

Verus<sup>777</sup>

Meeting Date  
**11/20/2024**  
Agenda Item  
**#9a.**



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: SEPTEMBER 30, 2024**

Investment Performance Review for

**Contra Costa County Employees' Retirement Association**

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Investment Landscape

TAB I

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Investment Performance  
Review

TAB II

A decorative overlay consisting of a grid of blue and white triangles, with some triangles containing smaller white triangles, is positioned on the left side of the slide. The background is a scenic aerial view of a coastal town with a sandy beach and blue ocean waves.

**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

4<sup>TH</sup> QUARTER 2024  
Investment Landscape

# Verus business update

## Since our last Investment Landscape webinar:

- Verus hired Joshua Freimark as a Public Markets Research Analyst, Michael Hughes as Managing Director of Portfolio Management, and Tri Nguyen as a Portfolio Manager, in our Seattle office.
- Kraig McCoy, CFA, formerly Chief Financial Officer and Chief Operations Officer, was appointed President.
- Scott Whalen, CFA, CAIA, Executive Managing Director, was selected by *Chief Investment Officer* as a 2024 Knowledge Broker.
- Tim McEnery, CFA, Managing Director, was recognized by *Crain's Chicago Business* as a 2024 Notable Leader in Consulting.
- Recent research, found at [verusinvestments.com/research](https://verusinvestments.com/research):
  - ***The Rise of OCIO***
  - ***The private equity return premium: It's not just due to illiquidity***
  - ***Trends and challenges in the commercial real estate sector***
  - ***How fixed income portfolios are affected by interest rate regimes***

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# Recent Verus research

Visit: [verusinvestments.com/research](https://verusinvestments.com/research)

## Thought leadership

### THE RISE OF OCIO

We explore the factors leading to the rapid growth of the OCIO model, important variables when evaluating OCIO providers, and key questions asset owners should discuss when considering a move to OCIO.

### TRENDS AND CHALLENGES IN THE COMMERCIAL REAL ESTATE SECTOR

Headlines warning of commercial real estate risks to the broader financial system may overstate the size and scope of the challenges in real estate. The office market faces serious challenges that are likely to persist, especially in lower-quality office assets.

### THE PRIVATE EQUITY RETURN PREMIUM: IT'S NOT JUST DUE TO ILLIQUIDITY

We discuss the key drivers of successful private investment outcomes: skilled manager selection, best-in-class processes such as portfolio management, and effective and efficient governance.

### HOW FIXED INCOME PORTFOLIOS ARE AFFECTED BY INTEREST RATE REGIMES

The rise and fall of interest rates can have a significant positive or negative impact on fixed income portfolio performance.

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

## THE ECONOMY

- On September 18th, the Federal Reserve cut interest rates by 50 basis points, bringing the target rate from 5.25-5.50% to 4.75-5.00%. This larger cut surprised many investors who still see inflation risks on the horizon and the economy as generally strong. This move likely kicks off a multi-year period of cuts as the Fed brings interest rates towards what they see as a more neutral level.
- U.S. inflation (CPI) fell to 2.4% year-over-year in September, moving closer to the Fed's 2% target. However, risks remain that inflation moderates above the Fed target, as shelter inflation is still elevated and food prices accelerated in September. Core inflation (ex-Food & Energy) has not budged from Q2 levels—at 3.3% year-over-year.

## EQUITY

- Global markets delivered strong performance, with consistent results across regions. Emerging markets (MSCI EM +8.7%) led, followed by international developed (MSCI EAFE +7.3%) and lastly the U.S. market (S&P 500 +5.9%). U.S. dollar weakness provided particular benefits to investors in international developed equities.
- Small cap and value style investing reversed their run of underperformance during the second quarter. Small cap led large cap by +3.2% (-8.9% over the past year), while value also outperformed by +6.2% (-14.4% over the past year). Despite this improvement, the market environment has been incredibly difficult for these style factors.

## FIXED INCOME

- The 10-year U.S. Treasury yield fell from 4.36% to 3.79% during the quarter, alongside a series of economic data releases that suggested inflation is moving further towards the Fed's 2% target, and that the labor market is softening. Interestingly, yields moved slightly higher in late September after the Fed's aggressive 50 bps rate cut.
- Default activity remained low, given economic strength. High yield bond default rates continued to decline, falling to 1.4%, well below the long-term annual average of 3.4%. However, distressed exchange activity was high. Total distressed exchange volume was roughly \$13.5 billion, the second largest quarter on record (since Q4 2008).

## ASSET ALLOCATION ISSUES

- China announced an aggressive stimulus program in the form of both fiscal and monetary support. Those moves followed a People's Bank of China rate cut from 2.3% to 2.0%. Chinese equities rallied more than 30% in late September. It is not yet clear whether these efforts will help solve any of China's deep and structural issues.
- On August 5th, volatility spiked 42 points to 66, marking the largest one day jump in volatility in modern market history. This was widely attributed to the unwinding of carry trade positions (one popular carry trade involved borrowing in Yen to invest in equities) following a weak labor market data release and an unexpected interest rate hike from the Bank of Japan.

In September, the Fed enacted the first of likely a series of interest rate cuts.

