



# Board of Retirement Regular Meeting

## Sacramento County Employees' Retirement System

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### Agenda Item 21

**MEETING DATE:** December 7, 2022

**SUBJECT:** Total Fund Investment Performance Report –  
Third Quarter 2022

**SUBMITTED FOR:**  Consent  Deliberation  
and Action  Receive  
and File

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#### **RECOMMENDATION**

Staff and Verus recommend the Board receive and file the SCERS Total Fund Investment Performance Review report, prepared by Verus, for the quarter ending September 30, 2022.

#### **PURPOSE**

This agenda item complies with SCERS' investment policy statement reporting requirements and contributes to the effective management and oversight of investment activities.

#### **SCERS TOTAL FUND RETURNS**

This item summarizes SCERS' Total Fund investment returns as presented in Verus' Investment Performance Review for the period ending September 30, 2022. Please note that returns for SCERS' private equity, private credit, non-core real estate, and real assets portfolios are lagged one quarter.

**SCERS TOTAL FUND PERFORMANCE SUMMARY**  
**Quarter Reporting Periods Ending September 30, 2022**

SCERS ASSET CLASS	Quarter	Year-to-Date	1-Year	3-Year	5-Year	Since Inception	Since Inception Date
<b>SCERS TOTAL FUND Return w/Overlay</b>	<b>-3.9%</b>	<b>-12.3%</b>	<b>-8.7%</b>	<b>6.7%</b>	<b>7.0%</b>	<b>8.2%</b>	Jun-86
Policy Index	-3.8%	-11.8%	-8.6%	5.1%	5.5%	8.2%	
InvestorForce Public DB > \$1B	-4.3%	-15.5%	-12.3%	4.9%	5.4%	7.9%	
<b>SCERS TOTAL FUND Return w/o Overlay</b>	<b>-3.7%</b>	<b>-11.6%</b>	<b>-7.8%</b>	<b>6.7%</b>	<b>7.0%</b>	<b>8.1%</b>	Jun-86
Policy Index	-3.8%	-11.8%	-8.6%	5.1%	5.5%	8.2%	
<b>GROWTH ASSET CATEGORY</b>	<b>-5.9%</b>	<b>-19.4%</b>	<b>-15.2%</b>	<b>7.8%</b>	<b>8.0%</b>	<b>9.1%</b>	Mar-17
Custom Benchmark	-5.9%	-18.8%	-14.9%	6.2%	6.4%	7.4%	
<b>DIVERSIFYING ASSET CATEGORY</b>	<b>-3.0%</b>	<b>-9.4%</b>	<b>-9.2%</b>	<b>-0.2%</b>	<b>1.2%</b>	<b>1.6%</b>	Mar-17
Custom Benchmark	-3.0%	-10.3%	-10.3%	-1.0%	0.8%	1.2%	
<b>REAL RETURN ASSET CATEGORY</b>	<b>1.1%</b>	<b>9.8%</b>	<b>16.8%</b>	<b>10.6%</b>	<b>9.9%</b>	<b>10.0%</b>	Mar-17
Custom Benchmark	1.1%	12.6%	17.8%	9.9%	8.3%	8.1%	

SCERS' portfolio performance was negative in the third quarter of 2022 driven by persistent inflation and further uncertainty regarding monetary policy that led to a broad market selloff. SCERS' Total Fund return was -3.9% for the quarter, gross of fees, slightly underperforming the Policy Index return of -3.8%, but outperforming the median public fund return of -4.3%. For the one-year period ending September 30, 2022, SCERS' portfolio was down -8.7% and slightly underperformed the Policy Index return of -8.6%, while delivering significant outperformance versus the median public fund return of -12.3%. Despite the decline, SCERS' Total Fund performance is 6.7% and 7.0%, respectively, over the 3- and 5-Year periods, and is ahead of the Policy Index returns of 5.1% and 5.5%. The Total Fund performance ranks in the top quartile for the trailing 1-, 3-, and 5-Years.

After rallying early in the quarter, risk assets declined in August and September as central banks struggled with inflation amid slowing economic growth. Continued concerns around high inflation and growing recession risks weighed on markets during the quarter. As inflation remained at elevated levels along with a tight labor market, the U.S. Federal Reserve continued to raise rates in the 3<sup>rd</sup> quarter and enacted a third consecutive 75-basis point rate hike. With the Fed in tightening mode and an increasingly challenging economic backdrop, nearly all asset classes posted a loss for the quarter. International and emerging equity markets also declined significantly during the quarter, driven by a strong U.S. dollar relative to foreign currencies and global central banks increasingly raising rates in an attempt to contain inflation. The continued rise in bond yields also pushed prices of most fixed-income securities into further negative territory as the potential of a sustained period of higher rates raised concerns within the fixed income market.

In addition to a challenging economic environment, geopolitical concerns also continued to impact global markets during the quarter. Investors remain concerned about the ongoing Russia and Ukraine conflict along with the dramatic impact on energy prices in Europe. Concerns about Europe also increased during the quarter as rising inflation continues to spread across Europe at multi-decade highs. Further intensifying the challenging international investment landscape was the concerns of the fiscal framework coming out of the United Kingdom, which introduced large tax cut initiatives without securing additional funding sources. These fiscal initiatives drove yields higher, further tightening global financial conditions during the quarter.

SCERS' Real Return asset category continued to be the top performing segment during the quarter with a 1.1% return. Real Assets and Real Estate prices benefited from significant increases in inflation, which reinforces the role that these assets play in SCERS' portfolio. Within the Real return asset category, Private Real Assets was the biggest contributor to the outperformance with a +3.9% return. SCERS' Growth asset category was the largest detractor for the quarter as it was down -5.9%, led lower by Global Public Equity. SCERS' Private Equity asset class, which is lagged one quarter, also contributed to the underperformance with a return of -4.7%. The Diversifying asset category was also down -3.0% in the quarter, driven lower by both core fixed income and U.S. Treasury markets, as the diversification characteristics of the fixed income assets have not served investors well.

### Growth Asset Category

SCERS GROWTH Performance Summary for the periods ending 9/30/22	Quarter	Year-to-Date	1-Year	Since Inception	Since Inception Date
<b>SCERS GROWTH ASSET CATEGORY</b>	<b>-5.9%</b>	<b>-19.4%</b>	<b>-15.2%</b>	<b>9.1%</b>	Mar-17
Custom Benchmark	-5.9%	-18.8%	-14.9%	7.4%	
<b>Global Public Equity</b>	<b>-7.0%</b>	<b>-26.8%</b>	<b>-23.1%</b>	<b>7.3%</b>	Jun-11
MSCI ACWI	-6.5%	-25.4%	-20.4%	6.5%	
<b>Private Equity (lagged 1 quarter)</b>	<b>-4.7%</b>	<b>-2.7%</b>	<b>5.1%</b>	<b>7.5%</b>	Feb-08
Cambridge All PE	-5.0%	-0.9%	4.6%	12.1%	
<b>Public Credit</b>	<b>-2.0%</b>	<b>-9.9%</b>	<b>-8.5%</b>	<b>3.8%</b>	Nov-13
Custom Benchmark	0.3%	-9.0%	-8.4%	3.3%	
<b>Private Credit (lagged 1 quarter)</b>	<b>-0.5%</b>	<b>2.5%</b>	<b>5.5%</b>	<b>7.5%</b>	Mar-17
Credit Suisse Leveraged Loan + 2%	-3.9%	-2.3%	-0.7%	5.9%	
<b>Growth Absolute Return</b>	<b>0.2%</b>	<b>-10.6%</b>	<b>-11.7%</b>	<b>4.8%</b>	Aug-04
HFRI FoF Composite +1%	0.0%	-6.1%	-5.5%	5.8%	

The Growth asset category was down -5.9% in the quarter, which performed in line with the benchmark. The negative performance was driven primarily by Global Public Equity, which declined -7.0% versus the MSCI ACWI benchmark return of -6.5%. Public equity markets had a difficult first half of the year. The third quarter began with a relief rally, but sold off into the end of the quarter as recession fears and central bank tightening drove market volatility. The growth-oriented equity style outperformed value during the quarter, highlighted by the Russell 1000 Growth index down -3.6% compared to the Russell 1000 Value index down -5.6% during the quarter (-31% vs -18% YTD). In a notable reversal, small cap outperformed large cap as the Russell 2000 was down -2.2%, while the Russell 1000 was down -4.6% during the quarter. However, both are down -25% YTD. International equity markets also declined significantly during the quarter with the MSCI ACWI ex U.S. index down -9.9%. Emerging markets underperformed International Developed markets during the quarter, with the MSCI Emerging Markets index down -11.6% versus the MSCI World ex U.S. index down -9.2%. Emerging markets' underperformance was driven down by a steep decline in China's equity market along with slowing global growth and heightened inflation pressure. SCERS' growth oriented active equity managers, both U.S. and International, have faced significant pressure during the year,

while value oriented strategies have held up better during the market downturn. This is consistent with the performance of the broader equity markets, as growth strategies have declined significantly relative to value, reversing a multi-year trend of growth outperforming value.

SCERS' Private Equity portfolio, where returns are lagged by one quarter, was down during the quarter (-4.7%) and YTD (-2.7%). However, SCERS' Private Equity portfolio is generating positive returns and outperforming the benchmark for the trailing 1-year, 3-year, and 5-year periods. SCERS' Private Credit portfolio, where performance is also lagged one quarter, continued to show positive results YTD, up +2.5%. While the Private Credit portfolio was positive YTD, it was down slightly (-0.5%) for the quarter but outperformed the benchmark (-3.9%). The Public Credit portfolio declined -2.0% in the quarter, which lagged the benchmark return of 0.3%.

### Diversifying Asset Category

SCERS DIVERSIFYING Performance Summary for the periods ending 9/30/22	Quarter	Year-to-Date	1-Year	Since Inception	Since Inception Date
<b>SCERS DIVERSIFYING ASSET CATEGORY</b>	<b>-3.0%</b>	<b>-9.4%</b>	<b>-9.2%</b>	<b>1.6%</b>	Mar-17
Custom Benchmark	-3.0%	-10.3%	-10.3%	1.2%	
<b>Core/Core Plus Fixed Income</b>	<b>-4.9%</b>	<b>-15.1%</b>	<b>-14.9%</b>	<b>2.1%</b>	Jun-11
Bloomberg Barclays US Aggregate TR	-4.8%	-14.6%	-14.6%	1.6%	
<b>U.S. Treasury</b>	<b>-4.3%</b>	<b>-12.8%</b>	<b>-12.7%</b>	<b>0.3%</b>	Feb-18
Bloomberg Barclays US Treasury TR	-4.3%	-13.1%	-12.9%	0.2%	
<b>Diversifying Absolute Return</b>	<b>0.2%</b>	<b>0.6%</b>	<b>1.4%</b>	<b>2.6%</b>	Nov-11
HFRI FoF Conservative Index	0.3%	-1.3%	-0.6%	4.5%	

SCERS' Diversifying Asset Category was down -3.0% during the quarter and -9.4% YTD. The underperformance was primarily driven by SCERS' Fixed Income portfolio with Core/Core Plus and U.S. Treasury managers down -4.9% and -4.3% for the quarter, respectively. Fixed income markets continued to face significant headwinds during the quarter, pressured by rising interest rates and high inflation. The U.S. Federal Reserve Bank raised interest rates by another 75 basis points during the quarter as inflation continued to exceed expectations and was up 8.2% year-over-year in September (as measured by the U.S. Consumer Price Index). This increase marks a third consecutive 75 basis points increase for the year, pushing rates higher with the 10-year Treasury rate at 3.83% at the end of the quarter and meaningfully higher than the 3.01% at the beginning of the quarter. Widening yields continued to put downward pressure on fixed income returns during the quarter with the Bloomberg Barclays Aggregate and U.S. Treasury index down -4.8% and -4.3%, respectively. Meanwhile, the Diversifying Absolute Return portfolio, was up 0.2% in the quarter but slightly underperformed the benchmark return of 0.3%. For the trailing 1-Year period, the Absolute Return portfolio was up +1.4%, outperforming the benchmark return of -0.6%. Most strategies have done a good job at protecting capital, particularly considering the significant negative returns across both equity and fixed income. The substantial outperformance of SCERS' Absolute Return portfolio, relative to public fixed income and public equities, further demonstrates its ability to act as a diversifier to the total portfolio, maintaining lower sensitivity to broad market performance.

Real Return Asset Category

SCERS REAL RETURN Performance Summary	Quarter	Year-to-Date	1-Year	Since Inception	Since Inception Date
<b>SCERS REAL RETURN ASSET CATEGORY</b>					
<b>SCERS Real Return w/ SSgA Proxy</b>	<b>1.1%</b>	<b>9.8%</b>	<b>16.8%</b>	<b>10.0%</b>	<b>Mar-17</b>
Custom Benchmark	1.1%	12.6%	17.8%	8.1%	Mar-17
<b>SCERS Real Estate</b>	<b>0.1%</b>	<b>11.5%</b>	<b>21.1%</b>	<b>12.0%</b>	<b>Jun-11</b>
Custom Benchmark	2.4%	17.2%	25.1%	10.6%	
<b>Core Real Estate (as of 9/30/22)</b>					
Commingled Funds	-0.3%	13.1%	23.6%	7.4%	Sep-08
NFI-ODCE	0.5%	13.1%	22.1%	7.0%	Sep-08
<b>Non-Core Real Estate (as of 6/30/22)</b>					
Opportunistic	0.9%	6.2%	14.9%	16.6%	Feb-14
Value Add	1.9%	7.0%	10.5%	1.1%	Sep-08
NFI-ODCE net +1%	5.2%	24.0%	29.3%	11.2%	Feb-14
				8.9%	Sep-08
<b>SCERS Real Assets (as of 6/30/22)</b>	<b>3.9%</b>	<b>17.0%</b>	<b>22.9%</b>	<b>7.0%</b>	<b>Jan-13</b>
Custom Benchmark	1.3%	13.6%	16.7%	7.0%	
<b>SCERS Liquid Real Return (as of 9/30/22)</b>	<b>-5.9%</b>	<b>-10.2%</b>	<b>-6.5%</b>	<b>2.4%</b>	<b>Jun-19</b>
SSgA Real Assets	-5.9%	-8.8%	-5.3%	2.5%	

Real Return posted positive returns for the third quarter, up +1.1%, and in line with the benchmark return of +1.1%. SCERS' Real Assets portfolio, where returns are lagged on quarter, continues to outperform with a +3.9% during the quarter and +22.9% over the past year, driven by the Infrastructure and Energy segments. Energy and Commodities continued to be the top performing sectors across financial markets during the second quarter, despite energy prices declining in June. For the second quarter, the Bloomberg Energy index was up 7%, with the broader S&P GSCI index up 2%. However, in the third quarter, the Bloomberg Energy index and the broader S&P GSCI index gave up some of those gains as they posted negative returns of -5.4% and -10.3%. Commodities and Energy registered negative performances during the third quarter as prices remained volatile amid concerns about a slowing global economy.

SCERS' Real Estate portfolio, which is a mix of Core Real Estate open-end commingled funds valued as of 9/30/22 and Non-Core Real Estate investments in closed end funds valued as of 6/30/22, was up +0.1% in the quarter, trailing the benchmark return of +2.4%. SCERS' Core Real Estate portfolio was down -0.3%, while the performance of Non-Core Value Add and Opportunistic portfolios were up, returning +1.9% and +0.9%, respectively. For the trailing 1-Year, SCERS' Real Estate portfolio has posted strong returns, up +21.1%, benefiting from the inflationary environment despite increasing interest rates. However, the Real Estate returns trail the benchmark return of 25.1%, primarily due to underperformance of the Non-Core segment.

SCERS' Liquid Real Return declined during the quarter, down -5.9% and performed similar to the SSgA benchmark return of -5.9%. Certain commodities, energy, publicly traded REITs, and TIPS all posted negative returns during the quarter, contributing to the decline of the liquid real return strategies.

SCERS' policy index benchmark includes a blended weighted average of the individual asset class benchmarks, as defined within SCERS' Master IPS, and as shown below. No changes to the policy index benchmark were made during the quarter.

<b>SCERS BENCHMARK SUMMARY</b> <b>As of September 30, 2022</b>	
<b>Asset Class</b>	<b>Policy Index Benchmark</b>
<b>Growth Asset Category</b>	
	Blended Weighted Average of Asset Class Benchmarks
Global Equity	MSCI ACWI IMI
Private Equity	Cambridge Associates PE/VC Index
Public Credit	50% (BofA High Yield) + 50% (CS High Yield)
Private Credit	CS Leveraged Loan + 2%
<b>Diversifying Asset Category</b>	
	Blended Weighted Average of Asset Class Benchmarks
Fixed Income	75% Bloomberg Barclays Aggregate Index/25% Bloomberg US Treasury Index
Diversifying Absolute Return	HFRI FoF Conservative Index
Cash	Overnight LIBOR/SOFR
<b>Real Return Asset Category</b>	
	Blended Weighted Average of Asset Class Benchmarks
Real Estate	60% (NFI-ODCE) + 40% (NFI-ODCE) +1%
Real Assets	60% (Cambridge Associates Private Infrastructure Index) + 30% (Cambridge Associates Private Energy Index) + 10% (NCREIF Farmland Index)
Liquid Real Return	SSGA Real Return Overlay Proxy *

\*SSGA Real Return Overlay Policy: 15% FTSE EPRA/NAREIT Developed Liquid Index, 25% S&P Global Infrastructure Index, 10% S&P Global Large Mid Cap Commodity and Resources Index, 10% Bloomberg Roll select Commodity Index, 30% Bloomberg Barclays 1-10 year US TIPS Index, and 10% Bloomberg Barclays US Dollar Floating Rate <5 Year Index.

**ATTACHMENT**

- Board Order
- Verus' Investment Performance Review for SCERS for the period ending September 30, 2022.

Prepared by:

***/S/***

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Michael Vang  
Investment Analyst

Reviewed by:

***/S/***

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Steve Davis  
Chief Investment Officer

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Eric Stern  
Chief Executive Officer



# Retirement Board Order

## Sacramento County Employees' Retirement System

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Before the Board of Retirement  
December 7, 2022

AGENDA ITEM:

**Total Fund Investment Performance Report –  
Third Quarter 2022**

THE BOARD OF RETIREMENT hereby accepts the recommendation of Staff to receive and file the SCERS Total Fund Investment Performance Review report, prepared by Verus, for the quarter ending September 30, 2022.

I HEREBY CERTIFY that the above order was passed and adopted on December 7, 2022 by the following vote of the Board of Retirement, to wit:

AYES:

NOES:

ABSENT:

ABSTAIN:

ALTERNATES:  
(Present but not voting)

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Keith DeVore  
Board President

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Eric Stern  
Chief Executive Officer and  
Board Secretary





**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: SEPTEMBER 30, 2022**

Investment Performance Review for

**Sacramento County Employees' Retirement System**

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Investment Landscape **TAB I**

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Total Fund **TAB II**

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Policy Index and  
Benchmark History **TAB III**



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

4<sup>TH</sup> QUARTER 2022  
Investment Landscape

# Verus business update

## Since our last Investment Landscape webinar:

- *Chief Investment Officer* has nominated Verus for its **2022 Innovation Awards** in the Diversity category, recognizing Verus President, Shelly Heier's work to progress the [Institutional Investing Diversity Cooperative \(iidcoop.org\)](https://iidcoop.org) mission promote greater diversity in the institutional asset management industry.
- The firm continues to grow with two new clients, located on the West Coast and in the Midwest.
- Verus has hired several new employees. **Colleen Flannery**, Associate Director | Public Markets; **Jason Fajardo**, Performance Analyst; **Sam Geschickter**, Portfolio Management Associate; **Linda Wu, CFA**, Senior Consulting Associate; and **Amanda Schroeder**, Director of Marketing.
- Recent research, found at [verusinvestments.com/insights](https://verusinvestments.com/insights)
  - In August, we put out a short video on our *Perspectives on the recession and the economy*
  - In September, we released a whitepaper on *Opportunities in small caps*
  - *This month, we shared our 2022 Private Equity Outlook* and a paper called, *Minding the gap: Insights into actuarial assumed rate of return*

# Recent Verus research

Visit: <https://www.verusinvestments.com/insights/>

## Topics of interest papers

### OPPORTUNITIES IN SMALL CAPS

In this Topic of Interest white paper, we first briefly walk through the original small cap premium thesis and research that led to its industry-wide recognition. Forty years have passed since much of this analysis was conducted, so in this section we take a look at whether the small cap effect has remained statistically significant. Next, we discuss active management opportunities in small caps, as these businesses are smaller and less covered by analysts. Last, many U.S. companies are staying private for longer. We cover this trend and its implications for the small cap market, which is directly impacted by the private/public decisions of younger businesses.

### MINDING THE GAP: INSIGHTS INTO ACTUARIAL ASSUMED RATE OF RETURN

As consultants, we are often asked “how can we support a strategic asset allocation with an expected return (ER) that is different from the actuarial assumed rate of return (AARR)?” We believe Plan sponsors with a gap between these two metrics should work to bring the ER and AARR in line. Boards may face modest differences for three distinct reasons – each have countervailing reasons for closing the gap they cause. First, it might be argued that these forecasts are built for different purposes. Second, there is variability in ER forecasts as markets fluctuate year-to-year. Third, the timeframe over which the forecasts are used differs. In this paper, we further explain this reasoning and conclude by offering approaches for Plans to reduce any mismatch between ER and AARR to a reasonable level, which we generally believe to be less than 0.5%.

## Annual research

### 2022 PRIVATE EQUITY OUTLOOK

In the 2022 Private Equity Outlook, we focus attention on the rise of GP-led continuation funds and what investors should consider when evaluating such opportunities. The outlook also addresses the following observations:

- Late-stage venture valuations have increased, and involvement of nontraditional investors has shifted
- Private equity deal activity has slowed in the face of rising interest rates and falling public markets
- Venture capital activity has slowed while fundraising remains strong
- Direct lending continues to drive investor interest while distressed debt and special situations credit have received more attention
- As many factors continue to impact the public markets and create volatility, the secondary market continues to grow

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# 3<sup>rd</sup> quarter summary

## THE ECONOMIC CLIMATE

- U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14<sup>th</sup>. **p. 9**
- The U.S. dollar delivered an impressive rally year-to-date, appreciating approximately 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices. **p. 9**

## PORTFOLIO IMPACTS

- September inflation figures conveyed two stories: first, U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year. **p. 10**
- Credit performance was mixed during Q3, with lower duration exposures faring better than higher duration. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in both July and September reinforced its intention to fight inflation until the "job is done." **p. 25**

## THE INVESTMENT CLIMATE

- The Russia Ukraine war may be taking a turn, as Ukraine's counteroffensive gains steam. In a rare admission, Russia's Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: "With numerically superior tank units in the direction of Zolota Balka and Oleksandrivka, the enemy managed to forge deep into our defenses." **p. 17**
- The broad market selloff increased in intensity as global central banks hiked interest rates, effectively withdrawing liquidity from the financial system. Higher interest rates and central bank balance sheet winddowns mark a major change from the liquidity-driven environment of the past decade. **p. 22 & 23**

## ASSET ALLOCATION ISSUES

- Markets year-to-date have delivered sharp losses across nearly every asset class, including double digit losses of core fixed income (Bloomberg US Aggregate Bond -10.8%). Historically speaking, these moves have been highly unusual and reflect an environment where diversification has not served investors well. **p. 34**
- Growth stocks outperformed value stocks during the quarter (Russell 1000 Growth -3.6% vs Russell 1000 Value -5.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%). **p. 30**

The broad market selloff has increased in severity, as central banks remove liquidity from the global financial system

# What drove the market in Q3?

## “U.S. Consumer Prices Rise Sharply Despite Fed Rate Increases”

### HEADLINE CONSUMER PRICE INFLATION (YEAR-OVER-YEAR)

Apr	May	Jun	Jul	Aug	Sep
8.3%	8.6%	9.1%	8.5%	8.3%	8.2%

Article Source: Financial Times, October 13<sup>th</sup>, 2022

## “U.S. Job Growth Eases, but Is Too Strong to Suit Investors”

### CHANGE IN NON-FARM PAYROLLS

Apr	May	Jun	Jul	Aug	Sep
+368k	+386k	+293k	+526k	+315k	+263k

Article Source: New York Times, October 7<sup>th</sup>, 2022

## “Dollar’s Rise Spells Trouble for Global Economies”

### U.S. DOLLAR INDEX PRICE LEVEL

Apr	May	Jun	Jul	Aug	Sep
103.0	101.8	104.7	105.9	108.8	112.1

Article Source: Wall Street Journal, September 19<sup>th</sup>, 2022

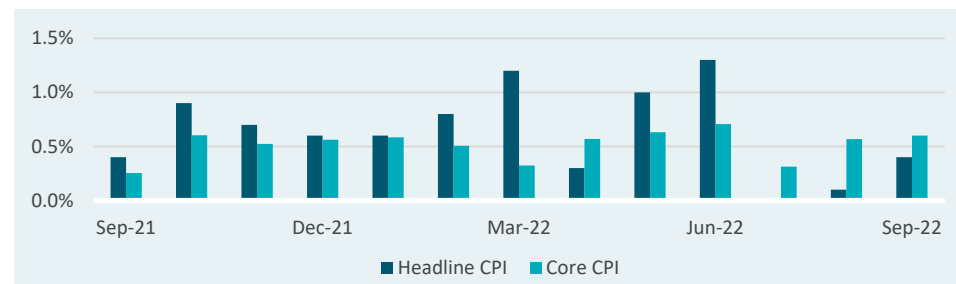
## “Mortgage Demand Drops as Rates Top 6%”

### FREDDIE MAC U.S. 30-YEAR FIXED RATE MORTGAGE RATE

Sep 2021	May	Jun	Jul	Aug	Sep
3.01%	5.10%	5.70%	5.30%	5.66%	6.70%

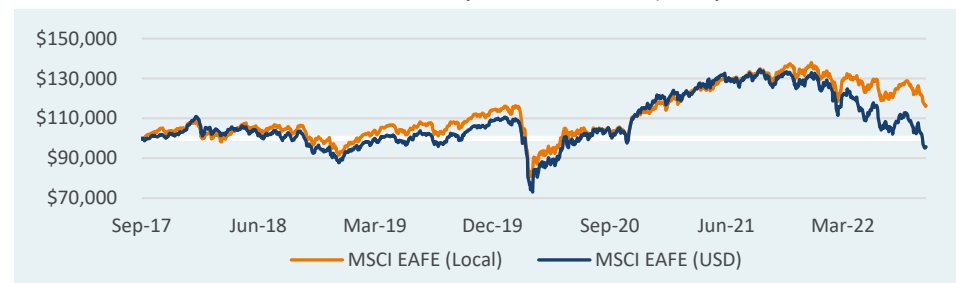
Article Source: CNBC, September 14<sup>th</sup>, 2022

## U.S. HEADLINE & CORE CPI (MONTH-OVER-MONTH)



Source: Bureau of Labor Statistics, as of 9/30/22

## MSCI EAFE LOCAL VS USD RETURNS, GROWTH OF \$100,000



Source: MSCI, Bloomberg, as of 9/30/22

## U.S. EXISTING HOME SALES (YEAR-OVER-YEAR % CHANGE)



Source: National Association of Realtors, as of 8/31/22



# Economic environment

# U.S. economics summary

- U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.
- U.S. core CPI remained elevated in September, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year. Headline inflation continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year.
- Unemployment fell slightly from 3.6% in June to 3.5% in September, which did not reflect an increase in employment but rather the departure of some Americans from the job market altogether. Weekly initial jobless claims—a measure of the number of workers who filed for unemployment during any given week—moved higher during Q2 to 244,000 in early July but has since fallen to 193,000 in late September.
- The U.S. dollar has appreciated roughly 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices.
- Coverage of COVID-19 has tended to focus on the health impacts in a binary way: either the infected individual recovers (and lives) or does not recover (and is deceased). There is a growing body of research by medical experts that suggests a significant portion of survivors face longer-term, often severe, health problems. These issues are known as “long COVID” and may be the primary cause for a severe shrinking of the U.S. labor force.

	Most Recent	12 Months Prior
Real GDP (YoY)	1.6% 6/30/22	12.5% 6/30/21
Inflation (CPI YoY, Core)	6.6% 9/30/22	4.0% 9/30/21
Expected Inflation (5yr-5yr forward)	2.1% 9/30/22	2.2% 9/30/21
Fed Funds Target Range	3.00% – 3.25% 9/30/22	0.00% – 0.25% 9/30/21
10-Year Rate	3.83% 9/30/22	1.49% 9/30/21
U-3 Unemployment	3.5% 9/30/22	4.7% 9/30/21
U-6 Unemployment	6.7% 9/30/22	8.5% 9/30/21

# GDP growth

U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Most aspects of economic activity showed decline, including private investment (-2.7%), government spending (-0.3%), and imports (-0.5%). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.

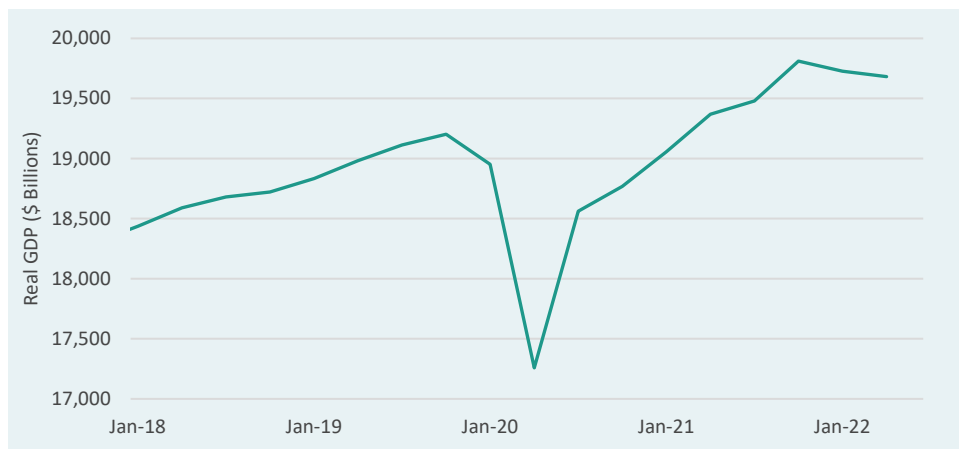
It is possible that the U.S. has avoided technical recession, for now, especially if third quarter GDP growth shows a positive figure. Pundits remain primarily focused on the relatively strong labor market to justify their claims that the U.S. is not in fact

experiencing recession, and slightly positive consumer spending growth during 2022 also adds to their argument.

The U.S. dollar has delivered an impressive rally year-to-date, appreciating approximately 15% relative to other major currencies. Two expected economic impacts of a rising U.S. dollar, all else equal, include: a slowdown in U.S. exports as domestic goods become more expensive to foreign buyers; and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices. Other countries such as the U.K. may be seeing the opposite of these effects as their domestic currencies fall in value.

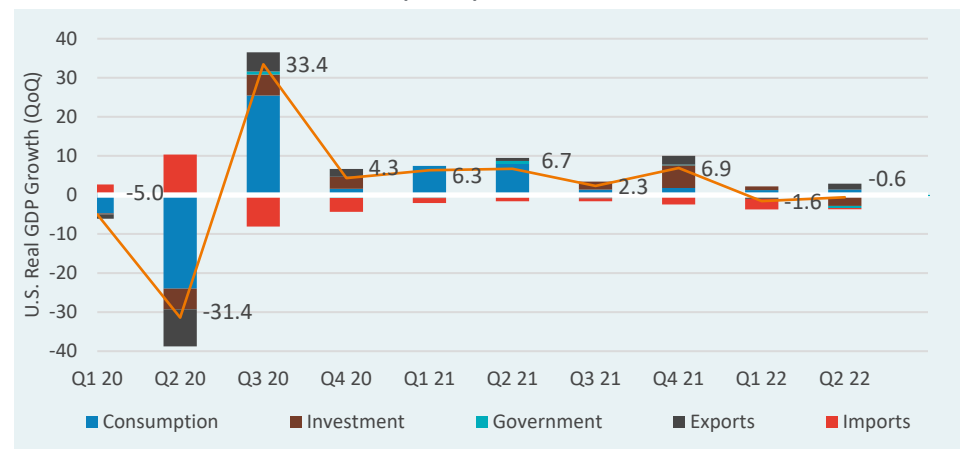
It remains unclear whether the U.S. has entered recession

**U.S. REAL GROSS DOMESTIC PRODUCT**



Source: FRED, as of 6/30/22

**U.S. REAL GDP COMPONENTS (QOQ)**



Source: FRED, as of 6/30/22

# Inflation

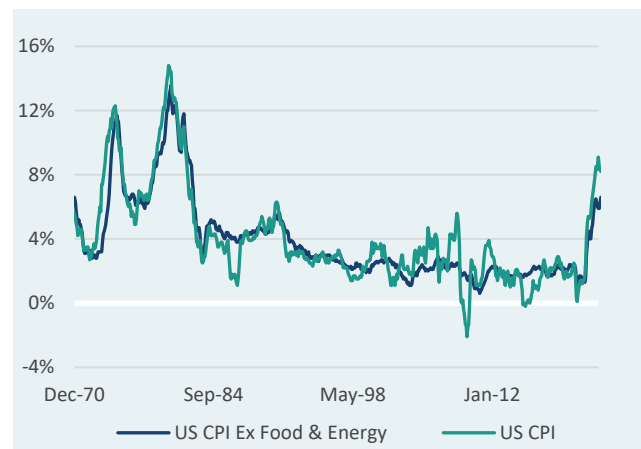
The September inflation print conveyed two separate stories: first, that U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly print of 0.4%, but remains high at 8.2% year-over-year.

We see a variety of economic developments that suggest inflation is abating, although the level of inflation may not fall to pre-pandemic levels due to the breadth of price movement. These developments include: lower commodity prices,

dramatically lower international shipping costs, and the general slowdown of economic activity on the back of Federal Reserve tightening.

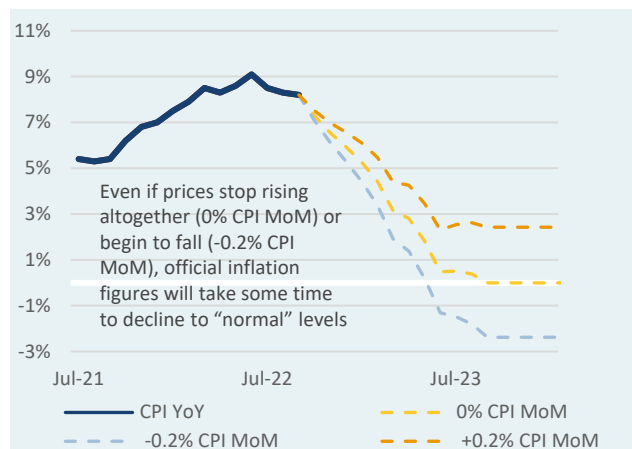
Inflation will take some time to fall back to normal levels, even if *monthly* inflation is 0% in the future. Below we illustrate a few scenarios of *monthly* future price movement. Even if prices stop rising completely (a monthly inflation rate of 0%), the U.S. inflation rate will still likely take until spring of 2023 to fall back to 2%.

## U.S. CPI (YOY)



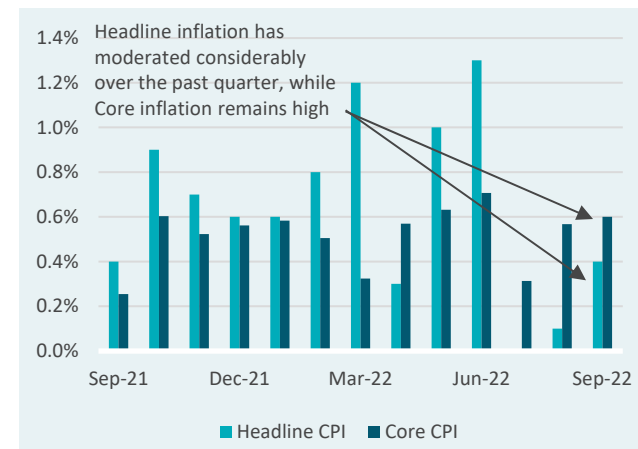
Source: BLS, as of 9/30/22

## INFLATION IS A SLOW-MOVING METRIC



Source: Verus, BLS, as of 9/30/22

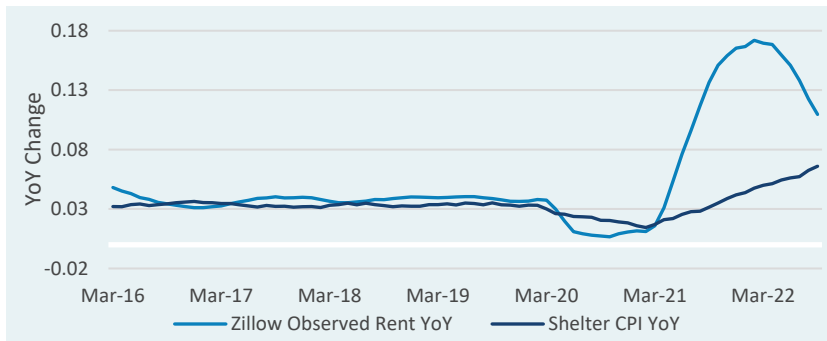
## MONTHLY PRICE MOVEMENT



Source: BLS, as of 9/30/22

# How are inflation conditions evolving?

## CPI SHELTER COSTS (YEAR-OVER-YEAR)



Shelter costs account for approx. 32% of the CPI gauge and have moved considerably higher along with the broader real estate boom. However, only a small portion of these costs have been captured in official data, so far. While there is evidence that home prices and rents have stopped rising, it is not yet clear whether/when the jump in costs of recent years will flow into official CPI data.

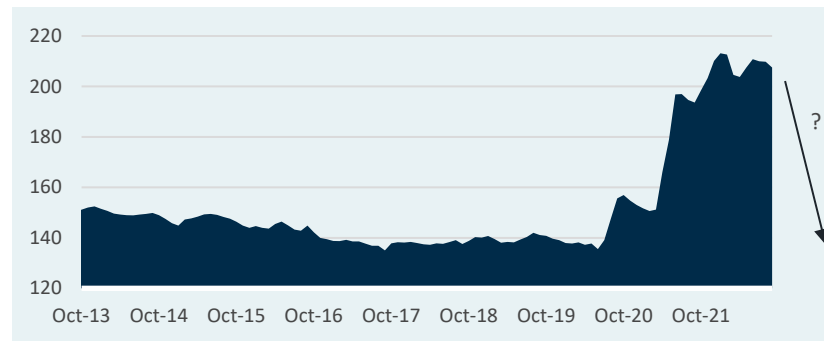
## BLOOMBERG COMMODITY SPOT INDEX



Fears of recession and its impact on commodity demand, as well as some potential easing of uncertainty around Ukraine, have likely contributed to a sharp drop in commodity prices. If weaker conditions persist, the reversal in commodity markets should have a deflationary impact on broader consumer prices, though this effect may take time to flow through to broader goods and services prices.

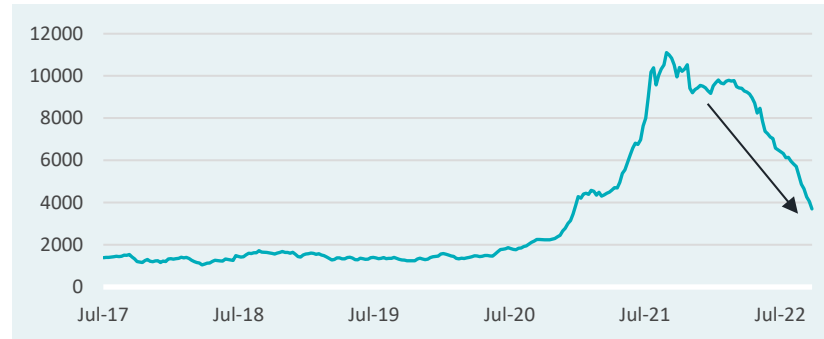
Source: Zillow, FRED, as of 9/30/22 (upper), Bloomberg, as of 9/30/22 (lower)

## CPI USED CAR & TRUCK PRICES



Used auto prices have been dropping materially according to the Mannheim Used Auto Value Index, down more than 13% from highs. If falling prices soon are reflected in official CPI statistics, this would place downward pressure on official inflation figures.

