

Meeting Date
11/30/2022
Agenda Item
#6a.

Verus⁷⁷⁷



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: SEPTEMBER 30, 2022

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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Investment Landscape

TAB I

Investment Performance
Review

TAB II



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

4TH 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 \(iidcoop.org\)](#) 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](#)
 - 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

New Verus manager rating system

- Ratings are applied to products across all public and private market asset classes based on their distinguishing qualities around five key evaluation areas. 1) Alignment with client interests 2) Investment edge 3) Implementation approach 4) Optimal use of risk 5) Understandable performance
- Our “IQ Ratings” considers the institutional quality of the product plus the conviction of our research teams:
 - **Institutional Quality Rating:** Investment products are rated based on insight gained from using five evaluation criteria: Alignment, Investment Edge, Implementation, Optimal Use of Risk, and Understandable Performance. Products that meet or exceed standards of fiduciary care required by institutional investors are indicated with an IQ symbol.
 - **Conviction Rating:** This second component represents the conviction of our research teams in the distinguishing qualities of the product relative to its peers, with 1 as the highest rating and 5 the lowest.
- Importantly, our due diligence process has not changed, just how we communicate our relative conviction in products.

- The following table shows the ratings that may be assigned to an investment product, including their respective characteristics and Verus recommendations:

Rating	Institutional Quality?	Conviction Level	Defining Characteristics	Recommendations
IQ1	Yes	Very High	Earns Verus’ highest conviction. Above-average characteristics most likely to achieve the strategy’s desired investment results.	Recommended for use in client portfolios. May be used in Verus discretionary portfolios
IQ2	Yes	High	Maintains Verus’ high conviction. Above-average characteristics most likely to achieve strategy’s desired investment results.	Recommended for use in client portfolios. May be used in Verus discretionary portfolios
IQ3	Yes	Positive	Meets institutional quality standards that can achieve desired investment results. Strengths outweigh weaknesses.	While IQ1 or IQ2 rated products are generally preferable, certain client needs may be better addressed by a highly specialized IQ3 product
4	No	Low	Concerns with the product’s ability to meet institutional-quality standards.	Clients should re-evaluate retention or monitor closely
5	No	Very Low	Significant issues inhibit the product’s ability to meet institutional-quality standards.	Verus recommends termination, immediately

- Please reach out to your consultant for further details regarding your portfolio.

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3rd 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 14th.
- 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.

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.
- 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."

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."
- 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.

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.
- 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%).

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 13th, 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 7th, 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 19th, 2022

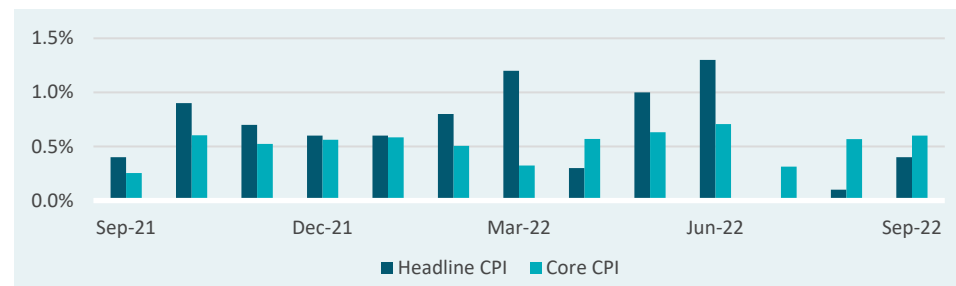
“Mortgage Demand Drops as Rates Top 6%”

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%

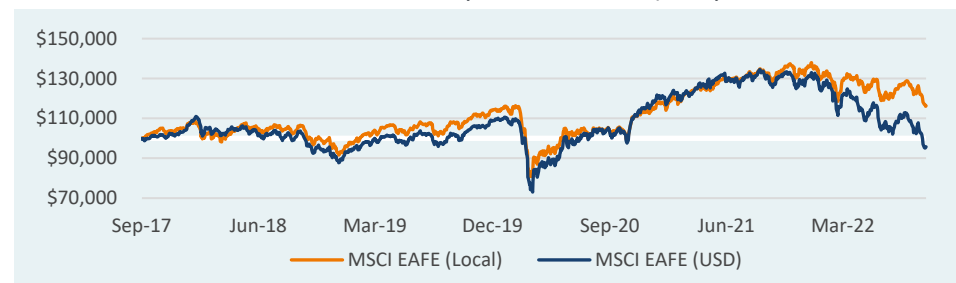
Article Source: CNBC, September 14th, 2022

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.

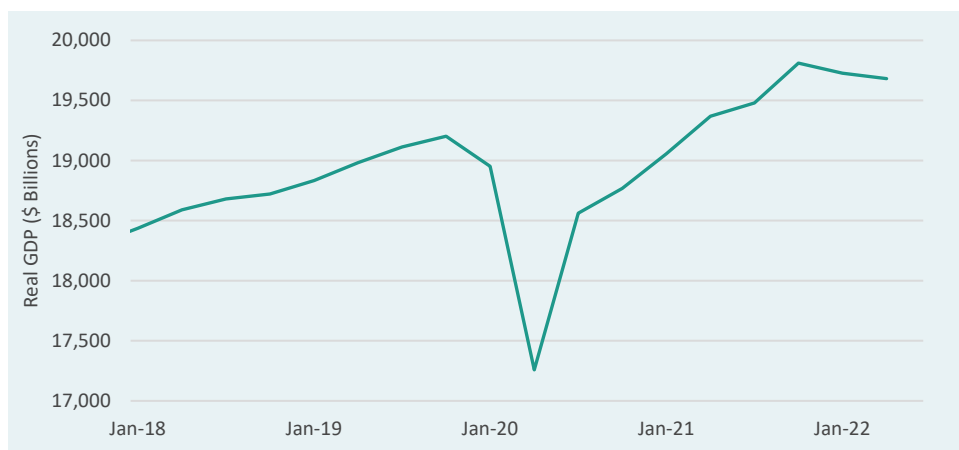
It is possible that the U.S. has avoided technical recession, for now, especially if third quarter GDP growth shows a positive figure. Pundits remain primarily focused on the relatively strong labor market to justify their claims that the U.S. is not in fact

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.

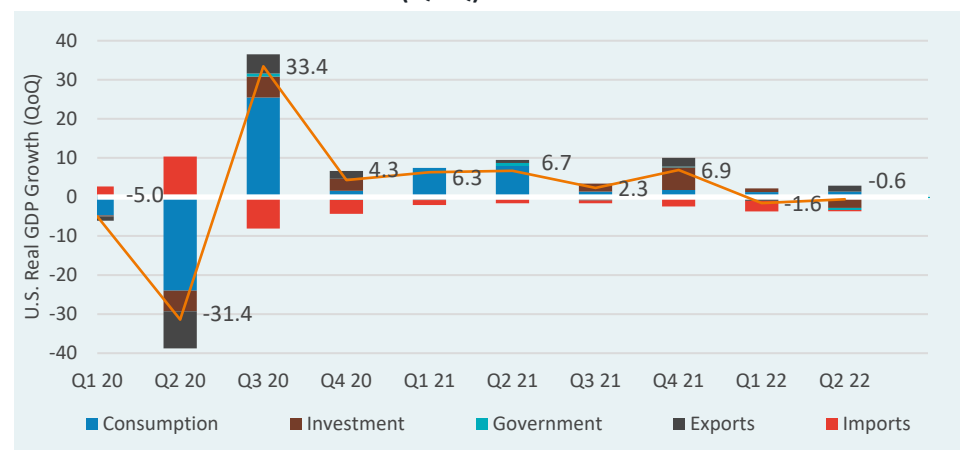
It remains unclear whether the U.S. has entered recession

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

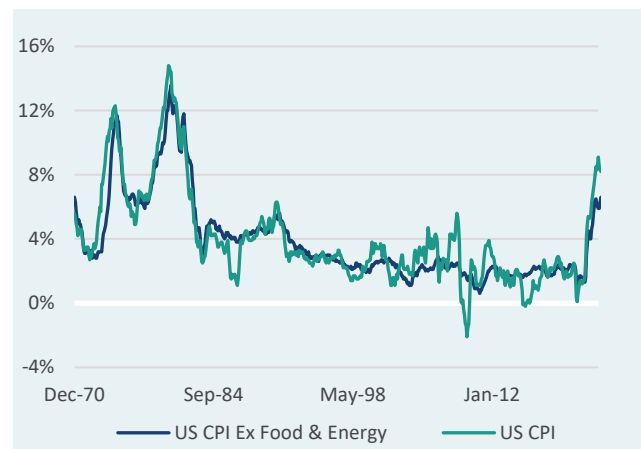
The September inflation print conveyed two separate stories: first, that U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly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

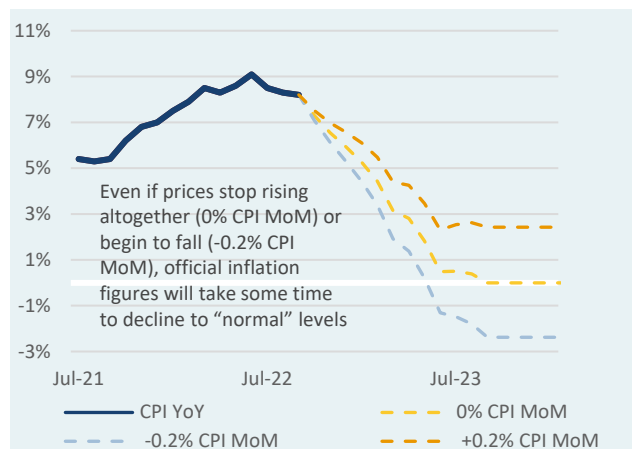
Inflation will take some time to fall back to normal levels, even if *monthly* inflation is 0% in the future. Below we illustrate a few scenarios of *monthly* future price movement. Even if prices stop rising completely (a monthly inflation rate of 0%), the U.S. inflation rate will still likely take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

U.S. CPI (YOY)



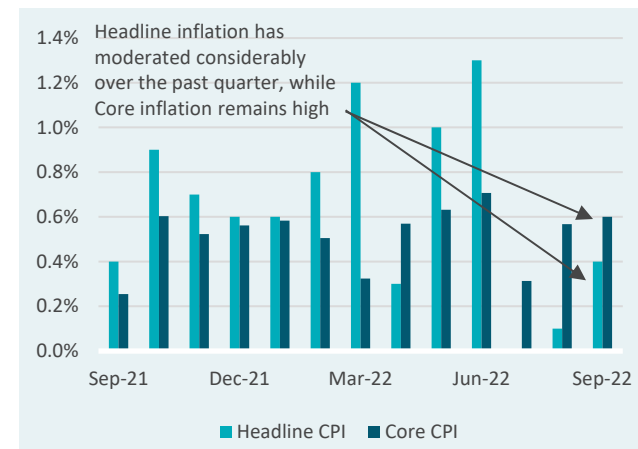
Source: BLS, as of 9/30/22

INFLATION IS A SLOW-MOVING METRIC



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

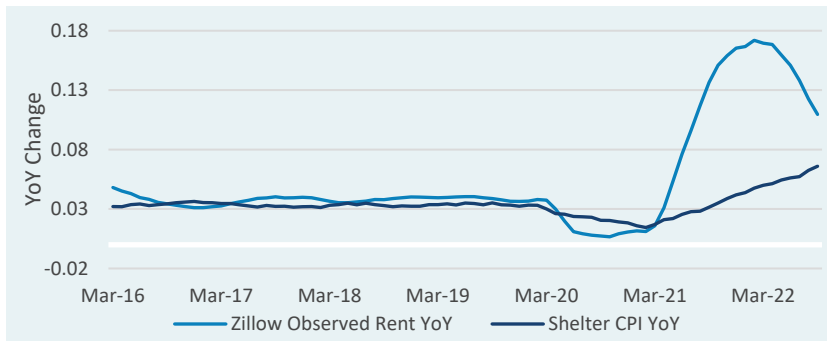
MONTHLY PRICE MOVEMENT



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.

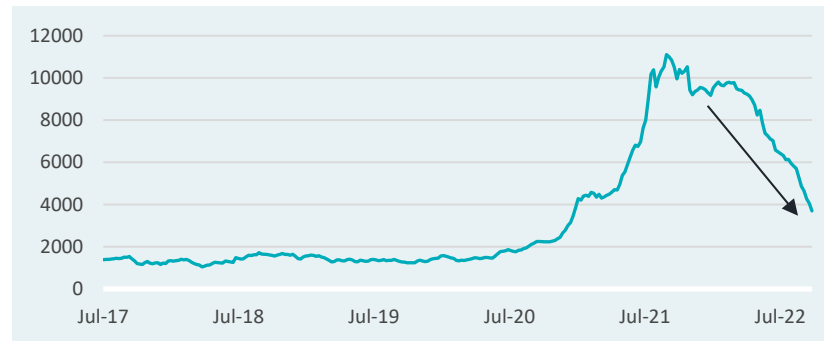
Source: Zillow, FRED, as of 9/30/22 (upper), Bloomberg, as of 9/30/22 (lower)

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.

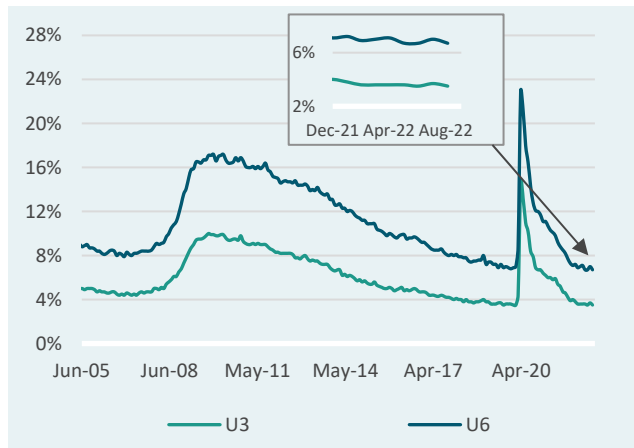
Unemployment fell slightly from 3.6% in June to 3.5% in September, which did not reflect an increase in employment but rather the departure of some Americans from the job market altogether. Weekly *initial jobless claims*—a measure of

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.

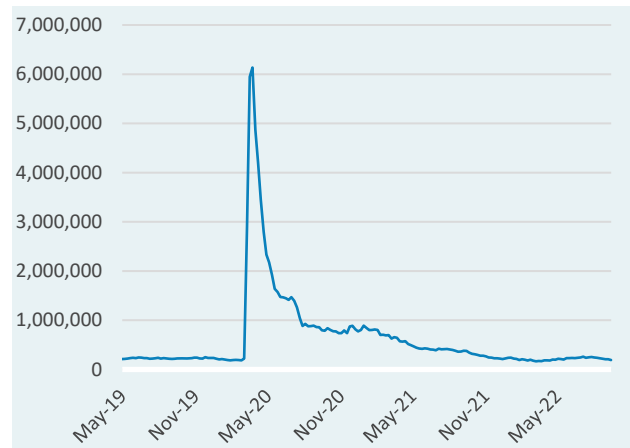
The labor market appears tight according to most metrics, but workers’ wages are falling on an inflation-adjusted basis

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

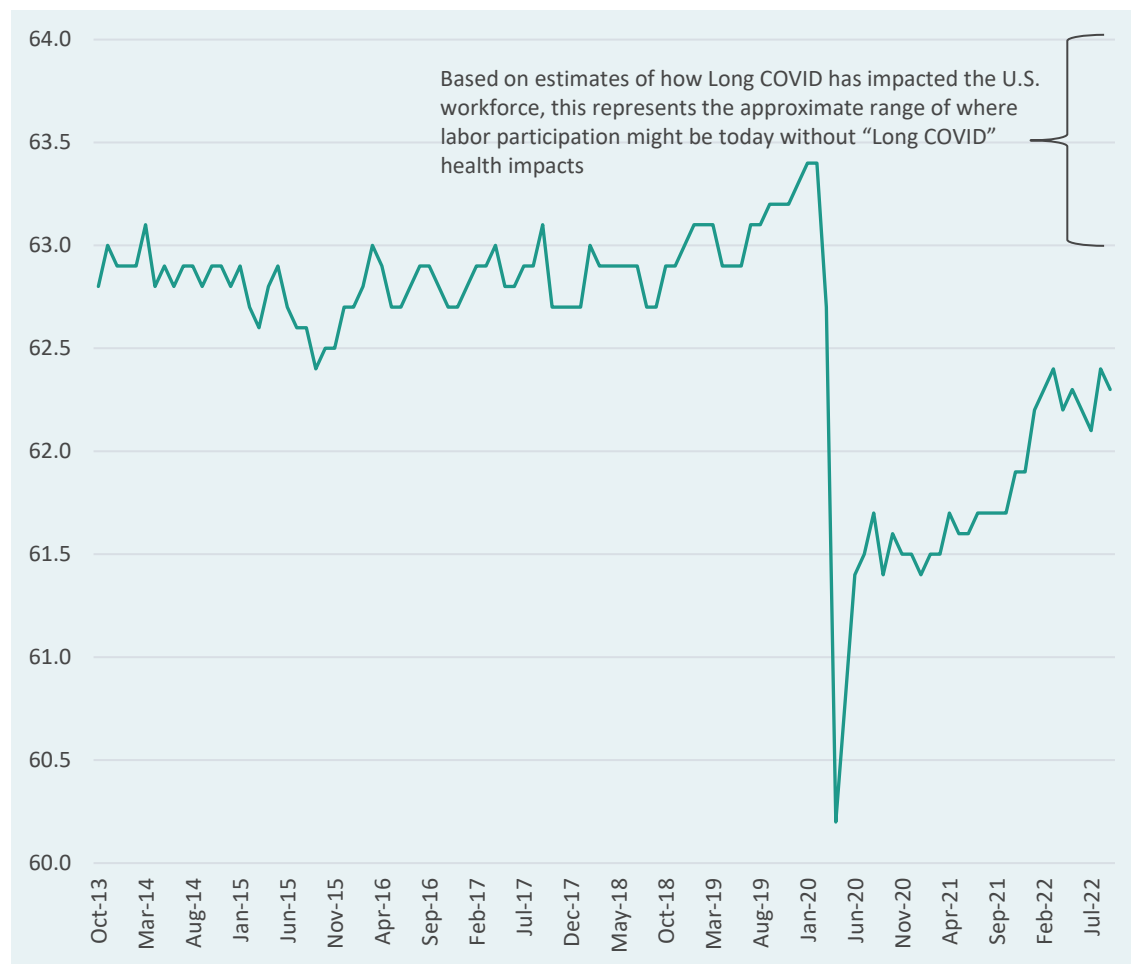


Source: FRED, as of 6/30/22

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

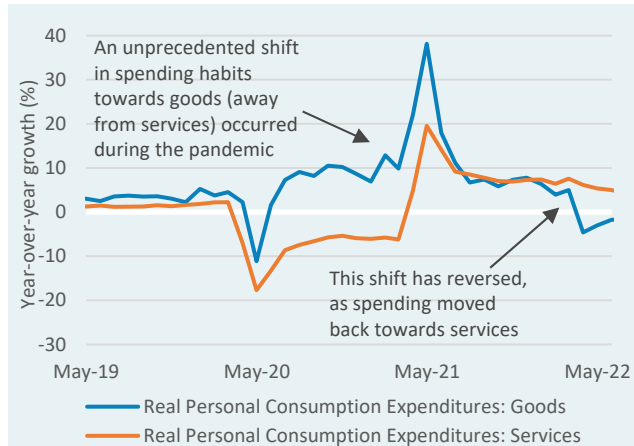
The consumer

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.

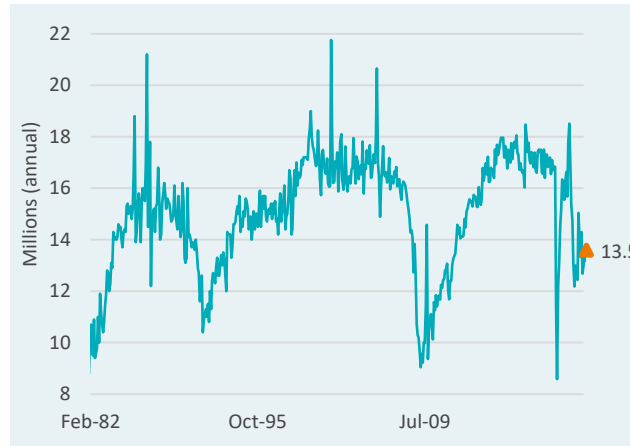
Auto sales activity remains very weak, although automakers have reported improvements in computer chip supplies that will allow production to rise. On the other hand, higher interest rates, diminished household budgets, and high car prices may constrain a recovery in auto sales activity despite new inventory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

REAL PERSONAL CONSUMPTION EXPENDITURES



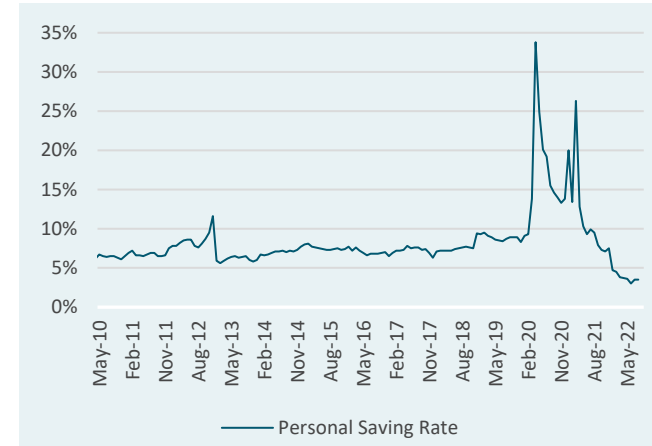
Source: FRED, as of 8/31/22

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.

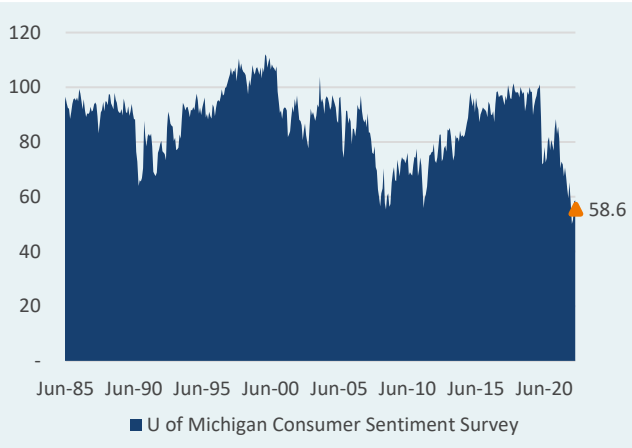
Consumer confidence measured by the Conference Board ticked up in the third quarter, as inflation expectations lessened, and more specifically as households saw prices at the pump materially contract. Consumers' assessments of current conditions and the short-term outlook improved, although

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



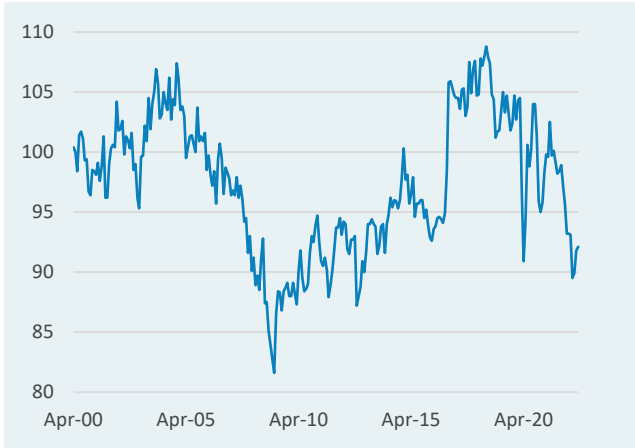
Source: University of Michigan, as of 9/30/22

CONFERENCE BOARD CONSUMER CONFIDENCE



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

NFIB SMALL BUSINESS SENTIMENT



Source: NFIB, as of 9/30/22

Housing

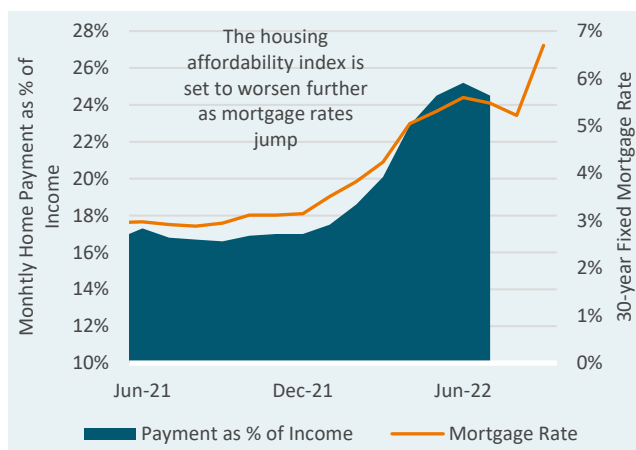
U.S. home prices fell -0.3% from June to July, according to the S&P CoreLogic Case-Shiller U.S. National Index, which might signal a reversal of the remarkable upward march in real estate values. The index suggested home prices were 15.8% higher over the past full year. Sales volumes have dropped precipitously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

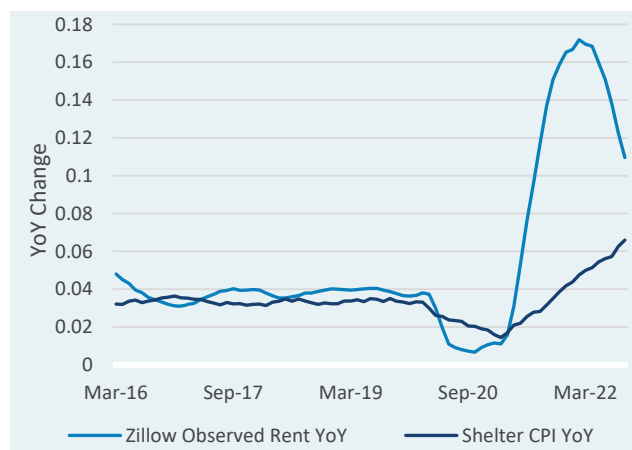
CHANGE IN HOUSING AFFORDABILITY



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

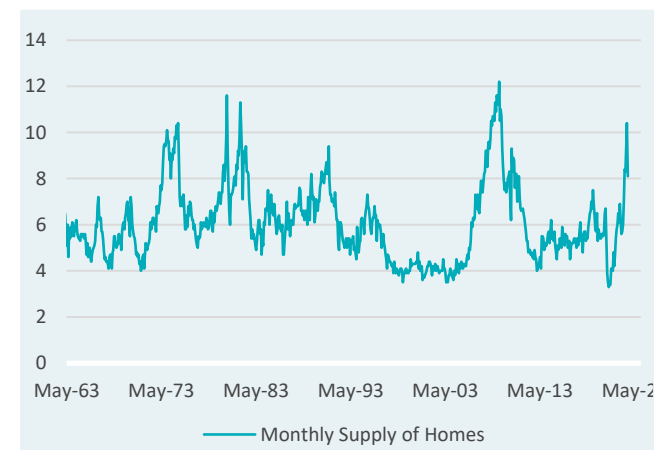
Census Bureau median family income is compared here to the monthly cost (principal + interest) of an average priced home

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

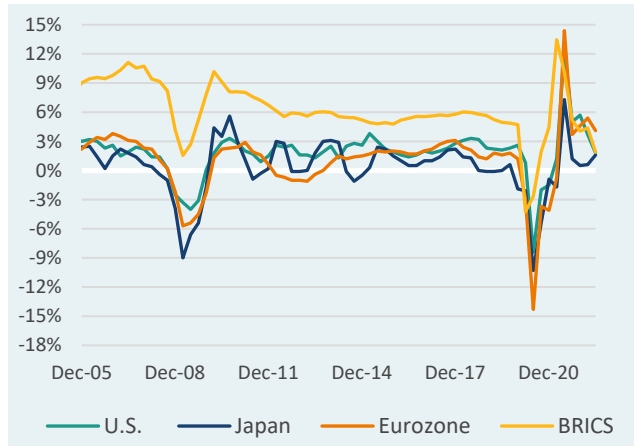
Growth expectations have further weakened around the world, and recession appears possible in some developed countries. Throughout 2022, headline inflation remained stubbornly high in many places such as the United States and Europe. Other areas, such as Japan, had avoided the initial wave of inflation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

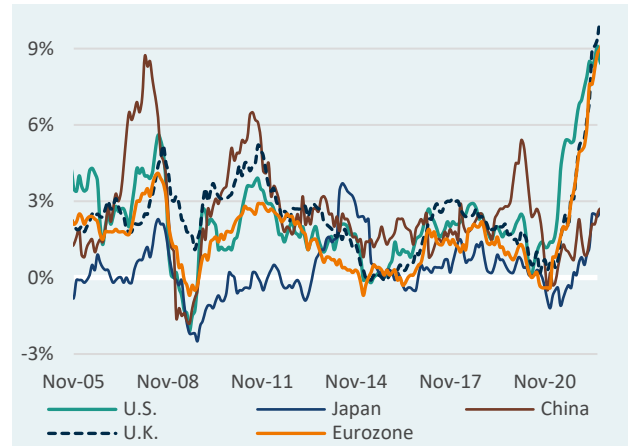
Unemployment rates are stable and tight in most markets, though central bankers may now see this as a problem standing in the way of efforts to slow economies and fight rising prices.

REAL GDP GROWTH (YOY)



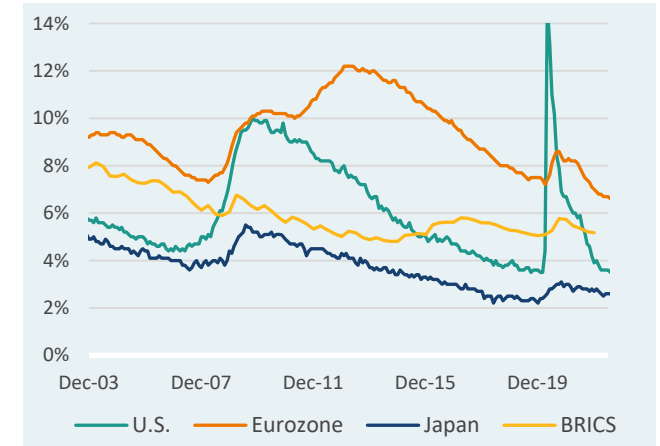
Source: Bloomberg, as of 6/30/22

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.

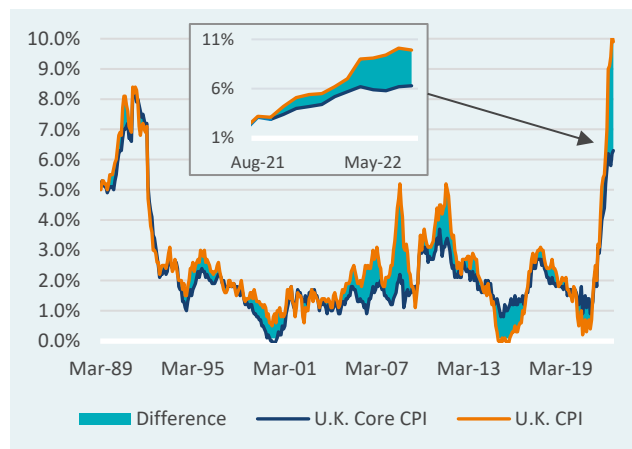
Markets reacted very poorly to the announcement. U.K. Gilt (U.K. treasury bond) yields soared, and the British pound sold off to its lowest level against the dollar in history. Markets stabilized following a commitment from the Bank of England to purchase long-dated bonds, given that many U.K. pension 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.

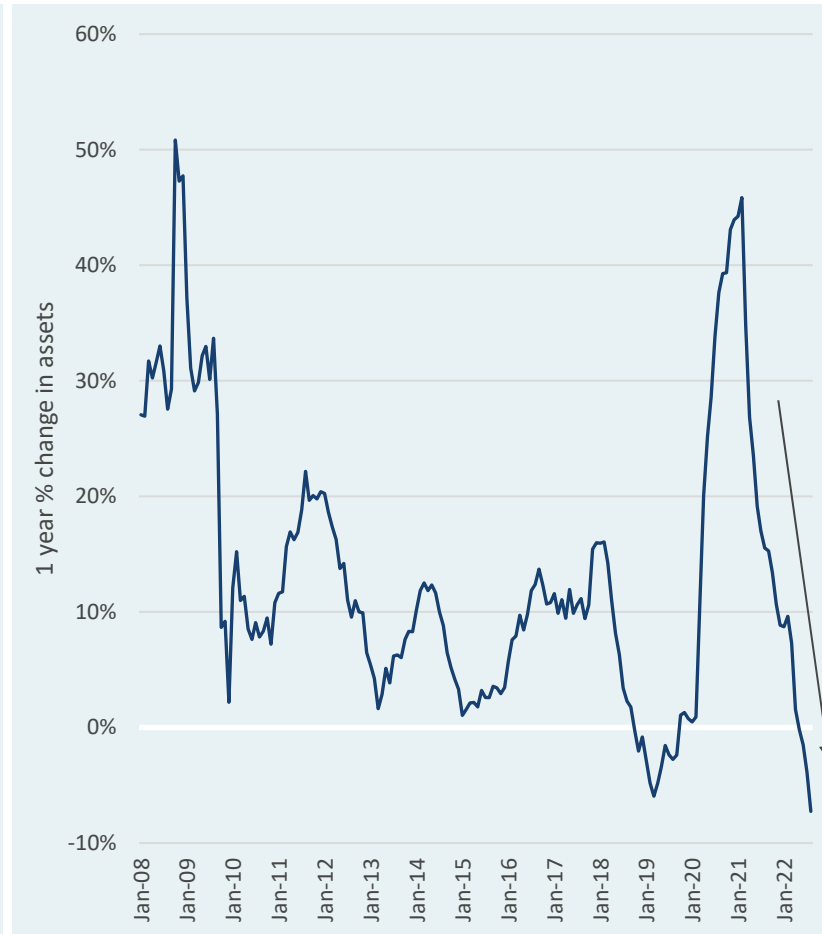
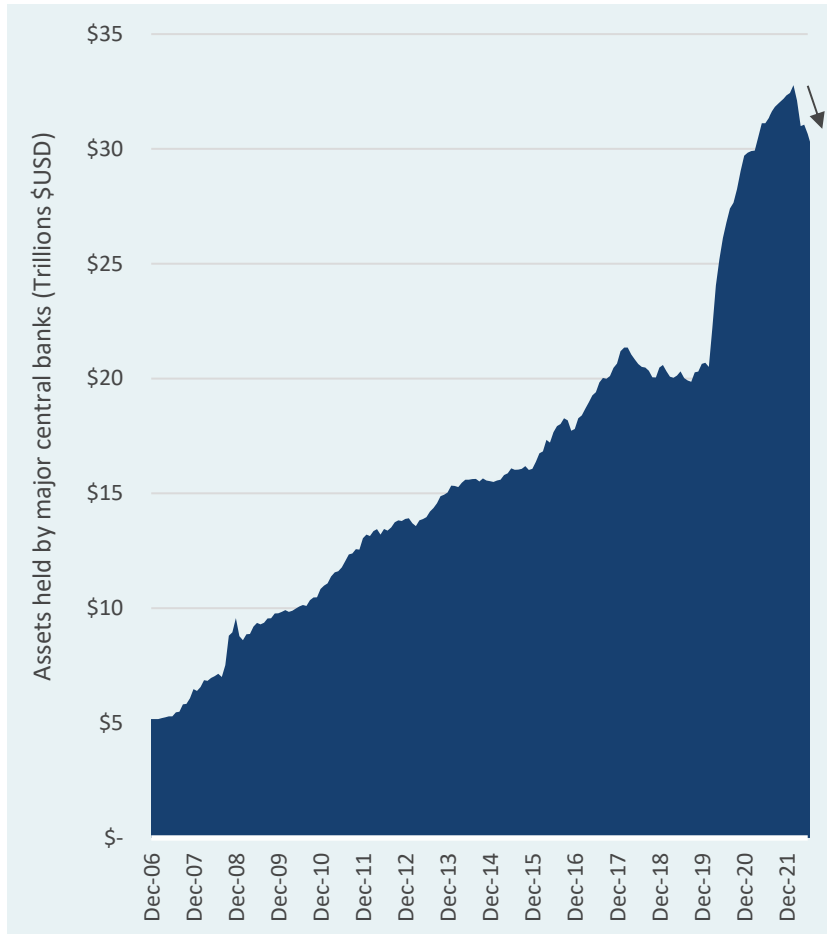
- The U.S. Yield Curve inverted during the quarter, with the 10-year 2-year spread falling from 0.1% to -0.4%. An inverted curve has historically suggested recession within two years or so.
- Throughout the third quarter, the Federal Reserve continued its path to reduce the balance sheet, beginning in 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



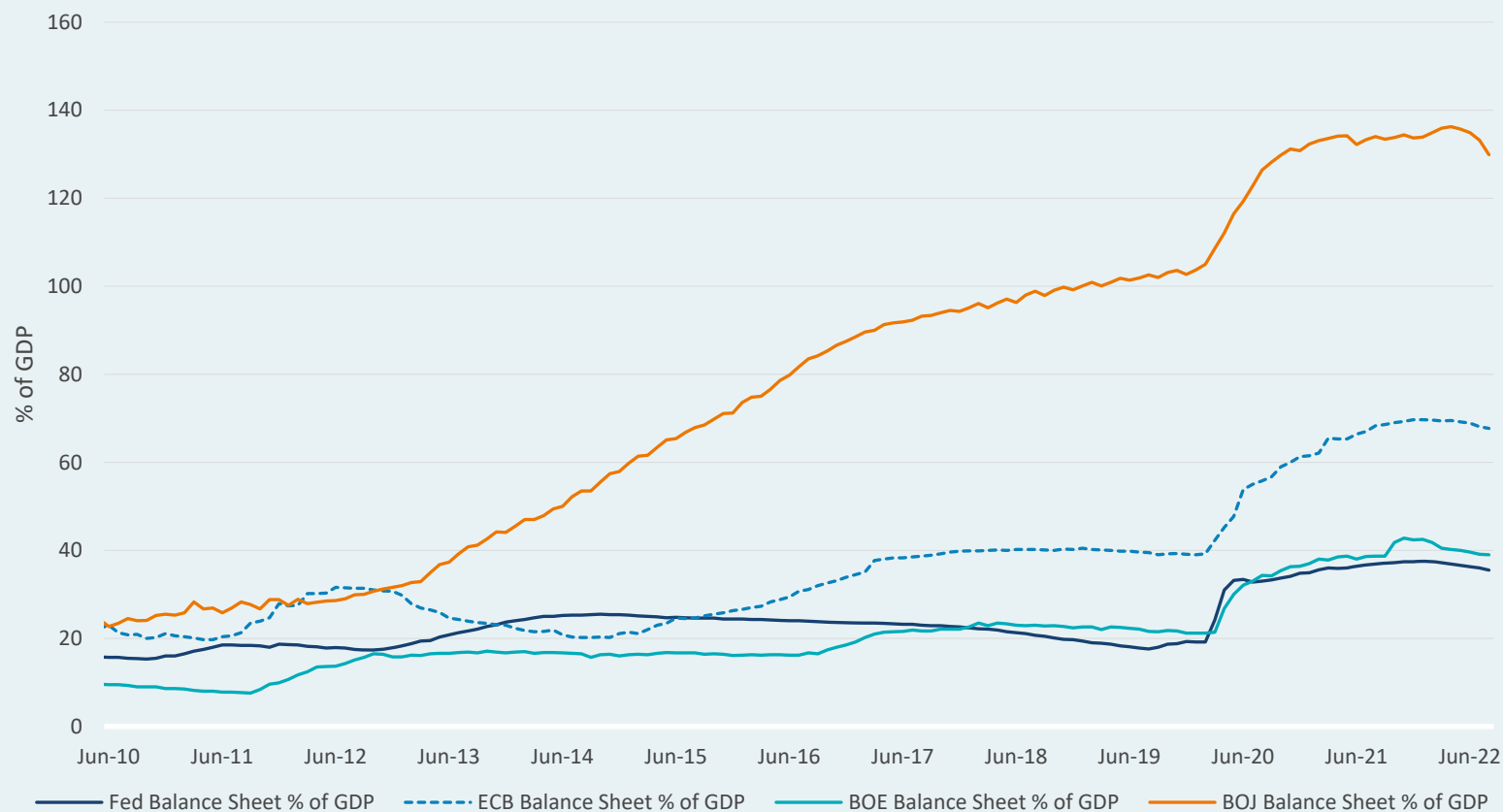
Markets are entering an unusual time of mass central bank asset roll-off

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



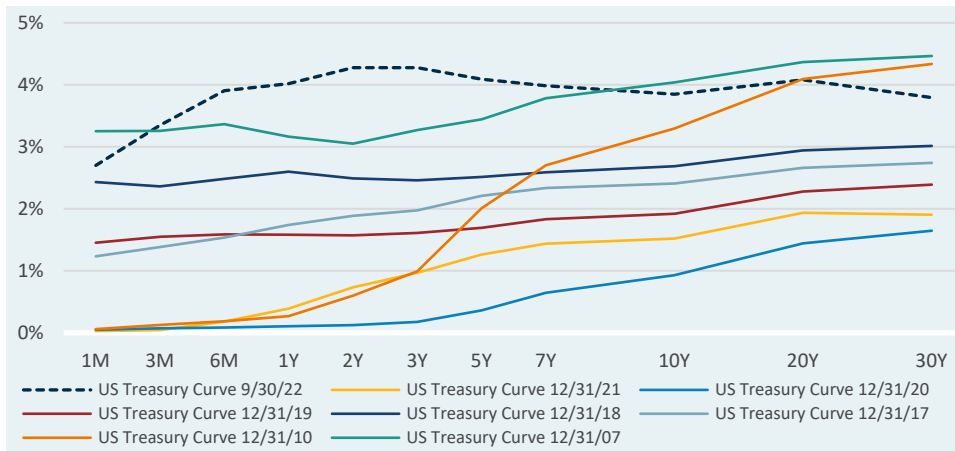
Central banks have accumulated very large balance sheets

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

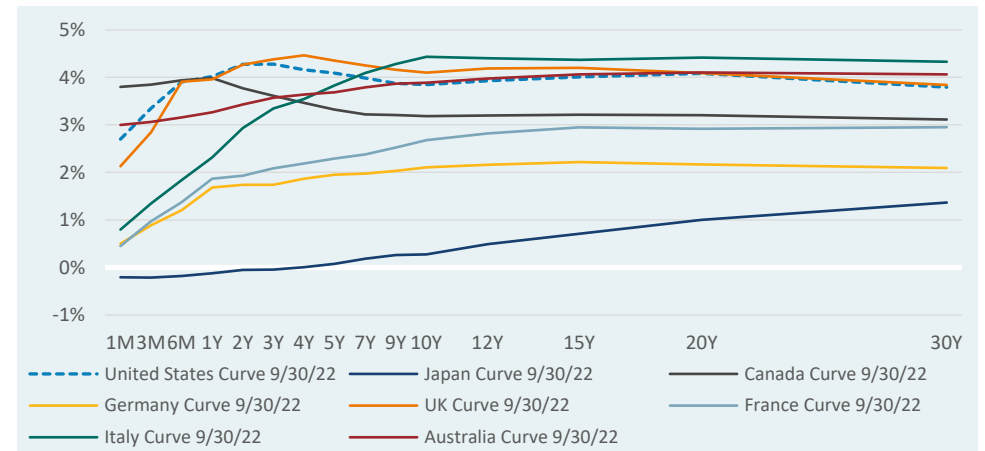
Source: Bloomberg, Verus, as of 9/30/22

Yield environment

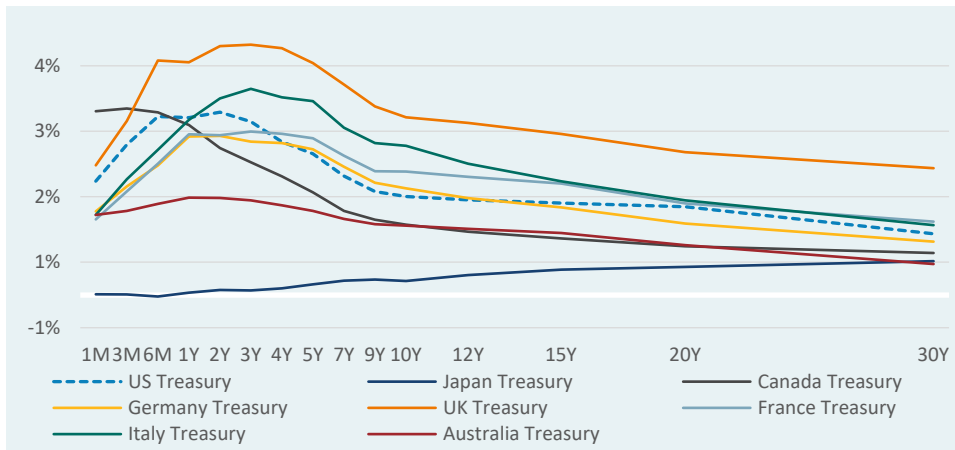
U.S. YIELD CURVE



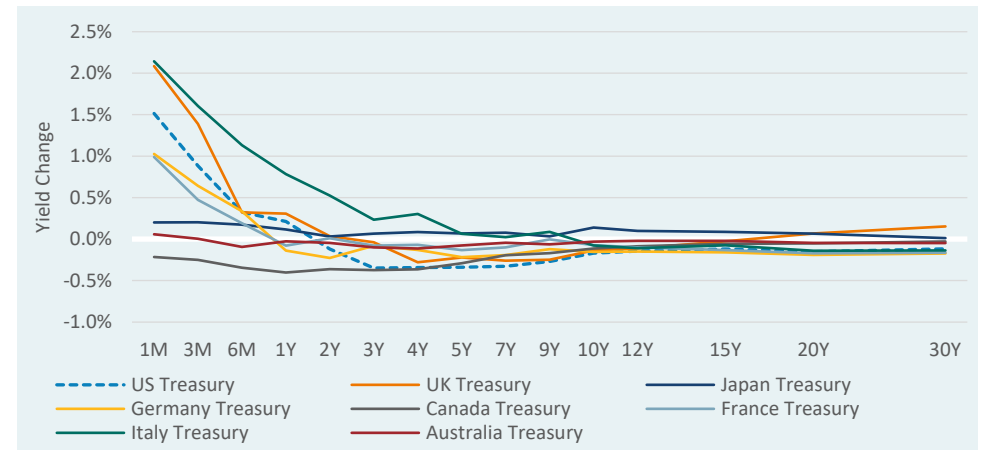
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/22

Credit environment

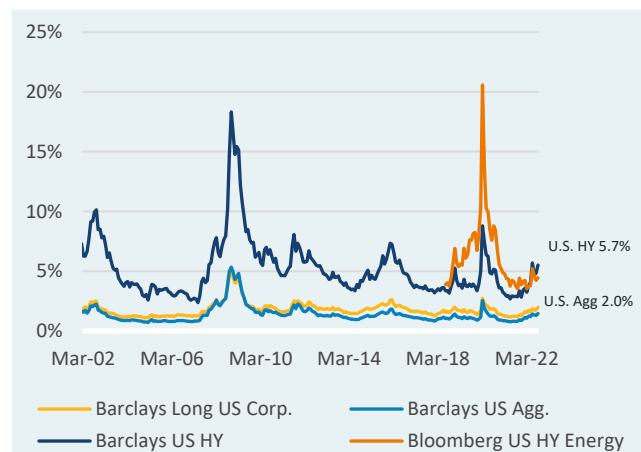
Credit market performance was mixed over the third quarter, with lower duration exposures faring better than higher duration exposures. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in July and September reinforced its intention to fight inflation until the "job is done." 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.

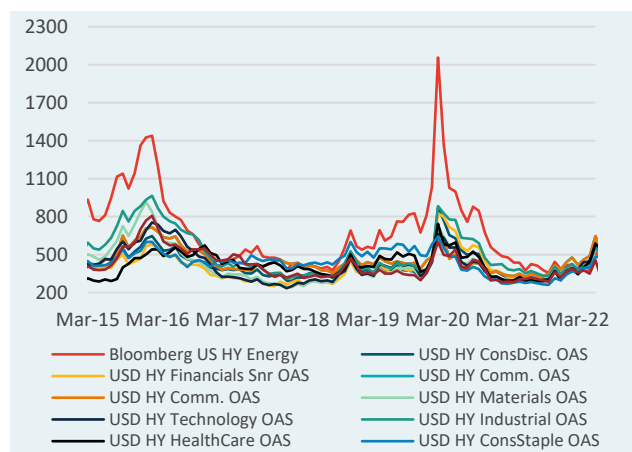
Over the course of the year, total yields have risen significantly within credit markets with the Bloomberg US High Yield Index now at 9.7%—almost double the levels of 4.9% seen at the start the year. Similarly, the yield of the Bloomberg US Corporate Investment Grade Index was 5.7%, up from 2.4% at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

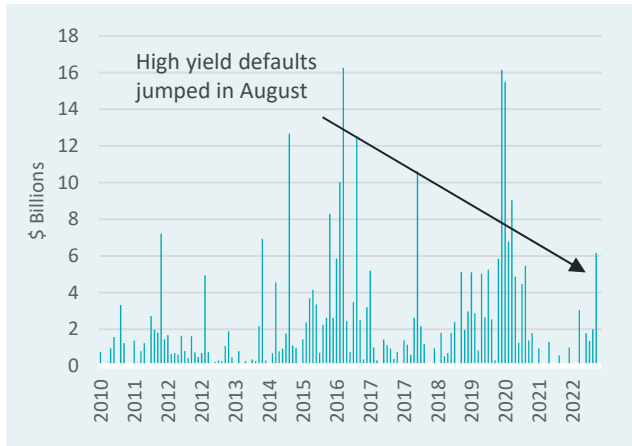
Default activity continued to pick up in the third quarter with seven companies defaulting on loans and bonds totaling \$16.5 billion. This was the highest quarterly total seen since the second quarter of 2020. Activity represented a significant jump from the \$1.6 billion and \$10.4 billion shown in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

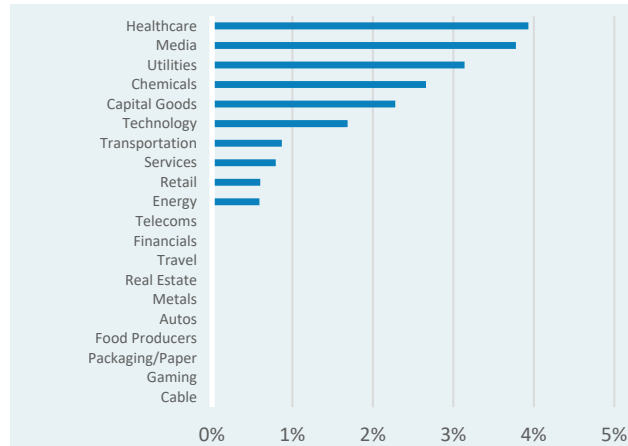
Leveraged credit issuance remained very light, which was consistent with the weaker trend of 2022. The third quarter total of \$18.9 billion issued in high yield bonds marked the lightest issuance since the first quarter of 2009. A similar effect was observed in the bank loans market, which totaled \$24 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)



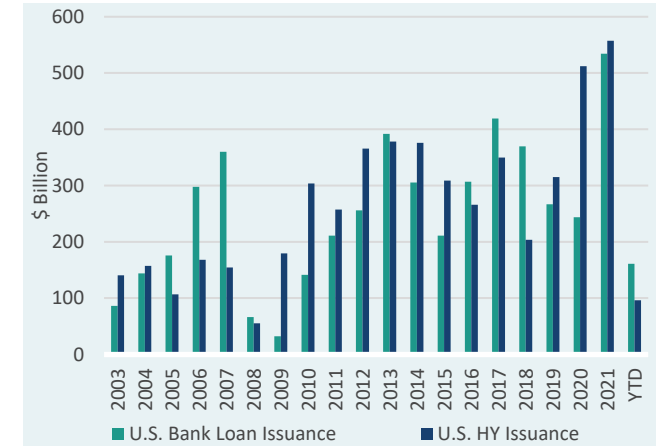
Source: BofA Merrill Lynch, as of 9/30/22

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 30th, 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.

