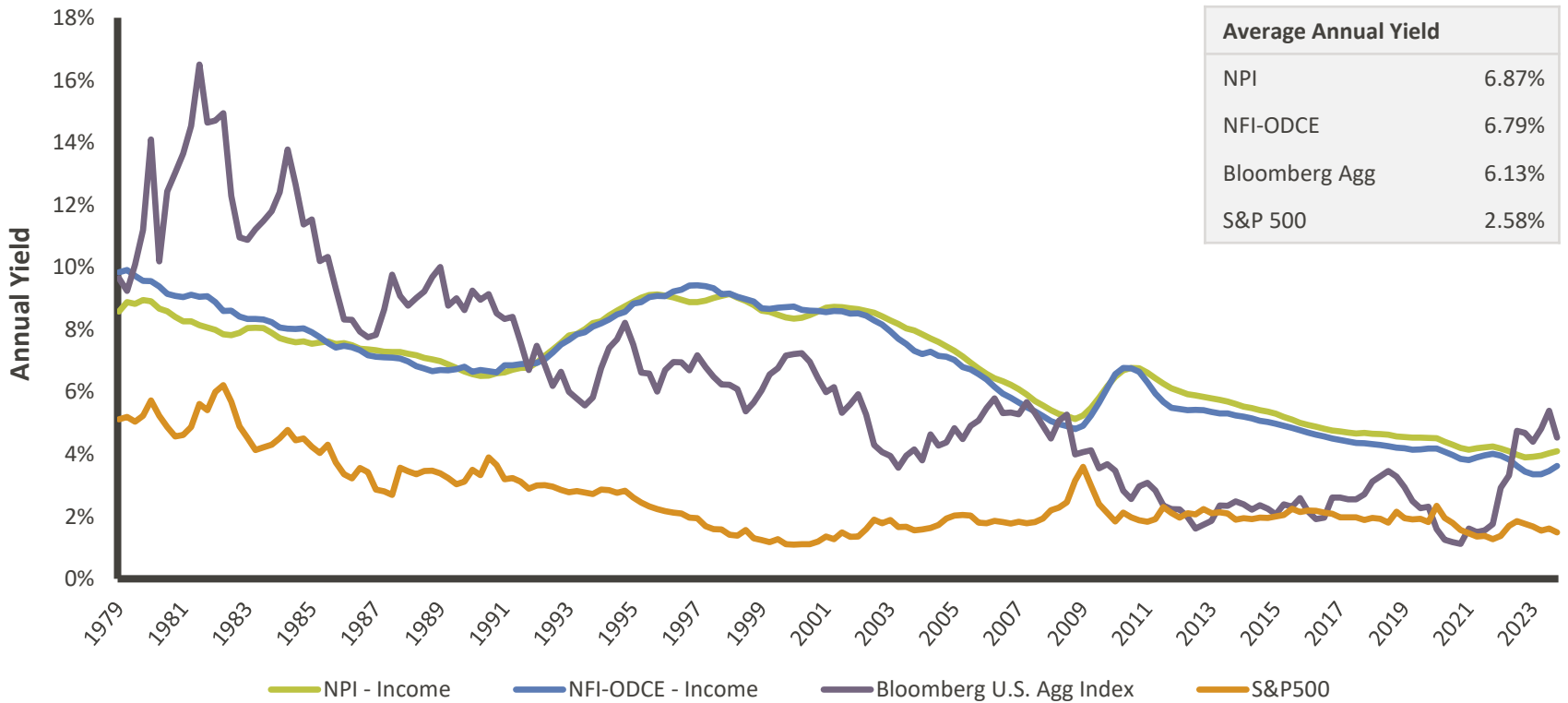
- ✎ Leverage magnifies the potential return – positive or negative – on equity
- ✎ Interest rate fluctuations will impact the mark-to-market of debt

Diversification

- ✎ Properties are subject to unique local and regional macroeconomic factors, causing returns to vary widely

Annual income yield

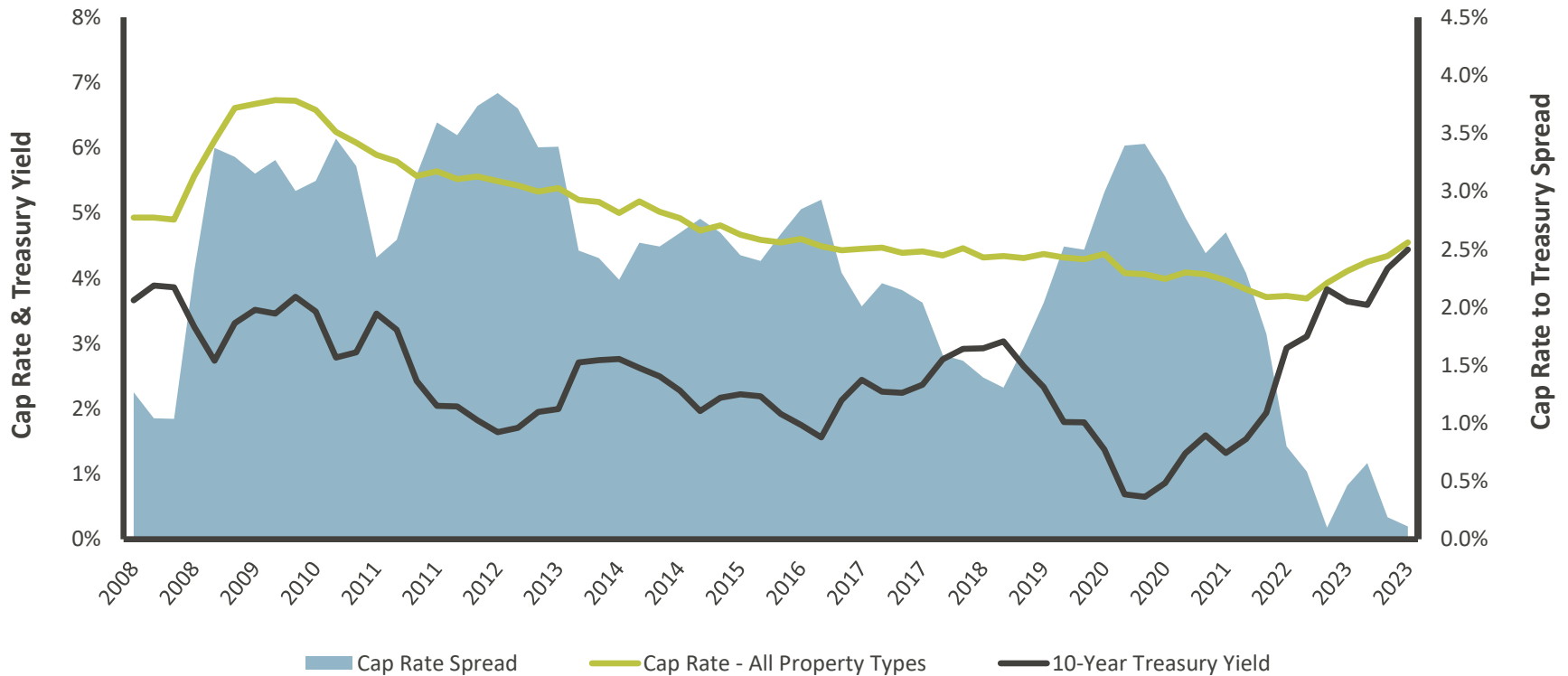
Real estate generates strong, stable current income



Source: Bloomberg, NCREIF as of December 31, 2023

Cap rates vs. 10-Year

Cap rate spreads and 10-Year Treasury yields have converged, signaling valuations will likely further adjust



Source: Bloomberg, NCREIF as of December 31, 2023

Correlations

Private real estate is uncorrelated with public markets, providing diversification benefits

20-Year Correlations (2003 – 2023)

	NPI	NFI-ODCE	FTSE NAREIT	EPRA/NAREIT Developed	S&P 500	MSCI EAFE	Bloomberg Agg
NPI	1.00						
NFI-ODCE	0.98	1.00					
FTSE NAREIT	0.19	0.14	1.00				
EPRA/NAREIT Developed	0.16	0.14	0.93	1.00			
S&P 500	0.07	0.04	0.70	0.77	1.00		
MSCI EAFE	0.04	-0.01	0.66	0.82	0.89	1.00	
Bloomberg Agg	-0.21	-0.26	0.14	0.16	-0.09	-0.02	1.00