## FREIGHTOS SHIPPING CONTAINER COST INDEX



Pandemic-related supply and demand complexities initially contributed to many supply shortages and price spikes. These shipping costs are quickly falling back towards pre-pandemic levels. We would expect the mitigation of shipping problems to have a deflationary effect on prices, assuming businesses begin to pass these cost savings on to customers.

Source: FRED, as of 9/30/22 (upper), Freightos, as of 10/7/22 (lower)

Inflation dynamics are complex. This slide shows a few potentially *inflationary* forces and *deflationary* forces

# Labor market

The U.S. labor market continues to be strong, which is arguably the biggest factor empowering the Federal Reserve’s aggressive policy stance. However, while employment is strong, high inflation has eaten away at household purchasing power, as demonstrated by the consistent decline in inflation-adjusted weekly earnings since mid-2020.

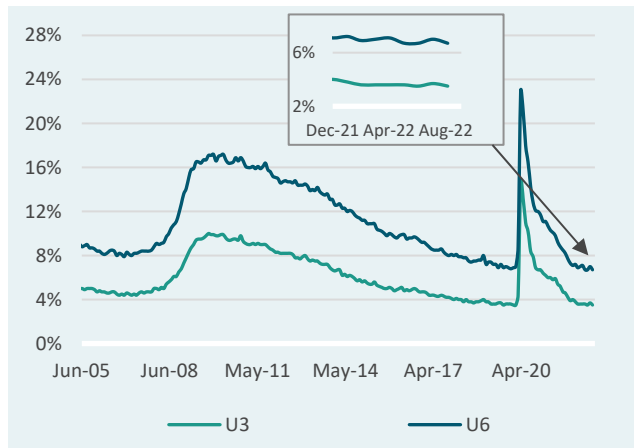
Unemployment fell slightly from 3.6% in June to 3.5% in September, which did not reflect an increase in employment but rather the departure of some Americans from the job market altogether. Weekly *initial jobless claims*—a measure of

the number of workers who filed for unemployment on any given week—moved higher during Q2 to 244,000 in early July but has since fallen to 193,000 in late September.

The gap in labor force participation rates across different age cohorts remains notable, with the age 55+ cohort failing to recover. Previously we had assumed that abnormally early retirements of older workers during the pandemic was likely the main cause for this effect. However, as we propose on the next page, the apparently very widespread health effects of “Long COVID” may be playing a role in this story.

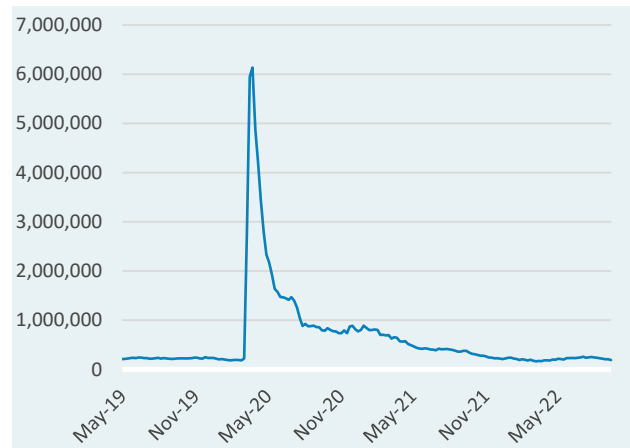
The labor market appears tight according to most metrics, but workers’ wages are falling on an inflation-adjusted basis

**U.S. UNEMPLOYMENT**



Source: FRED, as of 9/30/22

**INITIAL JOBLESS CLAIMS**



Source: FRED, as of 9/25/22

**U.S. AVERAGE WEEKLY REAL WAGES**

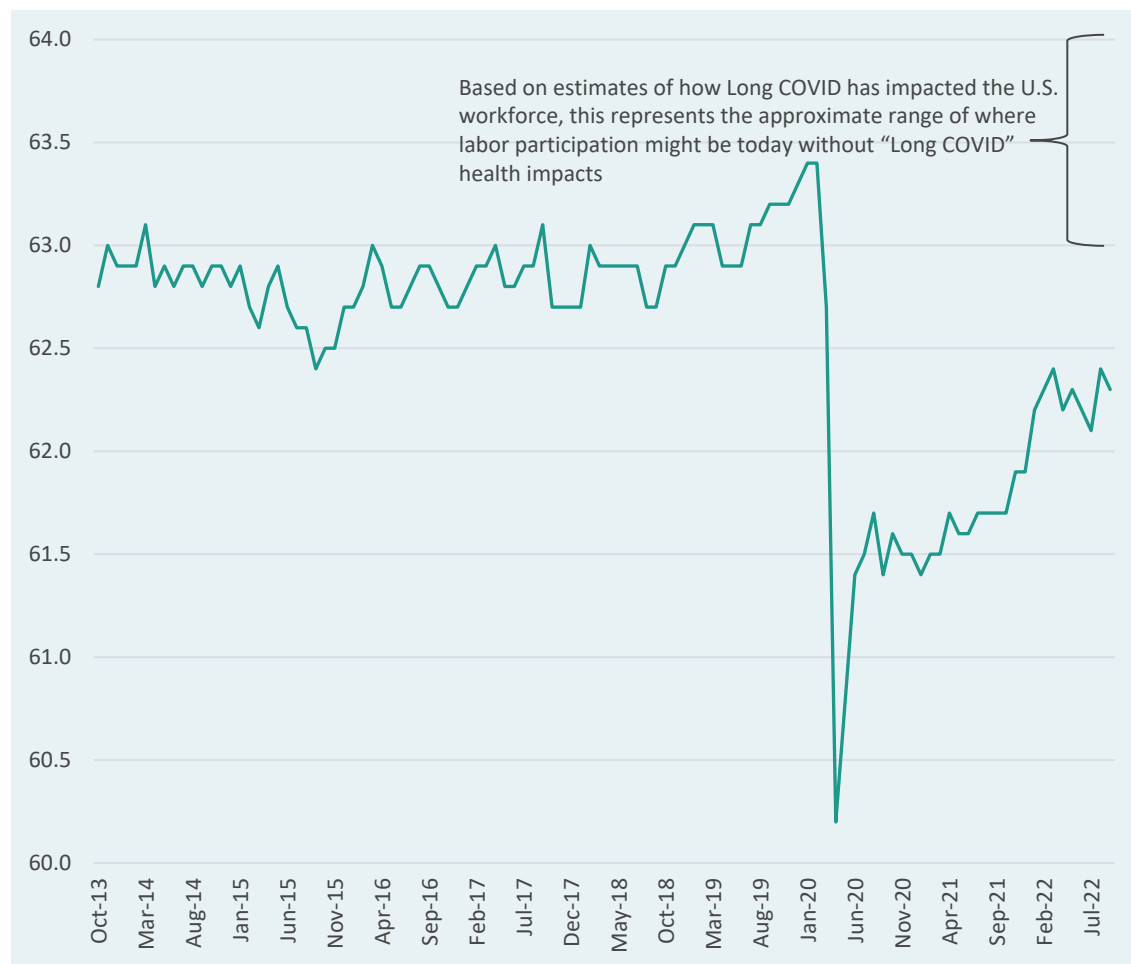


Source: FRED, as of 6/30/22

# Labor dynamics: Long COVID-19

- Most coverage of COVID-19 has focused on the health impacts of COVID-19 in a binary way: either the infected individual recovers (and lives) or they do not recover (and is deceased). There is a growing body of research by medical experts that suggests a significant portion of COVID-19 survivors face longer-term, often severe, health problems. These issues are known as “Long COVID”.
- COVID-19 is broadly thought of as a virus that affects the lungs. However, it can severely impact the brain and heart as well. Studies vary in their projections regarding the number of Americans who are unable to work due to Long COVID health issues. We have observed estimates between half a million and 4 million workers. This chart illustrates that Long COVID could in fact be the primary reason for a shrunken American workforce and the unusual number of unfilled job openings.
- This topic should be seen as important to investors, because: a) the size of the U.S. labor force determines the productive capacity of the country and therefore the rate of economic growth, the direction of wage pressures, and likely also the actions of the Federal Reserve (as decided by metrics such as labor market tightness and household income/spending).
- We are continuing to closely follow these dynamics. Depending on the persistence of Long COVID, future expectations could vary from *permanently reduced U.S. workforce and commensurately reduced U.S. growth prospects* to *continued inflow of previously ill workers back into the workforce*.

LABOR PARTICIPATION RATE (%)



Source: FRED, Verus, as of 9/30/22

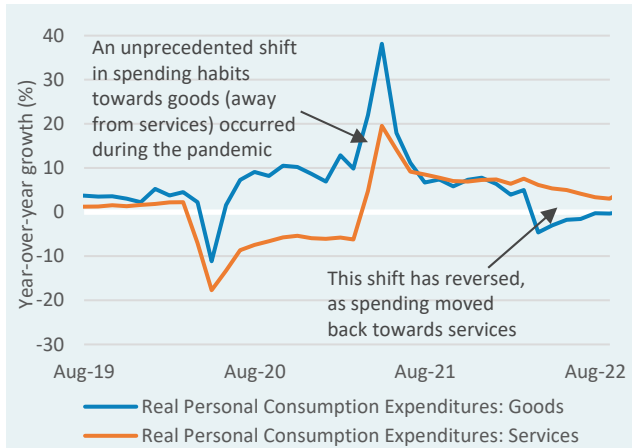
# The consumer

U.S. real (inflation-adjusted) personal consumption expenditures slowed further to 1.8% year-over-year in August. The purchases of goods have fallen as consumers move back towards pre-pandemic spending habits (sales of goods have been consistently falling year-to-date, after adjusting for inflation). A moderation of goods purchased means less shipping volume and has likely helped mitigate overburdened supply chains and high international shipping costs, which have been easing materially.

Spending has slowed while savings rates have dropped to 3.5%—a level not seen since 2008—which seems to imply that household budgets are being hit hard by inflation and higher living costs.

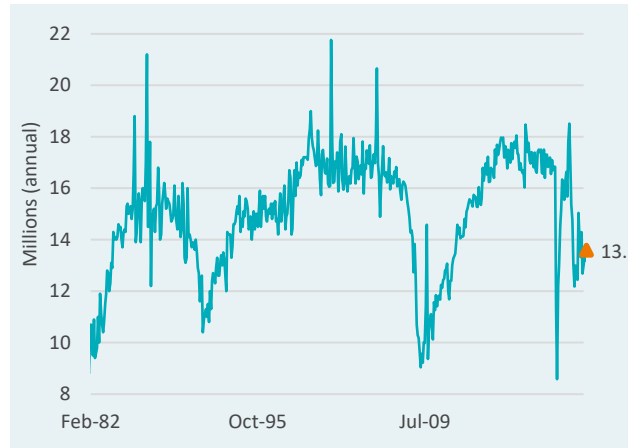
Auto sales activity remains very weak, although automakers have reported improvements in computer chip supplies that will allow production to rise. On the other hand, higher interest rates, diminished household budgets, and high car prices may constrain a recovery in auto sales activity despite new inventory coming online.

**REAL PERSONAL CONSUMPTION EXPENDITURES**



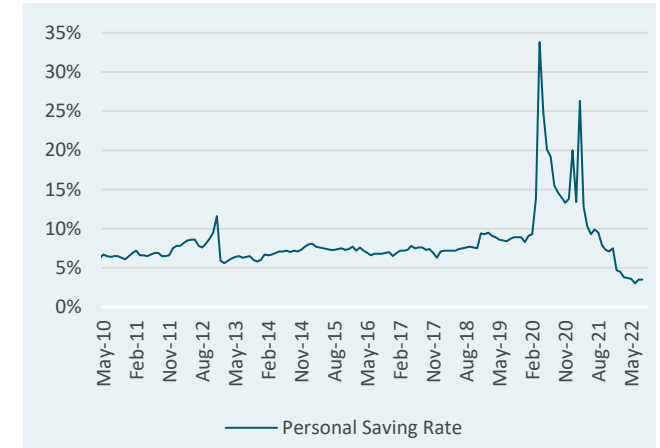
Source: FRED, as of 8/31/22

**AUTO SALES**



Source: Federal Reserve, as of 9/30/22

**PERSONAL SAVINGS RATE**



Source: FRED, as of 8/31/22



# Sentiment

Consumer sentiment improved slightly from extremely depressed levels, according to the University of Michigan survey. In this survey, respondents mentioned better buying conditions for durable goods and a more optimistic one-year outlook, though this brighter sentiment was generally offset by a deteriorating outlook for business conditions.

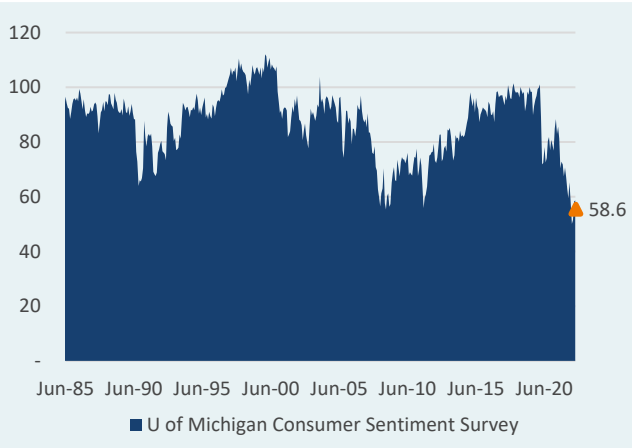
Consumer confidence measured by the Conference Board ticked up in the third quarter, as inflation expectations lessened, and more specifically as households saw prices at the pump materially contract. Consumers’ assessments of current conditions and the short-term outlook improved, although

recession risks remain material. While improved confidence could bode well for spending in the fourth quarter of 2022, continued higher prices and global economic slowdowns will likely act as major headwinds.

The NFIB Small Business Optimism index improved slightly from very depressed levels. According to NFIB’s Chief Economist Bill Dunkelberg, “Inflation and worker shortages continue to be the hardest challenges facing small business owners”. Slightly more businesses expect healthier business conditions six months in the future (though overall sentiment is very negative on this topic), and more expect difficulties in filling open job postings.

Sentiment, by most measures, is extremely poor

**CONSUMER SENTIMENT**



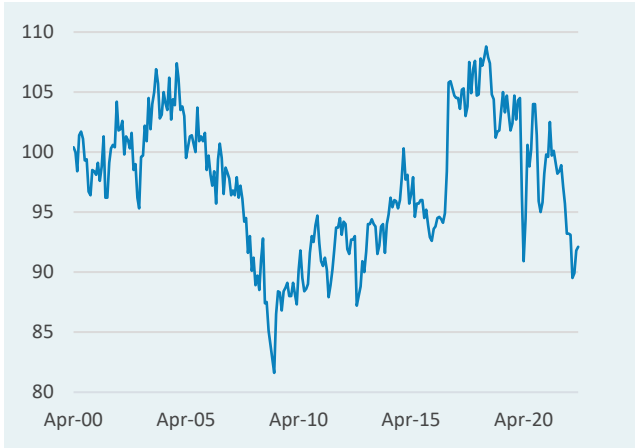
Source: University of Michigan, as of 9/30/22

**CONFERENCE BOARD CONSUMER CONFIDENCE**



Source: Conference Board, as of 9/30/22

**NFIB SMALL BUSINESS SENTIMENT**



Source: NFIB, as of 9/30/22

# Housing

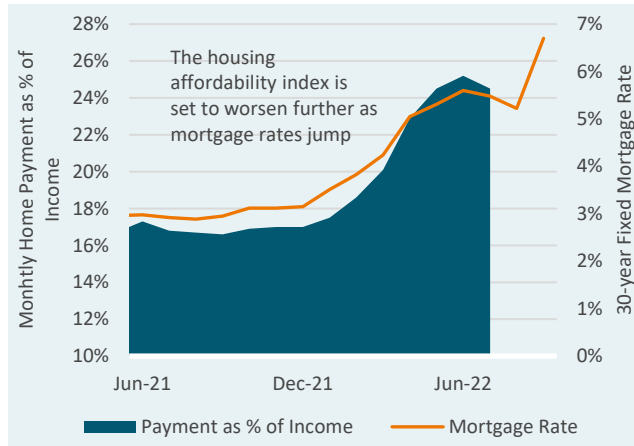
U.S. home prices fell -0.3% from June to July, according to the S&P CoreLogic Case-Shiller U.S. National Index, which might signal a reversal of the remarkable upward march in real estate values. The index suggested home prices were 15.8% higher over the past full year. Sales volumes have dropped precipitously since the beginning of 2022 which has coincided with a notable jump in monthly inventory levels.

Higher home prices and much higher mortgage interest rates have translated to the average monthly home payment rising from 16% of an average family's income to more than 24% in July, according to the National Association of Realtors. Further

increases in mortgage rates since July suggest that affordability has likely deteriorated further.

The housing market may be in the midst of a material slowdown as mortgage rates have more than doubled during 2022, from 3.1% at the beginning of the year to 6.7% at the end of the third quarter. Spiking mortgage rates in the past have coincided with a softening of the real estate market and placed downward pressure on home values. In recent years, low home inventories have been a support to markets, but this may be receding as inventories are now above average.

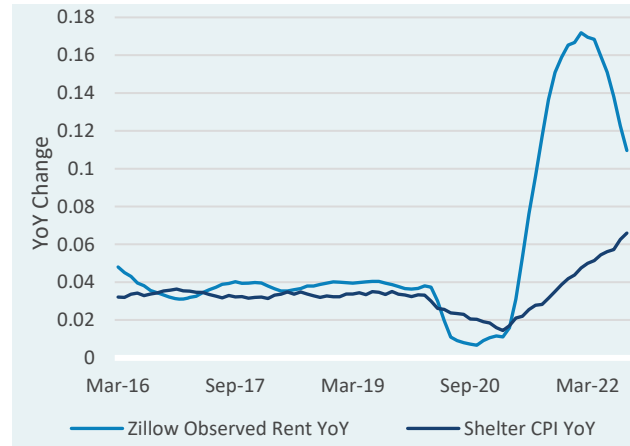
## CHANGE IN HOUSING AFFORDABILITY



Source: NAR, as of 7/31/22, FRED as of 9/30/22

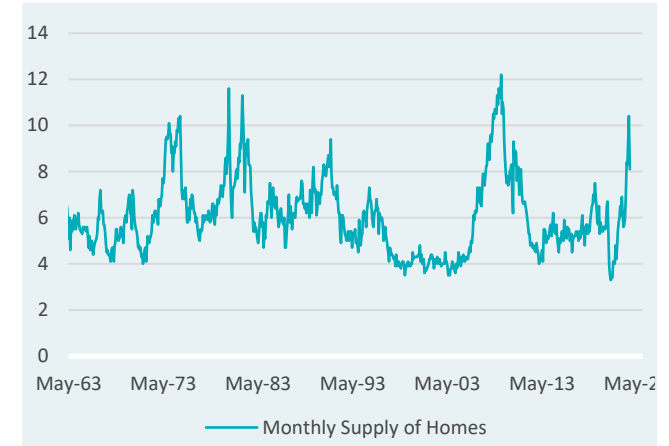
Census Bureau median family income is compared here to the monthly cost (principal + interest) of an average priced home

## HOUSING & RENT COSTS



Source: Zillow, FRED, as of 9/30/22

## SUPPLY OF HOMES



Source: FRED, as of 8/31/22

# International economics summary

- Economic growth expectations continue to weaken around the world, and recession appears possible in some developed countries. High inflation has placed central banks in a corner, requiring a choice between tightening (lower inflation with possible recession) or accommodation (stronger economic activity with possibly continued high inflation).
  - Multi-decade high inflation continues to spread across Europe, as consumer prices in September rose 10% from the prior year. Food and energy were major drivers, although the core inflation number is also elevated at 4.8%. Inflation remains a challenge in Europe and the U.S., as prices have been relatively stable in the Asia-pacific region.
  - Unemployment rates have been stable and tight in most markets, though this may now be seen as a problem as central bankers work to
- slow economies and weaken labor markets in order to fight inflation.
- The Russia Ukraine war may be taking a turn, as Ukraine’s counteroffensive gains steam. In a rare admission, Russia’s Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: “With numerically superior tank units in the direction of Zolata Balka and Oleksandrivka, the enemy managed to forge deep into our defenses.”
  - Still dealing with the highest inflation seen in four-decades, the U.K. economy continues to struggle, especially as the Bank of England tightens economic conditions in the face of a recession. The situation worsened following newly elected Prime Minister Liz Truss’ new growth plan announcement, which introduced a large tax cut initiatives without additional funding sources secured.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.8% 6/30/22	8.2% 9/30/22	3.5% 9/30/22
Eurozone	4.1% 6/30/22	10.0% 9/30/22	6.6% 8/31/22
Japan	1.6% 6/30/22	2.8% 9/30/22	2.5% 8/31/22
BRICS Nations	1.9% 6/30/22	4.5% 9/30/22	5.2% 12/31/21
Brazil	3.2% 6/30/22	7.2% 9/30/22	8.9% 8/31/22
Russia	(4.1)% 6/30/22	13.7% 9/30/22	3.8% 8/31/22
India	13.5% 6/30/22	7.4% 9/30/22	6.4% 9/30/22
China	0.4% 6/30/22	2.8% 9/30/22	5.3% 8/31/22

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

# International economics

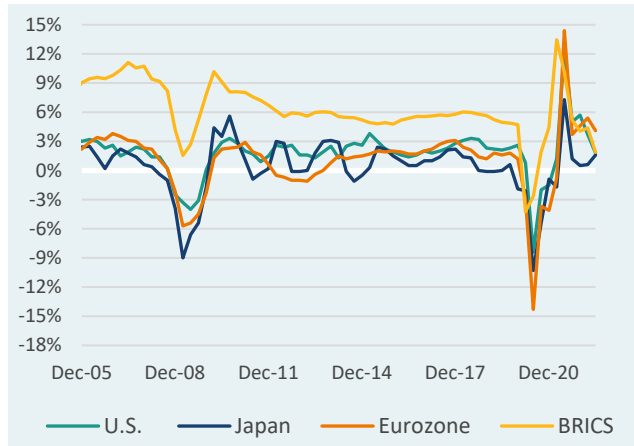
Growth expectations have further weakened around the world, and recession appears possible in some developed countries. Throughout 2022, headline inflation remained stubbornly high in many places such as the United States and Europe. Other areas, such as Japan, had avoided the initial wave of inflation but are now seeing larger price rises in recent months.

Many central banks are walking a tightrope in their fight against inflation since overly aggressive monetary policy could quickly send an economy into recession. Inflation has

become a lightning rod for political leaders, as rising prices squeeze household budgets and standards of living. This is perhaps evident most recently in the U.K., where Prime Minister Liz Truss came under harsh scrutiny for a proposal to cut tax rates and spend which seemed to conflict with Bank of England efforts to combat inflation.

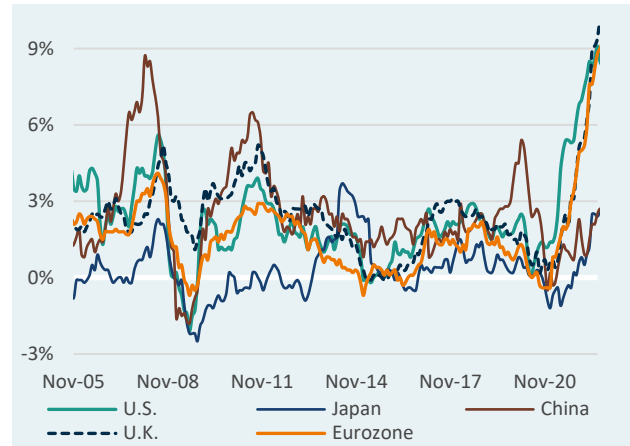
Unemployment rates are stable and tight in most markets, though central bankers may now see this as a problem standing in the way of efforts to slow economies and fight rising prices.

**REAL GDP GROWTH (YOY)**



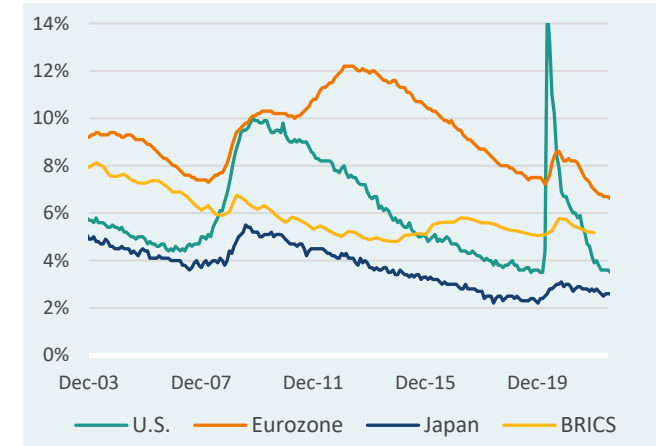
Source: Bloomberg, as of 6/30/22

**INFLATION (CPI YOY)**



Source: Bloomberg, as of 9/30/22 – or most recent release

**UNEMPLOYMENT**



Source: Bloomberg, as of 9/30/22 – or most recent release

# U.K. flash crash

Inflationary pressures have continued within the broader European complex, as a dependence on imported energy has pushed up local energy prices dramatically. Within the U.K., the Bank of England has been forced into a difficult position. The central bank increased rates at every meeting since December 2021, but headline inflation still sits at 9.9% year-over-year.

More recently, newly elected Prime Minister Liz Truss and the Chancellor of the Exchequer Kwasi Kwarteng unveiled a plan with to reignite growth and spur economic productivity through tax cuts, guarantees regarding household energy prices, and supply side reforms including infrastructure projects.

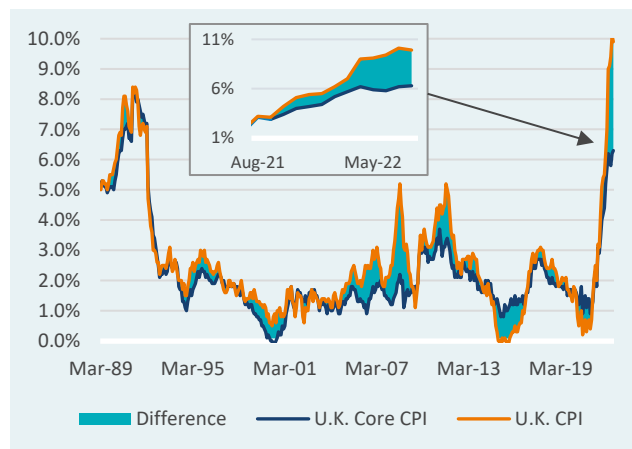
Markets reacted very poorly to the announcement. U.K. Gilt (U.K. treasury bond) yields soared, and the British pound sold off to its lowest level against the dollar in history. Markets stabilized following a commitment from the Bank of England to purchase long-dated bonds, given that many U.K. pension funds were facing margin calls on their liability-driven investment (LDI) derivative positions. The Bank of England also suspended its plans to reduce the balance sheet by selling Gilt holdings. The U.K. government then announced it would scrap its original plan to cut the top income tax rate, leading to increased volatility for the pound and U.K. sovereign debt.

**U.K. BASELOAD ELECTRICITY FORWARD PRICES**



Source: Bloomberg, as of 10/4/22

**U.K. INFLATION (CPI YOY)**



Source: U.K. Office for National Statistics, as of 8/31/22

**VALUE OF 1 GBP IN USD**



Source: Bloomberg, as of 9/30/22

# Fixed income rates & credit

# Fixed income environment

- The 10-year U.S. Treasury yield rose materially from 2.89% to 3.83% as the Federal Reserve reaffirmed its aggressive stance and markets questioned whether interest rates might be held at higher levels for longer than previously anticipated.
- Credit performance was mixed over Q3 with lower duration exposures faring better than higher duration exposures. Fears of a looming recession remained as the Fed’s 75 basis point rate hikes in July and September reinforced its intention to fight inflation until the “job is done.” Leveraged loans performed the best, returning 1.2%, followed by high yield credit and investment grade credit which returned -0.6% and -4.9%, respectively.
- Default activity continued to pick up in the third quarter with seven companies defaulting on loans and bonds totaling \$16.5 billion. This was the highest quarterly total seen since the second quarter of 2020.

Activity represented a significant jump from the \$1.6 billion and \$10.4 billion shown in Q1 and Q2, respectively.

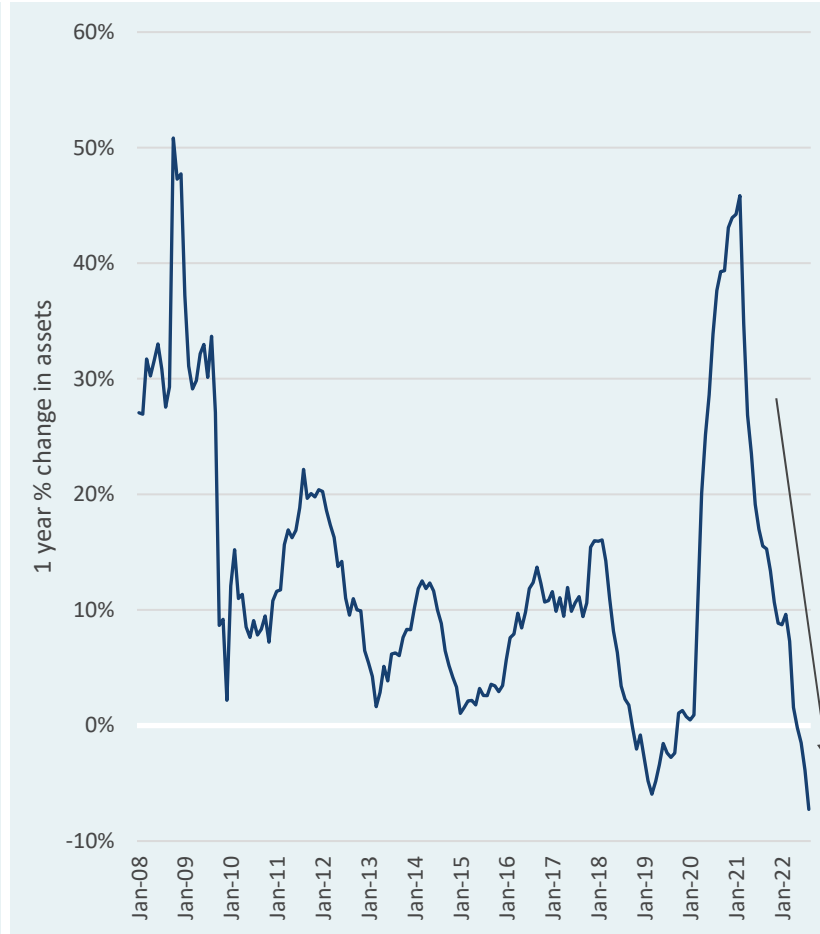
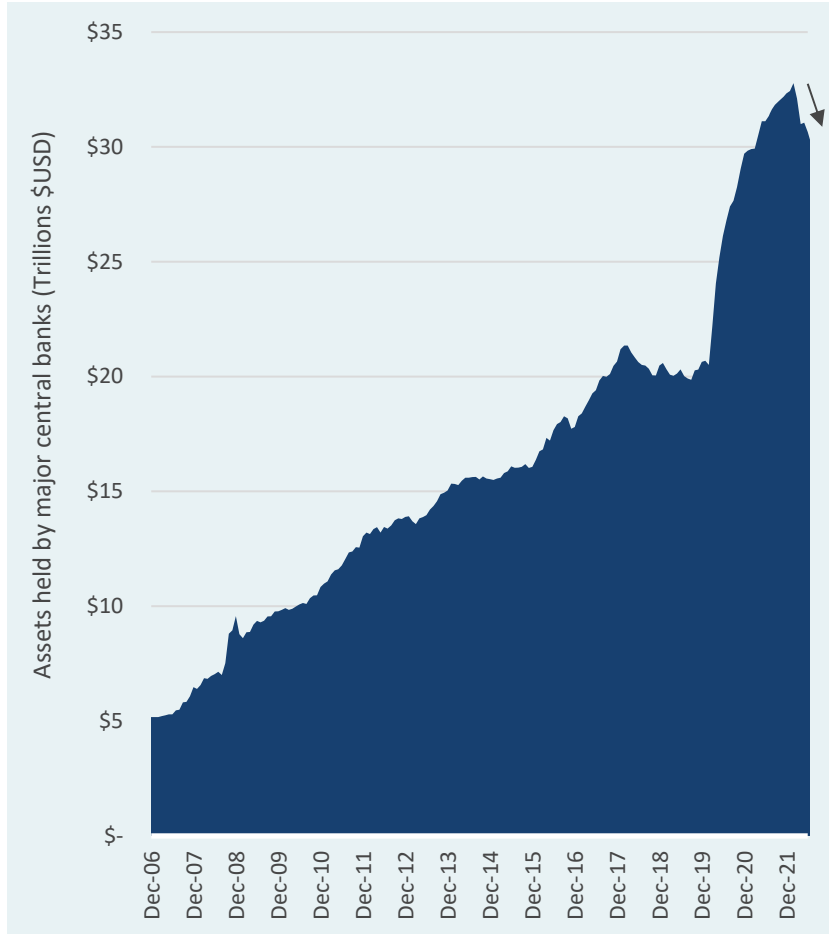
- The U.S. Yield Curve inverted during the quarter, with the 10-year 2-year spread falling from 0.1% to -0.4%. An inverted curve has historically suggested recession within two years or so.
- Throughout the third quarter, the Federal Reserve continued its path to reduce the balance sheet, beginning in June with the paced redemption of maturing securities. The initial June monthly redemption caps of \$30 billion for Treasuries and \$17.5 billion for agency MBS were increased to \$60 billion and \$35 billion in September. Markets have seemingly digested the reduction well, although the total drawdown has been relatively small so far, around \$200 billion against the peak size of \$8.97 trillion in April 2022.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.8%)	(14.6%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(4.5%)	(14.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(4.3%)	(12.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(0.6%)	(14.1%)
Bank Loans (S&P/LSTA Leveraged Loan)	(1.4%)	(2.5%)
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(4.7%)	(20.6%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(4.6%)	(24.3%)
Mortgage-Backed Securities (Bloomberg MBS)	(5.3%)	(9.0%)

Source: Bloomberg, as of 9/30/22

# The great liquidity withdrawal

Central banks are planning to remove substantial liquidity from the global financial system



Markets are entering an unusual time of mass central bank asset roll-off

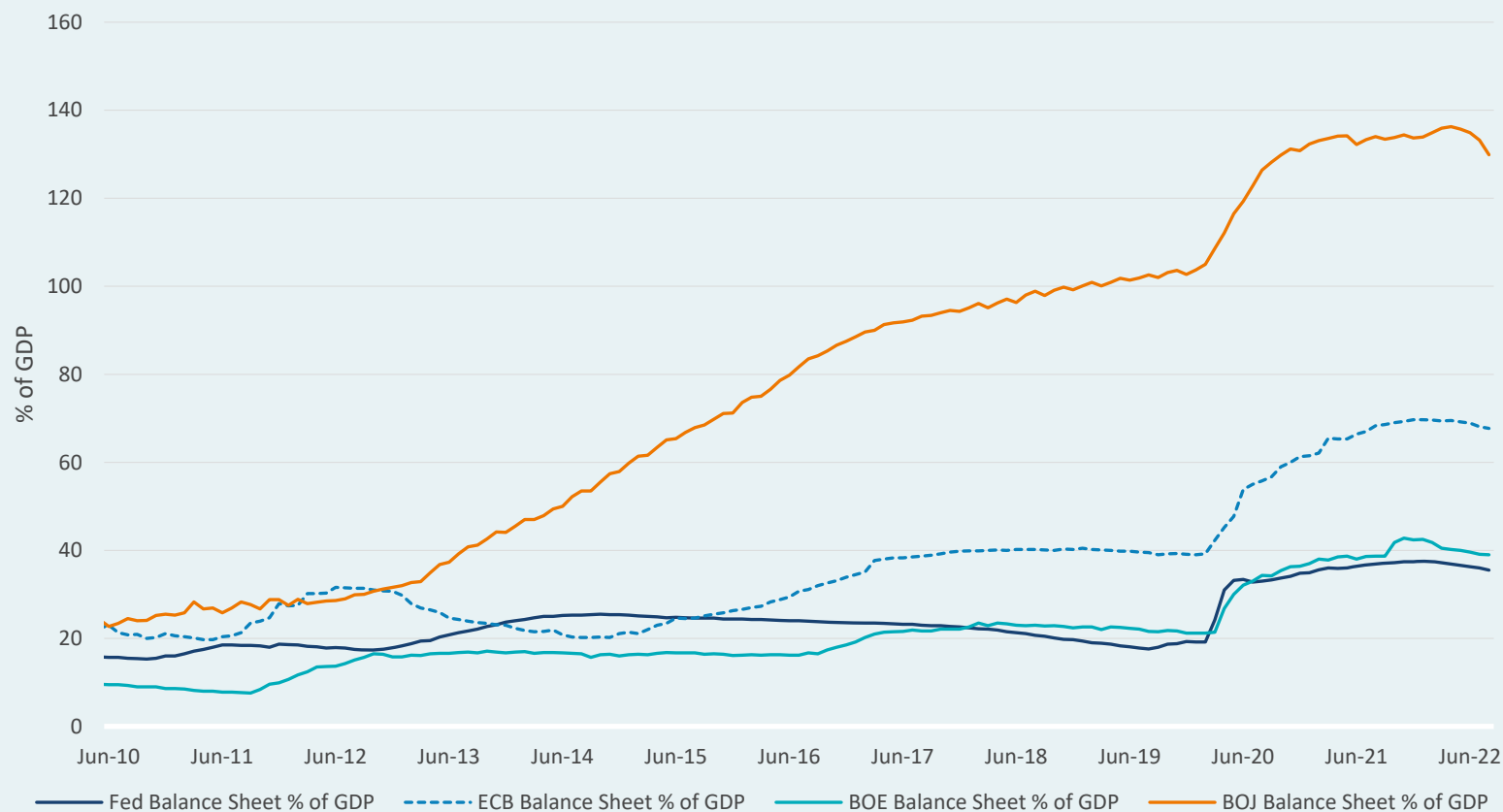
Source: Bloomberg, Verus, as of 9/30/22 – includes Fed, BOE, ECB, BoJ, PBOC



# The great liquidity withdrawal (continued)

## CENTRAL BANK ASSETS AS % OF GDP

### U.S. DOLLAR DENOMINATED



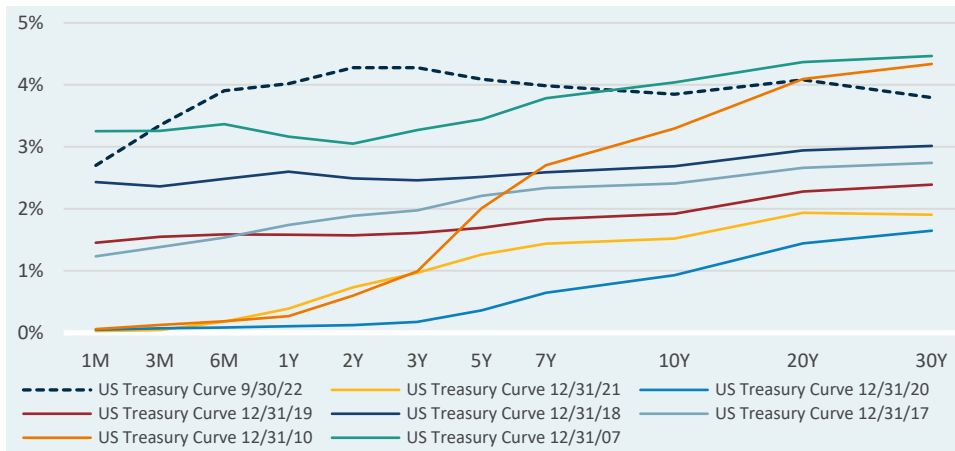
Central banks have accumulated very large balance sheets