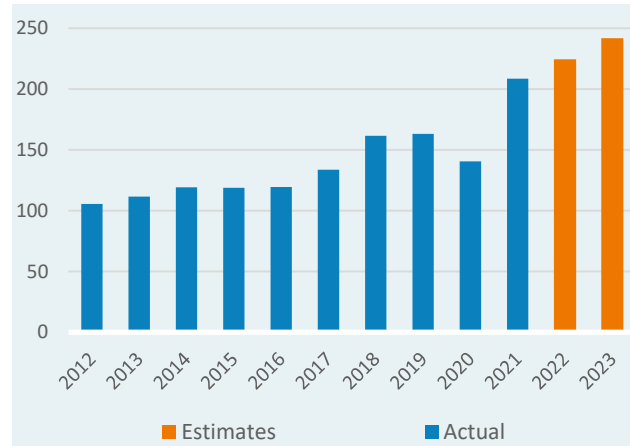
Sector performance during Q3 was disparate. Consumer discretionary (4.4%) and energy (2.3%) sectors lifted the overall index while all other sectors were in the red.

S&P 500 PRICE INDEX



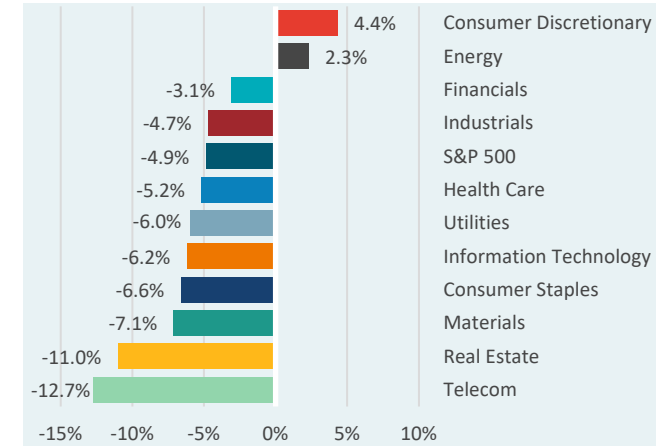
Source: Standard & Poor's, as of 9/30/22

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).

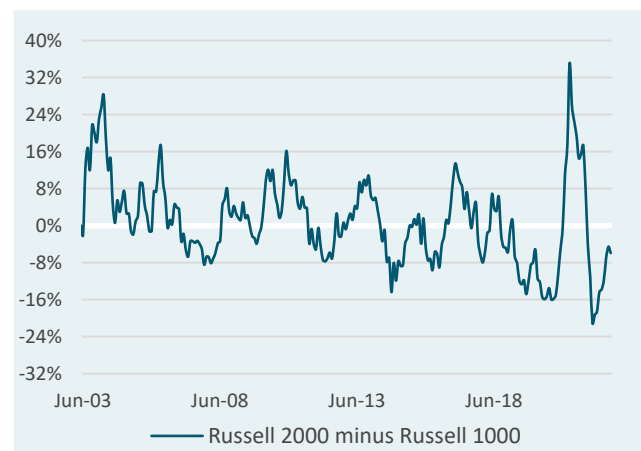
Despite this quarter, value has outperformed significantly over the past year. The Russell 1000 Value Index is down -17.8%, while the growth equivalent has lost -30.7%. With the Federal

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.

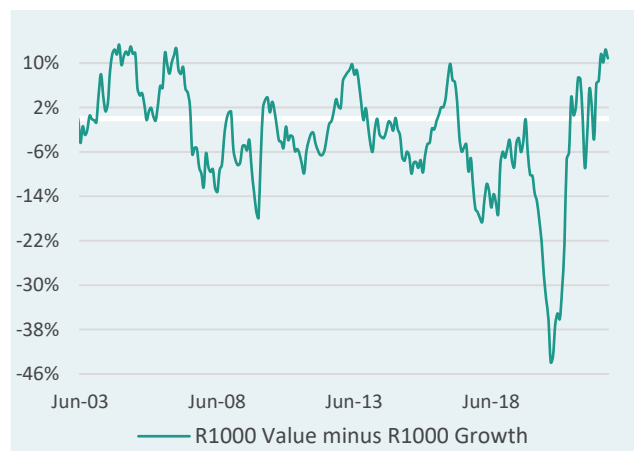
Domestic equities have continued to be challenged regardless of size and style, as investors weigh the impacts of a tighter economic environment on company earnings.

SMALL CAP VS LARGE CAP (YOY)



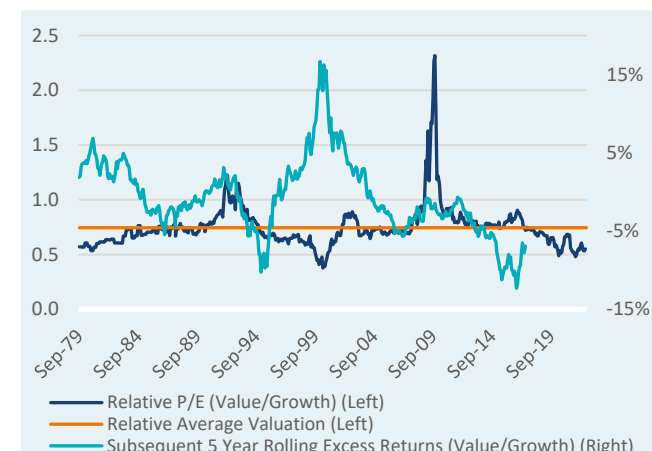
Source: FTSE, as of 9/30/22

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

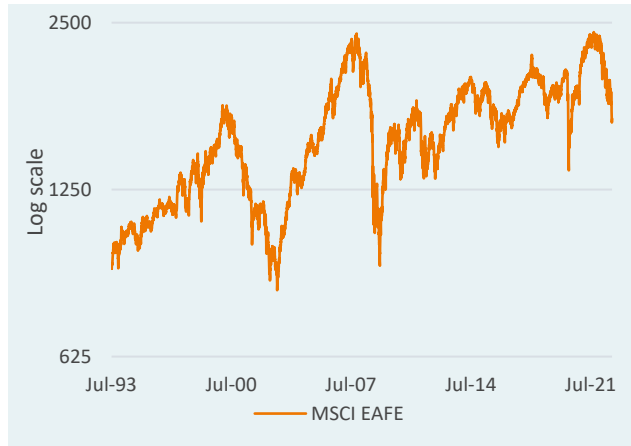
International developed equities fell alongside the global opportunity set in the third quarter. The MSCI EAFE Index dropped -9.4% in U.S. dollar terms, although most of those losses can be attributed to currency impacts, with hedged returns only experiencing a -2.8% loss. The Federal Reserve continues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

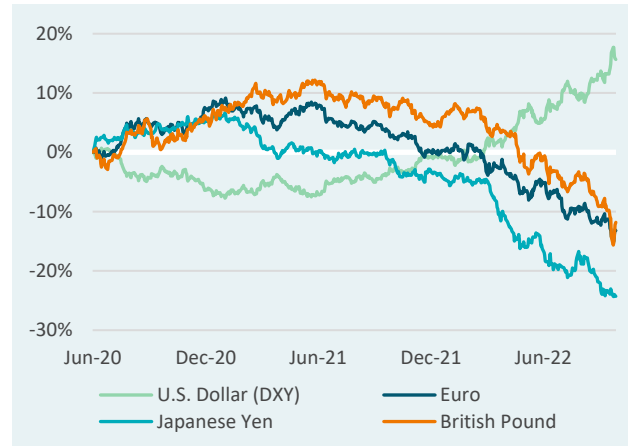
European equities also saw losses over the quarter, although local returns were strong relative to U.S. and Emerging market equities. The flash crash of the British pound had a material impact on FTSE 100 performance in U.S. dollar terms, with U.K. equities closing the quarter down -10.6%, lagging the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

INTERNATIONAL DEVELOPED EQUITY



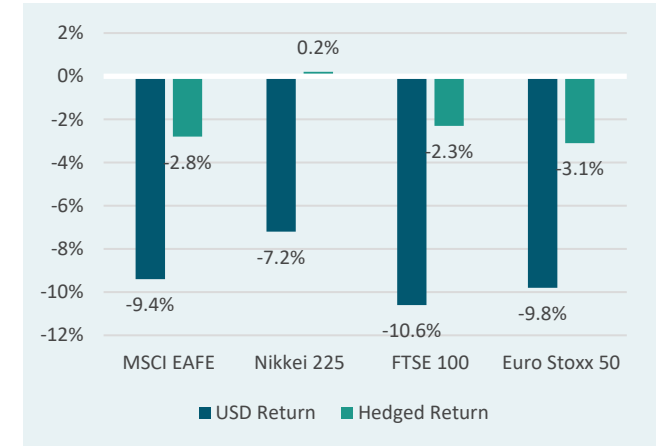
Source: MSCI, as of 9/30/22

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



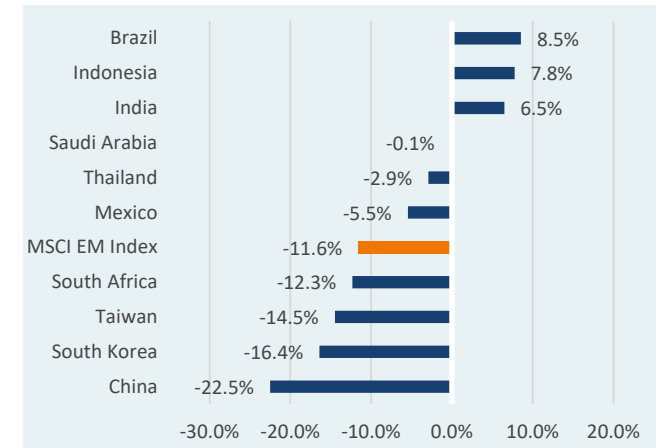
Source: MSCI, as of 9/30/22

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)



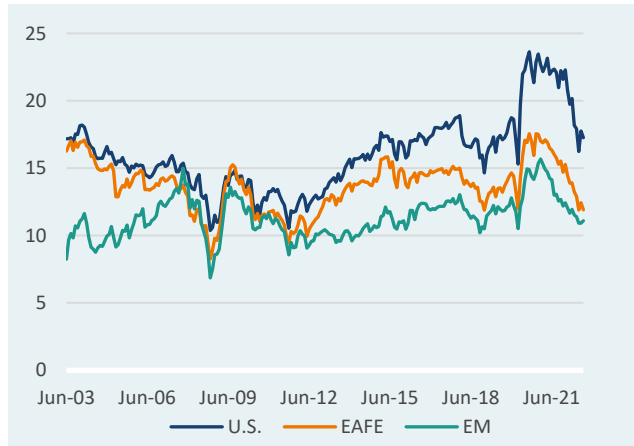
Source: Bloomberg, MSCI as of 9/30/22, performance in USD terms

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.

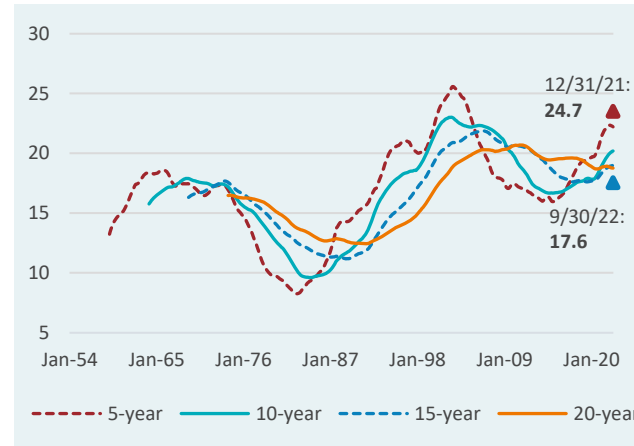
Domestic earnings were challenged in the second quarter. Businesses faced higher costs, large currency impacts, and a more budget-constrained consumer. While blended earnings grew at a 6.7% clip from the previous year, excluding the energy sector would bring that earnings figure down to -3.7%, per FactSet. 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



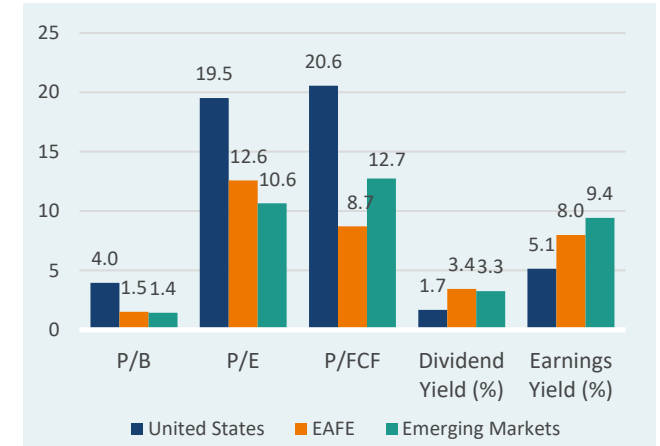
Source: MSCI, 12m forward P/E, as of 8/31/22

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

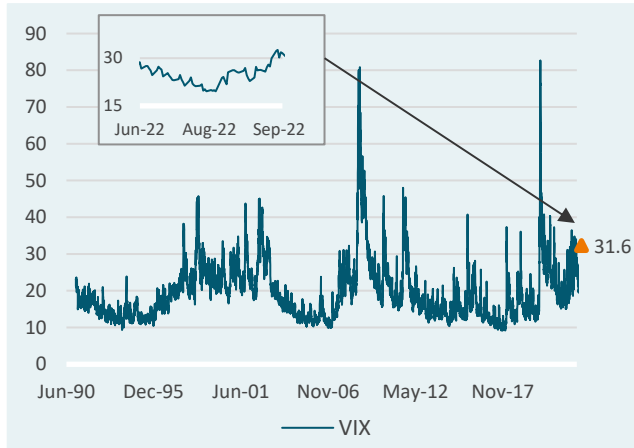
Volatility remained elevated through the quarter as the Cboe VIX Index rose further from 28.7% to 31.6%. Risk assets sold-off into a deeper bear market and concerns focused on Federal Reserve tightening and liquidity being removed from the global financial system. Inflation and Fed actions seem to exist 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.

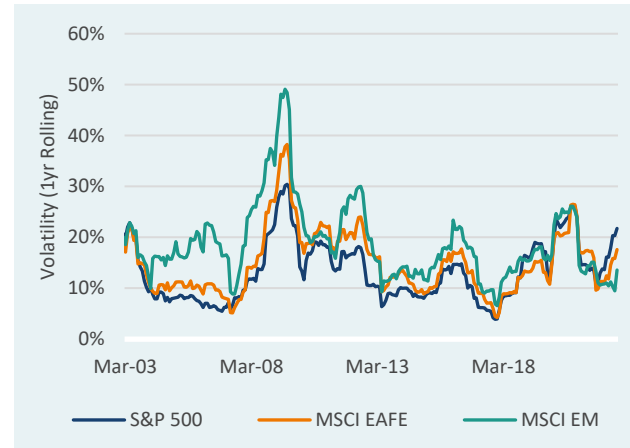
The current bear market has been particularly painful given the broadness of the selloff across equity fixed income, and real assets. Currency markets also moved against investors, with U.S. dollar appreciation delivering large losses for those with unhedged international asset exposure. Commodities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

U.S. IMPLIED VOLATILITY (VIX)



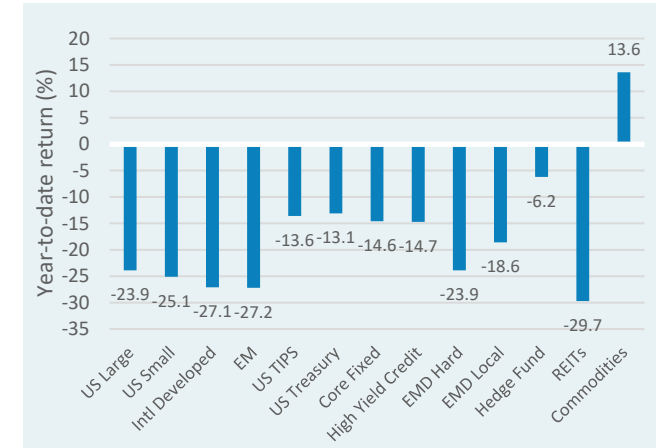
Source: Cboe, as of 9/30/22

REALIZED VOLATILITY



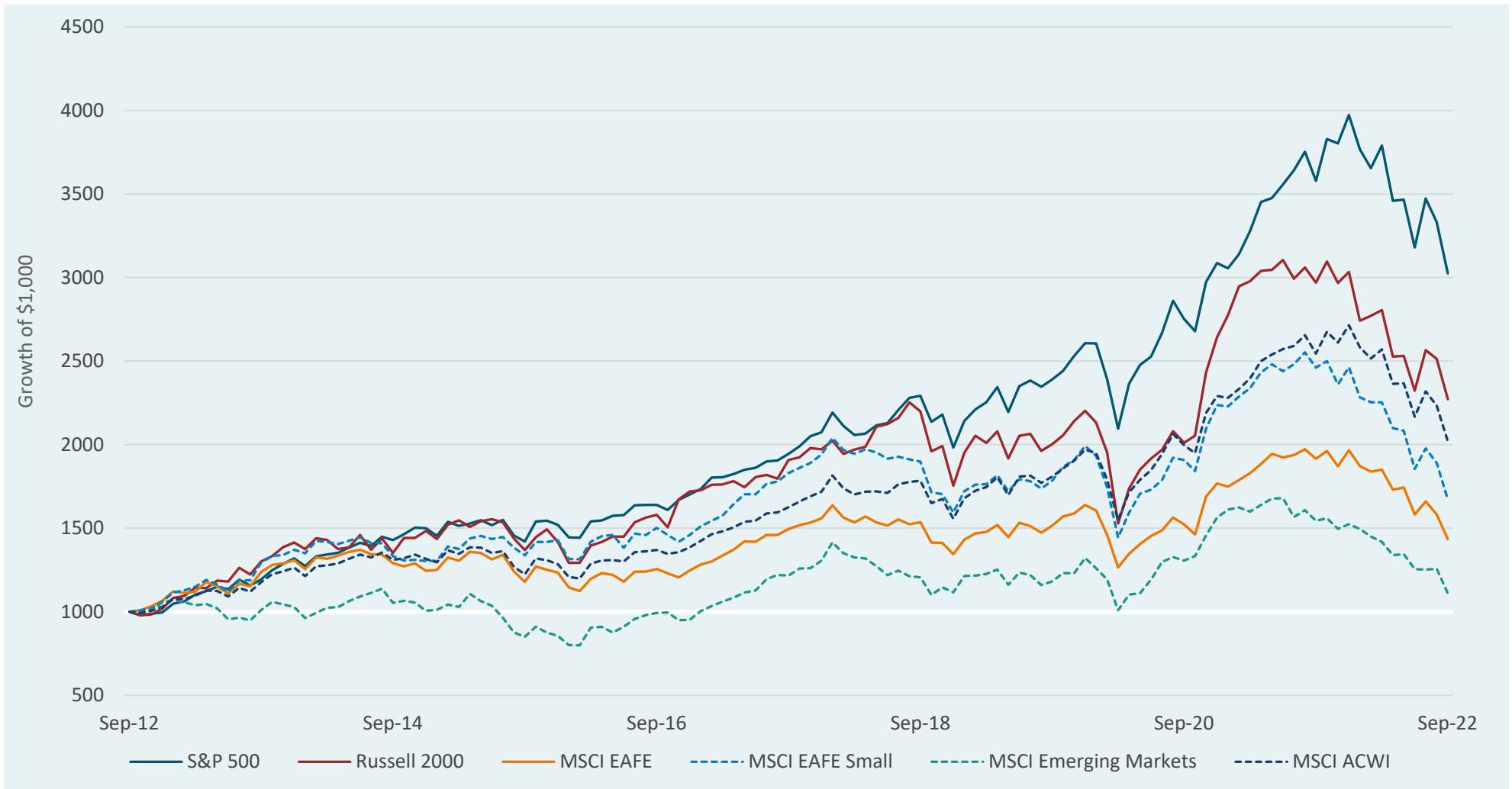
Source: Standard & Poor's, MSCI, as of 9/30/22

BROAD SELLOFF



Source: MPI, as of 9/30/22

Long-term equity performance



Source: Morningstar, as of 9/30/22

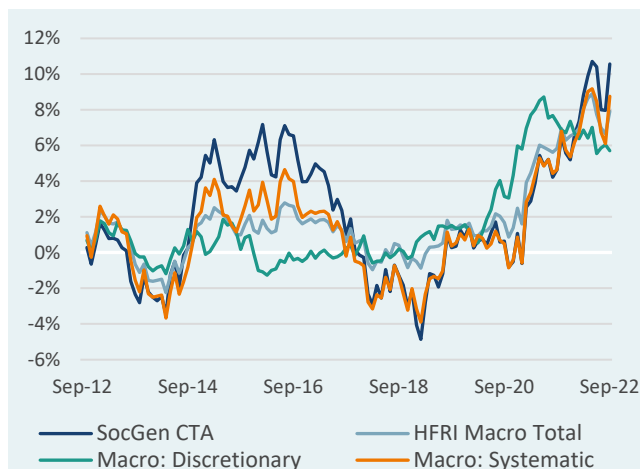
Other assets

Asymmetric macro strategies

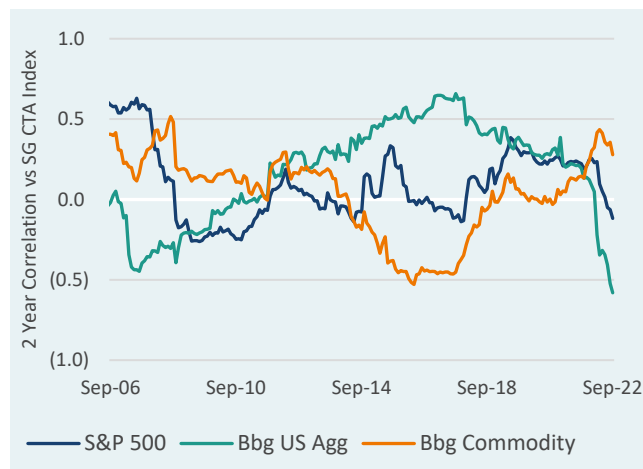
Macro strategies have been the top performing hedge fund strategy since 2021. Both parts of the Macro universe—Discretionary and Systematic—have done extremely well over the last 12-18 months. Systematic strategies have benefitted from strong trend following performance, which has returned to favor after 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.

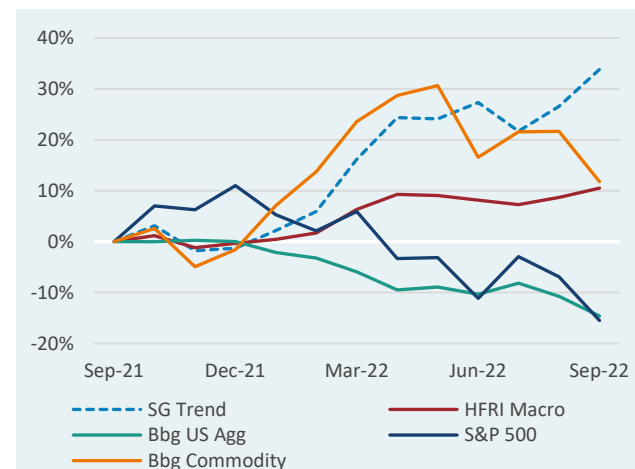
3 YEAR ROLLING RETURN FOR MACRO FUNDS



CTA FUNDS CORRELATION TO MARKETS



CUMULATIVE RETURN LAST 12 MONTHS



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

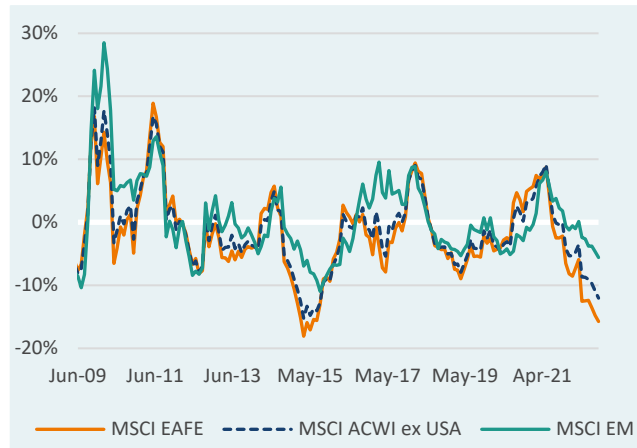
Currency

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

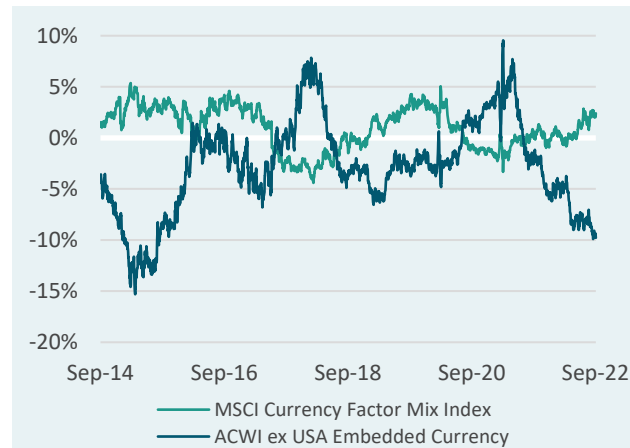
expected return of the portfolio. These characteristics are demonstrated below by comparing the unhedged currency exposure that most investors own (we refer to this as “embedded” currency) to the MSCI Currency Factor Mix Index which represents a passive investment in the currency market. This program 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)



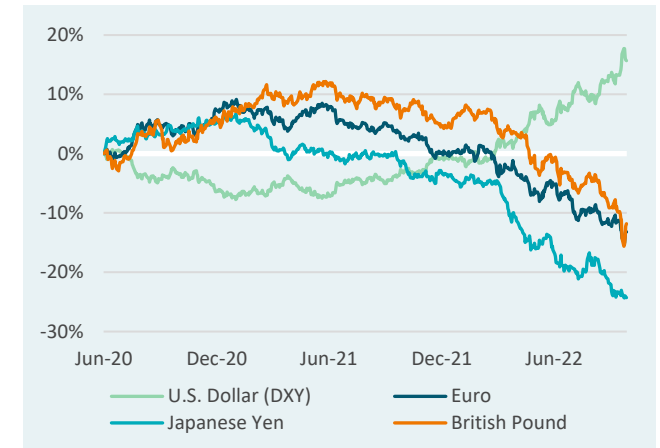
Source: MSCI, as of 9/30/22

UNHEDGED CURRENCY VS CURRENCY FACTOR MIX



Source: MSCI, as of 9/30/22

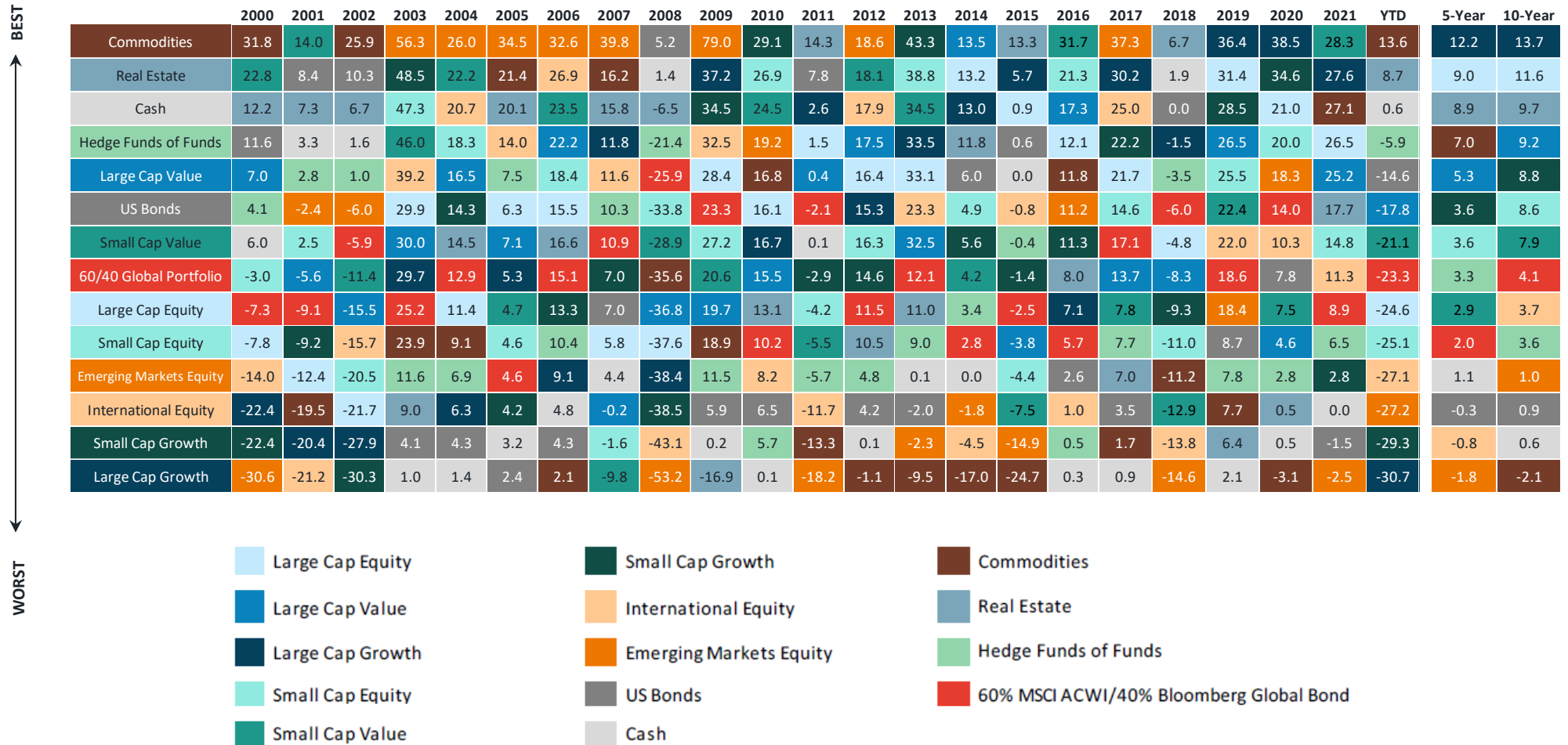
FOREIGN CURRENCY MOVEMENT



Source: Bloomberg, as of 9/30/22

Appendix

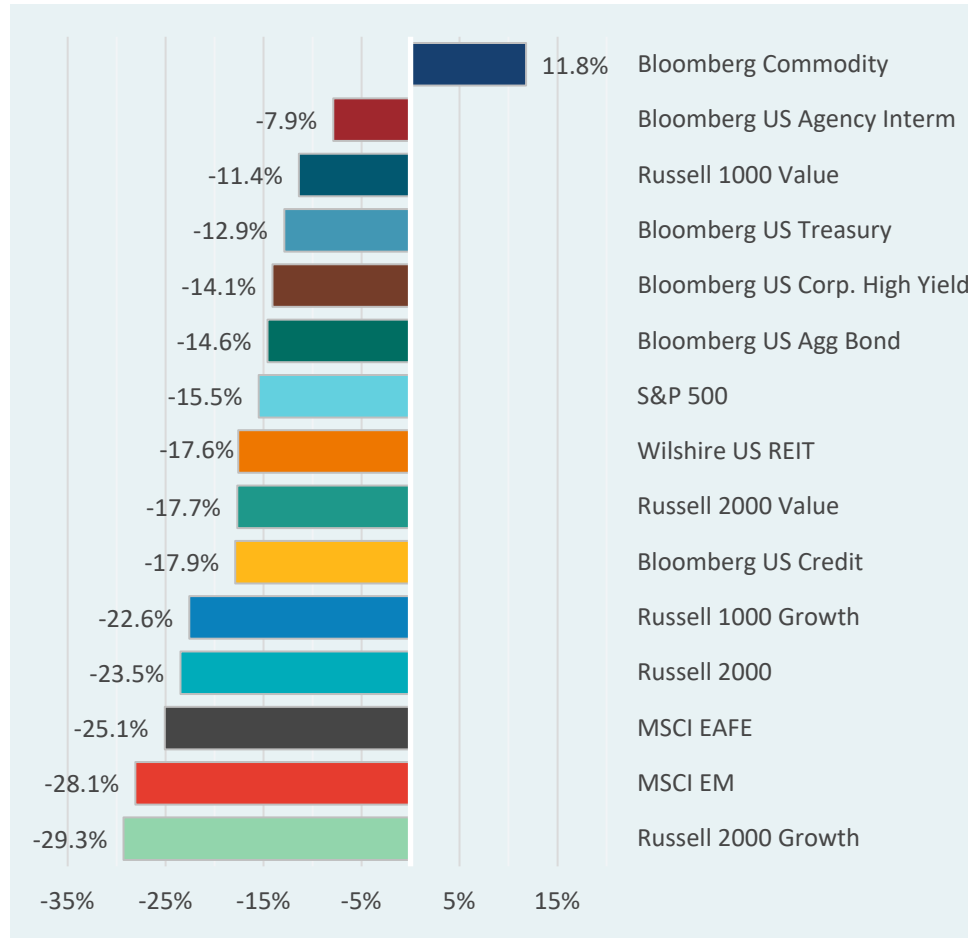
Periodic table of returns



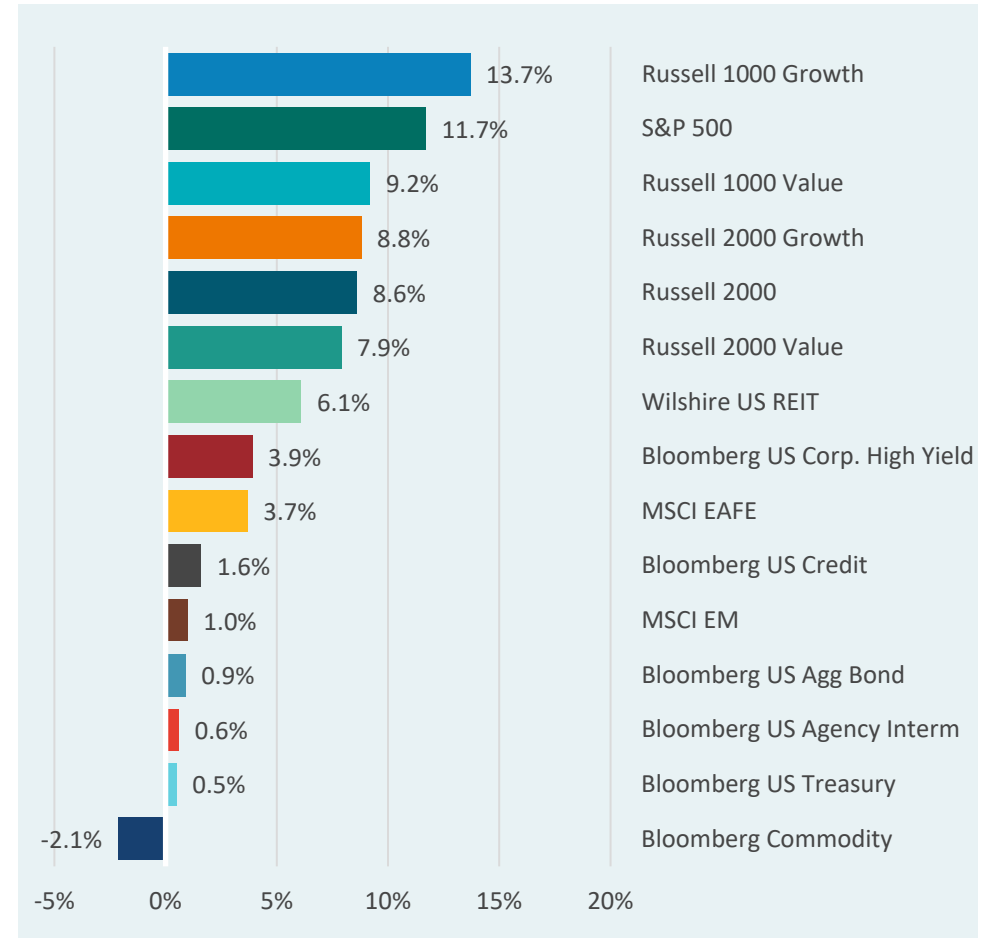
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 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



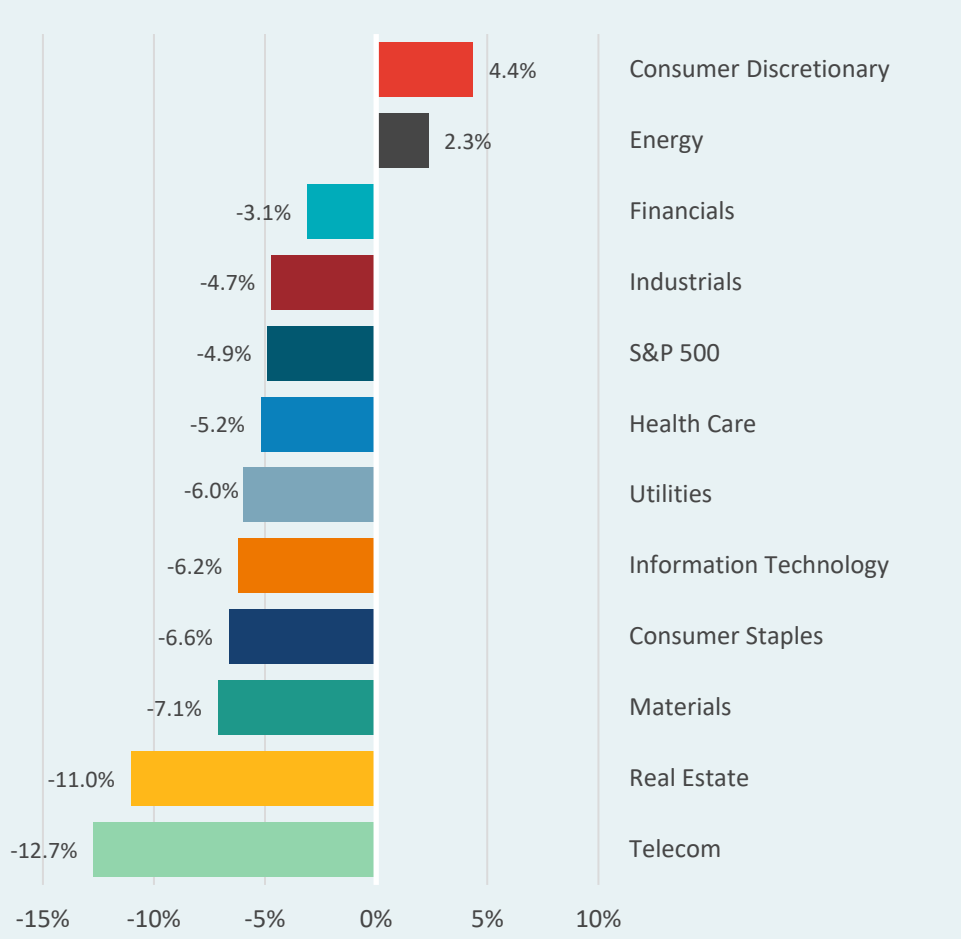
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 9/30/22

Source: Morningstar, as of 9/30/22

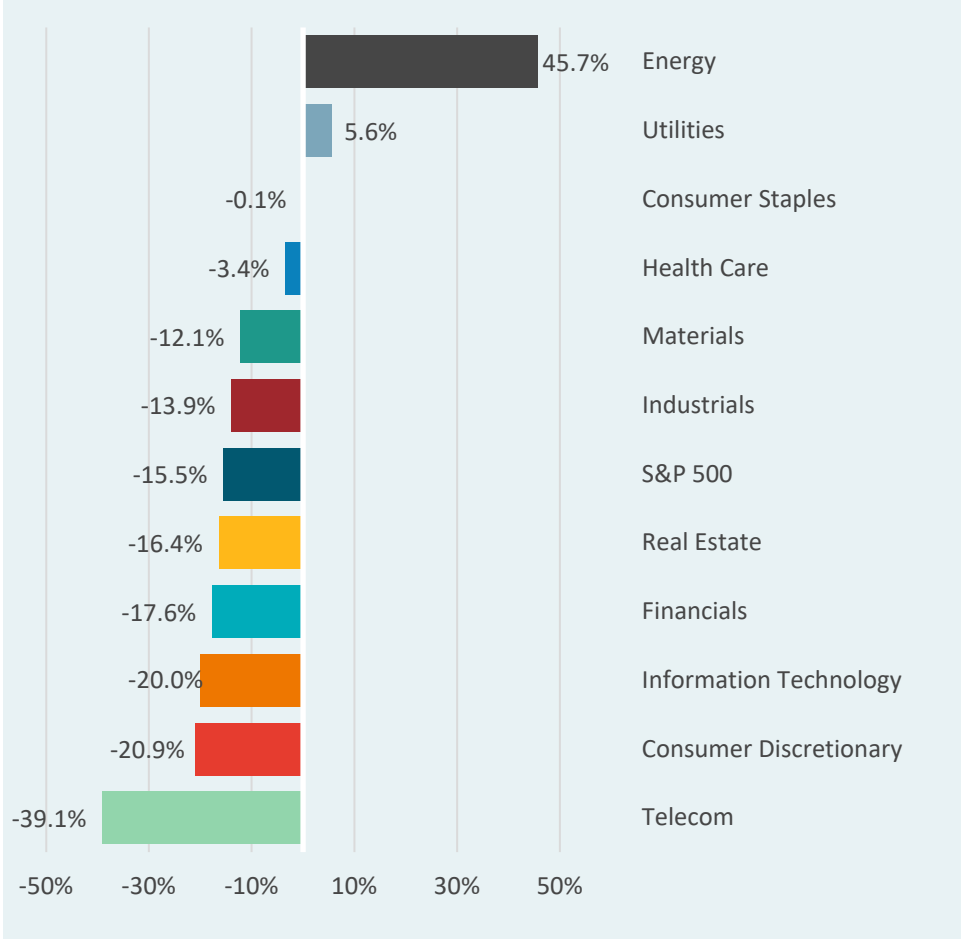
S&P 500 sector returns

QTD



Source: Morningstar, as of 9/30/22

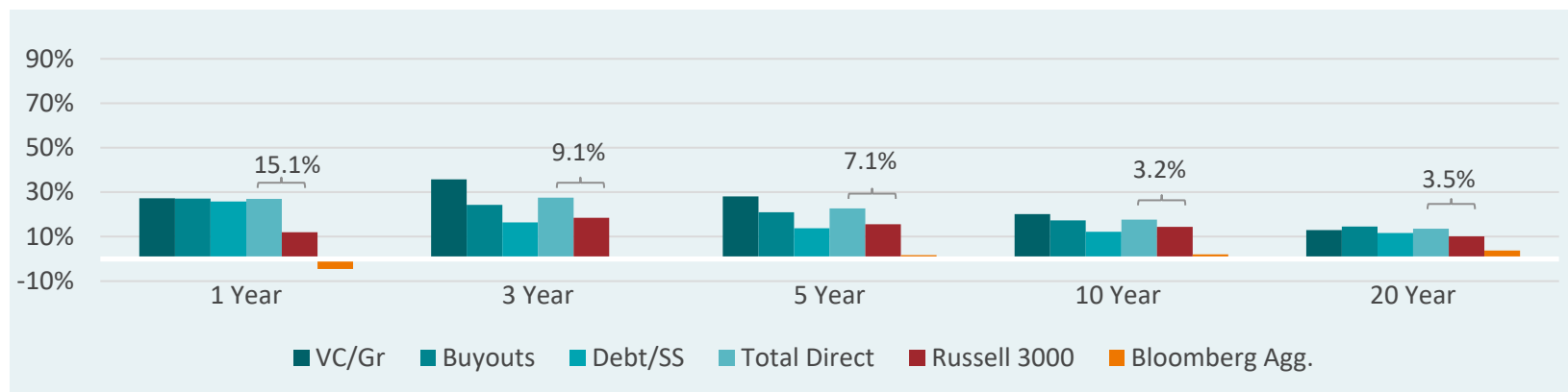
ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/22

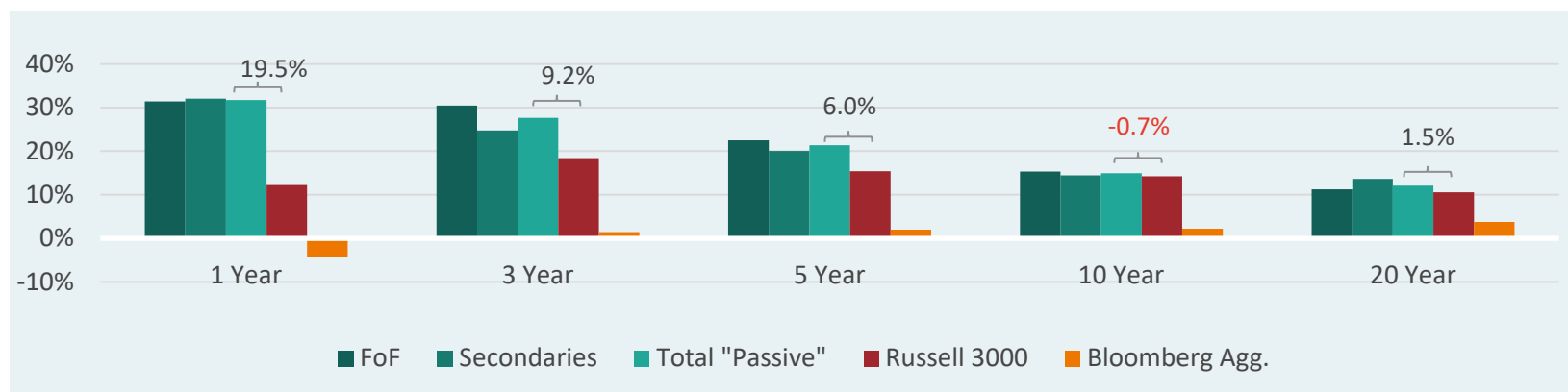
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



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

"PASSIVE" STRATEGIES

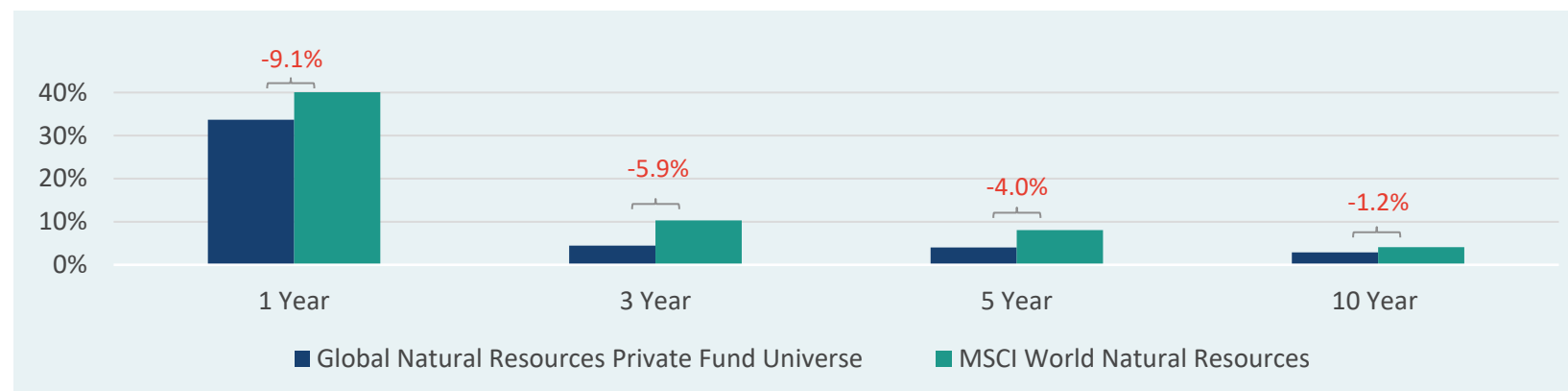


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

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.

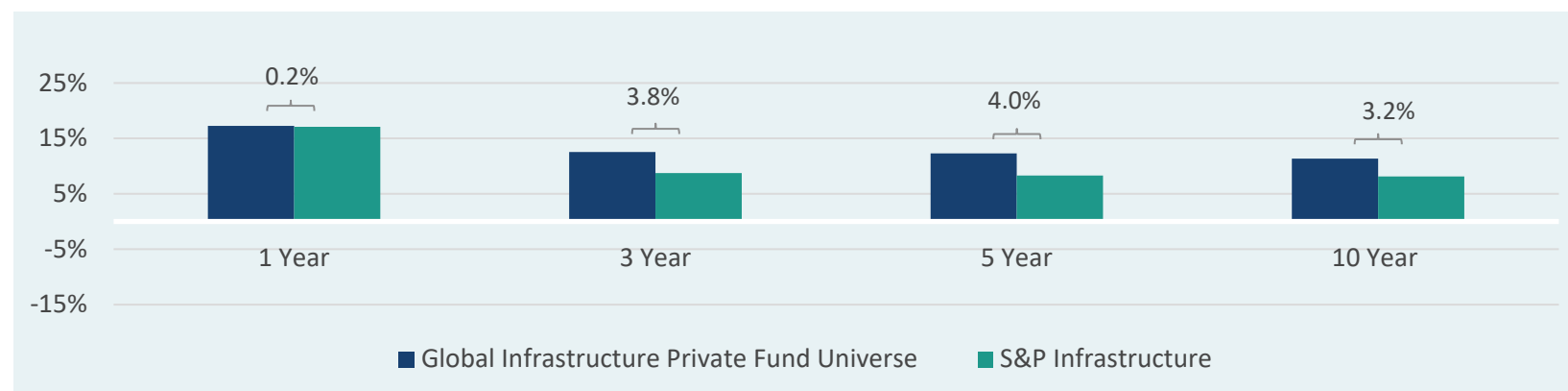
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS (N.R.)



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

GLOBAL INFRASTRUCTURE FUNDS

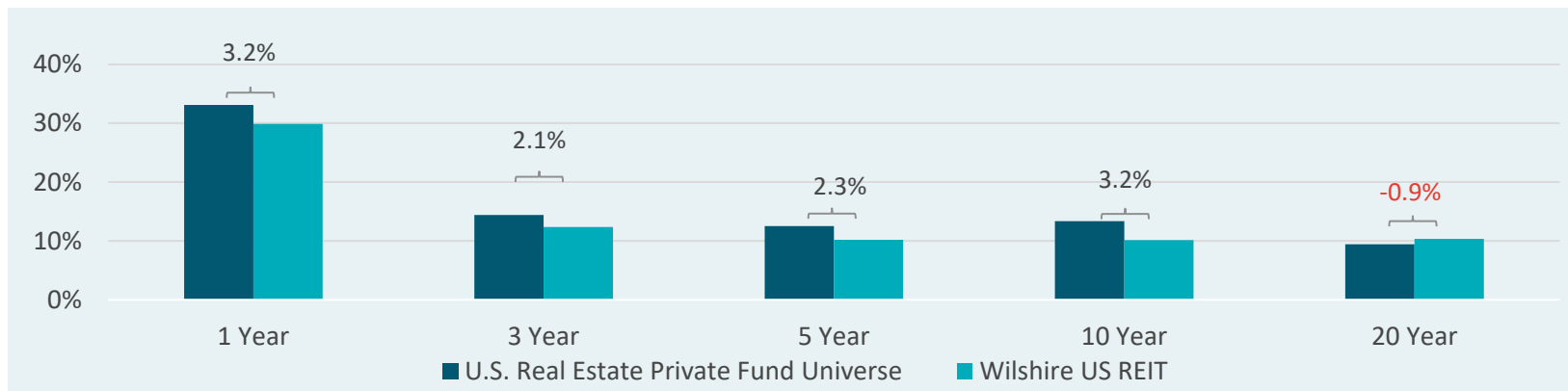


Infra. funds outperformed the S&P Infra. across all periods.

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.