Source: Bloomberg, NCREIF as of December 31, 2023

Sources of exposure to real estate

Investments can be made directly or indirectly (private or public) and as equity or debt

	Private	Public
Debt	Private Real Estate Debt Whole Loans	Public Real Estate Debt FNMA, GNMA, CMBs, CMOs
Equity	Private Equity Real Estate LPs, LLCs, REITs	Public Equity Real Estate REITs

Typically institutional investors,
not listed on an exchange

Open to the public, including
retail investors

Real estate vehicles

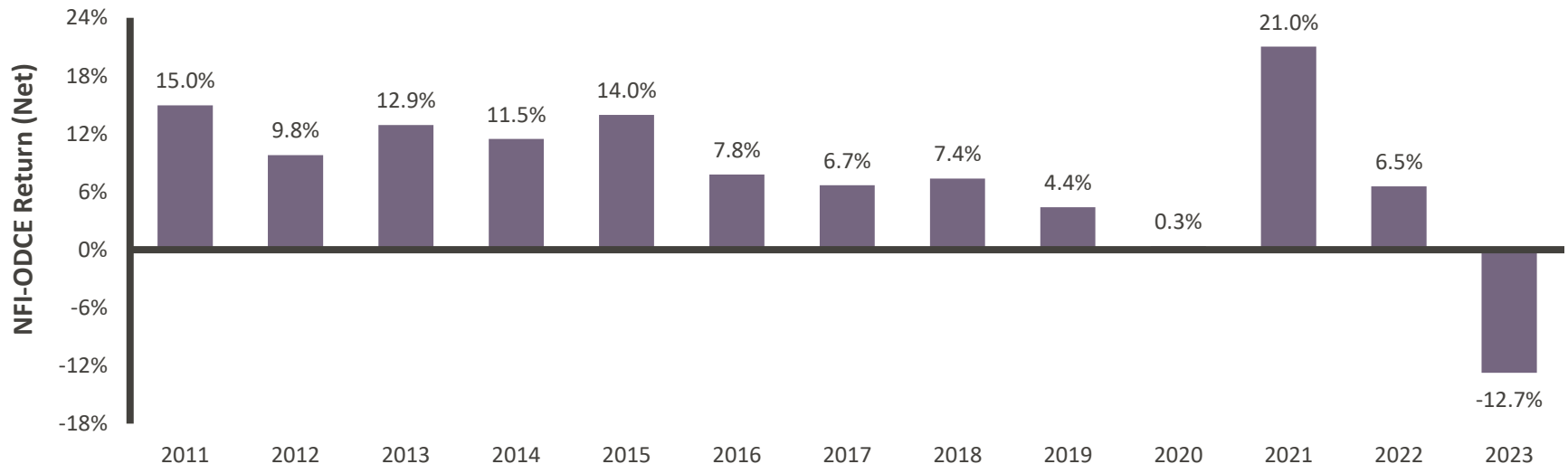
	OPEN-END FUND	CLOSED-END FUND	SEPARATE ACCOUNT	FUND OF FUNDS
Vehicle Life	Infinite	Limited life 8–12 years	Infinite	Limited life 8–12 years
Primary Style	Core, Select Core-Plus, Value-Added	Primarily Value-Added, Opportunistic	Multiple	Value-Added, Opportunistic
Minimum Investment	\$1M–\$10M	\$5M–\$10M	REIT: \$10M Private: +\$100M	\$1M–5M
Legal Structure	LLC Private REIT Bank Commingled Insurance Annuity	Limited Partner Private REIT	Various	Limited Partner
Liquidity	Quarterly ¹	Illiquid	Depends on investment type	Illiquid
Investor Control	Low	Medium	High	Low

¹Open-ended fund managers reserve the right to satisfy quarterly redemption requests on a best-effort basis. Periods of significant dislocation can result in extended periods of illiquidity lasting anywhere from one or more years.

Real estate allocations

Private real estate offered relatively stable returns until the recent COVID pandemic, stressing the importance of manager selection

2011	2022	2023	2024
Recommended that clients establish or add to core real estate allocations with funding taken from traditional fixed income or hedge funds	Real estate continued to produce strong returns as 1 of 2 asset classes with positive calendar year returns	A higher interest rate environment caused real estate values to contract heavily	Expectation for slightly negative to flat returns as valuations continue to adjust to a higher interest rate environment



Source: NCREIF as of December 31, 2023

Capitalization rates

- **Cap rate:** The expected first year income yield on an income property investment
 - Defined as the ratio of net operating income (NOI) to current market value (V)
 $Cap\ Rate = NOI \div V$
 - Cap rates are commonly used to estimate the values of a particular property
 $V = NOI \div Cap\ Rate$
- There is an inverse relationship between cap rates and value, assuming income is constant
 - A lower cap rate would imply a higher property value
 - A higher cap rate would imply a lower property value

Example:

This office building produces an annual NOI of \$1M



Appropriate cap rate is 10%

Estimated property value is \$10M

Leverage

- Debt allows a real estate manager to purchase or develop more properties with the same amount of equity capital. Leverage magnifies both the positive or negative return on equity.
- Loan-to-Value (LTV) represents the amount of debt as a percentage of property value.
- Leverage can impact both components of total return:
 - **Capital appreciation (depreciation)** – the return investors receive as a building’s value increases (decreases)
 - **Annual cash flow** – the cash flow generated by a property from lease and rental payments net of interest payments

$$\text{Leverage Return} = \frac{(\text{Change in Value} + \text{Net Income} - \text{Cost of Debt})}{\text{Equity}}$$

Capital appreciation (depreciation) represents a change in value. Annual cash flow = net income – cost of debt.

Infrastructure

- What is infrastructure?
- Benefits
- How to invest in infrastructure

Background





Infrastructure represents the physical assets necessary to operate a society and sustain economic, industrial, and social growth

Common attributes of infrastructure assets:

- Essential service to society
- Inflation protection
- Long asset life
- Low elasticity of demand
- Monopoly/quasi-monopoly
- Regulatory oversight
- Stable and predictable cash flows



Infrastructure sectors

Economic Infrastructure			Social Infrastructure
Transportation	Energy & Utility	Communications	
Airports	Electricity	Broadcast towers	Municipalities
Bridges	Gas	Cable networks	Universities
Rail	Oil	Mobile towers	Schools
Roads	Pipelines	Satellite networks	Hospitals
Seaports	Water/wastewater		
Tunnels	Solar/wind		
			

Infrastructure characteristics

ECONOMIC INFRASTRUCTURE ASSETS

Throughput assets

- Derive income per usage
- Prices determined by operator/owner

Ex: roads, airports, rail



Regulated assets

- Derive income per usage
- Prices determined by regulatory body
- Asset owner typically has some pricing power protection

Ex: utilities, water, gas



Contracted assets

- Operated by a contract between operator and entity
- Contract determines pricing system and identifiable revenues