*A soft landing appears very possible for the U.S. economy.*

# What drove the market in Q3?

**“Federal Reserve signals end to inflation fight with a sizable half-point rate cut”**

## Fed Funds Effective Rate

Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024
5.08%	5.33%	5.33%	5.33%	5.33%	4.83%

Article Source: Associated Press, September 18<sup>th</sup>, 2024

**“China’s central bank unveils most aggressive stimulus since pandemic”**

## Chinese Equity Market Performance, Monthly

April 24	May 24	June 24	July 24	Aug 24	Sep 24
+6.5%	+2.4%	-2.1%	-1.2%	+0.9%	+23.4%

Article Source: Reuters, September 24<sup>th</sup>, 2024

**“Fears of Slowing U.S. Growth Jolt Markets Around the World”**

## Monthly Nonfarm Payroll Additions

April 24	May 24	June 24	July 24	Aug 24	Sep 24
108k	216k	118k	144k	159k	254k

Article Source: New York Times, August 5<sup>th</sup>, 2024

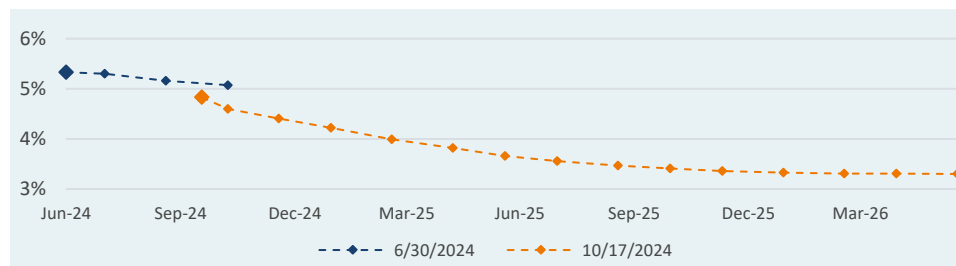
**“Inflation falls to its lowest level in more than 3 years”**

## Consumer Price Index, Year-over-Year change

April 24	May 24	June 24	July 24	Aug 24	Sep 24
3.4%	3.3%	3.0%	2.9%	2.5%	2.4%

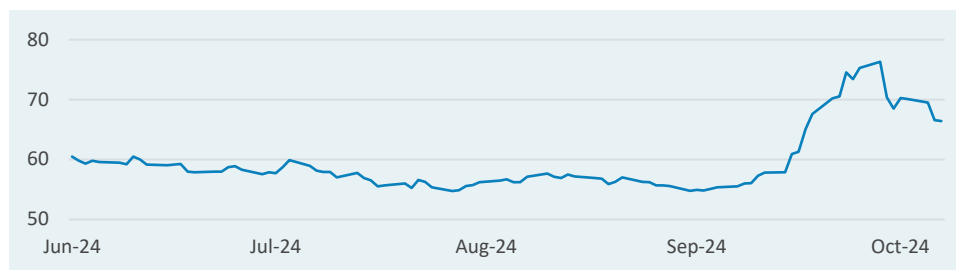
Article Source: NPR, September 11<sup>th</sup>, 2024

## U.S. MARKET IMPLIED FUTURE INTEREST RATES



Source: CME Group, as of 9/30/24

## MSCI CHINA INDEX, PRICE



Source: MSCI, as of 9/30/24

## CONSUMER PRICE INDEX, YEAR-OVER-YEAR CHANGE



Source: FRED, as of 9/30/24



# Economic environment

# U.S. economics summary

- On September 18<sup>th</sup>, the Federal Reserve cut interest rates by 50 basis points, bringing the target rate from 5.25-5.50% to 4.75-5.00%. This larger cut surprised many investors who still see inflation risks on the horizon and see the economy as generally strong. This move likely kicks off a multi-year period of cuts as the Fed brings interest rates towards what they see as a more neutral level.
- U.S. inflation (CPI) fell to 2.4% year-over-year in September, moving closer to the Fed's 2% target. However, risks remain that inflation remains above the Fed target, as shelter inflation is still high and food prices accelerated in September. Core inflation (ex-Food & Energy) has not budged from Q2 levels—at 3.3% year-over-year.
- Since earlier in 2024, unemployment had been ticking higher, but in August and September this trend reversed, with unemployment ending the quarter at 4.1%. The September nonfarm employment report reflected a 254,000

gain in jobs, dramatically outperforming expectations. The impacts of unlawful immigration on official employment statistics have continued to cause discrepancies in data and confusion regarding true labor conditions. We believe analyzing jobs data requires careful analysis.

- Multiple labor strikes have been occurring around the country, including Boeing and the International Longshoremen's Association (ILA). As organized labor fights for higher wages and benefits, disruptions to production and trade could contribute to inflation flareups.
- Consumer sentiment improved slightly during the third quarter, as illustrated by the University of Michigan Consumer Sentiment survey. Households expressed further frustration about high prices, but optimism has grown around the economy and the inflation outlook. According to the survey, expectations have brightened for Americans across the economic and political spectrum.