Surprisingly, the U.S. Federal Reserve balance sheet is more moderate in size, relative to GDP

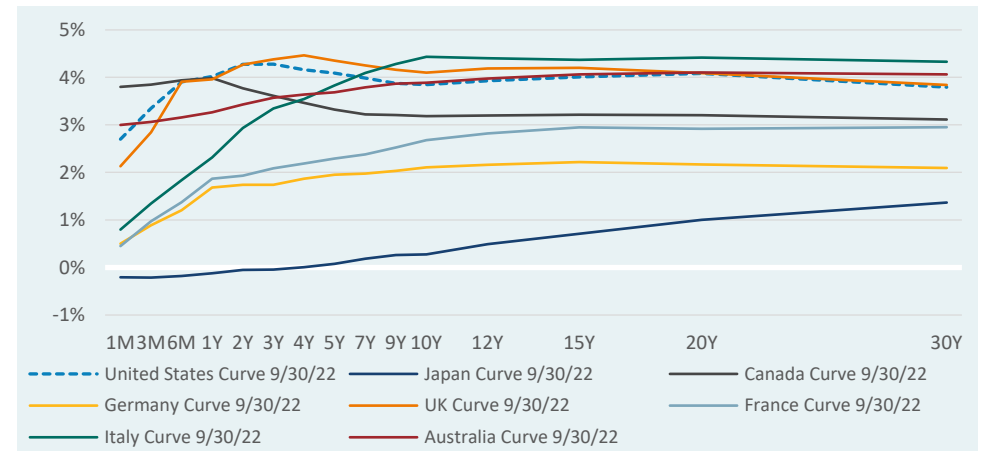
Source: Bloomberg, Verus, as of 9/30/22

# Yield environment

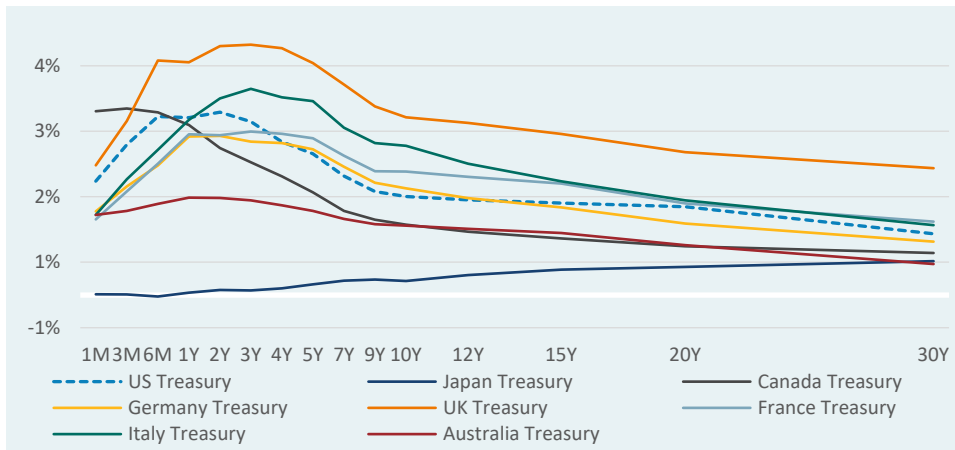
## U.S. YIELD CURVE



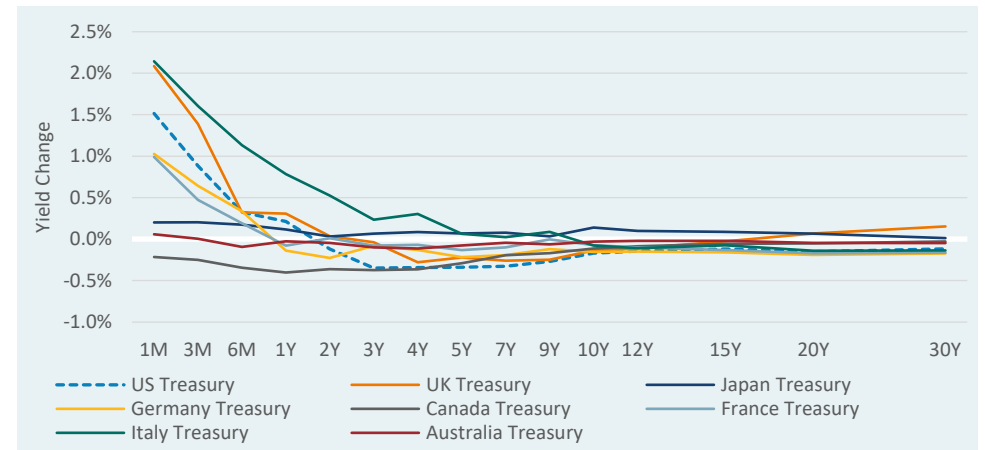
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/22

# Credit environment

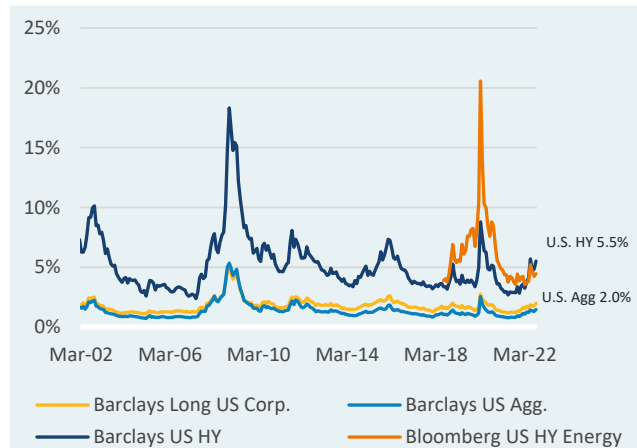
Credit market performance was mixed over the third quarter, with lower duration exposures faring better than higher duration exposures. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in July and September reinforced its intention to fight inflation until the "job is done." Leveraged loans performed the best, returning 1.2%, followed by high yield corporate credit and investment grade credit which returned -0.6% and -4.9%, respectively.

Volatility and outflows contributed to investment grade credit spreads widening during the quarter. After reaching a 2022 high of 164 basis points in mid-September, investment grade credit spreads finished the third quarter at 159 basis points, an increase of 4 basis points from the

previous quarter's end. High yield spreads decreased by 17 basis points throughout the quarter to 552 basis points, though remaining above the long term non-recessionary average of 454 bps. Despite this recent decline, high yield spreads remain up 269 basis points year-to-date.

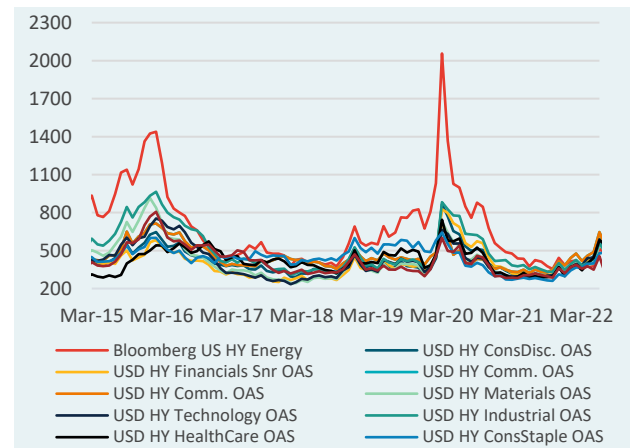
Over the course of the year, total yields have risen significantly within credit markets with the Bloomberg US High Yield Index now at 9.7%—almost double the levels of 4.9% seen at the start the year. Similarly, the yield of the Bloomberg US Corporate Investment Grade Index was 5.7%, up from 2.4% at the start of the year.

## SPREADS



Source: Barclays, Bloomberg, as of 9/30/22

## HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/22

Market	Credit Spread (OAS)	
	9/30/22	9/30/21
Long U.S. Corp	2.0%	1.2%
U.S. Inv Grade Corp	1.6%	0.8%
U.S. High Yield	5.5%	2.9%
U.S. Bank Loans*	6.0%	4.3%

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/22

\*Discount margin (4-year life)

# Default & issuance

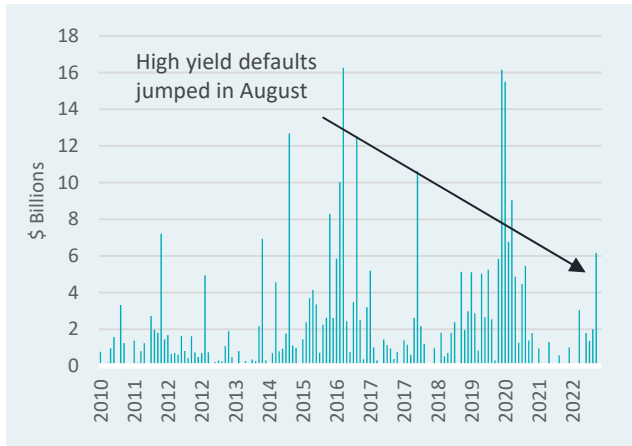
Default activity continued to pick up in the third quarter with seven companies defaulting on loans and bonds totaling \$16.5 billion. This was the highest quarterly total seen since the second quarter of 2020. Activity represented a significant jump from the \$1.6 billion and \$10.4 billion shown in Q1 and Q2, respectively.

Default rates for par-weighted US high yield and bank loans ended the quarter at 0.8% and 1.0%, respectively. While default rates reached a 15-month high, both values were well below the long-term historical averages of 3.2% and 3.1% for the high yield and loan markets. Given the prospects of tighter financial conditions and lower growth, default rates are expected to rise over the remainder of the year and into 2023 while

remaining well below the previously stated long-term historical averages.

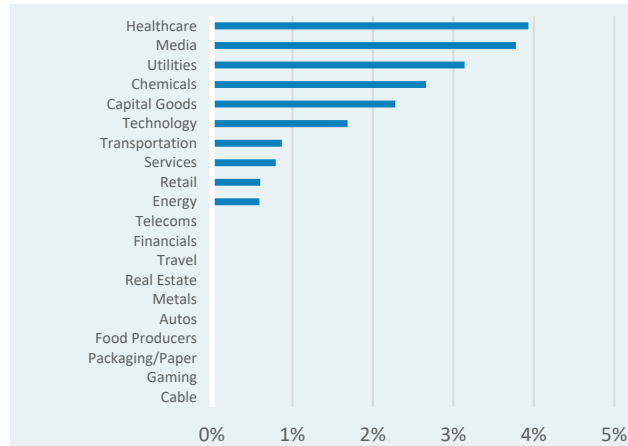
Leveraged credit issuance remained very light, which was consistent with the weaker trend of 2022. The third quarter total of \$18.9 billion issued in high yield bonds marked the lightest issuance since the first quarter of 2009. A similar effect was observed in the bank loans market, which totaled \$24 billion over the third quarter, down from \$120.5 billion and \$60.6 billion in the first and second quarters of this year. Additionally, the 2022 year-to-date loan issuance total of \$205.0 billion was down 69% on a year-over-year basis.

**U.S. HY MONTHLY DEFAULTS (PAR WEIGHTED)**



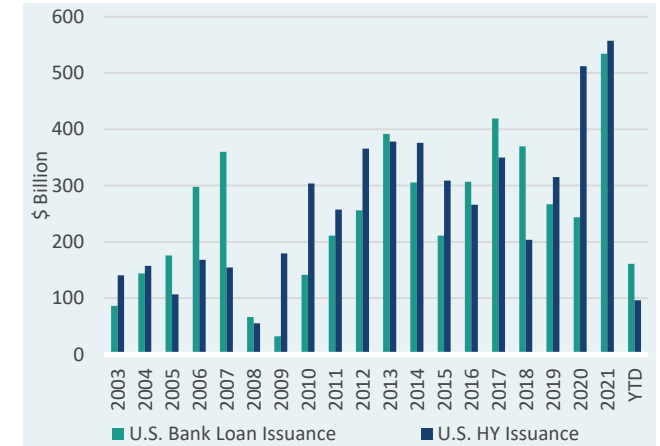
Source: BofA Merrill Lynch, as of 9/30/22

**U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)**



Source: BofA Merrill Lynch, as of 9/30/22 – par weighted

**U.S. ISSUANCE (\$ BILLIONS)**



Source: BofA Merrill Lynch, as of 9/30/22

# Equity

# Equity environment

— Equity markets saw further losses during Q3, extending the selloff deeper into bear market territory. Emerging market equities (MSCI Emerging Markets -11.6%) experienced the greatest drawdown, on an unhedged currency basis, followed by international developed (MSCI EAFE -9.4%) and domestic equities (S&P 500 -4.9%).

— Many markets now trade at valuation levels below their historical average. According to FactSet, the S&P 500 sat at a forward price/earnings of 15.4 as of September 30<sup>th</sup>, below the five-year average of 18.6 and 10-year average of 17.1. Interestingly, earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023.

— Investors with unhedged foreign currency exposure have seen extreme losses recently. A U.S. investor with an international developed equity investment

(MSCI EAFE) suffered a loss of -15.7% over the past year from currency movements. Investors in non-US equity (MSCI ACWI ex-US) saw a -12.0% loss. Currency risk is typically the second largest risk in institutional portfolios and is not expected to be compensated over the long term. We continue to believe that more forward-thinking currency solutions can materially improve portfolio outcomes.

— Value stocks underperformed growth stocks mildly during the quarter (Russell 1000 Value -5.6% vs Russell 1000 Growth -3.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%).

— Volatility remained elevated as the Cboe VIX Index rose further from 28.7% to 31.6%. Risk assets sold-off on concerns of Federal Reserve tightening and liquidity being broadly removed from the global financial system.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	(4.9%)		(15.5%)	
U.S. Small Cap (Russell 2000)	(2.2%)		(23.5%)	
U.S. Equity (Russell 3000)	(4.5%)		(17.6%)	
U.S. Large Value (Russell 1000 Value)	(5.6%)		(11.4%)	
US Large Growth (Russell 1000 Growth)	(3.6%)		(22.6%)	
Global Equity (MSCI ACWI)	(6.8%)	(4.6%)	(20.7%)	(15.9%)
International Large (MSCI EAFE)	(9.4%)	(2.8%)	(25.1%)	(9.4%)
Eurozone (Euro Stoxx 50)	(9.8%)	(3.1%)	(28.9%)	(14.1%)
U.K. (FTSE 100)	(10.6%)	(2.3%)	(16.5%)	1.8%
Japan (NIKKEI 225)	(7.2%)	0.2%	(31.0%)	(8.5%)
Emerging Markets (MSCI Emerging Markets)	(11.6%)	(8.2%)	(28.1%)	(22.5%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/22

# Domestic equity

U.S. equities experienced further losses during the quarter (S&P 500 -4.9%), while outperforming international (MSCI EAFE -9.4%) and emerging markets (MSCI Emerging Markets -11.6%).

Earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023, though these forecasts have been consistently revised lower for three consecutive quarters. The energy sector continues to lift the earnings growth of the S&P 500, as overall growth would have been negative in recent quarters if energy sector profits were excluded. According to corporate earnings calls, an increasing number of

businesses reported labor costs & shortages as a significant issue, followed by supply chain disruptions & costs, and FX movement. During Q2, businesses with more than 50% of revenues from outside of the U.S. generated 13.3% earnings growth, while those with less than 50% of revenues from outside the U.S. saw only a 2.1% growth rate.

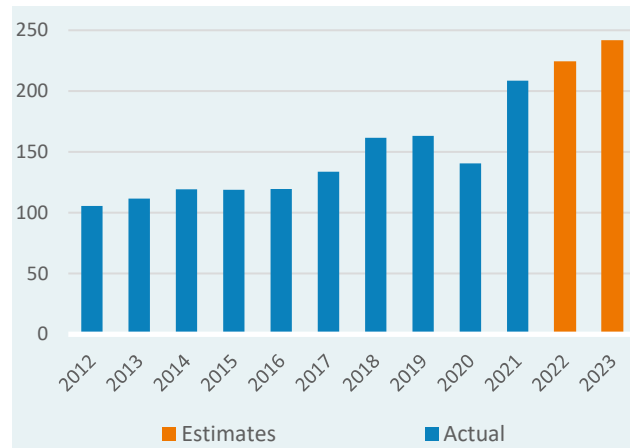
Sector performance during Q3 was disparate. Consumer discretionary (4.4%) and energy (2.3%) sectors lifted the overall index while all other sectors were in the red.

**S&P 500 PRICE INDEX**



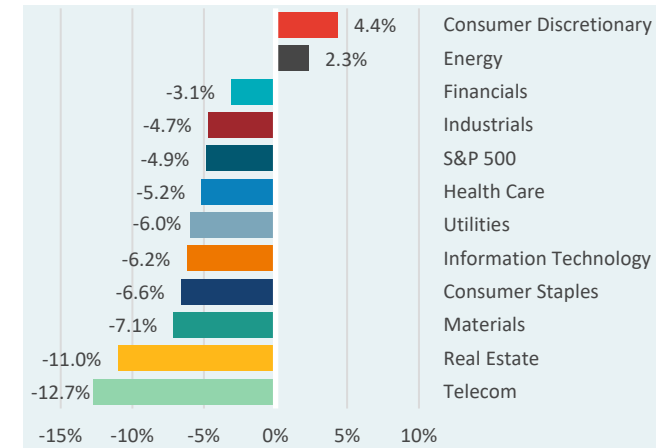
Source: Standard & Poor's, as of 9/30/22

**S&P BOTTOM-UP EARNINGS & ESTIMATES**



Source: FactSet, as of 9/30/22

**Q3 SECTOR PERFORMANCE**



Source: Morningstar, as of 9/30/22

# Domestic equity size & style

Reversing the trend from last quarter, growth stocks outperformed value stocks, although the divergence was relatively mild (Russell 1000 Growth -3.6% vs. Russell 1000 Value -5.6%). Growth outperformed despite struggles within the Telecommunications and Information Technology sectors (-12.7% and -6.2%), fueled by positive returns from Consumer Discretionary +4.4% (with Amazon and Tesla being the largest weights).

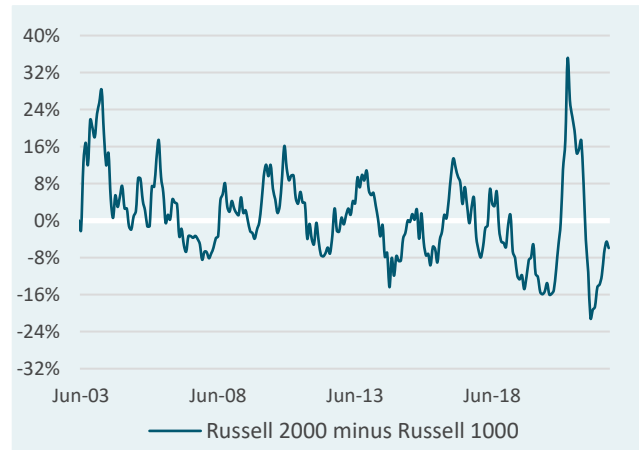
Despite this quarter, value has outperformed significantly over the past year. The Russell 1000 Value Index is down -17.8%, while the growth equivalent has lost -30.7%. With the Federal

Reserve continuing to tighten conditions and hike rates, companies with cash flows further out in the future (those with higher durations) have seen larger negative impacts to their multiples.

Looking at size, small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%), diverging from the trend seen in the second quarter of 2022.

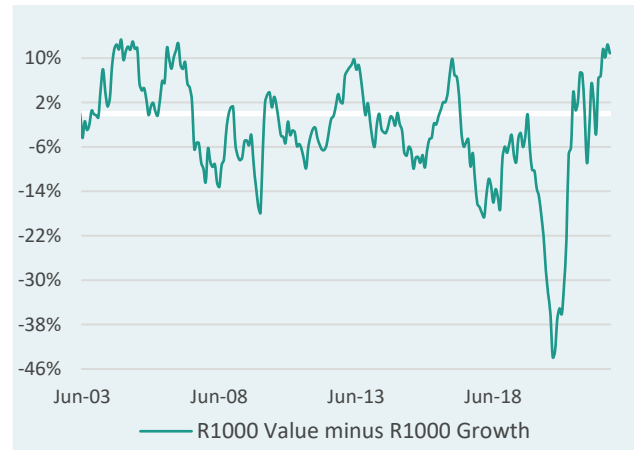
Domestic equities have continued to be challenged regardless of size and style, as investors weigh the impacts of a tighter economic environment on company earnings.

**SMALL CAP VS LARGE CAP (YOY)**



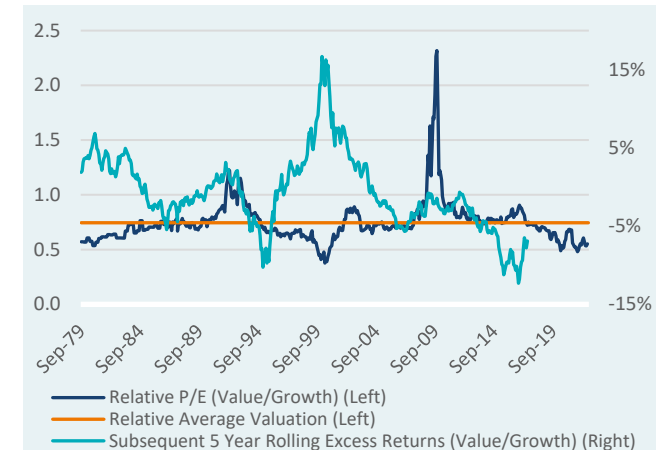
Source: FTSE, as of 9/30/22

**VALUE VS GROWTH (YOY)**



Source: FTSE, as of 9/30/22

**VALUE VS. GROWTH RELATIVE VALUATIONS**



Source: Standard & Poor's, as of 9/30/22



# International developed equity

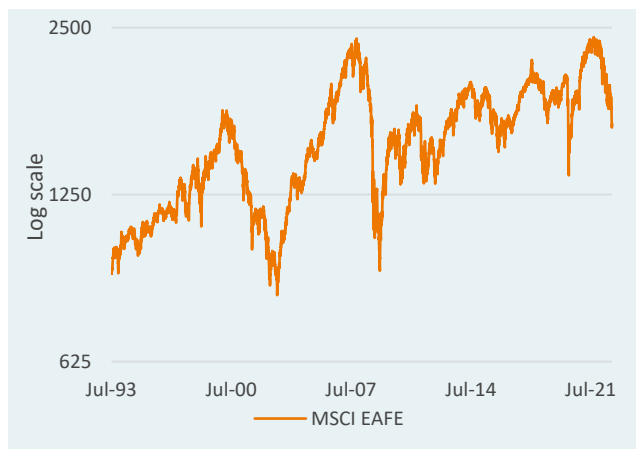
International developed equities fell alongside the global opportunity set in the third quarter. The MSCI EAFE Index dropped -9.4% in U.S. dollar terms, although most of those losses can be attributed to currency impacts, with hedged returns only experiencing a -2.8% loss. The Federal Reserve continues to set the tone for global central bank rate hikes, which has pushed the dollar higher.

Looking at sub-regional performance, Japanese equities were the best performing markets in local terms, being one of the few asset classes with positive Q3 return (+0.2%). Despite strong local returns, diverging rate policy between the BOJ

and Federal Reserve has crushed the Japanese yen, resulting in a seven percent spread between hedged and unhedged equity outcomes.

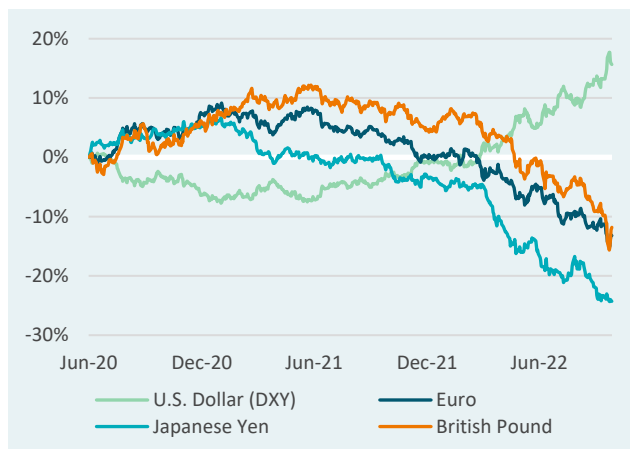
European equities also saw losses over the quarter, although local returns were strong relative to U.S. and Emerging market equities. The flash crash of the British pound had a material impact on FTSE 100 performance in U.S. dollar terms, with U.K. equities closing the quarter down -10.6%, lagging the broader European benchmark (Euro Stoxx 50 - 9.8%)

**INTERNATIONAL DEVELOPED EQUITY**



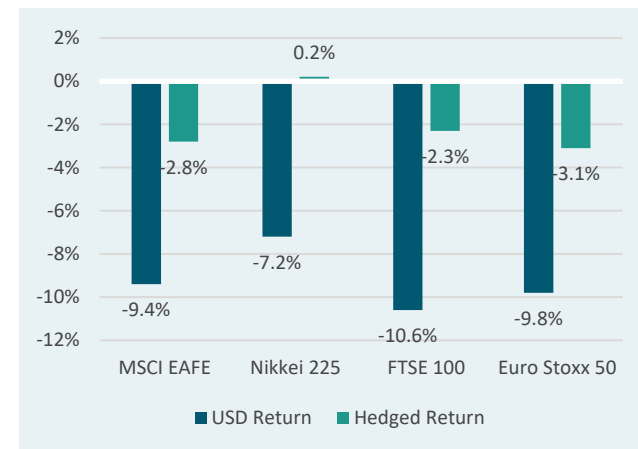
Source: MSCI, as of 9/30/22

**FX MOVEMENTS RELATIVE TO THE U.S. DOLLAR**



Source: Bloomberg, as of 9/30/22

**Q3 2022 SUBREGIONAL INDEX RETURNS**



Source: MSCI, STOXX, FTSE, Nikkei, as of 9/30/22

# Emerging market equity

Emerging market equities fell during the third quarter, dragged lower by a steep Chinese equity bear market (-22.5%). The MSCI EM index ended the quarter down -11.6% in U.S. dollar terms, bringing one-year total losses to -28.1%. A strong dollar had a -3.4% impact in the third quarter; significant, but not to the same extent seen in the International developed space.

Growing risks of a global recession hit equities across the board, though emerging markets have suffered more than their developed counterparts. China faces its own set of

unique problems, including the continuation of its zero-COVID policy, a property crisis, and geopolitical risks with Taiwan (though we view an invasion as highly unlikely). Despite these headwinds, the People's Bank of China is one of the few central banks implementing accommodative policy, which should provide a tailwind to the local economy.

Performance variability has significantly changed some country weights. China's weight in the index fell by 3.7%, while India moved up 2.6%, replacing Taiwan as the second largest weight.

## EMERGING MARKET EQUITY



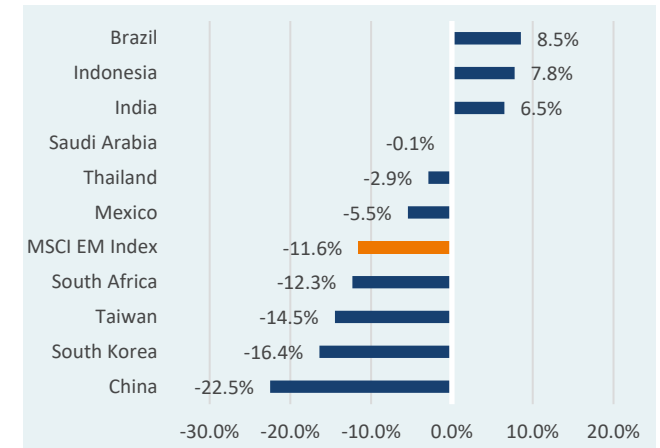
Source: MSCI, as of 9/30/22

## MSCI EM INDEX TOP 10 COUNTRY WEIGHTS

Country	9/30/2022	6/30/2022	Rank Change
1. China	29.5%	33.2%	
2. India	15.3%	12.7%	↑
3. Taiwan	13.7%	14.3%	↓
4. South Korea	10.6%	11.3%	
5. Brazil	5.8%	4.9%	
6. Saudi Arabia	4.8%	4.3%	
7. South Africa	3.4%	3.5%	
8. Mexico	2.2%	2.1%	
9. Indonesia	2.2%	1.8%	
10. Thailand	2.1%	1.9%	

Source: Bloomberg, MSCI as of 9/30/22

## Q3 2022 MSCI COUNTRY RETURNS (USD)



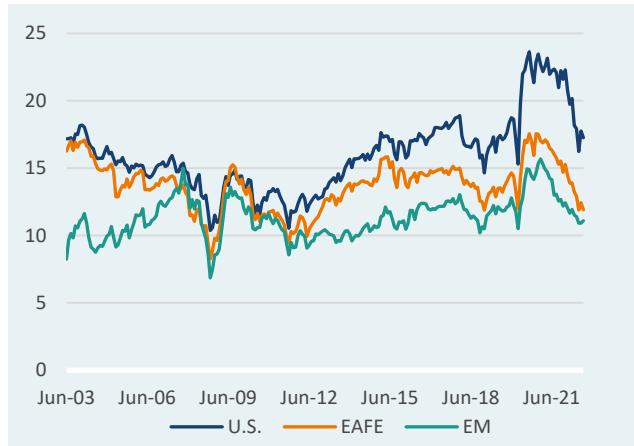
Source: Bloomberg, MSCI as of 9/30/22, performance in USD terms

# Equity valuations

Many markets now trade at valuation levels below their historical average as inflation and rising rate concerns have translated to more attractive pricing. According to FactSet, the S&P 500 traded at a forward price/earnings of 15.4 as of September 30th, which was below the five-year average of 18.6 and 10-year average of 17.1. Valuations have continued to drop within the International and Emerging market space as well, although we believe International developed equities may have further to fall, given more acute inflation and energy issues in Europe. Emerging market valuations have reached very low levels, which may act as a floor to further losses, assuming healthy earnings.

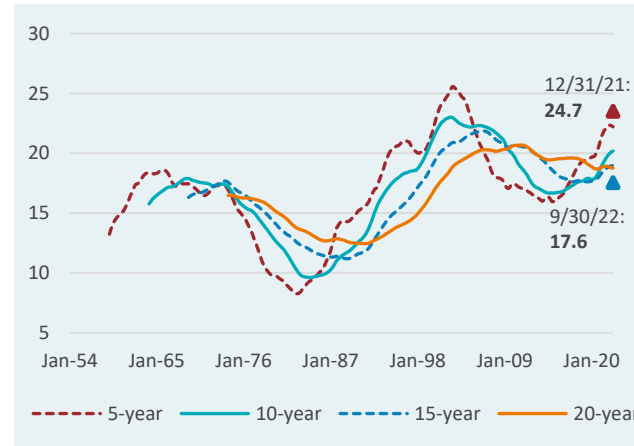
Domestic earnings were challenged in the second quarter. Businesses faced higher costs, large currency impacts, and a more budget-constrained consumer. While blended earnings grew at a 6.7% clip from the previous year, excluding the energy sector would bring that earnings figure down to -3.7%, per FactSet. While valuations have moved more in line with historical averages, all eyes are on third quarter earnings, which will likely help determine the market's direction from this point.

## FORWARD P/E RATIOS



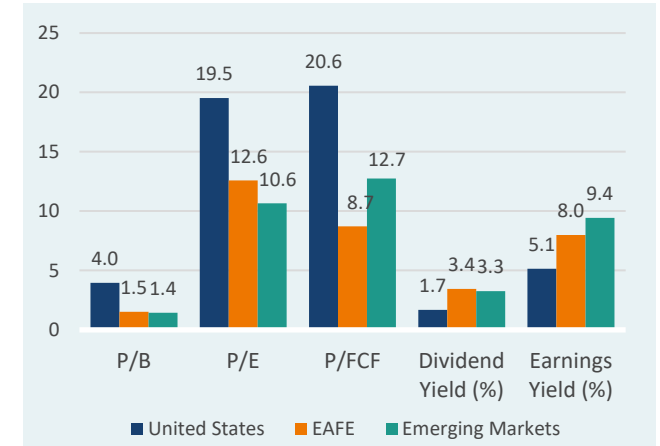
Source: MSCI, 12m forward P/E, as of 8/31/22

## S&P 500 AVERAGE TRAILING P/E RATIOS



Source: Bloomberg, as of 9/30/22

## VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 9/30/22 - trailing P/E

# Equity volatility

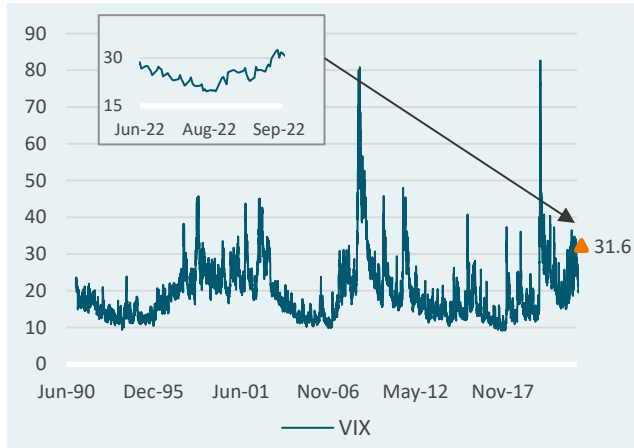
Volatility remained elevated through the quarter as the Cboe VIX Index rose further from 28.7% to 31.6%. Risk assets sold-off into a deeper bear market and concerns focused on Federal Reserve tightening and liquidity being removed from the global financial system. Inflation and Fed actions seem to exist as the greatest risk to markets, although potential for recession or a corporate earnings drawdown are also likely contributing to choppiness.

Realized volatility of equity markets over the past year has picked up from low levels. U.S. markets have shown

materially more volatility than developed or emerging markets, which has been rare historically.

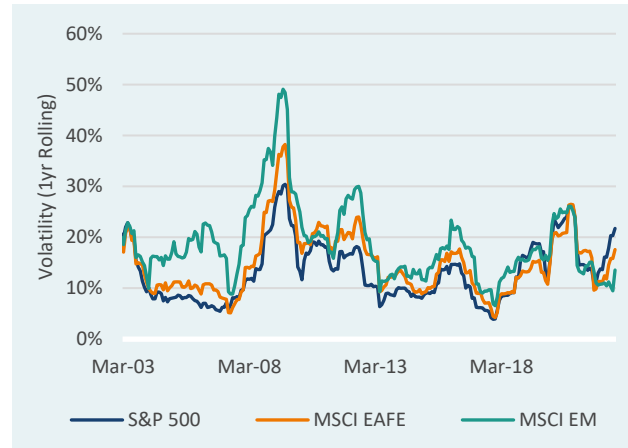
The current bear market has been particularly painful given the broadness of the selloff across equity fixed income, and real assets. Currency markets also moved against investors, with U.S. dollar appreciation delivering large losses for those with unhedged international asset exposure. Commodities remain a lone bright spot regarding 2022 year-to-date performance.

## U.S. IMPLIED VOLATILITY (VIX)



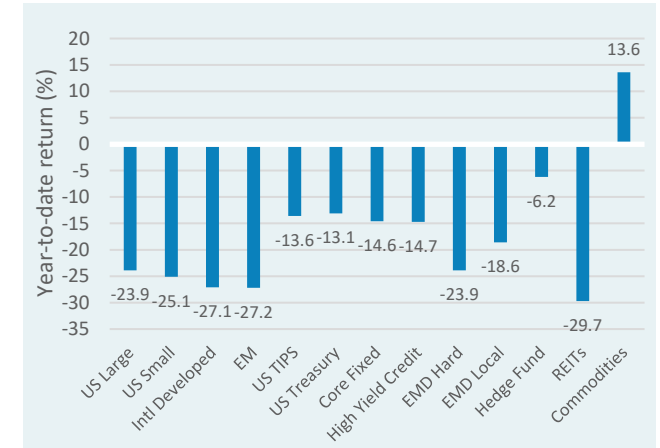
Source: Cboe, as of 9/30/22

## REALIZED VOLATILITY



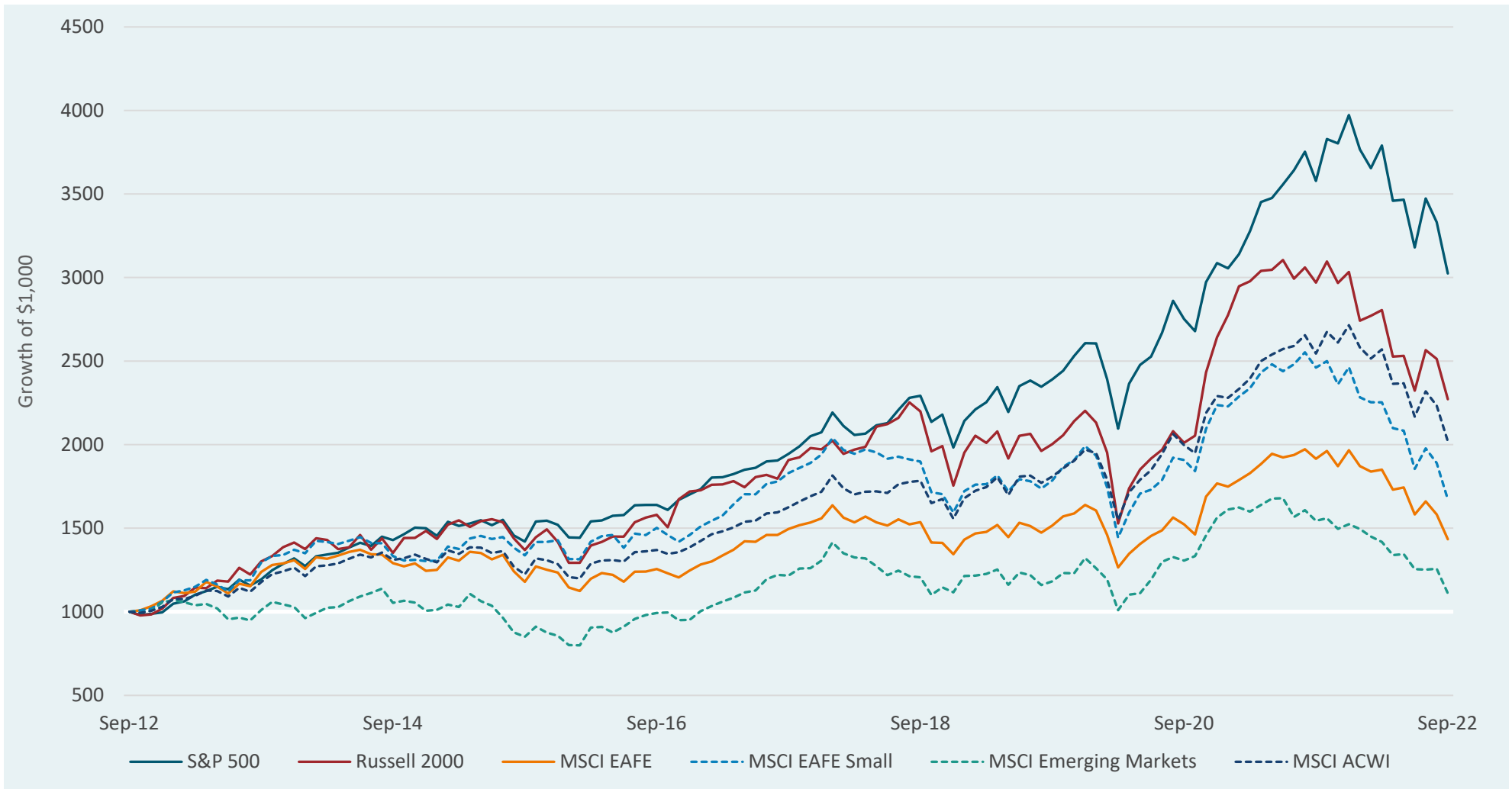
Source: Standard & Poor's, MSCI, as of 9/30/22

## BROAD SELLOFF



Source: MPI, as of 9/30/22

# Long-term equity performance



Source: Morningstar, as of 9/30/22

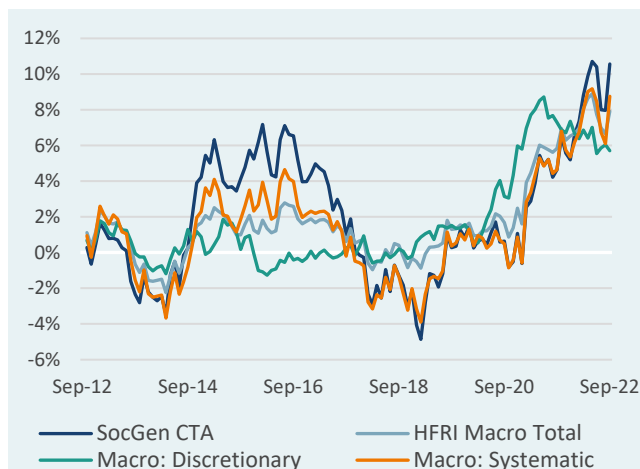
# Other assets

# Asymmetric macro strategies

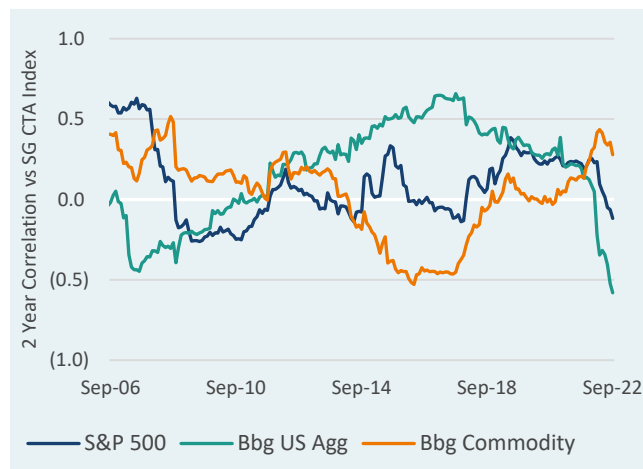
Macro strategies have been the top performing hedge fund strategy since 2021. Both parts of the Macro universe—Discretionary and Systematic—have done extremely well over the last 12-18 months. Systematic strategies have benefitted from strong trend following performance, which has returned to favor after a period of mediocre returns from 2016 to 2020. This periodicity is typical of trend following/CTA type strategies. Discretionary macro strategies have done well to capture the move in interest rates by shorting bonds as central banks reacted to high inflation by consistently hiking interest rates from ultra-low post-COVID levels.

