Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: SEPTEMBER 30, 2022

Investment Performance Review for

Tulare County Employees' Retirement Association

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Verus

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Verus
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 Zolata 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

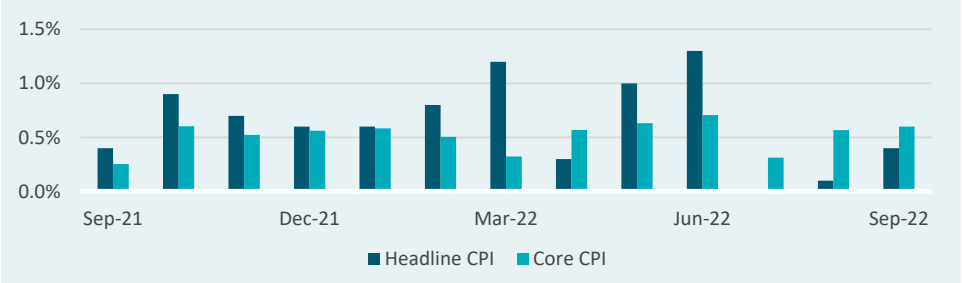
"Mortgage Demand Drops as Rates Top 6%"

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%

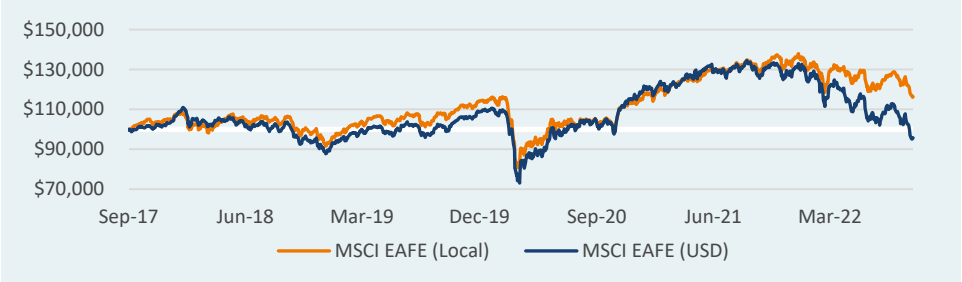
Article Source: CNBC, September 14th, 2022

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

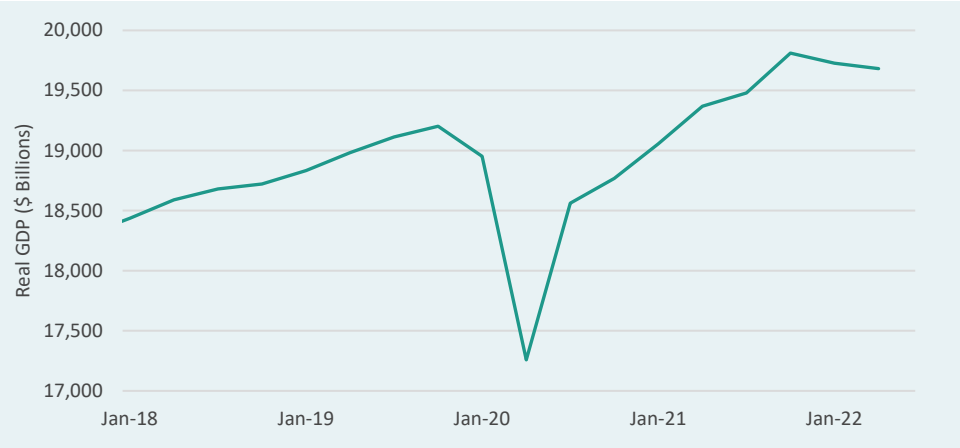
U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Most aspects of economic activity showed decline, including private investment (-2.7%), government spending (-0.3%), and imports (-0.5%). Forecasts suggest a potential growth turnaround in 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.

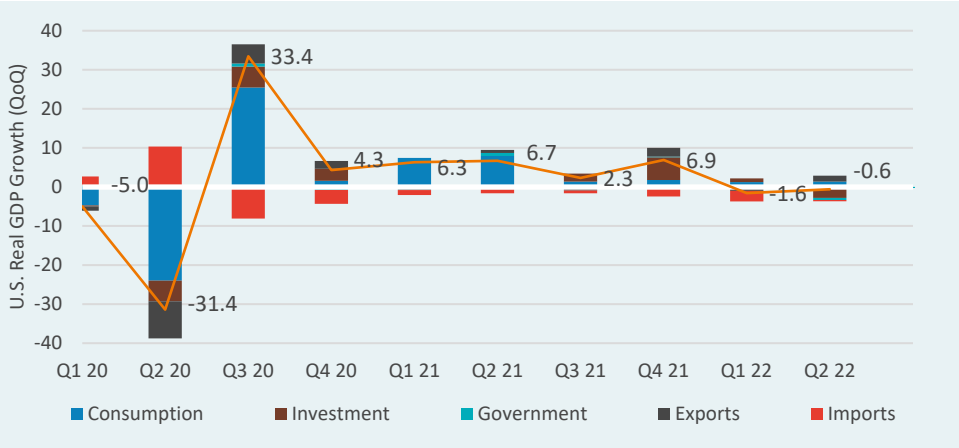
It remains unclear whether the U.S. has entered recession

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

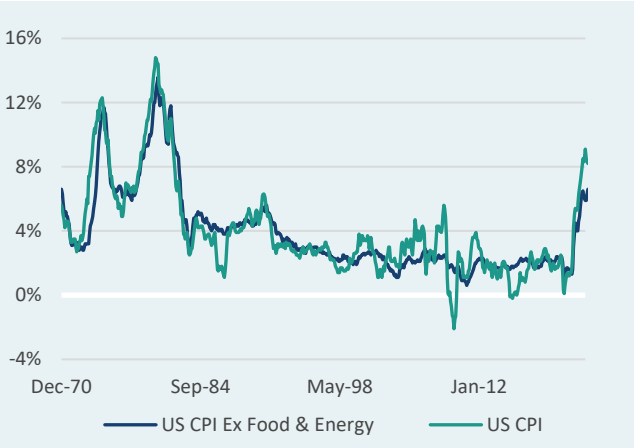
Inflation

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.

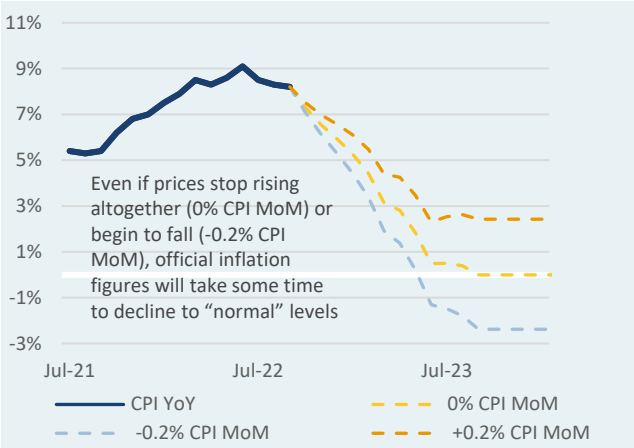
Inflation will take some time to fall back to normal levels, even if *monthly* inflation is 0% in the future. Below we illustrate a few scenarios of *monthly* future price movement. Even if prices stop rising completely (a monthly inflation rate of 0%), the U.S. inflation rate will still likely take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

U.S. CPI (YOY)



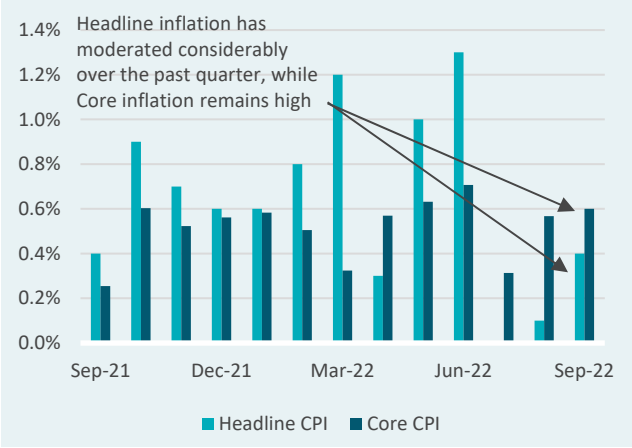
Source: BLS, as of 9/30/22

INFLATION IS A SLOW-MOVING METRIC



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

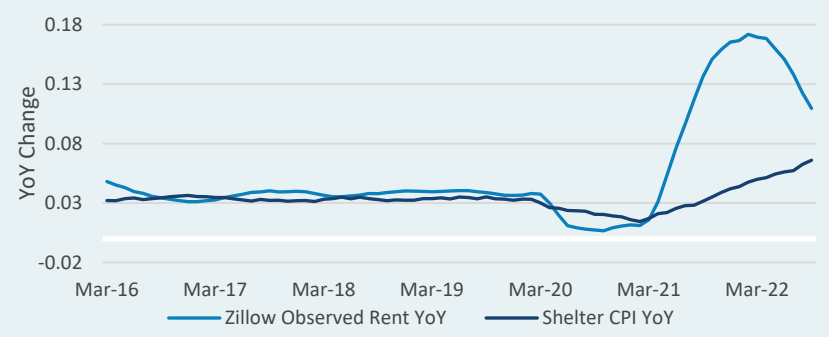
MONTHLY PRICE MOVEMENT



Source: BLS, as of 9/30/22

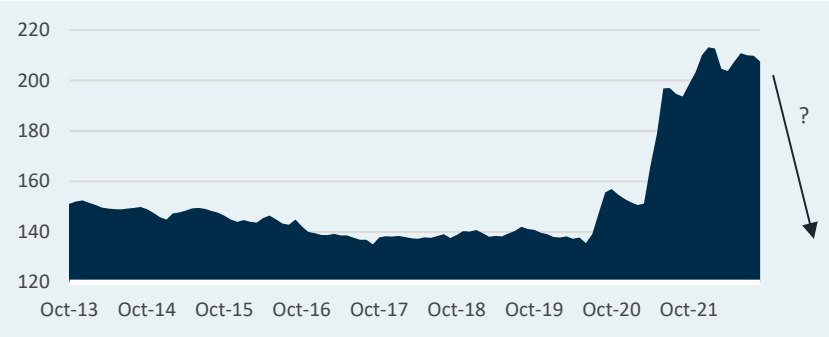
How are inflation conditions evolving?

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.

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.

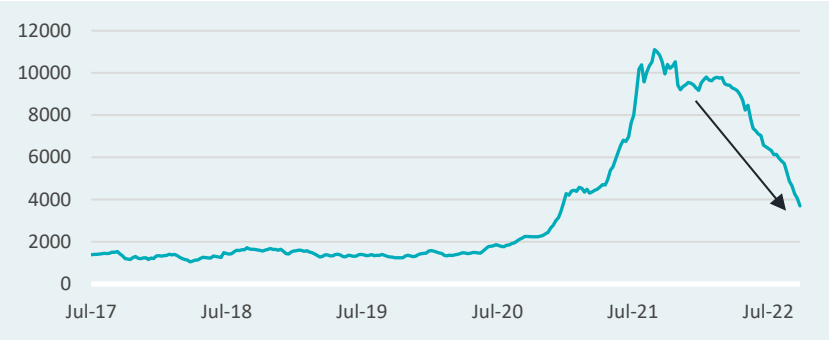
Inflation dynamics are complex. This slide shows a few potentially *inflationary* forces and *deflationary* forces

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)

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)

Labor market

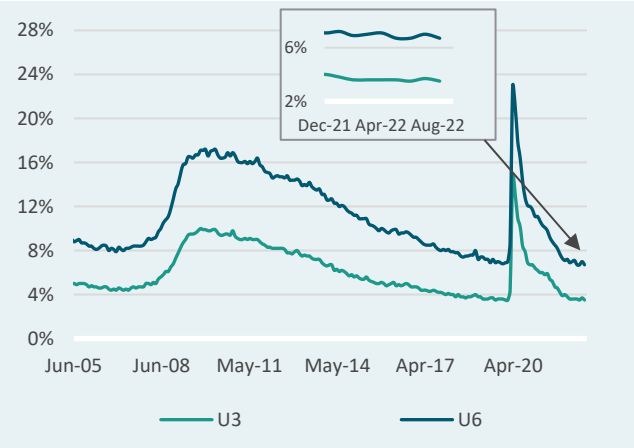
The U.S. labor market continues to be strong, which is arguably the biggest factor empowering the Federal Reserve's aggressive policy stance. However, while employment is strong, high inflation has eaten away at household purchasing power, as demonstrated by the consistent decline in inflation-adjusted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

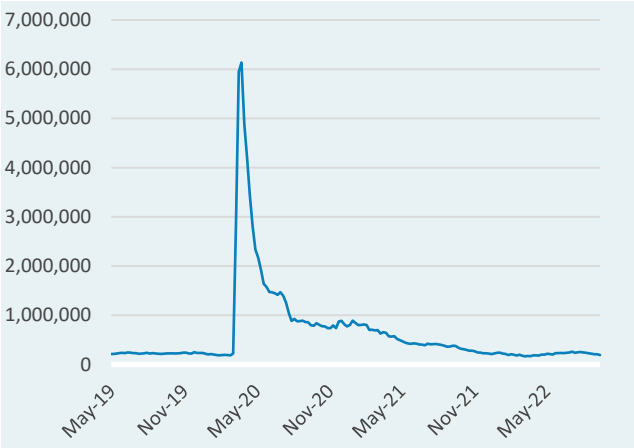
The labor market appears tight according to most metrics, but workers' wages are falling on an inflation-adjusted basis

U.S. UNEMPLOYMENT



Source: FRED, as of 9/30/22

INITIAL JOBLESS CLAIMS



Source: FRED, as of 9/25/22

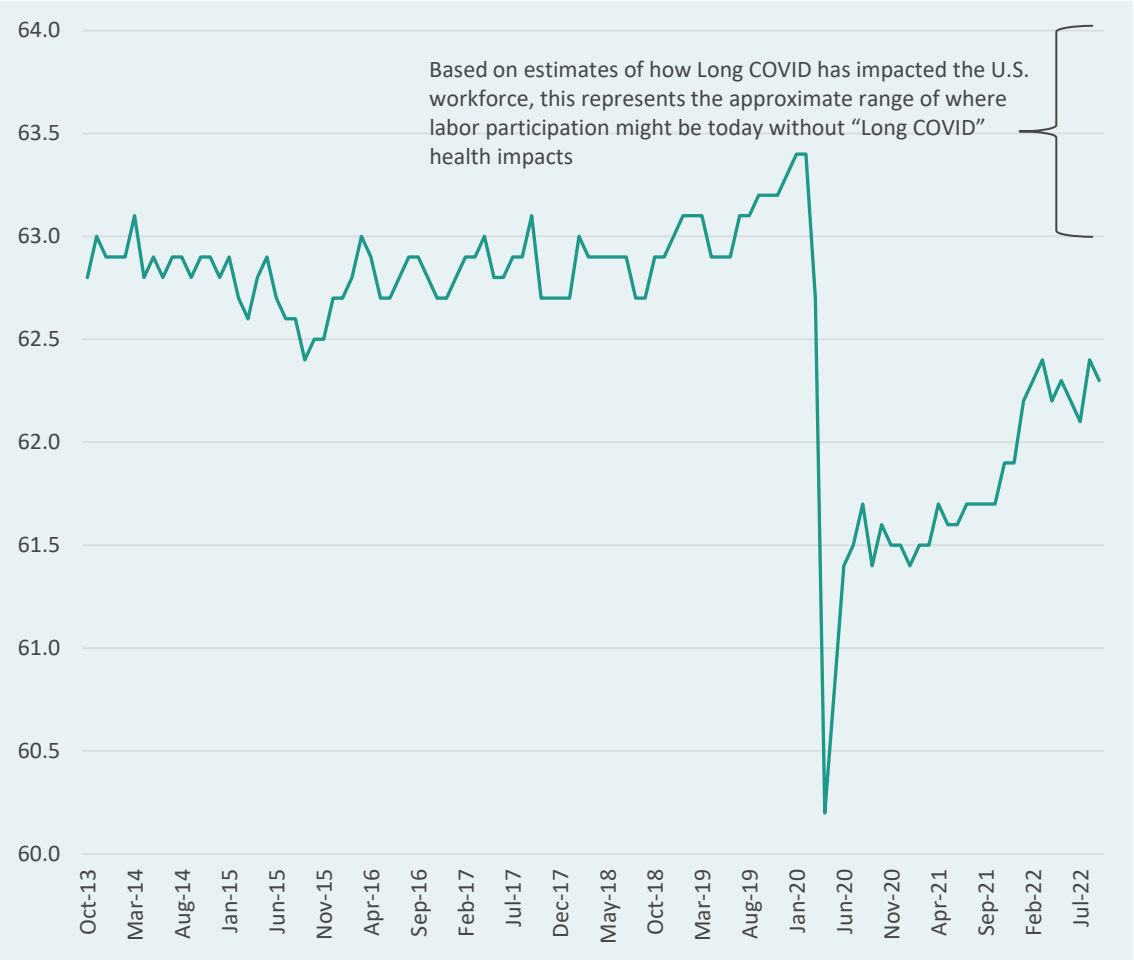
U.S. AVERAGE WEEKLY REAL WAGES

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

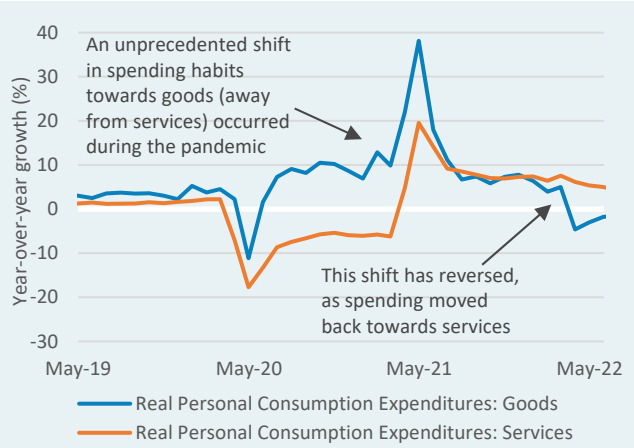
The consumer

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.

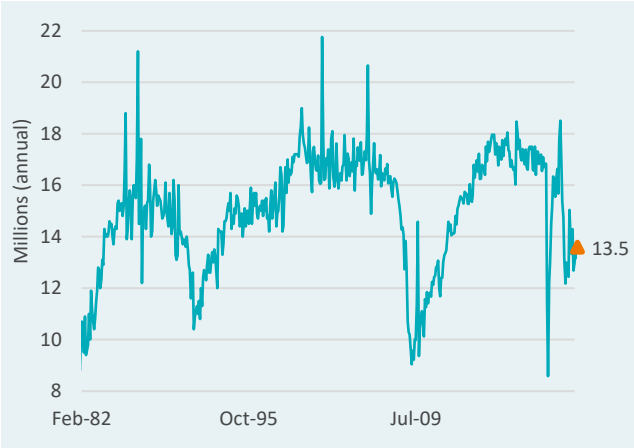
Auto sales activity remains very weak, although automakers have reported improvements in computer chip supplies that will allow production to rise. On the other hand, higher interest rates, diminished household budgets, and high car prices may constrain a recovery in auto sales activity despite new inventory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

REAL PERSONAL CONSUMPTION EXPENDITURES



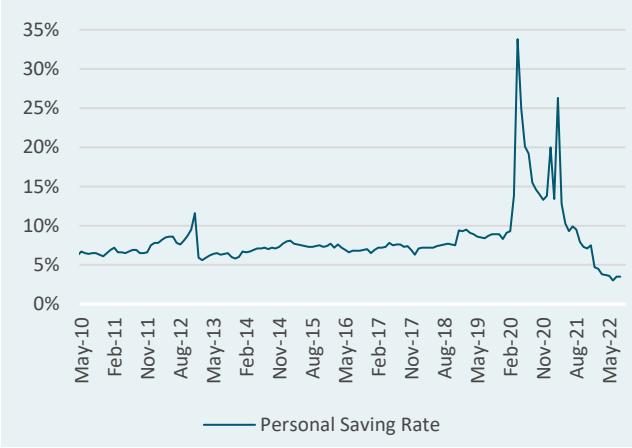
Source: FRED, as of 8/31/22

AUTO SALES



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

PERSONAL SAVINGS RATE



Source: FRED, as of 8/31/22

Sentiment

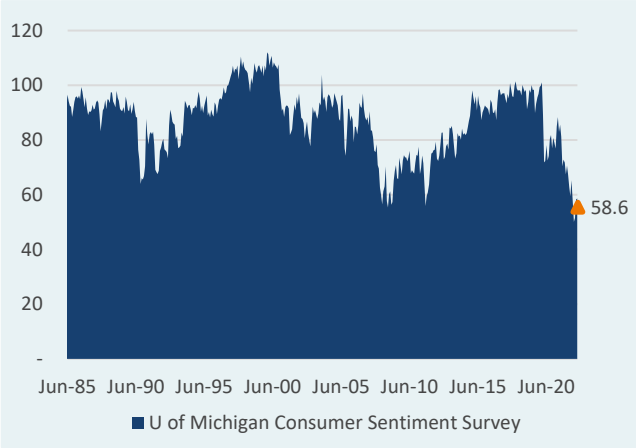
Consumer sentiment improved slightly from extremely depressed levels, according to the University of Michigan survey. In this survey, respondents mentioned better buying conditions for durable goods and a more optimistic one-year outlook, though this brighter sentiment was generally offset by a deteriorating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

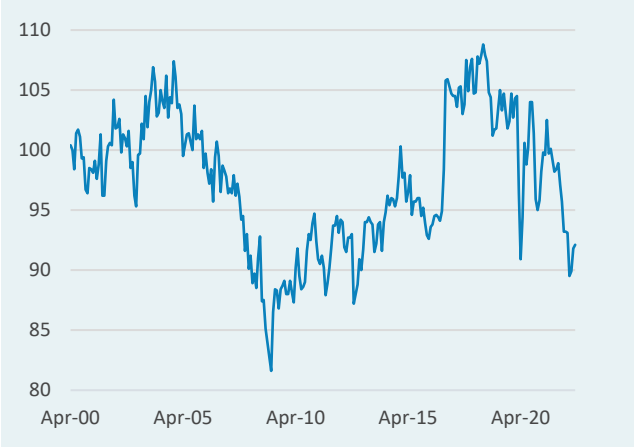


Source: University of Michigan, as of 9/30/22

CONFERENCE BOARD CONSUMER CONFIDENCE

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

NFIB SMALL BUSINESS SENTIMENT



Source: NFIB, as of 9/30/22

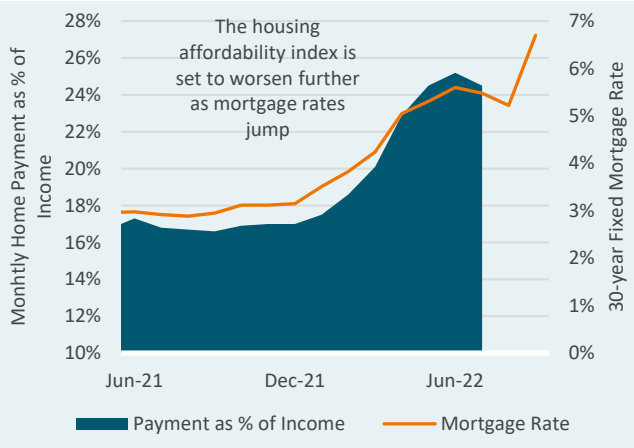
Housing

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.

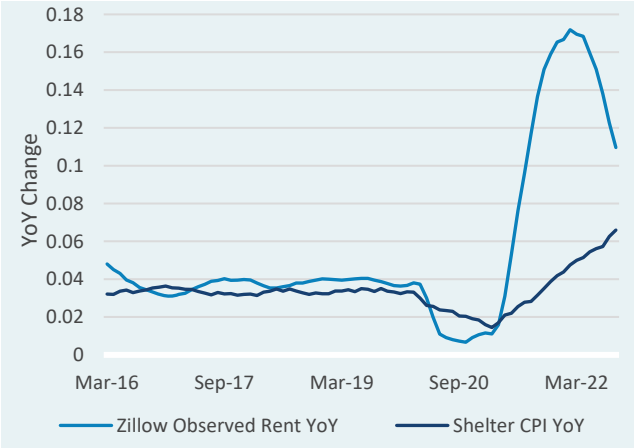
The housing market may be in the midst of a material slowdown as mortgage rates have more than doubled during 2022, from 3.1% at the beginning of the year to 6.7% at the end of the third quarter. Spiking mortgage rates in the past have coincided with a softening of the real estate market and placed downward 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



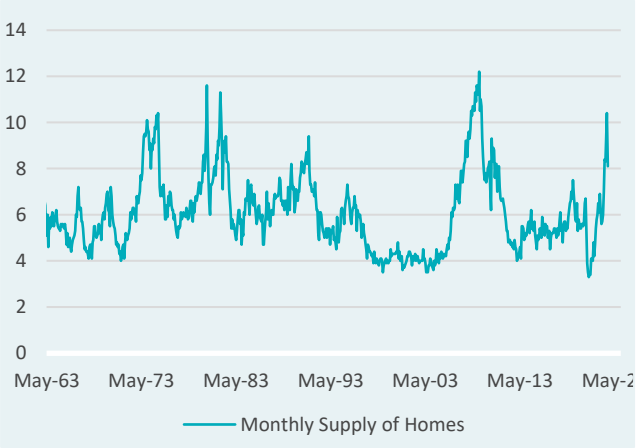
Source: NAR, as of 7/31/22, FRED as of 9/30/22

HOUSING & RENT COSTS



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

SUPPLY OF HOMES



Source: FRED, as of 8/31/22

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

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.

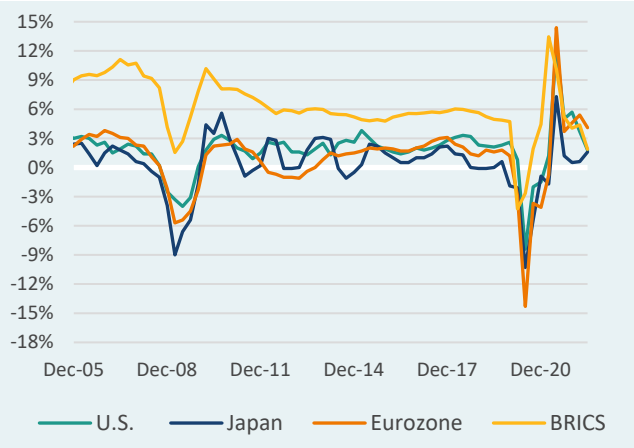
International economics

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.

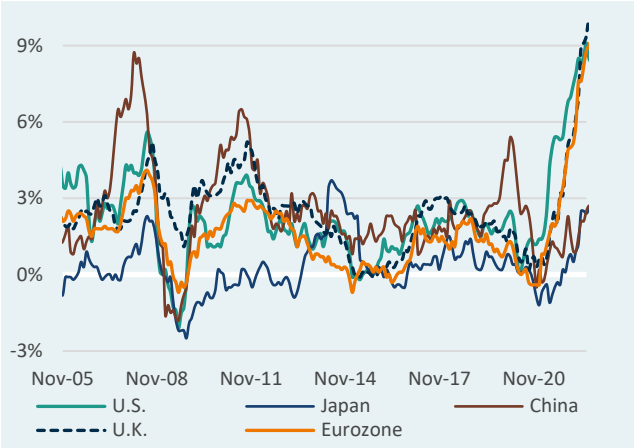
Unemployment rates are stable and tight in most markets, though central bankers may now see this as a problem standing in the way of efforts to slow economies and fight rising prices.

REAL GDP GROWTH (YOY)



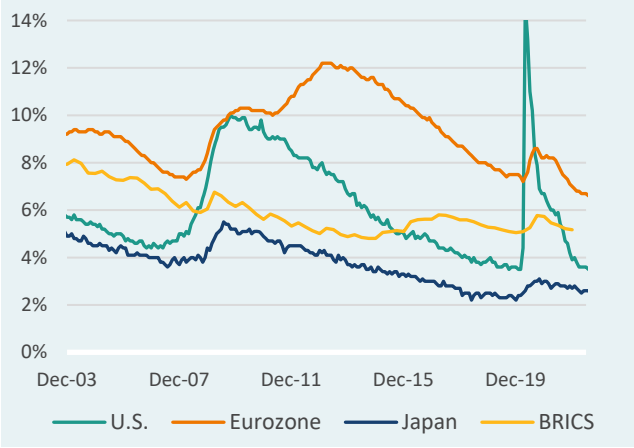
Source: Bloomberg, as of 6/30/22

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.

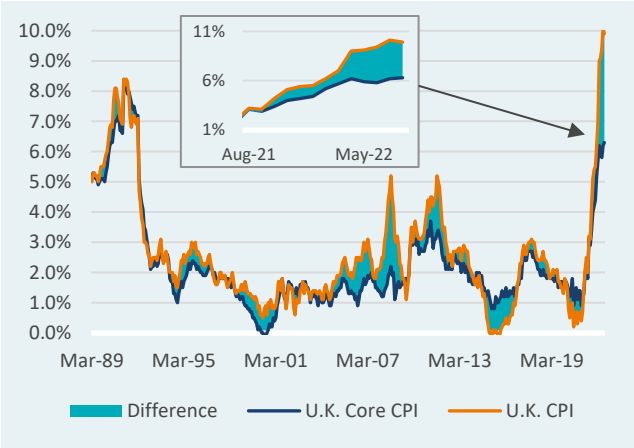
More recently, newly elected Prime Minister Liz Truss and the Chancellor of the Exchequer Kwasi Kwarteng unveiled a plan with to reignite growth and spur economic productivity through tax cuts, guarantees regarding household energy prices, and supply side reforms including infrastructure projects.

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

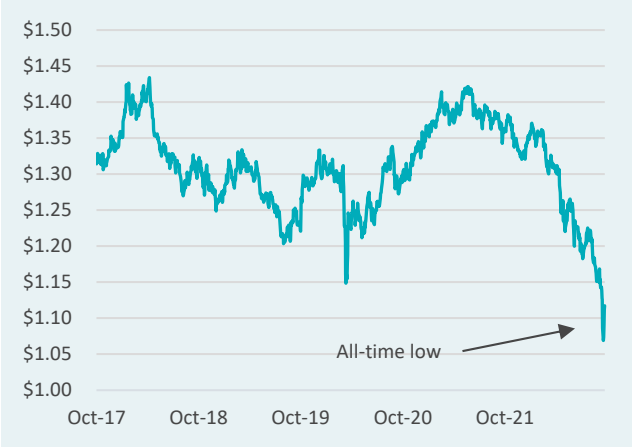
Source: Bloomberg, as of 10/4/22

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.

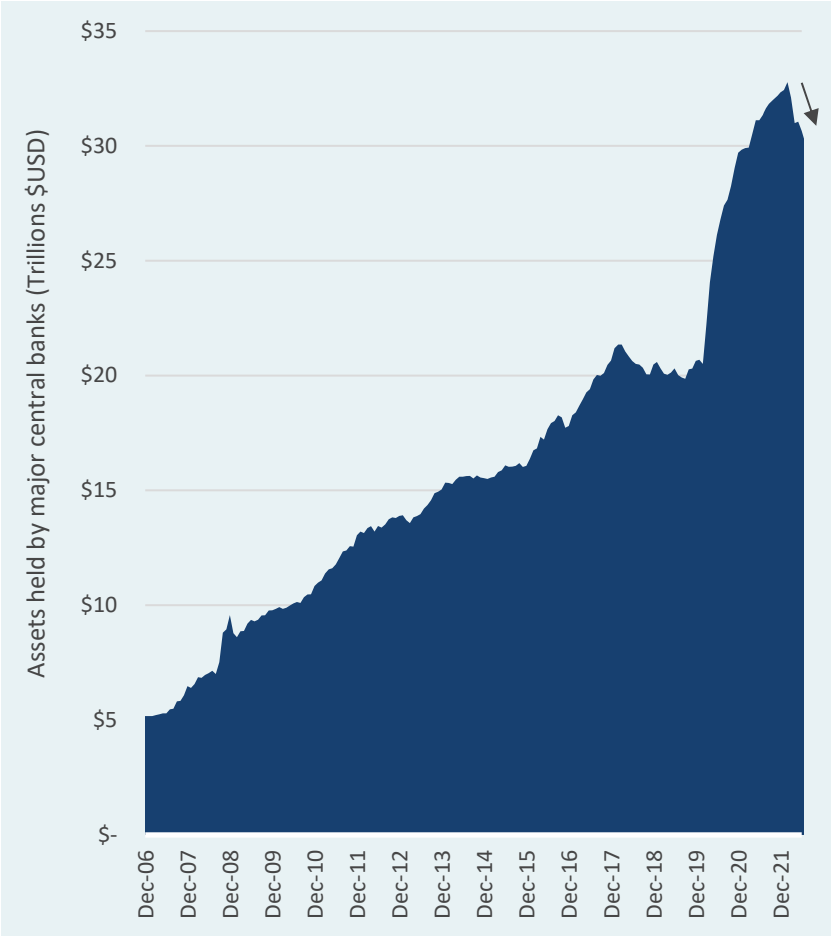
— Throughout the third quarter, the Federal Reserve continued its path to reduce the balance sheet, beginning in June with the paced redemption of maturing securities. The initial June monthly redemption caps of $30 billion for Treasuries and $17.5 billion for agency MBS were increased to $60 billion 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.

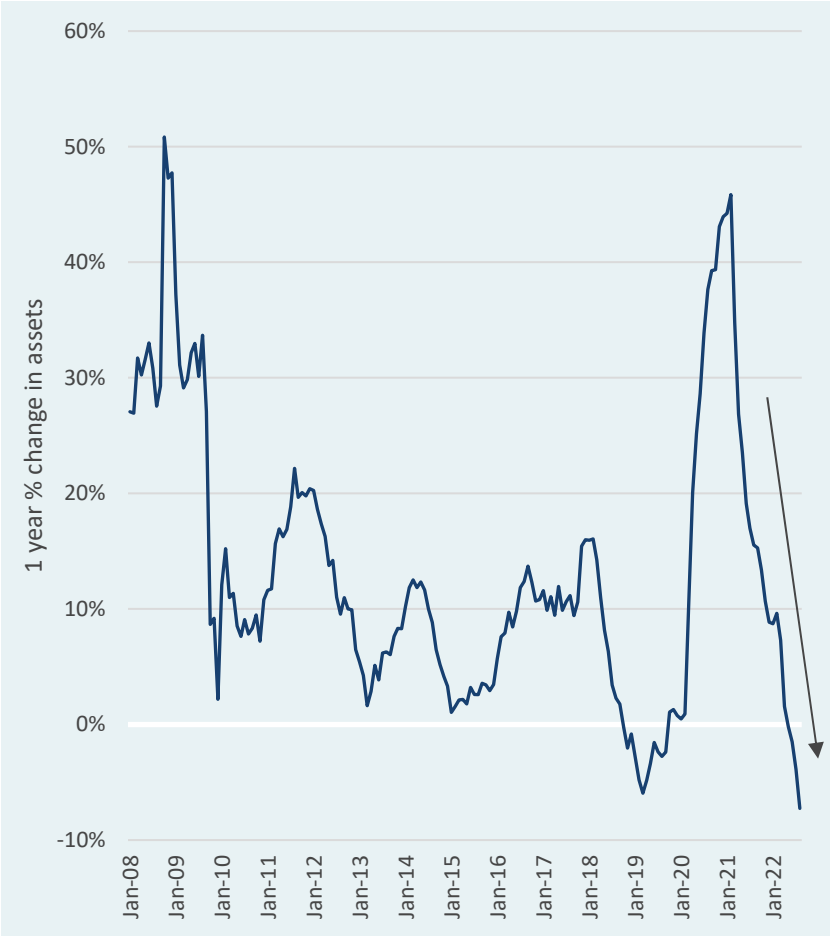
	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.8%)	(14.6%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(4.5%)	(14.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(4.3%)	(12.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(0.6%)	(14.1%)
Bank Loans (S&P/LSTA 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



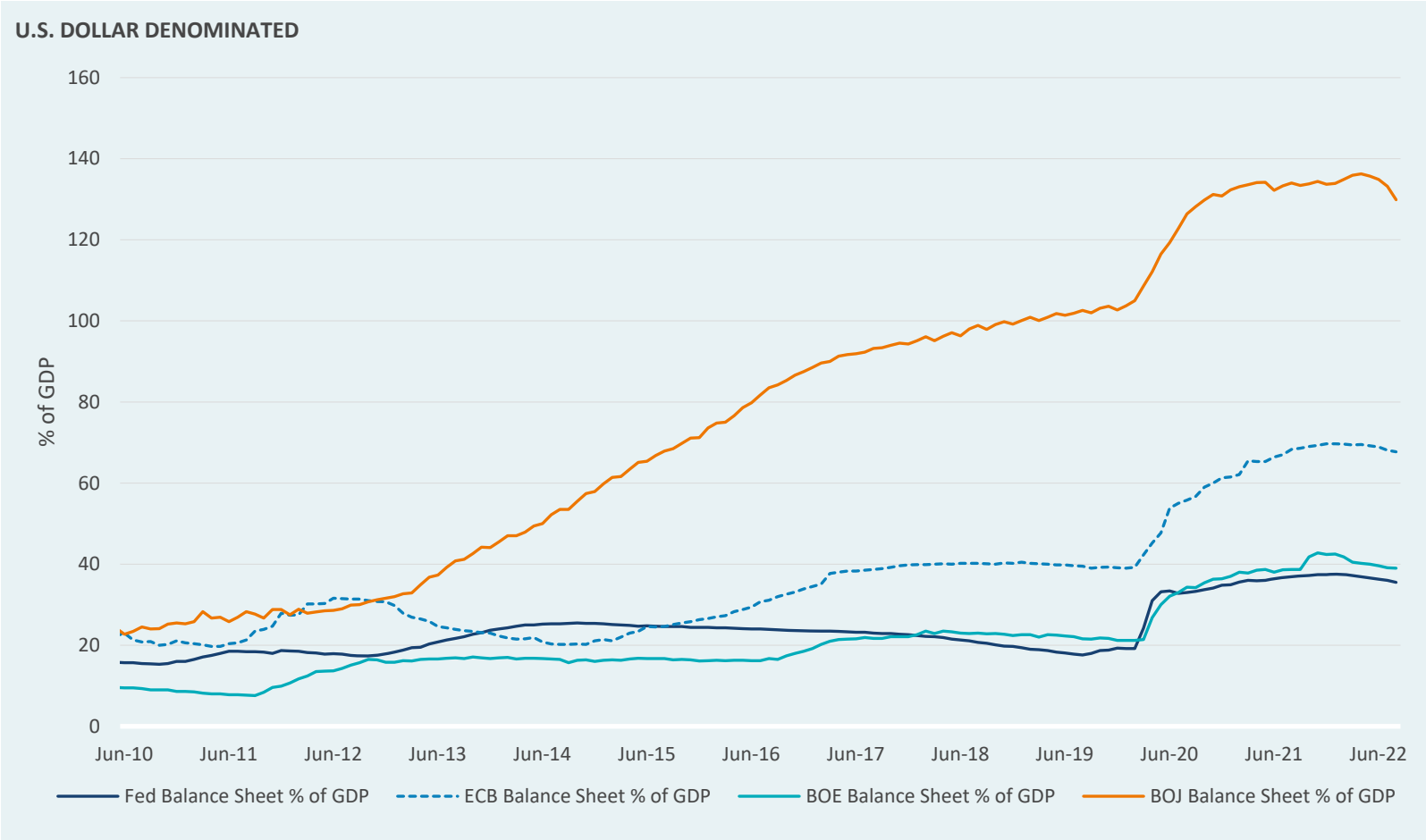


Markets are entering an unusual time of mass central bank asset roll-off

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



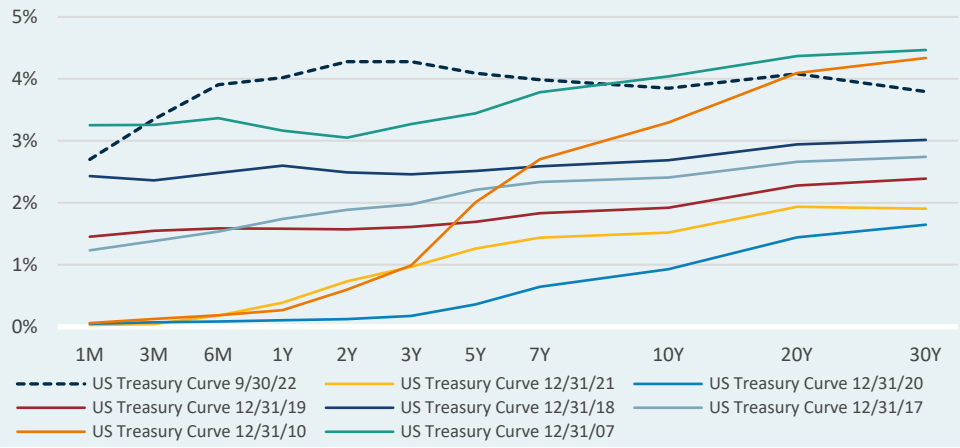
Central banks have accumulated very large balance sheets

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

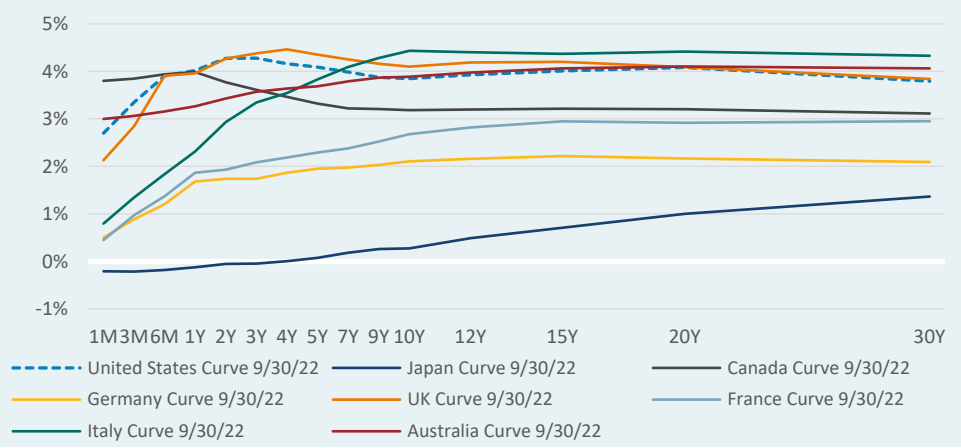
Source: Bloomberg, Verus, as of 9/30/22

Yield environment

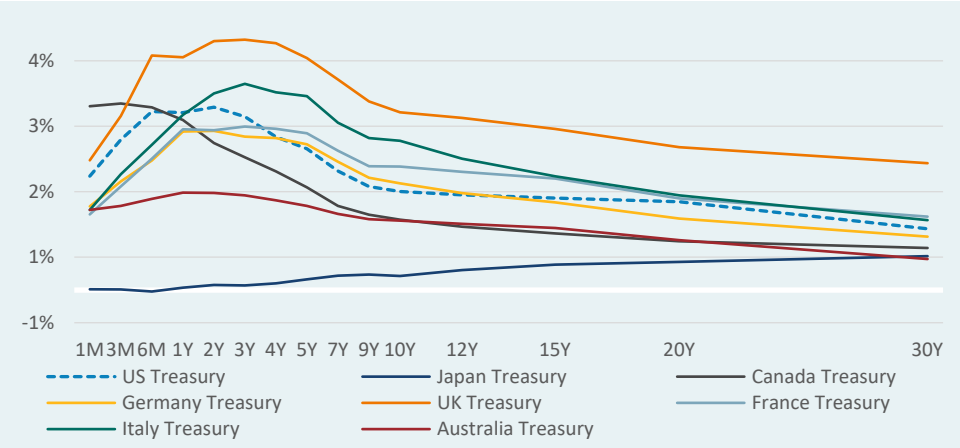
U.S. YIELD CURVE



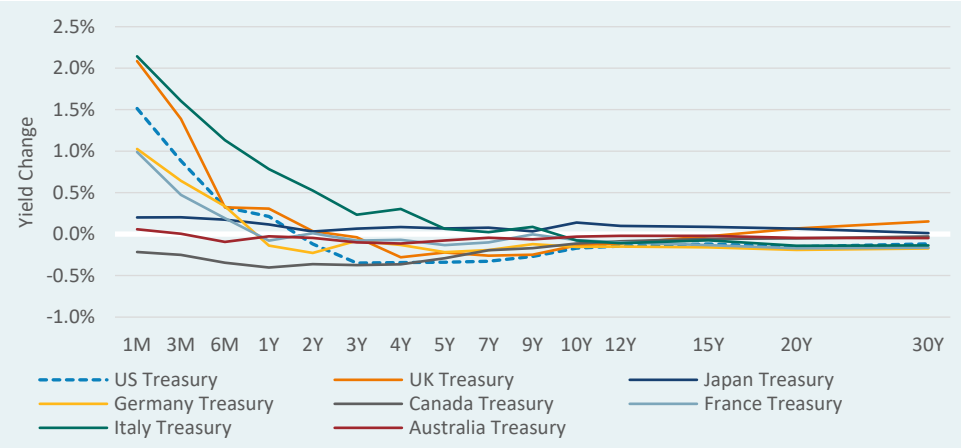
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/22

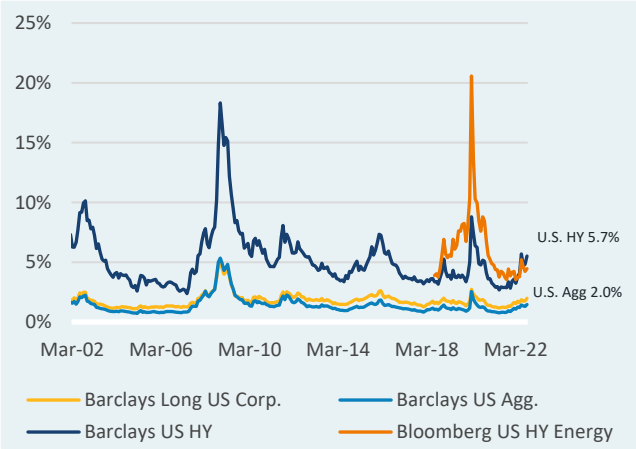
Credit environment

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.

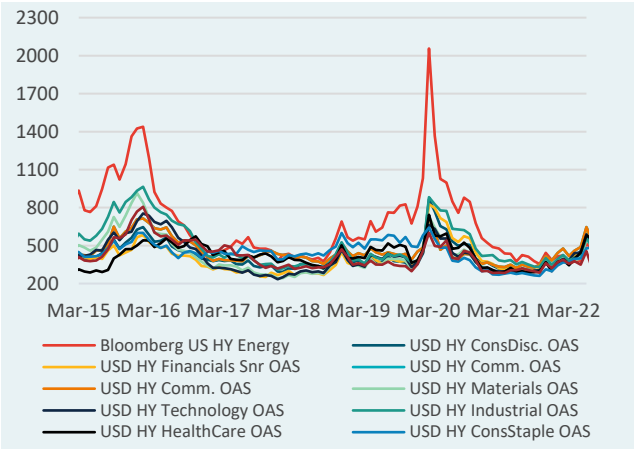
Over the course of the year, total yields have risen significantly within credit markets with the Bloomberg US High Yield Index now at 9.7%—almost double the levels of 4.9% seen at the start the year. Similarly, the yield of the Bloomberg US Corporate Investment Grade Index was 5.7%, up from 2.4% at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

	Credit Spread (OAS)	
Market	**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)*

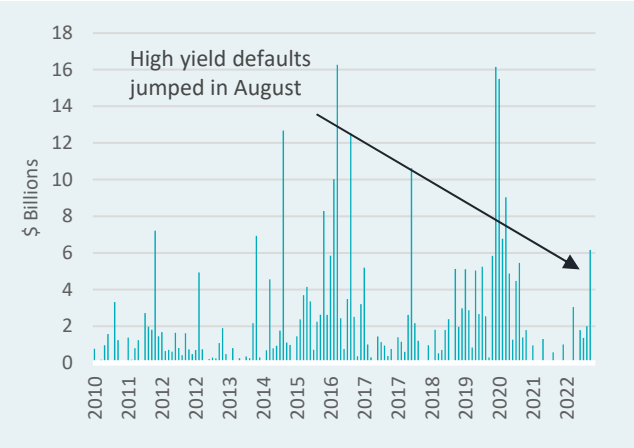
Default & issuance

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 defaults 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.

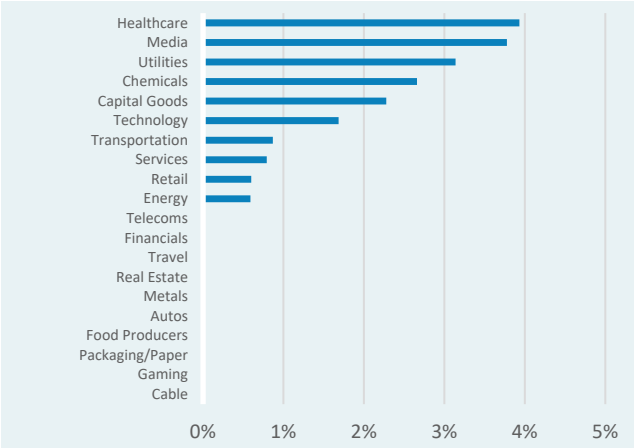
Leveraged credit issuance remained very light, which was consistent with the weaker trend of 2022. The third quarter total of $18.9 billion issued in high yield bonds marked the lightest issuance since the first quarter of 2009. A similar effect was observed in the bank loans market, which totaled $24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



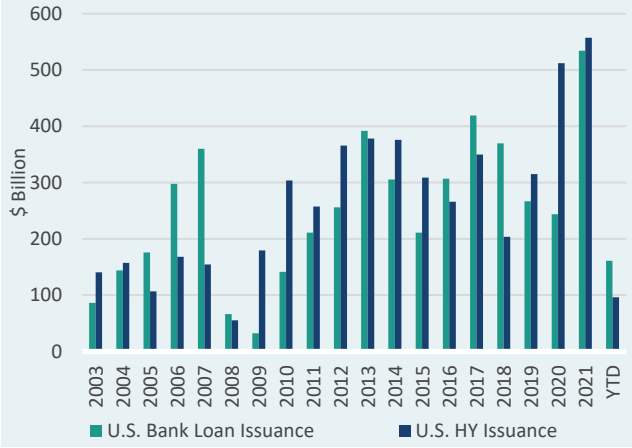
Source: BofA Merrill Lynch, as of 9/30/22

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%).

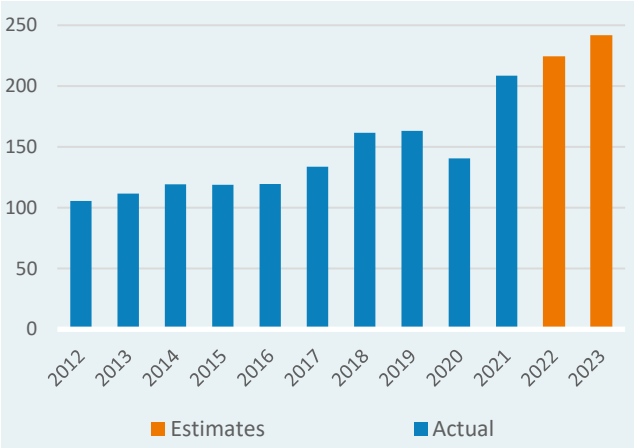
Earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023, though these forecasts have been consistently revised lower for three consecutive quarters. The energy sector continues to lift the earnings growth of the S&P 500, as overall growth would have been negative 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

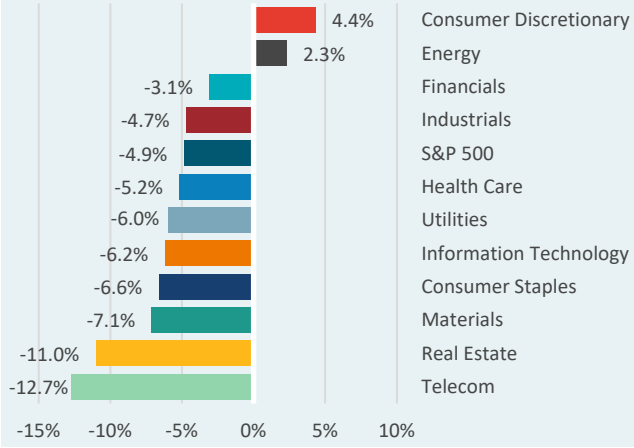
Source: Standard & Poor's, as of 9/30/22

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

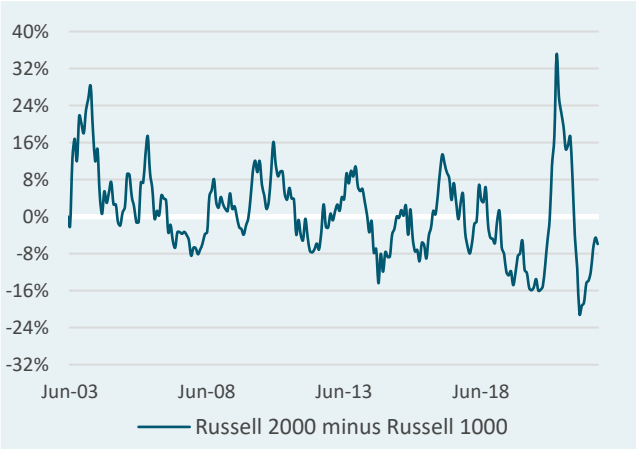
Reversing the trend from last quarter, growth stocks outperformed value stocks, although the divergence was relatively mild (Russell 1000 Growth -3.6% vs. Russell 1000 Value -5.6%). Growth outperformed despite struggles within the Telecommunications and Information Technology sectors (-12.7% and -6.2%), 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.

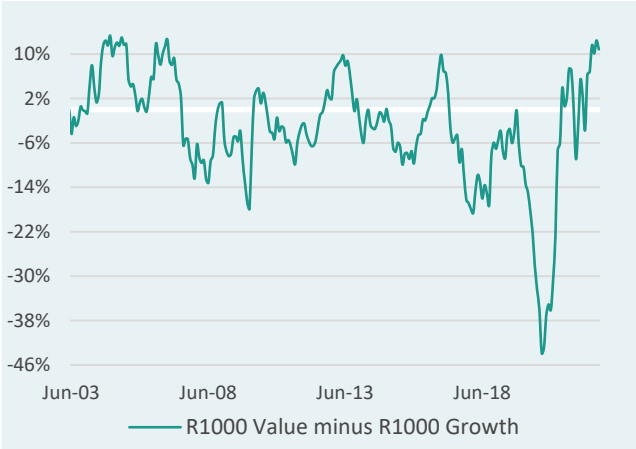
Domestic equities have continued to be challenged regardless of size and style, as investors weigh the impacts of a tighter economic environment on company earnings.

SMALL CAP VS LARGE CAP (YOY)



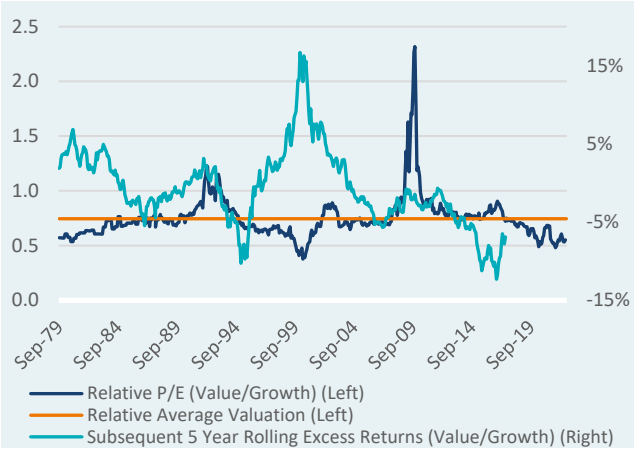
Source: FTSE, as of 9/30/22

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.

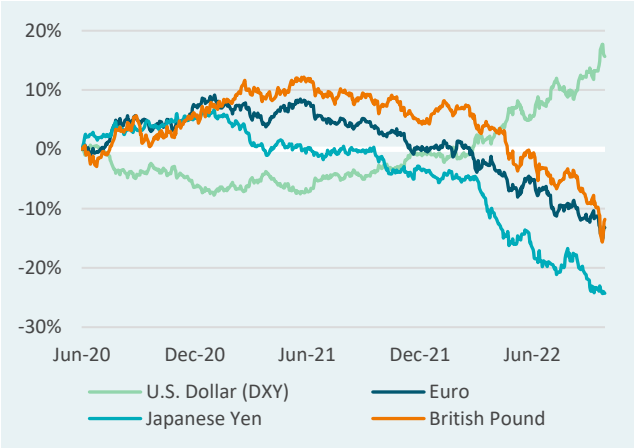
Looking at sub-regional performance, Japanese equities were the best performing markets in local terms, being one of the few asset classes with positive Q3 return (+0.2%). Despite strong local returns, diverging rate policy between the BOJ and Federal Reserve has crushed the Japanese yen, resulting in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

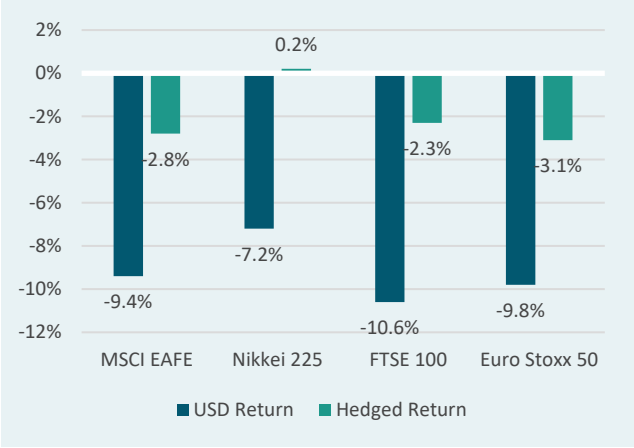
Source: MSCI, as of 9/30/22

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

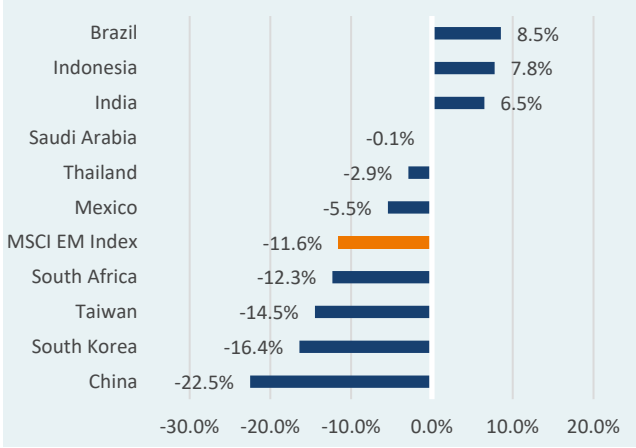
Source: MSCI, as of 9/30/22

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)



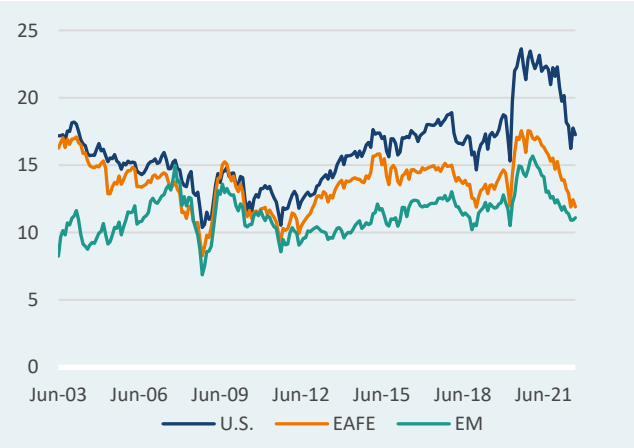
Source: Bloomberg, MSCI as of 9/30/22, performance in USD terms

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.

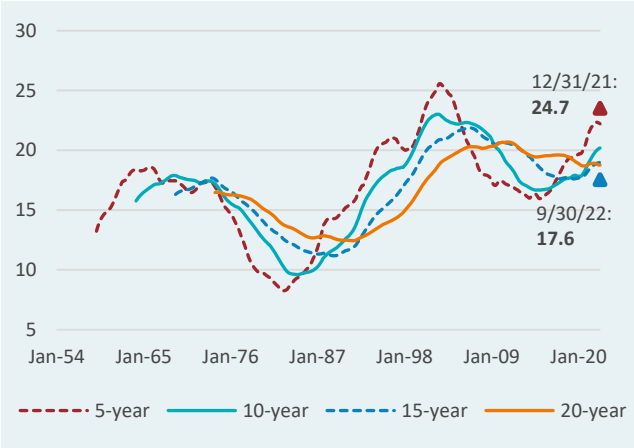
Domestic earnings were challenged in the second quarter. Businesses faced higher costs, large currency impacts, and a more budget-constrained consumer. While blended earnings grew at a 6.7% clip from the previous year, excluding the energy sector would bring that earnings figure down to -3.7%, per FactSet.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



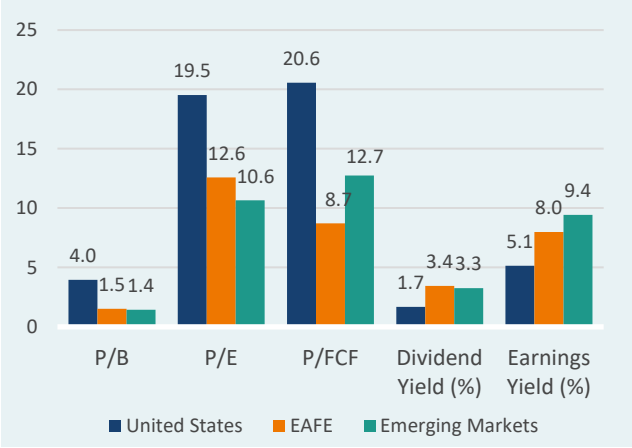
Source: MSCI, 12m forward P/E, as of 8/31/22

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

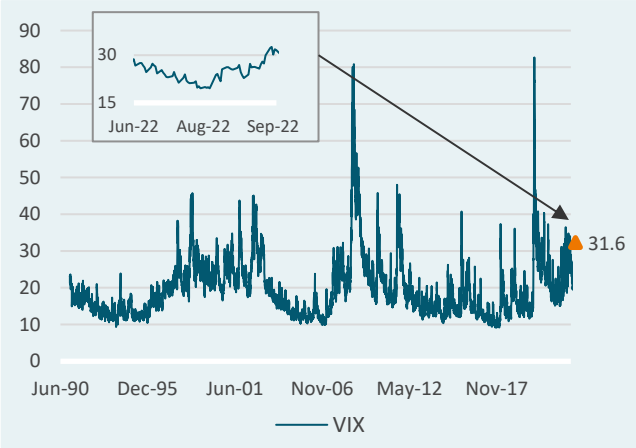
Equity volatility

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.