Ex: schools, satellite networks, broadcast towers



INFRASTRUCTURE MATURITY STATES

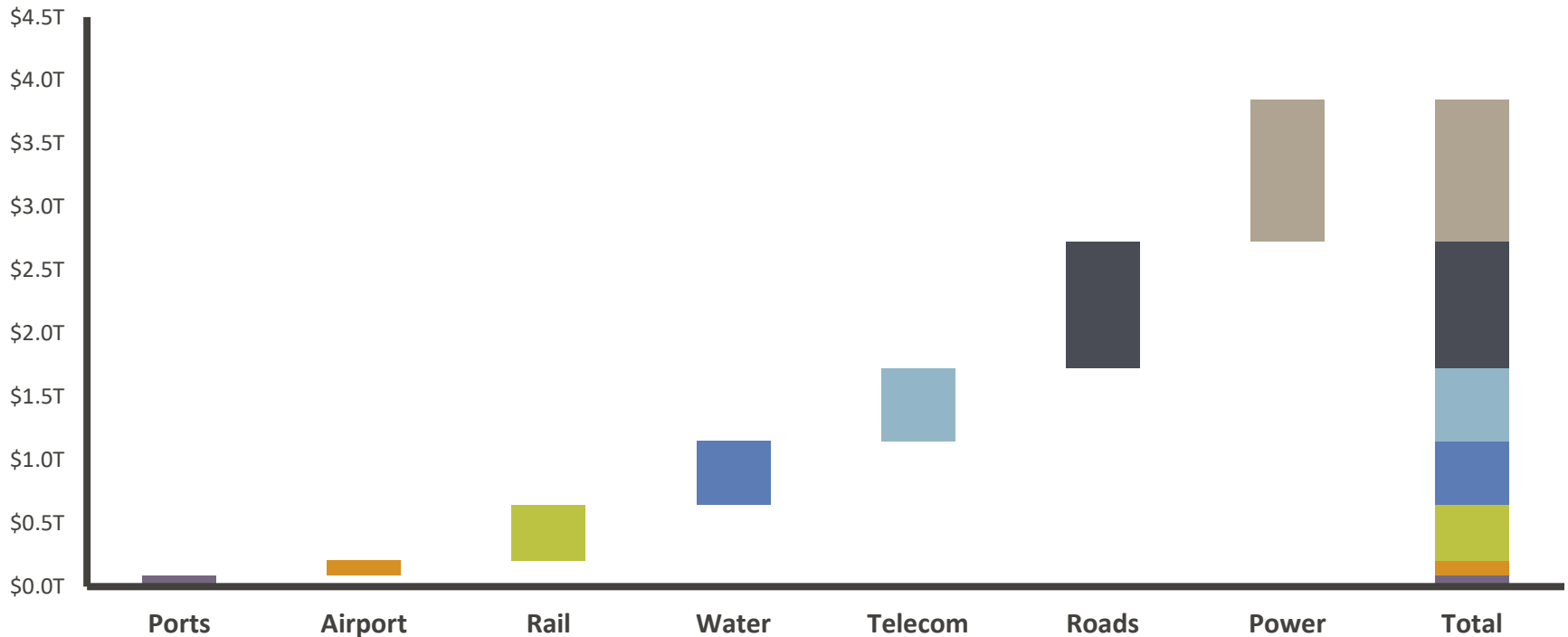
Greenfield	New construction or development
Brownfield	Existing, established asset
Rehabilitated Brownfield	Redevelopment



Global infrastructure investment

Public-private partnerships may develop given infrastructure investment needs in power, roads, and telecom going forward

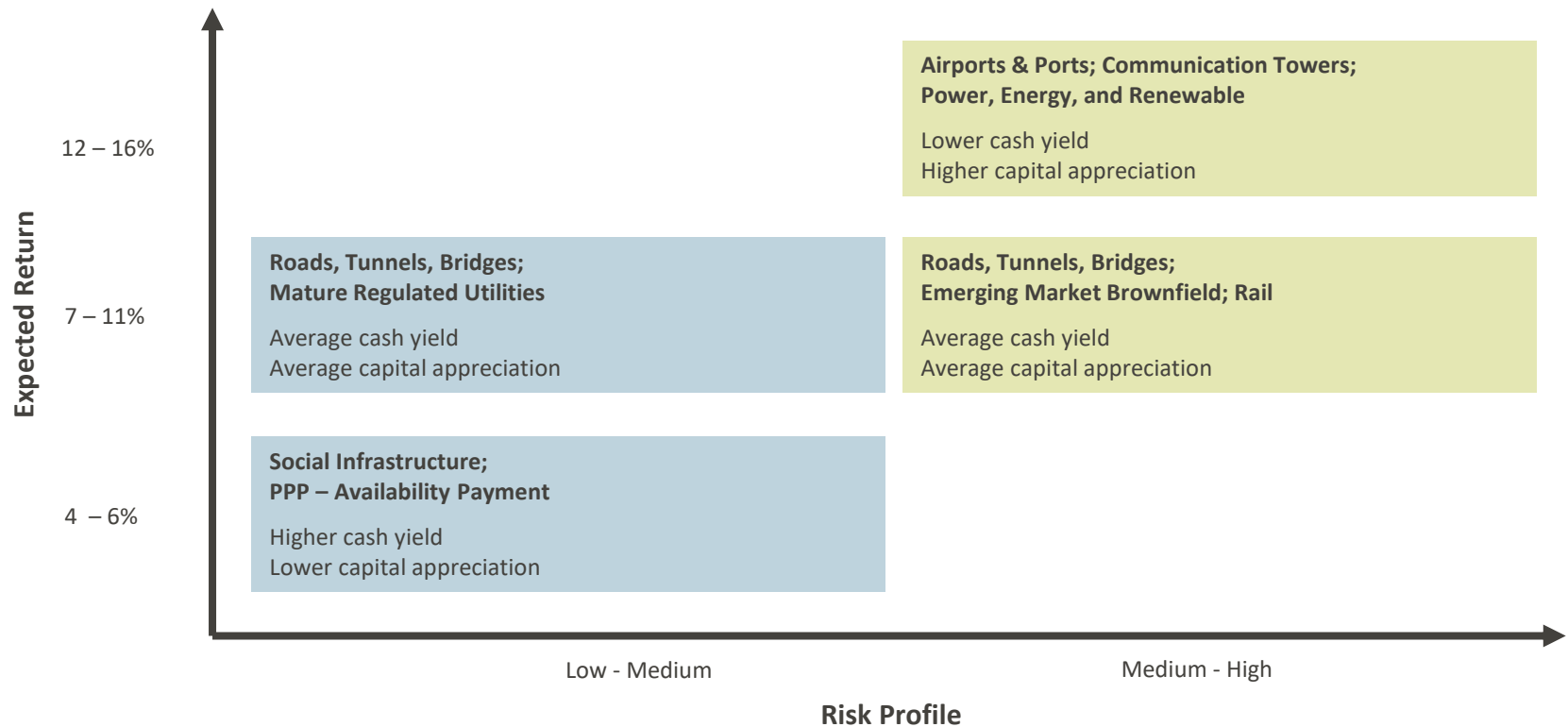
▣ Average Annual Global Infrastructure Investment Need (\$ Trillions), 2017–2035



Source: McKinsey Global Institute, J.P. Morgan as of December 31, 2023

Performance expectations

Different segments of infrastructure offer different risk/return profiles



Source: RBC Global Asset Management, "The Global Infrastructure Investment Opportunity"

Infrastructure benefits vs. risks

BENEFITS

Growing opportunity set	Potential hedge against inflation
Long asset life	Strong and consistent performance
Stable, predictable cash flows	Low correlation to other asset classes

RISKS

FUND LEVEL	SYSTEM LEVEL	UNSYSTEMATIC
<ul style="list-style-type: none">▪ Concentration▪ Currency▪ Financing▪ Interest Rate▪ Liquidity▪ Valuation	<ul style="list-style-type: none">▪ Demand/ patronage▪ Inflation▪ Political▪ Public perception▪ Regulatory	<ul style="list-style-type: none">▪ Disaster▪ Environmental▪ Obsolescence

Infrastructure performance

Private infrastructure has generated attractive risk-adjusted returns relative to equity, fixed income, and private real estate