Trend following funds can and have offered significant diversification from traditional asset classes due to their ability to go long or short markets depending on the current trends. As evidenced in the middle chart below, CTA funds had maintained long bond, short commodity positions for several years following the global financial crisis, though that changed significantly over the past year. Discretionary funds struggled when interest rates were zero-bound in the mid-2010s but have shown once again that they can perform well when central banks are taking action—either hiking or cutting rates—by taking positions based on fundamental economic data.

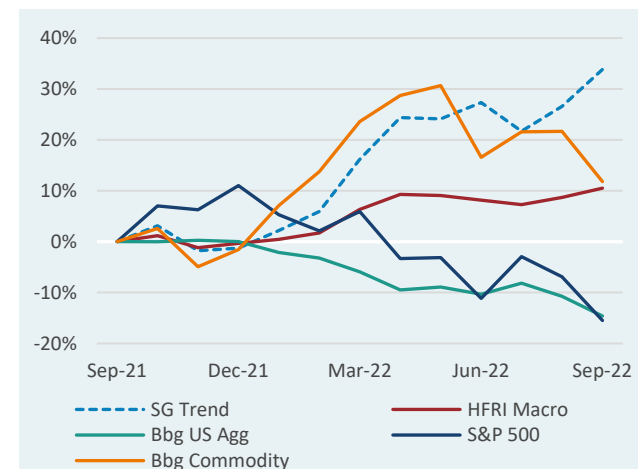
**3 YEAR ROLLING RETURN FOR MACRO FUNDS**



**CTA FUNDS CORRELATION TO MARKETS**



**CUMULATIVE RETURN LAST 12 MONTHS**



Source: HFR, MPI, Morningstar, SocGen, data as of 9/30/22

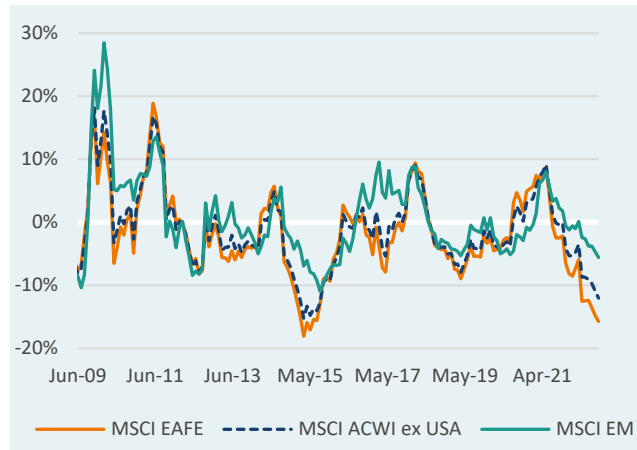
# Currency

Investors with unhedged foreign currency exposure have seen extreme losses over recent periods. For example, a U.S. investor with an international developed equity investment (MSCI EAFE) suffered a loss of -15.7% over the past year *just from currency movements*. An investor in non-US equity (MSCI ACWI ex-US) would have seen a -12.0% loss. Currency risk is typically the second largest risk in institutional portfolios, and is not expected to be compensated over the long term.

We continue to believe that forward-thinking currency solutions can materially improve portfolio outcomes. Specifically, a currency program may allow an investor to reduce their portfolio risk while also increasing the

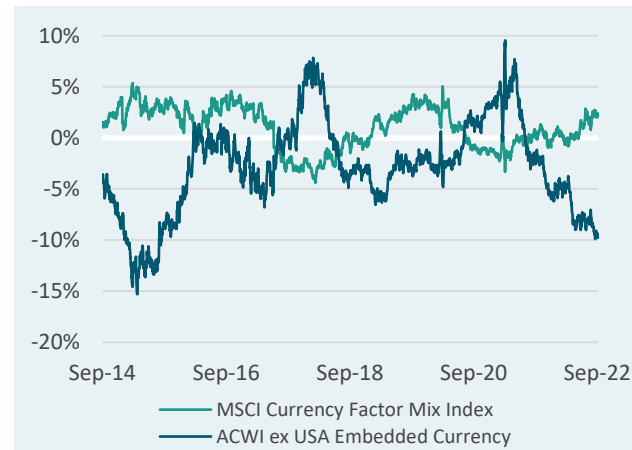
expected return of the portfolio. These characteristics are demonstrated below by comparing the unhedged currency exposure that most investors own (we refer to this as “embedded” currency) to the MSCI Currency Factor Mix Index which represents a passive investment in the currency market. This program aims to systematically capture the *return premia* within currency markets. Over the past 10 years, an unhedged exposure to foreign currencies has resulted in 5.8% portfolio volatility and a return of -4.4% per year. Meanwhile, a passive allocation the MSCI Currency Factor Mix Index has resulted in less than half of that volatility (2.5%) and with an average return of +1.2% per year.

**EFFECT OF CURRENCY (1-YEAR ROLLING)**



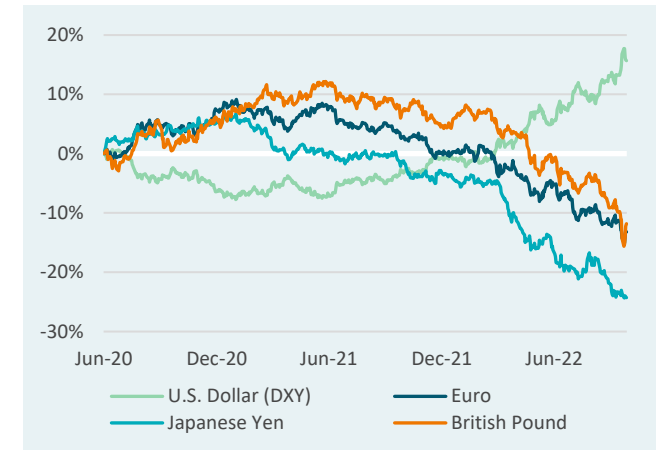
Source: MSCI, as of 9/30/22

**UNHEDGED CURRENCY VS CURRENCY FACTOR MIX**



Source: MSCI, as of 9/30/22

**FOREIGN CURRENCY MOVEMENT**

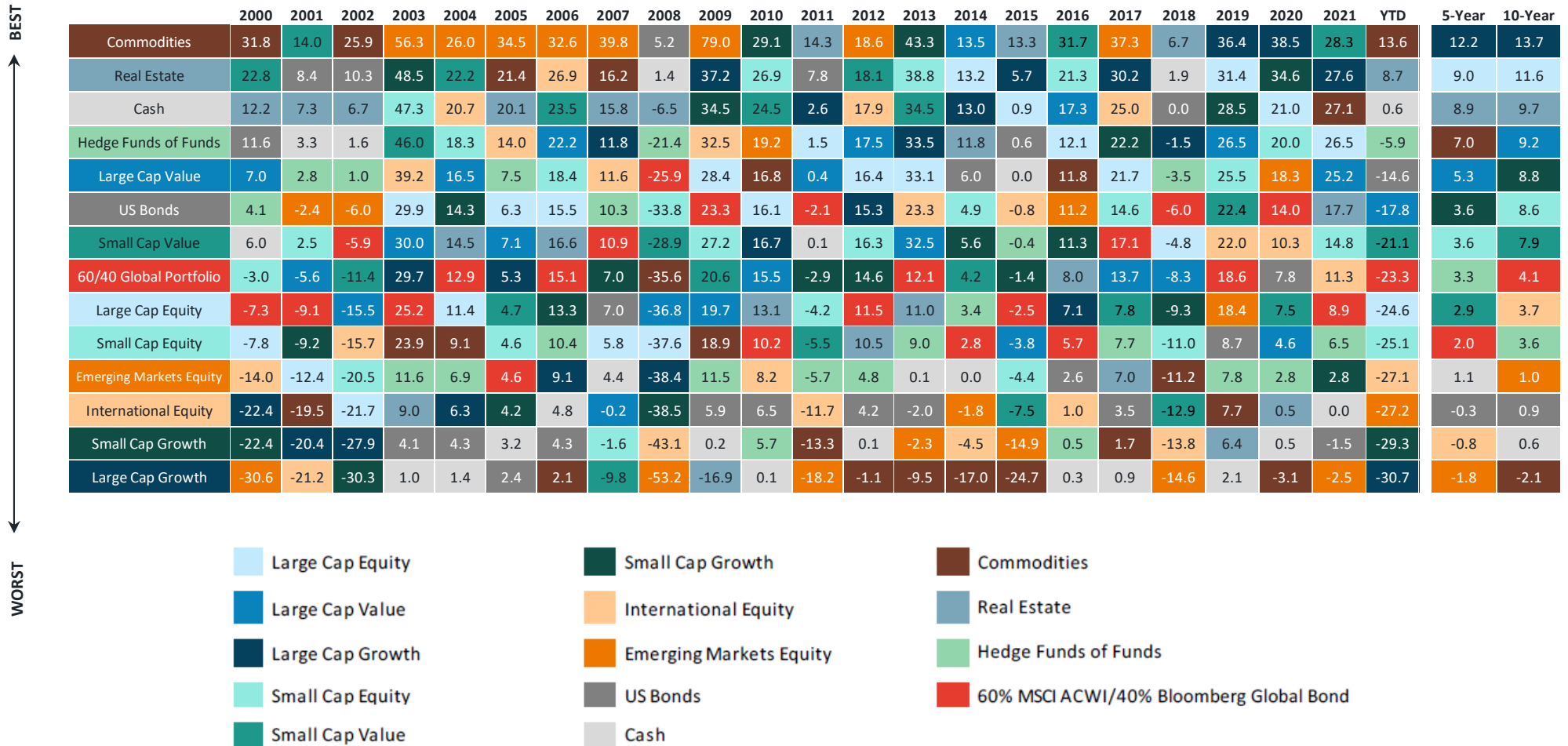


Source: Bloomberg, as of 9/30/22



# Appendix

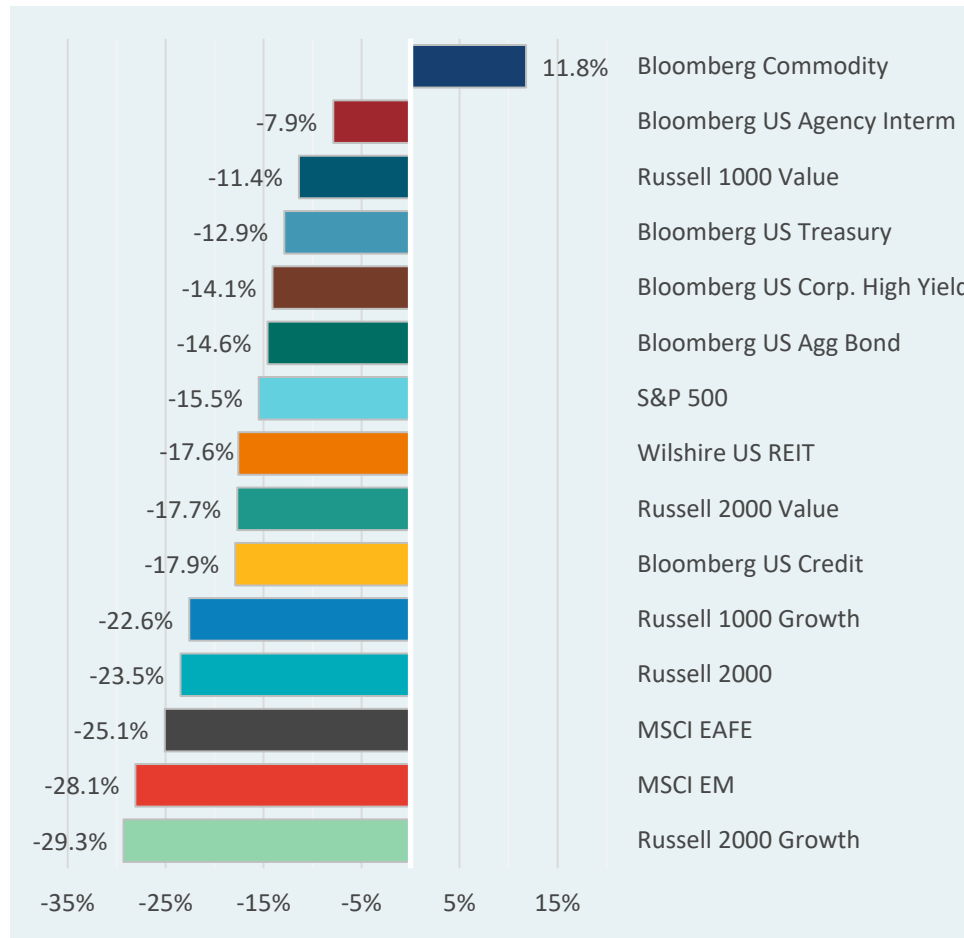
# Periodic table of returns



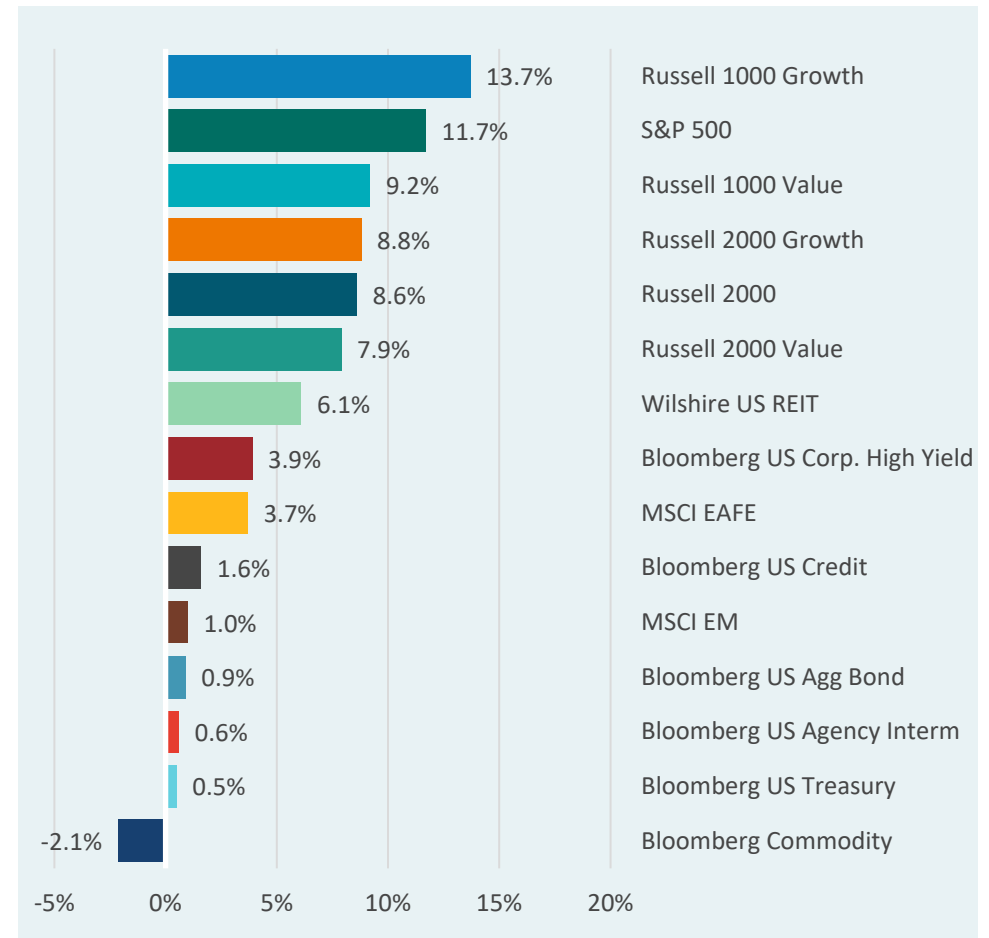
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 6/30/22.

# Major asset class returns

ONE YEAR ENDING SEPTEMBER



TEN YEARS ENDING SEPTEMBER



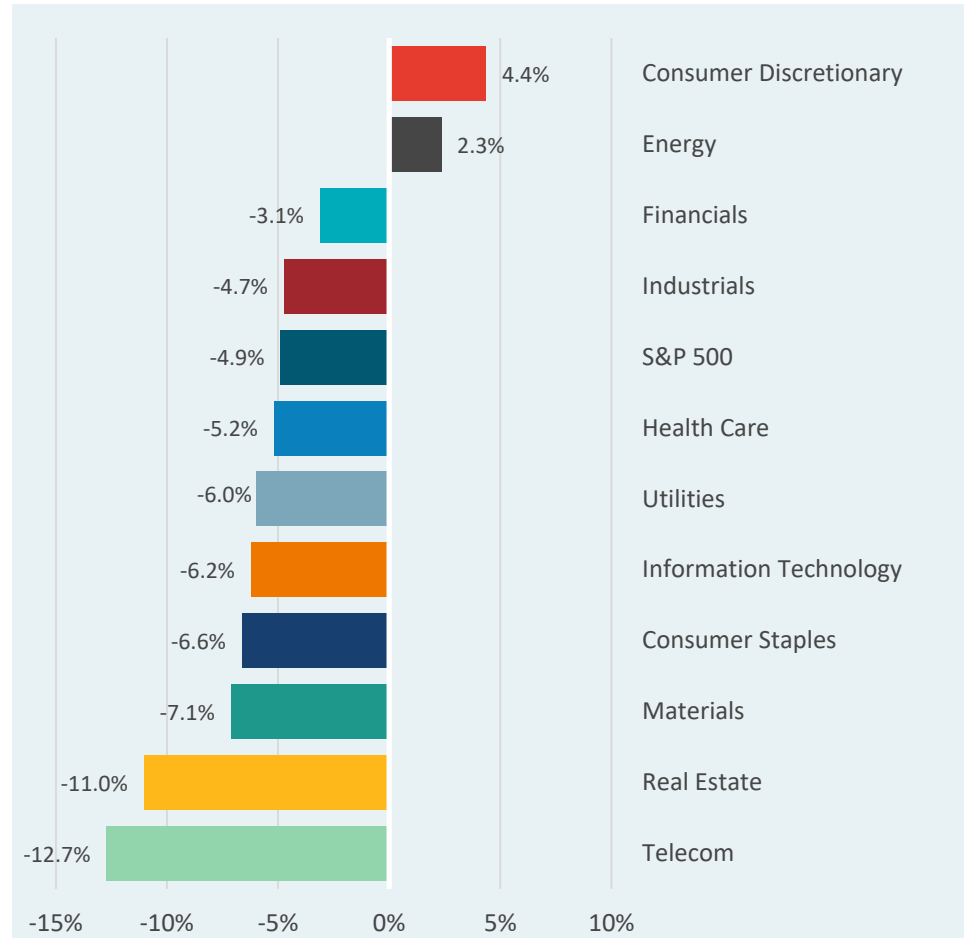
\*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 9/30/22

Source: Morningstar, as of 9/30/22

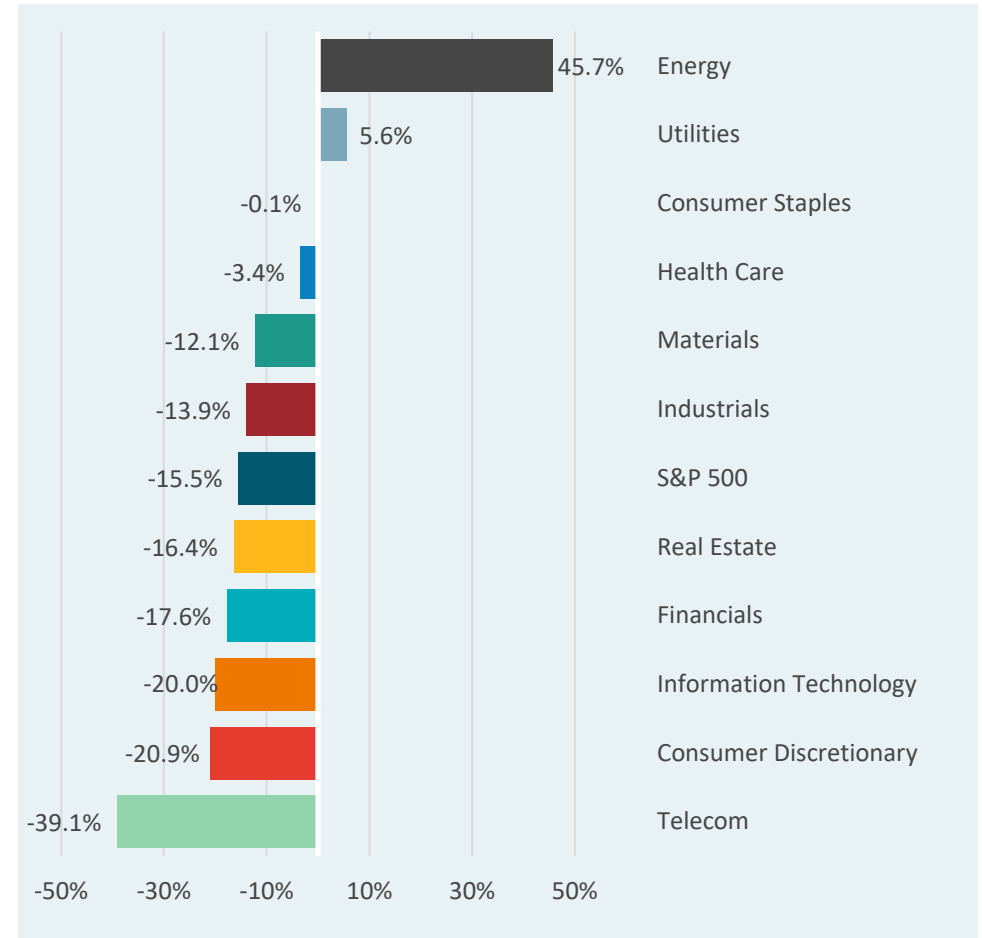
# S&P 500 sector returns

QTD



Source: Morningstar, as of 9/30/22

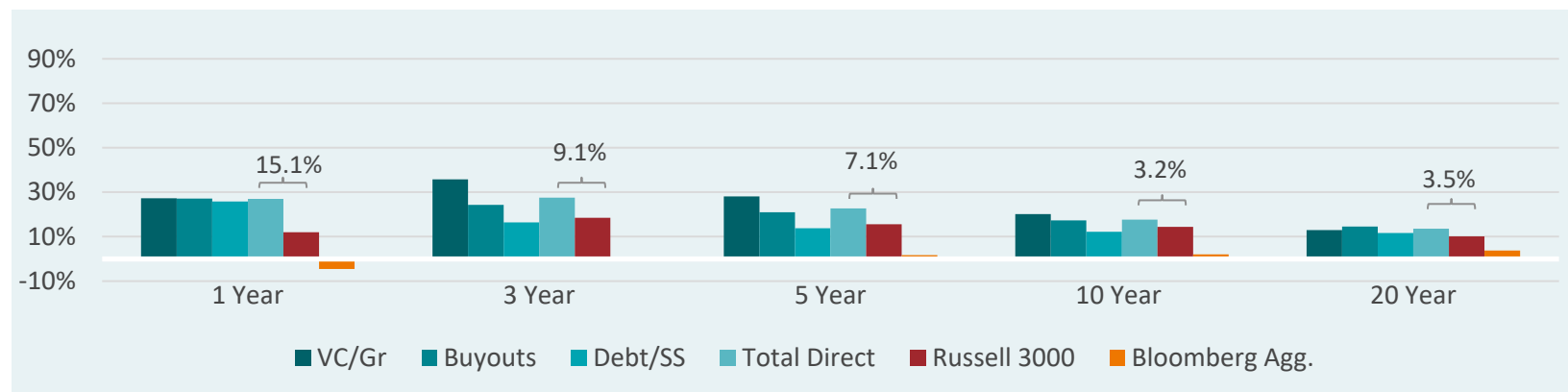
ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/22

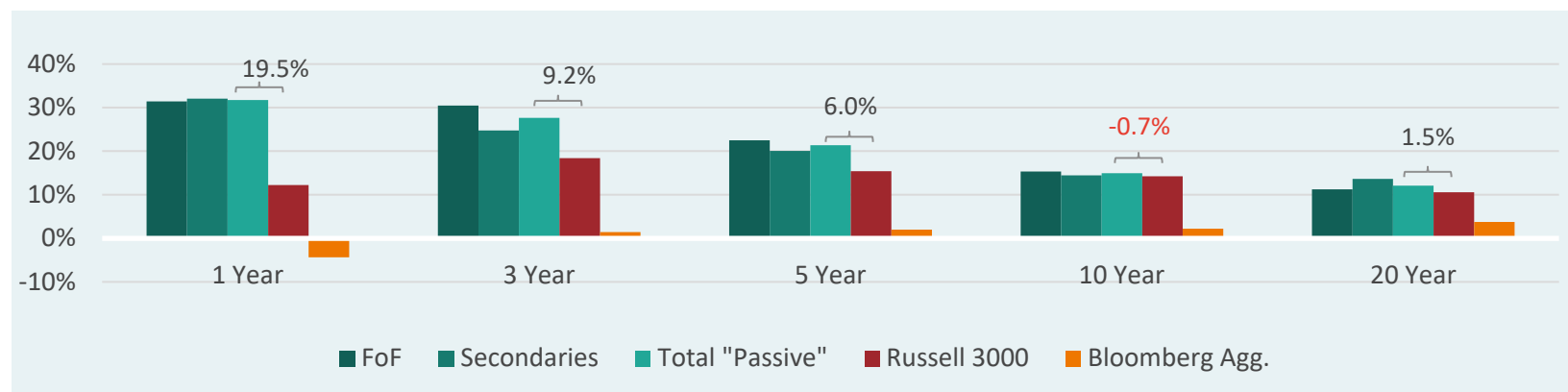
# Private equity vs. traditional assets performance

## DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equities across all time periods.

## “PASSIVE” STRATEGIES

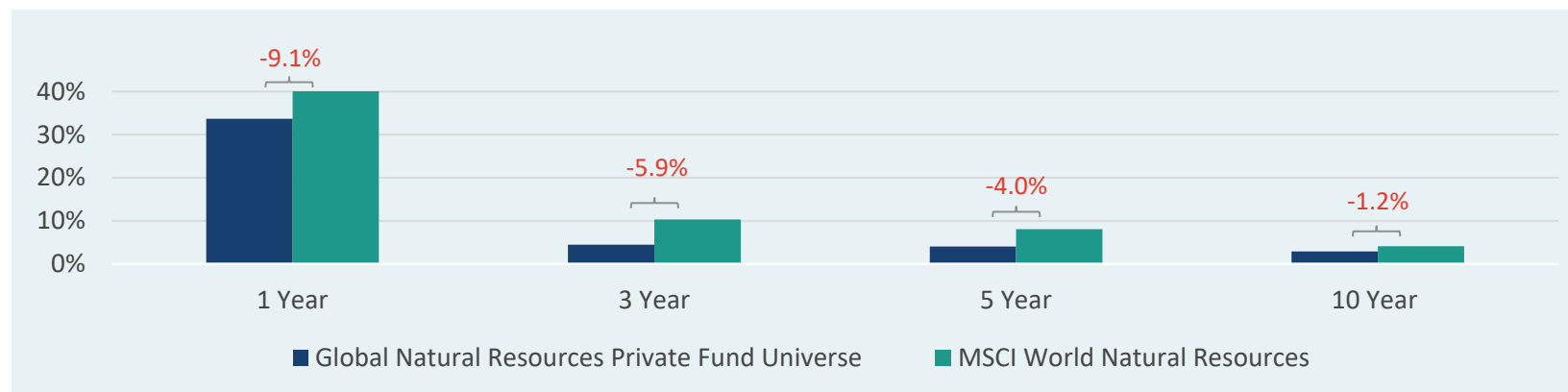


“Passive” strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

Sources: Refinitiv PME: U.S. Private Equity Funds sub asset classes as of March 31, 2022. Public Market Equivalent returns resulted from “Total Passive” and Total Direct’s identical cash flows invested into and distributed from respective traditional asset comparable.

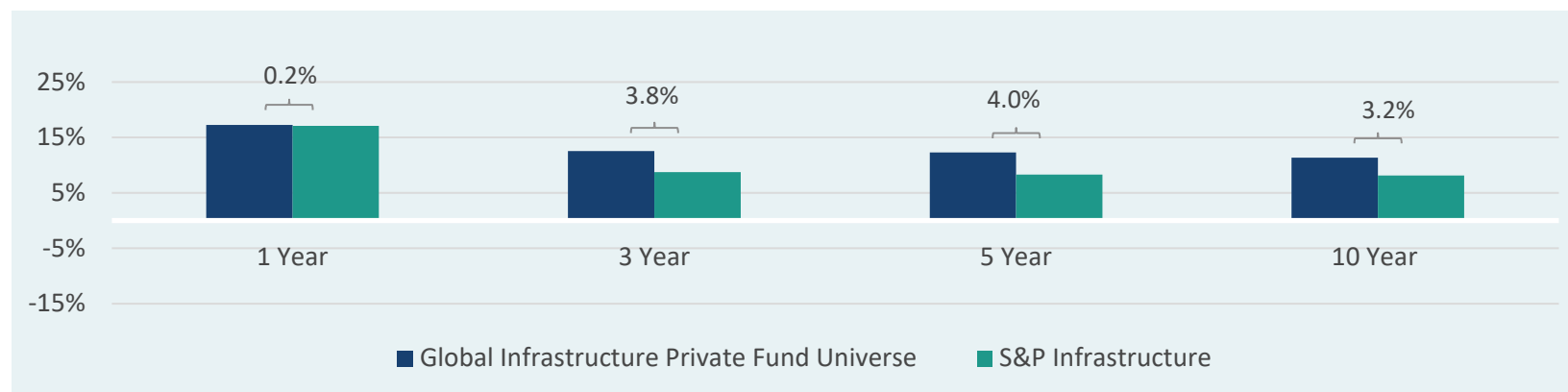
# Private vs. liquid real assets performance

## GLOBAL NATURAL RESOURCES FUNDS (N.R.)



N.R. funds underperformed the MSCI World Natural Resources benchmark across all time periods.

## GLOBAL INFRASTRUCTURE FUNDS

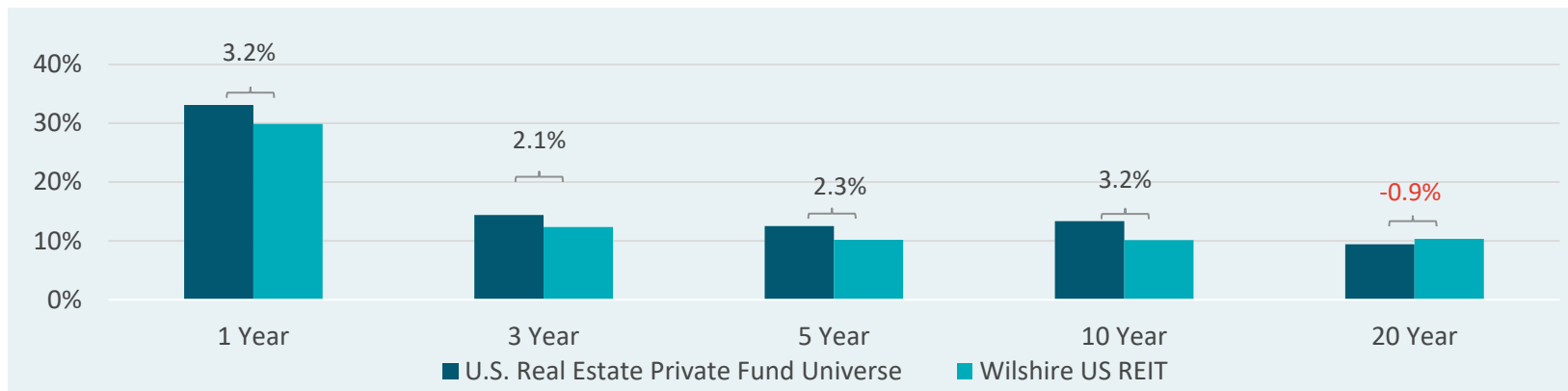


Infra. funds outperformed the S&P Infra. across all periods.

Sources: Refinitiv PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of March 31, 2022. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

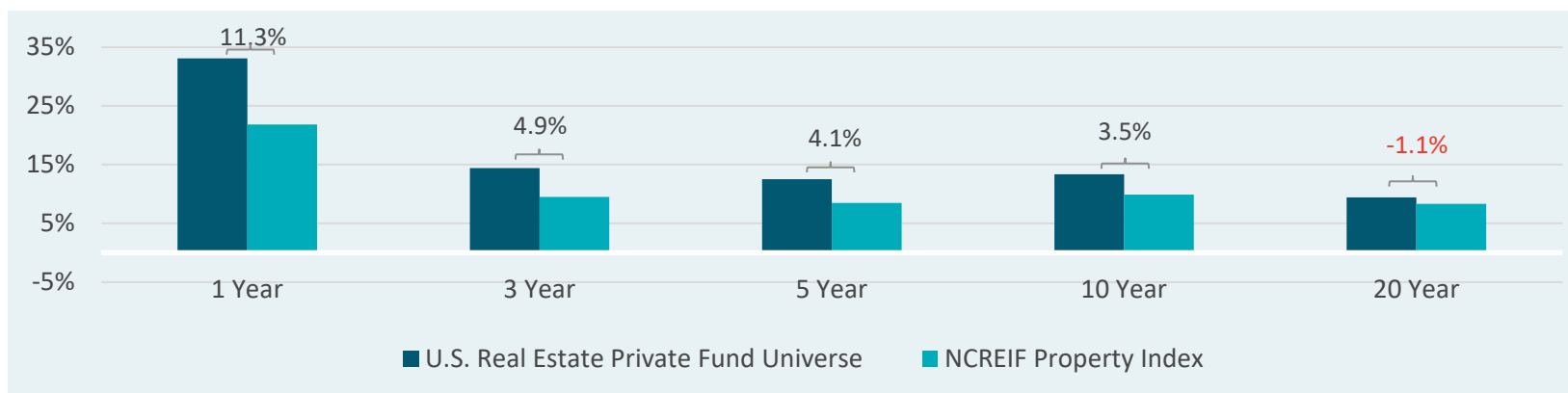
# Private vs. liquid and core real estate performance

## U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. funds underperformed the Wilshire U.S. REIT Index across all time periods, aside on a 20-year basis.

