



Meriden

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## Quarterly Investment Review - Fourth Quarter 2022

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# Fiducient Advisors Update



## Retirement Plans

### Featured Insights

- Webcast: Current Trends in Target Date Fund Litigation
- Blog: Final Rule Grants Fiduciaries Greater Flexibility When Considering ESG Options

### Coming Soon

- Plan Sponsor Newsletter
- Pension Healthcare Webcast



## Endowments & Foundations

### Featured Insights

- Nonprofit Investment Stewards Podcast

### Coming Soon

- Steward Newsletter
- Mission-Aligned Investing Update



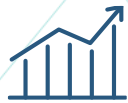
## The Wealth Office®

### Featured Insights

- 10 Planning Opportunities to Consider Before Year-End
- Blog: Cozy Up to a Good Book

### Coming Soon

- Financial Planning Considerations Paper
- Financial Planning Webcast



## Research Insights

- Monthly Market Recaps
- Monthly Market Updates
  - *A Pivot to Pause* – November
  - *Bear Hunting* – October
- *2023 Outlook – Goodbye TINA (there is no alternative)*
- Blog: FTX – Lessons Learned from a Lack of Due Diligence
- Webcast: Fiducient Speaker Series with Greg Valliere
- Video: Third Quarter 2022 Update

**SAVE THE DATE!**

**2023 Investor Conference**

**September 26-27**

**Boston**

**Westin Copley Center**

**Reserve your room today:**

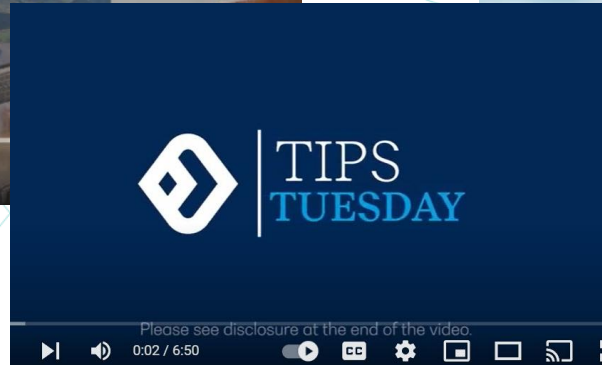
<https://book.passkey.com/event/50425437/owner/251/home>



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## 2022 New Associates – Welcome!

- Ikbir Bassi, Performance Analyst
- Ian Bradley, Senior Research Associate
- Lori Cahill, Finance Billing Specialist
- Celina Cheng, Performance Analyst
- Owen Graham, Performance Analyst
- Federico Lascano, Research Analyst
- Marycarmen Nevarez, Consultant
- Hamza Rangwala, Client Service Associate, The Wealth Office®
- Louis Ressler, Senior Consultant
- Colin Schorsch, Consulting Analyst
- Marc Seskin, Marketing Associate
- Krishma Sharma, Consulting Analyst, The Wealth Office®
- Michael Shevlin, Senior Accountant
- Eric Stanley, Data Operations Analyst
- Joel Urbina, Consulting Analyst

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## Section 1    Fiduciary Governance Calendar



# Fiduciary Governance Calendar



\*Timing of actuarial review is dependent on client's individual plan and/or fiscal year and actuarial input.



# 2023 Themes

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- As captured in our [2023 Outlook – Goodbye TINA](#), the three themes we see driving the market in the coming year are persistent volatility, moderating inflation, and a bear market bottom.
  - **Persistent Volatility**
    - The 10+ years leading up to 2022 were characterized by low interest rates, low inflation, and low growth alongside accommodative policy. This environment resulted in abnormally low volatility.
    - The shifts we saw in 2022 will likely produce higher structural volatility on a go-forward basis.
  - **Moderating Inflation**
    - We have seen evidence that inflation is falling. While inflation is unlikely to drop to the Fed's target rate of 2% within the coming calendar year, a continued downward trajectory will likely have a positive impact on market sentiment.
  - **Bear Market Bottom**
    - We don't attempt to time the markets. That being said, the historical pattern of bear markets is multiple contraction first, followed by earnings contraction.
      - ✓ Multiple contraction accounted for more than 100% of the 2022 market pullback, as earnings remained modestly positive.
      - ✓ Late 2022 data is beginning to reflect negative earnings (ex-energy).
    - An earnings contraction, along with the expectation of a less hawkish Fed, suggests the current bear market may be nearer its end than its beginning.

# 2023-2042 Twenty-Year Outlook



		2023	2022	Y / Y Change	
Fixed Income	<p>The 2022 pull back in fixed income was painful, but it has also sowed the seeds for opportunity going forward. Yields across many fixed income sectors are multiple times higher from year-end 2021 producing greater opportunity for meaningfully higher returns in the years to come.</p> <p>Additionally, the diversifying principles of fixed income with recharged yields makes owning fixed income and duration more compelling than it was in 2022 and doing so may add to portfolio resiliency going forward.</p>	U.S. Bonds	5.0%	2.4%	2.6%
		TIPS	4.6%	2.1%	2.5%
		Dynamic Bonds <sup>1</sup>	5.6%	2.8%	2.8%
		High Yield Bonds	7.1%	5.6%	1.5%
		Global Bonds	5.1%	2.2%	2.9%
		Muni Bond <sup>2</sup>	5.8%	2.1%	3.7%
		Muni High Yield	9.9%	5.6%	4.3%
Global Equity	<p>Our global equity outlook has improved, bolstered by more attractive valuations. U.S. valuations are near averages relative to history while International and Emerging Markets remains more attractive, but with elevated risks.</p>	U.S. All Cap	6.7%	6.8%	-0.1%
		Intl Developed Equity	8.9%	8.6%	0.3%
		Emerging Markets	10.8%	10.5%	0.3%
Real Assets & Alternatives	<p>A continued bid for inflationary assets and more attractive valuations across some subsets of assets contributed to higher forecasts.</p> <p>The opportunity set for marketable alternatives rose with more attractive valuations in both global equities and fixed income.</p>	Real Estate	6.4%	6.3%	0.1%
		Broad Real Assets <sup>3</sup>	6.8%	5.6%	1.2%
		Marketable Alts	8.1%	6.8%	1.3%
		Private Equity	9.7%	9.8%	-0.1%

1) Dynamic bonds are a blend of 33% Cash, 33% Corp HY, and 34% Global Bonds. 2) Tax Equivalent yield based on highest marginal Federal tax rate (37%). 3) Broad Real Assets is 20% REITS, 20% Global Infrastructure, 20% Commodities, 20% US Bonds, 15% Corp High Yield, 5% TIPS Outputs and opinions are as of the date referenced and are subject to change based on market or economic conditions. Information is intended for general information purposes only and does not represent any specific investment recommendation. Please consult with your advisor, attorney and accountant, as appropriate, regarding specific advice. There is no guarantee that any of these expectations will become actual results. For additional information on forecast methodologies, please speak with your advisor. Please see Index Proxy Summary slide at the end of this presentation for summary of indices used to represent each asset class. Past performance does not indicate future performance and there is a possibility of a loss. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information.





# Portfolio Implications

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- With the expectation of continued volatility in the markets, we expect **portfolio diversification to be increasingly important in 2023 and beyond.**
- The fixed income environment is markedly different than a year ago, with the Fed having raised rates aggressively throughout 2022.
  - With yields much higher than they were a year ago, **forward-looking return expectations for fixed income are more compelling.**
  - Given that much of the Fed's rate hike campaign seems to be in the rear window, investors may want to **consider increasing exposure to high quality and intermediate duration U.S. fixed income**, sourced from a reduction in dynamic bonds.
  - Modest exposure to **high yield bonds** is compelling, given the higher yield landscape and solid fundamentals.
  - Introducing a **modest allocation to Treasury Inflation Protected Securities (TIPS)**, which currently offer positive real yields, may help provide a measure of protection against longer-dated inflation.
- Given the broad pullback in **equity markets** in 2022, **valuations look more attractive** and forward-looking return expectations have increased. **Opportunities for growth exist in both domestic and foreign markets.**
  - Investors may want to **consider modestly reducing exposure to large cap domestic equities in favor of small/mid cap:**
    - *Small/mid cap equities have historically tended to outperform their larger cap counterparts in market rebounds.*
    - *Small/ mid cap equities are more attractively priced than their larger cap counterparts, given market activity in 2022 and in the prior several years.*
  - While global equity valuations (both developed and emerging) continue to favor markets overseas, the greater potential for exogenous events outside of the U.S. tempers some of the relative appeal for foreign holdings. A sizeable **allocation to international markets continues to be appropriate**, but we do not necessarily advocate for a substantial overweight to international markets.
- Given the current environment of meaningful inflation and expected volatility, **allocations to real assets and alternative investments continue to be important.**



# Asset Allocation Analysis

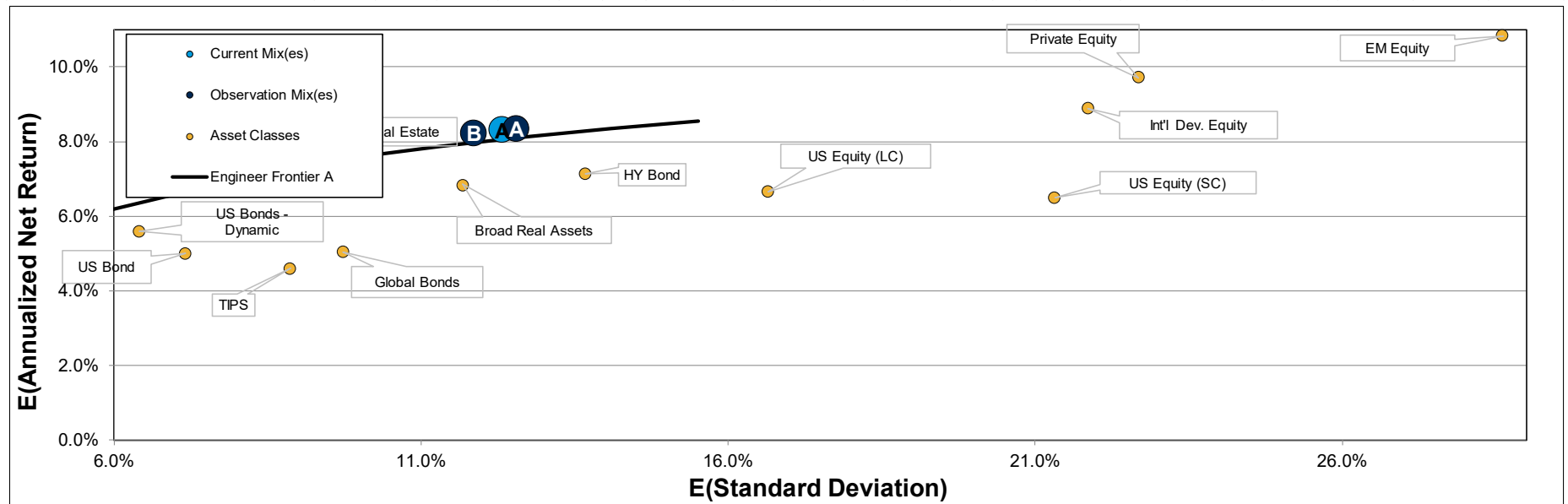
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- We believe **Asset Allocation** is the primary determinant of long-term investment results.
- Our propriety **Frontier Engineer**<sup>®</sup> system is the cornerstone of asset allocation decisions.
- Our Capital Markets Group develops **Capital Market Assumptions** (CMAs) for each major asset class at least annually.
  - ✓ The Capital Markets Group considers and analyzes a wide variety of factors that we believe will have the greatest impact on future returns and risks for each asset class studied.
  - ✓ Our CMAs are not intended to predict the future return in any single year, but rather to reflect our median expected outcome over the next ten years.
  - ✓ Our forecasting efforts center on a **ten-year horizon**. Any adjustments made to extend the forecast horizon to **twenty years** or beyond are grounded in our expectation that asset classes ultimately mean revert towards longer term historical averages.
  - ✓ Fiducient Advisors' Capital Markets Team develop our CMAs based on a “building block” approach outlined in our white paper “Capital Market Forecasts”. (Copies are available upon requested.)
- **Correlations** (how asset classes behave in reference to one another) also significantly impact asset allocation analysis.
- **Fat Tails** (non-normal return elements of skewness & kurtosis) also meaningfully impact our asset allocation analysis.

# Frontier Engineer® Analysis



12/31/2022	Asset Allocation																Forecasts				Past (1/88-12/22)		
	Fixed Income	Equity	Real Assets	Alternatives	TIPS	US Bond	US Bonds - Dynamic	HY Bond	Global Bonds	US Equity (LC)	US Equity (SC)	Int'l Dev. Equity	EM Equity	Private Real Estate	Broad Real Assets	Marketable Alternatives	Private Equity	Annualized Net Return	Annualized Volatility	Normal 100 Year Flood*	Non-Normal 100 Year Flood**	Annualized Net Return	Annualized Volatility
Current Mix (A)	20%	55%	10%	15%		10.0%	7.5%		2.5%	25.0%	7.0%	15.5%	7.5%	5.0%	5.0%	10.0%	5.0%	8.3%	12.3%	-20%	-26%	8.8%	10.1%
Observation Mix (A)	20%	56%	9%	15%	1.0%	11.5%	4.0%	2.0%	1.5%	22.5%	10.0%	16.0%	7.5%	5.0%	4.0%	10.0%	5.0%	8.4%	12.6%	-20%	-27%	8.8%	10.4%
Observation Mix (B)	25%	52%	9%	15%	1.5%	14.5%	5.0%	2.5%	1.5%	21.0%	9.0%	14.5%	7.0%	5.0%	3.5%	10.0%	5.0%	8.2%	11.9%	-19%	-25%	8.7%	9.7%



\*The expected one in a hundred worst case calendar year return based on normally distributed capital market assumptions. Greater losses are possible (1% expected likelihood).

\*\*The expected one in a hundred worst case calendar year return based on non-normally distributed capital market assumptions (factoring in skewness & kurtosis). Greater losses are possible (1% expected likelihood).

Historical Returns and Risk Metrics for each Mix represent back-tested calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are net of fees. Historical returns are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class. Please ask for a copy of Fiducient Advisors' white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing. Please refer to the Capital Markets Assumptions Slide for the hypothetical alpha and hypothetical fee inputs used in the calculation methodology.



# Proposed Portfolio Changes

<b>City of Meriden Pension &amp; OPEB Plans</b>			
Investment Name	Current Target Allocation	Proposed Targets w/ 20% Fixed Income	Proposed Targets w/ 25% Fixed Income
<i>Cash</i>			
Cash	0.0%	0.0%	0.0%
<i>Fixed Income</i>			
Fidelity Inflation-Protected Bond Index	0.0%	1.0%	1.5%
Western Asset Core Plus Bond IS	10.0%	5.75%	7.25%
Metropolitan West Total Return Bond Pl	0.0%	5.75%	7.25%
BlackRock Strategic Income Opportunities I	7.5%	4.0%	5.0%
Artisan High Income I	0.0%	2.0%	2.5%
Brandywine Global Opportunistic Fixed Income	2.5%	1.5%	1.5%
<i>Domestic Equity</i>			
Fidelity 500 Index	25.0%	22.5%	21.0%
Shapiro Small Cap Value	3.5%	5.0%	4.5%
Conestoga Small Cap I	3.5%	5.0%	4.5%
<i>International Equity</i>			
EARNEST Partners International Equity	9.0%	9.25%	8.5%
MFS Intl International Equity Fund	9.0%	9.25%	8.5%
Baron Emerging Markets Equity	5.0%	2.5%	2.25%
ARGA Emerging Markets Equity I	0.0%	2.5%	2.25%
<i>Marketable Alternatives</i>			
Ironwood International Ltd.	10.0%	10.0%	10.0%
<i>Public Real Assets</i>			
DWS RREEF Real Assets Fund I	5.0%	4.0%	3.5%
<i>Private Real Estate</i>			
Private Real Estate Portfolio	5.0%	5.0%	5.0%
<i>Private Equity</i>			
Private Equity Portfolio	5.0%	5.0%	5.0%
<b>Investment Portfolio Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>



# Asset Allocation Analysis

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Asset Class	IPS Range	IPS Target	Current Allocation
Cash & Equivalents	0% - 10%	0%	1.0%
Fixed Income	10% - 30%	20%	19.0%
Domestic Equity	17% - 47%	32%	29.5%
International Equity	8% - 38%	23%	23.0%
Real Assets	0% - 20%	10%	12.1%
Marketable Alternatives	0% - 20%	10%	10.4%
Private Equity	0% - 15%	5%	5.1%

The current allocation is within the allowable range as stated within the Investment Policy Statement (IPS). Any portfolio adjustments that are considered will likely remain within the allowable range, but the IPS targets may need to be updated.



City of Meriden Pension Plans				
	<u>Employees' Pension Plan</u>		<u>Police &amp; Fire Pension Plans</u>	
	<u>6/30/2021</u>	<u>6/30/2020</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
Actuarial Value of Assets	181,827,037	148,821,584	131,030,578	107,916,272
Total Accrued Liability	240,240,757	213,027,291	214,214,910	212,110,078
Funded Ratio	75.7%	69.9%	61.2%	50.9%
Actuarial Return Assumption	7.25%	7.375%	7.25%	7.375%

Source: hooker & holcombe, 2021 GASB 67 and 68 Disclosure Reports

Note: The Police & Fire Pension Plans have separate valuation and disclosure reports but share the same pool of assets so the data for the plans have been combined in this slide.



## City of Meriden Retiree Health Care Trust (OPEB)

	<u>6/30/2021</u>	<u>6/30/2020</u>
Actuarial Value of Assets	45,007,669	34,797,878
Total Accrued Liability	90,763,221	98,211,900
Funded Ratio	49.6%	35.4%
Actuarial Return Assumption	7.25%	7.375%



## Section 2    Capital Markets Overview



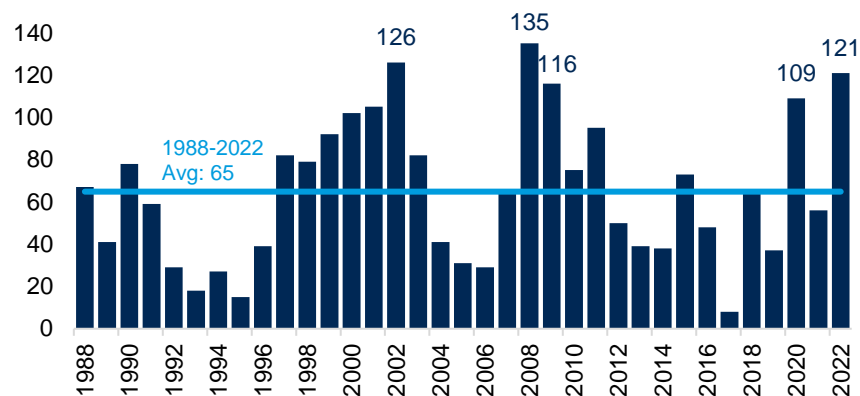


# Market Themes

1. High inflation, which catalyzed the Fed's hike campaign, fears of recession and geopolitical risks all contributed to the elevated volatility environment in 2022. We expect volatility to persist in 2023 and the abnormally low volatility regime of the last decade may be over.
2. Returns in 2022 were driven by multiple compression, which typically precede earnings declines in the business cycle. While difficult to call the bottom, we believe we are closer to the bear market end rather than the beginning.
3. The Bloomberg Agg Bond Index had its worst year on record, but the pain from falling prices pushed yields to levels not seen in nearly 15 years making prospective fixed income returns more compelling.

## Number Of Days With S&P 500 Return At Least +/- 1%

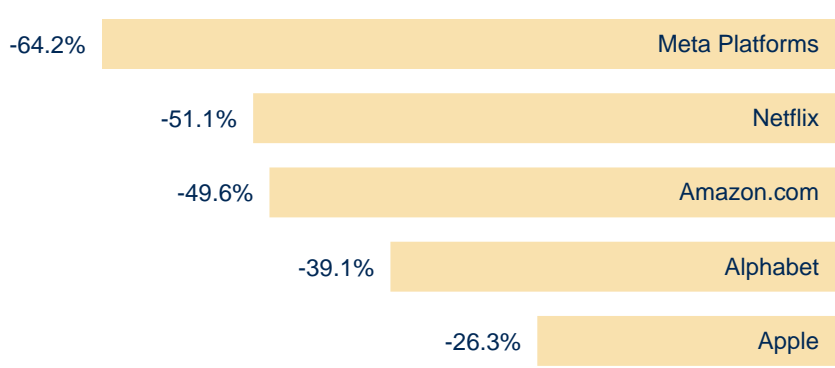
The S&P 500 had the most days of moving at least +/- one percent since the global financial crisis in 2008.



Sources: Fiducient Advisors analysis, Morningstar Direct. As of December 31, 2022.

## FAANG Stocks Performance 2022

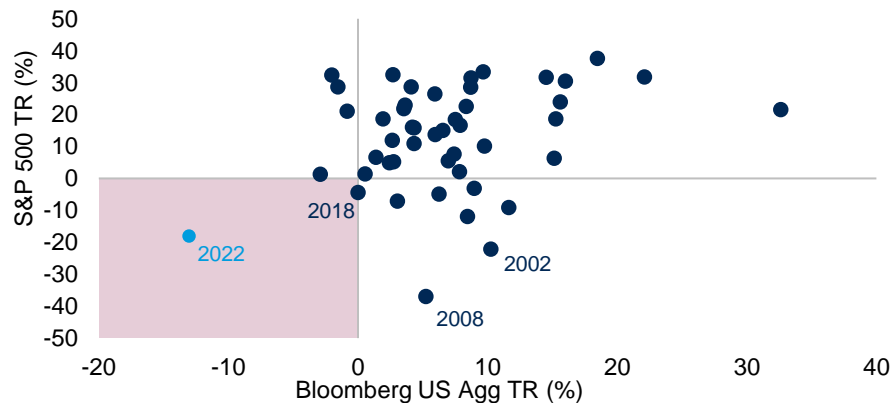
Multiple compression has been the driver of performance this year for equities and many higher P/E stocks have re-rated materially lower. The S&P 500 has seen modest earnings growth this year, however, if the energy component is removed, earnings for the S&P 500 are expected to decline by 1.8 percent in 2022.



Sources: Morningstar Direct, FactSet. As of December 31, 2022.

## Nowhere To Hide In 2022 – Equity vs. Fixed Income Returns

2022 was the first year on record where both the Bloomberg Agg and S&P 500 indices experienced negative returns. The traditional diversification benefits of fixed income were muted in 2022, but with interest rates higher we expect this paradigm to revert to historical norms.



Source: Morningstar Direct. Calendar year data 1976 to 2022.

See disclosures for list of indices representing each asset class. Past performance does not indicate future performance and there is a possibility of a loss.

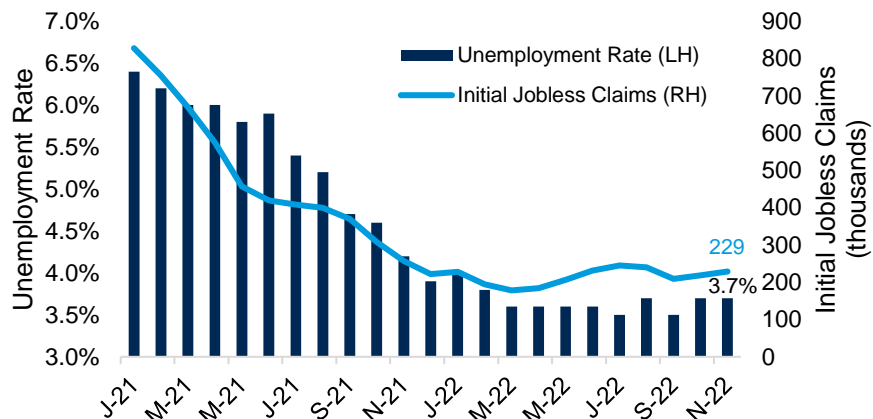
Indices cannot be invested in directly.



# Economic Review

## Tight Labor Market

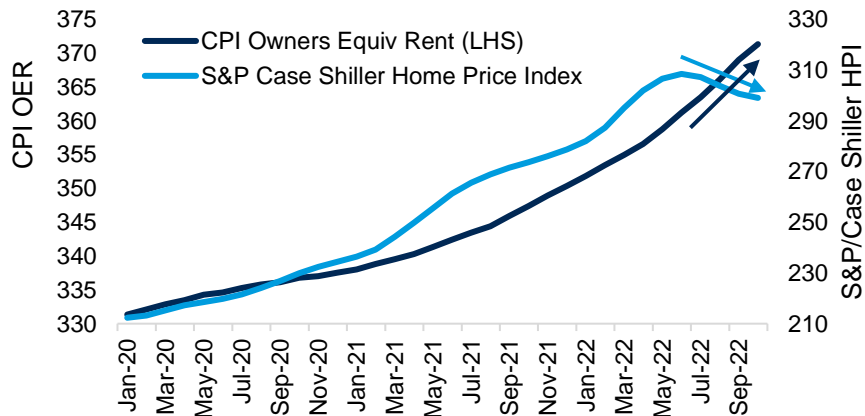
The U.S. labor market has been resilient, providing a solid foundation for the U.S. consumer, the backbone of the economy. However, strong labor data may support further Fed action in its effort to combat elevated inflation.



Sources: FactSet, DOL. As of November 30, 2022.

## Will Rents Follow Home Prices?

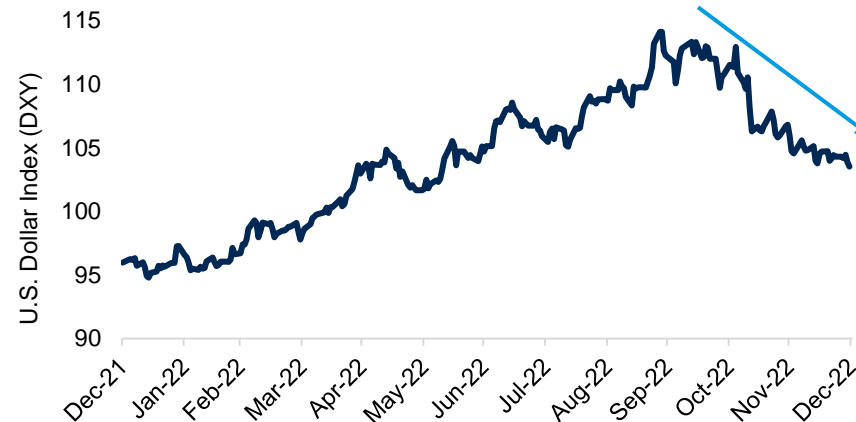
Tighter financial conditions have led to higher mortgages rates and subsequently lower home prices. However, owners equivalent rent, one of the primary components of CPI, has yet to show signs of slowing.



Sources: FactSet, BLS, S&P/Case Shiller. As of October 31, 2022

## U.S. Dollar Falls of Recent Highs

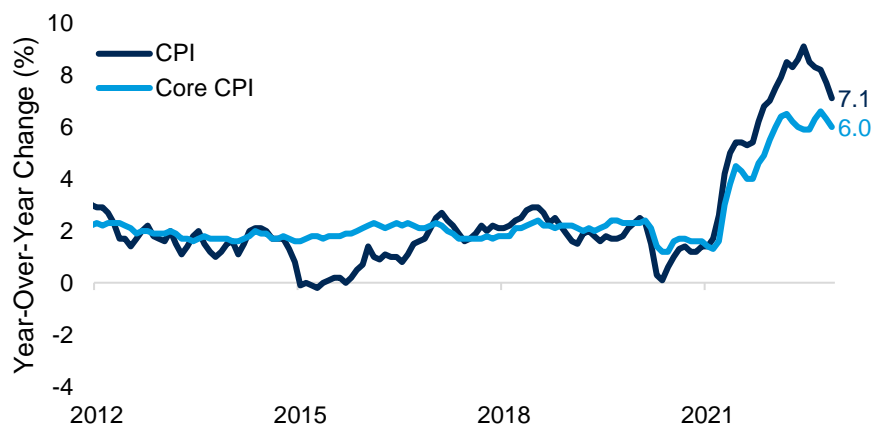
Softening inflation in the U.S., expectations for less hawkish Fed actions, and the BOJ shifting its yield curve control target higher led to a weakening U.S. dollar late in the year; DXY declined 7.7 percent in the fourth quarter.



Source: FactSet. As of December 31, 2022

## U.S. Inflation

Inflation is trending lower. Fed policy impacts prices on a lagged basis and we may see inflation moderate further as its actions work through the system. The shelter component remains a driving factor as rents remain elevated.



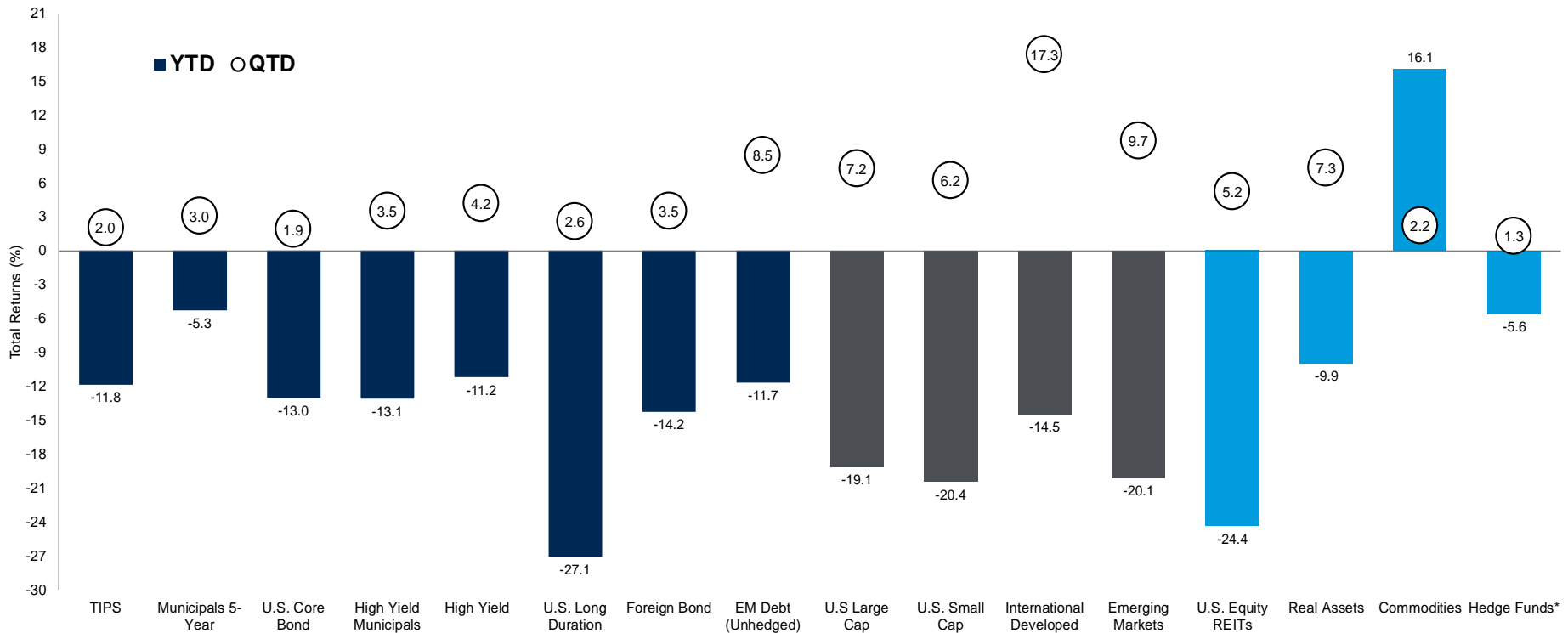
Sources: FactSet, BLS. As of November 30, 2022.

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# Asset Class Returns



Source: Morningstar Direct. As of December 31, 2022. \*Hedge fund returns as of November 30, 2022.

## Fixed Income (4Q)

+ Lower inflation readings mid-quarter pushed rates lower and helped drive fixed income returns for the quarter. The Fed raised rates by 50 basis points in December, marking its seventh increase of the year.

+ Spread sectors generally outpaced governments in the quarter in the risk-on environment. High yield generated favorable returns.

+ A weaker U.S. dollar and favorable news out of emerging countries, in particular China on “zero-Covid”, helped propel non-US bond prices higher.

## Equity (4Q)

+ Risk assets rallied in the fourth quarter, fueled by favorable inflation prints and expectations for subdued central bank action in 2023.

+ International developed markets had a standout quarter. Notable strength came from Europe as energy price concerns diminished and a weakening U.S. dollar provided further support.

+ Clarity around China’s “zero-Covid” policy provided a tailwind for the country and subsequently the broader EM space. Mexico also performed well on the back of positive economic news.

## Real Asset / Alternatives (4Q)

+ Commodity markets rose modestly in the quarter and remain the standout for the calendar year. Industrial and precious metals drove returns, while energy detracted as prices continued to moderate from post-Russia invasion peaks.

+ REITs had a strong quarter. Retail oriented and data centers were among the top contributors while residential REITs declined.

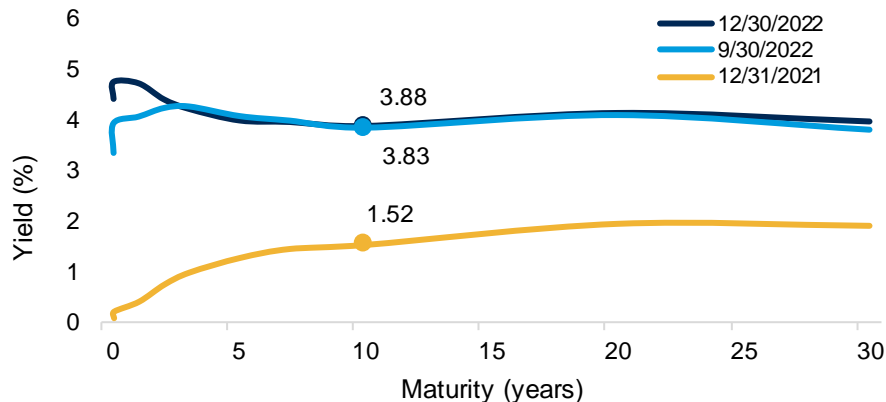
+ Hedge Funds were modestly positive in the quarter and continue to provide favorable results relative to traditional equities and fixed income.