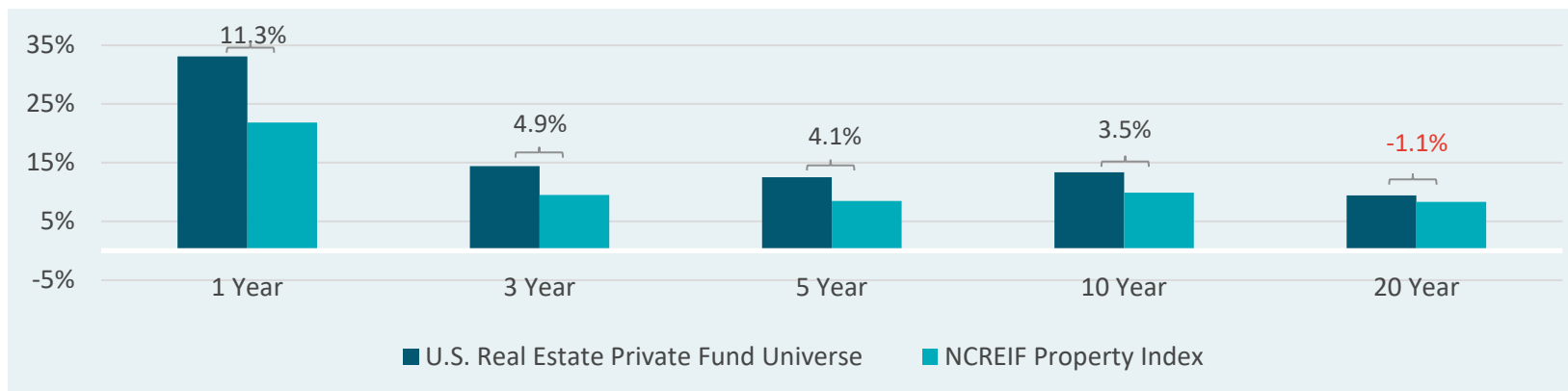
Private vs. liquid and core real estate performance

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
Core Index							
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
Style Index							
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
Broad Index							
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
Style Index							
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
Regional Index							
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
Broad Index							
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
Duration							
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
Issuer							
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
Index							
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
Regional Index							
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)
Hedge Funds							
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
Currency (Spot)							
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)

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)

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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Contra Costa County Employees' Retirement Association

Investment Performance Review

Period Ending: September 30, 2022



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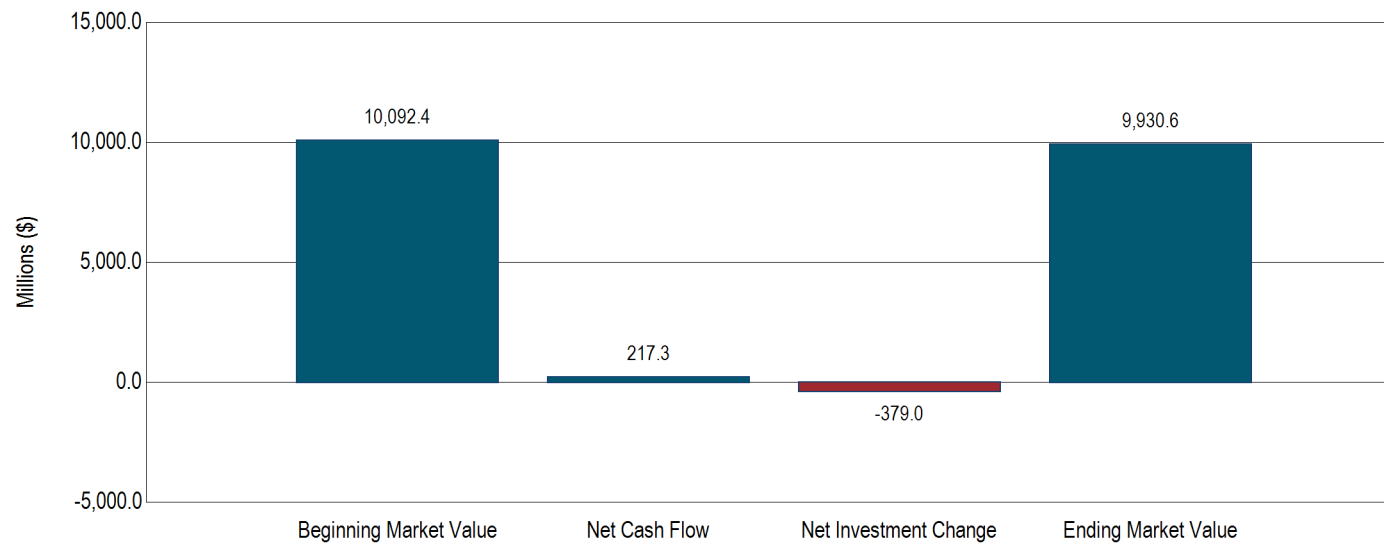
LOS ANGELES 310.297.1777

SAN FRANCISCO 415.362.3484

Portfolio Reconciliation

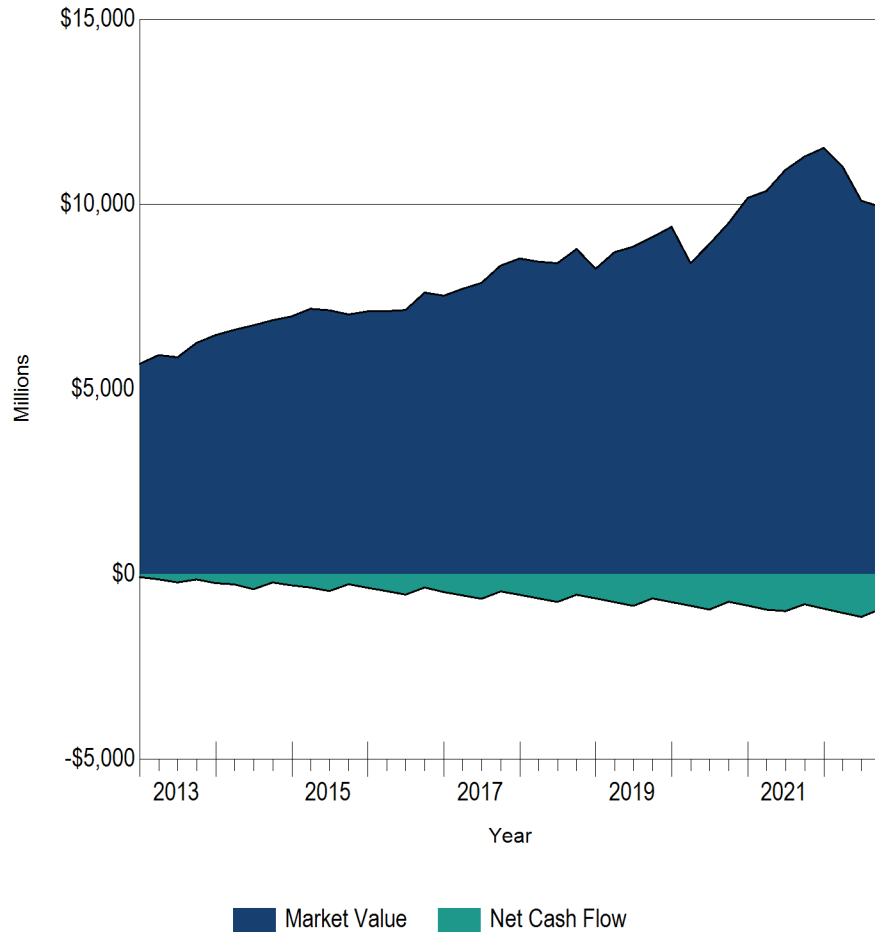
	Last Three Months	Year-To-Date
Beginning Market Value	\$10,092,351,763	\$11,520,465,270
Net Cash Flow	\$217,263,597	\$9,273,844
Net Investment Change	-\$379,023,631	-\$1,599,147,386
Ending Market Value	\$9,930,591,728	\$9,930,591,728

Change in Market Value
Last Three Months

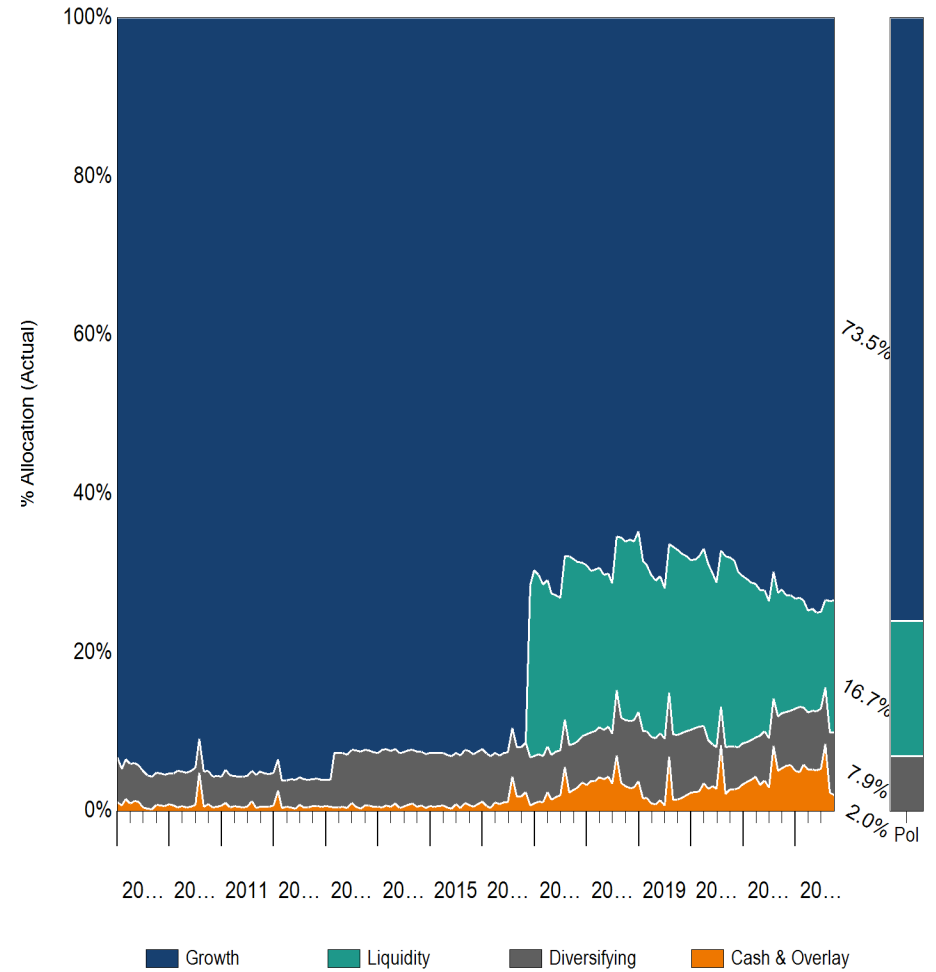


Contributions and withdrawals may include intra-account transfers between managers/funds.

Market Value History
Cumulative Cash Flows



Asset Allocation History

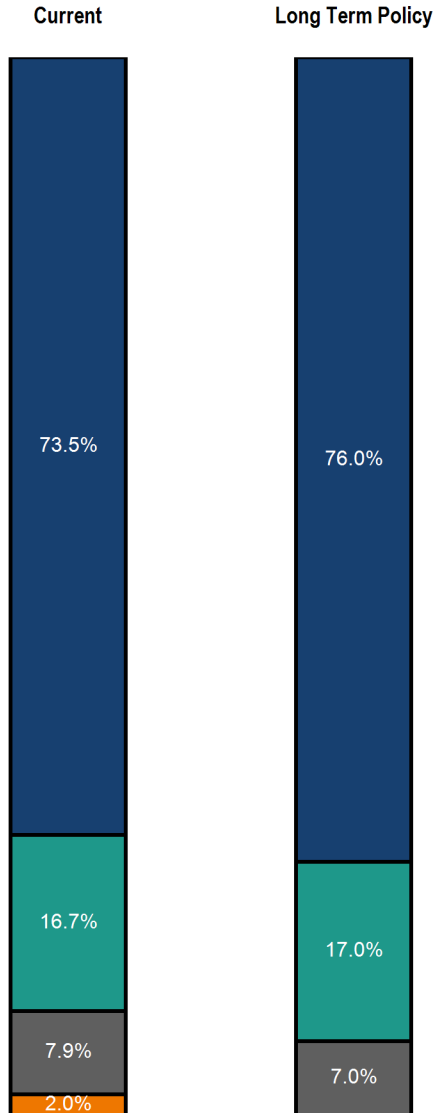


Policy reflects Long-Term Asset Allocation approved July 2022.

Total Fund

Asset Allocation vs. Long Term Target Policy

Period Ending: September 30, 2022



Allocation vs. Long Term Target

	Current Balance	Current Allocation	Long Term Target	Difference
Growth	\$7,294,846,584	73.5%	76.0%	-\$252,259,611
Liquidity	\$1,653,756,303	16.7%	17.0%	-\$34,412,188
Diversifying	\$782,939,407	7.9%	7.0%	\$87,811,205
Cash & Overlay	\$198,860,594	2.0%	--	\$198,860,594
Total	\$9,930,402,888	100.0%	100.0%	

Allocation vs. Current Targets

	Current Balance	Current Allocation	Current Target	Difference
Growth	\$7,294,846,584	73.5%	75.5%	-\$202,607,597
Liquidity	\$1,653,756,303	16.7%	17.0%	-\$34,412,188
Diversifying	\$782,939,407	7.9%	7.5%	\$38,159,191
Cash & Overlay	\$198,860,594	2.0%	--	\$198,860,594
Total	\$9,930,402,888	100.0%	100.0%	

Current and Long-Term Policy Targets approved July 2022.

Total Fund
Executive Summary (Net of Fees)

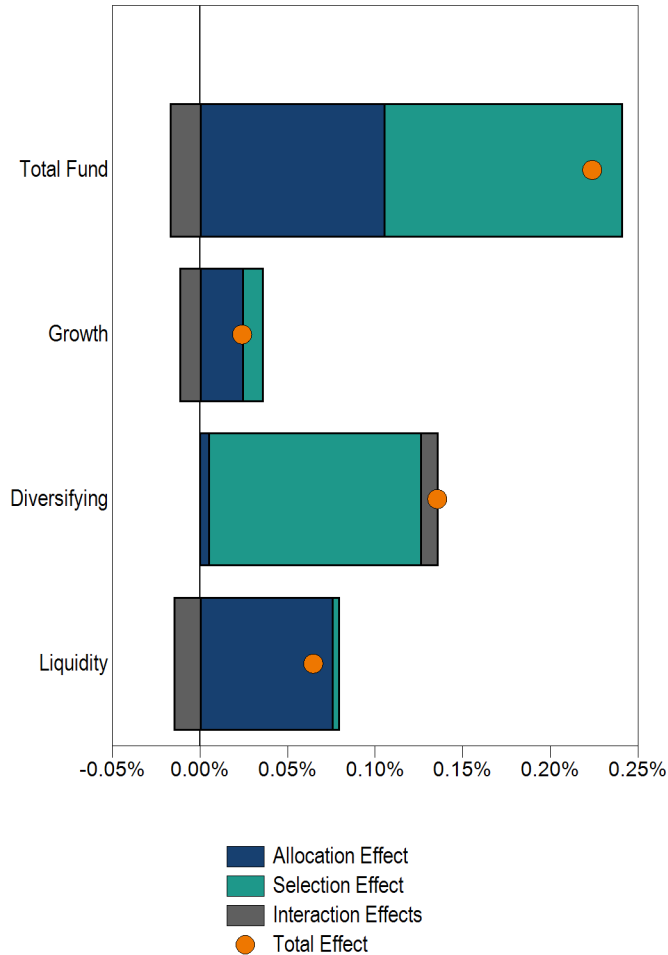
Period Ending: September 30, 2022

	% of Portfolio	QTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Fund	100.0	-3.6	-14.1	-11.5	3.6	4.2	6.5	13.9	9.2	14.6	-2.7	13.9
Policy Index		-3.7	-12.3	-8.5	5.3	5.6	7.4	15.3	10.8	14.6	-0.9	13.7
Policy Index (Adjusted)		-3.7	-12.3	-8.5	4.6	4.9	6.9	15.3	8.5	14.1	-1.5	13.5
Growth	73.5	-4.3	-16.0	-12.5	5.8	5.9	7.9	19.2	12.0	18.3	-3.9	18.7
Custom Growth Benchmark		-4.3	-14.9	-10.0	7.7	7.6	8.8	21.6	13.8	19.3	-2.1	19.3
Diversifying	7.9	-0.8	-4.2	-4.5	-1.3	0.0	0.1	1.7	-1.7	6.8	-2.3	2.6
Custom Diversifying Benchmark		-2.5	-7.3	-6.8	-0.3	1.3	2.1	1.6	4.7	6.1	1.4	4.7
Liquidity	16.7	-1.5	-4.6	-5.0	-0.4	0.9	--	-0.3	3.4	4.8	1.7	1.4
Bloomberg US Govt/Credit 1-3 Yr. TR		-1.5	-4.5	-5.1	-0.4	0.7	--	-0.5	3.3	4.0	1.6	0.8

*Correlation between the Growth and Diversifying composites is .55, .70 and .58 over the previous 1, 3 and 5 year periods respectively.

Policy Index (7/1/2022-Present): 16% Russell 3000, 15% MSCI ACWI ex-US (Gross), 9% MSCI ACWI (Net), 1.5% ICE BofA High Yield Master II, 2% Wilshire REIT, 8% Private Real Estate composite returns, 13% Private Equity composite returns, 8% Private Credit composite returns, 17% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate, 2.5% FTSE 3-month T-bill +5%, 2.5% Bloomberg US Aggregate TR +1%. Adjusted policy index reflects current approach to private markets throughout history.

Attribution Effects
 3 Months Ending September 30, 2022



Performance Attribution

	Quarter
Wtd. Actual Return	-3.44%
Wtd. Index Return *	-3.67%
Excess Return	0.22%
Selection Effect	0.14%
Allocation Effect	0.11%
Interaction Effect	-0.02%

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
 Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Growth	-4.3%	-4.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Diversifying	-0.8%	-2.5%	1.7%	0.1%	0.0%	0.0%	0.1%
Liquidity	-1.5%	-1.5%	0.0%	0.0%	0.1%	0.0%	0.1%
Total	-3.4%	-3.7%	0.2%	0.1%	0.1%	0.0%	0.2%

Total Fund

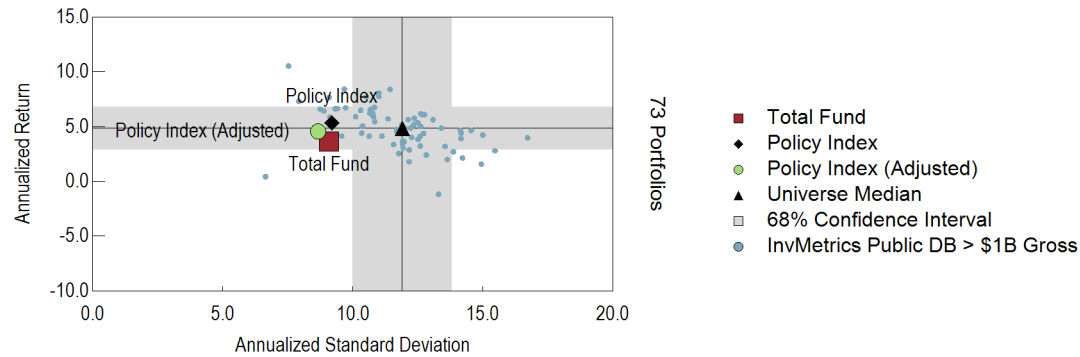
Executive Summary (Net of Fees)

Period Ending: September 30, 2022

3 Years

	Anlzd Return	Ann Excess BM Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Total Fund	3.61%	-1.72%	9.09%	-1.53%	0.96	2.06%	0.95	0.34	-0.84	93.58%	107.23%

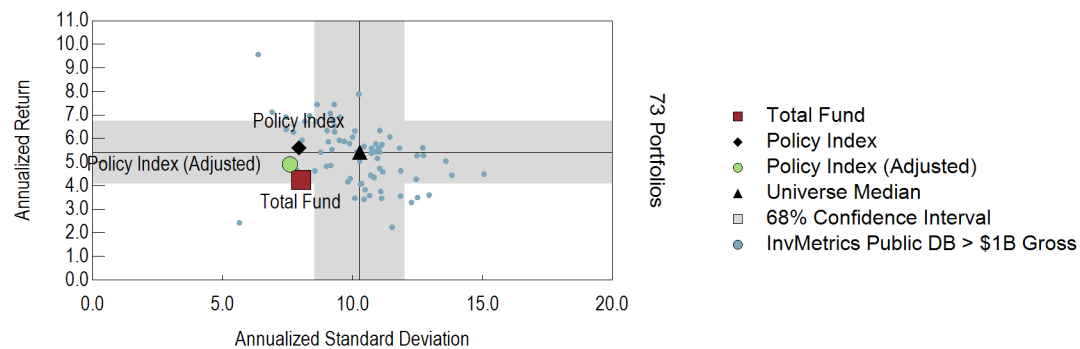
Risk vs. Return



5 Years

	Anlzd Return	Ann Excess BM Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Total Fund	4.24%	-1.36%	8.01%	-1.25%	0.98	1.92%	0.94	0.39	-0.71	93.87%	106.61%

Risk vs. Return



Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Fund	9,930,591,728	100.0	-3.5	-13.9	-11.2	3.9	4.5	7.0	14.2	9.5	14.9	-2.5	14.2		
Policy Index			-3.7	-12.3	-8.5	5.3	5.6	7.4	15.3	10.8	14.6	-0.9	13.7		
Policy Index (Adjusted)			-3.7	-12.3	-8.5	4.6	4.9	6.9	15.3	8.5	14.1	-1.5	13.5		
InvMetrics Public DB > \$1B Gross Rank			21	35	44	74	72	59	62	78	83	25	83		
Total Fund ex Overlay & Cash	9,731,731,134	98.0	-3.4	-13.3	-10.5	4.3	4.8	7.1	14.6	9.7	14.7	-2.1	14.1		
Policy Index			-3.7	-12.3	-8.5	5.3	5.6	7.4	15.3	10.8	14.6	-0.9	13.7		
Policy Index (Adjusted)			-3.7	-12.3	-8.5	4.6	4.9	6.9	15.3	8.5	14.1	-1.5	13.5		
InvMetrics Public DB > \$1B Gross Rank			15	28	41	62	64	58	55	72	85	20	84		
Growth	7,295,035,424	73.5	-4.2	-15.8	-12.2	6.1	6.3	8.4	19.6	12.4	18.7	-3.6	19.1		
Custom Growth Benchmark			-4.3	-14.9	-10.0	7.7	7.6	8.8	21.6	13.8	19.3	-2.1	19.3		
Total Domestic Equity	1,519,053,111	15.3	-4.0	-25.1	-20.4	5.8	6.6	10.7	20.6	22.2	26.7	-7.2	23.9		
Russell 3000			-4.5	-24.6	-17.6	7.7	8.6	11.4	25.7	20.9	31.0	-5.2	21.1		
InvMetrics Public DB US Eq Gross Rank			12	86	90	88	92	69	97	10	87	78	6		
BlackRock Russell 1000 Index	812,251,018	8.2	-4.6	-24.6	-17.2	7.9	9.0	--	26.5	21.0	31.4	-4.8	--	9.6	Apr-17
Russell 1000			-4.6	-24.6	-17.2	7.9	9.0	--	26.5	21.0	31.4	-4.8	--	9.6	Apr-17
eV US Large Cap Equity Gross Rank			43	65	66	42	45	--	55	36	39	47	--		
Boston Partners	354,136,574	3.6	-4.8	-14.6	-6.5	7.7	7.0	10.5	31.3	3.0	24.3	-8.7	20.1	10.2	Jun-95
Russell 1000 Value			-5.6	-17.8	-11.4	4.4	5.3	9.2	25.2	2.8	26.5	-8.3	13.7	8.7	Jun-95
eV US Large Cap Value Equity Gross Rank			36	32	24	28	48	38	17	61	77	55	23		
Emerald Advisers	183,462,408	1.8	0.0	-28.5	-28.2	5.2	5.8	11.2	5.5	39.0	30.3	-10.1	28.8	11.9	Apr-03
Russell 2000 Growth			0.2	-29.3	-29.3	2.9	3.6	8.8	2.8	34.6	28.5	-9.3	22.2	9.7	Apr-03
eV US Small Cap Growth Equity Gross Rank			40	35	44	68	81	62	76	57	45	85	26		
Ceredex	169,124,837	1.7	-2.8	-19.8	-14.0	2.6	3.5	8.6	28.4	2.3	18.4	-11.3	11.4	8.9	Nov-11
Russell 2000 Value			-4.6	-21.1	-17.7	4.7	2.9	7.9	28.3	4.6	22.4	-12.9	7.8	8.7	Nov-11
eV US Small Cap Value Equity Gross Rank			17	50	48	87	70	72	60	69	87	25	48		

Individual closed end funds are not shown in performance summary table. Jackson Square has a residual balance of \$78,274.15.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total International Equity	1,335,091,570	13.4	-9.3	-27.5	-27.2	0.2	0.4	4.3	8.3	15.8	23.7	-14.3	25.5		
MSCI ACWI ex USA Gross			-9.8	-26.2	-24.8	-1.1	-0.3	3.5	8.3	11.1	22.1	-13.8	27.8		
MSCI EAFE Gross			-9.3	-26.8	-24.7	-1.4	-0.4	4.2	11.8	8.3	22.7	-13.4	25.6		
InvMetrics Public DB ex-US Eq Gross Rank			31	59	64	20	20	30	45	23	28	44	90		
International Equity	741,739,630	7.5	-9.0	-27.9	-26.6	0.8	1.4	4.9	9.0	19.0	27.0	-13.6	25.3		
MSCI ACWI ex USA Gross			-9.8	-26.2	-24.8	-1.1	-0.3	3.5	8.3	11.1	22.1	-13.8	27.8		
InvMetrics Public DB ex-US Eq Gross Rank			20	66	52	9	12	13	32	13	7	21	93		
Pyrford	378,667,612	3.8	-10.5	-19.3	-17.3	-0.5	0.7	--	7.6	4.7	22.1	-10.1	19.8	1.8	May-14
MSCI ACWI ex USA Value			-10.4	-21.0	-20.0	-2.1	-2.1	--	10.5	-0.8	15.7	-14.0	22.7	-0.5	May-14
eV ACWI ex-US Value Equity Gross Rank			44	7	8	53	20	--	84	33	35	5	84		
William Blair	363,072,018	3.7	-7.3	-35.5	-34.6	1.7	1.8	5.5	10.5	33.3	32.0	-16.8	30.9	5.0	Oct-10
MSCI ACWI ex USA Growth			-9.4	-31.8	-30.2	-1.4	0.2	4.0	5.1	22.2	27.3	-14.4	32.0	3.3	Oct-10
eV ACWI ex-US Growth Equity Gross Rank			21	56	59	34	48	54	44	30	39	69	81		
Emerging Markets Equity	593,351,940	6.0	-9.8	-27.0	-28.0	-0.6	-0.8	--	7.6	11.4	19.4	-15.3	--		
MSCI Emerging Markets			-11.6	-27.2	-28.1	-2.1	-1.8	--	-2.5	18.3	18.4	-14.6	--		
InvMetrics Public DB Emg Mkt Eq Gross Rank			38	68	68	38	71	--	2	81	31	51	--		
PIMCO RAE Emerging Markets	303,223,241	3.1	-6.3	-21.4	-21.0	1.5	0.2	--	17.1	2.1	14.6	-12.3	--	1.8	Feb-17
MSCI Emerging Markets Value NR			-11.0	-23.3	-23.6	-2.6	-2.1	--	4.0	5.5	12.0	-10.7	--	-0.1	Feb-17
eV Emg Mkts All Cap Value Equity Gross Rank			15	36	36	21	32	--	6	85	72	44	--		
TT Emerging Markets	290,128,699	2.9	-13.2	-32.1	-34.0	-2.3	-1.7	--	-0.2	20.8	24.8	-18.4	--	-1.3	Jul-17
MSCI Emerging Markets			-11.6	-27.2	-28.1	-2.1	-1.8	--	-2.5	18.3	18.4	-14.6	--	-1.4	Jul-17
eV Emg Mkts Equity Gross Rank			94	87	88	72	69	--	58	39	24	83	--		
Total Global Equity	876,267,631	8.8	-5.6	-25.8	-22.5	4.4	5.6	8.6	14.1	25.3	28.9	-7.8	23.7	4.2	Jun-07
MSCI ACWI			-6.8	-25.6	-20.7	3.7	4.4	7.3	18.5	16.3	26.6	-9.4	24.0	4.2	Jun-07
InvMetrics Public DB Glbl Eq Gross Rank			10	92	95	33	6	82	88	2	3	60	79		
Artisan Partners	440,119,455	4.4	-3.6	-33.4	-30.2	6.0	7.4	10.7	15.0	41.7	37.0	-7.9	32.9	10.7	Oct-12
MSCI ACWI Growth NR USD			-5.9	-32.2	-27.5	5.4	6.6	8.9	17.1	33.6	32.7	-8.1	30.0	8.9	Oct-12
eV All Global Equity Gross Rank			9	87	87	27	19	13	80	9	7	40	11		
First Eagle	436,037,610	4.4	-7.5	-16.5	-13.2	2.4	3.5	6.4	13.0	8.5	21.0	-7.6	15.1	6.5	Jan-11
MSCI ACWI Value NR USD			-7.7	-19.1	-14.0	1.3	1.7	5.4	19.6	-0.3	20.6	-10.8	18.3	4.9	Jan-11
eV All Global Equity Gross Rank			66	8	14	72	70	79	85	70	82	38	89		

Individual closed end funds are not shown in performance summary table.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Private Credit	948,812,692	9.6	1.4	8.7	11.6	8.1	8.2	10.4	10.0	4.0	7.7	8.3	10.4		
Total High Yield	133,744,651	1.3	-0.8	-14.6	-13.8	-0.9	1.1	3.5	5.3	5.2	15.3	-3.2	6.5		
ICE BofAML High Yield Master II			-0.7	-14.6	-14.1	-0.7	1.4	3.9	5.4	6.2	14.4	-2.3	7.5		
eV US High Yield Fixed Inc Gross Rank			77	80	79	89	95	86	51	74	31	88	74		
Allianz Global Investors	133,744,651	1.3	-0.8	-14.6	-13.8	-0.9	1.1	3.5	5.3	5.2	15.3	-3.2	6.5	6.0	Apr-00
ICE BofAML High Yield Master II			-0.7	-14.6	-14.1	-0.7	1.4	3.9	5.4	6.2	14.4	-2.3	7.5	6.1	Apr-00
eV US High Yield Fixed Inc Gross Rank			77	80	79	89	95	86	51	74	31	88	74		
Total Real Estate	791,612,813	8.0	-3.0	-3.2	3.0	3.1	5.3	8.8	19.2	-5.9	8.1	7.4	11.1		
Real Estate Benchmark			-2.3	-2.4	4.6	5.9	6.5	8.1	19.3	0.6	7.5	6.8	7.1		
NCREIF-ODCE			0.5	13.1	22.1	12.4	10.2	10.9	22.2	1.2	5.3	8.3	7.6		
NCREIF Property Index			0.6	9.4	16.1	9.9	8.6	9.5	17.7	1.6	6.4	6.7	7.0		
Total Core RE	183,116,752	1.8	-10.2	-27.4	-15.2	0.6	5.0	7.6	48.3	-4.6	28.2	-5.0	7.8		
Adelante	80,998,301	0.8	-9.8	-28.6	-16.6	0.1	4.7	7.4	48.3	-4.6	28.2	-5.0	7.8	9.3	Sep-01
Wilshire REIT			-10.2	-29.7	-17.6	-2.2	2.9	6.1	46.2	-7.9	25.8	-4.8	4.2	8.7	Sep-01
Invesco US Fundamental Beta	102,118,451	1.0	-10.5	--	--	--	--	--	--	--	--	--	--	-18.5	Mar-22
Wilshire REIT			-10.2	--	--	--	--	--	--	--	--	--	--	-21.8	Mar-22
Total Private Real Estate	608,496,061	6.1	-0.5	5.4	10.3	4.9	6.2	9.5	15.3	-6.1	6.2	8.8	11.4		
Private Equity	1,375,634,408	13.9	-1.7	1.9	9.4	22.2	17.4	15.0	60.4	8.7	8.4	12.1	11.9		
Risk Parity	314,818,547	3.2	-8.5	-24.0	-21.8	-2.3	--	--	9.7	10.0	--	--	--		
60% MSCI ACWI Net/40% Bloomberg Global Aggregate			-6.8	-23.3	-20.4	0.1	--	--	8.8	14.0	--	--	--		
AQR Global Risk Premium-EL	161,441,691	1.6	-6.4	-18.4	-15.8	-0.2	--	--	10.7	6.2	--	--	--	3.5	Jan-19
HFR Risk Parity Vol 10 Index			-4.6	-19.3	-17.1	-2.9	--	--	6.8	3.6	--	--	--	1.5	Jan-19
PanAgora Risk Parity Multi Asset	153,376,856	1.5	-10.8	-28.9	-27.0	-4.2	--	--	8.7	14.0	--	--	--	0.0	Feb-19
HFR Risk Parity Vol 10 Index			-4.6	-19.3	-17.1	-2.9	--	--	6.8	3.6	--	--	--	-0.1	Feb-19

Individual closed end funds are not shown in performance summary table.

Total Fund

Performance Summary (Gross of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Diversifying	782,939,407	7.9	-0.7	-4.0	-4.2	-0.9	0.4	0.5	2.0	-1.3	7.1	-2.0	2.8		
Custom Diversifying Benchmark			-2.5	-7.3	-6.8	-0.3	1.3	2.1	1.6	4.7	6.1	1.4	4.7		
Diversifying Fixed Income	219,989,996	2.2	-4.9	-14.1	-14.2	-4.5	-1.5	0.4	-0.7	1.6	8.6	-1.7	2.8		
Bloomberg US Aggregate TR			-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-1.5	7.5	8.7	0.0	3.5		
eV US Core Fixed Inc Gross Rank			90	35	38	99	99	99	30	99	80	99	96		
AFL-CIO	219,904,488	2.2	-4.9	-14.1	-14.2	-3.2	-0.1	1.1	-0.7	6.6	8.2	0.6	3.6	5.3	Jun-91
Bloomberg US Aggregate TR			-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-1.5	7.5	8.7	0.0	3.5	4.9	Jun-91
eV US Core Fixed Inc Gross Rank			91	36	40	93	91	85	30	95	88	16	76		
Diversifying Multi-Asset	562,949,411	5.7	1.0	0.5	-0.2	--	--	--	2.8	--	--	--	--		
Custom Diversifying Multi-Asset Benchmark			-1.4	-5.1	-4.4	--	--	--	4.1	--	--	--	--		
Acadian Multi-Asset Absolute Return Fund	263,416,872	2.7	3.1	3.5	2.4	--	--	--	1.7	--	--	--	--	3.2	Aug-20
FTSE 3-Month T-bill +5%			1.7	4.4	5.7	--	--	--	5.0	--	--	--	--	5.3	Aug-20
Sit LLCAR	299,532,539	3.0	-0.7	-2.0	-2.3	--	--	--	--	--	--	--	--	1.6	Apr-21
Bloomberg US Aggregate Index + 100 bps			-4.5	-14.0	-13.7	--	--	--	--	--	--	--	--	-7.9	Apr-21
Liquidity	1,653,756,303	16.7	-1.4	-4.5	-4.9	-0.3	1.0	--	-0.2	3.5	4.9	1.8	1.5		
Bloomberg US Govt/Credit 1-3 Yr. TR			-1.5	-4.5	-5.1	-0.4	0.7	--	-0.5	3.3	4.0	1.6	0.8		
eV US Short Duration Fixed Inc Gross Rank			65	49	49	62	50	--	40	77	34	24	50		
DFA Short Credit	369,862,227	3.7	-1.4	-6.8	-7.4	-1.3	0.3	--	-0.4	2.9	5.2	1.2	1.9	0.6	Nov-16
ICE BofA 1-5 Yrs US Corp & Govt TR			-2.2	-6.7	-7.3	-0.9	0.6	--	-0.9	4.6	5.1	1.4	1.3	0.8	Nov-16
eV US Short Duration Fixed Inc Gross Rank			64	94	94	99	99	--	64	90	21	93	26	96	Nov-16
Insight Short Duration	607,485,194	6.1	-0.7	-2.2	-2.5	0.6	1.5	--	0.1	3.2	4.7	1.7	1.5	1.5	Nov-16
Bloomberg US Govt/Credit 1-3 Yr. TR			-1.5	-4.5	-5.1	-0.4	0.7	--	-0.5	3.3	4.0	1.6	0.8	0.8	Nov-16
eV US Short Duration Fixed Inc Gross Rank			13	3	4	8	11	--	25	86	45	38	50	17	Nov-16
Sit Short Duration	676,408,882	6.8	-2.1	-5.7	-6.2	-0.6	1.1	--	-0.3	4.6	4.9	2.5	1.3	1.2	Nov-16
Bloomberg US Govt 1-3 Yr TR			-1.5	-4.5	-5.1	-0.5	0.5	--	-0.6	3.1	3.6	1.6	0.4	0.6	Nov-16
eV US Short Duration Fixed Inc Gross Rank			93	75	75	80	41	--	55	26	35	1	68	50	Nov-16
Total Cash	122,390,525	1.2	0.6	1.0	1.0	1.1	1.6	1.6	0.4	1.3	3.3	1.7	0.9		
91 Day T-Bills			0.5	0.6	0.6	0.5	1.1	0.6	0.0	0.5	2.1	1.9	0.9		
Cash	121,862,679	1.2	0.6	0.9	0.9	1.1	1.6	1.6	0.4	1.3	3.4	1.7	0.9		
Northern Trust Transition	527,846	0.0	-6.3	2,568.6	2,552.1	274.5	--	--	-6.1	104.1	--	--	--		

Individual closed end funds are not shown in performance summary table. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. Wellington Real Total Return was liquidated 4/30/2020. \$85,508.16 in residual value is reflected in the Diversifying Fixed Income composite.

Total Fund Performance Summary (Net of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Fund	9,930,591,728	100.0	-3.6	-14.1	-11.5	3.6	4.2	6.5	13.9	9.2	14.6	-2.7	13.9		
Policy Index			-3.7	-12.3	-8.5	5.3	5.6	7.4	15.3	10.8	14.6	-0.9	13.7		
Policy Index (Adjusted)			-3.7	-12.3	-8.5	4.6	4.9	6.9	15.3	8.5	14.1	-1.5	13.5		
Total Fund ex Overlay & Cash	9,731,731,134	98.0	-3.4	-13.5	-10.8	4.0	4.5	6.7	14.3	9.4	14.3	-2.4	13.8		
Policy Index			-3.7	-12.3	-8.5	5.3	5.6	7.4	15.3	10.8	14.6	-0.9	13.7		
Policy Index (Adjusted)			-3.7	-12.3	-8.5	4.6	4.9	6.9	15.3	8.5	14.1	-1.5	13.5		
Growth	7,295,035,424	73.5	-4.3	-16.0	-12.5	5.8	5.9	7.9	19.2	12.0	18.3	-3.9	18.7		
Custom Growth Benchmark			-4.3	-14.9	-10.0	7.7	7.6	8.8	21.6	13.8	19.3	-2.1	19.3		
Total Domestic Equity	1,519,053,111	15.3	-4.0	-25.3	-20.6	5.4	6.2	10.3	20.3	21.8	26.1	-7.6	23.5		
Russell 3000			-4.5	-24.6	-17.6	7.7	8.6	11.4	25.7	20.9	31.0	-5.2	21.1		
BlackRock Russell 1000 Index	812,251,018	8.2	-4.6	-24.6	-17.2	7.9	9.0	--	26.5	20.9	31.4	-4.8	--	9.5	Apr-17
Russell 1000			-4.6	-24.6	-17.2	7.9	9.0	--	26.5	21.0	31.4	-4.8	--	9.6	Apr-17
Boston Partners	354,136,574	3.6	-4.9	-14.8	-6.8	7.3	6.7	10.2	31.0	2.6	23.8	-8.9	19.7	9.9	Jun-95
Russell 1000 Value			-5.6	-17.8	-11.4	4.4	5.3	9.2	25.2	2.8	26.5	-8.3	13.7	8.7	Jun-95
Emerald Advisers	183,462,408	1.8	-0.1	-28.8	-28.6	4.6	5.1	10.5	4.9	38.2	29.4	-10.7	28.0	11.2	Apr-03
Russell 2000 Growth			0.2	-29.3	-29.3	2.9	3.6	8.8	2.8	34.6	28.5	-9.3	22.2	9.7	Apr-03
Ceredex	169,124,837	1.7	-2.9	-20.1	-14.4	2.1	2.9	8.0	27.7	1.7	17.7	-11.8	10.7	8.3	Nov-11
Russell 2000 Value			-4.6	-21.1	-17.7	4.7	2.9	7.9	28.3	4.6	22.4	-12.9	7.8	8.7	Nov-11
Total International Equity	1,335,091,570	13.4	-9.4	-27.8	-27.5	-0.2	0.0	3.8	7.8	15.2	23.2	-14.7	25.0		
MSCI ACWI ex USA Gross			-9.8	-26.2	-24.8	-1.1	-0.3	3.5	8.3	11.1	22.1	-13.8	27.8		
MSCI EAFE Gross			-9.3	-26.8	-24.7	-1.4	-0.4	4.2	11.8	8.3	22.7	-13.4	25.6		
International Equity	741,739,630	7.5	-9.1	-28.2	-26.9	0.4	1.0	4.5	8.6	18.5	26.5	-13.9	24.8		
MSCI ACWI ex USA Gross			-9.8	-26.2	-24.8	-1.1	-0.3	3.5	8.3	11.1	22.1	-13.8	27.8		
Pyrford	378,667,612	3.8	-10.6	-19.5	-17.7	-0.9	0.3	--	7.1	4.2	21.6	-10.5	19.3	1.4	May-14
MSCI ACWI ex USA Value			-10.4	-21.0	-20.0	-2.1	-2.1	--	10.5	-0.8	15.7	-14.0	22.7	-0.5	May-14
William Blair	363,072,018	3.7	-7.4	-35.7	-34.9	1.4	1.4	5.1	10.1	32.8	31.5	-17.1	30.4	4.6	Oct-10
MSCI ACWI ex USA Growth			-9.4	-31.8	-30.2	-1.4	0.2	4.0	5.1	22.2	27.3	-14.4	32.0	3.3	Oct-10
Emerging Markets Equity	593,351,940	6.0	-9.9	-27.4	-28.4	-1.1	-1.4	--	7.0	10.7	18.7	-15.7	--		
MSCI Emerging Markets			-11.6	-27.2	-28.1	-2.1	-1.8	--	-2.5	18.3	18.4	-14.6	--		
PIMCO RAE Emerging Markets	303,223,241	3.1	-6.4	-21.7	-21.4	0.9	-0.3	--	16.5	1.6	14.0	-12.6	--	1.3	Feb-17
MSCI Emerging Markets Value NR			-11.0	-23.3	-23.6	-2.6	-2.1	--	4.0	5.5	12.0	-10.7	--	-0.1	Feb-17
TT Emerging Markets	290,128,699	2.9	-13.3	-32.4	-34.5	-3.0	-2.3	--	-0.9	20.0	24.0	-18.9	--	-1.9	Jul-17
MSCI Emerging Markets			-11.6	-27.2	-28.1	-2.1	-1.8	--	-2.5	18.3	18.4	-14.6	--	-1.4	Jul-17

Individual closed end funds are not shown in performance summary table. Jackson Square has a residual market value of \$78,274.15.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Global Equity	876,267,631	8.8	-5.8	-26.2	-23.1	3.6	4.8	7.9	13.2	24.4	27.9	-8.5	22.8		
<i>MSCI ACWI</i>			-6.8	-25.6	-20.7	3.7	4.4	7.3	18.5	16.3	26.6	-9.4	24.0		
Artisan Partners	440,119,455	4.4	-3.7	-33.8	-30.7	5.2	6.6	9.9	14.1	40.6	36.0	-8.6	31.9	9.9	Oct-12
<i>MSCI ACWI Growth NR USD</i>			-5.9	-32.2	-27.5	5.4	6.6	8.9	17.1	33.6	32.7	-8.1	30.0	8.9	Oct-12
First Eagle	436,037,610	4.4	-7.6	-17.0	-13.9	1.6	2.7	5.6	12.1	7.7	20.1	-8.3	14.3	5.8	Jan-11
<i>MSCI ACWI Value NR USD</i>			-7.7	-19.1	-14.0	1.3	1.7	5.4	19.6	-0.3	20.6	-10.8	18.3	4.9	Jan-11
Private Credit	948,812,692	9.6	1.4	8.7	11.6	8.1	8.2	9.7	10.0	4.0	7.7	8.3	10.4		
Total High Yield	133,744,651	1.3	-1.0	-14.9	-14.2	-1.4	0.7	3.1	4.9	4.7	14.7	-3.6	6.1		
<i>ICE BofAML High Yield Master II</i>			-0.7	-14.6	-14.1	-0.7	1.4	3.9	5.4	6.2	14.4	-2.3	7.5		
Allianz Global Investors	133,744,651	1.3	-1.0	-14.9	-14.2	-1.4	0.7	3.1	4.9	4.7	14.7	-3.6	6.1	5.5	Apr-00
<i>ICE BofAML High Yield Master II</i>			-0.7	-14.6	-14.1	-0.7	1.4	3.9	5.4	6.2	14.4	-2.3	7.5	6.1	Apr-00
Total Real Estate	791,612,813	8.0	-3.1	-3.2	2.9	3.0	5.2	8.2	19.2	-6.0	8.1	7.4	11.0		
<i>Real Estate Benchmark</i>			-2.3	-2.4	4.6	5.9	6.5	8.1	19.3	0.6	7.5	6.8	7.1		
<i>NCREIF-ODCE</i>			0.5	13.1	22.1	12.4	10.2	10.9	22.2	1.2	5.3	8.3	7.6		
<i>NCREIF Property Index</i>			0.6	9.4	16.1	9.9	8.6	9.5	17.7	1.6	6.4	6.7	7.0		
Total Core RE	183,116,752	1.8	-10.3	-27.7	-15.6	0.1	4.5	7.0	47.5	-5.2	27.5	-5.5	7.2		
Adelante	80,998,301	0.8	-10.0	-28.9	-17.1	-0.5	4.1	6.9	47.5	-5.2	27.5	-5.5	7.2	8.8	Sep-01
<i>Wilshire REIT</i>			-10.2	-29.7	-17.6	-2.2	2.9	6.1	46.2	-7.9	25.8	-4.8	4.2	8.7	Sep-01
Invesco US Fundamental Beta	102,118,451	1.0	-10.5	--	--	--	--	--	--	--	--	--	--	-18.5	Mar-22
<i>Wilshire REIT</i>			-10.2	--	--	--	--	--	--	--	--	--	--	-21.8	Mar-22
Total Private Real Estate	608,496,061	6.1	-0.5	5.4	10.3	4.9	6.2	9.0	15.3	-6.1	6.2	8.8	11.4		
Private Equity	1,375,634,408	13.9	-1.7	1.9	9.4	22.2	17.4	14.3	60.4	8.7	8.4	12.1	11.9		
Risk Parity	314,818,547	3.2	-8.6	-24.2	-22.1	-2.6	--	--	9.3	9.6	--	--	--		
<i>60% MSCI ACWI Net/40% Bloomberg Global Aggregate</i>			-6.8	-23.3	-20.4	0.1	--	--	8.8	14.0	--	--	--		
AQR Global Risk Premium-EL	161,441,691	1.6	-6.5	-18.6	-16.1	-0.6	--	--	10.3	5.8	--	--	--	3.1	Jan-19
<i>HFR Risk Parity Vol 10 Index</i>			-4.6	-19.3	-17.1	-2.9	--	--	6.8	3.6	--	--	--	1.5	Jan-19
PanAgora Risk Parity Multi Asset	153,376,856	1.5	-10.9	-29.0	-27.2	-4.5	--	--	8.3	13.6	--	--	--	-0.3	Feb-19
<i>HFR Risk Parity Vol 10 Index</i>			-4.6	-19.3	-17.1	-2.9	--	--	6.8	3.6	--	--	--	-0.1	Feb-19

Individual closed end funds are not shown in performance summary table.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Diversifying	782,939,407	7.9	-0.8	-4.2	-4.5	-1.3	0.0	0.1	1.7	-1.7	6.8	-2.3	2.6		
<i>Custom Diversifying Benchmark</i>			-2.5	-7.3	-6.8	-0.3	1.3	2.1	1.6	4.7	6.1	1.4	4.7		
Diversifying Fixed Income	219,989,996	2.2	-5.0	-14.3	-14.5	-4.8	-1.8	0.0	-1.0	1.2	8.3	-2.0	2.6		
<i>Bloomberg US Aggregate TR</i>			-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-1.5	7.5	8.7	0.0	3.5		
AFL-CIO	219,904,488	2.2	-5.0	-14.3	-14.5	-3.6	-0.5	0.7	-1.0	6.2	7.8	0.2	3.2	4.9	Jun-91
<i>Bloomberg US Aggregate TR</i>			-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-1.5	7.5	8.7	0.0	3.5	4.9	Jun-91
Diversifying Multi-Asset	562,949,411	5.7	0.9	0.2	-0.6	--	--	--	2.4	--	--	--	--		
<i>Custom Diversifying Multi-Asset Benchmark</i>			-1.4	-5.1	-4.4	--	--	--	4.1	--	--	--	--		
Acadian Multi-Asset Absolute Return Fund	263,416,872	2.7	3.0	3.2	1.9	--	--	--	1.1	--	--	--	--	2.7	Aug-20
<i>FTSE 3-Month T-bill +5%</i>			1.7	4.4	5.7	--	--	--	5.0	--	--	--	--	5.3	Aug-20
Sit LLCAR	299,532,539	3.0	-0.8	-2.3	-2.6	--	--	--	--	--	--	--	--	1.3	Apr-21
<i>Bloomberg US Aggregate Index + 100 bps</i>			-4.5	-14.0	-13.7	--	--	--	--	--	--	--	--	-7.9	Apr-21
Liquidity	1,653,756,303	16.7	-1.5	-4.6	-5.0	-0.4	0.9	--	-0.3	3.4	4.8	1.7	1.4		
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			-1.5	-4.5	-5.1	-0.4	0.7	--	-0.5	3.3	4.0	1.6	0.8		
DFA Short Credit	369,862,227	3.7	-1.4	-6.9	-7.5	-1.4	0.2	--	-0.5	2.8	5.2	1.1	1.8	0.5	Nov-16
<i>ICE BofA 1-5 Yrs US Corp & Govt TR</i>			-2.2	-6.7	-7.3	-0.9	0.6	--	-0.9	4.6	5.1	1.4	1.3	0.8	Nov-16
Insight Short Duration	607,485,194	6.1	-0.7	-2.2	-2.5	0.5	1.4	--	0.0	3.1	4.6	1.7	1.5	1.5	Nov-16
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			-1.5	-4.5	-5.1	-0.4	0.7	--	-0.5	3.3	4.0	1.6	0.8	0.8	Nov-16
Sit Short Duration	676,408,882	6.8	-2.1	-5.8	-6.3	-0.7	0.9	--	-0.5	4.4	4.7	2.3	1.1	1.0	Nov-16
<i>Bloomberg US Govt 1-3 Yr TR</i>			-1.5	-4.5	-5.1	-0.5	0.5	--	-0.6	3.1	3.6	1.6	0.4	0.6	Nov-16
Total Cash	122,390,525	1.2	0.6	1.0	1.0	1.1	1.6	1.6	0.4	1.3	3.3	1.7	0.9		
<i>91 Day T-Bills</i>			0.5	0.6	0.6	0.5	1.1	0.6	0.0	0.5	2.1	1.9	0.9		
Cash	121,862,679	1.2	0.6	0.9	0.9	1.1	1.6	1.6	0.4	1.3	3.4	1.7	0.9		
Northern Trust Transition	527,846	0.0	-6.3	2,568.6	2,552.1	274.5	--	--	-6.1	104.1	--	--	--		

Individual closed end funds are not shown in performance summary table. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. Wellington Real Total Return was liquidated 4/30/2020. \$85,508.16 in residual value is reflected in the Diversifying Fixed Income composite.