## U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods, aside a 20-year basis.

Sources: Refinitiv PME: U.S. Real Estate universes as of March 31, 2022. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	(9.2)	(4.9)	(23.9)	(15.5)	8.2	9.2	11.7
S&P 500 Equal Weighted	(9.2)	(4.8)	(20.7)	(13.5)	7.7	8.0	11.5
DJ Industrial Average	(8.8)	(6.2)	(19.7)	(13.4)	4.4	7.4	10.5
Russell Top 200	(9.2)	(5.0)	(24.7)	(16.4)	9.0	10.0	12.1
Russell 1000	(9.3)	(4.6)	(24.6)	(17.2)	7.9	9.0	11.6
Russell 2000	(9.6)	(2.2)	(25.1)	(23.5)	4.3	3.6	8.6
Russell 3000	(9.3)	(4.5)	(24.6)	(17.6)	7.7	8.6	11.4
Russell Mid Cap	(9.3)	(3.4)	(24.3)	(19.4)	5.2	6.5	10.3
<b>Style Index</b>							
Russell 1000 Growth	(9.7)	(3.6)	(30.7)	(22.6)	10.7	12.2	13.7
Russell 1000 Value	(8.8)	(5.6)	(17.8)	(11.4)	4.4	5.3	9.2
Russell 2000 Growth	(9.0)	0.2	(29.3)	(29.3)	2.9	3.6	8.8
Russell 2000 Value	(10.2)	(4.6)	(21.1)	(17.7)	4.7	2.9	7.9

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI ACWI	(9.6)	(6.8)	(25.6)	(20.7)	3.7	4.4	7.3
MSCI ACWI ex US	(10.0)	(9.9)	(26.5)	(25.2)	(1.5)	(0.8)	3.0
MSCI EAFE	(9.4)	(9.4)	(27.1)	(25.1)	(1.8)	(0.8)	3.7
MSCI EM	(11.7)	(11.6)	(27.2)	(28.1)	(2.1)	(1.8)	1.0
MSCI EAFE Small Cap	(11.5)	(9.8)	(32.1)	(32.1)	(2.2)	(1.8)	5.3
<b>Style Index</b>							
MSCI EAFE Growth	(9.7)	(8.5)	(33.0)	(30.3)	(1.5)	0.7	4.7
MSCI EAFE Value	(9.0)	(10.2)	(21.1)	(20.2)	(2.8)	(2.7)	2.4
<b>Regional Index</b>							
MSCI UK	(8.8)	(10.8)	(18.7)	(14.1)	(1.7)	(1.1)	1.9
MSCI Japan	(10.4)	(7.7)	(26.4)	(29.3)	(2.6)	(0.6)	4.8
MSCI Euro	(8.4)	(10.0)	(32.7)	(30.0)	(3.8)	(3.2)	3.2
MSCI EM Asia	(13.2)	(14.0)	(28.8)	(29.5)	(0.8)	(1.1)	3.1
MSCI EM Latin American	(3.3)	3.6	3.0	0.2	(3.4)	(2.6)	(2.3)

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
Bloomberg US TIPS	(6.6)	(5.1)	(13.6)	(11.6)	0.8	2.0	1.0
Bloomberg US Treasury Bills	0.2	0.4	0.4	0.4	0.6	1.1	0.7
Bloomberg US Agg Bond	(4.3)	(4.8)	(14.6)	(14.6)	(3.3)	(0.3)	0.9
Bloomberg US Universal	(4.3)	(4.5)	(14.9)	(14.9)	(3.1)	(0.2)	1.2
<b>Duration</b>							
Bloomberg US Treasury 1-3 Yr	(1.2)	(1.5)	(4.5)	(5.1)	(0.5)	0.5	0.6
Bloomberg US Treasury Long	(7.9)	(9.6)	(28.8)	(26.6)	(8.5)	(1.6)	0.6
Bloomberg US Treasury	(3.5)	(4.3)	(13.1)	(12.9)	(3.1)	(0.2)	0.5
<b>Issuer</b>							
Bloomberg US MBS	(5.1)	(5.3)	(13.7)	(14.0)	(3.7)	(0.9)	0.5
Bloomberg US Corp. High Yield	(4.0)	(0.6)	(14.7)	(14.1)	(0.5)	1.6	3.9
Bloomberg US Agency Interm	(1.8)	(2.4)	(7.2)	(7.9)	(1.4)	0.2	0.6
Bloomberg US Credit	(5.1)	(4.9)	(18.1)	(17.9)	(3.6)	(0.0)	1.6

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	(8.1)	(4.1)	13.6	11.8	13.5	7.0	(2.1)
Wilshire US REIT	(12.3)	(10.2)	(29.7)	(17.6)	(2.2)	2.9	6.1
CS Leveraged Loans	(2.2)	1.2	(3.3)	(2.6)	2.1	3.0	3.7
S&P Global Infrastructure	(11.8)	(9.6)	(10.1)	(6.0)	(0.1)	2.1	5.7
Alerian MLP	(7.5)	8.4	19.0	20.0	3.1	1.2	1.7
<b>Regional Index</b>							
JPM EMBI Global Div	(6.4)	(4.6)	(23.9)	(24.3)	(7.2)	(2.6)	1.1
JPM GBI-EM Global Div	(4.9)	(4.7)	(18.6)	(20.6)	(7.1)	(3.9)	(2.4)
<b>Hedge Funds</b>							
HFRI Composite	(2.3)	(0.6)	(6.2)	(5.8)	6.2	4.5	4.6
HFRI FOF Composite	(0.6)	0.7	(5.9)	(5.5)	4.5	3.3	3.6
<b>Currency (Spot)</b>							
Euro	(2.6)	(3.9)	(13.9)	(15.5)	(3.5)	(3.7)	(2.7)
Pound Sterling	(4.1)	(8.3)	(17.6)	(17.2)	(3.2)	(3.6)	(3.6)
Yen	(4.2)	(7.7)	(20.4)	(22.9)	(9.3)	(4.9)	(6.0)

Source: Morningstar, HFRI, as of 9/30/22.



# Definitions

**Bloomberg US Weekly Consumer Comfort Index** - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. ([www.lanqerresearch.com](http://www.lanqerresearch.com))

**University of Michigan Consumer Sentiment Index** - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. ([www.Bloomberg.com](http://www.Bloomberg.com))

**NFIB Small Business Outlook** - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (<http://www.nfib-sbet.org/about/>)

**NAHB Housing Market Index** - the housing market index is a weighted average of separate diffusion indices for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula  $(\text{Good-Poor} + 100)/2$  to the present and future sales series and  $(\text{High/Very High-Low/Very Low} + 100)/2$  to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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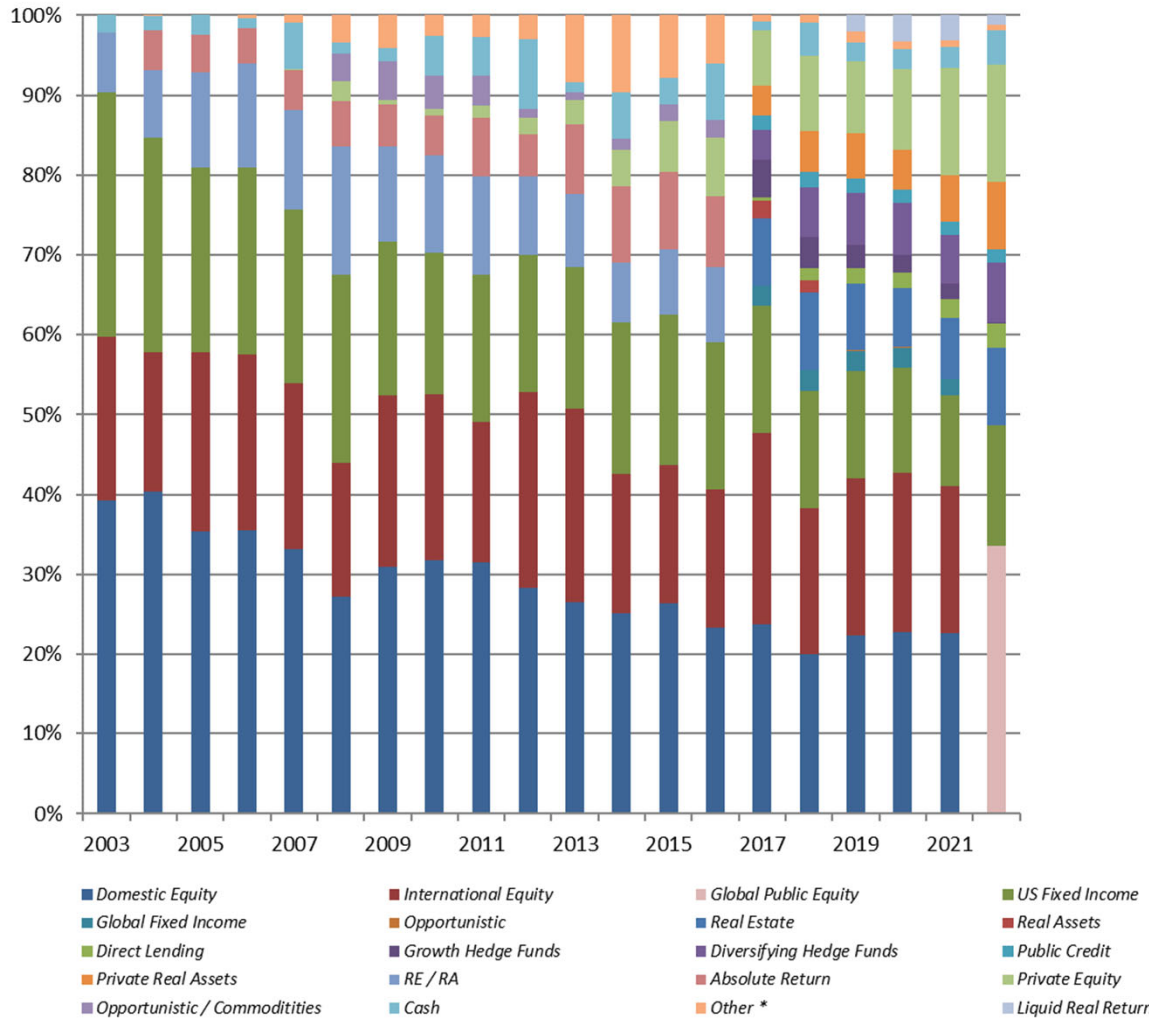
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# Total Fund

## Actual Yearly and Quarterly Asset Allocation

Period Ending: September 30, 2022



	2003	2004	2005	2006	2007	2008	2009
US Equity	39.2	40.4	35.4	35.5	33.1	27.2	30.9
International Equity	20.6	17.5	22.3	22.0	20.9	16.8	21.5
US Fixed Income	30.6	26.9	23.1	23.3	21.7	23.5	19.3
Real Estate / Real Assets	7.5	8.5	11.9	13.1	12.4	16.1	11.9
Absolute Return	-	4.9	4.8	4.4	5.1	5.6	5.3
Private Equity	-	-	-	-	0.1	2.5	0.5
Opportunistic / Commodities	-	-	-	-	-	3.5	4.8
Cash	2.1	1.8	2.4	1.2	5.8	1.4	1.7
Other *	-	0.1	-	0.4	0.9	3.4	4.1

	2010	2011	2012	2013	2014	2015	2016
US Equity	31.7	31.4	28.4	26.5	25.2	26.4	23.4
International Equity	20.7	17.6	24.5	24.3	17.5	17.3	17.2
US Fixed Income	17.8	18.4	17.1	17.7	18.9	18.7	18.5
Real Estate / Real Assets	12.2	12.4	9.9	9.0	7.6	8.3	9.3
Absolute Return	4.9	7.3	5.2	8.8	9.4	9.7	8.8
Private Equity	0.9	1.6	2.2	3.0	4.6	6.3	7.4
Opportunistic / Commodities	4.1	3.7	1.1	1.0	1.4	2.1	2.2
Cash	5.0	4.9	8.8	1.2	5.9	3.2	7.1
Other *	2.6	2.7	2.9	8.4	9.6	7.9	6.0

	2017	2018	2019	2020	2021	3Q22
Domestic Equity	23.8	20.0	22.4	22.8	22.6	-
International Equity	23.9	18.3	19.6	19.9	18.4	-
Global Public Equity	-	-	-	-	-	33.6
US Fixed Income	16.0	14.6	13.6	13.2	11.4	15.1
Global Fixed Income	2.4	2.6	2.5	2.5	2.1	-
Public Credit	1.8	1.9	1.8	1.7	1.7	1.7
Real Estate / Real Assets	-	-	-	-	-	-
Real Estate	8.4	9.7	8.3	7.3	7.6	9.6
Real Assets	2.1	1.4	-	-	-	-
Private Real Assets	3.7	5.2	5.7	4.9	5.8	8.4
Liquid Real Return	-	-	2.0	3.3	3.2	1.1
Absolute Return	-	-	-	-	-	-
Growth Hedge Funds	4.6	3.9	3.0	2.3	2.0	0.1
Diversifying Hedge Funds	3.8	6.2	6.4	6.4	6.0	7.5
Private Equity	6.9	9.3	9.0	10.1	13.4	14.6
Direct Lending	0.5	1.5	2.0	1.9	2.3	3.1
Opportunistic / Commodities	-	-	-	-	-	-
Opportunistic	0.1	0.1	0.1	0.0	0.0	-
Cash	1.1	4.3	2.4	2.5	2.6	4.3
Other *	0.8	0.9	1.4	1.0	0.8	0.7

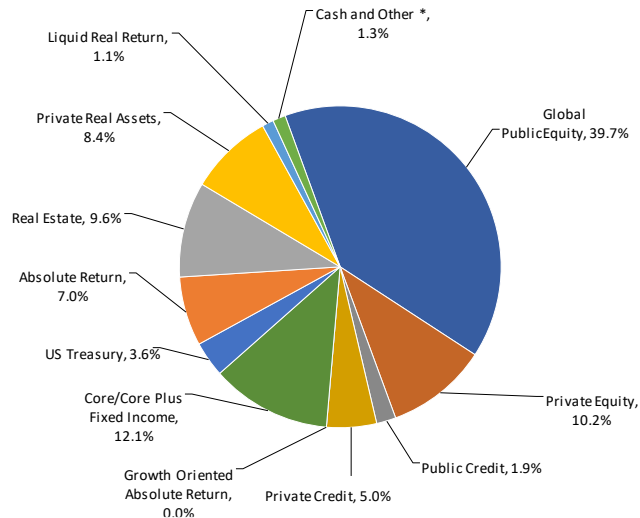
\* Allocations without overlay.

\* Other includes SSgA Overlay and closing accounts. Prior to Q2 2017 SSgA Real Assets is also included

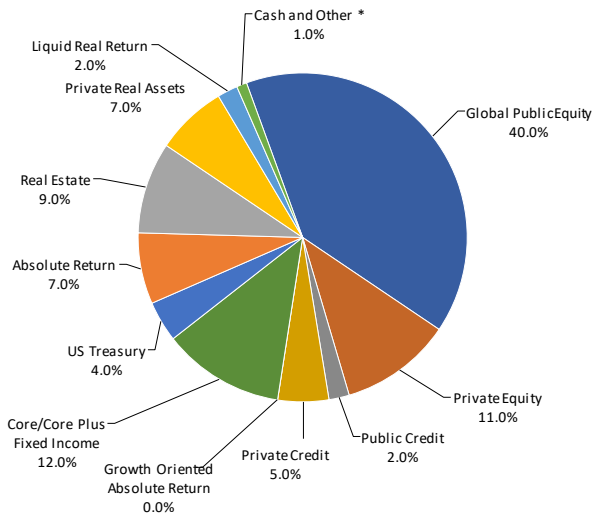
# Total Fund Asset Allocation Analysis

Period Ending: September 30, 2022

Current w/Overlay



Target



ASSET ALLOCATION	MARKET VALUE W/OVERLAY	W/ OVERLAY	W/O OVERLAY
Global PublicEquity	4,593,475,808	39.7%	33.6%
Private Equity	1,180,346,922	10.2%	14.6%
Public Credit	224,946,998	1.9%	1.7%
Private Credit	579,830,952	5.0%	3.1%
Growth Oriented Absolute Return	-41,350	0.0%	0.1%
Core/Core Plus Fixed Income	1,398,637,325	12.1%	11.5%
US Treasury	412,150,832	3.6%	3.6%
Absolute Return	804,410,959	7.0%	7.5%
Real Estate	1,107,655,546	9.6%	9.6%
Private Real Assets	973,857,486	8.4%	8.4%
Liquid Real Return	132,051,179	1.1%	1.1%
Cash and Other *	149,692,375	1.3%	5.1%
<b>TOTAL</b>	<b>11,557,015,033</b>	<b>100.0%</b>	<b>100.0%</b>

ASSET ALLOCATION	ACTUAL	TARGET	DIFF
Global PublicEquity	39.7%	40.0%	-0.3%
Private Equity	10.2%	11.0%	-0.8%
Public Credit	1.9%	2.0%	-0.1%
Private Credit	5.0%	5.0%	0.0%
Growth Oriented Absolute Return	0.0%	0.0%	0.0%
Core/Core Plus Fixed Income	12.1%	12.0%	0.1%
US Treasury	3.6%	4.0%	-0.4%
Absolute Return	7.0%	7.0%	0.0%
Real Estate	9.6%	9.0%	0.6%
Private Real Assets	8.4%	7.0%	1.4%
Liquid Real Return	1.1%	2.0%	-0.9%
Cash and Other *	1.3%	1.0%	0.3%

\* Other includes closing accounts (Heitman), Transition Account and SSgA Overlay.

- The Total Plan returned -3.9% net in the third quarter of 2022 and ranked in the third among other public funds greater than \$1 billion. The Plan underperformed its policy index by 10bps over this time period. Longer-term, the three-year return of 6.4% ranks in the top quartile of large public plan peer group which returned 4.9%. The five-year return of 6.7% also ranks in the top quartile of the large public plan peer group.
- Third quarter results (net) were enhanced by the following factors:
  1. The Real Return category returned 1.1% for the quarter, led by private real assets which returned 3.9% and real estate being flat for the quarter. With inflation remaining elevated, the positive results in this category helps to reinforce the role it plays in the SCERS portfolio.
  2. Diversifying Absolute Return was up slightly in the third quarter (0.2%), but on a relative basis, outperforming public fixed income and public equities by a substantial margin.
  3. Private credit was down 0.5% for the quarter which led performance among the growth asset category investments and outperformed the policy benchmark by 340bps.
- Third quarter results (net) were hindered by the following factors:
  1. The Growth Asset Category was down 6.0% during the third quarter, led by public equities which fell 7.1%, as fears around slowing economic growth and raising interest rates hit risk assets, broadly.
  2. Diversifying Fixed Income was down during the third quarter as interest rates continued to move higher, pushing prices lower. Core Plus Fixed Income was down 4.9% and U.S. Treasuries were down 4.3%, pushing losses in relatively safe fixed income securities to double digits for the trailing one year.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date <sup>+</sup>
<b>Total Fund - Gross*</b>	<b>11,557,015,033</b>	<b>100.0</b>	<b>-3.9</b>	<b>33</b>	<b>-12.3</b>	<b>18</b>	<b>-8.7</b>	<b>19</b>	<b>6.7</b>	<b>14</b>	<b>7.0</b>	<b>9</b>	<b>7.7</b>	<b>24</b>	<b>8.2</b>	<b>Jun-86</b>
<b>Total Fund - Net</b>			<b>-3.9</b>	<b>34</b>	<b>-12.4</b>	<b>19</b>	<b>-8.9</b>	<b>23</b>	<b>6.4</b>	<b>21</b>	<b>6.7</b>	<b>14</b>	<b>7.5</b>	<b>41</b>	<b>8.0</b>	
<i>Policy Index<sup>1</sup></i>			-3.8	31	-11.8	16	-8.6	19	5.1	44	5.5	47	6.9	60	8.2	Jun-86
<i>InvMetrics Public DB &gt; \$1B Gross Median</i>			-4.3		-15.5		-12.3		4.9		5.4		7.3		7.9	Jun-86
<b>Total Fund ex Overlay - Gross**</b>	<b>11,471,989,942</b>	<b>99.3</b>	<b>-3.7</b>	<b>30</b>	<b>-11.6</b>	<b>14</b>	<b>-7.8</b>	<b>13</b>	<b>6.7</b>	<b>13</b>	<b>7.0</b>	<b>8</b>	<b>7.7</b>	<b>22</b>	<b>8.1</b>	<b>Jun-86</b>
<b>Total Fund ex Overlay - Net</b>			<b>-3.8</b>	<b>31</b>	<b>-11.7</b>	<b>15</b>	<b>-8.0</b>	<b>13</b>	<b>6.5</b>	<b>20</b>	<b>6.8</b>	<b>14</b>	<b>7.5</b>	<b>40</b>	<b>7.9</b>	
<i>Policy Index</i>			-3.8	31	-11.8	16	-8.6	19	5.1	44	5.5	47	6.9	60	8.2	Jun-86
<b>Growth Asset Category - Gross</b>	<b>6,149,279,261</b>	<b>53.2</b>	<b>-5.9</b>	<b>--</b>	<b>-19.4</b>	<b>--</b>	<b>-15.2</b>	<b>--</b>	<b>7.8</b>	<b>--</b>	<b>8.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>9.1</b>	<b>Mar-17</b>
<b>Growth Asset Category - Net</b>			<b>-6.0</b>	<b>--</b>	<b>-19.6</b>	<b>--</b>	<b>-15.4</b>	<b>--</b>	<b>7.6</b>	<b>--</b>	<b>7.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>8.8</b>	
<i>Growth Custom<sup>1</sup></i>			-5.9	--	-18.8	--	-14.9	--	6.2	--	6.4	--	--	--	7.4	Mar-17
<b>Global Public Equity - Gross</b>	<b>3,887,565,680</b>	<b>33.6</b>	<b>-7.0</b>	<b>--</b>	<b>-26.8</b>	<b>--</b>	<b>-23.1</b>	<b>--</b>	<b>3.5</b>	<b>--</b>	<b>4.6</b>	<b>--</b>	<b>8.0</b>	<b>--</b>	<b>7.3</b>	<b>Jun-11</b>
<b>Global Public Equity - Net</b>			<b>-7.1</b>	<b>--</b>	<b>-27.0</b>	<b>--</b>	<b>-23.4</b>	<b>--</b>	<b>3.1</b>	<b>--</b>	<b>4.2</b>	<b>--</b>	<b>7.6</b>	<b>--</b>	<b>6.9</b>	
<i>MSCI ACWI IMI<sup>1</sup></i>			-6.5	--	-25.4	--	-20.4	--	3.8	--	4.5	--	7.3	--	6.5	Jun-11
<b>Domestic Equity - Gross</b>	<b>1,959,075,675</b>	<b>17.0</b>	<b>-4.4</b>	<b>39</b>	<b>-25.3</b>	<b>81</b>	<b>-19.2</b>	<b>80</b>	<b>7.6</b>	<b>38</b>	<b>8.5</b>	<b>36</b>	<b>11.3</b>	<b>39</b>	<b>9.9</b>	<b>Jun-86</b>
<b>Domestic Equity - Net</b>			<b>-4.5</b>	<b>50</b>	<b>-25.5</b>	<b>84</b>	<b>-19.4</b>	<b>82</b>	<b>7.3</b>	<b>49</b>	<b>8.2</b>	<b>48</b>	<b>10.9</b>	<b>58</b>	<b>9.7</b>	
<i>Russell 3000<sup>1</sup></i>			-4.5	50	-24.6	64	-17.6	56	7.7	33	8.6	28	11.4	33	10.0	Jun-86
<i>InvMetrics All DB US Eq Gross Median</i>			-4.5		-24.3		-17.4		7.3		8.2		11.1		9.4	Jun-86
<b>Large Cap - Gross</b>	<b>1,770,287,150</b>	<b>15.3</b>	<b>-4.5</b>	<b>--</b>	<b>-24.9</b>	<b>--</b>	<b>-18.0</b>	<b>--</b>	<b>7.9</b>	<b>--</b>	<b>8.9</b>	<b>--</b>	<b>11.5</b>	<b>--</b>	<b>6.6</b>	<b>Mar-98</b>
<b>Large Cap - Net</b>			<b>-4.6</b>	<b>--</b>	<b>-25.0</b>	<b>--</b>	<b>-18.2</b>	<b>--</b>	<b>7.6</b>	<b>--</b>	<b>8.6</b>	<b>--</b>	<b>11.3</b>	<b>--</b>	<b>6.4</b>	
<i>Russell 1000</i>			-4.6	--	-24.6	--	-17.2	--	7.9	--	9.0	--	11.6	--	7.0	Mar-98

\*Total Fund and asset class composites are ranked against InvestorForce universes. Managers are ranked against eVest manager universes. Net Returns are ranked against gross universe. Ranking of 1 is a top ranking and ranking of 100 is a bottom rating.

\*\*Total Fund ex Overlay returns from 2/1/2006-12/31/2010 were calculated using the overlay impact provided by SSgA.

+ Since inception date denotes last day of the month.

1. See Policy Index and Benchmark History

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Large Cap - Index - Gross	984,694,765	8.5	-4.6	--	-24.5	--	-17.1	--	8.0	--	9.0	--	11.6	--	10.6	Sep-08
Large Cap - Index - Net			-4.6	--	-24.5	--	-17.1	--	7.9	--	9.0	--	11.6	--	10.6	
<i>Russell 1000</i>			-4.6	--	-24.6	--	-17.2	--	7.9	--	9.0	--	11.6	--	10.6	Sep-08
AB - Gross	984,694,765	8.5	-4.6	25	-24.5	63	-17.1	69	8.0	63	9.0	60	11.6	68	9.8	Apr-89
AB - Net			-4.6	26	-24.5	64	-17.1	70	7.9	67	9.0	63	11.6	71	9.8	
<i>Russell 1000<sup>1</sup></i>			-4.6	28	-24.6	70	-17.2	79	7.9	67	9.0	62	11.6	64	--	Apr-89
<i>eV US Passive Large Cap Equity Gross Median</i>			-4.9		-23.9		-15.5		8.2		9.2		11.7		9.9	Apr-89
Large Cap - Enhanced - Gross	268,418,901	2.3	-5.4	--	-23.0	--	-15.2	--	8.3	--	--	--	--	--	7.0	Jul-18
Large Cap - Enhanced - Net			-5.5	--	-23.1	--	-15.4	--	8.0	--	--	--	--	--	6.8	
<i>Russell 1000</i>			-4.6	--	-24.6	--	-17.2	--	7.9	--	9.0	--	11.6	--	7.6	Jul-18
AQR US Enhanced Equity - Gross	268,418,901	2.3	-5.4	91	-23.0	41	-15.2	50	8.3	35	--	--	--	--	7.0	Jul-18
AQR US Enhanced Equity - Net			-5.5	92	-23.1	42	-15.4	59	8.0	49	--	--	--	--	6.8	
<i>Russell 1000</i>			-4.6	63	-24.6	75	-17.2	76	7.9	49	9.0	43	11.6	55	7.6	Jul-18
<i>eV US Enh Equity Gross Median</i>			-4.5		-23.4		-15.2		7.9		8.7		11.7		7.5	Jul-18
Large Cap (130/30) - Gross	271,932,286	2.4	-2.7	--	-22.8	--	-13.8	--	9.8	--	9.5	--	12.6	--	11.3	Sep-08
Large Cap (130/30) - Net			-2.9	--	-23.1	--	-14.2	--	9.3	--	8.9	--	11.9	--	10.7	
<i>Russell 1000</i>			-4.6	--	-24.6	--	-17.2	--	7.9	--	9.0	--	11.6	--	10.6	Sep-08
JP Morgan 130/30 - Gross	139,283,204	1.2	-2.6	22	-24.1	86	-14.7	89	11.6	13	10.7	10	13.2	16	11.6	Jul-08
JP Morgan 130/30 - Net			-3.0	27	-24.5	91	-15.2	91	10.9	17	10.0	24	12.5	39	10.8	
<i>Russell 1000</i>			-4.6	72	-24.6	92	-17.2	93	7.9	55	9.0	34	11.6	75	9.8	Jul-08
<i>eV Extended US Equity Gross Median</i>			-4.0		-19.3		-9.8		8.2		7.9		12.2		10.8	Jul-08
DE Shaw Broad Mkt Core Alpha Ext - Gross	132,649,082	1.1	-2.8	25	-21.4	63	-12.9	68	7.9	55	--	--	--	--	9.1	Jan-19
DE Shaw Broad Mkt Core Alpha Ext - Net			-2.9	26	-21.5	66	-13.2	70	7.6	60	--	--	--	--	8.7	
<i>Russell 1000</i>			-4.6	72	-24.6	92	-17.2	93	7.9	55	9.0	34	11.6	75	9.6	Jan-19
<i>eV Extended US Equity Gross Median</i>			-4.0		-19.3		-9.8		8.2		7.9		12.2		9.2	Jan-19

1. See Policy Index and Benchmark History.

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Large Cap Active - Gross	245,241,197	2.1	-5.0	--	-30.3	--	-27.9	--	5.1	--	6.6	--	10.4	--	9.5	Sep-08
Large Cap Active - Net			-5.2	--	-30.8	--	-28.5	--	4.3	--	5.8	--	9.6	--	8.8	
<i>Russell 1000<sup>1</sup></i>			-4.6	--	-24.6	--	-17.2	--	7.9	--	7.8	--	10.5	--	9.1	Sep-08
Eagle Capital - Gross	245,220,914	2.1	-5.0	57	-30.3	99	-27.9	99	5.1	89	7.3	82	11.4	58	11.4	Feb-12
Eagle Capital - Net			-5.2	62	-30.8	99	-28.5	99	4.3	94	6.5	91	10.5	79	10.6	
<i>Russell 1000</i>			-4.6	42	-24.6	73	-17.2	77	7.9	46	7.8	73	10.5	80	10.6	Feb-12
<i>eV US Large Cap Core Equity Gross Median</i>			-4.8		-22.8		-14.9		7.8		9.0		11.6		11.5	Feb-12
Small Cap - Gross	188,788,525	1.6	-3.4	--	-29.0	--	-29.0	--	4.7	--	6.0	--	9.9	--	11.1	Dec-90
Small Cap - Net			-3.5	--	-29.5	--	-29.6	--	4.0	--	5.4	--	9.2	--	10.4	
<i>Russell 2000</i>			-2.2	--	-25.1	--	-23.5	--	4.3	--	3.6	--	8.6	--	9.8	Dec-90
Small Cap - Growth - Gross	87,179,048	0.8	-1.5	--	-38.7	--	-41.8	--	4.9	--	9.2	--	11.4	--	10.6	Sep-08
Small Cap - Growth - Net			-1.6	--	-39.2	--	-42.3	--	4.2	--	8.5	--	10.7	--	9.9	
<i>Russell 2000 Growth</i>			0.2	--	-29.3	--	-29.3	--	2.9	--	3.6	--	8.8	--	8.8	Sep-08
Weatherbie - Gross	87,179,048	0.8	-1.5	61	-38.7	93	-41.8	93	4.9	73	9.3	36	13.3	15	11.9	Dec-02
Weatherbie - Net			-1.6	62	-39.2	94	-42.3	95	4.2	81	8.6	46	12.6	23	11.0	
<i>Russell 2000 Growth</i>			0.2	36	-29.3	40	-29.3	54	2.9	90	3.6	96	8.8	94	9.4	Dec-02
<i>eV US Small Cap Growth Equity Gross Median</i>			-0.8		-30.6		-28.8		6.7		8.4		11.4		11.8	Dec-02
Small Cap - Value - Gross	101,609,477	0.9	-5.0	--	-17.5	--	-11.4	--	2.6	--	1.6	--	7.7	--	7.5	Sep-08
Small Cap - Value - Net			-5.2	--	-18.0	--	-12.2	--	2.0	--	1.1	--	6.9	--	6.7	
<i>Russell 2000 Value</i>			-4.6	--	-21.1	--	-17.7	--	4.7	--	2.9	--	7.9	--	7.1	Sep-08
Snyder Capital Management - Gross	101,609,477	0.9	-5.0	57	-17.5	26	-11.4	24	--	--	--	--	--	--	-3.0	Jan-21
Snyder Capital Management - Net			-5.2	61	-18.0	33	-12.2	31	--	--	--	--	--	--	-3.7	
<i>Russell 2000 Value</i>			-4.6	50	-21.1	65	-17.7	76	4.7	70	2.9	81	7.9	85	-2.3	Jan-21
<i>eV US Small Cap Value Equity Gross Median</i>			-4.6		-19.8		-14.1		6.1		4.3		9.6		1.6	Jan-21

1. See Policy Index and Benchmark History.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>International Equity - Gross</b>	<b>1,658,910,829</b>	<b>14.4</b>	<b>-10.0</b>	<b>53</b>	<b>-28.7</b>	<b>71</b>	<b>-27.6</b>	<b>72</b>	<b>-1.2</b>	<b>62</b>	<b>0.2</b>	<b>26</b>	<b>4.0</b>	<b>48</b>	<b>5.7</b>	<b>Dec-87</b>
<b>International Equity - Net</b>			<b>-10.1</b>	<b>58</b>	<b>-29.0</b>	<b>77</b>	<b>-28.0</b>	<b>76</b>	<b>-1.7</b>	<b>79</b>	<b>-0.4</b>	<b>44</b>	<b>3.5</b>	<b>65</b>	<b>5.3</b>	
<i>MSCI ACWI ex US<sup>1</sup></i>			-9.8	43	-26.2	26	-24.8	24	-1.1	58	-0.3	43	3.5	67	5.5	Dec-87
<i>InvMetrics All DB ex-US Eq Gross Median</i>			-9.9		-27.2		-26.1		-0.8		-0.5		4.0		6.0	Dec-87
<b>International - Developed - Gross</b>	<b>1,339,068,321</b>	<b>11.6</b>	<b>-9.4</b>	<b>31</b>	<b>-28.4</b>	<b>68</b>	<b>-26.8</b>	<b>65</b>	<b>-0.7</b>	<b>45</b>	<b>0.7</b>	<b>39</b>	<b>4.8</b>	<b>58</b>	<b>3.9</b>	<b>Mar-98</b>
<b>International - Developed - Net</b>			<b>-9.5</b>	<b>34</b>	<b>-28.8</b>	<b>69</b>	<b>-27.3</b>	<b>68</b>	<b>-1.3</b>	<b>51</b>	<b>0.0</b>	<b>47</b>	<b>4.3</b>	<b>68</b>	<b>3.4</b>	
<i>MSCI World ex US Gross</i>			-9.1	22	-25.9	23	-23.5	15	-0.7	45	0.1	47	4.1	71	4.0	Mar-98
<i>InvMetrics All DB Dev Mkt ex-US Eq Gross Median</i>			-10.8		-27.4		-26.1		-1.2		-0.3		5.1		4.0	Mar-98
<b>Large Cap - Gross</b>	<b>1,178,928,664</b>	<b>10.2</b>	<b>-9.5</b>	<b>45</b>	<b>-27.0</b>	<b>48</b>	<b>-25.0</b>	<b>55</b>	<b>-0.4</b>	<b>51</b>	<b>1.1</b>	<b>26</b>	<b>4.8</b>	<b>36</b>	<b>3.9</b>	<b>Dec-04</b>
<b>Large Cap - Net</b>			<b>-9.6</b>	<b>50</b>	<b>-27.4</b>	<b>51</b>	<b>-25.4</b>	<b>57</b>	<b>-1.0</b>	<b>61</b>	<b>0.4</b>	<b>41</b>	<b>4.3</b>	<b>53</b>	<b>3.5</b>	
<i>MSCI World ex US Gross</i>			-9.1	30	-25.9	37	-23.5	35	-0.7	58	0.1	49	4.1	61	4.0	Dec-04
<i>eV EAFE Large Cap Equity Gross Median</i>			-9.6		-27.3		-24.8		-0.2		0.0		4.4		4.4	Dec-04
<b>Lazard - Gross</b>	<b>273,095,186</b>	<b>2.4</b>	<b>-9.7</b>	<b>59</b>	<b>-26.6</b>	<b>34</b>	<b>-26.4</b>	<b>49</b>	<b>-1.8</b>	<b>76</b>	<b>0.2</b>	<b>51</b>	<b>4.8</b>	<b>54</b>	<b>5.5</b>	<b>Jun-12</b>
<b>Lazard - Net</b>			<b>-9.8</b>	<b>62</b>	<b>-26.8</b>	<b>37</b>	<b>-26.7</b>	<b>51</b>	<b>-2.1</b>	<b>80</b>	<b>-0.1</b>	<b>58</b>	<b>4.5</b>	<b>62</b>	<b>5.1</b>	
<i>MSCI World ex US Gross<sup>1</sup></i>			-9.1	43	-26.4	32	-25.0	35	-1.2	70	-0.4	62	3.5	81	4.1	Jun-12
<i>eV All ACWI ex-US Equity Gross Median</i>			-9.3		-28.6		-26.6		0.0		0.3		4.9		5.5	Jun-12
<b>Walter Scott &amp; Partners Limited - Gross</b>	<b>478,412,256</b>	<b>4.1</b>	<b>-8.4</b>	<b>34</b>	<b>-31.9</b>	<b>51</b>	<b>-28.2</b>	<b>42</b>	<b>0.2</b>	<b>56</b>	<b>3.2</b>	<b>19</b>	<b>--</b>	<b>--</b>	<b>5.3</b>	<b>Mar-17</b>
<b>Walter Scott &amp; Partners Limited - Net</b>			<b>-8.4</b>	<b>35</b>	<b>-32.5</b>	<b>52</b>	<b>-28.8</b>	<b>47</b>	<b>-0.8</b>	<b>77</b>	<b>2.2</b>	<b>33</b>	<b>--</b>	<b>--</b>	<b>4.3</b>	
<i>MSCI World ex USA Growth GR USD</i>			-8.1	29	-32.1	51	-29.2	48	-0.8	78	1.3	54	4.9	79	3.4	Mar-17
<i>eV EAFE Large Cap Growth Gross Median</i>			-9.1		-31.5		-30.4		0.3		1.3		5.5		3.9	Mar-17
<b>LSV - Gross</b>	<b>427,421,222</b>	<b>3.7</b>	<b>-10.5</b>	<b>53</b>	<b>-20.8</b>	<b>31</b>	<b>-19.5</b>	<b>31</b>	<b>0.2</b>	<b>39</b>	<b>-0.6</b>	<b>40</b>	<b>4.9</b>	<b>8</b>	<b>3.6</b>	<b>Dec-04</b>
<b>LSV - Net</b>			<b>-10.6</b>	<b>61</b>	<b>-21.1</b>	<b>32</b>	<b>-19.9</b>	<b>32</b>	<b>-0.3</b>	<b>56</b>	<b>-1.1</b>	<b>49</b>	<b>4.5</b>	<b>17</b>	<b>3.2</b>	
<i>MSCI World ex US Value Gross</i>			-10.1	41	-19.6	25	-18.0	28	-1.3	63	-1.4	52	3.2	69	3.2	Dec-04
<i>eV EAFE Large Cap Value Gross Median</i>			-10.5		-22.6		-21.4		-0.2		-1.2		3.9		3.7	Dec-04

1. See Policy Index and Benchmark History.



# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Small Cap - Gross</b>	<b>160,139,657</b>	<b>1.4</b>	<b>-9.1</b>	<b>29</b>	<b>-37.4</b>	<b>87</b>	<b>-38.4</b>	<b>89</b>	<b>-3.0</b>	<b>75</b>	<b>-1.9</b>	<b>61</b>	<b>4.2</b>	<b>94</b>	<b>6.1</b>	<b>Sep-08</b>
<b>Small Cap - Net</b>			<b>-9.2</b>	<b>30</b>	<b>-37.8</b>	<b>87</b>	<b>-38.9</b>	<b>91</b>	<b>-3.8</b>	<b>81</b>	<b>-2.7</b>	<b>79</b>	<b>3.4</b>	<b>96</b>	<b>5.2</b>	
<i>MSCI World ex US Small Cap GD</i>			-9.4	33	-30.8	42	-30.5	42	-0.9	53	-0.8	42	5.2	84	6.1	Sep-08
<i>eV EAFE Small Cap Equity Gross Median</i>			-10.0		-32.2		-31.4		-0.8		-1.3		6.1		6.8	Sep-08
Mondrian Dev Small Cap - Gross	81,040,586	0.7	-11.8	95	-33.5	52	-35.2	56	-4.7	95	-2.2	87	3.5	99	5.2	Aug-10
Mondrian Dev Small Cap - Net			-11.9	95	-33.8	53	-35.6	56	-5.3	96	-2.9	91	2.8	99	4.5	
<i>MSCI World ex US Small Cap GD</i>			-9.4	61	-30.8	43	-30.5	43	-0.9	64	-0.8	70	5.2	66	5.8	Aug-10
<i>eV ACWI ex-US Small Cap Equity Gross Median</i>			-8.8		-33.1		-32.3		1.0		0.6		6.7		7.4	Aug-10
William Blair Dev Small Cap - Gross	79,099,071	0.7	-6.1	11	-40.9	74	-41.3	83	-1.3	70	-1.6	81	4.9	80	6.5	Sep-08
William Blair Dev Small Cap - Net			-6.3	12	-41.3	77	-41.8	85	-2.2	78	-2.5	88	4.0	97	5.6	
<i>MSCI World ex US Small Cap GD</i>			-9.4	61	-30.8	43	-30.5	43	-0.9	64	-0.8	70	5.2	66	6.1	Sep-08
<i>eV ACWI ex-US Small Cap Equity Gross Median</i>			-8.8		-33.1		-32.3		1.0		0.6		6.7		8.2	Sep-08
<b>International - Emerging - Gross</b>	<b>319,838,814</b>	<b>2.8</b>	<b>-12.3</b>	<b>--</b>	<b>-29.9</b>	<b>--</b>	<b>-30.9</b>	<b>--</b>	<b>-3.1</b>	<b>--</b>	<b>-1.7</b>	<b>--</b>	<b>1.0</b>	<b>--</b>	<b>4.8</b>	<b>Jan-00</b>
<b>International - Emerging - Net</b>			<b>-12.3</b>	<b>--</b>	<b>-30.1</b>	<b>--</b>	<b>-31.1</b>	<b>--</b>	<b>-3.4</b>	<b>--</b>	<b>-2.0</b>	<b>--</b>	<b>0.7</b>	<b>--</b>	<b>4.4</b>	
<i>MSCI Emerging Markets Gross</i>			-11.4	--	-26.9	--	-27.8	--	-1.7	--	-1.4	--	1.4	--	5.4	Jan-00
Baillie Gifford Emg All Cap - Gross	166,875,771	1.4	-12.2	84	-34.0	92	-35.3	92	-4.2	91	-1.8	74	--	--	4.9	Mar-16
Baillie Gifford Emg All Cap - Net			-12.2	84	-34.0	92	-35.3	92	-4.2	91	-1.8	74	--	--	4.9	
<i>MSCI Emerging Markets Gross</i>			-11.4	72	-26.9	49	-27.8	54	-1.7	65	-1.4	64	1.4	82	3.6	Mar-16
<i>eV Emg Mkts Equity Gross Median</i>			-10.2		-27.0		-27.5		-0.8		-0.8		2.5		4.4	Mar-16
Mondrian Emg All Cap - Gross	152,963,043	1.3	-12.3	86	-24.9	34	-25.4	36	-1.9	66	-1.7	69	--	--	1.9	Mar-16
Mondrian Emg All Cap - Net			-12.5	88	-25.2	36	-25.9	39	-2.4	73	-2.3	84	--	--	1.3	
<i>MSCI Emerging Markets Gross</i>			-11.4	72	-26.9	49	-27.8	54	-1.7	65	-1.4	64	1.4	82	3.6	Mar-16
<i>eV Emg Mkts Equity Gross Median</i>			-10.2		-27.0		-27.5		-0.8		-0.8		2.5		4.4	Mar-16

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Global/Unconstrained Equity - Gross	269,579,177	2.3	-11.0	99	--	--	--	--	--	--	--	--	--	--	-19.1	Apr-22
Global/Unconstrained Equity - Net			-11.0	99	--	--	--	--	--	--	--	--	--	--	-19.1	
MSCI ACWI IMI			-6.5	27	-25.4	71	-20.4	65	3.8	34	4.5	37	7.3	75	-21.2	Apr-22
InvMetrics All DB Gbl Eq Net Median			-7.1		-24.2		-20.2		3.5		4.3		8.2		-19.7	Apr-22
Artisan Partners Global Opp - Gross	104,590,267	0.9	--	--	--	--	--	--	--	--	--	--	--	--	-10.5	Aug-22
Artisan Partners Global Opp - Net			--	--	--	--	--	--	--	--	--	--	--	--	-10.5	
MSCI ACWI IMI			-6.5	--	-25.4	--	-20.8	--	4.1	--	4.7	--	7.8	--	-9.6	Aug-22
Nikko Asset Management - Gross	103,920,000	0.9	--	--	--	--	--	--	--	--	--	--	--	--	-8.7	Aug-22
Nikko Asset Management - Net			--	--	--	--	--	--	--	--	--	--	--	--	-8.7	
MSCI ACWI IMI			-6.5	--	-25.4	--	-20.8	--	4.1	--	4.7	--	7.8	--	-9.6	Aug-22
Third Point Offshore Fund - Gross*	61,068,910	0.5	-3.0	--	-22.1	--	-25.9	--	7.1	--	5.0	--	8.3	--	8.3	Apr-12
Third Point Offshore Fund - Net			-3.0	--	-22.1	--	-25.9	--	7.1	--	5.0	--	8.3	--	8.3	
MSCI ACWI IMI			-6.5	--	-25.4	--	-20.8	--	4.1	--	4.7	--	7.8	--	7.7	Apr-12
Private Equity - Gross***	1,689,312,632	14.6	-4.7	85	-2.7	69	5.1	51	23.1	16	23.4	3	18.0	8	7.5	Feb-08
Private Equity - Net			-4.7	85	-2.7	69	5.1	51	23.1	16	23.4	3	18.0	8	7.7	
Cambridge Associates All PE 1 Qtr Lag <sup>1</sup>			-5.0	89	-0.9	58	4.6	52	18.8	53	16.8	40	16.8	12	12.1	Feb-08
Russell 3000 +3% 1Q Lag			-16.2	99	-11.7	93	-10.9	91	12.8	81	13.6	64	15.6	15	11.7	Feb-08
InvMetrics All DB Private Eq Net Median			-0.2		0.5		5.4		19.0		15.4		12.2		8.8	Feb-08
Abbott VI - Gross	31,424,024	0.3	-10.2	--	-11.4	--	-7.9	--	15.9	--	17.2	--	15.4	--	7.5	Jul-08
Abbott VI - Net			-10.2	--	-11.4	--	-7.9	--	15.9	--	17.2	--	15.4	--	--	
Cambridge Associates All PE 1 Qtr Lag			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	12.9	Jul-08
Accel-KKR V - Gross	29,461,517	0.3	0.8	--	12.5	--	23.2	--	29.4	--	27.1	--	--	--	25.8	Jan-17
Accel-KKR V - Net			0.8	--	12.5	--	23.2	--	29.4	--	27.1	--	--	--	25.8	
Cambridge Associates All PE 1 Qtr Lag			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.3	Jan-17

1. See Policy Index and Benchmark History.

\* Account converted to Global/Unconstrained Equity from Growth Oriented Absolute Return in April 2022. Reflects linked historical returns up to March 2022.