# Fixed Income Market Update

## U.S. Treasury Yield Curve

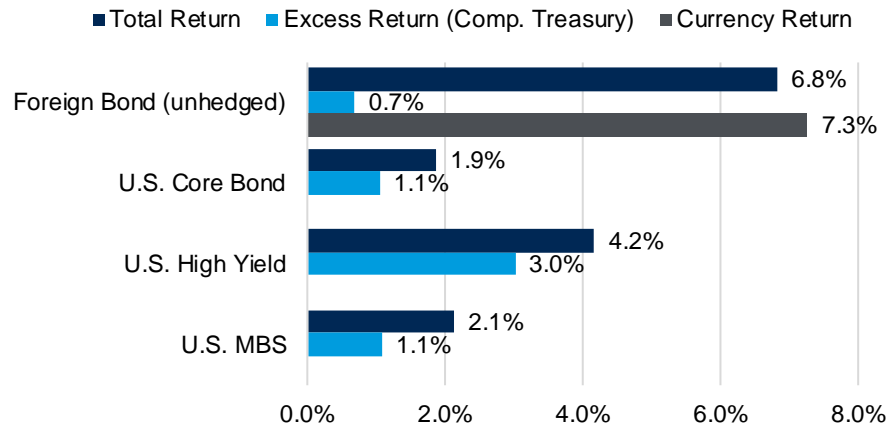
The Fed raised its target rate by 50 basis points in December, capping off the year with its seventh hike for a total of 425 basis points in 2022. Rates were volatile in the quarter as the 10-year pushed past 4.2 percent before falling below 3.7 percent and ultimately ending 5 basis points higher than it started.



Source: FactSet. As of December 30, 2022.

## Index Performance Attribution (4Q 2022)

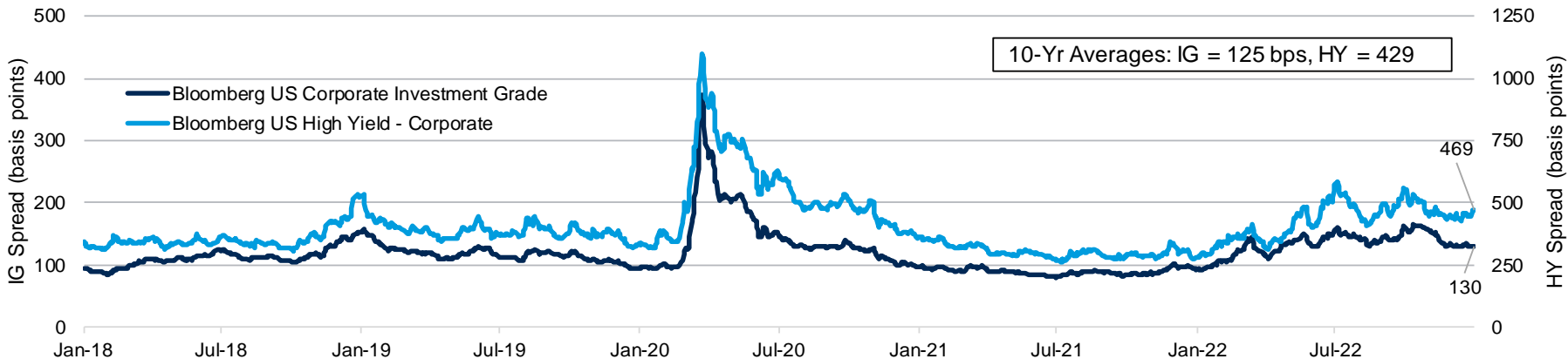
Spread sectors of the bond market outpaced Treasuries in the fourth quarter in the risk-on environment. A falling U.S. dollar against major currencies proved to be beneficial for non-U.S. bonds.



Source: FactSet. As of December 30, 2022.

## Corporate Market Spreads – Trailing 5 Years

Corporate credit spreads were tighter during the fourth quarter. Investment grade spreads compressed 34 basis points while high yield spreads were 92 basis points lower. Risk-on sentiment helped fuel the sector. Additionally, limited issuance in both quality segments provided a technical tailwind.



Source: FactSet. As of December 30, 2022.

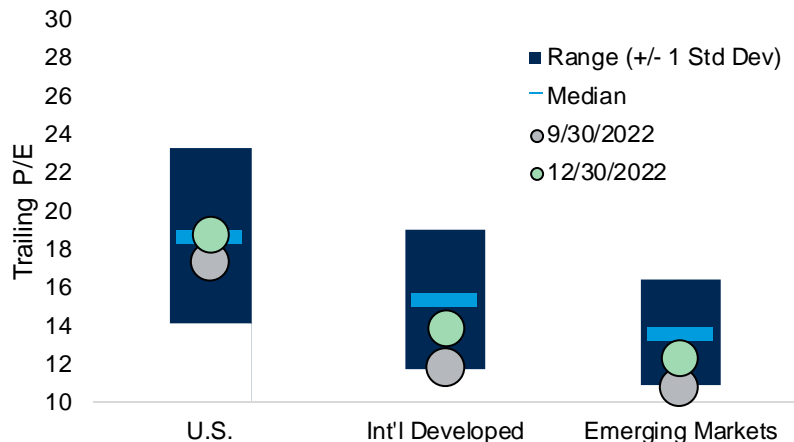
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# Equity Market Update

## Equity Valuations (Trailing PE – Last 15 Years)

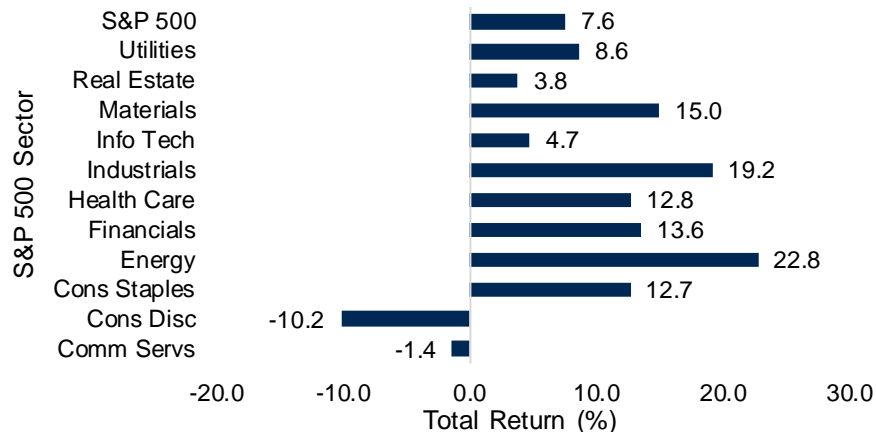
Positive equity markets in the fourth quarter shifted valuations slightly higher as earnings ticked lower. International markets look more attractive on a relative basis compared to the U.S.



Source: FactSet. As of December 30, 2022.

## U.S. Equities – Return by Sector (4Q 2022)

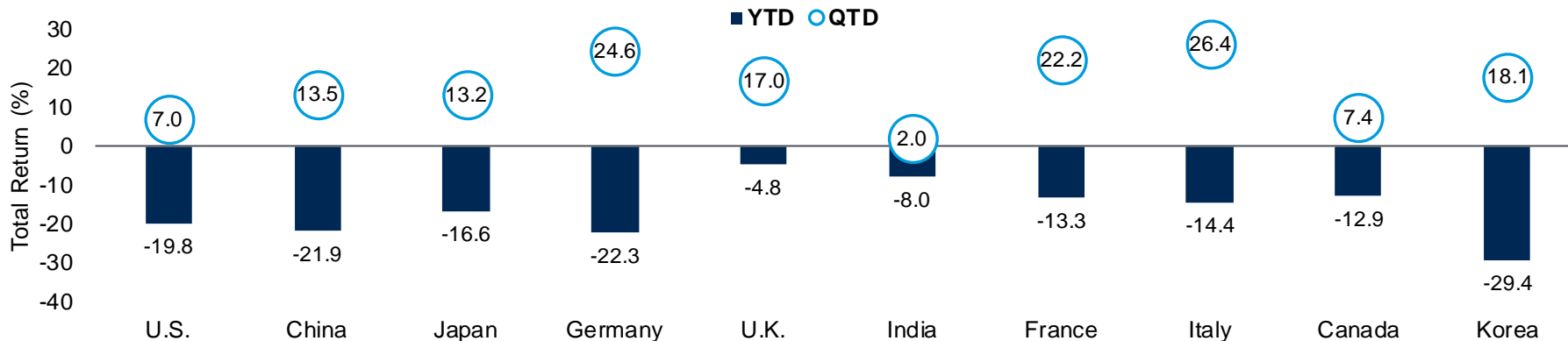
U.S. equities were broadly positive on the back of softening inflation data and the prospect of less aggressive Fed policy action in 2023. However, Amazon and Tesla, down over 20% and 50%, respectively, drove consumer discretionary lower.



Source: Morningstar Direct. As of December 31, 2022.

## Country Total Returns (%) – Top 10 Largest Economies

Equity markets around the globe benefited from the risk-on investor sentiment in the fourth quarter. A host of factors fueled strength across regions. The U.K. market jumped following the replacement of Prime Minister Truss and clarity around the country's budget. European countries broadly benefited as expectations for a warmer winter began to take hold and concerns about commodity prices abated. Chinese equities rallied on the reopening trade as "zero-Covid" restrictions were lifted.



Source: Morningstar Direct. As of December 31, 2022.

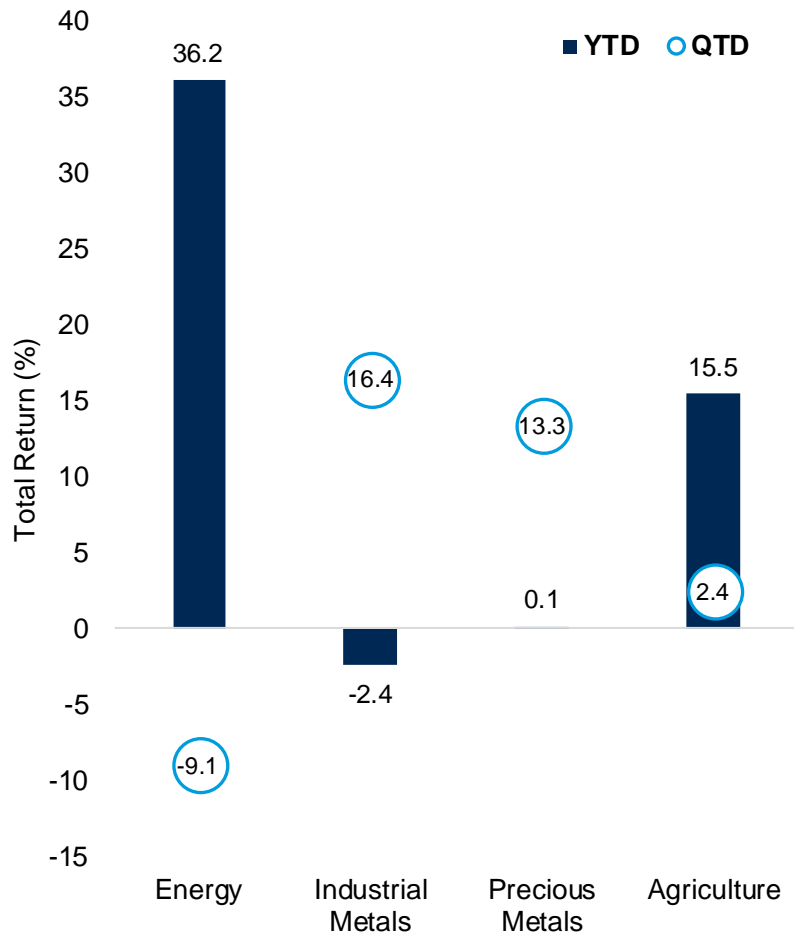
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# Real Assets Market Update

## Commodity Performance

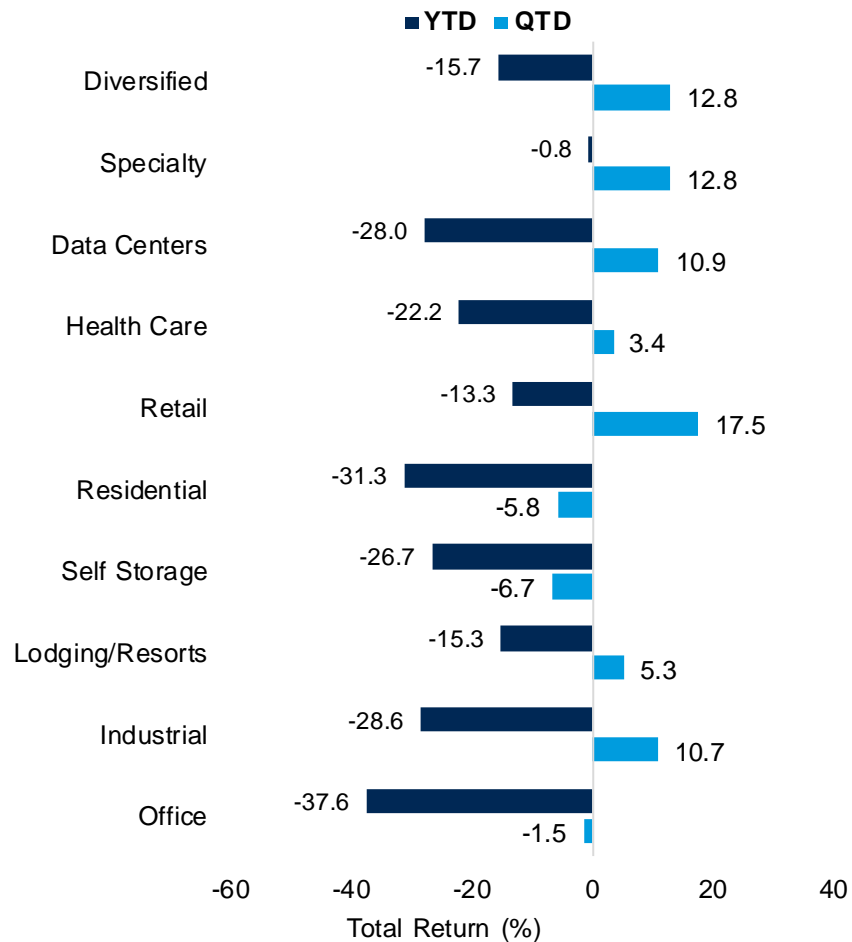
Commodities advanced during the fourth quarter, rounding out a strong year. Energy weakness was due to natural gas, whose prices retreated sharply on weaker demand from a warmer than anticipated start to the winter. Elsewhere, a weaker dollar supported industrial and precious metals.



Source: Morningstar Direct. As of December 31, 2022.

## REIT Sector Performance

REITs posted their first quarterly gain in 2022, benefiting from cooler than anticipated inflation data and expectations of a subsequent easing of Fed rate hikes. The retail segment was a notable outperformer, with particular strength from regional malls.



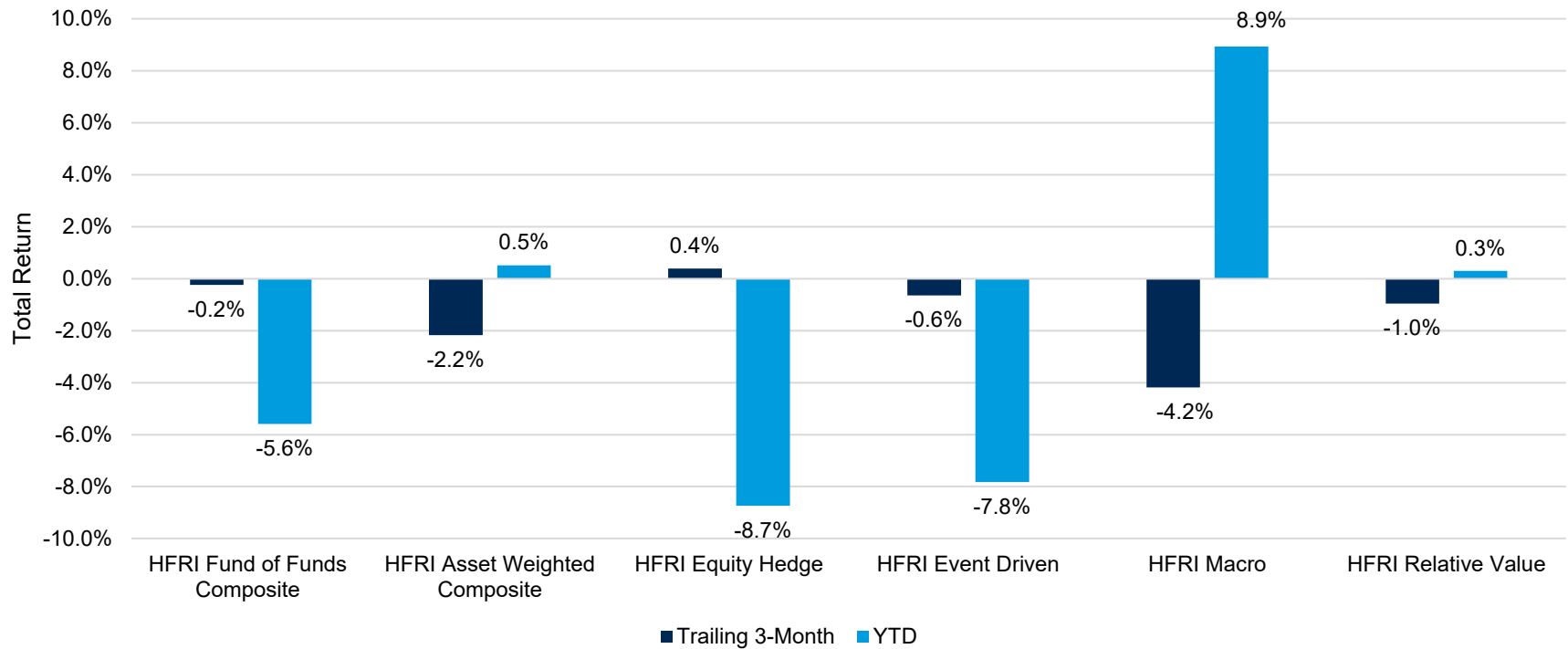
Source: Morningstar Direct. As of December 31, 2022.

See disclosures for list of indices representing each asset class. Past performance does not indicate future performance and there is a possibility of a loss.

Indices cannot be invested in directly.



# Marketable Alternatives



Source: Morningstar Direct. As of November 30, 2022.

## Fund of Funds / Asset Weighted (4Q)

- The HFRI Fund of Funds Composite returned -0.2% over the trailing 3-month period, keeping year-to-date returns in negative territory at -5.6%.

- The HFRI Asset Weighted Composite detracted -2.2% over the trailing 3-month period, bringing year-to-date returns to 0.5%.

+ Marketable alternatives broadly have served their purpose in portfolios, limiting drawdowns relative to equities and fixed income.

## Equity Hedge / Event Driven (4Q)

+ Equity hedge strategies added slightly during the period, led by Quantitative Directional strategies.

+/- Event driven strategies detracted slightly during the period. Activist and Special Situation strategies were the largest contributors during the period while Multi Strategy and Distressed Restructuring were the largest detractors.

- Equity hedge and event driven strategies have been the largest detractors year-to-date.

## Macro / Relative Value (4Q)

+/- Macro strategies were negative over the period but have still been the strongest performers year-to-date. All macro sub-strategies have generated positive returns year-to-date.

+/- Relative Value strategies returned -1.0% over the period but remain positive year-to-date. Fixed Income Sovereign strategies were the primary contributors over the period.

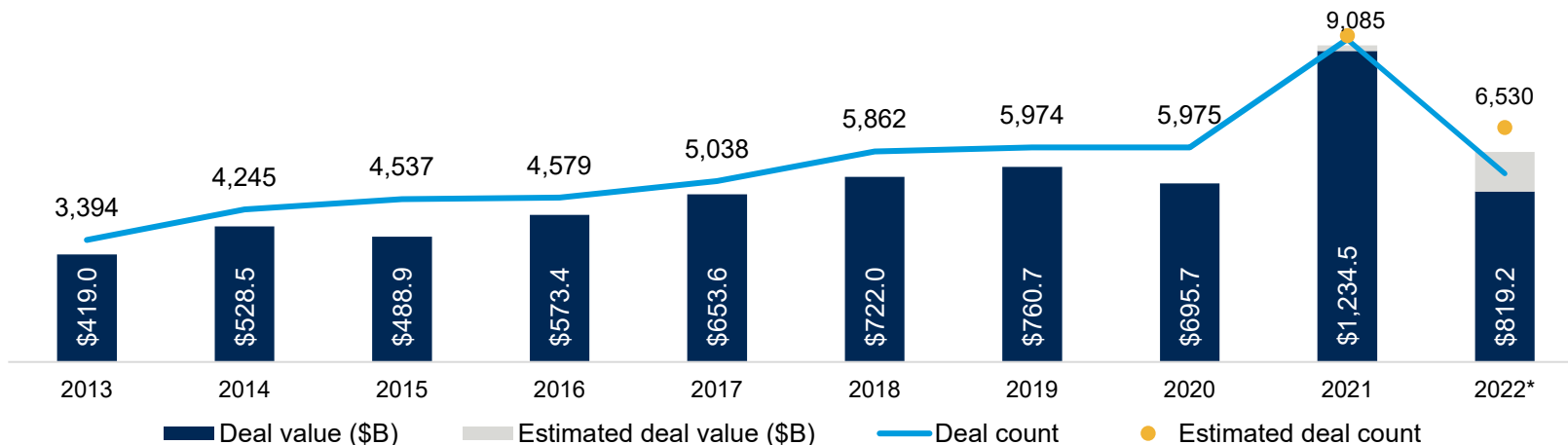
+ Volatility and Yield Alternatives strategies added slightly over the period, adding to strong year-to-date returns.



# Private Equity Market Update

## U.S. Private Equity Deal Activity

U.S. Private Equity deal activity, while still high historically, moderated during the first three quarters relative to the frantic environment that consumed investors throughout 2021.



Source: Pitchbook. As of September 30, 2022.

## Private Equity Performance (As of June 30, 2022)

Private equity performance was negative during the second quarter with US Growth and Venture leading the decline. Over longer time periods, performance remains strong with dispersion between asset classes normalizing in recent quarters.

Benchmark	1-YR	3-YR	5-YR	10-Y	15-Y
US Private Equity	6.7%	23.0%	20.6%	17.8%	12.6%
US Buyout Index	16.6%	24.2%	21.0%	18.5%	15.0%
US Growth Equity Index	0.4%	26.5%	24.7%	19.4%	15.1%
US Venture Capital Index	2.7%	30.5%	25.7%	19.3%	13.6%
S&P 500 Index	-10.6%	10.6%	11.3%	13.0%	8.5%

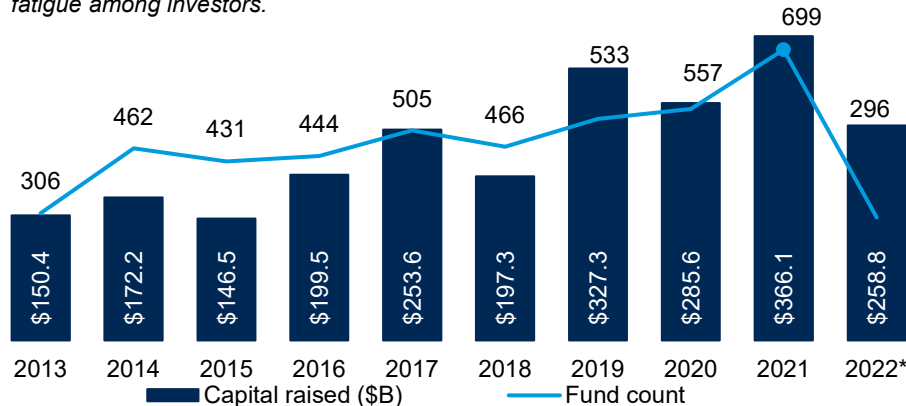
Source: Cambridge Associates. As of June 30, 2022. Returns presented as horizon pooled return, net of fees. S&P 500 Index as of June 30, 2022. Indices cannot be invested in directly.

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## U.S. Private Equity Fundraising Activity

The fundraising market showed signs of slowing in the second half of the year as the denominator effect and commitments from the two prior years began to create some fatigue among investors.



Source: Pitchbook. As of September 30, 2022.





# The Case for Diversification

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10 Years (Ann)
Emerging Markets 18.2	U.S. Small Cap 38.8	U.S. Equity REITs 30.1	U.S. Equity REITs 3.2	U.S. Small Cap 21.3	Emerging Markets 37.3	High Yield Munis 4.8	U.S. Large Cap 31.5	U.S. Small Cap 20.0	U.S. Equity REITs 43.2	Commodities 16.1	U.S. Large Cap 12.4
High Yield Munis 18.1	U.S. Large Cap 32.4	High Yield Munis 13.8	Municipals 5-Year 2.4	High Yield 17.1	International Dev. 25.0	Municipals 5-Year 1.7	U.S. Equity REITs 26.0	U.S. Large Cap 18.4	Commodities 27.1	Municipals 5-Year -5.3	U.S. Small Cap 9.0
U.S. Equity REITs 18.1	International Dev. 22.8	U.S. Large Cap 13.7	High Yield Munis 1.8	U.S. Large Cap 12.0	U.S. Large Cap 21.8	Foreign Bond 0.5	U.S. Small Cap 25.5	Emerging Markets 18.3	US Large Cap 26.5	Hedge Funds -5.6	U.S. Equity REITs 6.5
International Dev. 17.3	Balanced 12.2	Core Bond 6.0	U.S. Large Cap 1.4	Commodities 11.7	EM Debt (unhedged) 15.2	Core Bond 0.0	International Dev. 22.5	TIPS 11.0	US Small Cap 14.8	High Yield -11.2	International Developed 4.7
EM Debt (unhedged) 16.9	Hedge Funds 9.0	Balanced 5.1	Core Bond 0.6	Emerging Markets 11.2	U.S. Small Cap 14.6	TIPS -1.3	Emerging Markets 18.4	Balanced 8.8	International Dev. 11.3	EM Debt (unhedged) -11.7	Balanced 4.4
U.S. Small Cap 16.3	High Yield 7.4	U.S. Small Cap 4.9	Hedge Funds -0.3	EM Debt (unhedged) 9.9	Balanced 13.6	High Yield -2.1	Balanced 17.5	International Dev. 7.8	Balanced 9.8	TIPS -11.8	High Yield 4.0
U.S. Large Cap 16.0	U.S. Equity REITs 2.5	TIPS 3.6	International Dev. -0.8	U.S. Equity REITs 8.5	High Yield Munis 9.7	Hedge Funds -4.0	High Yield 14.3	Core Bond 7.5	High Yield Munis 7.8	U.S. Core Bond -13.0	Hedge Funds 3.6
High Yield 15.8	Municipals 5-Year 0.8	Hedge Funds 3.4	TIPS -1.4	Balanced 7.6	Hedge Funds 7.8	U.S. Large Cap -4.4	EM Debt (unhedged) 13.5	Hedge Funds 7.1	TIPS 6.0	High Yield Municipals -13.1	High Yield Municipals 3.5
Balanced 11.5	Foreign Bond -1.0	Municipals 5-Year 3.2	Foreign Bond -2.3	TIPS 4.7	High Yield 7.5	U.S. Equity REITs -4.6	High Yield Munis 10.7	High Yield 7.1	Hedge Funds 5.7	Foreign Bond -14.2	Municipals 5-Year 1.5
TIPS 7.0	Core Bond -2.0	Foreign Bond 2.9	Balanced -3.3	Foreign Bond 3.2	Foreign Bond 6.5	Balanced -5.8	Core Bond 8.7	Foreign Bond 7.0	High Yield 5.3	International Developed -14.5	Emerging Markets 1.4
Foreign Bond 5.3	Emerging Markets -2.6	High Yield 2.5	U.S. Small Cap -4.4	High Yield Munis 3.0	U.S. Equity REITs 5.2	EM Debt (unhedged) -6.2	TIPS 8.4	High Yield Munis 4.9	Municipals 5-Year 0.3	Balanced -14.9	TIPS 1.1
Hedge Funds 4.8	High Yield Munis -5.5	Emerging Markets -2.2	High Yield -4.5	Core Bond 2.6	Core Bond 3.5	U.S. Small Cap -11.0	Hedge Funds 7.8	Municipals 5-Year 4.3	Core Bond -1.5	U.S. Large Cap -19.1	U.S. Core Bond 1.1
Core Bond 4.2	TIPS -8.6	International Dev. -4.9	Emerging Markets -14.9	International Dev. 1.0	Municipals 5-Year 3.1	Commodities -11.2	Commodities 7.7	EM Debt (unhedged) 2.7	Emerging Markets -2.5	Emerging Markets -20.1	Foreign Bond 0.2
Municipals 5-Year 3.0	EM Debt (unhedged) -9.0	EM Debt (unhedged) -5.7	EM Debt (unhedged) -14.9	Hedge Funds 0.5	TIPS 3.0	International Dev. -13.8	Foreign Bond 6.3	Commodities -3.1	Foreign Bond -4.2	U.S. Small Cap -20.4	Commodities -1.3
Commodities -1.1	Commodities -9.5	Commodities -17.0	Commodities -24.7	Municipals 5-Year -0.4	Commodities 1.7	Emerging Markets -14.6	Municipals 5-Year 5.4	U.S. Equity REITs -8.0	EM Debt (unhedged) -8.7	U.S. Equity REITs -24.4	EM Debt (unhedged) -2.0

Sources: Morningstar, FactSet. As of December 31, 2022. \*Periods greater than one year are annualized. Total returns in U.S. dollars. Hedge Funds as of November 30, 2022.

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# Financial Markets Performance

**Total Return as of December 31, 2022**  
**Periods greater than one year are annualized**  
**All returns are in U.S. dollar terms**

	QTD	YTD	1YR	3YR	5YR	7YR	10YR	15YR
<b>Global Fixed Income Markets</b>								
Bloomberg 1-3-Month T-Bill	0.9%	1.5%	1.5%	0.7%	1.2%	1.0%	0.7%	0.6%
Bloomberg U.S. TIPS	2.0%	-11.8%	-11.8%	1.2%	2.1%	2.6%	1.1%	3.1%
Bloomberg Municipal Bond (5 Year)	3.0%	-5.3%	-5.3%	-0.3%	1.2%	1.3%	1.5%	2.8%
Bloomberg High Yield Municipal Bond	3.5%	-13.1%	-13.1%	-0.6%	2.6%	3.7%	3.5%	4.4%
Bloomberg U.S. Aggregate	1.9%	-13.0%	-13.0%	-2.7%	0.0%	0.9%	1.1%	2.7%
Bloomberg U.S. Corporate High Yield	4.2%	-11.2%	-11.2%	0.0%	2.3%	5.0%	4.0%	6.1%
Bloomberg Global Aggregate ex-U.S. Hedged	0.2%	-9.8%	-9.8%	-2.6%	0.5%	1.4%	2.1%	3.0%
Bloomberg Global Aggregate ex-U.S. Unhedged	6.8%	-18.7%	-18.7%	-5.9%	-3.1%	-0.6%	-1.6%	0.5%
Bloomberg U.S. Long Gov / Credit	2.6%	-27.1%	-27.1%	-6.2%	-1.2%	1.5%	1.6%	4.4%
JPMorgan GBI-EM Global Diversified	8.5%	-11.7%	-11.7%	-6.1%	-2.5%	1.6%	-2.0%	1.5%
<b>Global Equity Markets</b>								
S&P 500	7.6%	-18.1%	-18.1%	7.7%	9.4%	11.5%	12.6%	8.8%
Dow Jones Industrial Average	16.0%	-6.9%	-6.9%	7.3%	8.4%	12.1%	12.3%	9.0%
NASDAQ Composite	-0.8%	-32.5%	-32.5%	6.1%	9.7%	12.2%	14.4%	10.7%
Russell 3000	7.2%	-19.2%	-19.2%	7.1%	8.8%	11.0%	12.1%	8.7%
Russell 1000	7.2%	-19.1%	-19.1%	7.3%	9.1%	11.3%	12.4%	8.8%
Russell 1000 Growth	2.2%	-29.1%	-29.1%	7.8%	11.0%	12.9%	14.1%	10.3%
Russell 1000 Value	12.4%	-7.5%	-7.5%	6.0%	6.7%	9.1%	10.3%	7.0%
Russell Mid Cap	9.2%	-17.3%	-17.3%	5.9%	7.1%	9.6%	11.0%	8.4%
Russell Mid Cap Growth	6.9%	-26.7%	-26.7%	3.8%	7.6%	10.0%	11.4%	8.6%
Russell Mid Cap Value	10.5%	-12.0%	-12.0%	5.8%	5.7%	8.7%	10.1%	8.0%
Russell 2000	6.2%	-20.4%	-20.4%	3.1%	4.1%	7.9%	9.0%	7.2%
Russell 2000 Growth	4.1%	-26.4%	-26.4%	0.6%	3.5%	7.1%	9.2%	7.3%
Russell 2000 Value	8.4%	-14.5%	-14.5%	4.7%	4.1%	8.2%	8.5%	6.8%
MSCI ACWI	9.8%	-18.4%	-18.4%	4.0%	5.2%	8.1%	8.0%	4.8%
MSCI ACWI ex. U.S.	14.3%	-16.0%	-16.0%	0.1%	0.9%	4.8%	3.8%	1.5%
MSCI EAFE	17.3%	-14.5%	-14.5%	0.9%	1.5%	4.5%	4.7%	1.8%
MSCI EAFE Growth	15.0%	-22.9%	-22.9%	0.5%	2.5%	5.1%	5.6%	2.6%
MSCI EAFE Value	19.6%	-5.6%	-5.6%	0.6%	0.2%	3.7%	3.5%	0.8%
MSCI EAFE Small Cap	15.8%	-21.4%	-21.4%	-0.9%	0.0%	4.4%	6.2%	3.8%
MSCI Emerging Markets	9.7%	-20.1%	-20.1%	-2.7%	-1.4%	5.2%	1.4%	0.6%
<b>Alternatives</b>								
Consumer Price Index*	0.5%	6.5%	7.1%	5.0%	3.8%	3.3%	2.6%	2.3%
FTSE NAREIT Equity REITs	5.2%	-24.4%	-24.4%	-0.1%	3.7%	4.6%	6.5%	6.2%
S&P Real Assets	7.3%	-9.9%	-9.9%	1.7%	3.0%	5.2%	3.5%	4.0%
FTSE EPRA NAREIT Developed	7.1%	-24.4%	-24.4%	-4.1%	0.7%	2.8%	3.9%	2.9%
FTSE EPRA NAREIT Developed ex U.S.	10.5%	-23.8%	-23.8%	-8.2%	-2.3%	1.3%	1.5%	0.6%
Bloomberg Commodity Total Return	2.2%	16.1%	16.1%	12.6%	6.4%	6.5%	-1.3%	-2.6%
HFRI Fund of Funds Composite*	1.3%	-5.6%	-5.3%	4.1%	3.1%	3.2%	3.6%	1.7%
HFRI Asset Weighted Composite*	-2.4%	0.5%	2.3%	3.8%	3.4%	3.6%	4.1%	0.0%
Alerian MLP	10.1%	30.9%	30.9%	9.4%	4.1%	4.4%	2.0%	5.4%

Sources: Morningstar, FactSet. As of December 31, 2022. \*Consumer Price Index and HFRI indexes as of November 30, 2022.