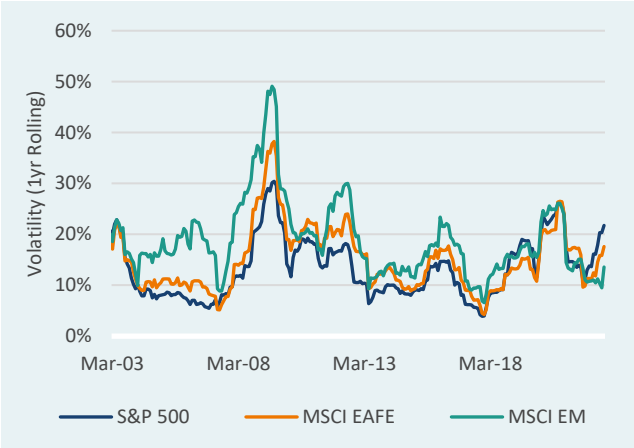
The current bear market has been particularly painful given the broadness of the selloff across equity fixed income, and real assets. Currency markets also moved against investors, with U.S. dollar appreciation delivering large losses for those with unhedged international asset exposure. Commodities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

U.S. IMPLIED VOLATILITY (VIX)



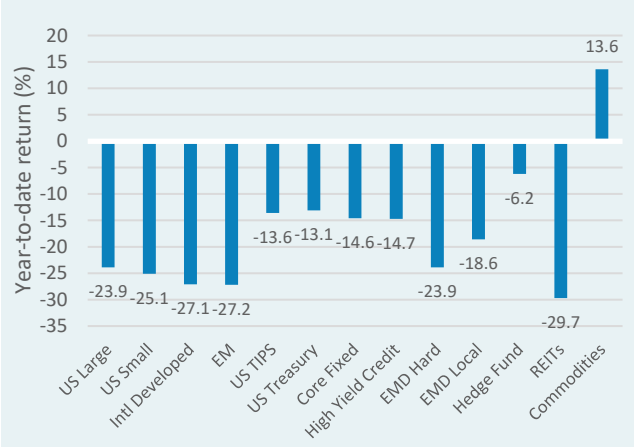
Source: Cboe, as of 9/30/22

REALIZED VOLATILITY



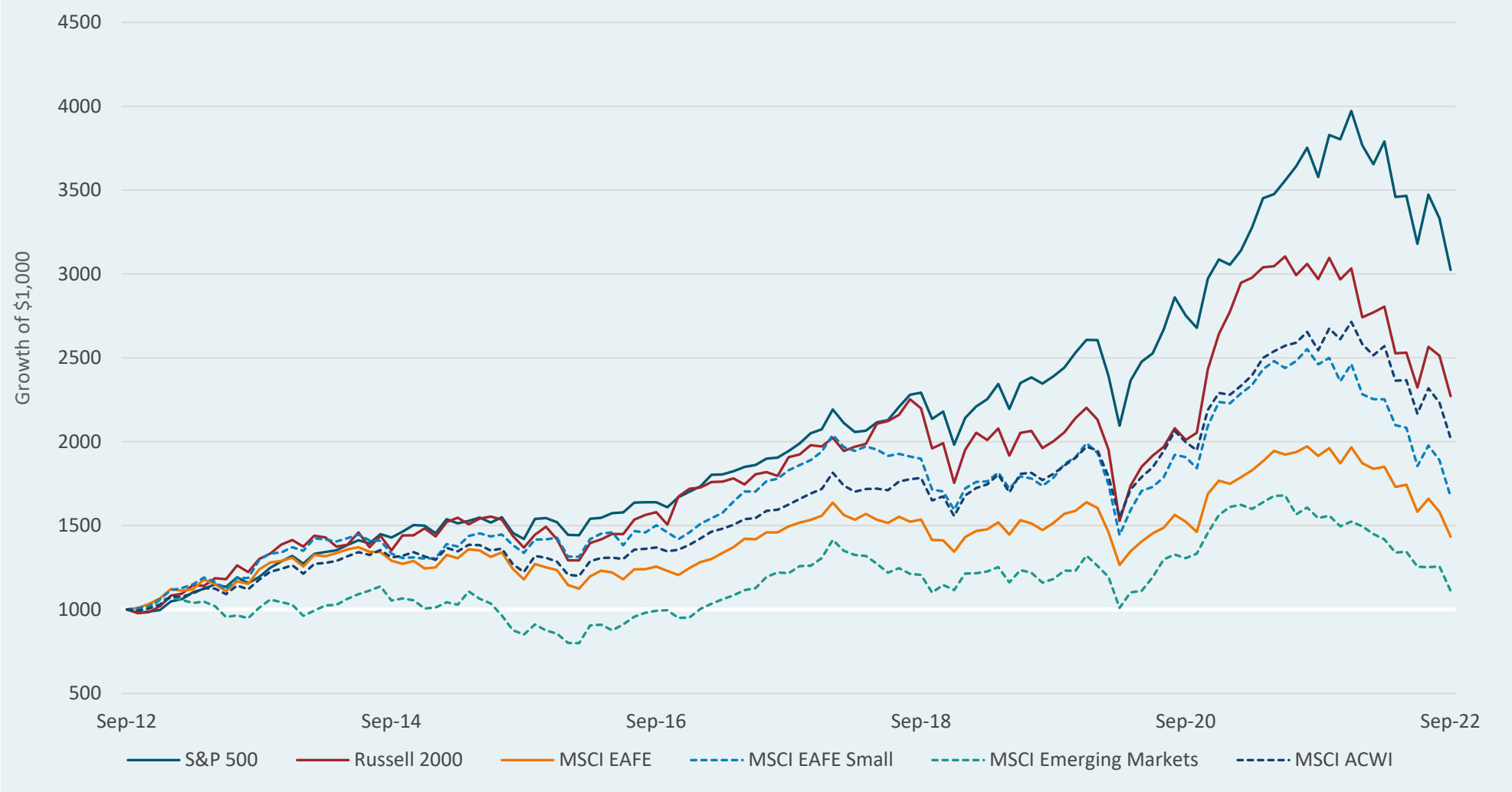
Source: Standard & Poor's, MSCI, as of 9/30/22

BROAD SELLOFF



Source: MPI, as of 9/30/22

Long-term equity performance



Source: Morningstar, as of 9/30/22

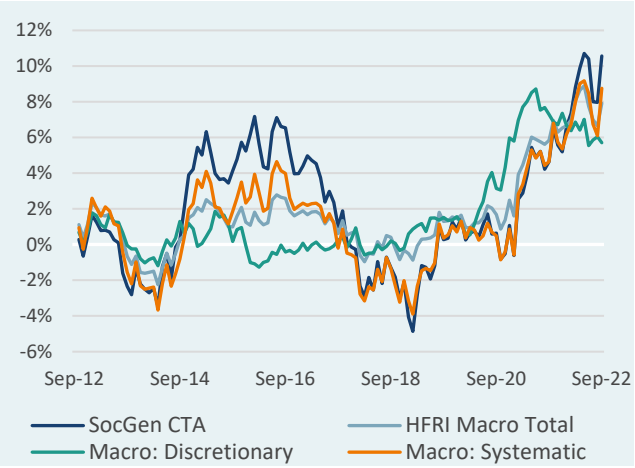
Other assets

Asymmetric macro strategies

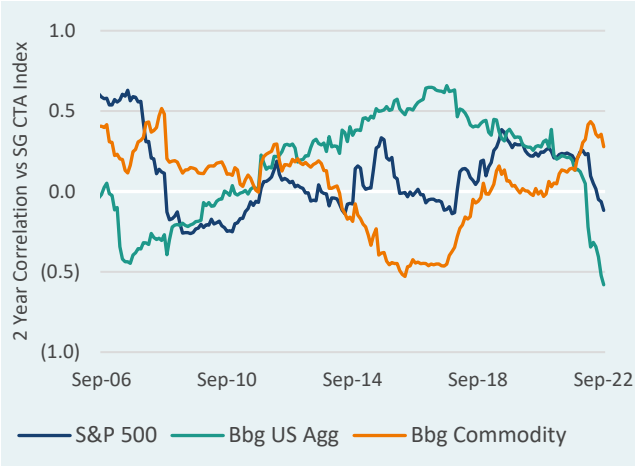
Macro strategies have been the top performing hedge fund strategy since 2021. Both parts of the Macro universe—Discretionary and Systematic—have done extremely well over the last 12-18 months. Systematic strategies have benefitted from strong trend following performance, which has returned to favor after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

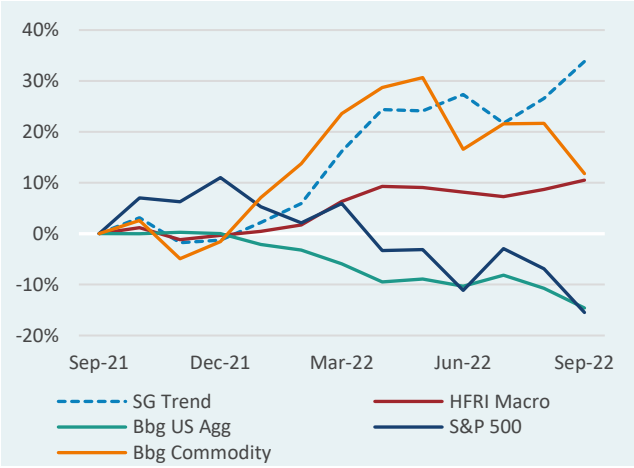
3 YEAR ROLLING RETURN FOR MACRO FUNDS



CTA FUNDS CORRELATION TO MARKETS



CUMULATIVE RETURN LAST 12 MONTHS



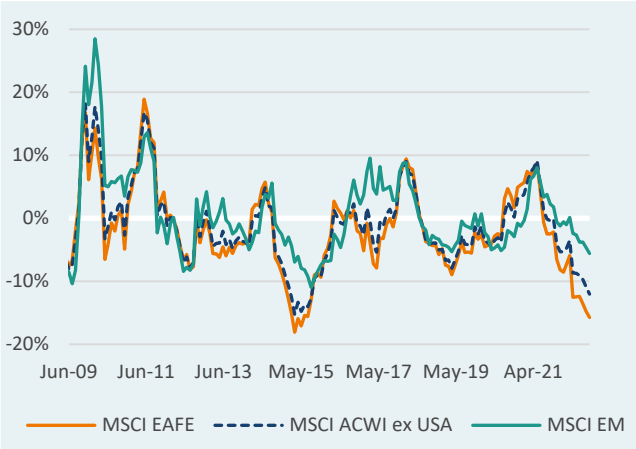
Source: HFR, MPI, Morningstar, SocGen, data as of 9/30/22

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.

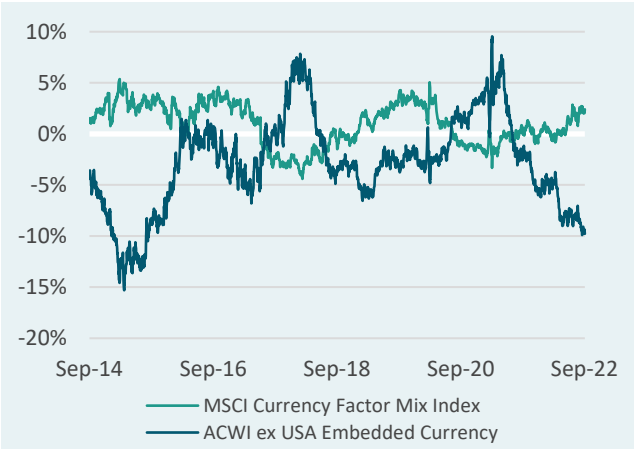
We continue to believe that forward-thinking currency solutions can materially improve portfolio outcomes. Specifically, a currency program may allow an investor to reduce their portfolio risk while also increasing the expected return of the portfolio. These characteristics are demonstrated below by 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)



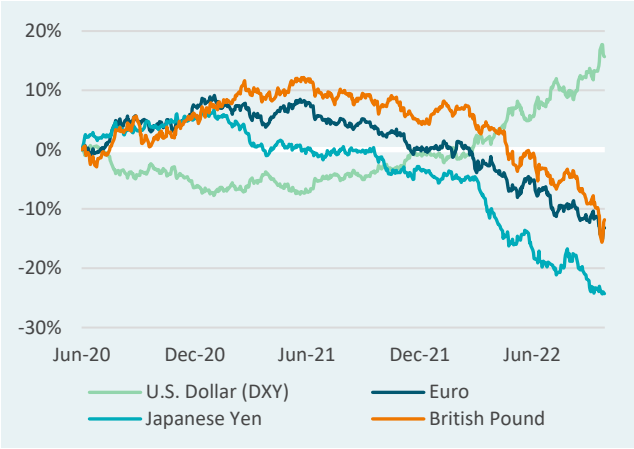
Source: MSCI, as of 9/30/22

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

BEST ↑ ↓ WORST

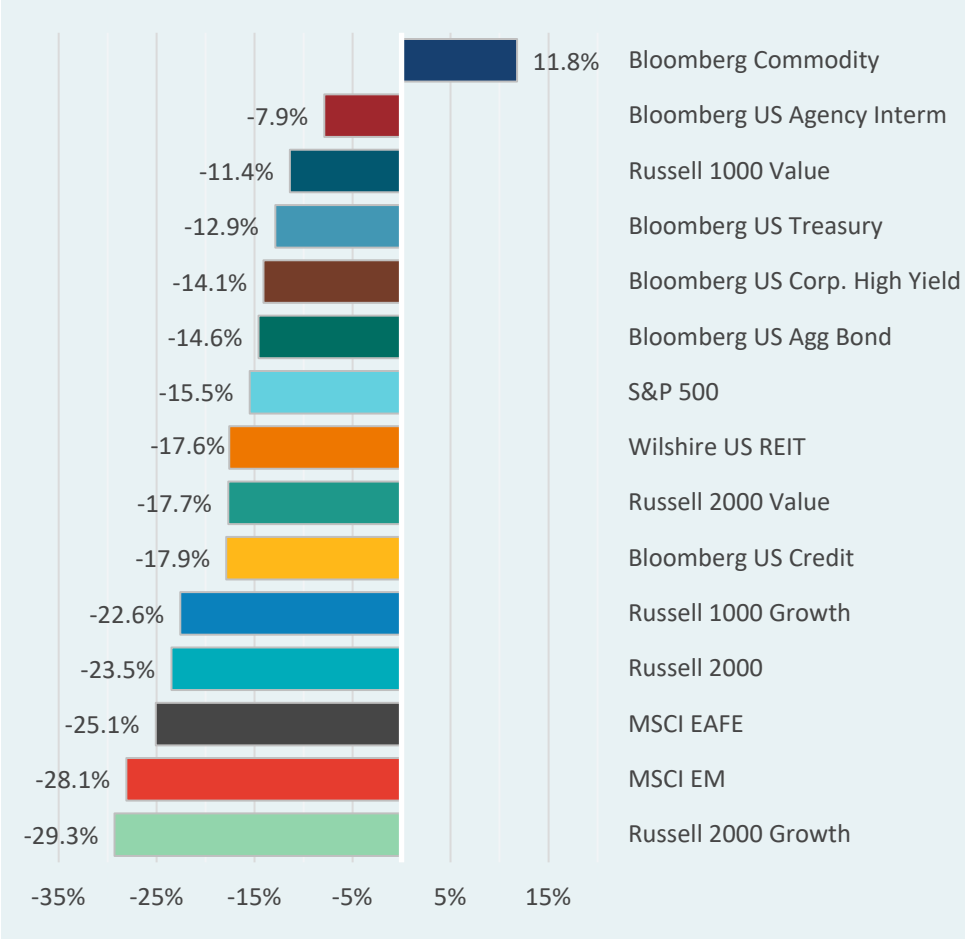
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	5-Year	10-Year
Commodities	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	28.3	13.6	12.2	13.7
Real Estate	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	27.6	8.7	9.0	11.6
Cash	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	27.1	0.6	8.9	9.7
Hedge Funds of Funds	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	26.5	-5.9	7.0	9.2
Large Cap Value	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	25.2	-14.6	5.3	8.8
US Bonds	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	17.7	-17.8	3.6	8.6
Small Cap Value	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	14.8	-21.1	3.6	7.9
60/40 Global Portfolio	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	11.3	-23.3	3.3	4.1
Large Cap Equity	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	8.9	-24.6	2.9	3.7
Small Cap Equity	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	6.5	-25.1	2.0	3.6
Emerging Markets Equity	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	2.8	-27.1	1.1	1.0
International Equity	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	0.0	-27.2	-0.3	0.9
Small Cap Growth	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	-1.5	-29.3	-0.8	0.6
Large Cap Growth	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	-2.5	-30.7	-1.8	-2.1

- Large Cap Equity
- Large Cap Value
- Large Cap Growth
- Small Cap Equity
- Small Cap Value
- Small Cap Growth
- International Equity
- Emerging Markets Equity
- US Bonds
- Cash
- Commodities
- Real Estate
- Hedge Funds of Funds
- 60% MSCI ACWI/40% Bloomberg Global Bond

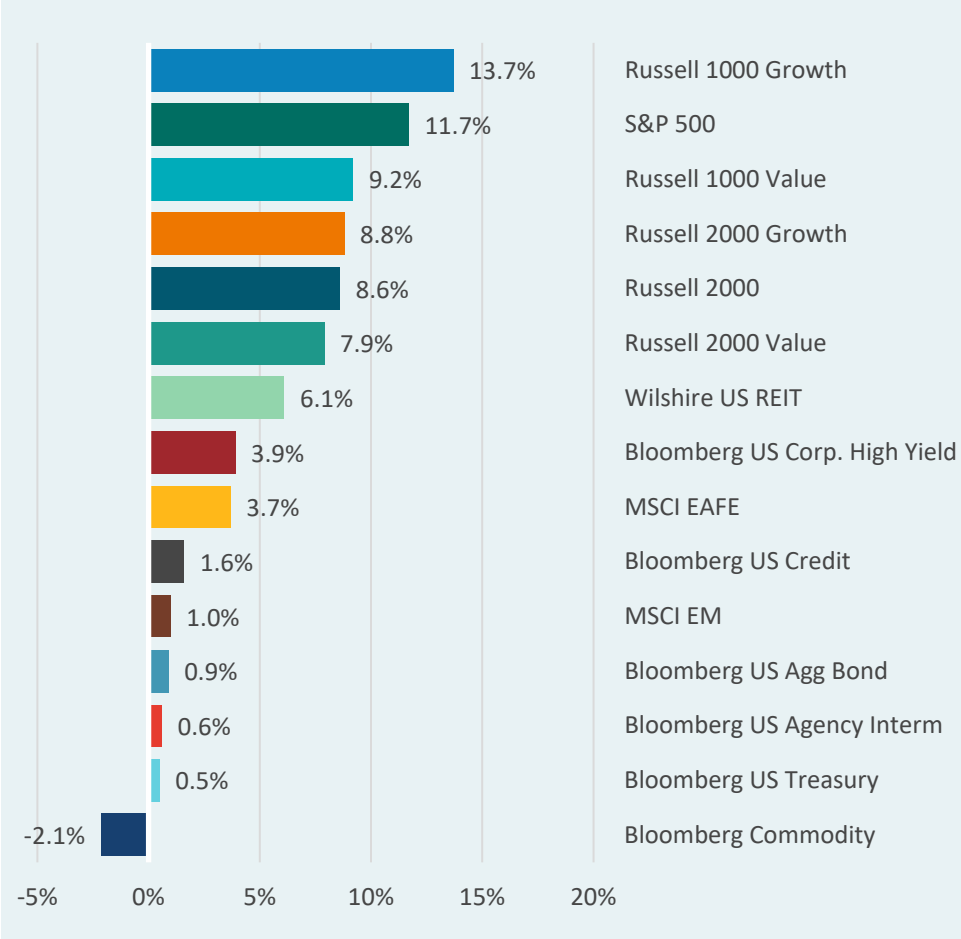
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill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



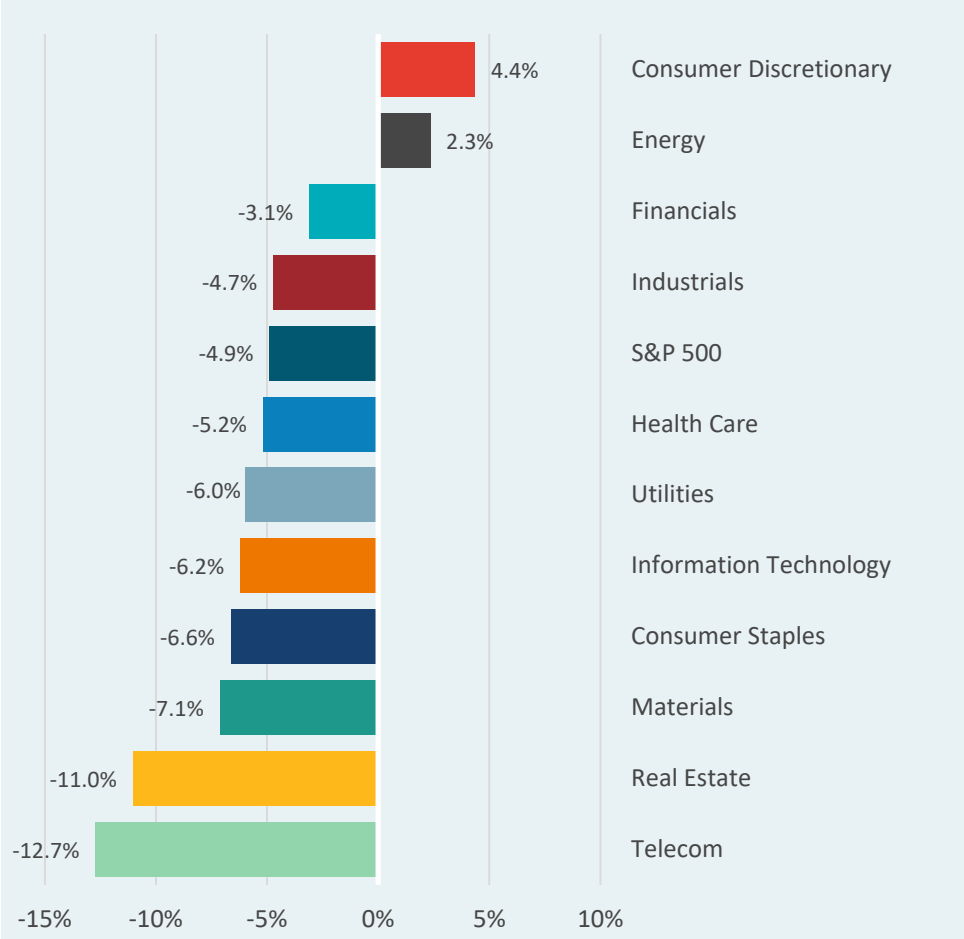
**Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.*

Source: Morningstar, as of 9/30/22

Source: Morningstar, as of 9/30/22

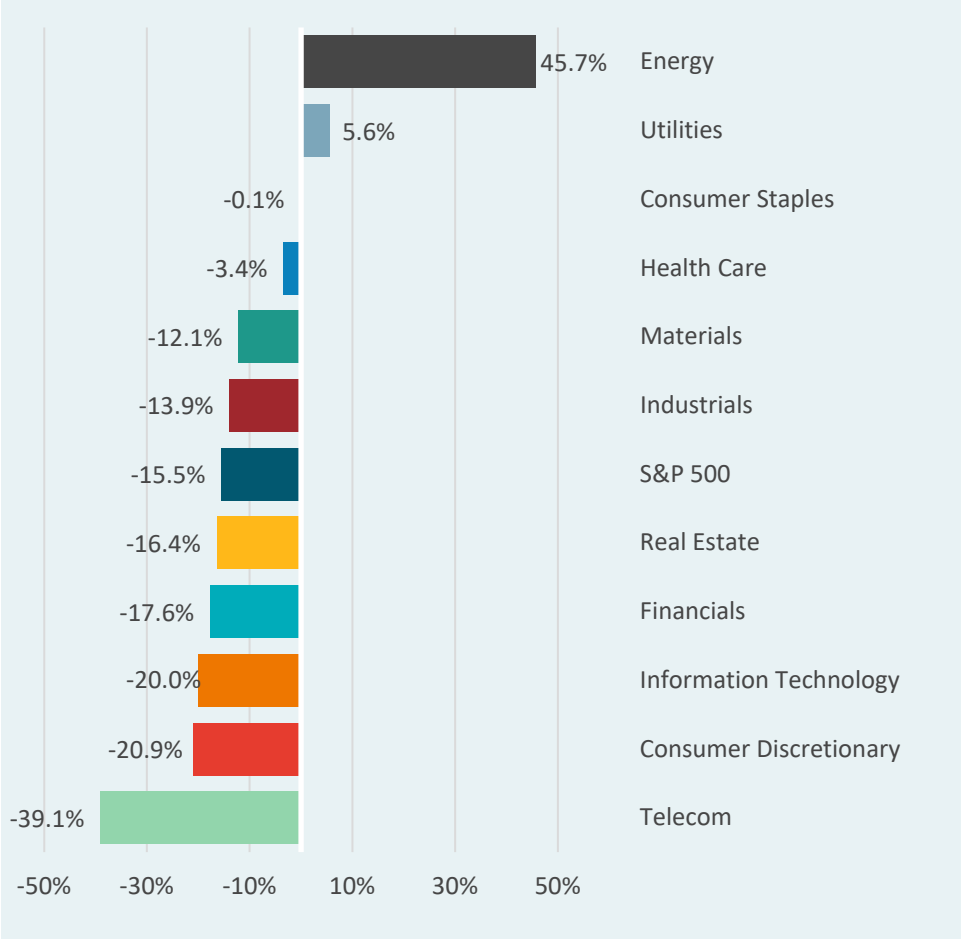
S&P 500 sector returns

QTD



Source: Morningstar, as of 9/30/22

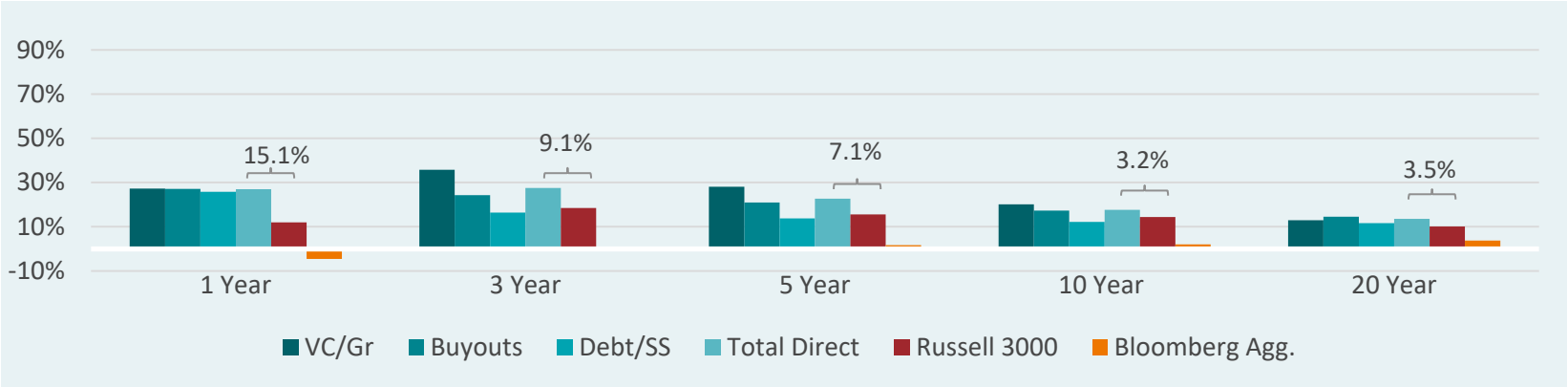
ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/22

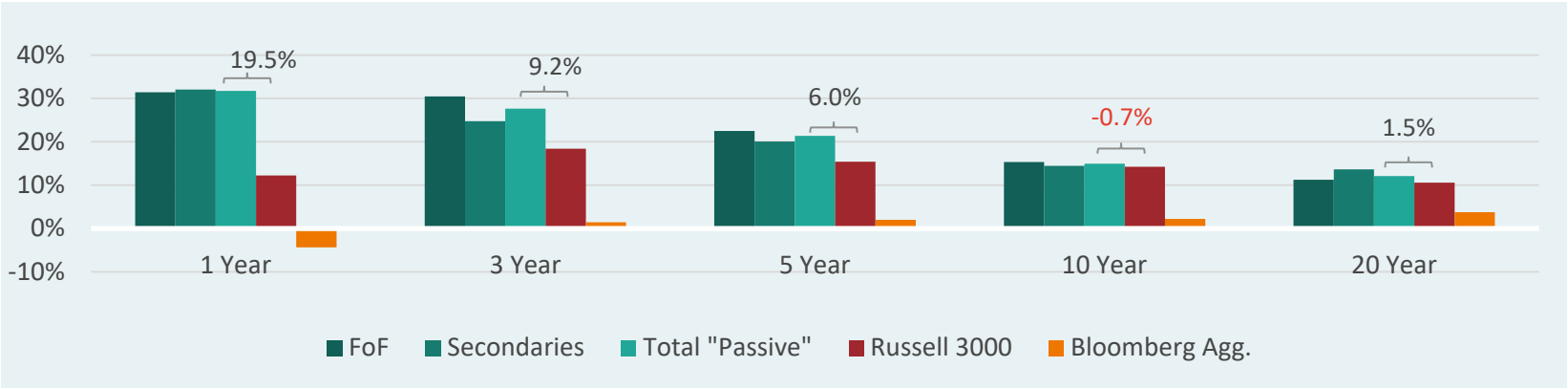
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



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

"PASSIVE" STRATEGIES

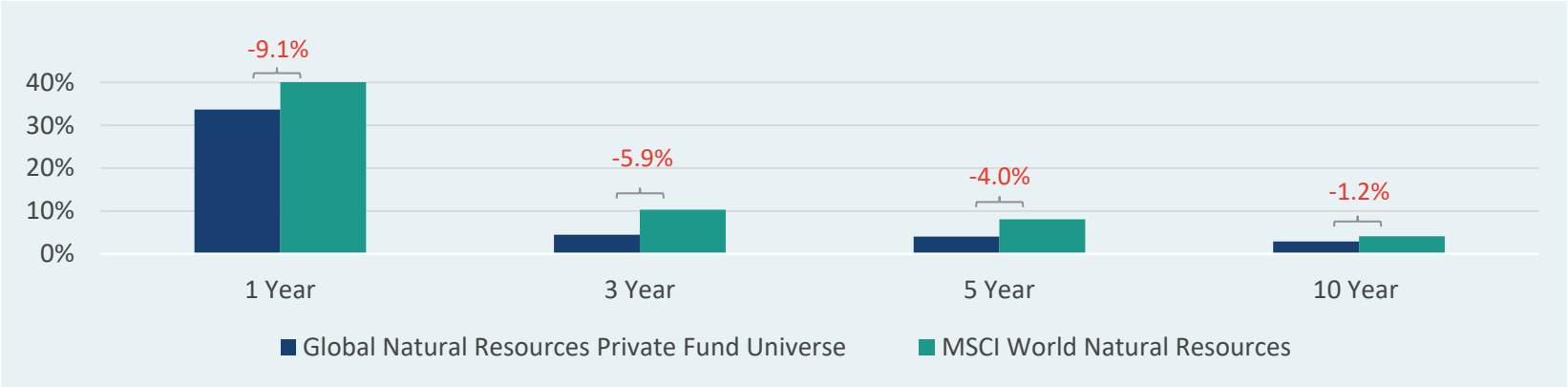


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

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.

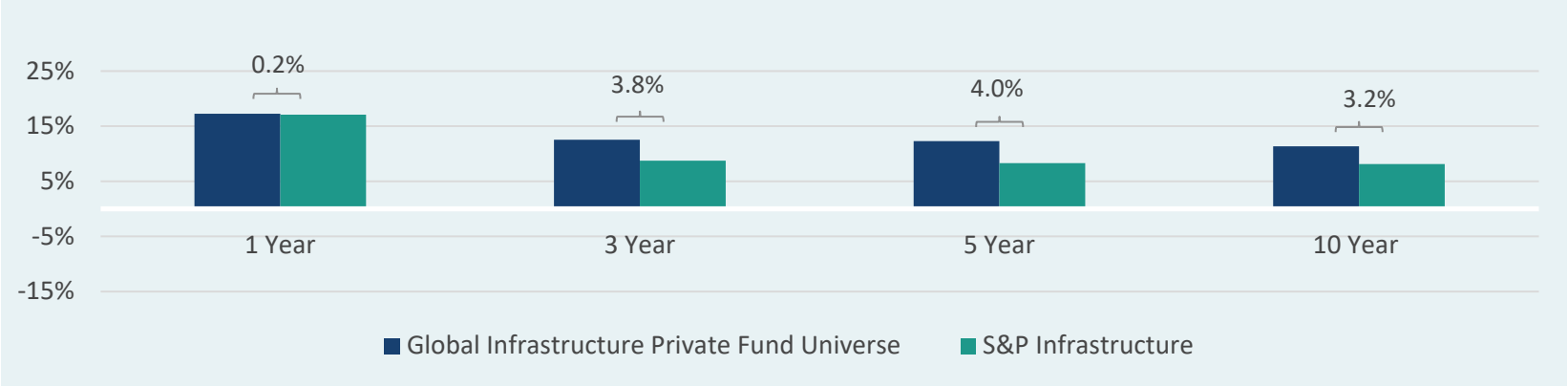
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS (N.R.)



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

GLOBAL INFRASTRUCTURE FUNDS

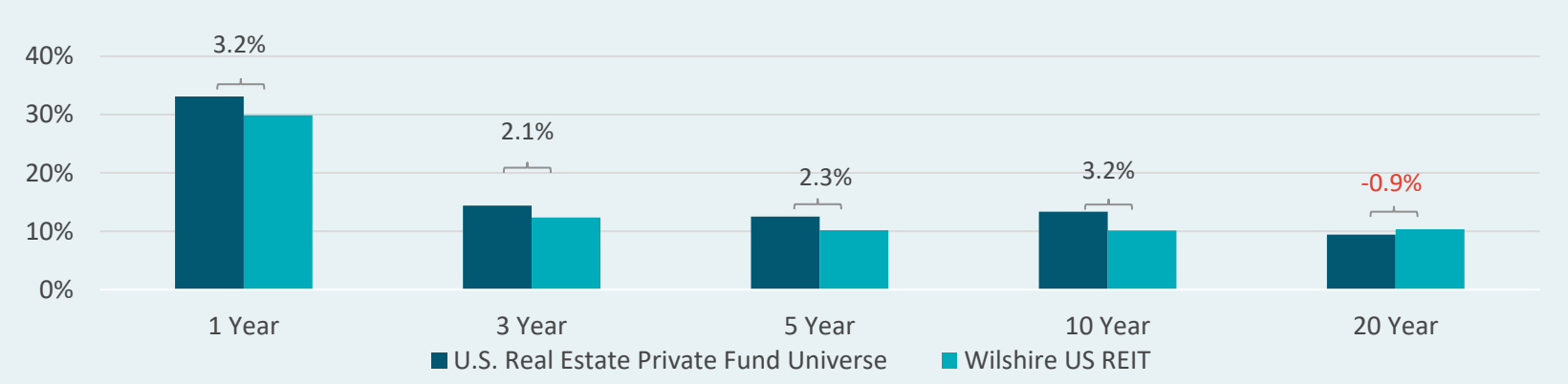


Infra. funds outperformed the S&P Infra. across all periods.

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.

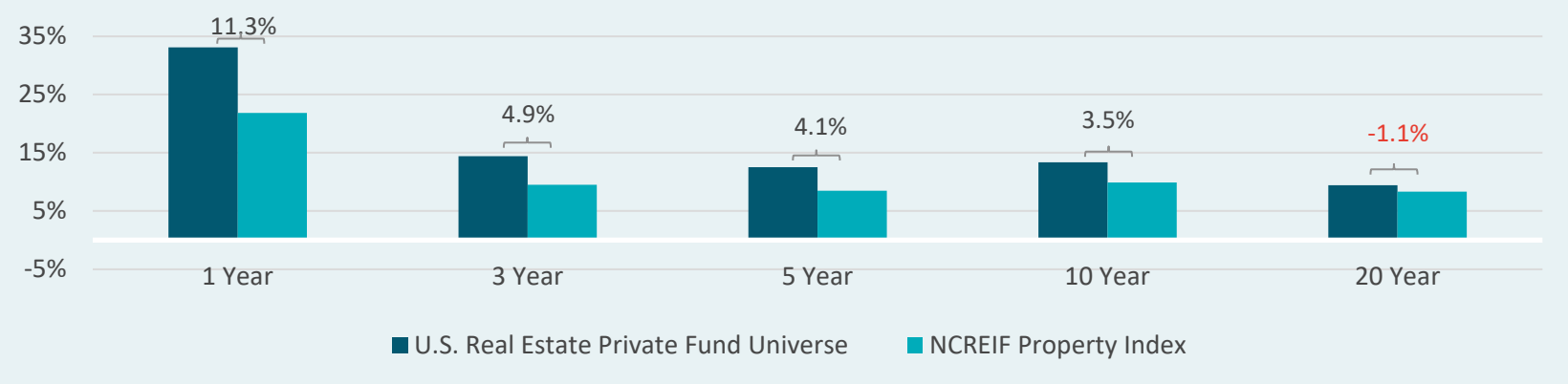
Private vs. liquid and core real estate performance

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.langerresearch.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 induces 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 "(Good-Poor + 100)/2" to the present and future sales series and "(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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Tulare County Employees' Retirement Association

Investment Performance Review

Period Ending: September 30, 2022

Verus®

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SEATTLE 206.622.3700
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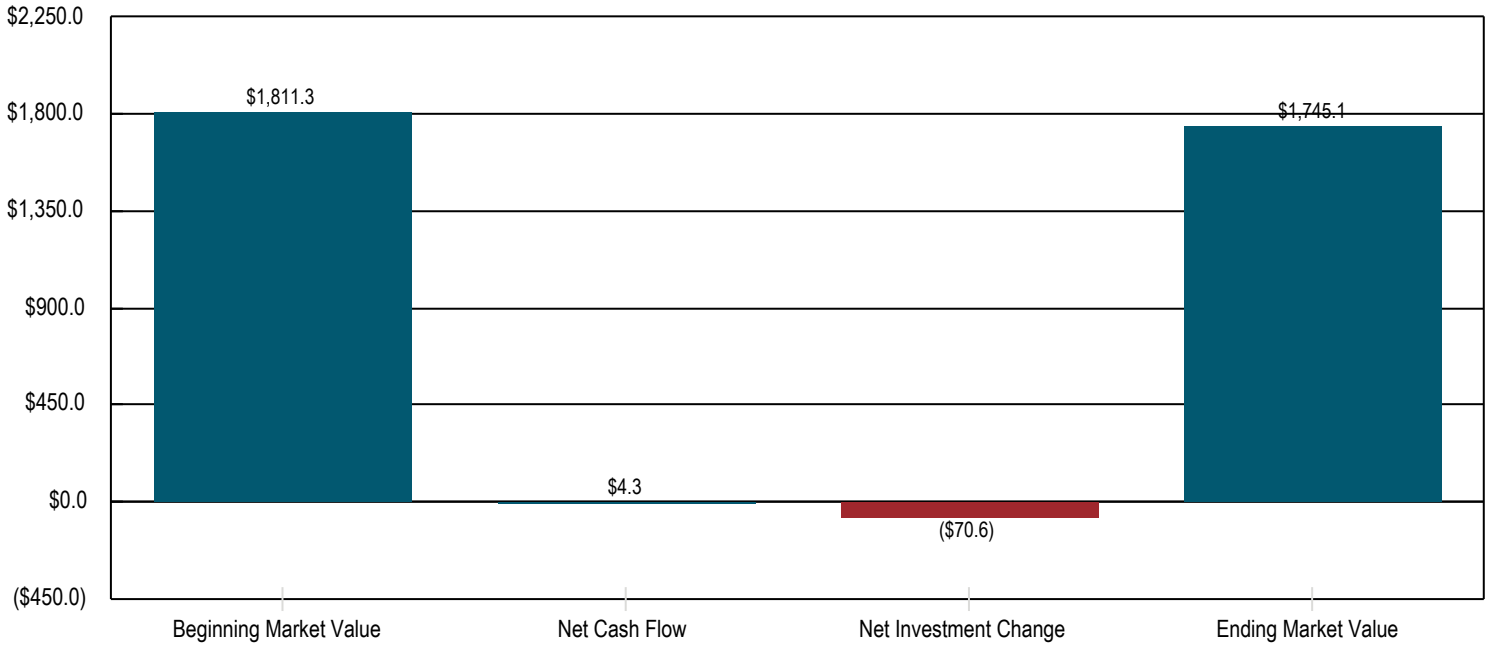
PITTSBURGH 412.784.6678
LOS ANGELES 310.297.1777
SAN FRANCISCO 415.362.3484

Portfolio Reconciliation

	3 Mo
Beginning Market Value	1,811,341,695
Net Cash Flow	4,290,507
Net Investment Change	-70,572,488
Ending Market Value	1,745,055,188

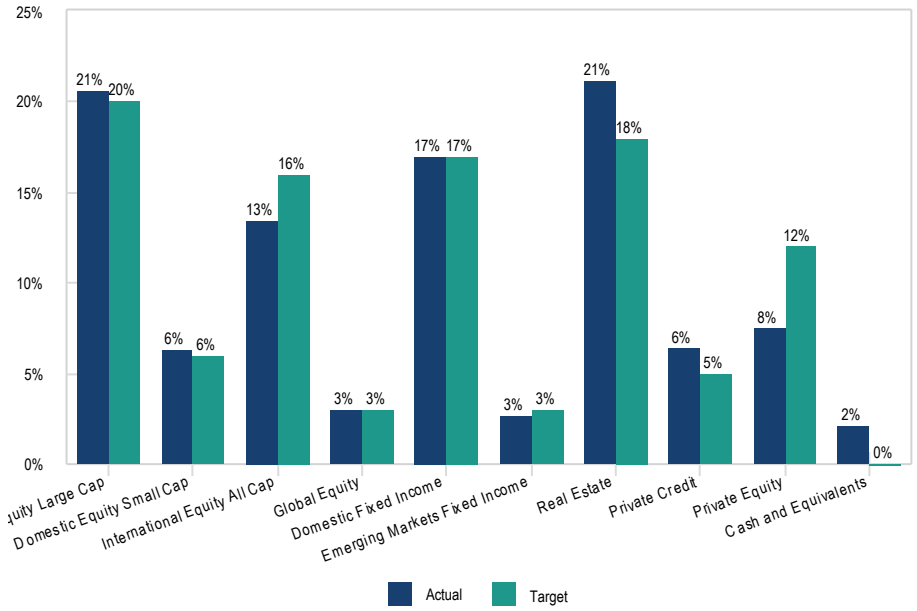
Change in Market Value
Last Three Months



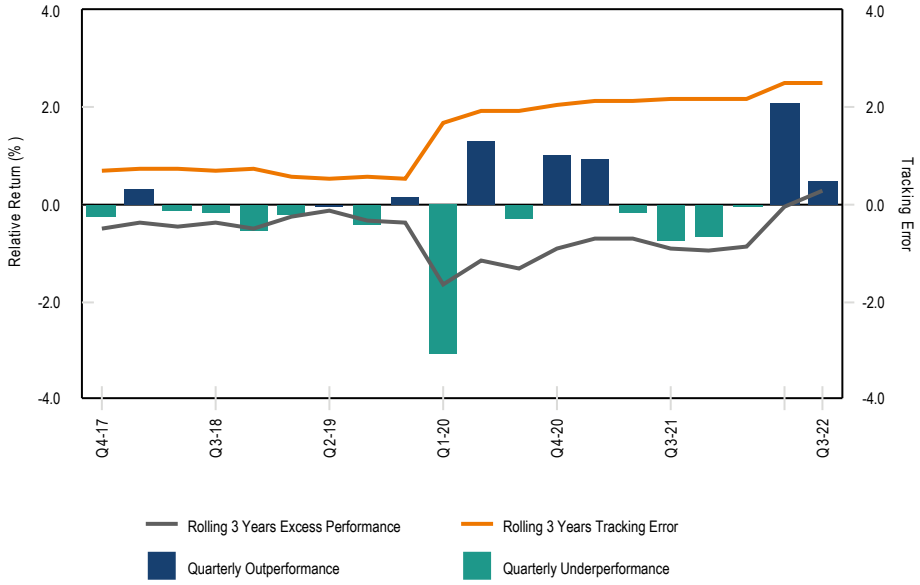
FY ends 6/30.

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs
Total Fund	**-4.0**	**-12.6**	**-9.0**	**4.2**	**4.5**	**5.9**	**4.0**
Policy Index	*-4.5*	*-15.0*	*-11.0*	*3.9*	*4.7*	*5.9*	*4.5*
All DB Public Plans >1B Rank	*54*	*24*	*27*	*66*	*70*	*83*	*98*
Total Domestic Equity	**-4.4**	**-24.1**	**-17.4**	**7.0**	**8.1**	**11.2**	**7.8**
Russell 3000 Index	*-4.5*	*-24.6*	*-17.6*	*7.7*	*8.6*	*11.4*	*7.9*
Total International Equity	**-8.9**	**-25.1**	**-24.3**	**0.2**	**0.4**	**4.0**	**0.1**
MSCI AC World ex USA Index	*-9.8*	*-26.2*	*-24.8*	*-1.1*	*-0.3*	*3.5*	*1.0*
Total Global Equity	**-7.1**	**-26.1**	**-19.3**	**5.8**	**4.2**	**-**	**-**
MSCI AC World Index	*-6.7*	*-25.3*	*-20.3*	*4.2*	*5.0*	*7.8*	*4.6*
Total Fixed Income	**-4.6**	**-16.0**	**-16.4**	**-4.5**	**-1.4**	**0.5**	**2.7**
Blmbg. U.S. Aggregate Index	*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*2.7*
Total Domestic Fixed Income	**-4.7**	**-15.4**	**-15.4**	**-3.1**	**-0.2**	**1.1**	**-**
Blmbg. U.S. Aggregate Index	*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*2.7*

Actual vs. Target Allocation (%)



Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index

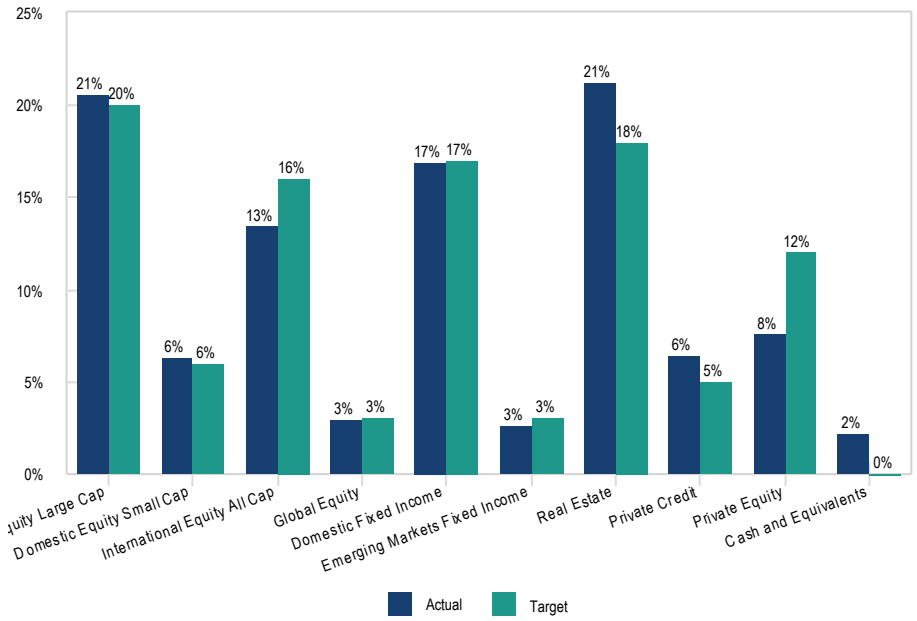


Policy Index as of 10/1/2021: 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 5% Russell 2000, 4.6% MSCI REIT Index, 7% Private Equity Returns, 5% Private Credit Returns. All return periods greater than 1-year are rolling annualized returns.

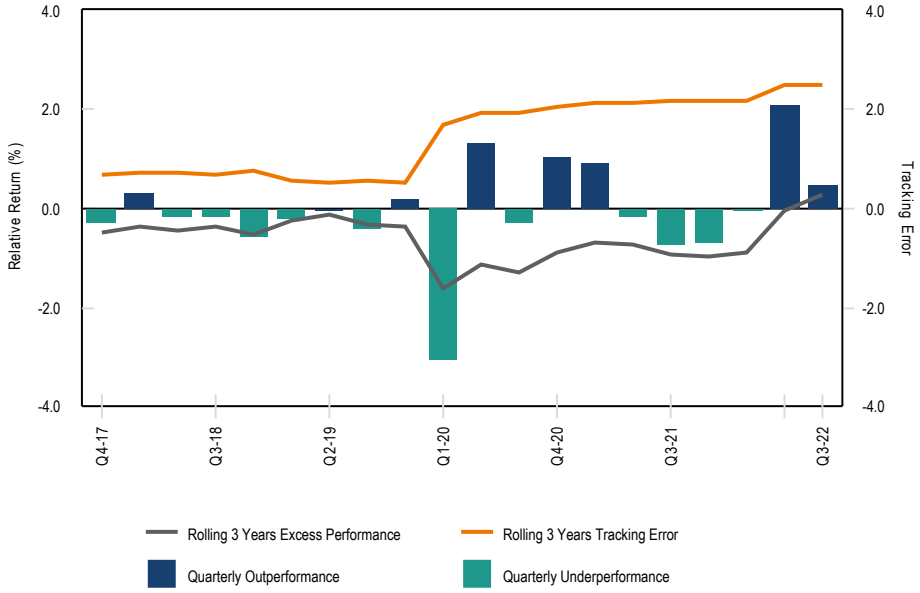
Verus

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs
Total Emerging Markets Fixed Income	**-3.7**	**-19.7**	**-21.2**	**-6.1**	**-**	**-**	**-**
50% JPM EMBI Global Div/ 50% JPM GBI EM Global Div	*-4.6*	*-21.3*	*-22.5*	*-7.1*	*-3.2*	*-0.6*	*2.6*
Total Real Estate	**-1.2**	**12.3**	**18.9**	**9.3**	**8.4**	**9.4**	**4.9**
NCREIF-ODCE	*0.5*	*13.1*	*22.1*	*12.4*	*10.2*	*10.9*	*6.7*
Total Private Equity	**0.4**	**13.8**	**20.9**	**23.6**	**21.3**	**16.1**	**-**
Private Equity Benchmark	*0.4*	*13.8*	*20.9*	*23.6*	*21.3*	*16.5*	*-*
Total Private Credit	**-3.4**	**0.6**	**3.6**	**7.2**	**8.4**	**-**	**-**
Private Credit Benchmark	*-3.4*	*0.6*	*3.6*	*7.2*	*8.4*	*-*	*-*
Total Opportunistic	**-4.5**	**-0.1**	**4.3**	**6.3**	**7.3**	**10.0**	**-**

Actual vs. Target Allocation (%)



Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



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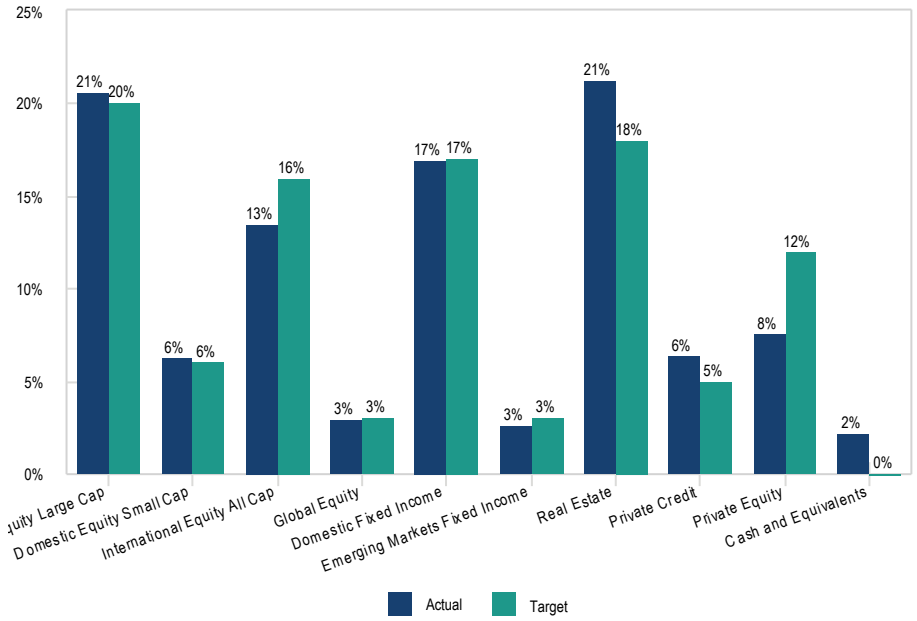
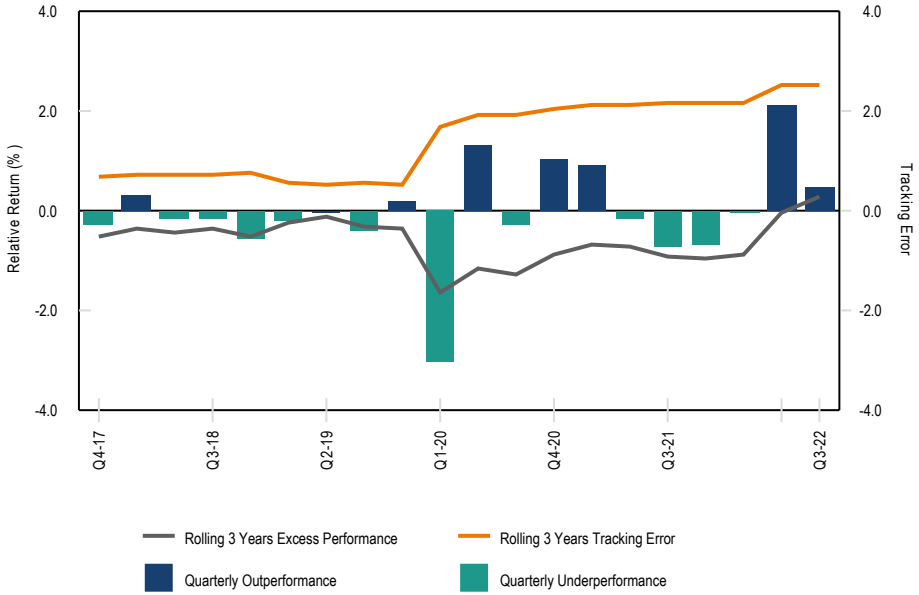
Verus

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs
Total Fund	**-3.9**	**-12.4**	**-8.8**	**4.4**	**4.8**	**6.3**	**4.3**
Policy Index	*-4.5*	*-15.0*	*-11.0*	*3.9*	*4.7*	*5.9*	*4.5*
Total Domestic Equity	**-4.3**	**-24.0**	**-17.3**	**7.3**	**8.4**	**11.6**	**8.2**
Russell 3000 Index	*-4.5*	*-24.6*	*-17.6*	*7.7*	*8.6*	*11.4*	*7.9*
Total International Equity	**-8.8**	**-24.9**	**-24.0**	**0.5**	**0.7**	**4.3**	**0.4**
MSCI AC World ex USA Index	*-9.8*	*-26.2*	*-24.8*	*-1.1*	*-0.3*	*3.5*	*1.0*
Total Global Equity	**-6.9**	**-25.6**	**-18.6**	**6.6**	**5.0**	**-**	**-**
MSCI AC World Index	*-6.7*	*-25.3*	*-20.3*	*4.2*	*5.0*	*7.8*	*4.6*
Total Fixed Income	**-4.5**	**-15.8**	**-16.2**	**-4.2**	**-1.1**	**0.8**	**3.0**
Blmbg. U.S. Aggregate Index	*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*2.7*
Total Domestic Fixed Income	**-4.6**	**-15.2**	**-15.2**	**-2.8**	**0.1**	**1.4**	**-**
Blmbg. U.S. Aggregate Index	*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*2.7*

Actual vs. Target Allocation (%)



Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index

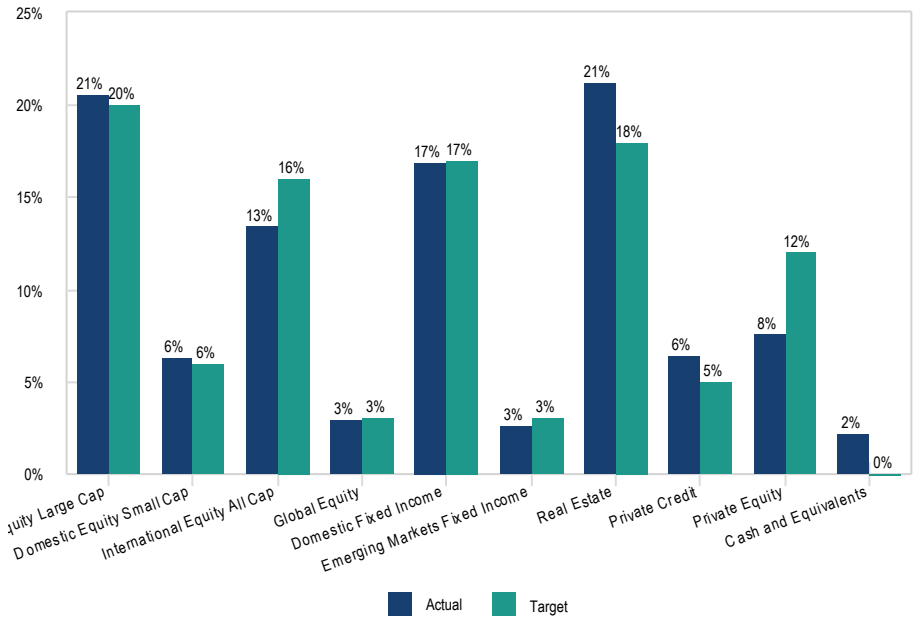


Policy Index as of 10/1/2021: 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 5% Russell 2000, 4.6% MSCI REIT Index, 7% Private Equity Returns, 5% Private Credit Returns. All return periods greater than 1-year are rolling annualized returns.

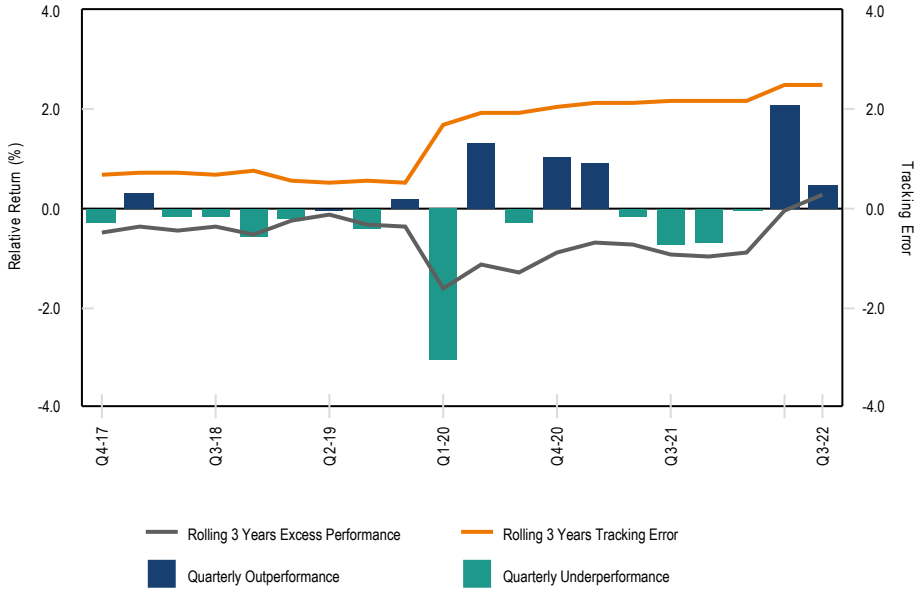
Verus

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs
Total Emerging Markets Fixed Income	**-3.6**	**-19.6**	**-21.0**	**-5.7**	**-**	**-**	**-**
50% JPM EMBI Global Div/ 50% JPM GBI EM Global Div	*-4.6*	*-21.3*	*-22.5*	*-7.1*	*-3.2*	*-0.6*	*2.6*
Total Real Estate	**-1.2**	**12.6**	**19.2**	**9.4**	**8.5**	**9.7**	**5.1**
NCREIF-ODCE	*0.5*	*13.1*	*22.1*	*12.4*	*10.2*	*10.9*	*6.7*
Total Private Equity	**0.4**	**13.8**	**20.9**	**23.6**	**21.3**	**16.5**	**-**
Private Equity Benchmark	*0.4*	*13.8*	*20.9*	*23.6*	*21.3*	*16.5*	*-*
Total Private Credit	**-3.4**	**0.6**	**3.6**	**7.2**	**8.4**	**-**	**-**
Private Credit Benchmark	*-3.4*	*0.6*	*3.6*	*7.2*	*8.4*	*-*	*-*
Total Opportunistic	**-4.3**	**0.4**	**4.8**	**6.5**	**7.4**	**10.6**	**-**

Actual vs. Target Allocation (%)



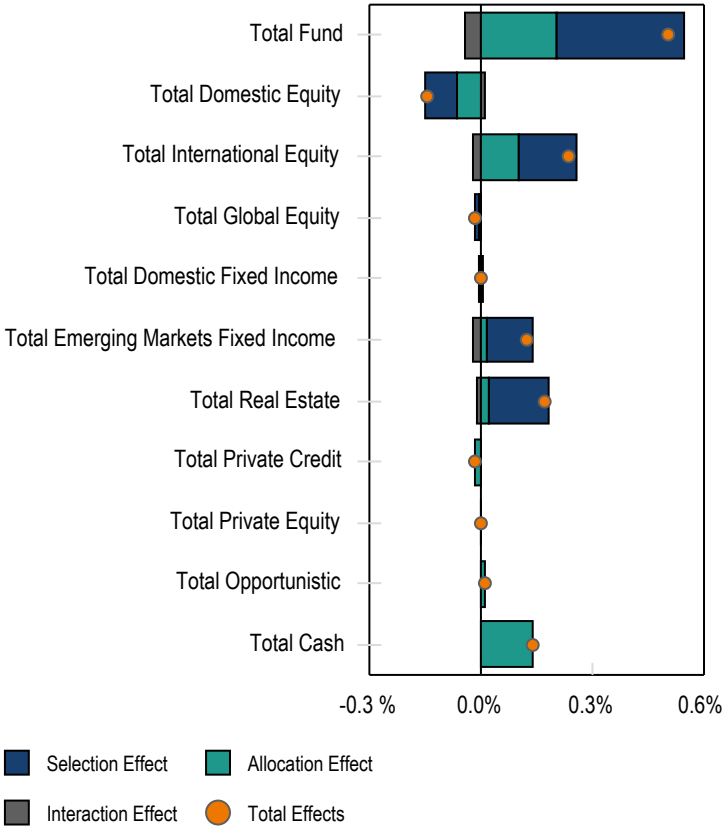
Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



Policy Index as of 10/1/2021: 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 5% Russell 2000, 4.6% MSCI REIT Index, 7% Private Equity Returns, 5% Private Credit Returns. All return periods greater than 1-year are rolling annualized returns.

Verus

Attribution Effects
3 Months Ending September 30, 2022



Performance Attribution

	Last 3 Mo.
Wtd. Actual Return	-4.0
Wtd. Index Return	-4.5
Excess Return	**0.5**
Selection Effect	0.3
Allocation Effect	0.2
Interaction Effect	0.0

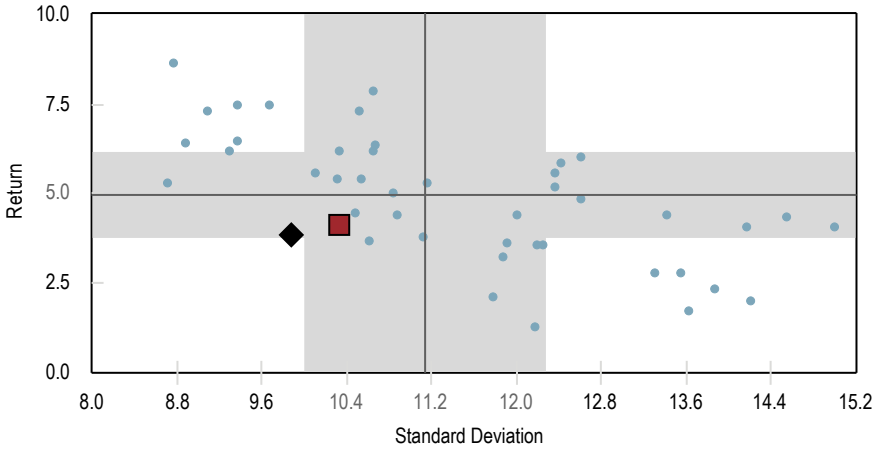
Attribution Summary
3 Months Ending September 30, 2022

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	-4.4	-4.1	-0.3	-0.1	-0.1	0.0	-0.1
Total International Equity	-8.9	-9.8	0.9	0.1	0.1	0.0	0.2
Total Global Equity	-7.1	-6.7	-0.4	0.0	0.0	0.0	0.0
Total Domestic Fixed Income	-4.7	-4.8	0.0	0.0	0.0	0.0	0.0
Total Emerging Markets Fixed Income	-3.7	-7.8	4.1	0.1	0.0	0.0	0.1
Total Real Estate	-1.2	-2.0	0.8	0.2	0.0	0.0	0.2
Total Private Credit	-3.4	-3.4	0.0	0.0	0.0	0.0	0.0
Total Private Equity	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Total Opportunistic	-4.5	0.4	-4.8	0.0	0.0	0.0	0.0
Total Cash	0.5	0.5	0.1	0.0	0.1	0.0	0.1
Total Fund	**-4.0**	**-4.5**	**0.5**	**0.3**	**0.2**	**0.0**	**0.5**

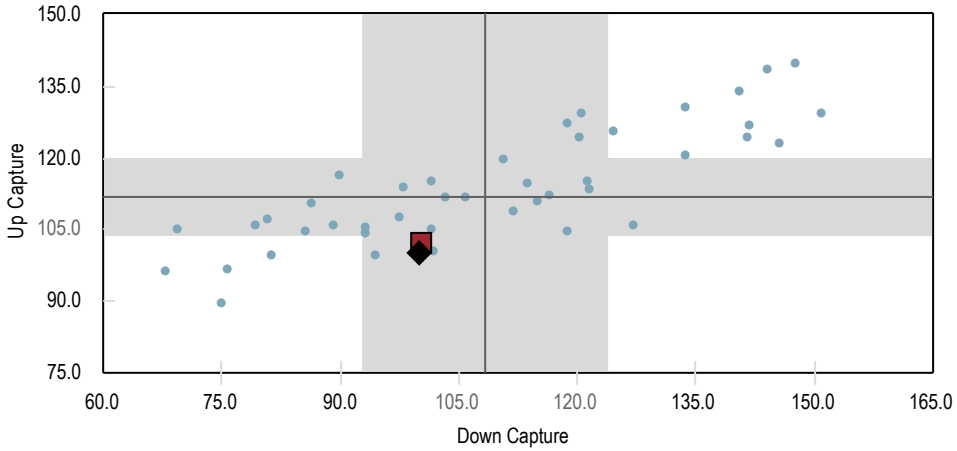
Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.