	Most Recent	12 Months Prior
Real GDP (YoY)	2.7% 9/30/24	2.4% 6/30/23
Inflation (CPI YoY, Core)	3.3% 9/30/24	3.7% 9/30/23
Expected Inflation (5yr-5yr forward)	2.3% 9/30/24	2.5% 9/30/23
Fed Funds Target Range	4.75–5.00% 9/30/24	5.25–5.50% 9/30/23
10-Year Rate	3.79% 9/30/24	4.59% 9/30/23
U-3 Unemployment	4.1% 9/30/24	3.8% 9/30/23
U-6 Unemployment	7.7% 9/30/24	7.0% 9/30/23

# Inflation

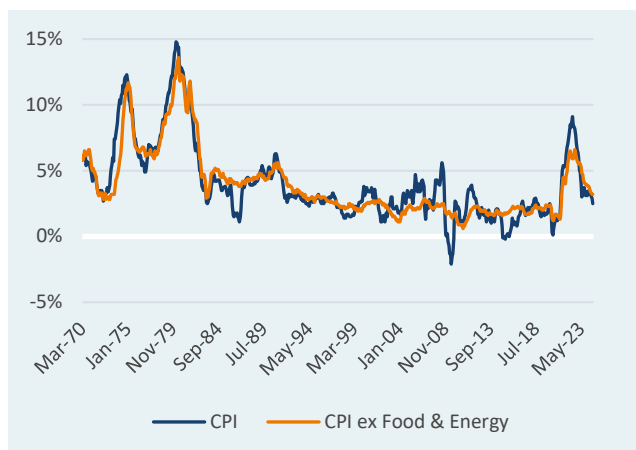
U.S. inflation (CPI) fell to 2.4% year-over-year in September, moving closer to the Fed's 2% target. However, risks remain that inflation could remain above the Fed target, as shelter inflation is still elevated and food prices accelerated in September. Core inflation (ex-Food & Energy) has not budged from Q2 levels—at 3.3% year-over-year.

While certain prices continue to show concerning trends, deflation (year-over-year) has been occurring across many goods prices, such as new vehicles (-1.3%), used vehicles (-5.1%), and energy (-6.8%). If inflation were calculated using market-based shelter prices, the current rate of inflation would likely be less than 2%.

Although price trends have recently been encouraging, the U.S. is certainly not out of the woods yet. For example, Federal Reserve rate cuts create the risk of reigniting demand and spending, pushing prices upward. Multiple labor strikes have been occurring around the country, including Boeing and the International Longshoremen's Association. As organized labor fights for higher wages and benefits, disruptions to production and trade could contribute to inflation flareups. Additionally, falling energy prices over the past year have played a large role in bringing inflation lower. If energy prices flatten out, or reverse and move higher, perhaps due to escalating conflict between Israel and Iran, energy could once again become an inflationary force.

Inflation had been fluctuating between 3-3.5%, but broke lower to 2.4% in Q3

U.S. CPI (YOY)