Total Fund
Closed End Funds - Investment Summary

Period Ending: September 30, 2022

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2022 ¹	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Private Equity & Venture Capital												
2/11/2004	Adams Street Partners	\$144,267,177	\$210,000,000	0%	\$194,765,257	\$719,993	\$5,940,298	\$260,521,284	\$15,234,743	1.34	2.08	6/30/2022
1/15/2009	Adams Street Partners II	\$3,921,820	\$30,000,000	0%	\$28,365,000	\$0	\$0	\$45,123,354	\$1,635,000	1.59	1.73	6/30/2022
9/21/2012	Adams Street Partners - Fund 5	\$11,756,602	\$40,000,000	0%	\$30,845,875	\$0	\$968,904	\$30,186,904	\$9,154,125	0.98	1.36	6/30/2022
1/18/1996	Adams Street Partners - BPF	\$585,836	\$59,565,614	0%	\$57,517,409	\$0	\$0	\$103,810,247	\$2,048,205	1.80	1.82	6/30/2022
3/31/2016	Adams Street Venture Innovation	\$188,271,396	\$75,000,000	0%	\$66,037,500	\$0	\$0	\$30,786,690	\$8,962,500	0.47	3.32	6/30/2022
5/18/2018	AE Industrial Partners Fund II, LP	\$43,562,185	\$35,000,000	8%	\$32,397,781	\$2,882,204	\$4,905,380	\$9,140,470	\$11,133,248	0.28	1.63	6/30/2022
11/27/2013	Aether Real Assets III	\$19,262,376	\$25,000,000	0%	\$25,682,216	\$77,700	\$397,165	\$5,676,604	\$1,547,643	0.22	0.97	6/30/2022
11/30/2013	Aether Real Assets III Surplus	\$43,637,579	\$50,000,000	0%	\$52,244,418	\$0	\$0	\$11,898,455	\$1,370,047	0.23	1.06	6/30/2022
1/30/2016	Aether Real Assets IV	\$64,730,867	\$50,000,000	2%	\$49,755,339	\$1,024,870	\$389,377	\$4,063,925	\$3,468,001	0.08	1.38	6/30/2022
4/30/2004	Bay Area Equity Fund I ⁴	1,236,397	10,000,000	0%	10,000,000	0	0	37,018,019	0	3.70	3.83	6/30/2022
6/29/2009	Bay Area Equity Fund II ⁴	20,000,401	10,000,000	0%	10,000,000	0	0	3,684,910	0	0.37	2.37	6/30/2022
6/30/2013	Commonfund	\$42,181,754	\$50,000,000	0%	\$47,274,993	\$0	\$2,293,633	\$23,518,018	\$2,725,007	0.50	1.39	6/30/2022
7/15/2005	EIF US Power Fund II ⁴	\$33,193	\$50,000,000	0%	\$65,029,556	\$0	\$0	\$76,092,655	\$0	1.17	1.17	6/30/2022
5/31/2007	EIF US Power Fund III ⁴	3,251,582	65,000,000	0%	\$71,409,097	\$0	\$100,844	\$92,796,621	\$0	1.30	1.35	9/30/2022
11/28/2011	EIF US Power Fund IV	25,586,668	50,000,000	0%	\$64,917,547	\$0	\$730,567	\$45,438,768	\$4	0.70	1.09	6/30/2022
11/28/2016	EIF US Power Fund V	\$35,189,570	\$50,000,000	0%	\$69,328,438	\$0	\$3,746,890	\$57,353,150	\$6,194,129	0.83	1.33	9/30/2022
2/21/2019	Genstar Capital Partners IX, L.P.	\$64,299,336	\$50,000,000	1%	\$47,030,308	\$353,690	\$14,624,494	\$20,919,831	\$8,076,005	0.44	1.81	9/30/2022
4/1/2021	Genstar Capital Partners X, L.P.	\$18,695,835	\$42,500,000	22%	\$18,030,448	\$9,307,138	\$0	\$0	\$24,469,552	0.00	1.04	9/30/2022
10/27/2020	GTCR Fund XIII, L.P.	\$21,718,122	\$50,000,000	12%	\$18,325,000	\$5,895,000	\$0	\$1,809,154	\$31,675,000	0.10	1.28	9/30/2022
5/10/2021	Hellman & Friedman Capital Partners X, L.P.	36,794,136	75,000,000	0%	\$40,882,181	\$0	\$0	\$0	\$34,117,819	0.00	0.90	9/30/2022
11/18/2009	Oaktree PIF 2009	\$435,558	\$40,000,000	0%	\$34,812,560	\$0	\$0	\$47,032,470	\$6,308,961	1.35	1.36	9/30/2022
5/2/2013	Ocean Avenue Fund II	\$29,593,786	\$30,000,000	0%	\$27,000,000	\$0	\$1,803,750	\$43,184,220	\$3,000,000	1.60	2.70	9/30/2022
4/15/2016	Ocean Avenue Fund III	\$52,508,432	\$50,000,000	1%	\$46,500,000	\$500,000	\$4,520,124	\$52,520,124	\$3,500,000	1.13	2.26	9/30/2022
11/30/2007	Paladin III	\$9,648,960	\$25,000,000	0%	\$34,836,639	\$0	\$0	\$71,182,958	\$387,482	2.04	2.32	6/30/2022
8/22/2011	Pathway 6	\$33,944,702	\$40,000,000	0%	\$39,347,701	\$54,000	\$1,531,097	\$48,824,177	\$3,717,642	1.24	2.10	6/30/2022
7/10/2013	Pathway 7	\$72,666,026	\$70,000,000	0%	\$69,151,586	\$126,000	\$3,908,694	\$78,497,906	\$5,297,850	1.14	2.19	6/30/2022
11/23/2015	Pathway 8	\$73,936,259	\$50,000,000	0%	\$47,613,640	\$204,860	\$1,735,905	\$30,969,195	\$4,328,106	0.65	2.20	6/30/2022
1/19/1999	Pathway	\$4,090,368	\$125,000,000	0%	\$126,047,272	\$70,258	\$0	\$188,083,589	\$10,550,380	1.49	1.52	6/30/2022
7/31/2009	Pathway 2008	\$15,603,424	\$30,000,000	0%	\$30,075,421	\$85,530	\$740,307	\$49,848,386	\$2,728,009	1.66	2.18	6/30/2022
6/3/2014	Siguler Guff CCCERA Opportunities	147,902,119	200,000,000	0.0%	174,083,208	0	5,891,183	198,750,989	29,597,500	1.14	1.99	6/30/2022
5/18/2018	Siris Partners IV, L.P.	\$39,414,011	\$35,000,000	0%	\$28,676,885	\$0	\$0	\$4,130,142	\$8,845,760	0.14	1.52	6/30/2022
5/27/2021	TA XIV-A, L.P.	\$17,630,820	\$50,000,000	11%	\$19,000,000	\$5,500,000	\$0	\$0	\$31,000,000	0.00	0.93	6/30/2022
6/28/2019	TPG Healthcare Partners, L.P.	\$17,954,900	\$24,000,000	17%	\$18,148,159	\$4,105,272	\$0	\$6,221,617	\$8,603,578	0.34	1.33	9/30/2022
9/17/2021	Trident IX, L.P.	\$4,456,786	\$50,000,000	1%	\$5,230,925	\$550,055	\$0	\$0	\$44,769,075	-	-	6/30/2022
5/24/2019	Trident VIII, L.P.	\$47,126,170	\$40,000,000	0%	\$36,885,981	\$0	\$0	\$2,608,184	\$5,426,540	0.07	1.35	6/30/2022
12/8/2015	Wastewater Opportunity Fund	\$19,739,255	\$25,000,000	1%	\$29,410,476	\$167,891	\$0	\$12,893,182	\$1,036,884	0.44	1.11	6/30/2022
Total Private Equity and Venture Capital		\$1,375,634,408	\$1,961,065,614	90%	\$1,766,658,816	\$31,624,461	\$54,228,612	\$1,694,586,200	\$330,908,795	0.96	1.74	
% of Portfolio (Market Value)		13.9%										

* All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - IRR Summary

Period Ending: September 30, 2022

Private Equity & Venture Capital	Closing Date	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Adams Street Partners	2/11/2004	12.4%	14.3%	-	12.3%	6/30/2022
Adams Street Partners II	12/31/2008	16.5%	16.5%	-	14.0%	6/30/2022
Adams Street Partners - Fund 5	12/31/2008	9.4%	9.3%	-	6.8%	6/30/2022
Adams Street Partners Venture	1/18/1996	49.9%	49.8%	-	47.3%	6/30/2022
Adams Street Partners - BPF	3/31/2016	14.2%	14.2%	-	11.6%	6/30/2022
AE Industrial Partners Fund II, LP	5/18/2018	39.4%	-	38.6%	-	6/30/2022
Aether Real Assets III	11/27/2013	1.1%	-	-0.6%	-	6/30/2022
Aether Real Assets III Surplus	11/30/2013	2.3%	-	1.2%	-	6/30/2022
Aether Real Assets IV	1/30/2016	12.0%	-	9.8%	-	6/30/2022
Bay Area Equity Fund I ⁹	11/26/2003	31.3%	31.3%	23.0%	23.0%	6/30/2022
Bay Area Equity Fund II ⁹	11/26/2003	14.7%	14.7%	10.0%	10.0%	6/30/2022
CommonFund	6/30/2013	-	-	-	8.0%	6/30/2022
Energy Investor Fund II ⁹	7/15/2005	5.7%	5.3%	2.9%	2.6%	6/30/2022
Energy Investor Fund III ⁹	5/31/2007	6.8%	6.7%	4.3%	4.3%	6/30/2022
Energy Investor Fund IV	8/31/2010	4.3%	4.4%	1.2%	1.1%	6/30/2022
Energy Investor Fund V	11/28/2016	15.8%	13.6%	12.2%	10.0%	6/30/2022
Genstar Capital Partners IX, L.P.	2/21/2019	40.8%	-	39.9%	-	9/30/2022
Oaktree PIF 2009	2/28/2010	6.8%	-	6.6%	-	9/30/2022
Ocean Avenue II	8/15/2013	-	-	20.9%	-	9/30/2022
Ocean Avenue III	4/15/2016	-	-	27.2%	-	9/30/2022
Paladin III	11/30/2007	20.4%	-	-	-	6/30/2022
Pathway 6	8/22/2011	17.5%	17.5%	15.4%	15.4%	6/30/2022
Benchmark ⁴		13.0%	-	-	-	6/30/2022
Pathway 7	7/10/2013	20.0%	20.0%	18.0%	18.0%	6/30/2022
Benchmark ⁵		12.7%	-	-	-	6/30/2022
Pathway 8	11/23/2015	24.1%	24.9%	22.7%	22.9%	6/30/2022
Benchmark ⁶		16.8%	-	-	-	6/30/2022
Pathway Private Equity Fund	1/19/1999	10.2%	10.2%	8.4%	8.4%	6/30/2022
Benchmark ⁷		-0.5%	-	-	-	6/30/2022
Pathway Private Equity Fund 2008	7/31/2009	17.1%	17.1%	14.9%	14.9%	6/30/2022
Benchmark ⁸		8.7%	-	-	-	6/30/2022
Siguler Guff CCCERA Opportunities	6/3/2014	20.3%	21.0%	19.8%	18.4%	6/30/2022
Siguler Guff Secondary Opportunities ⁹	8/31/2013	55.3%	118.4%	49.5%	69.0%	9/30/2020
Siris Partners IV, L.P.	5/18/2018	27.5%	27.5%	23.1%	23.1%	6/30/2022
TPG Healthcare Partners, L.P.	6/28/2019	34.0%	-	-	28.0%	6/30/2022
Trident VIII, L.P. ¹	5/24/2019	32.3%	-	26.7%	-	6/30/2022
Wastewater Opportunity Fund	12/8/2015	7.4%	-	4.2%	-	6/30/2022

¹Manager has yet to report IRR figure.

²Fund level data includes CCCERA and all other fund investors.

³Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴Private IQ global all private equity median pooled return for vintage years 2011-2014, as of June 30, 2022.

⁵Private IQ global all private equity median pooled return for vintage years 2012-2016, as of June 30, 2022.

⁶Private IQ global all private equity median pooled return for vintage years 2015-2018, as of June 30, 2022.

⁷Private IQ global all private equity median pooled return for vintage years 1999-2011, as of June 30, 2022.

⁸Private IQ global all private equity median pooled return for vintage years 2008-2014, as of June 30, 2022.

⁹Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - Investment Summary

Period Ending: September 30, 2022

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2022 ¹	Total Commitment	% Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./ Paid-In (DPI) ²	Tot. Value/ Paid-In (TVPI) ³	Latest Valuation
Private Credit												
8/31/2015	Angelo Gordon Energy Credit Opp. ⁴	\$1,648,343	\$16,500,000		\$18,750,000	\$0	\$1,580,466	\$20,410,032	\$2,319,783	1.09	1.18	6/30/2022
12/18/2017	Stepstone CC Opportunities Fund	\$931,151,565	\$1,170,000,000	5%	\$889,100,220	\$53,591,541	\$17,870,539	\$165,082,795	\$373,259,480	0.19	1.23	6/30/2022
8/1/2012	Torchlight IV	\$7,718,786	\$60,000,000		\$84,866,971	\$0	\$0	\$106,146,627	\$0		1.34	9/30/2022
3/12/2015	Torchlight V	\$8,293,998	\$75,000,000		\$60,000,000	\$0	\$0	\$70,797,953	\$15,000,000		1.32	9/30/2022
Total Private Credit		\$948,812,692										
% of Portfolio (Market Value)		9.6%										

*All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - Investment Summary

Period Ending: September 30, 2022

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2022 ¹	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions ⁸	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Real Estate												
1/23/2012	Angelo Gordon Realty Fund VIII ⁴	\$13,102,108	\$80,000,000	94%	\$75,401,855	\$0	\$0	\$101,711,550	\$12,334,302	1.35	1.52	6/30/2022
12/8/2014	Angelo Gordon Realty Fund IX	\$32,821,946	\$65,000,000	93%	\$60,125,000	\$0	\$6,500,000	\$53,950,001	\$7,572,500	0.90	1.44	6/30/2022
6/23/2005	DLJ RECP III	\$15,768,258	\$75,000,000	134%	\$100,709,313 ⁴	\$85,454	\$0	\$69,364,915	\$4,031,338	0.69	0.85	6/30/2022
2/11/2008	DLJ RECP IV	\$56,213,427	\$100,000,000	130%	\$130,117,329 ⁵	\$224,724	\$0	\$99,841,735	\$1,876,084	0.77	1.20	6/30/2022
7/1/2014	DLJ RECP V	\$31,636,442	\$75,000,000	132%	\$98,684,517 ⁶	\$0	\$0	\$97,880,214	\$15,567,682	0.99	1.31	6/30/2022
3/19/2019	DLJ RECP VI	\$20,586,054	\$50,000,000	60%	\$30,103,770	\$0	\$1,686,242	\$13,276,083	\$21,267,080	0.44	1.12	6/30/2022
6/30/2014	Invesco Real Estate IV ⁴	\$1,861,617	\$35,000,000	87%	\$30,546,401	\$0	\$0	\$38,913,181	\$4,453,599	1.27	1.33	6/30/2022
2/20/2019	Invesco Real Estate V	\$75,431,606	\$75,000,000	79%	\$58,980,934	\$0	\$2,101,540	\$9,319,462	\$16,019,066	0.16	1.44	6/30/2022
9/27/2022	Invesco Real Estate VI	\$33,126,592	\$100,000,000	33%	\$33,126,592	\$33,126,592	\$0	\$0	\$66,873,408	0.00	1.00	N/A
7/16/2013	LaSalle Income & Growth VI ⁴	\$18,764,926	\$75,000,000	95%	\$71,428,571	\$0	\$0	\$84,535,301	\$3,571,429	1.18	1.45	6/30/2022
2/28/2017	LaSalle Income & Growth VII	\$51,372,039	\$75,000,000	107%	\$79,936,634	\$0	\$8,643,628	\$61,623,058	\$5,859,353	0.77	1.41	6/30/2022
7/3/2013	Long Wharf Fund IV ⁴	\$1,361,121	\$25,000,000	100%	\$25,000,000	\$0	\$73,979	\$34,898,768	\$0	1.40	1.45	9/30/2022
9/30/2016	Long Wharf Fund V ⁴	\$30,948,992	\$50,000,000	100%	\$50,000,000	\$0	\$1,142,465	\$37,244,373	\$0	0.74	1.36	9/30/2022
6/27/2019	Long Wharf Fund VI	\$33,209,484	\$50,000,000	83%	\$41,704,657	\$8,632,309	\$5,054,509	\$18,830,524	\$8,295,343	0.45	1.25	9/30/2022
12/31/2011	Oaktree REOF V ⁴	\$1,247,195	\$50,000,000	101%	\$50,315,673	\$0	\$0	\$78,780,733	\$5,000,000 ⁹	1.57	1.59	9/30/2022
9/30/2013	Oaktree REOF VI ⁴	\$25,514,799	\$80,000,000	100%	\$80,000,000	\$0	\$0	\$84,010,175	\$18,400,000 ⁹	1.05	1.37	9/30/2022
4/1/2015	Oaktree REOF VII	\$49,209,862	\$65,000,000	100%	\$65,000,000	\$0	\$0	\$42,829,688	\$18,915,000 ⁹	0.66	1.42	9/30/2022
11/10/2013	Paulson Real Estate Fund II ⁴	\$15,346,147	\$20,000,000	97%	\$19,345,623	\$0	\$1,345,664	\$24,069,538	\$654,377	1.24	2.04	6/30/2022
4/28/2022	PCCP IX	\$33,631,049	\$75,000,000	44%	\$32,801,564	\$9,000,000	\$0	\$0	\$42,198,436	0.00	1.03	9/30/2022
1/25/2012	Siguler Guff DREOF	\$20,397,978	\$75,000,000	93%	\$69,375,000	\$0	\$614,990	\$104,386,101	\$5,625,000	1.50	1.80	6/30/2022
8/31/2013	Siguler Guff DREOF II	\$34,173,607	\$70,000,000	89%	\$61,985,000	\$0	\$2,621,193	\$58,312,979	\$8,015,000	0.94	1.49	6/30/2022
1/27/2016	Siguler Guff DREOF II Co-Inv	\$12,770,812	\$25,000,000	82%	\$20,537,862	\$0	\$287,091	\$13,871,261	\$4,462,138	0.68	1.30	6/30/2022
Total Closed End Real Estate		\$608,496,061	\$1,450,000,000	92%	\$1,337,551,182	\$51,069,079	\$30,071,302	\$1,202,703,748	\$273,604,711	0.90	1.35	
% of Portfolio (Market Value)		6.1%										

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

⁵Total distributions may include recallable distributions

⁶Remianing commitment includes recallable distributions

Total Fund
Closed End Funds - IRR Summary

Period Ending: September 30, 2022

Private Credit	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon Energy Cred Opp. ⁴	9/24/2015	-	-	-	6.7%	6/30/2022
Stepstone CC Opportunities Fund	2/2/2018	-	-	-	13.9%	3/31/2022
Torchlight IV	8/1/2012	11.5%	12.0%	9.3%	10.0%	9/30/2022
Torchlight V	3/12/2015	15.1%	15.1%	10.6%	10.6%	6/30/2022

Real Estate	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon VIII ⁴	1/23/2012	-	-	-	12.8%	6/30/2022
Angelo Gordon IX	12/8/2014	-	-	-	9.0%	6/30/2022
DLJ RECP III	6/23/2005	-1.0%	-1.0%	-3.0%	-3.0%	6/30/2022
DLJ RECP IV	2/11/2008	5.0%	5.0%	2.0%	3.0%	6/30/2022
DLJ RECP V	7/1/2014	17.0%	17.0%	10.0%	10.0%	6/30/2022
DLJ RECP VI ¹	3/19/2019	10.0%	10.0%	4.0%	4.0%	6/30/2022
Invesco Fund IV ⁴	6/30/2014	13.8%	-	10.8%	-	9/30/2022
Invesco Fund V	2/20/2019	21.4%	-	15.4%	-	9/30/2022
Invesco Fund VI	9/27/2022	-	-	-	-	N/A
LaSalle Income & Growth VI ⁴	7/16/2013	11.3%	11.3%	9.3%	9.3%	9/30/2022
LaSalle Income & Growth VII	2/28/2017	12.9%	13.0%	10.8%	10.9%	9/30/2022
Long Wharf IV ⁴	7/3/2013	16.2%	15.6%	11.7%	11.7%	9/30/2022
Long Wharf V ⁴	9/30/2016	11.7%	12.2%	9.1%	9.4%	9/30/2022
Long Wharf VI	6/27/2019	44.8%	51.0%	28.2%	31.3%	9/30/2022
Oaktree REOF V ⁴	12/31/2011	16.7%	-	12.3%	-	9/30/2022
Oaktree REOF VI ⁴	9/30/2013	11.3%	-	7.6%	-	9/30/2022
Oaktree REOF VII	4/1/2015	23.4%	-	15.6%	-	9/30/2022
Paulson ⁴	11/10/2013	18.0%	-	12.0%	-	12/31/2021
PCCP IX	5/27/2021	22.4%	-	24.8%	-	9/30/2022
Siguler Guff I	1/25/2012	1.9%	15.6%	11.4%	12.9%	9/30/2022
Siguler Guff II	8/31/2013	10.8%	10.9%	9.6%	8.7%	9/30/2022
Siguler Guff DREOF II Co-Inv	1/27/2016	7.2%	7.5%	6.3%	6.0%	9/30/2022

¹Manager has yet to report IRR figure.

²Fund level data includes CCCERA and all other fund investors.

³Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴Capital has been fully called and fund is in redemption.

Total Fund
Performance Analysis - 3 Years (Net of Fees)

Period Ending: September 30, 2022

	3 Years										
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock Russell 1000 Index	7.93%	-0.01%	20.80%	-0.01%	1.00	0.01%	1.00	0.36	-0.90	99.94%	100.00%
Boston Partners	7.34%	2.98%	21.38%	2.83%	1.03	3.12%	0.98	0.32	0.96	108.76%	96.90%
Emerald Advisers	4.60%	1.67%	24.92%	1.86%	0.94	5.78%	0.95	0.16	0.29	101.14%	97.45%
Ceredex	2.05%	-2.67%	23.88%	-2.07%	0.87	7.01%	0.93	0.07	-0.38	71.69%	91.34%
Pyrford	-0.90%	1.25%	15.64%	0.65%	0.72	7.67%	0.89	-0.09	0.16	75.25%	84.33%
William Blair	1.35%	2.73%	21.08%	2.92%	1.14	5.30%	0.95	0.04	0.52	132.69%	106.17%
PIMCO RAE Emerging Markets	0.93%	3.50%	23.08%	3.86%	1.14	6.50%	0.93	0.02	0.54	131.72%	103.44%
TT Emerging Markets	-2.96%	-0.89%	23.42%	-0.50%	1.19	6.53%	0.95	-0.15	-0.14	131.77%	113.82%
Artisan Partners	5.18%	-0.17%	20.94%	0.05%	0.96	5.12%	0.94	0.22	-0.03	89.85%	95.07%
First Eagle	1.62%	0.35%	15.01%	0.67%	0.75	6.11%	0.94	0.07	0.06	74.71%	84.64%
Allianz Global Investors	-1.37%	-0.70%	10.18%	-0.76%	0.90	1.91%	0.98	-0.18	-0.37	86.36%	95.40%
Adelante	-0.47%	1.70%	21.79%	1.61%	0.96	1.56%	1.00	-0.04	1.09	100.86%	96.97%
AQR Global Risk Premium-EL	-0.60%	2.27%	10.71%	2.16%	0.96	2.34%	0.95	-0.10	0.97	105.69%	91.61%
PanAgora Risk Parity Multi Asset	-4.50%	-1.63%	14.57%	-0.83%	1.28	5.18%	0.92	-0.34	-0.31	128.71%	121.08%
AFL-CIO	-3.58%	-0.33%	4.87%	-0.69%	0.89	1.17%	0.96	-0.84	-0.28	75.71%	91.04%
DFA Short Credit	-1.39%	-0.49%	2.73%	-0.49%	1.01	1.31%	0.77	-0.69	-0.38	81.81%	101.74%
Insight Short Duration	0.53%	0.94%	2.13%	0.81%	0.67	1.88%	0.28	0.01	0.50	91.05%	51.36%
Sit Short Duration	-0.71%	-0.18%	2.51%	-0.02%	1.30	1.22%	0.81	-0.48	-0.14	146.43%	140.02%

Performance Analysis excludes closed end funds and those funds without 3 years of performance.

Total Fund
Performance Analysis - 5 Years (Net of Fees)

Period Ending: September 30, 2022

	5 Years											
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio	
BlackRock Russell 1000 Index	8.98%	-0.02%	18.45%	-0.02%	1.00	0.02%	1.00	0.43	-1.45	99.88%	100.00%	
Boston Partners	6.69%	1.41%	18.95%	1.22%	1.03	3.01%	0.98	0.30	0.47	107.88%	99.47%	
Emerald Advisers	5.13%	1.54%	23.12%	1.69%	0.96	5.53%	0.94	0.18	0.28	104.25%	98.70%	
Ceredex	2.90%	0.03%	21.79%	0.32%	0.90	6.27%	0.93	0.08	0.00	82.02%	94.84%	
Pyrford	0.27%	2.39%	13.71%	1.80%	0.72	6.73%	0.89	-0.06	0.35	70.25%	82.80%	
William Blair	1.40%	1.23%	18.40%	1.21%	1.11	4.44%	0.95	0.02	0.28	122.59%	103.88%	
PIMCO RAE Emerging Markets	-0.30%	1.83%	20.44%	2.07%	1.11	5.31%	0.94	-0.07	0.34	124.42%	102.42%	
TT Emerging Markets	-2.33%	-0.53%	20.85%	-0.27%	1.14	5.70%	0.94	-0.16	-0.09	133.20%	108.62%	
Artisan Partners	6.65%	0.01%	18.55%	0.23%	0.97	4.34%	0.95	0.30	0.00	91.67%	96.68%	
First Eagle	2.74%	1.03%	13.16%	1.47%	0.74	5.45%	0.94	0.13	0.19	68.84%	82.82%	
Allianz Global Investors	0.71%	-0.70%	8.50%	-0.59%	0.92	1.55%	0.97	-0.04	-0.45	89.19%	98.13%	
Adelante	4.13%	1.25%	18.89%	1.37%	0.96	1.62%	0.99	0.16	0.77	97.95%	96.71%	
AFL-CIO	-0.53%	-0.26%	4.41%	-0.28%	0.91	0.99%	0.96	-0.36	-0.26	81.78%	90.19%	
DFA Short Credit	0.20%	-0.37%	2.35%	-0.36%	0.97	1.07%	0.79	-0.37	-0.35	85.45%	98.77%	
Insight Short Duration	1.42%	0.72%	1.75%	0.94%	0.69	1.48%	0.35	0.20	0.49	92.34%	42.96%	
Sit Short Duration	0.92%	0.38%	2.42%	0.15%	1.41	1.17%	0.84	-0.07	0.32	164.11%	152.28%	

Performance Analysis excludes closed end funds and those funds without 5 years of performance.

Total Fund Investment Fund Fee Analysis

Period Ending: September 30, 2022

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
BlackRock Russell 1000 Index	Growth	0.03% of Assets	\$812,251,018	\$243,675	0.03%
Boston Partners	Growth	0.50% of First 25.0 Mil, 0.30% Thereafter	\$354,136,574	\$1,112,410	0.31%
Emerald Advisers	Growth	0.75% of First 10.0 Mil, 0.60% Thereafter	\$183,462,408	\$1,115,774	0.61%
Ceredex	Growth	0.85% of First 10.0 Mil, 0.68% of Next 40.0 Mil, 0.51% Thereafter	\$169,124,837	\$964,537	0.57%
Pyrford	Growth	0.70% of First 50.0 Mil, 0.50% of Next 50.0 Mil, 0.35% Thereafter	\$378,667,612	\$1,575,337	0.42%
William Blair	Growth	0.80% of First 20.0 Mil, 0.60% of Next 30.0 Mil, 0.50% of Next 50.0 Mil, 0.45% of Next 50.0 Mil, 0.40% of Next 50.0 Mil, 0.30% Thereafter	\$363,072,018	\$1,504,216	0.41%
PIMCO RAE Emerging Markets	Growth	0.75% of First 50.0 Mil, 0.68% of Next 50.0 Mil, 0.50% of Next 100.0 Mil, 0.45% Thereafter	\$303,223,241	\$1,677,005	0.55%
TT Emerging Markets	Growth	0.70% of First 100.0 Mil, 0.65% of Next 100.0 Mil, 0.60% Thereafter	\$290,128,699	\$1,890,772	0.65%
Artisan Partners	Growth	0.75% of Assets	\$440,119,455	\$3,300,896	0.75%
First Eagle	Growth	0.75% of Assets	\$436,037,610	\$3,270,282	0.75%
Allianz Global Investors	Growth	0.50% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	\$133,744,651	\$568,106	0.42%
Invesco US Fundamental Beta	Growth	0.15% of Assets	\$102,118,451	\$153,178	0.15%
AQR Global Risk Premium-EL	Growth	0.38% of Assets	\$161,441,691	\$613,478	0.38%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund Investment Fund Fee Analysis

Period Ending: September 30, 2022

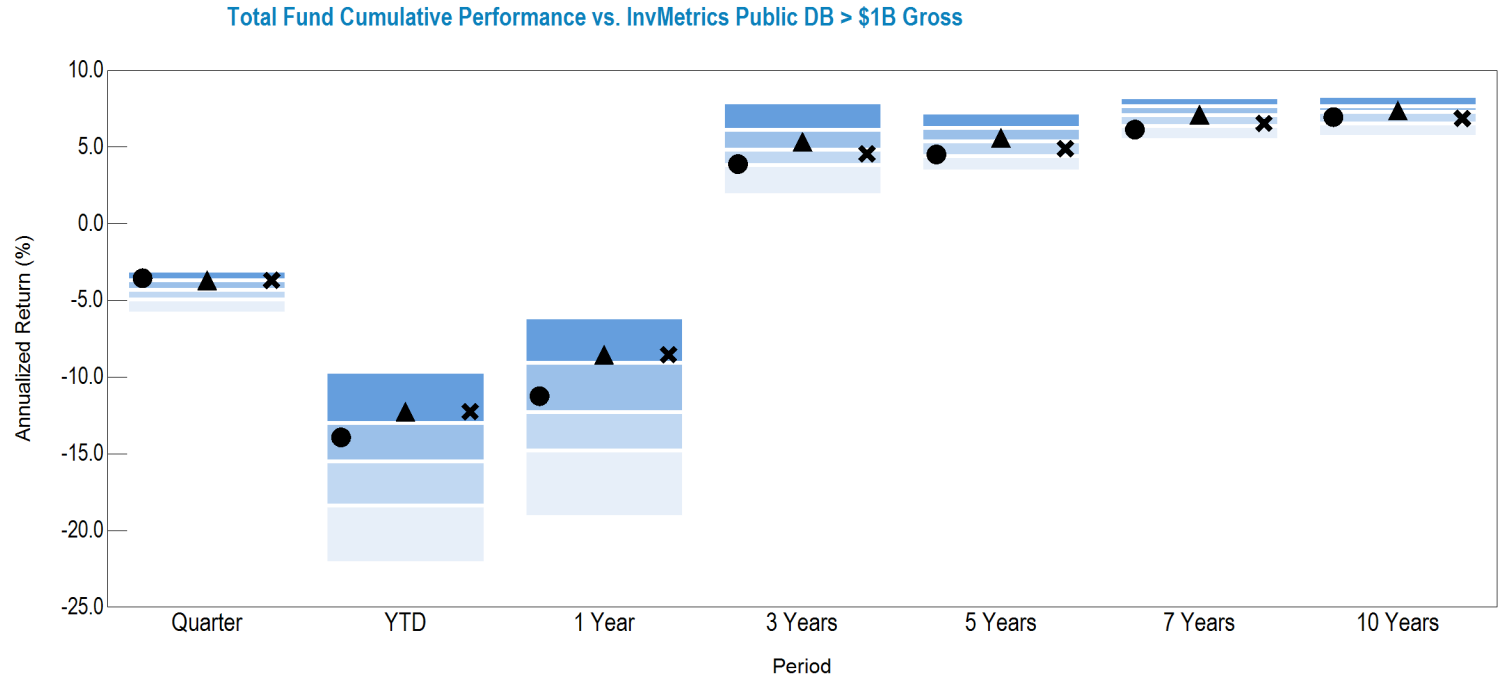
Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
PanAgora Risk Parity Multi Asset	Growth	0.35% of Assets	\$153,376,856	\$536,819	0.35%
AFL-CIO	Diversifying	0.32% of Assets	\$219,904,488	\$703,694	0.32%
Acadian Multi-Asset Absolute Return Fund	Diversifying	0.50% of Assets	\$263,416,872	\$1,317,084	0.50%
Sit LLCAR	Diversifying	0.39% of First 200.0 Mil, 0.35% Thereafter	\$299,532,539	\$1,128,364	0.38%
DFA Short Credit	Liquidity	0.20% of First 25.0 Mil, 0.10% Thereafter	\$369,862,227	\$394,862	0.11%
Insight Short Duration	Liquidity	0.06% of First 500.0 Mil, 0.05% of Next 500.0 Mil, 0.04% Thereafter	\$607,485,194	\$353,743	0.06%
Sit Short Duration	Liquidity	0.15% of Assets	\$676,408,882	\$1,014,613	0.15%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund

Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: September 30, 2022



	Quarter		YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
Return (Rank)														
5th Percentile	-3.1	(21)	-9.7	(35)	-6.1	(44)	7.9	(74)	7.2	(72)	8.2	(81)	8.3	(59)
25th Percentile	-3.7	(26)	-13.0	(18)	-9.0	(18)	6.2	(41)	6.3	(41)	7.7	(50)	7.7	(45)
Median	-4.3	(26)	-15.5	(18)	-12.3	(18)	4.9	(57)	5.4	(63)	7.1	(67)	7.3	(64)
75th Percentile	-4.9	(26)	-18.3	(18)	-14.7	(18)	3.8	(57)	4.4	(63)	6.4	(67)	6.6	(64)
95th Percentile	-5.8	(26)	-22.1	(18)	-19.1	(18)	1.9	(57)	3.4	(63)	5.5	(67)	5.7	(64)
# of Portfolios	75		75		75		73		73		72		69	
● Total Fund	-3.5	(21)	-13.9	(35)	-11.2	(44)	3.9	(74)	4.5	(72)	6.1	(81)	7.0	(59)
▲ Policy Index	-3.7	(26)	-12.3	(18)	-8.5	(18)	5.3	(41)	5.6	(41)	7.1	(50)	7.4	(45)
✕ Policy Index (Adjusted)	-3.7	(26)	-12.3	(18)	-8.5	(18)	4.6	(57)	4.9	(63)	6.5	(67)	6.9	(64)

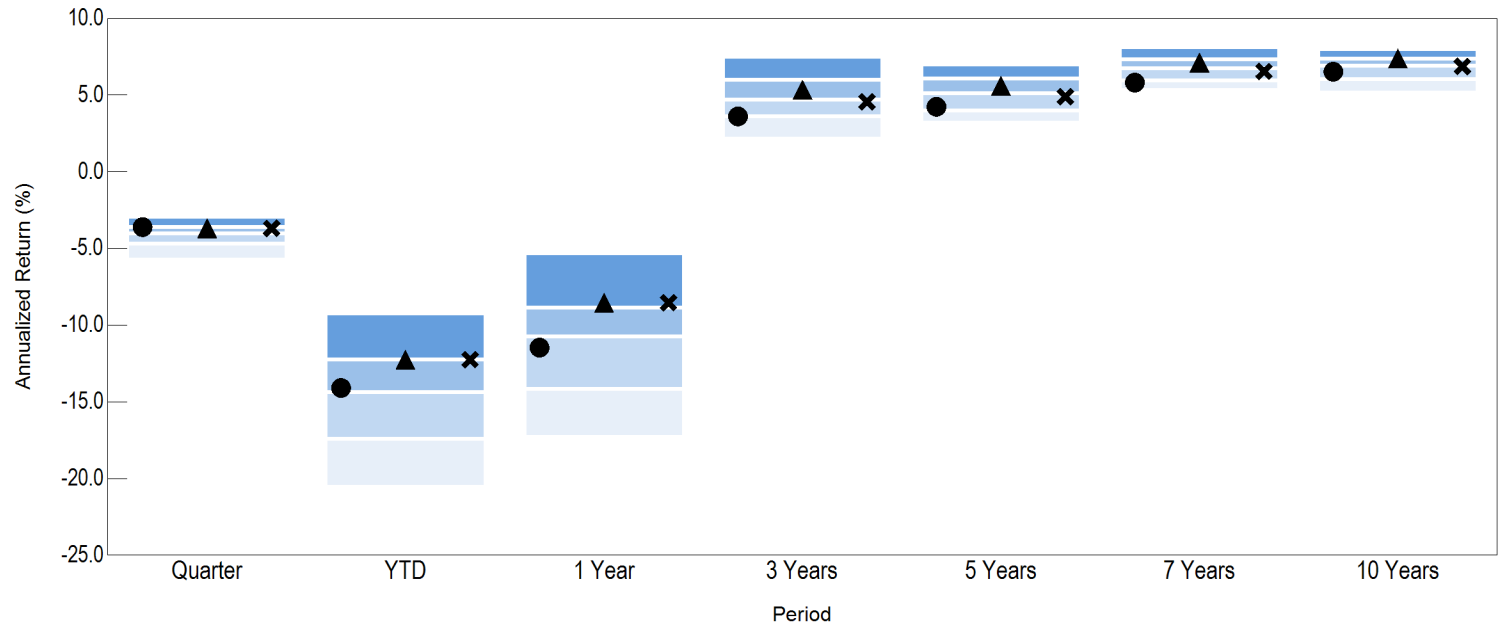
Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Cumulative Performance (Net of Fees)

Period Ending: September 30, 2022

Total Fund Cumulative Performance vs. InvMetrics Public DB > \$1B Net



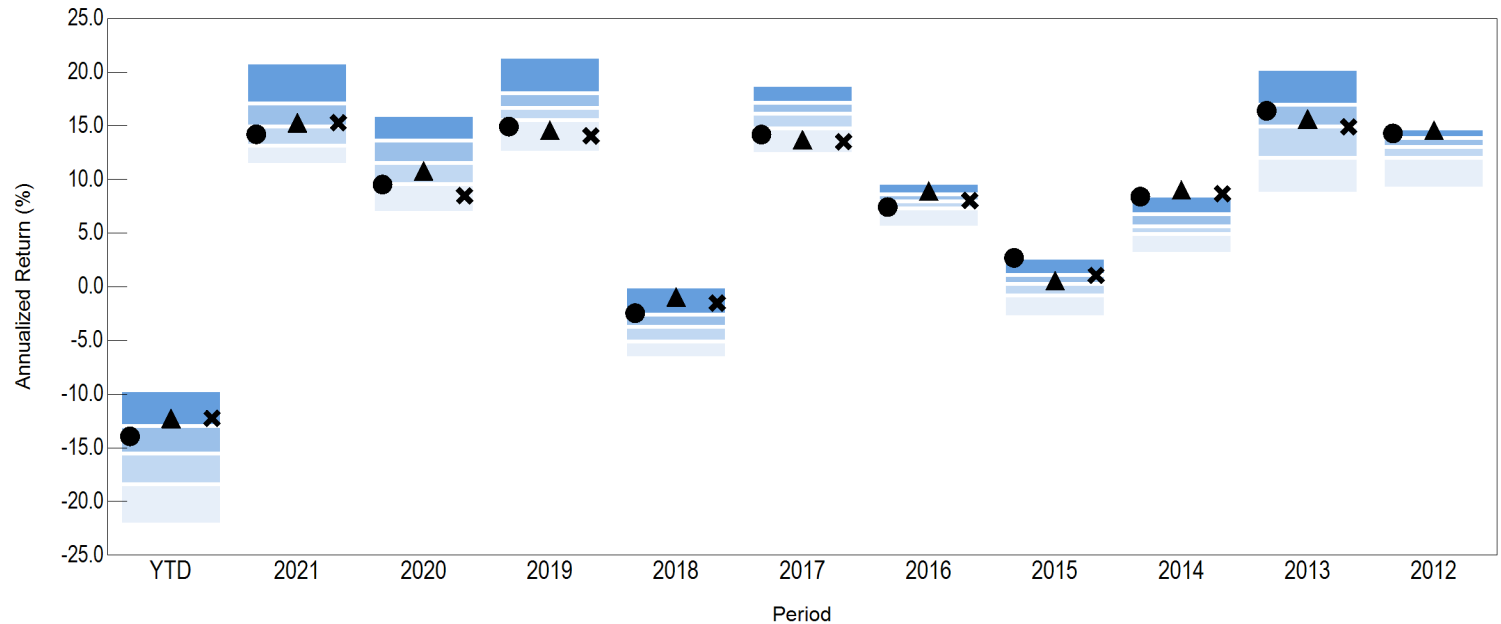
	Return (Rank)													
	Quarter		YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-2.9	(28)	-9.3	(46)	-5.3	(53)	7.5	(76)	7.0	(73)	8.1	(78)	8.0	(61)
25th Percentile	-3.6	(35)	-12.2	(26)	-8.8	(20)	6.0	(41)	6.1	(32)	7.4	(37)	7.4	(25)
Median	-4.0	(35)	-14.4	(26)	-10.7	(20)	4.7	(53)	5.1	(59)	6.8	(62)	7.0	(53)
75th Percentile	-4.7	(35)	-17.4	(26)	-14.1	(20)	3.6	(53)	4.0	(59)	6.0	(62)	6.1	(53)
95th Percentile	-5.7	(35)	-20.5	(26)	-17.3	(20)	2.2	(53)	3.2	(59)	5.4	(62)	5.2	(53)
# of Portfolios	59		59		59		57		57		57		54	
● Total Fund	-3.6	(28)	-14.1	(46)	-11.5	(53)	3.6	(76)	4.2	(73)	5.8	(78)	6.5	(61)
▲ Policy Index	-3.7	(35)	-12.3	(26)	-8.5	(20)	5.3	(41)	5.6	(32)	7.1	(37)	7.4	(25)
✕ Policy Index (Adjusted)	-3.7	(35)	-12.3	(26)	-8.5	(20)	4.6	(53)	4.9	(59)	6.5	(62)	6.9	(53)

Total Fund

Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: September 30, 2022

Total Fund Consecutive Periods vs. InvMetrics Public DB > \$1B Gross



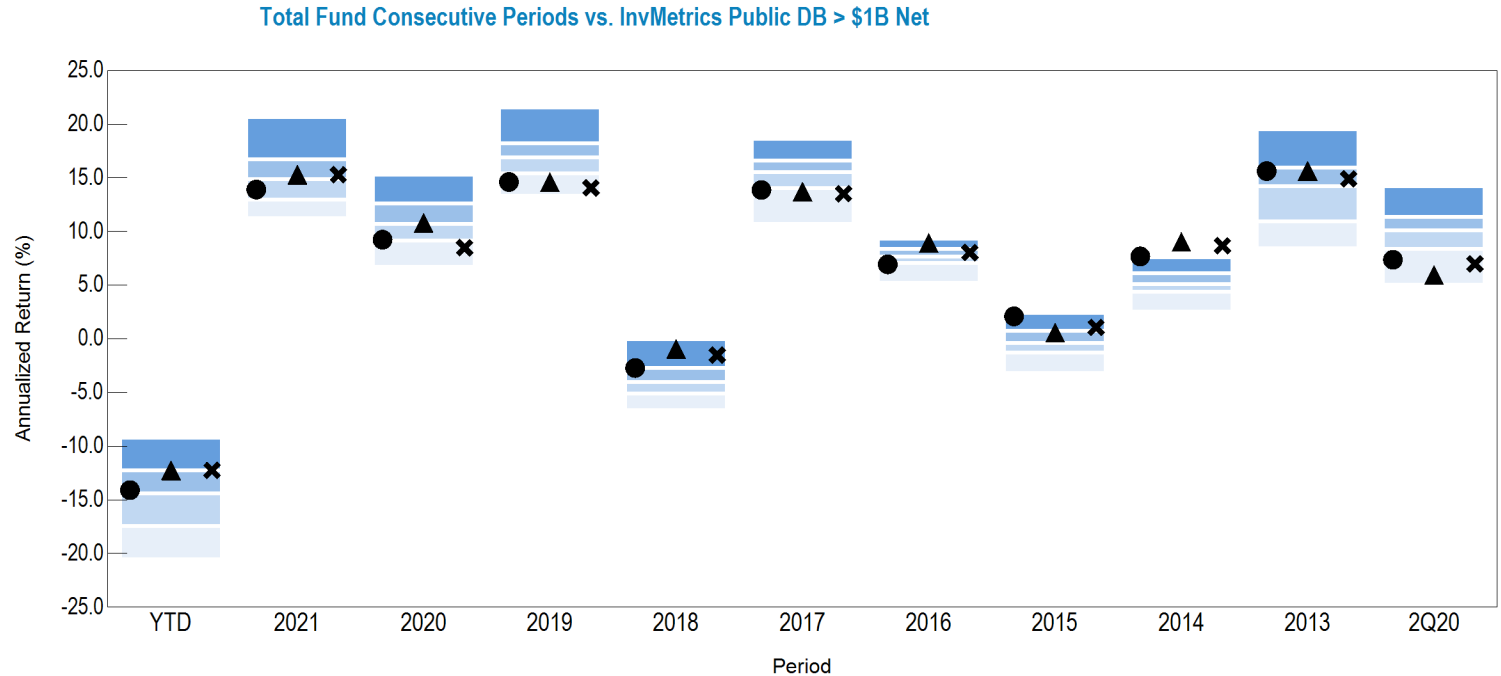
	Return (Rank)											
	YTD	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	
5th Percentile	-9.7	20.9	16.0	21.4	0.0	18.8	9.7	2.7	8.5	20.2	14.7	
25th Percentile	-13.0	17.1	13.6	18.1	-2.6	17.2	8.6	1.1	6.8	17.0	13.9	
Median	-15.5	14.9	11.5	16.7	-3.7	16.2	8.0	0.3	5.7	15.0	13.0	
75th Percentile	-18.3	13.2	9.6	15.6	-5.1	14.8	7.4	-0.7	4.9	12.0	12.1	
95th Percentile	-22.1	11.4	6.9	12.5	-6.6	12.4	5.5	-2.8	3.1	8.7	9.2	
# of Portfolios	75	84	94	81	71	98	92	98	79	67	74	
● Total Fund	-13.9 (35)	14.2 (62)	9.5 (78)	14.9 (83)	-2.5 (25)	14.2 (83)	7.4 (74)	2.7 (5)	8.4 (6)	16.4 (33)	14.3 (13)	
▲ Policy Index	-12.3 (18)	15.3 (47)	10.8 (60)	14.6 (87)	-0.9 (8)	13.7 (89)	8.9 (15)	0.6 (40)	9.0 (2)	15.6 (43)	14.6 (8)	
✕ Policy Index (Adjusted)	-12.3 (18)	15.3 (47)	8.5 (89)	14.1 (89)	-1.5 (10)	13.5 (89)	8.0 (46)	1.1 (31)	8.7 (5)	14.9 (54)	-- (--)	

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: September 30, 2022

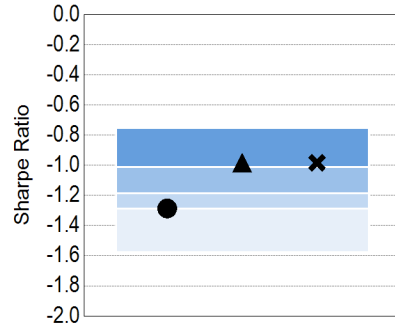


	Return (Rank)										
	YTD	2021	2020	2019	2018	2017	2016	2015	2014	2013	2Q20
5th Percentile	-9.3	20.6	15.2	21.5	-0.1	18.6	9.3	2.4	7.6	19.5	14.2
25th Percentile	-12.2	16.7	12.7	18.2	-2.7	16.6	8.4	0.8	6.1	16.0	11.4
Median	-14.4	14.9	10.8	17.0	-4.0	15.6	7.7	-0.4	5.1	14.3	10.1
75th Percentile	-17.4	13.0	9.2	15.4	-5.1	14.1	7.1	-1.3	4.4	11.0	8.4
95th Percentile	-20.5	11.3	6.8	13.4	-6.6	10.7	5.3	-3.2	2.6	8.5	5.0
# of Portfolios	59	74	80	69	63	61	62	57	55	48	71
● Total Fund	-14.1 (46)	13.9 (62)	9.2 (73)	14.6 (92)	-2.7 (27)	13.9 (81)	6.9 (78)	2.1 (12)	7.7 (5)	15.6 (33)	7.4 (86)
▲ Policy Index	-12.3 (26)	15.3 (45)	10.8 (49)	14.6 (92)	-0.9 (8)	13.7 (85)	8.9 (13)	0.6 (29)	9.0 (2)	15.6 (33)	5.9 (91)
✕ Policy Index (Adjusted)	-12.3 (26)	15.3 (45)	8.5 (86)	14.1 (95)	-1.5 (10)	13.5 (86)	8.0 (37)	1.1 (21)	8.7 (3)	14.9 (39)	7.0 (87)

Total Fund Sharpe Ratio Ranking (Gross of Fees)

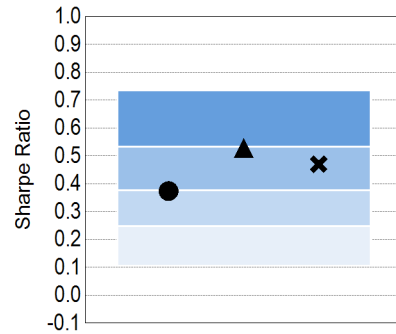
Period Ending: September 30, 2022

Sharpe Ratio
1 Year



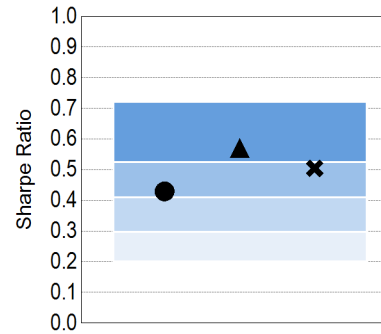
● Total Fund	
Value	-1.3
Rank	77
▲ Policy Index	
Value	-1.0
Rank	21
✘ Policy Index (Adjusted)	
Value	-1.0
Rank	21
Universe	
5th %tile	-0.8
25th %tile	-1.0
Median	-1.2
75th %tile	-1.3
95th %tile	-1.6

Sharpe Ratio
3 Year



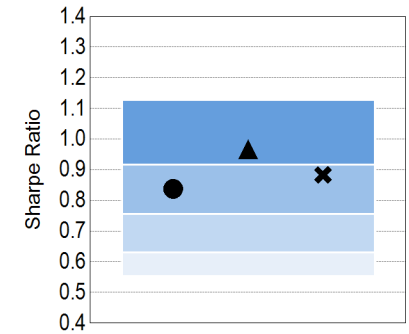
● Total Fund	
Value	0.4
Rank	51
▲ Policy Index	
Value	0.5
Rank	27
✘ Policy Index (Adjusted)	
Value	0.5
Rank	29
Universe	
5th %tile	0.7
25th %tile	0.5
Median	0.4
75th %tile	0.2
95th %tile	0.1

Sharpe Ratio
5 Year



● Total Fund	
Value	0.4
Rank	43
▲ Policy Index	
Value	0.6
Rank	23
✘ Policy Index (Adjusted)	
Value	0.5
Rank	29
Universe	
5th %tile	0.7
25th %tile	0.5
Median	0.4
75th %tile	0.3
95th %tile	0.2

Sharpe Ratio
10 Year



● Total Fund	
Value	0.8
Rank	38
▲ Policy Index	
Value	1.0
Rank	16
✘ Policy Index (Adjusted)	
Value	0.9
Rank	31
Universe	
5th %tile	1.1
25th %tile	0.9
Median	0.8
75th %tile	0.6
95th %tile	0.6

Domestic Equity Managers

Boston Partners Manager Portfolio Overview

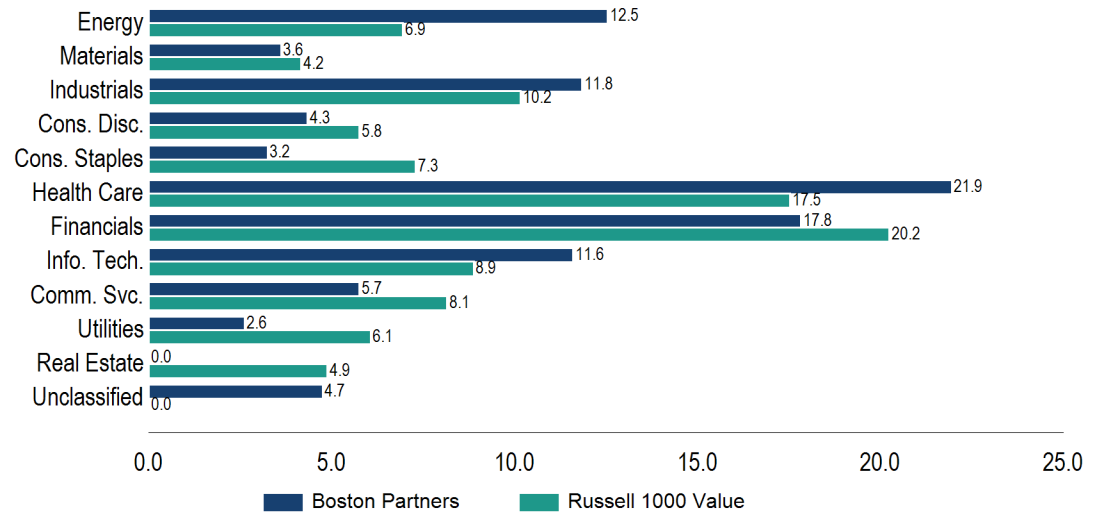
Period Ending: September 30, 2022

Domestic equity large cap value portfolio exhibiting low turnover in companies with low valuations relative to intrinsic value. Primary personnel include Mark Donovan and David Pyle.