\*\* Private Equity Composite includes the historical returns of Summit Credit and Athyrum Opportunities up to 4/1/17.

++ Private Equity returns are one-quarter lag.

+ Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Accel-KKR VI - Gross	12,672,843	0.1	0.0	--	8.3	--	11.2	--	--	--	--	--	--	--	-34.0	Feb-21
Accel-KKR VI - Net			0.0	--	8.3	--	11.2	--	--	--	--	--	--	--	-34.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	27.3	Feb-21
Accel-KKR Growth Partners II - Gross	11,831,133	0.1	-2.8	--	2.1	--	18.7	--	46.1	--	40.2	--	--	--	19.2	Feb-15
Accel-KKR Growth Partners II - Net			-2.8	--	2.1	--	18.7	--	46.1	--	40.2	--	--	--	19.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.4	Feb-15
Accel-KKR Growth Partners III - Gross	32,242,131	0.3	-2.2	--	-0.5	--	4.2	--	3.8	--	--	--	--	--	3.6	Jul-19
Accel-KKR Growth Partners III - Net			-2.2	--	-0.5	--	4.2	--	3.8	--	--	--	--	--	3.6	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	19.1	Jul-19
Accel-KKR Growth Partners IV - Gross	3,972,348	0.0	-28.3	--	--	--	--	--	--	--	--	--	--	--	-28.3	Jun-22
Accel-KKR Growth Partners IV - Net			-28.3	--	--	--	--	--	--	--	--	--	--	--	-28.3	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.0	Jun-22
Atalaya Special Opp VI - Gross	3,765,253	0.0	-2.4	--	-8.9	--	-9.5	--	16.3	--	14.2	--	--	--	12.0	Apr-16
Atalaya Special Opp VI - Net			-2.4	--	-8.9	--	-9.5	--	16.3	--	14.2	--	--	--	12.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.5	Apr-16
Atalaya Special Opp V - Gross*	994,978	0.0	-7.0	--	-10.4	--	-9.3	--	2.8	--	3.1	--	--	--	4.6	Jul-13
Atalaya Special Opp V - Net			-7.0	--	-10.4	--	-9.3	--	2.8	--	3.1	--	--	--	4.6	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.8	Jul-13
Canvas Ventures III - Gross	10,906,708	0.1	-0.8	--	24.0	--	22.1	--	--	--	--	--	--	--	2.2	Nov-20
Canvas Ventures III - Net			-0.8	--	24.0	--	22.1	--	--	--	--	--	--	--	2.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	29.5	Nov-20
Cortec Group Fund VII - Gross	29,342,941	0.3	6.1	--	10.8	--	9.2	--	--	--	--	--	--	--	29.3	Dec-19
Cortec Group Fund VII - Net			6.1	--	10.8	--	9.2	--	--	--	--	--	--	--	29.3	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	20.5	Dec-19
CRV Select Fund I - Gross	19,103,561	0.2	0.6	--	-0.8	--	11.8	--	--	--	--	--	--	--	8.0	May-21
CRV Select Fund I - Net			0.6	--	-0.8	--	11.8	--	--	--	--	--	--	--	8.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	20.1	May-21

+ Account converted to Private Equity from Opportunities Category in April 2022. Reflects linked historical returns up to March 2022.

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
CRV Select Fund II - Gross	4,106,180	0.0	-4.4	--	--	--	--	--	--	--	--	--	--	--	-12.1	Mar-22
CRV Select Fund II - Net			-4.4	--	--	--	--	--	--	--	--	--	--	--	-12.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.9	Mar-22
CRV XVIII LP - Gross	18,829,945	0.2	1.6	--	16.4	--	21.9	--	--	--	--	--	--	--	11.4	Feb-21
CRV XVIII LP - Net			1.6	--	16.4	--	21.9	--	--	--	--	--	--	--	11.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	27.3	Feb-21
CRV XIX LP - Gross	2,262,433	0.0	-7.7	--	--	--	--	--	--	--	--	--	--	--	-7.7	Jun-22
CRV XIX LP - Net			-7.7	--	--	--	--	--	--	--	--	--	--	--	-7.7	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.0	Jun-22
Davidson Kempner LT Dist Opp IV - Gross	38,074,943	0.3	1.0	--	23.0	--	30.2	--	15.8	--	--	--	--	--	14.4	Mar-18
Davidson Kempner LT Dist Opp IV - Net			1.0	--	23.0	--	30.2	--	15.8	--	--	--	--	--	14.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.9	Mar-18
Davidson Kempner LT Dist Opp V - Gross	29,899,984	0.3	-2.2	--	3.5	--	6.0	--	--	--	--	--	--	--	19.1	May-20
Davidson Kempner LT Dist Opp V - Net			-2.2	--	3.5	--	6.0	--	--	--	--	--	--	--	19.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	22.3	May-20
Digital Colony Partners II - Gross	21,445,733	0.2	0.7	--	4.1	--	17.5	--	--	--	--	--	--	--	5.5	May-21
Digital Colony Partners II - Net			0.7	--	4.1	--	17.5	--	--	--	--	--	--	--	5.5	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	20.1	May-21
Dyal Capital Partners II - Gross	33,139,075	0.3	8.0	--	7.6	--	26.0	--	24.8	--	8.7	--	--	--	2.8	Dec-14
Dyal Capital Partners II - Net			8.0	--	7.6	--	26.0	--	24.8	--	8.7	--	--	--	2.8	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.8	Dec-14
Dyal Capital Partners III - Gross	25,692,815	0.2	5.7	--	11.2	--	14.1	--	29.8	--	26.3	--	--	--	24.5	Dec-16
Dyal Capital Partners III - Net			5.7	--	11.2	--	14.1	--	29.8	--	26.3	--	--	--	24.5	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.7	Dec-16
Garrison Investment Group - Gross	1,156,739	0.0	1.7	--	42.8	--	45.2	--	14.2	--	10.4	--	5.1	--	4.7	May-12
Garrison Investment Group - Net			1.7	--	42.8	--	45.2	--	14.2	--	10.4	--	5.1	--	4.7	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.3	May-12

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Gridiron Capital Fund IV - Gross	48,036,550	0.4	23.3	--	32.8	--	58.5	--	--	--	--	--	--	--	42.2	May-20
Gridiron Capital Fund IV - Net			23.3	--	32.8	--	58.5	--	--	--	--	--	--	--	42.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	22.3	May-20
Harbourvest VIII - Gross	6,845,433	0.1	-7.6	--	-6.0	--	-1.7	--	16.0	--	15.2	--	14.7	--	11.2	Dec-07
Harbourvest VIII - Net			-7.6	--	-6.0	--	-1.7	--	16.0	--	15.2	--	14.7	--	--	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	11.8	Dec-07
Harbourvest Intl VI - Gross	22,790,526	0.2	-8.1	--	-16.1	--	-19.6	--	11.8	--	12.9	--	12.7	--	-2.8	Mar-09
Harbourvest Intl VI - Net			-8.1	--	-16.1	--	-19.6	--	11.8	--	12.9	--	12.7	--	--	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.8	Mar-09
H.I.G. Bayside Loan III - Gross	4,292,255	0.0	8.9	--	-3.0	--	0.8	--	-1.4	--	3.8	--	--	--	4.5	Jan-13
H.I.G. Bayside Loan III - Net			8.9	--	-3.0	--	0.8	--	-1.4	--	3.8	--	--	--	4.5	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.8	Jan-13
H.I.G. Capital V - Gross	12,649,880	0.1	-4.4	--	7.0	--	18.4	--	25.1	--	30.3	--	--	--	14.0	Jul-13
H.I.G. Capital V - Net			-4.4	--	7.0	--	18.4	--	25.1	--	30.3	--	--	--	14.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.8	Jul-13
H.I.G. Europe Capital II - Gross*	9,345,111	0.1	-9.2	--	-12.5	--	-7.5	--	10.2	--	11.9	--	--	--	--	Jan-14
H.I.G. Europe Capital II - Net			-9.2	--	-12.5	--	-7.5	--	10.2	--	11.9	--	--	--	--	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.2	Jan-14
Khosla IV - Gross	16,291,129	0.1	-19.9	--	-31.0	--	-8.7	--	26.1	--	30.3	--	23.4	--	20.9	Jul-11
Khosla IV - Net			-19.9	--	-31.0	--	-8.7	--	26.1	--	30.3	--	23.4	--	20.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.4	Jul-11
Khosla V - Gross	40,154,915	0.3	-14.1	--	-16.4	--	6.0	--	38.4	--	28.8	--	--	--	19.4	Nov-14
Khosla V - Net			-14.1	--	-16.4	--	6.0	--	38.4	--	28.8	--	--	--	19.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.4	Nov-14
Khosla VI - Gross	54,432,872	0.5	1.4	--	25.3	--	42.6	--	20.0	--	--	--	--	--	12.8	Aug-18
Khosla VI - Net			1.4	--	25.3	--	42.6	--	20.0	--	--	--	--	--	12.8	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.9	Aug-18

\* Unable to calculate a since inception return due to system limitations when HIG Europe Capital II experienced 2 quarters of negative fund values in 2016.

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Khosla VII - Gross	12,391,309	0.1	-0.3	--	13.4	--	10.7	--	--	--	--	--	--	--	-4.2	Jan-21
Khosla VII - Net			-0.3	--	13.4	--	10.7	--	--	--	--	--	--	--	-4.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	25.8	Jan-21
Linden Capital III - Gross	46,712,853	0.4	4.1	--	-8.4	--	3.7	--	31.0	--	34.9	--	--	--	27.4	Jun-16
Linden Capital III - Net			4.1	--	-8.4	--	3.7	--	31.0	--	34.9	--	--	--	27.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.7	Jun-16
Linden Capital Partners IV - Gross	48,936,110	0.4	21.3	--	39.7	--	49.3	--	19.0	--	--	--	--	--	19.3	Sep-18
Linden Capital Partners IV - Net			21.3	--	39.7	--	49.3	--	19.0	--	--	--	--	--	19.3	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.9	Sep-18
Linden Capital Partners V - Gross	6,860,846	0.1	--	--	--	--	--	--	--	--	--	--	--	--	0.0	Jul-22
Linden Capital Partners V - Net			--	--	--	--	--	--	--	--	--	--	--	--	0.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.0	Jul-22
Marlin Equity IV - Gross	11,505,665	0.1	1.5	--	2.5	--	5.8	--	12.6	--	11.7	--	--	--	6.9	Nov-13
Marlin Equity IV - Net			1.5	--	2.5	--	5.8	--	12.6	--	11.7	--	--	--	6.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.9	Nov-13
Marlin Equity V - Gross	29,195,333	0.3	1.9	--	17.9	--	25.0	--	31.1	--	--	--	--	--	21.9	Feb-18
Marlin Equity V - Net			1.9	--	17.9	--	25.0	--	31.1	--	--	--	--	--	21.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.6	Feb-18
Marlin Heritage - Gross	6,253,649	0.1	-16.9	--	-12.5	--	-8.8	--	13.4	--	25.6	--	--	--	20.6	Jul-14
Marlin Heritage - Net			-16.9	--	-12.5	--	-8.8	--	13.4	--	25.6	--	--	--	20.6	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.9	Jul-14
Marlin Heritage II - Gross	13,980,013	0.1	1.0	--	17.8	--	25.1	--	20.3	--	--	--	--	--	9.1	Oct-17
Marlin Heritage II - Net			1.0	--	17.8	--	25.1	--	20.3	--	--	--	--	--	9.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.1	Oct-17
Marlin Heritage Europe - Gross	26,082,545	0.2	-20.8	--	-2.2	--	19.8	--	32.6	--	24.4	--	--	--	23.9	Aug-17
Marlin Heritage Europe - Net			-20.8	--	-2.2	--	19.8	--	32.6	--	24.4	--	--	--	23.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.2	Aug-17

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
New Enterprise 14 - Gross	39,874,485	0.3	-27.9	--	-31.7	--	-38.6	--	13.8	--	16.0	--	15.4	--	14.5	May-12
New Enterprise 14 - Net			-27.9	--	-31.7	--	-38.6	--	13.8	--	16.0	--	15.4	--	14.5	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.3	May-12
New Enterprise 15 - Gross	37,402,895	0.3	-18.8	--	-36.1	--	-43.9	--	2.3	--	10.4	--	--	--	11.2	Apr-15
New Enterprise 15 - Net			-18.8	--	-36.1	--	-43.9	--	2.3	--	10.4	--	--	--	11.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.1	Apr-15
New Enterprise 16 - Gross	40,019,226	0.3	-13.1	--	-16.4	--	-17.2	--	11.1	--	10.6	--	--	--	8.2	May-17
New Enterprise 16 - Net			-13.1	--	-16.4	--	-17.2	--	11.1	--	10.6	--	--	--	8.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.1	May-17
New Enterprise 17 - Gross	19,857,100	0.2	-15.0	--	-13.2	--	-13.1	--	14.8	--	--	--	--	--	14.0	Jul-19
New Enterprise 17 - Net			-15.0	--	-13.2	--	-13.1	--	14.8	--	--	--	--	--	14.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	19.1	Jul-19
Oaktree Power Opp Fund VI - Gross	6,780,597	0.1	-6.9	--	--	--	--	--	--	--	--	--	--	--	-6.9	May-22
Oaktree Power Opp Fund VI - Net			-6.9	--	--	--	--	--	--	--	--	--	--	--	-6.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.9	May-22
OrbiMed Private Investments VIII, LP - Gross	7,754,025	0.1	-1.2	--	-0.6	--	-2.5	--	--	--	--	--	--	--	-3.9	Dec-20
OrbiMed Private Investments VIII, LP - Net			-1.2	--	-0.6	--	-2.5	--	--	--	--	--	--	--	-3.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	24.4	Dec-20
Private Equity X - Gross	20,773,496	0.2	-3.5	--	-10.2	--	0.2	--	8.3	--	11.2	--	12.1	--	1.0	Jun-08
Private Equity X - Net			-3.5	--	-10.2	--	0.2	--	8.3	--	11.2	--	12.1	--	--	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	13.2	Jun-08
RCP Multi-Fund Feeder - Gross	71,283,335	0.6	4.5	--	17.9	--	26.6	--	19.5	--	--	--	--	--	10.9	Nov-18
RCP Multi-Fund Feeder - Net			4.5	--	17.9	--	26.6	--	19.5	--	--	--	--	--	10.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.6	Nov-18
RRJ Capital Master Fund II - Gross	7,932,799	0.1	-17.0	--	-17.3	--	3.8	--	4.8	--	10.3	--	--	--	10.9	May-13
RRJ Capital Master Fund II - Net			-17.0	--	-17.3	--	3.8	--	4.8	--	10.3	--	--	--	10.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.3	May-13

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
RRJ Capital Master Fund III - Gross	8,659,718	0.1	-11.2	--	-42.7	--	-41.3	--	-15.1	--	-3.5	--	--	--	-11.7	Dec-15
RRJ Capital Master Fund III - Net			-11.2	--	-42.7	--	-41.3	--	-15.1	--	-3.5	--	--	--	-11.7	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.8	Dec-15
Shamrock Capital II - Gross	9,138,763	0.1	4.6	--	5.2	--	10.7	--	--	--	--	--	--	--	-86.4	Jul-20
Shamrock Capital II - Net			4.6	--	5.2	--	10.7	--	--	--	--	--	--	--	-86.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	29.5	Jul-20
Shamrock Capital Growth Fund V - Gross	5,454,428	0.0	-9.0	--	-32.2	--	-54.4	--	--	--	--	--	--	--	-49.0	Jul-21
Shamrock Capital Growth Fund V - Net			-9.0	--	-32.2	--	-54.4	--	--	--	--	--	--	--	-49.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.1	Jul-21
Sixth Street Opp Partners V - Gross	6,209,613	0.1	-5.9	--	--	--	--	--	--	--	--	--	--	--	-5.9	Jun-22
Sixth Street Opp Partners V - Net			-5.9	--	--	--	--	--	--	--	--	--	--	--	-5.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.0	Jun-22
Spectrum Equity VII - Gross	43,159,073	0.4	-18.4	--	-42.9	--	-20.9	--	24.2	--	44.7	--	--	--	22.1	Dec-14
Spectrum Equity VII - Net			-18.4	--	-42.9	--	-20.9	--	24.2	--	44.7	--	--	--	22.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.8	Dec-14
Spectrum Equity Fund VIII - Gross	27,878,802	0.2	-11.0	--	-16.3	--	3.9	--	41.7	--	--	--	--	--	-15.4	Jun-18
Spectrum Equity Fund VIII - Net			-11.0	--	-16.3	--	3.9	--	41.7	--	--	--	--	--	-15.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.2	Jun-18
Spectrum Equity Fund IX - Gross	16,257,956	0.1	-2.3	--	-2.7	--	-4.6	--	--	--	--	--	--	--	-11.6	Sep-20
Spectrum Equity Fund IX - Net			-2.3	--	-2.7	--	-4.6	--	--	--	--	--	--	--	-11.6	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	26.8	Sep-20
Strategic Value Spl Fund V - Gross	10,748,570	0.1	0.6	--	14.0	--	10.9	--	--	--	--	--	--	--	10.0	Aug-21
Strategic Value Spl Fund V - Net			0.6	--	14.0	--	10.9	--	--	--	--	--	--	--	10.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.3	Aug-21
Summit EUR Growth Equity II - Gross	33,691,854	0.3	-5.3	--	54.6	--	75.5	--	62.6	--	--	--	--	--	81.2	Jan-18
Summit EUR Growth Equity II - Net			-5.3	--	54.6	--	75.5	--	62.6	--	--	--	--	--	81.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.3	Jan-18



Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Summit EUR Growth Equity III - Gross	11,834,315	0.1	-2.9	--	-1.5	--	-1.4	--	--	--	--	--	--	--	-14.2	Jan-21
Summit EUR Growth Equity III - Net			-2.9	--	-1.5	--	-1.4	--	--	--	--	--	--	--	-14.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	25.8	Jan-21
Summit Ventures III - Gross	3,023,941	0.0	-15.4	--	8.3	--	7.9	--	14.1	--	16.3	--	13.7	--	12.8	Jun-12
Summit Ventures III - Net			-15.4	--	8.3	--	7.9	--	14.1	--	16.3	--	13.7	--	12.8	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.1	Jun-12
Summit Ventures IV - Gross	50,329,082	0.4	-9.7	--	13.6	--	17.2	--	41.1	--	45.4	--	--	--	39.9	May-16
Summit Ventures IV - Net			-9.7	--	13.6	--	17.2	--	41.1	--	45.4	--	--	--	39.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.7	May-16
Summit Ventures V - Gross	8,050,228	0.1	-4.6	--	-0.7	--	1.1	--	--	--	--	--	--	--	-7.1	May-21
Summit Ventures V - Net			-4.6	--	-0.7	--	1.1	--	--	--	--	--	--	--	-7.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	20.1	May-21
Thoma Bravo XI - Gross	36,955,228	0.3	-9.5	--	-29.0	--	-23.4	--	27.0	--	33.2	--	--	--	22.6	Jun-14
Thoma Bravo XI - Net			-9.5	--	-29.0	--	-23.4	--	27.0	--	33.2	--	--	--	22.6	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.8	Jun-14
Thoma Bravo XII - Gross	36,817,377	0.3	-0.9	--	4.2	--	8.3	--	18.6	--	17.4	--	--	--	11.1	May-16
Thoma Bravo XII - Net			-0.9	--	4.2	--	8.3	--	18.6	--	17.4	--	--	--	11.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.7	May-16
Thoma Bravo XIII - Gross	65,690,192	0.6	-1.8	--	-1.0	--	4.5	--	39.1	--	--	--	--	--	31.1	Feb-19
Thoma Bravo XIII - Net			-1.8	--	-1.0	--	4.5	--	39.1	--	--	--	--	--	31.1	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.8	Feb-19
Threshold Ventures III - Gross	28,984,186	0.3	-3.6	--	24.2	--	44.2	--	--	--	--	--	--	--	24.2	Oct-19
Threshold Ventures III - Net			-3.6	--	24.2	--	44.2	--	--	--	--	--	--	--	24.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	19.4	Oct-19
Threshold Ventures IV - Gross	212,500	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	0.0	Jun-22
Threshold Ventures IV - Net			0.0	--	--	--	--	--	--	--	--	--	--	--	0.0	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	-5.0	Jun-22

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
TPG Opp Partners III - Gross	10,140,160	0.1	-9.3	--	-8.4	--	-6.0	--	8.6	--	9.2	--	--	--	-7.2	Mar-14
TPG Opp Partners III - Net			-9.3	--	-8.4	--	-6.0	--	8.6	--	9.2	--	--	--	-7.2	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.7	Mar-14
Trinity Ventures XI - Gross	55,542,752	0.5	-9.2	--	-8.1	--	-1.8	--	9.6	--	17.2	--	--	--	9.5	Apr-13
Trinity Ventures XI - Net			-9.2	--	-8.1	--	-1.8	--	9.6	--	17.2	--	--	--	9.5	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.3	Apr-13
Trinity Ventures XII - Gross	67,278,176	0.6	-9.4	--	-16.2	--	-8.6	--	34.0	--	34.8	--	--	--	26.9	Apr-16
Trinity Ventures XII - Net			-9.4	--	-16.2	--	-8.6	--	34.0	--	34.8	--	--	--	26.9	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.5	Apr-16
TSG7 A LP - Gross*	21,065,586	0.2	-18.8	--	-11.9	--	33.8	--	32.4	--	25.1	--	--	--	--	Mar-16
TSG7 A LP - Net			-18.8	--	-11.9	--	33.8	--	32.4	--	25.1	--	--	--	--	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.3	Mar-16
TSG7 B LP - Gross	4,382,801	0.0	-11.2	--	-24.5	--	-20.0	--	20.7	--	5.4	--	--	--	-4.3	Jan-16
TSG7 B LP - Net			-11.2	--	-24.5	--	-20.0	--	20.7	--	5.4	--	--	--	-4.3	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.7	Jan-16
TSG8 LP - Gross*	30,988,537	0.3	-2.0	--	-1.1	--	-2.8	--	--	--	--	--	--	--	--	Jan-19
TSG8 LP - Net			-2.0	--	-1.1	--	-2.8	--	--	--	--	--	--	--	--	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.3	Jan-19
TSSP Opportunities Partners IV - Gross	30,465,611	0.3	-2.0	--	4.5	--	4.5	--	13.2	--	--	--	--	--	12.6	Jan-19
TSSP Opportunities Partners IV - Net			-2.0	--	4.5	--	4.5	--	13.2	--	--	--	--	--	12.6	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	17.3	Jan-19
Waterland V - Gross	1,394,205	0.0	29.5	--	65.7	--	59.6	--	35.0	--	36.5	--	43.8	--	26.7	Aug-11
Waterland V - Net			29.5	--	65.7	--	59.6	--	35.0	--	36.5	--	43.8	--	26.7	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	15.6	Aug-11

+ Unable to calculate a since inception return due to system limitations when TSG7 A LP experienced 1 quarter of negative fund value in 2016.

\* Unable to calculate a since inception return due to system limitations when TSG8 LP experienced several months of negative fund value in 2019 and 2020.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Waterland VI - Gross	19,751,450	0.2	-10.8	--	-3.8	--	13.3	--	29.1	--	27.1	--	--	--	7.7	Jul-15
Waterland VI - Net			-10.8	--	-3.8	--	13.3	--	29.1	--	27.1	--	--	--	7.7	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	14.8	Jul-15
Wayzata Opportunities III - Gross	3,926,487	0.0	6.0	--	10.2	--	9.4	--	1.6	--	-2.0	--	--	--	-3.8	Feb-13
Wayzata Opportunities III - Net			6.0	--	10.2	--	9.4	--	1.6	--	-2.0	--	--	--	-3.8	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	16.8	Feb-13
Wynnchurch Capital Partners V - Gross	12,520,805	0.1	11.9	--	24.0	--	20.9	--	--	--	--	--	--	--	-6.4	Apr-20
Wynnchurch Capital Partners V - Net			11.9	--	24.0	--	20.9	--	--	--	--	--	--	--	-6.4	
<i>Cambridge Associates All PE 1 Qtr Lag</i>			-5.0	--	-0.9	--	4.6	--	18.8	--	16.8	--	16.8	--	21.4	Apr-20
<b>Public Credit - Gross</b>	<b>201,097,491</b>	<b>1.7</b>	<b>-2.0</b>	<b>--</b>	<b>-9.9</b>	<b>--</b>	<b>-8.5</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>3.8</b>	<b>Nov-13</b>
<b>Public Credit - Net</b>			<b>-2.0</b>	<b>--</b>	<b>-9.9</b>	<b>--</b>	<b>-8.5</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>3.8</b>	
<i>Brigade Custom<sup>1</sup></i>			0.3	--	-9.0	--	-8.4	--	0.8	--	2.2	--	--	--	3.3	Nov-13
Brigade Capital - Gross	201,097,491	1.7	-2.0	99	-9.9	24	-8.5	21	3.4	3	3.0	13	--	--	3.8	Nov-13
Brigade Capital - Net			-2.0	99	-9.9	24	-8.5	21	3.4	3	3.0	13	--	--	3.8	
<i>Brigade Custom</i>			0.3	20	-9.0	20	-8.4	21	0.8	37	2.2	42	--	--	3.3	Nov-13
<i>eV US High Yield Fixed Inc Gross Median</i>			-0.4		-13.2		-12.5		0.2		2.1		4.2		3.5	Nov-13
<b>Private Credit - Gross<sup>++</sup></b>	<b>358,607,226</b>	<b>3.1</b>	<b>-0.5</b>	<b>--</b>	<b>2.5</b>	<b>--</b>	<b>5.5</b>	<b>--</b>	<b>9.2</b>	<b>--</b>	<b>7.8</b>	<b>--</b>	<b>8.2</b>	<b>--</b>	<b>7.5</b>	<b>Oct-11</b>
<b>Private Credit - Net</b>			<b>-0.5</b>	<b>--</b>	<b>2.5</b>	<b>--</b>	<b>5.5</b>	<b>--</b>	<b>9.2</b>	<b>--</b>	<b>7.8</b>	<b>--</b>	<b>8.2</b>	<b>--</b>	<b>7.5</b>	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	5.9	Oct-11
Ares Capital Europe Fund V - Gross	23,887,138	0.2	1.6	--	6.6	--	16.1	--	--	--	--	--	--	--	13.6	Jul-21
Ares Capital Europe Fund V - Net			1.6	--	6.6	--	16.1	--	--	--	--	--	--	--	13.6	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	0.5	Jul-21
Athyrium Opp II - Gross	10,034,263	0.1	-6.3	--	-10.2	--	-10.5	--	5.8	--	6.9	--	--	--	6.1	Jun-15
Athyrium Opp II - Net			-6.3	--	-10.2	--	-10.5	--	5.8	--	6.9	--	--	--	6.1	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	5.3	Jun-15

1. See Policy Index and Benchmark History.

++ Private Credit returns are one-quarter lag.

+ Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Athyrium Opp III - Gross	11,481,268	0.1	-9.5	--	-18.4	--	-20.3	--	0.1	--	0.4	--	--	--	-1.4	May-17
Athyrium Opp III - Net			-9.5	--	-18.4	--	-20.3	--	0.1	--	0.4	--	--	--	-1.4	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	4.9	May-17
Benefit St Pr Sr Secure Opp - Gross	28,729,876	0.2	-0.6	--	2.3	--	3.6	--	5.6	--	--	--	--	--	5.5	Jan-18
Benefit St Pr Sr Secure Opp - Net			-0.6	--	2.3	--	3.6	--	5.6	--	--	--	--	--	5.5	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	4.8	Jan-18
Benefit St Pr Sr Secure Opp II - Gross	30,456,755	0.3	0.5	--	5.3	--	8.2	--	--	--	--	--	--	--	7.7	Dec-19
Benefit St Pr Sr Secure Opp II - Net			0.5	--	5.3	--	8.2	--	--	--	--	--	--	--	7.7	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	3.9	Dec-19
IFM US Infrastructure DB FD LP - Gross	21,833,416	0.2	0.2	--	2.7	--	5.6	--	--	--	--	--	--	--	6.5	Mar-21
IFM US Infrastructure DB FD LP - Net			0.2	--	2.7	--	5.6	--	--	--	--	--	--	--	6.5	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	2.4	Mar-21
MCP Private Capital IV - Gross	19,097,638	0.2	-1.9	--	-0.1	--	2.9	--	--	--	--	--	--	--	-1.6	Apr-20
MCP Private Capital IV - Net			-1.9	--	-0.1	--	2.9	--	--	--	--	--	--	--	-1.6	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	3.2	Apr-20
OrbiMed Royalty & Credit Opp III - Gross	18,527,131	0.2	5.4	--	0.0	--	0.3	--	18.2	--	--	--	--	--	18.2	Sep-19
OrbiMed Royalty & Credit Opp III - Net			5.4	--	0.0	--	0.3	--	18.2	--	--	--	--	--	18.2	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	4.0	Sep-19
Orbimed Royalty & Credit Opp IV - Gross	4,000,000	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	Sep-22
Orbimed Royalty & Credit Opp IV - Net			--	--	--	--	--	--	--	--	--	--	--	--	--	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	--	Sep-22
Shamrock Capital Debt Fund I - Gross	1,909,252	0.0	1.5	--	1.7	--	-73.3	--	--	--	--	--	--	--	-67.8	Jul-21
Shamrock Capital Debt Fund I - Net			1.5	--	1.7	--	-73.3	--	--	--	--	--	--	--	-67.8	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	0.5	Jul-21
Silver Point Specialty Credit Fund II - Gross	30,777,526	0.3	-2.6	--	0.4	--	2.4	--	--	--	--	--	--	--	13.5	Jul-20
Silver Point Specialty Credit Fund II - Net			-2.6	--	0.4	--	2.4	--	--	--	--	--	--	--	13.5	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	8.4	Jul-20

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Summit Credit - Gross	403,948	0.0	0.0	--	0.0	--	0.0	--	4.5	--	3.1	--	6.6	--	6.0	Oct-11
Summit Credit - Net			0.0	--	0.0	--	0.0	--	4.5	--	3.1	--	6.6	--	6.0	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	5.9	Oct-11
Summit Credit II - Gross	13,385,379	0.1	-1.6	--	8.0	--	15.7	--	4.8	--	5.9	--	--	--	6.0	Nov-14
Summit Credit II - Net			-1.6	--	8.0	--	15.7	--	4.8	--	5.9	--	--	--	6.0	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	5.2	Nov-14
Summit Credit III - Gross	24,131,239	0.2	7.5	--	15.5	--	22.1	--	21.1	--	--	--	--	--	17.1	Oct-18
Summit Credit III - Net			7.5	--	15.5	--	22.1	--	21.1	--	--	--	--	--	17.1	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	4.4	Oct-18
Summit Credit IV - Gross	9,321,536	0.1	2.0	--	3.5	--	--	--	--	--	--	--	--	--	3.5	Nov-21
Summit Credit IV - Net			2.0	--	3.5	--	--	--	--	--	--	--	--	--	3.5	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	-1.5	Nov-21
TCP Direct Lending VIII - Gross	110,630,861	1.0	-1.5	--	2.5	--	5.8	--	9.0	--	--	--	--	--	7.3	Feb-18
TCP Direct Lending VIII - Net			-1.5	--	2.5	--	5.8	--	9.0	--	--	--	--	--	7.3	
<i>Credit Suisse Leveraged Loan + 2% 1 Qtr Lag</i>			-3.9	--	-2.3	--	-0.7	--	4.0	--	5.0	--	5.9	--	4.8	Feb-18
<b>Growth Oriented Absolute Return - Gross<sup>++</sup></b>	<b>12,696,231</b>	<b>0.1</b>	<b>0.2</b>	<b>--</b>	<b>-10.6</b>	<b>--</b>	<b>-11.7</b>	<b>--</b>	<b>5.4</b>	<b>--</b>	<b>3.9</b>	<b>--</b>	<b>5.4</b>	<b>--</b>	<b>4.8</b>	<b>Aug-04</b>
<b>Growth Oriented Absolute Return - Net</b>			<b>0.2</b>	<b>--</b>	<b>-10.6</b>	<b>--</b>	<b>-11.7</b>	<b>--</b>	<b>5.4</b>	<b>--</b>	<b>3.9</b>	<b>--</b>	<b>5.4</b>	<b>--</b>	<b>4.8</b>	
<i>HFRI FoF Composite Index + 1%<sup>1</sup></i>			<i>0.0</i>	<i>--</i>	<i>-6.1</i>	<i>--</i>	<i>-5.5</i>	<i>--</i>	<i>5.2</i>	<i>--</i>	<i>4.1</i>	<i>--</i>	<i>4.8</i>	<i>--</i>	<i>5.8</i>	<i>Aug-04</i>
Grosvenor SCARF Growth - Gross	12,696,231	0.1	0.2	45	-6.8	50	-6.8	49	2.8	65	2.5	72	4.3	69	4.7	Nov-11
Grosvenor SCARF Growth - Net			0.2	45	-6.8	50	-6.8	49	2.8	65	2.5	72	4.3	69	4.7	
<i>HFRI FoF Composite Index + 1%</i>			<i>0.0</i>	<i>48</i>	<i>-6.1</i>	<i>47</i>	<i>-5.5</i>	<i>47</i>	<i>5.2</i>	<i>50</i>	<i>4.1</i>	<i>55</i>	<i>4.8</i>	<i>60</i>	<i>4.8</i>	<i>Nov-11</i>
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			<i>-0.2</i>		<i>-7.5</i>		<i>-8.2</i>		<i>5.1</i>		<i>4.6</i>		<i>5.2</i>		<i>5.2</i>	<i>Nov-11</i>
<b>Diversifying Asset Category - Gross</b>	<b>2,705,531,291</b>	<b>23.4</b>	<b>-3.0</b>	<b>--</b>	<b>-9.4</b>	<b>--</b>	<b>-9.2</b>	<b>--</b>	<b>-0.2</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.6</b>	<b>Mar-17</b>
<b>Diversifying Asset Category - Net</b>			<b>-3.0</b>	<b>--</b>	<b>-9.5</b>	<b>--</b>	<b>-9.3</b>	<b>--</b>	<b>-0.3</b>	<b>--</b>	<b>1.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.5</b>	
<i>Diversifying Custom<sup>1</sup></i>			<i>-3.0</i>	<i>--</i>	<i>-10.3</i>	<i>--</i>	<i>-10.3</i>	<i>--</i>	<i>-1.0</i>	<i>--</i>	<i>0.8</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>1.2</i>	<i>Mar-17</i>

1. See Policy Index and Benchmark History.

++ Absolute Return managers are ranked in the eVest net of fee universe.