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## Section 3 Employee Pension Review

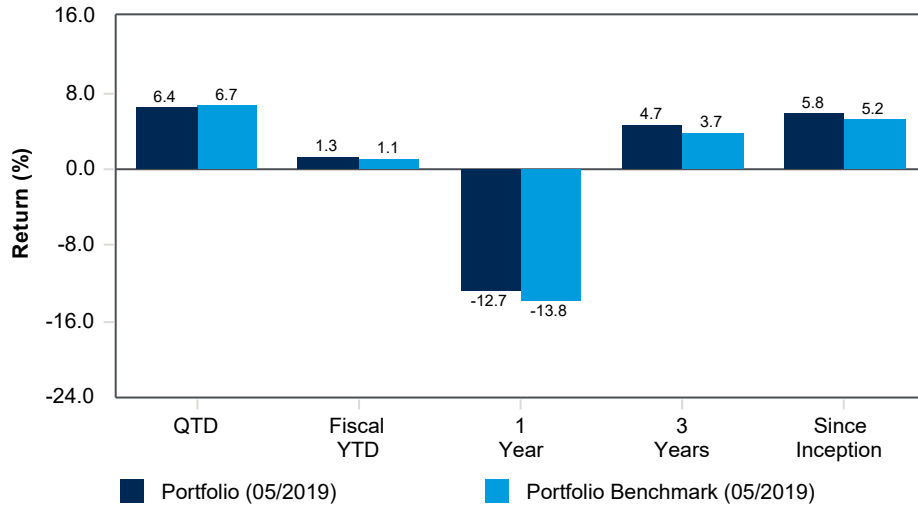


# Portfolio Dashboard

## Employees Pension

As of December 31, 2022

### Historical Performance



### Summary of Cash Flows

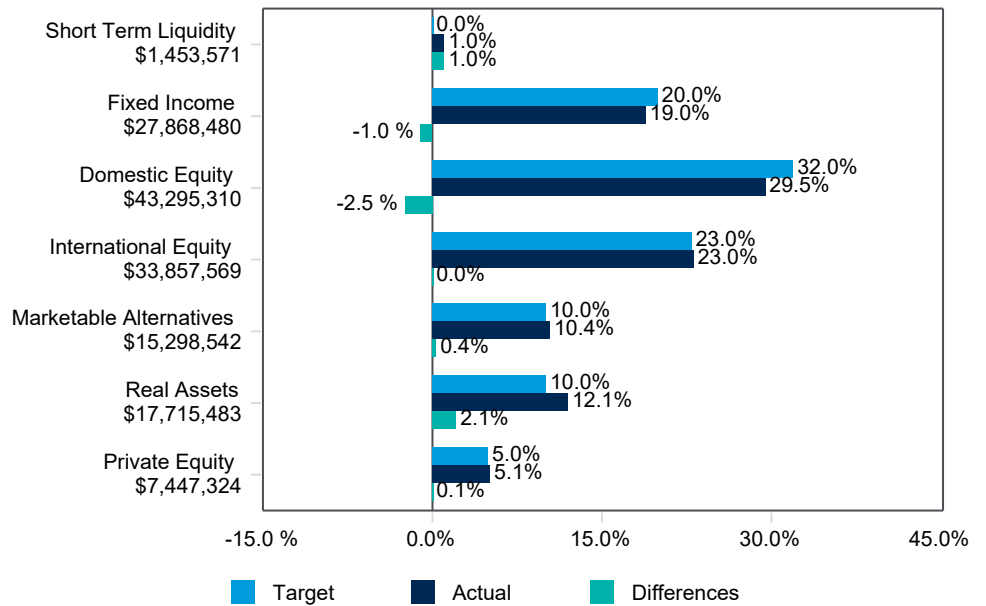
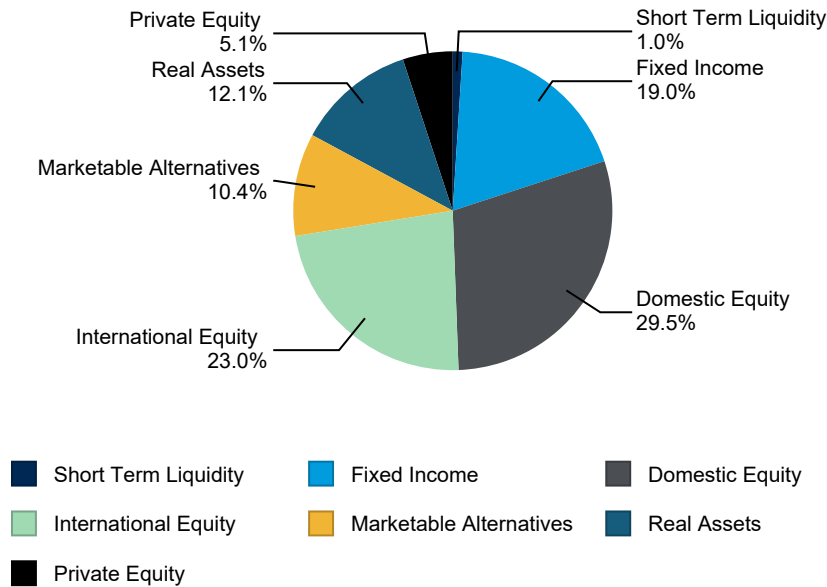
	QTD	Fiscal YTD	1 Year
Beginning Market Value	139,937,680	149,495,666	178,435,180
Net Contributions	-1,943,594	-4,471,422	-9,132,371
Gain/Loss	8,942,192	1,912,034	-22,366,530
Ending Market Value	146,936,279	146,936,279	146,936,279

### Current Benchmark Composition

From Date	To Date	Composition
12/2021	Present	20.00% Blmbg. U.S. Aggregate, 37.00% Russell 3000 Index, 23.00% MSCI AC World ex USA (Net), 10.00% HFRI Fund of Funds Composite Index, 5.00% NCREIF Fund Index - ODCE (net), 5.00% DWS Real Assets Benchmark

### Portfolio Allocation

### Actual vs. Target Allocations





# Asset Allocation

## Employees Pension

As of December 31, 2022

	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
<b>Employees Pension</b>	<b>146,936,279</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>
<b>Short Term Liquidity</b>	<b>1,453,571</b>	<b>1.0</b>	<b>0.0</b>	<b>1.0</b>
First American Government Obligations Z	1,453,571	1.0	0.0	1.0
<b>Fixed Income</b>	<b>27,868,480</b>	<b>19.0</b>	<b>20.0</b>	<b>-1.0</b>
Western Asset Core Plus Bond IS	14,098,987	9.6	10.0	-0.4
BlackRock Strategic Income Opportunities Fund K	10,256,490	7.0	7.5	-0.5
Brandywine Global Opportunistic Fixed Income	3,513,003	2.4	2.5	-0.1
<b>Domestic Equity</b>	<b>43,295,310</b>	<b>29.5</b>	<b>32.0</b>	<b>-2.5</b>
Fidelity 500 Index Fund	34,154,180	23.2	25.0	-1.8
Shapiro Small Cap Value	4,825,411	3.3	3.5	-0.2
Conestoga Small Cap Instl	4,315,719	2.9	3.5	-0.6
<b>International Equity</b>	<b>33,857,569</b>	<b>23.0</b>	<b>23.0</b>	<b>0.0</b>
EARNEST Partners International Equity (CIT)	13,839,131	9.4	9.0	0.4
MFS Instl International Equity Fund	13,640,424	9.3	9.0	0.3
Baron Emerging Markets (CIT)	6,378,014	4.3	5.0	-0.7
<b>Marketable Alternatives</b>	<b>15,298,542</b>	<b>10.4</b>	<b>10.0</b>	<b>0.4</b>
Ironwood Partners L.P	15,298,542	10.4	10.0	0.4
<b>Real Assets</b>	<b>17,715,483</b>	<b>12.1</b>	<b>10.0</b>	<b>2.1</b>
<b>Public Real Assets</b>	<b>6,786,972</b>	<b>4.6</b>	<b>5.0</b>	<b>-0.4</b>
DWS RREEF Real Assets Fund Instl	6,786,972	4.6	5.0	-0.4
<b>Private Real Estate</b>	<b>10,928,511</b>	<b>7.4</b>	<b>5.0</b>	<b>2.4</b>
CPG Brookfield Opps Real Estate	1,679,637	1.1	0.0	1.1
TA Realty Core Property Fund, LP (\$8.75m)	9,248,874	6.3	5.0	1.3
<b>Private Equity</b>	<b>7,447,324</b>	<b>5.1</b>	<b>5.0</b>	<b>0.1</b>
CPG Carlyle Equity Opportunity Fund LLC	258,173	0.2	-	-
CPG WP Private Equity XI LLC	585,076	0.4	-	-
CPG WPXXX Energy LLC	479,606	0.3	-	-
StepStone VC Opportunities IV, L.P.	1,088,019	0.7	-	-
iCapital KV Seed C Access Fund LP	989,680	0.7	-	-
Oak Hill Cap Partners IV Onshore	436,364	0.3	-	-
Portfolio Advisors Secondary Fund II	197,553	0.1	-	-
HarbourVest 2019 Global Fund (\$2m)	1,672,904	1.1	-	-
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	1,063,393	0.7	-	-
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	676,556	0.5	-	-

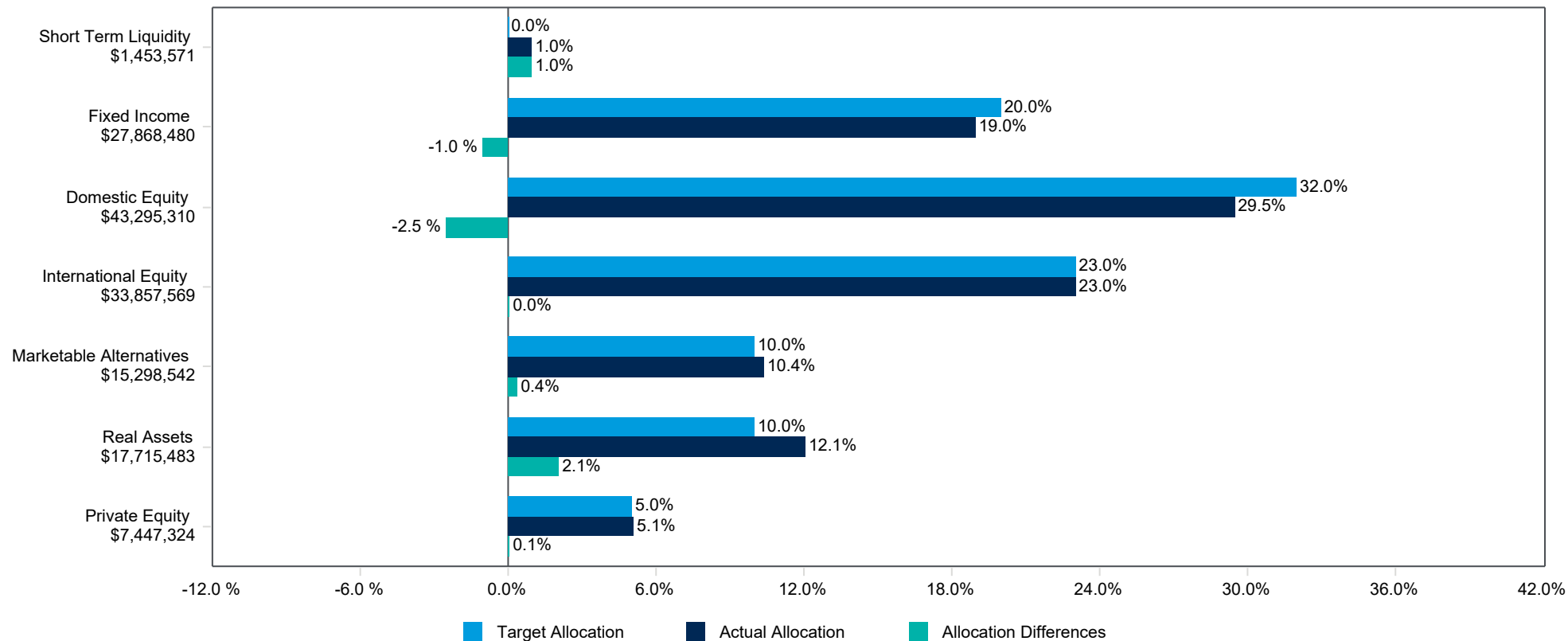


# Asset Allocation

Employees Pension

As of December 31, 2022

Actual vs. Target



	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)	Minimum Allocation (%)	Maximum Allocation (%)
Short Term Liquidity	1,453,571	1.0	0.0	1.0	0.0	10.0
Fixed Income	27,868,480	19.0	20.0	-1.0	10.0	30.0
Domestic Equity	43,295,310	29.5	32.0	-2.5	17.0	47.0
International Equity	33,857,569	23.0	23.0	0.0	8.0	38.0
Marketable Alternatives	15,298,542	10.4	10.0	0.4	0.0	20.0
Real Assets	17,715,483	12.1	10.0	2.1	0.0	20.0
Private Equity	7,447,324	5.1	5.0	0.1	0.0	15.0
<b>Employees Pension</b>	<b>146,936,279</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>-</b>	<b>-</b>



## Performance Overview

### Employees Pension

As of December 31, 2022

#### Trailing Performance Summary

	QTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>Employees Pension</b>	<b>6.4</b>	<b>1.3</b>	<b>-12.7</b>	<b>4.7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5.8</b>	<b>05/2019</b>
<i>Blended Benchmark</i>	6.7	1.1	-13.8	3.7	-	-	-	5.2	05/2019

#### Calendar Year Performance Summary

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Employees Pension</b>	<b>14.7</b>	<b>14.5</b>	-	-	-	-	-	-	-	-
<i>Blended Benchmark</i>	13.4	14.2	-	-	-	-	-	-	-	-

#### Plan Reconciliation

	QTD	Fiscal YTD	1 Year	May-2019 To Dec-2022
<b>Employees Pension</b>				
Beginning Market Value	139,937,680	149,495,666	178,435,180	151,151,329
Net Contributions	-1,943,594	-4,471,422	-9,132,371	-38,309,119
Gain/Loss	8,942,192	1,912,034	-22,366,530	34,094,069
Ending Market Value	146,936,279	146,936,279	146,936,279	146,936,279

#### Benchmark Composition

	Weight (%)
<b>Dec-2021</b>	
Blmbg. U.S. Aggregate	20.0
Russell 3000 Index	37.0
MSCI AC World ex USA (Net)	23.0
HFRI Fund of Funds Composite Index	10.0
NCREIF Fund Index - ODCE (net)	5.0
DWS Real Assets Benchmark	5.0



## Investment Gain/Loss Summary

Employees Pension

1 Quarter Ending December 31, 2022

	Market Value as of 10/01/2022	Net Contributions	Gain/Loss	Market Value As of 12/31/2022
<b>Employees Pension</b>	<b>139,937,680</b>	<b>-1,943,594</b>	<b>8,942,192</b>	<b>146,936,279</b>
<b>Short Term Liquidity</b>	<b>1,726,414</b>	<b>-277,633</b>	<b>4,789</b>	<b>1,453,571</b>
First American Government Obligations Z	1,726,414	-277,633	4,789	1,453,571
<b>Fixed Income</b>	<b>27,711,842</b>	<b>-680,000</b>	<b>836,639</b>	<b>27,868,480</b>
Western Asset Core Plus Bond IS	13,658,618	-	440,369	14,098,987
BlackRock Strategic Income Opportunities Fund K	10,767,439	-680,000	169,051	10,256,490
Brandywine Global Opportunistic Fixed Income	3,285,785	-	227,218	3,513,003
<b>Domestic Equity</b>	<b>41,138,869</b>	<b>-1,190,000</b>	<b>3,346,442</b>	<b>43,295,310</b>
Fidelity 500 Index Fund	32,415,299	-730,000	2,468,881	34,154,180
Shapiro Small Cap Value	4,644,916	-460,000	640,495	4,825,411
Conestoga Small Cap Instl	4,078,654	-	237,065	4,315,719
<b>International Equity</b>	<b>29,864,068</b>	<b>-130,000</b>	<b>4,123,501</b>	<b>33,857,569</b>
EARNEST Partners International Equity (CIT)	12,121,170	-	1,717,961	13,839,131
MFS Instl International Equity Fund	11,854,109	-130,000	1,916,315	13,640,424
Baron Emerging Markets (CIT)	5,888,789	-	489,225	6,378,014
<b>Marketable Alternatives</b>	<b>15,097,014</b>	<b>-</b>	<b>201,528</b>	<b>15,298,542</b>
Ironwood Partners L.P	15,097,014	-	201,528	15,298,542
<b>Real Assets</b>	<b>17,286,189</b>	<b>-</b>	<b>429,294</b>	<b>17,715,483</b>
DWS RREEF Real Assets Fund Instl	6,357,677	-	429,294	6,786,972
<b>Private Real Estate</b>	<b>10,928,511</b>	<b>-</b>	<b>-</b>	<b>10,928,511</b>
CPG Brookfield Opps Real Estate	1,679,637	-	-	1,679,637
TA Realty Core Property Fund, LP (\$8.75m)	9,248,874	-	-	9,248,874
<b>Private Equity</b>	<b>7,113,285</b>	<b>334,039</b>	<b>-</b>	<b>7,447,324</b>
CPG Carlyle Equity Opportunity Fund LLC	342,215	-84,042	-	258,173
CPG WP Private Equity XI LLC	585,076	-	-	585,076
CPG WPXXX Energy LLC	479,606	-	-	479,606
StepStone VC Opportunities IV, L.P.	1,088,019	-	-	1,088,019
iCapital KV Seed C Access Fund LP	989,680	-	-	989,680
Oak Hill Cap Partners IV Onshore	444,363	-7,999	-	436,364
Portfolio Advisors Secondary Fund II	205,758	-8,205	-	197,553
HarbourVest 2019 Global Fund (\$2m)	1,601,208	71,696	-	1,672,904
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	900,804	162,589	-	1,063,393





## Investment Gain/Loss Summary

Employees Pension

1 Quarter Ending December 31, 2022

	Market Value as of 10/01/2022	Net Contributions	Gain/Loss	Market Value As of 12/31/2022
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	476,556	200,000	-	676,556



# Private Equity Composite Overview

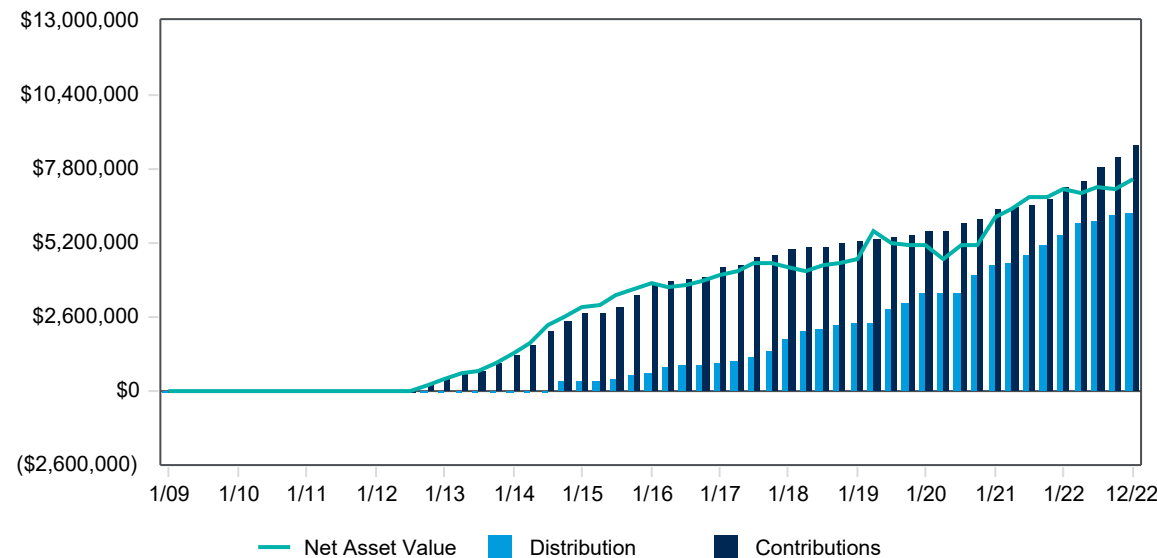
Private Equity

As of December 31, 2022

## Cash Flow Summary

<b>Capital Committed:</b>	\$13,746,250
<b>Total Contributions:</b>	\$9,592,409
<b>Remaining Cap Commitment:</b>	\$4,862,676
<b>Total Distributions:</b>	\$6,564,172
<b>Market Value:</b>	\$7,447,324
<b>Inception Date:</b>	01/2009
<b>Inception IRR:</b>	12.5
<b>TVPI:</b>	1.5
<b>DPI:</b>	0.7
<b>RVPI:</b>	0.8
<b>PIC:</b>	0.7

## Cash Flow Analysis



## Private Equity Portfolio

Partnerships	Capital Committed (\$)	Total Contribution (\$)	Total Distribution (\$)	Market Value (\$)	IRR (%)	TVPI (%)
HarbourVest 2019 Global Fund (\$2m)	2,000,000	1,271,696	268,695	1,672,904	29.5	1.5
CPG Carlyle Equity Opportunity Fund LLC	1,500,000	1,606,866	1,786,091	258,173	5.5	1.3
CPG WP Private Equity XI LLC	1,500,000	1,305,000	1,568,787	585,076	8.7	1.7
StepStone VC Opportunities IV, L.P.	800,000	800,000	40,000	1,088,019	7.2	1.4
iCapital KV Seed C Access Fund LP	300,000	287,354	130,777	989,680	25.1	3.9
CPG WPXXX Energy LLC	746,250	701,471	239,147	479,606	0.5	1.0
Oak Hill Cap Partners IV Onshore	1,000,000	1,082,179	1,297,801	436,364	19.4	1.6
Portfolio Advisors Secondary Fund II	900,000	870,254	1,232,874	197,553	17.4	1.6
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	2,000,000	650,000	-	676,556	5.1	1.0
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	3,000,000	1,017,589	-	1,063,393	7.7	1.0
<b>Private Equity</b>	<b>13,746,250</b>	<b>9,592,409</b>	<b>6,564,172</b>	<b>7,447,324</b>	<b>12.5</b>	<b>1.5</b>



## Portfolio Statistics

Employees Pension

As of December 31, 2022

	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Return	6.4	-12.7	4.7	-	-	5.8	05/2019
Standard Deviation	3.3	13.0	14.2	-	-	13.4	
Upside Risk	3.7	2.3	10.3	-	-	9.9	
Downside Risk	1.4	11.0	9.9	-	-	9.2	
<b>vs. Blended Benchmark</b>							
Alpha	0.1	-0.5	0.9	-	-	0.6	
Beta	0.9	0.9	1.0	-	-	1.0	
Information Ratio	-0.3	0.6	0.5	-	-	0.3	
Tracking Error	0.4	1.8	1.8	-	-	1.7	
<b>vs. 90 Day U.S. Treasury Bill</b>							
Sharpe Ratio	0.6	-1.1	0.3	-	-	0.4	

Calculation based on monthly periodicity.



# Estimated Fee Analysis

## Employees Pension

As of December 31, 2022

	Market Value (\$)	Estimated Annual Fee (\$)	Estimated Annual Fee (%)	Fee Schedule Details (Ex. Mutual Fund Investments)
<b>Employees Pension</b>	<b>146,936,279</b>	<b>896,587</b>	<b>0.61</b>	
<b>Short Term Liquidity</b>	<b>1,453,571</b>	-	-	
First American Government Obligations Z	1,453,571	-	-	
<b>Fixed Income</b>	<b>27,868,480</b>	<b>135,538</b>	<b>0.49</b>	
Western Asset Core Plus Bond IS	14,098,987	59,216	0.42	
BlackRock Strategic Income Opportunities Fund K	10,256,490	60,513	0.59	
Brandywine Global Opportunistic Fixed Income	3,513,003	15,809	0.45	0.45 % of Assets
<b>Domestic Equity</b>	<b>43,295,310</b>	<b>87,393</b>	<b>0.20</b>	
Fidelity 500 Index Fund	34,154,180	5,123	0.02	
Shapiro Small Cap Value	4,825,411	43,429	0.90	0.90 % of Assets
Conestoga Small Cap Instl	4,315,719	38,841	0.90	
<b>International Equity</b>	<b>33,857,569</b>	<b>278,981</b>	<b>0.82</b>	
EARNEST Partners International Equity (CIT)	13,839,131	138,391	1.00	1.00 % of Assets
MFS Instl International Equity Fund	13,640,424	92,755	0.68	
Baron Emerging Markets (CIT)	6,378,014	47,835	0.75	0.75 % of Assets
<b>Marketable Alternatives</b>	<b>15,298,542</b>	<b>145,336</b>	<b>0.95</b>	
Ironwood Partners L.P	15,298,542	145,336	0.95	0.95 % of Assets
<b>Real Assets</b>	<b>17,715,483</b>	<b>151,019</b>	<b>0.85</b>	
DWS RREEF Real Assets Fund Instl	6,786,972	61,083	0.90	
<b>Private Real Estate</b>	<b>10,928,511</b>	<b>89,937</b>	<b>0.82</b>	
CPG Brookfield Opps Real Estate	1,679,637	25,195	1.50	1.50 % of Assets
TA Realty Core Property Fund, LP (\$8.75m)	9,248,874	64,742	0.70	0.70 % of Assets
<b>Private Equity</b>	<b>7,447,324</b>	<b>98,320</b>	<b>1.32</b>	
CPG Carlyle Equity Opportunity Fund LLC	258,173	3,873	1.50	1.50 % of Assets
CPG WP Private Equity XI LLC	585,076	8,776	1.50	1.50 % of Assets
CPG WPXXX Energy LLC	479,606	7,194	1.50	1.50 % of Assets
StepStone VC Opportunities IV, L.P.	1,088,019	21,760	2.00	2.00 % of Assets
iCapital KV Seed C Access Fund LP	989,680	24,742	2.50	2.50 % of Assets
Oak Hill Cap Partners IV Onshore	436,364	7,636	1.75	1.75 % of Assets
Portfolio Advisors Secondary Fund II	197,553	1,976	1.00	1.00 % of Assets
HarbourVest 2019 Global Fund (\$2m)	1,672,904	9,536	0.57	Performance Based 0.57 and 12.50

The figures on this page have been obtained from sources we deem to be reliable. Fiduciant Advisors has not independently verified this information.

Fee calculations for mutual funds represent fees at the net expense level. Fee calculations for commingled funds and/or alternative investments reflect base management fees and exclude underlying fund expenses captured at the NAV level, any applicable performance-based fees, or incentive fees. Fees for fund of funds are shown at the fund of fund level and do not include fees charged by underlying investment managers/funds.

HarbourVest base fee represents the expected average fee over the life of the fund based on Fiduciant's aggregated client commitments; incentive fee applies only to Co-Investments and Secondaries.



## Estimated Fee Analysis

Employees Pension

As of December 31, 2022

	Market Value (\$)	Estimated Annual Fee (\$)	Estimated Annual Fee (%)	Fee Schedule Details (Ex. Mutual Fund Investments)
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	1,063,393	6,061	0.57	Performance Based 0.57 and 12.50
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	676,556	6,766	1.00	Performance Based 1.00 and 10.00

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# Liquidity Schedule

As of December 31, 2022

Investments	Inception	Subscriptions	Redemptions	Liquidity Terms	Market Value (\$)	Liquid (\$)	Semi Liquid (\$)	Illiquid (\$)
First American Government Obligations Z	04/2019	Daily	Liquid		1,453,571	1,453,571	-	-
Western Asset Core Plus Bond IS	04/2019	Daily	Liquid		14,098,987	14,098,987	-	-
BlackRock Strategic Income Opportunities Fund K	04/2019	Daily	Liquid		10,256,490	10,256,490	-	-
Brandywine Global Opportunistic Fixed Income	04/2019	Daily	Liquid	Contributions and redemptions daily with 5 business days notice	3,513,003	3,513,003	-	-
Fidelity 500 Index Fund	04/2019	Daily	Liquid		34,154,180	34,154,180	-	-
Shapiro Small Cap Value	04/2019	Daily	Liquid		4,825,411	4,825,411	-	-
Conestoga Small Cap Instl	04/2019	Daily	Liquid		4,315,719	4,315,719	-	-
EARNEST Partners International Equity (CIT)	04/2019	Daily	Liquid		13,839,131	13,839,131	-	-
MFS Instl International Equity Fund	04/2019	Daily	Liquid		13,640,424	13,640,424	-	-
Baron Emerging Markets (CIT)	04/2019	Daily	Liquid		6,378,014	6,378,014	-	-
Ironwood Partners L.P	12/2020	Monthly	Semi Liquid	Lock: 1 year hard Gate: N/A Redemptions: semi-annually with 95 days notice	15,298,542	-	15,298,542	-
DWS RREEF Real Assets Fund Instl	11/2021	Daily	Liquid		6,786,972	6,786,972	-	-
CPG Brookfield Opps Real Estate	01/2009	Illiquid	Illiquid		1,679,637	-	-	1,679,637
TA Realty Core Property Fund, LP (\$8.75m)	12/2021	Quarterly	Semi Liquid	Redemptions: quarterly with 45 days notice, subject to queue	9,248,874	-	9,248,874	-
CPG Carlyle Equity Opportunity Fund LLC	01/2009	Illiquid	Illiquid		258,173	-	-	258,173
CPG WP Private Equity XI LLC	01/2009	Illiquid	Illiquid		585,076	-	-	585,076
CPG WPXXX Energy LLC	01/2009	Illiquid	Illiquid		479,606	-	-	479,606
StepStone VC Opportunities IV, L.P.	01/2009	Illiquid	Illiquid		1,088,019	-	-	1,088,019
iCapital KV Seed C Access Fund LP	01/2009	Illiquid	Illiquid		989,680	-	-	989,680
Oak Hill Cap Partners IV Onshore	04/2009	Illiquid	Illiquid		436,364	-	-	436,364
Portfolio Advisors Secondary Fund II	01/2009	Illiquid	Illiquid		197,553	-	-	197,553
HarbourVest 2019 Global Fund (\$2m)	04/2019	Illiquid	Illiquid		1,672,904	-	-	1,672,904
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	09/2021	Illiquid	Illiquid		1,063,393	-	-	1,063,393
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	12/2020	Illiquid	Illiquid		676,556	-	-	676,556
<b>Total (\$)</b>					<b>146,936,279</b>	<b>113,261,902</b>	<b>24,547,416</b>	<b>9,126,961</b>

Liquid – daily to monthly | Semi-Liquid – greater than monthly and up to one year | Illiquid – greater than one year

The figures on this page have been obtained from sources we deem to be reliable. Fiduciant Advisors has not independently verified this information.