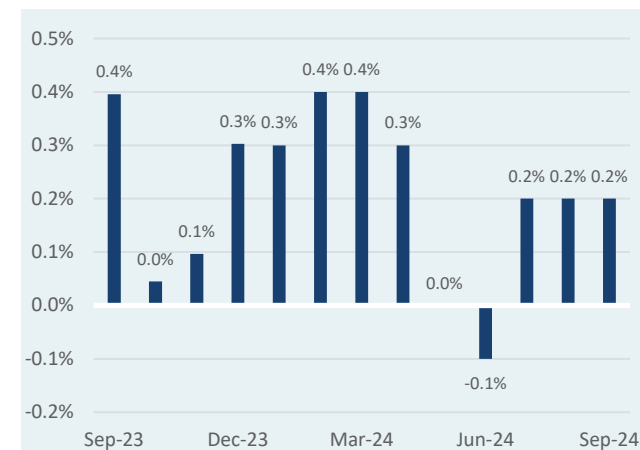
Source: BLS, as of 9/30/24

POTENTIAL INFLATION PATHS



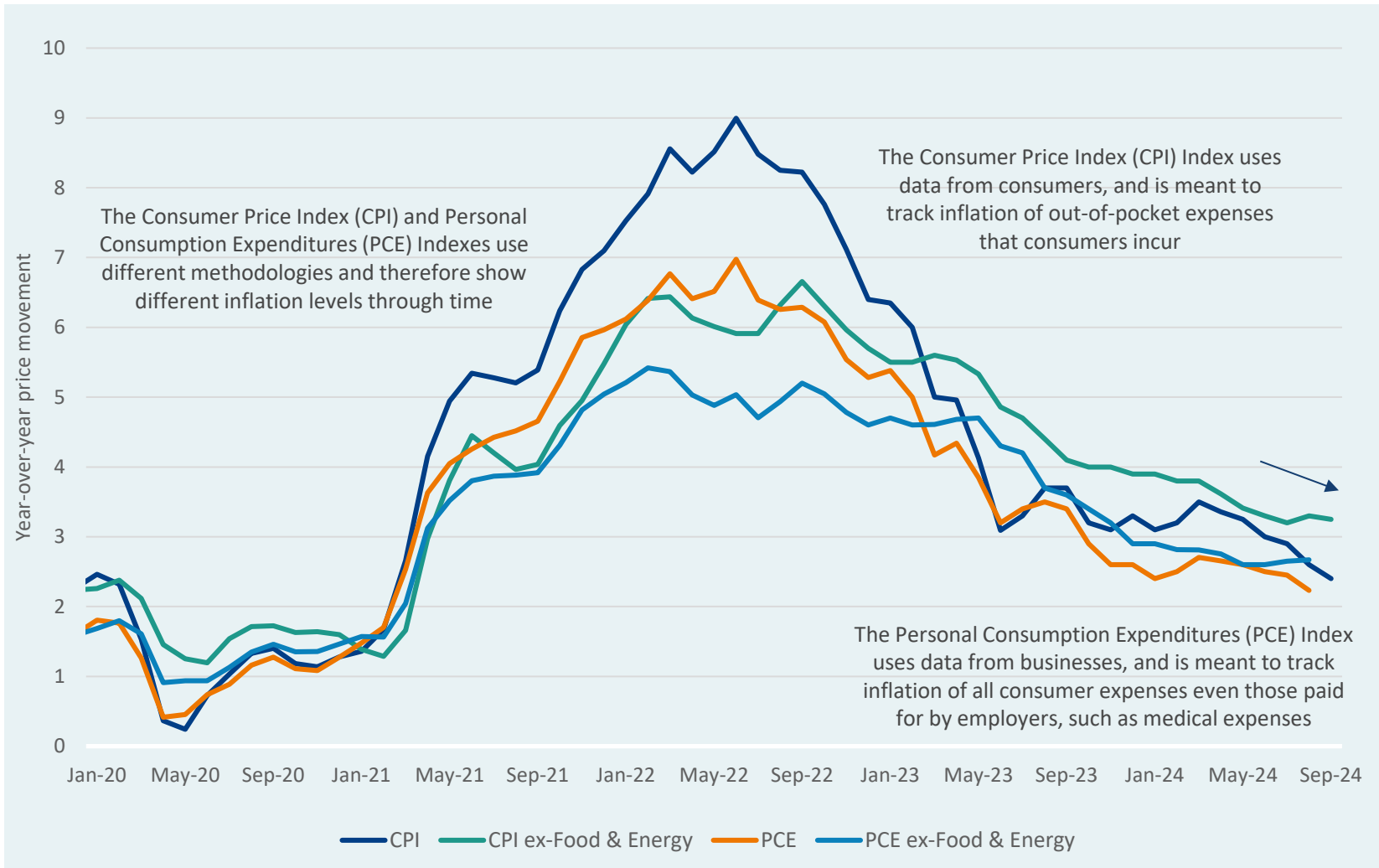
Source: FRED, Verus, of 9/30/24

MONTHLY PRICE MOVEMENT (CPI)



Source: BLS, as of 9/30/24

# Inflation is nearing the Fed's target



The Fed's preferred measure of inflation, PCE, may soon reach the stated 2% target

...though price pressures still exist in the economy

Source: FRED, Verus, as of 9/30/24 – or most recent release

# GDP growth

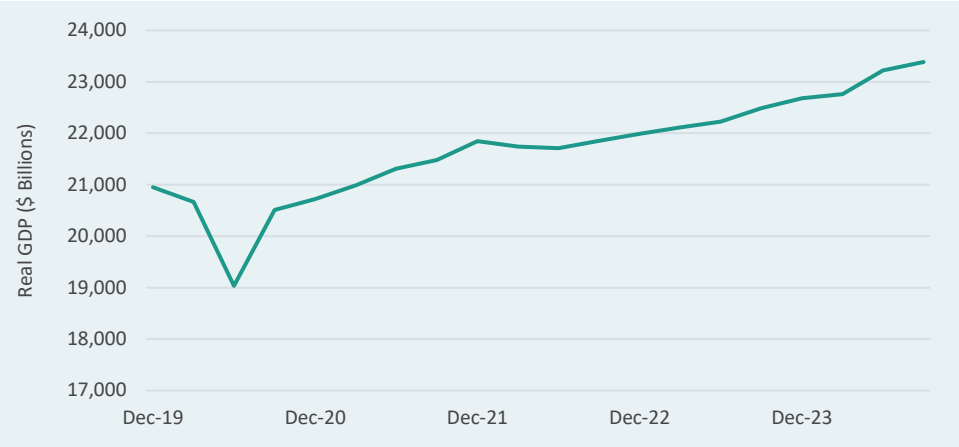
Real GDP growth was robust again during Q3, but slowed slightly from 3.0% to 2.8% quarter-over-quarter, annualized (2.7% year-over-year). Growth continues to be fueled by consumer purchases, which accelerated to a 3.7% annualized pace. Spending was broad based across goods and services. Heightened government defense spending was also a large contributor during the quarter. The moderate deceleration in real GDP growth was mainly caused by less private inventory investment, and a substantial slowing of residential fixed investment.

Although economic conditions remain strong, many economists and investors are wary of the sustainability of consumer

spending growth, given the drawdown of excess savings accumulated during the pandemic, lower personal savings rates, as well as slowing wage growth. The U.S. economy is likely headed towards a more moderate growth phase after many quarters of surprisingly hot growth and spending. Unlike past periods of economic weakening, many trends today could reasonably be summarized as a *return to normalcy*. For example, following the pandemic, the domestic labor market was experiencing a historic mismatch between the number of jobs available and the number of workers available. Resolving that mismatch required a material weakening of the labor market from *extreme tightness* to *relatively strong*, but not a move (yet) towards something that suggests recession.