\*\* Composite reflects net returns from Cliffwater up to March 2017.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Core/Core Plus Fixed Income - Gross</b>	<b>1,333,696,221</b>	<b>11.5</b>	<b>-4.9</b>	<b>--</b>	<b>-15.1</b>	<b>--</b>	<b>-14.9</b>	<b>--</b>	<b>-2.5</b>	<b>--</b>	<b>0.5</b>	<b>--</b>	<b>1.6</b>	<b>--</b>	<b>2.1</b>	<b>Jun-11</b>
<b>Core/Core Plus Fixed Income - Net</b>			<b>-4.9</b>	<b>--</b>	<b>-15.2</b>	<b>--</b>	<b>-15.1</b>	<b>--</b>	<b>-2.6</b>	<b>--</b>	<b>0.4</b>	<b>--</b>	<b>1.4</b>	<b>--</b>	<b>1.9</b>	
<i>Bloomberg US Aggregate TR</i>			-4.8	--	-14.6	--	-14.6	--	-3.3	--	-0.3	--	0.9	--	1.6	Jun-11
Prudential - Gross	333,180,930	2.9	-4.3	33	-16.2	97	-16.0	97	-2.9	70	0.4	35	--	--	2.0	Jul-14
Prudential - Net			-4.4	37	-16.4	97	-16.2	97	-3.1	86	0.2	53	--	--	1.8	
<i>Bloomberg US Aggregate TR</i>			-4.8	82	-14.6	63	-14.6	63	-3.3	93	-0.3	95	0.9	96	0.9	Jul-14
<i>eV US Core Fixed Inc Gross Median</i>			-4.5		-14.4		-14.4		-2.7		0.2		1.4		1.3	Jul-14
TCW MetWest Fixed - Gross	332,852,035	2.9	-5.1	97	-14.7	67	-14.7	65	-2.3	27	0.5	21	1.7	21	4.7	Dec-01
TCW MetWest Fixed - Net			-5.2	97	-14.8	73	-14.8	73	-2.5	33	0.4	35	1.5	37	4.5	
<i>Bloomberg US Aggregate TR</i>			-4.8	82	-14.6	63	-14.6	63	-3.3	93	-0.3	95	0.9	96	3.4	Dec-01
<i>eV US Core Fixed Inc Gross Median</i>			-4.5		-14.4		-14.4		-2.7		0.2		1.4		3.9	Dec-01
Brandywine US FI - Gross	333,786,768	2.9	-5.2	95	--	--	--	--	--	--	--	--	--	--	-5.6	May-22
Brandywine US FI - Net			-5.2	95	--	--	--	--	--	--	--	--	--	--	-5.6	
<i>Bloomberg US Aggregate TR</i>			-4.8	87	-14.6	45	-14.6	45	-3.3	97	-0.3	99	0.9	99	-6.2	May-22
<i>eV US Core Plus Fixed Inc Gross Median</i>			-4.2		-14.9		-14.8		-2.3		0.5		1.9		-6.4	May-22
Reams Core Plus FI - Gross	333,876,488	2.9	-4.7	84	--	--	--	--	--	--	--	--	--	--	-6.1	May-22
Reams Core Plus FI - Net			-4.7	84	--	--	--	--	--	--	--	--	--	--	-6.1	
<i>Bloomberg US Aggregate TR</i>			-4.8	87	-14.6	45	-14.6	45	-3.3	97	-0.3	99	0.9	99	-6.2	May-22
<i>eV US Core Plus Fixed Inc Gross Median</i>			-4.2		-14.9		-14.8		-2.3		0.5		1.9		-6.4	May-22
<b>U.S. Treasury - Gross</b>	<b>412,150,832</b>	<b>3.6</b>	<b>-4.3</b>	<b>--</b>	<b>-12.8</b>	<b>--</b>	<b>-12.7</b>	<b>--</b>	<b>-3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.3</b>	<b>Feb-18</b>
<b>U.S. Treasury - Net</b>			<b>-4.3</b>	<b>--</b>	<b>-12.9</b>	<b>--</b>	<b>-12.7</b>	<b>--</b>	<b>-3.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.2</b>	
<i>Bloomberg US Treasury TR</i>			-4.3	--	-13.1	--	-12.9	--	-3.1	--	-0.2	--	0.5	--	0.2	Feb-18
Neuberger Berman - Gross <sup>+</sup>	412,150,832	3.6	-4.3	47	-12.8	68	-12.7	63	-3.0	76	-0.1	75	1.1	17	5.6	Jun-88
Neuberger Berman - Net			-4.3	47	-12.9	69	-12.7	64	-3.0	78	-0.1	77	1.0	20	5.6	
<i>Bloomberg US Govt TR</i>			-4.3	46	-12.9	70	-12.8	65	-3.1	78	-0.2	85	0.5	92	5.1	Jun-88
<i>eV US Government Fixed Inc Gross Median</i>			-4.5		-12.2		-12.1		-2.6		0.2		0.9		5.4	Jun-88

+ Account converted to U.S. Treasury from Core Fixed Income in February 2018. Reflects linked historical returns up to February 2018.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Absolute Return - Gross<sup>++</sup></b>	<b>862,589,571</b>	<b>7.5</b>	<b>0.2</b>	<b>--</b>	<b>0.6</b>	<b>--</b>	<b>1.4</b>	<b>--</b>	<b>4.3</b>	<b>--</b>	<b>2.9</b>	<b>--</b>	<b>2.8</b>	<b>--</b>	<b>2.6</b>	<b>Nov-11</b>
<b>Absolute Return - Net</b>			<b>0.2</b>	<b>--</b>	<b>0.6</b>	<b>--</b>	<b>1.4</b>	<b>--</b>	<b>4.3</b>	<b>--</b>	<b>2.9</b>	<b>--</b>	<b>2.8</b>	<b>--</b>	<b>2.6</b>	
<i>HFRI FoF Conservative Index<sup>1</sup></i>			0.3	--	-1.3	--	-0.6	--	4.7	--	3.8	--	4.5	--	4.5	Nov-11
Aristeia Partners LP - Gross	49,527,638	0.4	2.2	28	1.7	52	3.4	44	--	--	--	--	--	--	5.6	Dec-20
Aristeia Partners LP - Net			2.2	28	1.7	52	3.4	44	--	--	--	--	--	--	5.6	
<i>HFRI FoF Conservative Index</i>			0.3	57	-1.3	57	-0.6	54	4.7	52	3.8	51	4.5	31	3.5	Dec-20
<i>eV Alt Relative Value - Multi-Market Arbitrage Median</i>			0.7		2.4		1.2		5.0		4.0		2.5		3.7	Dec-20
BlackRock Event Driven Equity Fund - Gross	52,842,629	0.5	0.4	44	-1.6	38	-0.9	43	--	--	--	--	--	--	2.5	Feb-20
BlackRock Event Driven Equity Fund - Net			0.4	44	-1.6	38	-0.9	43	--	--	--	--	--	--	2.5	
<i>HFRI FoF Conservative Index</i>			0.3	47	-1.3	36	-0.6	39	4.7	45	3.8	53	4.5	57	5.1	Feb-20
<i>eV Alt All Event Driven Median</i>			0.0		-3.7		-3.1		4.3		3.9		5.5		4.7	Feb-20
Davidson Kempner Instl Partners LP - Gross	57,315,295	0.5	0.4	36	-2.4	41	-2.2	47	4.5	49	--	--	--	--	4.3	Apr-19
Davidson Kempner Instl Partners LP - Net			0.4	36	-2.4	41	-2.2	47	4.5	49	--	--	--	--	4.3	
<i>HFRI FoF Conservative Index</i>			0.3	37	-1.3	39	-0.6	41	4.7	47	3.8	53	4.5	58	4.3	Apr-19
<i>eV Alt All Multi-Strategy Median</i>			-1.0		-5.6		-3.3		4.2		4.4		5.0		4.4	Apr-19
Eisler Capital Fund LP - Gross	29,424,548	0.3	-4.7	73	-8.1	60	-9.9	68	--	--	--	--	--	--	-10.4	Jun-21
Eisler Capital Fund LP - Net			-4.7	73	-8.1	60	-9.9	68	--	--	--	--	--	--	-10.4	
<i>HFRI FoF Conservative Index</i>			0.3	37	-1.3	39	-0.6	41	4.7	47	3.8	53	4.5	58	0.3	Jun-21
<i>eV Alt All Multi-Strategy Median</i>			-1.0		-5.6		-3.3		4.2		4.4		5.0		-2.1	Jun-21
Elliott Associates - Gross	78,660,182	0.7	1.0	36	6.0	8	10.4	5	11.2	14	8.7	10	8.5	20	8.4	Apr-12
Elliott Associates - Net			1.0	36	6.0	8	10.4	5	11.2	14	8.7	10	8.5	20	8.4	
<i>HFRI FoF Conservative Index</i>			0.3	47	-1.3	36	-0.6	39	4.7	45	3.8	53	4.5	57	4.5	Apr-12
<i>eV Alt All Event Driven Median</i>			0.0		-3.7		-3.1		4.3		3.9		5.5		5.2	Apr-12

1. See Policy Index and Benchmark History.

++ Absolute Return managers are ranked in the eVest net of fee universe.

\*\* Composite reflects net returns from Cliffwater up to March 2017.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Graham Global Inv II - Gross	52,349,446	0.5	2.1	44	40.3	8	38.4	6	13.2	36	10.2	34	--	--	7.7	Feb-17
Graham Global Inv II - Net			2.1	44	40.3	8	38.4	6	13.2	36	10.2	34	--	--	7.7	
<i>HFRI FoF Conservative Index</i>			0.3	60	-1.3	78	-0.6	76	4.7	69	3.8	73	4.5	53	4.0	Feb-17
<i>eV Alt All Managed Futures Median</i>			1.3		13.2		11.1		8.9		7.5		5.1		6.2	Feb-17
Grosvenor SCARF Diversifying - Gross	217,912,890	1.9	-0.4	55	-0.8	39	0.0	38	4.5	52	2.7	71	2.4	85	2.4	Nov-11
Grosvenor SCARF Diversifying - Net			-0.4	55	-0.8	39	0.0	38	4.5	52	2.7	71	2.4	85	2.4	
<i>HFRI FoF Conservative Index</i>			0.3	44	-1.3	40	-0.6	39	4.7	51	3.8	61	4.5	65	4.5	Nov-11
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			-0.2		-7.5		-8.2		5.1		4.6		5.2		5.2	Nov-11
Laurion Capital - Gross	57,421,300	0.5	-1.2	71	-7.9	71	-11.5	79	12.4	31	10.2	33	--	--	8.0	Mar-14
Laurion Capital - Net			-1.2	71	-7.9	71	-11.5	79	12.4	31	10.2	33	--	--	8.0	
<i>HFRI FoF Conservative Index</i>			0.3	52	-1.3	55	-0.6	52	4.7	63	3.8	71	4.5	71	4.4	Mar-14
<i>eV Alt Relative Value - Equity Relative Value Median</i>			0.3		-0.4		0.4		10.1		6.8		6.0		6.5	Mar-14
LMR Fund LTD - Gross	51,839,719	0.4	1.2	26	4.3	26	6.1	26	--	--	--	--	--	--	5.0	Oct-19
LMR Fund LTD - Net			1.2	26	4.3	26	6.1	26	--	--	--	--	--	--	5.0	
<i>HFRI FoF Conservative Index</i>			0.3	37	-1.3	39	-0.6	41	4.7	47	3.8	53	4.5	58	4.8	Oct-19
<i>eV Alt All Multi-Strategy Median</i>			-1.0		-5.6		-3.3		4.2		4.4		5.0		4.2	Oct-19
MW Global Opportunities Fund - Gross	55,125,841	0.5	4.1	10	5.3	9	2.3	15	6.6	38	--	--	--	--	6.0	Dec-18
MW Global Opportunities Fund - Net			4.1	10	5.3	9	2.3	15	6.6	38	--	--	--	--	6.0	
<i>HFRI FoF Conservative Index</i>			0.3	26	-1.3	17	-0.6	19	4.7	48	3.8	51	4.5	66	5.0	Dec-18
<i>eV Alt Fundamental - Long/Short Equity Median</i>			-2.7		-17.4		-16.8		4.4		4.0		5.9		5.9	Dec-18
PSquared Event Driven Opp Fund - Gross	55,172,254	0.5	3.0	14	4.9	10	6.9	10	--	--	--	--	--	--	4.7	Jul-20
PSquared Event Driven Opp Fund - Net			3.0	14	4.9	10	6.9	10	--	--	--	--	--	--	4.7	
<i>HFRI FoF Conservative Index</i>			0.3	47	-1.3	36	-0.6	39	4.7	45	3.8	53	4.5	57	6.1	Jul-20
<i>eV Alt All Event Driven Median</i>			0.0		-3.7		-3.1		4.3		3.9		5.5		6.2	Jul-20



Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Sculptor Domestic II - Gross	57,516,962	0.5	-1.1	52	-12.9	71	-14.6	78	4.7	47	4.5	49	5.8	45	6.3	Dec-11
Sculptor Domestic II - Net			-1.1	52	-12.9	71	-14.6	78	4.7	47	4.5	49	5.8	45	6.2	
<i>HFRI FoF Conservative Index</i>			0.3	37	-1.3	39	-0.6	41	4.7	47	3.8	53	4.5	58	4.5	Dec-11
<i>eV Alt All Multi-Strategy Median</i>			-1.0		-5.6		-3.3		4.2		4.4		5.0		5.3	Dec-11
Two Sigma Risk Premia Enhanced - Gross	47,480,867	0.4	-3.8	68	-3.3	44	5.7	26	1.8	69	--	--	--	--	1.8	Sep-19
Two Sigma Risk Premia Enhanced - Net			-3.8	68	-3.3	44	5.7	26	1.8	69	--	--	--	--	1.8	
<i>HFRI FoF Conservative Index</i>			0.3	37	-1.3	39	-0.6	41	4.7	47	3.8	53	4.5	58	4.7	Sep-19
<i>eV Alt All Multi-Strategy Median</i>			-1.0		-5.6		-3.3		4.2		4.4		5.0		4.2	Sep-19
Dedicated Cash Allocation - Gross	97,094,667	0.8	0.5	--	0.7	--	0.8	--	0.7	--	--	--	--	--	0.7	Jun-19
Dedicated Cash Allocation - Net			0.5	--	0.7	--	0.8	--	0.7	--	--	--	--	--	0.7	
<i>Secured Overnight Financing Rate</i>			0.5	--	0.8	--	0.8	--	0.5	--	1.1	--	0.7	--	0.7	Jun-19
Real Return (with SSgA RA Overlay Proxy) - Gross	2,213,564,211	19.2	1.1	--	9.8	--	16.8	--	10.6	--	9.9	--	--	--	10.0	Mar-17
Real Return (with SSgA RA Overlay Proxy) - Net			1.1	--	9.7	--	16.7	--	10.5	--	9.7	--	--	--	9.8	
<i>Real Return Custom<sup>1</sup></i>			1.1	--	12.6	--	17.8	--	9.9	--	8.3	--	--	--	8.1	Mar-17
Real Return Asset Category - Gross	2,213,564,211	19.2	1.1	--	9.8	--	16.8	--	10.6	--	10.4	--	--	--	10.5	Mar-17
Real Return Asset Category - Net			1.1	--	9.7	--	16.7	--	10.5	--	10.2	--	--	--	10.4	
<i>Real Return Custom</i>			1.1	--	12.6	--	17.8	--	9.9	--	8.3	--	--	--	8.1	Mar-17
Real Estate - Gross	1,107,655,546	9.6	0.1	63	11.5	55	21.1	52	13.8	4	11.6	1	11.7	4	12.0	Jun-11
Real Estate - Net			0.0	63	11.4	59	20.9	52	13.6	4	11.4	1	11.1	12	11.4	
<i>Real Estate Custom<sup>1</sup></i>			2.4	6	17.2	4	25.1	4	12.6	17	10.5	12	10.4	29	10.6	Jun-11
<i>InvMetrics All DB Real Estate Priv Net Median</i>			0.4		11.8		21.2		11.4		9.3		9.4		9.6	Jun-11
Core RE -Limited Partnership - Gross	831,718,354	7.2	-0.3	--	13.1	--	23.6	--	15.7	--	13.2	--	12.5	--	7.4	Sep-08
Core RE -Limited Partnership - Net			-0.4	--	13.0	--	23.4	--	15.4	--	13.0	--	12.1	--	6.9	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	7.0	Sep-08

1. See Policy and Benchmark History .

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Brookfield Premier RE Partners - Gross*	140,133,035	1.2	2.6	--	18.1	--	30.5	--	14.9	--	--	--	--	--	13.1	Sep-18
Brookfield Premier RE Partners - Net			2.6	--	18.1	--	30.5	--	14.9	--	--	--	--	--	13.1	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	10.6	Sep-18
Clarion Lion Properties - Gross	141,766,363	1.2	0.6	--	15.6	--	24.6	--	14.1	--	--	--	--	--	12.4	Sep-18
Clarion Lion Properties - Net			0.4	--	14.9	--	23.6	--	13.2	--	--	--	--	--	11.5	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	10.6	Sep-18
Metlife Core Property - Gross	94,094,102	0.8	2.5	--	15.7	--	25.4	--	15.0	--	12.4	--	--	--	12.6	Dec-13
Metlife Core Property - Net			2.4	--	15.3	--	24.8	--	14.5	--	11.9	--	--	--	12.1	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	10.6	Dec-13
Principal US Property - Gross	66,477,963	0.6	0.4	--	11.0	--	22.1	--	11.5	--	9.8	--	--	--	9.7	Oct-15
Principal US Property - Net			0.4	--	11.0	--	22.1	--	11.5	--	9.8	--	--	--	9.7	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	10.0	Oct-15
Prologis Targeted Euro Logistics - Gross	68,742,947	0.6	-12.5	--	-8.7	--	-3.8	--	12.2	--	11.8	--	--	--	11.8	Oct-15
Prologis Targeted Euro Logistics - Net			-12.5	--	-8.7	--	-3.8	--	12.2	--	11.8	--	--	--	11.8	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	10.0	Oct-15
Prologis Targeted US Logistics - Gross	142,389,147	1.2	0.1	--	18.5	--	34.5	--	26.5	--	22.2	--	--	--	20.8	Jul-15
Prologis Targeted US Logistics - Net			0.1	--	18.5	--	34.5	--	26.5	--	22.2	--	--	--	20.8	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	10.2	Jul-15
Townsend Real Estate - Gross*	178,114,797	1.5	0.0	--	13.2	--	23.0	--	14.7	--	12.1	--	--	--	11.8	Mar-16
Townsend Real Estate - Net			0.0	--	13.2	--	23.0	--	14.7	--	12.1	--	--	--	11.8	
<i>NFI-ODCE</i>			0.5	--	13.1	--	22.1	--	12.4	--	10.2	--	10.9	--	9.7	Mar-16
<b>Non-Core RE -Opportunistic - Gross**</b>	<b>178,477,321</b>	<b>1.5</b>	<b>0.9</b>	<b>--</b>	<b>6.2</b>	<b>--</b>	<b>14.9</b>	<b>--</b>	<b>7.9</b>	<b>--</b>	<b>6.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>16.6</b>	<b>Feb-14</b>
<b>Non-Core RE -Opportunistic - Net</b>			<b>0.9</b>	<b>--</b>	<b>6.2</b>	<b>--</b>	<b>14.9</b>	<b>--</b>	<b>7.9</b>	<b>--</b>	<b>6.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>16.1</b>	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	11.2	Feb-14

\* Preliminary quarterly returns as of 9/30/2022.

+ Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.

++ Non-Core RE returns are one-quarter lag.

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Carlyle China Realty - Gross	8,597,092	0.1	0.4	--	-3.0	--	0.2	--	1.5	--	2.1	--	--	--	-1.3	Jun-17
Carlyle China Realty - Net			0.4	--	-3.0	--	0.2	--	1.5	--	2.1	--	--	--	-1.3	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	10.5	Jun-17
Carlyle China Rome Logistics - Gross	38,143,372	0.3	0.5	--	-2.7	--	0.8	--	-0.7	--	1.0	--	--	--	-0.8	Jun-17
Carlyle China Rome Logistics - Net			0.5	--	-2.7	--	0.8	--	-0.7	--	1.0	--	--	--	-0.8	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	10.5	Jun-17
CIM Opportunity VIII - Gross	29,551,584	0.3	-0.5	--	-1.7	--	-1.9	--	-9.7	--	-2.9	--	--	--	0.1	Feb-15
CIM Opportunity VIII - Net			-0.5	--	-1.7	--	-1.9	--	-9.7	--	-2.9	--	--	--	-0.6	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	11.1	Feb-15
Kohlberg Kravis Roberts - Gross	1,671,076	0.0	-0.9	--	-20.0	--	-11.4	--	-13.6	--	-20.4	--	--	--	0.8	Feb-14
Kohlberg Kravis Roberts - Net			-0.9	--	-20.0	--	-11.4	--	-13.6	--	-20.4	--	--	--	0.7	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	11.2	Feb-14
Lasalle China Logistics Venture LP - Gross	2,848,424	0.0	4.2	--	15.3	--	-35.7	--	--	--	--	--	--	--	-35.7	Sep-21
Lasalle China Logistics Venture LP - Net			4.2	--	15.3	--	-35.7	--	--	--	--	--	--	--	-35.7	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	29.3	Sep-21
NREP Nordic Strat II - Gross	20,441,430	0.2	-7.1	--	5.1	--	34.0	--	25.7	--	25.5	--	--	--	20.3	Jun-16
NREP Nordic Strat II - Net			-7.1	--	5.1	--	34.0	--	25.7	--	25.5	--	--	--	20.3	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	10.1	Jun-16
NREP Nordic Strat III - Gross	42,738,694	0.4	2.6	--	12.5	--	13.8	--	18.0	--	--	--	--	--	7.7	Jul-18
NREP Nordic Strat III - Net			2.6	--	12.5	--	13.8	--	18.0	--	--	--	--	--	7.7	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	11.2	Jul-18
NREP Nordic Strat IV - Gross	16,729,328	0.1	0.3	--	14.0	--	22.7	--	--	--	--	--	--	--	20.1	Jul-20
NREP Nordic Strat IV - Net			0.3	--	14.0	--	22.7	--	--	--	--	--	--	--	20.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	16.1	Jul-20

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Sculptor Real Estate Fund III - Gross	7,612,365	0.1	46.9	--	71.2	--	77.6	--	32.8	--	28.3	--	--	--	16.1	Sep-14
Sculptor Real Estate Fund III - Net			46.9	--	71.2	--	77.6	--	32.8	--	28.3	--	--	--	13.4	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	10.8	Sep-14
Sculptor Real Estate Fund IV - Gross	9,920,478	0.1	1.2	--	5.7	--	13.2	--	--	--	--	--	--	--	5.0	Jun-20
Sculptor Real Estate Fund IV - Net			1.2	--	5.7	--	13.2	--	--	--	--	--	--	--	5.0	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	--	--	15.5	Jun-20
<b>Non-Core RE -Value Added - Gross**</b>	<b>97,459,871</b>	<b>0.8</b>	<b>1.9</b>	<b>--</b>	<b>7.0</b>	<b>--</b>	<b>10.5</b>	<b>--</b>	<b>11.7</b>	<b>--</b>	<b>9.4</b>	<b>--</b>	<b>10.8</b>	<b>--</b>	<b>1.1</b>	<b>Sep-08</b>
<b>Non-Core RE -Value Added - Net</b>			<b>1.9</b>	<b>--</b>	<b>7.0</b>	<b>--</b>	<b>10.5</b>	<b>--</b>	<b>11.7</b>	<b>--</b>	<b>9.4</b>	<b>--</b>	<b>10.2</b>	<b>--</b>	<b>0.1</b>	
<i>NFI-ODCE net +1% 1Q Lag<sup>1</sup></i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	8.9	Sep-08
Asana Partners Fund II - Gross*	24,104,753	0.2	-5.5	--	4.0	--	20.1	--	-15.8	--	--	--	--	--	--	Apr-19
Asana Partners Fund II - Net			-5.5	--	4.0	--	20.1	--	-15.8	--	--	--	--	--	--	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	11.9	Apr-19
Asana Partners Fund III - Gross	1,626,844	0.0	-12.5	--	--	--	--	--	--	--	--	--	--	--	-12.5	Apr-22
Asana Partners Fund III - Net			-12.5	--	--	--	--	--	--	--	--	--	--	--	-12.5	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	12.8	Apr-22
ECE Euro Prime Shopping II - Gross	37,490,953	0.3	10.0	--	11.1	--	7.6	--	3.3	--	5.4	--	--	--	9.6	Jul-15
ECE Euro Prime Shopping II - Net			10.0	--	11.1	--	7.6	--	3.3	--	5.4	--	--	--	8.9	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	10.7	Jul-15
European RE Debt II - Gross	2,286,055	0.0	19.9	--	-9.3	--	-6.3	--	-29.3	--	-16.1	--	--	--	-7.9	Nov-13
European RE Debt II - Net			19.9	--	-9.3	--	-6.3	--	-29.3	--	-16.1	--	--	--	-7.9	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	11.5	Nov-13
Hammes II - Gross	3,226,702	0.0	0.7	--	14.9	--	19.2	--	247.5	--	123.1	--	--	--	83.7	Jul-15
Hammes II - Net			0.7	--	14.9	--	19.2	--	247.5	--	123.1	--	--	--	81.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	10.7	Jul-15

1. See Policy Index and Benchmark History.

\* Unable to calculate a since inception return due to system limitations when Asana Partners Fund II experienced a quarter of negative fund value in 2019.

+ Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.

++ Non-Core RE returns are one-quarter lag.

# Total Fund Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Hammes III - Gross	21,339,094	0.2	3.4	--	13.3	--	16.0	--	18.2	--	--	--	--	--	-4.3	Oct-18
Hammes III - Net			3.4	--	13.3	--	16.0	--	18.2	--	--	--	--	--	-4.3	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	11.4	Oct-18
Seven Seas Japan Opp Fund - Gross	7,385,470	0.1	-11.3	--	--	--	--	--	--	--	--	--	--	--	-10.3	Mar-22
Seven Seas Japan Opp Fund - Net			-11.3	--	--	--	--	--	--	--	--	--	--	--	-10.3	
<i>NFI-ODCE net +1% 1Q Lag</i>			5.2	--	24.0	--	29.3	--	12.7	--	10.6	--	11.4	--	12.9	Mar-22
<b>Private Real Assets - Gross** +</b>	<b>973,857,486</b>	<b>8.4</b>	<b>3.9</b>	<b>--</b>	<b>17.0</b>	<b>--</b>	<b>22.9</b>	<b>--</b>	<b>10.9</b>	<b>--</b>	<b>11.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>7.0</b>	<b>Jan-13</b>
<b>Private Real Assets - Net</b>			<b>3.9</b>	<b>--</b>	<b>17.0</b>	<b>--</b>	<b>22.9</b>	<b>--</b>	<b>10.9</b>	<b>--</b>	<b>11.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>7.0</b>	
<i>Private Real Assets Custom<sup>1</sup></i>			1.3	--	13.6	--	16.7	--	8.5	--	7.8	--	--	--	7.0	Jan-13
<i>CPI-U Headline +5%</i>			1.3	--	9.2	--	13.2	--	10.0	--	8.8	--	7.3	--	7.5	Jan-13
ACM II - Gross	16,977,660	0.1	-3.6	--	-5.4	--	-7.0	--	-8.8	--	-7.0	--	--	--	-7.4	Sep-16
ACM II - Net			-3.6	--	-5.4	--	-7.0	--	-8.8	--	-7.0	--	--	--	-7.4	
<i>NCREIF Farmland 1 Qtr Lag</i>			1.4	--	8.1	--	9.7	--	6.1	--	6.1	--	9.5	--	6.2	Sep-16
ArcLight Energy VI - Gross	17,684,718	0.2	4.2	--	13.4	--	19.6	--	-5.5	--	1.9	--	--	--	2.5	Aug-15
ArcLight Energy VI - Net			4.2	--	13.4	--	19.6	--	-5.5	--	1.9	--	--	--	2.5	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	12.0	Aug-15
Brookfield Infra III - Gross	37,149,276	0.3	0.5	--	11.1	--	15.7	--	11.8	--	11.7	--	--	--	12.0	May-16
Brookfield Infra III - Net			0.5	--	11.1	--	15.7	--	11.8	--	11.7	--	--	--	12.0	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	11.8	May-16
Brookfield Infra IV - Gross	35,372,903	0.3	2.8	--	11.8	--	15.6	--	10.2	--	--	--	--	--	10.2	Sep-19
Brookfield Infra IV - Net			2.8	--	11.8	--	15.6	--	10.2	--	--	--	--	--	10.2	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.9	Sep-19

1. See Policy and Benchmark History .

\*\* Private Real Assets returns are one-quarter lag.

+ Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Brookfield Super Core Infra - Gross	100,000,000	0.9	--	--	--	--	--	--	--	--	--	--	--	--	0.0	Jul-22
Brookfield Super Core Infra - Net			--	--	--	--	--	--	--	--	--	--	--	--	0.0	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	0.1	Jul-22
Carlyle Power II - Gross	40,616,005	0.4	5.2	--	11.6	--	22.0	--	12.2	--	12.8	--	--	--	5.3	Oct-15
Carlyle Power II - Net			5.2	--	11.6	--	22.0	--	12.2	--	12.8	--	--	--	5.3	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	11.5	Oct-15
EnCap Energy IX - Gross	14,201,199	0.1	7.8	--	38.3	--	49.8	--	9.2	--	7.0	--	--	--	2.5	Jan-13
EnCap Energy IX - Net			7.8	--	38.3	--	49.8	--	9.2	--	7.0	--	--	--	2.5	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	2.9	Jan-13
EnCap Energy X - Gross	41,551,888	0.4	10.7	--	72.4	--	89.8	--	26.8	--	18.9	--	--	--	9.8	Apr-15
EnCap Energy X - Net			10.7	--	72.4	--	89.8	--	26.8	--	18.9	--	--	--	9.8	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	2.7	Apr-15
EnCap Flatrock Midstream III - Gross	13,573,943	0.1	2.4	--	8.5	--	14.0	--	3.1	--	7.4	--	--	--	6.3	Jul-14
EnCap Flatrock Midstream III - Net			2.4	--	8.5	--	14.0	--	3.1	--	7.4	--	--	--	6.3	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.6	Jul-14
EnCap Flatrock Midstream IV - Gross	13,334,116	0.1	2.3	--	8.6	--	12.7	--	7.5	--	--	--	--	--	3.0	Feb-18
EnCap Flatrock Midstream IV - Net			2.3	--	8.6	--	12.7	--	7.5	--	--	--	--	--	3.0	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.9	Feb-18
EQT Infrastructure Fund IV - Gross	33,723,952	0.3	-1.6	--	9.7	--	14.0	--	10.0	--	--	--	--	--	1.9	Jun-19
EQT Infrastructure Fund IV - Net			-1.6	--	9.7	--	14.0	--	10.0	--	--	--	--	--	1.9	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.8	Jun-19

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
First Reserve - Gross	12,893,857	0.1	-1.0	--	-2.7	--	-1.8	--	-2.3	--	2.8	--	--	--	-1.5	Dec-14
First Reserve - Net			-1.0	--	-2.7	--	-1.8	--	-2.3	--	2.8	--	--	--	-1.5	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.9	Dec-14
Harrison St Social Infra Fd - Gross	80,104,064	0.7	2.1	--	6.5	--	8.3	--	--	--	--	--	--	--	7.1	Jul-21
Harrison St Social Infra Fd - Net			2.1	--	6.5	--	8.3	--	--	--	--	--	--	--	7.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	14.5	Jul-21
IFM Global Infrastructure US LP - Gross	151,077,585	1.3	2.5	--	7.6	--	12.9	--	10.6	--	12.6	--	--	--	12.1	Apr-17
IFM Global Infrastructure US LP - Net			2.5	--	7.6	--	12.9	--	10.6	--	12.6	--	--	--	12.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	12.0	Apr-17
ISQ Global Infrastructure Fund II - Gross	55,227,361	0.5	1.5	--	7.8	--	13.4	--	14.1	--	--	--	--	--	13.1	Oct-18
ISQ Global Infrastructure Fund II - Net			1.5	--	7.8	--	13.4	--	14.1	--	--	--	--	--	13.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.8	Oct-18
ISQ Global Infrastructure Fund III - Gross	4,760,684	0.0	1.2	--	7.3	--	--	--	--	--	--	--	--	--	7.3	Dec-21
ISQ Global Infrastructure Fund III - Net			1.2	--	7.3	--	--	--	--	--	--	--	--	--	7.3	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.4	Dec-21
Meridiam Infra N America III - Gross	29,215,398	0.3	1.3	--	26.2	--	141.2	--	2.1	--	-61.4	--	--	--	-61.4	Sep-17
Meridiam Infra N America III - Net			1.3	--	26.2	--	141.2	--	2.1	--	-61.4	--	--	--	-61.4	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.9	Sep-17
Meridiam Sa Infra Euro IV - Gross	4,097,262	0.0	-4.7	--	-41.1	--	-81.0	--	--	--	--	--	--	--	-75.9	Jul-21
Meridiam Sa Infra Euro IV - Net			-4.7	--	-41.1	--	-81.0	--	--	--	--	--	--	--	-75.9	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	14.5	Jul-21

Total Fund  
Performance Summary

Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
NGP Royalty Partners - Gross	27,881,785	0.2	12.5	--	59.0	--	84.1	--	--	--	--	--	--	--	42.8	Aug-20
NGP Royalty Partners - Net			12.5	--	59.0	--	84.1	--	--	--	--	--	--	--	42.8	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	28.6	Aug-20
Paine Schwartz Food Chain V - Gross	35,263,250	0.3	4.4	--	36.1	--	45.5	--	--	--	--	--	--	--	10.8	Jan-20
Paine Schwartz Food Chain V - Net			4.4	--	36.1	--	45.5	--	--	--	--	--	--	--	10.8	
<i>NCREIF Farmland 1 Qtr Lag</i>			1.4	--	8.1	--	9.7	--	6.1	--	6.1	--	9.5	--	6.6	Jan-20
Pantheon Ventures - Gross	51,661,394	0.4	-0.9	--	8.8	--	15.3	--	7.6	--	9.2	--	--	--	16.8	Jul-14
Pantheon Ventures - Net			-0.9	--	8.8	--	15.3	--	7.6	--	9.2	--	--	--	16.8	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	10.6	Jul-14
Quantum Energy VI - Gross	55,635,406	0.5	28.4	--	48.4	--	48.2	--	29.6	--	26.8	--	--	--	26.0	Nov-14
Quantum Energy VI - Net			28.4	--	48.4	--	48.2	--	29.6	--	26.8	--	--	--	26.0	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	0.6	Nov-14
Quantum Energy VII - Gross	40,030,928	0.3	12.8	--	41.5	--	30.7	--	27.2	--	14.9	--	--	--	14.7	Aug-17
Quantum Energy VII - Net			12.8	--	41.5	--	30.7	--	27.2	--	14.9	--	--	--	14.7	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	4.7	Aug-17
Tailwater Energy Fund III - Gross	24,516,929	0.2	3.6	--	15.0	--	20.3	--	1.8	--	--	--	--	--	1.7	Sep-18
Tailwater Energy Fund III - Net			3.6	--	15.0	--	20.3	--	1.8	--	--	--	--	--	1.7	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	3.6	Sep-18
Tailwater Energy IV - Gross	17,398,777	0.2	-0.6	--	20.8	--	30.7	--	--	--	--	--	--	--	-1.8	Oct-19
Tailwater Energy IV - Net			-0.6	--	20.8	--	30.7	--	--	--	--	--	--	--	-1.8	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			3.5	--	22.0	--	27.1	--	6.9	--	4.9	--	2.9	--	7.1	Oct-19
Wastewater Opportunity - Gross	19,907,146	0.2	-2.8	--	21.1	--	20.4	--	7.5	--	4.4	--	--	--	-11.3	Dec-15
Wastewater Opportunity - Net			-2.8	--	21.1	--	20.4	--	7.5	--	4.4	--	--	--	-11.3	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			0.1	--	10.4	--	12.9	--	10.9	--	10.9	--	10.4	--	11.5	Dec-15



Total Fund  
Performance Summary

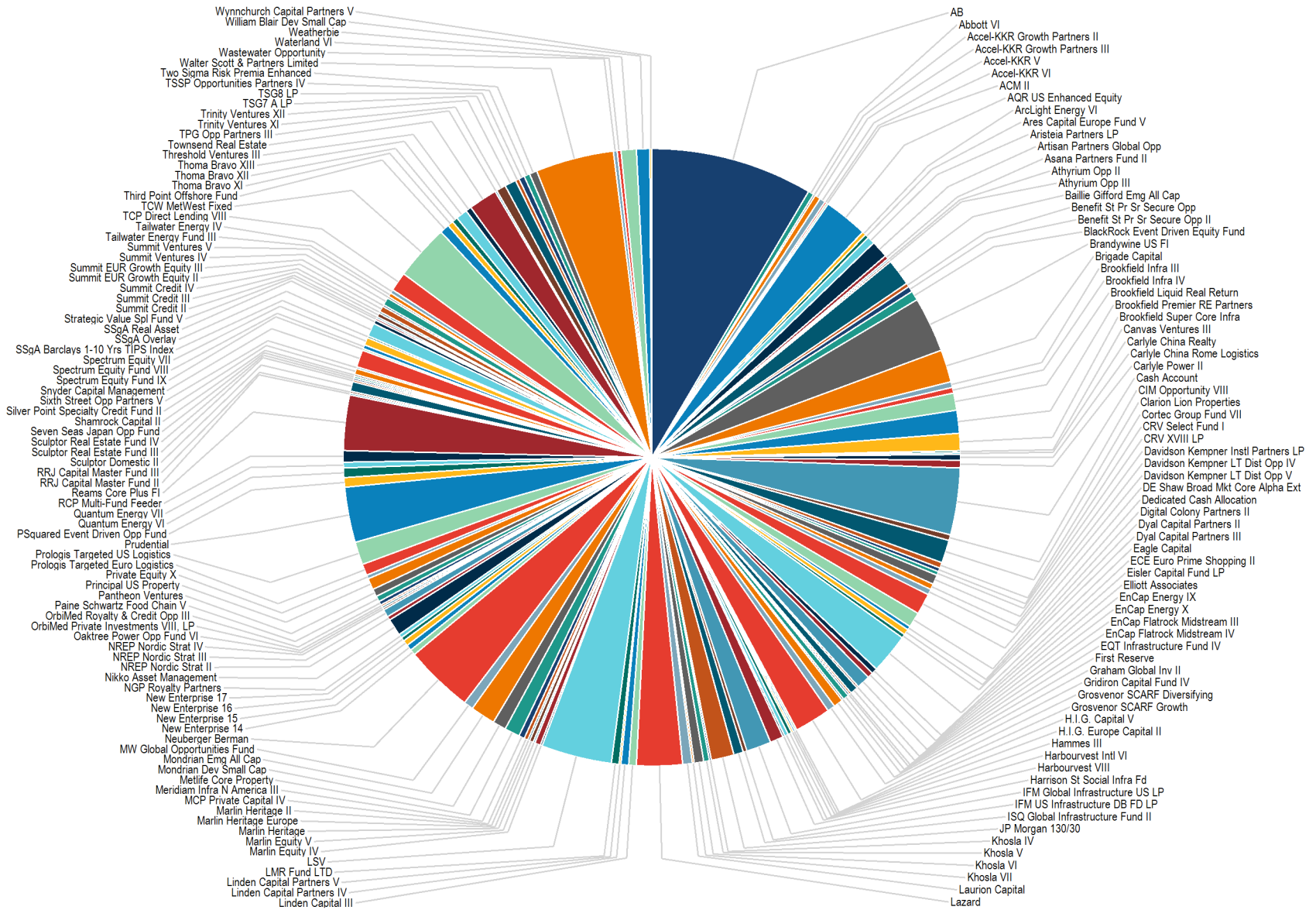
Period Ending: September 30, 2022

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Liquid Real Return - Gross</b>	<b>132,051,179</b>	<b>1.1</b>	<b>-5.9</b>	<b>--</b>	<b>-10.2</b>	<b>--</b>	<b>-6.5</b>	<b>--</b>	<b>2.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.4</b>	<b>Jun-19</b>
<b>Liquid Real Return - Net</b>			<b>-6.1</b>	<b>--</b>	<b>-10.5</b>	<b>--</b>	<b>-6.9</b>	<b>--</b>	<b>2.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.1</b>	
<i>SSgA Real Asset<sup>1</sup></i>			-5.9	--	-8.8	--	-5.3	--	2.6	--	3.0	--	2.0	--	2.5	Jun-19
Brookfield Liquid Real Return - Gross	99,798,955	0.9	-5.9	--	-14.5	--	-10.3	--	--	--	--	--	--	--	0.6	Nov-19
Brookfield Liquid Real Return - Net			-6.1	--	-14.9	--	-10.8	--	--	--	--	--	--	--	0.0	
<i>Brookfield Real Return Custom<sup>1</sup></i>			-7.6	--	-19.0	--	-15.4	--	--	--	--	--	--	--	-2.2	Nov-19
SSgA Passive Real Return Proxy - Gross	32,252,224	0.3	-5.8	--	-8.5	--	-5.0	--	2.9	--	3.3	--	2.2	--	1.9	Jan-08
SSgA Passive Real Return Proxy - Net			-6.0	--	-8.7	--	-5.3	--	2.6	--	3.0	--	2.0	--	1.7	
<i>SSgA Real Asset</i>			-5.9	--	-8.8	--	-5.3	--	2.6	--	3.0	--	2.0	--	--	Jan-08
<b>Cash - Gross</b>	<b>403,601,769</b>	<b>3.5</b>	<b>0.6</b>	<b>--</b>	<b>0.9</b>	<b>--</b>	<b>1.0</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>1.6</b>	<b>--</b>	<b>1.3</b>	<b>--</b>	<b>3.0</b>	<b>Jun-92</b>
<b>Cash - Net</b>			<b>0.6</b>	<b>--</b>	<b>0.9</b>	<b>--</b>	<b>1.0</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>1.6</b>	<b>--</b>	<b>1.3</b>	<b>--</b>	<b>--</b>	
<i>Secured Overnight Financing Rate<sup>1</sup></i>			0.5	--	0.8	--	0.8	--	0.5	--	1.1	--	0.7	--	2.3	Jun-92
Cash Account - Gross	403,601,769	3.5	0.6	--	0.9	--	1.0	--	1.5	--	1.8	--	1.4	--	3.1	Jun-92
Cash Account - Net			0.6	--	0.9	--	1.0	--	1.5	--	1.8	--	1.4	--	--	
<i>Secured Overnight Financing Rate</i>			0.5	--	0.8	--	0.8	--	0.5	--	1.1	--	0.7	--	2.3	Jun-92