## Liquidity Schedule

As of December 31, 2022

Redemptions	Market Value (\$)	% of Total Plan
Illiquid	9,126,961	6.2
Semi Liquid	24,547,416	16.7
Liquid	113,261,902	77.1
<b>Total</b>	<b>146,936,279</b>	<b>100.0</b>

Liquid – daily to monthly | Semi-Liquid – greater than monthly and up to one year | Illiquid – greater than one year

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## Section 4    Police/Fire Pension Review



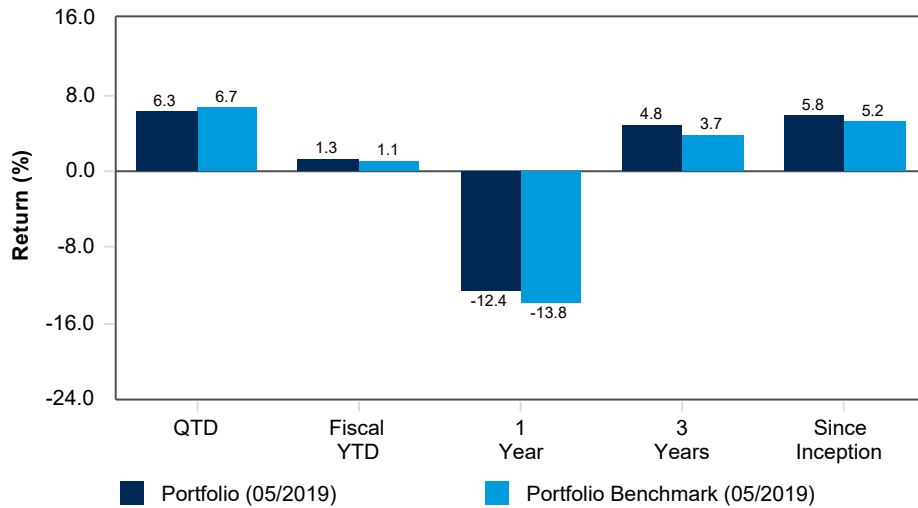


# Portfolio Dashboard

Police/Fire Pension

As of December 31, 2022

## Historical Performance



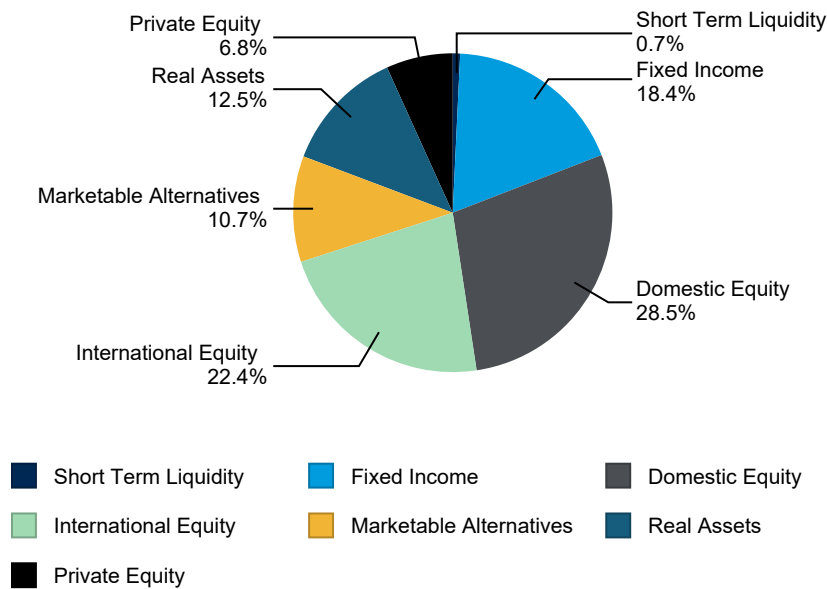
## Summary of Cash Flows

	QTD	Fiscal YTD	1 Year
Beginning Market Value	100,344,826	107,719,099	128,540,414
Net Contributions	-1,878,216	-4,254,256	-7,932,165
Gain/Loss	6,290,978	1,292,746	-15,850,659
Ending Market Value	104,757,589	104,757,589	104,757,589

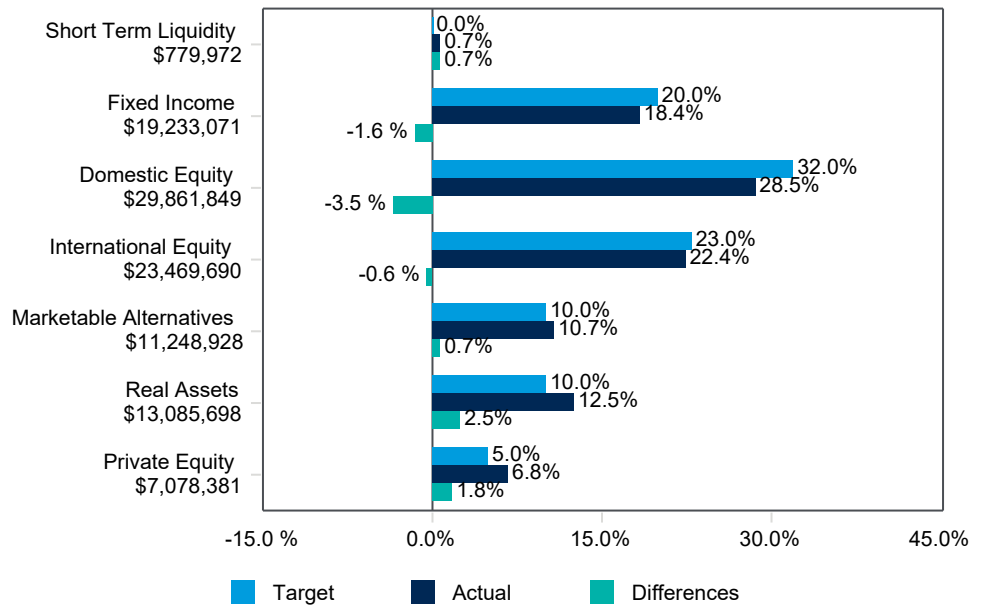
## Current Benchmark Composition

From Date	To Date	Composition
12/2021	Present	20.00% Blmbg. U.S. Aggregate, 37.00% Russell 3000 Index, 23.00% MSCI AC World ex USA (Net), 10.00% HFRI Fund of Funds Composite Index, 5.00% NCREIF Fund Index - ODCE (net), 5.00% DWS Real Assets Benchmark

## Portfolio Allocation



## Actual vs. Target Allocations





# Asset Allocation

Police/Fire Pension

As of December 31, 2022

	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
<b>Police/Fire Pension</b>	<b>104,757,589</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>
<b>Short Term Liquidity</b>	<b>779,972</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>
First American Government Obligations Z	779,972	0.7	0.0	0.7
<b>Fixed Income</b>	<b>19,233,071</b>	<b>18.4</b>	<b>20.0</b>	<b>-1.6</b>
Western Asset Core Plus Bond IS	9,692,857	9.3	10.0	-0.7
BlackRock Strategic Income Opportunities Fund K	7,080,738	6.8	7.5	-0.7
Brandywine Global Opportunistic Fixed Income	2,459,476	2.3	2.5	-0.2
<b>Domestic Equity</b>	<b>29,861,849</b>	<b>28.5</b>	<b>32.0</b>	<b>-3.5</b>
Fidelity 500 Index Fund	23,450,484	22.4	25.0	-2.6
Shapiro Small Cap Value	3,310,905	3.2	3.5	-0.3
Conestoga Small Cap Instl	3,100,460	3.0	3.5	-0.5
<b>International Equity</b>	<b>23,469,690</b>	<b>22.4</b>	<b>23.0</b>	<b>-0.6</b>
EARNEST Partners International Equity (CIT)	9,523,034	9.1	9.0	0.1
MFS Instl International Equity Fund	9,376,569	9.0	9.0	0.0
Baron Emerging Markets (CIT)	4,570,087	4.4	5.0	-0.6
<b>Marketable Alternatives</b>	<b>11,248,928</b>	<b>10.7</b>	<b>10.0</b>	<b>0.7</b>
Ironwood Partners L.P	11,248,928	10.7	10.0	0.7
<b>Real Assets</b>	<b>13,085,698</b>	<b>12.5</b>	<b>10.0</b>	<b>2.5</b>
<b>Public Real Assets</b>	<b>4,775,417</b>	<b>4.6</b>	<b>5.0</b>	<b>-0.4</b>
DWS RREEF Real Assets Fund Instl	4,775,417	4.6	5.0	-0.4
<b>Private Real Estate</b>	<b>8,310,281</b>	<b>7.9</b>	<b>5.0</b>	<b>2.9</b>
CPG Brookfield Opps Real Estate	1,439,689	1.4	0.0	1.4
TA Realty Core Property Fund, LP (\$6.5m)	6,870,592	6.6	5.0	1.6
<b>Private Equity</b>	<b>7,078,381</b>	<b>6.8</b>	<b>5.0</b>	<b>1.8</b>
CPG Carlyle Equity Opportunity Fund LLC	258,173	0.2	-	-
CPG WP Private Equity XI LLC	585,076	0.6	-	-
CPG WPXXX Energy LLC	479,606	0.5	-	-
StepStone VC Opportunities IV, L.P.	884,015	0.8	-	-
iCapital KV Seed C Access Fund LP	824,733	0.8	-	-
Oak Hill Cap Partners IV Onshore	436,364	0.4	-	-
Portfolio Advisors Secondary Fund II	197,561	0.2	-	-
HarbourVest 2019 Global Fund (\$2m)	1,672,904	1.6	-	-
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	1,063,393	1.0	-	-
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	676,556	0.6	-	-

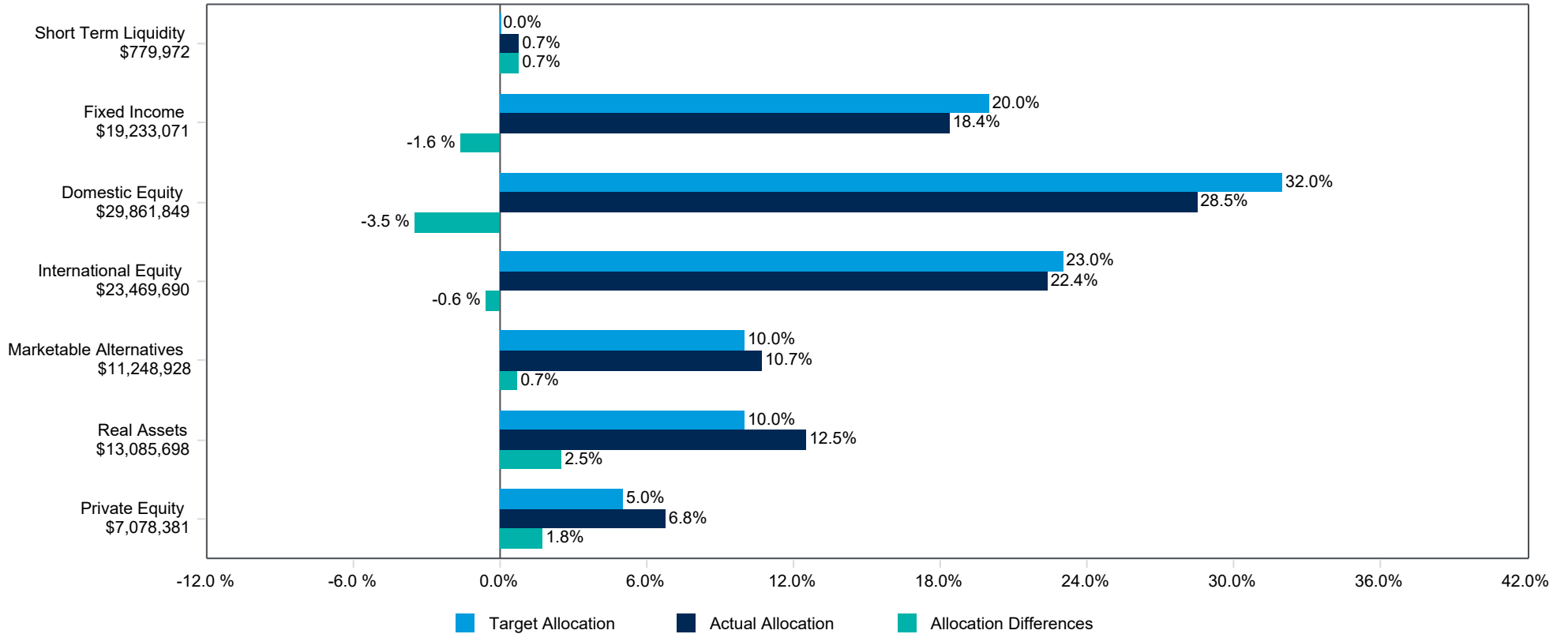


# Asset Allocation

Police/Fire Pension

As of December 31, 2022

## Actual vs. Target



	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)	Minimum Allocation (%)	Maximum Allocation (%)
Short Term Liquidity	779,972	0.7	0.0	0.7	0.0	10.0
Fixed Income	19,233,071	18.4	20.0	-1.6	10.0	30.0
Domestic Equity	29,861,849	28.5	32.0	-3.5	17.0	47.0
International Equity	23,469,690	22.4	23.0	-0.6	8.0	38.0
Marketable Alternatives	11,248,928	10.7	10.0	0.7	0.0	20.0
Real Assets	13,085,698	12.5	10.0	2.5	0.0	20.0
Private Equity	7,078,381	6.8	5.0	1.8	0.0	15.0
<b>Police/Fire Pension</b>	<b>104,757,589</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>-</b>	<b>-</b>



## Performance Overview

Police/Fire Pension

As of December 31, 2022

### Trailing Performance Summary

	QTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>Police/Fire Pension</b>	<b>6.3</b>	<b>1.3</b>	<b>-12.4</b>	<b>4.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5.8</b>	<b>05/2019</b>
<i>Blended Benchmark</i>	6.7	1.1	-13.8	3.7	-	-	-	5.2	05/2019

### Calendar Year Performance Summary

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Police/Fire Pension</b>	<b>14.6</b>	<b>14.5</b>	-	-	-	-	-	-	-	-
<i>Blended Benchmark</i>	13.4	14.2	-	-	-	-	-	-	-	-

### Plan Reconciliation

	QTD	Fiscal YTD	1 Year	May-2019 To Dec-2022
<b>Police/Fire Pension</b>				
Beginning Market Value	100,344,826	107,719,099	128,540,414	108,221,867
Net Contributions	-1,878,216	-4,254,256	-7,932,165	-28,938,714
Gain/Loss	6,290,978	1,292,746	-15,850,659	25,474,436
Ending Market Value	104,757,589	104,757,589	104,757,589	104,757,589

### Benchmark Composition

	Weight (%)
<b>Dec-2021</b>	
Blmbg. U.S. Aggregate	20.0
Russell 3000 Index	37.0
MSCI AC World ex USA (Net)	23.0
HFRI Fund of Funds Composite Index	10.0
NCREIF Fund Index - ODCE (net)	5.0
DWS Real Assets Benchmark	5.0



## Investment Gain/Loss Summary

Police/Fire Pension

1 Quarter Ending December 31, 2022

	Market Value as of 10/01/2022	Net Contributions	Gain/Loss	Market Value As of 12/31/2022
<b>Police/Fire Pension</b>	<b>100,344,826</b>	<b>-1,878,216</b>	<b>6,290,978</b>	<b>104,757,589</b>
<b>Short Term Liquidity</b>	<b>388,381</b>	<b>387,745</b>	<b>3,846</b>	<b>779,972</b>
First American Government Obligations Z	388,381	387,745	3,846	779,972
<b>Fixed Income</b>	<b>19,450,592</b>	<b>-800,000</b>	<b>582,479</b>	<b>19,233,071</b>
Western Asset Core Plus Bond IS	9,616,611	-230,000	306,245	9,692,857
BlackRock Strategic Income Opportunities Fund K	7,533,581	-570,000	117,157	7,080,738
Brandywine Global Opportunistic Fixed Income	2,300,399	-	159,077	2,459,476
<b>Domestic Equity</b>	<b>28,868,608</b>	<b>-1,370,000</b>	<b>2,363,241</b>	<b>29,861,849</b>
Fidelity 500 Index Fund	22,689,730	-980,000	1,740,754	23,450,484
Shapiro Small Cap Value	3,248,728	-390,000	452,177	3,310,905
Conestoga Small Cap Instl	2,930,150	-	170,310	3,100,460
<b>International Equity</b>	<b>21,008,517</b>	<b>-430,000</b>	<b>2,891,172</b>	<b>23,469,690</b>
EARNEST Partners International Equity (CIT)	8,340,864	-	1,182,170	9,523,034
MFS Instl International Equity Fund	8,448,114	-430,000	1,358,455	9,376,569
Baron Emerging Markets (CIT)	4,219,539	-	350,548	4,570,087
<b>Marketable Alternatives</b>	<b>11,100,746</b>	<b>-</b>	<b>148,182</b>	<b>11,248,928</b>
Ironwood Partners L.P	11,100,746	-	148,182	11,248,928
<b>Public Real Assets</b>	<b>4,473,359</b>	<b>-</b>	<b>302,058</b>	<b>4,775,417</b>
DWS RREEF Real Assets Fund Instl	4,473,359	-	302,058	4,775,417
<b>Private Real Estate</b>	<b>8,310,281</b>	<b>-</b>	<b>-</b>	<b>8,310,281</b>
CPG Brookfield Opps Real Estate	1,439,689	-	-	1,439,689
TA Realty Core Property Fund, LP (\$6.5m)	6,870,592	-	-	6,870,592
<b>Private Equity</b>	<b>6,744,342</b>	<b>334,039</b>	<b>-</b>	<b>7,078,381</b>
CPG Carlyle Equity Opportunity Fund LLC	342,215	-84,042	-	258,173
CPG WP Private Equity XI LLC	585,076	-	-	585,076
CPG WPXXX Energy LLC	479,606	-	-	479,606
StepStone VC Opportunities IV, L.P.	884,015	-	-	884,015
iCapital KV Seed C Access Fund LP	824,733	-	-	824,733
Oak Hill Cap Partners IV Onshore	444,363	-7,999	-	436,364
Portfolio Advisors Secondary Fund II	205,766	-8,205	-	197,561
HarbourVest 2019 Global Fund (\$2m)	1,601,208	71,696	-	1,672,904
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	900,804	162,589	-	1,063,393



## Investment Gain/Loss Summary

Police/Fire Pension

1 Quarter Ending December 31, 2022

	Market Value as of 10/01/2022	Net Contributions	Gain/Loss	Market Value As of 12/31/2022
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	476,556	200,000	-	676,556



# Private Equity Composite Overview

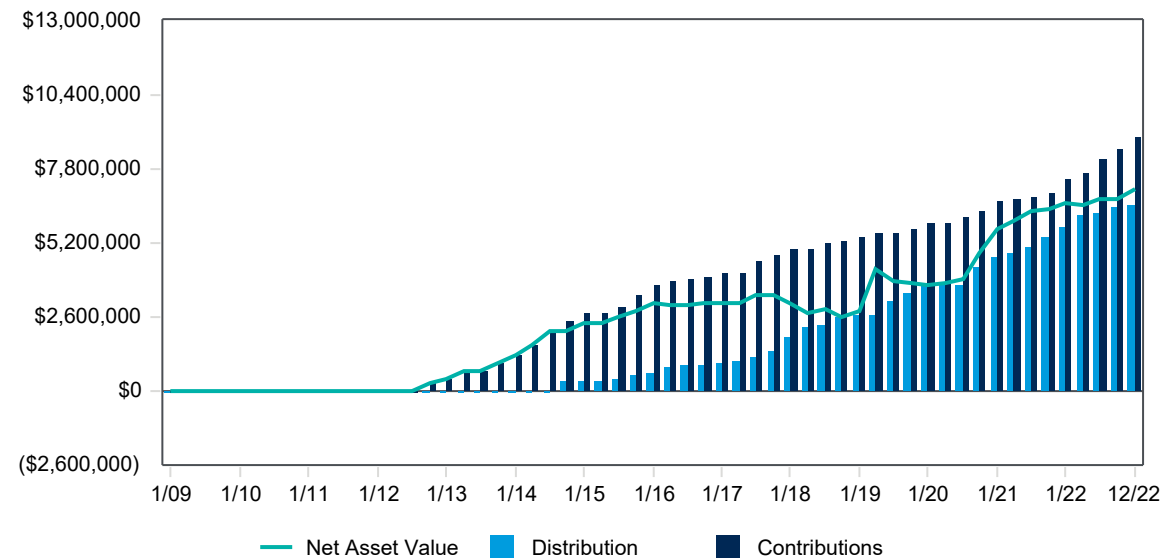
Private Equity

As of December 31, 2022

## Cash Flow Summary

<b>Capital Committed:</b>	\$14,546,250
<b>Total Contributions:</b>	\$10,415,625
<b>Remaining Cap Commitment:</b>	\$4,927,000
<b>Total Distributions:</b>	\$6,534,876
<b>Market Value:</b>	\$7,078,381
<b>Inception Date:</b>	01/2009
<b>Inception IRR:</b>	12.1
<b>TVPI:</b>	1.3
<b>DPI:</b>	0.7
<b>RVPI:</b>	0.7
<b>PIC:</b>	0.7

## Cash Flow Analysis



## Private Equity Portfolio

Partnerships	Capital Committed (\$)	Total Contribution (\$)	Total Distribution (\$)	Market Value (\$)	IRR (%)	TVPI (%)
HarbourVest 2019 Global Fund (\$2m)	2,000,000	1,271,696	268,695	1,672,904	29.4	1.5
CPG Carlyle Equity Opportunity Fund LLC	1,500,000	1,606,866	1,786,091	258,173	5.5	1.3
CPG WP Private Equity XI LLC	1,500,000	1,305,000	1,568,787	585,076	8.7	1.7
CPG WPXXX Energy LLC	746,250	701,471	239,147	479,606	0.5	1.0
StepStone VC Opportunities IV, L.P.	650,000	650,000	32,500	884,015	7.2	1.4
iCapital KV Seed C Access Fund LP	250,000	239,461	108,981	824,733	25.1	3.9
Portfolio Advisors Secondary Fund II	900,000	870,254	1,232,874	197,561	17.4	1.6
Oak Hill Cap Partners IV Onshore	1,000,000	1,082,179	1,297,801	436,364	19.4	1.6
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	2,000,000	650,000	-	676,556	5.1	1.0
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	3,000,000	1,017,589	-	1,063,393	7.7	1.0
<b>Private Equity</b>	<b>13,546,250</b>	<b>9,394,516</b>	<b>6,534,876</b>	<b>7,078,381</b>	<b>12.1</b>	<b>1.3</b>



## Portfolio Statistics

Police/Fire Pension

As of December 31, 2022

	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Return	6.3	-12.4	4.8	-	-	5.8	05/2019
Standard Deviation	3.2	12.7	14.0	-	-	13.2	
Upside Risk	3.6	2.2	10.2	-	-	9.8	
Downside Risk	1.3	10.8	9.7	-	-	9.1	
<b>vs. Blended Benchmark</b>							
Alpha	0.1	-0.5	1.1	-	-	0.7	
Beta	0.9	0.9	1.0	-	-	1.0	
Information Ratio	-0.3	0.6	0.5	-	-	0.3	
Tracking Error	0.5	2.0	1.9	-	-	1.8	
<b>vs. 90 Day U.S. Treasury Bill</b>							
Sharpe Ratio	0.6	-1.1	0.3	-	-	0.4	

Calculation based on monthly periodicity.





# Estimated Fee Analysis

Police/Fire Pension

As of December 31, 2022

	Market Value (\$)	Estimated Annual Fee (\$)	Estimated Annual Fee (%)	Fee Schedule Details (Ex. Mutual Fund Investments)
<b>Police/Fire Pension</b>	<b>104,757,589</b>	<b>657,689</b>	<b>0.63</b>	
<b>Short Term Liquidity</b>	<b>779,972</b>	<b>-</b>	<b>-</b>	
First American Government Obligations Z	779,972	-	-	
<b>Fixed Income</b>	<b>19,233,071</b>	<b>93,554</b>	<b>0.49</b>	
Western Asset Core Plus Bond IS	9,692,857	40,710	0.42	
BlackRock Strategic Income Opportunities Fund K	7,080,738	41,776	0.59	
Brandywine Global Opportunistic Fixed Income	2,459,476	11,068	0.45	0.45 % of Assets
<b>Domestic Equity</b>	<b>29,861,849</b>	<b>61,220</b>	<b>0.21</b>	
Fidelity 500 Index Fund	23,450,484	3,518	0.02	
Shapiro Small Cap Value	3,310,905	29,798	0.90	0.90 % of Assets
Conestoga Small Cap Instl	3,100,460	27,904	0.90	
<b>International Equity</b>	<b>23,469,690</b>	<b>193,267</b>	<b>0.82</b>	
EARNEST Partners International Equity (CIT)	9,523,034	95,230	1.00	1.00 % of Assets
MFS Instl International Equity Fund	9,376,569	63,761	0.68	
Baron Emerging Markets (CIT)	4,570,087	34,276	0.75	0.75 % of Assets
<b>Marketable Alternatives</b>	<b>11,248,928</b>	<b>106,865</b>	<b>0.95</b>	
Ironwood Partners L.P	11,248,928	106,865	0.95	0.95 % of Assets
<b>Public Real Assets</b>	<b>4,775,417</b>	<b>42,979</b>	<b>0.90</b>	
DWS RREEF Real Assets Fund Instl	4,775,417	42,979	0.90	
<b>Private Real Estate</b>	<b>8,310,281</b>	<b>69,689</b>	<b>0.84</b>	
CPG Brookfield Opps Real Estate	1,439,689	21,595	1.50	1.50 % of Assets
TA Realty Core Property Fund, LP (\$6.5m)	6,870,592	48,094	0.70	0.70 % of Assets
<b>Private Equity</b>	<b>7,078,381</b>	<b>90,116</b>	<b>1.27</b>	
CPG Carlyle Equity Opportunity Fund LLC	258,173	3,873	1.50	1.50 % of Assets
CPG WP Private Equity XI LLC	585,076	8,776	1.50	1.50 % of Assets
CPG WPXXX Energy LLC	479,606	7,194	1.50	1.50 % of Assets
StepStone VC Opportunities IV, L.P.	884,015	17,680	2.00	2.00 % of Assets
iCapital KV Seed C Access Fund LP	824,733	20,618	2.50	2.50 % of Assets
Oak Hill Cap Partners IV Onshore	436,364	7,636	1.75	1.75 % of Assets
Portfolio Advisors Secondary Fund II	197,561	1,976	1.00	1.00 % of Assets
HarbourVest 2019 Global Fund (\$2m)	1,672,904	9,536	0.57	Performance Based 0.57 and 12.50

The figures on this page have been obtained from sources we deem to be reliable. Fiduciant Advisors has not independently verified this information.

Fee calculations for mutual funds represent fees at the net expense level. Fee calculations for commingled funds and/or alternative investments reflect base management fees and exclude underlying fund expenses captured at the NAV level, any applicable performance-based fees, or incentive fees. Fees for fund of funds are shown at the fund of fund level and do not include fees charged by underlying investment managers/funds.

HarbourVest base fee represents the expected average fee over the life of the fund based on Fiduciant's aggregated client commitments; incentive fee applies only to Co-Investments and Secondaries.



## Estimated Fee Analysis

Police/Fire Pension

As of December 31, 2022

	Market Value (\$)	Estimated Annual Fee (\$)	Estimated Annual Fee (%)	Fee Schedule Details (Ex. Mutual Fund Investments)
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	1,063,393	6,061	0.57	Performance Based 0.57 and 12.50
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	676,556	6,766	1.00	Performance Based 1.00 and 10.00

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# Liquidity Schedule

As of December 31, 2022

Investments	Inception	Subscriptions	Redemptions	Liquidity Terms	Market Value (\$)	Liquid (\$)	Semi Liquid (\$)	Illiquid (\$)
First American Government Obligations Z	04/2019	Daily	Liquid		779,972	779,972	-	-
Western Asset Core Plus Bond IS	04/2019	Daily	Liquid		9,692,857	9,692,857	-	-
BlackRock Strategic Income Opportunities Fund K	04/2019	Daily	Liquid		7,080,738	7,080,738	-	-
Brandywine Global Opportunistic Fixed Income	04/2019	Daily	Liquid	Contributions and redemptions daily with 5 business days notice	2,459,476	2,459,476	-	-
Fidelity 500 Index Fund	04/2019	Daily	Liquid		23,450,484	23,450,484	-	-
Shapiro Small Cap Value	04/2019	Daily	Liquid		3,310,905	3,310,905	-	-
Conestoga Small Cap Instl	04/2019	Daily	Liquid		3,100,460	3,100,460	-	-
EARNEST Partners International Equity (CIT)	04/2019	Daily	Liquid		9,523,034	9,523,034	-	-
MFS Instl International Equity Fund	04/2019	Daily	Liquid		9,376,569	9,376,569	-	-
Baron Emerging Markets (CIT)	04/2019	Daily	Liquid		4,570,087	4,570,087	-	-
Ironwood Partners L.P	12/2020	Monthly	Semi Liquid	Lock: 1 year hard Gate: N/A Redemptions: semi-annually with 95 days notice	11,248,928	-	11,248,928	-
DWS RREEF Real Assets Fund Instl	11/2021	Daily	Liquid		4,775,417	4,775,417	-	-
CPG Brookfield Opps Real Estate	01/2009	Illiquid	Illiquid		1,439,689	-	-	1,439,689
TA Realty Core Property Fund, LP (\$6.5m)	12/2021	Quarterly	Semi Liquid	Redemptions: quarterly with 45 days notice, subject to queue	6,870,592	-	6,870,592	-
CPG Carlyle Equity Opportunity Fund LLC	01/2009	Illiquid	Illiquid		258,173	-	-	258,173
CPG WP Private Equity XI LLC	01/2009	Illiquid	Illiquid		585,076	-	-	585,076
CPG WPXXX Energy LLC	01/2009	Illiquid	Illiquid		479,606	-	-	479,606
StepStone VC Opportunities IV, L.P.	04/2009	Illiquid	Illiquid		884,015	-	-	884,015
iCapital KV Seed C Access Fund LP	01/2009	Illiquid	Illiquid		824,733	-	-	824,733
Oak Hill Cap Partners IV Onshore	01/2009	Illiquid	Illiquid		436,364	-	-	436,364
Portfolio Advisors Secondary Fund II	01/2009	Illiquid	Illiquid		197,561	-	-	197,561
HarbourVest 2019 Global Fund (\$2m)	04/2019	Illiquid	Illiquid		1,672,904	-	-	1,672,904
HarbourVest 2021 Global Feeder Fund L.P. (\$3m)	09/2021	Illiquid	Illiquid		1,063,393	-	-	1,063,393
747 Stuyvesant VII Parallel Fund, L.P. (\$2m)	12/2020	Illiquid	Illiquid		676,556	-	-	676,556
<b>Total (\$)</b>					<b>104,757,589</b>	<b>78,119,999</b>	<b>18,119,520</b>	<b>8,518,070</b>

Liquid – daily to monthly | Semi-Liquid – greater than monthly and up to one year | Illiquid – greater than one year

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## Liquidity Schedule

As of December 31, 2022

Redemptions	Market Value (\$)	% of Total Plan
Illiquid	8,518,070	8.1
Semi Liquid	18,119,520	17.3
Liquid	78,119,999	74.6
<b>Total</b>	<b>104,757,589</b>	<b>100.0</b>

Liquid – daily to monthly | Semi-Liquid – greater than monthly and up to one year | Illiquid – greater than one year  
The figures on this page have been obtained from sources we deem to be reliable. Fiducient Advisors has not independently verified this information.



Section 5 Retiree Health Care Trust (OPEB)  
Review

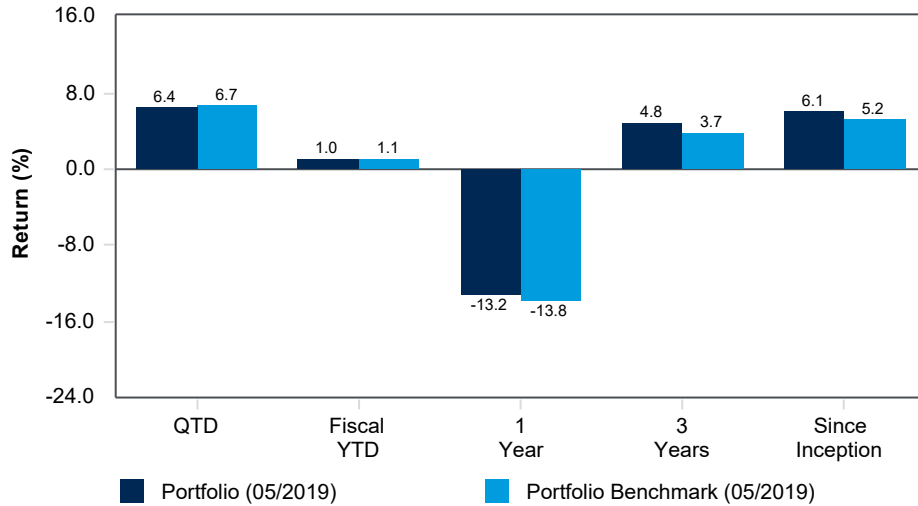


# Portfolio Dashboard

Retiree Health Care Trust (OPEB)

As of December 31, 2022

## Historical Performance



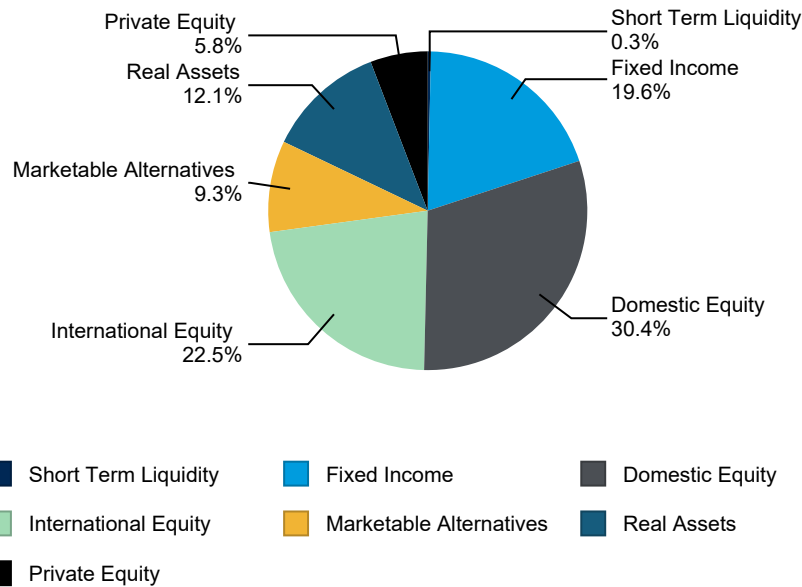
## Summary of Cash Flows

	QTD	Fiscal YTD	1 Year
Beginning Market Value	38,470,407	40,620,440	46,691,193
Net Contributions	27,527	-78,195	497,169
Gain/Loss	2,468,444	424,133	-6,221,984
Ending Market Value	40,966,378	40,966,378	40,966,378

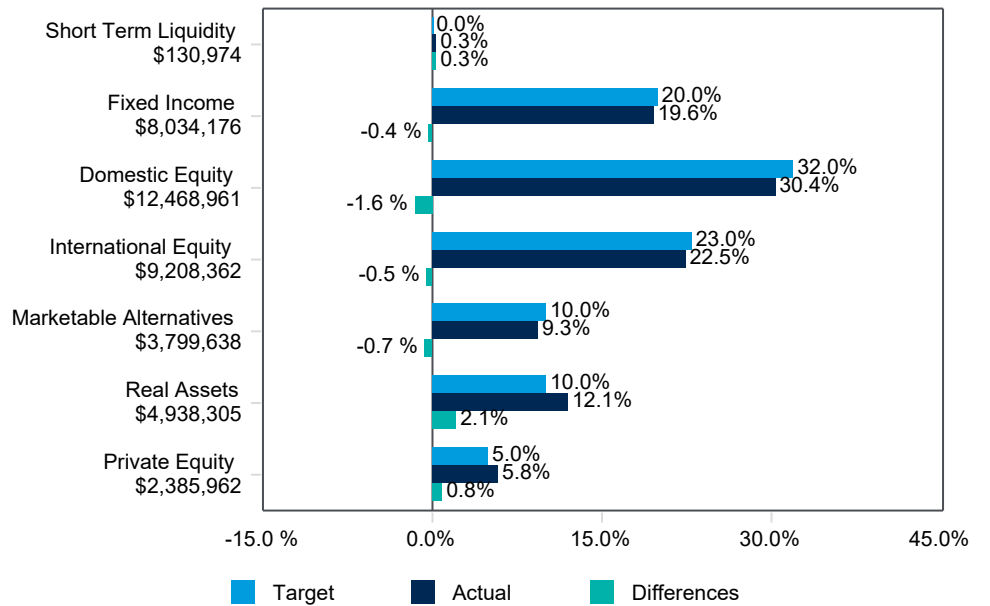
## Current Benchmark Composition

From Date	To Date	Composition
12/2021	Present	20.00% Blmbg. U.S. Aggregate, 37.00% Russell 3000 Index, 23.00% MSCI AC World ex USA (Net), 10.00% HFRI Fund of Funds Composite Index, 5.00% NCREIF Fund Index - ODCE (net), 5.00% DWS Real Assets Benchmark

## Portfolio Allocation



## Actual vs. Target Allocations





# Asset Allocation

Retiree Health Care Trust (OPEB)