	Anlzd Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
Total Fund	4.15	10.33	0.29	1.01	2.73	0.93	0.38	0.12	102.25	100.34

Annualized Return vs. Annualized Standard Deviation



Up Markets vs. Down Markets



InvMetrics Public DB > $1B

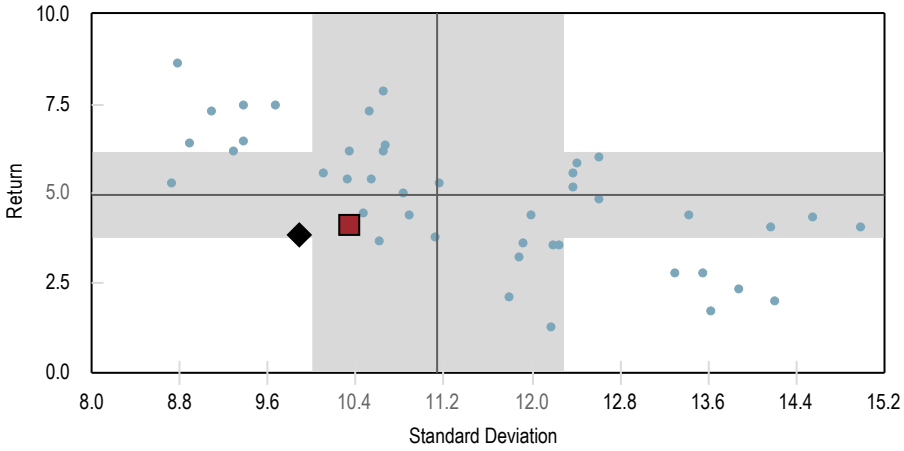
	Return	Standard Deviation
Total Fund	4.15	10.33
Policy Index	3.87	9.88
Median	4.95	11.14
Population	44	44

InvMetrics Public DB > $1B

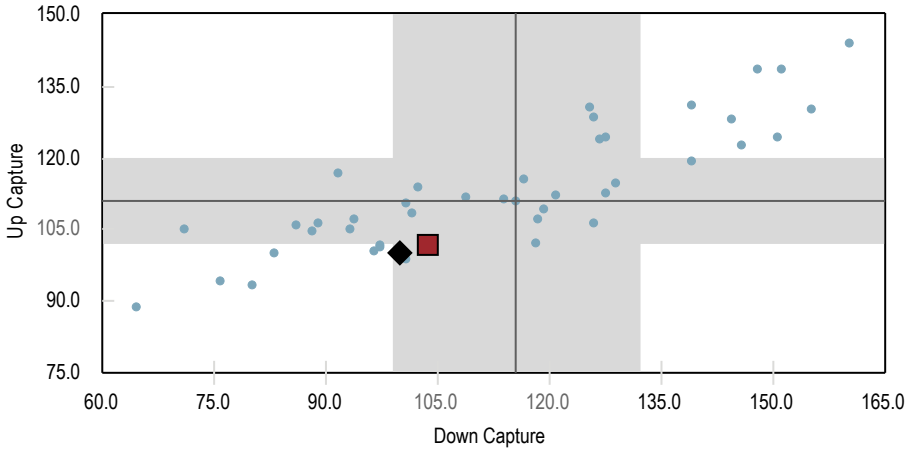
	Up Capture	Down Capture
Total Fund	102.25	100.34
Policy Index	100.00	100.00
Median	111.87	108.29
Population	44	44

	Anlzd Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
Total Fund	4.55	8.99	-0.17	1.02	2.20	0.94	0.41	-0.03	101.82	103.57

Annualized Return vs. Annualized Standard Deviation



Up Markets vs. Down Markets

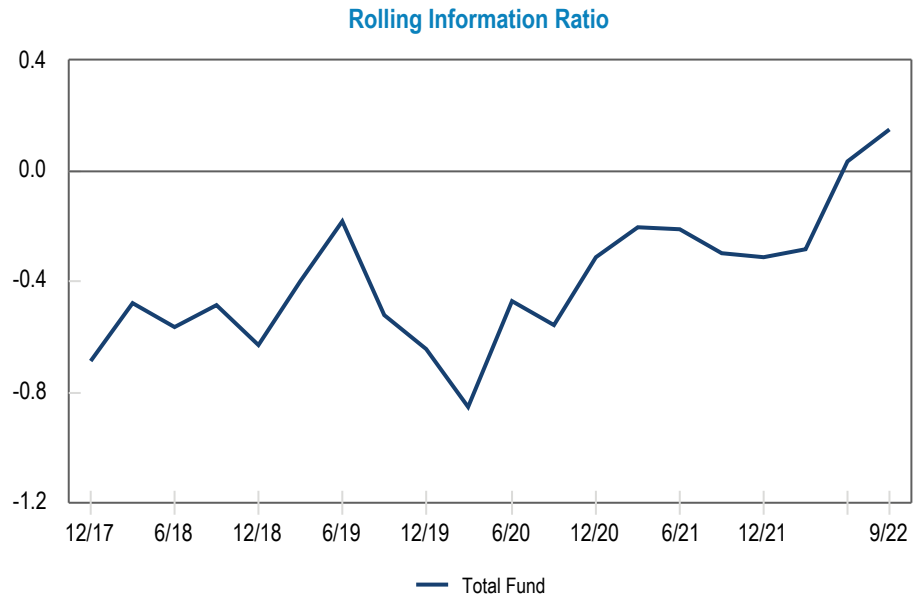


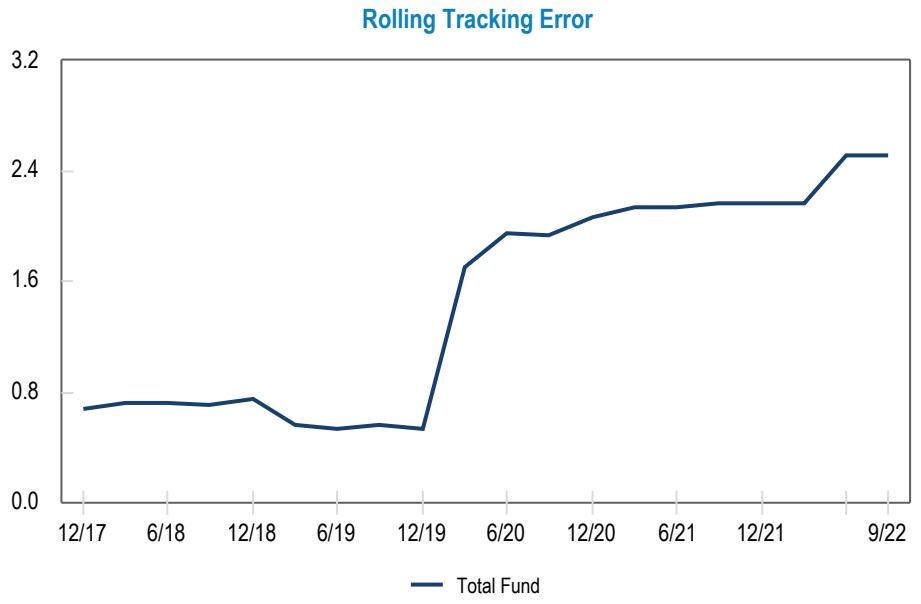
InvMetrics Public DB > $1B

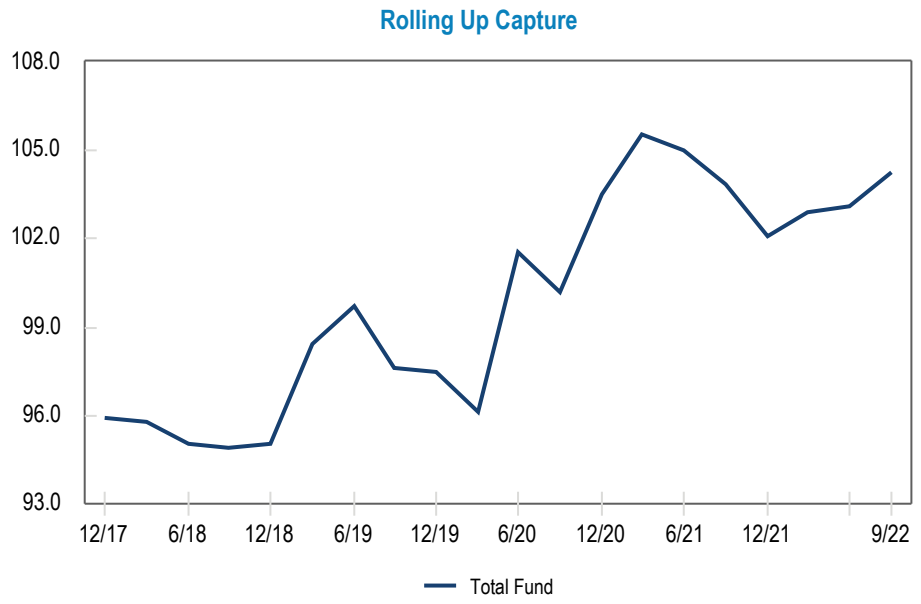
	Return	Standard Deviation
Total Fund	4.15	10.33
Policy Index	3.87	9.88
Median	4.95	11.14
Population	44	44

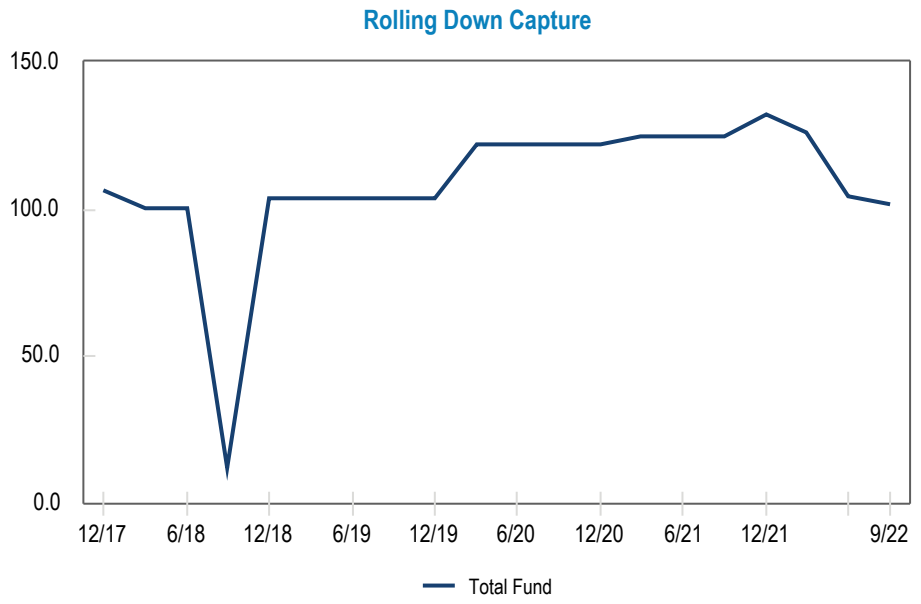
InvMetrics Public DB > $1B

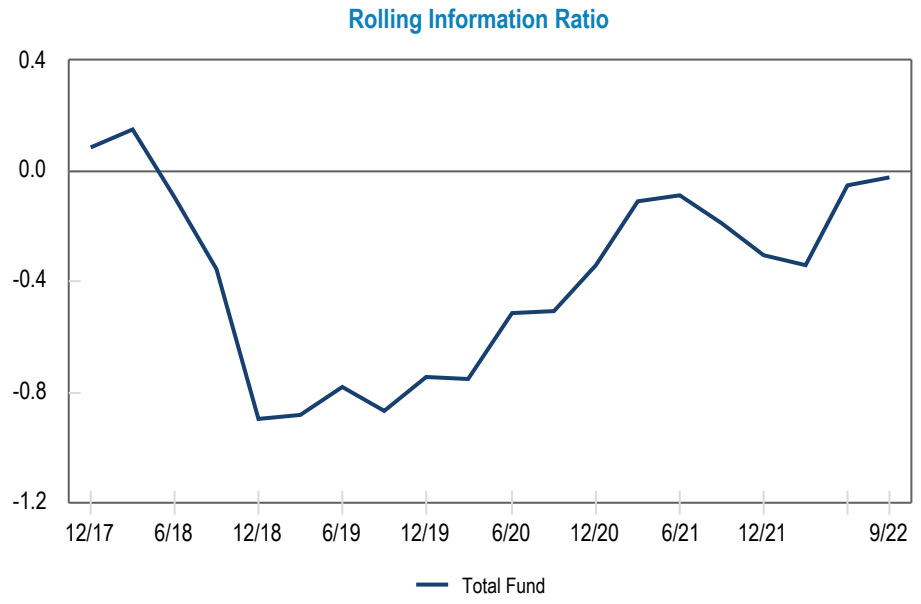
	Up Capture	Down Capture
Total Fund	101.82	103.57
Policy Index	100.00	100.00
Median	110.98	115.55
Population	43	43

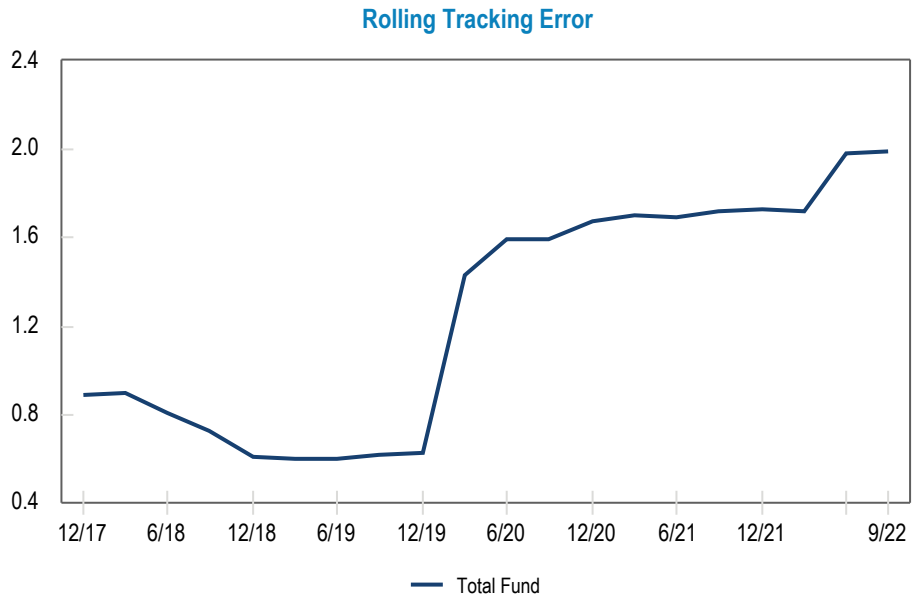

Rolling Information Ratio
0.4
0.0
-0.4
-0.8
-1.2
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund

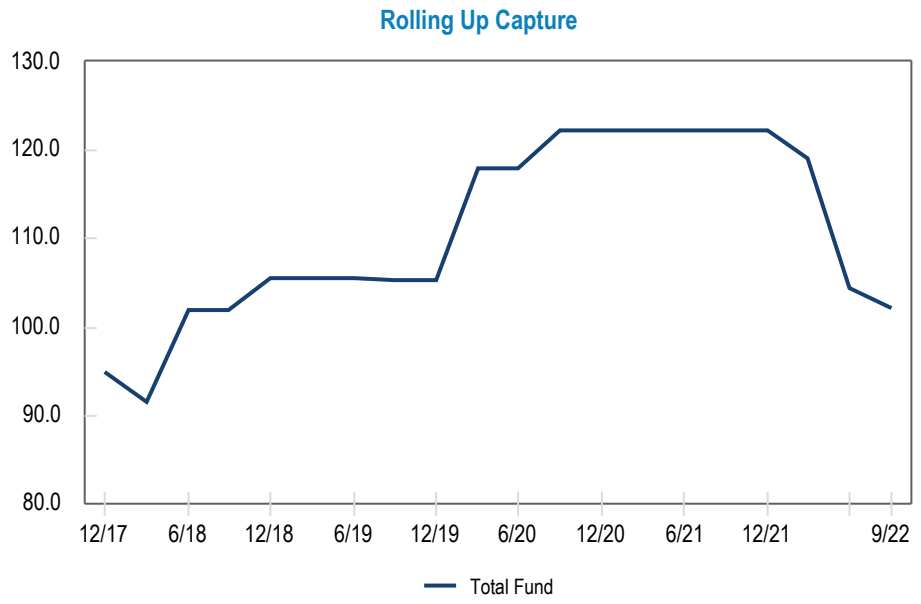

Rolling Tracking Error
3.2
2.4
1.6
0.8
0.0
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund

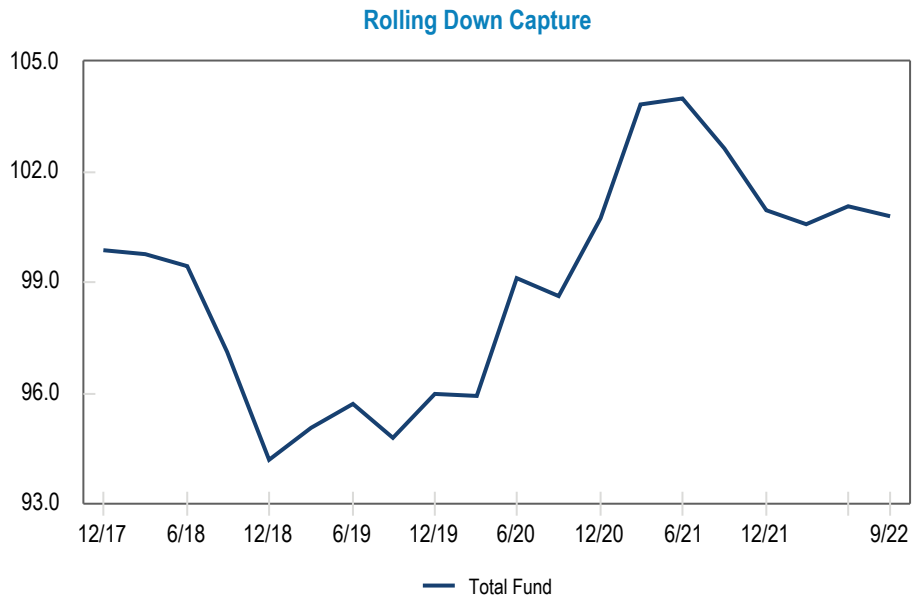

Rolling Up Capture
108.0
105.0
102.0
99.0
96.0
93.0
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund


Rolling Down Capture
150.0
100.0
50.0
0.0
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund


Rolling Information Ratio
0.4
0.0
-0.4
-0.8
-1.2
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund


Rolling Tracking Error
2.4
2.0
1.6
1.2
0.8
0.4
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund


Rolling Up Capture
130.0
120.0
110.0
100.0
90.0
80.0
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund


Rolling Down Capture
105.0
102.0
99.0
96.0
93.0
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Total Fund

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Fund	**1,745,055,188**	**100.0**	**-4.0**	**-12.6**	**-9.0**	**4.2**	**4.5**	**5.9**	**13.5**	**8.9**	**15.4**	**-2.9**	**13.9**
Policy Index			*-4.5*	*-15.0*	*-11.0*	*3.9*	*4.7*	*5.9*	*14.2*	*10.6*	*15.9*	*-2.3*	*14.0*
All DB Public Plans >1B Rank			*54*	*24*	*27*	*66*	*70*	*83*	*72*	*82*	*80*	*38*	*76*
Total Domestic Equity	**468,528,729**	**26.8**	**-4.4**	**-24.1**	**-17.4**	**7.0**	**8.1**	**11.2**	**26.1**	**18.2**	**29.8**	**-5.4**	**21.9**
Russell 3000 Index			*-4.5*	*-24.6*	*-17.6*	*7.7*	*8.6*	*11.4*	*25.7*	*20.9*	*31.0*	*-5.2*	*21.1*
SSGA S&P 500 Flagship Fund	178,193,400	10.2	-4.9	-23.9	-15.5	8.1	9.2	11.7	28.6	18.3	31.5	-4.4	21.8
S&P 500 Index			*-4.9*	*-23.9*	*-15.5*	*8.2*	*9.2*	*11.7*	*28.7*	*18.4*	*31.5*	*-4.4*	*21.8*
eV US Large Cap Core Equity Rank			*43*	*59*	*49*	*25*	*27*	*17*	*31*	*37*	*30*	*39*	*43*
PGIM QS US Core Equity	59,327,069	3.4	-5.3	-21.9	-13.9	7.4	7.9	11.3	29.8	12.0	28.6	-6.8	22.1
S&P 500 Index			*-4.9*	*-23.9*	*-15.5*	*8.2*	*9.2*	*11.7*	*28.7*	*18.4*	*31.5*	*-4.4*	*21.8*
eV US Large Cap Core Equity Rank			*59*	*37*	*36*	*40*	*55*	*30*	*21*	*71*	*58*	*71*	*39*
William Blair Large Cap Growth	58,166,893	3.3	-4.8	-	-	-	-	-	-	-	-	-	-
Russell 1000 Growth Index			*-3.6*	-	-	-	-	-	-	-	-	-	-
eV US Large Cap Core Equity Rank			*40*	-	-	-	-	-	-	-	-	-	-
Boston Partners Large Cap Value	63,851,358	3.7	-5.0	-15.0	-7.0	7.0	6.5	9.9	30.4	2.4	23.8	-9.0	19.6
Russell 1000 Value Index			*-5.6*	*-17.8*	*-11.4*	*4.4*	*5.3*	*9.2*	*25.2*	*2.8*	*26.5*	*-8.3*	*13.7*
eV US Large Cap Value Equity Rank			*35*	*30*	*22*	*29*	*45*	*35*	*17*	*61*	*76*	*53*	*24*
SSGA US Extended Market Index	56,769,122	3.3	-2.8	-30.0	-29.4	-	-	-	-	-	-	-	-
Dow Jones U.S. Completion Total Stock Market Indx			*-2.8*	*-30.1*	*-29.6*	-	-	-	-	-	-	-	-
eV Extended US Equity Rank			*12*	*100*	*100*	-	-	-	-	-	-	-	-
William Blair SMID Cap Growth	23,479,906	1.3	-1.1	-29.1	-28.0	2.2	6.8	11.5	8.7	32.6	31.1	-1.7	29.3
Russell 2500 Growth Index			*-0.1*	*-29.5*	*-29.4*	*4.8*	*6.3*	*10.3*	*5.0*	*40.5*	*32.7*	*-7.5*	*24.5*
eV US Small-Mid Cap Growth Equity Rank			*48*	*38*	*46*	*88*	*65*	*27*	*74*	*62*	*48*	*36*	*19*
Leeward Small Cap Value	28,740,981	1.6	-2.5	-15.9	-9.7	7.7	4.7	9.1	31.6	3.8	26.3	-15.5	7.7
Russell 2000 Value Index			*-4.6*	*-21.1*	*-17.7*	*4.7*	*2.9*	*7.9*	*28.3*	*4.6*	*22.4*	*-12.9*	*7.8*
eV US Small Cap Value Equity Rank			*13*	*12*	*12*	*21*	*27*	*35*	*37*	*57*	*25*	*57*	*71*

Shenkman High Yield liquidated 3/11/2019. PGIM EMD funded 8/26/19. Gresham Commodity and Wellington Commodity liquidated 9/27/19. American Realty funded 12/20/2019. Titan and Aetos liquidated 1Q 2020. SSGA Russell Small Cap replaced with SSGA US Extended Market Index on 6/10/21. Invesco Commercial Mortgage funded 9/1/21. Franklin Templeton Global liquidated 12/28/2021. SSGA US REIT Index Funded 12/10/2021. QMA Large Cap Core changed name to PGIM QS US Core Equity. Macquarie Large Cap Growth liquidated 4/25/2022, proceeds funded William Blair Large Cap Growth. Policy Index: 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 7%

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total International Equity	**234,652,427**	**13.4**	**-8.9**	**-25.1**	**-24.3**	**0.2**	**0.4**	**4.0**	**9.6**	**13.4**	**22.7**	**-14.5**	**26.5**
MSCI AC World ex USA Index			*-9.8*	*-26.2*	*-24.8*	*-1.1*	*-0.3*	*3.5*	*8.3*	*11.1*	*22.1*	*-13.8*	*27.8*
SSGA MSCI ACWI Ex US Index Fund	80,489,366	4.6	-9.9	-26.3	-25.0	-1.3	-0.6	3.2	7.9	10.9	21.8	-14.0	27.5
MSCI AC World ex USA (Net)			*-9.9*	*-26.5*	*-25.2*	*-1.5*	*-0.8*	*3.0*	*7.8*	*10.7*	*21.5*	*-14.2*	*27.2*
eV ACWI ex-US All Cap Equity Rank			*59*	*31*	*30*	*62*	*58*	*83*	*62*	*68*	*74*	*41*	*61*
PIMCO RAE Fundamental Global Ex US Fund	80,224,328	4.6	-10.1	-22.4	-21.8	-1.5	-1.8	3.3	12.3	1.7	16.1	-15.1	26.0
MSCI AC World ex USA Value (Net)			*-10.4*	*-21.0*	*-20.0*	*-2.1*	*-2.1*	*1.9*	*10.5*	*-0.8*	*15.7*	*-14.0*	*22.7*
eV ACWI ex-US All Cap Value Eq Rank			*27*	*17*	*25*	*41*	*31*	*45*	*19*	*48*	*70*	*57*	*44*
SGA International Growth	73,938,733	4.2	-6.3	-26.5	-26.1	2.7	-	-	9.1	26.0	30.5	-	-
MSCI AC World ex USA Growth (Net)			*-9.4*	*-31.8*	*-30.2*	*-1.4*	-	-	*5.1*	*22.2*	*27.3*	-	-
eV ACWI ex-US Growth Equity Rank			*5*	*8*	*14*	*20*	-	-	*45*	*51*	*41*	-	-
Total Global Equity	**51,253,092**	**2.9**	**-7.1**	**-26.1**	**-19.3**	**5.8**	**4.2**	**-**	**28.5**	**14.3**	**24.2**	**-15.9**	**32.6**
MSCI AC World Index			*-6.7*	*-25.3*	*-20.3*	*4.2*	*5.0*	-	*19.0*	*16.8*	*27.3*	*-8.9*	*24.6*
Skellig Water Fund (aka KBI)	51,253,092	2.9	-7.1	-26.1	-19.3	5.8	4.2	-	28.5	14.3	24.2	-15.9	32.6
MSCI AC World Index (Net)			*-6.8*	*-25.6*	*-20.7*	*3.7*	*4.4*	-	*18.5*	*16.3*	*26.6*	*-9.4*	*24.0*
eV Global All Cap Equity Rank			*58*	*48*	*34*	*26*	*54*	-	*2*	*58*	*65*	*88*	*14*
Total Fixed Income	**341,457,240**	**19.6**	**-4.6**	**-16.0**	**-16.4**	**-4.5**	**-1.4**	**0.5**	**-2.2**	**4.7**	**8.1**	**0.1**	**3.9**
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*
Total Domestic Fixed Income	**295,440,672**	**16.9**	**-4.7**	**-15.4**	**-15.4**	**-3.1**	**-0.2**	**1.1**	**-0.7**	**7.9**	**9.0**	**-0.2**	**4.1**
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*
BlackRock Core Plus Fixed Income	99,908,629	5.7	-5.0	-15.6	-15.6	-3.3	-0.3	1.0	-1.4	8.4	8.7	0.1	3.6
Blmbg. U.S. Aggregate Index			*-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 Plus Fixed Inc Rank			*91*	*63*	*61*	*88*	*90*	*94*	*89*	*57*	*80*	*24*	*89*
Doubleline Core Plus	98,901,335	5.7	-4.1	-13.9	-14.0	-3.2	-0.4	-	-0.2	5.2	8.3	-0.3	3.9
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	-	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*
eV US Core Plus Fixed Inc Rank			*28*	*16*	*16*	*82*	*92*	-	*39*	*97*	*87*	*35*	*83*
MacKay Shields Core Plus	96,630,709	5.5	-5.1	-16.6	-16.6	-2.8	-0.1	-	-0.4	9.9	9.6	-1.0	4.5
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	-	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*
eV US Core Plus Fixed Inc Rank			*94*	*89*	*88*	*58*	*70*	-	*47*	*23*	*53*	*76*	*52*

Shenkman High Yield liquidated 3/11/2019. PGIM EMD funded 8/26/19. Gresham Commodity and Wellington Commodity liquidated 9/27/19. American Realty funded 12/20/2019. Titan and Aetos liquidated 1Q 2020. SSGA Russell Small Cap replaced with SSGA US Extended Market Index on 6/10/21. Invesco Commercial Mortgage funded 9/1/21. Franklin Templeton Global liquidated 12/28/2021. SSGA US REIT Index Funded 12/10/2021. QMA Large Cap Core changed name to PGIM QS US Core Equity. Macquarie Large Cap Growth liquidated 4/25/2022, proceeds funded William Blair Large Cap Growth. Policy Index: 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 7%

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Emerging Markets Fixed Income	**46,016,568**	**2.6**	**-3.7**	**-19.7**	**-21.2**	**-6.1**	**-**	**-**	**-5.3**	**4.6**	**-**	**-**	**-**
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			*-4.6*	*-21.3*	*-22.5*	*-7.1*	-	-	*-5.3*	*4.0*	-	-	-
PGIM Emerging Markets Debt	46,016,568	2.6	-3.7	-19.7	-21.2	-6.1	-	-	-5.3	4.6	-	-	-
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			*-4.6*	*-21.3*	*-22.5*	*-7.1*	-	-	*-5.3*	*4.0*	-	-	-
eV Emg Mkts Fixed Inc - Blended Currency Rank			*47*	*42*	*48*	*74*	-	-	*73*	*70*	-	-	-
Total Real Estate	**367,542,399**	**21.1**	**-1.2**	**12.3**	**18.9**	**9.3**	**8.4**	**9.4**	**12.8**	**1.8**	**5.2**	**8.8**	**4.3**
NCREIF-ODCE			*0.5*	*13.1*	*22.1*	*12.4*	*10.2*	*10.9*	*22.2*	*1.2*	*5.3*	*8.3*	*7.6*
RREEF America II	196,833,214	11.3	-1.4	22.2	29.4	12.5	10.2	10.9	12.8	1.8	5.3	8.6	4.4
NCREIF ODCE net 1Q Lag			*4.5*	*20.6*	*28.3*	*11.7*	*9.6*	*10.2*	*13.6*	*0.5*	*4.6*	*7.7*	*6.7*
American Realty Strategic Value Fund	89,629,072	5.1	2.9	14.5	20.0	-	-	-	11.3	1.1	-	-	-
NCREIF ODCE net 1Q Lag			*4.5*	*20.6*	*28.3*	-	-	-	*13.6*	*0.5*	-	-	-
Invesco Commercial Mortgage Income Fund	67,137,178	3.8	0.0	3.1	4.0	-	-	-	-	-	-	-	-
NCREIF-ODCE			*0.5*	*13.1*	*22.1*	-	-	-	-	-	-	-	-
SSGA US REIT Index Non-Lending Fund	13,942,934	0.8	-10.4	-29.3	-	-	-	-	-	-	-	-	-
Dow Jones U.S. REIT Index			*-10.9*	*-27.7*	-	-	-	-	-	-	-	-	-
eV US REIT Rank			*46*	*64*	-	-	-	-	-	-	-	-	-

Shenkman High Yield liquidated 3/11/2019. PGIM EMD funded 8/26/19. Gresham Commodity and Wellington Commodity liquidated 9/27/19. American Realty funded 12/20/2019. Titan and Aetos liquidated 1Q 2020. SSGA Russell Small Cap replaced with SSGA US Extended Market Index on 6/10/21. Invesco Commercial Mortgage funded 9/1/21. Franklin Templeton Global liquidated 12/28/2021. SSGA US REIT Index Funded 12/10/2021. QMA Large Cap Core changed name to PGIM QS US Core Equity. Macquarie Large Cap Growth liquidated 4/25/2022, proceeds funded William Blair Large Cap Growth. Policy Index: 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 7%

	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
SSGA S&P 500 Flagship Fund	9.20	20.04	-0.03	1.00	0.02	1.00	0.49	-1.69	99.90	100.08
PGIM QS US Core Equity	7.85	20.79	-1.44	1.03	2.64	0.98	0.42	-0.42	97.60	104.79
Boston Partners Large Cap Value	6.49	21.65	0.97	1.08	3.46	0.98	0.35	0.45	108.94	101.43
William Blair SMID Cap Growth	6.83	24.25	1.09	0.86	5.93	0.97	0.35	-0.06	89.96	85.96
Leeward Small Cap Value	4.75	26.38	1.83	0.91	4.15	0.98	0.27	0.29	97.18	88.67
SSGA MSCI ACWI Ex US Index Fund	-0.61	19.29	0.19	1.00	0.11	1.00	0.01	1.71	100.62	99.34
PIMCO RAE Fundamental Global Ex US Fund	-1.83	21.51	0.58	1.06	2.58	0.99	-0.02	0.23	105.39	101.35
Skellig Water Fund (aka KBI)	4.22	21.49	-0.20	1.06	5.09	0.95	0.25	0.03	106.60	108.58
BlackRock Core Plus Fixed Income	-0.29	5.66	0.01	1.05	1.00	0.97	-0.23	0.00	106.33	106.14
Doubleline Core Plus	-0.39	5.34	-0.14	0.83	3.13	0.68	-0.26	-0.04	83.92	87.31
MacKay Shields Core Plus	-0.06	6.16	0.27	1.08	2.29	0.87	-0.17	0.11	116.45	109.63
RREEF America II	10.23	6.57	-0.21	1.03	4.38	0.56	1.32	0.02	95.94	-60.88

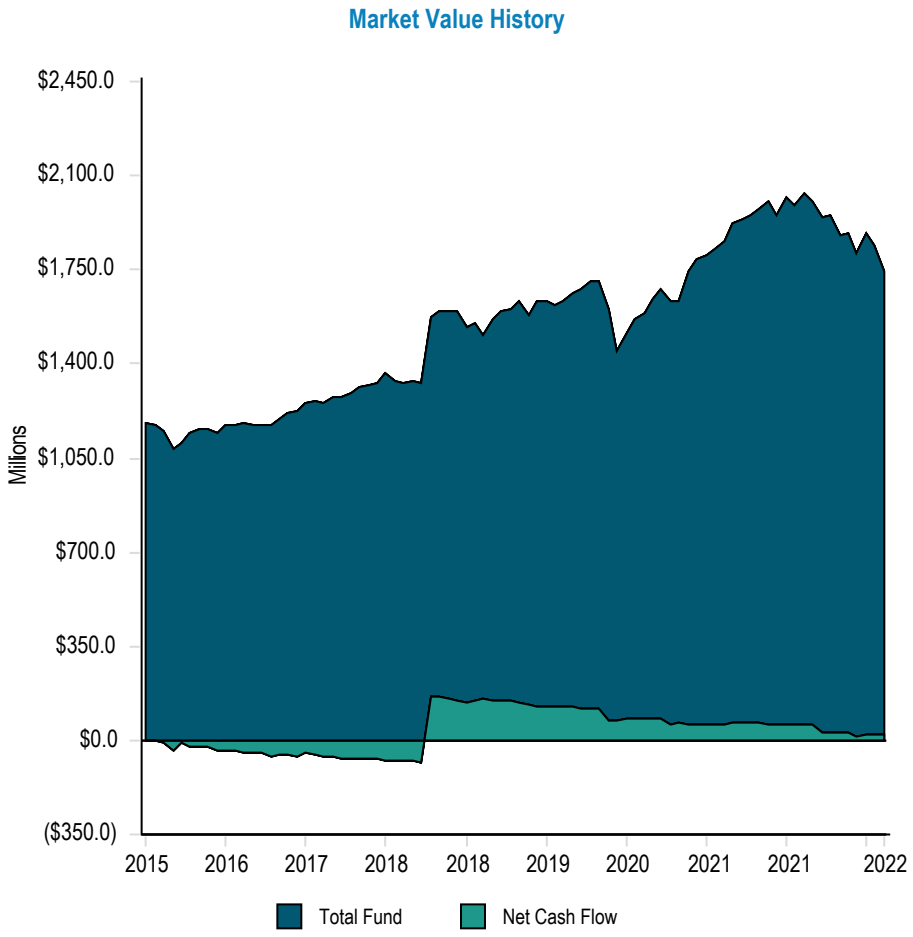
Risk analysis excludes managers with less than 5 years history.

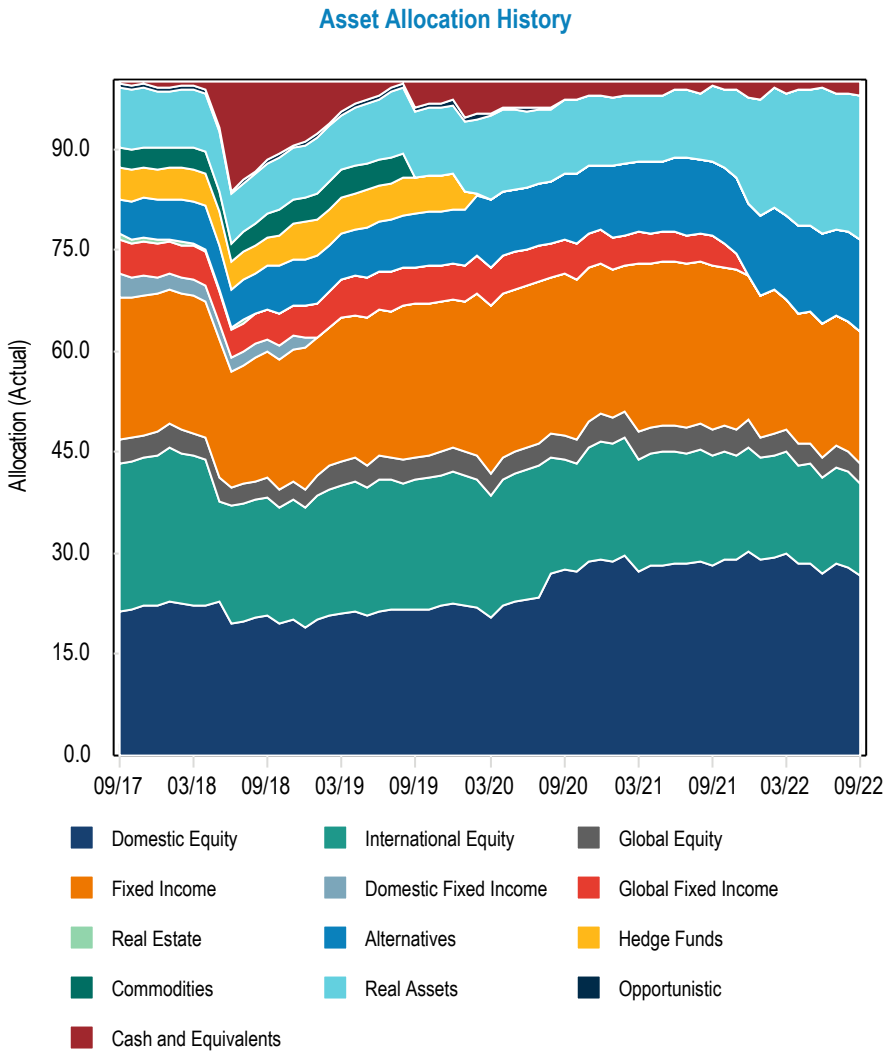
Tulare County Employees' Retirement Association

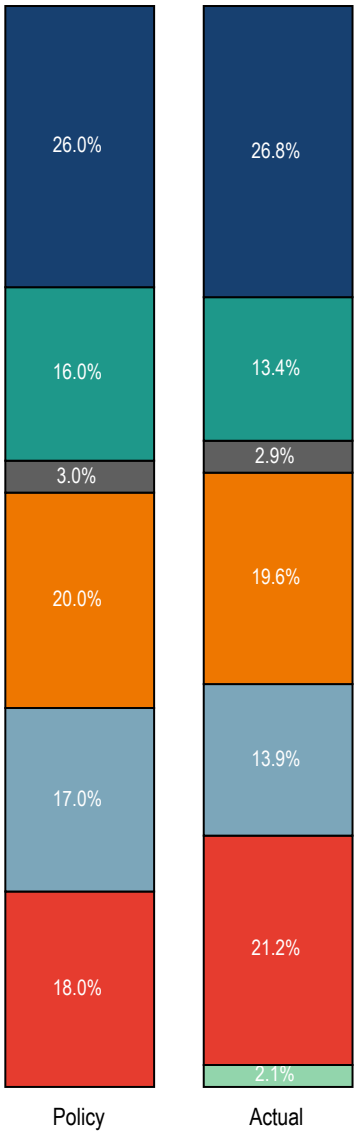
Illiquid Alternative Investments

Vintage Year	Manager Name/Fund Name	Estimated Market Value as of 9/30/2022[3]	IRR Analysis as of IRR date: Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[6]	IRR Date
Private Equity												
2005	BlackRock Private Capital II[7]	$431,570	$15,000,000	$15,719,139	105%	-$719,139	$24,063,592	$431,570	*153.1%*	*155.8%*	*6.7%*	06/30/22
2016	Ocean Avenue Fund III	$21,294,087	$20,000,000	$18,600,000	93%	$1,400,000	$21,008,050	$22,902,136	*112.9%*	*227.4%*	*N/A*	06/30/22
	Ocean Avenue Fund IV	$26,509,893	$26,000,000	$22,360,000	86%	$3,640,000	$7,410,000	$25,989,893	*33.1%*	*151.7%*	*N/A*	06/30/22
2004	Pantheon USA Fund VI	$152,104	$15,000,000	$14,175,000	95%	$825,000	$21,695,924	$152,104	*153.1%*	*154.1%*	*6.7%*	06/30/22
2016	Pathway Private Equity Fund Investors 8	$31,934,885	$20,000,000	$17,808,713	89%	$2,191,287	$8,862,546	$33,059,860	*49.8%*	*156.5%*	*25.2%*	03/31/22
2017	Pathway Private Equity Fund Investors 9	$27,699,444	$20,000,000	$13,496,757	67%	$6,503,243	$1,904,454	$27,252,527	*14.1%*	*219.3%*	*29.5%*	03/31/22
2020	Pathway Private Equity Fund Investors 10	$19,011,177	$30,000,000	$15,851,271	53%	$14,148,729	$639,145	N/A	*4.0%*	*124.0%*	*N/A*	N/A
2012	Stepstone Secondary Opportunities Fund II[8]	$4,587,165	$27,500,000	$32,388,011	118%	-$4,888,011	$39,891,528	$4,652,915	*123.17%*	*137.3%*	*16.2%*	06/30/22
Private Credit												
2016	Sixth Street Diversified Credit Program	$82,801,865	$160,000,000	$102,552,228	64%	$57,447,772	$47,534,217	$84,097,818	*46.4%*	*127.1%*	*9.9%*	06/30/22
Opportunistic												
2020	Sixth Street TAO	$28,151,830	$50,000,000	$26,200,418	52%	$23,799,582	$3,038,363	$27,512,949	*11.6%*	*119.0%*	*10.1%*	06/30/22
2010	KKR Mezzanine Partners	$2,111,071	$15,000,000	$22,176,162	148%	-$7,176,162	$21,018,175	$2,230,188	*94.8%*	*104.3%*	*8.9%*	06/30/22
2011	PIMCO Bravo	$10,239	$15,000,000	$15,000,000	100%	$0	$27,216,524	$446,175	*181.4%*	*181.5%*	*22.2%*	12/31/18
	Total Private Markets	**$244,695,329**	$413,500,000	$316,327,699	77%	$97,172,301	$224,282,518	$228,728,135	*70.9%*	*148.3%*		
	% of Portfolio (Market Value)	***14.0%***										

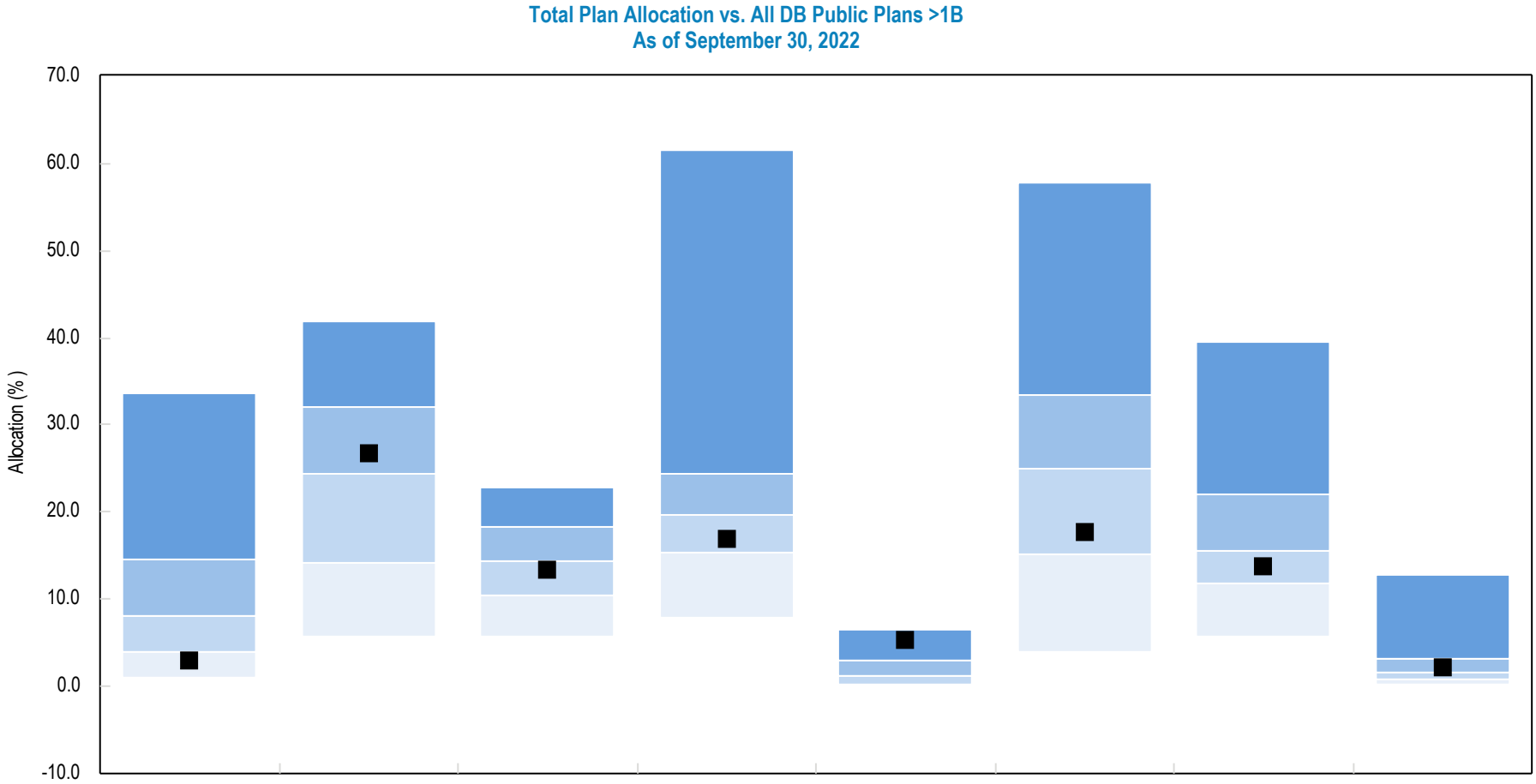
[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Last known market value + capital calls - distributions
[4]IRR currently unavailable for these funds.
[5]Investment period ended, no further capital to be called.
[6]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.
[7]BlackRock: Total capital called is $15,719,139 which includes recycled distributions.
[8]StepStone: $8,782,174 in recallable distributions


Market Value History
$2,450.0
$2,100.0
$1,750.0
$1,400.0
$1,050.0
$700.0
$350.0
$0.0
($350.0)
Millions
2015
2016
2017
2018
2018
2019
2020
2021
2021
2022
Total Fund
Net Cash Flow


Asset Allocation History
90.0
75.0
60.0
45.0
30.0
15.0
0.0
Allocation (Actual)
09/17
03/18
09/18
03/19
09/19
03/20
09/20
03/21
09/21
03/22
09/22
Domestic Equity
International Equity
Global Equity
Fixed Income
Domestic Fixed Income
Global Fixed Income
Real Estate
Alternatives
Hedge Funds
Commodities
Real Assets
Opportunistic
Cash and Equivalents



	Current Balance ($)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation ($)	Policy Range (%)	Within IPS Range?
Domestic Equity	468,528,729	26.8	26.0	14,814,380	15.0 - 35.0	Yes
International Equity	234,652,427	13.4	16.0	-44,556,403	5.0 - 25.0	Yes
Global Equity	51,253,092	2.9	3.0	-1,098,564	0.0 - 5.0	Yes
Fixed Income	341,457,240	19.6	20.0	-7,553,797	10.0 - 35.0	Yes
Alternatives	242,574,019	13.9	17.0	-54,085,363	10.0 - 30.0	Yes
Real Assets	369,663,708	21.2	18.0	55,553,774	10.0 - 30.0	Yes
Cash and Equivalents	36,925,973	2.1	0.0	36,925,973	0.0 - 10.0	Yes
Total	**1,745,055,188**	**100.0**	**100.0**			



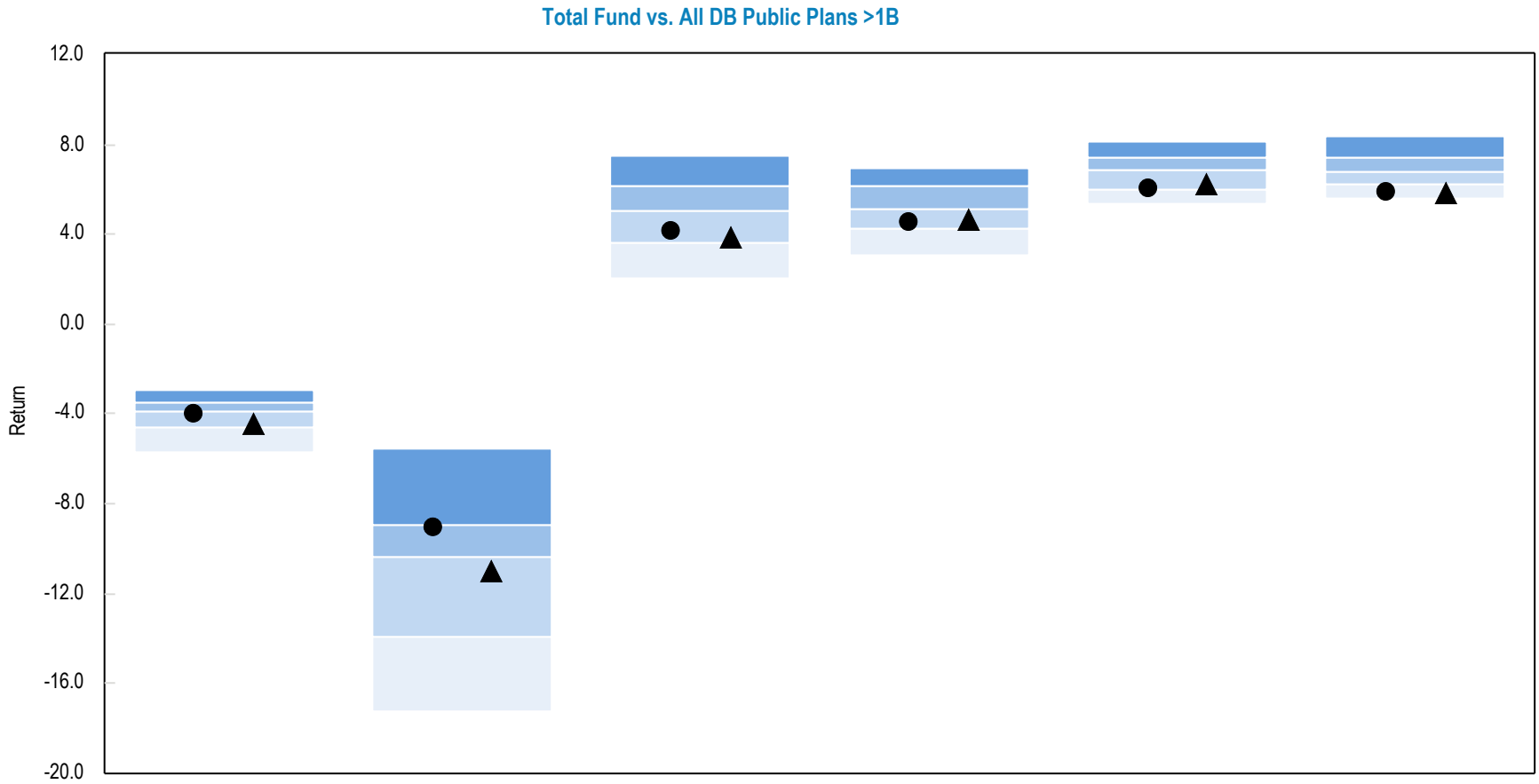
	Global Equity	US Equity	Global ex-US Equity	US Fixed	Global ex-US Fixed	Alternatives	Private Equity	Cash & Equivalents
■ Total Fund	2.9 (89)	26.8 (41)	13.4 (56)	16.9 (68)	5.3 (7)	17.7 (68)	13.9 (60)	2.1 (43)
5th Percentile	33.6	42.0	22.9	61.5	6.5	57.8	39.5	12.8
1st Quartile	14.7	32.0	18.2	24.4	2.9	33.4	22.0	3.2
Median	8.1	24.3	14.3	19.8	1.3	25.1	15.6	1.6
3rd Quartile	3.9	14.2	10.4	15.3	0.2	15.2	11.9	0.8
95th Percentile	1.0	5.7	5.8	8.0	0.0	4.0	5.8	0.2
Population	19	94	96	100	47	81	28	69

Account	Fee Schedule	Market Value As of September 30, 2022	% of Portfolio	Estimated Annual Fee ($)	Estimated Annual Fee (%)
American Realty Strategic Value Fund	1.25 % of First $10 M 1.20 % of Next $15 M 1.10 % of Next $25 M 1.00 % Thereafter	89,629,072	5.14	976,291	1.09
BlackRock Alternative Advisors	Minimum Fee: $120,000	431,570	0.02	120,000	27.81
BlackRock Core Plus Fixed Income	0.25 % of First $100 M 0.25 % of Next $100 M 0.00 % Thereafter	99,908,629	5.73	249,772	0.25
Boston Partners Large Cap Value	0.45 % of First $50 M 0.35 % of Next $50 M 0.30 % Thereafter	63,851,358	3.66	273,480	0.43
Doubleline Core Plus	0.28 % of First $100 M 0.25 % Thereafter	98,901,335	5.67	276,924	0.28
Invesco Commercial Mortgage Income Fund	1.00 % of First $50 M 0.90 % Thereafter	67,137,178	3.85	654,235	0.97
KKR Mezzanine Partners I	0.38 % of Assets	2,111,071	0.12	7,917	0.37
Leeward Small Cap Value	0.65 % of Assets	28,740,981	1.65	186,816	0.65
MacKay Shields Core Plus	0.30 % of Assets	96,630,709	5.54	289,892	0.30
Mellon Capital Cash Account		36,925,973	2.12	-	-
Ocean Avenue Fund III	0.85 % of Assets	21,294,087	1.22	181,000	0.85
Ocean Avenue Fund IV	1.25 % of Assets	26,509,893	1.52	331,374	1.25
Pantheon Ventures	0.47 % of Assets	152,104	0.01	721	0.47
Pathway Private Equity Fund Investors 10	0.58 % of Assets	19,011,177	1.09	110,265	0.58
Pathway Private Equity Fund Investors 8	0.61 % of Assets	31,934,885	1.83	194,803	0.61
Pathway Private Equity Fund Investors 9	0.58 % of Assets	27,699,444	1.59	160,657	0.58
PGIM Emerging Markets Debt	0.44 % of Assets	46,016,568	2.64	202,473	0.44
PGIM QS US Core Equity	0.41 % of Assets	59,327,069	3.40	243,241	0.41
PIMCO Bravo	6.40 % of Assets	10,239	0.00	655	6.40
PIMCO RAE Fundamental Global Ex US Fund	0.78 % of First $25 M 0.43 % of Next $75 M 0.38 % Thereafter	80,224,328	4.60	432,465	0.54
RREEF America II	0.95 % of Assets	196,833,214	11.28	1,869,916	0.95
SGA International Growth	0.45 % of Assets	73,938,733	4.24	332,724	0.45
Sixth Street DCP (frmrly TSSP DCP)	1.11 % of Assets	82,801,865	4.74	919,101	1.11
Sixth Street TAO Contingent (frmrly TSSP TAO Contingent)	1.35 % of Assets	28,151,830	1.61	380,050	1.35
Skellig Water Fund (aka KBI)	0.77 % of Assets	51,253,092	2.94	392,086	0.76

**Sixth Street Partners fee schedule is as follows: No management fee at SMA level. Subject to the annual fees of each of the underlying TSSP funds. (1) TAO 65bps on unfunded commitments and 1.35% on remaining capital contributions (long-term investor designation) (2) TSLE 1.5% on commitments, 1.25% on remaining capital contributions post commitment period (3) TICP 30bps on remaining capital contributions. TAO Contingent fee schedule is 65bps on unfunded commitments and 1.35% on remaining capital contributions. Fees shown for Pathway are estimated effective average fees over 15-year fund lifespan.*

Account	Fee Schedule	Market Value As of September 30, 2022	% of Portfolio	Estimated Annual Fee ($)	Estimated Annual Fee (%)
SSGA MSCI ACWI Ex US Index Fund	0.08 % of First $25 M 0.07 % of Next $25 M 0.06 % Thereafter	80,489,366	4.61	55,794	0.07
SSGA S&P 500 Flagship Fund	0.03 % of Assets	178,193,400	10.21	53,458	0.03
SSGA US Extended Market Index	0.03 % of First $50 M 0.03 % of Next $50 M 0.02 % Thereafter	56,769,122	3.25	16,760	0.03
SSGA US REIT Index Non-Lending Fund	1.04 % of Assets	13,942,934	0.80	145,007	1.04
Stepstone Secondary Opportunities Fund II	Minimum Fee: $343,750	4,587,165	0.26	343,750	7.49
William Blair Large Cap Growth	0.45 % of First $50 M 0.32 % of Next $50 M 0.27 % of Next $150 M 0.27 % Thereafter	58,166,893	3.33	250,726	0.43
William Blair SMID Cap Growth	0.95 % of First $10 M 0.80 % of Next $20 M 0.75 % of Next $20 M 0.70 % of Next $50 M 0.65 % of Next $100 M 0.60 % Thereafter	23,479,906	1.35	202,839	0.86
Investment Management Fee		**1,745,055,188**	**100.00**	**9,855,187**	**0.56**

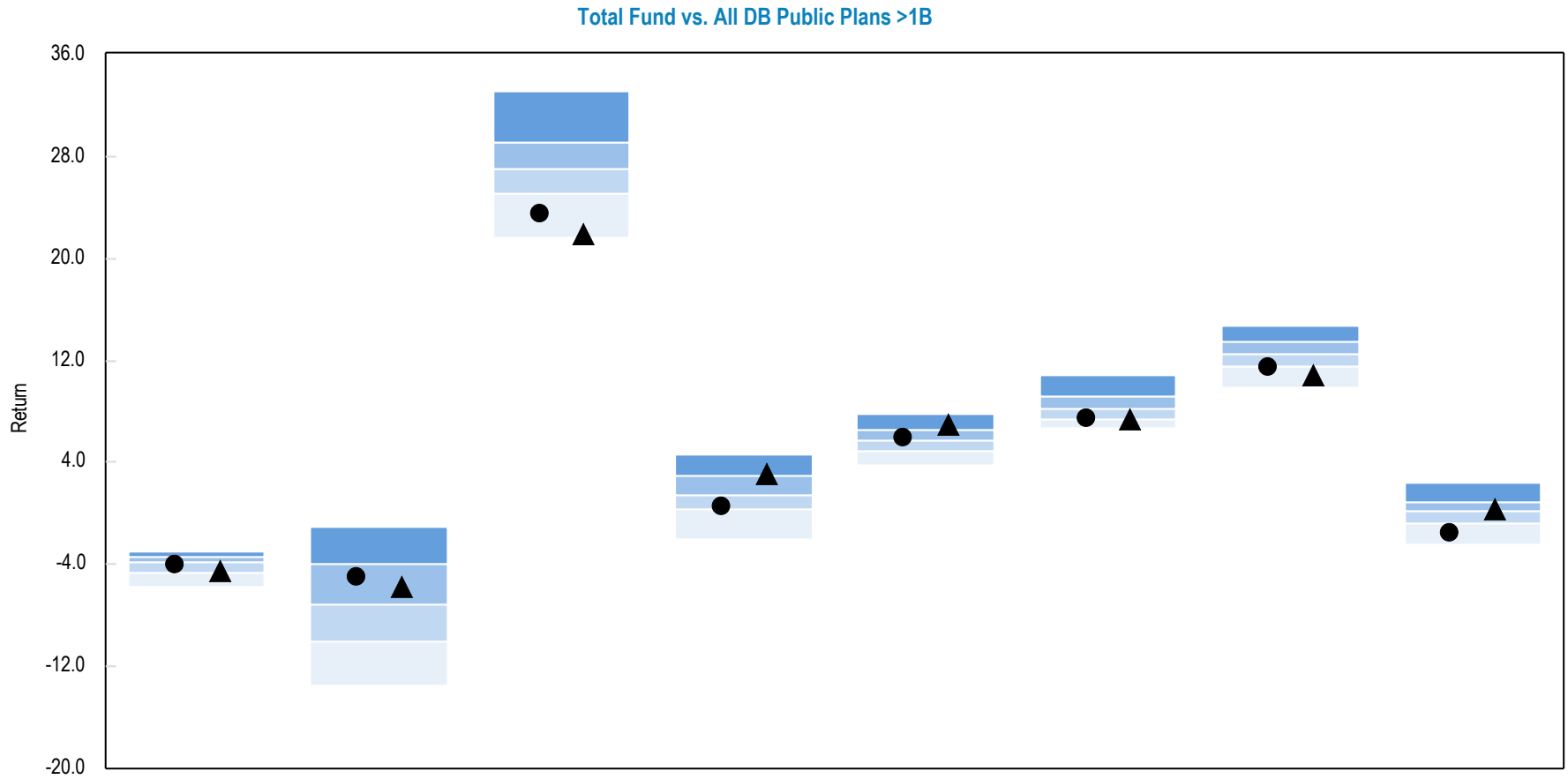
**Sixth Street Partners fee schedule is as follows: No management fee at SMA level. Subject to the annual fees of each of the underlying TSSP funds. (1) TAO 65bps on unfunded commitments and 1.35% on remaining capital contributions (long-term investor designation) (2) TSLE 1.5% on commitments, 1.25% on remaining capital contributions post commitment period (3) TICP 30bps on remaining capital contributions. TAO Contingent fee schedule is 65bps on unfunded commitments and 1.35% on remaining capital contributions. Fees shown for Pathway are estimated effective average fees over 15-year fund lifespan.*



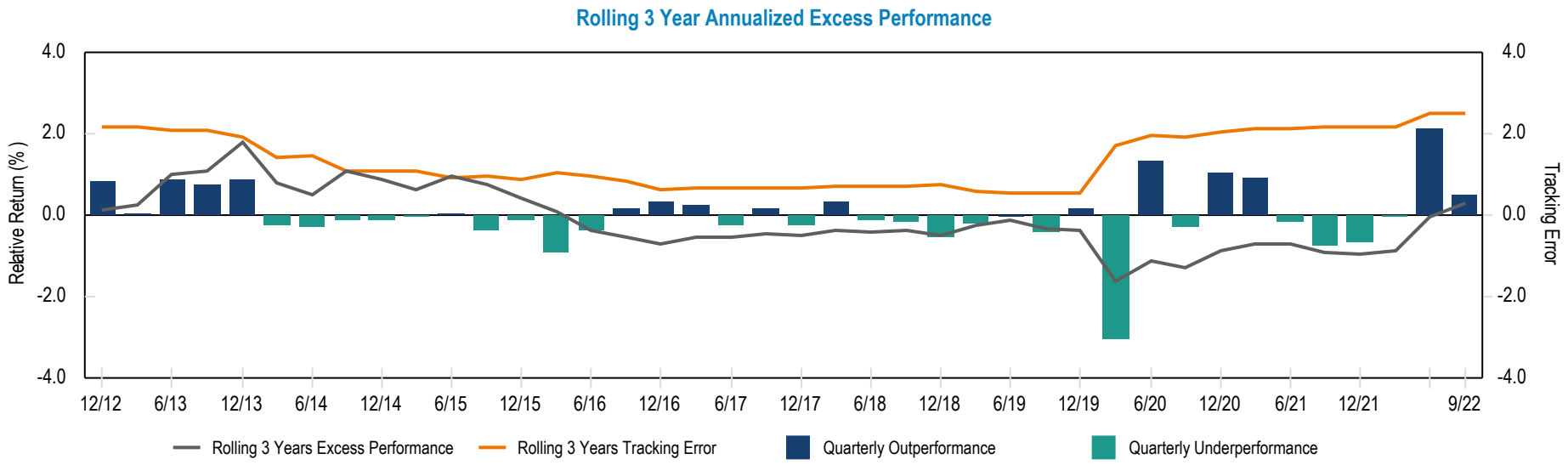
	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	-3.98 (54)	-9.03 (27)	4.15 (66)	4.55 (70)	6.05 (75)	5.94 (83)
▲ Policy Index	-4.47 (69)	-10.97 (53)	3.87 (72)	4.67 (67)	6.25 (67)	5.86 (85)
5th Percentile	-2.93	-5.53	7.50	6.94	8.12	8.37
1st Quartile	-3.47	-8.92	6.17	6.19	7.42	7.38
Median	-3.85	-10.34	5.05	5.16	6.85	6.80
3rd Quartile	-4.62	-13.89	3.66	4.22	6.03	6.24
95th Percentile	-5.72	-17.21	2.04	3.10	5.36	5.60
Population	50	46	45	44	44	42