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	81	855
Weighted Avg. Market Cap. (\$B)	154.48	135.38
Median Market Cap. (\$B)	49.53	11.48
Price To Earnings	14.06	14.13
Price To Book	2.30	2.26
Price To Sales	1.23	1.62
Return on Equity (%)	21.36	16.95
Yield (%)	2.19	2.52
Beta	1.09	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
JOHNSON & JOHNSON	3.97	-7.35
CONOCOPHILLIPS	3.72	16.03
JPMORGAN CHASE & CO	3.20	-6.38
BERKSHIRE HATHAWAY INC	3.13	-2.20
AUTOZONE INC	2.54	-0.34
ALPHABET INC	2.39	-12.22
SCHWAB (CHARLES) CORP	2.33	14.10
CVS HEALTH CORP	2.30	3.53
CIGNA CORP	2.19	5.71
WELLS FARGO & CO	2.09	3.40

Top Contributors

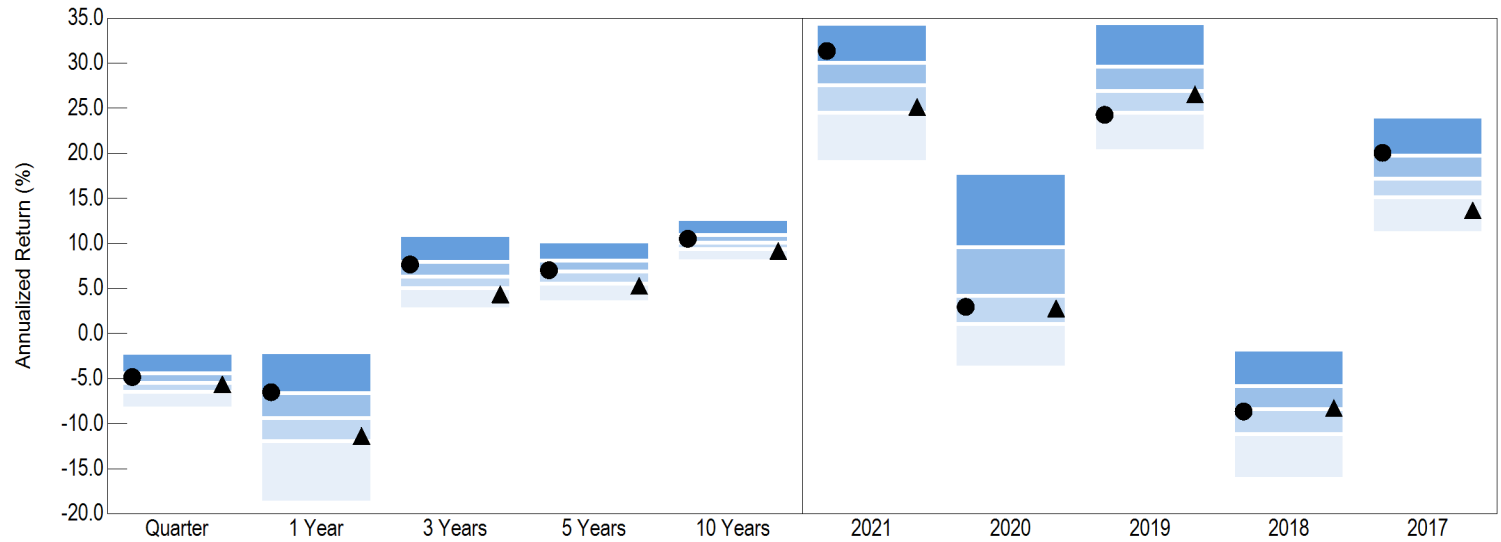
	Avg Wgt	Return	Contribution
CONOCOPHILLIPS	1.02	16.03	0.16
MARATHON PETROLEUM CORP	0.54	21.55	0.12
SCHWAB (CHARLES) CORP	0.43	14.10	0.06
DEERE & COMPANY	0.40	11.86	0.05
CIGNA CORP	0.74	5.71	0.04
DEVON ENERGY CORP	0.31	11.58	0.04
UNITED RENTALS INC.	0.28	11.20	0.03
EATON CORP PLC	0.35	6.42	0.02
WELLS FARGO & CO	0.65	3.40	0.02
TJX COMPANIES INC (THE)	0.18	11.75	0.02

Bottom Contributors

	Avg Wgt	Return	Contribution
SANOFI	0.68	-24.01	-0.16
AVANTOR INC	0.37	-36.98	-0.14
JOHNSON & JOHNSON	1.37	-7.35	-0.10
ALPHABET INC	0.81	-12.22	-0.10
PROCTER & GAMBLE CO (THE)	0.76	-11.63	-0.09
FIDELITY NATIONAL INFORMATION SERVICES INC	0.46	-17.11	-0.08
MOHAWK INDUSTRIES INC.	0.27	-26.51	-0.07
ABBVIE INC	0.60	-11.55	-0.07
META PLATFORMS INC	0.41	-15.86	-0.06
QUALCOMM INC.	0.58	-11.06	-0.06

Unclassified sector allocation includes cash allocations.

Boston Partners vs. eV US Large Cap Value Equity Gross Universe

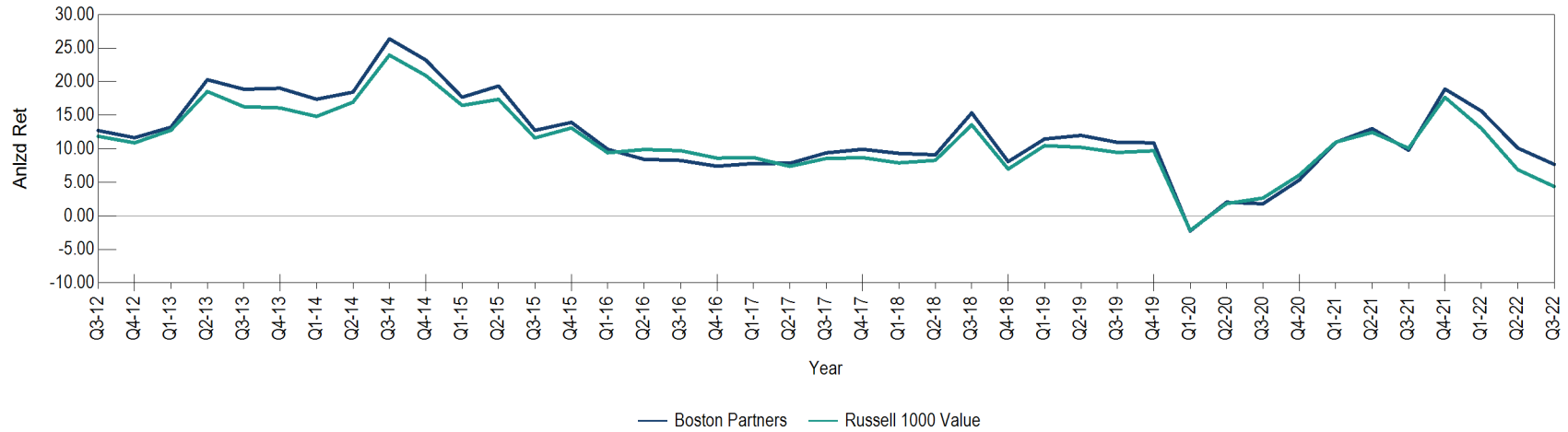


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	-2.2	-2.1	10.9	10.2	12.6	34.4	17.8	34.4	-1.8	24.0
25th Percentile	-4.4	-6.6	8.0	8.1	11.0	30.0	9.6	29.6	-5.8	19.8
Median	-5.4	-9.3	6.4	6.9	10.1	27.6	4.2	26.9	-8.3	17.2
75th Percentile	-6.4	-11.9	5.1	5.5	9.4	24.5	1.1	24.5	-11.1	15.1
95th Percentile	-8.3	-18.7	2.7	3.5	8.1	19.1	-3.8	20.3	-16.1	11.2
# of Portfolios	340	340	330	319	290	337	326	331	336	342
● Boston Partners	-4.8 (36)	-6.5 (24)	7.7 (28)	7.0 (48)	10.5 (38)	31.3 (17)	3.0 (61)	24.3 (77)	-8.7 (55)	20.1 (23)
▲ Russell 1000 Value	-5.6 (55)	-11.4 (69)	4.4 (84)	5.3 (80)	9.2 (81)	25.2 (72)	2.8 (62)	26.5 (54)	-8.3 (50)	13.7 (87)

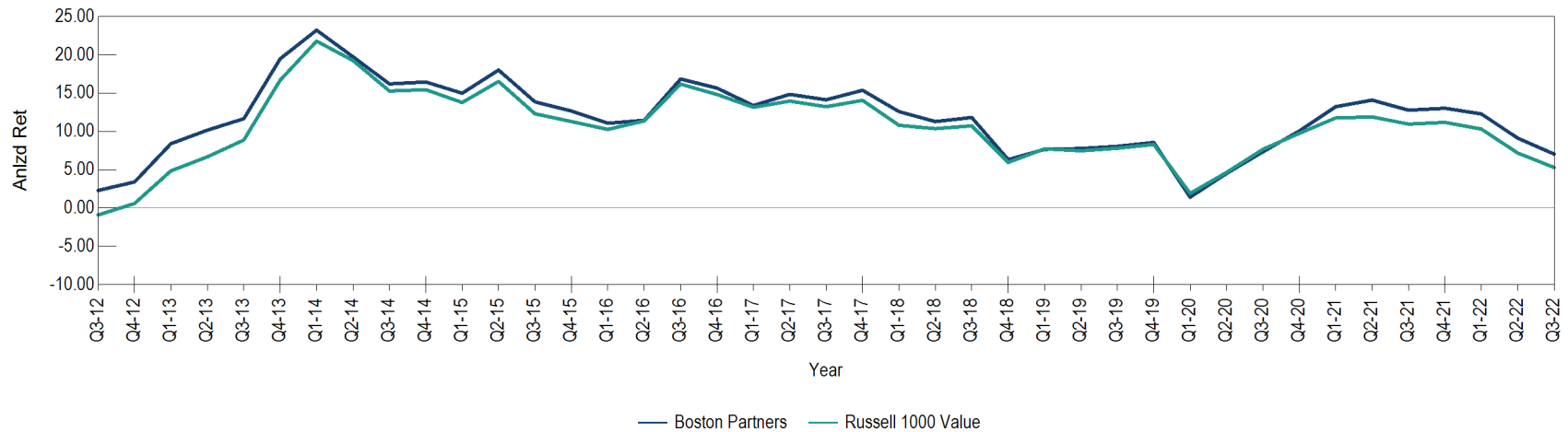
Boston Partners
 Manager Performance - Rolling 3 & 5 Year (Gross of Fees)

Period Ending: September 30, 2022

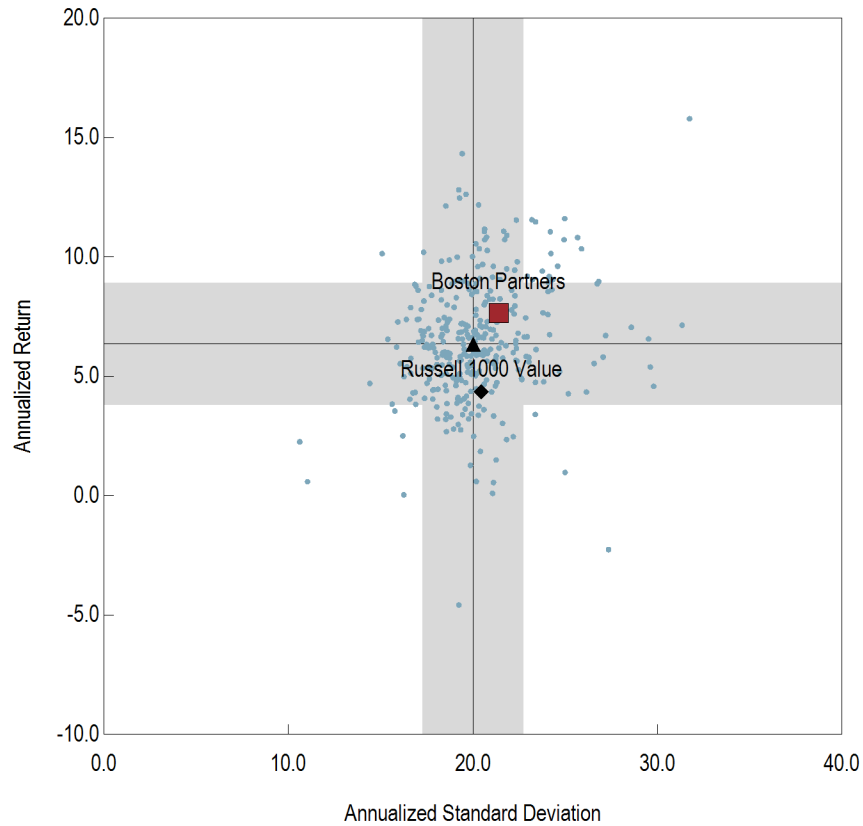
Rolling 3 Year Annualized Return (%)



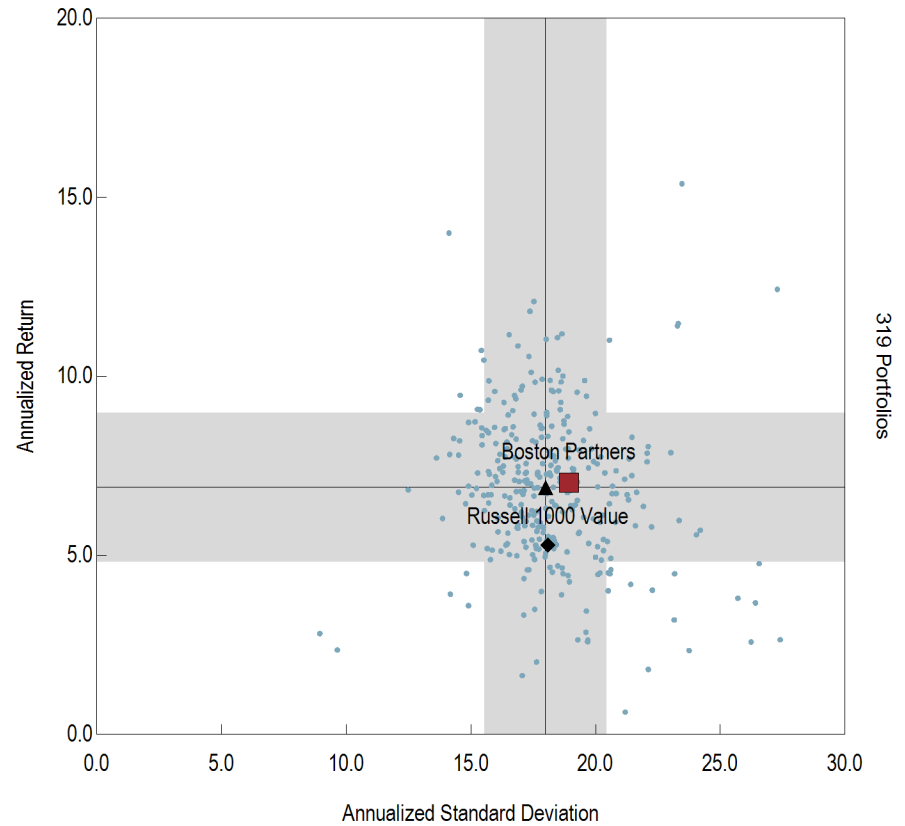
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Boston Partners	7.7%	21.4%	0.3
Russell 1000 Value	4.4%	20.5%	0.2
eV US Large Cap Value Equity Gross Median	6.4%	20.0%	0.3

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Boston Partners	7.0%	18.9%	0.3
Russell 1000 Value	5.3%	18.1%	0.2
eV US Large Cap Value Equity Gross Median	6.9%	18.0%	0.3

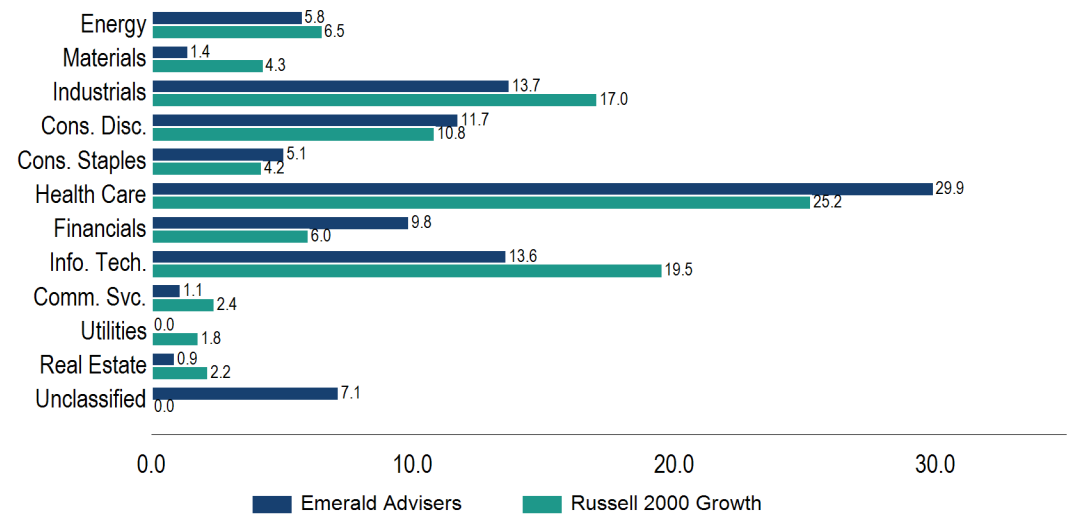
Emerald Advisers Manager Portfolio Overview

Period Ending: September 30, 2022

Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

	Portfolio	2000 Growth
Number of Holdings	113	1,121
Weighted Avg. Market Cap. (\$B)	2.94	3.03
Median Market Cap. (\$B)	2.40	1.22
Price To Earnings	20.70	15.39
Price To Book	3.32	3.46
Price To Sales	2.40	1.63
Return on Equity (%)	0.79	2.86
Yield (%)	0.52	0.85
Beta	0.96	1.00

Sector Allocation (%) vs Russell 2000 Growth



Largest Holdings

	End Weight	Return
CHART INDUSTRIES INC	2.43	10.14
PALOMAR HOLDINGS INC	2.20	30.00
SIMPLY GOOD FOODS CO (THE)	1.95	-15.30
MACOM TECHNOLOGY SOLUTIONS HOLDINGS INC	1.91	12.34
SUPER MICRO COMPUTER INC	1.75	36.48
NV5 GLOBAL INC	1.71	6.06
EVERI HOLDINGS INC	1.66	-0.55
CHURCHILL DOWNS INC	1.64	-3.85
PACIFIC PREMIER BANCORP INC	1.63	6.93
BRP GROUP INC	1.58	9.11

Top Contributors

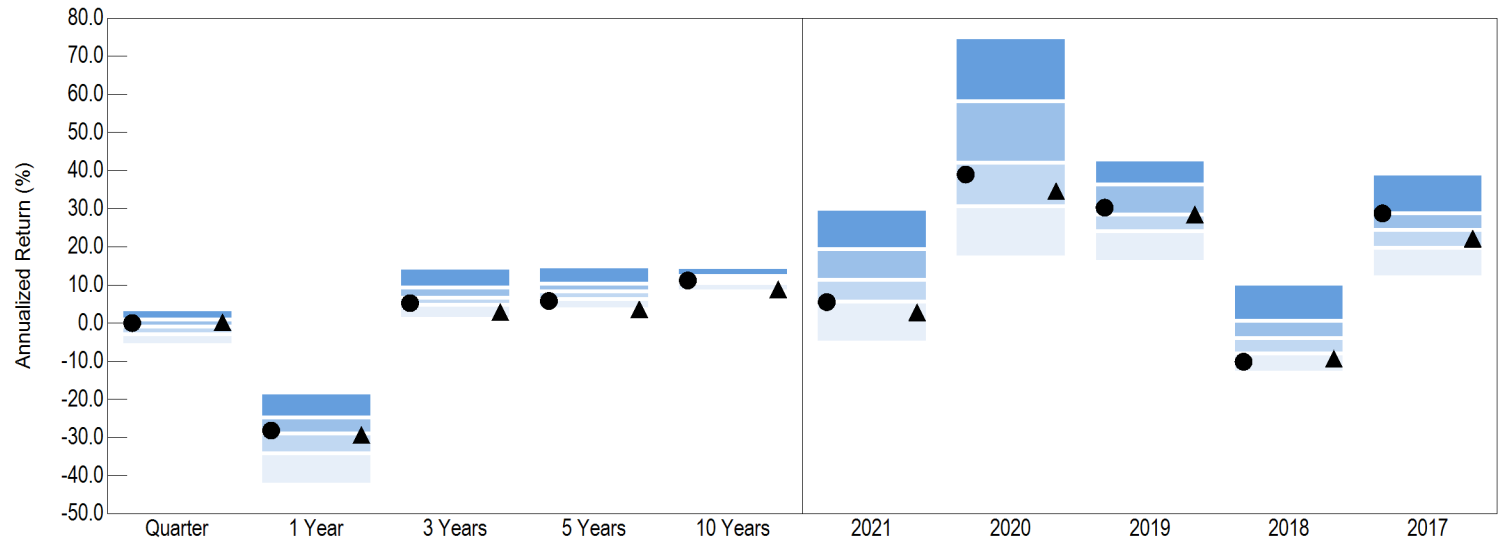
	Avg Wgt	Return	Contribution
KARUNA THERAPEUTICS INC	0.26	77.80	0.20
SUPER MICRO COMPUTER INC	0.50	36.48	0.18
PALOMAR HOLDINGS INC	0.56	30.00	0.17
TREACE MEDICAL CONCEPTS INC	0.27	53.91	0.14
PING IDENTITY HOLDING CORP	0.25	54.74	0.14
GOSSAMER BIO INC	0.27	43.13	0.12
MODEL N INC	0.31	33.82	0.11
CHART INDUSTRIES INC	0.99	10.14	0.10
SHIFT4 PAYMENTS INC	0.27	34.94	0.09
JACK IN THE BOX INC.	0.28	32.79	0.09

Bottom Contributors

	Avg Wgt	Return	Contribution
RAPID7 INC	0.61	-35.78	-0.22
PERFICIENT INC	0.62	-29.09	-0.18
ALKERMES PLC	0.54	-25.04	-0.14
AVIENT CORP	0.54	-23.93	-0.13
SIMPLY GOOD FOODS CO (THE)	0.79	-15.30	-0.12
FORMFACTOR INC	0.34	-35.32	-0.12
KRATOS DEFENSE & SECURITY SOLUTIONS INC	0.40	-26.80	-0.11
SEMTECH CORP	0.22	-46.50	-0.10
YETI HOLDINGS INC	0.27	-34.09	-0.09

Unclassified sector allocation includes cash allocations.

Emerald Advisers vs. eV US Small Cap Growth Equity Gross Universe

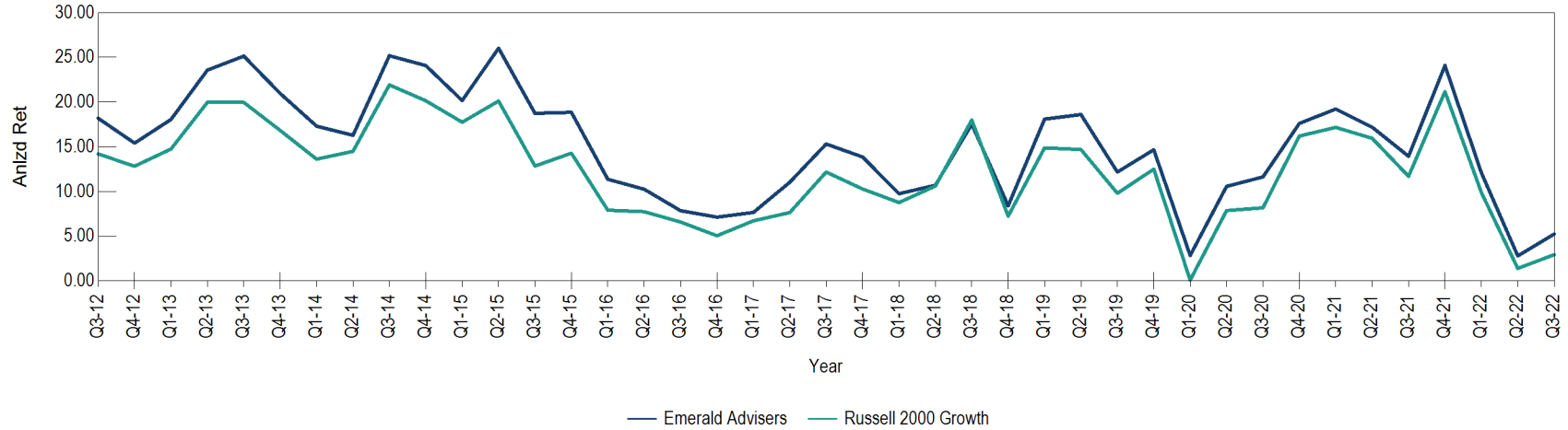


	Quarter		1 Year		3 Years		5 Years		10 Years		2021		2020		2019		2018		2017	
5th Percentile	3.6	-18.2	14.4	14.8	14.6	29.8	75.0	42.8	10.2	39.2										
25th Percentile	1.0	-24.6	9.4	10.5	12.5	19.5	58.3	36.4	0.7	28.9										
Median	-0.8	-28.8	6.7	8.4	11.4	11.5	42.2	28.5	-3.9	24.6										
75th Percentile	-2.8	-34.0	4.8	6.5	10.6	5.7	30.8	24.2	-7.9	19.8										
95th Percentile	-5.6	-42.3	1.2	3.7	8.5	-5.1	17.4	16.2	-12.8	12.1										
# of Portfolios	151	151	148	146	125	158	161	157	164	174										
● Emerald Advisers	0.0 (40)	-28.2 (44)	5.2 (68)	5.8 (81)	11.2 (62)	5.5 (76)	39.0 (57)	30.3 (45)	-10.1 (85)	28.8 (26)										
▲ Russell 2000 Growth	0.2 (36)	-29.3 (54)	2.9 (90)	3.6 (96)	8.8 (94)	2.8 (84)	34.6 (66)	28.5 (51)	-9.3 (80)	22.2 (62)										

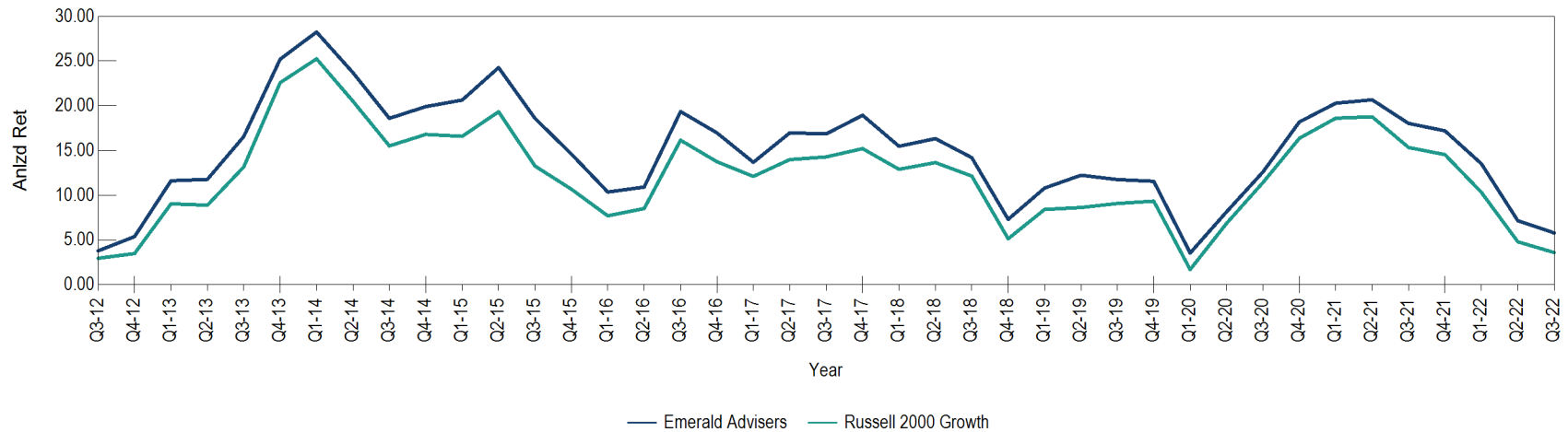
Emerald Advisers
Manager Performance - Rolling 3 & 5 Year (Gross of Fees)

Period Ending: September 30, 2022

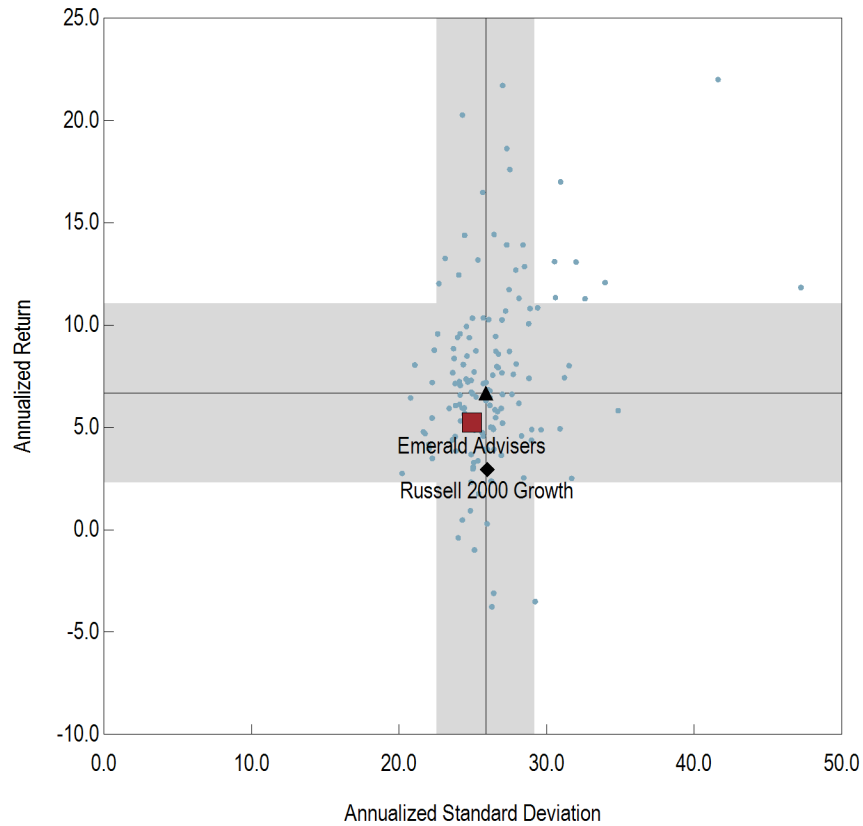
Rolling 3 Year Annualized Return (%)



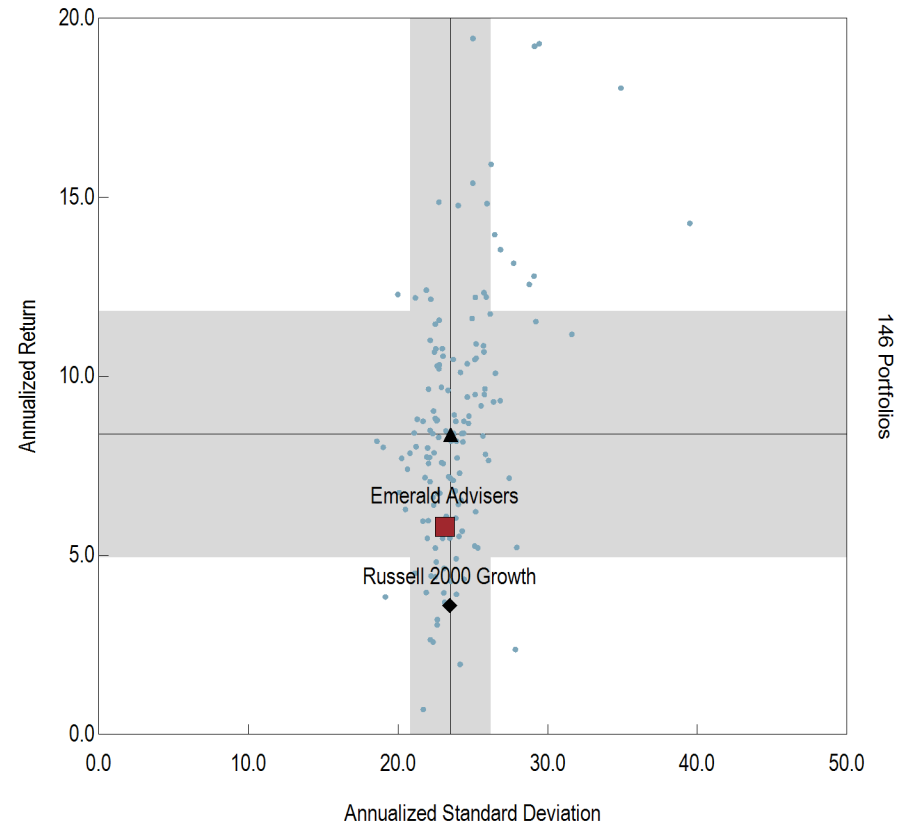
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Emerald Advisers	5.2%	24.9%	0.2
Russell 2000 Growth	2.9%	26.0%	0.1
eV US Small Cap Growth Equity Gross Median	6.7%	25.9%	0.2

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Emerald Advisers	5.8%	23.1%	0.2
Russell 2000 Growth	3.6%	23.5%	0.1
eV US Small Cap Growth Equity Gross Median	8.4%	23.5%	0.3

Ceredex Manager Portfolio Overview

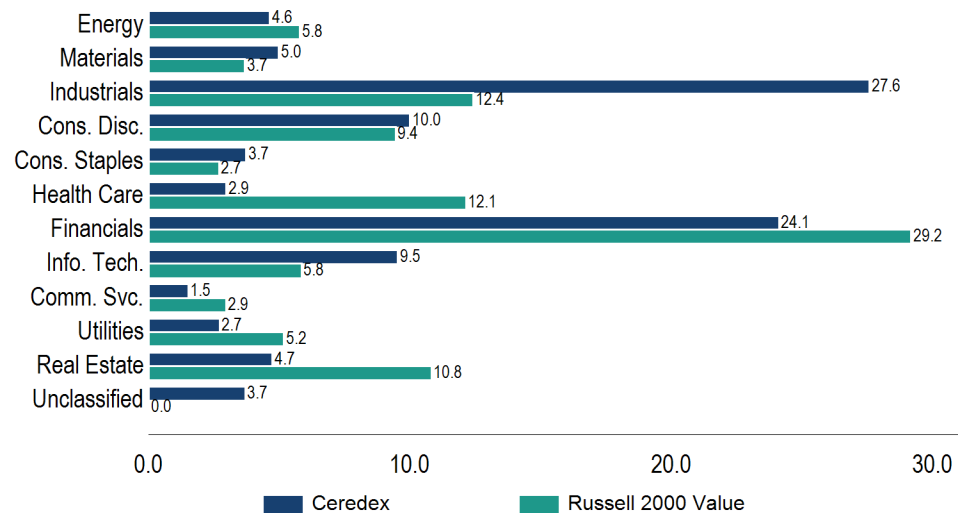
Period Ending: September 30, 2022

Domestic equity small cap value portfolio of companies with dividend yields and low valuations. Primary personnel include Brett Barner and David Maynard.

Characteristics

	Portfolio	Russell 2000 Value
Number of Holdings	81	1,394
Weighted Avg. Market Cap. (\$B)	5.06	2.21
Median Market Cap. (\$B)	3.71	0.86
Price To Earnings	13.20	9.54
Price To Book	2.19	1.48
Price To Sales	1.07	1.04
Return on Equity (%)	17.03	5.88
Yield (%)	2.39	2.49
Beta	0.85	1.00

Sector Allocation (%) vs Russell 2000 Value



Largest Holdings

	End Weight	Return
LENNOX INTERNATIONAL INC.	3.24	8.26
EMCOR GROUP INC.	3.00	12.30
FIRST CITIZENS BANCSHARES INC	2.92	22.04
OVINTIV INC	2.59	4.58
POWER INTEGRATIONS INC	2.51	-14.04
AGCO CORP	2.25	-2.35
STANTEC INC	2.15	0.39
ACADEMY SPORTS OUTDOORS INC	2.12	18.87
ARMSTRONG WORLD INDUSTRIES INC	2.09	5.97
SLM CORP	2.01	-11.58

Top Contributors

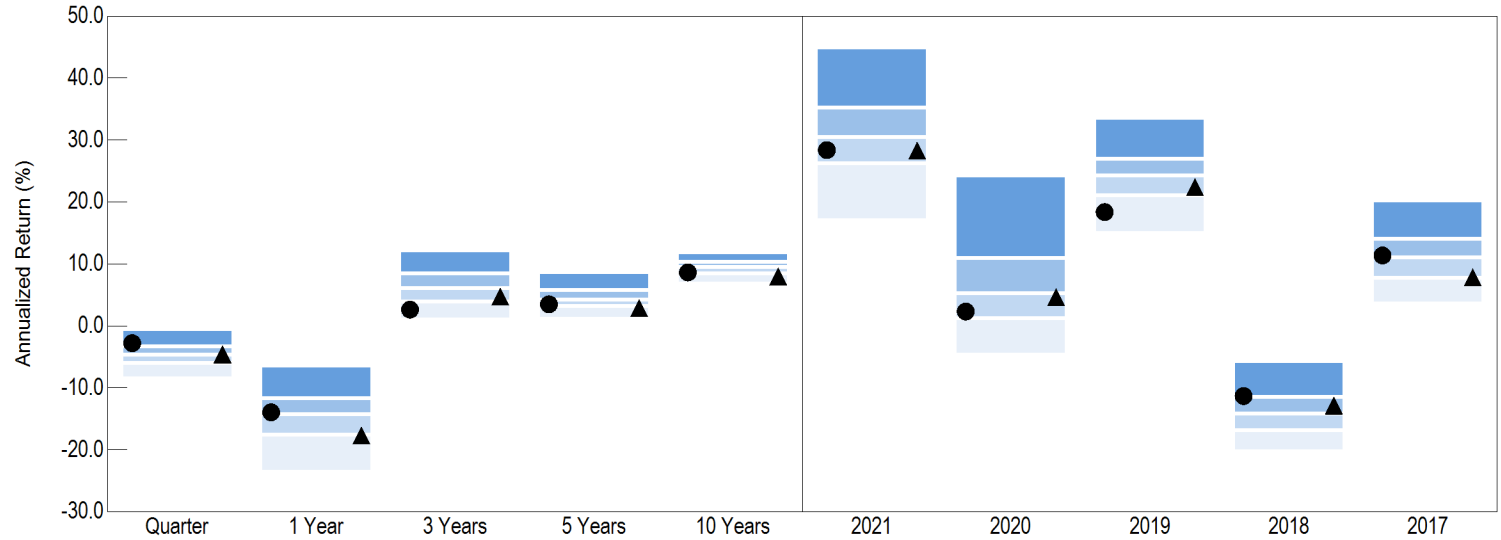
	Avg Wgt	Return	Contribution
FIRST CITIZENS BANCSHARES INC	0.78	22.04	0.17
ACADEMY SPORTS OUTDOORS INC	0.58	18.87	0.11
EMCOR GROUP INC.	0.87	12.30	0.11
NATIONAL INSTRUMENTS CORPORATION	0.39	21.70	0.08
FOOT LOCKER INC.	0.33	25.33	0.08
LENNOX INTERNATIONAL INC.	0.98	8.26	0.08
TORO CO (THE)	0.51	14.10	0.07
CULLEN/FROST BANKERS INC	0.34	14.30	0.05
HERC HOLDINGS INC	0.29	15.77	0.05

Bottom Contributors

	Avg Wgt	Return	Contribution
PATTERSON COS INC	0.74	-20.06	-0.15
POWER INTEGRATIONS INC	0.95	-14.04	-0.13
MILLERKNOLL INC	0.29	-40.19	-0.12
LITTELFUSE INC	0.54	-21.59	-0.12
COLLIERS INTERNATIONAL GROUP INC	0.69	-15.79	-0.11
MKS INSTRUMENTS INC	0.50	-19.33	-0.10
INTERFACE INC	0.34	-28.24	-0.10
MINERALS TECHNOLOGIES INC.	0.49	-19.39	-0.09
SLM CORP	0.74	-11.58	-0.09
AVIENT CORP	0.30	-23.93	-0.07

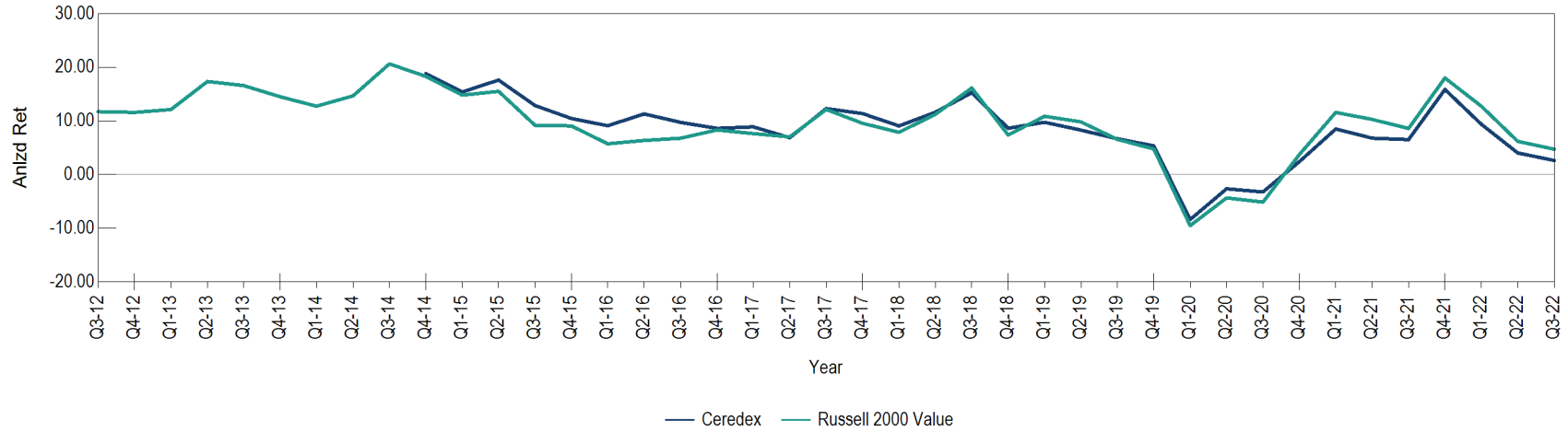
Unclassified sector allocation includes cash allocations.

Ceredex vs. eV US Small Cap Value Equity Gross Universe

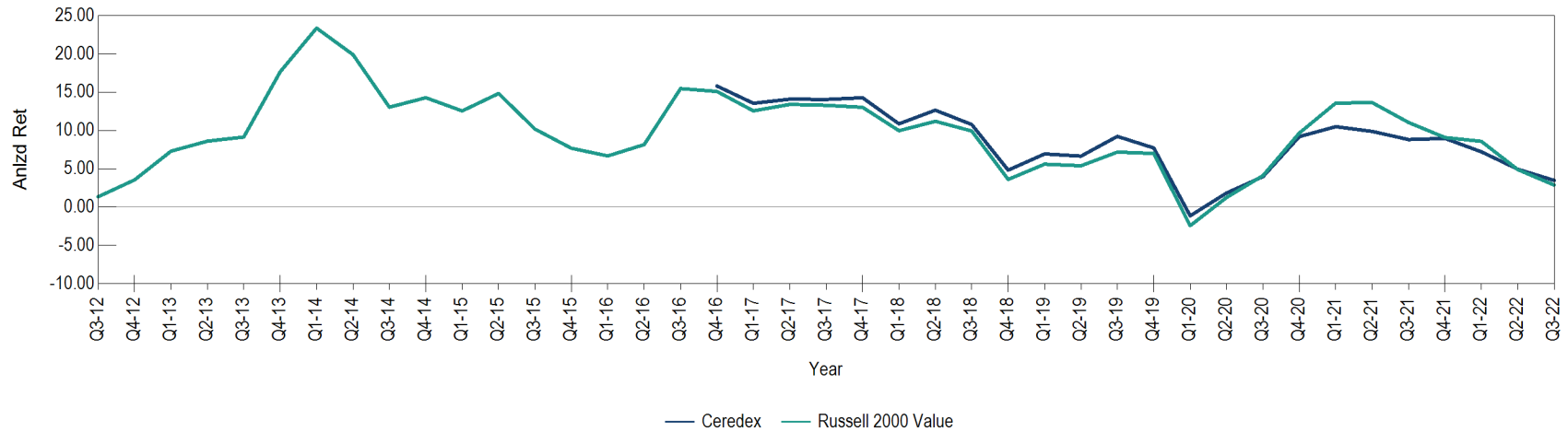


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	-0.5	-6.5	12.2	8.7	11.8	44.9	24.2	33.6	-5.7	20.2
25th Percentile	-3.2	-11.6	8.5	5.8	10.4	35.3	11.1	27.0	-11.4	14.1
Median	-4.6	-14.1	6.1	4.3	9.6	30.5	5.3	24.4	-14.0	11.1
75th Percentile	-5.9	-17.5	4.0	3.2	8.6	26.3	1.3	21.2	-16.7	7.8
95th Percentile	-8.4	-23.5	1.1	1.2	6.8	17.1	-4.6	15.0	-20.2	3.7
# of Portfolios	206	206	202	191	173	210	219	217	220	224
● Ceredex	-2.8 (17)	-14.0 (48)	2.6 (87)	3.5 (70)	8.6 (72)	28.4 (60)	2.3 (69)	18.4 (87)	-11.3 (25)	11.4 (48)
▲ Russell 2000 Value	-4.6 (50)	-17.7 (76)	4.7 (70)	2.9 (81)	7.9 (85)	28.3 (60)	4.6 (53)	22.4 (69)	-12.9 (39)	7.8 (75)

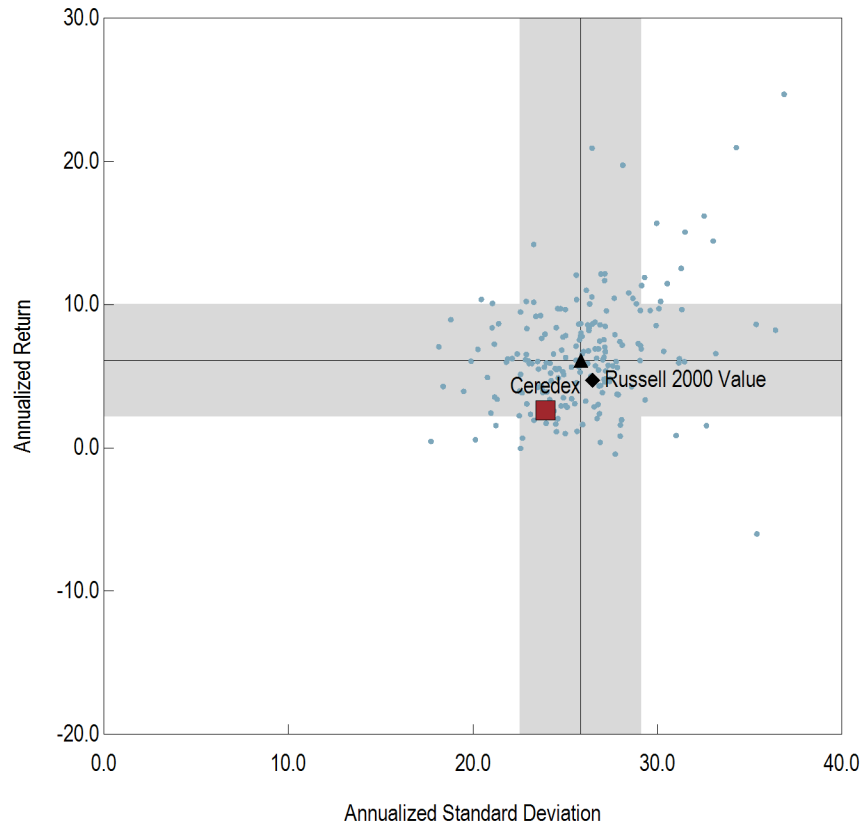
Rolling 3 Year Annualized Return (%)



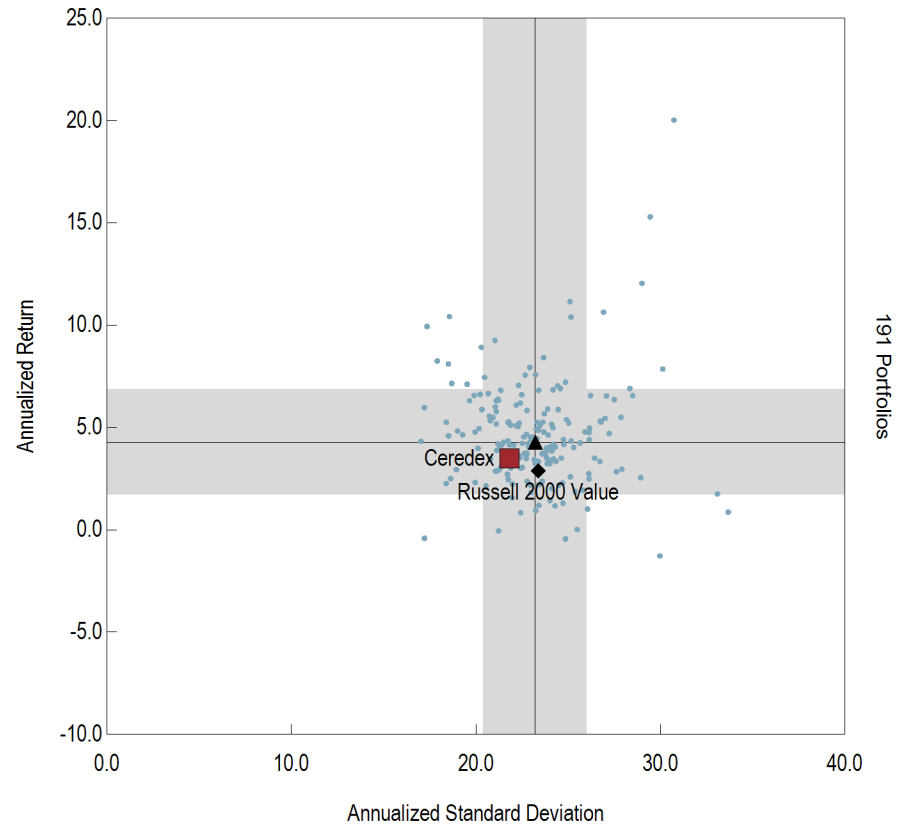
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	2.6%	23.9%	0.1
Russell 2000 Value	4.7%	26.5%	0.2
eV US Small Cap Value Equity Gross Median	6.1%	25.8%	0.2

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	3.5%	21.8%	0.1
Russell 2000 Value	2.9%	23.4%	0.1
eV US Small Cap Value Equity Gross Median	4.3%	23.2%	0.1

International Equity Managers

Pyrford Manager Portfolio Overview

Period Ending: September 30, 2022

International equity value portfolio of non-US companies with low valuations at the country and stock level. Primary personnel include Tony Cousins, Daniel McDonagh, and Paul Simons.