As of December 31, 2022

	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
<b>Retiree Health Care Trust (OPEB)</b>	<b>40,966,378</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>
<b>Short Term Liquidity</b>	<b>130,974</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>
First American Government Obligations Z	130,974	0.3	0.0	0.3
<b>Fixed Income</b>	<b>8,034,176</b>	<b>19.6</b>	<b>20.0</b>	<b>-0.4</b>
Western Asset Core Plus Bond IS	3,983,503	9.7	10.0	-0.3
BlackRock Strategic Income Opportunities Fund K	3,085,870	7.5	7.5	0.0
Brandywine Global Opportunistic Fixed Income	964,803	2.4	2.5	-0.1
<b>Domestic Equity</b>	<b>12,468,961</b>	<b>30.4</b>	<b>32.0</b>	<b>-1.6</b>
Fidelity 500 Index Fund	9,828,174	24.0	25.0	-1.0
Shapiro Small Cap Value	1,388,029	3.4	3.5	-0.1
Conestoga Small Cap Instl	1,252,758	3.1	3.5	-0.4
<b>International Equity</b>	<b>9,208,362</b>	<b>22.5</b>	<b>23.0</b>	<b>-0.5</b>
EARNEST Partners International Equity (NHIT)	3,762,231	9.2	9.0	0.2
MFS Instl International Equity Fund	3,640,250	8.9	9.0	-0.1
Baron Emerging Markets Fund Ltd.	1,805,881	4.4	5.0	-0.6
<b>Marketable Alternatives</b>	<b>3,799,638</b>	<b>9.3</b>	<b>10.0</b>	<b>-0.7</b>
Ironwood Partners L.P	3,799,638	9.3	10.0	-0.7
<b>Real Assets</b>	<b>4,938,305</b>	<b>12.1</b>	<b>10.0</b>	<b>2.1</b>
<b>Public Real Assets</b>	<b>1,974,426</b>	<b>4.8</b>	<b>5.0</b>	<b>-0.2</b>
DWS RREEF Real Assets Fund Instl	1,974,426	4.8	5.0	-0.2
<b>Private Real Estate</b>	<b>2,963,879</b>	<b>7.2</b>	<b>5.0</b>	<b>2.2</b>
CPG Brookfield Opps Real Estate	479,896	1.2	0.0	1.2
TA Realty Core Property Fund, LP (\$2.35m)	2,483,983	6.1	5.0	1.1
<b>Private Equity</b>	<b>2,385,962</b>	<b>5.8</b>	<b>5.0</b>	<b>0.8</b>
CPG Carlyle Equity Opportunity Fund LLC	43,029	0.1	-	-
CPG WP Private Equity XI LLC	97,514	0.2	-	-
StepStone VC Opportunities IV, L.P.	680,015	1.7	-	-
iCapital KV Seed C Access Fund LP	329,893	0.8	-	-
HarbourVest 2019 Global Fund (\$750k)	627,339	1.5	-	-
HarbourVest 2021 Global Feeder Fund L.P. (\$1m)	354,464	0.9	-	-
747 Stuyvesant VII Parallel Fund, L.P. (\$750k)	253,708	0.6	-	-

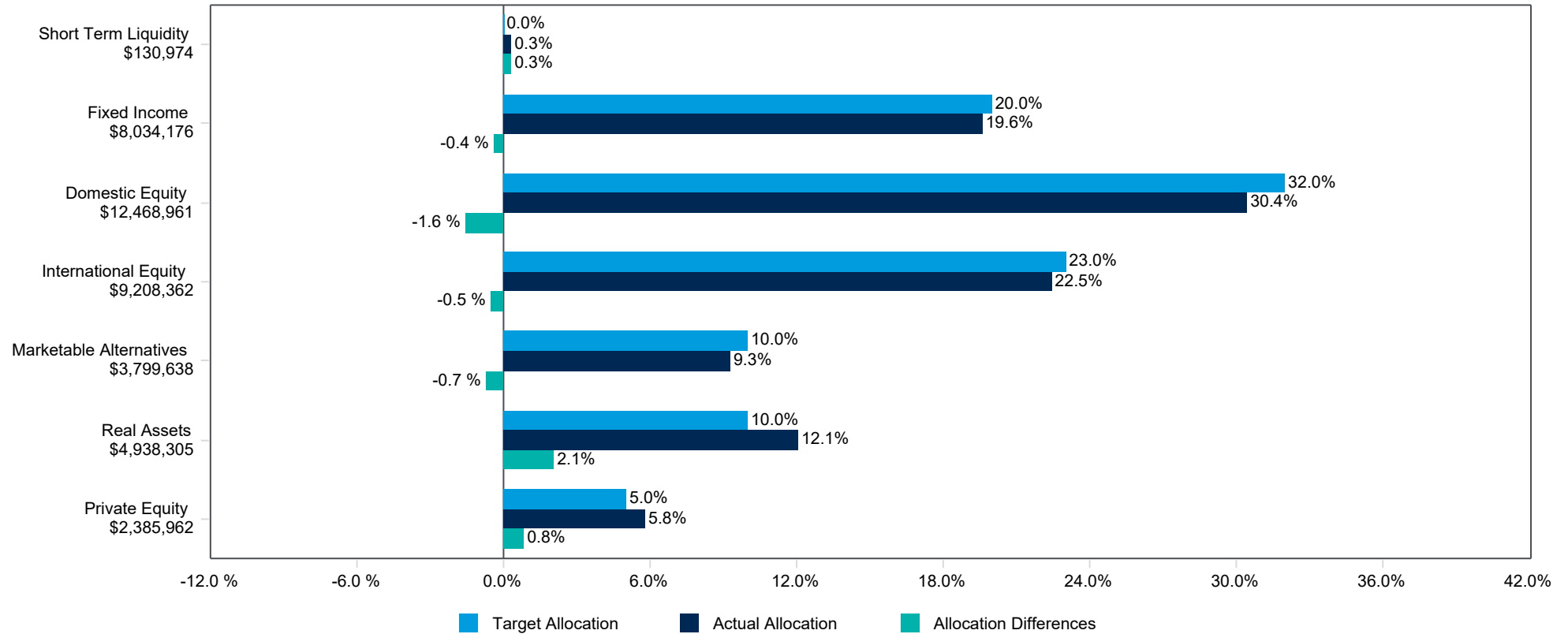


# Asset Allocation

Retiree Health Care Trust (OPEB)

As of December 31, 2022

## Actual vs. Target



	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)	Minimum Allocation (%)	Maximum Allocation (%)
Short Term Liquidity	130,974	0.3	0.0	0.3	0.0	10.0
Fixed Income	8,034,176	19.6	20.0	-0.4	10.0	30.0
Domestic Equity	12,468,961	30.4	32.0	-1.6	17.0	47.0
International Equity	9,208,362	22.5	23.0	-0.5	8.0	38.0
Marketable Alternatives	3,799,638	9.3	10.0	-0.7	0.0	20.0
Real Assets	4,938,305	12.1	10.0	2.1	0.0	20.0
Private Equity	2,385,962	5.8	5.0	0.8	0.0	15.0
<b>Retiree Health Care Trust (OPEB)</b>	<b>40,966,378</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>-</b>	<b>-</b>





## Performance Overview

Retiree Health Care Trust (OPEB)

As of December 31, 2022

Trailing Performance Summary									
	QTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>Retiree Health Care Trust (OPEB)</b>	<b>6.4</b>	<b>1.0</b>	<b>-13.2</b>	<b>4.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6.1</b>	<b>05/2019</b>
<i>Blended Benchmark</i>	<i>6.7</i>	<i>1.1</i>	<i>-13.8</i>	<i>3.7</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>5.2</i>	<i>05/2019</i>

Calendar Year Performance Summary										
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Retiree Health Care Trust (OPEB)</b>	<b>14.6</b>	<b>15.6</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Blended Benchmark</i>	<i>13.4</i>	<i>14.2</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>

Plan Reconciliation				
	QTD	Fiscal YTD	1 Year	May-2019 To Dec-2022
<b>Retiree Health Care Trust (OPEB)</b>				
Beginning Market Value	38,470,407	40,620,440	46,691,193	35,248,166
Net Contributions	27,527	-78,195	497,169	-3,403,201
Gain/Loss	2,468,444	424,133	-6,221,984	9,121,413
Ending Market Value	40,966,378	40,966,378	40,966,378	40,966,378

Benchmark Composition		Weight (%)
<b>Dec-2021</b>		
Blmbg. U.S. Aggregate		20.0
Russell 3000 Index		37.0
MSCI AC World ex USA (Net)		23.0
HFRI Fund of Funds Composite Index		10.0
NCREIF Fund Index - ODCE (net)		5.0
DWS Real Assets Benchmark		5.0



## Investment Gain/Loss Summary

Retiree Health Care Trust (OPEB)

1 Quarter Ending December 31, 2022

	Market Value as of 10/01/2022	Net Contributions	Gain/Loss	Market Value As of 12/31/2022
<b>Retiree Health Care Trust (OPEB)</b>	<b>38,470,407</b>	<b>27,527</b>	<b>2,468,444</b>	<b>40,966,378</b>
<b>Short Term Liquidity</b>	<b>45,048</b>	<b>85,451</b>	<b>476</b>	<b>130,974</b>
First American Government Obligations Z	45,048	85,451	476	130,974
<b>Fixed Income</b>	<b>7,857,136</b>	<b>-60,000</b>	<b>237,040</b>	<b>8,034,176</b>
Western Asset Core Plus Bond IS	3,859,082	-	124,421	3,983,503
BlackRock Strategic Income Opportunities Fund K	3,095,653	-60,000	50,217	3,085,870
Brandywine Global Opportunistic Fixed Income	902,401	-	62,403	964,803
<b>Domestic Equity</b>	<b>11,666,757</b>	<b>-140,000</b>	<b>942,204</b>	<b>12,468,961</b>
Fidelity 500 Index Fund	9,192,025	-60,000	696,149	9,828,174
Shapiro Small Cap Value	1,290,789	-80,000	177,240	1,388,029
Conestoga Small Cap Instl	1,183,943	-	68,815	1,252,758
<b>International Equity</b>	<b>8,094,578</b>	<b>-</b>	<b>1,113,784</b>	<b>9,208,362</b>
EARNEST Partners International Equity (NHIT)	3,294,528	-	467,703	3,762,231
MFS Instl International Equity Fund	3,133,031	-	507,219	3,640,250
Baron Emerging Markets Fund Ltd.	1,667,019	-	138,862	1,805,881
<b>Marketable Alternatives</b>	<b>3,749,585</b>	<b>-</b>	<b>50,053</b>	<b>3,799,638</b>
Ironwood Partners L.P	3,749,585	-	50,053	3,799,638
<b>Public Real Assets</b>	<b>1,849,538</b>	<b>-</b>	<b>124,888</b>	<b>1,974,426</b>
DWS RREEF Real Assets Fund Instl	1,849,538	-	124,888	1,974,426
<b>Private Real Estate</b>	<b>2,963,879</b>	<b>-</b>	<b>-</b>	<b>2,963,879</b>
CPG Brookfield Opps Real Estate	479,896	-	-	479,896
TA Realty Core Property Fund, LP (\$2.35m)	2,483,983	-	-	2,483,983
<b>Private Equity</b>	<b>2,243,886</b>	<b>142,076</b>	<b>-</b>	<b>2,385,962</b>
CPG Carlyle Equity Opportunity Fund LLC	57,036	-14,007	-	43,029
CPG WP Private Equity XI LLC	97,514	-	-	97,514
StepStone VC Opportunities IV, L.P.	680,015	-	-	680,015
iCapital KV Seed C Access Fund LP	329,893	-	-	329,893
HarbourVest 2019 Global Fund (\$750k)	600,452	26,887	-	627,339
HarbourVest 2021 Global Feeder Fund L.P. (\$1m)	300,268	54,196	-	354,464
747 Stuyvesant VII Parallel Fund, L.P. (\$750k)	178,708	75,000	-	253,708



# Private Equity Composite Overview

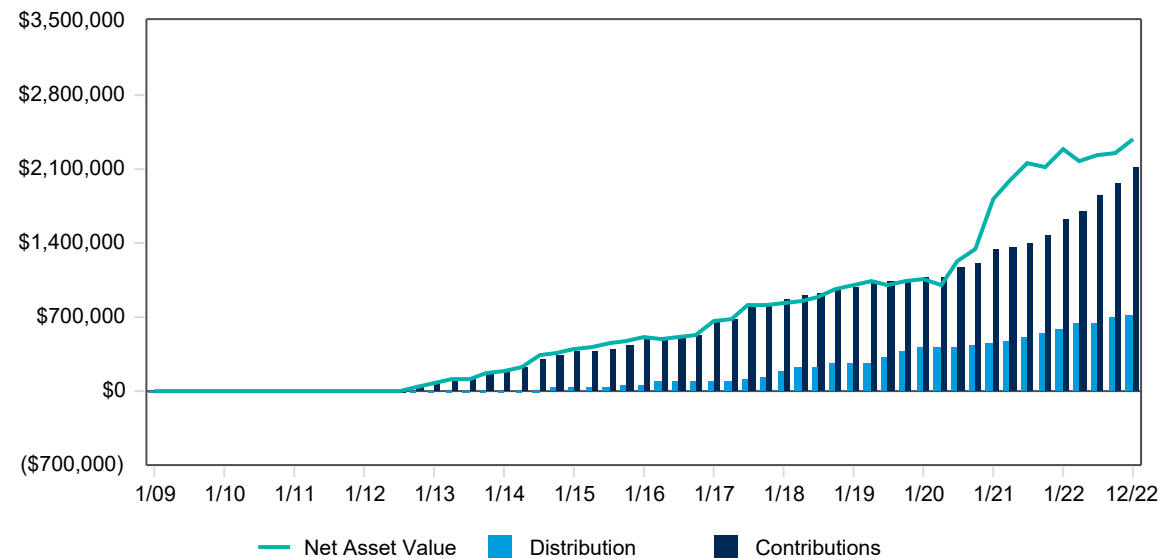
Private Equity

As of December 31, 2022

## Cash Flow Summary

<b>Capital Committed:</b>	\$3,600,000
<b>Total Contributions:</b>	\$2,123,962
<b>Remaining Cap Commitment:</b>	\$1,553,099
<b>Total Distributions:</b>	\$711,583
<b>Market Value:</b>	\$2,385,962
<b>Inception Date:</b>	01/2009
<b>Inception IRR:</b>	11.2
<b>TVPI:</b>	1.5
<b>DPI:</b>	0.3
<b>RVPI:</b>	1.1
<b>PIC:</b>	0.6

## Cash Flow Analysis



## Private Equity Portfolio

Partnerships	Capital Committed (\$)	Total Contribution (\$)	Total Distribution (\$)	Market Value (\$)	IRR (%)	TVPI (%)
HarbourVest 2019 Global Fund (\$750k)	750,000	476,887	100,762	627,339	29.4	1.5
CPG Carlyle Equity Opportunity Fund LLC	250,000	250,844	280,714	43,029	5.5	1.3
CPG WP Private Equity XI LLC	250,000	217,500	261,515	97,514	8.7	1.7
StepStone VC Opportunities IV, L.P.	500,000	500,000	25,000	680,015	7.2	1.4
iCapital KV Seed C Access Fund LP	100,000	95,785	43,592	329,893	25.1	3.9
747 Stuyvesant VII Parallel Fund, L.P. (\$750k)	750,000	243,750	-	253,708	5.1	1.0
HarbourVest 2021 Global Feeder Fund L.P. (\$1m)	1,000,000	339,196	-	354,464	7.7	1.0
<b>Private Equity</b>	<b>3,600,000</b>	<b>2,123,962</b>	<b>711,583</b>	<b>2,385,962</b>	<b>11.2</b>	<b>1.5</b>



## Portfolio Statistics

Retiree Health Care Trust (OPEB)

As of December 31, 2022

	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Return	6.4	-13.2	4.8	-	-	6.1	05/2019
Standard Deviation	3.3	13.0	14.3	-	-	13.5	
Upside Risk	3.7	2.2	10.5	-	-	10.1	
Downside Risk	1.4	11.1	9.9	-	-	9.2	
<b>vs. Blended Benchmark</b>							
Alpha	0.1	-1.0	1.0	-	-	0.9	
Beta	0.9	0.9	1.0	-	-	1.0	
Information Ratio	-0.3	0.2	0.5	-	-	0.5	
Tracking Error	0.3	1.8	1.9	-	-	1.7	
<b>vs. 90 Day U.S. Treasury Bill</b>							
Sharpe Ratio	0.6	-1.1	0.3	-	-	0.4	

Calculation based on monthly periodicity.



## Estimated Fee Analysis

Retiree Health Care Trust (OPEB)

As of December 31, 2022

	Market Value (\$)	Estimated Annual Fee (\$)	Estimated Annual Fee (%)	Fee Schedule Details (Ex. Mutual Fund Investments)
<b>Retiree Health Care Trust (OPEB)</b>	<b>40,966,378</b>	<b>247,220</b>	<b>0.60</b>	
<b>Short Term Liquidity</b>	<b>130,974</b>	<b>-</b>	<b>-</b>	
First American Government Obligations Z	130,974	-	-	
<b>Fixed Income</b>	<b>8,034,176</b>	<b>39,279</b>	<b>0.49</b>	
Western Asset Core Plus Bond IS	3,983,503	16,731	0.42	
BlackRock Strategic Income Opportunities Fund K	3,085,870	18,207	0.59	
Brandywine Global Opportunistic Fixed Income	964,803	4,342	0.45	0.45 % of Assets
<b>Domestic Equity</b>	<b>12,468,961</b>	<b>25,241</b>	<b>0.20</b>	
Fidelity 500 Index Fund	9,828,174	1,474	0.02	
Shapiro Small Cap Value	1,388,029	12,492	0.90	0.90 % of Assets
Conestoga Small Cap Instl	1,252,758	11,275	0.90	
<b>International Equity</b>	<b>9,208,362</b>	<b>72,158</b>	<b>0.78</b>	
EARNEST Partners International Equity (NHIT)	3,762,231	33,860	0.90	0.90 % of Assets
MFS Instl International Equity Fund	3,640,250	24,754	0.68	
Baron Emerging Markets Fund Ltd.	1,805,881	13,544	0.75	0.75 % of Assets
<b>Marketable Alternatives</b>	<b>3,799,638</b>	<b>36,097</b>	<b>0.95</b>	
Ironwood Partners L.P	3,799,638	36,097	0.95	0.95 % of Assets
<b>Public Real Assets</b>	<b>1,974,426</b>	<b>17,770</b>	<b>0.90</b>	
DWS RREEF Real Assets Fund Instl	1,974,426	17,770	0.90	
<b>Private Real Estate</b>	<b>2,963,879</b>	<b>24,586</b>	<b>0.83</b>	
CPG Brookfield Opps Real Estate	479,896	7,198	1.50	1.50 % of Assets
TA Realty Core Property Fund, LP (\$2.35m)	2,483,983	17,388	0.70	0.70 % of Assets
<b>Private Equity</b>	<b>2,385,962</b>	<b>32,089</b>	<b>1.34</b>	
CPG Carlyle Equity Opportunity Fund LLC	43,029	645	1.50	1.50 % of Assets
CPG WP Private Equity XI LLC	97,514	1,463	1.50	1.50 % of Assets
StepStone VC Opportunities IV, L.P.	680,015	13,600	2.00	2.00 % of Assets
iCapital KV Seed C Access Fund LP	329,893	8,247	2.50	2.50 % of Assets
HarbourVest 2019 Global Fund (\$750k)	627,339	3,576	0.57	Performance Based 0.57 and 12.50
HarbourVest 2021 Global Feeder Fund L.P. (\$1m)	354,464	2,020	0.57	Performance Based 0.57 and 12.50
747 Stuyvesant VII Parallel Fund, L.P. (\$750k)	253,708	2,537	1.00	Performance Based 1.00 and 10.00

The figures on this page have been obtained from sources we deem to be reliable. Fiduciant Advisors has not independently verified this information.

Fee calculations for mutual funds represent fees at the net expense level. Fee calculations for commingled funds and/or alternative investments reflect base management fees and exclude underlying fund expenses captured at the NAV level, any applicable performance-based fees, or incentive fees. Fees for fund of funds are shown at the fund of fund level and do not include fees charged by underlying investment managers/funds.

HarbourVest base fee represents the expected average fee over the life of the fund based on Fiduciant's aggregated client commitments; incentive fee applies only to Co-Investments and Secondaries.



# Liquidity Schedule

As of December 31, 2022

Investments	Inception	Subscriptions	Redemptions	Liquidity Terms	Market Value (\$)	Liquid (\$)	Semi Liquid (\$)	Illiquid (\$)
First American Government Obligations Z	03/2019	Daily	Liquid		130,974	130,974	-	-
Western Asset Core Plus Bond IS	03/2019	Daily	Liquid		3,983,503	3,983,503	-	-
BlackRock Strategic Income Opportunities Fund K	03/2019	Daily	Liquid		3,085,870	3,085,870	-	-
Brandywine Global Opportunistic Fixed Income	03/2019	Daily	Liquid	Contributions and redemptions daily with 5 business days notice	964,803	964,803	-	-
Fidelity 500 Index Fund	03/2019	Daily	Liquid		9,828,174	9,828,174	-	-
Shapiro Small Cap Value	03/2019	Daily	Liquid		1,388,029	1,388,029	-	-
Conestoga Small Cap Instl	03/2019	Daily	Liquid		1,252,758	1,252,758	-	-
EARNEST Partners International Equity (NHIT)	03/2019	Monthly	Liquid	Contributions and redemptions monthly with 5 business days notice	3,762,231	3,762,231	-	-
MFS Instl International Equity Fund	03/2019	Daily	Liquid		3,640,250	3,640,250	-	-
Baron Emerging Markets Fund Ltd.	03/2019	Monthly	Liquid	Contributions monthly with 5 business days notice Redemptions monthly with 30 days notice	1,805,881	1,805,881	-	-
Ironwood Partners L.P	12/2020	Quarterly	Semi Liquid	Lock: 1 year hard Gate: N/A Redemptions: semi-annually with 95 days notice	3,799,638	-	3,799,638	-
DWS RREEF Real Assets Fund Instl	01/2021	Daily	Liquid		1,974,426	1,974,426	-	-
CPG Brookfield Opps Real Estate	01/2009	Illiquid	Illiquid		479,896	-	-	479,896
TA Realty Core Property Fund, LP (\$2.35m)	01/2021	Quarterly	Semi Liquid	Redemptions: quarterly with 45 days notice, subject to queue	2,483,983	-	2,483,983	-
CPG Carlyle Equity Opportunity Fund LLC	01/2009	Illiquid	Illiquid		43,029	-	-	43,029
CPG WP Private Equity XI LLC	01/2009	Illiquid	Illiquid		97,514	-	-	97,514
StepStone VC Opportunities IV, L.P.	01/2009	Illiquid	Illiquid		680,015	-	-	680,015
iCapital KV Seed C Access Fund LP	01/2009	Illiquid	Illiquid		329,893	-	-	329,893
HarbourVest 2019 Global Fund (\$750k)	03/2019	Illiquid	Illiquid		627,339	-	-	627,339
HarbourVest 2021 Global Feeder Fund L.P. (\$1m)	09/2021	Illiquid	Illiquid		354,464	-	-	354,464
747 Stuyvesant VII Parallel Fund, L.P. (\$750k)	12/2020	Illiquid	Illiquid		253,708	-	-	253,708
<b>Total (\$)</b>					<b>40,966,378</b>	<b>31,816,899</b>	<b>6,283,621</b>	<b>2,865,858</b>

Liquid – daily to monthly | Semi-Liquid – greater than monthly and up to one year | Illiquid – greater than one year

The figures on this page have been obtained from sources we deem to be reliable. Fiduciant Advisors has not independently verified this information.



## Liquidity Schedule

As of December 31, 2022

Redemptions	Market Value (\$)	% of Total Plan
Illiquid	2,865,858	7.0
Semi Liquid	6,283,621	15.3
Liquid	31,816,899	77.7
<b>Total</b>	<b>40,966,378</b>	<b>100.0</b>

Liquid – daily to monthly | Semi-Liquid – greater than monthly and up to one year | Illiquid – greater than one year  
The figures on this page have been obtained from sources we deem to be reliable. Fiducient Advisors has not independently verified this information.



## Section 6 Performance & Manager Detail





## Manager Status Commentary

As of December 31, 2022

Manager	Recommendation	Comments
Western Asset Core Plus Bond IS	Maintain	
BlackRock Strategic Income Opportunities Fund K	Discuss 3Q 2022	BlackRock Strategic Income Opportunities remains on Discuss. BlackRock announced that Bob Miller, one of the portfolio managers on the strategy, will be retiring at the end of March 2023. Rick Rieder, CIO of Global Fixed Income, and David Rogal will remain as portfolio managers on the strategy. In addition, Russ Brownback has been named a portfolio manager alongside Mr. Rieder and Mr. Rogal.
Brandywine Global Opportunistic Fixed Income	Maintain	
Fidelity 500 Index Fund	Maintain	
Shapiro Small Cap Value	Maintain	
Conestoga Small Cap Instl	Maintain	
EARNEST Partners International Equity (CIT)	Maintain	
MFS Instl International Equity Fund	Maintain	
Baron Emerging Markets (CIT)	Maintain	
Ironwood Partners L.P	Maintain	
DWS RREEF Real Assets Fund Instl	Maintain	
TA Realty Core Property Fund, LP (\$8.75m)	Maintain	

Commentary produced upon change of status.



# Manager Performance

As of December 31, 2022

	Performance(%)							Inception Date	Manager Status
	QTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception		
<b>Short Term Liquidity</b>	<b>0.3</b>	<b>0.5</b>	<b>0.7</b>	<b>0.3</b>	<b>-</b>	<b>-</b>	<b>0.7</b>	<b>05/2019</b>	
<i>90 Day U.S. Treasury Bill</i>	<i>0.8</i>	<i>1.3</i>	<i>1.5</i>	<i>0.7</i>	<i>1.3</i>	<i>0.8</i>	<i>1.0</i>		
<b>First American Government Obligations Z</b>	<b>0.3</b>	<b>0.5</b>	<b>0.7</b>	<b>0.3</b>	<b>-</b>	<b>-</b>	<b>0.7</b>	<b>05/2019</b>	
<i>90 Day U.S. Treasury Bill</i>	<i>0.8</i>	<i>1.3</i>	<i>1.5</i>	<i>0.7</i>	<i>1.3</i>	<i>0.8</i>	<i>1.0</i>		
<b>Fixed Income</b>	<b>3.1</b>	<b>-2.0</b>	<b>-13.6</b>	<b>-2.5</b>	<b>-</b>	<b>-</b>	<b>-0.3</b>	<b>04/2019</b>	
<i>Blmbg. U.S. Aggregate</i>	<i>1.9</i>	<i>-3.0</i>	<i>-13.0</i>	<i>-2.7</i>	<i>0.0</i>	<i>1.1</i>	<i>-0.7</i>		
<b>Western Asset Core Plus Bond IS</b>	<b>3.2</b>	<b>-3.4</b>	<b>-18.8</b>	<b>-4.5</b>	<b>-0.7</b>	<b>1.6</b>	<b>-1.8</b>	<b>05/2019</b>	<b>Maintain</b>
<i>Blmbg. U.S. Aggregate</i>	<i>1.9</i>	<i>-3.0</i>	<i>-13.0</i>	<i>-2.7</i>	<i>0.0</i>	<i>1.1</i>	<i>-0.8</i>		
IM U.S. Broad Market Core+ Fixed Income (MF) Median	1.8	-2.6	-13.7	-2.4	0.1	1.2	-0.6		
Western Asset Core Plus Bond IS Rank	4	82	99	98	91	27	94		
<b>BlackRock Strategic Income Opportunities Fund K</b>	<b>1.6</b>	<b>-0.2</b>	<b>-5.6</b>	<b>0.8</b>	<b>1.9</b>	<b>2.4</b>	<b>1.8</b>	<b>05/2019</b>	<b>Discuss</b>
<i>Blmbg. U.S. Aggregate</i>	<i>1.9</i>	<i>-3.0</i>	<i>-13.0</i>	<i>-2.7</i>	<i>0.0</i>	<i>1.1</i>	<i>-0.8</i>		
IM Alternative Credit Focus (MF) Median	2.4	0.7	-7.6	0.4	1.0	1.4	0.8		
BlackRock Strategic Income Opportunities Fund K Rank	55	75	41	45	26	22	21		
<b>Brandywine Global Opportunistic Fixed Income</b>	<b>6.9</b>	<b>-2.2</b>	<b>-16.2</b>	<b>-3.9</b>	<b>-2.4</b>	<b>-</b>	<b>-1.4</b>	<b>05/2019</b>	<b>Maintain</b>
<i>Blmbg. Global Aggregate</i>	<i>4.5</i>	<i>-2.7</i>	<i>-16.2</i>	<i>-4.5</i>	<i>-1.7</i>	<i>-0.4</i>	<i>-2.4</i>		
IM Global Fixed Income (MF) Median	3.8	-1.9	-14.7	-3.7	-0.9	0.0	-1.7		
Brandywine Global Opportunistic Fixed Income Rank	6	59	67	60	89	-	43		
<b>Domestic Equity</b>	<b>8.1</b>	<b>3.1</b>	<b>-18.1</b>	<b>7.6</b>	<b>-</b>	<b>-</b>	<b>8.9</b>	<b>05/2019</b>	
<i>Russell 3000 Index</i>	<i>7.2</i>	<i>2.4</i>	<i>-19.2</i>	<i>7.1</i>	<i>8.8</i>	<i>12.1</i>	<i>8.7</i>		
<b>Fidelity 500 Index Fund</b>	<b>7.6</b>	<b>2.3</b>	<b>-18.1</b>	<b>7.6</b>	<b>9.4</b>	<b>12.6</b>	<b>9.3</b>	<b>05/2019</b>	<b>Maintain</b>
<i>S&amp;P 500</i>	<i>7.6</i>	<i>2.3</i>	<i>-18.1</i>	<i>7.7</i>	<i>9.4</i>	<i>12.6</i>	<i>9.3</i>		
IM U.S. Large Cap Core Equity (MF) Median	7.8	2.4	-18.7	6.9	8.8	11.7	8.6		
Fidelity 500 Index Fund Rank	57	53	45	29	30	16	27		
<b>Shapiro Small Cap Value</b>	<b>13.7</b>	<b>9.3</b>	<b>-8.7</b>	<b>9.5</b>	<b>5.5</b>	<b>11.8</b>	<b>8.5</b>	<b>05/2019</b>	<b>Maintain</b>
<i>Russell 2000 Value Index</i>	<i>8.4</i>	<i>3.4</i>	<i>-14.5</i>	<i>4.7</i>	<i>4.1</i>	<i>8.5</i>	<i>5.3</i>		
IM U.S. Small Cap Value Equity (MF) Median	11.7	5.3	-11.1	6.8	4.7	8.5	6.9		
Shapiro Small Cap Value Rank	18	15	38	23	29	2	24		

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Funds may include returns of an equivalent share class with a longer return history if period includes dates prior to the fund's inception. Returns are net of fees unless otherwise stated. The fund's inception date represents the first month the client made the investment. Composite performance includes all funds held in the composite since inception. Inception dates for asset class composites reflect the start date at which these returns could be calculated using historical and existing system capabilities and may vary from the inception dates of underlying component strategies.