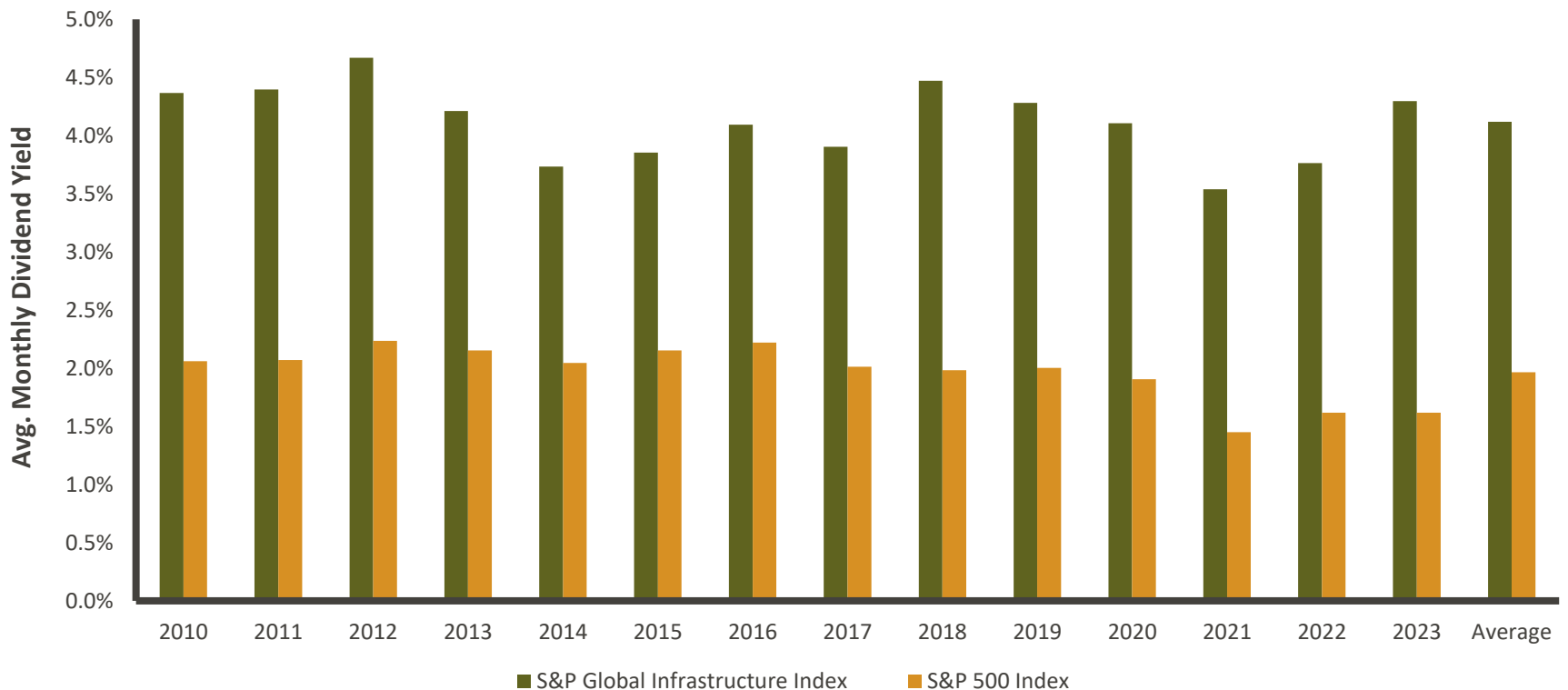
▾ Trailing 10 years (Q4 2013 – Q3 2023)

	Burgiss Infrastructure Index	NFI-ODCE	S&P 500	MSCI ACWI ex-U.S.	Bloomberg Agg
Annualized Return	9.6%	7.2%	11.9%	3.3%	1.1%
Annualized Risk (Std Dev.)	3.8%	4.9%	15.3%	15.9%	4.5%
Sharpe Ratio	2.23	1.23	0.71	0.14	0.00

Source: Bloomberg, Burgiss, NCREIF as of September 30, 2023

Infrastructure yield

Consistent income growth of underlying infrastructure holdings has fostered favorable inflation-adjusted yields relative to the S&P 500



Source: Bloomberg as of December 31, 2023

Diversification

Correlation Matrix – 10 Year Index Returns 4Q 2013 – 3Q 2023

	Burgiss Infrastructure Index	FTSE Global Core Infrastructure 50/50 Index	Wilshire 5000	MSCI ACWI ex-U.S.	Bloomberg Agg	NFI-ODCE	NCREIF Timberland
Burgiss Infrastructure Index	1.00						
FTSE Global Core Infrastructure 50/50 Index	0.77	1.00					
Wilshire 5000 (U.S. Equity)	0.30	0.17	1.00				
MSCI ACWI ex-U.S. (Non-U.S. Equity)	0.75	0.79	0.42	1.00			
Bloomberg Agg (Fixed Income)	0.05	0.35	0.09	0.29	1.00		
NFI-ODCE (Real Estate)	0.08	-0.02	-0.04	-0.32	-0.39	1.00	
NCREIF Timberland	0.17	0.07	-0.08	-0.02	-0.19	0.16	1.00

Source: Bloomberg, Burgiss, NCREIF as of September 30, 2023

Private vs. public infrastructure

Unlisted (Private) Infrastructure

Advantages

- Greater opportunity set
- Direct investing
- Control of asset more likely

Disadvantages

- Limited liquidity
- Potential concentration and high leverage
- High capital requirements

Listed (Public) Infrastructure

Advantages

- Traded on an exchange
- Transparent
- Liquid

Disadvantages

- Limited opportunity set
- Indirect exposure
- High regulatory parameters of assets
- Equity correlation and market volatility

Investment vehicle options

Private Vehicles/Unlisted Funds

- Open-end fund
- Closed-end fund
- Co-investment or direct investment
- Fund of funds

Public Vehicles/Listed Funds

- Open-end fund
- Listed closed-end fund

Key takeaways

- Provides diversification
- Cash flows not highly correlated to other asset classes
- Well matched for long-term horizons
- Further diversification by revenue generation, sector, and geography
- Large, growing opportunity set

Private Equity

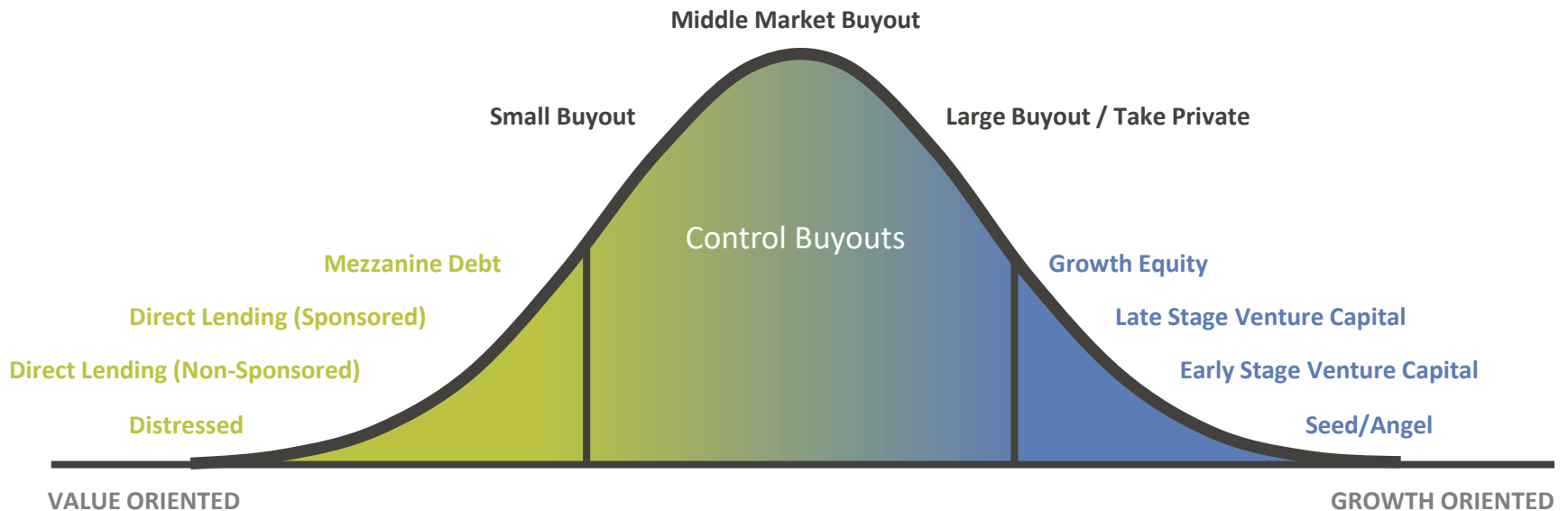
- What is private equity?
- Market segmentation
- Advantages and risks
- Measuring performance
- Fund structure and lifecycle
- Terms and fees
- Considerations when starting a private equity program

Background

- Private equity encompasses any equity investment in a private business
- Private equity funds deploy capital as they acquire equity control of businesses they believe to be undervalued and where their operational and sector expertise can help to accelerate growth
- The number of private equity owned businesses in the U.S. is likely to grow considerably over the next decade, creating an attractive opportunity set for private equity investors