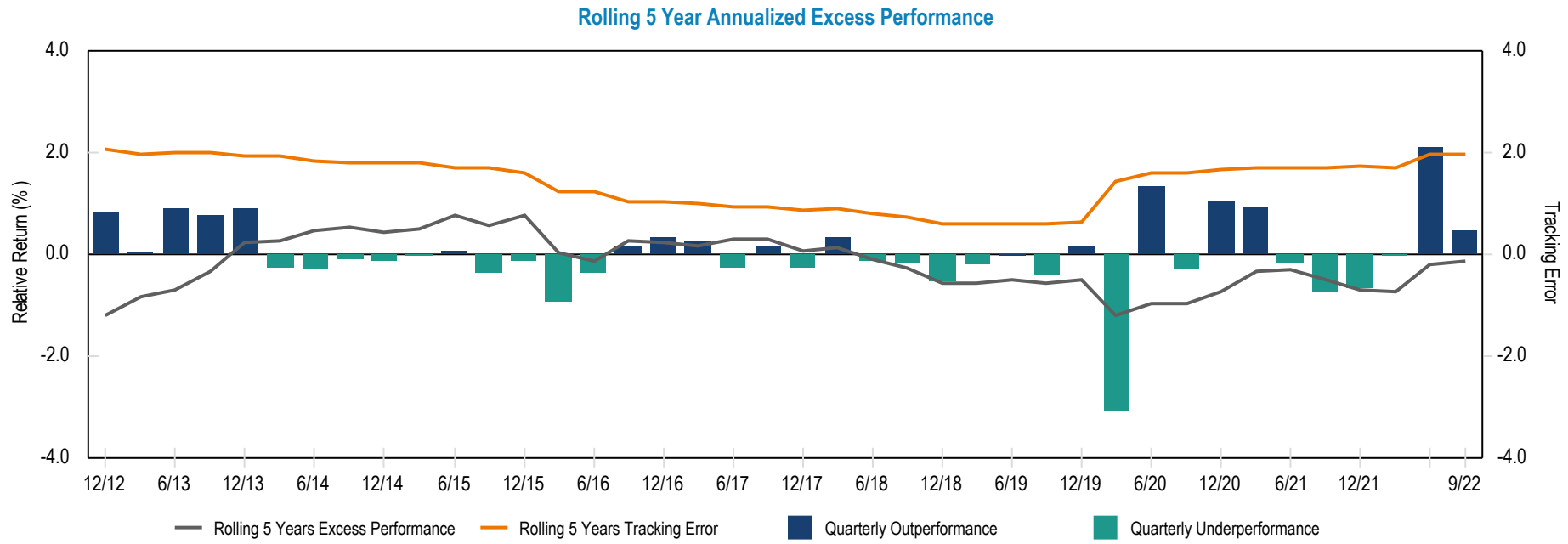
Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: September 30, 2022



	3 Mo	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
● Total Fund	-3.98 (54)	-4.90 (35)	23.62 (87)	0.56 (69)	5.95 (43)	7.52 (72)	11.46 (76)	-1.46 (81)
▲ Policy Index	-4.47 (69)	-5.78 (41)	21.86 (95)	3.06 (22)	6.92 (16)	7.42 (75)	10.90 (85)	0.36 (45)
5th Percentile	-2.93	-1.04	33.11	4.61	7.74	10.79	14.74	2.44
1st Quartile	-3.47	-4.01	29.11	2.89	6.54	9.18	13.53	0.92
Median	-3.85	-7.21	26.97	1.39	5.72	8.22	12.56	0.20
3rd Quartile	-4.62	-10.04	25.08	0.29	4.89	7.41	11.49	-0.84
95th Percentile	-5.72	-13.51	21.68	-2.01	3.76	6.73	9.82	-2.50
Population	50	104	152	144	115	90	90	87


Rolling 3 Year Annualized Excess Performance
4.0
2.0
0.0
-2.0
-4.0
Relative Return (%)
Tracking Error
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Rolling 3 Years Excess Performance
Rolling 3 Years Tracking Error
Quarterly Outperformance
Quarterly Underperformance

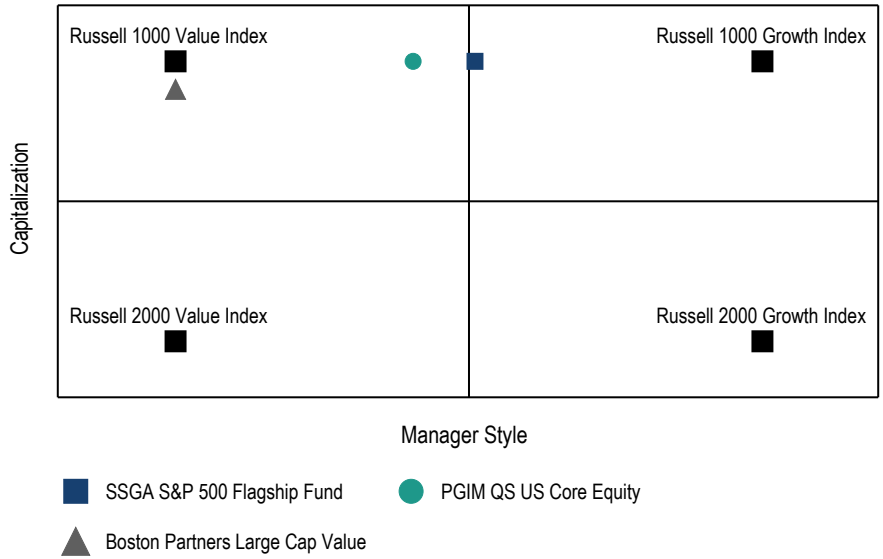

Rolling 5 Year Annualized Excess Performance
4.0
2.0
0.0
-2.0
-4.0
Relative Return (%)
Tracking Error
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Rolling 5 Years Excess Performance
Rolling 5 Years Tracking Error
Quarterly Outperformance
Quarterly Underperformance

Total Domestic Equity
Asset Class Overview (Net of Fees)

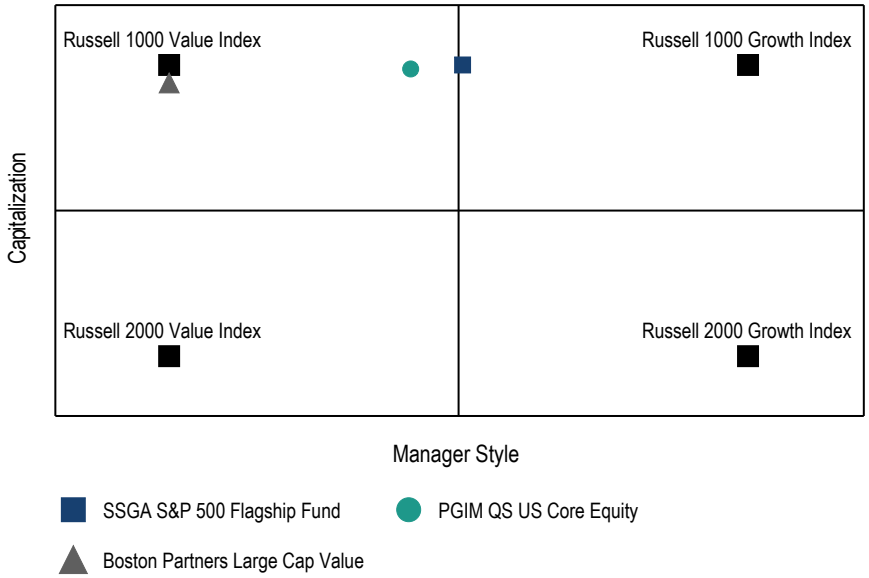
Tulare County Employees' Retirement Association
Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Domestic Equity	**468,528,729**	**100.0**	**-4.4**	**-24.1**	**-17.4**	**7.0**	**8.1**	**11.2**	**26.1**	**18.2**	**29.8**	**-5.4**	**21.9**
Russell 3000 Index			*-4.5*	*-24.6*	*-17.6*	*7.7*	*8.6*	*11.4*	*25.7*	*20.9*	*31.0*	*-5.2*	*21.1*
SSGA S&P 500 Flagship Fund	178,193,400	38.0	-4.9	-23.9	-15.5	8.1	9.2	11.7	28.6	18.3	31.5	-4.4	21.8
S&P 500 Index			*-4.9*	*-23.9*	*-15.5*	*8.2*	*9.2*	*11.7*	*28.7*	*18.4*	*31.5*	*-4.4*	*21.8*
eV US Large Cap Core Equity Rank			*43*	*59*	*49*	*25*	*27*	*17*	*31*	*37*	*30*	*39*	*43*
PGIM QS US Core Equity	59,327,069	12.7	-5.3	-21.9	-13.9	7.4	7.9	11.3	29.8	12.0	28.6	-6.8	22.1
S&P 500 Index			*-4.9*	*-23.9*	*-15.5*	*8.2*	*9.2*	*11.7*	*28.7*	*18.4*	*31.5*	*-4.4*	*21.8*
eV US Large Cap Core Equity Rank			*59*	*37*	*36*	*40*	*55*	*30*	*21*	*71*	*58*	*71*	*39*
William Blair Large Cap Growth	58,166,893	12.4	-4.8	-	-	-	-	-	-	-	-	-	-
Russell 1000 Growth Index			*-3.6*	*-30.7*	*-22.6*	*10.7*	*12.2*	*13.7*	*27.6*	*38.5*	*36.4*	*-1.5*	*30.2*
eV US Large Cap Value Equity Rank			*31*	-	-	-	-	-	-	-	-	-	-
Boston Partners Large Cap Value	63,851,358	13.6	-5.0	-15.0	-7.0	7.0	6.5	9.9	30.4	2.4	23.8	-9.0	19.6
Russell 1000 Value Index			*-5.6*	*-17.8*	*-11.4*	*4.4*	*5.3*	*9.2*	*25.2*	*2.8*	*26.5*	*-8.3*	*13.7*
eV US Large Cap Value Equity Rank			*35*	*30*	*22*	*29*	*45*	*35*	*17*	*61*	*76*	*53*	*24*

U.S. Effective Style Map
3 Years



U.S. Effective Style Map
5 Years

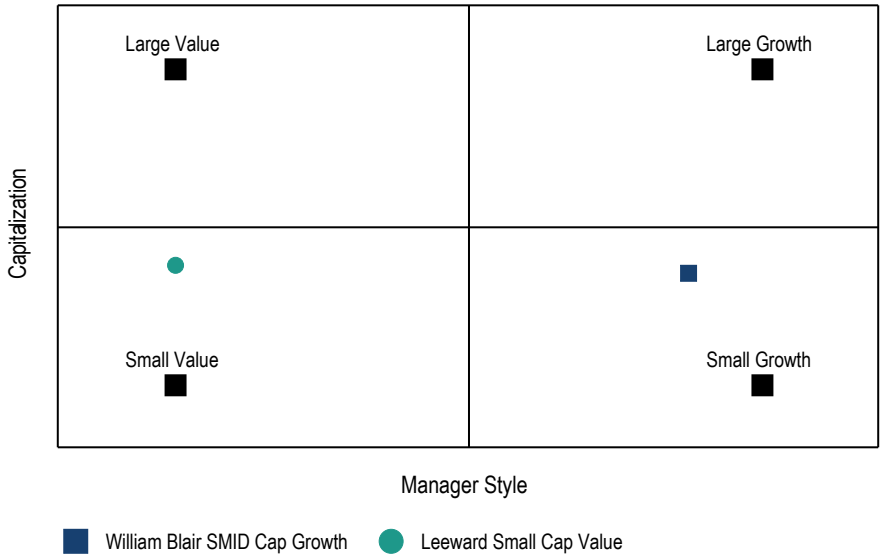


Managers need 3 years of history to be included in the style map. Macquarie Large Cap Growth liquidated 4/25/2022, proceeds funded William Blair Large Cap Growth.

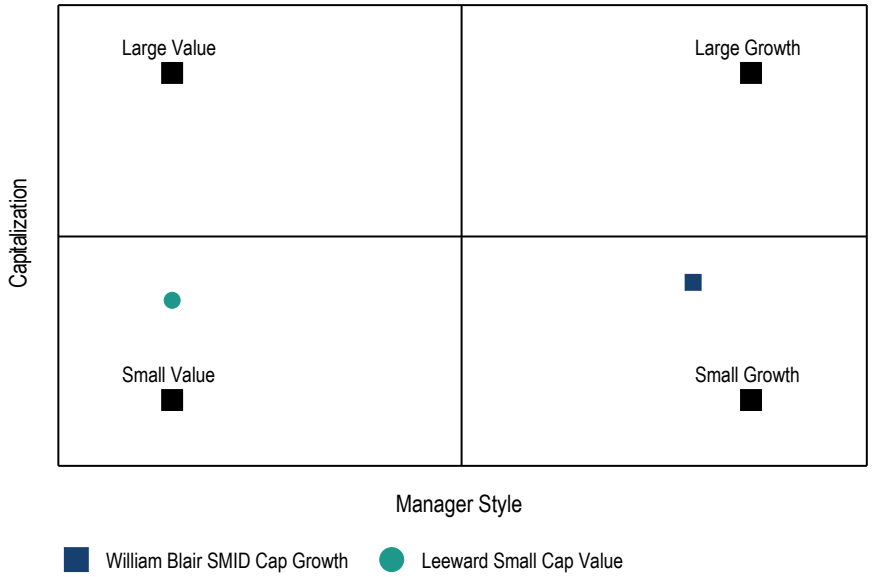
Verus

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
SSGA US Extended Market Index	56,769,122	12.1	-2.8	-30.0	-29.4	-	-	-	-	-	-	-	-
Dow Jones U.S. Completion Total Stock Market Indx			*-2.8*	*-30.1*	*-29.6*	*4.2*	*4.7*	*9.2*	*12.4*	*32.2*	*27.9*	*-9.6*	*18.1*
eV US Small-Mid Cap Equity Rank			*40*	*79*	*85*	-	-	-	-	-	-	-	-
William Blair SMID Cap Growth	23,479,906	5.0	-1.1	-29.1	-28.0	2.2	6.8	11.5	8.7	32.6	31.1	-1.7	29.3
Russell 2500 Growth Index			*-0.1*	*-29.5*	*-29.4*	*4.8*	*6.3*	*10.3*	*5.0*	*40.5*	*32.7*	*-7.5*	*24.5*
eV US Small-Mid Cap Growth Equity Rank			*48*	*38*	*46*	*88*	*65*	*27*	*74*	*62*	*48*	*36*	*19*
Leeward Small Cap Value	28,740,981	6.1	-2.5	-15.9	-9.7	7.7	4.7	9.1	31.6	3.8	26.3	-15.5	7.7
Russell 2000 Value Index			*-4.6*	*-21.1*	*-17.7*	*4.7*	*2.9*	*7.9*	*28.3*	*4.6*	*22.4*	*-12.9*	*7.8*
eV US Small Cap Value Equity Rank			*13*	*12*	*12*	*21*	*27*	*35*	*37*	*57*	*25*	*57*	*71*

U.S. Effective Style Map
3 Years



U.S. Effective Style Map
5 Years



Managers need 3 years of history to be included in the style map.

Verus

Total Domestic Equity
Common Holdings Matrix

Tulare County Employees' Retirement Association
Period Ending: September 30, 2022

	SSGA S&P 500 Flagship Fund		PGIM QS US Core Equity		Boston Partners Large Cap Value		SSGA US Extended Market Index		William Blair SMID Cap Growth		Lee Munder Small Value	
	#	%	#	%	#	%	#	%	#	%	#	%
SSGA S&P 500 Flagship Fund	0	0	152	92	64	88	0	0	7	11	0	0
PGIM QS US Core Equity	152	68	0	0	37	62	57	5	2	3	3	2
Boston Partners Large Cap Value	64	19	37	21	0	0	5	1	0	0	1	1
SSGA US Extended Market Index	0	0	57	8	5	4	0	0	59	83	85	97
William Blair SMID Cap Growth	7	0	2	0	0	0	59	6	0	0	5	7
Lee Munder Small Value	0	0	3	0	1	1	85	5	5	10	0	0

William Blair Large Cap Growth not included in Correlation matrix until it reaches 1 year history.

Correlation Matrix
1 Year Ending September 30, 2022

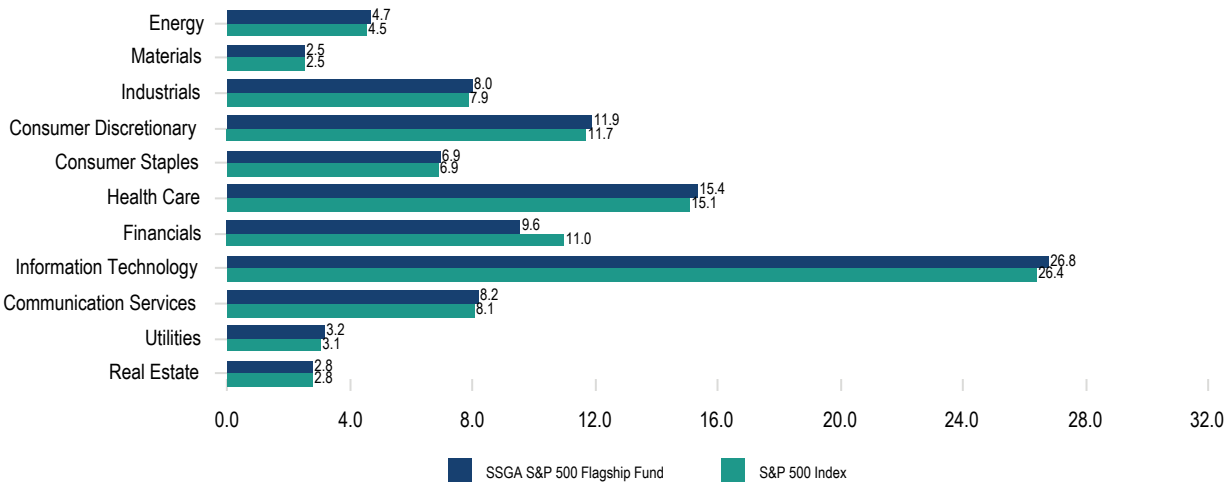
	SSGA S&P 500 Flagship Fund	PGIM QS US Core Equity	Boston Partners Large Cap Value	SSGA US Extended Market Index	William Blair SMID Cap Growth	Lee Munder Small Value	S&P 500 Index
SSGA S&P 500 Flagship Fund	1.00						
PGIM QS US Core Equity	0.99	1.00					
Boston Partners Large Cap Value	0.91	0.94	1.00				
SSGA US Extended Market Index	0.93	0.91	0.80	1.00			
William Blair SMID Cap Growth	0.88	0.86	0.72	0.98	1.00		
Lee Munder Small Value	0.91	0.93	0.93	0.90	0.85	1.00	
S&P 500 Index	1.00	0.99	0.91	0.93	0.88	0.91	1.00

William Blair Large Cap Growth not included in Correlation matrix until it reaches 1 year history.

Characteristics

	Portfolio	Benchmark
Number of Stocks	505	503
Wtd. Avg. Mkt. Cap $B	461.8	464.0
Median Mkt. Cap $B	27.0	27.1
Price/Earnings ratio	17.95	18.15
Price/Book ratio	3.89	3.76
Return on Equity (%)	31.74	31.09
Current Yield (%)	1.88	1.85
Beta (5 Years, Monthly)	1.00	1.00
R-Squared (5 Years, Monthly)	1.00	1.00

Sector Allocation (%)



Largest Equity Holdings

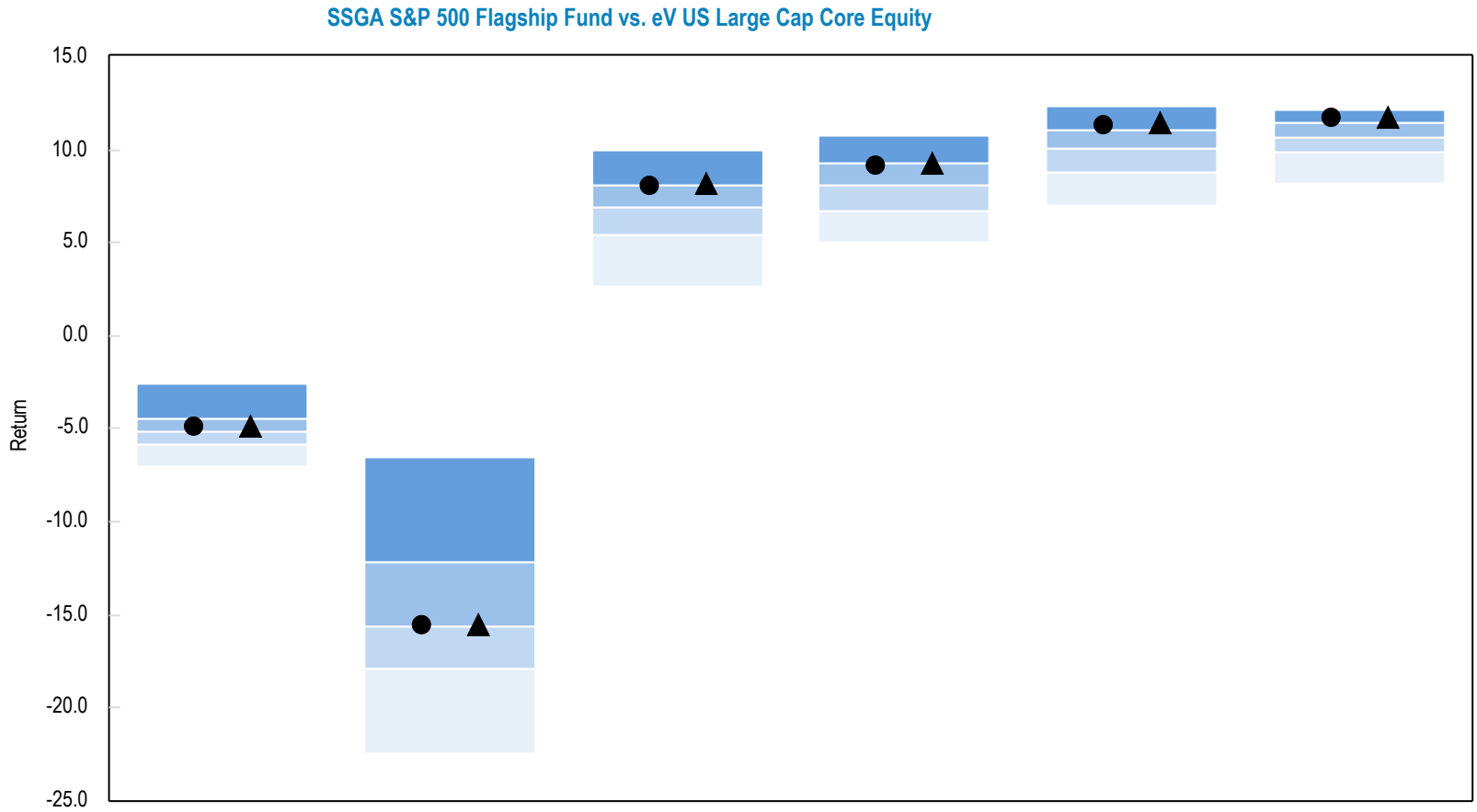
	Wgt (%)	Return (%)
Apple Inc	7.04	1.22
Microsoft Corp	5.86	-9.12
Amazon.com Inc	3.38	6.39
Tesla Inc	2.38	18.17
Alphabet Inc	1.93	-12.22
Alphabet Inc	1.74	-12.09
Unitedhealth Group Inc	1.59	-1.36
Johnson & Johnson	1.45	-7.35
Exxon Mobil Corp	1.23	2.91
Meta Platforms Inc	1.04	-15.86

Top Contributors

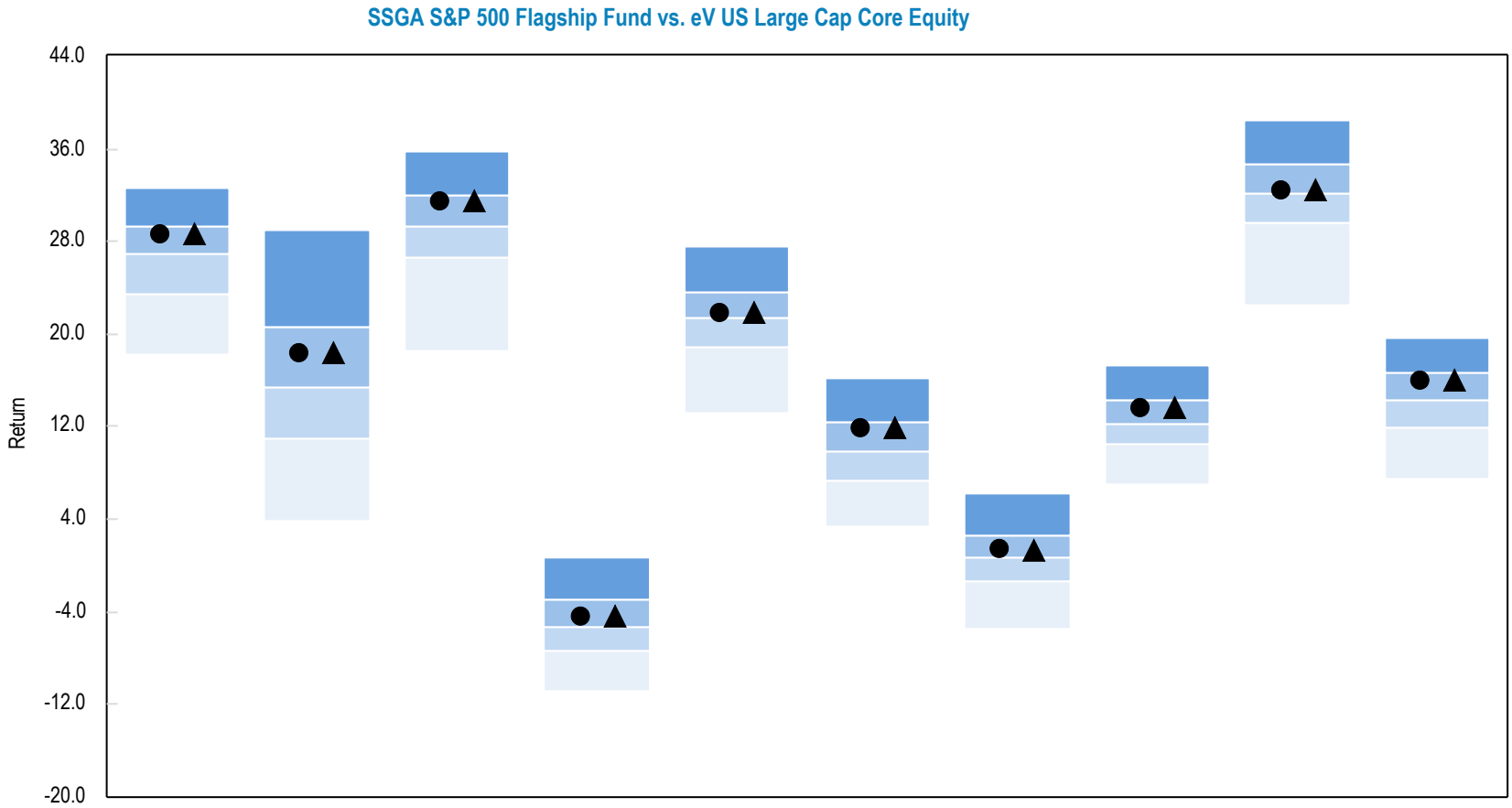
	Wgt (%)	Return (%)	Contr (%)
Tesla Inc	1.77	18.17	0.32
Amazon.com Inc	2.91	6.39	0.19
Netflix Inc	0.24	34.64	0.08
Apple Inc	6.59	1.22	0.08
PayPal Holdings Inc	0.26	23.24	0.06
Conocophillips	0.36	16.03	0.06
Schwab (Charles) Corp	0.30	14.10	0.04
Walmart Inc	0.53	7.14	0.04
Enphase Energy Inc	0.08	42.12	0.04
Regeneron Pharmaceuticals Inc	0.20	16.53	0.03

Bottom Contributors

	Wgt (%)	Return (%)	Contr (%)
Microsoft Corp	6.02	-9.12	-0.55
Alphabet Inc	2.05	-12.22	-0.25
NVIDIA Corporation	1.19	-19.90	-0.24
Alphabet Inc	1.89	-12.09	-0.23
Meta Platforms Inc	1.16	-15.86	-0.18
Verizon Communications Inc	0.67	-24.24	-0.16
Pfizer Inc	0.92	-15.88	-0.15
Intel Corp	0.48	-30.41	-0.15
Comcast Corp	0.55	-24.75	-0.14
Adobe Inc	0.54	-24.82	-0.14

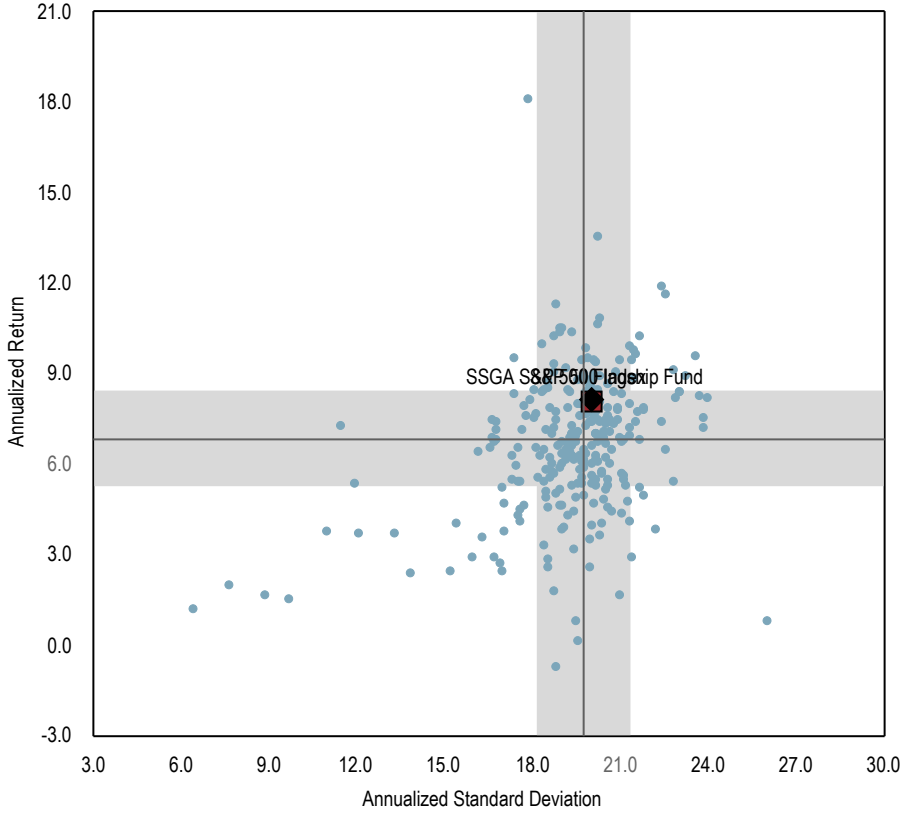


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● SSGA S&P 500 Flagship Fund	-4.89 (43)	-15.51 (49)	8.11 (25)	9.20 (27)	11.39 (19)	11.70 (17)
▲ S&P 500 Index	-4.88 (43)	-15.47 (49)	8.16 (25)	9.24 (26)	11.40 (18)	11.70 (17)
5th Percentile	-2.58	-6.51	9.93	10.72	12.32	12.15
1st Quartile	-4.46	-12.13	8.11	9.26	11.03	11.42
Median	-5.11	-15.64	6.88	8.11	10.11	10.69
3rd Quartile	-5.86	-17.87	5.44	6.74	8.82	9.85
95th Percentile	-7.03	-22.44	2.65	5.02	6.99	8.15
Population	293	292	282	267	243	204

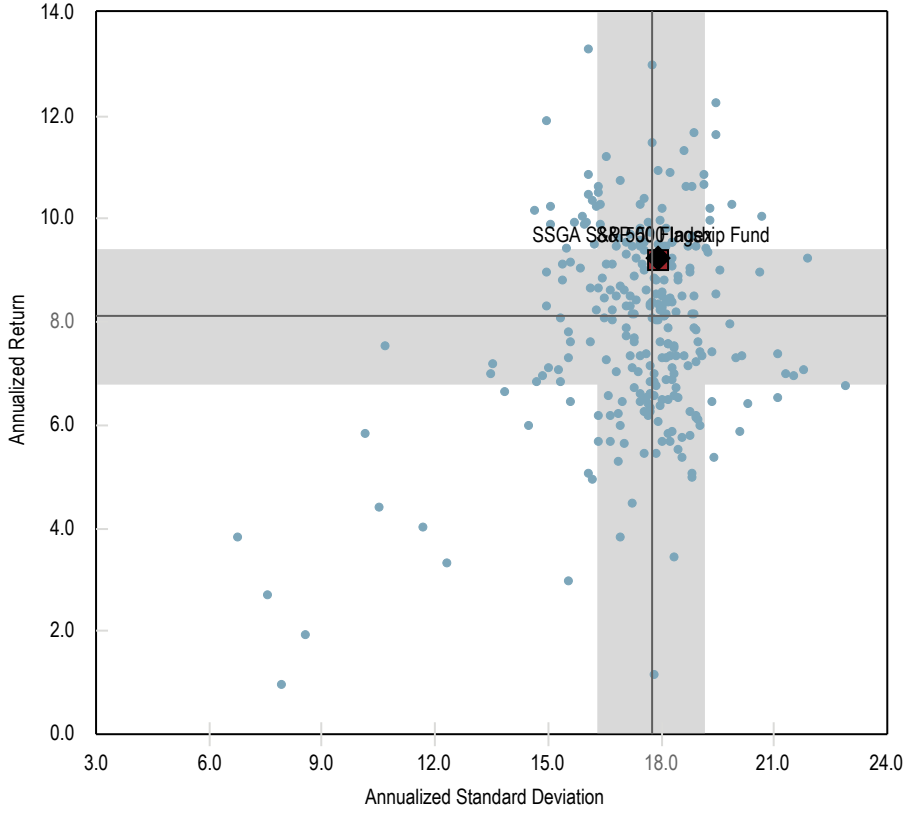


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● SSGA S&P 500 Flagship Fund	28.63 (31)	18.34 (37)	31.46 (30)	-4.39 (39)	21.84 (43)	12.00 (29)	1.43 (42)	13.69 (31)	32.44 (48)	16.04 (32)
▲ S&P 500 Index	28.71 (30)	18.40 (37)	31.49 (30)	-4.38 (39)	21.83 (43)	11.96 (30)	1.38 (42)	13.69 (31)	32.39 (48)	16.00 (32)
5th Percentile	32.60	28.93	35.75	0.64	27.64	16.21	6.19	17.34	38.52	19.63
1st Quartile	29.23	20.68	31.98	-2.94	23.55	12.36	2.66	14.22	34.63	16.61
Median	26.96	15.32	29.38	-5.25	21.36	9.90	0.78	12.18	32.20	14.32
3rd Quartile	23.51	10.95	26.54	-7.35	18.87	7.39	-1.36	10.48	29.68	11.92
95th Percentile	18.17	3.82	18.62	-10.91	13.21	3.32	-5.48	7.08	22.55	7.52
Population	326	348	357	362	368	368	374	374	368	366

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Large Cap Core Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Large Cap Core Equity



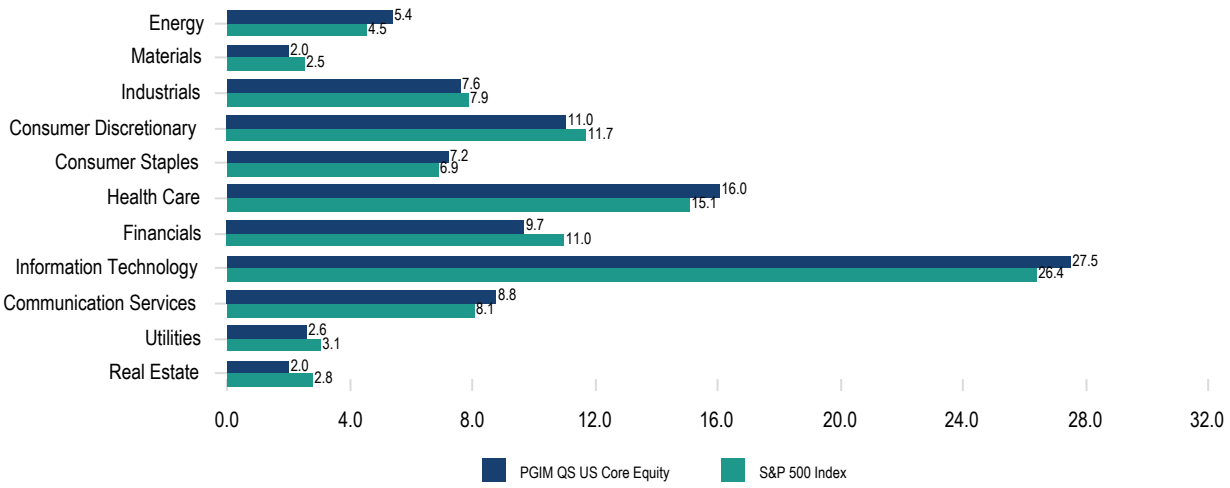
	3 Years		
	Return	Standard Deviation	Sharpe Ratio
SSGA S&P 500 Flagship Fund	8.11	20.02	0.46
S&P 500 Index	8.16	20.02	0.46

	5 Years		
	Return	Standard Deviation	Sharpe Ratio
SSGA S&P 500 Flagship Fund	9.20	17.93	0.52
S&P 500 Index	9.24	17.92	0.52

Characteristics

	Portfolio	Benchmark
Number of Stocks	212	503
Wtd. Avg. Mkt. Cap $B	452.4	464.0
Median Mkt. Cap $B	38.5	27.1
Price/Earnings ratio	13.76	18.15
Price/Book ratio	3.43	3.76
Return on Equity (%)	15.81	31.09
Current Yield (%)	2.01	1.85
Beta (5 Years, Monthly)	1.01	1.00
R-Squared (5 Years, Monthly)	0.99	1.00

Sector Allocation (%)



Largest Equity Holdings

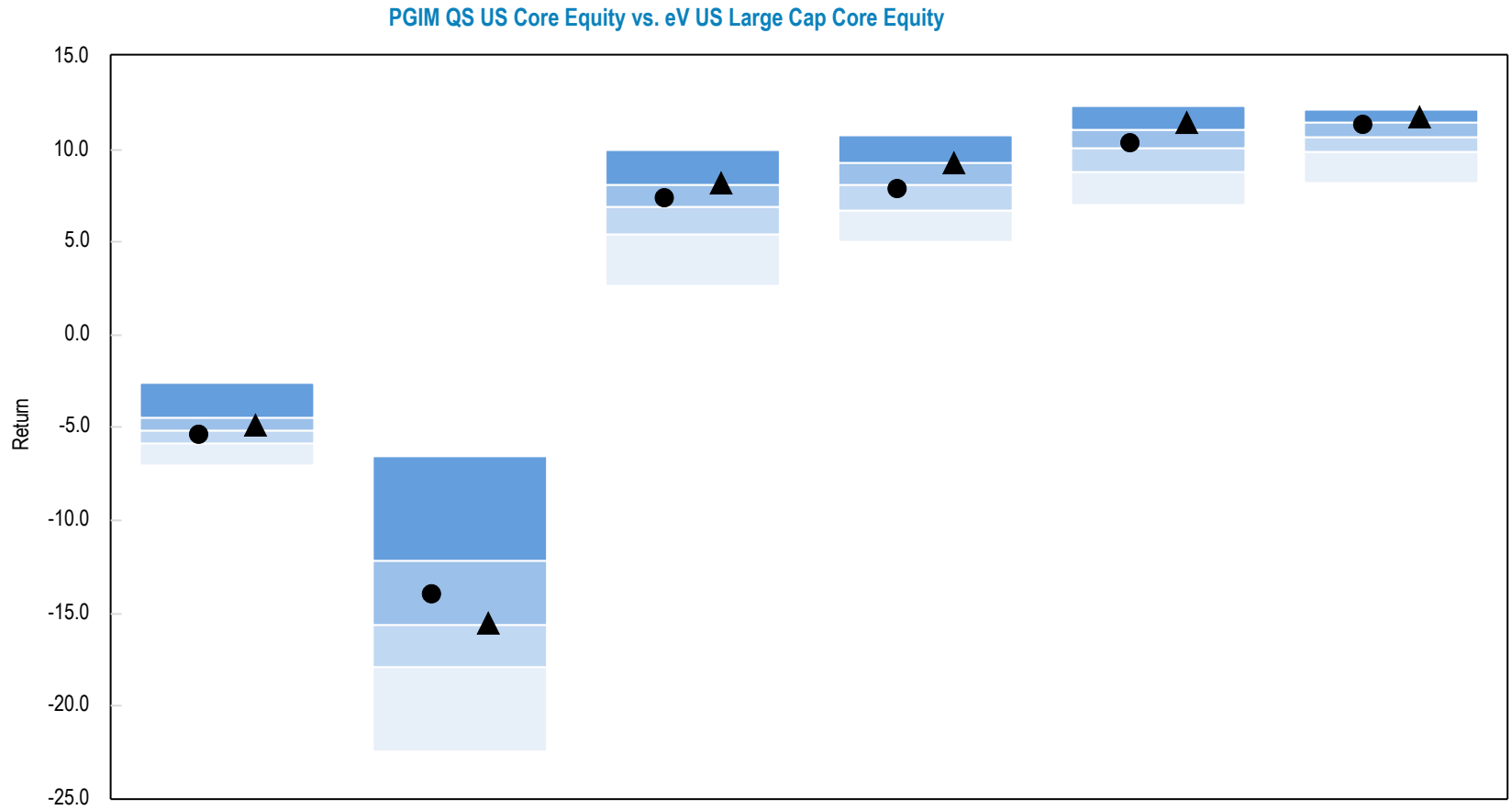
	Wgt (%)	Return (%)
Apple Inc	6.51	1.22
Microsoft Corp	6.17	-9.12
Amazon.com Inc	2.74	6.39
Tesla Inc	2.67	18.17
Alphabet Inc	2.09	-12.22
Alphabet Inc	2.08	-12.09
Unitedhealth Group Inc	1.87	-1.36
Pfizer Inc	1.35	-15.88
Meta Platforms Inc	1.33	-15.86
Merck & Co Inc	1.31	-4.79

Top Contributors

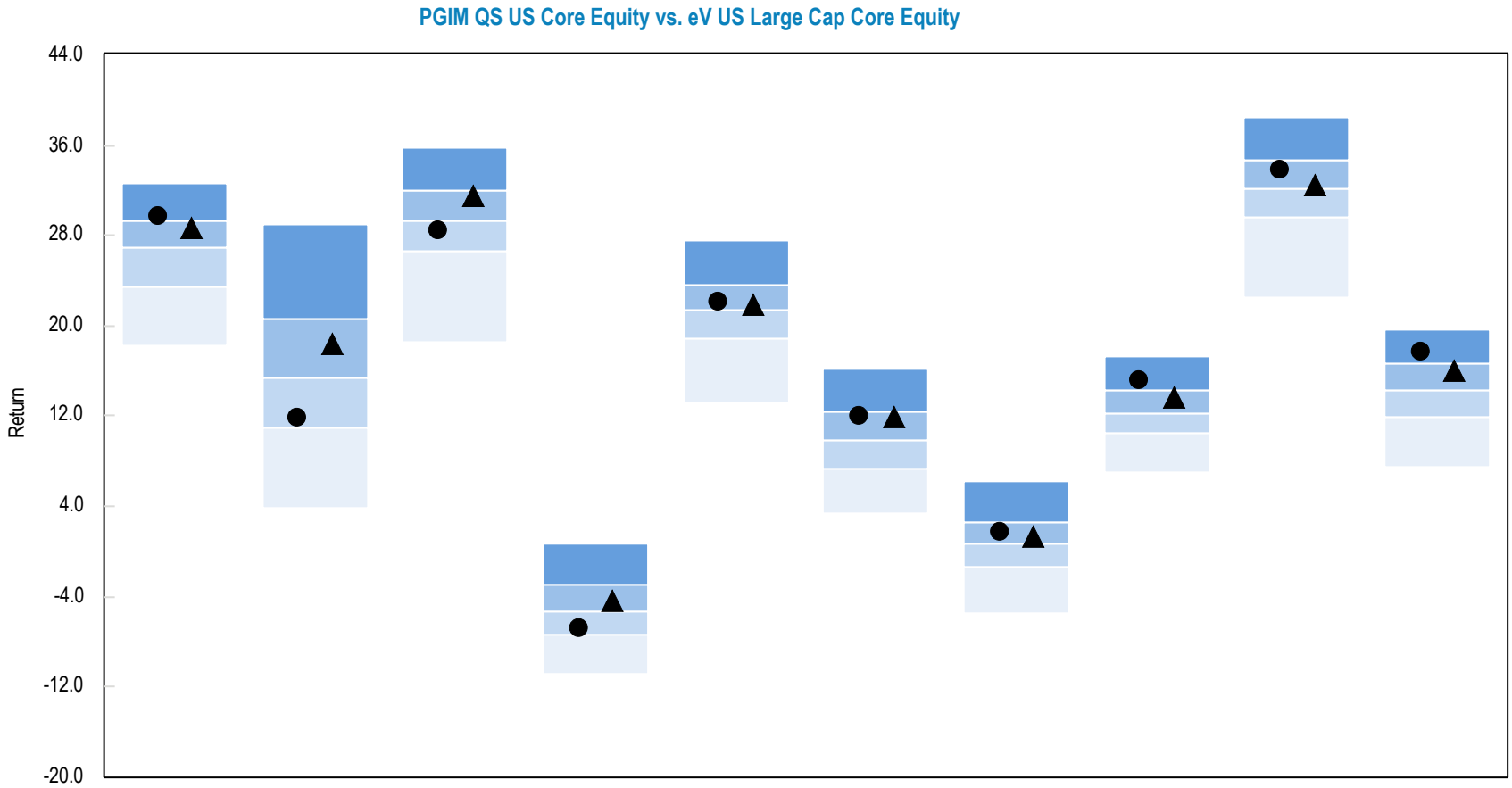
	Wgt (%)	Return (%)	Contr (%)
Conocophillips	1.31	16.03	0.21
EPAM Systems Inc	0.38	22.87	0.09
Tesla Inc	0.45	18.17	0.08
Automatic Data Processing Inc	0.92	8.15	0.08
Walmart Inc	1.03	7.14	0.07
Apple Inc	5.86	1.22	0.07
Lowe's Cos Inc	0.76	8.12	0.06
Deckers Outdoor Corp	0.26	22.42	0.06
Netflix Inc	0.17	34.64	0.06
Ameriprise Financial Inc	0.79	6.50	0.05

Bottom Contributors

	Wgt (%)	Return (%)	Contr (%)
Microsoft Corp	6.97	-9.12	-0.64
Alphabet Inc	2.28	-12.22	-0.28
Intel Corp	0.87	-30.41	-0.26
Verizon Communications Inc	1.07	-24.24	-0.26
Meta Platforms Inc	1.63	-15.86	-0.26
Alphabet Inc	2.14	-12.09	-0.26
Adobe Inc	1.00	-24.82	-0.25
Qurate Retail Inc	1.27	-19.39	-0.25
Pfizer Inc	1.24	-15.88	-0.20
Procter & Gamble Co (The)	1.70	-11.63	-0.20

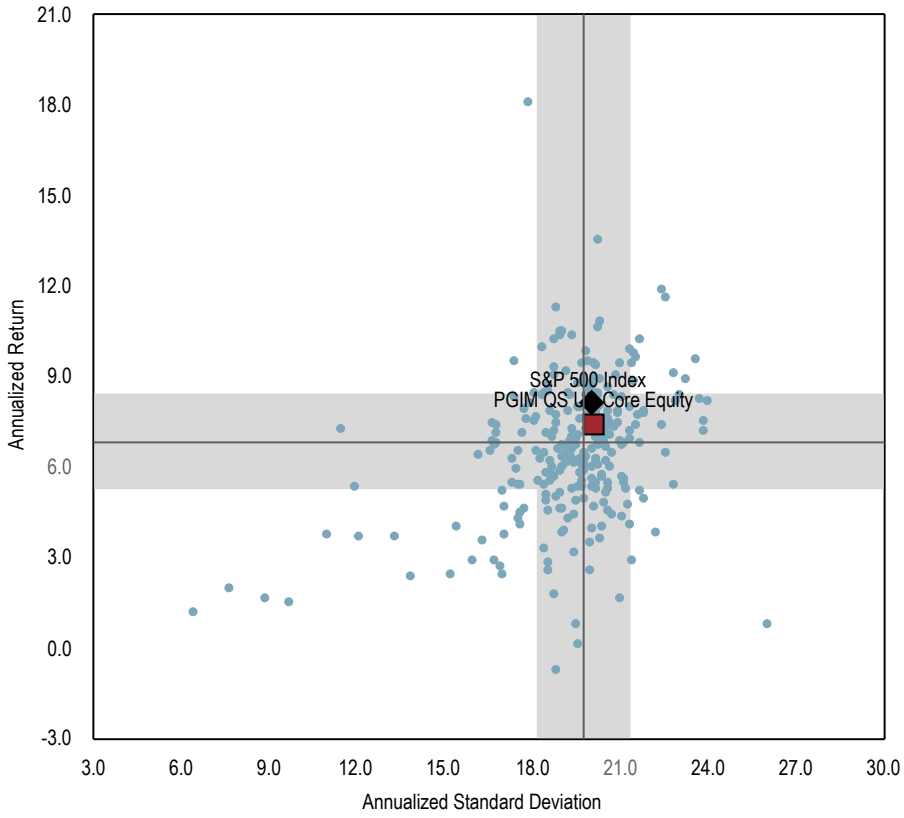


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● PGIM QS US Core Equity	-5.34 (59)	-13.90 (36)	7.44 (40)	7.85 (55)	10.32 (45)	11.31 (30)
▲ S&P 500 Index	-4.88 (43)	-15.47 (49)	8.16 (25)	9.24 (26)	11.40 (18)	11.70 (17)
5th Percentile	-2.58	-6.51	9.93	10.72	12.32	12.15
1st Quartile	-4.46	-12.13	8.11	9.26	11.03	11.42
Median	-5.11	-15.64	6.88	8.11	10.11	10.69
3rd Quartile	-5.86	-17.87	5.44	6.74	8.82	9.85
95th Percentile	-7.03	-22.44	2.65	5.02	6.99	8.15
Population	293	292	282	267	243	204

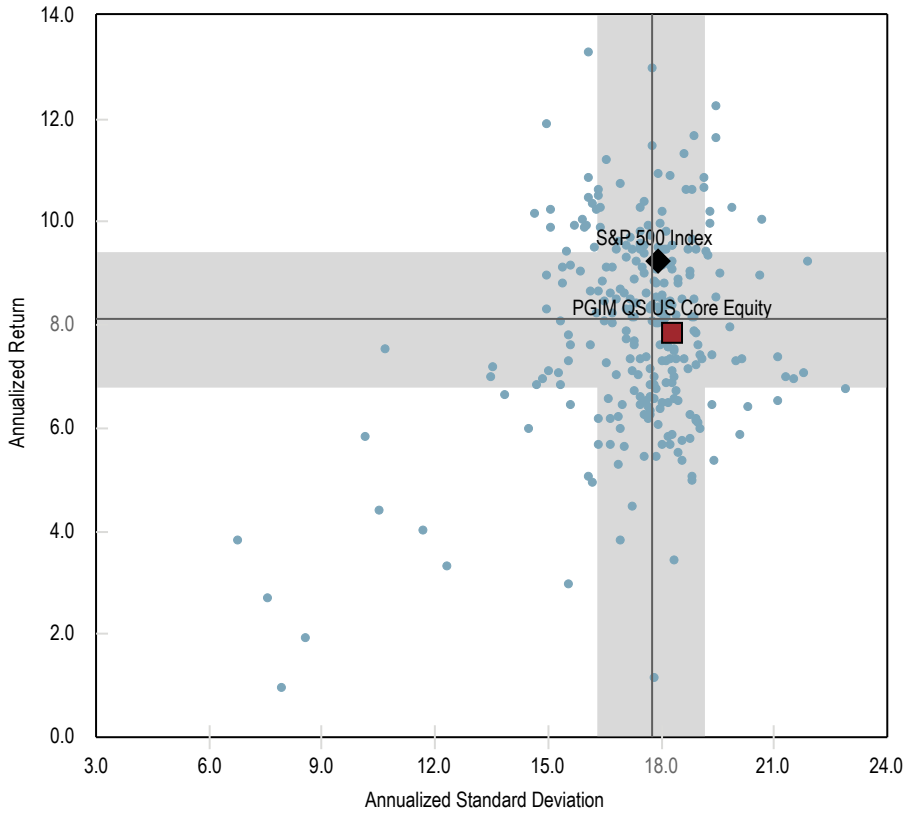


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● PGIM QS US Core Equity	29.78 (21)	11.96 (71)	28.55 (58)	-6.79 (71)	22.12 (39)	12.12 (27)	1.78 (35)	15.25 (15)	33.91 (31)	17.78 (15)
▲ S&P 500 Index	28.71 (30)	18.40 (37)	31.49 (30)	-4.38 (39)	21.83 (43)	11.96 (30)	1.38 (42)	13.69 (31)	32.39 (48)	16.00 (32)
5th Percentile	32.60	28.93	35.75	0.64	27.64	16.21	6.19	17.34	38.52	19.63
1st Quartile	29.23	20.68	31.98	-2.94	23.55	12.36	2.66	14.22	34.63	16.61
Median	26.96	15.32	29.38	-5.25	21.36	9.90	0.78	12.18	32.20	14.32
3rd Quartile	23.51	10.95	26.54	-7.35	18.87	7.39	-1.36	10.48	29.68	11.92
95th Percentile	18.17	3.82	18.62	-10.91	13.21	3.32	-5.48	7.08	22.55	7.52
Population	326	348	357	362	368	368	374	374	368	366

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Large Cap Core Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Large Cap Core Equity



3 Years

	Return	Standard Deviation	Sharpe Ratio
PGIM QS US Core Equity	7.44	20.07	0.43
S&P 500 Index	8.16	20.02	0.46

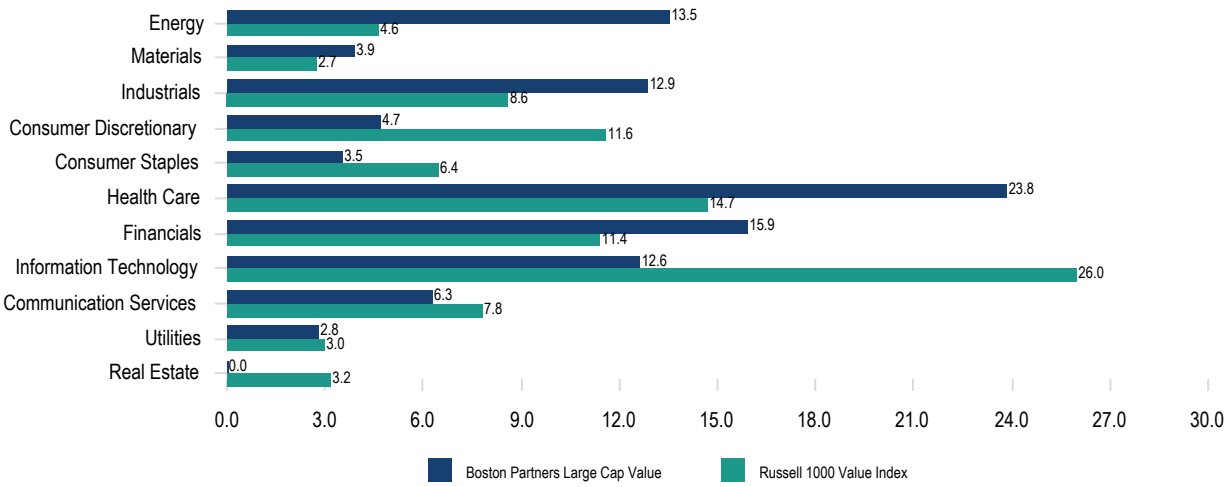
5 Years

	Return	Standard Deviation	Sharpe Ratio
PGIM QS US Core Equity	7.85	18.31	0.44
S&P 500 Index	9.24	17.92	0.52

Characteristics

	Portfolio	Benchmark
Number of Stocks	79	1,016
Wtd. Avg. Mkt. Cap $B	140.4	420.7
Median Mkt. Cap $B	49.5	11.5
Price/Earnings ratio	13.62	17.63
Price/Book ratio	2.37	3.66
Return on Equity (%)	6.33	28.13
Current Yield (%)	2.26	1.80
Beta (5 Years, Monthly)	1.03	1.00
R-Squared (5 Years, Monthly)	0.97	1.00

Sector Allocation (%)



Largest Equity Holdings

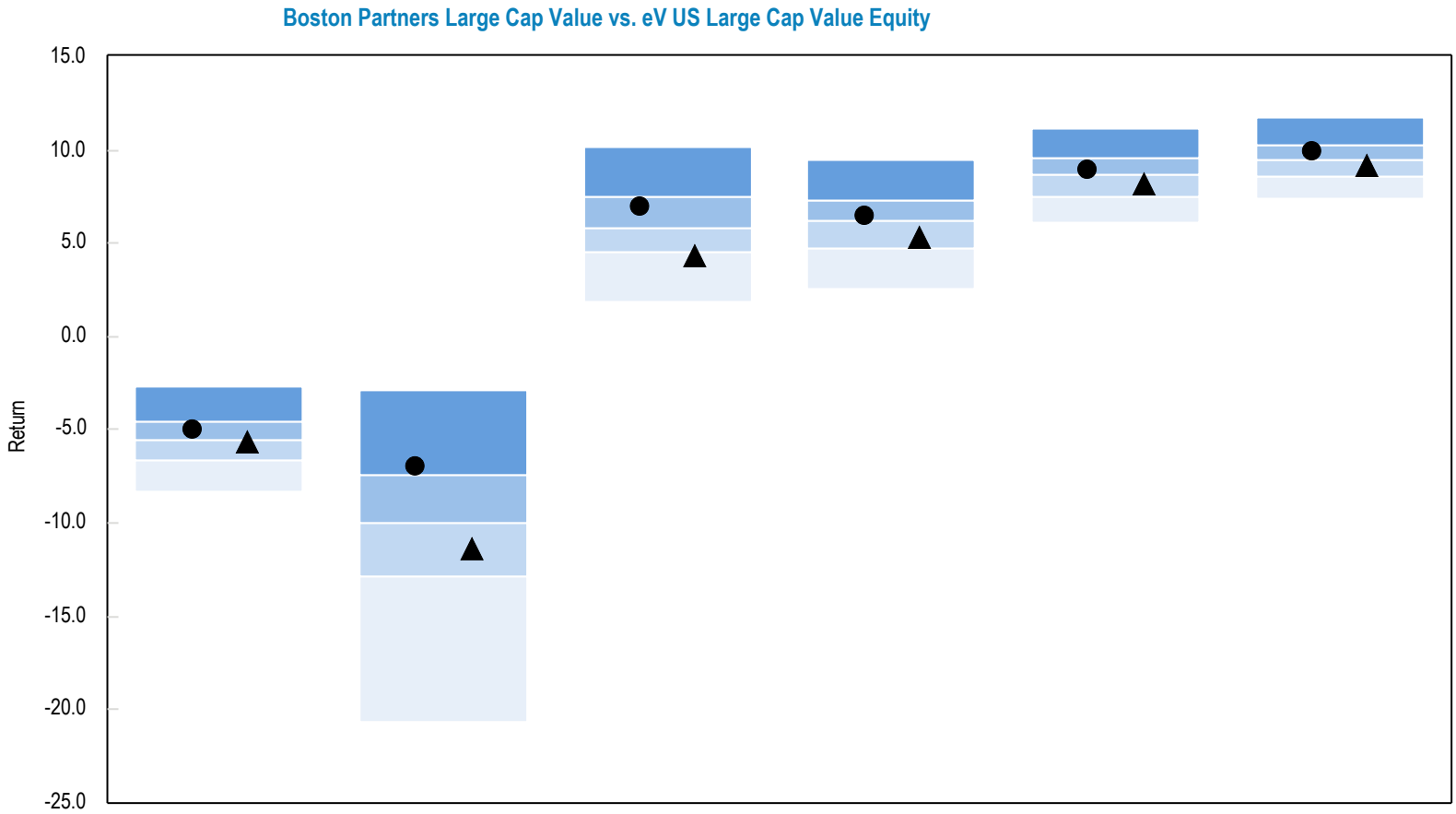
	Wgt (%)	Return (%)
Johnson & Johnson	4.31	-7.35
Conocophillips	3.97	16.03
JPMorgan Chase & Co	3.48	-6.38
AutoZone Inc	2.77	-0.34
Alphabet Inc	2.63	-12.22
Schwab (Charles) Corp	2.53	14.10
CVS Health Corp	2.49	3.53
Cigna Corp	2.38	5.71
Wells Fargo & Co	2.26	3.40
Sanofi	2.23	-24.01

Top Contributors

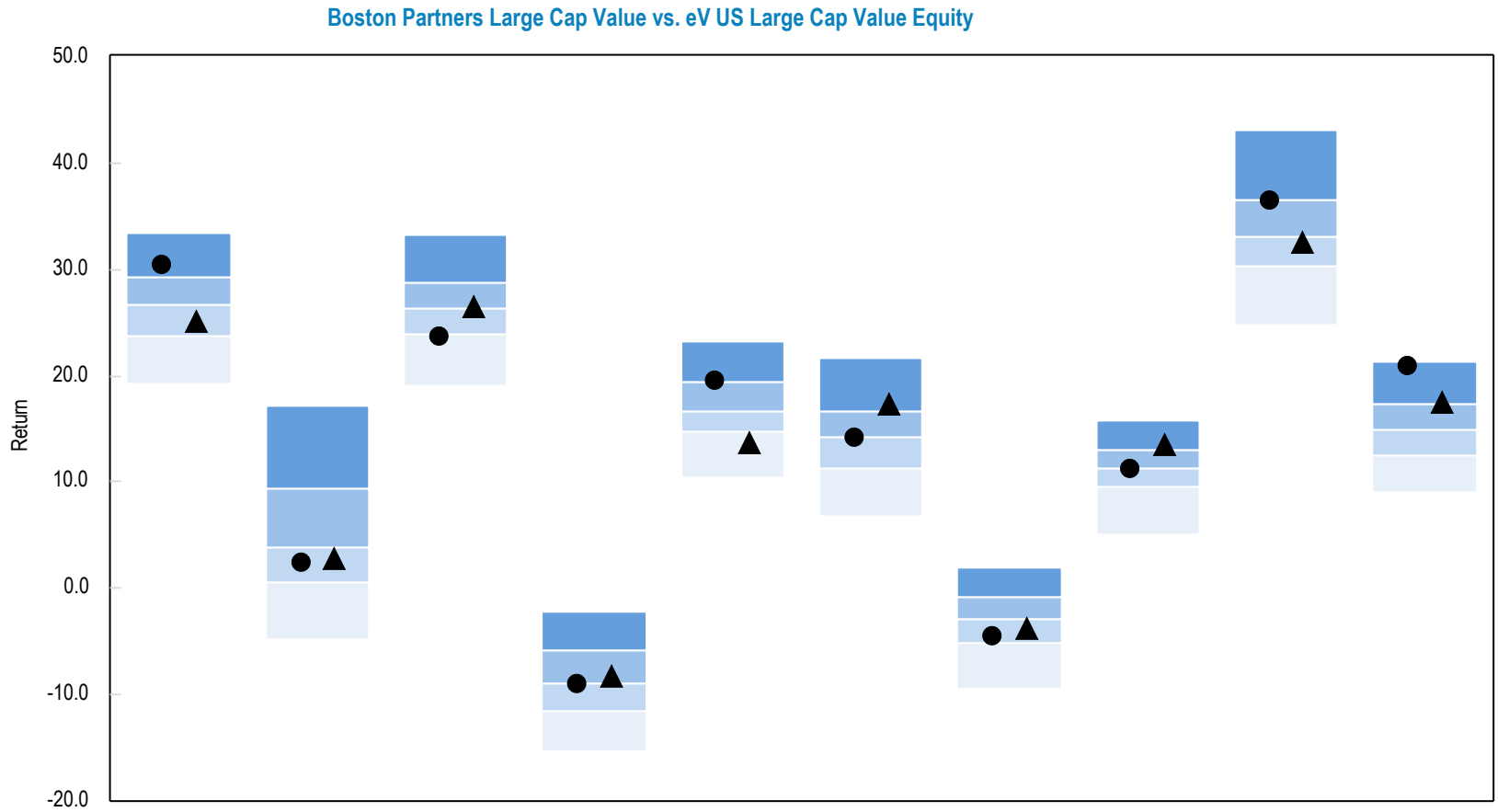
	Wgt (%)	Return (%)	Contr (%)
Conocophillips	3.47	16.03	0.56
Marathon Petroleum Corp	2.21	21.55	0.48
DEERE & COMPANY	1.62	11.86	0.19
Schwab (Charles) Corp	1.13	14.10	0.16
HF Sinclair Corp	0.69	20.14	0.14
Cigna Corp	2.34	5.71	0.13
United Rentals Inc.	0.91	11.20	0.10
McKesson Corp	2.01	4.34	0.09
Eaton Corp Plc	1.32	6.42	0.08
TJX Companies Inc (The)	0.54	11.75	0.06

Bottom Contributors

	Wgt (%)	Return (%)	Contr (%)
Avantor Inc	0.83	-36.98	-0.31
Pfizer Inc	1.68	-15.88	-0.27
Johnson & Johnson	3.59	-7.35	-0.26
Alphabet Inc	2.04	-12.22	-0.25
Charter Communications Inc	0.67	-35.25	-0.24
Mohawk Industries Inc.	0.69	-26.51	-0.18
Coca-Cola Europacific Partners PLC	0.94	-17.42	-0.16
JPMorgan Chase & Co	2.57	-6.38	-0.16
Canadian Natural Resources Ltd	1.44	-10.49	-0.15
Chubb Ltd	2.09	-7.08	-0.15