## Manager Performance

As of December 31, 2022

	Performance(%)							Inception Date	Manager Status
	QTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception		
<b>Conestoga Small Cap Instl</b>	<b>5.8</b>	<b>1.3</b>	<b>-28.1</b>	<b>3.0</b>	<b>6.7</b>	<b>11.7</b>	<b>3.6</b>	<b>05/2019</b>	<b>Maintain</b>
<i>Russell 2000 Growth Index</i>	4.1	4.4	-26.4	0.6	3.5	9.2	2.3		
IM U.S. Small Cap Equity (MF) Median	8.7	4.2	-17.2	5.0	5.1	9.2	5.5		
Conestoga Small Cap Instl Rank	75	87	83	72	23	6	74		
<b>International Equity</b>	<b>13.8</b>	<b>3.0</b>	<b>-16.5</b>	<b>1.9</b>	<b>-</b>	<b>-</b>	<b>3.6</b>	<b>05/2019</b>	
<i>MSCI AC World ex USA (Net)</i>	14.3	3.0	-16.0	0.1	0.9	3.8	2.0		
<b>EARNEST Partners International Equity (CIT)</b>	<b>14.2</b>	<b>3.3</b>	<b>-13.2</b>	<b>3.2</b>	<b>2.5</b>	<b>-</b>	<b>4.3</b>	<b>03/2015</b>	<b>Maintain</b>
<i>MSCI AC World ex USA (Net)</i>	14.3	3.0	-16.0	0.1	0.9	3.8	2.8		
IM International Large Cap Core Equity (MF) Median	17.1	5.2	-15.1	0.8	1.2	3.8	2.5		
EARNEST Partners International Equity (CIT) Rank	84	74	26	16	11	-	7		
<b>MFS Instl International Equity Fund</b>	<b>16.2</b>	<b>6.2</b>	<b>-14.8</b>	<b>2.9</b>	<b>4.6</b>	<b>6.2</b>	<b>5.3</b>	<b>05/2019</b>	<b>Maintain</b>
<i>MSCI EAFE (Net)</i>	17.3	6.4	-14.5	0.9	1.5	4.7	2.8		
IM International Large Cap Core Equity (MF) Median	17.1	5.2	-15.1	0.8	1.2	3.8	2.6		
MFS Instl International Equity Fund Rank	68	25	46	18	8	1	12		
<b>Baron Emerging Markets (CIT)</b>	<b>8.6</b>	<b>-3.7</b>	<b>-25.8</b>	<b>-3.4</b>	<b>-2.7</b>	<b>3.1</b>	<b>-1.5</b>	<b>05/2019</b>	<b>Maintain</b>
<i>MSCI Emerging Markets Growth (Net)</i>	9.6	-3.7	-24.0	-2.9	-1.3	2.7	-0.2		
IM Emerging Markets Equity (MF) Median	9.9	-2.3	-22.4	-3.2	-1.7	1.2	-0.9		
Baron Emerging Markets (CIT) Rank	70	68	73	56	71	17	67		
<b>Marketable Alternatives</b>	<b>1.3</b>	<b>1.6</b>	<b>-0.4</b>	<b>4.4</b>	<b>-</b>	<b>-</b>	<b>15.4</b>	<b>04/2019</b>	
<i>HFRI Fund of Funds Composite Index</i>	1.8	1.4	-5.2	3.7	3.0	3.5	3.9		
<b>Ironwood Partners L.P</b>	<b>1.3</b>	<b>1.6</b>	<b>-0.4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.0</b>	<b>11/2021</b>	<b>Maintain</b>
<i>HFRI Fund of Funds Composite Index</i>	1.8	1.4	-5.2	3.7	3.0	3.5	-5.4		

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## Manager Performance

As of December 31, 2022

	Performance(%)							Inception Date	Manager Status
	QTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception		
<b>Real Assets</b>	2.5	-0.3	0.7	-	-	-	6.0	11/2021	
<i>DWS Real Assets Benchmark</i>	8.0	-1.3	-7.5	2.9	3.8	3.7	-4.9		
<b>DWS RREEF Real Assets Fund Instl</b>	6.8	-2.7	-9.6	5.2	6.1	4.3	-6.3	11/2021	<b>Maintain</b>
<i>DWS Real Assets Benchmark</i>	8.0	-1.3	-7.5	2.9	3.8	3.7	-4.9		
<b>Private Real Estate</b>	0.0	1.2	12.1	12.4	-	-	10.8	04/2019	
<i>CPG Carlyle Equity Opportunity Fund LLC</i>	0.0	0.7	5.5	3.8	5.1	6.4	3.6		
<i>TA Realty Core Property Fund, LP (\$8.75m)</i>	0.0	1.4	-	-	-	-	-		<i>Maintain</i>
<b>Private Equity</b>	0.0	-2.2	-5.0	12.8	12.0	11.5	9.3	09/2012	

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## Calendar Year Performance

As of December 31, 2022

	Performance(%)									
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Short Term Liquidity</b>	<b>0.0</b>	<b>0.3</b>	-	-	-	-	-	-	-	-
<i>90 Day U.S. Treasury Bill</i>	0.0	0.7	2.3	1.9	0.9	0.3	0.0	0.0	0.0	0.1
<b>First American Government Obligations Z</b>	<b>0.0</b>	<b>0.3</b>	-	-	-	-	-	-	-	-
<i>90 Day U.S. Treasury Bill</i>	0.0	0.7	2.3	1.9	0.9	0.3	0.0	0.0	0.0	0.1
<b>Fixed Income</b>	<b>-2.2</b>	<b>9.7</b>	-	-	-	-	-	-	-	-
<i>Blmbg. U.S. Aggregate</i>	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0	4.2
<b>Western Asset Core Plus Bond IS</b>	<b>-1.9</b>	<b>9.5</b>	<b>12.3</b>	<b>-1.5</b>	<b>7.0</b>	<b>4.7</b>	<b>1.3</b>	<b>7.7</b>	<b>-1.0</b>	<b>8.6</b>
<i>Blmbg. U.S. Aggregate</i>	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0	4.2
IM U.S. Broad Market Core+ Fixed Income (MF) Median	-0.9	8.6	9.3	-1.0	4.5	4.1	-0.3	5.1	-1.1	8.2
Western Asset Core Plus Bond IS Rank	84	29	2	66	1	34	2	3	47	40
<b>BlackRock Strategic Income Opportunities Fund K</b>	<b>1.0</b>	<b>7.3</b>	<b>7.8</b>	<b>-0.5</b>	<b>5.0</b>	<b>3.6</b>	<b>-0.6</b>	<b>3.6</b>	<b>3.0</b>	<b>9.6</b>
<i>Blmbg. U.S. Aggregate</i>	-1.5	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0	4.2
IM Alternative Credit Focus (MF) Median	1.9	3.9	7.3	-1.9	4.5	4.9	-1.6	1.0	-0.1	9.2
BlackRock Strategic Income Opportunities Fund K Rank	58	17	43	29	43	64	25	21	31	44
<b>Brandywine Global Opportunistic Fixed Income</b>	<b>-5.3</b>	<b>11.6</b>	<b>6.5</b>	<b>-6.1</b>	<b>15.0</b>	<b>7.1</b>	-	-	-	-
<i>Blmbg. Global Aggregate</i>	-4.7	9.2	6.8	-1.2	7.4	2.1	-3.2	0.6	-2.6	4.3
IM Global Fixed Income (MF) Median	-2.7	8.2	8.1	-1.8	6.8	2.9	-3.8	1.9	-2.5	7.3
Brandywine Global Opportunistic Fixed Income Rank	80	12	84	100	1	9	-	-	-	-
<b>Domestic Equity</b>	<b>27.9</b>	<b>18.8</b>	-	-	-	-	-	-	-	-
<i>Russell 3000 Index</i>	25.7	20.9	31.0	-5.2	21.1	12.7	0.5	12.6	33.6	16.4
<b>Fidelity 500 Index Fund</b>	<b>28.7</b>	<b>18.4</b>	<b>31.5</b>	<b>-4.4</b>	<b>21.8</b>	<b>12.0</b>	<b>1.4</b>	<b>13.7</b>	<b>32.4</b>	<b>16.0</b>
<i>S&amp;P 500</i>	28.7	18.4	31.5	-4.4	21.8	12.0	1.4	13.7	32.4	16.0
IM U.S. Large Cap Core Equity (MF) Median	26.9	18.4	30.6	-5.4	21.4	9.7	0.5	11.5	31.8	15.4
Fidelity 500 Index Fund Rank	26	50	37	32	45	20	35	18	38	41
<b>Shapiro Small Cap Value</b>	<b>31.8</b>	<b>9.0</b>	<b>23.0</b>	<b>-18.9</b>	<b>27.3</b>	<b>34.9</b>	<b>-14.0</b>	<b>7.6</b>	<b>46.4</b>	<b>19.2</b>
<i>Russell 2000 Value Index</i>	28.3	4.6	22.4	-12.9	7.8	31.7	-7.5	4.2	34.5	18.1
IM U.S. Small Cap Value Equity (MF) Median	32.0	3.6	21.1	-16.1	8.5	26.7	-7.0	3.4	36.5	16.2
Shapiro Small Cap Value Rank	53	12	21	78	1	5	90	8	3	24

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## Calendar Year Performance

As of December 31, 2022

	Performance(%)									
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Conestoga Small Cap Instl</b>	<b>16.4</b>	<b>30.6</b>	<b>25.4</b>	<b>0.8</b>	<b>28.7</b>	<b>14.3</b>	<b>8.3</b>	<b>-8.0</b>	<b>49.3</b>	<b>11.0</b>
<i>Russell 2000 Growth Index</i>	2.8	34.6	28.5	-9.3	22.2	11.3	-1.4	5.6	43.3	14.6
IM U.S. Small Cap Equity (MF) Median	22.4	13.3	24.4	-11.9	13.2	20.2	-4.2	3.8	38.3	14.5
Conestoga Small Cap Instl Rank	67	24	41	5	5	72	1	99	5	81
<b>International Equity</b>	<b>9.5</b>	<b>15.6</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>MSCI AC World ex USA (Net)</i>	7.8	10.7	21.5	-14.2	27.2	4.5	-5.7	-3.9	15.3	16.8
<b>EARNEST Partners International Equity (CIT)</b>	<b>12.1</b>	<b>12.9</b>	<b>21.6</b>	<b>-15.4</b>	<b>29.8</b>	<b>7.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>MSCI AC World ex USA (Net)</i>	7.8	10.7	21.5	-14.2	27.2	4.5	-5.7	-3.9	15.3	16.8
IM International Large Cap Core Equity (MF) Median	10.7	9.1	22.1	-15.0	25.0	0.0	-1.9	-6.0	20.4	18.0
EARNEST Partners International Equity (CIT) Rank	32	24	60	57	18	6	-	-	-	-
<b>MFS Instl International Equity Fund</b>	<b>15.2</b>	<b>11.1</b>	<b>28.4</b>	<b>-10.7</b>	<b>28.0</b>	<b>0.3</b>	<b>0.0</b>	<b>-4.2</b>	<b>18.6</b>	<b>22.5</b>
<i>MSCI EAFE (Net)</i>	11.3	7.8	22.0	-13.8	25.0	1.0	-0.8	-4.9	22.8	17.3
IM International Large Cap Core Equity (MF) Median	10.7	9.1	22.1	-15.0	25.0	0.0	-1.9	-6.0	20.4	18.0
MFS Instl International Equity Fund Rank	4	35	2	7	21	47	18	20	70	14
<b>Baron Emerging Markets (CIT)</b>	<b>-6.1</b>	<b>29.2</b>	<b>18.9</b>	<b>-18.5</b>	<b>40.6</b>	<b>4.1</b>	<b>-11.0</b>	<b>3.7</b>	<b>15.0</b>	<b>23.2</b>
<i>MSCI Emerging Markets Growth (Net)</i>	-8.4	31.3	25.1	-18.3	46.8	7.6	-11.3	-0.3	-0.2	20.6
IM Emerging Markets Equity (MF) Median	-1.6	17.7	20.2	-16.5	35.7	8.3	-13.7	-3.0	-1.5	18.8
Baron Emerging Markets (CIT) Rank	77	19	60	70	24	75	32	7	5	15
<b>Marketable Alternatives</b>	<b>6.4</b>	<b>7.4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>HFRI Fund of Funds Composite Index</i>	6.2	10.9	8.4	-4.0	7.8	0.5	-0.3	3.4	9.0	4.8
<b>Ironwood Partners L.P</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>HFRI Fund of Funds Composite Index</i>	6.2	10.9	8.4	-4.0	7.8	0.5	-0.3	3.4	9.0	4.8

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## Calendar Year Performance

As of December 31, 2022

	Performance(%)									
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Real Assets</b>	-	-	-	-	-	-	-	-	-	-
<i>DWS Real Assets Benchmark</i>	22.3	-3.7	19.7	-7.7	11.6	12.0	-12.2	5.0	3.6	14.5
<b>DWS RREEF Real Assets Fund Instl</b>	<b>23.8</b>	<b>3.9</b>	<b>21.8</b>	<b>-5.1</b>	<b>15.0</b>	<b>4.4</b>	<b>-9.5</b>	<b>3.5</b>	<b>1.2</b>	<b>9.7</b>
<i>DWS Real Assets Benchmark</i>	22.3	-3.7	19.7	-7.7	11.6	12.0	-12.2	5.0	3.6	14.5
<b>Private Real Estate</b>	24.0	2.2	-	-	-	-	-	-	-	-
<i>CPG Carlyle Equity Opportunity Fund LLC</i>	5.7	0.4	5.2	8.8	5.5	-5.4	-1.1	28.0	14.6	-
<i>TA Realty Core Property Fund, LP (\$8.75m)</i>	-	-	-	-	-	-	-	-	-	-
<b>Private Equity</b>	22.5	23.5	8.0	13.4	10.0	1.5	5.2	23.3	16.1	-

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# Benchmark History

Employee/PF and OPEB Blended Benchmark

As of December 31, 2022

Account Name	From Date	To Date	Benchmark
Employee/PF and OPEB Blended Benchmark	12/2021	Present	20.0% Blmbg. U.S. Aggregate, 37.0% Russell 3000 Index, 23.0% MSCI AC World ex USA (Net), 10.0% HFRI Fund of Funds Composite Index, 5.0% NCREIF Fund Index - ODCE (net), 5.0% DWS Real Assets Benchmark
	05/2019	12/2021	20.0% Blmbg. U.S. Aggregate, 40.0% Russell 3000 Index, 25.0% MSCI AC World ex USA (Net), 10.0% HFRI Fund of Funds Composite Index, 5.0% NCREIF Fund Index - ODCE (net)





## Section 7 Recommended Manager Searches



# City of Meriden Pension & OPEB Plans

## Investment Analysis

### February 2023

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# DEFINITION OF KEY METRICS

- **Alpha**

The Alpha is the nonsystematic return, or the return that can't be attributed to the market. It can be thought of as how the manager performed if the market's return was zero. A positive alpha implies the manager added value to the return of the portfolio over that of the market. A negative alpha implies the manager did not contribute any value over the performance of the market.

- **Batting Average**

Batting average is a measure of a manager's consistency. It is calculated as the ratio between the number of periods that a manager outperforms a benchmark and the total number of periods observed. For example, a batting average of 0.60 implies that a manager outperformed its benchmark 6 out of 10 time periods.

- **Beta**

This is a measure of a fund's market risk. The beta of the market is 1.00. Accordingly, a fund with a 1.10 beta is expected to perform 10% better than the market in up markets and 10% worse than the market in down markets. It is important to note, however, that a low fund beta does not imply that the fund has a low level of volatility; rather, a low beta means only that the fund's market-related risk is low. Because beta analyzes the market risk of a fund by showing how responsive the fund is to the market, its usefulness depends on the degree to which the markets determine the fund's total risk (indicated by R-squared).

- **Information Ratio**

The information ratio is a measure of the excess return per volatility of that excess return. This value is determined by taking the annualized excess return over a benchmark and dividing it by the standard deviation of excess return.

- **R-Squared**

This reflects the percentage of a fund's movements that are explained by movements in its benchmark index. An R-squared of 100 means that all movements of a fund are completely explained by movements in the index. Conversely, a low R-squared indicates that very few of the fund's movements are explained by movements in the benchmark index. R-squared can also be used to ascertain the significance of a particular beta. Generally, a higher R-squared will indicate a more reliable beta figure. If the R-squared is lower, then the beta is less relevant to the fund's performance. A measure of diversification, R-squared indicates the extent to which fluctuations in portfolio returns are explained by the market. An R-squared = 0.70 implies that 70% of the fluctuation in a portfolio's return is explained by the fluctuation in the market. In this instance, overweighting or underweighting of industry groups or individual securities is responsible for 30% of the fund's movement.

- **Return**

Time-weighted average annual returns for the time period indicated.

- **Sharpe Ratio**

The Sharpe ratio is the excess return per unit of total risk as measured by standard deviation. Higher numbers are better, indicating more return for the level of risk experienced. The ratio is a fund's return minus the risk-free rate of return (30-day T-Bill rate) divided by the fund's standard deviation. The higher the Sharpe ratio, the more reward you are receiving per unit of total risk.

- **Volatility (or Standard Deviation)**

Standard deviation is a statistical measure of the range of performance within which the total returns of a fund fall. When a fund has a high standard deviation, the range of performance is very wide, meaning that there is a greater volatility. Approximately 68% of the time, the total return of any given fund will differ from the average total return by no more than plus or minus the standard deviation figure. Ninety-five percent of the time, a fund's total return will be within a range of plus or minus two times the standard deviation from the average total return. If the quarterly or monthly returns are all the same the standard deviation will be zero. The more they vary from one another, the higher the standard deviation. Standard deviation can be misleading as a risk indicator for funds with high total returns because large positive deviations will increase the standard deviation without a corresponding increase in the risk of the fund. While positive volatility is welcome, negative is not.

- **Tracking Error**

Tracking error measures the volatility of the difference in annual returns between the manager and the index. This value is calculated by measuring the standard deviation of the difference between the manager and index returns. For example, a tracking error of +/- 5 would mean there is about a 68% chance (1 standard deviation event) that the manager's returns will fall within +/- 5% of the benchmark's annual return.

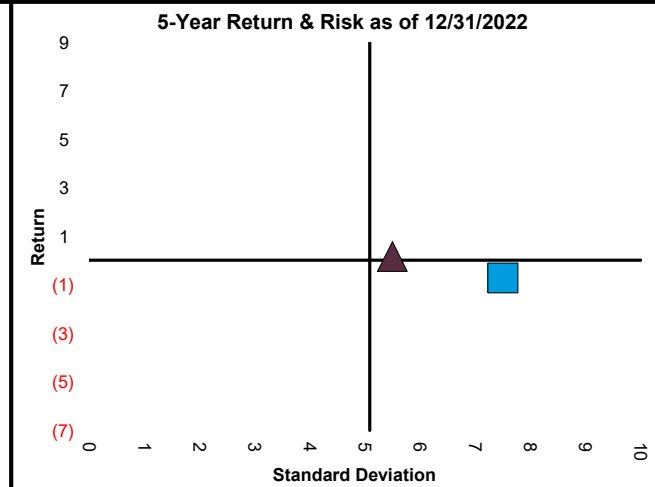
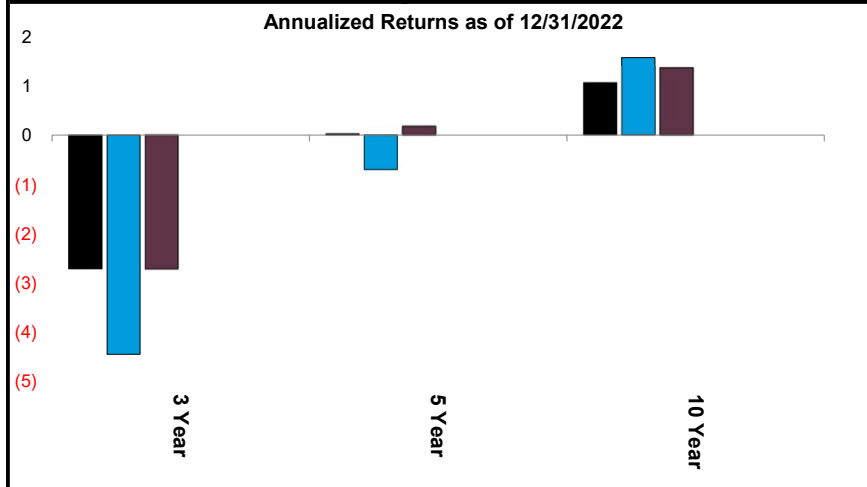
**U.S. Core Fixed Income**

<b>Fund / Manager</b>	<b>Western Asset Core Plus Bond IS</b>	<b>Metropolitan West Total Return Bd Plan</b>
<b>Status</b>	Maintain	Maintain
<b>Manager (Tenure in Years)</b>	Team (16.1)	Team (25.8)
<b>Net Assets (\$ Millions)</b>	\$26,523	\$62,793
<b>Firm</b>	- Western Asset is a wholly owned subsidiary of Franklin Templeton. Based in Pasadena, CA, but with offices around the world, the firm provides fixed income solutions across a variety of sectors, regions and maturities.	- TCW is Los Angeles, CA based asset manager with most of the firm's assets in fixed income related strategies. The firm is owned by employees (~44%), Carlyle Group (~31%), and Nippon Life (~25%).
<b>Team</b>	- Ken Leech, CIO, leads the U.S. Broad Strategy Committee and the team of portfolio managers on the U.S. Broad Market Team are responsible for allocating risk and implementing the portfolio. - The Broad Market Team is supported by the sector and regional analysts teams at Western.	- A team of generalist portfolio managers, led by co-CIOs Bryan Whalen and Stephen Kane, are responsible for managing the strategy. They are supported by TCW's fixed income research platform and a team of sector specialists. The generalist PMs set the top-down view while the sector specialists are responsible for the bottom-up selection.
<b>Philosophy/Process</b>	- Western takes a long-term value-based approach to investing and has multiple strategies embedded into the portfolio so that no individual strategy, should it go awry, can substantially drive negative performance. - The U.S. Broad Strategy Committee sets the views on macro and credit outlook. The Broad Market Team focuses on four areas including sector and sub-sector allocations, issue selection, duration, and term structure.  - WAM is active with its posturing, albeit with a longstanding bias to non-govt securities, and strong relative value analysis driving decisions. Issue selection aims to identify mis-priced/undervalued issues, with corporate issues representing a large source of incremental performance.	- The team believes in the mean reverting nature of fixed income securities and recognizes that short term technical factors can cause fixed income pricing to temporarily deviate from the mean. They aim to combine top-down strategies with bottom-up issue selection to construct the portfolio. - The process begins with a long-term economic outlook, analyzing economic trends, credit trends, commodity price cycles and the political environment and is the primary driver of duration, sector, and curve positioning.  - The large analyst team and sector specialists are then responsible for the bottom-up fundamental credit analysis of individual securities for the portfolio.
<b>Portfolio Construction</b>	- A strategic portfolio is built by the broad market committee with targeted interest rate exposure, term structure weights, and sector allocations. The Fund will normally maintain duration within 30% of the domestic bond market. The Fund may invest up to 20% in non-U.S. dollar denominated securities and up to 20% in below investment grade securities.	- The portfolio is typically +/- 1 year of the benchmark duration and can invest up to 20% in high yield securities. The portfolio management team provides the initial layer of risk management through prudent diversification. TCW's risk management team also provides oversight to monitor, measure, and quantify risk exposures in the portfolio.
<b>Expense Ratio</b>	0.42	0.36
<b>Management Fee</b>	N.A.	N.A.
<b>Redemption Fee</b>	N.A.	N.A.

## U.S. Core Fixed Income Return, Standard Deviation and Peer Group Comparisons

12/31/2022

Manager or Index	Annual Returns (%) as of 12/31/2022					Calendar Year Returns (%)							Volatility (%) as of 12/31/2022				
	1 Year	3 Year	5 Year	7 Year	10 Year	2022 YTD	2021	2020	2019	2018	2017	2016	1 Year	3 Year	5 Year	7 Year	10 Year
<b>Bloomberg U.S. Aggregate</b>	(13.0)	(2.7)	0.0	0.9	1.1	(13.0)	(1.5)	7.5	8.7	0.0	3.5	2.6	8.3	5.9	5.1	4.5	4.1
Western Asset Core Plus Bond IS	(18.8)	(4.5)	(0.7)	1.1	1.6	(18.8)	(1.9)	9.5	12.3	(1.5)	7.0	4.7	12.3	9.1	7.5	6.6	5.8
Metropolitan West Total Return Bd Plan	(14.7)	(2.7)	0.2	1.0	1.4	(14.7)	(1.1)	9.2	9.2	0.3	3.5	2.6	9.2	6.5	5.5	4.8	4.3



■ /+ Index (Bloomberg U.S. Aggregate)  
■ Western Asset Core Plus Bond IS  
▲ Metropolitan West Total Return Bd Plan

Differentiators	
<u>Batting Average<sup>^</sup></u> 1) Western (87%) 2) Metropolitan (71%)	<u>Loss Protection (5 Yrs)</u> 1) Metropolitan (104%) 2) Western (144%)

Manager or Index	Peer Group Rankings as of 12/31/2022					Calendar Year Peer Group Rank						
	1 Year	3 Year	5 Year	7 Year	10 Year	2022 YTD	2021	2020	2019	2018	2017	2016
<b>Bloomberg U.S. Aggregate</b>	30	38	29	37	32	30	42	54	36	28	40	47
Western Asset Core Plus Bond IS	98	98	90	21	5	98	69	10	1	94	1	6
Metropolitan West Total Return Bd Plan	86	38	21	30	12	86	21	14	24	15	44	52

<u>High Alpha (5 Yrs)</u> 1) Metropolitan (0.2) 2) Western (-0.3)	<u>Low-to-High Beta (5 Yrs)</u> 1) Metropolitan (1.07) 2) Western (1.37)
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Peer Group Range	Peer Group Spreads as of 12/31/2022					Calendar Year Peer Group Spreads						
	1 Year	3 Year	5 Year	7 Year	10 Year	2022 YTD	2021	2020	2019	2018	2017	2016
10th Percentile	(10.5)	(1.9)	0.4	1.3	1.4	(10.5)	(0.5)	9.5	9.8	0.6	4.4	4.1
25th Percentile	(12.9)	(2.4)	0.1	1.1	1.1	(12.9)	(1.2)	8.6	9.2	0.1	3.9	3.1
<b>50th Percentile</b>	(13.4)	(2.8)	(0.1)	0.8	0.9	(13.4)	(1.7)	7.6	8.5	(0.3)	3.4	2.6
75th Percentile	(14.1)	(3.1)	(0.5)	0.5	0.6	(14.1)	(2.0)	7.0	7.8	(0.8)	3.0	2.3
90th Percentile	(15.1)	(3.5)	(0.7)	0.1	0.3	(15.1)	(2.2)	5.8	6.6	(1.3)	2.3	1.8
<i>Top/Bottom Quartile spread</i>	+1.2	+0.7	+0.5	+0.6	+0.5	+1.2	+0.8	+1.6	+1.4	+0.8	+0.9	+0.8

<u>Low Vol (5 Yrs)</u> 1) Metropolitan (5.5) 2) Western (7.5)	<u>Low-to-High Expense</u> 1) Metropolitan (0.36) 2) Western (0.42)
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<sup>^</sup>The Batting Average measures the frequency of rolling 3-year period outperformance from the lesser of 10 years or each fund's inception date.

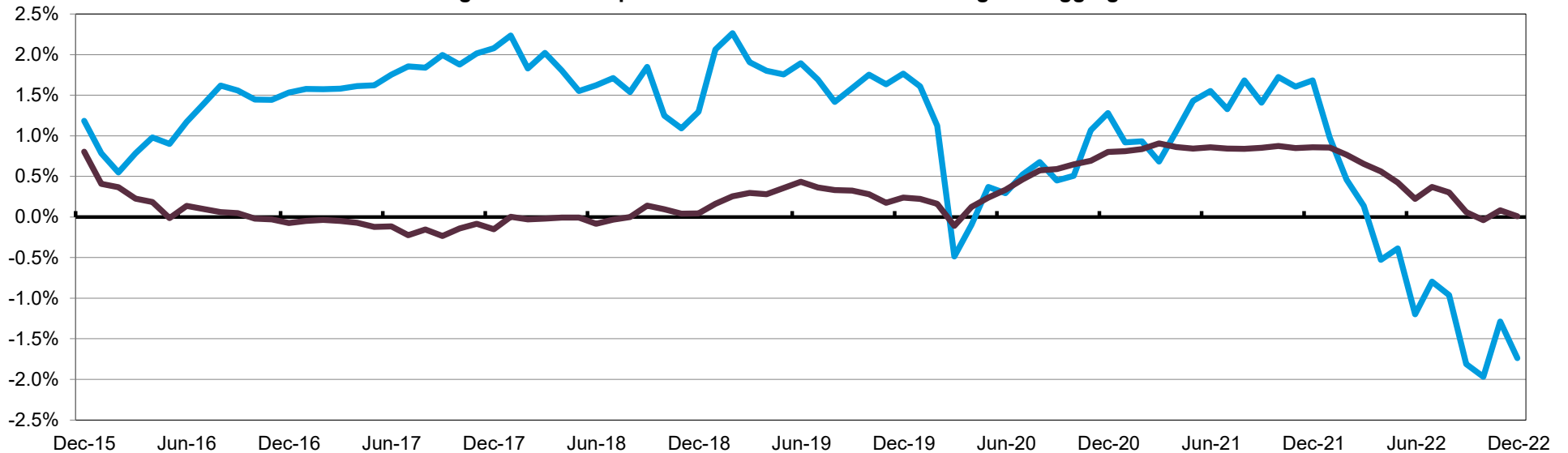
## U.S. Core Fixed Income MPT and Other Quantitative Risk and Return Metrics

12/31/2022

Managers vs. Bloomberg U.S. Aggregate	Past 10-Year Metrics as of 12/31/2022							Past 5-Year Metrics as of 12/31/2022						Max Drawdowns (10 yrs)			
	Correl / R <sup>2</sup>	Beta	Alpha (%)	Sharpe Ratio (%)	Track. Error / Info. Ratio (%)	UP Capture	DOWN Capture	Correl / R2	Beta	Alpha (%)	Sharpe Ratio (%)	Track. Error / Info. Ratio (%)	UP Capture	DOWN Capture	8/2020 - 10/2022	5/2013 - 8/2013	8/2016 - 11/2016
<b>Bloomberg U.S. Aggregate</b>	<b>1 / 1</b>	<b>1</b>	<b>0</b>	<b>0.08</b>	<b>0 / 0</b>	<b>100%</b>	<b>100%</b>	<b>1 / 1</b>	<b>1</b>	<b>0</b>	<b>(0.24)</b>	<b>0 / 0</b>	<b>100%</b>	<b>100%</b>	<b>-17.2%</b>	<b>-3.7%</b>	<b>-3.3%</b>
Western Asset Core Plus Bond IS	0.92 / 0.84	1.29	0.4	0.15	2.6 / 0.2	133%	126%	0.92 / 0.85	1.37	(0.3)	(0.26)	3.5 / -0.21	140%	144%	-22.0%	-4.1%	-2.5%
Metropolitan West Total Return Bd Plan	0.98 / 0.97	1.03	0.3	0.15	0.8 / 0.39	102%	96%	0.99 / 0.98	1.07	0.2	(0.19)	0.8 / 0.2	108%	104%	-17.8%	-3.4%	-2.7%

Managers vs. Bloomberg U.S. Aggregate	Monthly, 12-month and 36-month batting averages vs. Bloomberg U.S. Aggregate for 10 Years (or manager inception date)							Graph Legend	
	1 Month Periods	% + Months	12 Month periods	% + 12-Months	36 Month Periods	% + 36 Months	Return Start Date	Western Asset Core Plus Bond IS	Metropolitan West Total Return Bd Plan
Western Asset Core Plus Bond IS	120	58%	109	70%	85	87%	Dec-12	—	—
Metropolitan West Total Return Bd Plan	120	57%	109	67%	85	71%	Dec-12		

**Rolling 36-Month Outperformance Versus the Bloomberg U.S. Aggregate**



**U.S. High Yield**

Fund / Manager	Artisan High Income Institutional
<b>Status</b>	Maintain
<b>Manager (Tenure in Years)</b>	Team (8.8)
<b>Net Assets (\$ Millions)</b>	\$5,935
<b>Firm</b>	<p>-Artisan Partners, founded in 1994, is a globally diversified asset manager. Strategies are diversified across equities and fixed income asset classes and are managed by independent investment teams.</p>
<b>Team</b>	<ul style="list-style-type: none"> <li>- Lead portfolio manager Bryan Krug is the key decision maker and is supported by a team of credit analysts, traders and a data scientist.</li> <li>- The team is relatively lean, analysts maintain generalist coverage with sector tendencies.</li> <li>- To make the team more efficient, more recent hires have focused on data analytics.</li> </ul>
<b>Philosophy/Process</b>	<ul style="list-style-type: none"> <li>-The strategy seeks relative value opportunities across the below investment grade credit universe. Investment ideas will fall under one of three themes, including core, spread tightening and opportunistic.</li> <li>- Core holdings are the foundation of the portfolio and are typically higher quality with lower loan to value ratios and have a potential catalyst that should produce outsized returns relative to the benchmark.</li> <li>- Spread tightening investments are primarily contrarian in nature and typically composed of firms that may have undergone spread widening due to new short-term information.</li> <li>- Opportunistic positions are typically driven by shorter-term catalysts and may include out of benchmark securities.</li> </ul>
<b>Portfolio Construction</b>	<ul style="list-style-type: none"> <li>- Portfolio construction is driven by a holistic view of the below investment grade credit universe, and will include allocations to both floating rate bank loans and fixed rate bonds.</li> <li>- Historically, the strategy allocates a majority of assets to high yield bonds.</li> <li>- Relative value analysis across industries and a company's capital structure drives security selection.</li> </ul>
<b>Expense Ratio</b>	0.71
<b>Management Fee</b>	N.A.
<b>Redemption Fee</b>	2% (90 Days)

## U.S. High Yield Return, Standard Deviation and Peer Group Comparisons

12/31/2022

Manager or Index	Annual Returns (%) as of 12/31/2022					Calendar Year Returns (%)							Volatility (%) as of 12/31/2022				
	1 Year	3 Year	4 Year	6 Year	8 Year	2022 YTD	2021	2020	2019	2018	2017	2016	1 Year	3 Year	4 Year	6 Year	8 Year
Bloomberg U.S. Corporate High Yield	(11.2)	0.0	3.4	3.2	3.8	(11.2)	5.3	7.1	14.3	(2.1)	7.5	17.1	11.7	11.1	10.0	8.4	8.0
Artisan High Income Institutional	(10.4)	1.7	4.7	4.3	5.1	(10.4)	6.4	10.2	14.2	(1.4)	8.9	14.5	10.2	11.5	10.3	8.6	7.9

Term	Index (Bloomberg U.S. Corporate High Yield)	Artisan High Income Institutional
3 Year	0.0	1.7
4 Year	3.4	4.7
8 Year	3.8	5.1

Manager/Index	Return (%)	Standard Deviation (%)
Index (Bloomberg U.S. Corporate High Yield)	3.4	~10.0
Artisan High Income Institutional	4.7	~10.0

Manager or Index	Peer Group Rankings as of 12/31/2022					Calendar Year Peer Group Rank							Differentiators	
	1 Year	3 Year	4 Year	6 Year	8 Year	2022 YTD	2021	2020	2019	2018	2017	2016	Batting Average <sup>^</sup>	Loss Protection (4 Yrs)
Bloomberg U.S. Corporate High Yield	59	38	30	20	13	59	36	22	36	34	30	9	1) Artisan (97%)	1) Artisan (91%)
Artisan High Income Institutional	43	9	6	2	1	43	14	6	39	23	11	34	High Alpha (4 Yrs) 1) Artisan (1.2)	Low-to-High Beta (4 Yrs) 1) Artisan (0.99)

Peer Group Range	Peer Group Spreads as of 12/31/2022					Calendar Year Peer Group Spreads							Low Vol (4 Yrs)	Low-to-High Expense
	1 Year	3 Year	4 Year	6 Year	8 Year	2022 YTD	2021	2020	2019	2018	2017	2016	1) Artisan (10.3)	1) Artisan (0.71)
10th Percentile	(5.3)	1.6	4.1	3.5	3.9	(5.3)	6.9	9.2	15.9	(0.3)	9.3	17.0		
25th Percentile	(8.7)	0.7	3.6	3.0	3.5	(8.7)	5.7	6.8	14.9	(1.6)	7.8	15.2		
<b>50th Percentile</b>	<b>(10.8)</b>	<b>(0.3)</b>	<b>2.9</b>	<b>2.5</b>	<b>3.0</b>	<b>(10.8)</b>	<b>4.7</b>	<b>5.3</b>	<b>13.6</b>	<b>(2.8)</b>	<b>6.7</b>	<b>13.4</b>		
75th Percentile	(11.9)	(1.1)	2.3	2.1	2.5	(11.9)	3.7	3.6	11.5	(3.7)	5.8	11.1		
90th Percentile	(13.5)	(1.8)	1.4	1.4	1.9	(13.5)	2.8	2.2	7.8	(4.6)	4.6	8.8		
Top/Bottom Quartile spread	+3.2	+1.8	+1.3	+0.9	+1.0	+3.2	+2.0	+3.2	+3.4	+2.1	+1.9	+4.1		

<sup>^</sup>The Batting Average measures the frequency of rolling 3-year period outperformance from the lesser of 8 years or each fund's inception date.