Private equity market segmentation

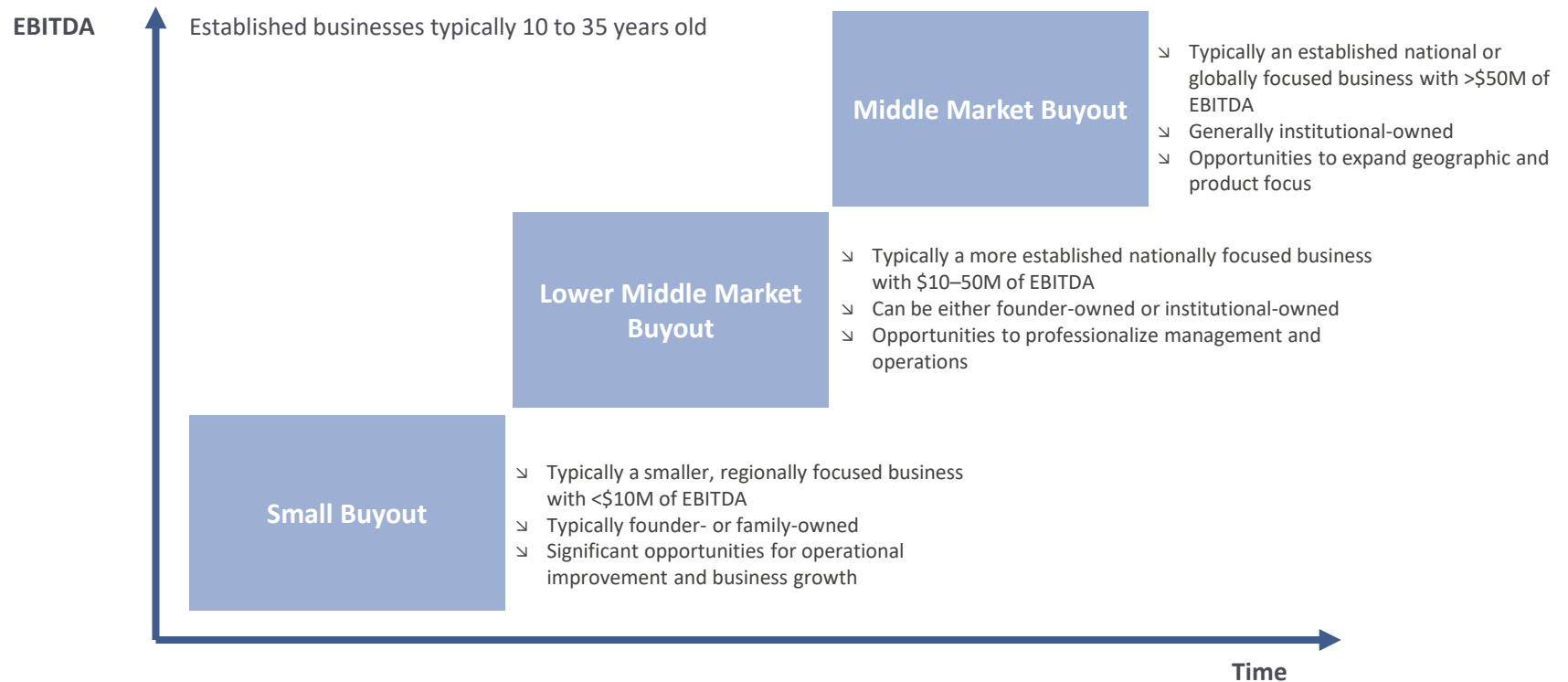


Sub-Category	Expected Return	Financing	Duration of Investment	Relative Risk	Stage	Success Rate	Ownership Stake
Venture Capital	20%+	100% Equity	5 years +	High	Early	Low	Less than 50%
Growth Equity	15–20%	100% Equity	3–5 years +	Medium–High	Early Growth	Medium	Less than 50%
Buyout	13–20%	100% Equity	3–5 years +	Medium	Mature	Medium	More than 50%

This table represents Marquette’s best estimate of typical returns, risk, duration, and investment style of each investment category.

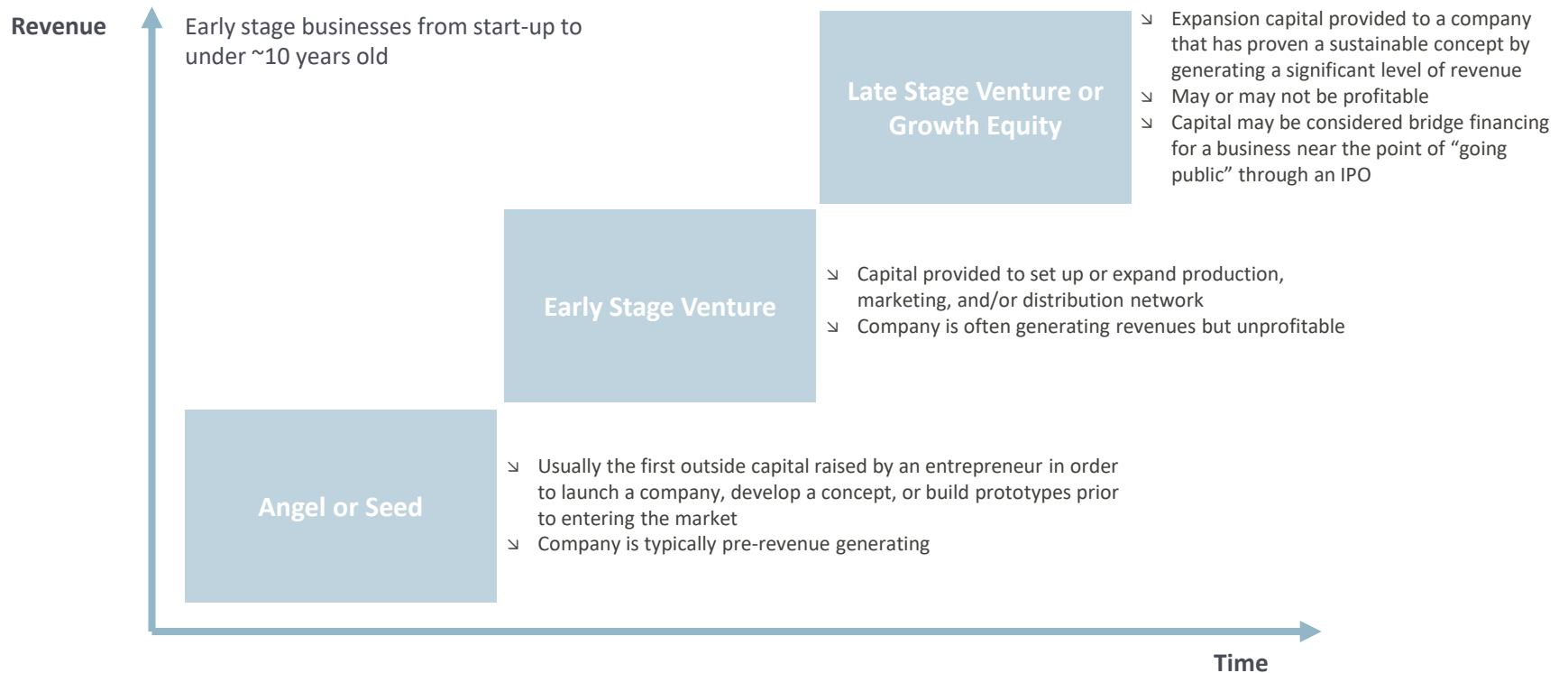
Buyout

Buyouts focus on controlling a business through a leveraged buyout and are the largest segment of the private equity market