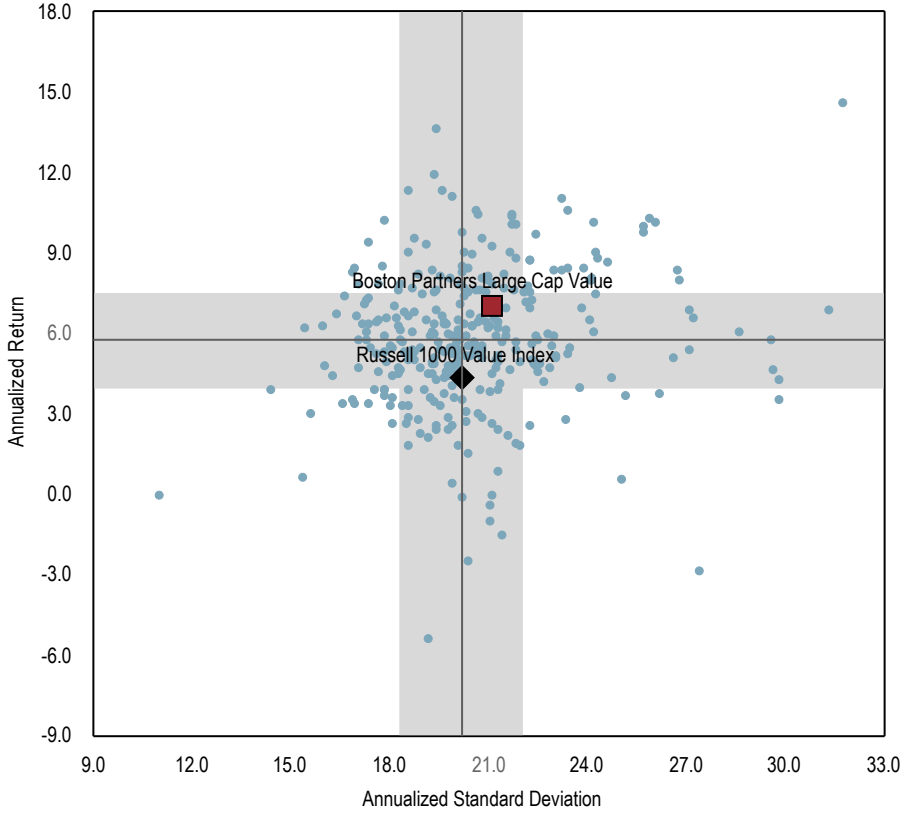


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Boston Partners Large Cap Value	-4.95 (35)	-6.96 (22)	7.05 (29)	6.49 (45)	9.01 (40)	9.92 (35)
▲ Russell 1000 Value Index	-5.62 (52)	-11.36 (62)	4.36 (78)	5.29 (67)	8.15 (62)	9.17 (61)
5th Percentile	-2.67	-2.89	10.13	9.46	11.10	11.75
1st Quartile	-4.57	-7.39	7.51	7.30	9.59	10.26
Median	-5.56	-10.03	5.79	6.25	8.73	9.48
3rd Quartile	-6.62	-12.81	4.56	4.76	7.51	8.57
95th Percentile	-8.34	-20.64	1.89	2.54	6.14	7.35
Population	331	329	320	310	298	277

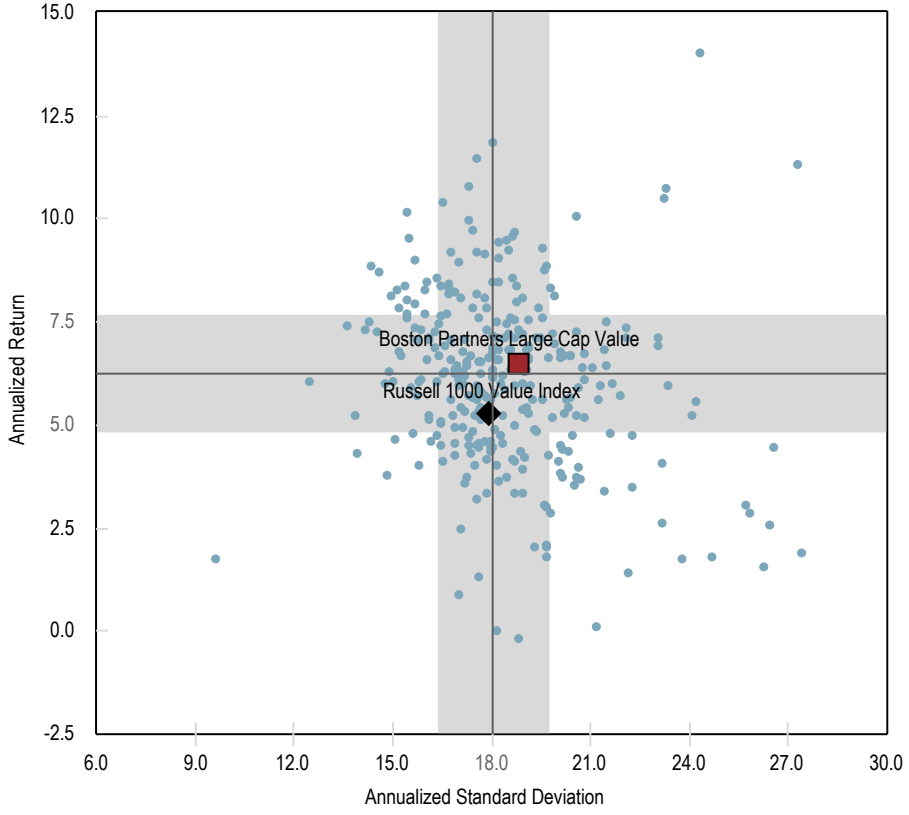


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● Boston Partners Large Cap Value	30.43 (17)	2.38 (61)	23.81 (76)	-9.00 (53)	19.58 (24)	14.19 (51)	-4.38 (68)	11.33 (51)	36.44 (27)	20.96 (7)
▲ Russell 1000 Value Index	25.16 (66)	2.80 (59)	26.54 (47)	-8.27 (44)	13.66 (85)	17.34 (20)	-3.83 (64)	13.45 (22)	32.53 (54)	17.51 (24)
5th Percentile	33.43	17.21	33.32	-2.21	23.29	21.64	1.94	15.86	43.12	21.31
1st Quartile	29.30	9.37	28.78	-5.79	19.34	16.59	-0.83	13.08	36.57	17.40
Median	26.65	3.91	26.31	-8.87	16.71	14.20	-2.97	11.37	33.11	14.97
3rd Quartile	23.76	0.64	23.86	-11.48	14.71	11.22	-5.18	9.61	30.36	12.52
95th Percentile	19.25	-4.72	19.04	-15.31	10.40	6.84	-9.47	5.13	24.71	9.10
Population	360	372	399	411	416	423	437	435	430	423

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Large Cap Value Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Large Cap Value Equity

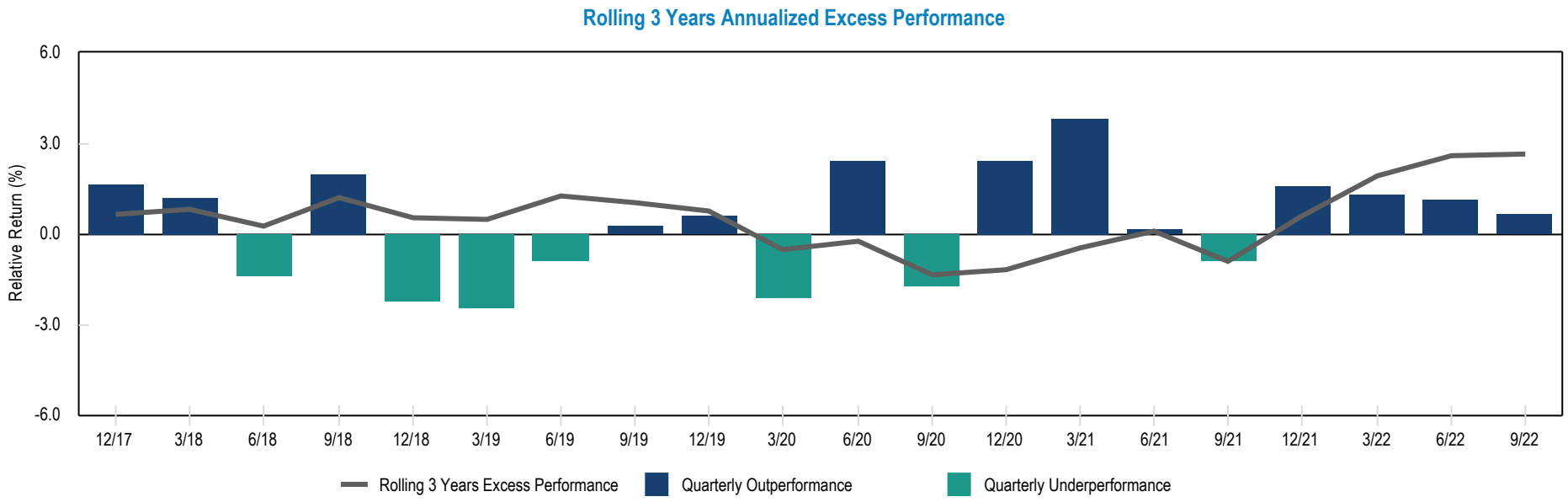


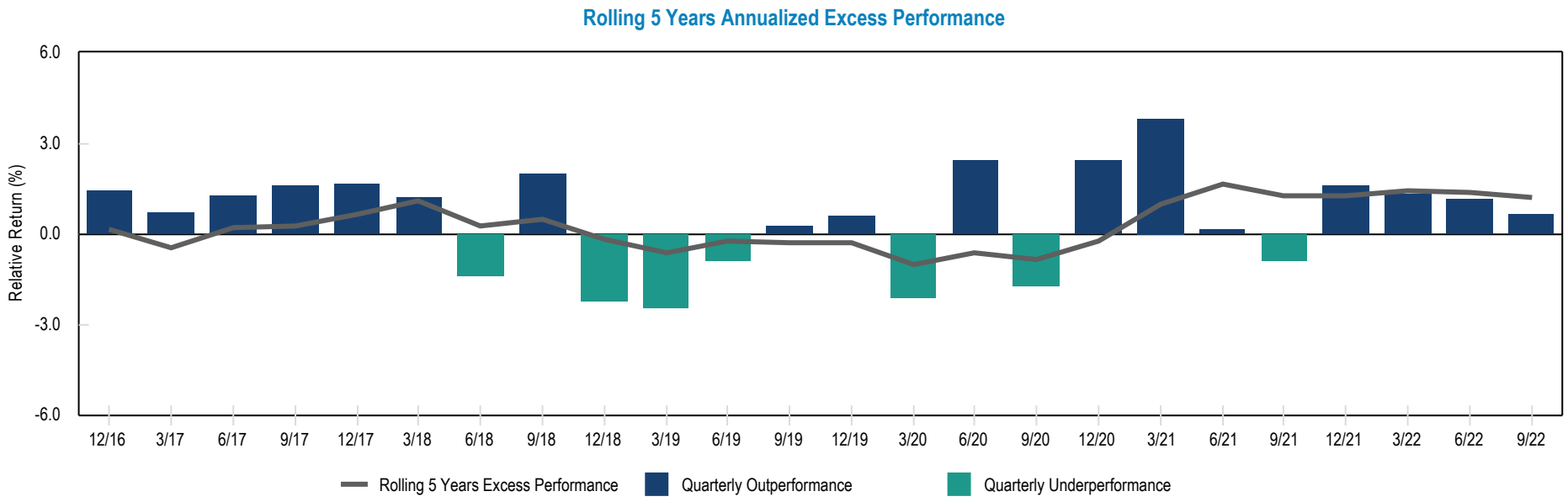
3 Years

	Return	Standard Deviation	Sharpe Ratio
Boston Partners Large Cap Value	7.05	21.11	0.40
Russell 1000 Value Index	4.36	20.17	0.28

5 Years

	Return	Standard Deviation	Sharpe Ratio
Boston Partners Large Cap Value	6.49	18.80	0.37
Russell 1000 Value Index	5.29	17.94	0.31





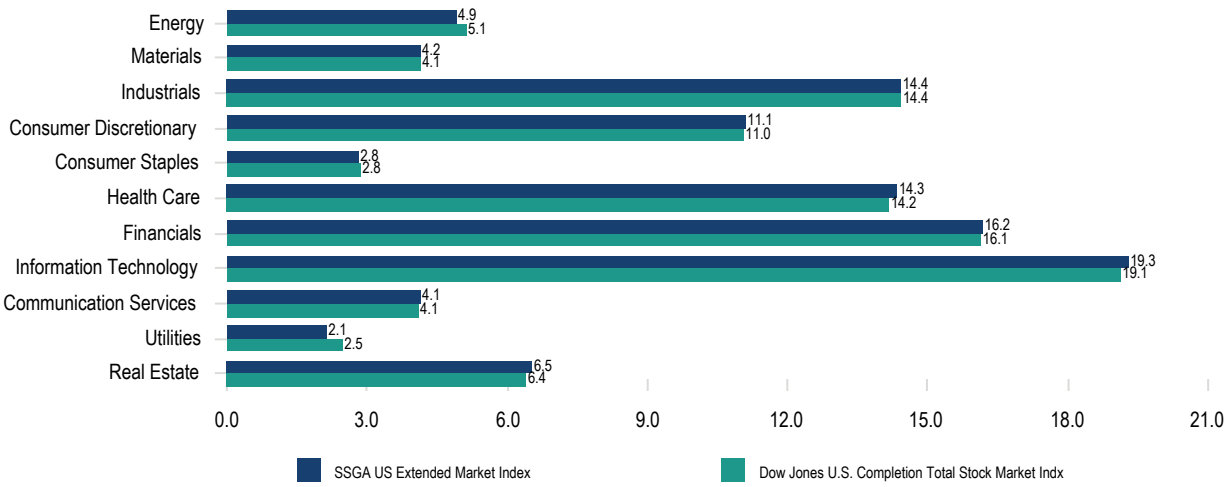
Holdings as of 9/30/22.

Verus

Characteristics

	Portfolio	Benchmark
Number of Stocks	3,684	3,772
Wtd. Avg. Mkt. Cap $B	9.8	9.8
Median Mkt. Cap $B	0.6	0.5
Price/Earnings ratio	12.24	12.29
Price/Book ratio	2.68	2.65
Return on Equity (%)	2.86	2.76
Current Yield (%)	1.45	1.45
Beta	-	1.00
R-Squared	-	-

Sector Allocation (%)



Largest Equity Holdings

	Wgt (%)	Return (%)
Blackstone Inc	1.05	-7.11
Uber Technologies Inc	0.94	29.52
Palo Alto Networks Inc	0.88	-0.52
Snowflake Inc	0.86	22.22
Airbnb Inc	0.75	17.92
Cheniere Energy Inc.	0.74	25.00
Marvell Technology Inc	0.66	-1.30
CrowdStrike Holdings Inc	0.63	-2.22
Lululemon Athletica Inc	0.58	2.55
Workday Inc	0.55	9.06

Top Contributors

	Wgt (%)	Return (%)	Contr (%)
Uber Technologies Inc	0.59	29.52	0.17
Cheniere Energy Inc.	0.54	25.00	0.14
Trade Desk Inc (The)	0.32	42.63	0.13
Snowflake Inc	0.56	22.22	0.12
Alnylam Pharmaceuticals Inc	0.30	37.24	0.11
First Solar Inc	0.11	94.15	0.11
Airbnb Inc	0.53	17.92	0.10
ON Semiconductor Corp	0.37	23.89	0.09
Wolfspeed Inc	0.13	62.90	0.08
PG&E Corp	0.26	25.25	0.07

Bottom Contributors

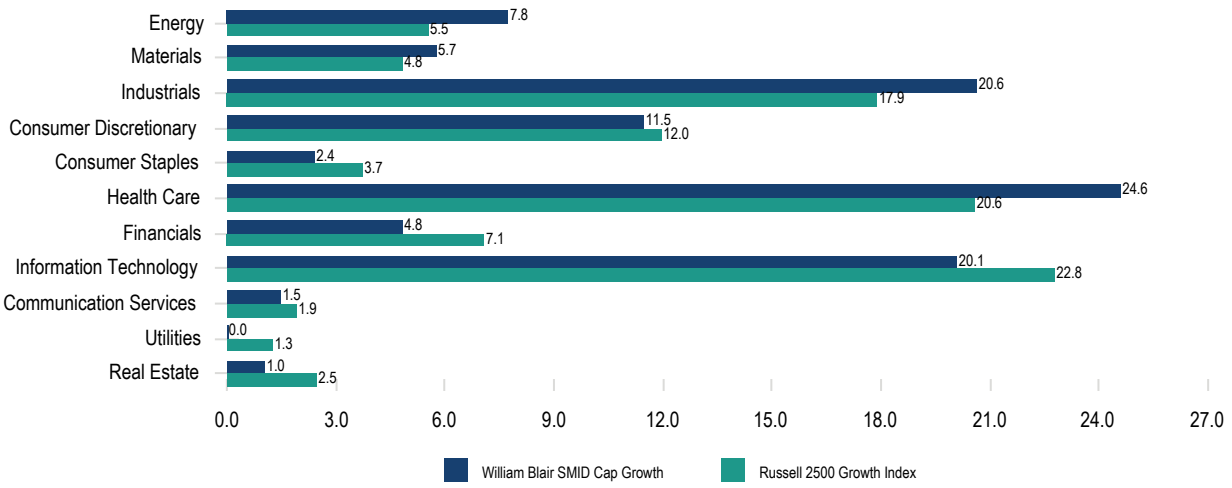
	Wgt (%)	Return (%)	Contr (%)
Zoom Video Communications Inc	0.40	-31.84	-0.13
Avantor Inc	0.33	-36.98	-0.12
Liberty Broadband Corp	0.28	-36.18	-0.10
Seagen Inc	0.41	-22.67	-0.09
OKTA INC	0.23	-37.09	-0.09
Veeva Systems Inc	0.47	-16.74	-0.08
Blackstone Inc	1.11	-7.11	-0.08
MongoDB Inc	0.30	-23.48	-0.07
TransUnion	0.26	-25.53	-0.07
Snap Inc	0.24	-25.21	-0.06

Holdings as of 9/30/22.

Characteristics

	Portfolio	Benchmark
Number of Stocks	72	1,355
Wtd. Avg. Mkt. Cap $B	7.1	5.4
Median Mkt. Cap $B	5.5	1.5
Price/Earnings ratio	18.91	16.66
Price/Book ratio	3.81	4.04
Return on Equity (%)	2.18	6.37
Current Yield (%)	0.60	0.85
Beta (5 Years, Monthly)	0.91	1.00
R-Squared (5 Years, Monthly)	0.96	1.00

Sector Allocation (%)



Largest Equity Holdings

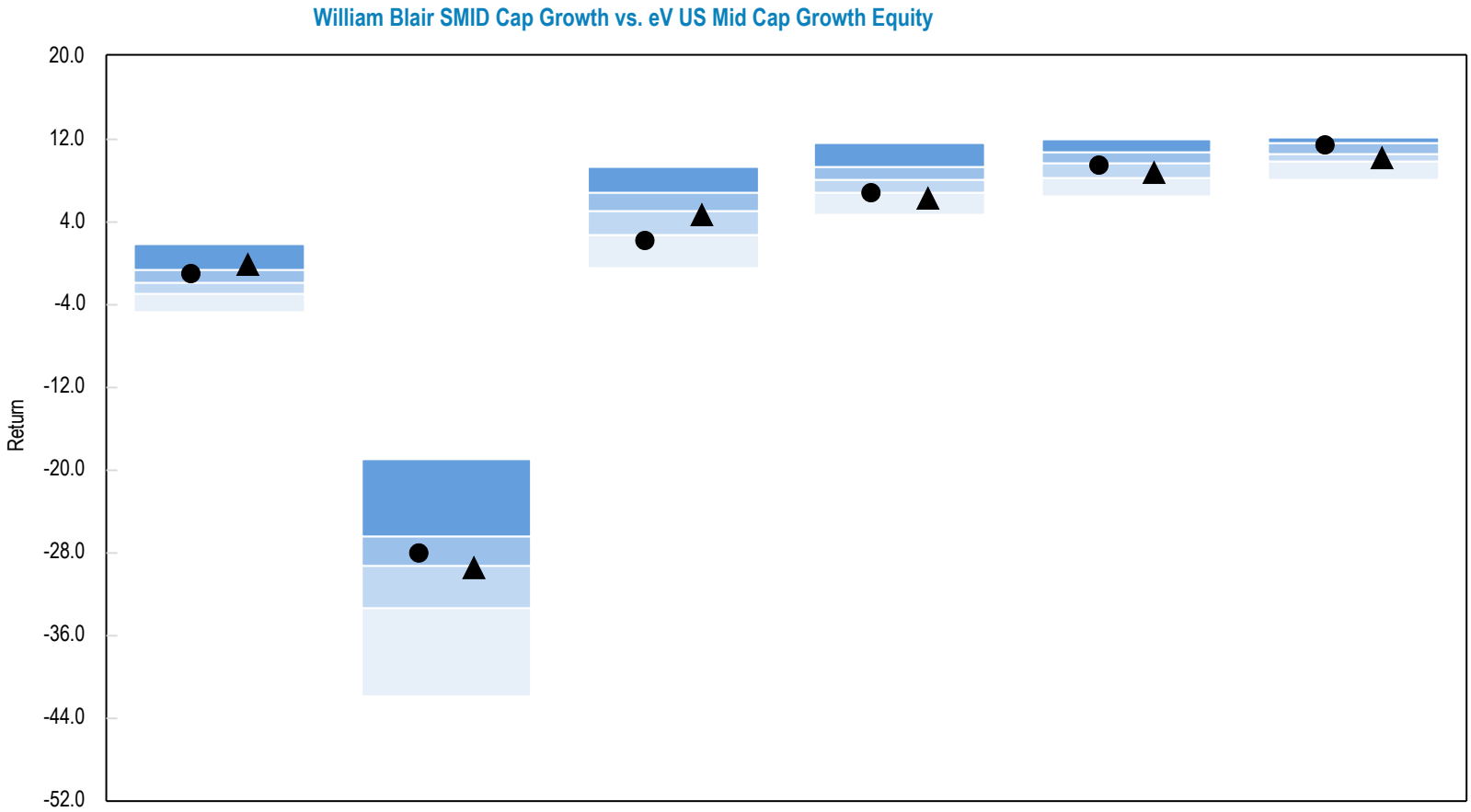
	Wgt (%)	Return (%)
BWX Technologies Inc	2.83	-8.20
Builders FirstSource Inc	2.73	9.72
Acadia Healthcare Co Inc	2.58	15.60
Crown Holdings Inc	2.42	-11.89
Denbury Inc.	2.37	43.79
National Vision Holdings Inc	2.36	18.73
Axon Enterprise Inc	2.24	24.24
Chemed Corp	2.21	-6.92
SolarEdge Technologies Inc	2.20	-15.43
Wyndham Hotels & Resorts Inc	2.15	-6.19

Top Contributors

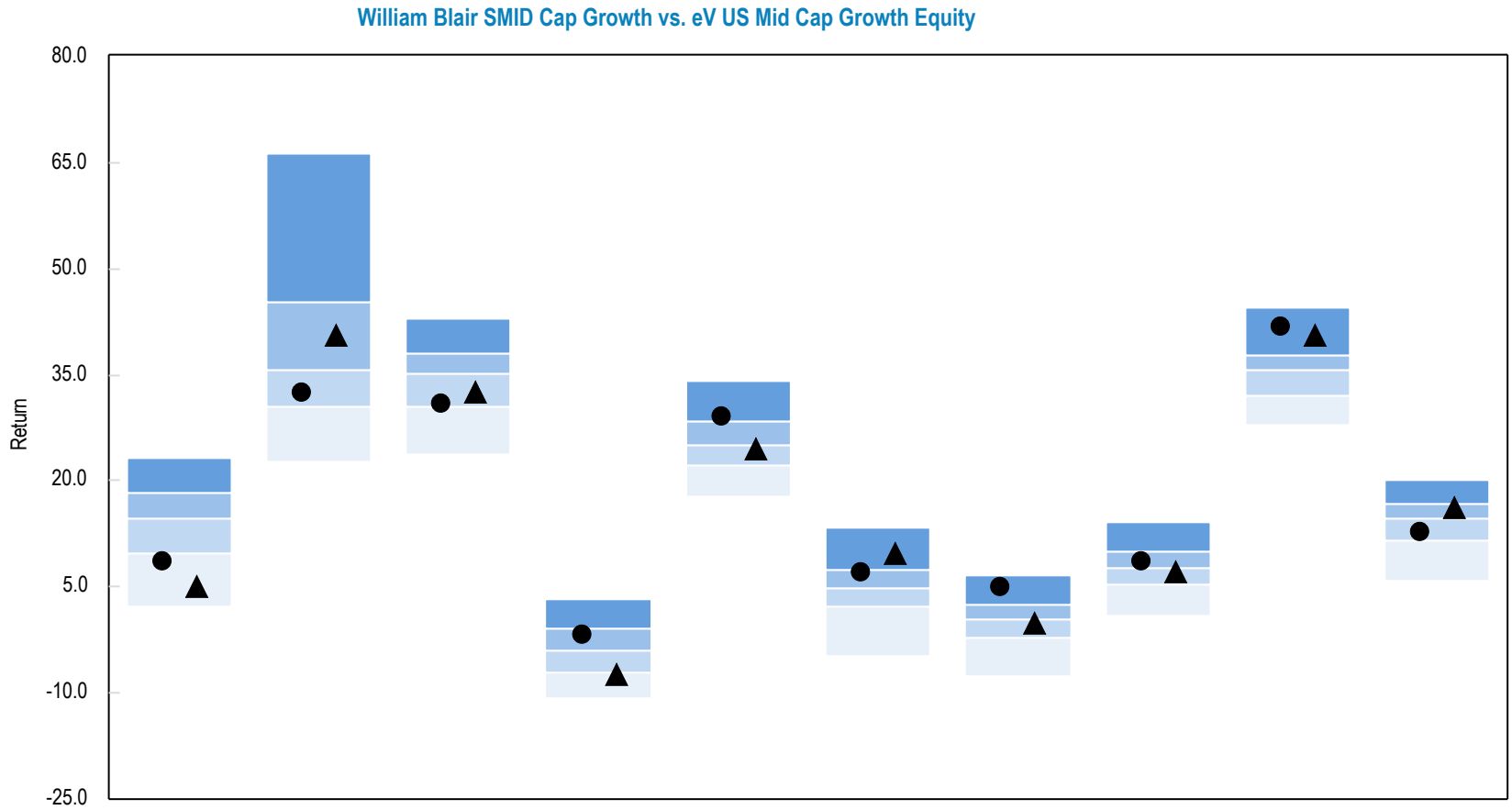
	Wgt (%)	Return (%)	Contr (%)
Aspen Technology Inc	2.43	29.68	0.72
Cameco Corp	2.18	26.12	0.57
BJ's Wholesale Club Holdings Inc	3.03	16.83	0.51
Penumbra Inc	0.94	52.26	0.49
Wolfspeed Inc	0.76	62.90	0.48
Acadia Healthcare Co Inc	2.39	15.60	0.37
Celsius Holdings Inc	0.96	38.95	0.37
Axon Enterprise Inc	1.45	24.24	0.35
Etsy Inc	0.73	36.77	0.27
National Instruments Corporation	1.15	21.70	0.25

Bottom Contributors

	Wgt (%)	Return (%)	Contr (%)
Azenta Inc	2.05	-40.56	-0.83
Mercury Systems Inc	1.75	-36.89	-0.65
Horizon Therapeutics Public Ltd Co	2.48	-22.40	-0.56
Helen of Troy Ltd	1.26	-40.62	-0.51
Bio-Techne Corp	2.50	-18.00	-0.45
Brink's Co (The)	2.23	-19.93	-0.45
Cable One Inc	1.17	-33.67	-0.39
Grand Canyon Education Inc	2.95	-12.68	-0.37
Euronet Worldwide Inc	1.49	-24.68	-0.37
Bright Horizons Family Solutions Inc	1.03	-31.79	-0.33



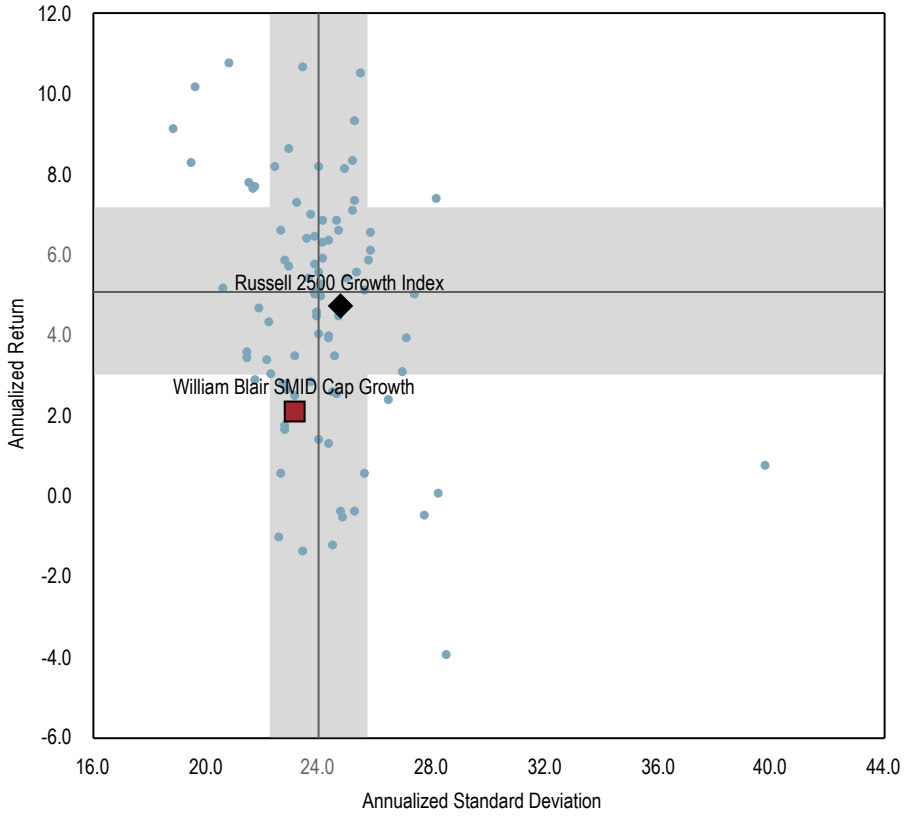
	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● William Blair SMID Cap Growth	-1.06 (33)	-27.99 (39)	2.15 (82)	6.83 (75)	9.44 (60)	11.51 (29)
▲ Russell 2500 Growth Index	-0.12 (20)	-29.39 (52)	4.76 (55)	6.30 (80)	8.84 (71)	10.30 (56)
5th Percentile	1.79	-18.89	9.32	11.66	12.07	12.26
1st Quartile	-0.64	-26.38	6.77	9.33	10.76	11.66
Median	-1.84	-29.16	5.13	8.05	9.77	10.57
3rd Quartile	-3.00	-33.30	2.84	6.81	8.33	9.88
95th Percentile	-4.69	-41.88	-0.48	4.73	6.44	8.18
Population	93	91	87	82	81	77



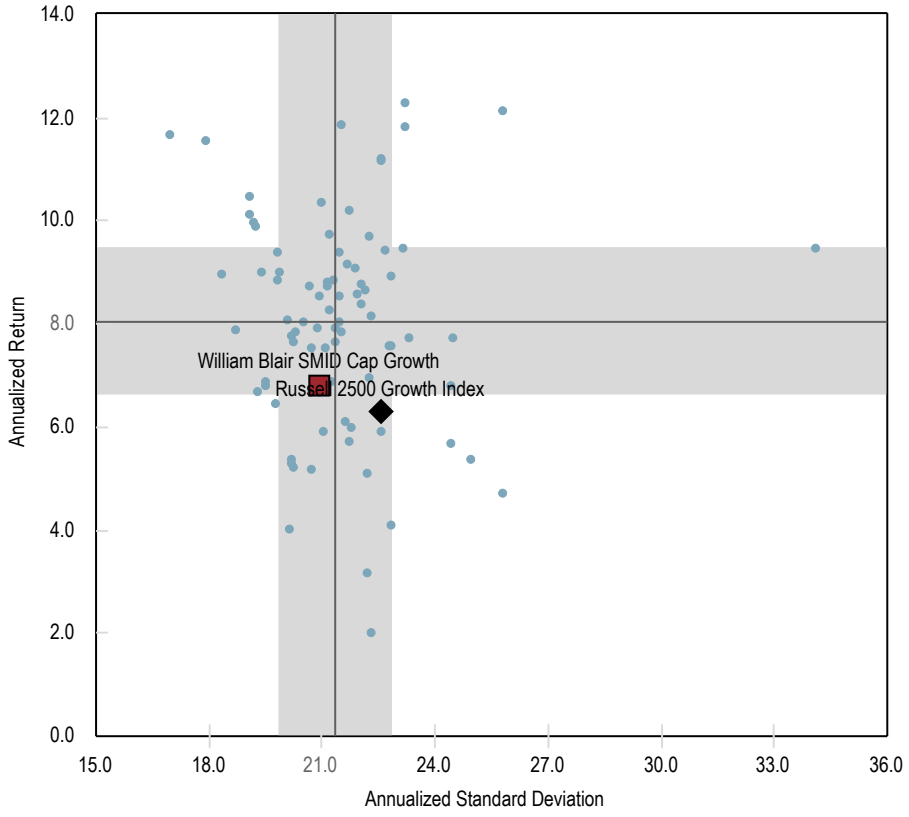
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● William Blair SMID Cap Growth	8.67 (78)	32.60 (64)	31.10 (74)	-1.74 (33)	29.31 (17)	7.24 (26)	5.19 (9)	8.78 (38)	41.79 (10)	12.83 (68)
▲ Russell 2500 Growth Index	5.04 (91)	40.47 (39)	32.65 (62)	-7.47 (78)	24.46 (58)	9.73 (13)	-0.19 (55)	7.05 (62)	40.65 (13)	16.13 (31)
5th Percentile	23.27	66.27	42.93	3.17	34.02	13.36	6.51	14.17	44.50	20.11
1st Quartile	18.23	45.29	38.11	-0.85	28.30	7.28	2.35	9.95	37.65	16.79
Median	14.60	35.68	35.21	-3.93	25.05	4.86	0.32	7.75	35.58	14.54
3rd Quartile	9.77	30.50	30.53	-7.16	22.27	2.15	-2.27	5.34	32.01	11.45
95th Percentile	2.22	22.82	23.79	-10.75	17.89	-4.81	-7.61	1.05	27.84	5.82
Population	97	102	103	108	112	119	126	126	128	129

Verus

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Mid Cap Growth Equity

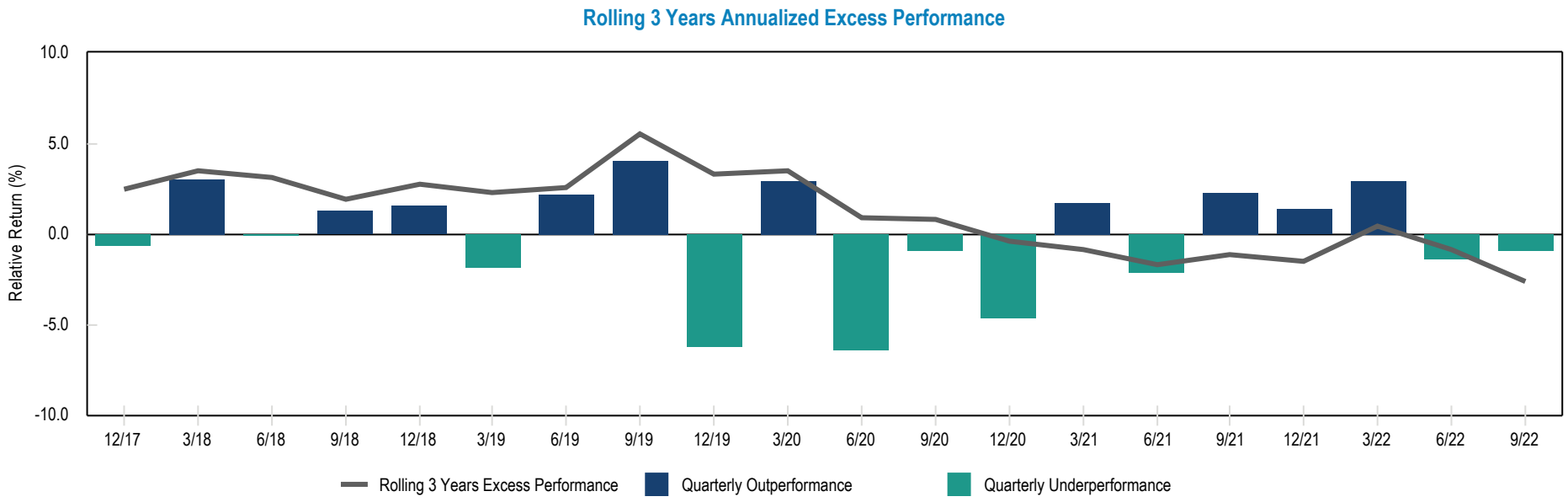


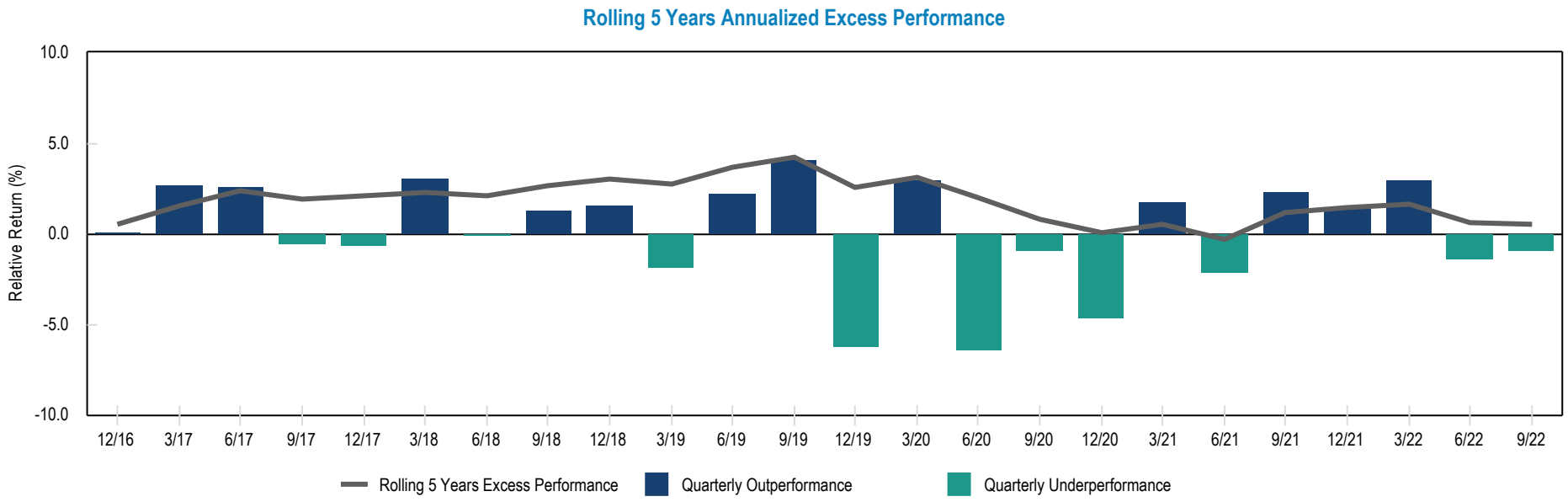
5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Mid Cap Growth Equity



	3 Years		
	Return	Standard Deviation	Sharpe Ratio
William Blair SMID Cap Growth	2.15	23.15	0.18
Russell 2500 Growth Index	4.76	24.76	0.29

	5 Years		
	Return	Standard Deviation	Sharpe Ratio
William Blair SMID Cap Growth	6.83	20.93	0.37
Russell 2500 Growth Index	6.30	22.54	0.33

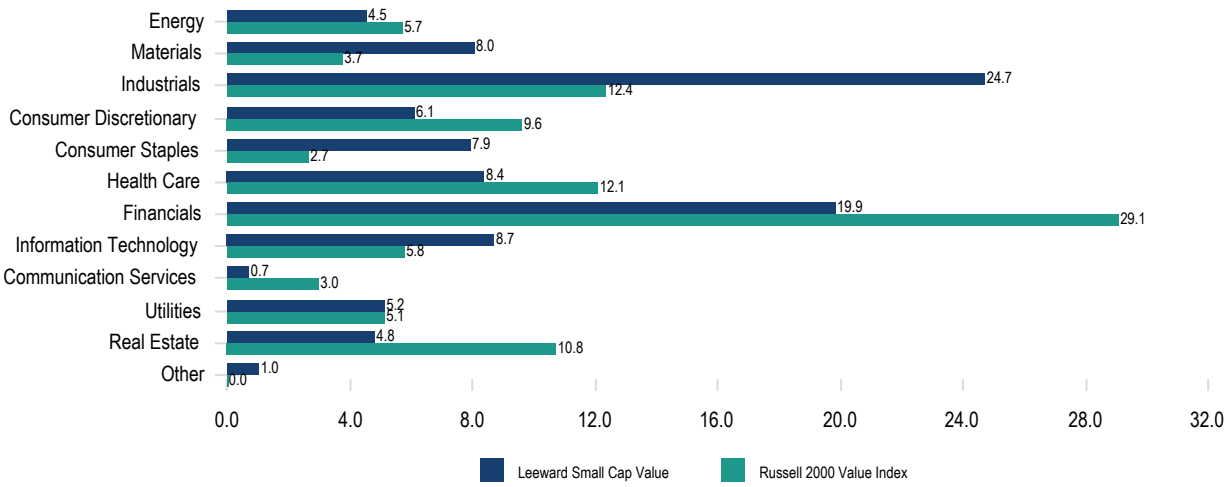

Rolling 3 Years Annualized Excess Performance
10.0
5.0
0.0
-5.0
-10.0
Relative Return (%)
12/17
3/18
6/18
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
Rolling 3 Years Excess Performance
Quarterly Outperformance
Quarterly Underperformance


Rolling 5 Years Annualized Excess Performance
10.0
5.0
0.0
-5.0
-10.0
Relative Return (%)
12/16
3/17
6/17
9/17
12/17
3/18
6/18
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
Rolling 5 Years Excess Performance
Quarterly Outperformance
Quarterly Underperformance

Characteristics

	Portfolio	Benchmark
Number of Stocks	87	1,394
Wtd. Avg. Mkt. Cap $B	3.9	2.1
Median Mkt. Cap $B	3.2	0.8
Price/Earnings ratio	13.73	9.24
Price/Book ratio	1.97	1.51
Return on Equity (%)	4.52	5.27
Current Yield (%)	1.71	2.37
Beta (5 Years, Monthly)	0.91	1.00
R-Squared (5 Years, Monthly)	0.95	1.00

Sector Allocation (%)



Largest Equity Holdings

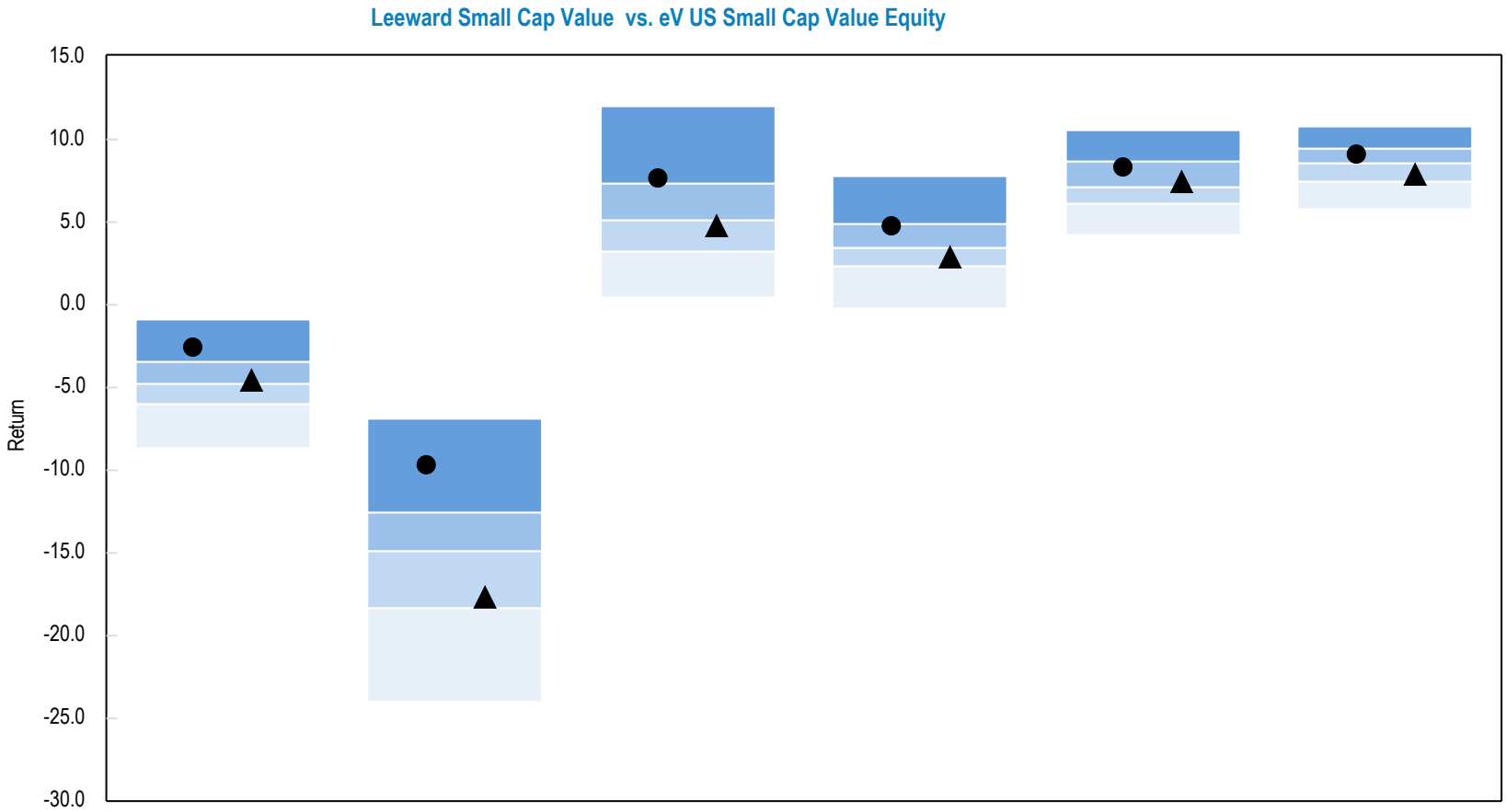
	Wgt (%)	Return (%)
Regal Rexnord Corporation	2.68	23.95
Huron Consulting Group Inc	2.59	1.94
First Interstate BancSystem Inc	2.56	6.96
Prestige Consumer Healthcare Inc	2.25	-15.25
Wintrust Financial Corp.	2.17	2.15
Clean Harbors Inc	2.05	25.45
Western Alliance Bancorporation	1.99	-6.48
Portland General Electric Co	1.97	-9.25
BankUnited Inc	1.96	-3.24
Umpqua Holdings Corp	1.92	3.12

Top Contributors

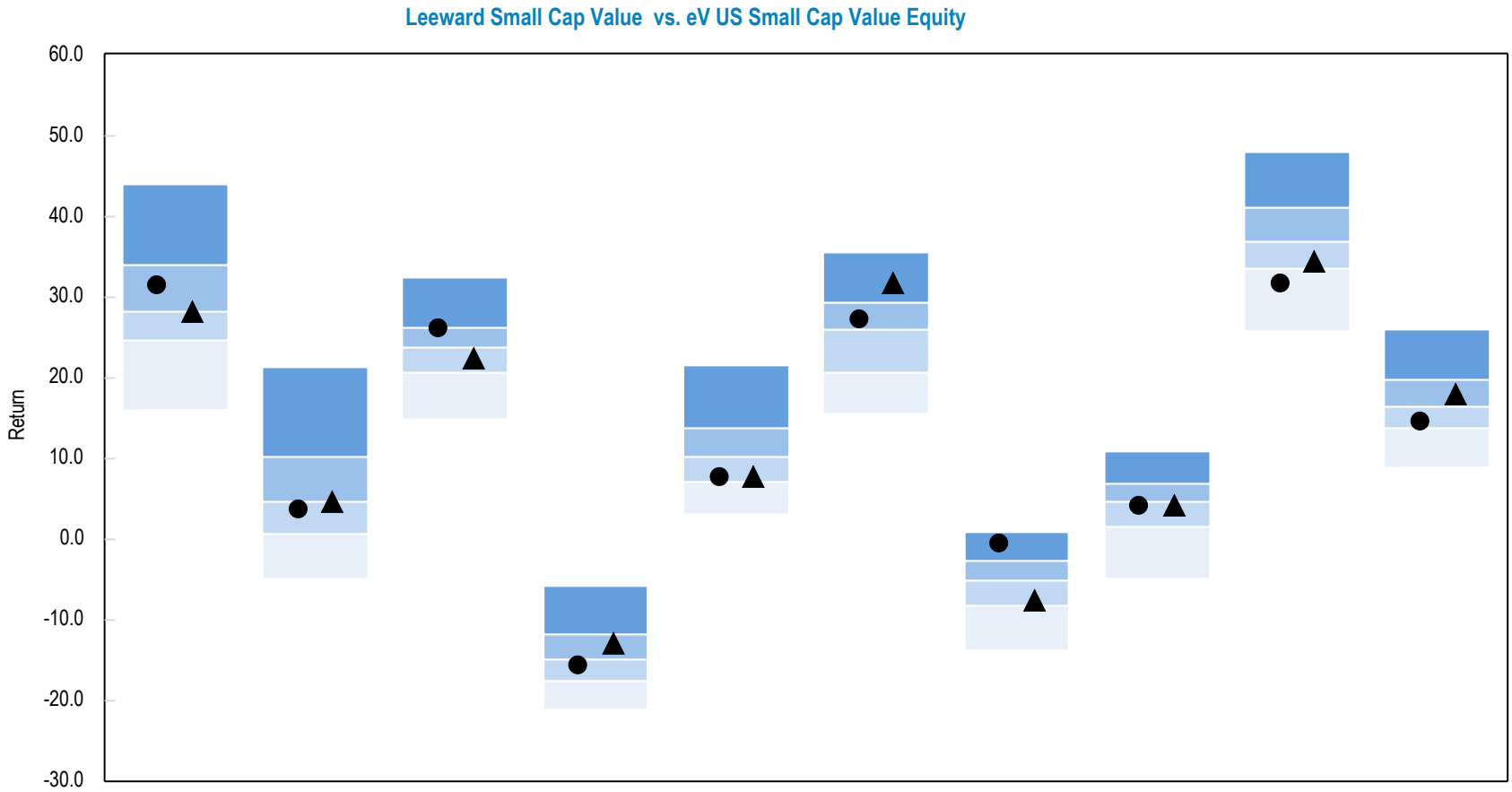
	Wgt (%)	Return (%)	Contr (%)
Murphy USA Inc	3.31	18.18	0.60
Harmonic Inc	1.14	50.75	0.58
Livent Corp	1.50	35.08	0.52
Clean Harbors Inc	1.79	25.45	0.45
Regal Rexnord Corporation	1.82	23.95	0.44
Pinnacle Financial Partners Inc	2.42	12.47	0.30
F.N.B. Corp	1.95	7.91	0.15
Hostess Brands Inc	1.52	9.57	0.15
Cal Maine Foods Inc	0.88	14.11	0.12
Bank Butterfield & Son Ltd	1.68	5.47	0.09

Bottom Contributors

	Wgt (%)	Return (%)	Contr (%)
Spectrum Brands Holdings Inc	0.66	-52.11	-0.34
Korn Ferry	1.70	-18.62	-0.32
Portland General Electric Co	3.26	-9.25	-0.30
Prestige Consumer Healthcare Inc	1.83	-15.25	-0.28
Hanover Insurance Group Inc (The)	2.06	-11.90	-0.25
Envista Holdings Corp	1.62	-14.87	-0.24
Newmark Group Inc	1.44	-16.42	-0.24
Integra LifeSciences Holdings Corp	0.98	-21.60	-0.21
Rogers Corp.	2.39	-7.71	-0.18
Ingredion Inc	1.90	-8.67	-0.16

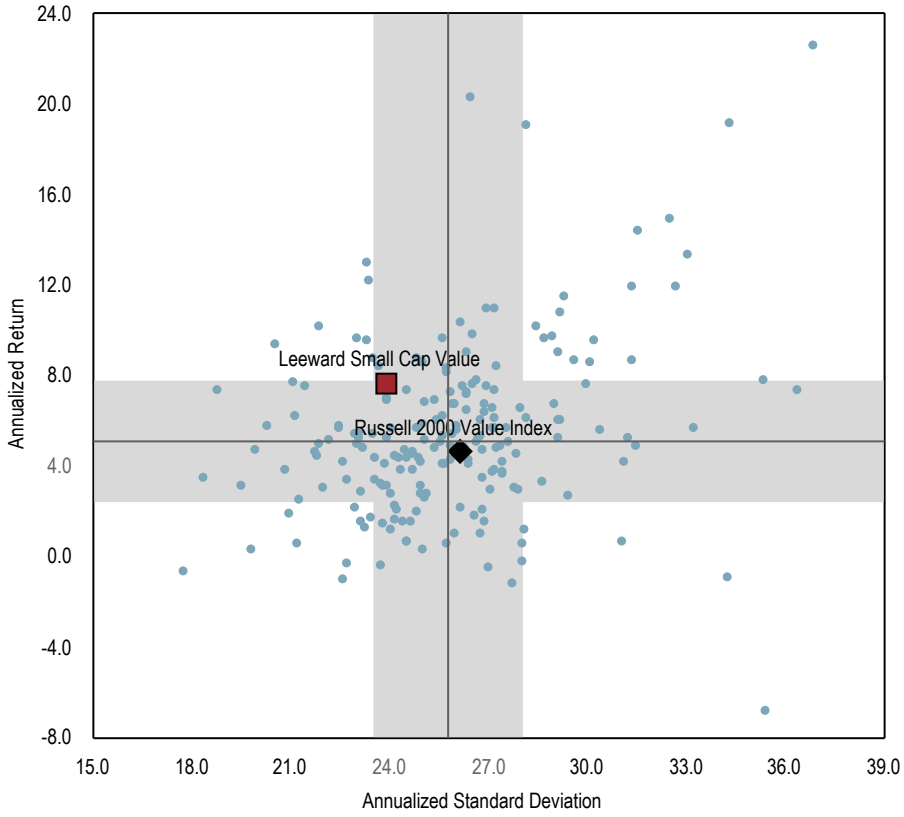


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Leeward Small Cap Value	-2.53 (13)	-9.65 (12)	7.68 (21)	4.75 (27)	8.35 (28)	9.07 (35)
▲ Russell 2000 Value Index	-4.61 (49)	-17.69 (74)	4.72 (58)	2.87 (63)	7.42 (46)	7.94 (63)
5th Percentile	-0.84	-6.91	11.99	7.79	10.57	10.76
1st Quartile	-3.42	-12.57	7.36	4.84	8.63	9.43
Median	-4.82	-14.89	5.15	3.42	7.12	8.56
3rd Quartile	-5.99	-18.37	3.22	2.29	6.08	7.43
95th Percentile	-8.65	-24.03	0.39	-0.26	4.26	5.78
Population	207	205	200	191	182	167

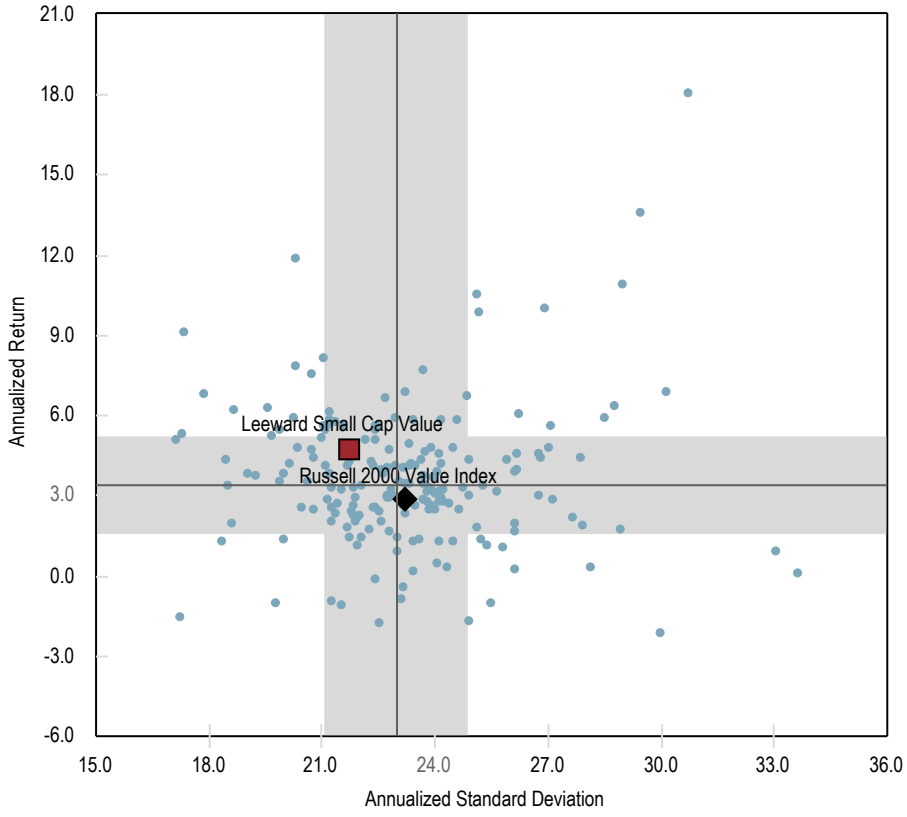


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● Leeward Small Cap Value	31.60 (37)	3.78 (57)	26.32 (25)	-15.49 (57)	7.67 (71)	27.28 (38)	-0.52 (10)	4.12 (56)	31.83 (86)	14.64 (66)
▲ Russell 2000 Value Index	28.27 (51)	4.63 (50)	22.39 (61)	-12.86 (34)	7.84 (70)	31.74 (14)	-7.47 (72)	4.22 (56)	34.52 (72)	18.05 (40)
5th Percentile	44.07	21.36	32.34	-5.73	21.62	35.48	0.98	10.98	48.06	26.10
1st Quartile	34.02	10.24	26.26	-11.75	13.73	29.27	-2.78	6.84	41.21	19.82
Median	28.27	4.62	23.69	-14.87	10.26	25.96	-5.21	4.67	36.85	16.46
3rd Quartile	24.73	0.73	20.61	-17.63	7.19	20.73	-8.28	1.47	33.59	13.74
95th Percentile	15.90	-4.83	14.83	-21.19	3.13	15.48	-13.78	-4.99	25.83	8.99
Population	222	234	241	248	258	257	257	263	259	254

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Small Cap Value Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Small Cap Value Equity

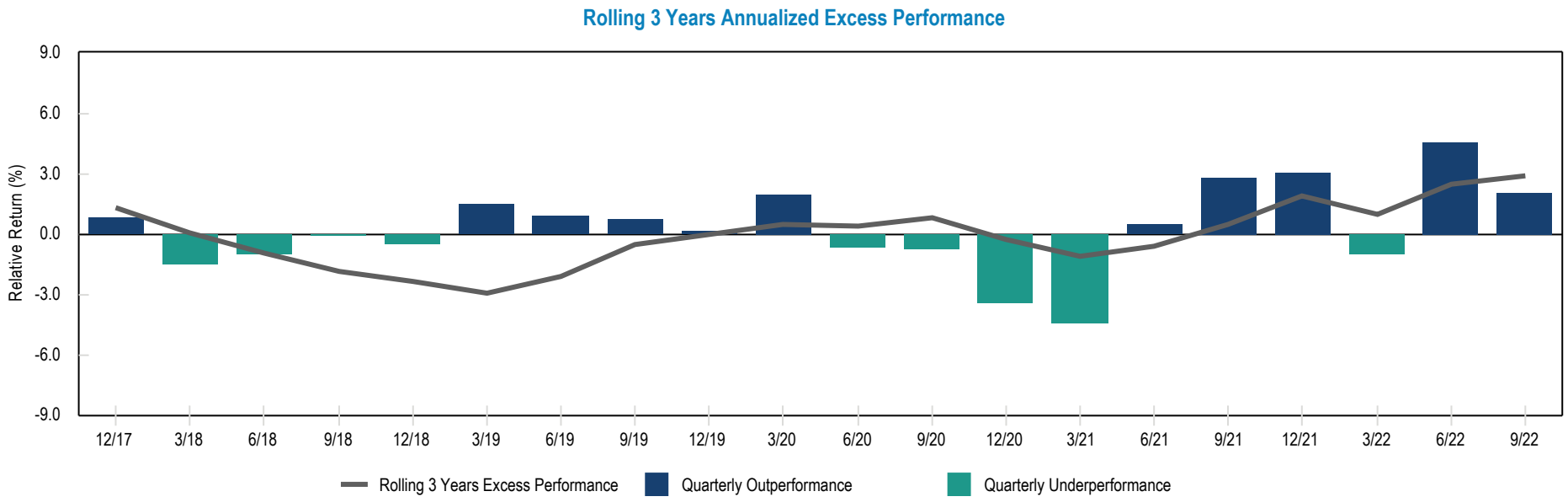


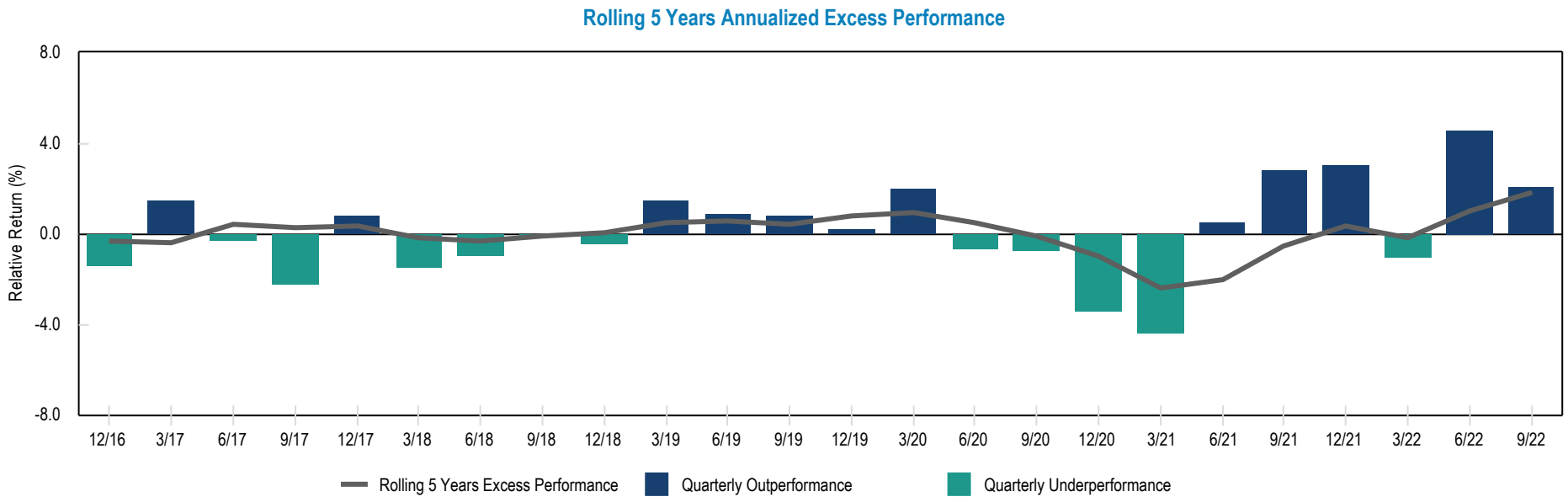
3 Years

	Return	Standard Deviation	Sharpe Ratio
Leeward Small Cap Value	7.68	23.89	0.41
Russell 2000 Value Index	4.72	26.11	0.29

5 Years

	Return	Standard Deviation	Sharpe Ratio
Leeward Small Cap Value	4.75	21.73	0.27
Russell 2000 Value Index	2.87	23.19	0.19


Rolling 3 Years Annualized Excess Performance
9.0
6.0
3.0
0.0
-3.0
-6.0
-9.0
Relative Return (%)
12/17
3/18
6/18
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
Rolling 3 Years Excess Performance
Quarterly Outperformance
Quarterly Underperformance