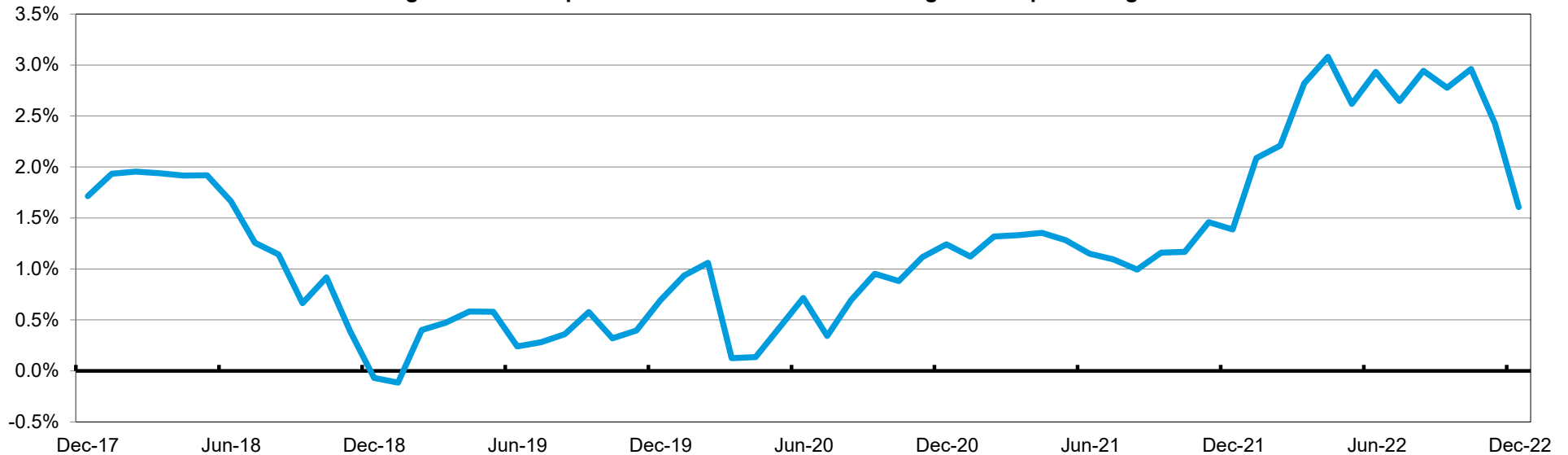
## U.S. High Yield MPT and Other Quantitative Risk and Return Metrics

12/31/2022

Managers vs. Bloomberg U.S. Corporate High Yield	Past 8-Year Metrics as of 12/31/2022							Past 4-Year Metrics as of 12/31/2022							Max Drawdowns (8 yrs)		
	Correl / R <sup>2</sup>	Beta	Alpha (%)	Sharpe Ratio (%)	Track. Error / Info. Ratio (%)	UP Capture	DOWN Capture	Correl / R2	Beta	Alpha (%)	Sharpe Ratio (%)	Track. Error / Info. Ratio (%)	UP Capture	DOWN Capture	1/2022 - 9/2022	2/2020 - 3/2020	6/2015 - 1/2016
<b>Bloomberg U.S. Corporate High Yield</b>	<b>1 / 1</b>	<b>1</b>	<b>0</b>	<b>0.36</b>	<b>0 / 0</b>	<b>100%</b>	<b>100%</b>	<b>1 / 1</b>	<b>1</b>	<b>0</b>	<b>0.24</b>	<b>0 / 0</b>	<b>100%</b>	<b>100%</b>	<b>-14.7%</b>	<b>-12.7%</b>	<b>-9.7%</b>
Artisan High Income Institutional	0.96 / 0.92	0.95	1.5	0.54	2.2 / 0.6	99%	83%	0.97 / 0.93	0.99	1.2	0.35	2.6 / 0.46	101%	91%	-11.3%	-14.5%	-5.2%

Managers vs. Bloomberg U.S. Corporate High Yield	Monthly, 12-month and 36-month batting averages vs. Bloomberg U.S. Corporate High Yield for 8 Years (or manager inception date)							Graph Legend	
	1 Month Periods	% + Months	12 Month periods	% + 12-Months	36 Month Periods	% + 36 Months	Return Start Date	— Artisan High Income Institutional	
Artisan High Income Institutional	96	64%	85	74%	61	97%	Mar-14		

**Rolling 36-Month Outperformance Versus the Bloomberg U.S. Corporate High Yield**



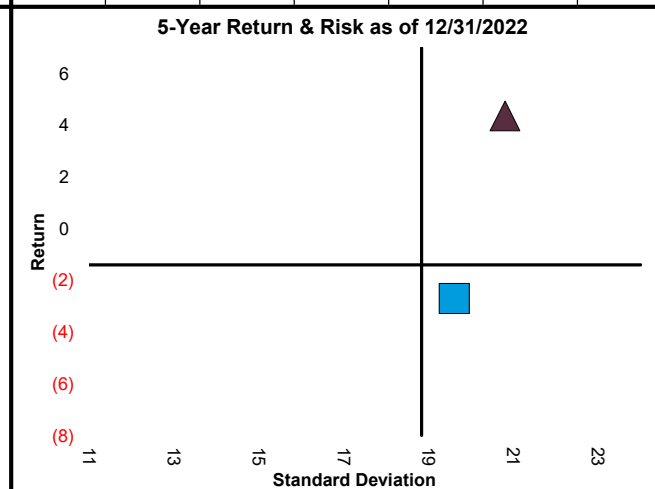
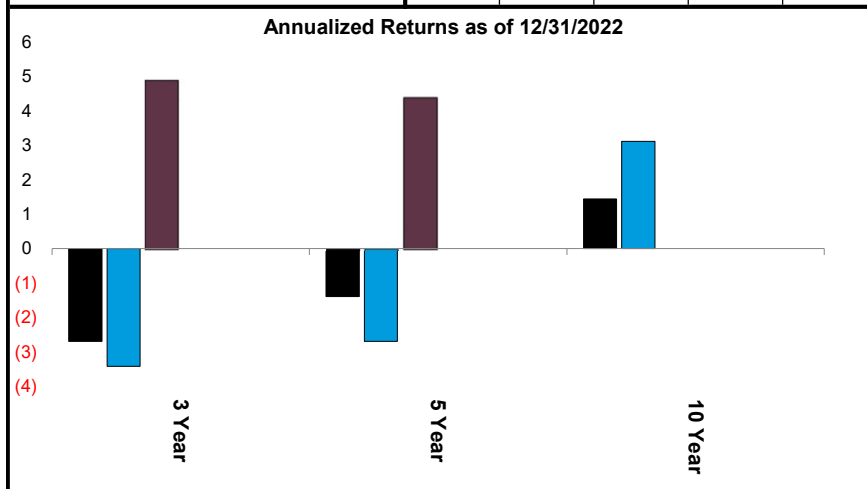
**Emerging Markets Equity**

<b>Fund / Manager</b>	<b>Baron Emerging Markets R6</b>	<b>ARGA Emerging Markets Equity Strategy</b>
<b>Status</b>	Maintain	Maintain
<b>Manager (Tenure in Years)</b>	Team (12.1)	Team (1.6)
<b>Net Assets (\$ Millions)</b>	\$5,168	\$433
<b>Firm</b>	<ul style="list-style-type: none"> <li>- Baron is an independent asset management firm based in New York, NY.</li> <li>- The firm was founded in 1982 by Ron Baron and remains 100% employee-owned with Ron Baron and his family owning more than 90%.</li> </ul>	<ul style="list-style-type: none"> <li>- ARGA Investment Management, LP – founded in 2013 by A. Rama Krishna – is headquartered in Stamford, Connecticut. ARGA manages value-oriented portfolios across international and global equity asset classes.</li> </ul>
<b>Team</b>	<ul style="list-style-type: none"> <li>- Michael Kass is the sole portfolio manager on the strategy and has been since its inception in 2011.</li> <li>- He is supported by a group of dedicated sector analysts, as well as the firm's other portfolio managers and sector analysts.</li> </ul>	<ul style="list-style-type: none"> <li>- The strategy is managed by the Portfolio Construction Team ("PCT") consisting of three members: Chief Investment Officer Rama Krishna and Global Business Analysts Takashi Ito and Sujith Kumar.</li> <li>- The PCT is supported by ARGA's Director of Research and its team of global business analysts and research associates.</li> </ul>
<b>Philosophy/Process</b>	<ul style="list-style-type: none"> <li>- The team invests in growth companies using a value-oriented purchase discipline, believing the best opportunities are created when price does not reflect growth prospects.</li> <li>- The team identifies themes and growth opportunities within given sectors or countries. Through bottom-up, fundamental research, they seek those companies with significant growth opportunities, sustainable competitive advantages, barriers to entry, exceptional management teams, etc., which they believe can best execute on those themes and that are trading at compelling valuations. Proprietary models are built to forecast key company metrics, calculate a future intrinsic value, and forecast investment returns under different market scenarios.</li> </ul>	<ul style="list-style-type: none"> <li>- The strategy takes a long-term perspective and employs a bottom-up, fundamentally driven approach and seeks to invest in businesses trading at a discount to intrinsic value.</li> <li>- The front-end screen ranks every stock in the universe on key value metrics including price to earnings, price to book, dividend yield and normalized earnings yield adjusted for return on invested capital.</li> <li>- The PCT and Director of Research assign the analysts companies in the cheapest quintile for fundamental research. The analysts conduct one-week research projects and present to the PCT; if the stock warrants further analysis the analyst performs a detailed research project.</li> <li>- The analysts determine intrinsic value using ARGA's multi-stage dividend discount model.</li> </ul>
<b>Portfolio Construction</b>	<ul style="list-style-type: none"> <li>- At least 80% of assets will be invested in companies domiciled in developing countries while up to 20% may be invested in developed or frontier countries.</li> <li>- The portfolio typically holds 75 - 100 positions, and the team's stock selection across sectors and industries creates inherent diversification.</li> <li>- Positions are weighted by conviction and limited to 5% at time of purchase, and the maximum allocation to any one sector is 25%.</li> </ul>	<ul style="list-style-type: none"> <li>- Position sizes are determined based on a stock's upside-to-downside profile and ARGA's level of conviction.</li> <li>- Initial position sizes typically range from 1% to 3% and tend to increase as ARGA builds conviction in the thesis; positions are limited to 5% of the portfolio at the time of purchase and 8% based on market value.</li> <li>- The portfolio typically holds between 35 and 80 stocks.</li> </ul>
<b>Expense Ratio</b>	1.08	N.A.
<b>Management Fee</b>	N.A.	0.90
<b>Redemption Fee</b>	N.A.	N.A.

## Emerging Markets Equity Return, Standard Deviation and Peer Group Comparisons

12/31/2022

Manager or Index	Annual Returns (%) as of 12/31/2022					Calendar Year Returns (%)							Volatility (%) as of 12/31/2022				
	1 Year	3 Year	5 Year	7 Year	10 Year	2022 YTD	2021	2020	2019	2018	2017	2016	1 Year	3 Year	5 Year	7 Year	10 Year
MSCI Emerging Markets	(20.1)	(2.7)	(1.4)	5.2	1.4	(20.1)	(2.5)	18.3	18.4	(14.6)	37.3	11.2	21.6	20.5	18.8	17.6	16.7
Baron Emerging Markets R6	(25.8)	(3.4)	(2.7)	3.6	3.1	(25.8)	(6.1)	29.3	18.8	(18.5)	40.6	4.2	21.1	22.8	19.6	17.9	16.3
ARGA Emerging Markets Equity Strategy	(1.5)	4.9	4.4	11.2	N/A	(1.5)	10.1	6.3	18.2	(9.2)	37.4	23.8	24.1	24.1	20.8	19.8	N/A



■/▲ Index (MSCI Emerging Markets)

■ Baron Emerging Markets R6

▲ ARGA Emerging Markets Equity Strategy

### Differentiators

Batting Average <sup>^</sup>	Loss Protection (5 Yrs)
1) ARGA (59%) 2) Baron (59%)	1) ARGA (87%) 2) Baron (102%)

Manager or Index	Peer Group Rankings as of 12/31/2022					Calendar Year Peer Group Rank						
	1 Year	3 Year	5 Year	7 Year	10 Year	2022 YTD	2021	2020	2019	2018	2017	2016
MSCI Emerging Markets	44	51	46	36	47	44	65	41	60	31	41	35
Baron Emerging Markets R6	81	62	75	77	16	81	83	16	58	74	22	79
ARGA Emerging Markets Equity Strategy	1	2	1	1	N/A	1	13	86	63	3	40	3

High Alpha (5 Yrs)	Low-to-High Beta (5 Yrs)
1) ARGA (5.8) 2) Baron (-1.3)	1) Baron (1.00) 2) ARGA (1.02)

Peer Group Range	Peer Group Spreads as of 12/31/2022					Calendar Year Peer Group Spreads						
	1 Year	3 Year	5 Year	7 Year	10 Year	2022 YTD	2021	2020	2019	2018	2017	2016
10th Percentile	(13.0)	2.1	1.6	6.9	3.6	(13.0)	12.2	33.6	28.0	(11.5)	43.6	16.9
25th Percentile	(16.8)	(0.2)	(0.0)	5.7	2.5	(16.8)	5.7	23.7	23.7	(13.8)	40.3	12.4
50th Percentile	(20.8)	(2.6)	(1.6)	4.7	1.3	(20.8)	(0.4)	17.2	19.6	(16.0)	35.6	9.5
75th Percentile	(24.5)	(4.3)	(2.7)	3.6	0.6	(24.5)	(4.0)	11.2	16.7	(18.6)	29.9	5.0
90th Percentile	(28.5)	(6.2)	(3.7)	2.6	(0.3)	(28.5)	(9.6)	2.6	12.6	(21.2)	26.0	1.6
Top/Bottom Quartile spread	+7.7	+4.0	+2.7	+2.1	+1.9	+7.7	+9.7	+12.5	+7.0	+4.8	+10.4	+7.4

Low Vol (5 Yrs)	Low-to-High Expense
1) Baron (19.6) 2) ARGA (20.8)	1) ARGA (0.90) 2) Baron (1.08)

<sup>^</sup>The Batting Average measures the frequency of rolling 3-year period outperformance from the lesser of 10 years or each fund's inception date.

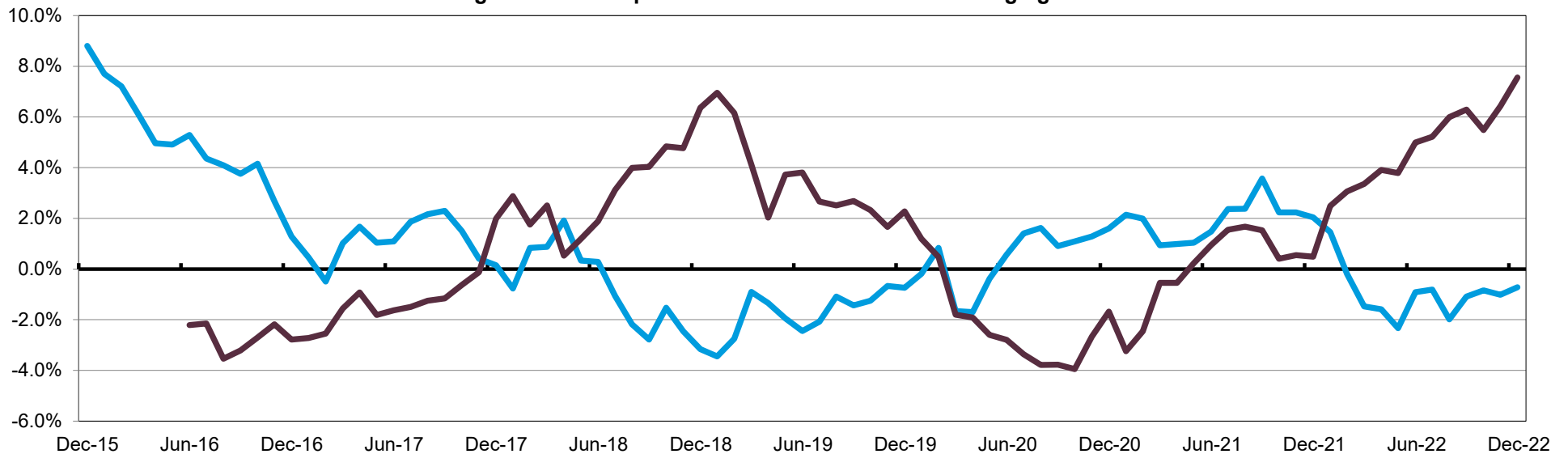
## Emerging Markets Equity MPT and Other Quantitative Risk and Return Metrics

12/31/2022

Managers vs. MSCI Emerging Markets	Past 10-Year Metrics as of 12/31/2022							Past 5-Year Metrics as of 12/31/2022							Max Drawdowns (10 yrs)		
	Correl / R <sup>2</sup>	Beta	Alpha (%)	Sharpe Ratio (%)	Track. Error / Info. Ratio (%)	UP Capture	DOWN Capture	Correl / R2	Beta	Alpha (%)	Sharpe Ratio (%)	Track. Error / Info. Ratio (%)	UP Capture	DOWN Capture	7/2021 - 10/2022	9/2014 - 2/2016	2/2018 - 3/2020
<b>MSCI Emerging Markets</b>	<b>1 / 1</b>	<b>1</b>	<b>0</b>	<b>0.04</b>	<b>0 / 0</b>	<b>100%</b>	<b>100%</b>	<b>1 / 1</b>	<b>1</b>	<b>0</b>	<b>(0.14)</b>	<b>0 / 0</b>	<b>100%</b>	<b>100%</b>	<b>-36.0%</b>	<b>-29.8%</b>	<b>-28.7%</b>
Baron Emerging Markets R6	0.93 / 0.87	0.91	1.7	0.15	6.1 / 0.27	92%	88%	0.96 / 0.92	1.00	(1.3)	(0.20)	5.5 / -0.24	96%	102%	-40.3%	-21.7%	-31.2%
ARGA Emerging Markets Equity Strategy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.92 / 0.85	1.02	5.8	0.15	8 / 0.72	108%	87%	-23.1%	-38.7%	-30.8%

Managers vs. MSCI Emerging Markets	Monthly, 12-month and 36-month batting averages vs. MSCI Emerging Markets for 10 Years (or manager inception date)							Graph Legend	
	1 Month Periods	% + Months	12 Month periods	% + 12-Months	36 Month Periods	% + 36 Months	Return Start Date		
Baron Emerging Markets R6	120	53%	109	55%	85	59%	Dec-12	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 2px; background-color: #00AEEF; margin-right: 5px;"></div> Baron Emerging Markets R6  <div style="width: 20px; height: 2px; background-color: #8B4513; margin-right: 5px; margin-left: 10px;"></div> ARGA Emerging Markets Equity Strategy         </div>	
ARGA Emerging Markets Equity Strategy	114	50%	103	56%	79	59%	Jun-13		

**Rolling 36-Month Outperformance Versus the MSCI Emerging Markets**



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Appendix:  
Frontier Engineer®  
Disclosures



# Historical Annual Total Return

<i>Annualized net returns as of 12/31/2022</i>	Fixed Income	Equity	Real Assets	Alternatives	Past 3 Months (Not Annualized)	1-Year Return	3-Year Return	5-Year Return	7-Year Return	10-Year Return	15-Year Return	20-Year Return	25-Year Return	30-Year Return	35-Year Return
Current Mix (A)	20%	55%	10%	15%	7.1%	-13.7%	3.4%	4.8%	6.9%	7.0%	5.6%	8.0%	6.9%	8.1%	8.8%
Observation Mix (A)	20%	56%	9%	15%	7.1%	-14.0%	3.3%	4.7%	6.9%	7.0%	5.6%	8.1%	7.0%	8.2%	8.8%
Observation Mix (B)	25%	52%	9%	15%	6.7%	-13.7%	3.1%	4.5%	6.6%	6.7%	5.5%	7.8%	6.9%	8.0%	8.7%
Cash	100%				0.9%	1.5%	0.7%	1.2%	1.0%	0.7%	0.6%	1.2%	1.8%	2.3%	2.9%
TIPS	100%				2.0%	-11.8%	1.2%	2.1%	2.6%	1.1%	3.1%	3.8%	4.8%	5.0%	5.8%
US Bond	100%				1.9%	-13.0%	-2.7%	0.0%	0.9%	1.1%	2.7%	3.1%	4.0%	4.6%	5.4%
US Bonds - Dynamic	100%				2.0%	-7.0%	-0.5%	1.4%	2.5%	2.2%	3.3%	4.0%	4.0%	4.7%	5.5%
For. Dev. Bond	100%				2.4%	-17.6%	-5.9%	-2.1%	-0.2%	-0.2%	1.5%	2.6%	3.3%	4.2%	4.6%
Global Bonds	100%				4.5%	-16.2%	-4.5%	-1.7%	0.1%	-0.4%	1.5%	2.7%	3.3%	4.0%	5.0%
HY Bond	100%				4.2%	-11.2%	0.0%	2.3%	5.0%	4.0%	6.1%	7.3%	5.9%	6.8%	7.5%
EM Bond	100%				8.5%	-11.7%	-6.1%	-2.5%	1.6%	-2.0%	1.5%	4.9%	5.7%	6.9%	7.6%
Global Equity		100%			9.9%	-18.0%	4.5%	5.8%	8.7%	8.5%	5.4%	8.6%	6.4%	7.8%	7.7%
US Equity (AC)		100%			7.2%	-19.2%	7.1%	8.8%	11.0%	12.1%	8.7%	9.9%	7.7%	9.6%	10.5%
US Equity (LC)		100%			7.6%	-18.1%	7.7%	9.4%	11.5%	12.6%	8.8%	9.8%	7.6%	9.6%	10.5%
US Equity (MC)		100%			9.2%	-17.3%	5.9%	7.1%	9.6%	11.0%	8.4%	10.8%	9.0%	10.5%	11.4%
US Equity (SC)		100%			6.2%	-20.4%	3.1%	4.1%	7.9%	9.0%	7.2%	9.4%	7.1%	8.6%	9.5%
Non-US Equity (ACWI)		100%			14.4%	-15.6%	0.5%	1.4%	5.3%	4.3%	2.0%	7.2%	5.2%	6.2%	5.6%
Int'l Dev. Equity		100%			17.4%	-14.0%	1.3%	2.0%	5.0%	5.2%	2.3%	6.9%	4.9%	6.0%	5.4%
EM Equity		100%			9.8%	-19.7%	-2.3%	-1.0%	5.6%	1.8%	1.0%	9.1%	6.2%	6.4%	9.5%
Real Estate			100%		4.1%	-24.9%	0.2%	4.4%	5.6%	7.1%	6.6%	9.4%	8.2%	9.8%	9.8%
Broad Real Assets			100%		7.3%	-9.9%	1.7%	3.0%	5.2%	3.5%	4.0%	7.2%	6.8%	6.4%	5.6%
Marketable Alternatives				100%	1.6%	-5.3%	3.7%	3.0%	3.3%	3.5%	1.7%	3.6%	3.9%	5.3%	6.9%
Private Equity				100%	0.0%	0.0%	9.8%	11.6%	11.8%	12.8%	10.2%	12.6%	13.0%	15.1%	14.4%

<sup>1</sup>The expected one in a hundred worst case calendar year return based on normally distributed capital market assumptions. Greater losses are possible (1% expected likelihood).

<sup>2</sup>The expected one in a hundred worst case calendar year return based on non-normally distributed capital market assumptions (factoring in skewness & kurtosis). Greater losses are possible (1% expected likelihood).

Historical Returns and Risk Metrics for each Mix represent back-tested calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are net of fees. Historical returns are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class. Please ask for a copy of Fiducient Advisor's white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing.



# Calendar Year Total Return

Calendar Net Year Returns	Fixed Income	Equity	Real Assets	Alternatives	YTD 12/31/2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	
Current Mix (A)	20%	55%	10%	15%	-14%	13%	13%	20%	-5%	16%	8%	-1%	7%	16%	13%	-1%	14%	27%	-29%	9%	18%	10%	15%	27%	-8%	-5%	-2%	23%	9%	15%	15%	20%	2%	21%	6%	24%	-5%	22%	19%	
Observation Mix (A)	20%	56%	9%	15%	-14%	13%	13%	20%	-5%	16%	9%	-1%	7%	17%	14%	-1%	14%	27%	-30%	9%	18%	10%	15%	28%	-8%	-5%	-2%	23%	8%	15%	15%	20%	1%	22%	7%	25%	-6%	21%	20%	
Observation Mix (B)	25%	52%	9%	15%	-14%	12%	13%	20%	-5%	15%	8%	-1%	7%	15%	13%	0%	14%	26%	-28%	9%	18%	10%	15%	26%	-7%	-4%	-2%	22%	8%	15%	14%	20%	1%	21%	7%	25%	-5%	21%	19%	
Cash	100%				2%	0%	1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%	5%	5%	3%	1%	1%	2%	4%	6%	5%	5%	5%	6%	5%	6%	4%	3%	4%	6%	8%	9%	7%
TIPS	100%				-12%	6%	11%	8%	-1%	3%	5%	-1%	4%	-9%	7%	14%	6%	11%	-2%	12%	0%	3%	8%	8%	17%	8%	13%	2%	4%	3%	4%	18%	-3%	10%	7%	16%	9%	15%	8%	
US Bond	100%				-13%	-2%	8%	9%	0%	4%	3%	1%	6%	-2%	4%	8%	7%	6%	5%	7%	4%	2%	4%	4%	10%	8%	12%	-1%	9%	10%	4%	18%	-3%	10%	7%	16%	9%	15%	8%	
US Bonds - Dynamic	100%				-7%	1%	5%	8%	1%	4%	7%	-1%	3%	2%	7%	4%	7%	19%	-7%	4%	7%	3%	6%	10%	3%	6%	3%	3%	6%	9%	8%	14%	0%	10%	9%	21%	1%	15%	8%	
For. Dev. Bond	100%				-18%	-6%	8%	7%	1%	6%	3%	-2%	4%	-2%	4%	5%	4%	3%	9%	8%	5%	-2%	9%	10%	14%	1%	4%	-1%	15%	3%	8%	19%	1%	14%	6%	14%	9%	0%	6%	
Global Bonds	100%				-16%	-5%	9%	7%	-1%	7%	2%	-3%	1%	-3%	4%	6%	6%	7%	5%	9%	7%	-4%	9%	13%	17%	2%	3%	-5%	14%	4%	5%	20%	0%	11%	6%	16%	11%	15%	8%	
HY Bond	100%				-11%	5%	7%	14%	-2%	8%	17%	-4%	2%	7%	16%	5%	15%	58%	-26%	2%	12%	3%	11%	29%	-1%	5%	-6%	2%	2%	13%	11%	19%	-1%	17%	16%	46%	-10%	1%	13%	
EM Bond	100%				-12%	-9%	3%	13%	-6%	15%	10%	-15%	-6%	-9%	17%	-2%	16%	22%	-5%	18%	15%	6%	23%	17%	14%	10%	13%	20%	-8%	11%	38%	27%	-19%	17%	16%	46%	-10%	1%	13%	
Global Equity		100%			-18%	19%	17%	27%	-9%	25%	8%	-2%	5%	23%	17%	-7%	13%	35%	-42%	12%	22%	11%	16%	35%	-19%	-16%	-14%	27%	22%	15%	13%	19%	5%	25%	-4%	20%	-16%	18%	24%	
US Equity (AC)		100%			-19%	26%	21%	31%	-5%	21%	13%	0%	13%	34%	16%	1%	17%	28%	-37%	5%	16%	6%	12%	31%	-22%	-11%	-7%	21%	24%	32%	22%	37%	0%	11%	10%	34%	-5%	29%	18%	
US Equity (LC)		100%			-18%	29%	18%	31%	-4%	22%	12%	1%	14%	32%	16%	2%	15%	26%	-37%	5%	16%	5%	11%	29%	-22%	-12%	-9%	21%	29%	33%	23%	38%	1%	10%	8%	30%	-3%	32%	17%	
US Equity (MC)		100%			-17%	23%	17%	31%	-9%	19%	14%	-2%	13%	35%	17%	-2%	25%	40%	-41%	6%	15%	13%	20%	40%	-16%	-6%	8%	18%	10%	29%	19%	34%	-2%	14%	16%	42%	-11%	26%	20%	
US Equity (SC)		100%			-20%	15%	20%	26%	-11%	15%	21%	-4%	5%	39%	16%	-4%	27%	27%	-34%	-2%	18%	5%	18%	47%	-20%	2%	-3%	21%	-3%	22%	16%	28%	-2%	19%	18%	46%	-19%	16%	25%	
Non-US Equity (ACWI)		100%			-16%	8%	11%	22%	-14%	28%	5%	-5%	3%	16%	17%	-13%	12%	42%	-45%	17%	27%	17%	21%	41%	-15%	-19%	-15%	31%	14%	2%	7%	10%	7%	35%	-11%	14%	-23%	12%	28%	
Int'l Dev. Equity		100%			-14%	12%	8%	23%	-13%	26%	2%	0%	-4%	23%	18%	-12%	8%	32%	-43%	12%	27%	14%	21%	39%	-16%	-21%	-14%	27%	20%	2%	6%	12%	8%	33%	-12%	12%	-23%	11%	29%	
EM Equity		100%			-20%	-2%	19%	19%	-14%	38%	12%	-15%	-2%	-2%	19%	-18%	19%	79%	-53%	40%	33%	35%	26%	56%	-6%	-2%	-31%	66%	-25%	-12%	6%	-5%	-7%	75%	11%	60%	-11%	65%	40%	
Real Estate			100%		-25%	41%	-5%	29%	-4%	9%	9%	3%	28%	3%	20%	8%	28%	28%	-38%	-16%	35%	12%	32%	37%	4%	14%	26%	-5%	-18%	20%	35%	15%	3%	20%	15%	36%	-15%	9%	13%	
Broad Real Assets			100%		-10%	15%	1%	17%	-6%	11%	11%	-10%	5%	4%	14%	3%	15%	33%	-28%	11%	23%	10%	20%	23%	12%	2%	15%	3%	-5%	4%	8%	6%	2%	3%	2%	4%	-6%	1%	4%	
Marketable Alternatives				100%	-5%	6%	11%	8%	-4%	8%	1%	0%	3%	9%	5%	-6%	6%	11%	-21%	10%	10%	7%	7%	12%	1%	3%	4%	26%	-5%	16%	14%	11%	-3%	26%	12%	14%	18%	23%	19%	
Private Equity				100%	0%	0%	32%	16%	13%	16%	9%	8%	15%	23%	12%	12%	18%	10%	-20%	18%	25%	21%	22%	14%	-16%	-21%	10%	125%	21%	32%	33%	32%	14%	23%	14%	14%	4%	9%	9%	

Historical Returns for each Mix based on back-tested return calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are net of fees. Historical returns used are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class. For additional information on forecast methodologies, please ask for a copy of Fiducient Advisors' white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing.



# Capital Market Assumptions

Return & Risk Assumptions (Forecasts)	Arithmetic Return	Geometric Return	Standard Deviation	Skewness	Kurtosis
TIPS	5.0%	4.6%	8.9%	-0.86	4.83
US Bond	5.3%	5.0%	7.2%	-0.65	1.95
US Bonds - Dynamic	5.8%	5.6%	6.4%	-1.01	6.58
HY Bond	8.1%	7.1%	13.7%	-1.11	8.22
Global Bonds	5.5%	5.1%	9.7%	-0.36	1.26
US Equity (LC)	8.0%	6.7%	16.6%	-0.57	0.83
US Equity (SC)	8.8%	6.5%	21.3%	-0.47	1.21
Int'l Dev. Equity	11.3%	8.9%	21.9%	-0.56	1.30
EM Equity	14.9%	10.8%	28.6%	-0.65	2.01
Private Real Estate	7.8%	7.4%	9.0%	-0.75	6.78
Broad Real Assets	7.5%	6.8%	11.7%	-1.63	8.81
Marketable Alternatives	8.5%	8.1%	8.7%	-0.82	4.88
Private Equity	12.3%	9.7%	22.7%	0.00	0.00

Correlation Assumptions (Forecasts)	TIPS	US Bond	US Bonds - Dynamic	HY Bond	Global Bonds	US Equity (LC)	US Equity (SC)	Int'l Dev. Equity	EM Equity	Private Real Estate	Broad Real Assets	Marketable Alternatives	Private Equity
TIPS	1.00	0.77	0.53	0.35	0.68	0.14	0.09	0.18	0.19	0.31	0.56	0.17	-0.06
US Bond	0.77	1.00	0.56	0.32	0.72	0.21	0.12	0.17	0.07	0.21	0.36	0.11	-0.13
US Bonds - Dynamic	0.53	0.56	1.00	0.94	0.51	0.60	0.58	0.55	0.56	0.61	0.75	0.50	0.16
HY Bond	0.35	0.32	0.94	1.00	0.33	0.62	0.64	0.55	0.59	0.61	0.75	0.53	0.21
Global Bonds	0.68	0.72	0.51	0.33	1.00	0.27	0.17	0.43	0.30	0.35	0.53	0.18	-0.06
US Equity (LC)	0.14	0.21	0.60	0.62	0.27	1.00	0.84	0.70	0.66	0.60	0.63	0.59	0.37
US Equity (SC)	0.09	0.12	0.58	0.64	0.17	0.84	1.00	0.63	0.66	0.66	0.64	0.63	0.36
Int'l Dev. Equity	0.18	0.17	0.55	0.55	0.43	0.70	0.63	1.00	0.71	0.51	0.60	0.59	0.32
EM Equity	0.19	0.07	0.56	0.59	0.30	0.66	0.66	0.71	1.00	0.45	0.58	0.67	0.30
Private Real Estate	0.31	0.21	0.61	0.61	0.35	0.60	0.66	0.51	0.45	1.00	0.82	0.37	0.17
Broad Real Assets	0.56	0.36	0.75	0.75	0.53	0.63	0.64	0.60	0.58	0.82	1.00	0.52	0.22
Marketable Alternatives	0.17	0.11	0.50	0.53	0.18	0.59	0.63	0.59	0.67	0.37	0.52	1.00	0.50
Private Equity	-0.06	-0.13	0.16	0.21	-0.06	0.37	0.36	0.32	0.30	0.17	0.22	0.50	1.00

October 31, 2022 Ten-Year Forecasted CMAs

\*Historical mix return calculations assume a weighted average excess return assumption of 0.5% with a Fiducient Advisors' hypothetical fee of 0.25%.