Venture capital

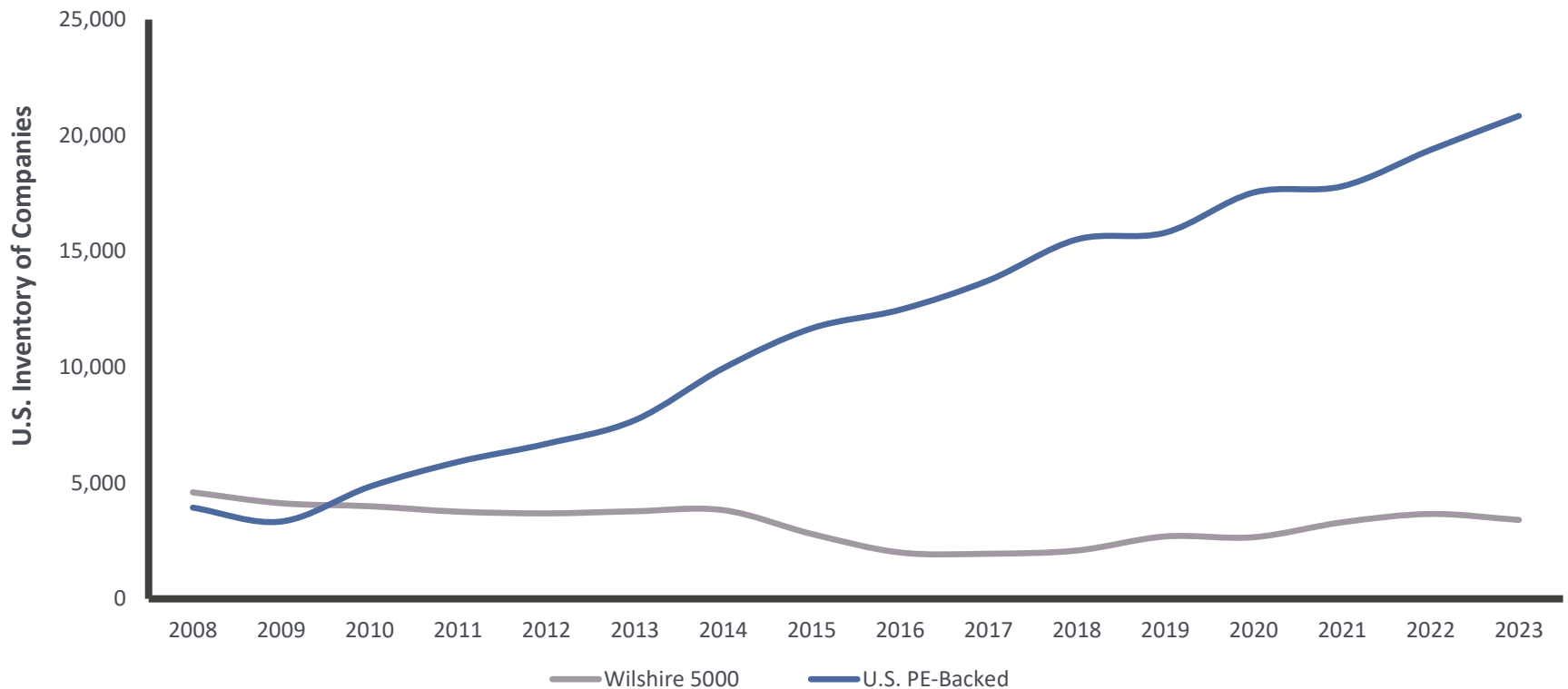
VC focuses on investments in the form of minority equity ownership in less mature but rapidly growing businesses



Opportunity Set

Expanding number of PE opportunities

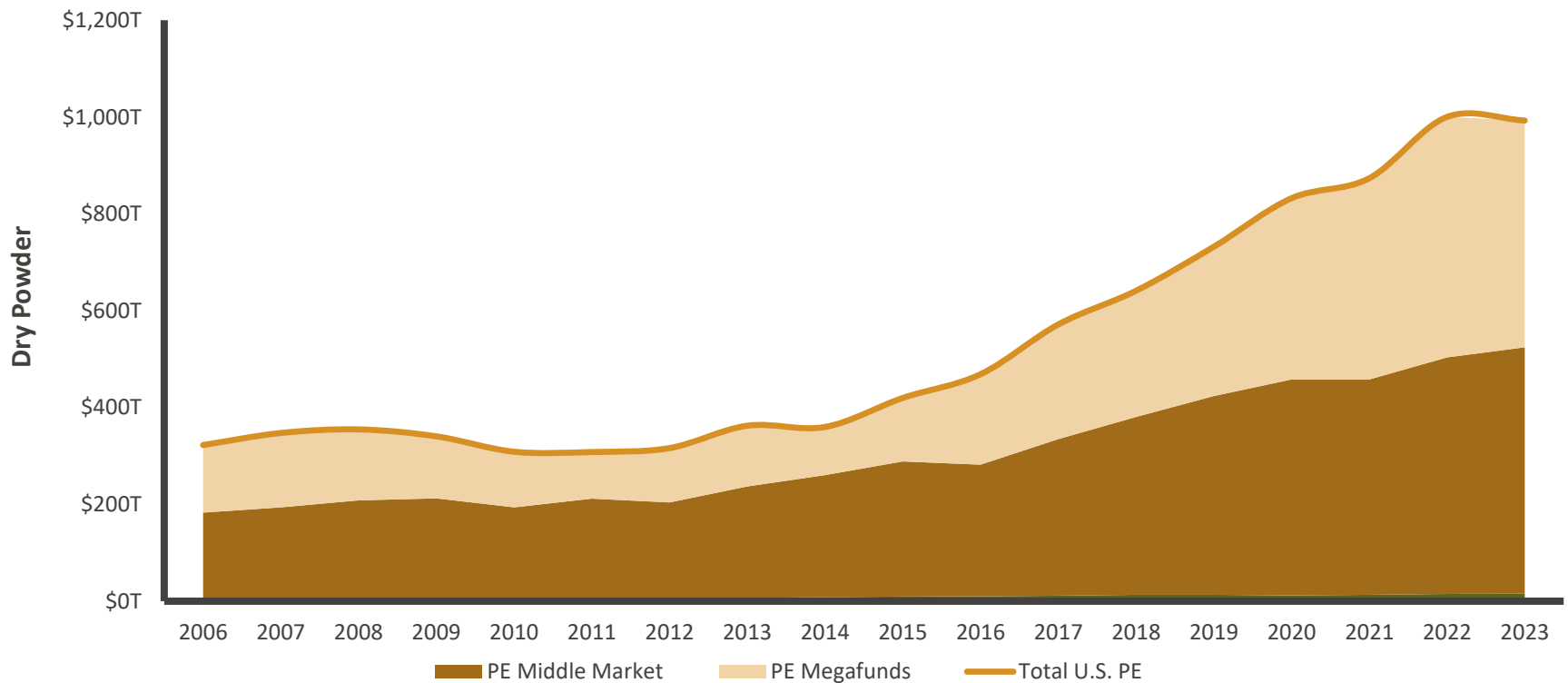
The inventory gap between public and private equity owned companies continues to expand