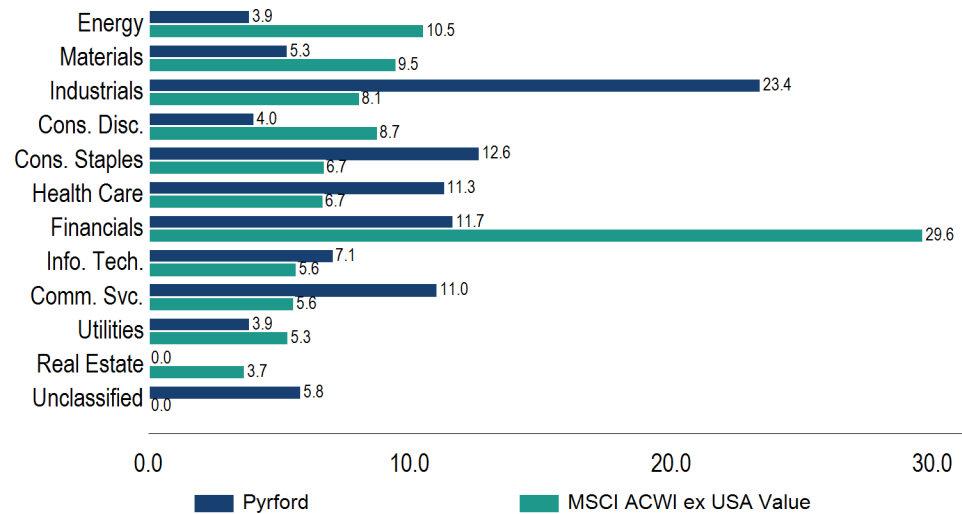
Characteristics

	MSCI ACWI Portfolio	MSCI ACWI ex USA Value
Number of Holdings	70	1,308
Weighted Avg. Market Cap. (\$B)	55.04	60.35
Median Market Cap. (\$B)	19.64	7.37
Price To Earnings	14.42	8.51
Price To Book	2.15	1.69
Price To Sales	1.51	0.80
Return on Equity (%)	17.12	12.04
Yield (%)	4.28	5.38
Beta	0.71	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	87.3%	71.3%
Emerging*	8.1%	28.7%
Top 10 Largest Countries		
Japan	14.9%	14.4%
Switzerland	12.0%	4.2%
United Kingdom	11.8%	13.7%
Germany	9.7%	6.3%
Australia	9.0%	5.0%
France	7.6%	5.4%
Singapore	6.5%	1.1%
Cash	4.6%	0.0%
Hong Kong	4.3%	1.9%
Netherlands	4.1%	1.3%
Total-Top 10 Largest Countries	84.6%	53.2%

Sector Allocation (%) vs MSCI ACWI ex USA Value



Top Contributors

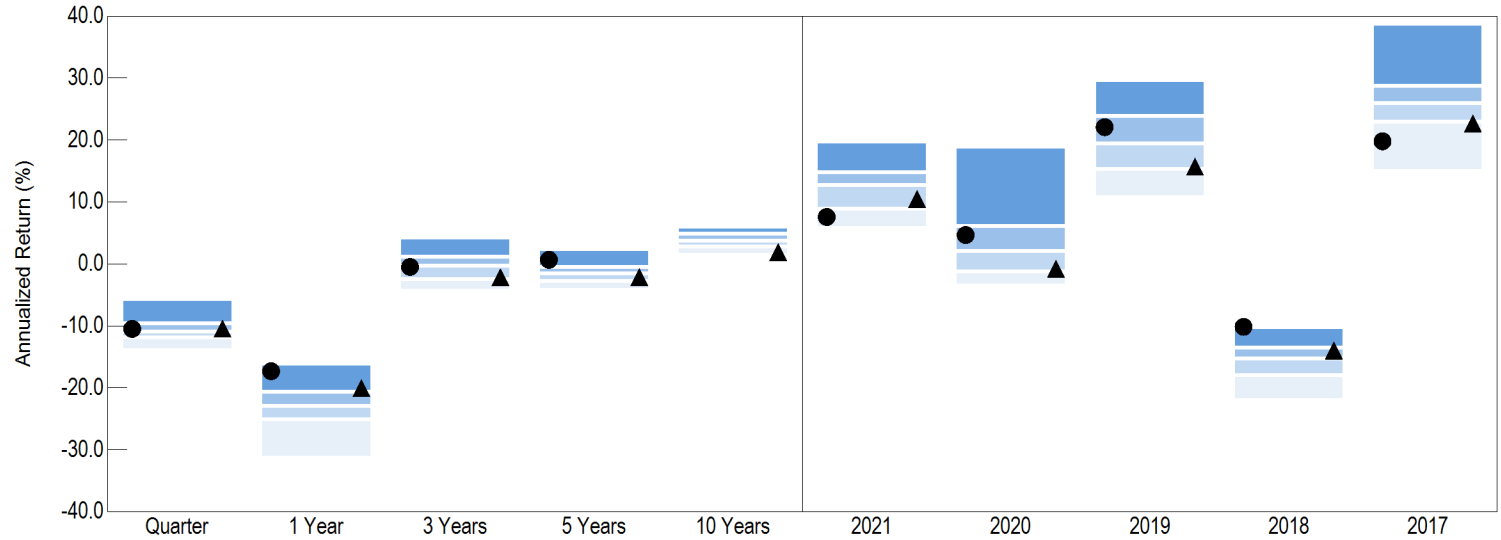
	Avg Wgt	Return	Contribution
TELEKOMUNIKASI INDONESIA	1.17	9.36	0.11
SINGAPORE TELECOMMUNICATIONS LTD	2.14	3.85	0.08
NIHON KOHDEN CORP	1.55	4.98	0.08
PT BANK RAKYAT INDONESIA TBK	1.04	6.11	0.06
BRAMBLES LTD	2.50	1.08	0.03
WOLTERS KLUWER NV	1.12	1.88	0.02
ATLAS COPCO AB	0.29	1.19	0.00
EUROAPI SASU	0.01	6.18	0.00
ABC-MART INC	1.76	-0.99	-0.02
SAMPO PLC	1.84	-1.14	-0.02

Bottom Contributors

	Avg Wgt	Return	Contribution
TELENOR ASA	2.11	-30.80	-0.65
SANOFI	1.98	-23.66	-0.47
VODAFONE GROUP PUBLIC LIMITED COMPANY	1.70	-26.79	-0.46
FIELMANN AG, HAMBURG	1.38	-32.44	-0.45
AIA GROUP LTD	1.96	-22.65	-0.44
MITSUBISHI ELECTRIC CORP	2.55	-14.66	-0.37
NATIONAL GRID PLC	1.98	-18.84	-0.37
KONINKLIJKE VOPAK NV	1.31	-27.16	-0.36
DEUTSCHE POST AG	1.70	-18.34	-0.31
L'AIR LIQUIDE SA	1.91	-13.93	-0.27

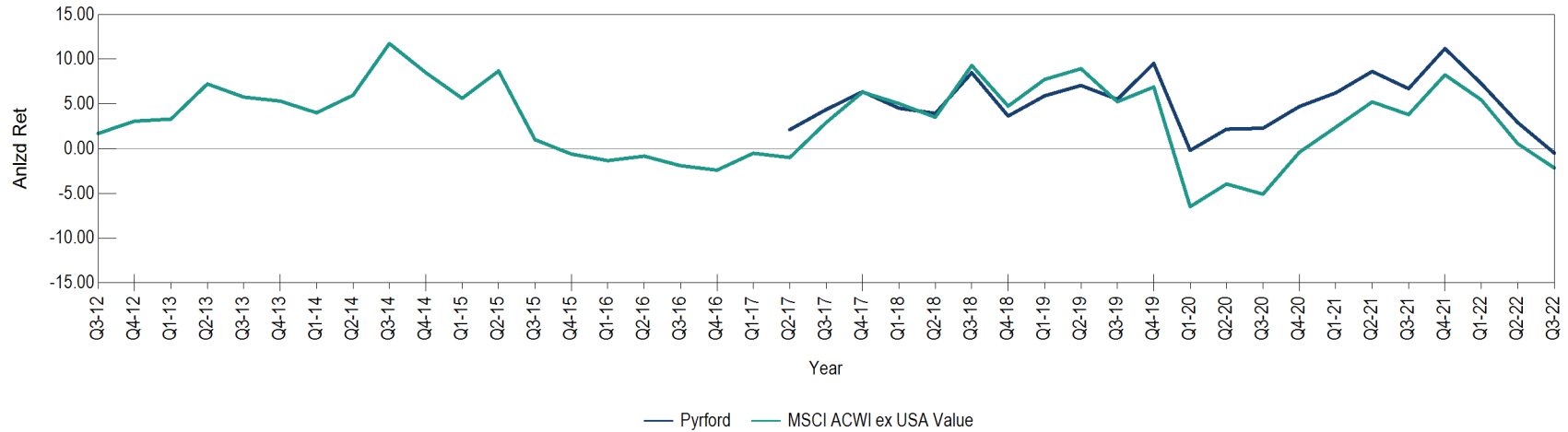
Unclassified sector allocation includes cash allocations.

Pyrford vs. eV ACWI ex-US Value Equity Gross Universe

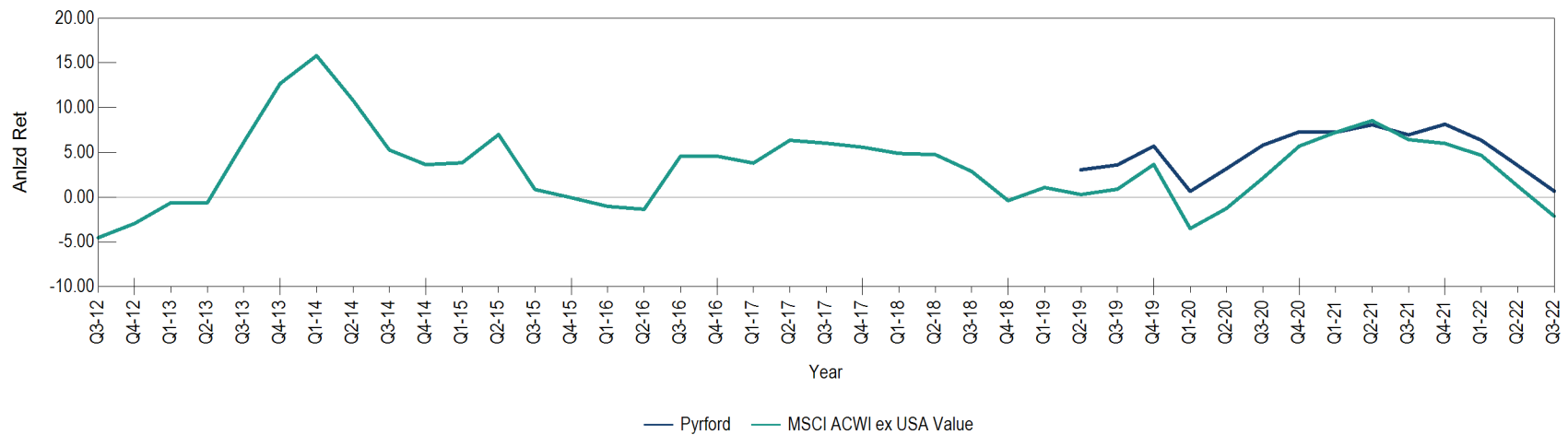


	Return (Rank)										
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017	
5th Percentile	-5.7	-16.2	4.2	2.4	6.0	19.7	18.8	29.6	-10.2	38.8	
25th Percentile	-9.6	-20.5	1.2	-0.4	4.9	14.8	6.2	24.0	-13.4	28.8	
Median	-10.9	-22.9	-0.2	-1.5	3.8	12.8	2.1	19.5	-15.2	26.0	
75th Percentile	-11.8	-25.0	-2.4	-2.7	2.8	8.9	-1.2	15.4	-17.9	23.0	
95th Percentile	-13.9	-31.3	-4.2	-4.2	1.6	5.8	-3.5	10.8	-21.9	15.0	
# of Portfolios	46	46	45	41	31	46	49	52	54	56	
● Pyrford	-10.5 (44)	-17.3 (8)	-0.5 (53)	0.7 (20)	-- (--)	7.6 (84)	4.7 (33)	22.1 (35)	-10.1 (5)	19.8 (84)	
▲ MSCI ACWI ex USA Value	-10.4 (44)	-20.0 (20)	-2.1 (71)	-2.1 (66)	1.9 (91)	10.5 (69)	-0.8 (73)	15.7 (74)	-14.0 (32)	22.7 (77)	

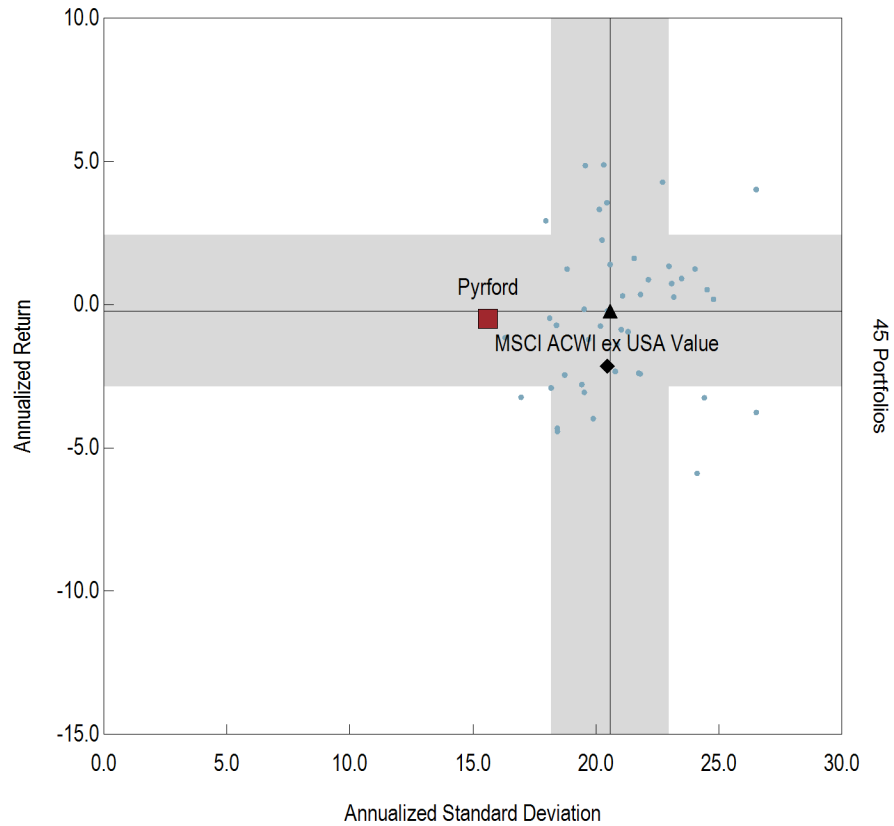
Rolling 3 Year Annualized Return (%)



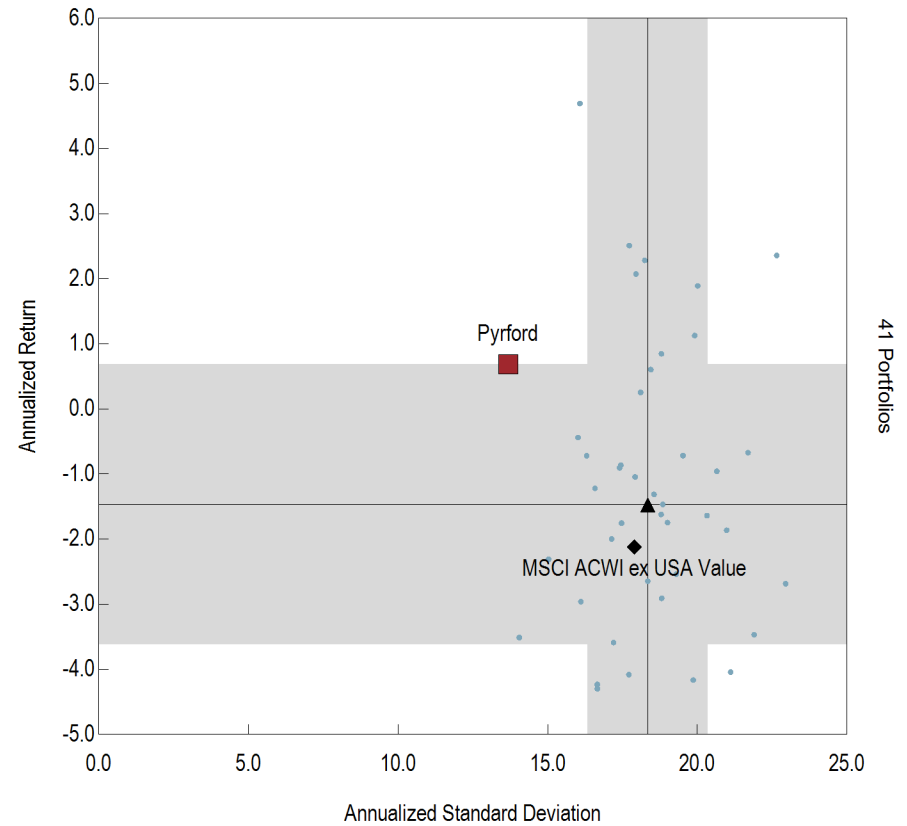
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	-0.5%	15.6%	-0.1
MSCI ACWI ex USA Value	-2.1%	20.5%	-0.1
eV ACWI ex-US Value Equity Gross Median	-0.2%	20.6%	0.0

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	0.7%	13.7%	0.0
MSCI ACWI ex USA Value	-2.1%	17.9%	-0.2
eV ACWI ex-US Value Equity Gross Median	-1.5%	18.3%	-0.1

William Blair Manager Portfolio Overview

Period Ending: September 30, 2022

International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Kenneth McAtamney.

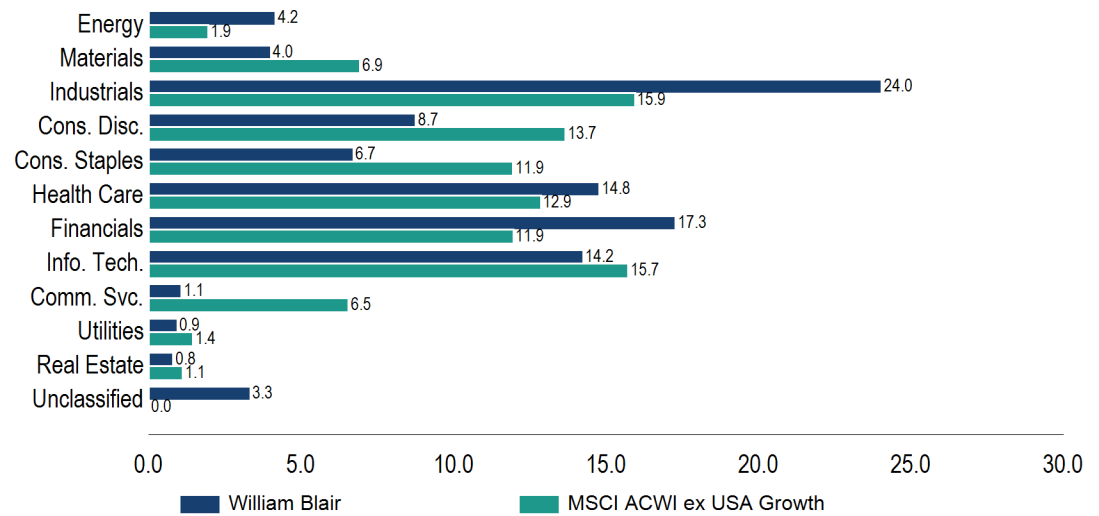
Characteristics

	Portfolio	MSCI ACWI ex USA Growth
Number of Holdings	186	1,314
Weighted Avg. Market Cap. (\$B)	52.41	81.70
Median Market Cap. (\$B)	9.91	8.09
Price To Earnings	21.47	17.02
Price To Book	3.58	3.11
Price To Sales	2.90	2.16
Return on Equity (%)	17.99	18.35
Yield (%)	1.97	2.03
Beta	1.17	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	79.8%	70.1%
Emerging*	16.9%	29.9%
Top 10 Largest Countries		
United Kingdom	13.8%	5.8%
France	10.4%	8.7%
Canada	10.2%	8.1%
Japan	9.2%	13.9%
India*	7.3%	4.6%
Switzerland	6.3%	9.1%
Denmark	4.3%	2.9%
Netherlands	3.7%	3.8%
Sweden	3.4%	2.6%
Cash	3.3%	0.0%
Total-Top 10 Largest Countries	72.0%	59.5%

Sector Allocation (%) vs MSCI ACWI ex USA Growth



Top Contributors

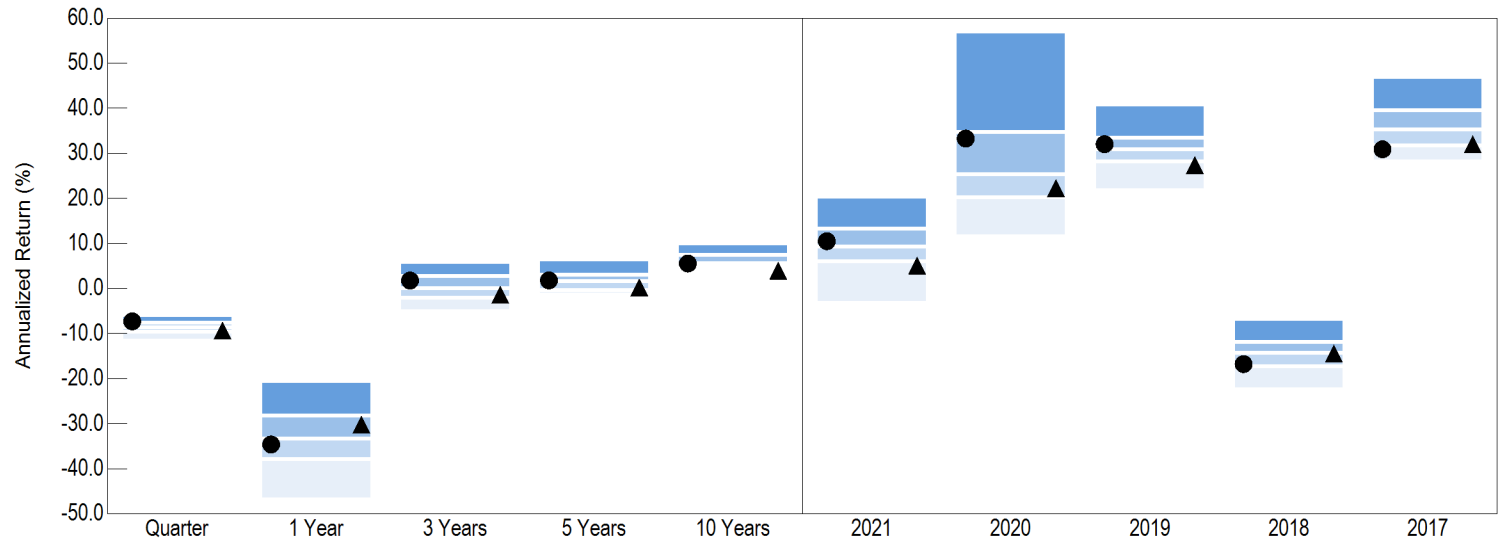
	Avg Wgt	Return	Contribution
PT BANK CENTRAL ASIA TBK	1.71	15.67	0.27
MERCADOLIBRE INC	0.35	29.98	0.10
ATLISSIAN CORP	0.66	12.37	0.08
HOYA CORP	0.63	12.53	0.08
DBS GROUP HOLDINGS LTD	0.74	10.28	0.08
ASHTREAD GROUP PLC	0.73	10.31	0.08
PIDILITE INDUSTRIES LTD	0.23	25.54	0.06
LOCAWEB SERVICOS DE INTERNET SA	0.10	54.79	0.05
TECAN GROUP AG	0.25	20.39	0.05
HAVELL'S INDIA	0.25	19.25	0.05

Bottom Contributors

	Avg Wgt	Return	Contribution
AIA GROUP LTD	2.62	-22.65	-0.59
ASTRAZENECA PLC	1.86	-14.95	-0.28
MTU AERO ENGINES AG	1.62	-16.70	-0.27
RELIANCE INDUSTRIES LTD	2.40	-10.78	-0.26
ICON PLC	1.61	-15.19	-0.24
AMADEUS IT GROUP SA	1.58	-15.46	-0.24
MEDIATEK INCORPORATION	0.98	-20.77	-0.20
LI NING COMPANY LIMITED	1.09	-17.35	-0.19
AIRBUS SE	1.73	-9.81	-0.17
TAIWAN SEMICONDUCTOR	1.08	-15.65	-0.17

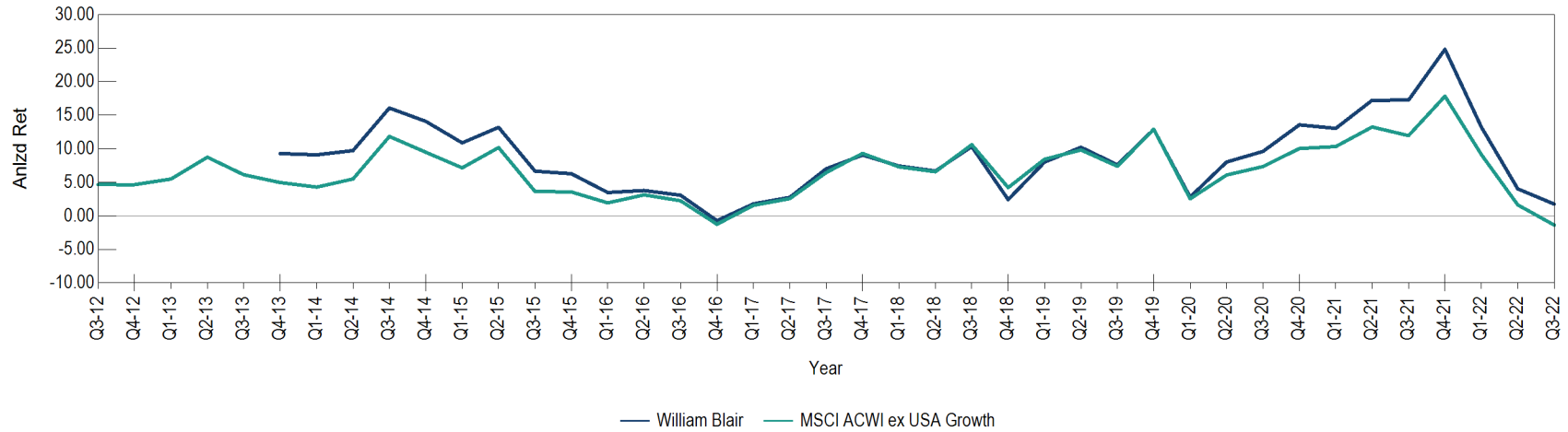
Unclassified sector allocation includes cash allocations.

William Blair vs. eV ACWI ex-US Growth Equity Gross Universe

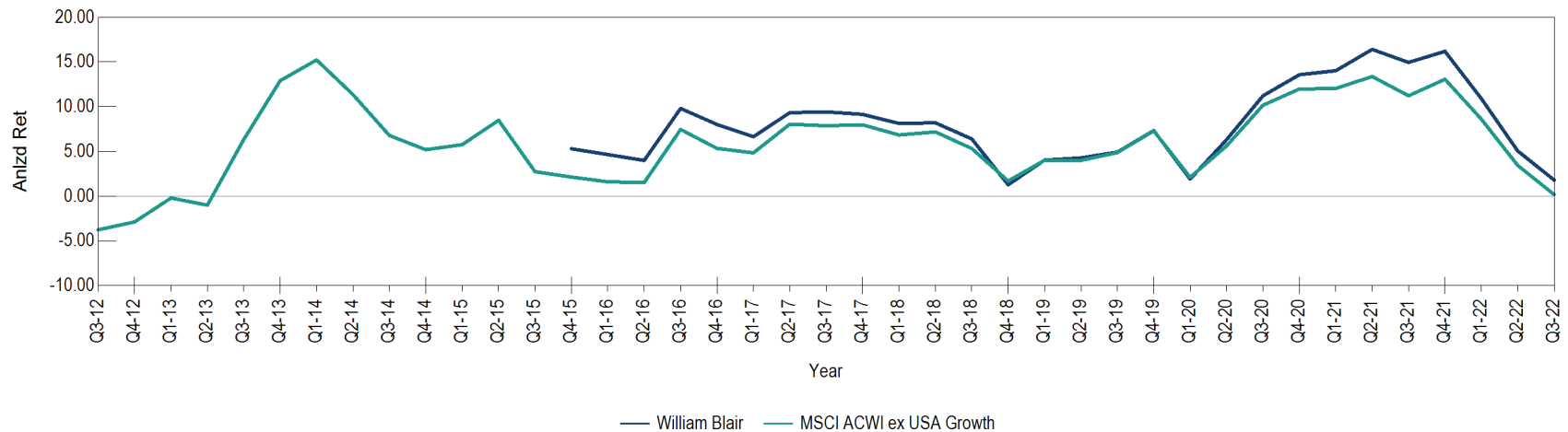


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	-6.0	-20.6	5.8	6.4	9.9	20.3	57.0	40.8	-6.8	46.8
25th Percentile	-7.5	-28.1	2.9	3.1	7.5	13.4	34.8	33.6	-11.7	39.6
Median	-8.6	-33.3	0.2	1.7	5.7	9.3	25.4	31.0	-14.3	35.3
75th Percentile	-9.5	-37.8	-1.9	-0.2	4.9	6.1	20.3	28.3	-17.2	31.8
95th Percentile	-11.6	-46.8	-5.0	-1.3	4.1	-3.1	11.6	21.8	-22.3	28.3
# of Portfolios	103	103	94	85	61	102	95	93	82	94
● William Blair	-7.3 (21)	-34.6 (59)	1.7 (34)	1.8 (48)	5.5 (54)	10.5 (44)	33.3 (30)	32.0 (39)	-16.8 (69)	30.9 (81)
▲ MSCI ACWI ex USA Growth	-9.4 (73)	-30.2 (34)	-1.4 (69)	0.2 (72)	4.0 (96)	5.1 (78)	22.2 (64)	27.3 (80)	-14.4 (51)	32.0 (75)

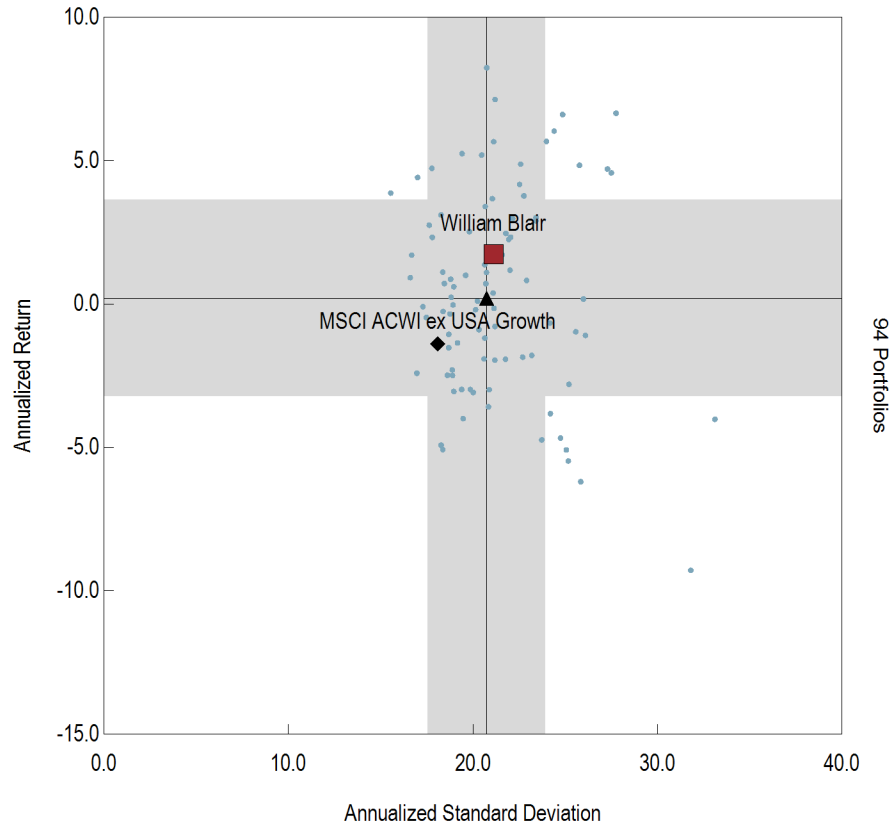
Rolling 3 Year Annualized Return (%)



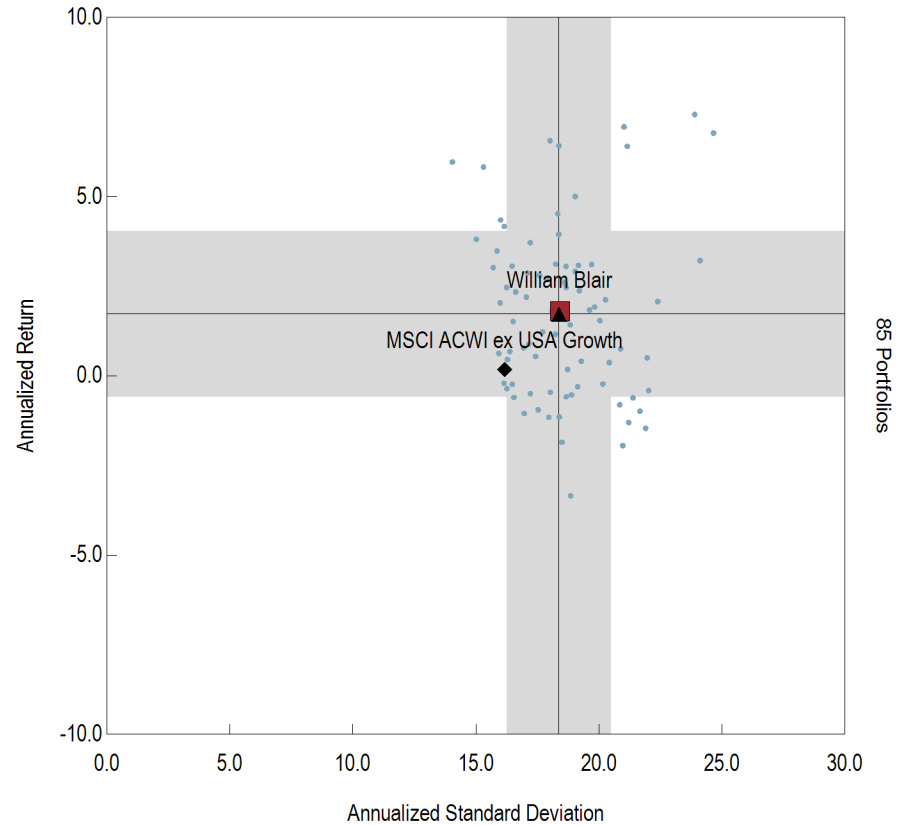
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	1.7%	21.1%	0.1
MSCI ACWI ex USA Growth	-1.4%	18.1%	-0.1
eV ACWI ex-US Growth Equity Gross Median	0.2%	20.7%	0.0

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	1.8%	18.4%	0.0
MSCI ACWI ex USA Growth	0.2%	16.2%	-0.1
eV ACWI ex-US Growth Equity Gross Median	1.7%	18.4%	0.0

PIMCO RAE Emerging Markets Manager Portfolio Overview

Period Ending: September 30, 2022

The PIMCO RAE Emerging Markets seeks to invest 80% of its assets in investments that are economically tied to emerging market countries. The portfolio is sub-advised by Research Affiliates, LLC.

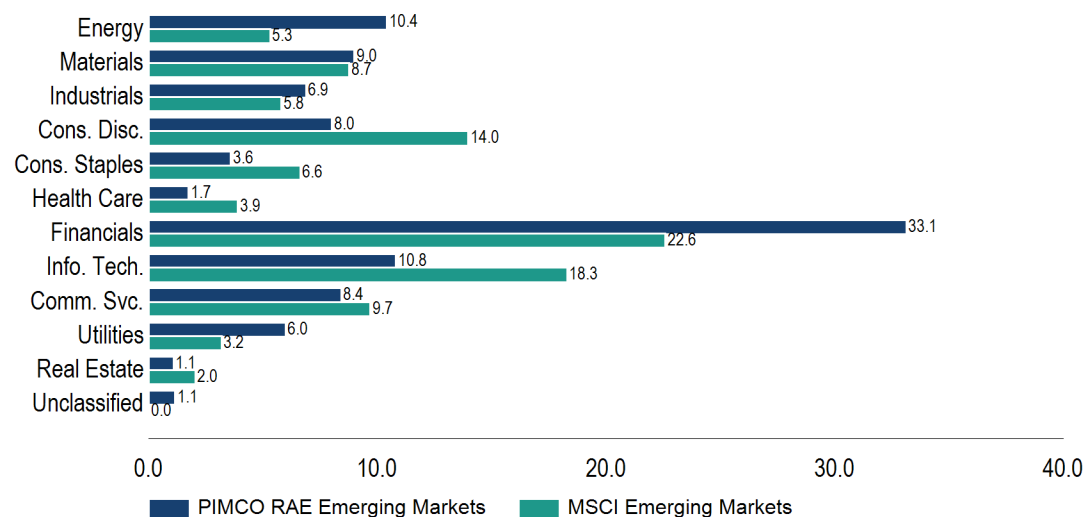
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	346	1,384
Weighted Avg. Market Cap. (\$B)	17.27	86.85
Median Market Cap. (\$B)	3.10	5.52
Price To Earnings	5.35	10.09
Price To Book	1.65	2.48
Price To Sales	0.29	0.97
Return on Equity (%)	12.85	14.64
Yield (%)	6.77	3.77
Beta	1.10	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	5.2%	0.0%
Emerging*	94.1%	100.0%
Top 10 Largest Countries		
China*	17.1%	31.4%
India*	13.2%	15.3%
Korea*	12.8%	10.7%
Thailand*	9.5%	2.1%
Brazil*	8.4%	5.8%
Taiwan*	7.6%	13.8%
South Africa*	6.6%	3.5%
Turkey*	5.5%	0.4%
Hong Kong	5.0%	0.0%
Mexico*	4.8%	2.2%
Total-Top 10 Largest Countries	90.4%	85.1%

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

	End Weight	Return	Contribution
CIELO SA	1.85	41.45	0.77
VEDANTA LTD	2.34	27.10	0.63
TURKIYE IS BANKASI AS	0.95	54.76	0.52
BANCO DO BRASIL ON	2.89	14.41	0.42
PT ADARO ENERGY INDONESIA TBK	0.78	35.80	0.28
HACI OMER SABANCI HOLDING AS	1.06	22.89	0.24
PT INDO TAMBANGRAYA MEGAH	0.67	32.45	0.22
YAPI VE KREDI BANKASI AS	0.38	47.18	0.18
AKBANK	0.63	26.89	0.17
EMLAK KONUT REIT	0.45	32.14	0.15

Bottom Contributors

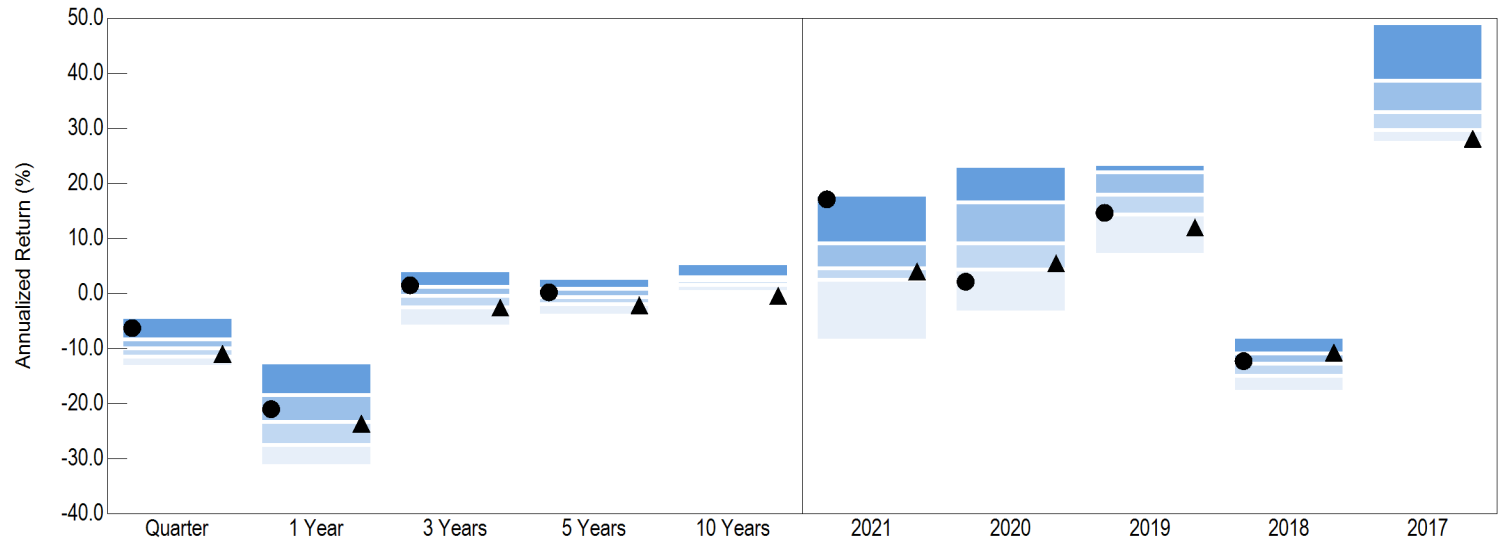
	End Weight	Return	Contribution
CHINA CONSTRUCTION BANK CORP	3.86	-13.88	-0.54
BANK OF CHINA LTD	3.22	-10.54	-0.34
LENOVO GROUP LTD	1.33	-22.41	-0.30
INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	1.88	-14.81	-0.28
KASIKORNBANK PUBLIC CO LTD	2.82	-9.72	-0.27
KIA CORPORATION	1.66	-16.08	-0.27
AMERICA MOVIL SA DE CV, MEXICO	1.42	-16.85	-0.24
KOREA ELECTRIC POWER CORP	1.18	-19.57	-0.23
CHINA RESOURCES POWER HOLDINGS CO LTD	0.94	-23.71	-0.22

Unclassified sector allocation includes cash allocations.

PIMCO RAE Emerging Markets
 Manager Performance Comparisons (Gross of Fees)

Period Ending: September 30, 2022

PIMCO RAE Emerging Markets vs. eV Emg Mkts All Cap Value Equity Gross Universe



	Return (Rank)													
5th Percentile	-4.3	-12.5	4.1	2.7	5.4	17.8	23.1	23.5	-7.9	49.0				
25th Percentile	-8.3	-18.4	1.2	0.9	3.1	9.1	16.6	22.1	-10.8	38.6				
Median	-9.9	-23.3	-0.4	-0.6	2.4	4.6	9.2	18.0	-12.7	33.0				
75th Percentile	-11.4	-27.4	-2.5	-1.8	1.6	2.5	4.3	14.4	-14.9	29.8				
95th Percentile	-13.3	-31.3	-5.9	-3.9	0.3	-8.5	-3.4	7.0	-17.8	27.4				
# of Portfolios	37	37	34	29	19	35	37	33	36	37				
● PIMCO RAE Emerging Markets	-6.3 (15)	-21.0 (36)	1.5 (21)	0.2 (32)	-- (--)	17.1 (6)	2.1 (85)	14.6 (72)	-12.3 (44)	-- (--)				
▲ MSCI Emerging Markets Value NR	-11.0 (70)	-23.6 (54)	-2.6 (76)	-2.1 (80)	-0.4 (99)	4.0 (61)	5.5 (73)	12.0 (86)	-10.7 (25)	28.1 (90)				

TT Emerging Markets Manager Portfolio Overview

Period Ending: September 30, 2022

The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded in the Emerging Markets.

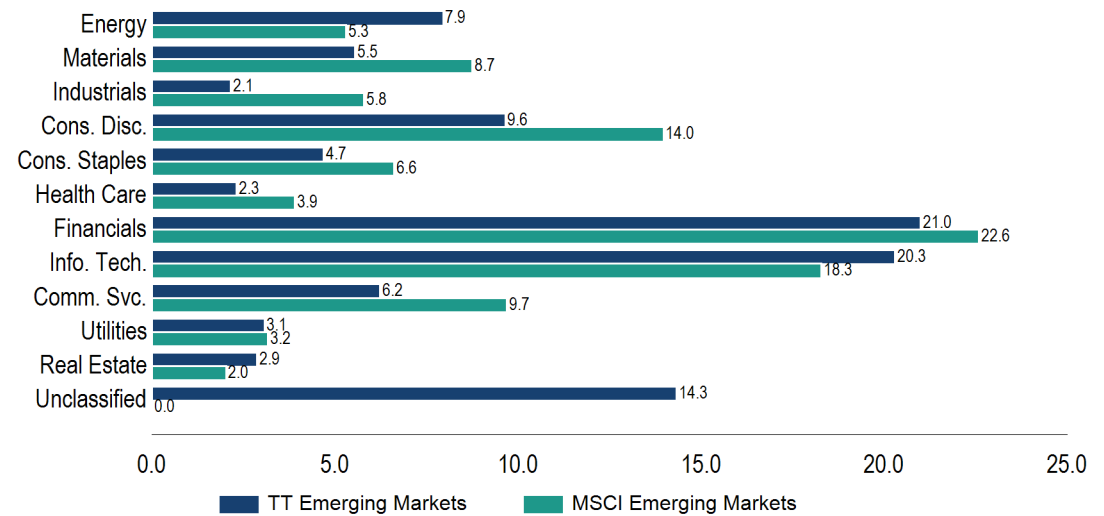
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	67	1,384
Weighted Avg. Market Cap. (\$B)	112.08	86.85
Median Market Cap. (\$B)	20.02	5.52
Price To Earnings	9.84	10.09
Price To Book	2.31	2.48
Price To Sales	1.26	0.97
Return on Equity (%)	16.85	14.64
Yield (%)	3.38	3.77
Beta	1.19	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	21.5%	0.0%
Emerging*	70.9%	100.0%
Frontier**	0.7%	0.0%
Top 10 Largest Countries		
China*	20.0%	31.4%
Taiwan*	11.8%	13.8%
India*	11.3%	15.3%
Korea*	10.5%	10.7%
Cash	6.9%	0.0%
Netherlands	5.2%	0.0%
Brazil*	5.0%	5.8%
United States	4.8%	0.0%
Hong Kong	4.6%	0.0%
Saudi Arabia*	3.8%	4.8%
Total-Top 10 Largest Countries	84.0%	81.7%

Sector Allocation (%) vs MSCI Emerging Markets



Bottom Contributors

	End Weight	Return	Contribution
GPO FINANCE BANORTE	2.34	15.69	0.37
INDUSIND BANK(INDIA)	0.54	46.03	0.25
EMAAR PROPERTIES	2.15	11.34	0.24
SENDAS DISTRIBUIDORA SA COMMON STOCK	1.08	18.87	0.20
PETROLEO BRASILEIRO S.A.- PETROBRAS	0.67	25.74	0.17
BHARTI AIRTEL LTD	1.04	13.90	0.14
DIAGNOSTICOS DA AMERICA SA	0.62	19.23	0.12
ABSA GROUP LTD	1.22	7.60	0.09
AXIS BANK	0.76	11.98	0.09
H D F C BANK LTD	1.34	6.30	0.08

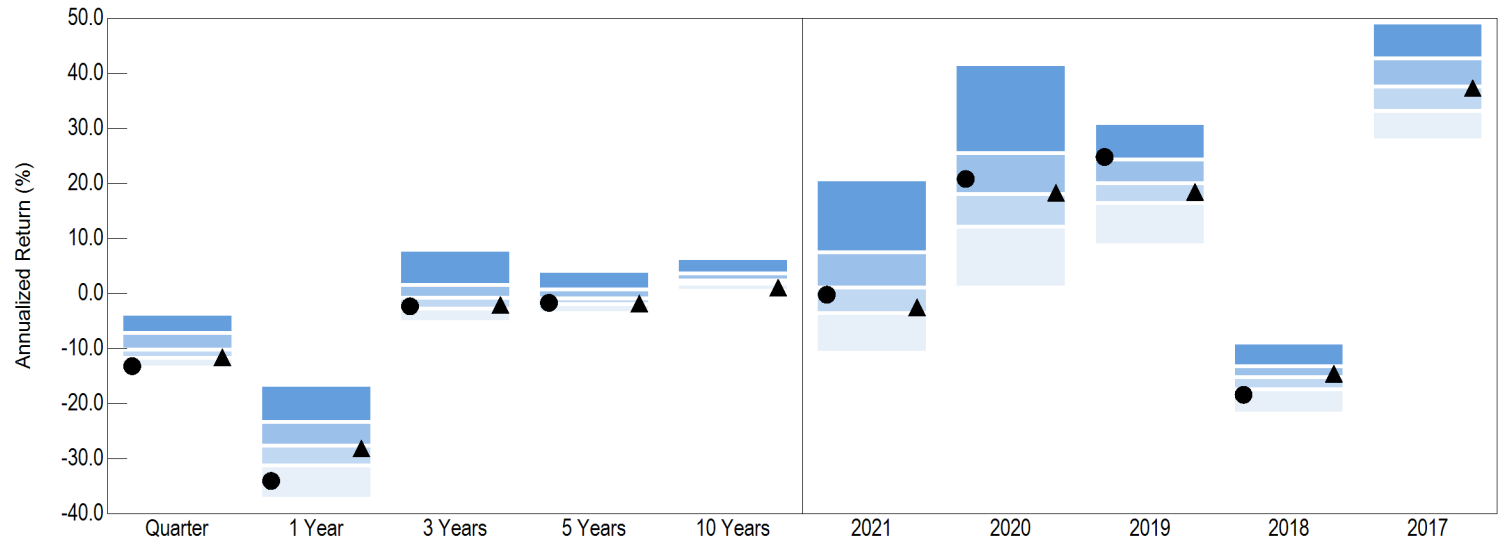
	End Weight	Return	Contribution
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	8.68	-16.53	-1.43
ALIBABA GROUP HOLDING LTD	4.64	-30.36	-1.41
TENCENT HOLDINGS LTD	3.90	-24.85	-0.97
KRANESHARES CSI CHINA INTERNET ETF	3.17	-24.79	-0.78
ALIBABA GROUP HOLDING LTD	2.14	-29.64	-0.63
360 DIGITECH INC	2.35	-24.96	-0.59
YIBIN WULIANGYE CO LTD	2.15	-21.08	-0.45
KB FINANCIAL GROUP INC	2.42	-18.11	-0.44

Unclassified sector allocation includes cash allocations.