For additional information on forecast methodologies, please speak with your advisor. Please see Index Proxy Summary slide at the end of this presentation for summary of indexes used to represent each asset class. Past performance does not indicate future performance. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information.





# Indices for Past Return & Risk Metrics

Indices used to generate historical risk and return metrics	Most Recent Index	Index Dates		Linked Index 1	Index Dates		Linked Index 2	Index Dates		Linked Index 2	Index Dates	
TIPS	Bloomberg US Treasury US TIPS TR USD	12/22	- 3/97	Bloomberg US Agg Bond TR USD	2/97	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
US Bond	Bloomberg US Agg Bond TR USD	12/22	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
US Bonds - Dynamic	*Custom Blend of Indices	12/22	- 2/90	Bloomberg US Agg Bond TR USD	1/90	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
HY Bond	Bloomberg US Corporate High Yield TR USD	12/22	- 7/83	Bloomberg US Agg Bond TR USD	6/83	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
Global Bonds	Bloomberg Global Aggregate TR USD	12/22	- 2/90	Bloomberg US Agg Bond TR USD	1/90	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
US Equity (LC)	S&P 500 TR USD	12/22	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
US Equity (SC)	Russell 2000 TR USD	12/22	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
Int'l Dev. Equity	MSCI EAFE GR USD	12/22	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
EM Equity	MSCI EM GR USD	12/22	- 1/88	MSCI EAFE GR USD	12/87	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
Private Real Estate	Wilshire US RESI TR USD	12/22	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
Broad Real Assets	S&P Real Asset TR USD	12/22	- 5/05	*Custom Real Assets Index	4/05	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
Marketable Alternatives	HFRI Fund of Funds Composite USD	12/22	- 1/90	HFN Hedge Fund Aggregate Average	12/89	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.
Private Equity	Cambridge PE 67% Buyout v.s. 33% Venture	12/22	- 4/86	Russell 2000 TR USD	3/86	- 1/79	N.A.	N.A.	- N.A.	N.A.	N.A.	- N.A.

\*US Bonds - Dynamic Index - 1/3 Bloomberg Gbl Agg Ex USD TR Hdg USD, 1/3 FTSE Treasury Bill 3 Mon USD & 1/3 Bloomberg US Corporate High Yield TR USD

Note: Private Equity Index is frequently 3-6 months behind the other indices. For historical return calculation purposes, it is given 0% returns during the most recent period where gaps may exist. Past performance, actual or hypothetical, is no guarantee of future results and there is a possibility of a loss. Please see Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class.



# Frontier Engineer Hypothetical Performance Disclosures

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The historical performance information derived from the Frontier Engineer and used or presented in charts, tables, or graphs represent simulated historical performance, which has been derived by retroactively applying an asset allocation modeling process in its most recently developed form with its most recently derived ten-year (forward-looking) capital market assumptions. Such historical return simulations (or back testing) was performed by simulating the combination of actual index returns for the historical period with a buy and hold strategy effective January 1, 1988 through the most recently available month-end date with simulated rebalancing occurring every month-end (with the reinvestment of dividends and capital gains from each index).

Back tested performance is hypothetical and does not reflect actual trades or actual client performance. As with all models, there are inherent limitations which are derived from the retroactive application developed with the benefit of hindsight, including the risk that certain factors such as material economic and market conditions could have contributed to materially different (either higher or lower) performance results than those depicted, or that certain material factors may have been included or excluded from consideration. As such, actual results during the applicable back tested period would have been different than those depicted.

The asset allocation modeling process currently used was initially developed in 2002, and was not offered as a strategy prior to that time. The output of a forward-looking model (or process) is a representation of allocation percentages among specific asset classes. Clients cannot invest directly in a target allocation, but rather, in underlying securities within designated asset classes. Advisor may change its models from time to time, and regularly updates its model as additional capital market assumption information becomes available or to increase or decrease relative weightings or emphasis on certain factors. Consequently, the Advisor may choose to deviate from a stated model over time as the model itself is revised, which could have a materially positive or negative impact on performance.

During the period represented, numerous modelling changes were made, including the regular changes in (ten-year) forward-looking expected returns, expected volatilities, expected non-normal return distribution assumptions, as well as tracking-error assumptions and risk budgets. Furthermore, such assumptions can be modified client-by-client depending on certain preferences, priorities, constraints or unique considerations applicable to each client.

Other economic and market factors may have impacted decision-making when using the model to manage client funds, including the list of approved asset classes by a client or client type as well as any client-directed or Advisor implemented constraints.

All investments bear the risk of loss, including the loss of principal. Past performance, actual or hypothetical, is no guarantee of future results.

The hypothetical annual Fiducient Advisors' fee is divided by 12 and subtracted from the historical monthly (index) returns. The hypothetical excess return assumption is divided by 12 and added to the historical monthly (index) returns. Furthermore, for forecasted total portfolio (index-based) annual returns based on capital market assumptions, the annual Fiducient Advisors' fee assumption is subtracted from the hypothetical annual manager excess return assumption. Additional information on advisory fees charged by Fiducient Advisors are described in Part 2 of the Form ADV.



## INDEX DEFINITIONS

**FTSE Treasury Bill 3 Month** measures return equivalents of yield averages and are not marked to market. It is an average of the last three three-month Treasury bill month-end rates.

**Bloomberg Capital US Treasury Inflation Protected Securities Index** consists of Inflation-Protection securities issued by the U.S. Treasury.

**Bloomberg Muni 5 Year Index** is the 5 year (4-6) component of the Municipal Bond index.

**Bloomberg High Yield Municipal Bond Index** covers the universe of fixed rate, non-investment grade debt.

**Bloomberg U.S. Aggregate Index** covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.

**FTSE World Government Bond Index (WGBI) (Unhedged)** provides a broad benchmark for the global sovereign fixed income market by measuring the performance of fixed-rate, local currency, investment-grade sovereign debt from over 20 countries,

**FTSE World Government Bond Index (WGBI) (Hedged)** is designed to represent the FTSE WGBI without the impact of local currency exchange rate fluctuations.

**Bloomberg US Corporate High Yield TR USD** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

**JP Morgan Government Bond Index-Emerging Market Index (GBI-EMI)** is a comprehensive, global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.

**JPMorgan EMBI Global Diversified** is an unmanaged, market-capitalization weighted, total-return index tracking the traded market for U.S.-dollar-denominated Brady bonds, Eurobonds, traded loans, and local market debt instruments issued by sovereign and quasi-sovereign entities.

**MSCI ACWI** is designed to represent performance of the full opportunity set of large- and mid-cap stocks across multiple developed and emerging markets, including cross-market tax incentives.

**The S&P 500** is a capitalization-weighted index designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.

**Russell 3000** is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.

**Russell Mid Cap** measures the performance of the 800 smallest companies in the Russell 1000 Index.

**Russell 2000** consists of the 2,000 smallest U.S. companies in the Russell 3000 index.

**MSCI EAFE** is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the US and Canada. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI Emerging Markets** captures large and mid-cap representation across Emerging Markets countries. The index covers approximately 85% of the free-float adjusted market capitalization in each country

**The Wilshire US Real Estate Securities Index (Wilshire US RESI)** is comprised of publicly-traded real estate equity securities and designed to offer a market-based index that is more reflective of real estate held by pension funds.

**Alerian MLP Index** is a float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.

**Bloomberg Commodity Index (BCI)** is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.

**Treasury Inflation-Protected Securities (TIPS)** are Treasury bonds that are indexed to inflation to protect investors from the negative effects of rising prices. The principal value of TIPS rises as inflation rises.

**HFRI Fund of Funds Composite** is an equal-weighted index consisting of over 800 constituent hedge funds, including both domestic and offshore funds.

**Cambridge Associates U.S. Private Equity Index (67% Buyout vs. 33% Venture)** is based on data compiled from more than 1,200 institutional-quality buyout, growth equity, private equity energy, and mezzanine funds formed between 1986 and 2015.

**HFN Hedge Fund Aggregate Average** is an equal weighted average of all hedge funds and CTA/managed futures products reporting to the HFN Database. Constituents are aggregated from each of the HFN Strategy Specific Indices.

**Goldman Sachs Commodity Index (GSCI)** is a broadly diversified, unleveraged, long-only composite index of commodities that measures the performance of the commodity market.



# Definitions & Disclosures

Please note: Due to rounding methodologies of various data providers, certain returns in this report might differ slightly when compared to other sources

## REGULATORY DISCLOSURES

**Offer of ADV Part 2A:** Rule 204-3 under the Investment Advisers Act of 1940 requires that we make an annual offer to clients to send them, without charge, a written disclosure statement meeting the requirements of such rule. We will be glad to send a copy of our ADV Part 2A to you upon your written request to [compliance@fiducient.com](mailto:compliance@fiducient.com).

## INDEX DEFINITIONS

- **Citigroup 3 Month T-Bill** measures monthly return equivalents of yield averages that are not marked to market. The Three-Month Treasury Bill Indexes consist of the last three three-month Treasury bill issues.
- **Ryan 3 Yr. GIC** is an arithmetic mean of market rates of \$1 million Guaranteed Interest Contracts held for three years.
- **Bloomberg Treasury U.S. T-Bills-1-3 Month Index** includes aged U.S. Treasury bills, notes and bonds with a remaining maturity from 1 up to (but not including) 3 months. It excludes zero coupon strips.
- **Bloomberg Capital US Treasury Inflation Protected Securities Index** consists of Inflation-Protection securities issued by the U.S. Treasury.
- **Bloomberg Muni Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. Bonds must be rated investment-grade by at least two ratings agencies.
- **Bloomberg Muni 1 Year Index** is the 1-year (1-2) component of the Municipal Bond index.
- **Bloomberg Muni 3 Year Index** is the 3-year (2-4) component of the Municipal Bond index.
- **Bloomberg Muni 5 Year Index** is the 5-year (4-6) component of the Municipal Bond index.
- **Bloomberg Muni 7 Year Index** is the 7-year (6-8) component of the Municipal Bond index.
- **Bloomberg Intermediate U.S. Gov't/Credit** is the Intermediate component of the U.S. Government/Credit index, which includes securities in the Government and Credit Indices. The Government Index includes treasuries and agencies, while the credit index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements.
- **Bloomberg U.S. Aggregate Index** covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.
- **Bloomberg Global Aggregate ex. USD Indices** represent a broad-based measure of the global investment-grade fixed income markets. The two major components of this index are the Pan-European Aggregate and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds and Canadian government, agency and corporate securities.
- **Bloomberg U.S. Corporate High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.
- **JP Morgan Government Bond Index-Emerging Market (GBI-EM) Index** is a comprehensive, global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.
- **The S&P 500** is a capitalization-weighted index of 500 stocks designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.
- **The Dow Jones Industrial Index** is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry.
- **The NASDAQ** is a broad-based capitalization-weighted index of stocks in all three NASDAQ tiers: Global Select, Global Market and Capital Market.
- **Russell 3000** is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.
- **Russell 1000** consists of the largest 1000 companies in the Russell 3000 Index.
- **Russell 1000 Growth** measures the performance of those Russell 1000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 1000 Value** measures the performance of those Russell 1000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell Mid Cap** measures the performance of the 800 smallest companies in the Russell 1000 Index.
- **Russell Mid Cap Growth** measures the performance of those Russell Mid Cap companies with higher P/B ratios and higher forecasted growth values.
- **Russell Mid Cap Value** measures the performance of those Russell Mid Cap companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2000** consists of the 2,000 smallest U.S. companies in the Russell 3000 index.
- **Russell 2000 Growth** measures the performance of the Russell 2000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2000 Value** measures the performance of those Russell 2000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2500** consists of the 2,500 smallest U.S. companies in the Russell 3000 index.
- **Russell 2500 Growth** measures the performance of the Russell 2500 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2500 Value** measures the performance of those Russell 2500 companies with lower P/B ratios and lower forecasted growth values.
- **MSCI World** captures large and mid-cap representation across 23 Developed Markets countries. With 1,645 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.
- **MSCI ACWI (All Country World Index) ex. U.S. Index** captures large and mid-cap representation across 22 of 23 Developed Markets countries (excluding the United States) and 23 Emerging Markets countries. With 1,859 constituents, the index covers approximately 85% of the global equity opportunity set outside the US.
- **MSCI ACWI (All Country World Index) ex. U.S. Small Cap Index** captures small cap representation across 22 of 23 Developed Markets countries (excluding the US) and 23 Emerging Markets countries. With 4,368 constituents, the index covers approximately 14% of the global equity opportunity set outside the US.
- **MSCI EAFE** is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the US and Canada. With 930 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.



- **MSCI EAFE Value** captures large and mid-cap securities exhibiting overall value style characteristics across Developed Markets countries around the world, excluding the US and Canada. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield. With 507 constituents, the index targets 50% coverage of the free float-adjusted market capitalization of the MSCI EAFE Index.
- **MSCI EAFE Growth** captures large and mid-cap securities exhibiting overall growth style characteristics across Developed Markets countries around the world, excluding the US and Canada. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend. With 542 constituents, the index targets 50% coverage of the free float-adjusted market capitalization of the MSCI EAFE Index.
- **MSCI Emerging Markets** captures large and mid-cap representation across 23 Emerging Markets countries. With 836 constituents, the index covers approximately 85% of the free-float adjusted market capitalization in each country.
- **Consumer Price Index** is a measure of prices paid by consumers for a market basket of consumer goods and services. The yearly (or monthly) growth rates represent the inflation rate.
- **FTSE NAREIT Equity REITs Index** contains all Equity REITs not designed as Timber REITs or Infrastructure REITs.
- **S&P Developed World Property** defines and measures the investable universe of publicly traded property companies domiciled in developed markets. The companies in the index are engaged in real estate related activities, such as property ownership, management, development, rental and investment.
- **S&P Developed World Property x U.S.** defines and measures the investable universe of publicly traded property companies domiciled in developed countries outside of the U.S. The companies included are engaged in real estate related activities, such as property ownership, management, development, rental and investment.
- **Fund Specific Broad Real Asset Benchmarks:**
  - **DWS Real Assets:** 30%: Dow Jones Brookfield Infrastructure Index, 30%: FTSE EPRA/NAREIT Developed Index, 15%: Bloomberg Commodity Index, 15%: S&P Global Natural Resources Index, 10%: U.S. Treasury Inflation Notes Total Return Index
  - **PIMCO Inflation Response Multi Asset Fund:** 45% Bloomberg U.S. TIPS, 20% Bloomberg Commodity Index, 15% JP Morgan Emerging Local Markets Plus, 10% Dow Jones Select REIT, 10% Bloomberg Gold Subindex Total Return
  - **Principal Diversified Real Assets:** 35% BbgBarc U.S. Treasury TIPS Index, 20% S&P Global Infrastructure Index NTR, 20% S&P Global Natural Resources Index NTR, 15% Bloomberg Commodity Index, and 10% FTSE EPRA/NAREIT Developed Index NTR
  - **Wellington Diversified Inflation H:** 50% MSCI ACWI Commodity Producers Index, 25% Bloomberg Commodity Index, and 25% Bloomberg Bloomberg US TIPS 1 – 10 Year Index
- **Bloomberg Commodity Index** is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.
- **HFRI Fund Weighted Composite Index** is a global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of \$50 Million under management or a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.
- **The Alerian MLP Index** is the leading gauge of energy Master Limited Partnerships (MLPs). The float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.
- **The Adjusted Alerian MLP Index** is commensurate with 65% of the monthly returns of the Alerian MLP Index to incorporate the effect of deferred tax liabilities incurred by MLP entities.
- **Cambridge Associates U.S. Private Equity Index** is based on data compiled from more than 1,200 institutional-quality buyout, growth equity, private equity energy, and mezzanine funds formed between 1986 and 2015.
- **Cambridge Associates U.S. Venture Capital Index** is based on data compiled from over 1,600 institutional-quality venture capital funds formed between 1986 and 2015.
- **Vanguard Spliced Bloomberg US1-5Yr Gov/Cr Flt Adj Index:** Bloomberg U.S. 1–5 Year Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. 1–5 Year Government/Credit Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg US5-10Yr Gov/Cr Flt Adj Index:** Bloomberg U.S. 5–10 Year Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg US Agg Flt Adj Index:** Bloomberg U.S. Aggregate Bond Index through December 31, 2009; Bloomberg U.S. Aggregate Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg US Long Gov/Cr Flt Adj Index:** Bloomberg U.S. Long Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. Long Government/Credit Float Adjusted Index thereafter.
- **Vanguard Balanced Composite Index:** Made up of two unmanaged benchmarks, weighted 60% Dow Jones U.S. Total Stock Market Index (formerly the Dow Jones Wilshire 5000 Index) and 40% Bloomberg U.S. Aggregate Bond Index through May 31, 2005; 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate Bond Index through December 31, 2009; 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate Float Adjusted Index through January 14, 2013; and 60% CRSP US Total Market Index and 40% Bloomberg U.S. Aggregate Float Adjusted Index thereafter.
- **Vanguard Spliced Intermediate-Term Tax-Exempt Index:** Bloomberg 1–15 Year Municipal Bond Index.
- **Vanguard Spliced Extended Market Index:** Dow Jones Wilshire 4500 Index through June 17, 2005; S&P Transitional Completion Index through September 16, 2005; S&P Completion Index thereafter.
- **Vanguard Spliced Value Index:** S&P 500 Value Index (formerly the S&P 500/Barra Value Index) through May 16, 2003; MSCI US Prime Market Value Index through April 16, 2013; CRSP US Large Cap Value Index thereafter.
- **Vanguard Spliced Large Cap Index:** Consists of MSCI US Prime Market 750 Index through January 30, 2013, and the CRSP US Large Cap Index thereafter.
- **Vanguard Spliced Growth Index:** S&P 500 Growth Index (formerly the S&P 500/Barra Growth Index) through May 16, 2003; MSCI US Prime Market Growth Index through April 16, 2013; CRSP US Large Cap Growth Index thereafter.
- **Vanguard Spliced Mid Cap Value Index:** MSCI US Mid Cap Value Index through April 16, 2013; CRSP US Mid Cap Value Index thereafter.
- **Vanguard Spliced Mid Cap Index:** S&P MidCap 400 Index through May 16, 2003; the MSCI US Mid Cap 450 Index through January 30, 2013; and the CRSP US Mid Cap Index thereafter.
- **Vanguard Spliced Mid Cap Growth Index:** MSCI US Mid Cap Growth Index through April 16, 2013; CRSP US Mid Cap Growth Index thereafter.
- **Vanguard Spliced Total Stock Market Index:** Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index) through April 22, 2005; MSCI US Broad Market Index through June 2, 2013; and CRSP US Total Market Index thereafter.
- **Vanguard Spliced Small Cap Value Index:** SmallCap 600 Value Index (formerly the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Value Index through April 16, 2013; CRSP US Small Cap Value Index thereafter.



- **Vanguard Spliced Small Cap Index:** Russell 2000 Index through May 16, 2003; the MSCI US Small Cap 1750 Index through January 30, 2013; and the CRSP US Small Cap Index thereafter.
- **Vanguard Spliced Small Cap Growth Index:** S&P SmallCap 600 Growth Index (formerly the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Growth Index through April 16, 2013; CRSP US Small Cap Growth Index thereafter.
- **Vanguard Spliced Total International Stock Index:** Consists of the Total International Composite Index through August 31, 2006; the MSCI EAFE + Emerging Markets Index through December 15, 2010; the MSCI AC USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard Spliced Developed Markets Index:** MSCI EAFE Index through May 28, 2013; FTSE Developed ex North America Index through December 20, 2015; FTSE Developed All Cap ex US Transition Index through May 31, 2016; FTSE Developed All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard Spliced Emerging Markets Index:** Select Emerging Markets Index through August 23, 2006; MSCI Emerging Markets Index through January 9, 2013; FTSE Emerging Transition Index through June 27, 2013; FTSE Emerging Index through November 1, 2015; and FTSE Emerging Markets All Cap China A Transition Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard REIT Spliced Index:** MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index through January 31, 2018; MSCI US Investable Market Real Estate 25/50 Transition Index through July 24, 2018; MSCI US Investable Market Real Estate 25/50 Index thereafter.

#### **Additional:**

- Equity sector returns are calculated by Russell and MSCI for domestic and international markets, respectively. MSCI sector definitions correspond to the MSCI GICS® classification (Global Industry Classification System); Russell uses its own sector and industry classifications.
- MSCI country returns are calculated by MSCI and are free float-adjusted market capitalization indices that are designed to measure equity market performance in each specific country.
- Currency returns are calculated using Bloomberg's historical spot rate indices and are calculated using the U.S. dollar as the base currency.
- The Index of Leading Economic Indicators, calculated by The Conference Board, is used as a barometer of economic activity over a range of three to six months. The index is used to determine the direction and stability of the economy. The composite index of leading indicators, which is derived from 10 leading indicators, helps to signal turning points in the economy and forecast economic cycles. The leading indicators are the following: average weekly hours, average weekly initial claims, manufacturers' new orders, both consumer and non-defense capital goods, vendor performance, building permits, stock prices, money supply (M2), the interest rate spread and the index of consumer expectations.
- S&P Target Date Indexes are constructed using a survey method of current target date investments with \$100 million or more in assets under management. Allocations for each vintage are comprised of exchange-traded funds that represent respective asset classes used in target date portfolios. The indexes are designed to represent a market consensus glide path.

#### **DEFINITION OF KEY STATISTICS AND TERMS**

- **Returns:** A percentage figure used when reporting historical average compounded rate of investment return. All returns are annualized if the period for which they are calculated exceeds one year.
- **Universe Comparison:** The universe compares the fund's returns to a group of other investment portfolios with similar investment strategies. The returns for the fund, the index and the universe percentiles are displayed. A percentile ranking of 1 is the best, while a percentile ranking of 100 is the worst. For example, a ranking of 50 indicates the fund outperformed half of the universe. A ranking of 25 indicates the fund was in the top 25% of the universe, outperforming 75%.
- **Returns In Up/Down Markets:** This measures how the fund performed in both up and down markets. The methodology is to segregate the performance for each time period into the quarters in which the market, as defined by the index, was positive and negative. Quarters with negative index returns are treated as down markets, and quarters with positive index returns are treated as up markets. Thus, in a 3 year or 12 quarter period, there might be 4 down quarters and 8 up quarters. A simple arithmetic average of returns is calculated for the fund and the index based on the up quarters. A simple arithmetic average of returns is calculated for the fund and the index based on the down quarters. The up market capture ratio is the ratio of the fund's return in up markets to the index. The down market capture ratio is the ratio of the fund's return in down markets to the index. Ideally, the fund would have a greater up market capture ratio than down market capture ratio.
- **Standard Deviation:** Standard deviation is a statistical measure of the range of performance within which the total returns of a fund fall. When a fund has a high standard deviation, the range of performance is very wide, meaning there is a greater volatility. Approximately 68% of the time, the total return of any given fund will differ from the average total return by no more than plus or minus the standard deviation figure. Ninety-five percent of the time, a fund's total return will be within a range of plus or minus two times the standard deviation from the average total return. If the quarterly or monthly returns are all the same the standard deviation will be zero. The more they vary from one another, the higher the standard deviation. Standard deviation can be misleading as a risk indicator for funds with high total returns because large positive deviations will increase the standard deviation without a corresponding increase in the risk of the fund. While positive volatility is welcome, negative is not.
- **R-Squared:** This reflects the percentage of a fund's movements that are explained by movements in its benchmark index. An R-squared of 100 means that all movements of a fund are completely explained by movements in the index. Conversely, a low R-squared indicates very few of the fund's movements are explained by movements in the benchmark index. R-squared can also be used to ascertain the significance of a particular beta. Generally, a higher R-squared will indicate a more reliable beta figure. If the R-squared is lower, then the beta is less relevant to the fund's performance. A measure of diversification, R-squared indicates the extent to which fluctuations in portfolio returns are explained by market. An R-squared = 0.70 implies that 70% of the fluctuation in a portfolio's return is explained by the fluctuation in the market. In this instance, overweighting or underweighting of industry groups or individual securities is responsible for 30% of the fund's movement.
- **Beta:** This is a measure of a fund's market risk. The beta of the market is 1.00. Accordingly, a fund with a 1.10 beta is expected to perform 10% better than the market in up markets and 10% worse than the market in down markets. It is important to note, however, a low fund beta does not imply the fund has a low level of volatility; rather, a low beta means only that the fund's market-related risk is low. Because beta analyzes the market risk of a fund by showing how responsive the fund is to the market, its usefulness depends on the degree to which the markets determine the fund's total risk (indicated by R-squared).
- **Alpha:** The Alpha is the nonsystematic return, or the return that can't be attributed to the market. It can be thought of as how the manager performed if the market's return was zero. A positive alpha implies the manager added value to the return of the portfolio over that of the market. A negative alpha implies the manager did not contribute any value over the performance of the market.
- **Sharpe Ratio:** The Sharpe ratio is the excess return per unit of total risk as measured by standard deviation. Higher numbers are better, indicating more return for the level of risk experienced. The ratio is a fund's return minus the risk-free rate of return (30-day T-Bill rate) divided by the fund's standard deviation. The higher the Sharpe ratio, the more reward you are receiving per unit of total risk. This measure can be used to rank the performance of mutual funds or other portfolios.
- **Treynor Ratio:** The Treynor ratio measures returns earned in excess of that which could have been earned on a riskless investment per each unit of market risk. The ratio relates excess return over the risk-free rate to the additional risk taken; however, systematic risk is used instead of total risk. The Treynor ratio is similar to the Sharpe ratio, except in the fact that it uses the beta to evaluate the returns rather than the standard deviation of portfolio returns. High values mean better return for risk taken.



- **Tracking Error:** Tracking error measures the volatility of the difference in annual returns between the manager and the index. This value is calculated by measuring the standard deviation of the difference between manager and index returns. For example, a tracking error of +/- 5 would mean there is about a 68% chance (1 standard deviation event) that the manager's returns will fall within +/- 5% of the benchmark's annual return.
- **Information Ratio:** The information ratio is a measure of the consistency of excess return. This value is determined by taking the annualized excess return over a benchmark (style benchmark by default) and dividing the standard deviation of excess return.
- **Consistency:** Consistency shows the percent of the periods the fund has beaten the index and the percent of the periods the index has beat the fund. A high average for the fund (e.g., over 50) is desirable, indicating the fund has beaten the index frequently.
- **Downside Risk:** Downside risk is a measure similar to standard deviation but focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. The higher the factor, the riskier the product.
- **M-Squared:** M-squared, or the Modigliani risk-adjusted performance measure is used to characterize how well a portfolio's return rewards an investor for the amount of risk taken, relative to that of some benchmark portfolio and to the risk-free rate.

#### DEFINITION OF KEY PRIVATE EQUITY TERMS

- **PIC (Paid in Capital):** The amount of committed capital that has been transferred from the limited partner to the general partner.
- **TVPI (Total Value to Paid in Capital):** Money returned to limited partners plus the fund's unrealized investments, divided by money paid-in to the partnership. The TVPI should equal RVPI plus DPI.
- **DPI (Distribution to Paid In Capital):** Money returned (distributions) to limited partners divided by money paid in to the partnership. Also called cash-on-cash multiple.
- **RVPI (Residual Value to Paid In Capital):** The value of a fund's unrealized investments divided by money paid-in to the partnership.
- **Internal rate of return (IRR):** This is the most appropriate performance benchmark for private equity investments. It is a time-weighted return expressed as a percentage. IRR uses the present sum of cash drawdowns (money invested), the present value of distributions (money returned from investments) and the current value of unrealized investments and applies a discount.
- **Commitment:** Every investor in a private equity fund commits to investing a specified sum of money in the fund partnership over a specified period of time. The fund records this as the limited partnership's capital commitment. The sum of capital commitments is equal to the size of the fund.
- **Capital Distribution:** These are the returns that an investor in a private equity fund receives. It is the income and capital realized from investments less expenses and liabilities. Once a limited partner has had their cost of investment returned, further distributions are actual profit. The partnership agreement determines the timing of distributions to the limited partner. It will also determine how profits are divided among the limited partners and general partner.
- **Carried Interest:** The share of profits that the fund manager is due once it has returned the cost of investment to investors. Carried interest is normally expressed as a percentage of the total profits of the fund.
- **Co-Investment:** Co-Investments are minority investments made alongside a private equity investor in an LBO, a recapitalization, or an expansion capital transaction. It is a passive, non-controlling investment, as the private equity firm involved will typically exercise control and perform monitoring functions.
- **General Partner (GP):** This can refer to the top-ranking partners at a private equity firm as well as the firm managing the private equity fund.
- **GP Commitments:** It is normal practice for the GP managing a private equity fund to also make a financial commitment to the fund on the same basis as the LPs in the fund, and this is seen as an important factor driving the alignment of GP and LP interests. The historic benchmark for GP commitments has been 1% of the total fund size, but this is by no means universal, and many GPs commit significantly larger amounts. Furthermore, there has been a marked trend towards GPs making larger commitments to their funds over recent years.
- **Leveraged Buy-Out (LBO):** The acquisition of a company using debt and equity finance.
- **Limited Partner (LP):** Institutions or high-net-worth individuals/sophisticated investors that contribute capital to a private equity fund.
- **Public Market Equivalent (PME):** Performance measure used to evaluate performance relative to the market. It is calculated as the ratio of the discounted value of the LP's inflows divided by the discounted value of outflows, with the discounting performed using realized market returns.
- **Primaries:** An original investment vehicle that invests directly into a company or asset.

#### VALUATION POLICY

Fiducient Advisors does not engage an independent third-party pricing service to value securities. Our reports are generated using the security prices provided by custodians used by our clients. Our custodial pricing hierarchy is available upon request. If a client holds a security not reported by the first custodian within the hierarchy, the valuation is generated from the next custodian within the hierarchy, and so forth. Each custodian uses pricing services from outside vendors, where the vendors may generate nominally different prices. Therefore, this report can reflect minor valuation differences from those contained in a custodian's report. In rare instances where FA overrides a custodial price, prices are taken from Bloomberg.

#### REPORTING POLICY

This report is intended for the exclusive use of the client listed within the report. Content is privileged and confidential. Any dissemination or distribution is strictly prohibited. Information has been obtained from a variety of sources believed to be reliable though not independently verified. Any forecast represents median expectations and actual returns, volatilities and correlations will differ from forecasts. Please note each client has customized investment objectives and constraints and the investment strategy for each portfolio is based on a client-specific asset allocation model. Past performance does not indicate future performance and there is a possibility of a loss. Performance calculated net of investment fees. Certain portfolios presented may be gross of Fiducient Advisors' fees and actual performance would be reduced by investment advisory fees. This report does not represent a specific investment recommendation. Please consult with your advisor, attorney, and accountant, as appropriate, regarding specific advice.



Custodian reports are the reports that govern the account. There will be different account values between Fiduciant Advisors' reports and the custodian reports based on whether the report utilizes trade date or date to calculate value. Additionally, difference between values contained on reports may be caused by different accrued income values. Any forecasts represent future expectations and actual returns, volatilities and will differ from forecasts. This report does not represent a specific investment recommendation. Please consult with your advisor, attorney, and accountant, as appropriate, regarding specific advice. Past performance does not indicate future performance and there is a possibility of a loss.

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Unless specified otherwise, all returns are net of individual manager fees, represent total returns and are annualized for periods greater than one year. The deduction of fees produces a compounding effect that reduces the total rate of return over time. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) quarterly fee assessment, (b) \$1,000,000 investment, (c) portfolio return of 8% a year, and (d) 0.50% annual investment advisory fee would be \$5,228 in the first year, and cumulative effects of \$30,342 over five years and \$73,826 over ten years. Additional information on advisory fees charged by Fiduciant Advisors are described in Part 2 of the Form ADV.

## **MATERIAL RISKS & LIMITATIONS**

**Fixed Income** securities are subject to interest rate risks, the risk of default and liquidity risk. U.S. investors exposed to non-U.S. fixed income may also be subject to currency risk and fluctuations.  
-Liability Driven Investing (LDI) Assets

**Cash** may be subject to the loss of principal and over longer period of time may lose purchasing power due to inflation.  
-Short Term Liquidity

**Domestic Equity** can be volatile. The rise or fall in prices take place for a number of reasons including, but not limited to changes to underlying company conditions, sector or industry factors, or other macro events. These may happen quickly and unpredictably.

**International Equity** can be volatile. The rise or fall in prices take place for a number of reasons including, but not limited to changes to underlying company conditions, sector or industry impacts, or other macro events. These may happen quickly and unpredictably. International equity allocations may also be impacted by currency and/or country specific risks which may result in lower liquidity in some markets.

**Real Assets** can be volatile and may include asset segments that may have greater volatility than investment in traditional equity securities. Such volatility could be influenced by a myriad of factors including, but not limited to overall market volatility, changes in interest rates, political and regulatory developments, or other exogenous events like weather or natural disaster.

**Private Equity** involves higher risk and is suitable only for sophisticated investors. Along with traditional equity market risks, private equity investments are also subject to higher fees, lower liquidity and the potential for leverage that may amplify volatility and/or the potential loss of capital.

**Private Credit** involves higher risk and is suitable only for sophisticated investors. These assets are subject to interest rate risks, the risk of default and limited liquidity. U.S. investors exposed to non-U.S. private credit may also be subject to currency risk and fluctuations.

**Private Real Estate** involves higher risk and is suitable only for sophisticated investors. Real estate assets can be volatile and may include unique risks to the asset class like leverage and/or industry, sector or geographical concentration. Declines in real estate value may take place for a number of reasons including, but are not limited to economic conditions, change in condition of the underlying property or defaults by the borrower.

**Marketable Alternatives** involves higher risk and is suitable only for sophisticated investors. Along with traditional market risks, marketable alternatives are also subject to higher fees, lower liquidity and the potential for leverage that may amplify volatility or the potential for loss of capital. Additionally, short selling involved certain risks including, but not limited to additional costs, and the potential for unlimited loss on certain short sale positions.

## **OTHER**

By regulation, closed-end funds utilizing debt for leverage must report their interest expense, as well as their income tax expense, as part of their total expense ratio. To make for a useful comparison between closed-end funds and both open-end funds and exchange-traded funds, adjusted expense ratios excluding interest and income tax expenses are utilized for closed-end funds within this report. See disclosure on closed-end fund fact sheets for information regarding the total expense ratio of each closed-end fund.

Please advise us of any changes in your objectives or circumstances.

## **CUSTODIAN STATEMENTS**

Please remember to review the periodic statements you receive from your custodian. If you do not receive periodic statements from your custodian or notice issues with the activity reported in those statements, please contact FA or your custodian immediately.