Source: Pitchbook, Bloomberg as of December 31, 2023

Dry powder drives deal activity

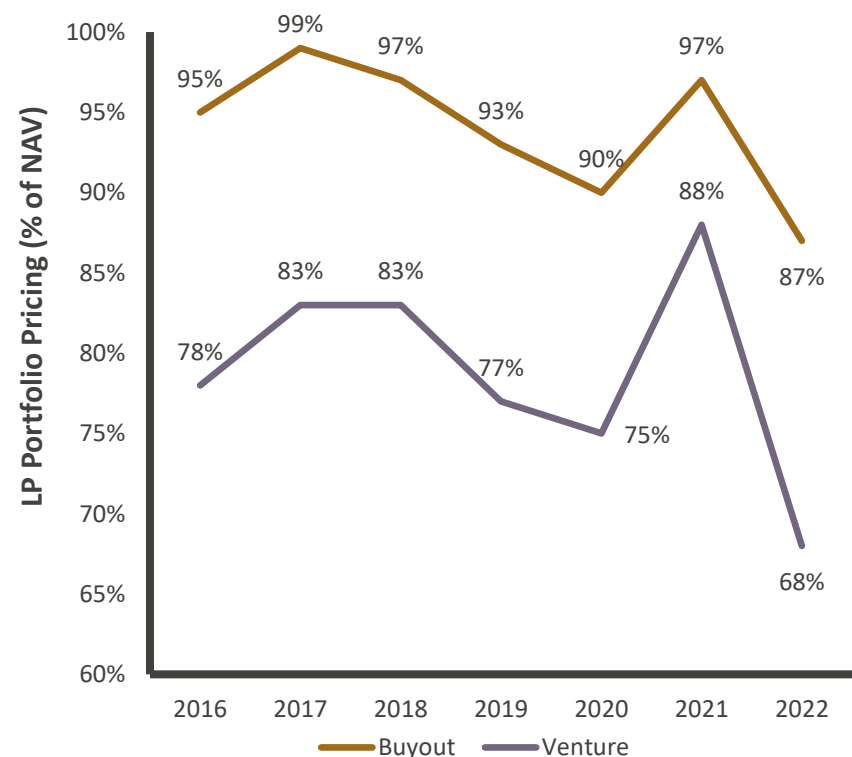
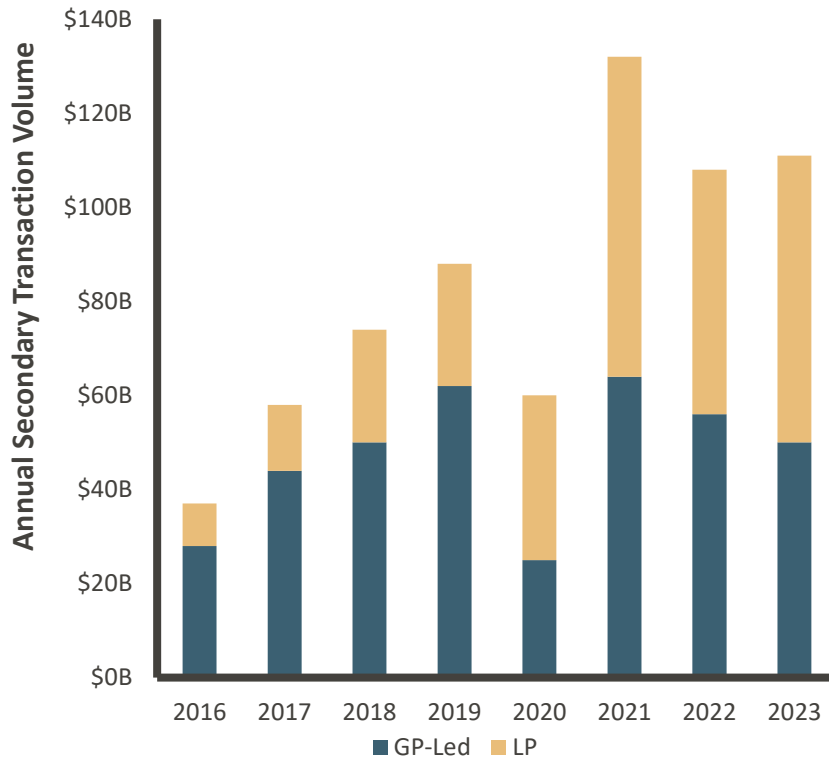
High levels of dry powder at the large end of the market will continue to create exit opportunities for middle market private equity



Source: Pitchbook as of June 30, 2023 (most recently available data as of update).

Secondary market

The secondary market is evolving with attractively priced deals and GP-led transactions representing a significant portion of the market



Source: Jefferies Global Secondary Market Review as of December 31, 2023

PE benefits

Over time, private equity has consistently delivered higher returns relative to other asset classes

Return drivers include:

- | | |
|---------------------------------|---|
| ▾ Business control | Majority ownership allows for a greater ability to affect positive operational improvements in the underlying firm by leveraging the experience, sector knowledge, and network of a private equity firm |
| ▾ Investment leverage | Private equity acquisitions are typically completed with significant borrowing (40–60% of business value) which often magnifies investor returns |
| ▾ Alignment of interests | The relationship between the company management and private equity ownership ensures management maintains a sizable stake in the company, partaking in company performance |
| ▾ Price discovery | Deals tend to be competitive and infrequent allowing for a high level of due diligence, often leading to better price discovery over the longer term |

PE risks

Investment Risks

Private equity is riskier than public market investments because target firms tend to be smaller with more product and client concentration and with capital structures that are more aggressively leveraged

Fund Risks

Regulatory oversight is weak and funds tend to be highly concentrated

Illiquidity

Private equity investments are illiquid, and after capital is committed, the investor has little to no control over the size and timing of future cash flows

High Fees

Funds tend to have high fees charged on committed capital and performance fees that require investors to split profits

Subjective Performance

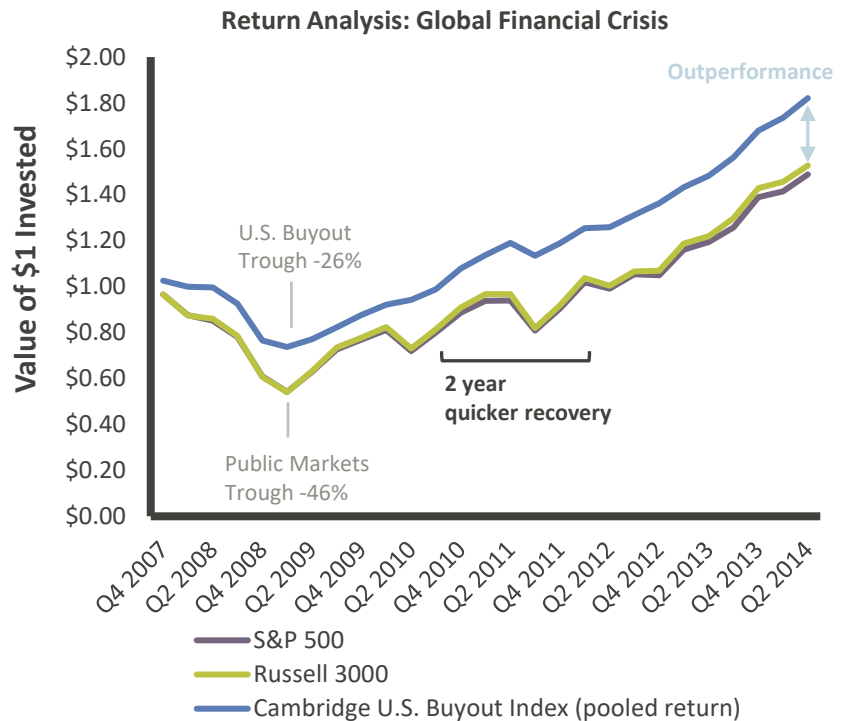
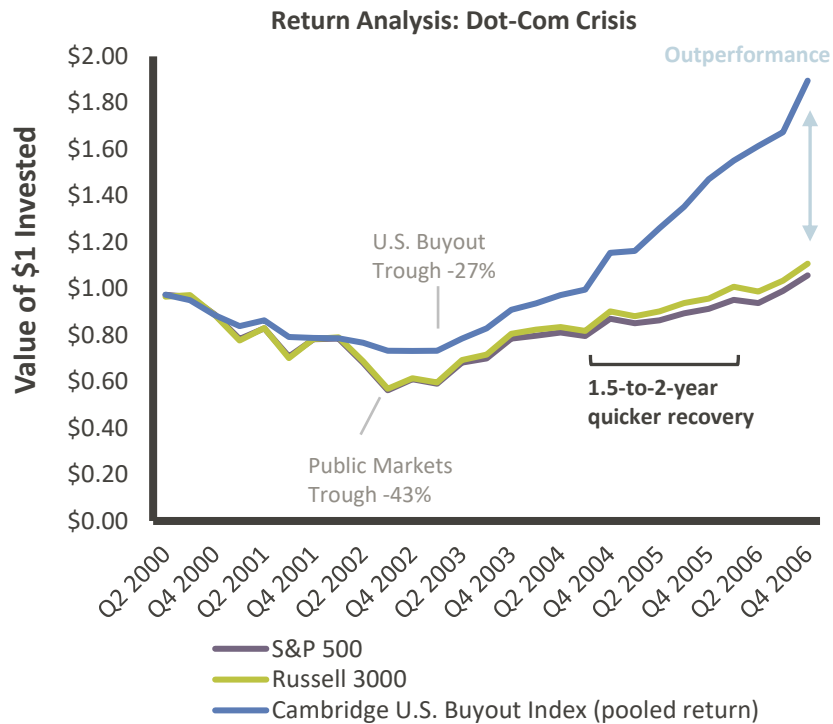
Over the life of the fund, portfolio valuations are subjective because investments are not listed on public exchanges