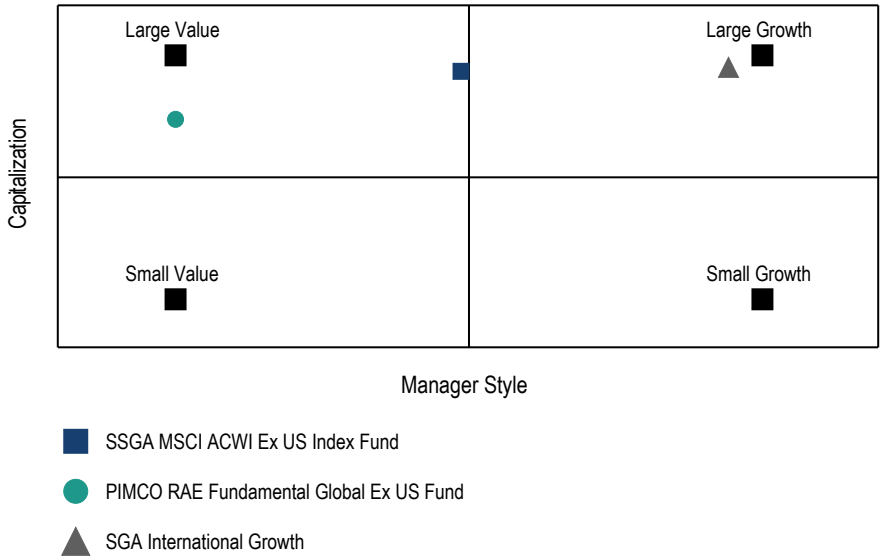

Rolling 5 Years Annualized Excess Performance
8.0
4.0
0.0
-4.0
-8.0
Relative Return (%)
12/16
3/17
6/17
9/17
12/17
3/18
6/18
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
Rolling 5 Years Excess Performance
Quarterly Outperformance
Quarterly Underperformance

Total International Equity
Asset Class Overview (Net of Fees)

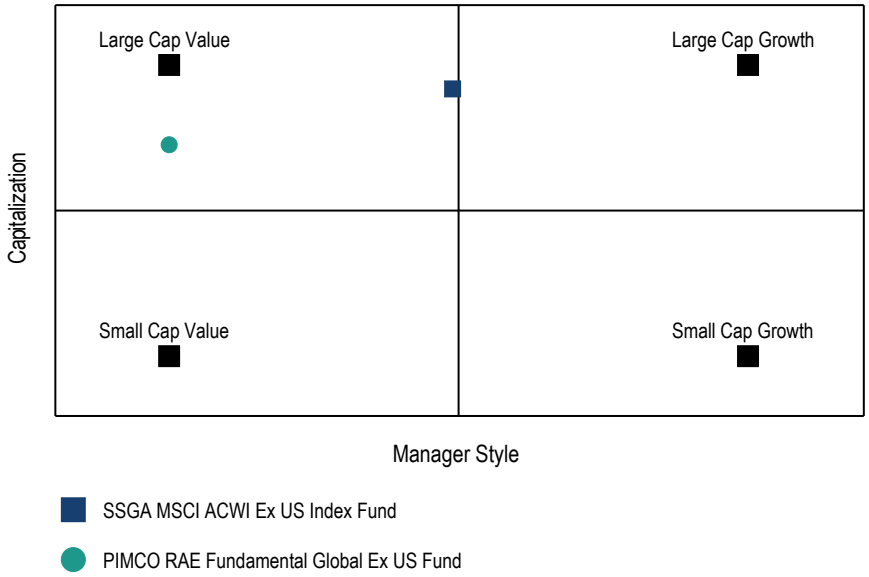
Tulare County Employees' Retirement Association
Period Ending: September 30, 2022

	Market Value	% of Portfolio	Quarter	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2021	2020	2019	2018
Total International Equity	**234,652,427**	**100.0**	**-8.9**	**-25.1**	**-24.3**	**0.2**	**0.4**	**4.0**	**9.6**	**9.6**	**13.4**	**22.7**	**-14.5**
MSCI AC World ex USA Index			*-9.8*	*-26.2*	*-24.8*	*-1.1*	*-0.3*	*3.5*	*8.3*	*8.3*	*11.1*	*22.1*	*-13.8*
SSGA MSCI ACWI Ex US Index Fund	80,489,366	34.3	-9.9	-26.3	-25.0	-1.3	-0.6	3.2	7.9	7.9	10.9	21.8	-14.0
MSCI AC World ex USA (Net)			*-9.9*	*-26.5*	*-25.2*	*-1.5*	*-0.8*	*3.0*	*7.8*	*7.8*	*10.7*	*21.5*	*-14.2*
eV ACWI ex-US All Cap Equity Rank			*59*	*31*	*30*	*62*	*58*	*83*	*62*	*62*	*68*	*74*	*41*
PIMCO RAE Fundamental Global Ex US Fund	80,224,328	34.2	-10.1	-22.4	-21.8	-1.5	-1.8	3.3	12.3	12.3	1.7	16.1	-15.1
MSCI AC World ex USA Value (Net)			*-10.4*	*-21.0*	*-20.0*	*-2.1*	*-2.1*	*1.9*	*10.5*	*10.5*	*-0.8*	*15.7*	*-14.0*
eV ACWI ex-US Value Equity Rank			*35*	*25*	*29*	*52*	*43*	*50*	*39*	*39*	*54*	*70*	*43*
SGA International Growth	73,938,733	31.5	-6.3	-26.5	-26.1	2.7	-	-	9.1	9.1	26.0	30.5	-
MSCI AC World ex USA Growth (Net)			*-9.4*	*-31.8*	*-30.2*	*-1.4*	*0.2*	*4.0*	*5.1*	*5.1*	*22.2*	*27.3*	*-14.4*
eV ACWI ex-US Growth Equity Rank			*5*	*8*	*14*	*20*	-	-	*45*	*45*	*51*	*41*	-

International Equity Effective Style Map
3 Years

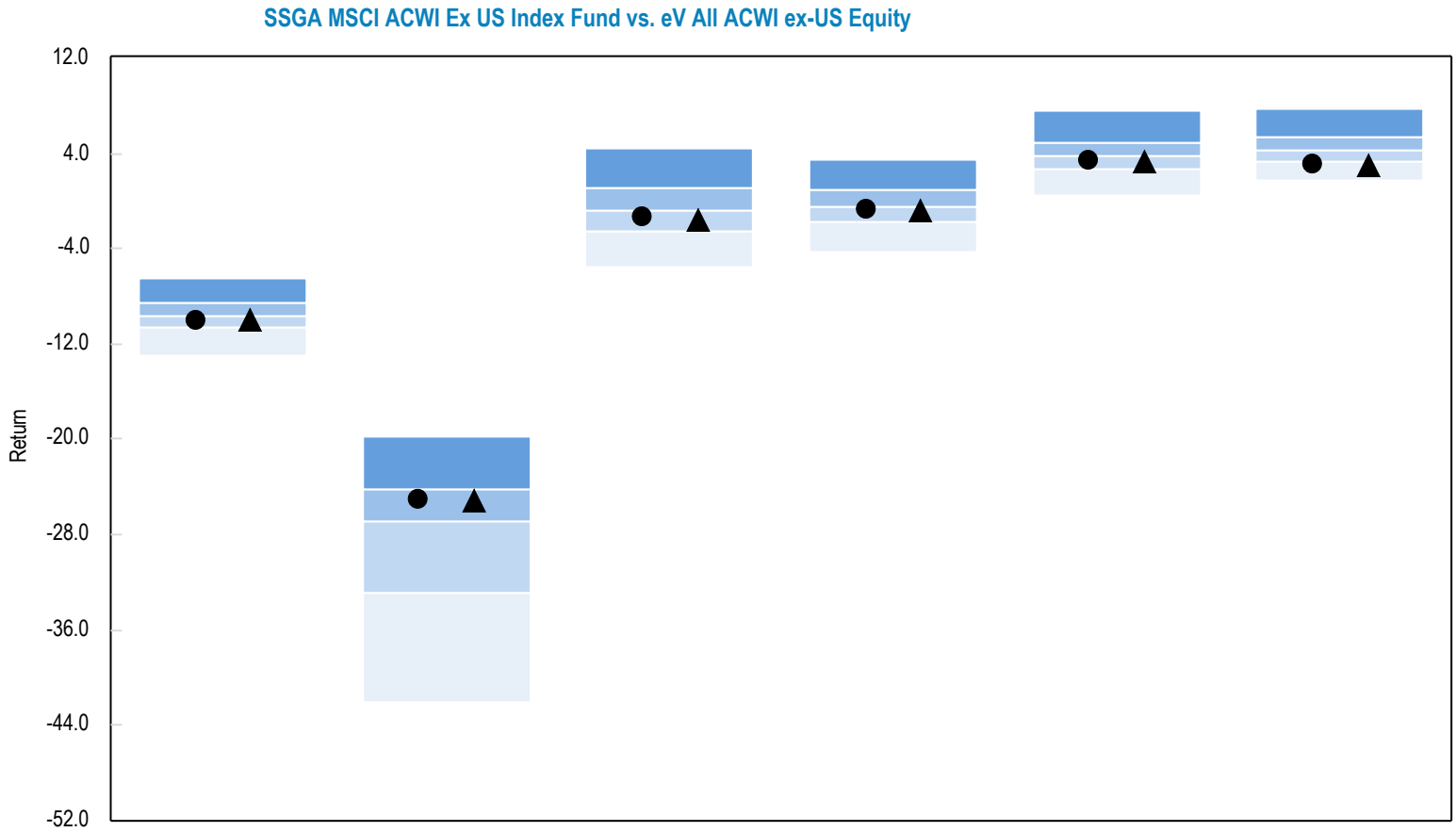


International Equity Effective Style Map
5 Years

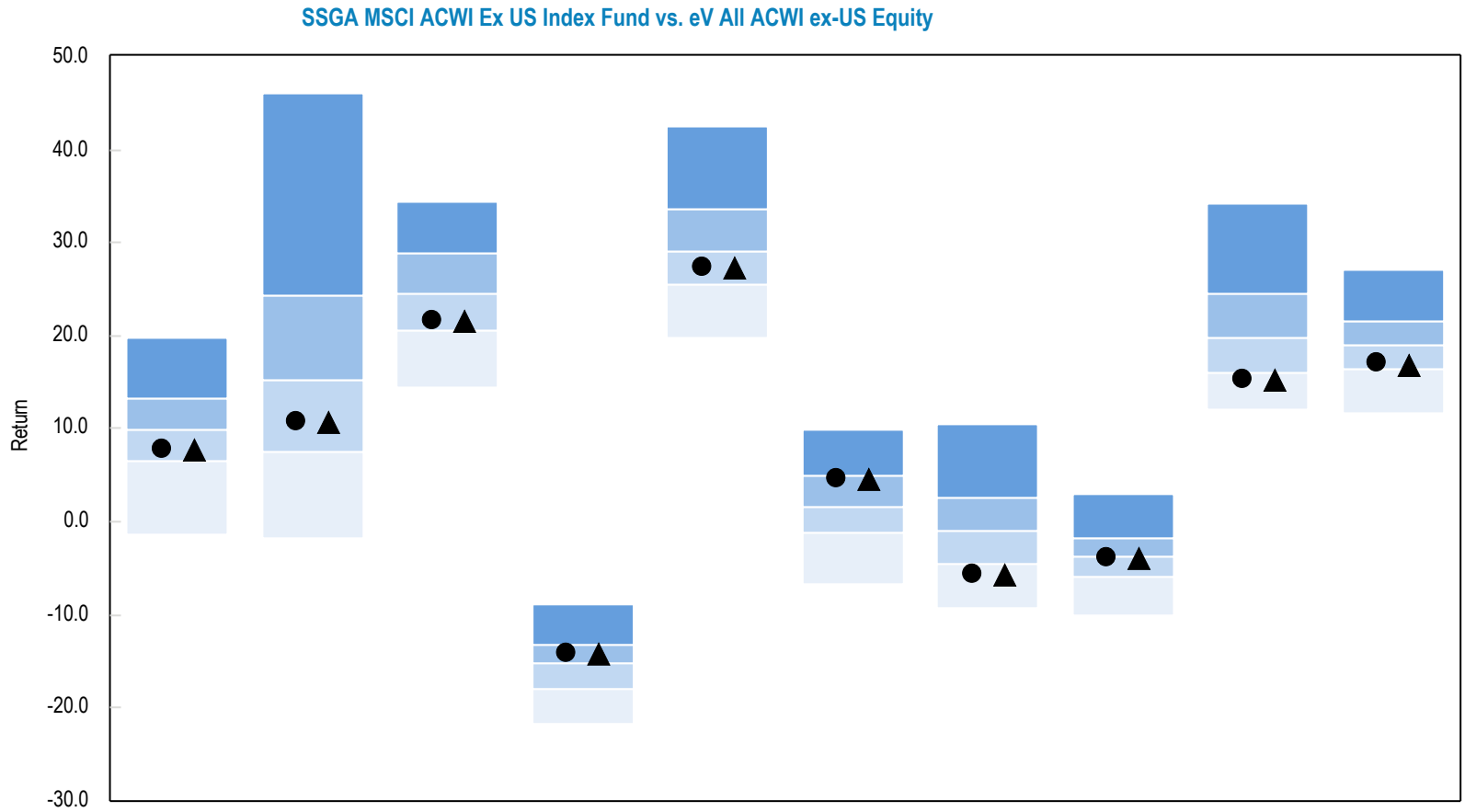


Research Affiliates converted to PIMCO RAE Fundamental Global Ex US Fund on 6/5/15 (performance prior to this date represents previously held Enhanced RAFI Global ex US).

Verus

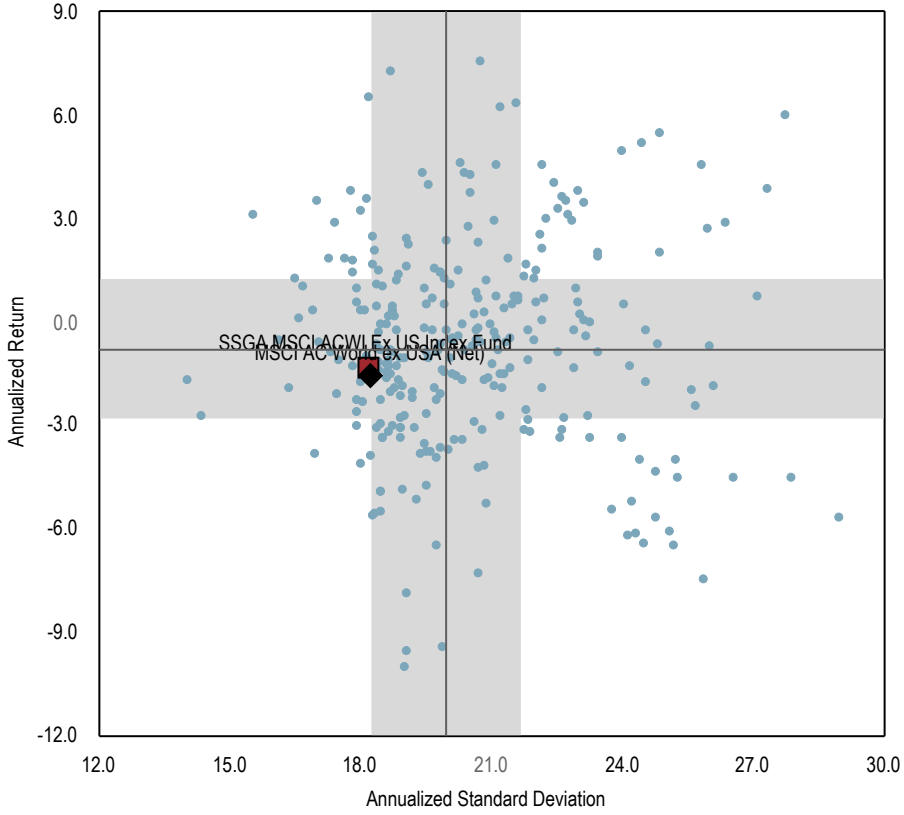


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● SSGA MSCI ACWI Ex US Index Fund	-9.92 (58)	-24.96 (32)	-1.32 (61)	-0.61 (55)	3.50 (55)	3.21 (79)
▲ MSCI AC World ex USA (Net)	-9.91 (58)	-25.17 (34)	-1.52 (64)	-0.81 (60)	3.29 (60)	3.01 (83)
5th Percentile	-6.47	-19.75	4.35	3.47	7.62	7.77
1st Quartile	-8.54	-24.15	1.09	0.97	4.93	5.42
Median	-9.61	-26.90	-0.75	-0.46	3.75	4.20
3rd Quartile	-10.64	-32.84	-2.56	-1.75	2.62	3.27
95th Percentile	-12.95	-42.01	-5.56	-4.26	0.51	1.78
Population	310	308	288	265	237	195

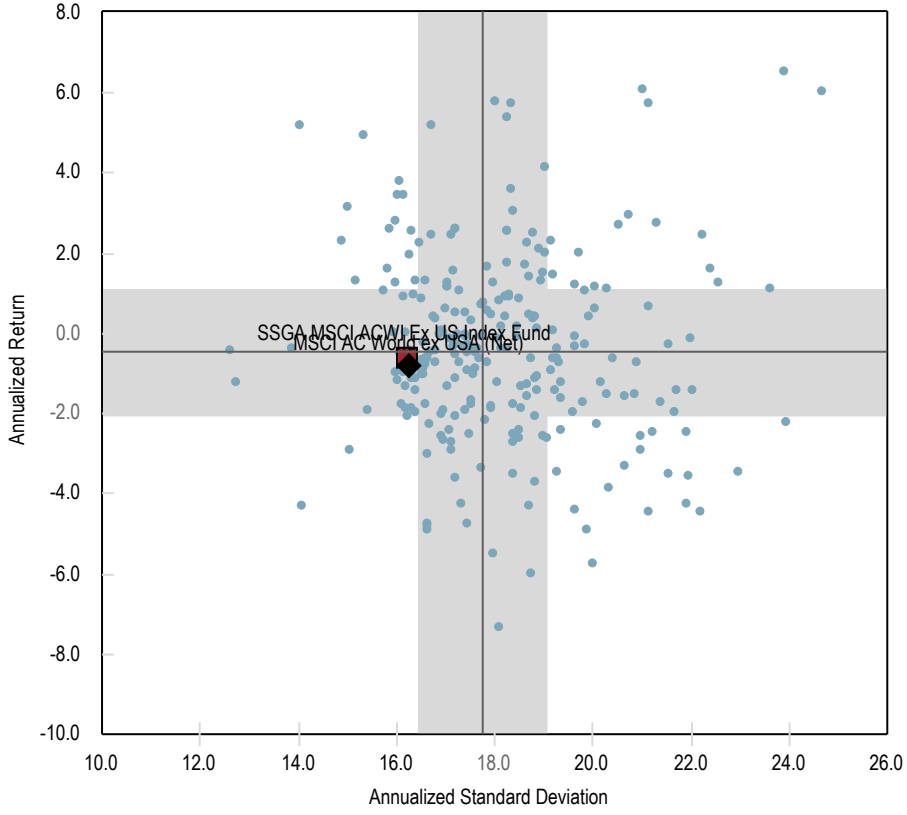


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● SSGA MSCI ACWI Ex US Index Fund	7.95 (65)	10.93 (63)	21.78 (66)	-14.04 (37)	27.46 (62)	4.69 (27)	-5.54 (82)	-3.68 (48)	15.50 (79)	17.21 (70)
▲ MSCI AC World ex USA (Net)	7.82 (65)	10.65 (64)	21.51 (68)	-14.20 (39)	27.19 (64)	4.50 (29)	-5.66 (83)	-3.87 (51)	15.29 (80)	16.83 (74)
5th Percentile	19.69	46.06	34.35	-8.93	42.41	9.99	10.58	3.04	34.15	26.99
1st Quartile	13.32	24.31	28.89	-13.16	33.56	4.86	2.62	-1.74	24.55	21.55
Median	9.98	15.17	24.47	-15.24	29.08	1.69	-0.90	-3.78	19.74	19.01
3rd Quartile	6.58	7.47	20.64	-17.89	25.48	-1.22	-4.51	-5.99	16.09	16.46
95th Percentile	-1.43	-1.74	14.38	-21.80	19.74	-6.72	-9.28	-10.12	12.01	11.66
Population	337	342	338	332	332	325	308	294	277	267

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV All ACWI ex-US Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV All ACWI ex-US Equity



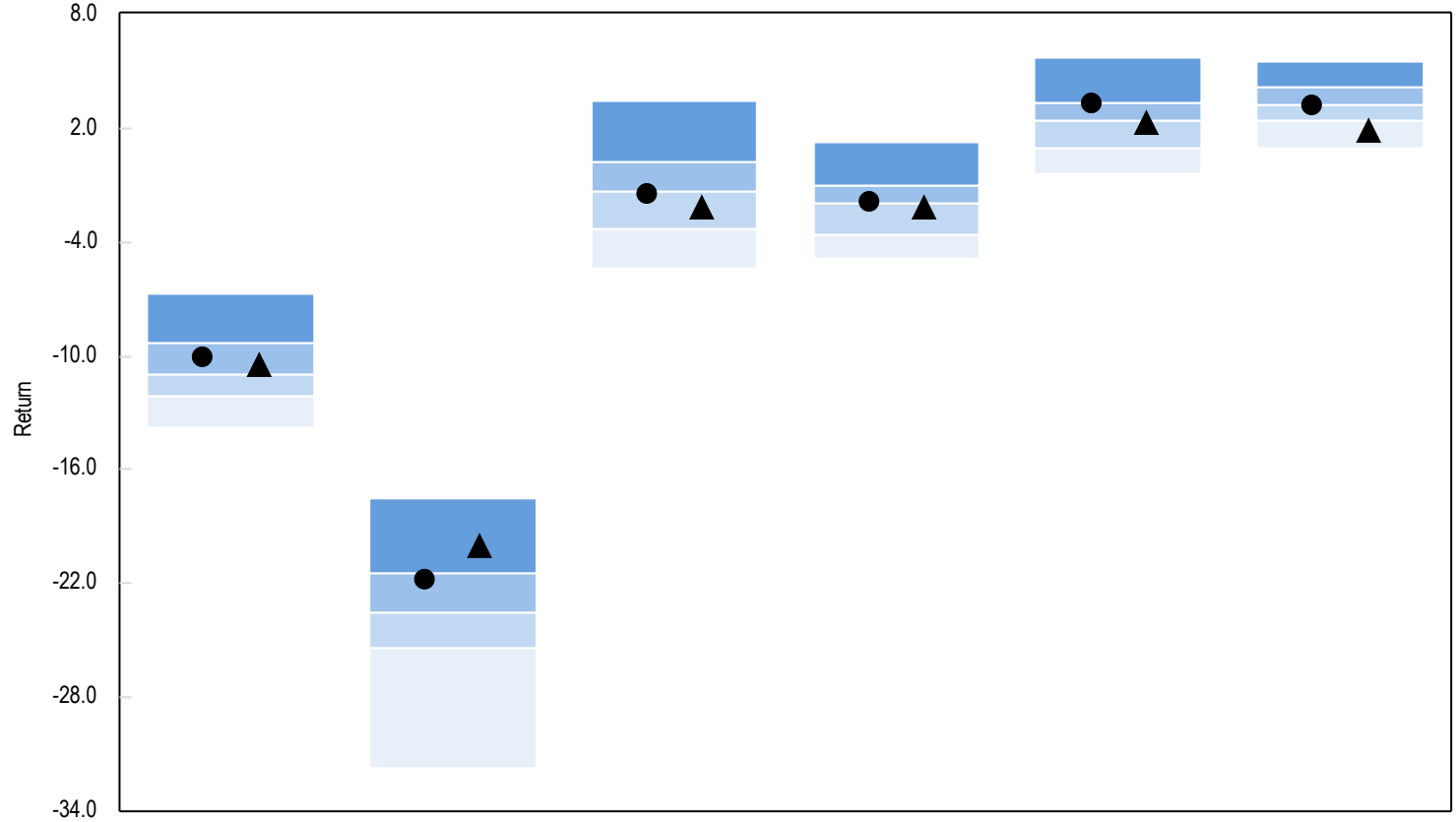
3 Years

	Return	Standard Deviation	Sharpe Ratio
SSGA MSCI ACWI Ex US Index Fund	-1.32	18.17	-0.01
MSCI AC World ex USA (Net)	-1.52	18.22	-0.02

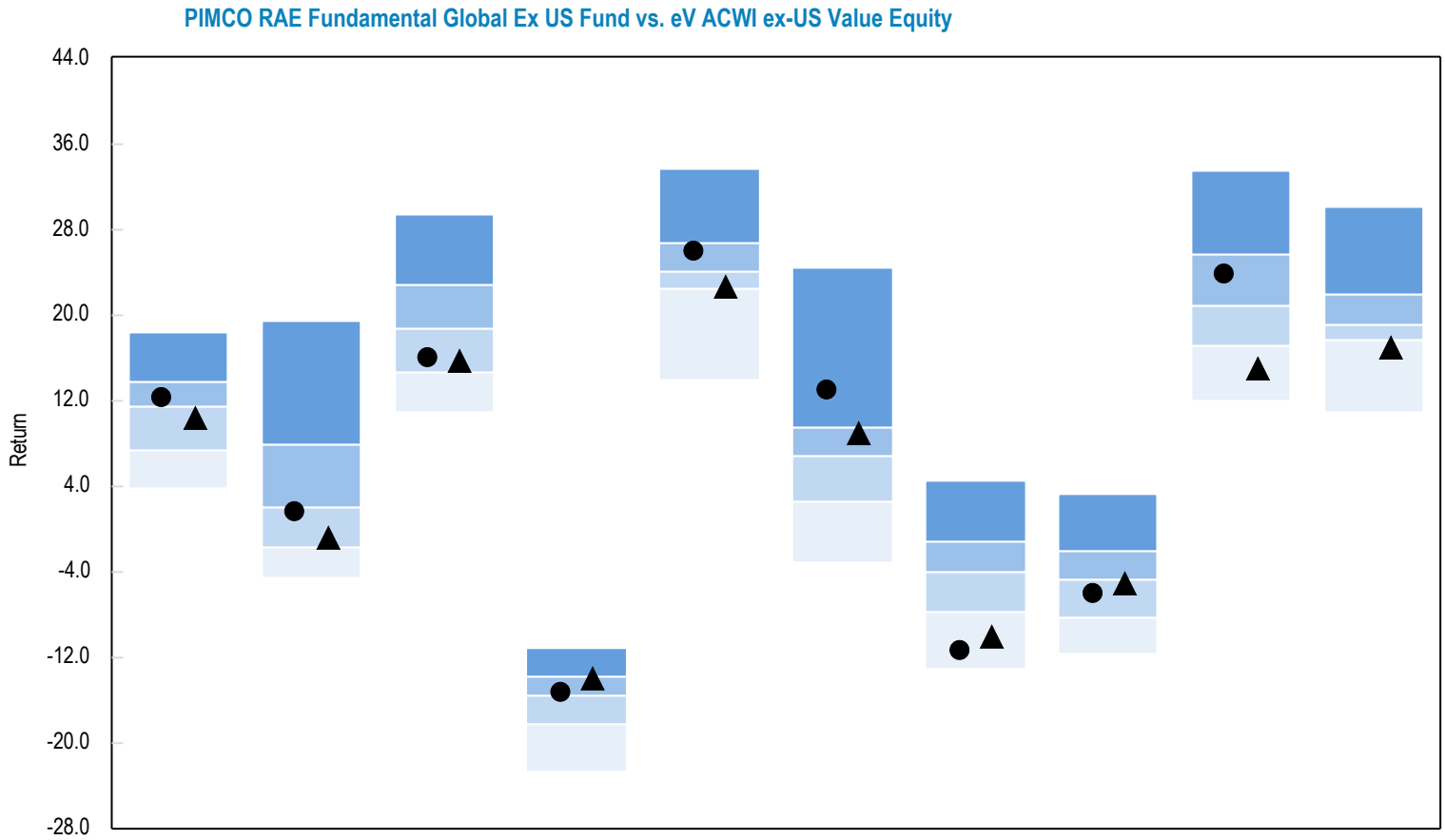
5 Years

	Return	Standard Deviation	Sharpe Ratio
SSGA MSCI ACWI Ex US Index Fund	-0.61	16.22	-0.03
MSCI AC World ex USA (Net)	-0.81	16.26	-0.04

PIMCO RAE Fundamental Global Ex US Fund vs. eV ACWI ex-US Value Equity

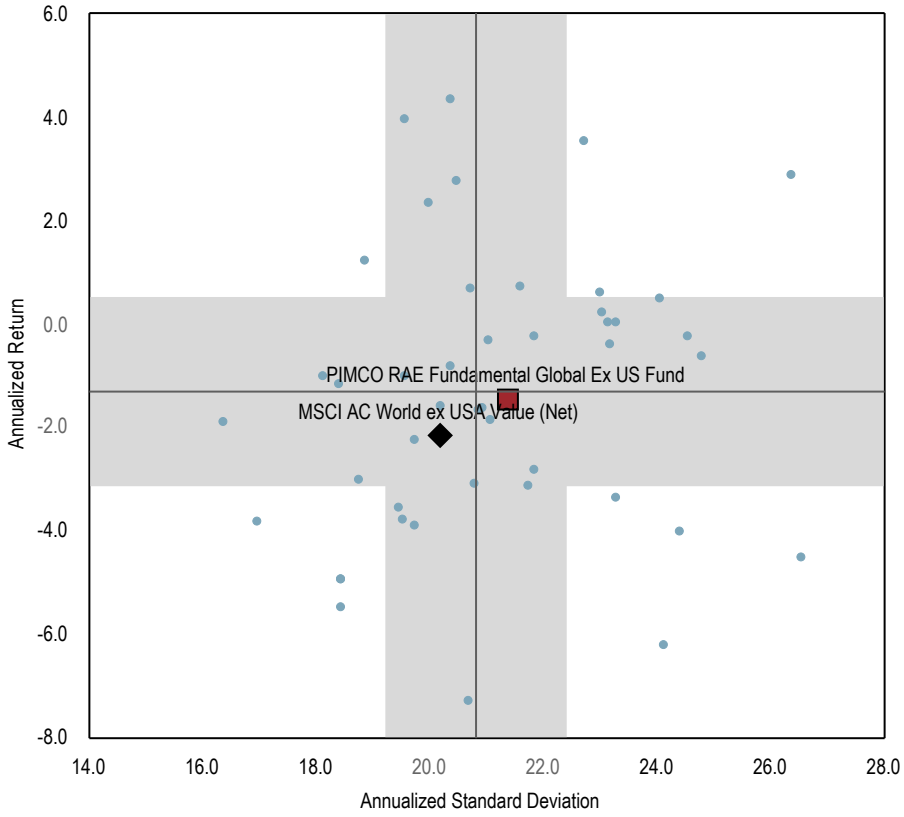


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● PIMCO RAE Fundamental Global Ex US Fund	-10.08 (35)	-21.76 (29)	-1.46 (52)	-1.83 (43)	3.29 (27)	3.26 (50)
▲ MSCI AC World ex USA Value (Net)	-10.44 (42)	-20.02 (14)	-2.15 (65)	-2.12 (52)	2.24 (53)	1.87 (85)
5th Percentile	-6.75	-17.56	3.39	1.31	5.69	5.52
1st Quartile	-9.36	-21.49	0.20	-1.01	3.31	4.19
Median	-11.01	-23.56	-1.30	-1.99	2.42	3.25
3rd Quartile	-12.07	-25.41	-3.28	-3.66	0.98	2.43
95th Percentile	-13.79	-31.74	-5.33	-4.87	-0.39	0.99
Population	47	47	46	42	39	30

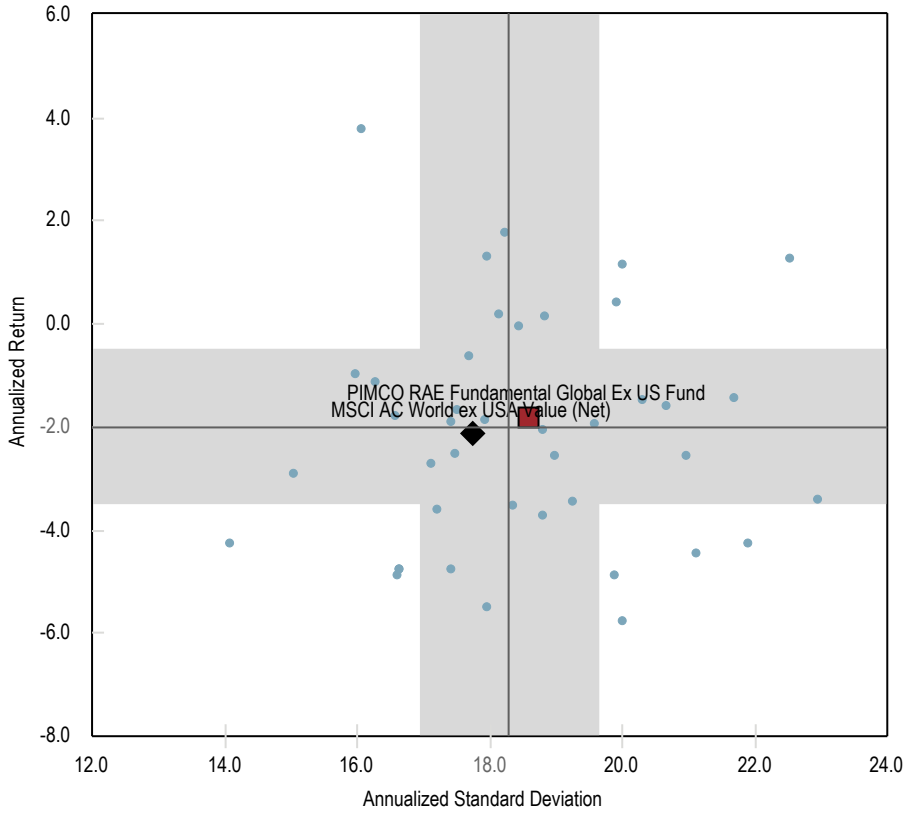


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● PIMCO RAE Fundamental Global Ex US Fund	12.30 (39)	1.69 (54)	16.05 (70)	-15.12 (43)	25.99 (37)	12.99 (12)	-11.36 (88)	-5.90 (56)	23.92 (34)	-
▲ MSCI AC World ex USA Value (Net)	10.46 (58)	-0.77 (72)	15.72 (72)	-13.97 (28)	22.66 (69)	8.92 (31)	-10.06 (83)	-5.10 (54)	15.04 (85)	16.97 (80)
5th Percentile	18.42	19.46	29.39	-11.16	33.60	24.37	4.46	3.31	33.52	30.10
1st Quartile	13.78	7.89	22.78	-13.85	26.80	9.49	-1.17	-2.08	25.63	21.89
Median	11.52	2.09	18.71	-15.63	24.07	6.80	-4.07	-4.80	20.88	19.14
3rd Quartile	7.35	-1.69	14.68	-18.26	22.40	2.63	-7.74	-8.21	17.17	17.70
95th Percentile	3.74	-4.54	10.87	-22.74	13.92	-3.18	-13.09	-11.72	12.08	10.90
Population	54	57	57	55	56	55	55	53	49	46

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV ACWI ex-US Value Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV ACWI ex-US Value Equity

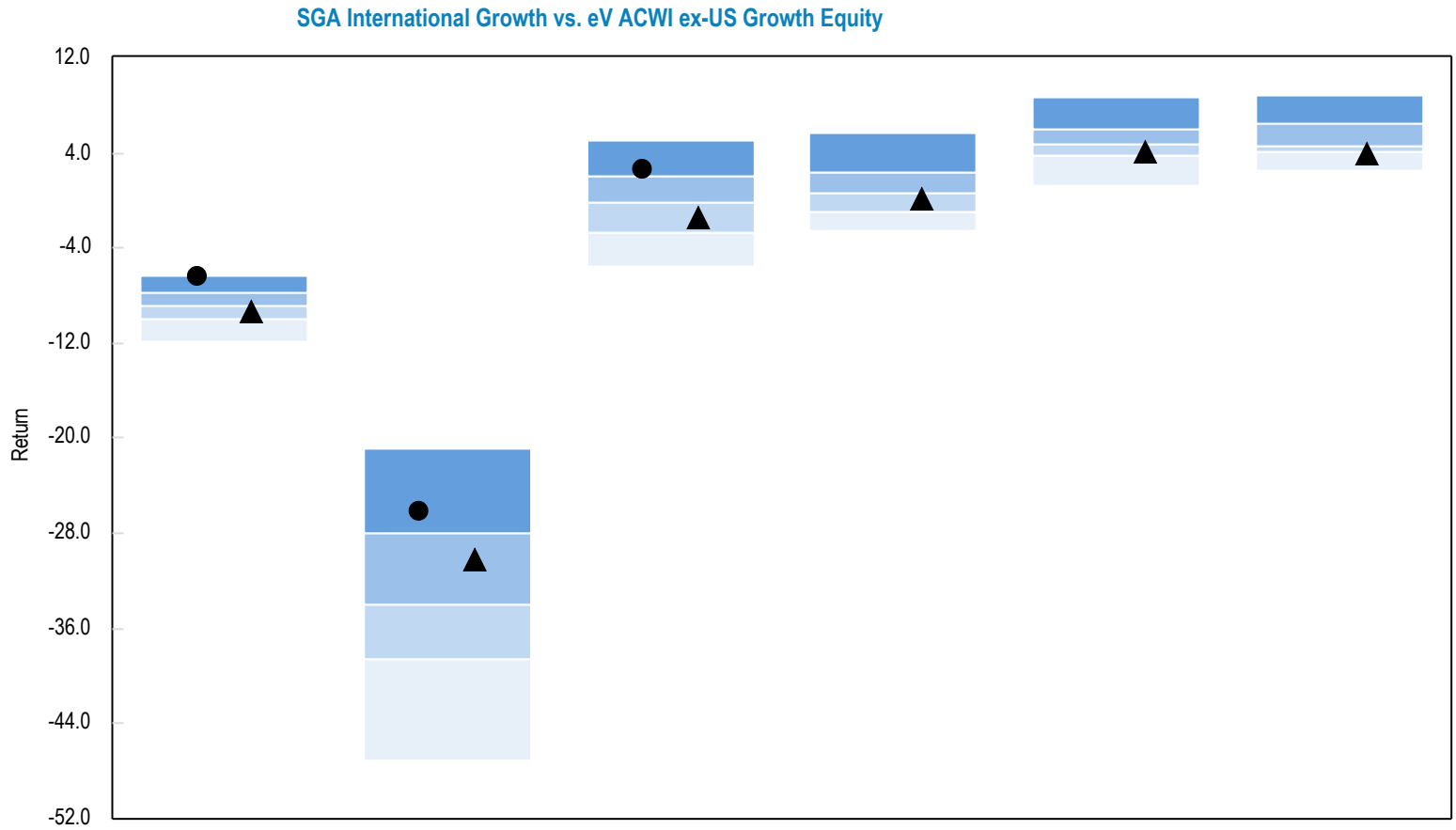


3 Years

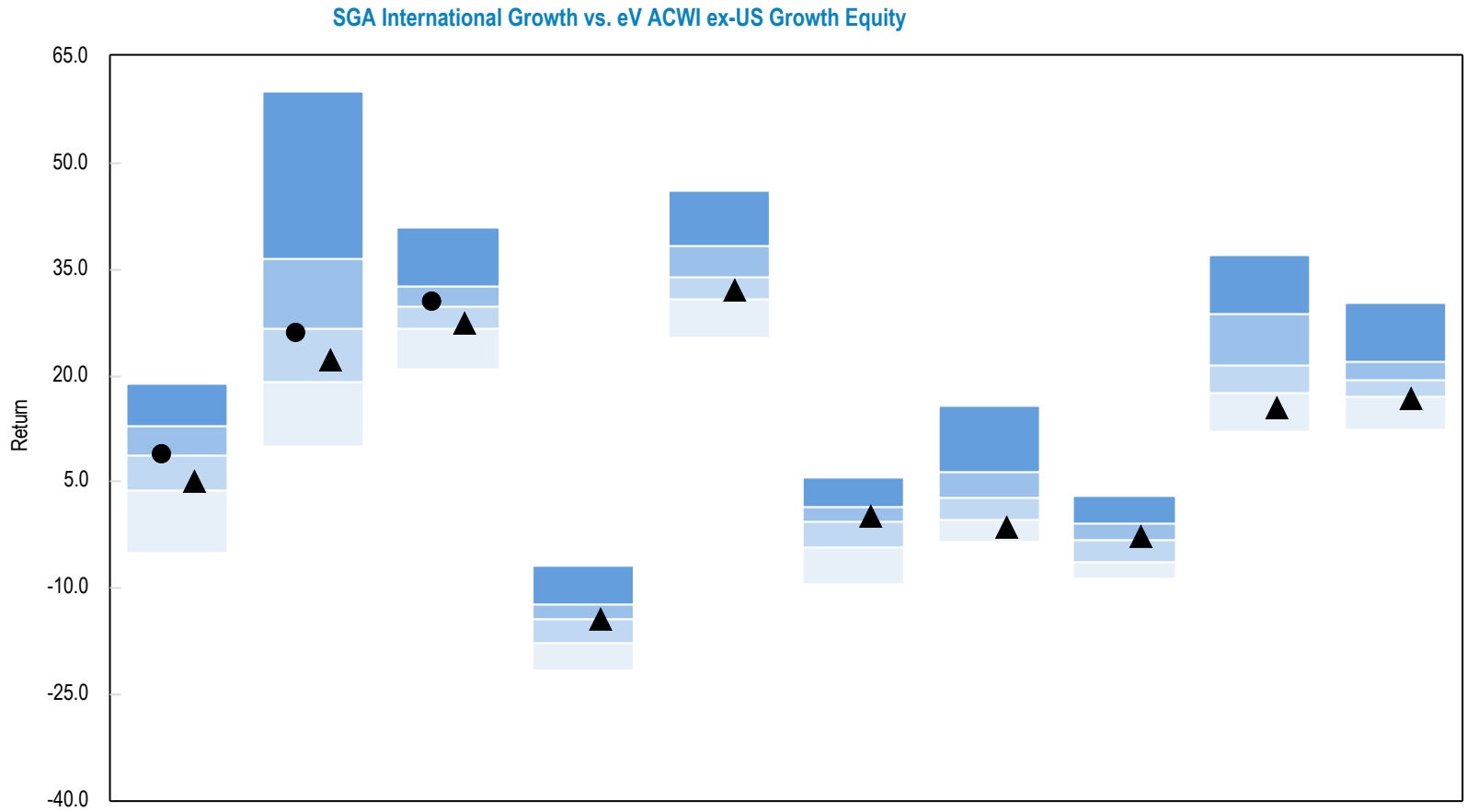
	Return	Standard Deviation	Sharpe Ratio
PIMCO RAE Fundamental Global Ex US Fund	-1.46	21.36	0.01
MSCI AC World ex USA Value (Net)	-2.15	20.17	-0.03

5 Years

	Return	Standard Deviation	Sharpe Ratio
PIMCO RAE Fundamental Global Ex US Fund	-1.83	18.59	-0.07
MSCI AC World ex USA Value (Net)	-2.12	17.74	-0.09

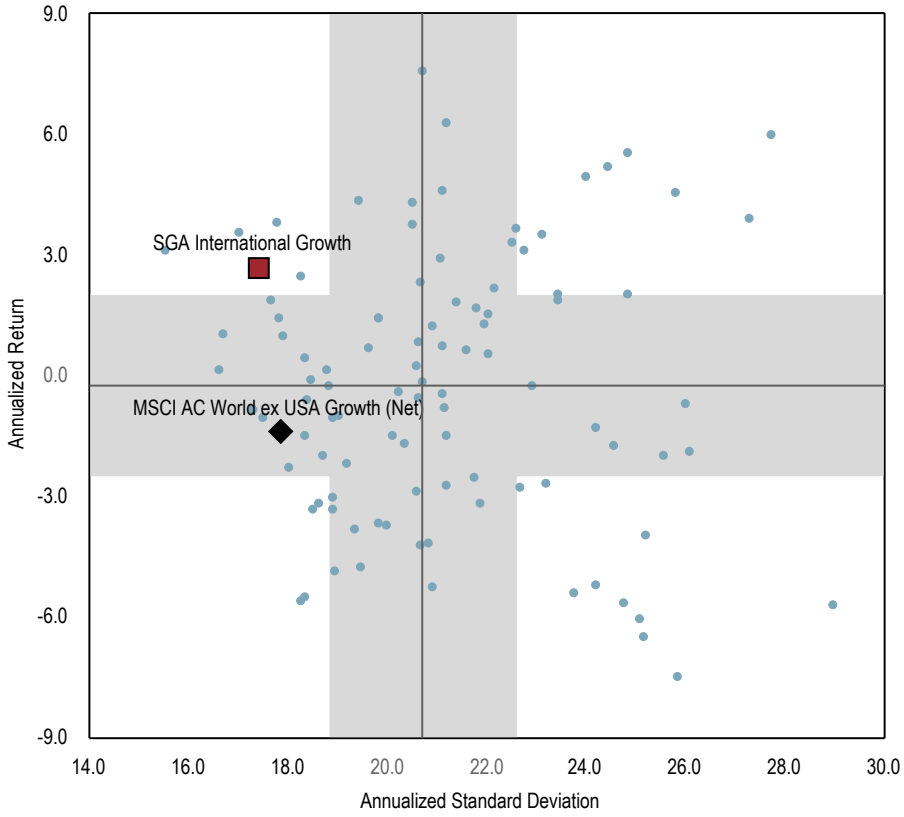


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● SGA International Growth	-6.26 (5)	-26.10 (14)	2.72 (20)	-	-	-
▲ MSCI AC World ex USA Growth (Net)	-9.37 (67)	-30.22 (35)	-1.38 (62)	0.18 (57)	4.09 (64)	3.95 (78)
5th Percentile	-6.30	-20.92	5.01	5.76	8.68	8.83
1st Quartile	-7.71	-27.93	1.99	2.28	6.02	6.49
Median	-8.89	-34.05	-0.22	0.69	4.78	4.64
3rd Quartile	-9.91	-38.56	-2.72	-1.00	3.74	4.05
95th Percentile	-11.87	-47.14	-5.60	-2.50	1.30	2.50
Population	107	107	99	91	81	64

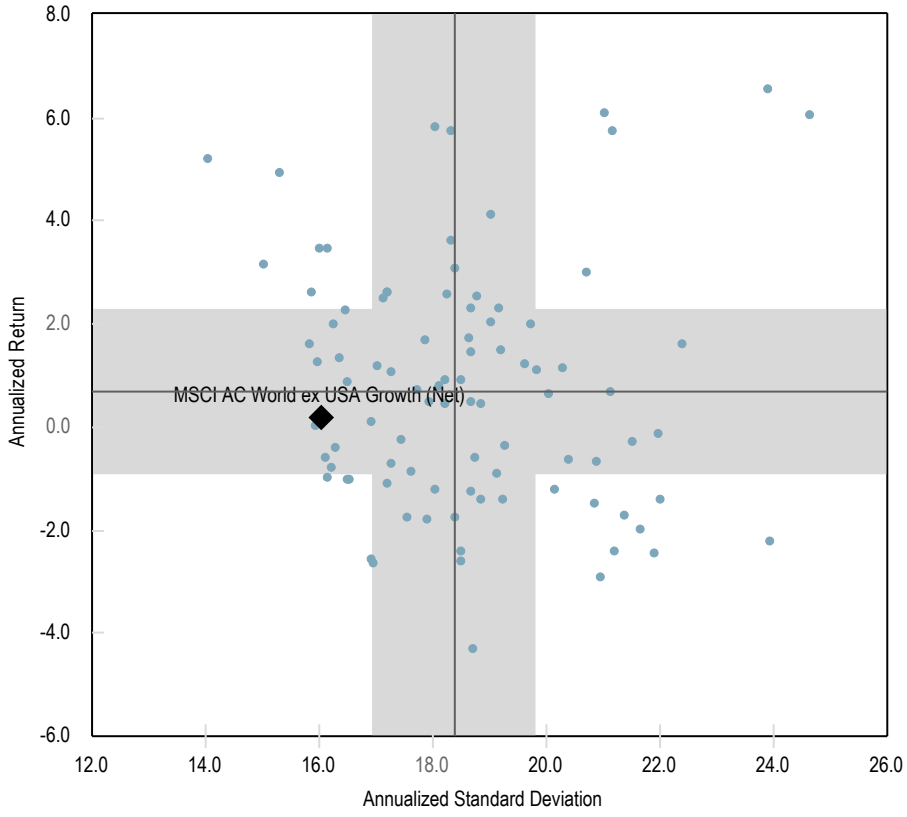


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● SGA International Growth	9.11 (45)	26.04 (51)	30.52 (41)	-	-	-	-	-	-	-
▲ MSCI AC World ex USA Growth (Net)	5.09 (72)	22.20 (67)	27.34 (73)	-14.43 (52)	32.01 (70)	0.12 (42)	-1.25 (84)	-2.65 (47)	15.49 (79)	16.67 (78)
5th Percentile	18.98	60.01	40.83	-6.91	46.04	5.51	15.65	3.09	37.12	30.28
1st Quartile	12.80	36.49	32.64	-12.36	38.38	1.46	6.39	-0.75	28.76	21.86
Median	8.67	26.67	29.81	-14.26	33.92	-0.70	2.81	-3.17	21.53	19.41
3rd Quartile	3.90	19.17	26.73	-17.66	30.65	-4.28	-0.41	-6.33	17.47	17.03
95th Percentile	-5.03	9.99	21.01	-21.50	25.46	-9.33	-3.48	-8.73	12.17	12.29
Population	110	107	105	100	101	98	90	83	77	78

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV ACWI ex-US Growth Equity



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV ACWI ex-US Growth Equity



3 Years

	Return	Standard Deviation	Sharpe Ratio
SGA International Growth	2.72	17.42	0.21
MSCI AC World ex USA Growth (Net)	-1.38	17.84	-0.02

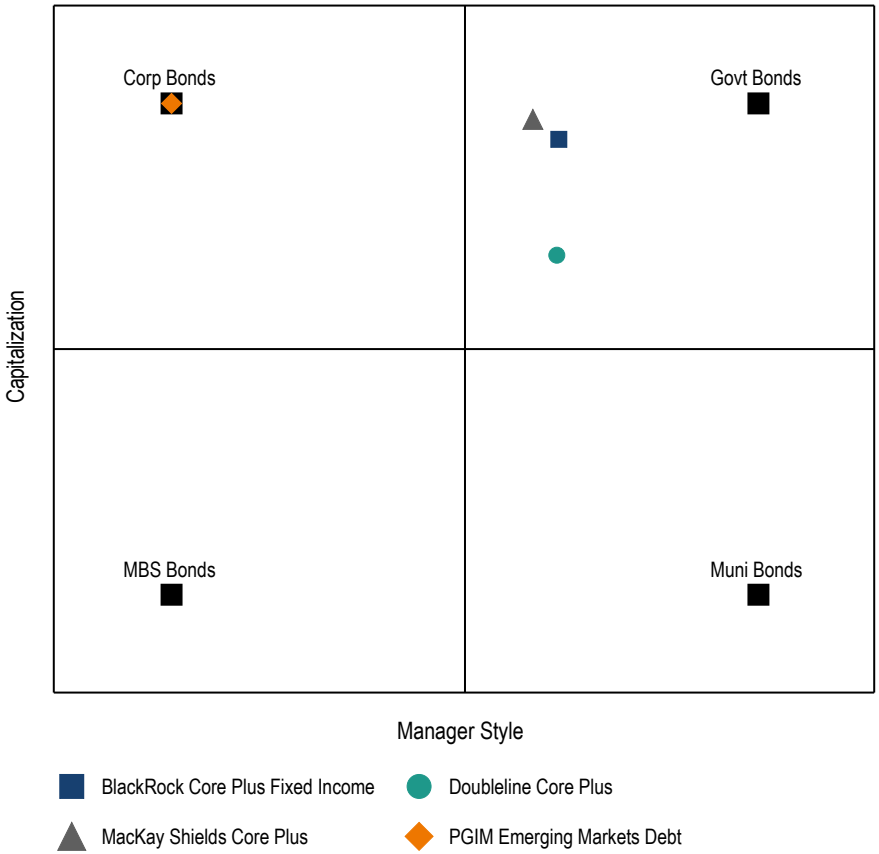
5 Years

	Return	Standard Deviation	Sharpe Ratio
SGA International Growth	-	-	-
MSCI AC World ex USA Growth (Net)	0.18	16.04	0.02

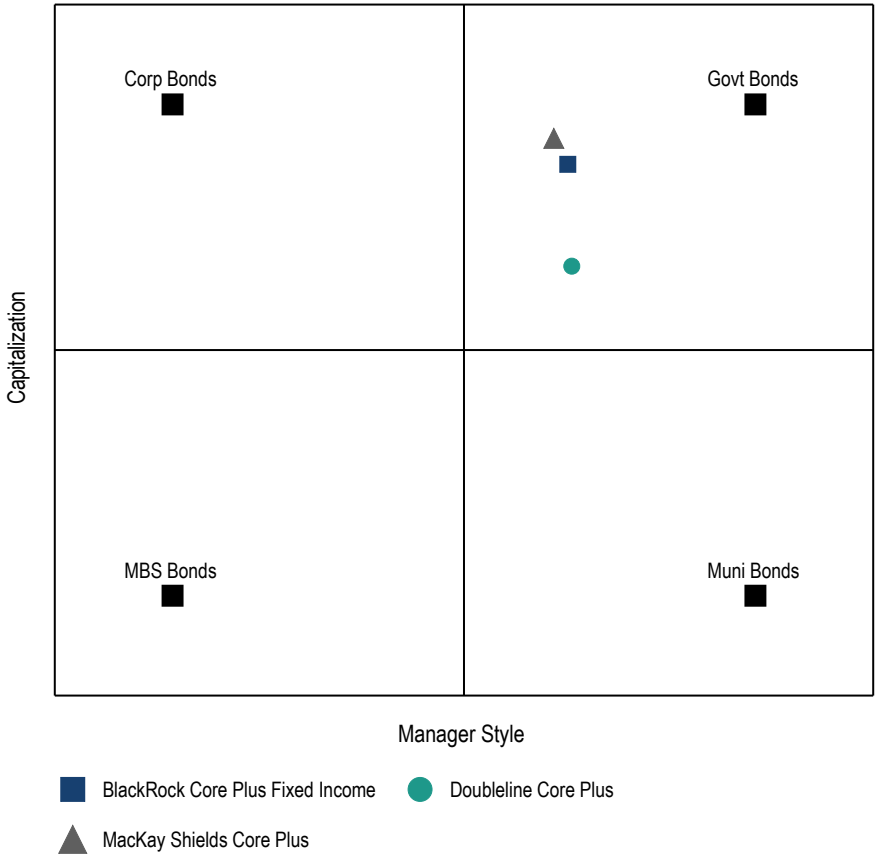
	Market Value	% of Portfolio	Quarter	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	20
Total Fixed Income	**341,457,240**	**100.0**	**-4.6**	**-16.0**	**-16.4**	**-4.5**	**-1.4**	**0.5**	**-2.2**	**4.7**	**8.1**	**0.1**	**3**
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3*
Total Domestic Fixed Income	**295,440,672**	**86.5**	**-4.7**	**-15.4**	**-15.4**	**-3.1**	**-0.2**	**1.1**	**-0.7**	**7.9**	**9.0**	**-0.2**	**4**
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3*
BlackRock Core Plus Fixed Income	99,908,629	29.3	-5.0	-15.6	-15.6	-3.3	-0.3	1.0	-1.4	8.4	8.7	0.1	3
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3*
eV US Core Plus Fixed Inc Rank			*91*	*63*	*61*	*88*	*90*	*94*	*89*	*57*	*80*	*24*	
Doubleline Core Plus	98,901,335	29.0	-4.1	-13.9	-14.0	-3.2	-0.4	-	-0.2	5.2	8.3	-0.3	3
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3*
eV US Core Plus Fixed Inc Rank			*28*	*16*	*16*	*82*	*92*	*-*	*39*	*97*	*87*	*35*	
MacKay Shields Core Plus	96,630,709	28.3	-5.1	-16.6	-16.6	-2.8	-0.1	-	-0.4	9.9	9.6	-1.0	4
Blmbg. U.S. Aggregate Index			*-4.8*	*-14.6*	*-14.6*	*-3.3*	*-0.3*	*0.9*	*-1.5*	*7.5*	*8.7*	*0.0*	*3*
eV US Core Plus Fixed Inc Rank			*94*	*89*	*88*	*58*	*70*	*-*	*47*	*23*	*53*	*76*	
Total Emerging Markets Fixed Income	**46,016,568**	**13.5**	**-3.7**	**-19.7**	**-21.2**	**-6.1**	**-**	**-**	**-5.3**	**4.6**	**-**	**-**	
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			*-4.6*	*-21.3*	*-22.5*	*-7.1*	*-3.2*	*-0.6*	*-5.3*	*4.0*	*14.3*	*-5.2*	*1*
PGIM Emerging Markets Debt	46,016,568	13.5	-3.7	-19.7	-21.2	-6.1	-	-	-5.3	4.6	-	-	
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			*-4.6*	*-21.3*	*-22.5*	*-7.1*	*-3.2*	*-0.6*	*-5.3*	*4.0*	*14.3*	*-5.2*	*1*
eV Emg Mkts Fixed Inc - Blended Currency Rank			*47*	*42*	*48*	*74*	*-*	*-*	*73*	*70*	*-*	*-*	

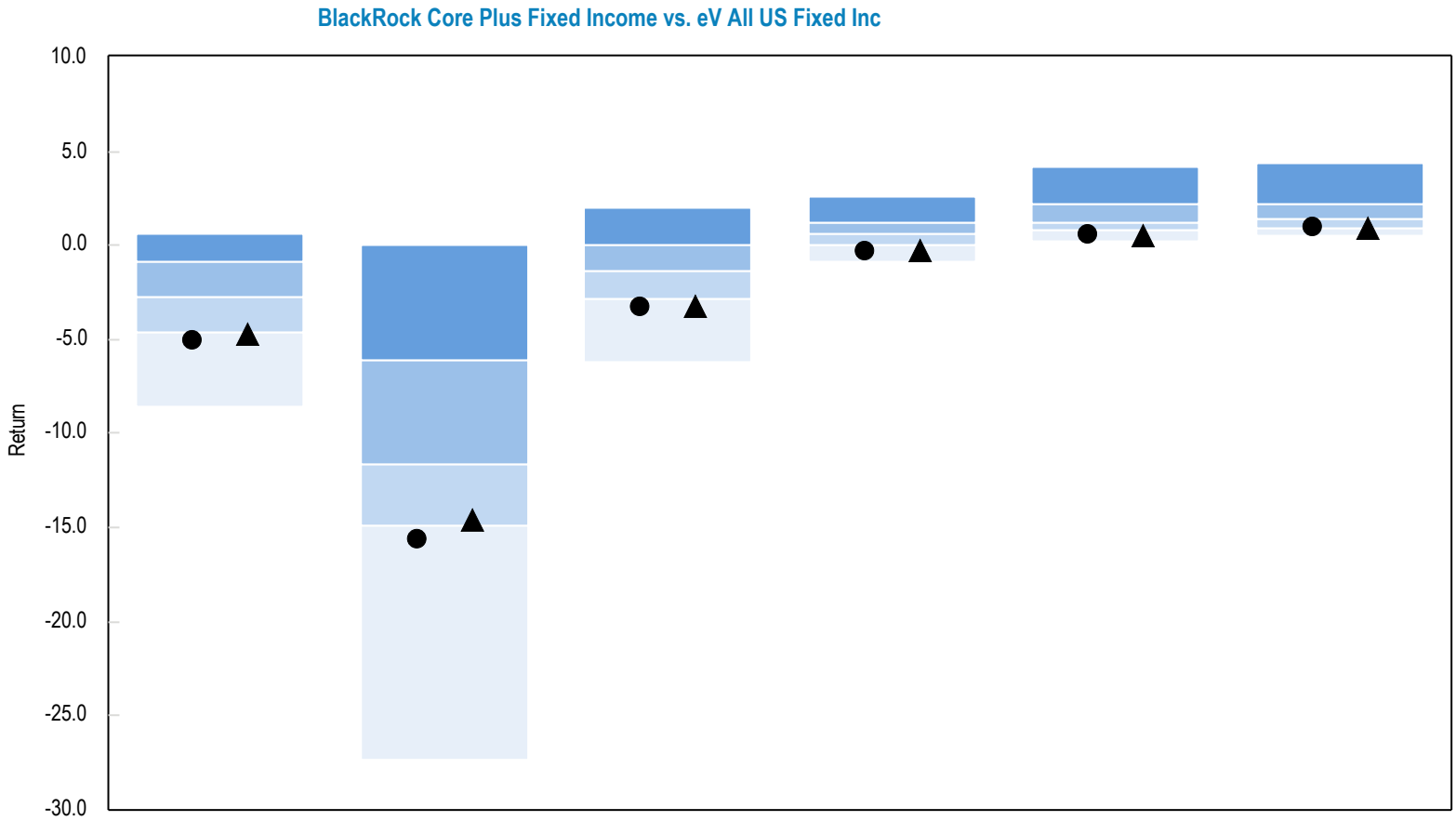
SSGA TIPS liquidated in 12/28/18. Shenkman HY liquidated 3/11/19. PGIM EMD funded 8/26/19. Franklin Templeton Global Bond Plus liquidated 12/28/2021.