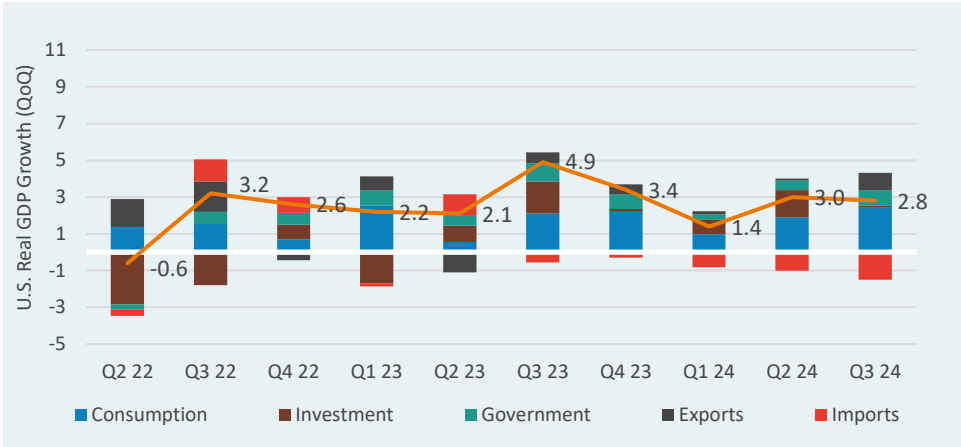
U.S. growth remained robust during Q3, fueled by consumer spending

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 9/30/24

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 9/30/24

# Labor market

Signs of weakness in the U.S. labor market are evident, though conditions remain generally robust. Throughout 2024, we have held the view that the path towards lower interest rates would be a bumpy one, and that investors may be disappointed in their expectations for aggressive rate cuts. This view proved valid in August and September as the rate of unemployment reversed course and headed lower to 4.1%. September nonfarm payrolls reflected a 254,000 gain in jobs, dramatically outperforming expectations. This data surprised markets, pushing longer-term bond yields upward and contributing to an asset rally on better economic prospects.

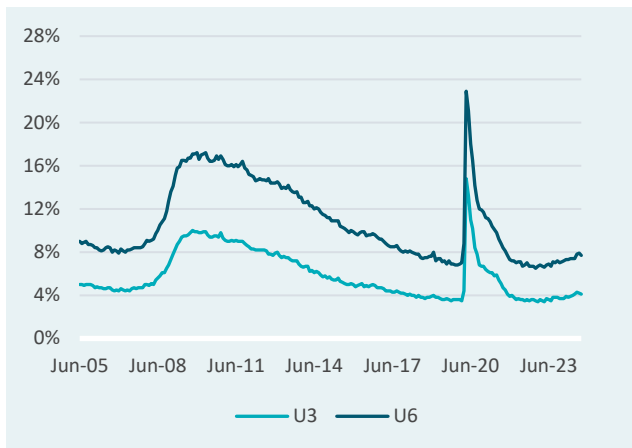
Recent labor trends appear to be unlike many past cycles. Weakness so far has been a product of natural attrition and

less hiring, rather than widespread terminations. These trends could indicate a return to a more balanced job market, rather than a turn towards a sharp economic downturn. Job market *rebalancing* is captured in the recent closing of a wide gap between the number of *available workers* and *available jobs*.

Various types of immigration and the difficulties of quantifying unlawful immigration in official statistics has created much uncertainty in the data. This problem has been acknowledged by senior government officials, including Fed Chair Jerome Powell. The level of unlawful immigration in recent years suggests that estimation errors could be large. Investors should be appropriately cautious when analyzing current data.

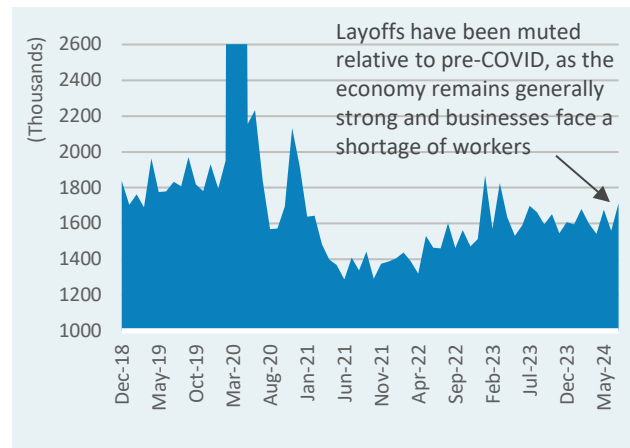
Labor weakness so far has been a product of natural attrition and less hiring, rather than widespread layoffs