1. See Policy and Benchmark History .

# Total Fund Manager Allocation Analysis

Period Ending: September 30, 2022



Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
AB	\$984,694,765	8.5%
AQR US Enhanced Equity	\$268,418,901	2.3%
JP Morgan 130/30	\$139,283,204	1.2%
DE Shaw Broad Mkt Core Alpha Ext	\$132,649,082	1.1%
Eagle Capital	\$245,220,914	2.1%
Huber Capital	\$20,283	0.0%
Weatherbie	\$87,179,048	0.8%
Snyder Capital Management	\$101,609,477	0.9%
Lazard	\$273,095,186	2.4%
Walter Scott & Partners Limited	\$478,412,256	4.1%
LSV	\$427,421,222	3.7%
Mondrian Dev Small Cap	\$81,040,586	0.7%
William Blair Dev Small Cap	\$79,099,071	0.7%
Baillie Gifford Emg All Cap	\$166,875,771	1.4%
Mondrian Emg All Cap	\$152,963,043	1.3%
CBRE Clarion	\$3,693	0.0%
Artisan Partners Global Opp	\$104,590,267	0.9%
Nikko Asset Management	\$103,920,000	0.9%
Third Point Offshore Fund	\$61,068,910	0.5%
Abbott VI	\$31,424,024	0.3%
Accel-KKR V	\$29,461,517	0.3%
Accel-KKR VI	\$12,672,843	0.1%
Accel-KKR Growth Partners II	\$11,831,133	0.1%
Accel-KKR Growth Partners III	\$32,242,131	0.3%
Accel-KKR Growth Partners IV	\$3,972,348	0.0%
Atalaya Special Opp VI	\$3,765,253	0.0%
Atalaya Special Opp V	\$994,978	0.0%
Canvas Ventures III	\$10,906,708	0.1%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
Cortec Group Fund VII	\$29,342,941	0.3%
CRV Select Fund I	\$19,103,561	0.2%
CRV Select Fund II	\$4,106,180	0.0%
CRV XVIII LP	\$18,829,945	0.2%
CRV XIX LP	\$2,262,433	0.0%
Davidson Kempner LT Dist Opp IV	\$38,074,943	0.3%
Davidson Kempner LT Dist Opp V	\$29,899,984	0.3%
Digital Colony Partners II	\$21,445,733	0.2%
Dyal Capital Partners II	\$33,139,075	0.3%
Dyal Capital Partners III	\$25,692,815	0.2%
Garrison Investment Group	\$1,156,739	0.0%
Gridiron Capital Fund IV	\$48,036,550	0.4%
Harbourvest VIII	\$6,845,433	0.1%
Harbourvest Intl VI	\$22,790,526	0.2%
H.I.G. Bayside Loan III	\$4,292,255	0.0%
H.I.G. Capital V	\$12,649,880	0.1%
H.I.G. Europe Capital II	\$9,345,111	0.1%
Khosla IV	\$16,291,129	0.1%
Khosla V	\$40,154,915	0.3%
Khosla VI	\$54,432,872	0.5%
Khosla VII	\$12,391,309	0.1%
Linden Capital III	\$46,712,853	0.4%
Linden Capital Partners IV	\$48,936,110	0.4%
Linden Capital Partners V	\$6,860,846	0.1%
Marlin Equity IV	\$11,505,665	0.1%
Marlin Equity V	\$29,195,333	0.3%
Marlin Heritage	\$6,253,649	0.1%
Marlin Heritage II	\$13,980,013	0.1%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
Marlin Heritage Europe	\$26,082,545	0.2%
New Enterprise 14	\$39,874,485	0.3%
New Enterprise 15	\$37,402,895	0.3%
New Enterprise 16	\$40,019,226	0.3%
New Enterprise 17	\$19,857,100	0.2%
Oaktree Power Opp Fund VI	\$6,780,597	0.1%
OrbiMed Private Investments VIII, LP	\$7,754,025	0.1%
Private Equity X	\$20,773,496	0.2%
RCP Multi-Fund Feeder	\$71,283,335	0.6%
RRJ Capital Master Fund II	\$7,932,799	0.1%
RRJ Capital Master Fund III	\$8,659,718	0.1%
Shamrock Capital II	\$9,138,763	0.1%
Shamrock Capital Growth Fund V	\$5,454,428	0.0%
Sixth Street Opp Partners V	\$6,209,613	0.1%
Spectrum Equity VII	\$43,159,073	0.4%
Spectrum Equity Fund VIII	\$27,878,802	0.2%
Spectrum Equity Fund IX	\$16,257,956	0.1%
Strategic Value Spl Fund V	\$10,748,570	0.1%
Summit EUR Growth Equity II	\$33,691,854	0.3%
Summit EUR Growth Equity III	\$11,834,315	0.1%
Summit Ventures III	\$3,023,941	0.0%
Summit Ventures IV	\$50,329,082	0.4%
Summit Ventures V	\$8,050,228	0.1%
Thoma Bravo XI	\$36,955,228	0.3%
Thoma Bravo XII	\$36,817,377	0.3%
Thoma Bravo XIII	\$65,690,192	0.6%
Threshold Ventures III	\$28,984,186	0.3%
Threshold Ventures IV	\$212,500	0.0%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
TPG Opp Partners III	\$10,140,160	0.1%
Trinity Ventures XI	\$55,542,752	0.5%
Trinity Ventures XII	\$67,278,176	0.6%
TSG7 A LP	\$21,065,586	0.2%
TSG7 B LP	\$4,382,801	0.0%
TSG8 LP	\$30,988,537	0.3%
TSSP Opportunities Partners IV	\$30,465,611	0.3%
Waterland V	\$1,394,205	0.0%
Waterland VI	\$19,751,450	0.2%
Wayzata Opportunities III	\$3,926,487	0.0%
Wynnchurch Capital Partners V	\$12,520,805	0.1%
Brigade Capital	\$201,097,491	1.7%
Ares Capital Europe Fund V	\$23,887,138	0.2%
Athyrium Opp II	\$10,034,263	0.1%
Athyrium Opp III	\$11,481,268	0.1%
Benefit St Pr Sr Secure Opp	\$28,729,876	0.2%
Benefit St Pr Sr Secure Opp II	\$30,456,755	0.3%
IFM US Infrastructure DB FD LP	\$21,833,416	0.2%
MCP Private Capital IV	\$19,097,638	0.2%
OrbiMed Royalty & Credit Opp III	\$18,527,131	0.2%
Orbimed Royalty & Credit Opp IV	\$4,000,000	0.0%
Shamrock Capital Debt Fund I	\$1,909,252	0.0%
Silver Point Specialty Credit Fund II	\$30,777,526	0.3%
Summit Credit	\$403,948	0.0%
Summit Credit II	\$13,385,379	0.1%
Summit Credit III	\$24,131,239	0.2%
Summit Credit IV	\$9,321,536	0.1%
TCP Direct Lending VIII	\$110,630,861	1.0%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
Grosvenor SCARF Growth	\$12,696,231	0.1%
Prudential	\$333,180,930	2.9%
TCW MetWest Fixed	\$332,852,035	2.9%
Brandywine US FI	\$333,786,768	2.9%
Reams Core Plus FI	\$333,876,488	2.9%
Neuberger Berman	\$412,150,832	3.6%
Aristeia Partners LP	\$49,527,638	0.4%
BlackRock Event Driven Equity Fund	\$52,842,629	0.5%
Davidson Kempner Instl Partners LP	\$57,315,295	0.5%
Eisler Capital Fund LP	\$29,424,548	0.3%
Elliott Associates	\$78,660,182	0.7%
Graham Global Inv II	\$52,349,446	0.5%
Grosvenor SCARF Diversifying	\$217,912,890	1.9%
Laurion Capital	\$57,421,300	0.5%
LMR Fund LTD	\$51,839,719	0.4%
MW Global Opportunities Fund	\$55,125,841	0.5%
PSquared Event Driven Opp Fund	\$55,172,254	0.5%
Sculptor Domestic II	\$57,516,962	0.5%
Two Sigma Risk Premia Enhanced	\$47,480,867	0.4%
Dedicated Cash Allocation	\$97,094,667	0.8%
Brookfield Premier RE Partners	\$140,133,035	1.2%
Clarion Lion Properties	\$141,766,363	1.2%
Metlife Core Property	\$94,094,102	0.8%
Principal US Property	\$66,477,963	0.6%
Prologis Targeted Euro Logistics	\$68,742,947	0.6%
Prologis Targeted US Logistics	\$142,389,147	1.2%
Townsend Real Estate	\$178,114,797	1.5%
Carlyle China Realty	\$8,597,092	0.1%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
Carlyle China Rome Logistics	\$38,143,372	0.3%
CIM Opportunity VIII	\$29,551,584	0.3%
Kohlberg Kravis Roberts	\$1,671,076	0.0%
Lasalle China Logistics Venture LP	\$2,848,424	0.0%
NREP Nordic Strat FCP-FIS	\$223,478	0.0%
NREP Nordic Strat II	\$20,441,430	0.2%
NREP Nordic Strat III	\$42,738,694	0.4%
NREP Nordic Strat IV	\$16,729,328	0.1%
Sculptor Real Estate Fund III	\$7,612,365	0.1%
Sculptor Real Estate Fund IV	\$9,920,478	0.1%
Asana Partners Fund II	\$24,104,753	0.2%
Asana Partners Fund III	\$1,626,844	0.0%
ECE Euro Prime Shopping II	\$37,490,953	0.3%
European RE Debt II	\$2,286,055	0.0%
Hammes II	\$3,226,702	0.0%
Hammes III	\$21,339,094	0.2%
Seven Seas Japan Opp Fund	\$7,385,470	0.1%
ACM II	\$16,977,660	0.1%
ArcLight Energy VI	\$17,684,718	0.2%
Brookfield Infra III	\$37,149,276	0.3%
Brookfield Infra IV	\$35,372,903	0.3%
Brookfield Super Core Infra	\$100,000,000	0.9%
Carlyle Power II	\$40,616,005	0.4%
EnCap Energy IX	\$14,201,199	0.1%
EnCap Energy X	\$41,551,888	0.4%
EnCap Flatrock Midstream III	\$13,573,943	0.1%
EnCap Flatrock Midstream IV	\$13,334,116	0.1%
EQT Infrastructure Fund IV	\$33,723,952	0.3%



Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2022

	Current	%
First Reserve	\$12,893,857	0.1%
Harrison St Social Infra Fd	\$80,104,064	0.7%
IFM Global Infrastructure US LP	\$151,077,585	1.3%
ISQ Global Infrastructure Fund II	\$55,227,361	0.5%
ISQ Global Infrastructure Fund III	\$4,760,684	0.0%
Meridiam Infra N America III	\$29,215,398	0.3%
Meridiam Sa Infra Euro IV	\$4,097,262	0.0%
NGP Royalty Partners	\$27,881,785	0.2%
Paine Schwartz Food Chain V	\$35,263,250	0.3%
Pantheon Ventures	\$51,661,394	0.4%
Quantum Energy VI	\$55,635,406	0.5%
Quantum Energy VII	\$40,030,928	0.3%
Tailwater Energy Fund III	\$24,516,929	0.2%
Tailwater Energy IV	\$17,398,777	0.2%
Wastewater Opportunity	\$19,907,146	0.2%
Brookfield Liquid Real Return	\$99,798,955	0.9%
SSgA Barclays 1-10 Yrs TIPS Index	\$9,500,292	0.1%
SSgA Real Asset	\$22,751,932	0.2%
Cash Account	\$403,601,769	3.5%
Transition Account	\$5,020	0.0%
Heitman Adv JMB V	\$8,390	0.0%
SSgA Overlay	\$85,025,091	0.7%
<b>Total</b>	<b>\$11,557,015,033</b>	<b>100.0%</b>

**Statistics Summary**

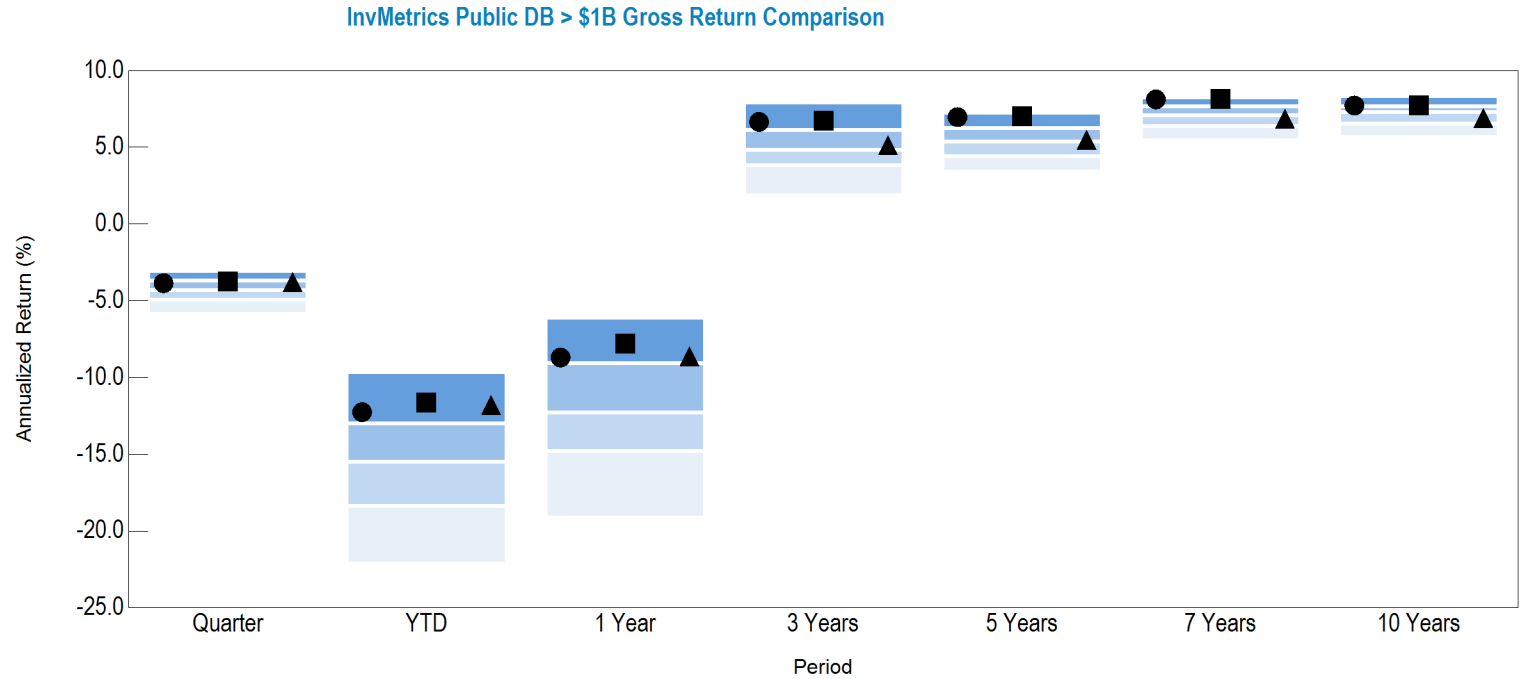
**3 Years**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	6.7%	14	9.5%	14	0.6	17	0.4	43	3.5%	80
Policy Index	5.1%	44	9.2%	11	0.5	28	--	--	0.0%	1
Total Fund ex Overlay	6.7%	13	9.4%	12	0.7	12	0.4	42	3.6%	90
Policy Index	5.1%	44	9.2%	11	0.5	28	--	--	0.0%	1

**Statistics Summary**

**5 Years**

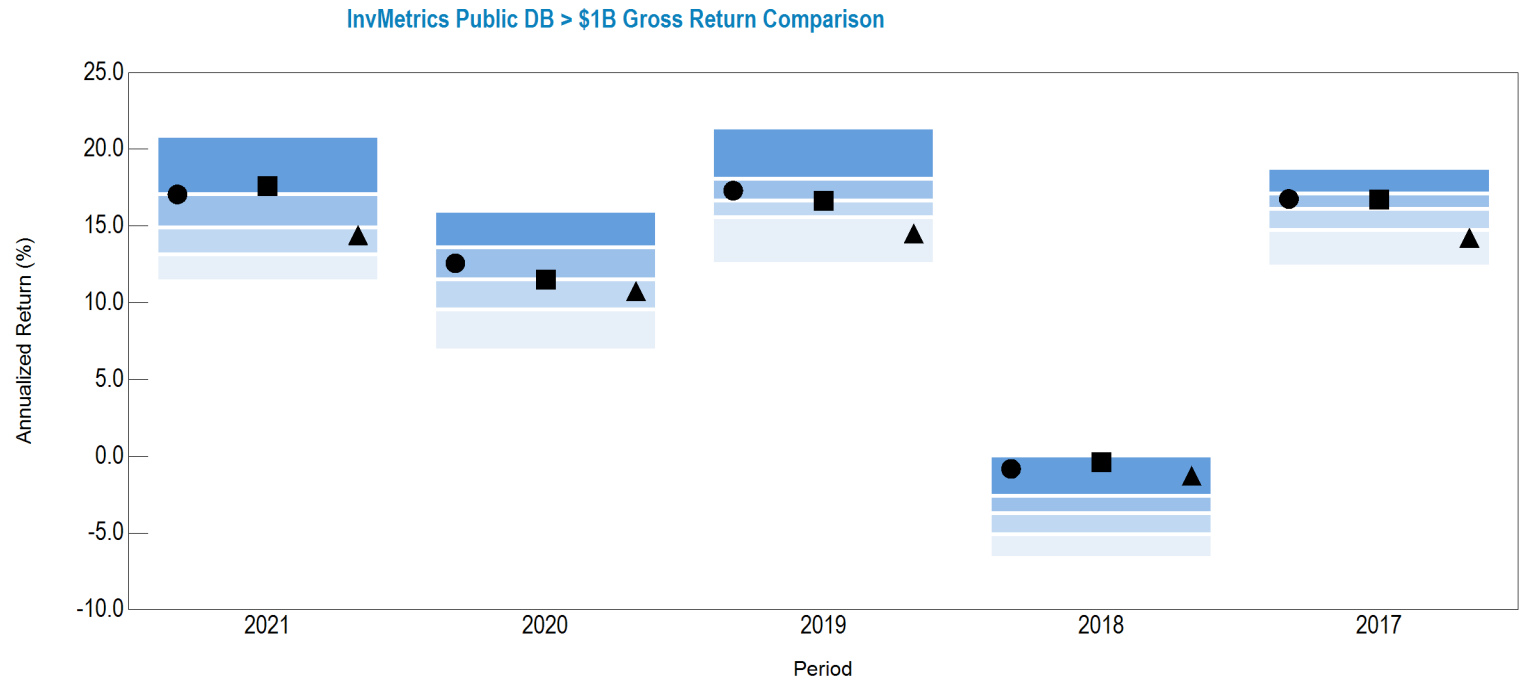
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	7.0%	9	8.4%	13	0.7	8	0.5	32	2.9%	80
Policy Index	5.5%	47	8.0%	10	0.6	24	--	--	0.0%	1
Total Fund ex Overlay	7.0%	8	8.2%	12	0.7	6	0.5	32	3.0%	87
Policy Index	5.5%	47	8.0%	10	0.6	24	--	--	0.0%	1



	Quarter		YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
<b>5th Percentile</b>	-3.1		-9.7		-6.1		7.9		7.2		8.2		8.3	
<b>25th Percentile</b>	-3.7		-13.0		-9.0		6.2		6.3		7.7		7.7	
<b>Median</b>	-4.3		-15.5		-12.3		4.9		5.4		7.1		7.3	
<b>75th Percentile</b>	-4.9		-18.3		-14.7		3.8		4.4		6.4		6.6	
<b>95th Percentile</b>	-5.8		-22.1		-19.1		1.9		3.4		5.5		5.7	
<b># of Portfolios</b>	75		75		75		73		73		72		69	
<b>● Total Fund</b>	-3.9	(33)	-12.3	(18)	-8.7	(19)	6.7	(14)	7.0	(9)	8.1	(10)	7.7	(24)
<b>■ Total Fund ex Overlay</b>	-3.7	(30)	-11.6	(14)	-7.8	(13)	6.7	(13)	7.0	(8)	8.1	(8)	7.7	(22)
<b>▲ Policy Index</b>	-3.8	(31)	-11.8	(16)	-8.6	(19)	5.1	(44)	5.5	(47)	6.9	(63)	6.9	(60)

Total Fund  
Peer Universe Comparison (Calendar Years)

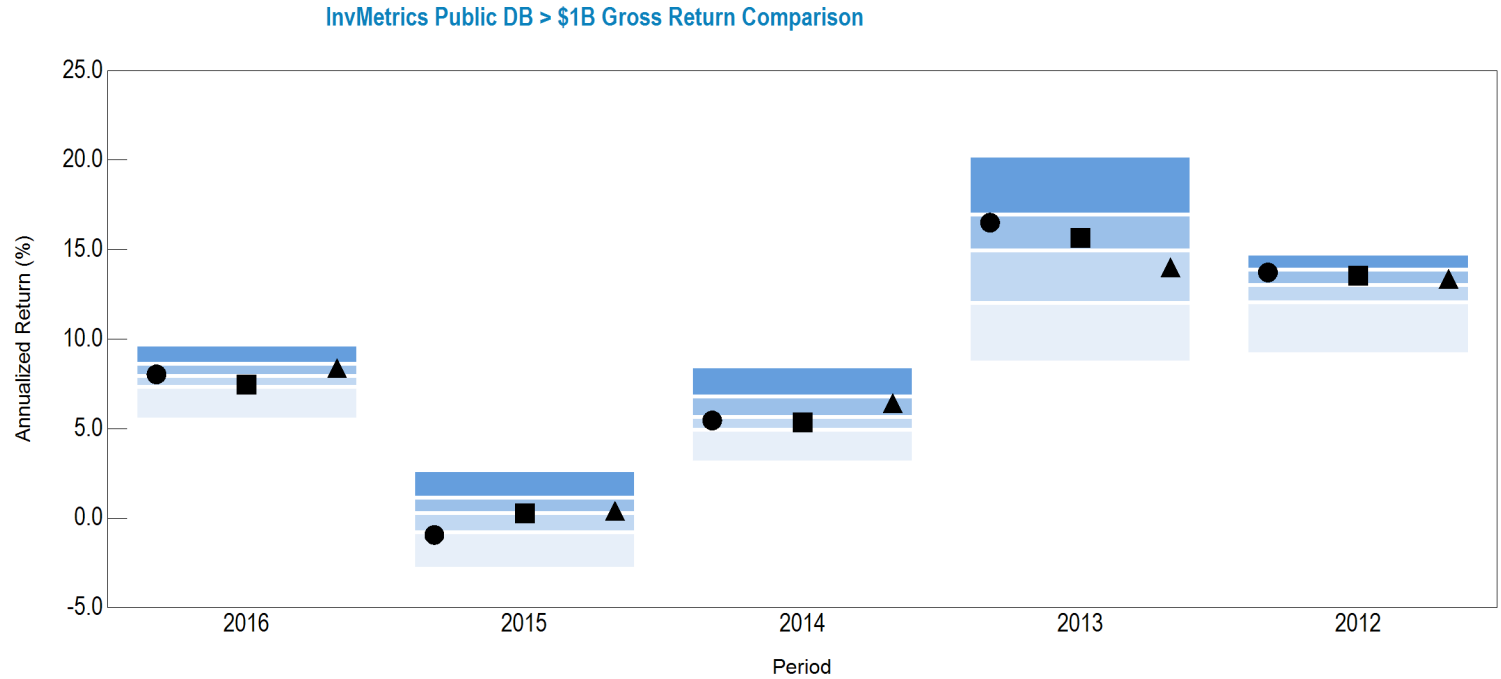
Period Ending: September 30, 2022



	2021		2020		2019		2018		2017	
<b>Return (Rank)</b>										
5th Percentile	20.9		16.0		21.4		0.0		18.8	
25th Percentile	17.1		13.6		18.1		-2.6		17.2	
Median	14.9		11.5		16.7		-3.7		16.2	
75th Percentile	13.2		9.6		15.6		-5.1		14.8	
95th Percentile	11.4		6.9		12.5		-6.6		12.4	
# of Portfolios	84		94		81		71		98	
● Total Fund	17.1	(27)	12.6	(36)	17.3	(40)	-0.8	(7)	16.8	(38)
■ Total Fund ex Overlay	17.6	(15)	11.5	(51)	16.6	(52)	-0.4	(6)	16.7	(39)
▲ Policy Index	14.4	(59)	10.8	(61)	14.5	(88)	-1.3	(10)	14.2	(82)

Total Fund  
Peer Universe Comparison (Calendar Years)

Period Ending: September 30, 2022



	2016		2015		2014		2013		2012	
<b>5th Percentile</b>	9.7		2.7		8.5		20.2		14.7	
<b>25th Percentile</b>	8.6		1.1		6.8		17.0		13.9	
<b>Median</b>	8.0		0.3		5.7		15.0		13.0	
<b>75th Percentile</b>	7.4		-0.7		4.9		12.0		12.1	
<b>95th Percentile</b>	5.5		-2.8		3.1		8.7		9.2	
<b># of Portfolios</b>	92		98		79		67		74	
<b>● Total Fund</b>	8.0	(46)	-0.9	(83)	5.5	(61)	16.5	(31)	13.7	(36)
<b>■ Total Fund ex Overlay</b>	7.5	(73)	0.3	(51)	5.3	(65)	15.6	(43)	13.6	(41)
<b>▲ Policy Index</b>	8.4	(34)	0.4	(46)	6.4	(34)	14.0	(64)	13.4	(42)

# Policy Index and Benchmark History

Period Ending: September 30, 2022

Total Plan Policy Index	As of:										
	4/1/22	7/1/19	7/1/17	4/1/17	1/1/14	1/1/12	1/1/08	2/1/06	9/1/04	1/1/00	7/1/86
91-day UST Bill +5% (AR)				10.0%	10.0%	10.0%	5.0%	5.0%	5.0%		
Bloomberg Aggregate	12.0%	10.0%	10.0%	10.0%	15.0%	20.0%	20.0%	25.0%	25.0%	30.0%	
Bloomberg US Treasury	4.0%	5.0%	5.0%	5.0%							
ICE BofA ML High Yield II	1.0%	1.0%	1.0%	1.0%	1.0%						
Bloomberg Commodity			2.0%	2.0%			5.0%				
Cambridge Associates Private Energy 1 Qtr Lag	2.1%	2.5%	2.5%								
Cambridge Associates Private Infrastructure 1 Qtr Lag	4.2%	3.2%	3.2%								
FTSE BIG											23.0%
FTSE WGBI ex US Unhedged	0.0%	2.4%	2.4%	2.4%	2.4%						
CPI-U +5% (PRA)				7.0%	15.0%	15.0%					
Credit Suisse Leveraged Loans	1.0%	1.0%	1.0%	1.0%	1.0%						
Credit Suisse Leveraged Loans +2% 1 Qtr Lag	5.0%	4.0%	4.0%	4.0%							
JPM GBI EM Diversified	0.0%	0.6%	0.6%	0.6%	0.6%						
HFRI FoF Composite Index + 1%	0.0%	3.0%	3.0%								
HFRI FoF Conservative Index	7.0%	7.0%	7.0%								
MSCI ACWI ex US		20.0%	20.0%	20.0%	22.5%	22.5%	20.0%				
MSCI ACWI IMI	40.0%										
MSCI EAFE								15.0%	15.0%	15.0%	15.0%
MSCI Emerging Markets								5.0%	5.0%	5.0%	
NAREIT							3.0%	3.0%			
NFI-ODCE	5.4%	4.6%	4.6%								
NFI-ODCE net +1% 1Q Lag	3.6%	2.5%	2.5%								
NCREIF				7.0%			12.0%	12.0%	15.0%	10.0%	15.0%
NCREIF Farmland 1 Qtr Lag	0.7%	0.7%	0.7%								
NCREIF Timberland Index Lagged		0.7%	0.7%								
Russell 1000								30.0%	30.0%	35.0%	
Russell 1000 +3% 1QL (PE)					10.0%	10.0%					
Russell 2000								5.0%	5.0%	5.0%	
Russell 3000		20.0%	21.0%	21.0%	22.5%	22.5%	30.0%				47.0%
S&P 500 +2% 1QL (PE)							5.0%				
Cambridge Associates All PE 1 Qtr Lag	11.0%	9.0%	9.0%	9.0%							
Bloomberg Roll Select Commodity Total Return	0.2%	0.2%									
Bloomberg U.S. Floating Rate Note < 5 Yr	0.2%	0.2%									
S&P Global LargeMidCap Commodity and Resources	0.2%	0.2%									
S&P Global Infrastructure Index - Net of Tax on Dividend	0.5%	0.5%									
Bloomberg U.S. Government Inflation-Linked 1-10 Yrs	0.6%	0.6%									
FTSE EPRA Nareit Developed Liquid Index	0.3%	0.3%									
ICE LIBOR Spot/Next Overnight USD		1.0%									
Secured Overnight Financing Rate	1.0%										
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: September 30, 2022

Growth Benchmark	As of:			
	4/1/22	7/1/19	7/1/17	4/1/17
91 Day T-Bill +5%				5.08%
ICE BofA ML High Yield II	1.73%	1.73%	1.70%	1.70%
Credit Suisse Leveraged Loans	1.73%	1.73%	1.70%	1.70%
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag	8.62%	6.90%	6.78%	6.78%
HFRI FoF Composite Index + 1%		5.17%	5.08%	
MSCI ACWI ex US	27.58%	34.48%	33.90%	33.90%
MSCI ACWI IMI	6.90%			
Russell 3000	34.48%	34.48%	35.59%	35.59%
Cambridge Associates All PE 1 Qtr Lag	18.97%	15.52%	15.25%	15.25%
	100.0%	100.0%	100.0%	100.0%

Global Public Equity Benchmark	As of:	
	4/1/22	7/1/11
MSCI ACWI		100.0%
MSCI ACWI IMI	100.0%	
	100.0%	100.0%

Domestic Equity Benchmark	As of:			
	1/1/08	9/1/04	1/1/00	7/1/86
Russell 1000		85.71%	87.5%	
Russell 2000		14.29%	12.5%	
Russell 3000	100.0%			100.0%
	100.0%	100.0%	100.0%	100.0%

Large Cap Active Benchmark	As of:	
	2/1/19	9/1/08
Russell 1000 Value		100.0%
Russell 1000	100.0%	
	100.0%	100.0%

International Equity Benchmark	As of:		
	1/1/08	1/1/00	7/1/86
MSCI ACWI ex US	100.0%		
MSCI EAFE		75.0%	100.0%
MSCI Emerging Markets		25.0%	
	100.0%	100.0%	100.0%

Private Equity Benchmark	As of:		
	4/1/17	1/1/12	1/1/08
Russell 1000 +3% 1QL		100.0%	
S&P 500 +2% 1QL			100.0%
Cambridge Associates All PE 1 Qtr Lag	100.0%		
	100.0%	100.0%	100.0%

Public Credit Benchmark	As of:
	4/1/17
ICE BofA ML High Yield II	50.0%
Credit Suisse Leveraged Loans	50.0%
	100.0%

Growth Oriented Absolute Return Benchmark	As of:	
	7/1/17	4/1/17
91-day UST Bill +5%		100.0%
HFRI FoF Composite Index + 1%	100.0%	
	100.0%	100.0%

Diversifying Benchmark	As of:		
	4/1/22	7/1/17	4/1/17
91 Day T-Bill +5%			28.00%
Bloomberg US Aggregate	50.00%	40.00%	40.00%
Bloomberg US Treasury	16.67%	20.00%	20.00%
FTSE WGBI ex US Unhedged		9.60%	9.60%
HFRI FoF Conservative Index	29.17%	28.00%	
JPM GBI EM Diversified		2.40%	2.40%
Secured Overnight Financing Rate	4.16%		
	100.0%	100.0%	100.0%

Absolute Return Benchmark	As of:	
	7/1/17	4/1/17
91-day UST Bill +5%		100.0%
HFRI FoF Conservative Index	100.0%	
	100.0%	100.0%

Real Return Benchmark	As of:		
	4/1/22	4/1/19	4/1/17
Real Estate Benchmark	50.00%	43.75%	43.75%
Private Real Assets Benchmark	38.89%	43.75%	43.75%
Bloomberg Commodity			12.50%
Liquid Real Return Custom Benchmark	11.11%	12.50%	
	100.0%	100.0%	100.0%

Real Estate Benchmark	As of:		
	4/1/22	7/1/17	7/1/2011
NCREIF			100.0%
NFI-ODCE	60.0%	65.0%	
NFI-ODCE net +1% 1Q Lag	40.0%	35.0%	
	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: September 30, 2022

RE-Value Added Benchmark	As of:	
	7/1/16	10/1/08
NCREIF +2% 1Q Lag		100.0%
NFI-ODCE net +1% 1Q Lag	100.0%	
	100.0%	100.0%

Private Real Assets Benchmark	As of:		
	4/1/22	7/1/17	4/1/17
CPI-U Headline +5%			100.0%
Cambridge Associates Private Energy 1 Qtr Lag	30.0%	35.0%	
Cambridge Associates Private Infrastructure 1 Qtr Lag	60.0%	45.0%	
NCREIF Farmland 1 Qtr Lag	10.0%	10.0%	
NCREIF Timberland Index Lagged		10.0%	
	100.0%	100.0%	100.0%

Liquid Real Return Custom Benchmark	As of:	
	7/1/19	
Bloomberg Roll Select Commodity Total Return	10.0%	
Bloomberg U.S. Floating Rate Note < 5 Yr	10.0%	
S&P Global Large/MidCap Commodity and Resources	10.0%	
S&P Global Infrastructure Index - Net of Tax on Dividend	25.0%	
Bloomberg U.S. Government Inflation-Linked 1-10 Yrs	30.0%	
FTSE EPRA Nareit Developed Liquid Index	15.0%	
	100.0%	

Cash Benchmark	As of:	
	4/1/22	7/1/92
91 Day T-Bills		100.0%
Secured Overnight Financing Rate	100.0%	
	100.0%	100.0%

AllianceBernstein Benchmark	As of:		
	1/1/01	1/1/98	5/1/89
Russell 1000	100.0%		
Russell 3000		100.0%	
Wilshire 2500			100.0%
	100.0%	100.0%	100.0%

Eagle Capital Benchmark	As of:	
	2/1/19	9/1/08
Russell 1000 Value		100.0%
Russell 1000	100.0%	
	100.0%	100.0%

Lazard Benchmark	As of:	
	4/1/22	7/1/12
MSCI ACWI ex USA		100.0%
MSCI World ex US	100.0%	
	100.0%	100.0%

Brigade Benchmark	As of:	
	12/1/13	
ICE BofA ML High Yield II	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	100.0%	

Brookfield Real Return Custom	As of:	
	12/1/2019	
FTSE Global Core Infrastructure 50/50 Index	30.0%	
FTSE EPRA Nareit Developed Index	20.0%	
ICE BofA 7% Constrained REIT Preferred Securities Index	10.0%	
ICE BofA USD Real Asset High Yield Custom Index	16.0%	
ICE BofA USD Real Asset Corporate Custom Index	24.0%	
	100.0%	

SSgA Real Asset Benchmark	As of:		
	3/2/2018	10/1/15	2/1/08
Bloomberg US Govt Inflation-Linked 1-10 Yrs		10.0%	
Bloomberg US TIPS		10.0%	20.0%
Bloomberg 1-10 Yr US TIPS	30.0%		
Bloomberg Roll Select Commodity TR	10.0%	20.0%	
Bloomberg USD Floating Rate Note <5yr	10.0%		
DJ US Select REIT			30.0%
FTSE EPRA/NAREIT Developed Liquid	15.0%	10.0%	
MSCI World Natural Resources		20.0%	25.0%
S&P Global Large Mid Cap Commodity Resources	10.0%		
S&P Global Infrastructure	25.0%	20.0%	
S&P GS Commodities			25.0%
S&P MLP		10.0%	
	100.0%	100.0%	100.0%

Cash Account Benchmark	As of:	
	4/1/22	7/1/92
91 Day T-Bills		100.0%
Secured Overnight Financing Rate	100.0%	
	100.0%	100.0%



# Glossary

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**Allocation Effect:** An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

**Alpha:** The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as:  $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$ .

**Benchmark R-squared:** Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

**Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

**Book-to-Market:** The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

**Capture Ratio:** A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

**Correlation:** A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

**Excess Return:** A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

**Information Ratio:** A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

**Interaction Effect:** An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

**Portfolio Turnover:** The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

**Price-to-Earnings Ratio (P/E):** Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

**R-Squared:** Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

**Selection Effect:** An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as:  $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$ .

**Sortino Ratio:** Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

**Standard Deviation:** A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

**Style Analysis:** A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

**Style Map:** A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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