Fixed Income Style Map 3 Years

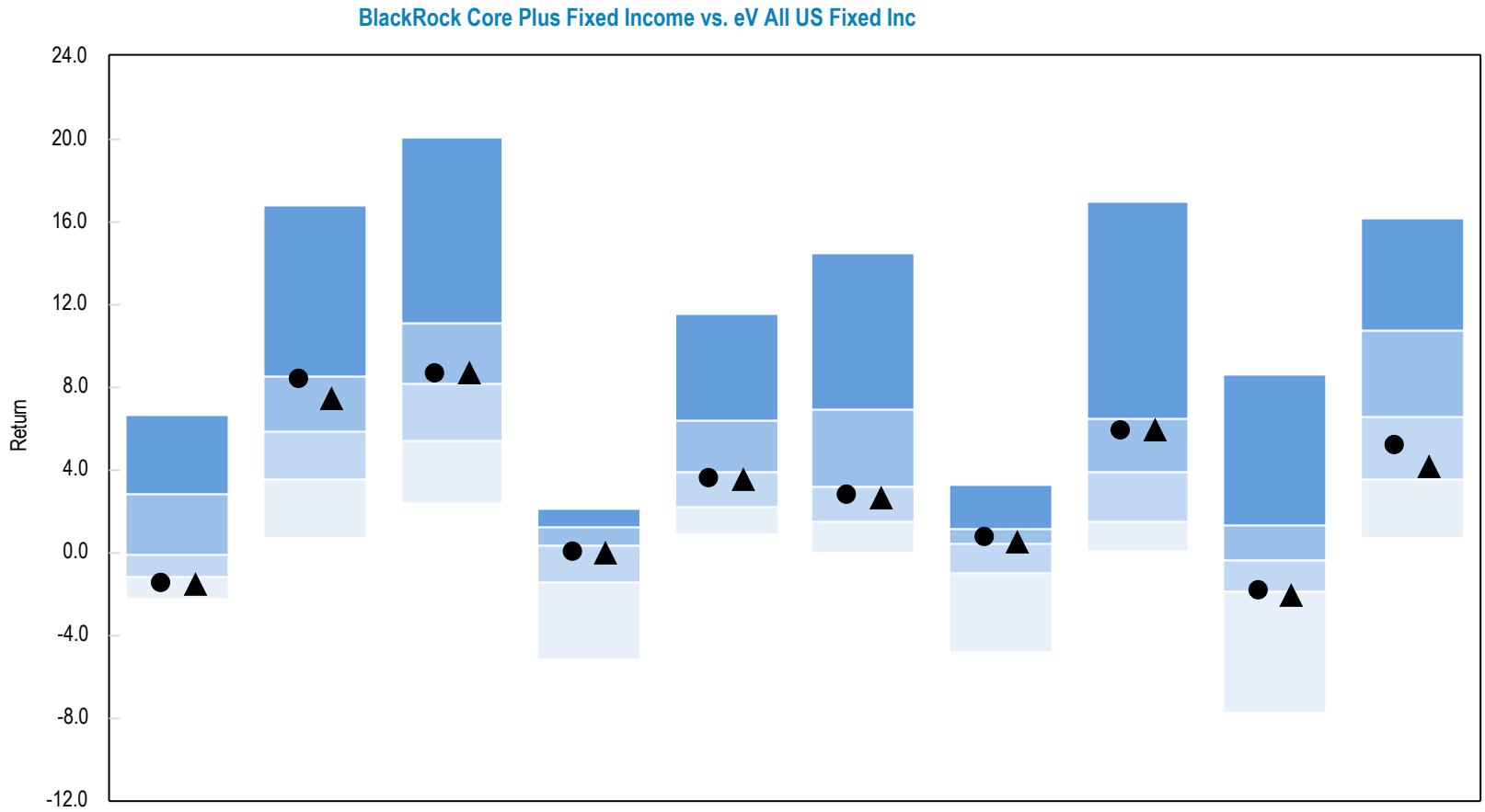


Fixed Income Style Map 5 Years



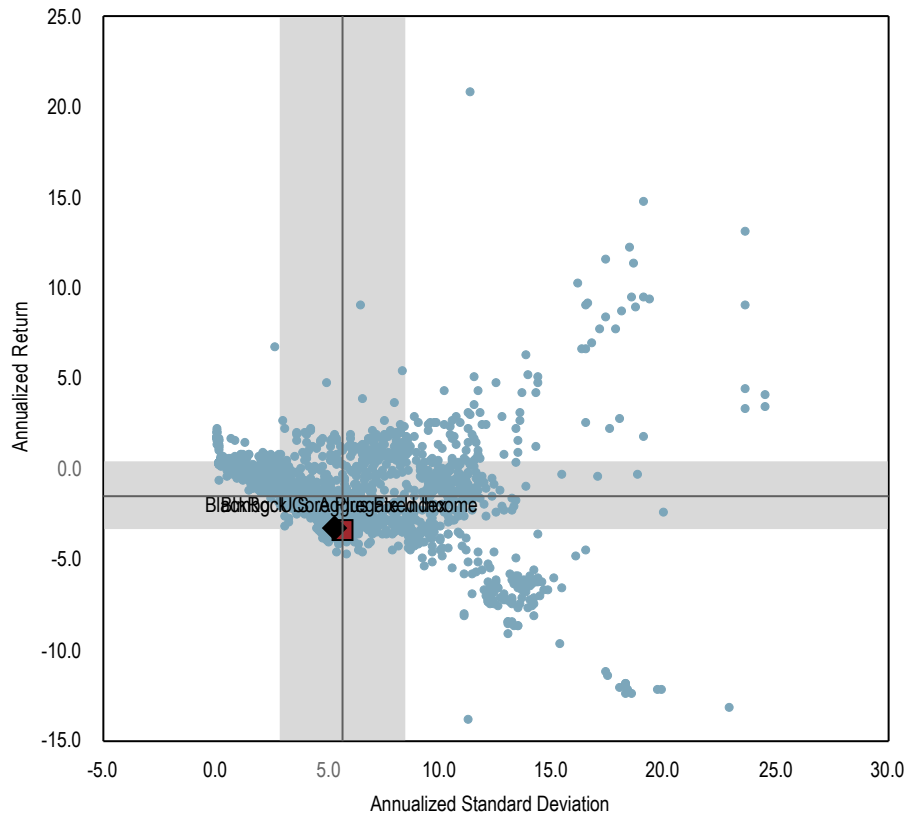


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● BlackRock Core Plus Fixed Income	-4.97 (85)	-15.59 (81)	-3.28 (85)	-0.29 (86)	0.60 (85)	0.97 (71)
▲ Blmbg. U.S. Aggregate Index	-4.75 (81)	-14.60 (72)	-3.26 (84)	-0.27 (86)	0.54 (88)	0.89 (76)
5th Percentile	0.59	0.01	2.01	2.64	4.12	4.33
1st Quartile	-0.91	-6.07	0.03	1.25	2.20	2.24
Median	-2.78	-11.60	-1.41	0.58	1.24	1.36
3rd Quartile	-4.58	-14.85	-2.84	0.01	0.78	0.90
95th Percentile	-8.54	-27.36	-6.16	-0.87	0.21	0.48
Population	1,842	1,832	1,780	1,703	1,593	1,410

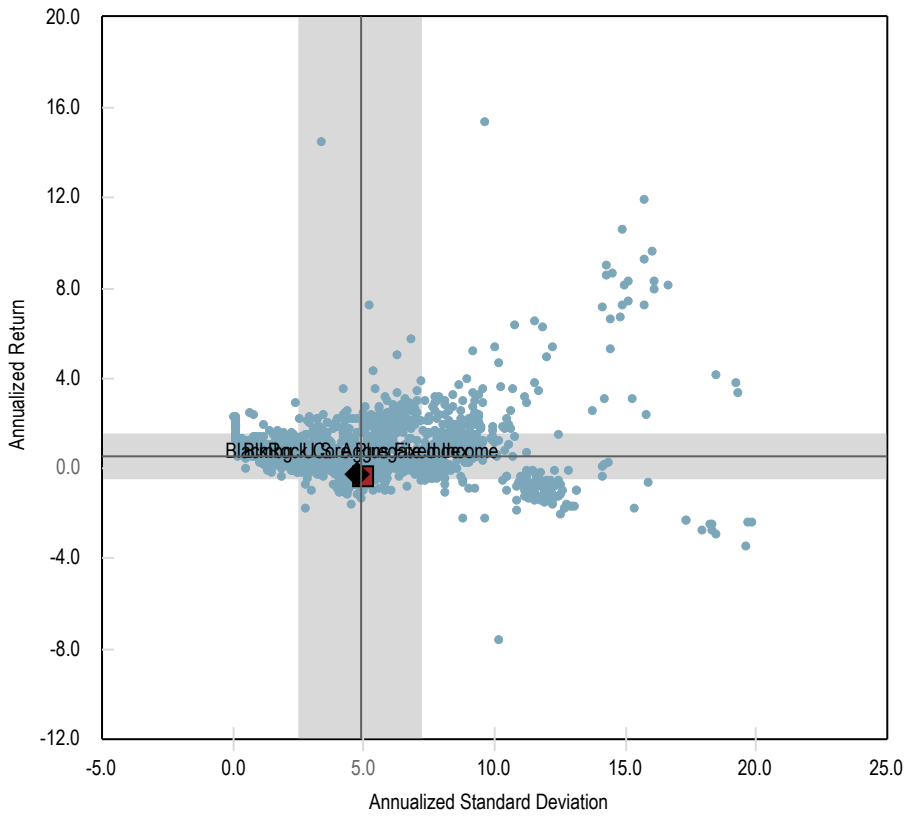


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● BlackRock Core Plus Fixed Income	-1.41 (82)	8.40 (27)	8.75 (44)	0.10 (54)	3.61 (55)	2.87 (54)	0.81 (36)	5.95 (32)	-1.75 (73)	5.22 (61)
▲ Blmbg. U.S. Aggregate Index	-1.55 (85)	7.51 (36)	8.72 (44)	0.01 (56)	3.54 (56)	2.65 (57)	0.55 (46)	5.97 (32)	-2.02 (77)	4.21 (69)
5th Percentile	6.66	16.83	20.08	2.10	11.60	14.52	3.29	16.97	8.64	16.20
1st Quartile	2.82	8.56	11.08	1.29	6.44	6.92	1.16	6.51	1.29	10.73
Median	-0.08	5.91	8.16	0.32	3.88	3.20	0.46	3.94	-0.31	6.57
3rd Quartile	-1.12	3.56	5.41	-1.38	2.19	1.47	-1.02	1.47	-1.90	3.55
95th Percentile	-2.25	0.73	2.43	-5.12	0.85	0.00	-4.76	0.09	-7.76	0.69
Population	2,040	2,096	2,121	2,151	2,145	2,131	2,123	2,090	2,048	1,994

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV All US Fixed Inc



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV All US Fixed Inc

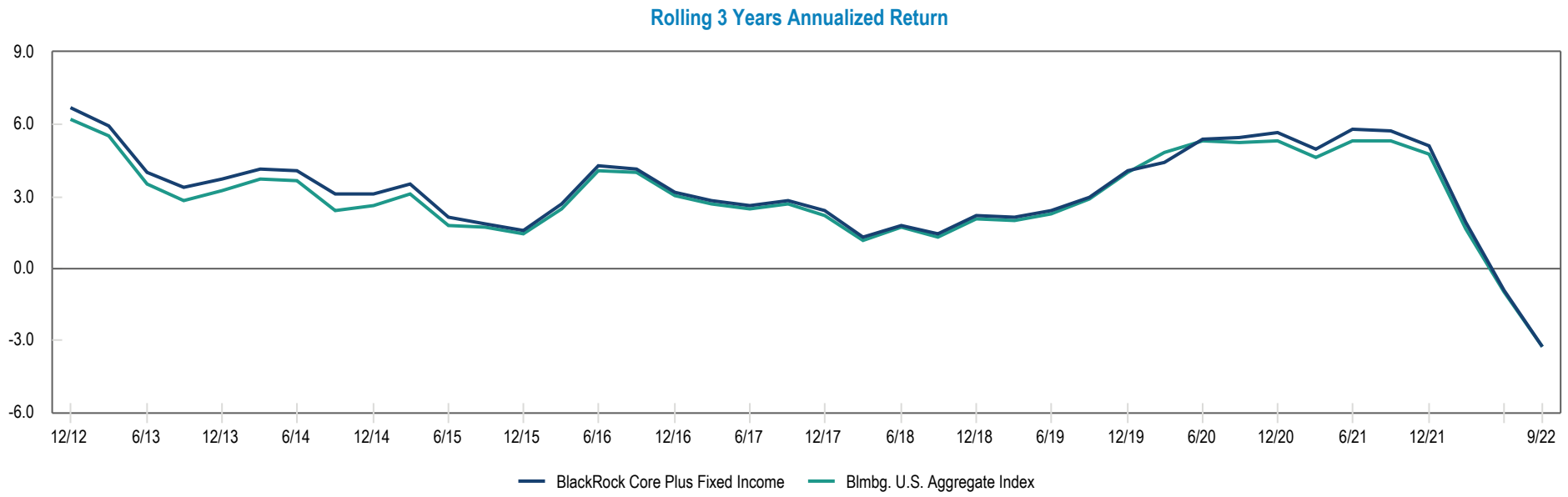


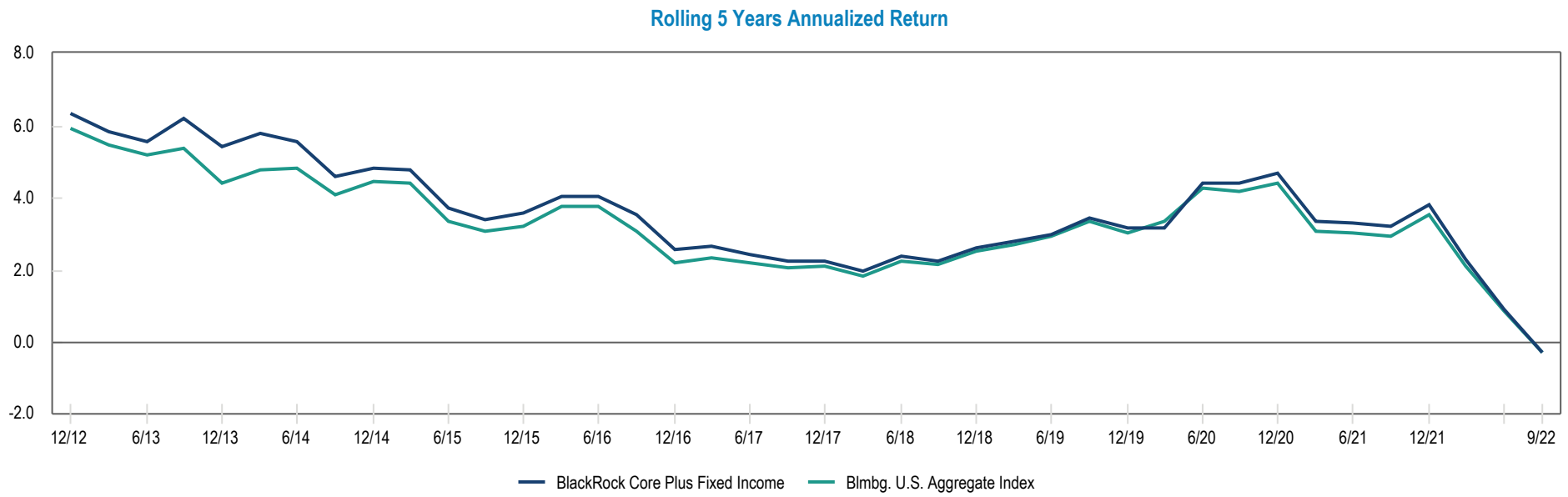
3 Years

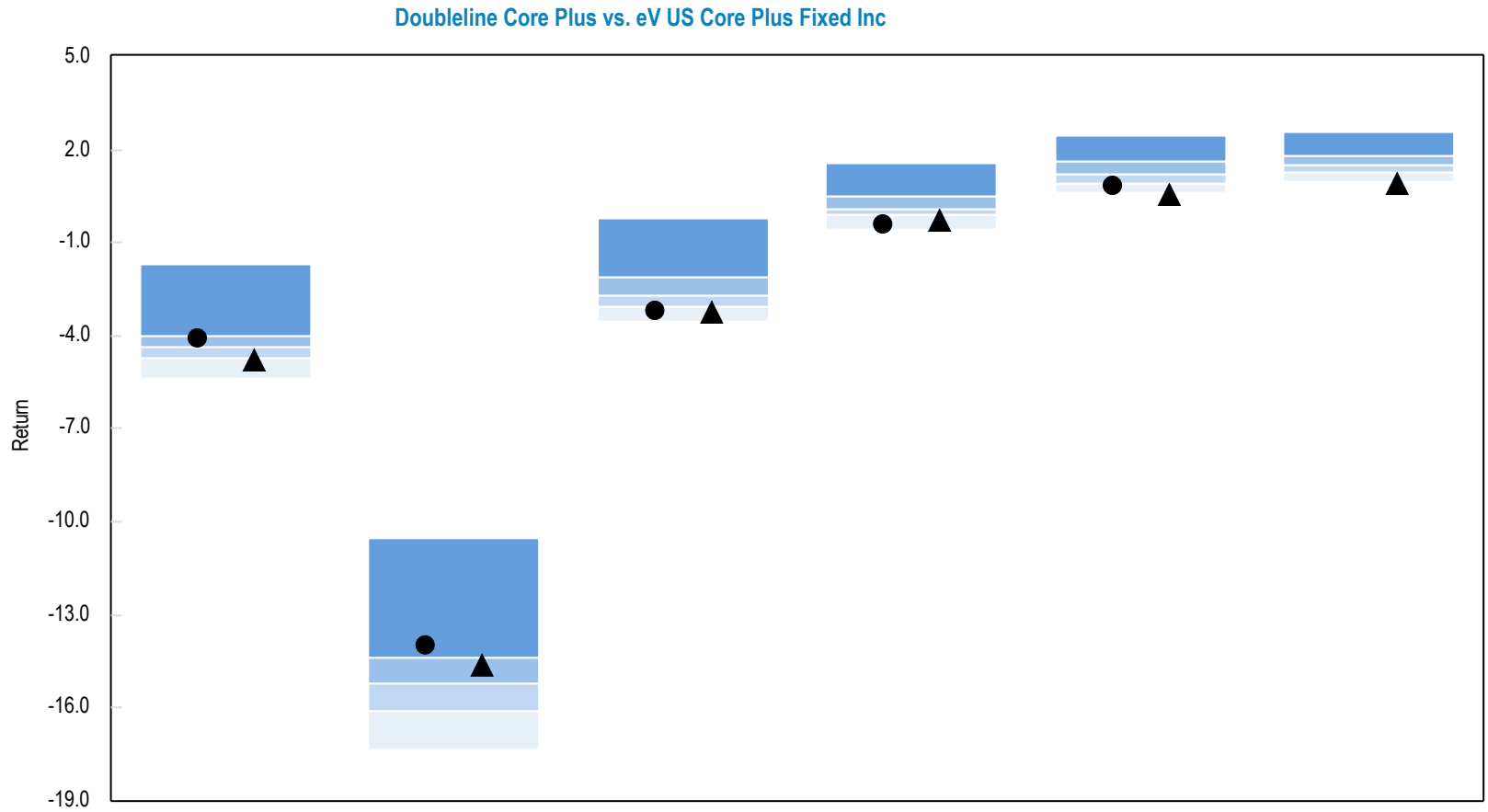
	Return	Standard Deviation	Sharpe Ratio
BlackRock Core Plus Fixed Income	-3.28	5.66	-0.66
Blmbg. U.S. Aggregate Index	-3.26	5.29	-0.70

5 Years

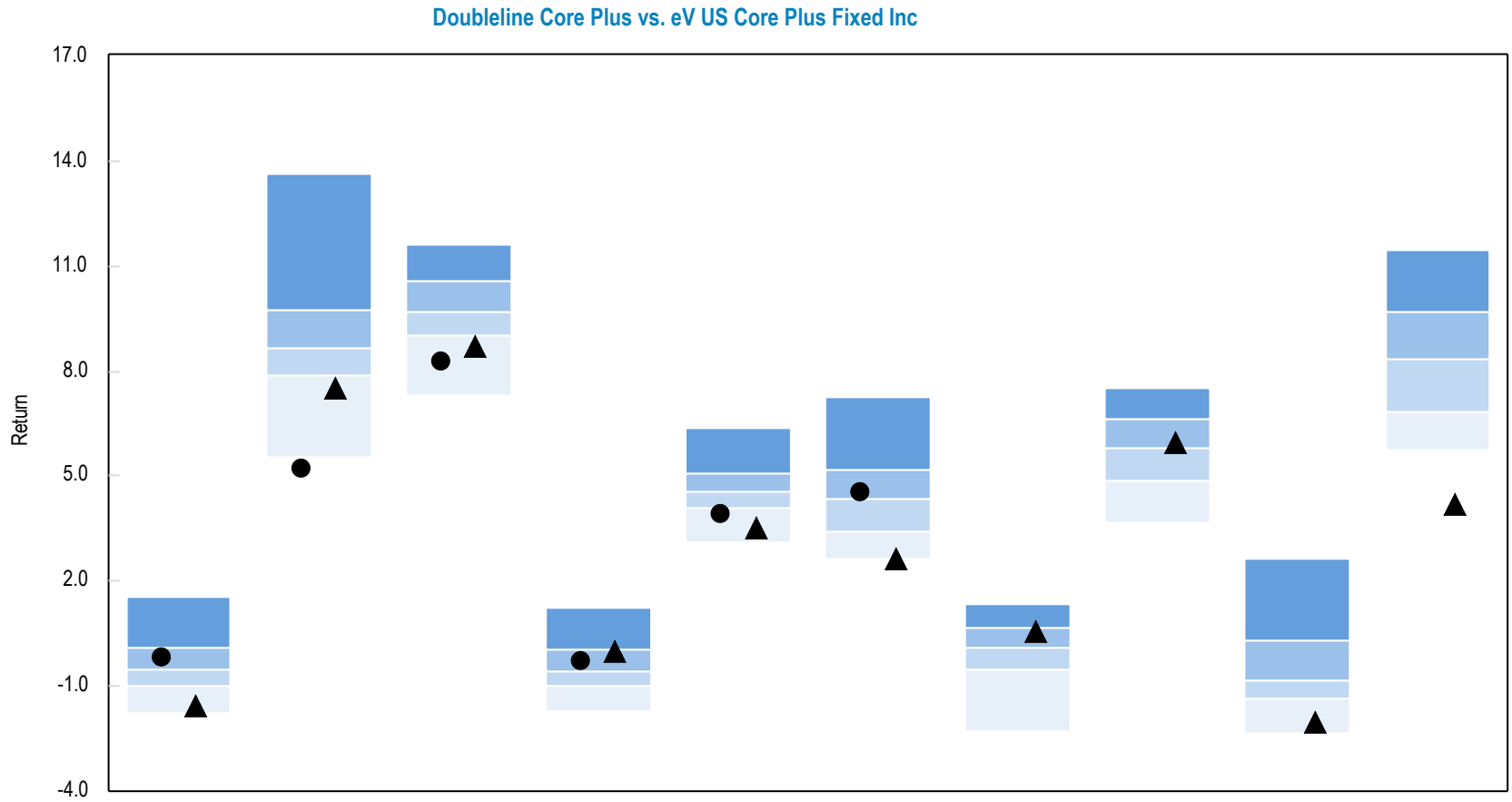
	Return	Standard Deviation	Sharpe Ratio
BlackRock Core Plus Fixed Income	-0.29	4.94	-0.27
Blmbg. U.S. Aggregate Index	-0.27	4.73	-0.28


Rolling 3 Years Annualized Return
9.0
6.0
3.0
0.0
-3.0
-6.0
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
BlackRock Core Plus Fixed Income
Blmbg. U.S. Aggregate Index


Rolling 5 Years Annualized Return
8.0
6.0
4.0
2.0
0.0
-2.0
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
BlackRock Core Plus Fixed Income
Blmbg. U.S. Aggregate Index

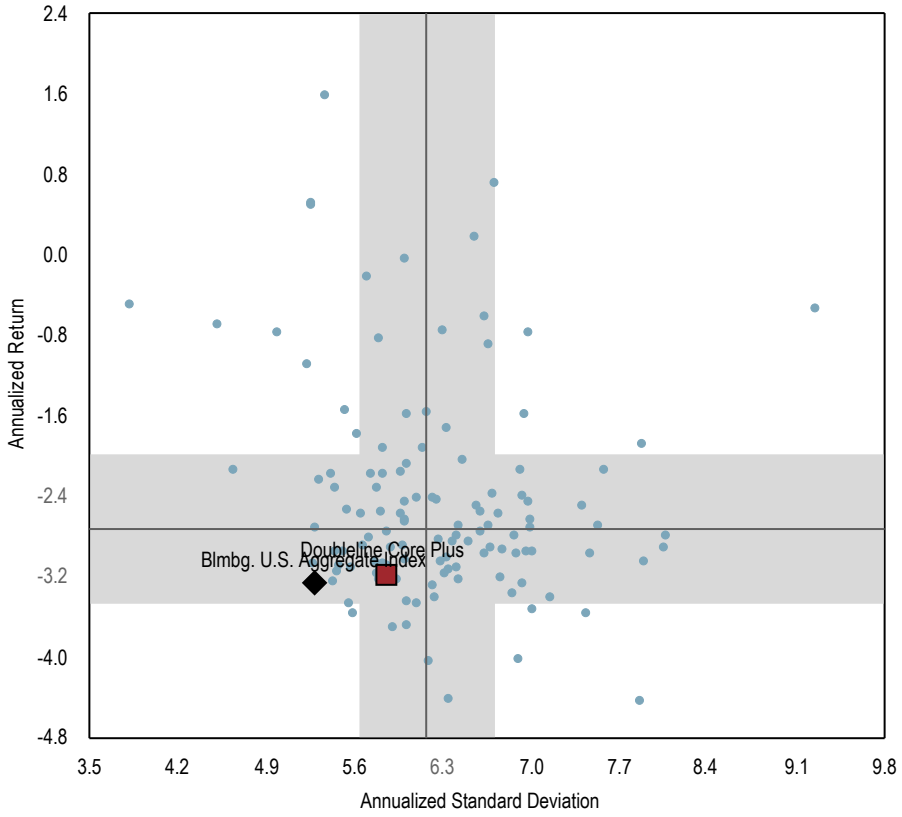


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Doubleline Core Plus	-4.07 (28)	-13.98 (16)	-3.17 (82)	-0.39 (92)	0.82 (82)	-
▲ Blmbg. U.S. Aggregate Index	-4.75 (80)	-14.60 (34)	-3.26 (88)	-0.27 (89)	0.54 (97)	0.89 (97)
5th Percentile	-1.69	-10.54	-0.20	1.58	2.47	2.58
1st Quartile	-4.03	-14.38	-2.13	0.48	1.60	1.79
Median	-4.39	-15.22	-2.72	0.10	1.20	1.48
3rd Quartile	-4.70	-16.08	-3.07	-0.12	0.94	1.27
95th Percentile	-5.34	-17.33	-3.55	-0.54	0.60	0.95
Population	125	124	122	113	108	101

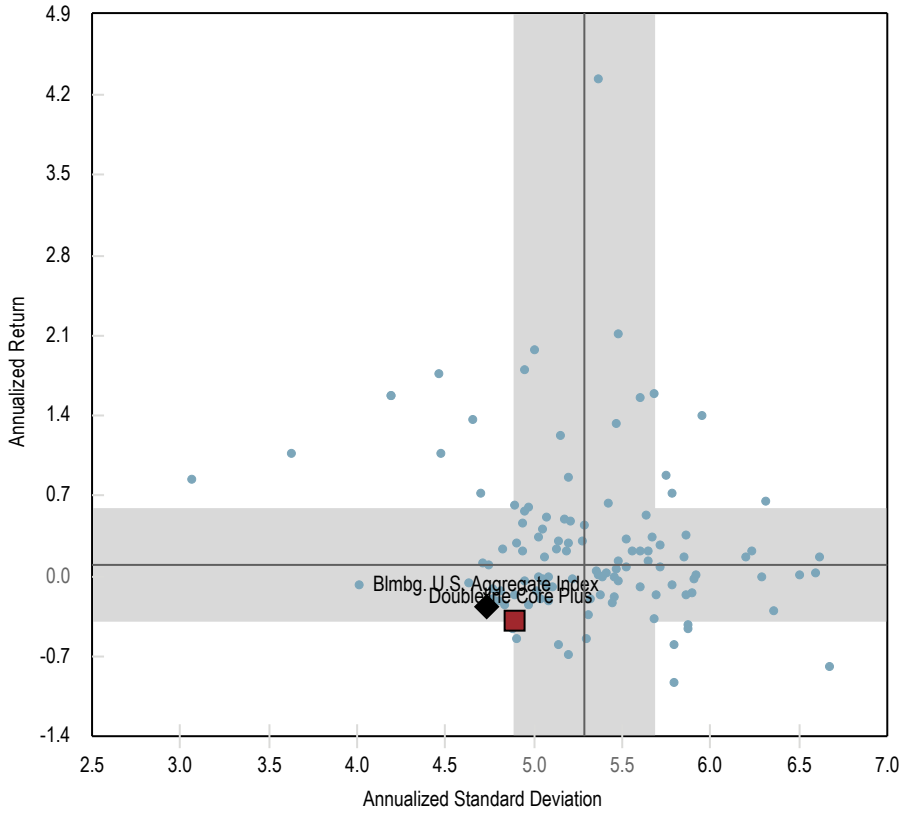


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● Doubleline Core Plus	-0.18 (39)	5.23 (97)	8.28 (87)	-0.28 (35)	3.93 (83)	4.55 (41)	-	-	-	-
▲ Blmbg. U.S. Aggregate Index	-1.55 (92)	7.51 (82)	8.72 (80)	0.01 (26)	3.54 (90)	2.65 (94)	0.55 (29)	5.97 (40)	-2.02 (90)	4.21 (100)
5th Percentile	1.54	13.62	11.61	1.24	6.36	7.27	1.35	7.53	2.63	11.46
1st Quartile	0.10	9.76	10.60	0.02	5.10	5.17	0.65	6.65	0.29	9.70
Median	-0.51	8.64	9.71	-0.59	4.55	4.36	0.09	5.80	-0.81	8.32
3rd Quartile	-1.02	7.87	9.00	-1.02	4.11	3.39	-0.52	4.85	-1.38	6.84
95th Percentile	-1.79	5.54	7.29	-1.70	3.09	2.63	-2.28	3.65	-2.36	5.76
Population	131	134	134	132	135	133	133	131	129	128

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Core Plus Fixed Inc



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Core Plus Fixed Inc

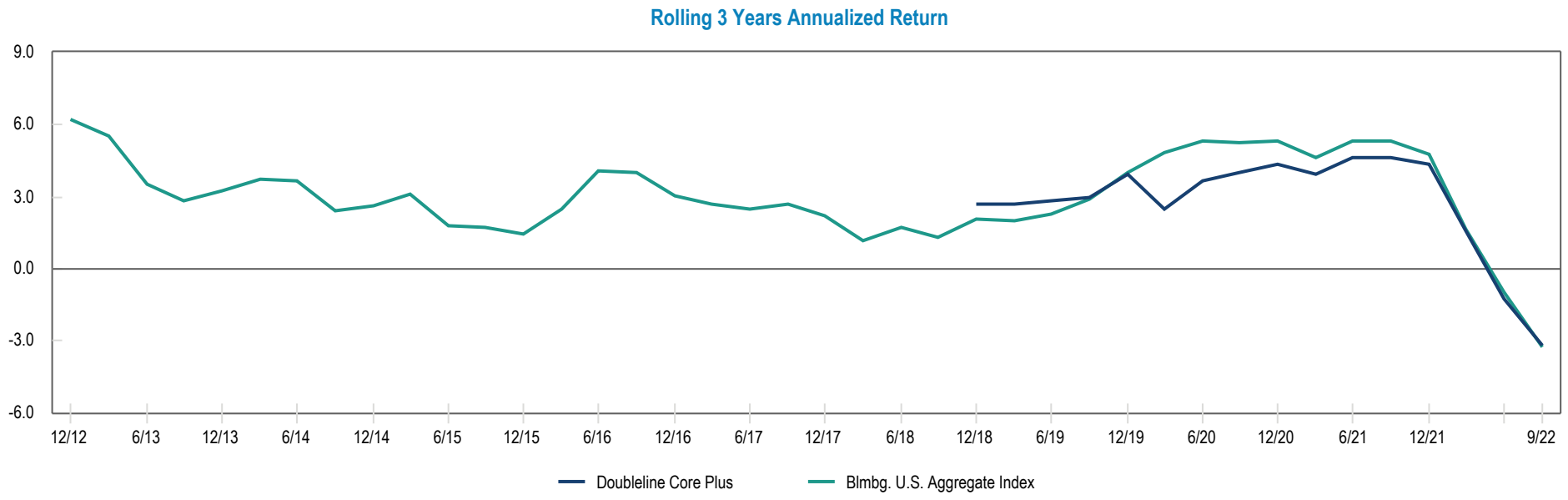


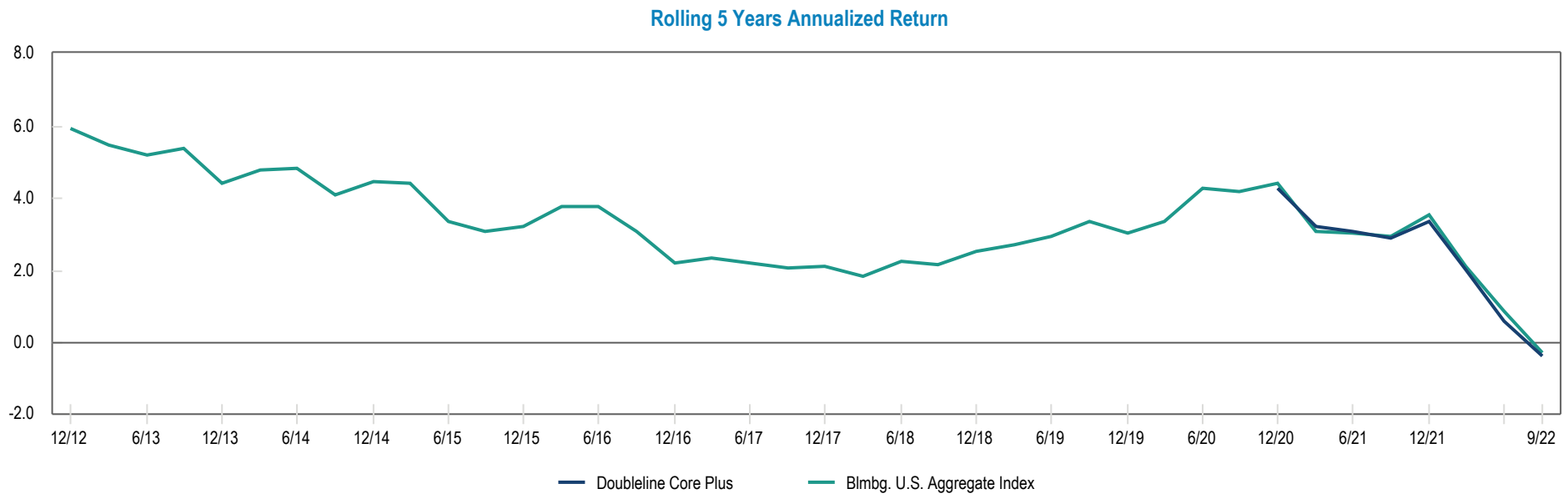
3 Years

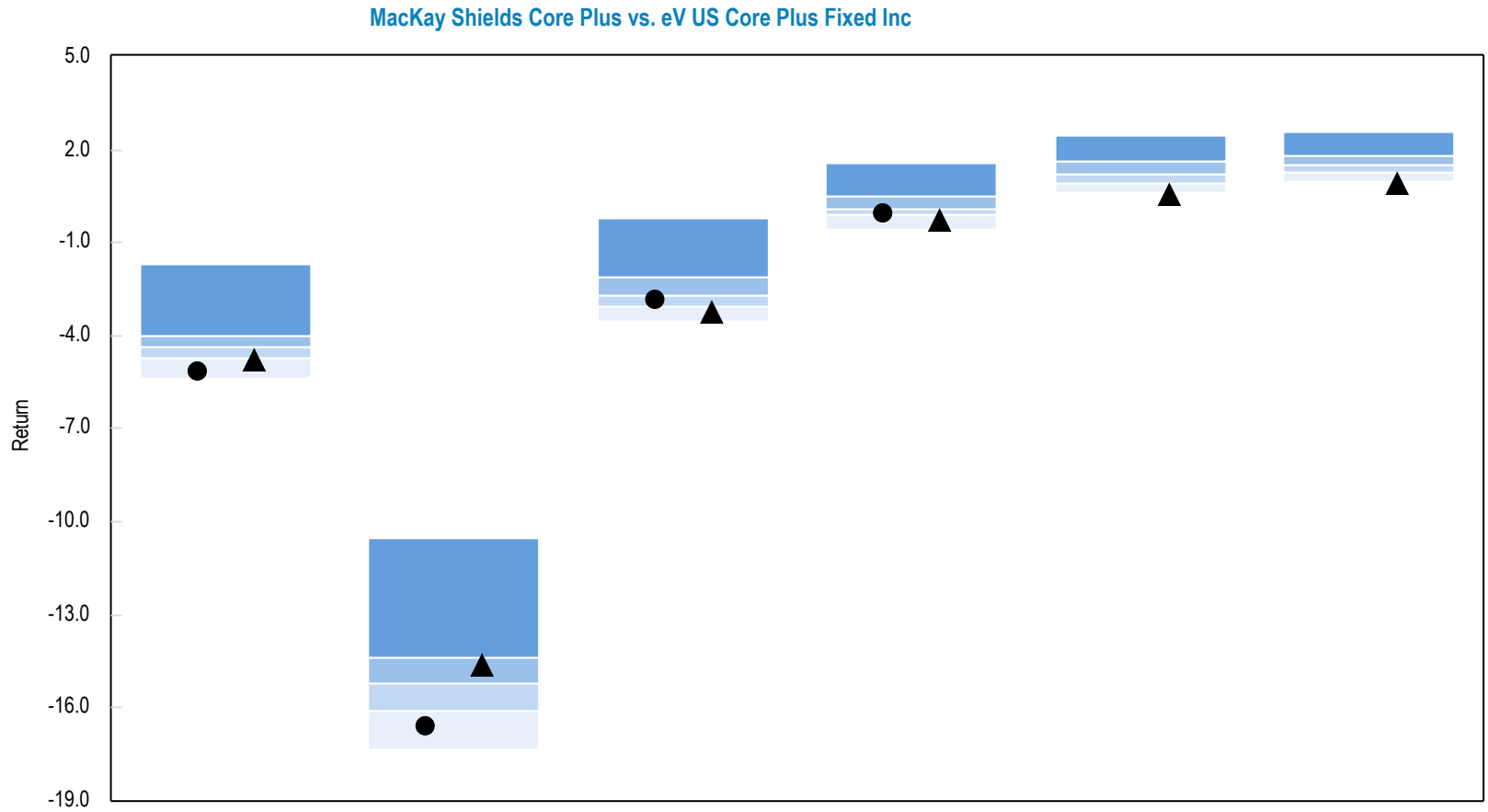
	Return	Standard Deviation	Sharpe Ratio
Doubleline Core Plus	-3.17	5.85	-0.61
Blmbg. U.S. Aggregate Index	-3.26	5.29	-0.70

5 Years

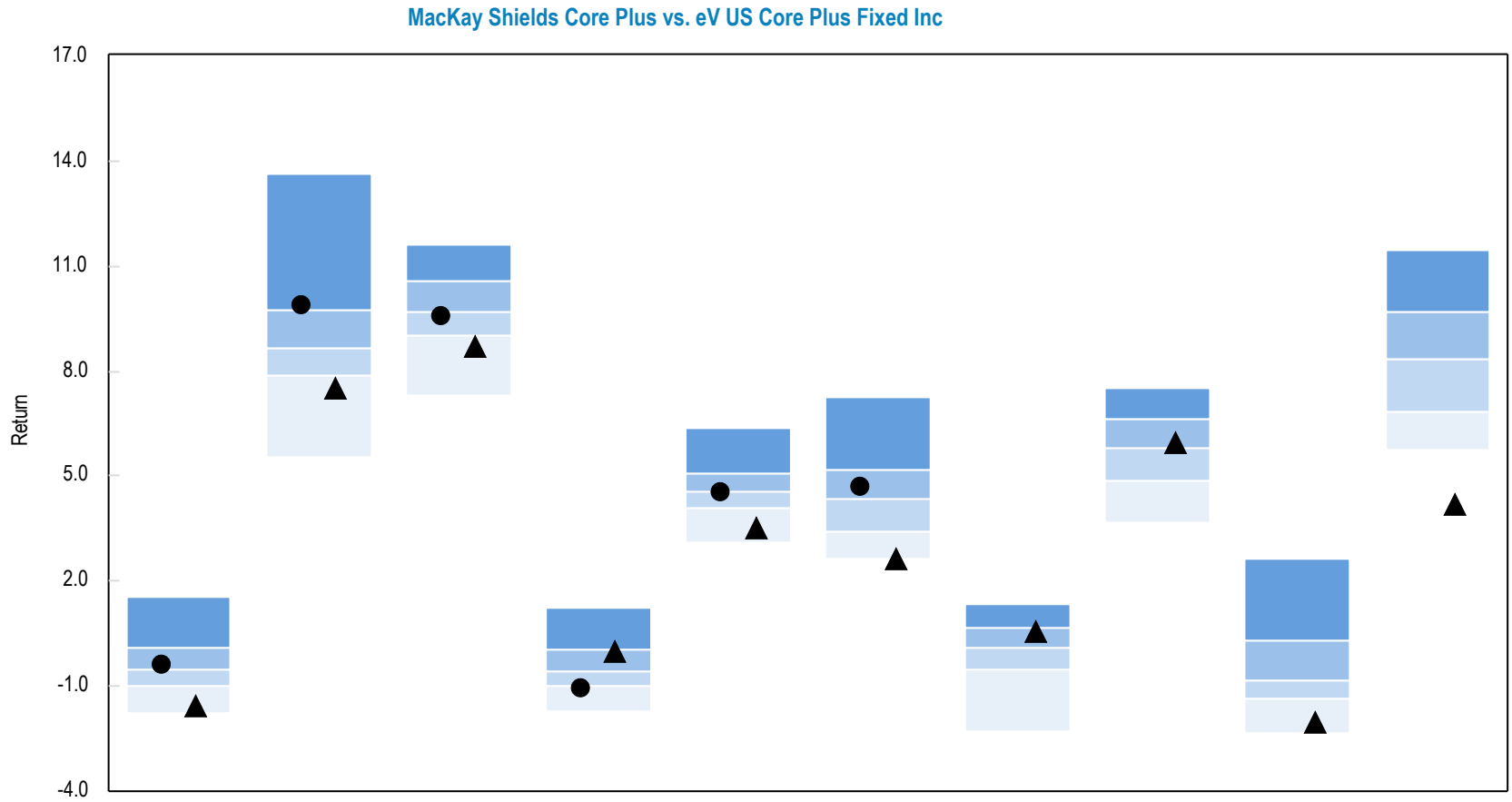
	Return	Standard Deviation	Sharpe Ratio
Doubleline Core Plus	-0.39	4.89	-0.29
Blmbg. U.S. Aggregate Index	-0.27	4.73	-0.28


Rolling 3 Years Annualized Return
9.0
6.0
3.0
0.0
-3.0
-6.0
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Doubleline Core Plus
Blmbg. U.S. Aggregate Index


Rolling 5 Years Annualized Return
8.0
6.0
4.0
2.0
0.0
-2.0
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
Doubleline Core Plus
Blmbg. U.S. Aggregate Index

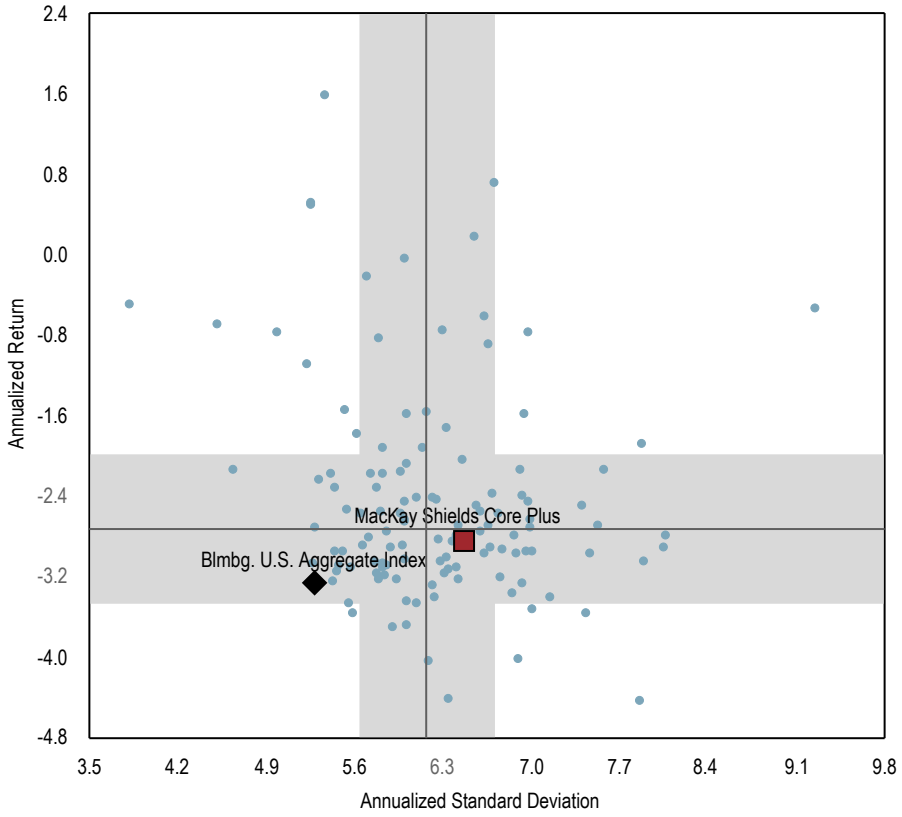


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● MacKay Shields Core Plus	-5.11 (94)	-16.56 (88)	-2.85 (58)	-0.06 (70)	-	-
▲ Blmbg. U.S. Aggregate Index	-4.75 (80)	-14.60 (34)	-3.26 (88)	-0.27 (89)	0.54 (97)	0.89 (97)
5th Percentile	-1.69	-10.54	-0.20	1.58	2.47	2.58
1st Quartile	-4.03	-14.38	-2.13	0.48	1.60	1.79
Median	-4.39	-15.22	-2.72	0.10	1.20	1.48
3rd Quartile	-4.70	-16.08	-3.07	-0.12	0.94	1.27
95th Percentile	-5.34	-17.33	-3.55	-0.54	0.60	0.95
Population	125	124	122	113	108	101

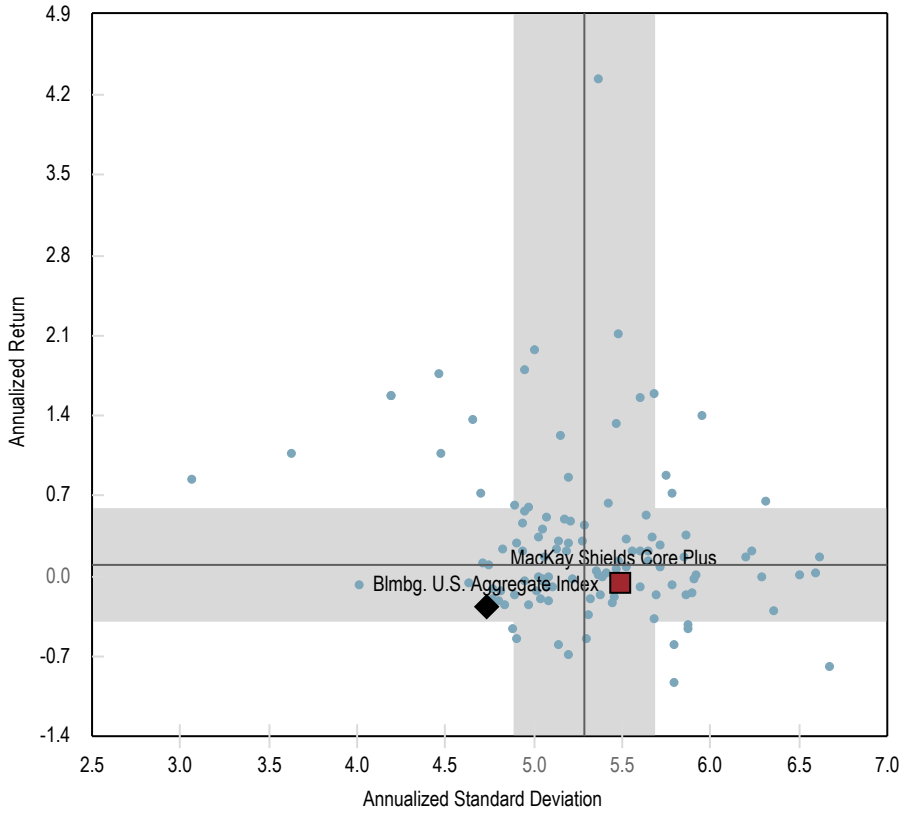


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● MacKay Shields Core Plus	-0.36 (47)	9.92 (23)	9.60 (53)	-1.02 (76)	4.53 (52)	4.70 (38)	-	-	-	-
▲ Blmbg. U.S. Aggregate Index	-1.55 (92)	7.51 (82)	8.72 (80)	0.01 (26)	3.54 (90)	2.65 (94)	0.55 (29)	5.97 (40)	-2.02 (90)	4.21 (100)
5th Percentile	1.54	13.62	11.61	1.24	6.36	7.27	1.35	7.53	2.63	11.46
1st Quartile	0.10	9.76	10.60	0.02	5.10	5.17	0.65	6.65	0.29	9.70
Median	-0.51	8.64	9.71	-0.59	4.55	4.36	0.09	5.80	-0.81	8.32
3rd Quartile	-1.02	7.87	9.00	-1.02	4.11	3.39	-0.52	4.85	-1.38	6.84
95th Percentile	-1.79	5.54	7.29	-1.70	3.09	2.63	-2.28	3.65	-2.36	5.76
Population	131	134	134	132	135	133	133	131	129	128

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Core Plus Fixed Inc



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV US Core Plus Fixed Inc



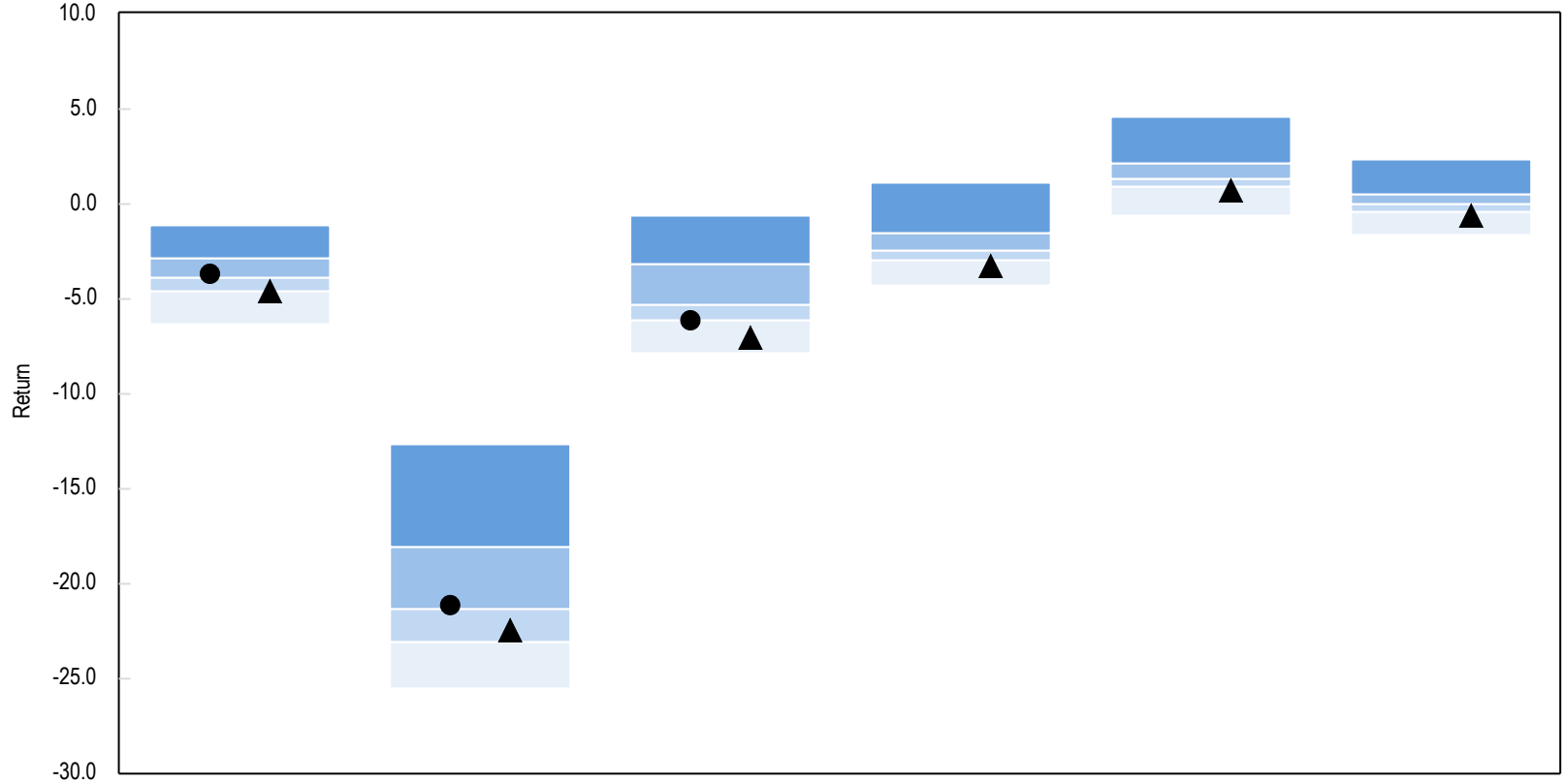
3 Years

	Return	Standard Deviation	Sharpe Ratio
MacKay Shields Core Plus	-2.85	6.48	-0.50
Blmbg. U.S. Aggregate Index	-3.26	5.29	-0.70

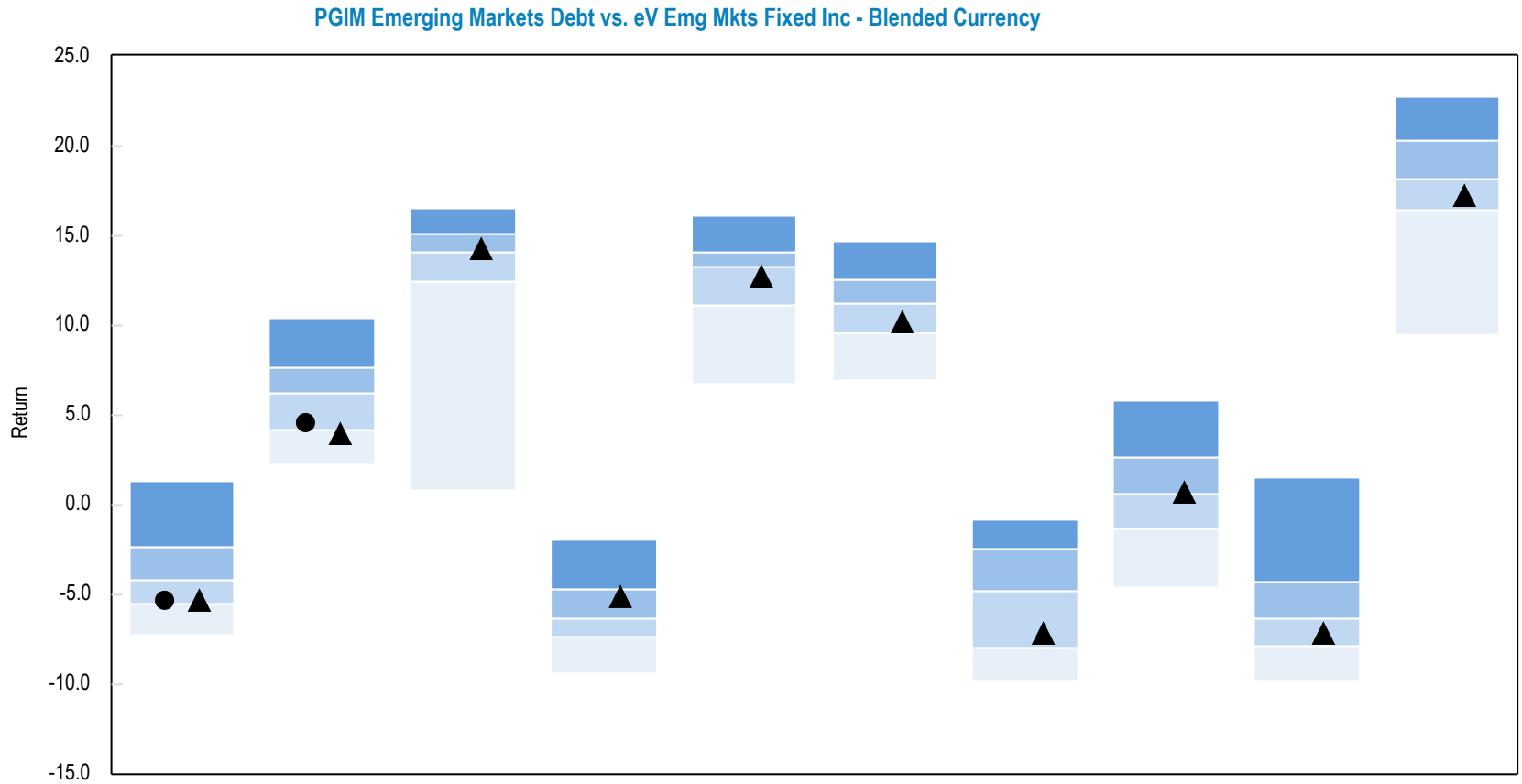
5 Years

	Return	Standard Deviation	Sharpe Ratio
MacKay Shields Core Plus	-0.06	5.49	-0.19
Blmbg. U.S. Aggregate Index	-0.27	4.73	-0.28

PGIM Emerging Markets Debt vs. eV Emg Mkts Fixed Inc - Blended Currency

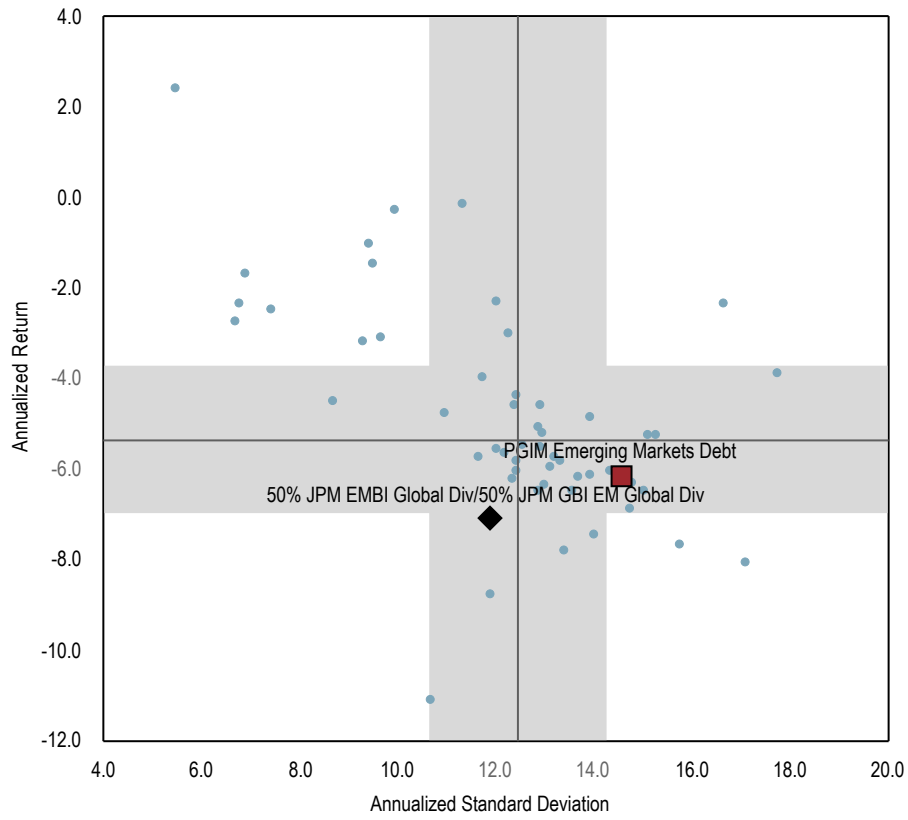


	Quarter	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● PGIM Emerging Markets Debt	-3.67 (47)	-21.16 (48)	-6.12 (74)	-	-	-
▲ 50% JPM EMBI Global Div /50% JPM GBI EM Global Div	-4.63 (78)	-22.45 (67)	-7.07 (89)	-3.22 (81)	0.71 (82)	-0.63 (82)
5th Percentile	-1.11	-12.64	-0.62	1.15	4.60	2.34
1st Quartile	-2.82	-18.07	-3.14	-1.50	2.11	0.55
Median	-3.89	-21.28	-5.33	-2.49	1.38	-0.02
3rd Quartile	-4.62	-23.02	-6.15	-2.96	0.93	-0.41
95th Percentile	-6.30	-25.55	-7.90	-4.24	-0.57	-1.63
Population	53	53	52	45	36	23

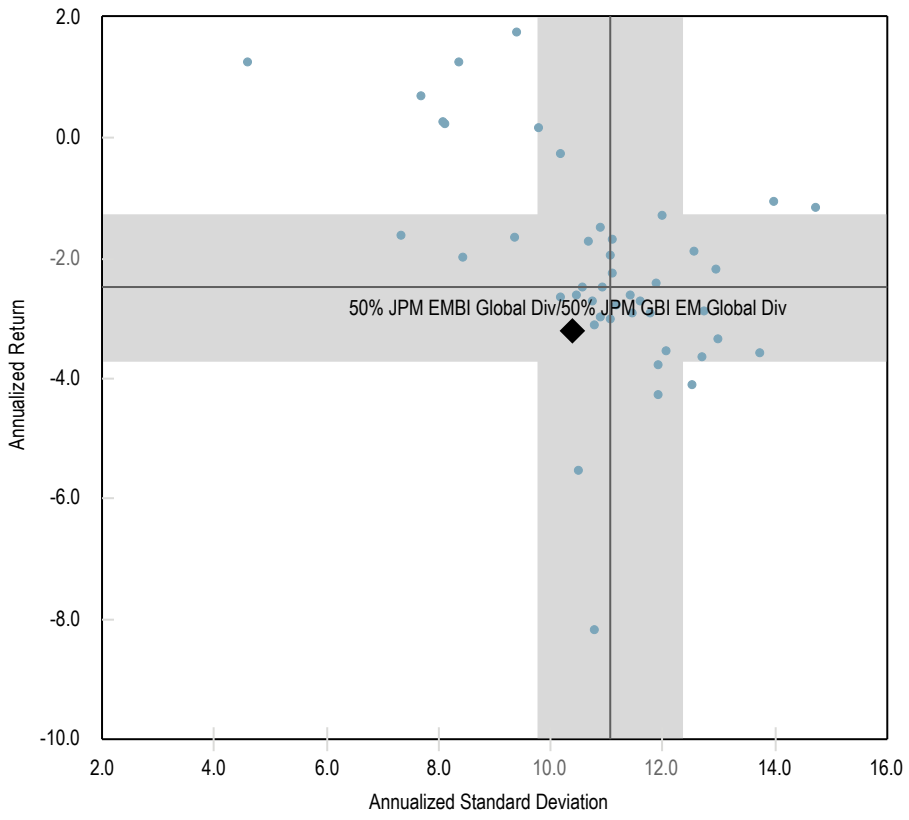


	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● PGIM Emerging Markets Debt	-5.30 (73)	4.56 (70)	-	-	-	-	-	-	-	-
▲ 50% JPM EMBI Global Div /50% JPM GBI EM Global Div	-5.32 (73)	4.02 (77)	14.31 (45)	-5.15 (32)	12.74 (57)	10.16 (70)	-7.14 (67)	0.71 (47)	-7.10 (61)	17.21 (61)
5th Percentile	1.37	10.41	16.51	-1.93	16.08	14.70	-0.85	5.80	1.53	22.74
1st Quartile	-2.37	7.68	15.06	-4.64	14.11	12.58	-2.47	2.70	-4.33	20.30
Median	-4.18	6.26	14.08	-6.28	13.25	11.19	-4.83	0.61	-6.34	18.17
3rd Quartile	-5.50	4.16	12.40	-7.38	11.13	9.59	-7.91	-1.34	-7.82	16.45
95th Percentile	-7.20	2.29	0.85	-9.43	6.75	6.94	-9.77	-4.61	-9.75	9.44
Population	74	74	69	69	65	59	55	49	40	34

3 Years Annualized Return vs. Annualized Standard Deviation vs. eV Emg Mkts Fixed Inc - Blended Currency



5 Years Annualized Return vs. Annualized Standard Deviation vs. eV Emg Mkts Fixed Inc - Blended Currency

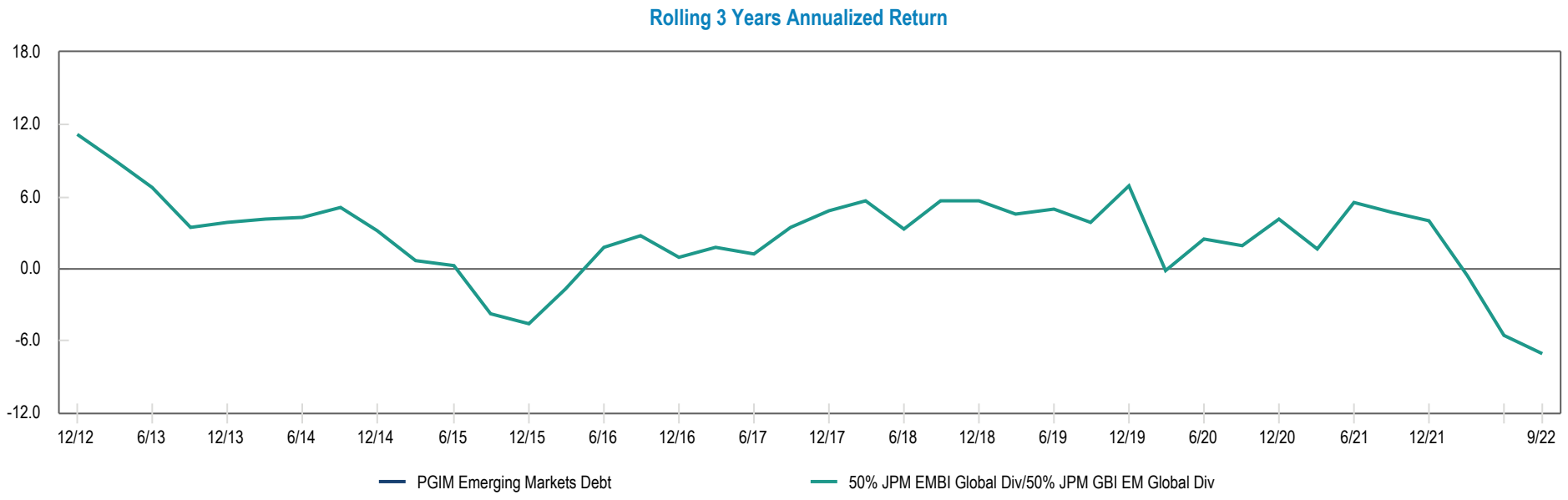


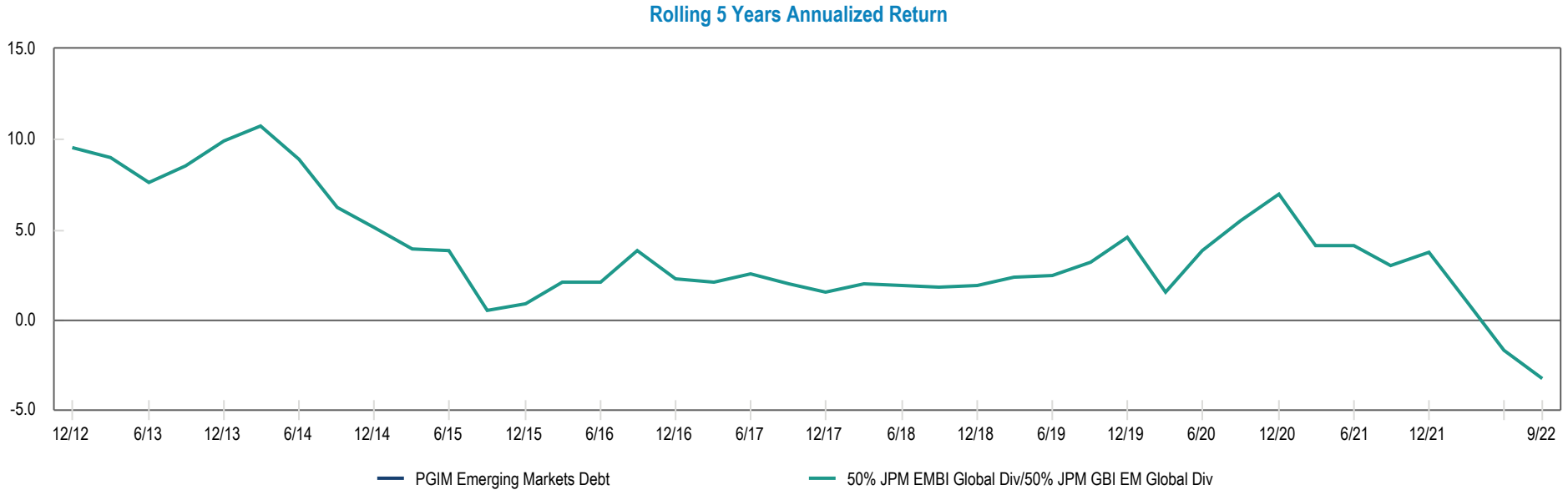
3 Years

	Return	Standard Deviation	Sharpe Ratio
PGIM Emerging Markets Debt	-6.12	14.57	-0.39
50% JPM EMBI Global Div/50% JPM GBI EM Global Div	-7.07	11.87	-0.60