## U.S. UNEMPLOYMENT



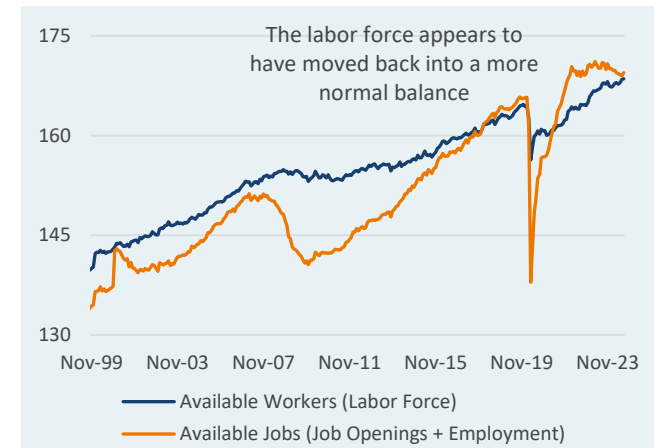
Source: FRED, as of 9/30/24

## LAYOFFS



Source: FRED, as of 7/31/24

## WORKERS AVAILABLE VS. AVAILABLE JOBS



Source: BLS, Verus, as of 8/31/24

# The consumer

Inflation adjusted personal spending growth was 2.9% year-over-year in August and has remained in a 2-3% range for the past two years. This rate indicates moderate economic expansion in line with pre-pandemic rates of growth.

Personal savings rates saw a significant upward adjustment, from 2.9% to 4.9% in July, as the data series was revised to better capture income sources that had been omitted previously. The most recent savings rate was 4.8% in August. This indicates that the consumer is in a healthier position than previously believed, and that fewer Americans are dipping into savings to support their spending.

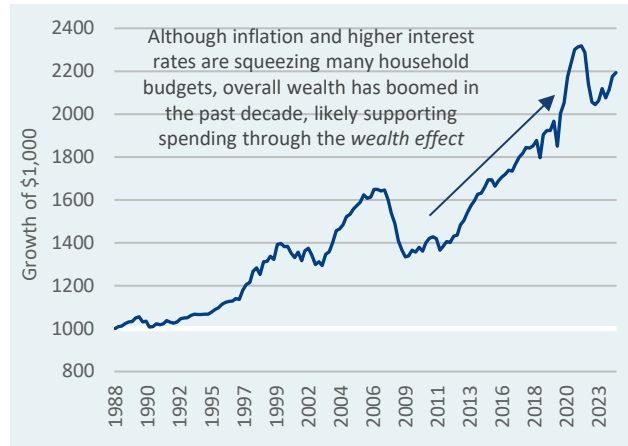
Fueled by large gains from equities and real estate, average household wealth has boomed. While inflation and high prices have in fact squeezed budgets, significant increases in household wealth may be a positive support to consumption. This behavior may be best described by the ‘wealth effect’—an economic theory stating that even if an individual’s income and expenses do not change, if that individual *feels more wealthy*, they tend to have a higher propensity to spend. This theory is often applied to wealth in real estate or investments such as retirement accounts which cannot be accessed immediately.

**REAL PERSONAL SPENDING**



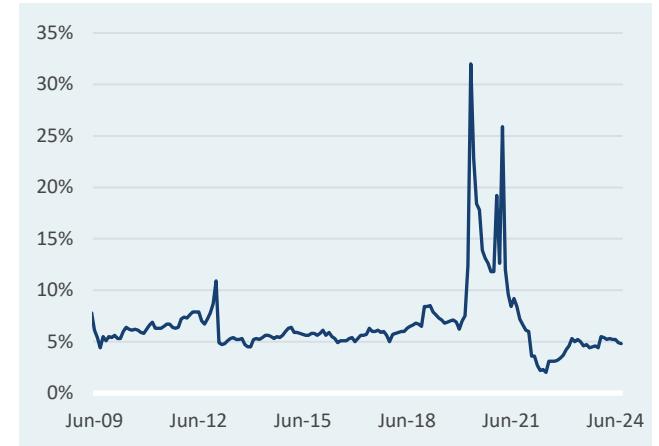
Source: FRED, as of 8/30/24

**AVERAGE HOUSEHOLD NET WORTH (INFLATION-ADJUSTED)**



Source: Verus, FRED, as of 6/30/24

**PERSONAL SAVINGS RATE**



Source: FRED, as of 8/30/24

# Sentiment

Consumer sentiment improved slightly during the third quarter, as illustrated by the University of Michigan Consumer Sentiment survey. Households expressed further frustration about high prices, but optimism on the economy and that inflation will continue to slow. According to the survey, the outlook brightened for Americans all across the economic and political spectrum.

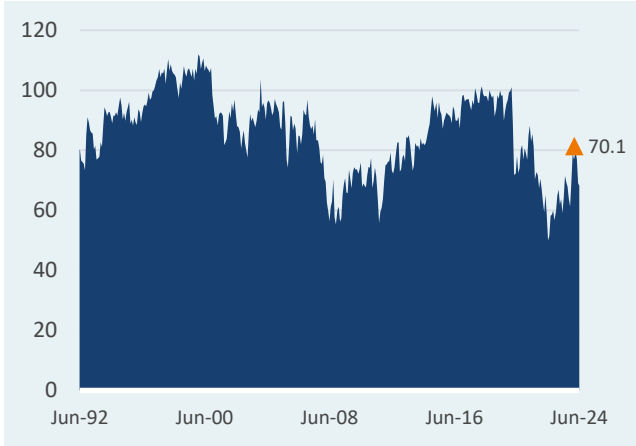
The latest consumer confidence reading from the Conference Board slightly increased from the prior quarter, but consumers expressed pessimism around labor market conditions. Concerns were reported regarding fewer hours and job openings. While interest rate cuts have likely led

consumers to plan on buying big-ticket items like cars and homes, families' perception of their financial conditions ultimately declined over the quarter.