Manager selection

There is a large dispersion in returns between the top and bottom quartiles of funds

Private equity resilience during downturns

Private equity has historically experienced less significant pullbacks with quicker recoveries during public market downturns



Source: Bloomberg; Cambridge Associates; Neuberger Berman

Historical performance

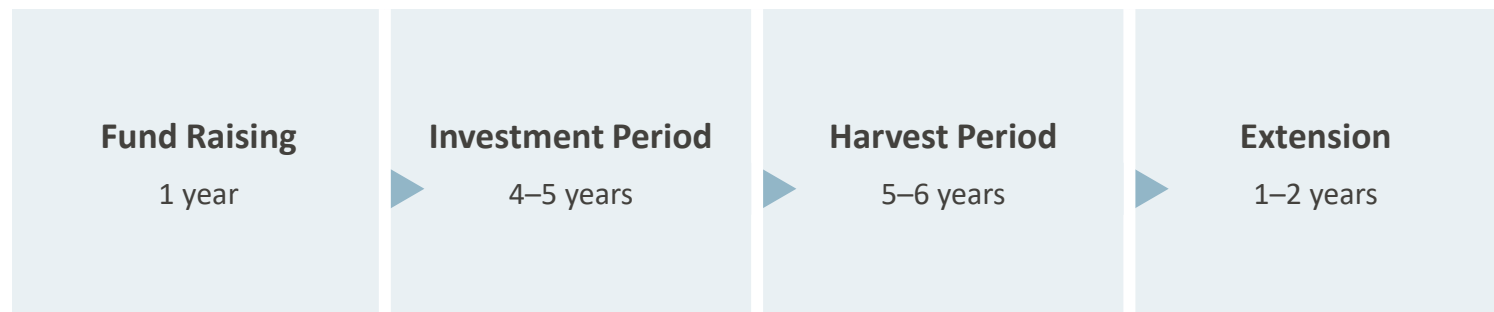
Private equity's historical outperformance of public asset classes can be attributed to four main characteristics of private equity investments:

- 1 The significant resources, knowledge, and capital brought to a private business provides a catalyst to improve the growth and profitability
- 2 The long-term focus and structure of private equity aligns the interest of management and investors and allows for more strategic deployment of capital
- 3 Expanded flexibility in structuring deals provides excellent risk/reward characteristics
- 4 Substantial leverage used to enhance investment returns

How to Invest

Private equity fund lifecycle

- After fundraising concludes, managers typically make 8–15 investments over a four to five-year period, followed by a five to six-year period to grow and sell each business
- On average, private equity funds have a defined life of 10 years for a direct fund and 12 years for a fund-of-funds
- Funds commonly include annual extension options of 1–3 years
- Full liquidation typically takes between 11–15 years



Private equity investments are unique

The goal of a private equity program is to have a consistent amount of capital called each year to minimize vintage year risk

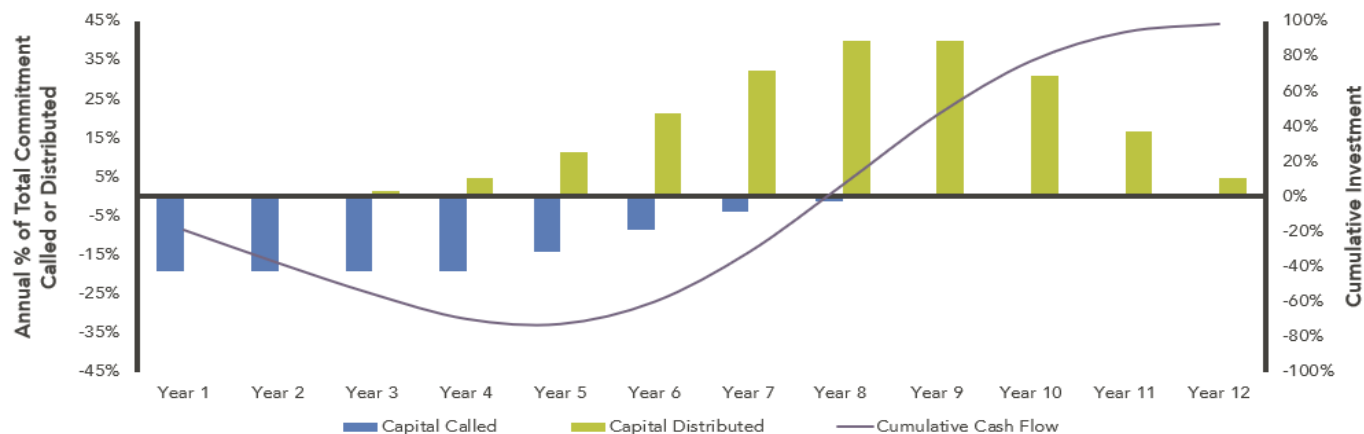
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Annual Fund-of-Funds								
(2 year commitment period)	C	C						
Manager 1	\$	\$	\$	\$	\$			
Manager 2		\$	\$	\$	\$	\$		
Fund-of-Funds								
(4 year commitment period)	C	C	C	C				
Year 1 Managers Invest	\$	\$	\$	\$	\$			
Year 2 Managers Invest		\$	\$	\$	\$	\$		
Year 3 Managers Invest			\$	\$	\$	\$	\$	
Year 4 Managers Invest				\$	\$	\$	\$	\$
Secondary Fund	C							
(5 year investment period)	\$	\$	\$	\$	\$			
Primary Fund	C							
(5 year investment period)	\$	\$	\$	\$	\$			
Cumulative Annual Investment	\$ =	\$ =	\$ =	\$ =	\$ =	\$ =	\$ =	\$ =

LEGEND

C	Annual Commitment by Fund
\$	Annual Investment Into Companies

Investment cash flows and J-curve

- Committed capital is called from investors as investments are made and as fees are generated
- Management fees are often calculated on committed capital, not invested capital
- A majority of capital is deployed during the first five years into leveraged buyouts with additional capital reserved for ongoing support of operational and growth initiatives
- Fees and slow deployment of capital often generate a negative return during the early years of a fund, with higher returns in the later years as investments mature and capital is returned to investors following exits, forming a “J-curve”



This chart shows the amount of capital called and distributed each year on the left axis and shows the investor’s total invested capital, as a percentage of committed capital, in each year on the right axis. Private equity funds typically have large capital calls in the early years of the fund’s life and then make large distributions towards the end of the fund’s life as portfolio companies are sold. In this example we show a fund with a 1.75x multiple, a 14% IRR, and two one-year extensions.

Performance measurement

Investors should consider all three metrics when evaluating both the absolute and relative investment performance

Internal Rate of Return (IRR)

The annualized effective compounded return provided to investors in the fund calculated by determining the discount rate that sets the net present value of all cash distributions from the fund equal to the cash invested

- ↳ IRR considers the time-value of money and is useful in measuring and comparing the relative performance of different investments

Public Market Equivalent (PME)

The timing and size of cash investments into a private equity fund is matched and converted to an equal purchase of a public index in order to generate a directly comparable IRR for evaluating relative performance

- ↳ Performance metric has mathematical issues with either a strong performing private equity funds with large distributions or in a declining public market where returns are negative

Return Multiple

Total Value of Paid-In Capital (TVPI) multiple is a cash-on-cash return multiple which is unaffected by the timing of cash flows and is calculated using the total cash returned to LPs divided by the total cash called by the GP

- ↳ Private equity strategies with long time horizons tend to generate high multiples but lower IRRs

Takeaways

- Over time, private equity has consistently delivered higher returns relative to other asset classes and provided downside protection in market drawdowns
- Private equity investments are illiquid, and after capital is committed, the investor has little to no control over the size and timing of future cash flows
- Private equity is riskier than public market investments because target firms tend to be smaller with more product and client concentration and with capital structures that are more aggressively leveraged

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