TT Emerging Markets
 Manager Performance Comparisons (Gross of Fees)

Period Ending: September 30, 2022

TT Emerging Markets vs. eV Emg Mkts Equity Gross Universe



	Quarter		1 Year		3 Years		5 Years		10 Years		2021		2020		2019		2018		2017	
5th Percentile	-3.7	-16.7	7.9	4.0	6.4	20.7	41.6	30.9	-9.0	49.2										
25th Percentile	-7.1	-23.3	1.7	0.8	3.7	7.5	25.5	24.4	-13.2	42.8										
Median	-10.2	-27.5	-0.8	-0.8	2.5	1.2	18.2	20.1	-15.2	37.6										
75th Percentile	-11.7	-31.2	-2.7	-1.8	1.8	-3.5	12.2	16.5	-17.4	33.2										
95th Percentile	-13.3	-37.3	-5.2	-3.5	0.6	-10.7	1.2	8.8	-21.8	27.8										
# of Portfolios	405	405	366	324	221	391	391	386	355	343										
● TT Emerging Markets	-13.2 (94)	-34.0 (88)	-2.3 (72)	-1.7 (69)	-- (--)	-0.2 (58)	20.8 (39)	24.8 (24)	-18.4 (83)	-- (--)										
▲ MSCI Emerging Markets	-11.6 (74)	-28.1 (57)	-2.1 (68)	-1.8 (74)	1.0 (90)	-2.5 (71)	18.3 (49)	18.4 (63)	-14.6 (43)	37.3 (53)										

Global Equity Managers

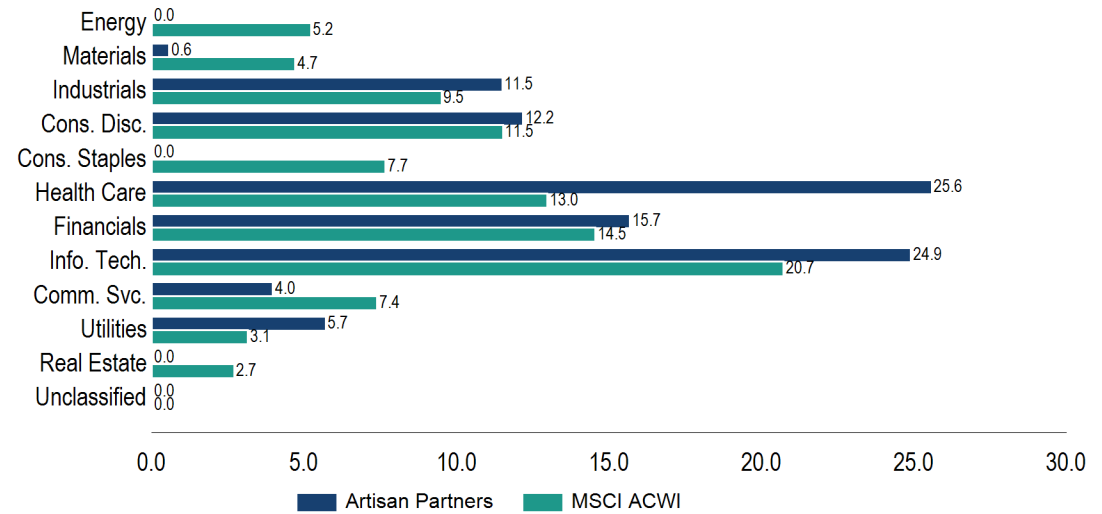
Artisan Partners Manager Portfolio Overview

Period Ending: September 30, 2022

Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craig Cepukenas, and Matthew Kamm.

Number of Holdings	44	2,895
Weighted Avg. Market Cap. (\$B)	144.43	306.81
Median Market Cap. (\$B)	40.63	10.73
Price To Earnings	22.37	14.89
Price To Book	3.74	3.12
Price To Sales	2.66	1.51
Return on Equity (%)	14.57	22.39
Yield (%)	1.09	2.52
Beta	1.02	1.00

Sector Allocation (%) vs MSCI ACWI



Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	98.9%	88.9%
Emerging*	1.1%	11.1%
Top 10 Largest Countries		
United States	53.0%	62.0%
United Kingdom	8.4%	3.7%
Switzerland	7.5%	2.6%
Hong Kong	6.6%	0.7%
Denmark	5.3%	0.6%
Australia	4.1%	1.9%
Sweden	4.1%	0.8%
Japan	3.9%	5.4%
Canada	2.3%	3.1%
Netherlands	1.7%	1.0%
Total-Top 10 Largest Countries	96.8%	81.8%

Top Contributors

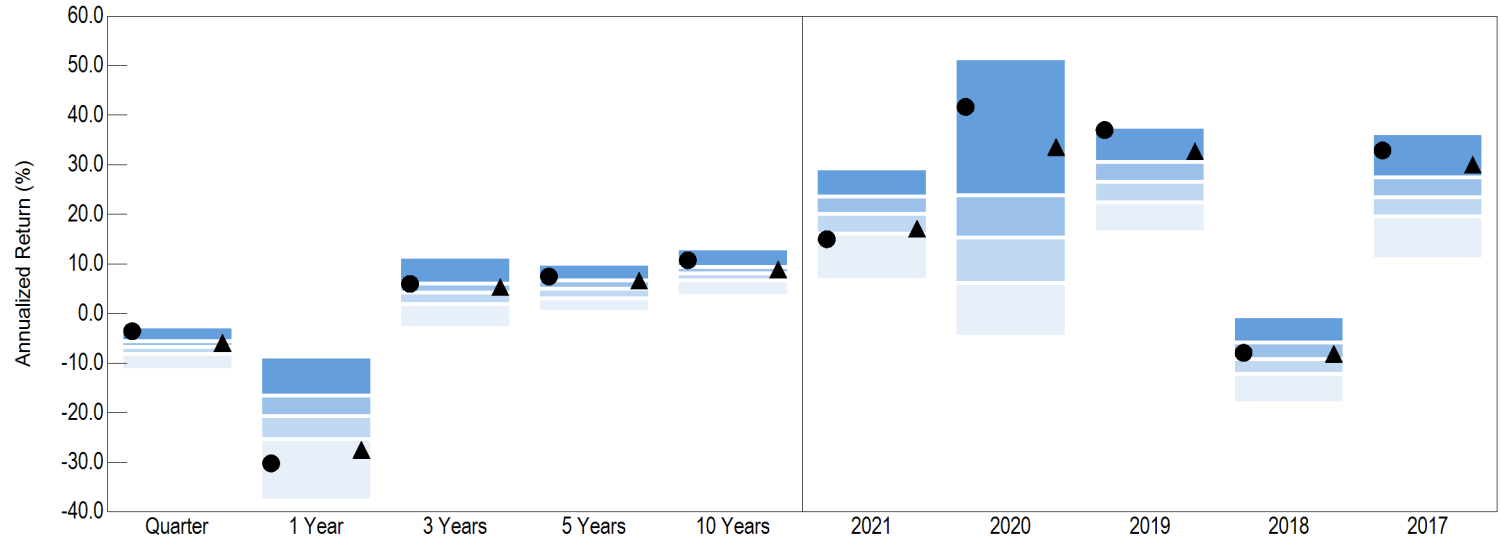
	Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
ON SEMICONDUCTOR CORP	2.34	23.89	0.56	ADVANCED MICRO DEVICES INC	5.50	-17.14	-0.94
ATLISSIAN CORP	3.22	12.37	0.40	VEEVA SYSTEMS INC	5.52	-16.74	-0.92
SCHWAB (CHARLES) CORP	2.73	14.10	0.38	FIDELITY NATIONAL INFORMATION SERVICES INC	3.07	-17.11	-0.53
ARISTA NETWORKS INC	1.80	20.43	0.37	AIA GROUP LTD	2.21	-22.65	-0.50
AIRBNB INC	1.76	17.92	0.32	TELEFONAKTIEBOLAGET LM ERICSSON	2.59	-19.24	-0.50
CHIPOTLE MEXICAN GRILL INC	1.87	14.96	0.28	ALPHABET INC	3.99	-12.22	-0.49
HOYA CORP	1.35	12.53	0.17	ASTRAZENECA PLC	2.91	-14.95	-0.43
NU HOLDINGS LTD/CAYMAN ISLANDS	0.89	17.65	0.16	UBS GROUP AG	4.46	-8.49	-0.38
BOSTON SCIENTIFIC CORP	3.88	3.92	0.15	TECHTRONIC INDUSTRIES CO LTD	4.69	-6.43	-0.30

Unclassified sector allocation includes cash allocations.

Artisan Partners
 Manager Performance Comparisons (Gross of Fees)

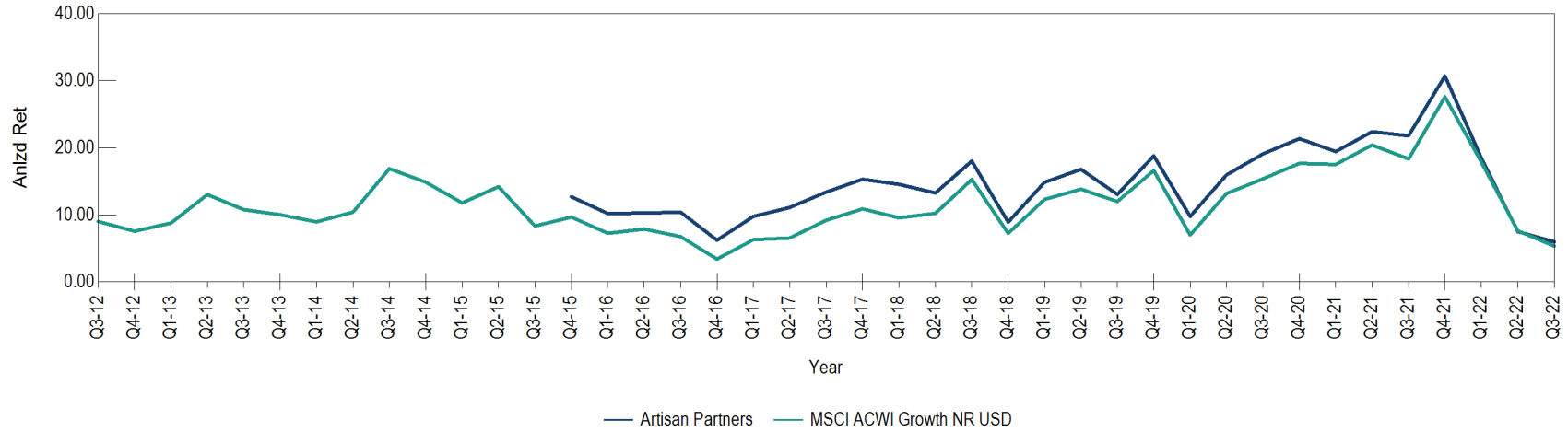
Period Ending: September 30, 2022

Artisan Partners vs. eV All Global Equity Gross Universe

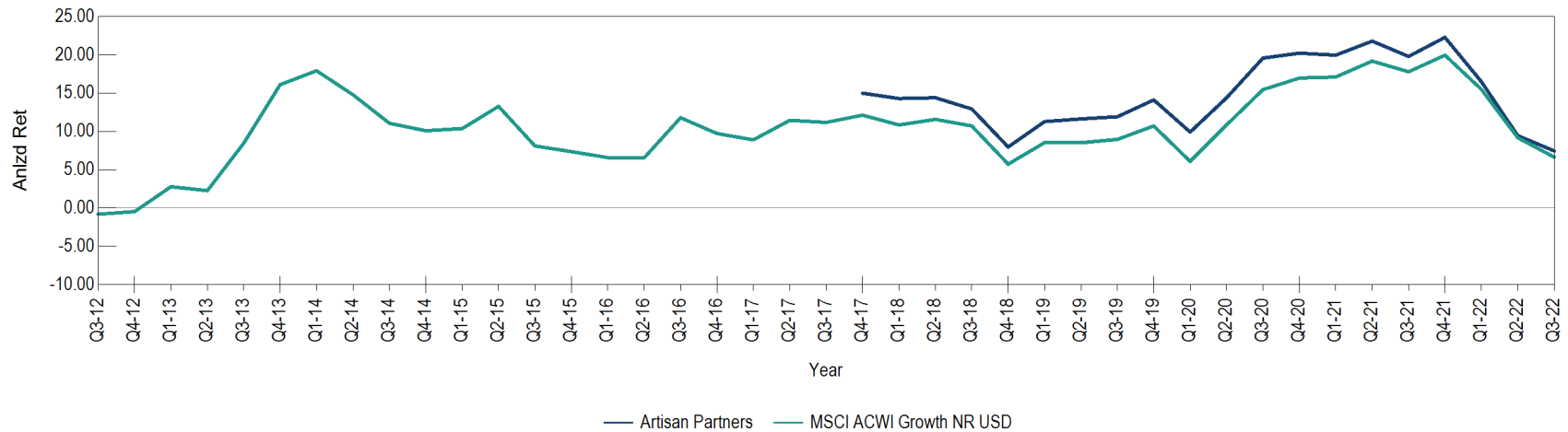


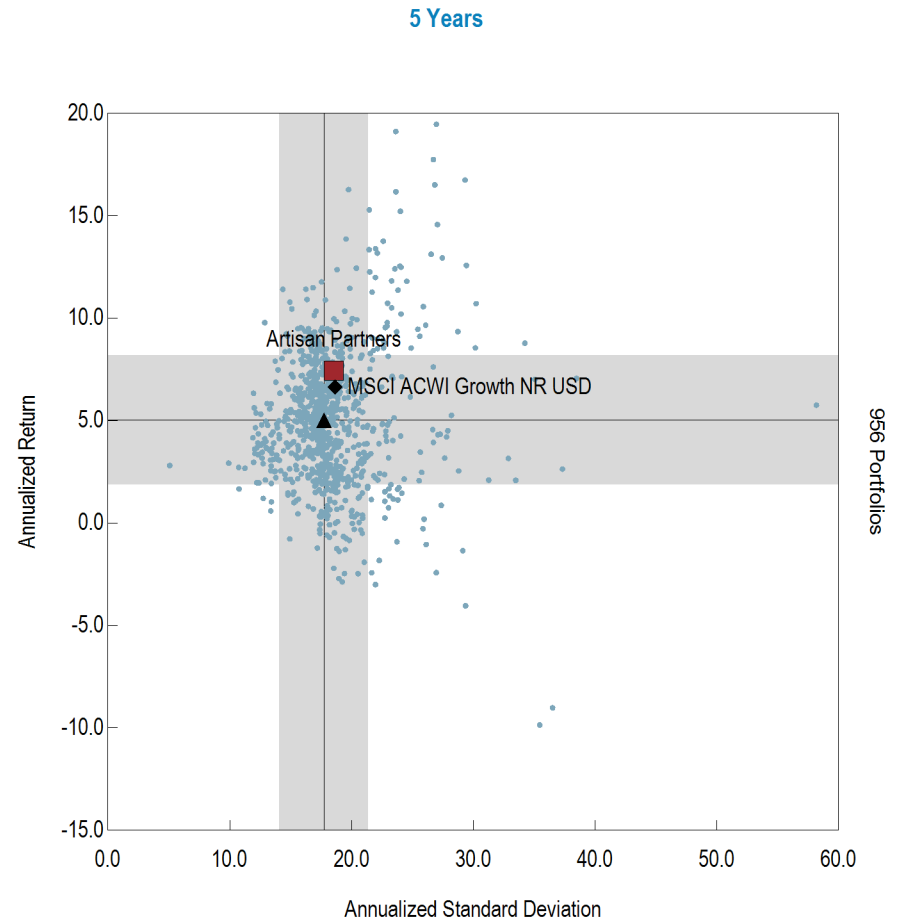
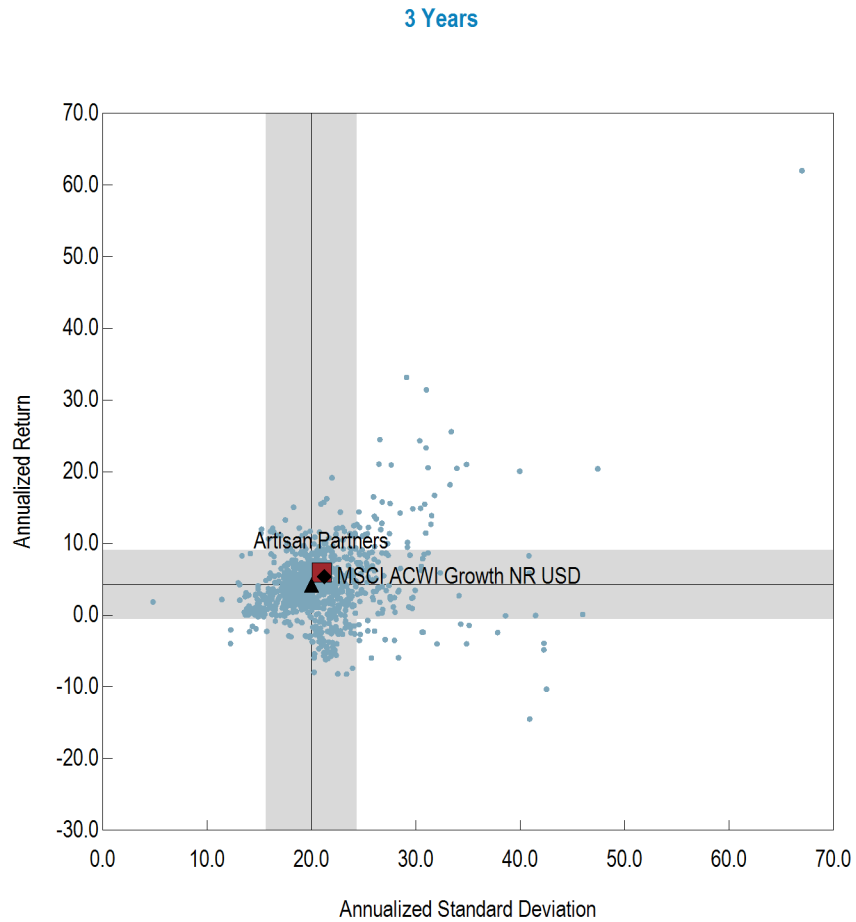
	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	-2.6	-8.8	11.5	9.9	13.1	29.2	51.5	37.6	-0.7	36.3
25th Percentile	-5.5	-16.5	6.1	6.8	9.5	23.7	24.0	30.7	-5.8	27.6
Median	-6.7	-20.7	4.2	5.0	8.2	20.2	15.4	26.6	-9.1	23.5
75th Percentile	-8.1	-25.3	1.9	3.1	6.7	16.2	6.3	22.6	-12.2	19.6
95th Percentile	-11.3	-37.6	-2.8	0.4	3.7	6.9	-4.7	16.5	-18.1	11.0
# of Portfolios	1,184	1,183	1,086	956	645	1,141	1,093	989	920	880
● Artisan Partners	-3.6 (9)	-30.2 (87)	6.0 (27)	7.4 (19)	10.7 (13)	15.0 (80)	41.7 (9)	37.0 (7)	-7.9 (40)	32.9 (11)
▲ MSCI ACWI Growth NR USD	-5.9 (35)	-27.5 (82)	5.4 (34)	6.6 (27)	8.9 (35)	17.1 (71)	33.6 (14)	32.7 (17)	-8.1 (42)	30.0 (17)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	6.0%	21.0%	0.3
MSCI ACWI Growth NR USD	5.4%	21.2%	0.2
eV All Global Equity Gross Median	4.2%	20.0%	0.2

	5 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	7.4%	18.6%	0.3
MSCI ACWI Growth NR USD	6.6%	18.7%	0.3
eV All Global Equity Gross Median	5.0%	17.7%	0.2

First Eagle Manager Portfolio Overview

Period Ending: September 30, 2022

Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

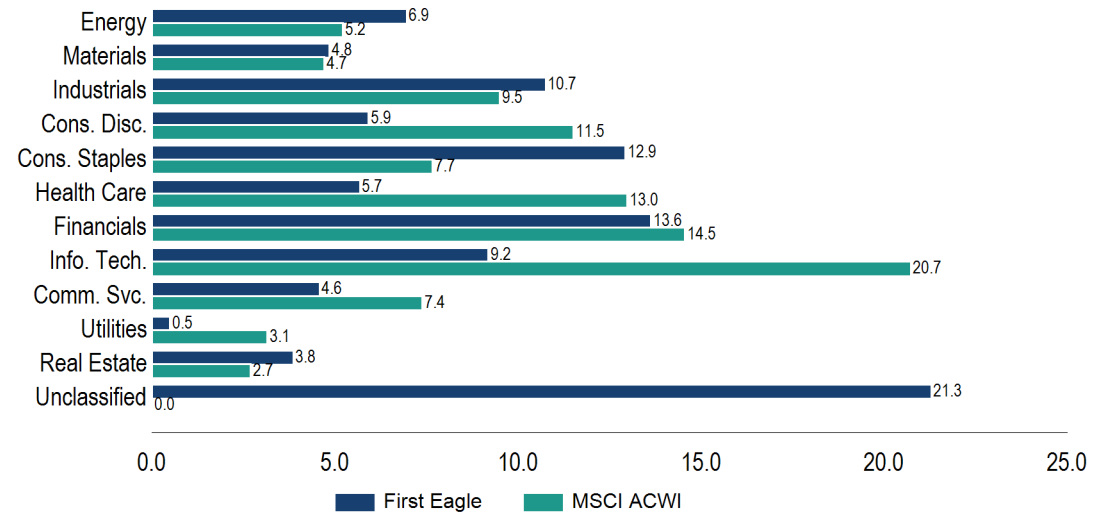
Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	142	2,895
Weighted Avg. Market Cap. (\$B)	114.58	306.81
Median Market Cap. (\$B)	23.89	10.73
Price To Earnings	14.02	14.89
Price To Book	2.13	3.12
Price To Sales	1.36	1.51
Return on Equity (%)	16.32	22.39
Yield (%)	2.45	2.52
Beta	0.74	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	93.7%	88.9%
Emerging*	6.0%	11.1%
Top 10 Largest Countries		
United States	61.5%	62.0%
Japan	7.3%	5.4%
United Kingdom	7.2%	3.7%
Canada	4.5%	3.1%
France	3.4%	2.7%
Switzerland	2.8%	2.6%
Korea*	1.6%	1.2%
Hong Kong	1.6%	0.7%
Brazil*	1.4%	0.6%
Mexico*	1.3%	0.2%
Total-Top 10 Largest Countries	93.8%	82.2%

Sector Allocation (%) vs MSCI ACWI



Top Contributors

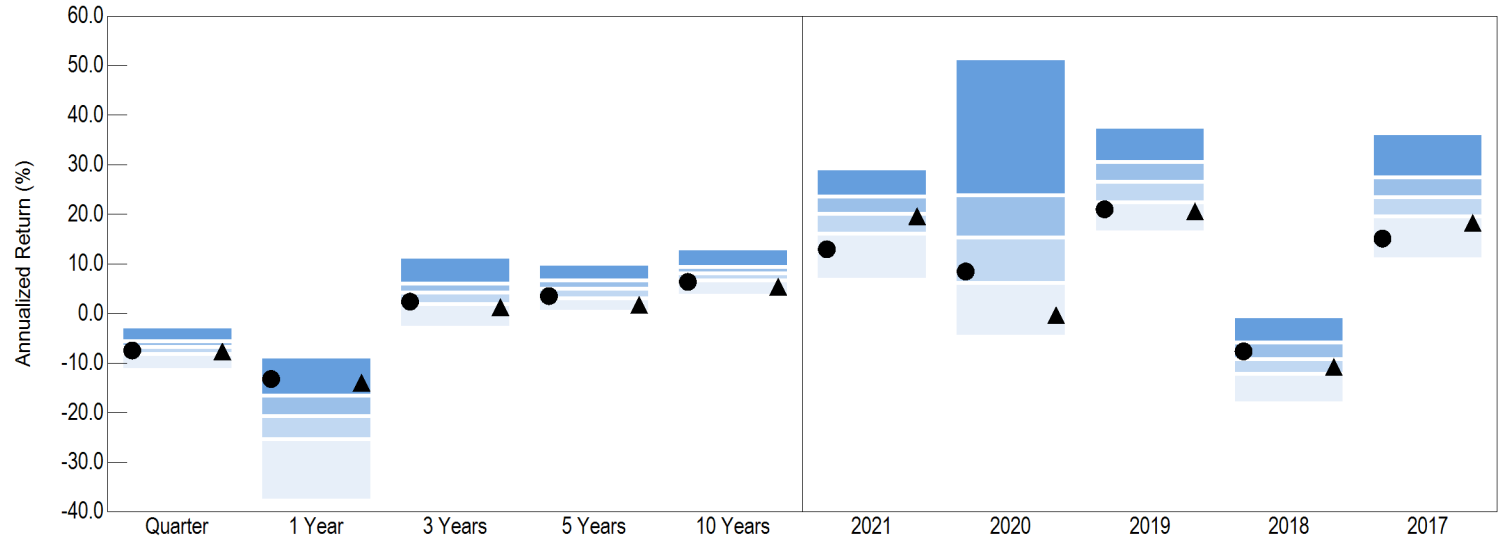
	End Weight	Return	Contribution
HCA HEALTHCARE INC	1.37	9.65	0.13
AMBEV SA	0.93	12.75	0.12
ROSS STORES INC	0.53	20.42	0.11
EXXON MOBIL CORP	3.04	2.91	0.09
SCHWAB (CHARLES) CORP	0.51	14.10	0.07
DEERE & COMPANY	0.53	11.86	0.06
ITAUSA INVESTIMENTOS	0.45	13.77	0.06
ITAU PN			
SODEXO	0.70	7.93	0.06
NUTRIEN LTD	0.84	5.23	0.04
CUMMINS INC.	0.71	5.87	0.04

Bottom Contributors

	End Weight	Return	Contribution
SPDR GOLD TRUST	9.62	-8.19	-0.79
COMCAST CORP	1.57	-24.75	-0.39
ORACLE CORP	2.90	-12.20	-0.35
NEWMONT CORPORATION	0.84	-28.65	-0.24
BRITISH AMERICAN TOBACCO PLC	1.74	-13.15	-0.23
PHILIP MORRIS INTERNATIONAL INC	1.54	-14.70	-0.23
ALIBABA GROUP HOLDING LTD	0.68	-30.36	-0.21
META PLATFORMS INC	1.25	-15.86	-0.20
SANOFI	0.79	-23.66	-0.19
DANONE	1.23	-14.46	-0.18

Unclassified sector allocation includes cash allocations and Gold allocations (8.55% as of 6/30/2021).

First Eagle vs. eV All Global Equity Gross Universe

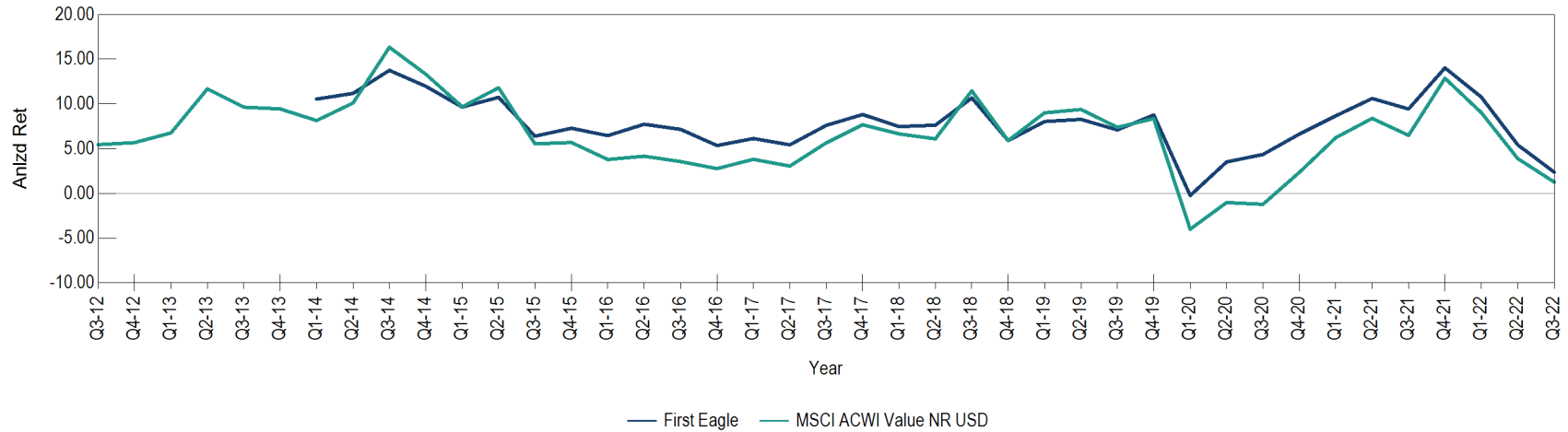


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	-2.6	-8.8	11.5	9.9	13.1	29.2	51.5	37.6	-0.7	36.3
25th Percentile	-5.5	-16.5	6.1	6.8	9.5	23.7	24.0	30.7	-5.8	27.6
Median	-6.7	-20.7	4.2	5.0	8.2	20.2	15.4	26.6	-9.1	23.5
75th Percentile	-8.1	-25.3	1.9	3.1	6.7	16.2	6.3	22.6	-12.2	19.6
95th Percentile	-11.3	-37.6	-2.8	0.4	3.7	6.9	-4.7	16.5	-18.1	11.0
# of Portfolios	1,184	1,183	1,086	956	645	1,141	1,093	989	920	880
● First Eagle	-7.5 (66)	-13.2 (14)	2.4 (72)	3.5 (70)	6.4 (79)	13.0 (85)	8.5 (70)	21.0 (82)	-7.6 (38)	15.1 (89)
▲ MSCI ACWI Value NR USD	-7.7 (69)	-14.0 (16)	1.3 (80)	1.7 (89)	5.4 (88)	19.6 (55)	-0.3 (89)	20.6 (83)	-10.8 (65)	18.3 (81)

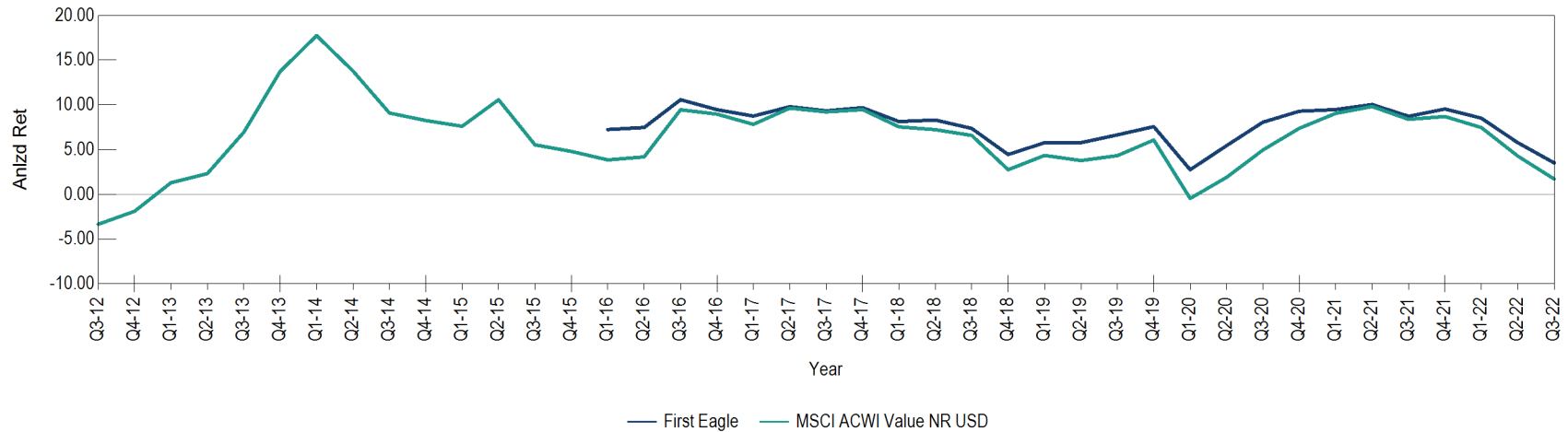
First Eagle
 Manager Performance - Rolling 3 & 5 Year (Gross of Fees)

Period Ending: September 30, 2022

Rolling 3 Year Annualized Return (%)



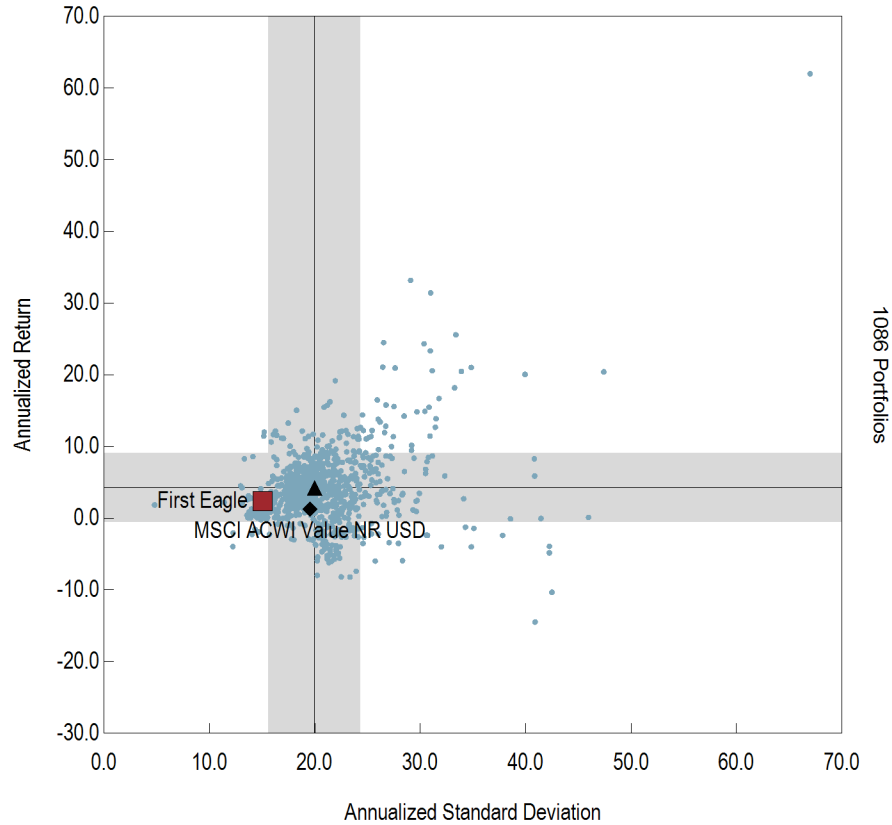
Rolling 5 Year Annualized Return (%)



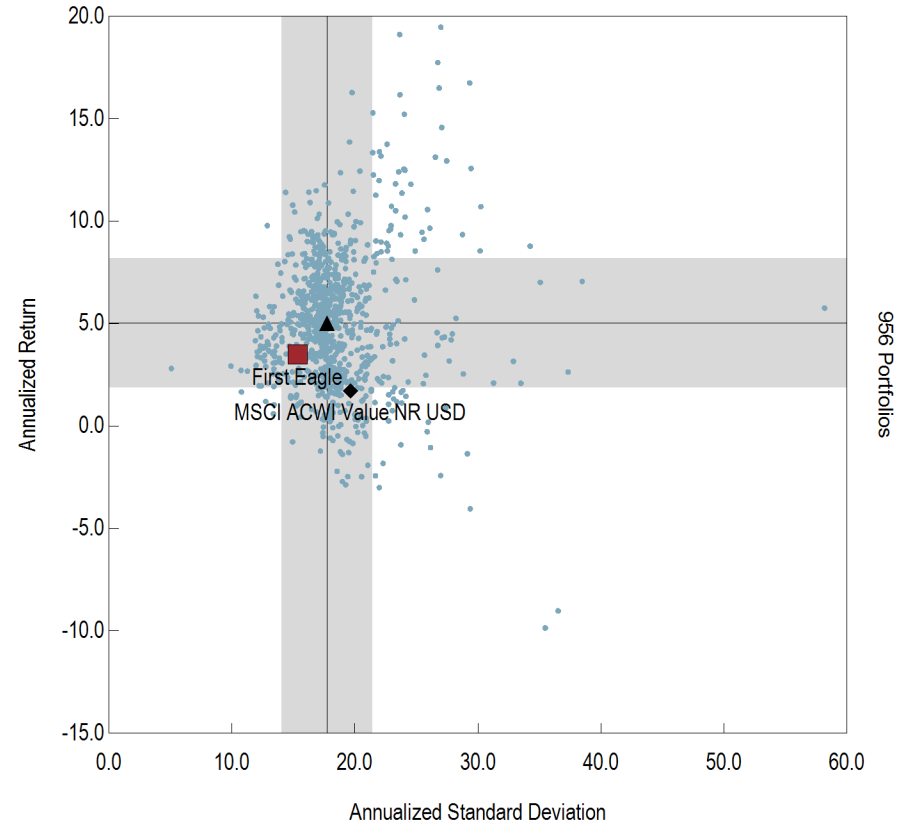
First Eagle
Risk vs. Return 3 & 5 Year (Gross of Fees)

Period Ending: September 30, 2022

3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	2.4%	15.1%	0.1
MSCI ACWI Value NR USD	1.3%	19.6%	0.0
eV All Global Equity Gross Median	4.2%	20.0%	0.2

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	3.5%	13.2%	0.2
MSCI ACWI Value NR USD	1.7%	17.2%	0.0
eV All Global Equity Gross Median	5.0%	17.7%	0.2

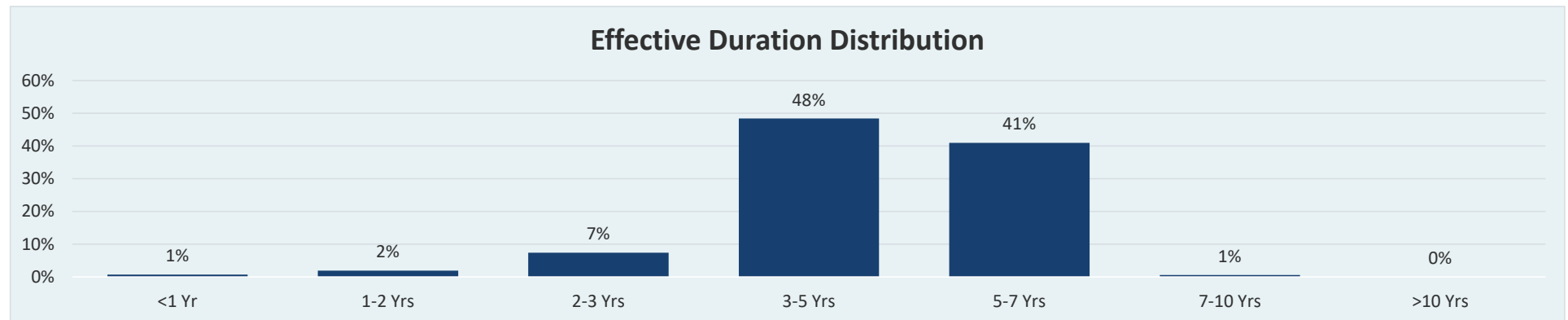
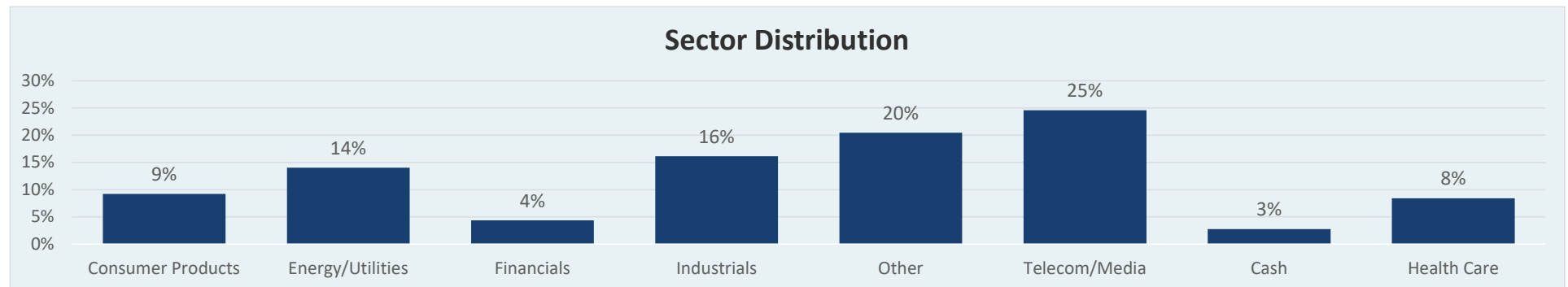
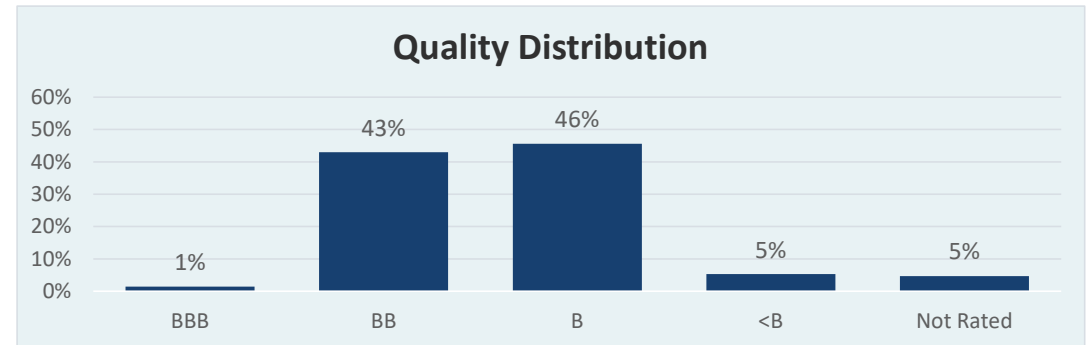
High Yield Managers

Allianz Global Investors Manager Portfolio Overview

Period Ending: September 30, 2022

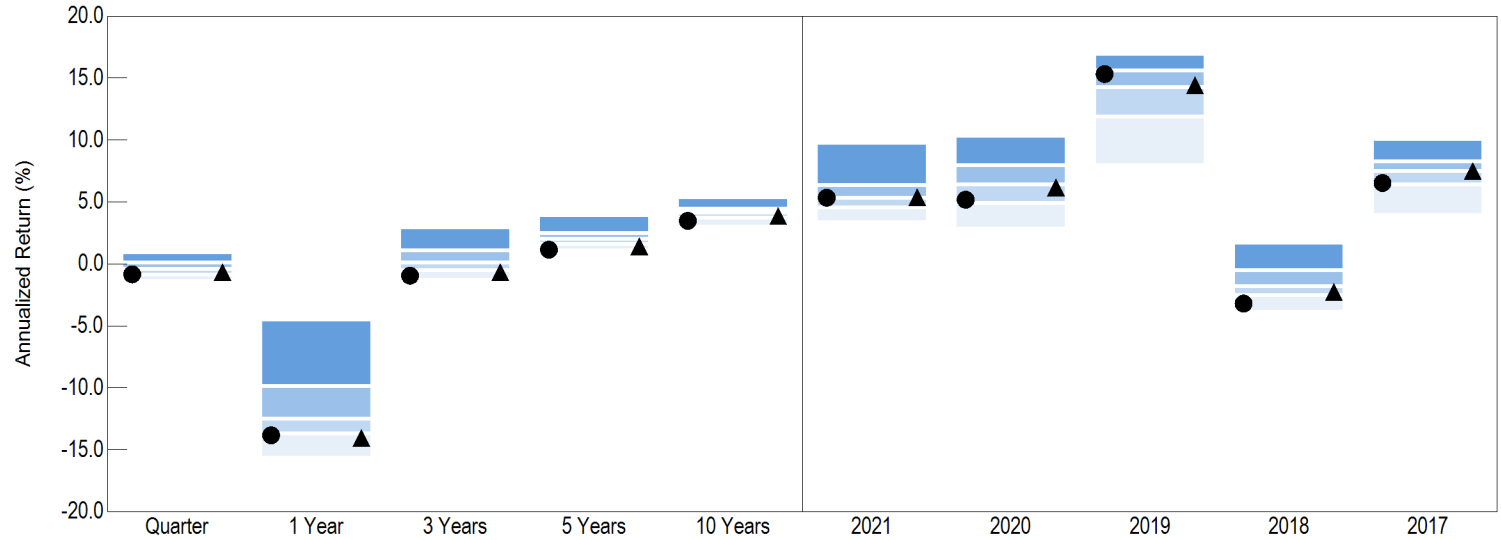
Domestic high yield fixed income portfolio with a focus on security selection. Primary personnel include Douglas Forsyth, Justin Kass, William Stickney, and Michael Yee.

	Allianz	ICE BofAML HY Master II
Effective Duration	4.40	4.43
Yield to Maturity	8.80	9.40
Average Quality	B1	B2
Average Coupon	6.2%	5.8%



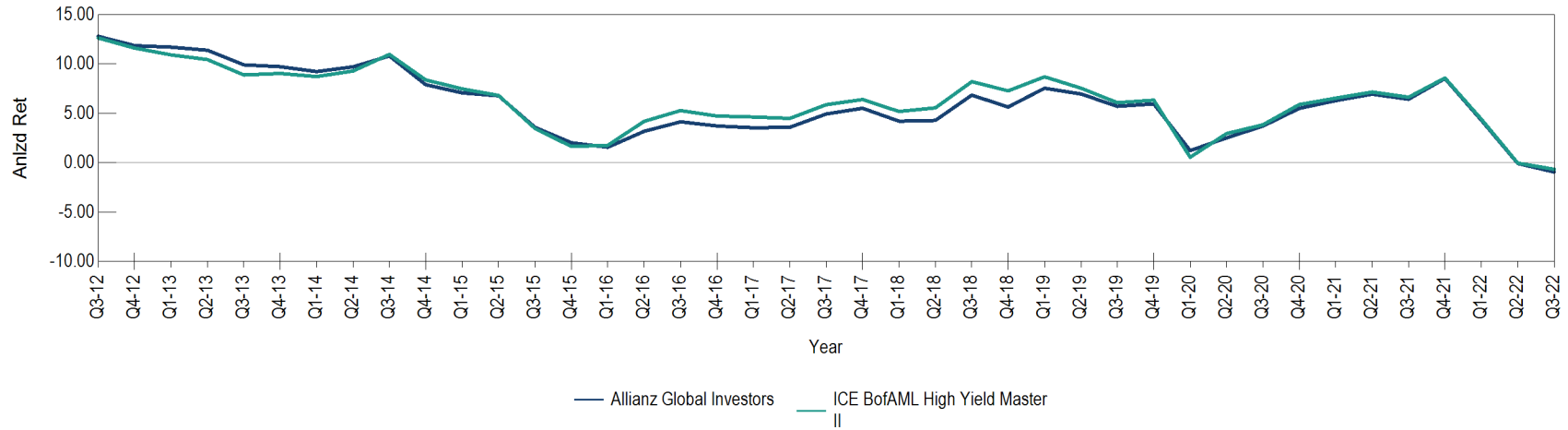
Quality distribution excludes cash.