The NFIB Small Business Optimism index was significantly depressed during the quarter, now marking 33 months below the 50-year average. NFIB Chief Economist Bill Dunkelberg stated "Small business owners are feeling more uncertain than ever. Uncertainty makes owners hesitant to invest in capital spending and inventory, especially as inflation and financing costs continue to put pressure on their bottom lines."

Consumer sentiment improved slightly during Q3, while small business sentiment remained very depressed

**CONSUMER SENTIMENT (UNIV. OF MICHIGAN)**



Source: University of Michigan, as of 9/30/24

**CONSUMER CONFIDENCE (CONFERENCE BOARD)**



Source: Conference Board, as of 9/30/24

**NFIB SMALL BUSINESS SENTIMENT**



Source: NFIB, as of 9/30/24



# Housing

It is very likely that the Federal Reserve’s September interest rate cut was the first of a series of cuts. This could be positive for potential home buyers and housing affordability, though it will depend on how cuts to the Federal Funds Rate relate to longer-term interest yields, which impact the mortgage rates that are offered to home buyers (the 30-year mortgage rate average fell to 6.1% at the end of Q3, down from a high of 7.8% in late 2023). This will also depend on the way in which home prices react to lower mortgage interest rates—if a rush of home buying activity pushes home prices upward, higher prices could overwhelm the cost savings of lower mortgage rates in terms of total cost of homeownership.

While home prices continue to climb, up 5% year-over-year in July, according

to S&P CoreLogic Case-Shiller, rent prices have reportedly flattened out nationwide. An analysis from Redfin suggests that rents were only up 0.9% year-over-year in August, as the recent boom in construction and building of new apartment units has helped to mitigate price pressure.

The cost of buying vs. owning is currently at historic extremes, given the intense deterioration of home ownership affordability. This has been further worsened as rent prices flattened out over the past year and home prices moved upward. Even in U.S. metro areas with the most attractive balance between renting and buying, it is more attractive to rent. In more expensive cities such as San Francisco and Seattle, the cost of owning is more than double the cost of renting, as illustrated below.

**30-YEAR MORTGAGE RATE (%)**



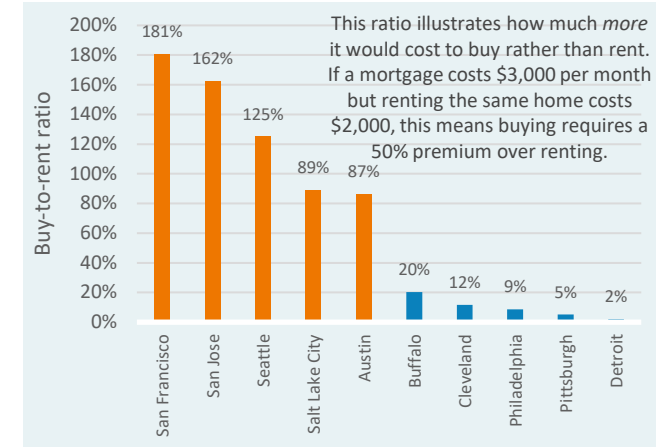
Source: Freddie Mac, as of 9/30/24

**EXISTING HOME SALES**



Source: National Association of Realtors, as of 8/31/24

**HOUSING AFFORDABILITY: 5 MOST EXPENSIVE & 5 LEAST EXPENSIVE METRO AREAS**



Source: Bankrate analysis of Redfin’s median sale price data and Zillow rent data, as of February 2024

# International economics summary

- The Eurozone faces slowing growth, with recession potentially imminent for Germany. A global shift in consumer purchase patterns towards *services* and away from *goods* has likely had a major impact on manufacturing-heavy economies. These effects are biting especially hard in export-heavy economies such as Germany and Japan. China's struggling economy is having widespread impacts on global growth, as well as energy and other commodity prices.
- Falling inflation and moderating economic growth creates conditions central banks may see as conducive to interest rate cuts. The European Central Bank and Federal Reserve kicked off a rate cutting cycle during the quarter. The Bank of Japan stands out from the crowd, deciding earlier this year to raise rates modestly. The bank sees Japan's economy growing faster than potential and wishes to normalize rates carefully.
- One year has passed since the Hamas attack on Israel, and the beginning of

the Israel-Hamas war. The conflict has now broadened out as Israel engages with the Iranian-backed militia Hezbollah, which is designated a terrorist group by much of the western world. Over the past month, Israel and Iran have clashed directly, substantially increasing risks of widespread war in the Middle East.