5 Years

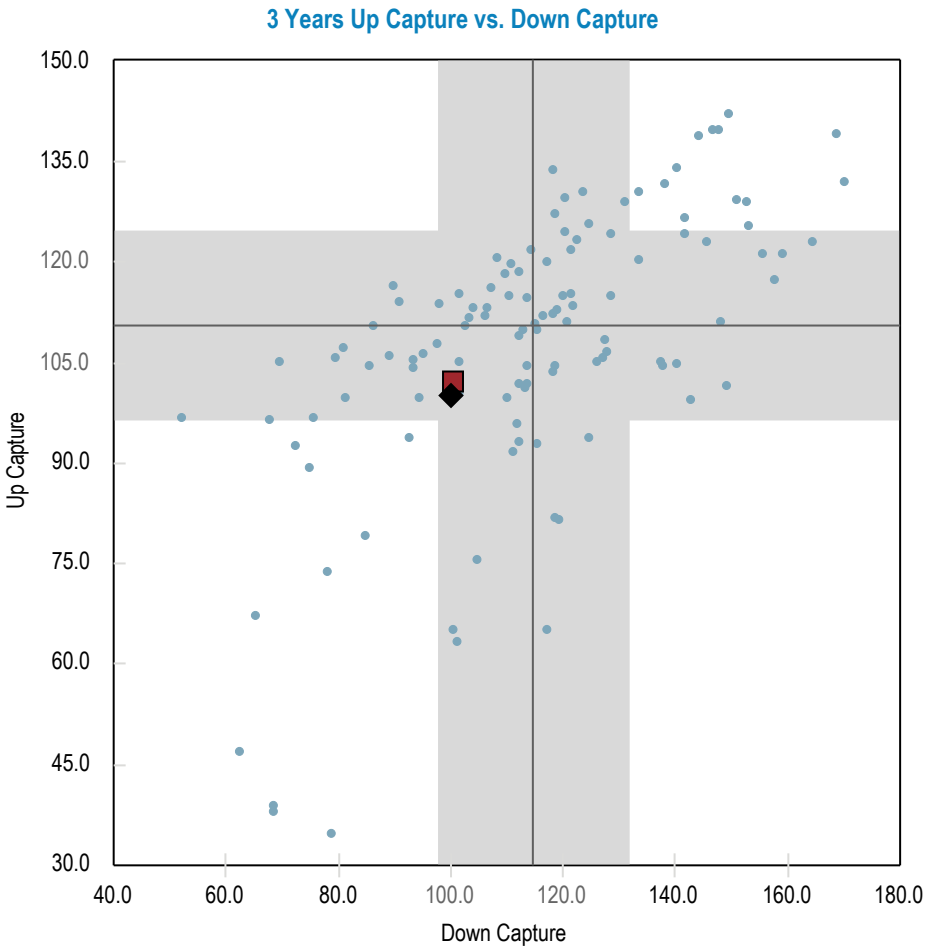
	Return	Standard Deviation	Sharpe Ratio
PGIM Emerging Markets Debt	-	-	-
50% JPM EMBI Global Div/50% JPM GBI EM Global Div	-3.22	10.37	-0.37


Rolling 3 Years Annualized Return
18.0
12.0
6.0
0.0
-6.0
-12.0
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
PGIM Emerging Markets Debt
50% JPM EMBI Global Div/50% JPM GBI EM Global Div

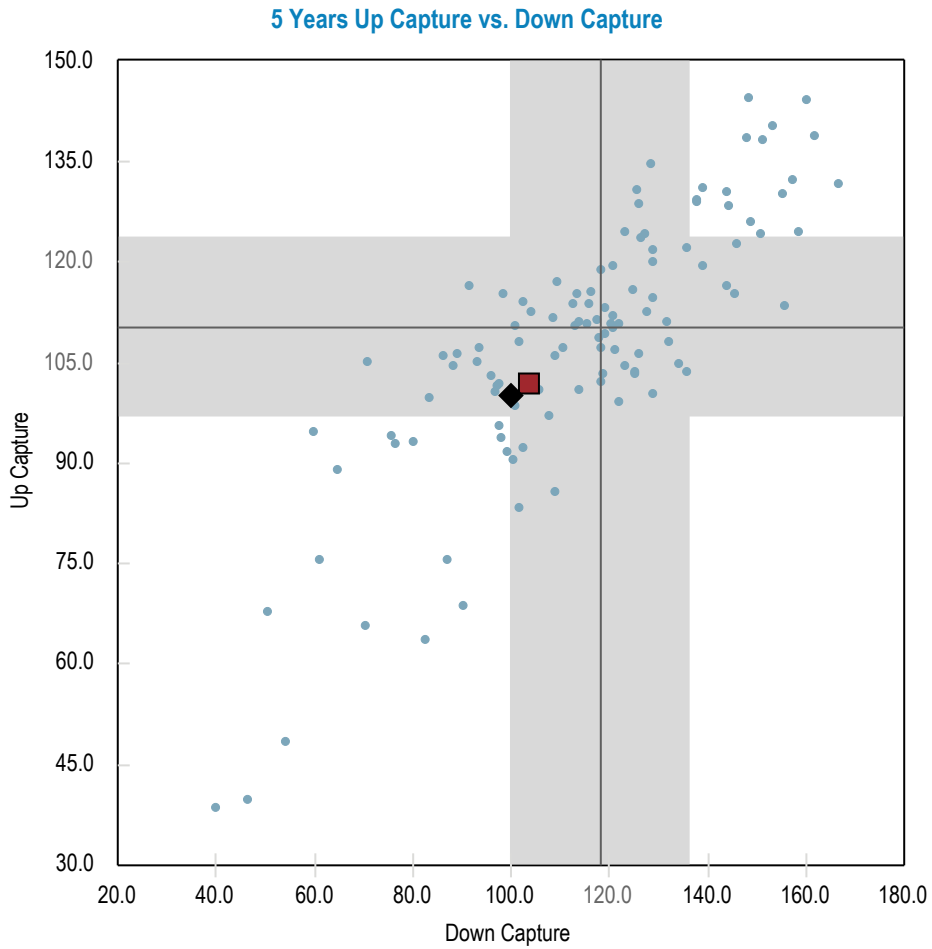

Rolling 5 Years Annualized Return
15.0
10.0
5.0
0.0
-5.0
12/12
6/13
12/13
6/14
12/14
6/15
12/15
6/16
12/16
6/17
12/17
6/18
12/18
6/19
12/19
6/20
12/20
6/21
12/21
9/22
PGIM Emerging Markets Debt
50% JPM EMBI Global Div/50% JPM GBI EM Global Div

	Market Value	% of Portfolio	Quarter	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Real Estate	**367,542,399**	**100.0**	**-1.2**	**12.3**	**18.9**	**9.3**	**8.4**	**9.4**	**12.8**	**1.8**	**5.2**	**8.8**	**4.3**
NCREIF-ODCE			*0.5*	*13.1*	*22.1*	*12.4*	*10.2*	*10.9*	*22.2*	*1.2*	*5.3*	*8.3*	*7.6*
RREEF America II	196,833,214	53.6	-1.4	22.2	29.4	12.5	10.2	10.9	12.8	1.8	5.3	8.6	4.4
NCREIF ODCE net 1Q Lag			*4.5*	*20.6*	*28.3*	*11.7*	*9.6*	*10.2*	*13.6*	*0.5*	*4.6*	*7.7*	*6.7*
American Realty Strategic Value Fund	89,629,072	24.4	2.9	14.5	20.0	-	-	-	11.3	1.1	-	-	-
NCREIF ODCE net 1Q Lag			*4.5*	*20.6*	*28.3*	*11.7*	*9.6*	*10.2*	*13.6*	*0.5*	*4.6*	*7.7*	*6.7*
Invesco Commercial Mortgage Income Fund	67,137,178	18.3	0.0	3.1	4.0	-	-	-	-	-	-	-	-
NCREIF-ODCE			*0.5*	*13.1*	*22.1*	*12.4*	*10.2*	*10.9*	*22.2*	*1.2*	*5.3*	*8.3*	*7.6*
SSGA US REIT Index Non-Lending Fund	13,942,934	3.8	-10.4	-29.3	-	-	-	-	-	-	-	-	-
Dow Jones U.S. REIT Index			*-10.9*	*-27.7*	*-15.8*	*-1.4*	*3.9*	*6.6*	*41.2*	*-6.3*	*28.0*	*-3.5*	*9.4*

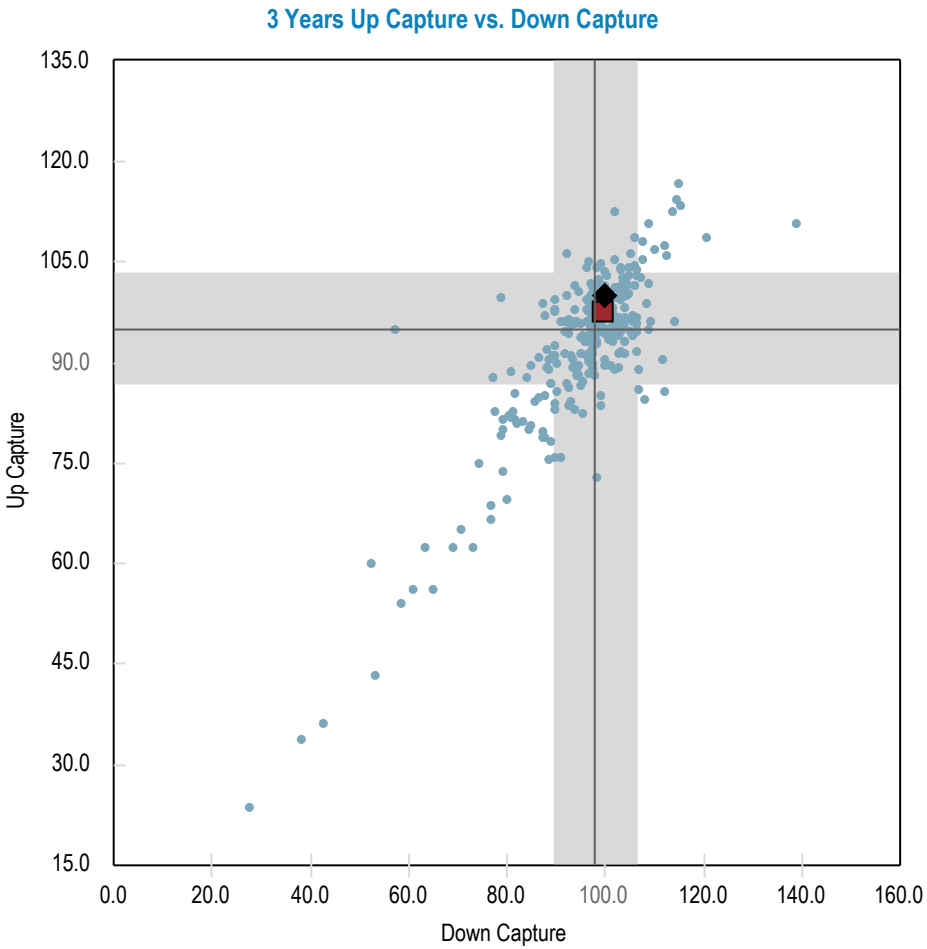
RREEF liquidated in 1Q 2018. American Realty funded 4Q 2019. Invesco Commerical Mortgage Income Fund was funded 9/1/2021. SSGA US REIT Index was funded 12/10/2021.



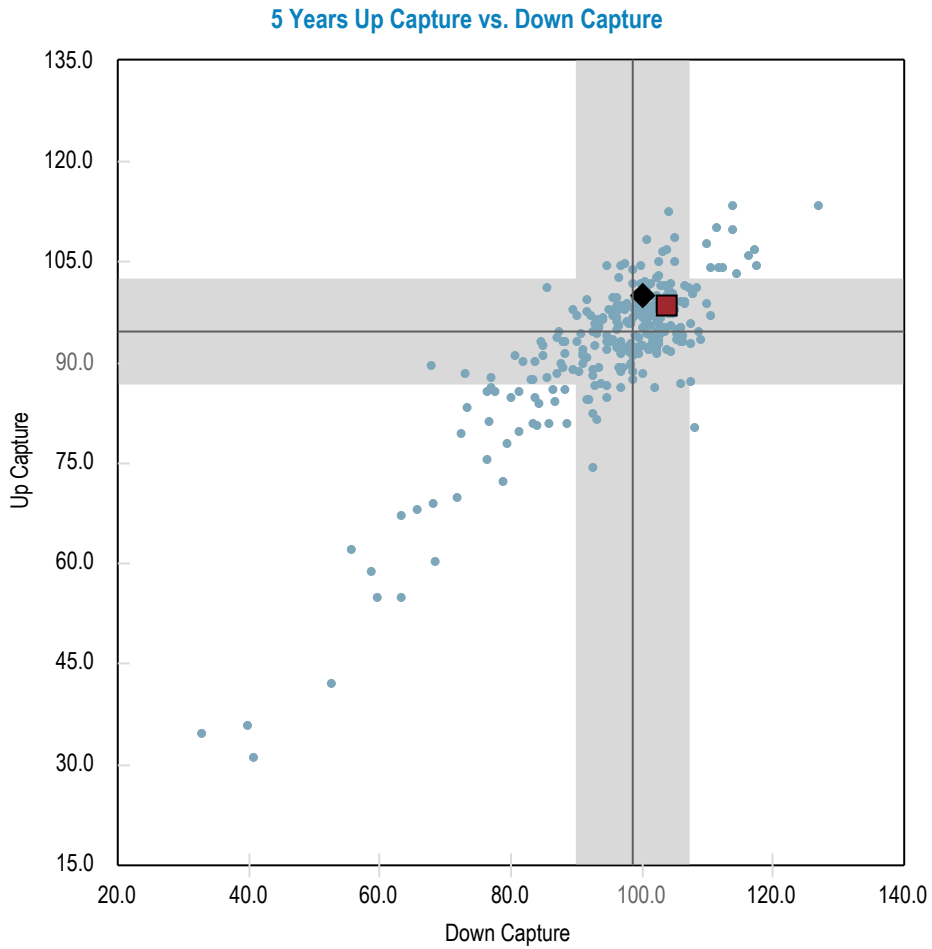
	Up Capture	Down Capture
Total Fund	102.25	100.34
Policy Index	100.00	100.00
Median	110.58	114.65
Population	116	116



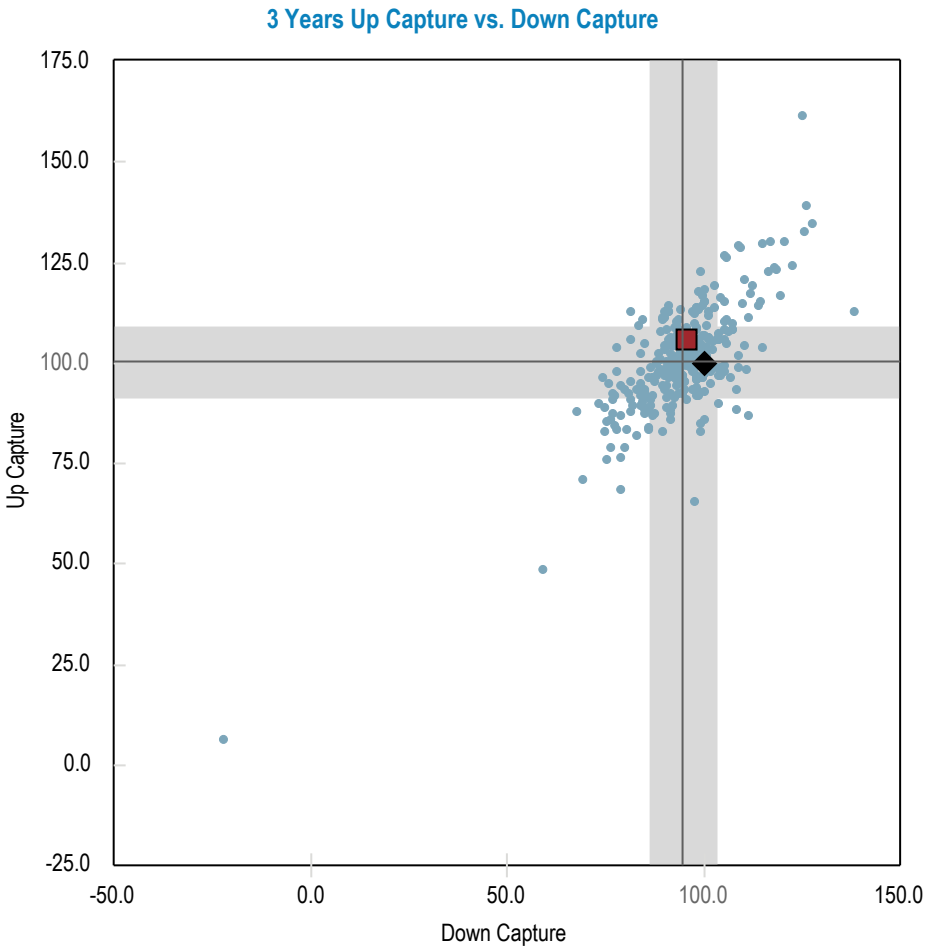
	Up Capture	Down Capture
Total Fund	101.82	103.57
Policy Index	100.00	100.00
Median	110.43	118.10
Population	112	112



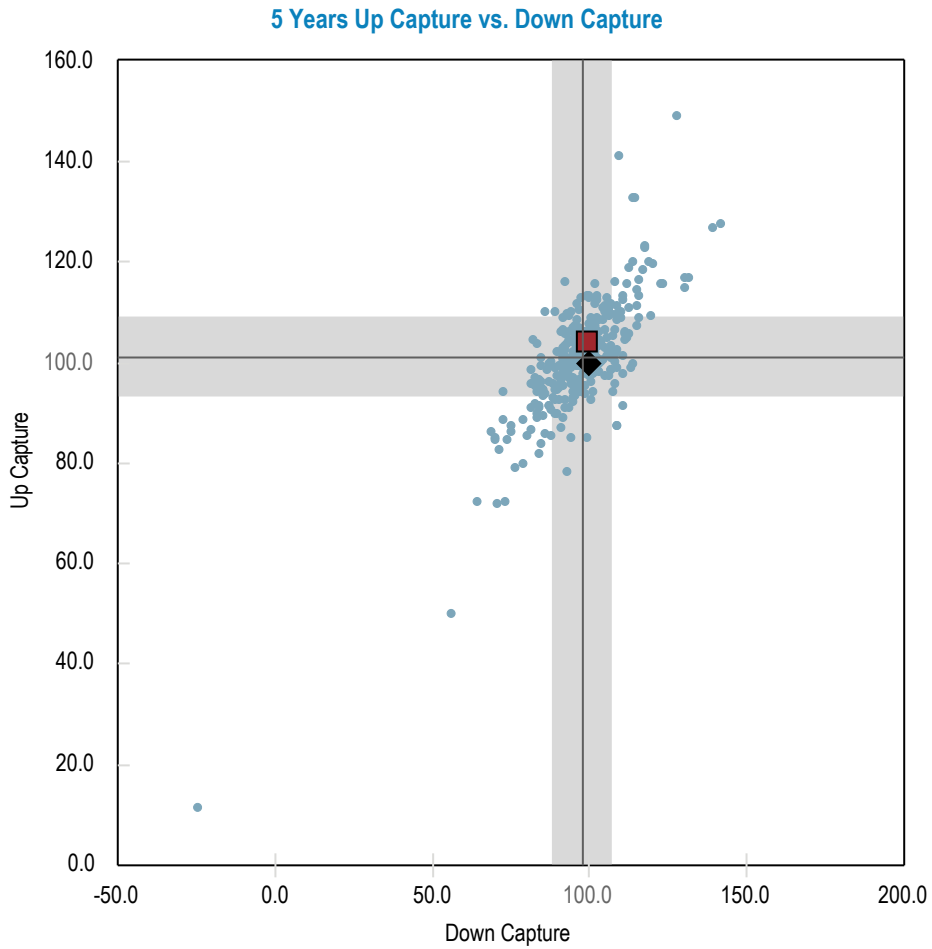
	Up Capture	Down Capture
PGIM QS US Core Equity	97.77	99.56
S&P 500 Index	100.00	100.00
Median	95.12	98.00
Population	282	282



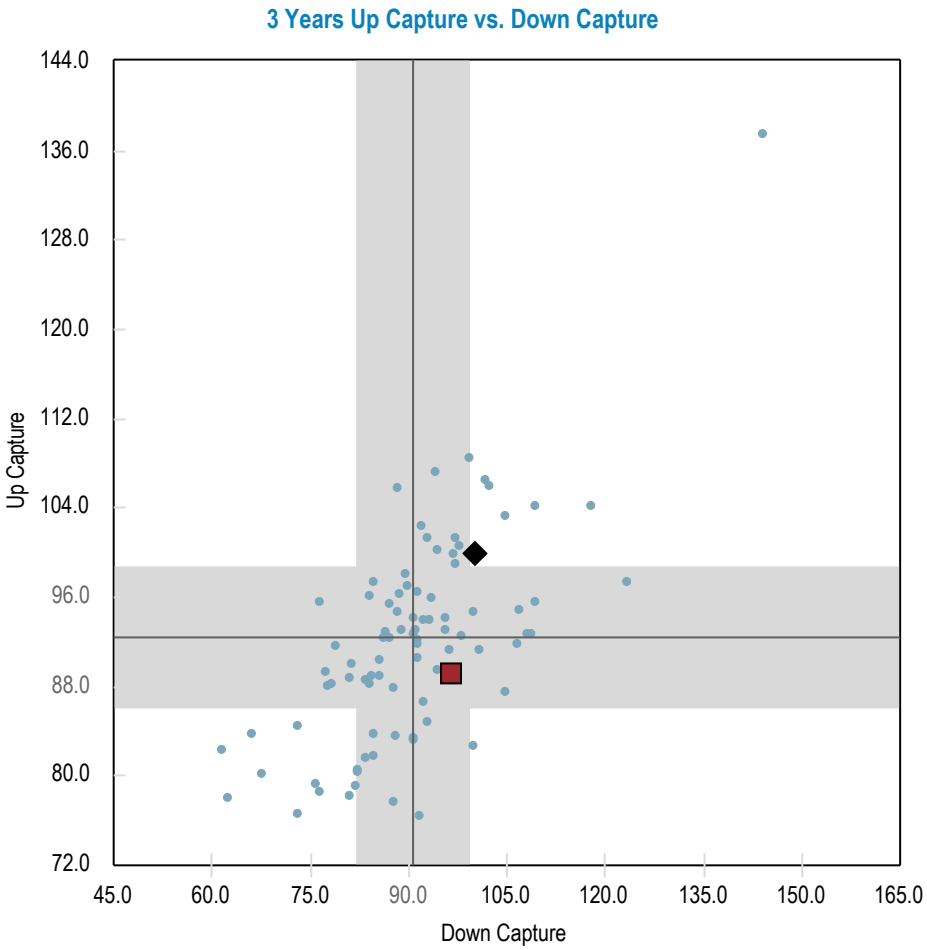
	Up Capture	Down Capture
PGIM QS US Core Equity	98.65	103.86
S&P 500 Index	100.00	100.00
Median	94.64	98.48
Population	267	267



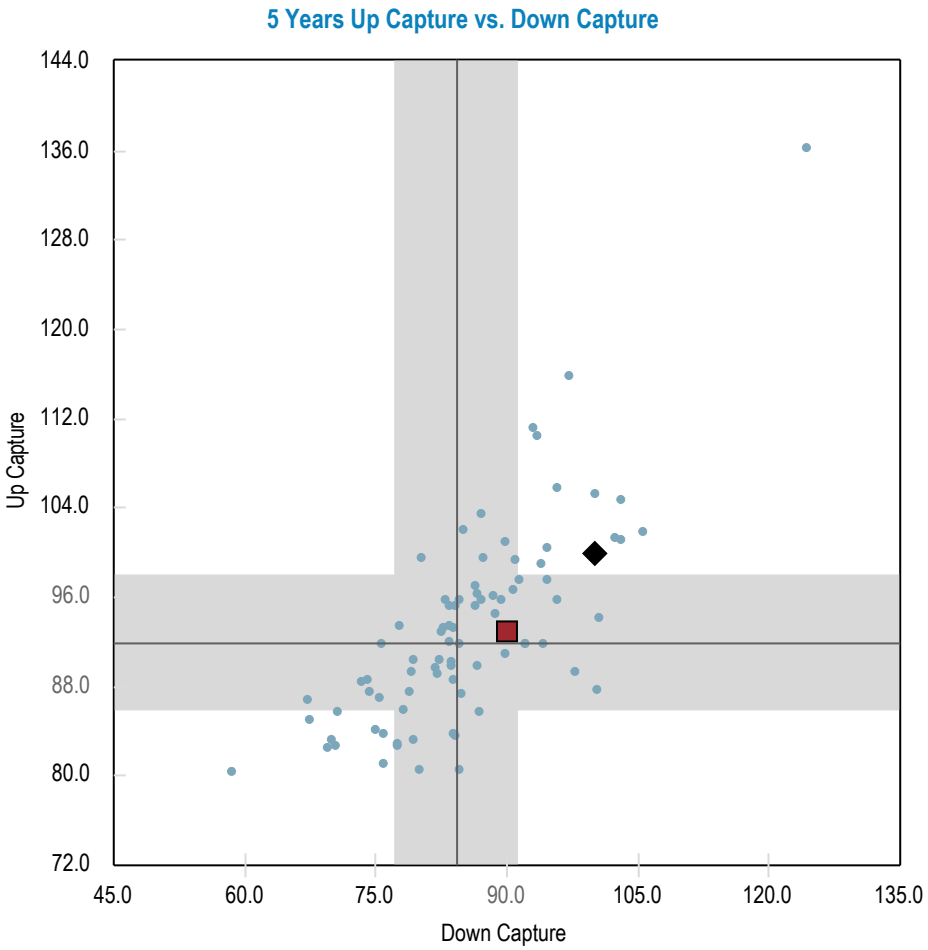
	Up Capture	Down Capture
Boston Partners Large Cap Value	105.70	95.76
Russell 1000 Value Index	100.00	100.00
Median	100.13	94.70
Population	320	320



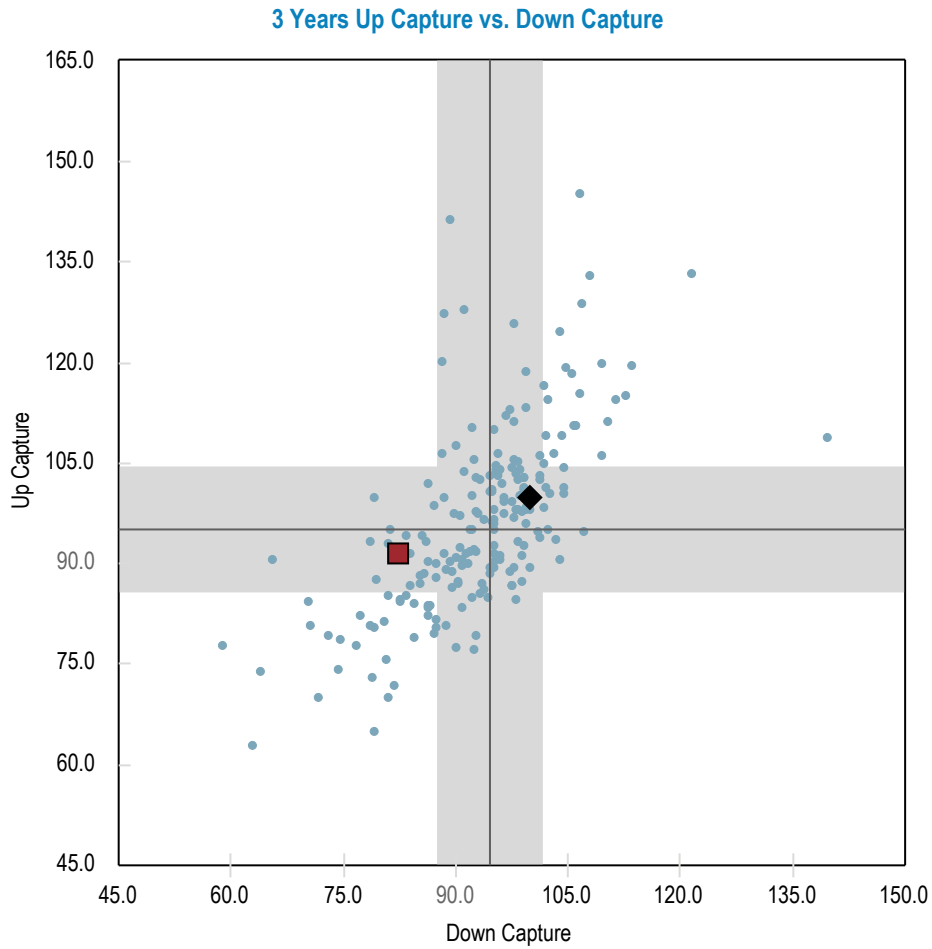
	Up Capture	Down Capture
Boston Partners Large Cap Value	104.15	99.19
Russell 1000 Value Index	100.00	100.00
Median	101.20	97.60
Population	310	310



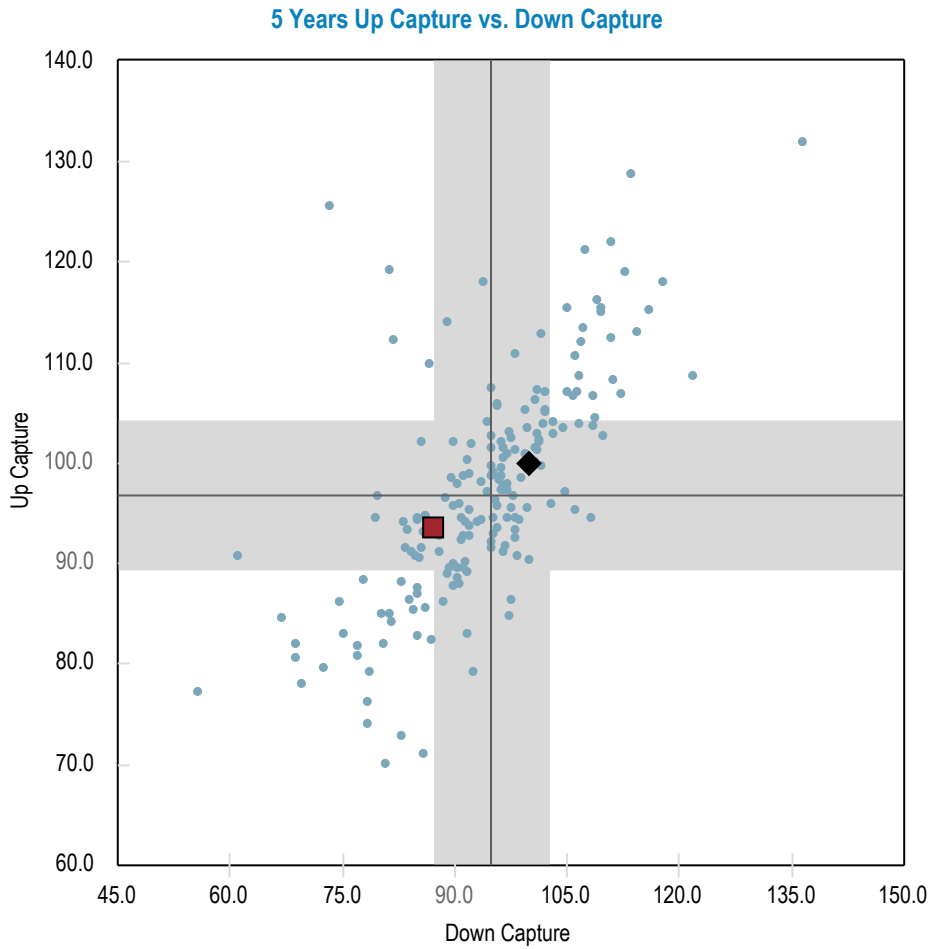
	Up Capture	Down Capture
William Blair SMID Cap Growth	89.18	96.35
Russell 2500 Growth Index	100.00	100.00
Median	92.44	90.73
Population	87	87



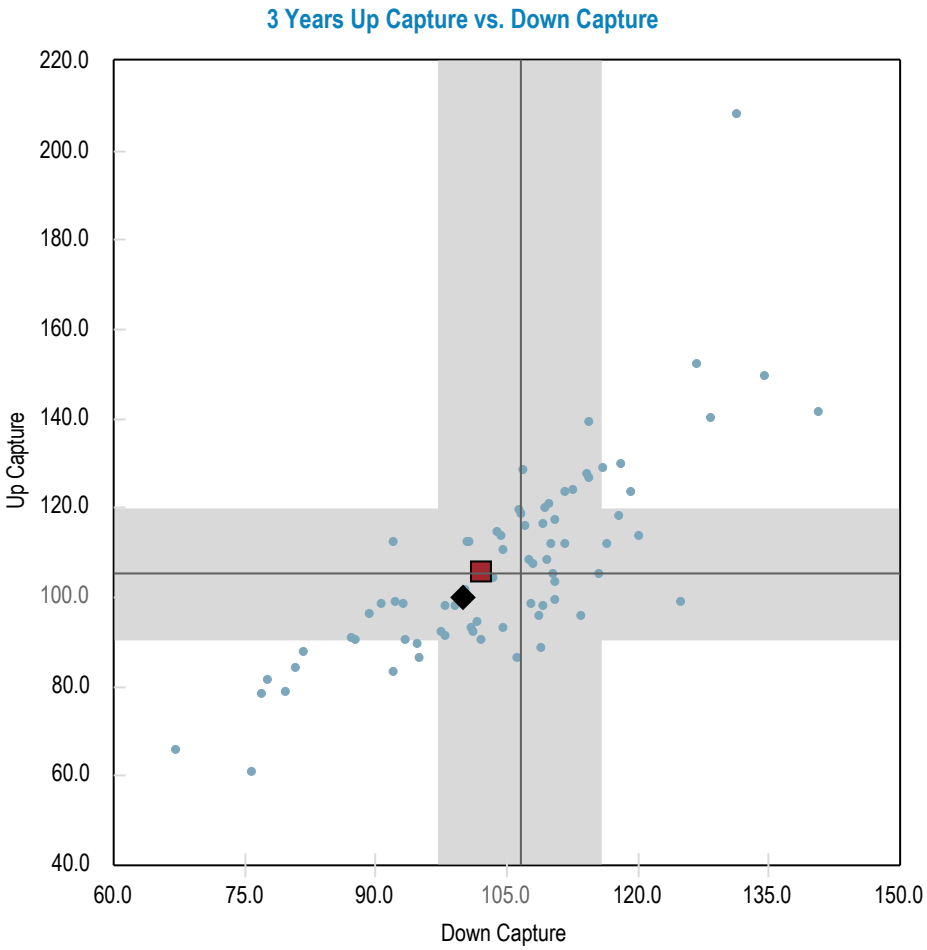
	Up Capture	Down Capture
William Blair SMID Cap Growth	92.96	89.98
Russell 2500 Growth Index	100.00	100.00
Median	91.96	84.21
Population	82	82



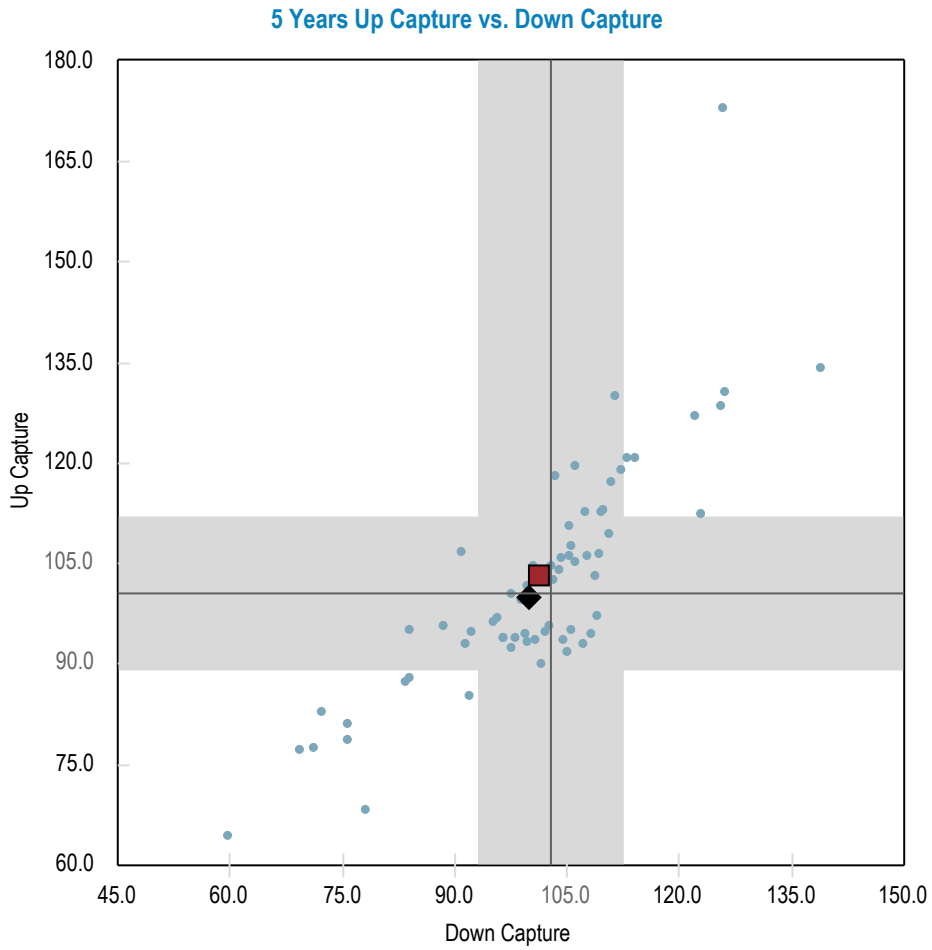
	Up Capture	Down Capture
Leeward Small Cap Value	91.71	82.22
Russell 2000 Value Index	100.00	100.00
Median	95.15	94.62
Population	200	200



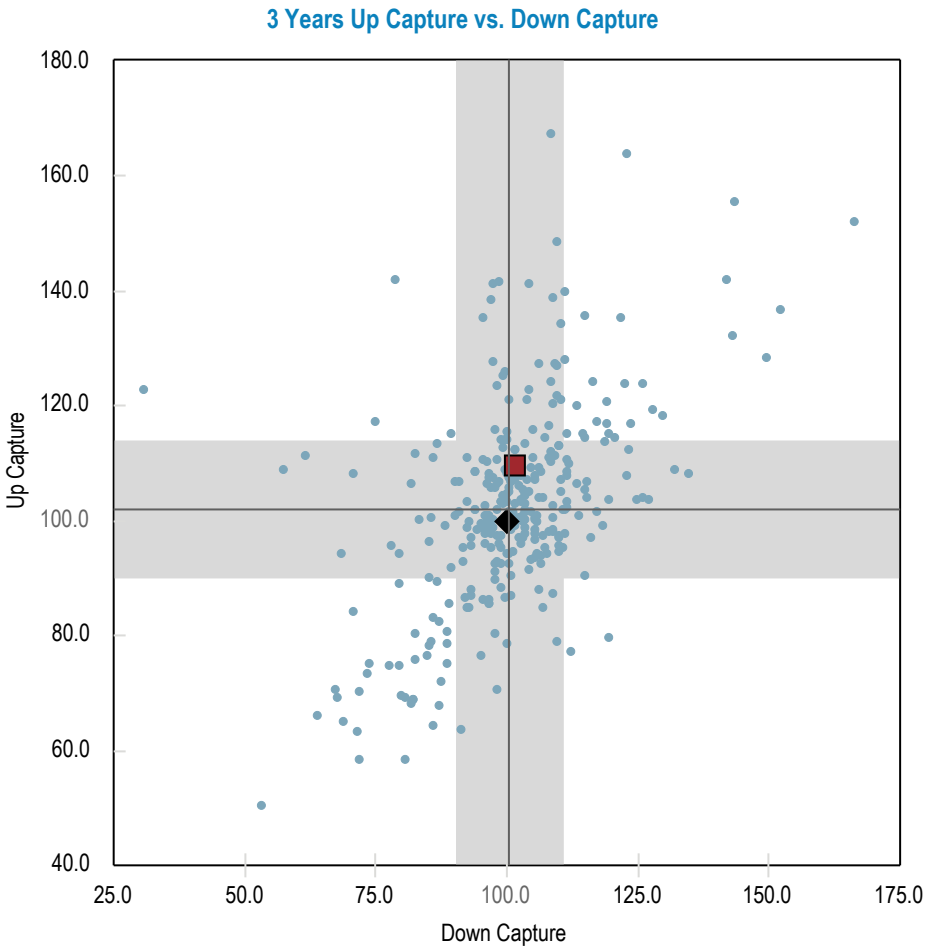
	Up Capture	Down Capture
Leeward Small Cap Value	93.66	87.03
Russell 2000 Value Index	100.00	100.00
Median	96.77	94.96
Population	191	191



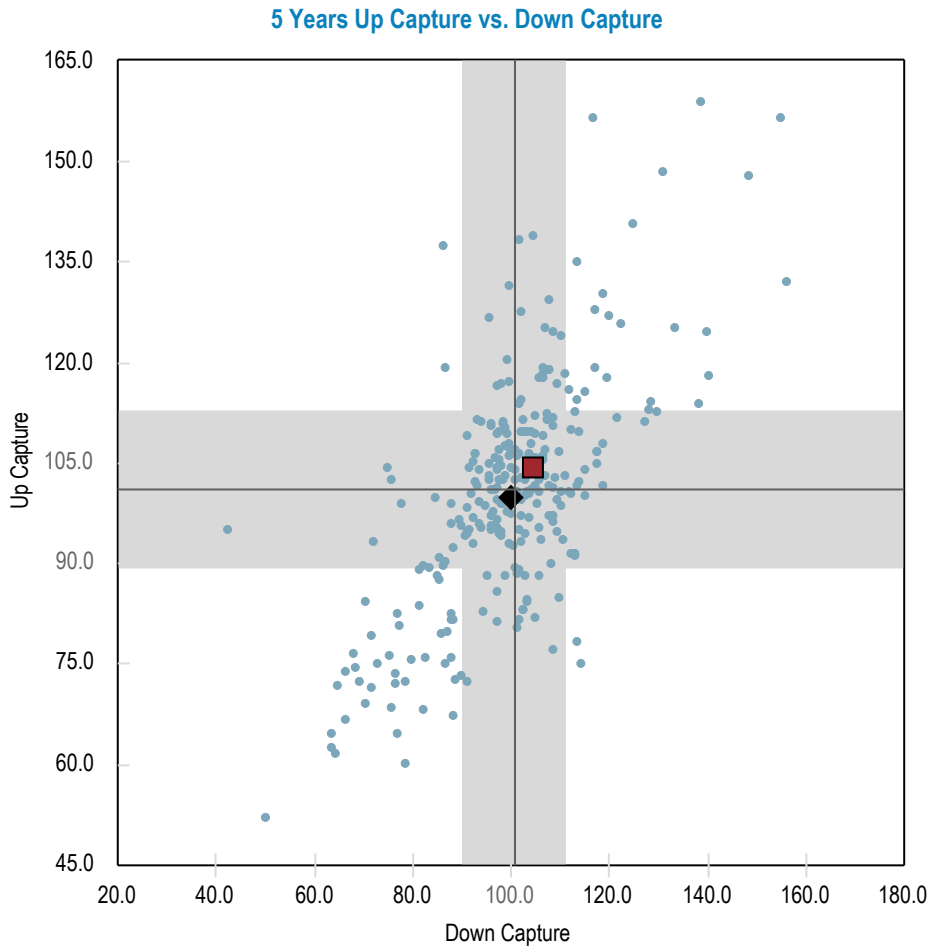
	Up Capture	Down Capture
PIMCO RAE Fundamental Global Ex US Fund	105.77	101.93
MSCI AC World ex USA Value (Net)	100.00	100.00
Median	105.23	106.52
Population	75	75



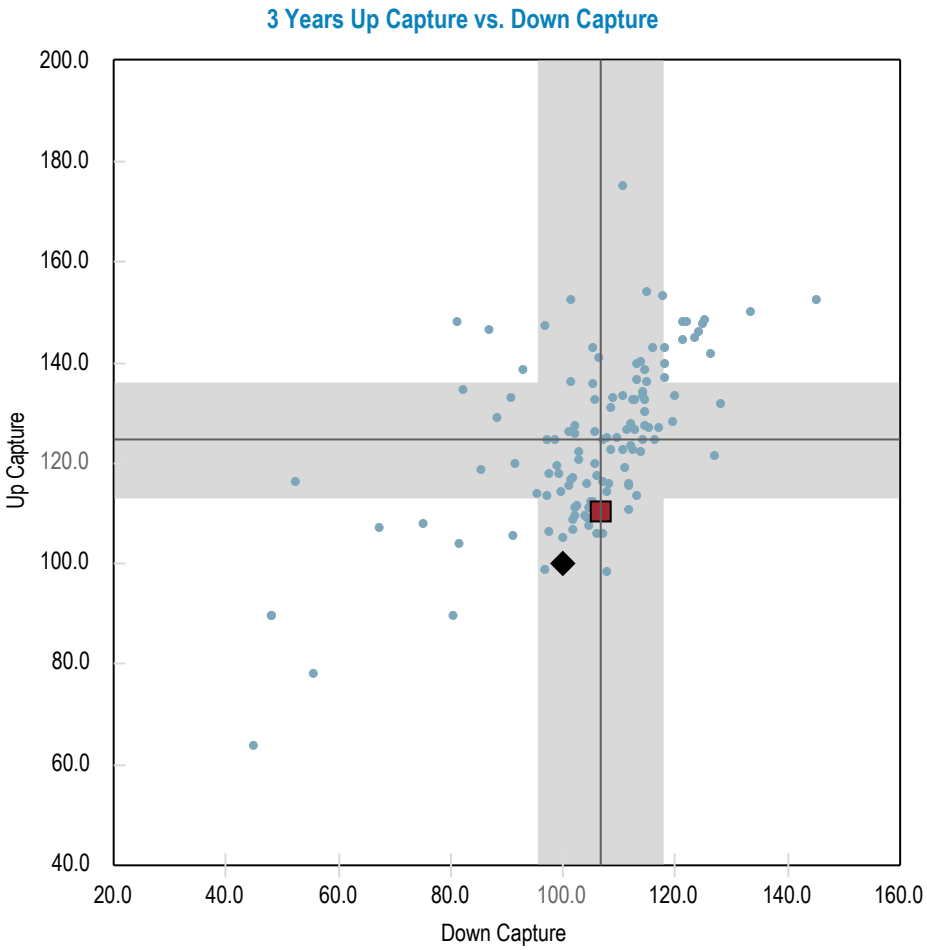
	Up Capture	Down Capture
PIMCO RAE Fundamental Global Ex US Fund	103.28	101.22
MSCI AC World ex USA Value (Net)	100.00	100.00
Median	100.50	102.92
Population	67	67



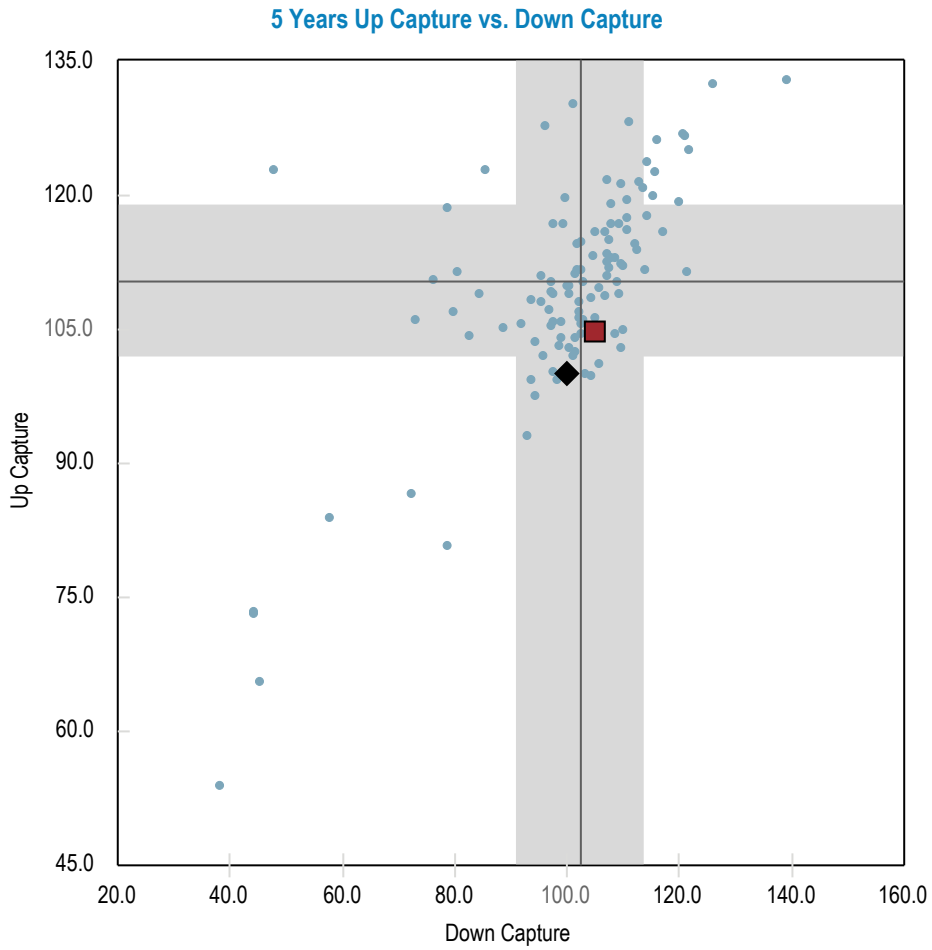
	Up Capture	Down Capture
Skellig Water Fund (aka KBI)	109.59	101.71
MSCI AC World Index (Net)	100.00	100.00
Median	101.98	100.45
Population	319	319



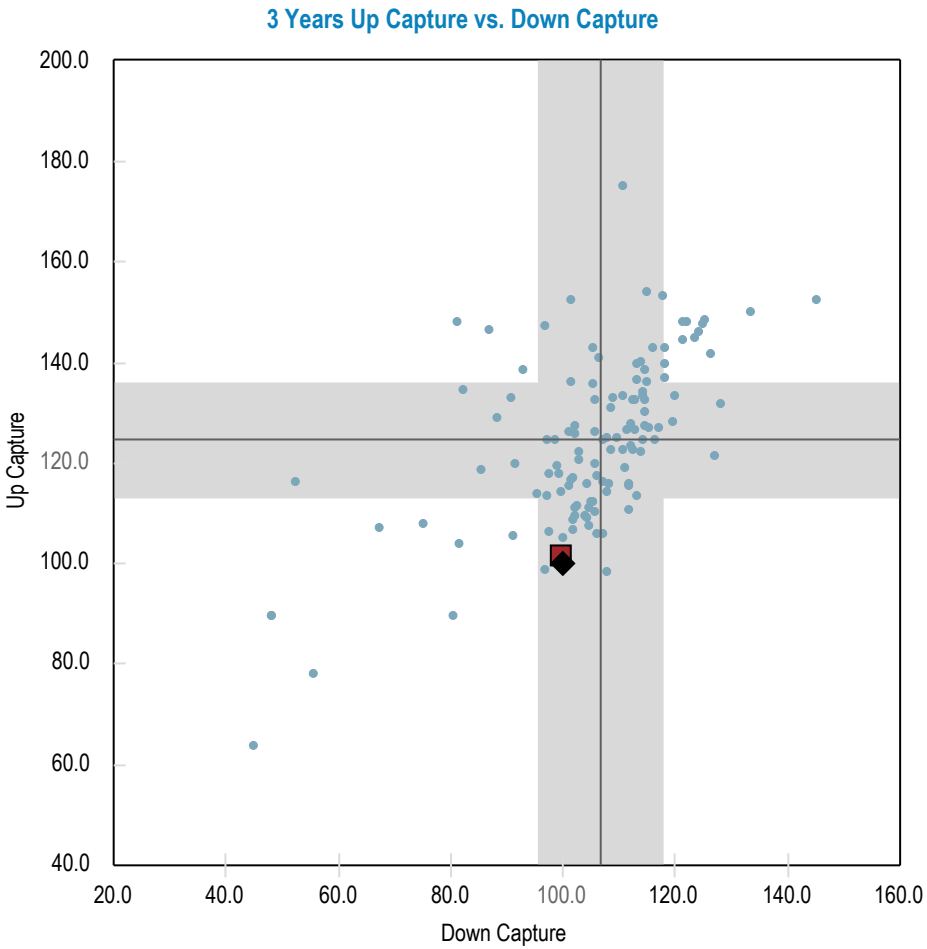
	Up Capture	Down Capture
Skellig Water Fund (aka KBI)	104.27	104.51
MSCI AC World Index (Net)	100.00	100.00
Median	101.25	100.62
Population	281	281



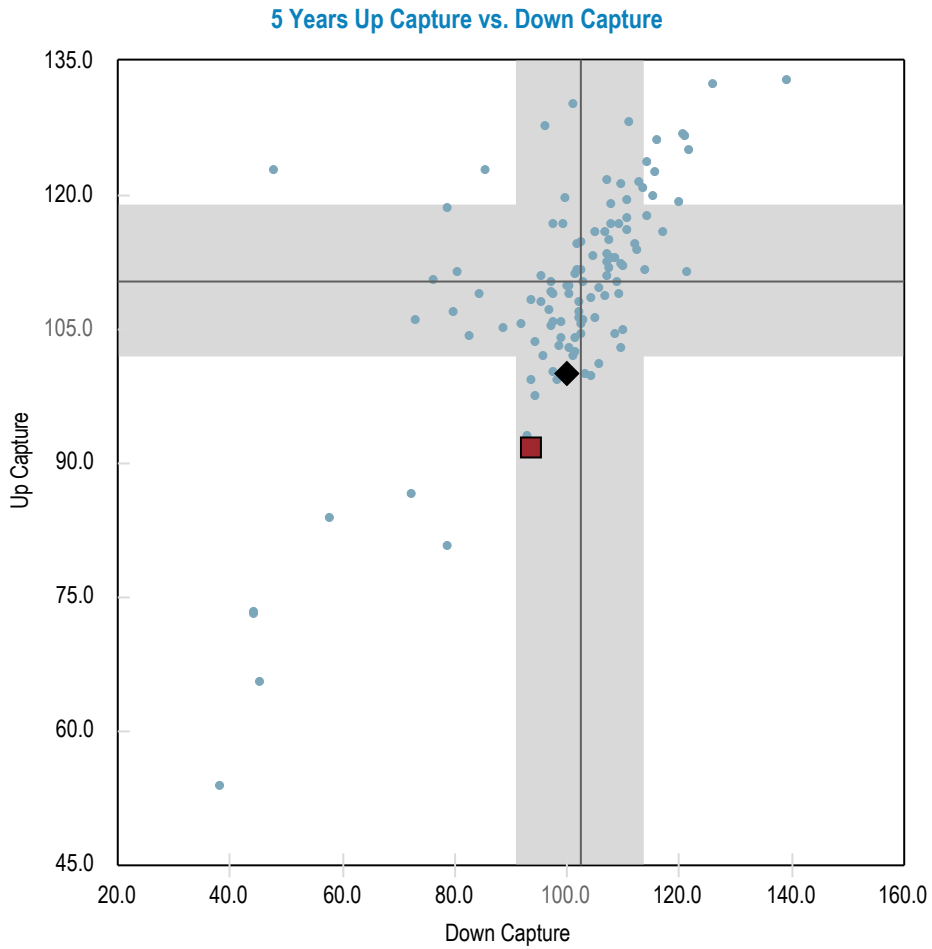
	Up Capture	Down Capture
BlackRock Core Plus Fixed Income	110.57	106.64
Blmbg. U.S. Aggregate Index	100.00	100.00
Median	124.67	106.72
Population	122	122



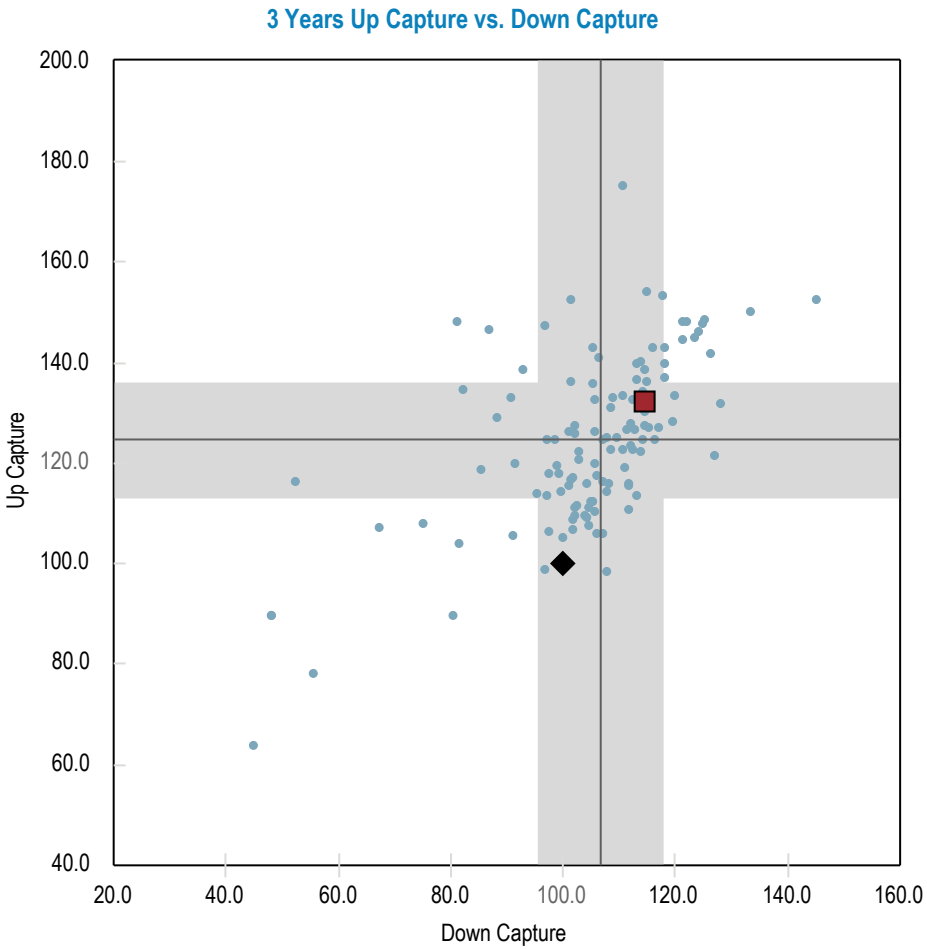
	Up Capture	Down Capture
BlackRock Core Plus Fixed Income	104.78	104.79
Blmbg. U.S. Aggregate Index	100.00	100.00
Median	110.39	102.28
Population	113	113



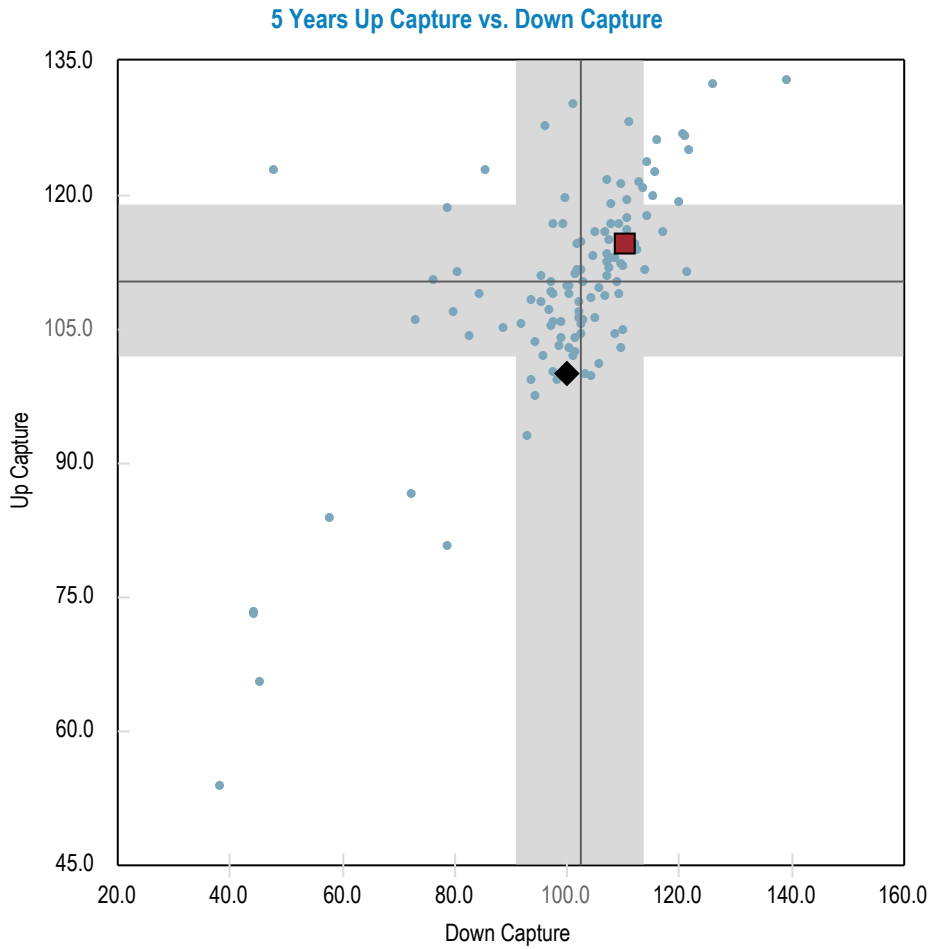
	Up Capture	Down Capture
Doubleline Core Plus	101.53	99.47
Blmbg. U.S. Aggregate Index	100.00	100.00
Median	124.67	106.72
Population	122	122



	Up Capture	Down Capture
Doubleline Core Plus	91.71	93.72
Blmbg. U.S. Aggregate Index	100.00	100.00
Median	110.39	102.28
Population	113	113



	Up Capture	Down Capture
MacKay Shields Core Plus	132.35	114.37
Blmbg. U.S. Aggregate Index	100.00	100.00
Median	124.67	106.72
Population	122	122



	Up Capture	Down Capture
MacKay Shields Core Plus	114.57	110.12
Blmbg. U.S. Aggregate Index	100.00	100.00
Median	110.39	102.28
Population	113	113

Performance Return Calculations

Performance is calculated using Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are linked geometrically 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.

Manager Line Up

Manager	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
SSGA S&P 500 Flagship Fund	7/27/2011	SSGA	SSGA US REIT Index Non-Lending Fund	12/10/2021	BNY
PGIM QS US Core Equity	12/1/2008	BNY	RREEF America II	3/1/2003	Deutsche
Boston Partners Large Cap Value	2/1/1999	BNY	Pantheon USA Fund VI	7/26/2005	Pantheon
William Blair Large Cap Growth	4/25/2022	BNY	PIMCO BRAVO	1/14/2011	PIMCO
SSGA US Extended Market Index	6/10/2021	SSGA	KKR Mezzanine Partners	7/8/2011	KKR
William Blair SMID Cap Growth	6/30/2006	BNY	Stepstone Secondary Opps II	5/10/2013	Stepstone
Leeward Small Cap Value	8/26/2009	BNY	Ocean Avenue Fund III	5/27/2016	Ocean Ave
SSGA MSCI ACWI ex US	1/1/2010	SSGA	Ocean Avenue Fund IV	9/16/2019	Ocean Ave
PIMCO RAE	8/14/2012	PIMCO	Pathway Fund 8	4/12/2016	Pathway
SGA Global Growth	6/4/2018	SGA	Pathway Fund 9	5/31/2018	Pathway
Skellig DST Water Fund	10/28/2014	KBI	Pathway Fund 10	3/31/2020	Pathway
BlackRock Fixed Income	12/1/1995	BNY	Sixth Street Partners Diversified Credit	11/21/2016	Sixth Street
Doubleline Core Plus	12/1/2015	BNY	Sixth Stree TAO Contingent	4/16/2020	Sixth Street
MacKay Shields Core Plus	12/1/2015	MacKay	American Realty	12/20/2019	American Realty
PGIM Emerging Markets Debt	8/26/2019	BNY	Invesco Commercial Mortgage	9/1/2021	Invesco

Policy & Custom Index Composition

Policy Index: (10/1/2021 -)	26% Russell 3000, 5% Russell 2000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM GBI Global, 13.4% NCREIF-ODCE, 7% Private Equity Returns, 5% Private Credit Returns, and 4.6% MSCI US REIT Index.
Policy Index (9/30/2020 - 10/1/2021)	25% Russell 3000, 15% MSCI ACWI ex US, 3% MSCI ACWI, 17% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 20% NCREIF-ODCE, 5% Private Equity Returns, 5% Private Credit Returns.
Policy Index (10/23/2019 - 7/22/2020)	20% Russell 3000, 20% MSCI ACWI ex US, 3% MSCI ACWI, 17% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 20% NCREIF-ODCE, 5% Private Equity Returns, 5% Private Credit Returns

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: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - 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: Portfolio Excess Return / 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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