Allianz Global Investors vs. eV US High Yield Fixed Inc Gross Universe

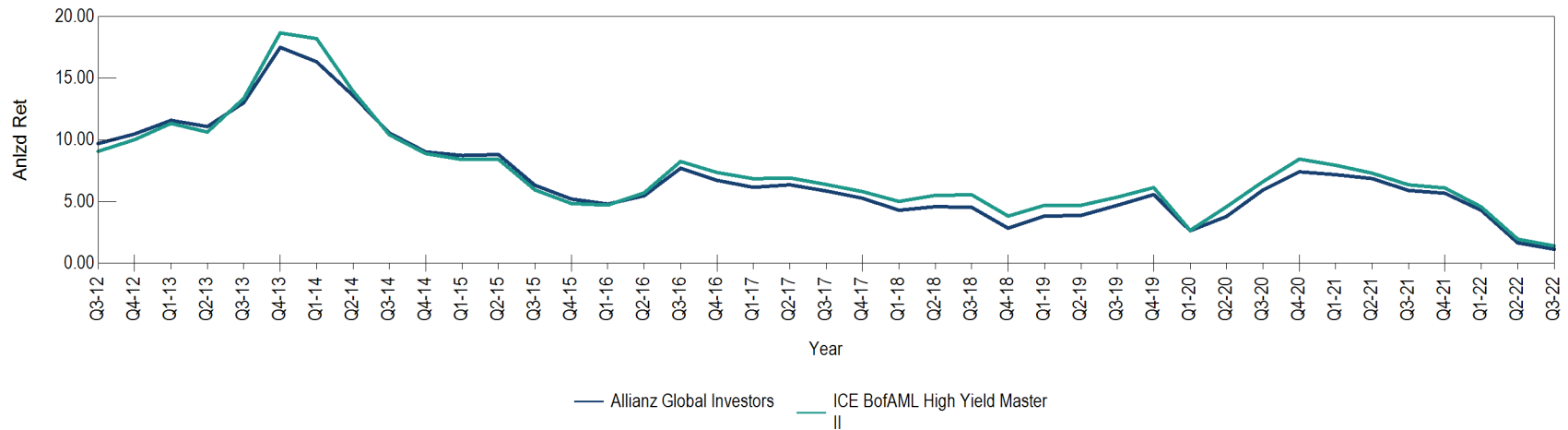


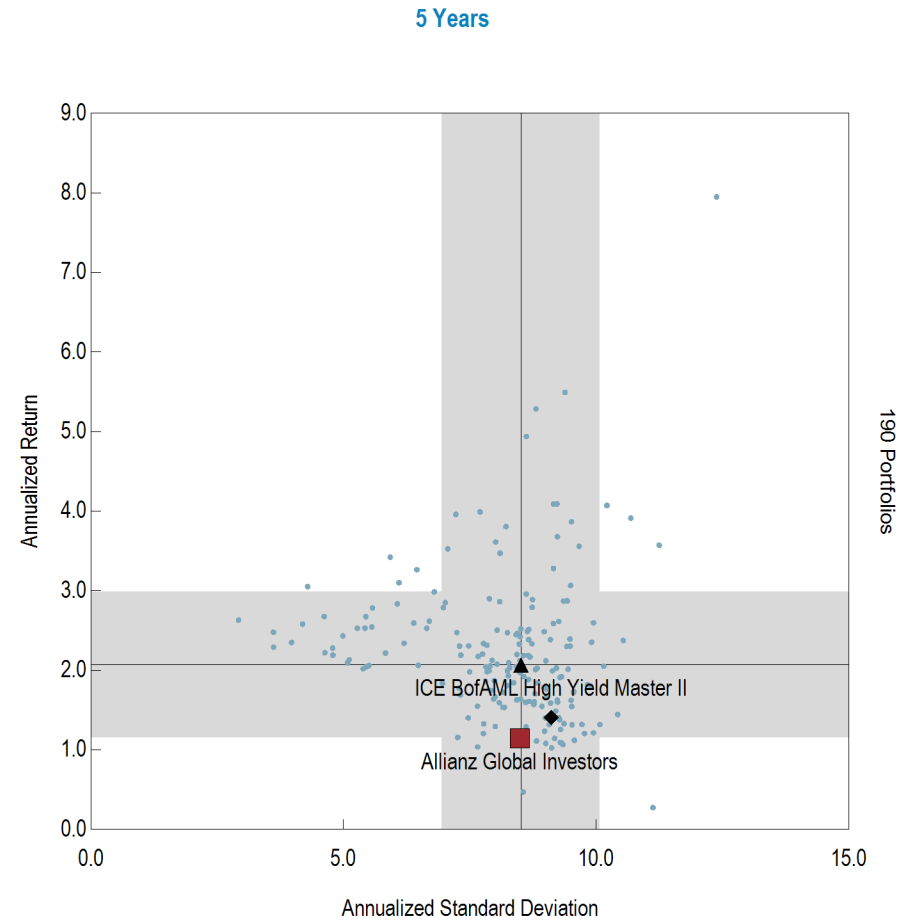
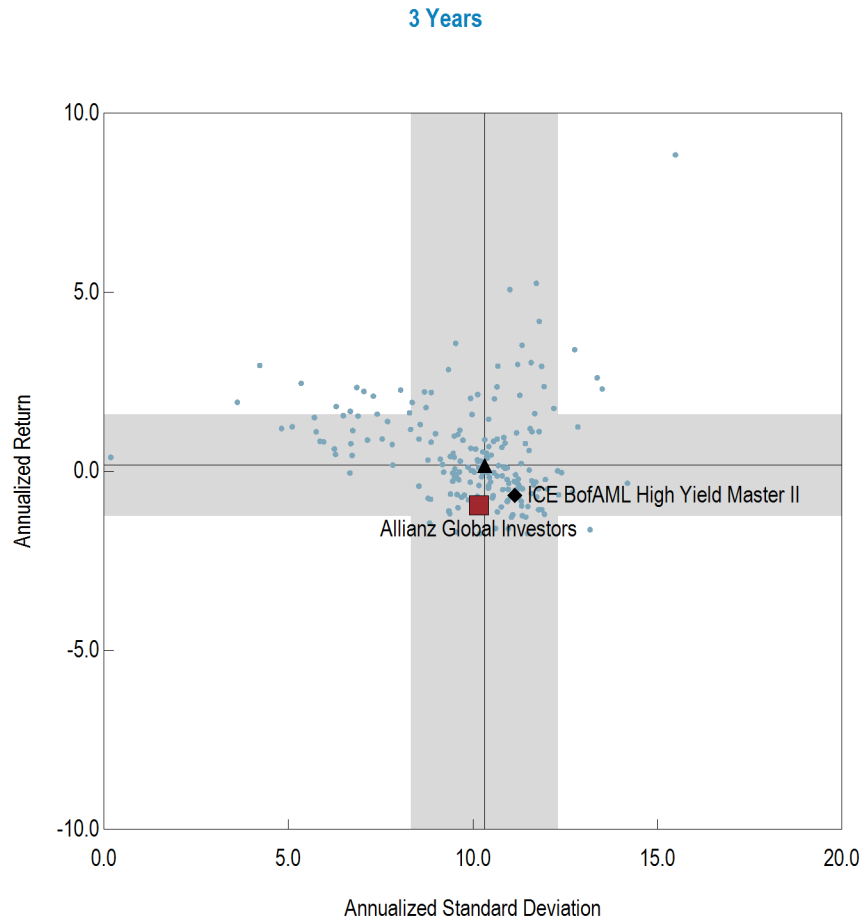
	Return (Rank)										
5th Percentile	0.9	-4.5	2.9	3.9	5.3	9.7	10.3	16.9	1.7	10.0	
25th Percentile	0.2	-9.8	1.1	2.5	4.5	6.4	8.0	15.6	-0.5	8.3	
Median	-0.4	-12.5	0.2	2.1	4.2	5.4	6.4	14.3	-1.8	7.5	
75th Percentile	-0.8	-13.7	-0.5	1.6	3.8	4.6	5.0	11.9	-2.5	6.5	
95th Percentile	-1.3	-15.6	-1.2	1.1	3.0	3.4	2.9	8.0	-3.8	4.0	
# of Portfolios	201	201	199	190	150	211	217	226	210	198	
● Allianz Global Investors	-0.8 (77)	-13.8 (79)	-0.9 (89)	1.1 (95)	3.5 (86)	5.3 (51)	5.2 (74)	15.3 (31)	-3.2 (88)	6.5 (74)	
▲ ICE BofAML High Yield Master II	-0.7 (71)	-14.1 (82)	-0.7 (82)	1.4 (85)	3.9 (66)	5.4 (50)	6.2 (55)	14.4 (49)	-2.3 (69)	7.5 (53)	

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	-0.9%	10.2%	-0.1
ICE BofAML High Yield Master II	-0.7%	11.1%	-0.1
eV US High Yield Fixed Inc Gross Median	0.2%	10.3%	0.0

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	1.1%	8.5%	0.0
ICE BofAML High Yield Master II	1.4%	9.1%	0.0
eV US High Yield Fixed Inc Gross Median	2.1%	8.5%	0.1

Real Estate Managers

Adelante Manager Portfolio Overview

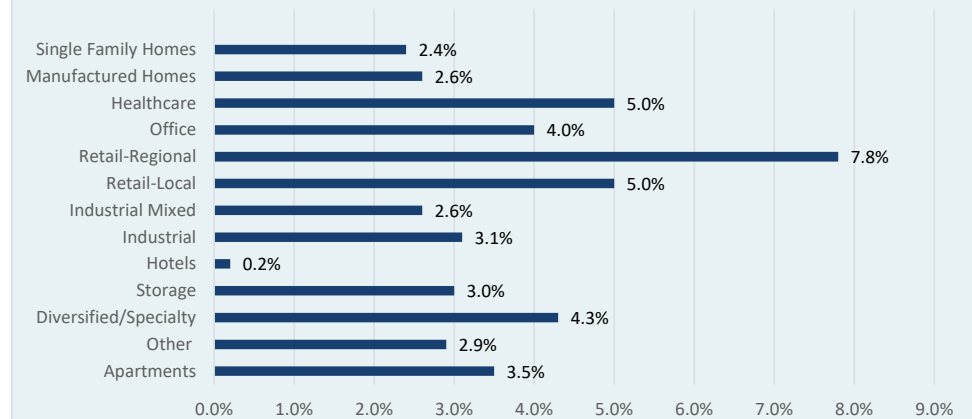
Period Ending: September 30, 2022

Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets

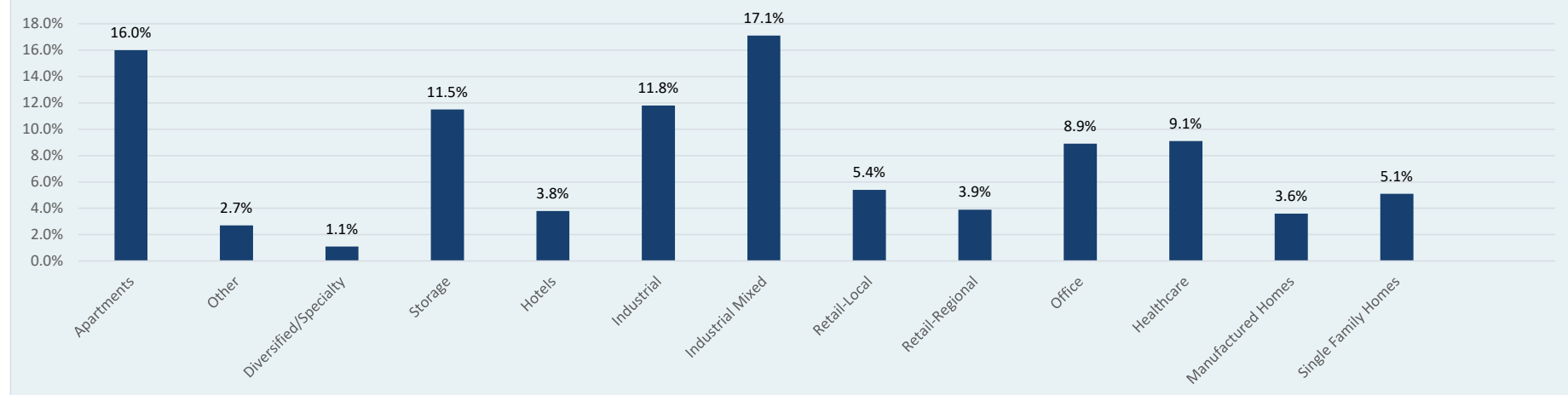
Top Five Holdings

Company	Property Type	Allocation
ProLogis Inc.	Industrial	9.5%
Equinix Inc	Industrial Mixed	7.8%
Public Storage	Storage	6.6%
Equity Residential	Apartments	6.2%
Duke Realty	Industrial Mixed	5.4%

Dividend Yield by Property Type



Property Type Allocation



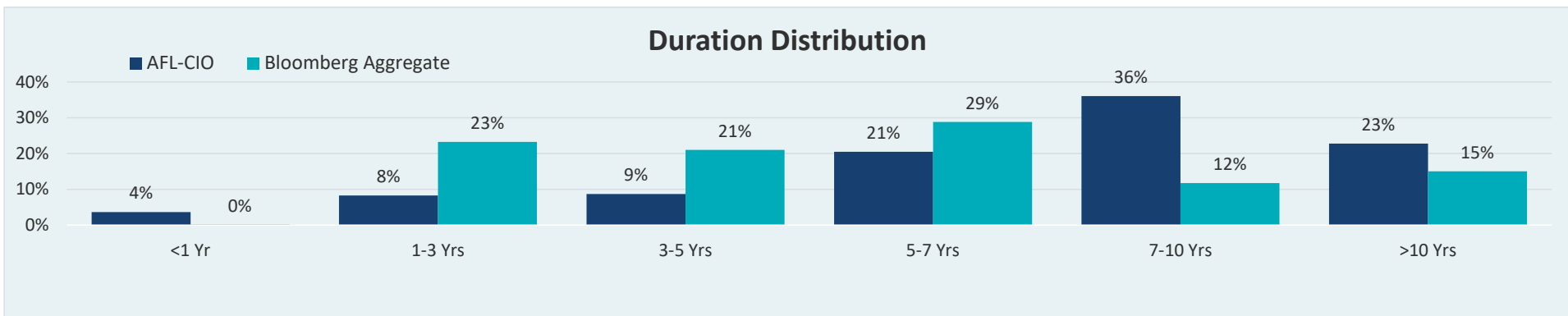
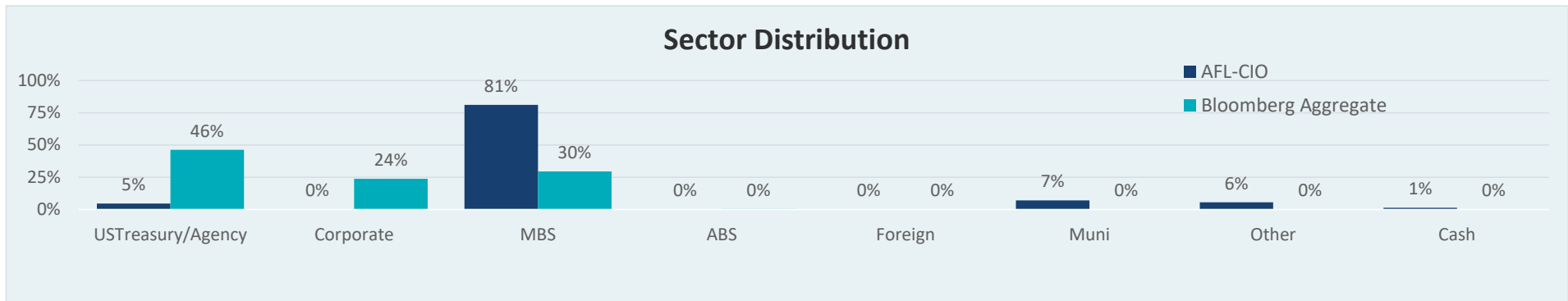
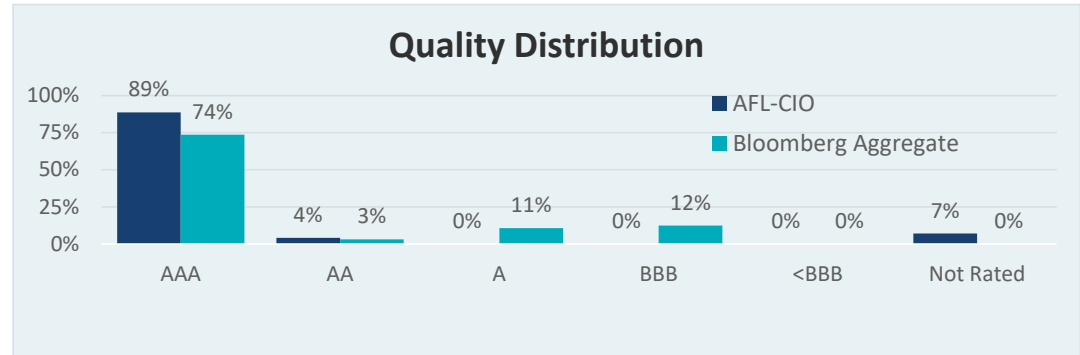
Diversifying Fixed Income Managers

AFL-CIO Manager Portfolio Overview

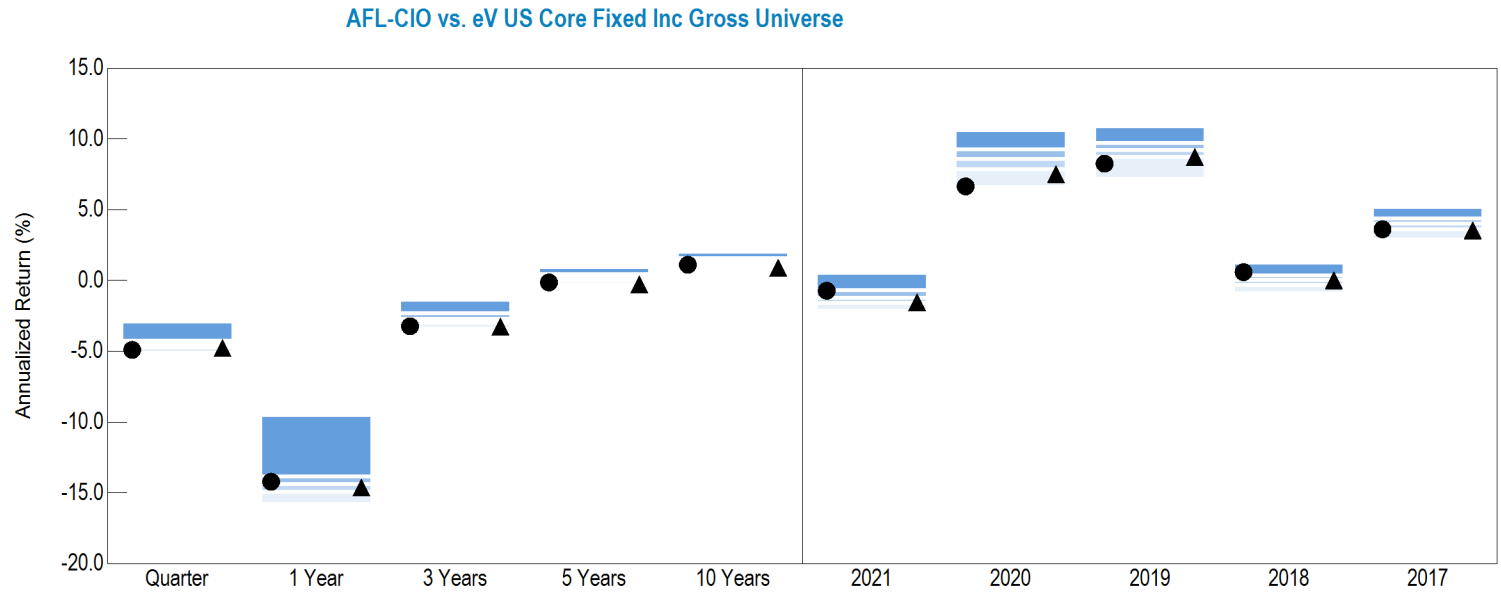
Period Ending: September 30, 2022

Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	Bloomberg Aggregate
Effective Duration	6.07	6.21
Yield to Maturity	3.19	4.69
Average Quality	AAA	AA
Average Coupon	2.8%	2.6%

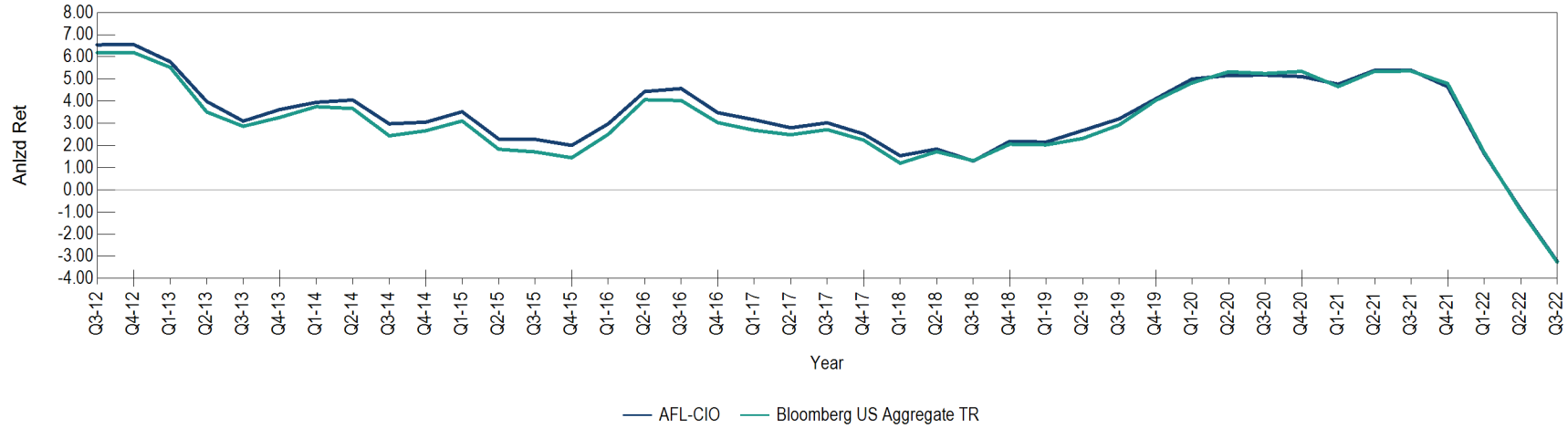


Duration and Quality distributions exclude cash.

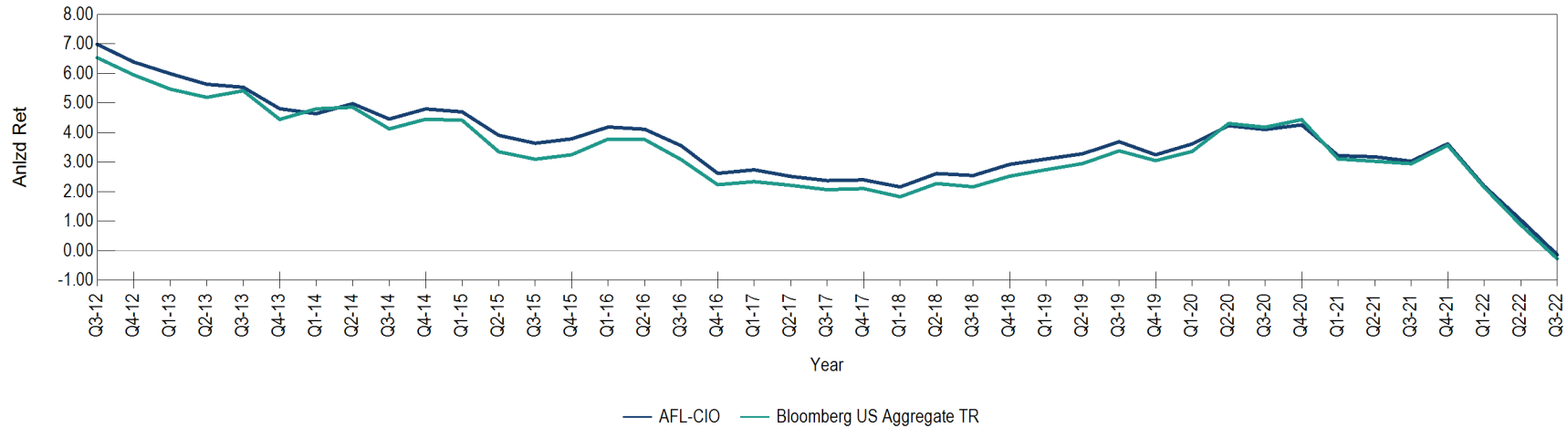


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	-2.9	-9.5	-1.4	0.9	2.0	0.5	10.6	10.9	1.2	5.2
25th Percentile	-4.2	-13.8	-2.3	0.5	1.6	-0.7	9.3	9.8	0.4	4.4
Median	-4.5	-14.4	-2.7	0.2	1.4	-1.2	8.6	9.3	0.0	4.0
75th Percentile	-4.7	-14.9	-3.0	0.0	1.2	-1.5	7.9	8.7	-0.3	3.6
95th Percentile	-5.1	-15.7	-3.4	-0.3	0.9	-2.1	6.6	7.2	-0.9	2.9
# of Portfolios	215	215	206	203	196	217	225	228	240	233
● AFL-CIO	-4.9 (91)	-14.2 (40)	-3.2 (93)	-0.1 (91)	1.1 (85)	-0.7 (30)	6.6 (95)	8.2 (88)	0.6 (16)	3.6 (76)
▲ Bloomberg US Aggregate TR	-4.8 (82)	-14.6 (63)	-3.3 (93)	-0.3 (95)	0.9 (96)	-1.5 (76)	7.5 (85)	8.7 (77)	0.0 (54)	3.5 (79)

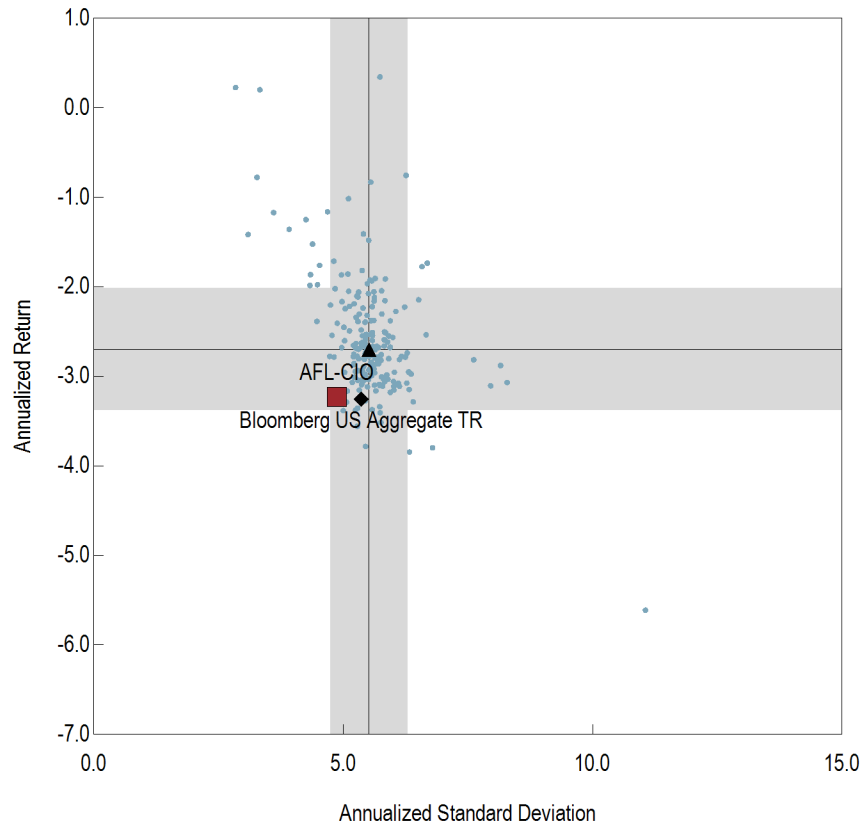
Rolling 3 Year Annualized Return (%)



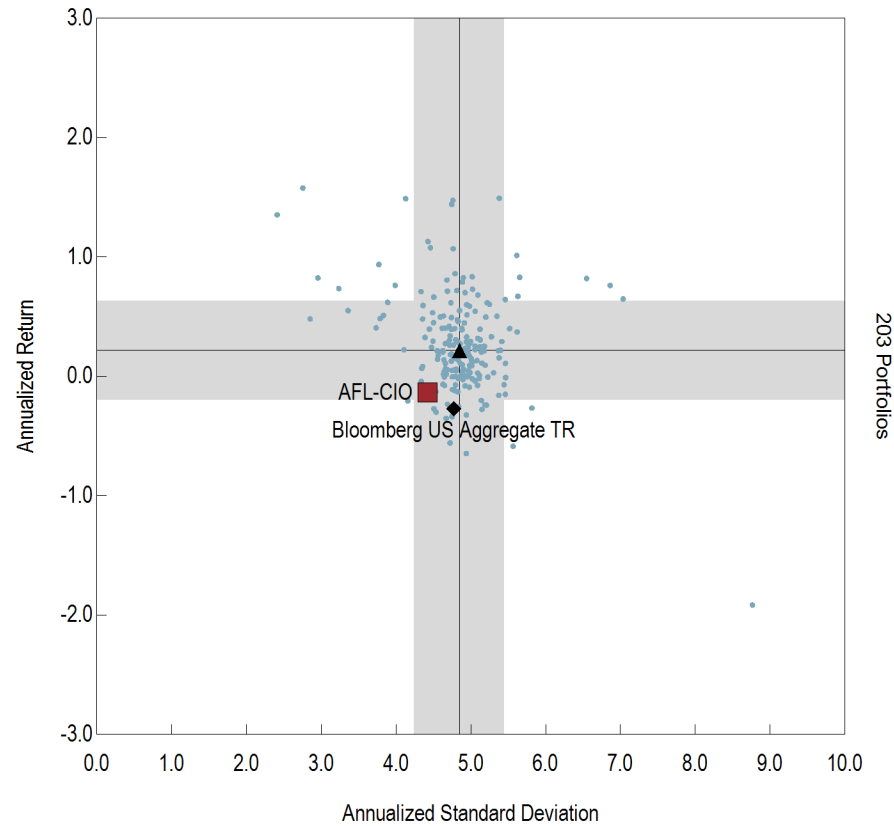
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
AFL-CIO	-3.2%	4.9%	-0.8
Bloomberg US Aggregate TR	-3.3%	5.4%	-0.7
eV US Core Fixed Inc Gross Median	-2.7%	5.5%	-0.6

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
AFL-CIO	-0.1%	4.4%	-0.3
Bloomberg US Aggregate TR	-0.3%	4.8%	-0.3
eV US Core Fixed Inc Gross Median	0.2%	4.8%	-0.2

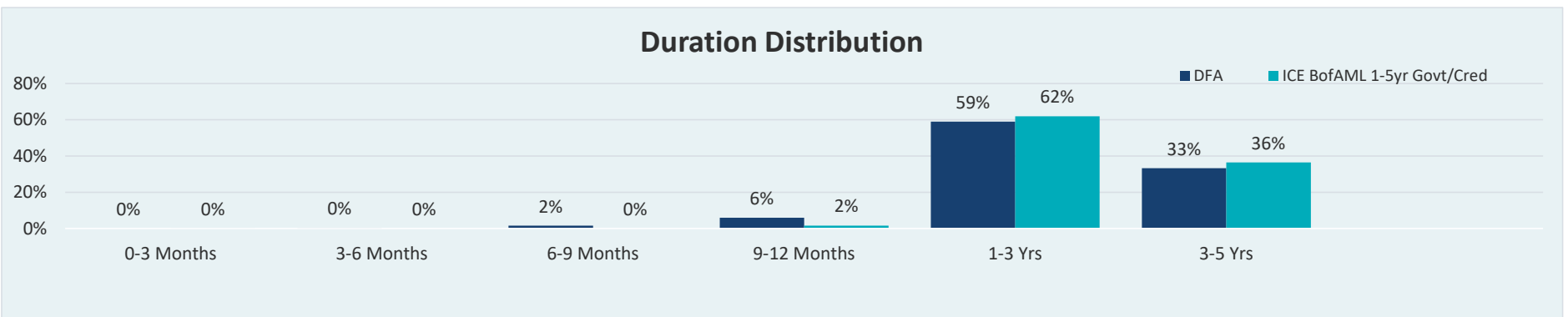
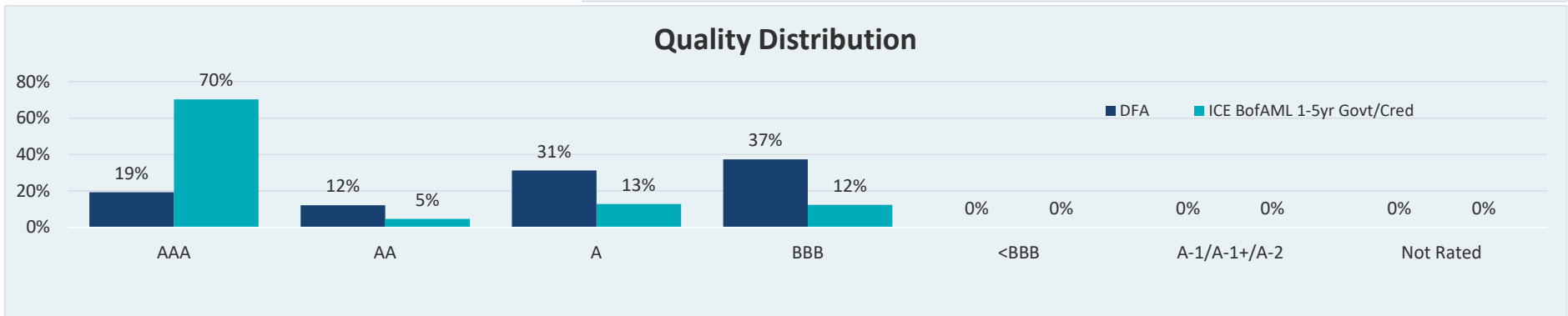
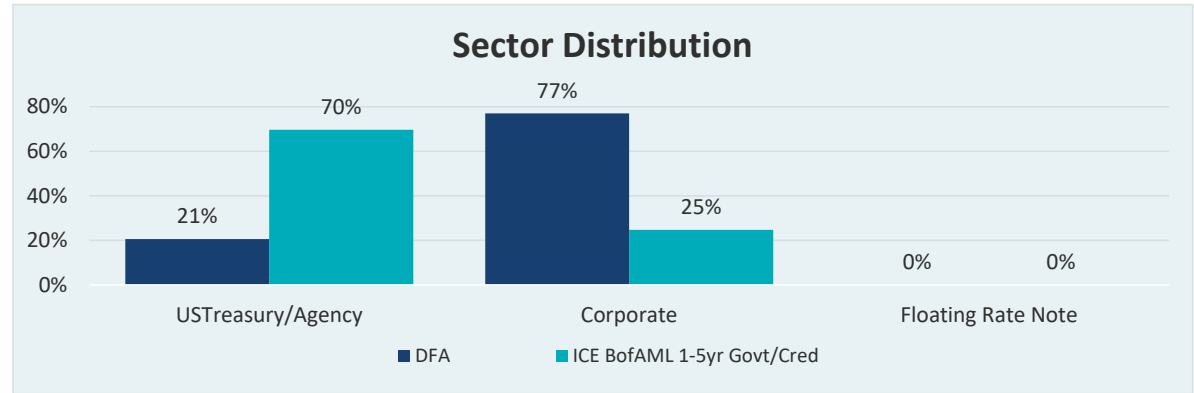
Liquidity Managers

DFA Short Credit Manager Portfolio Overview

Period Ending: September 30, 2022

Domestic short term US credit fixed income portfolio that maximizes total return through income and capital appreciation. Primary personnel include Dave Plecha and Joseph Kolerich.

	DFA	ICE BofAML 1-5yr Govt/Cred
Effective Duration	2.32	2.59
Yield to Maturity	5.36	4.59
Average Quality	A	AA+
Average Coupon	2.48%	2.08%

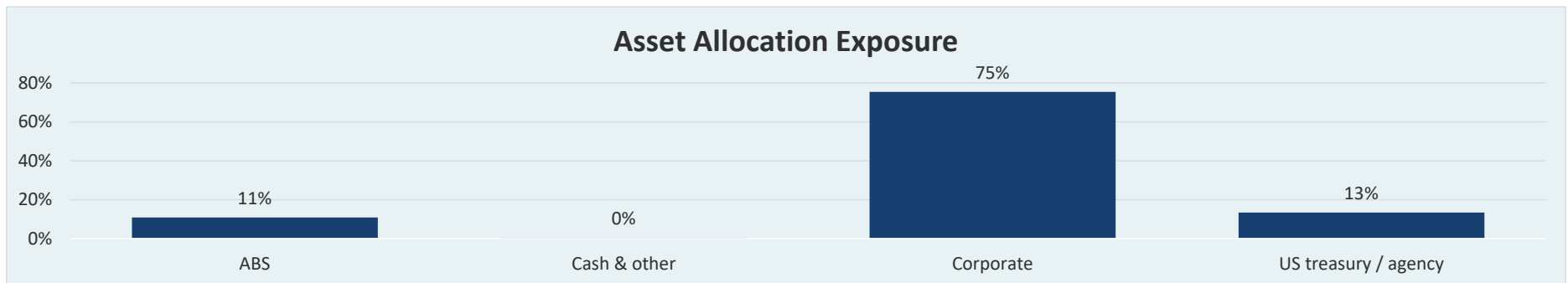
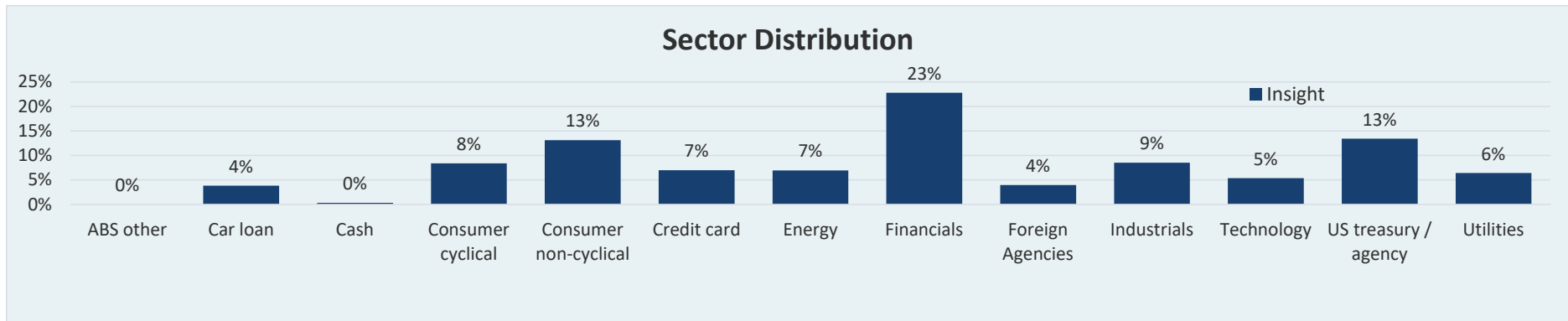
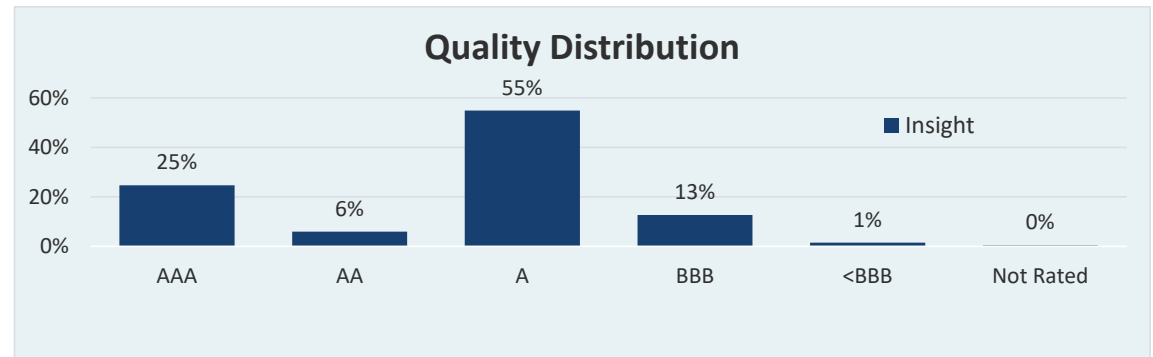


Insight Short Duration Manager Portfolio Overview

Period Ending: September 30, 2022

High quality, short duration multi-sector fixed income portfolio comprised of Treasuries, Agencies, investment grade corporates, and ABS designed specifically to meet CCCERA's liabilities. Key personnel include Gerard Berrigan and Jesse Fogarty.

	Insight	BBgBarc 1-3yr Govt
Effective Duration	1.29	1.88
Yield to Maturity	4.14	1.95
Average Quality	A+	AAA
Average Coupon	2.69%	1.66%

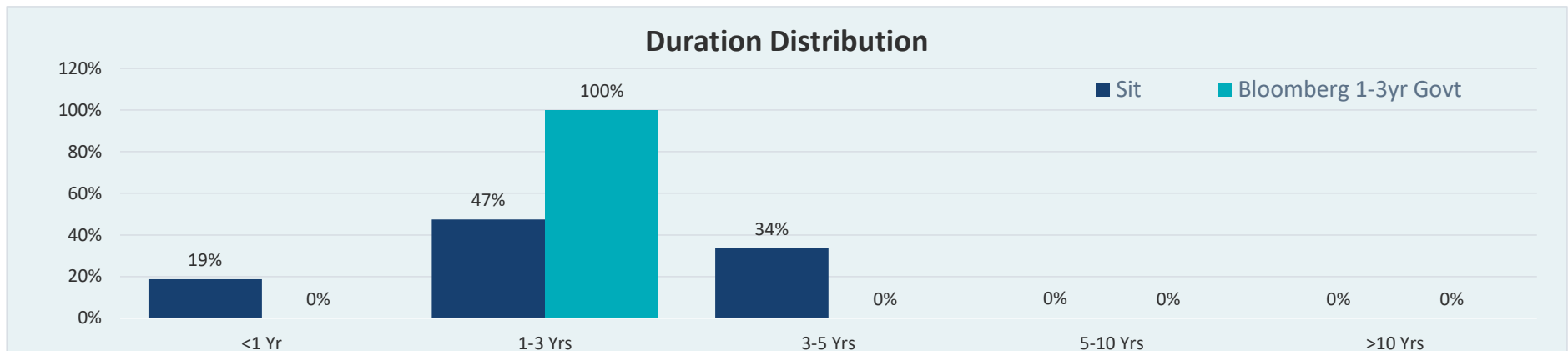
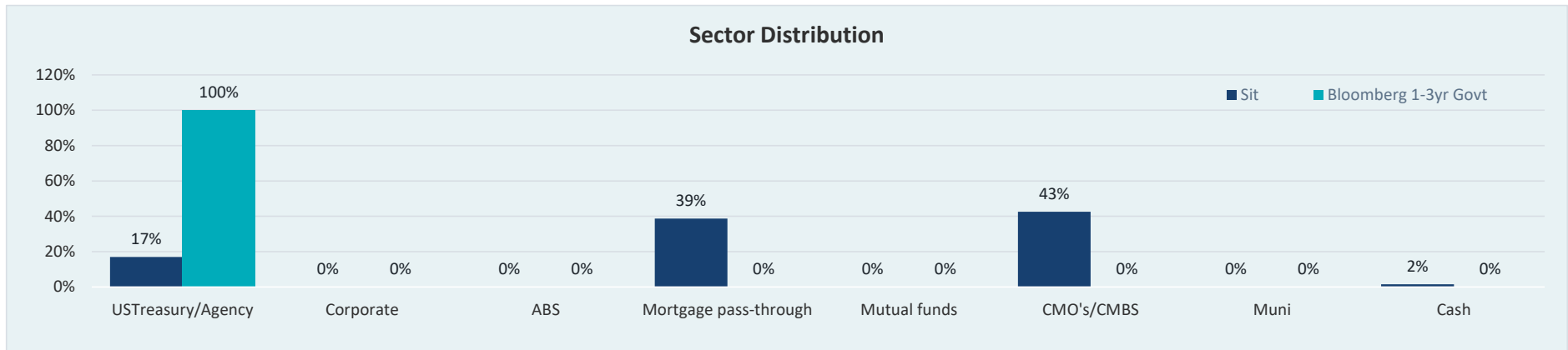
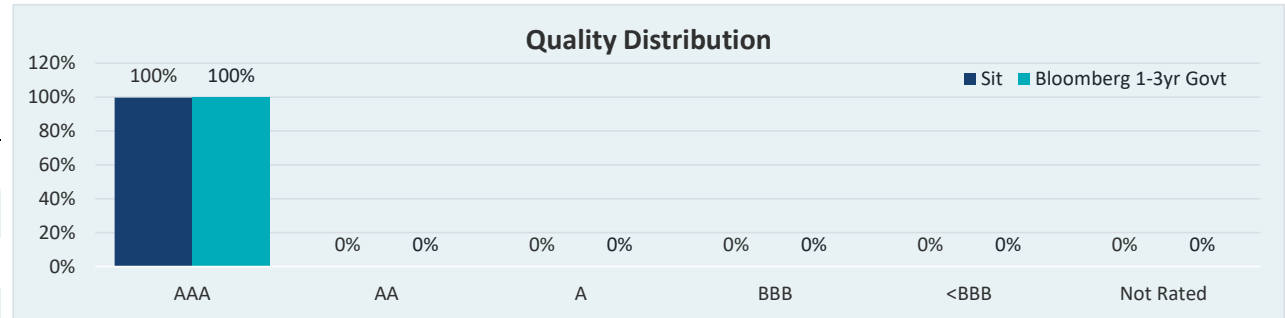


Sit Short Duration Manager Portfolio Overview

Period Ending: September 30, 2022

Short duration fixed income portfolio with a focus on earning high levels of interest income. Primary personnel include Bryce Doty, Paul Jungquist and Michael Brilley.

	Sit	BBgBarc 1-3yr Govt
Modified Duration	2.60	1.88
Yield to Maturity	5.40	1.95
Average Quality	AAA	AAA
Average Coupon	5.60%	1.66%



Performance Return Calculations

Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Policy & Custom Index Composition

Policy Index (7/1/2022 - present)	16% Russell 3000, 15% MSCI ACWI ex-US (Gross), 9% MSCI ACWI (Net), 1.5% ICE BofA High Yield Master II, 2% Wilshire REIT, 8% Private Real Estate composite returns, 13% Private Equity composite returns, 8% Private Credit composite returns, 17% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate 2.5% FTSE 3-month T-Bill +5%, 2.5% Bloomberg US Aggregate +1%.
Policy Index (7/1/2021 - 6/30/2022)	16% Russell 3000, 16% MSCI ACWI ex-US (Gross), 9% MSCI ACWI (Net), 2% Wilshire REIT, 8% Private Real Estate composite returns, 3% CPI + 4%, 11% Private Equity composite returns, 8% Private Credit composite returns, 2% ICE BofAML High Yield Master II, 18% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate, 1.5% HFRI EH Equity Market Neutral.
Policy Index (1/1/2021 - 6/30/2021)	9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 8% Private Real Estate composite returns, 1.5% CPI + 4%, 11% Private Equity composite returns, 7% Private Credit composite returns, 1.5% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2% HFRI EH Equity Market Neutral.
Policy Index (7/1/2020 - 12/31/2020)	9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 1.5% CPI + 4%, 11% S&P 500 +4% (Lagged), 7% ICE BofAML High Yield Master II +2%, 1.5% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2% HFRI EH Equity Market Neutral.
Policy Index (7/1/2019 - 6/30/2020)	10% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2% CPI + 4%, 11% S&P 500 +4% (Lagged), 5% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 24% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (7/1/2018 - 6/30/2019)	11% Russell 3000, 19% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.8% NCREIF Property Index, 7.2% NCREIF ODCE Index, 2% CPI + 4%, 10% S&P 500 +4% (Lagged), 4% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 23% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (10/1/2017 - 6/30/2018)	16.3% Russell 3000, 18.8% MSCI ACWI ex-US (Gross), 8.6% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2.5% CPI + 4%, 10.1% S&P 500 +4% (Lagged), 1.9% ICE BofAML High Yield Master II +2%, 4.3% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate.
Policy Index (1/1/2017 - 9/30/2017)	22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI + 4%, 8.1% S&P 500 +4% (Lagged), 1.7% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML High Yield Master II, 22.4% Bloomberg 1-3 Yr Gov/Credit, 3.2% Bloomberg US Aggregate, 1.6% 91-Day T-Bills.
Policy Index (4/1/2012-12/31/2016)	27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Bloomberg U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

Policy & Custom Index Composition (continued)

Policy Index (4/1/2011-3/31/2012)	31% Russell 3000, 10.4% MSCI EAFE (Gross), 9.6% MSCI ACWI (Net), 25% Bloomberg U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (4/1/2010-3/31/2011)	35.6% Russell 3000, 10.4% MSCI EAFE (Gross), 5% MSCI ACWI (Net), 25% Bloomberg U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (7/1/2009-3/31/2010)	40.6% Russell 3000, 10.4% MSCI EAFE (Gross), 25% Bloomberg U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Custom Growth Benchmark (7/1/2022 - present)	21.2% Russell 3000, 19.9% MSCI ACWI ex-US (Gross), 11.9% MSCI ACWI (Net), 2.6% Wilshire REIT, 10.6% Private Real Estate composite returns, 17.2% Private Equity composite returns, 10.6% Private Credit composite returns, 2.0% ICE BofAML High Yield Master II, 4% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
Custom Growth Benchmark (7/1/2021 - 6/30/2022)	21.33% Russell 3000, 21.33% MSCI ACWI ex-US (Gross), 12% MSCI ACWI (Net), 2.67% Wilshire REIT, 10.67% Private Real Estate composite returns, 14.67% Private Equity composite returns, 10.67% Private Credit composite returns, 2.67% ICE BofAML High Yield Master II, 4% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
Custom Growth Benchmark (1/1/2021 - 6/30/2021)	13.14% Russell 3000, 26.28% MSCI ACWI ex-US (Gross), 16.06% MSCI ACWI (Net), 1.46% Wilshire REIT, 11.68 Private Real Estate composite returns%, 16.06% Private Equity composite returns, 10.22% Private Credit composite returns, 2.19% ICE BofAML High Yield Master II, 2.92% Bloomberg Global Bond
Custom Growth Benchmark (7/1/2020 - 12/31/2020)	13.14% Russell 3000, 26.28% MSCI ACWI ex-US (Gross), 16.06% MSCI ACWI (Net), 1.46% Wilshire REIT, 2.34% NCREIF Property Index, 9.33% NCREIF ODCE Index, 16.06% S&P 500 +4% (Lagged), 10.22% ICE BofAML High Yield Master II +2%, 2.19% ICE BofAML High Yield Master II, 2.92% Bloomberg Global Bond
Custom Growth Benchmark (7/1/2019 - 6/30/20)	14.7% Russell 3000, 26.4% MSCI ACWI ex-US (Gross), 16.2% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.4% NCREIF Property Index, 9.4% NCREIF ODCE Index, 16.2% S&P 500 +4% (Lagged), 7.4% ICE BofAML High Yield Master II +2%, 2.9% ICE BofAML High Yield Master II, 2.9% Bloomberg Global Bond
Custom Growth Benchmark (7/1/2018 - 6/30/2019)	16.0% Russell 3000, 27.5% MSCI ACWI ex-US (Gross), 15.9% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.6% NCREIF Property Index, 10.4% NCREIF ODCE Index, 14.5% S&P 500 +4% (Lagged), 5.8% ICE BofAML High Yield Master II +2%, 2.9% ICE BofAML High Yield Master II, 2.9% Bloomberg Global Bond
Custom Growth Benchmark (9/30/2017- 6/30/2018)	23.6% Russell 3000, 27.2% MSCI ACWI ex-US (Gross), 12.5% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.3% NCREIF Property Index, 9.3% NCREIF ODCE Index, 14.6% S&P 500 +4% (Lagged), 2.8% ICE BofAML High Yield Master II +2%, 6.2% ICE BofAML High Yield Master II
Custom Growth Benchmark (1/1/2017-9/30/2017)	32.6% Russell 3000, 15.7% MSCI ACWI ex-US (Gross), 15.5% MSCI ACWI (Net), 1.4% Wilshire REIT, 2.4% NCREIF Property Index, 9.6% NCREIF ODCE Index, 1.6% CPI +4%, 11.5% S&P 500 +4% (Lagged), 2.4% ICE BofAML High Yield Master II +2%, 7.3% ICE BofAML High Yield Master II
Custom Growth Benchmark (Prior to 1/1/2017)	Weighted-average of the benchmarks of the sub-composites that make up the composite.
Custom Diversifying Benchmark (7/1/2021-present)	35.71% Bloomberg US Aggregate, 21.43% FTSE 3-Month T-bill +4%, 21.43 FTSE 3-Month T-bill +5%, 21.43% Bloomberg Barclays US Aggregate +1%
Custom Diversifying Benchmark (8/1/2020 - 6/30/2021)	46.15% Bloomberg US Aggregate, 30.77 FTSE 3-Month T-bill +4%, 23.08 FTSE 3-Month T-bill +5%.
Custom Diversifying Benchmark (7/1/2018 - 7/31/2020)	43.75% Bloomberg US Aggregate, 25% CPI + 4%, 31.25% HFRI EH Equity Market Neutral.
Custom Diversifying Benchmark (10/1/2017 - 6/30/2018)	58.33% Bloomberg US Aggregate, 41.67% CPI + 4%.
Custom Diversifying Benchmark (1/1/2017 - 9/30/2017)	56.1% Bloomberg US Aggregate, 43.9% CPI + 4%.
Custom Diversifying Benchmark (Prior to 1/1/2017)	Weighted-average of the benchmarks of the sub-composites that make up the composite.
Custom Diversifying Multi-Asset Benchmark (current)	50% FTSE 3-Month T-bill +5%, 50% Bloomberg Barclays US Aggregate +1%
Real Estate Benchmark (current)	20% Wilshire REIT, 80% Private Real Estate composite returns.
Real Estate Benchmark (4/1/2012-11/30/2016)	40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-US.

Manager Line Up					
Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 1000 Index	4/20/2017	BlackRock	Invesco Real Estate V	9/27/2022	Invesco
Boston Partners	6/1/1995	Northern Trust	Oaktree REOF V	12/31/2011	Oaktree
Emerald Advisors	4/7/2003	Northern Trust	Oaktree REOF VI	9/30/2013	Oaktree
Ceredex	11/6/2011	Northern Trust	Oaktree REOF VII	4/1/2015	Oaktree
Pyrford	4/25/2014	State Street	PCCI IX	4/28/2022	PCCP
William Blair	10/29/2010	William Blair	Siguler Guff DREOF	1/25/2012	Siguler Guff
PIMCO RAE Emerging Markets	2/28/2017	State Street	Siguler Guff DREOF II	8/31/2013	Siguler Guff
TT Emerging Markets	7/27/2017	TT	Siguler Guff DREOF II Co-Inv	1/27/2016	Siguler Guff
Artisan Partners	10/1/2012	SEI Trust	Paulson Real Estate Fund II	11/10/2013	Paulson
First Eagle	1/18/2011	Northern Trust	AE Industrial Partners Fund II	4/8/2019	StepStone Group
Allianz Global Investors	4/25/2000	Northern Trust	Adams Street Partners	3/18/1996	StepStone Group
Adelante	9/30/2001	Northern Trust	Adams Street Partners II	1/16/2009	StepStone Group
AQR Global Risk Premium - EL	1/18/2019	AQR	Adams Street Partners Venture	4/28/2017	StepStone Group
Panagora Risk Parity Multi Asset	3/15/2019	Panagora	Adams Street Partners - BFP	1/18/1996	StepStone Group
AFL-CIO	6/30/1991	AFL-CIO	Adams Street Partners - Fund 5	9/21/2012	StepStone Group
Wellington Real Total Return (in Liquidation)	2/26/2013	Wellington	Aether Real Assets IV	3/16/2016	StepStone Group
Acadian Multi-Asset Absolute Return Fund	8/4/2020	Northern Trust	Aether Real Assets III	11/27/2013	StepStone Group
Sit LLCAR	4/15/2021	Northern Trust	Aether Real Assets III Surplus	11/30/2013	StepStone Group
Sit Short Duration	11/2/2016	Northern Trust	Bay Area Equity Fund	6/14/2004	StepStone Group
DFA Short Credit	11/21/2016	Northern Trust	Bay Area Equity Fund II	12/7/2009	StepStone Group
Insight Short Duration	11/18/2016	Northern Trust	Commonfund	6/28/2013	StepStone Group
Parametric Overlay	3/29/2017	Northern Trust	EIF US Power Fund II	8/16/2005	StepStone Group
Cash	-	Northern Trust	EIF US Power Fund III	5/30/2007	StepStone Group
Angelo Gordon Energy Credit Opp	9/24/2015	StepStone Group	EIF US Power Fund IV	11/28/2011	StepStone Group
StepStone CC Opportunities Fund	2/1/2018	StepStone Group	EIF US Power Fund V	11/28/2016	StepStone Group
Torchlight II	9/30/2006	StepStone Group	Genstar Capital Partners IX, L.P.	2/21/2019	StepStone Group
Torchlight IV	7/1/2012	StepStone Group	Oaktree PIF 2009	2/28/2010	StepStone Group
Torchlight V	7/1/2012	StepStone Group	Paladin III	11/30/2007	StepStone Group
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Ocean Avenue Fund II	6/11/2014	StepStone Group
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Ocean Avenue Fund III	4/15/2016	StepStone Group
DLJ RECP III	6/23/2005	DLJ	Pathway 6	5/24/2011	StepStone Group
DLJ RECP IV	2/11/2008	DLJ	Pathway 7	2/7/2013	StepStone Group
DLJ RECP V	7/1/2014	DLJ	Pathway 8	11/23/2015	StepStone Group
DLJ RECP VI	3/19/2019	DLJ	Pathway	11/9/1998	StepStone Group
LaSalle Income & Growth VI	7/16/2013	LaSalle	Pathway 2008	12/26/2008	StepStone Group
LaSalle Income & Growth VII	2/28/2017	LaSalle	Siguler Guff CCCERA Opps	6/3/2014	StepStone Group
Hearthstone II	6/17/1998	Hearthstone	Siguler Guff Secondary Opps	11/30/2016	StepStone Group
Long Wharf Fund IV	7/3/2013	Long Wharf	Siris Partners IV	3/15/2019	StepStone Group
Long Wharf Fund V	9/30/2016	Long Wharf	TPG Healthcare Partners, L.P.	6/28/2019	StepStone Group
Long Wharf Fund VI	2/5/2020	Long Wharf	Trident VIII, L.P.	5/24/2019	StepStone Group
Invesco Real Estate IV	6/30/2014	Invesco	Wastewater Opp. Fund	12/8/2015	StepStone Group
Invesco Real Estate V	2/20/2019	Invesco			

Other Disclosures

All data prior to 12/31/2014 was provided by previous consultant.
 As of 7/1/2018 all Private Equity and Private Credit data is provided by StepStone Group.

Glossary

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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