- China announced an aggressive economic stimulus program in the form of fiscal and monetary support. Those moves followed a People's Bank of China rate cut from 2.3% to 2.0%. Chinese equities rallied more than 30% in the last few weeks of September. It is not yet clear whether these developments will be sufficient to help turnaround the Chinese economy, which faces serious structural issues.
- India continues to be the fastest-growing major economy in the world, posting strong real GDP growth (+6.7%) on the back of a rapidly growing manufacturing sector and large investments in public infrastructure.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.7% 9/30/24	2.4% 9/30/24	4.1% 9/30/24
Eurozone	0.6% 6/30/24	1.7% 9/30/24	6.4% 8/31/24
Japan	(1.0%) 6/30/24	2.2% 9/30/24	2.5% 8/31/24
BRICS Nations	4.8% 6/30/24	2.0% 9/30/24	5.3% 12/31/23
Brazil	3.3% 6/30/24	4.4% 9/30/24	6.6% 8/31/24
Russia	4.1% 6/30/24	8.6% 9/30/24	2.4% 8/31/24
India	6.7% 6/30/24	5.5% 9/30/24	7.8% 9/30/24
China	4.6% 9/30/24	0.4% 9/30/24	5.1% 9/30/24

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

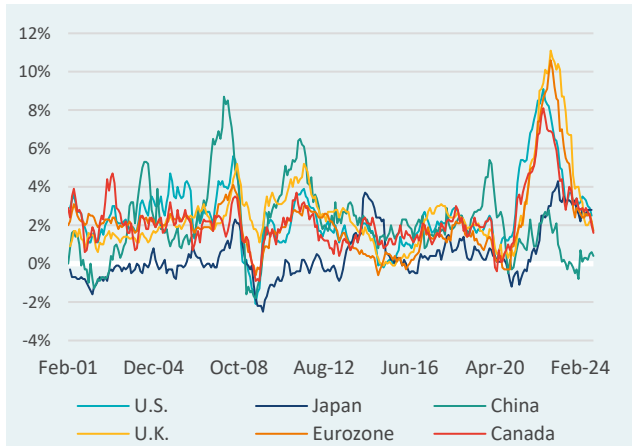
Many developed economies have shown slowing growth recently, as softer spending and a manufacturing slowdown contribute to weakness. These effects are biting especially hard in export-heavy economies such as Germany and Japan. It is difficult to attribute economic weakness on a single cause, though China's struggling economy and a global consumer spending trend towards services rather than goods are likely playing a part. Central bank interest rate hikes mean bigger ticket goods purchases such as automobiles, homes, and home furnishings, are more difficult to afford. As interest rates come down, this trend could reverse. The U.S. economy stands out as exceptionally strong in the current environment.

Inflation rates in the developed world have fallen towards pre-pandemic levels more quickly than had been expected. Many inflation drivers that

had occurred during the pandemic, such as global supply chain issues, government stimulus, and higher energy prices, have seen a reversal. This has helped inflation to normalize without a major shock to spending.

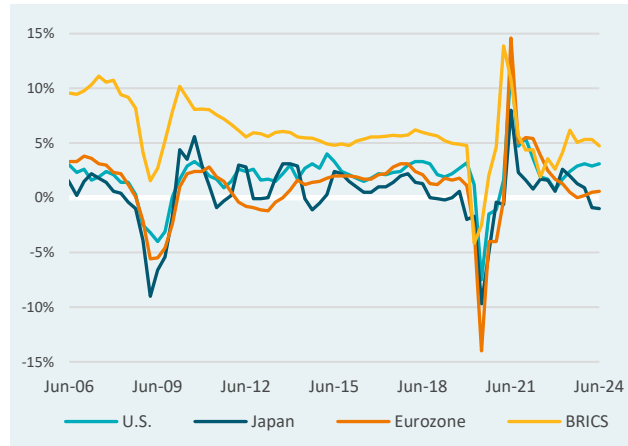
In September, China announced an aggressive economic stimulus program, after three years of ongoing mild support. President Xi pledged both fiscal and monetary support, with specific focus on the ailing real estate market, and stimulus to mitigate the downward trajectory of the stock market. Those moves followed a People's Bank of China rate cut from 2.3% to 2.0%. It is not yet clear whether these developments will be sufficient to help turn around the Chinese economy, which faces serious structural issues such as a declining population, shrinking workforce, and nationwide excess inventory of real estate.

**INFLATION (CPI YEAR-OVER-YEAR)**



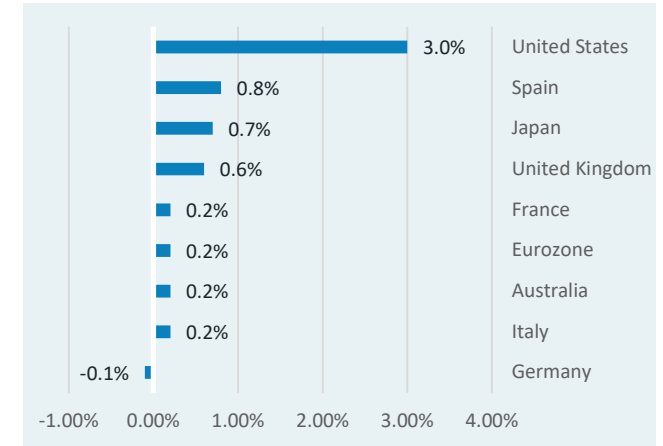
Source: BLS, Verus, as of 9/30/24

**REAL GDP GROWTH (YEAR-OVER-YEAR)**



Source: BLS, Verus, as of 6/30/24

**Q2 REAL GDP GROWTH (QOQ)**



Source: BLS, Verus, as of Q2 2024

# Fixed income rates & credit

# Fixed income environment

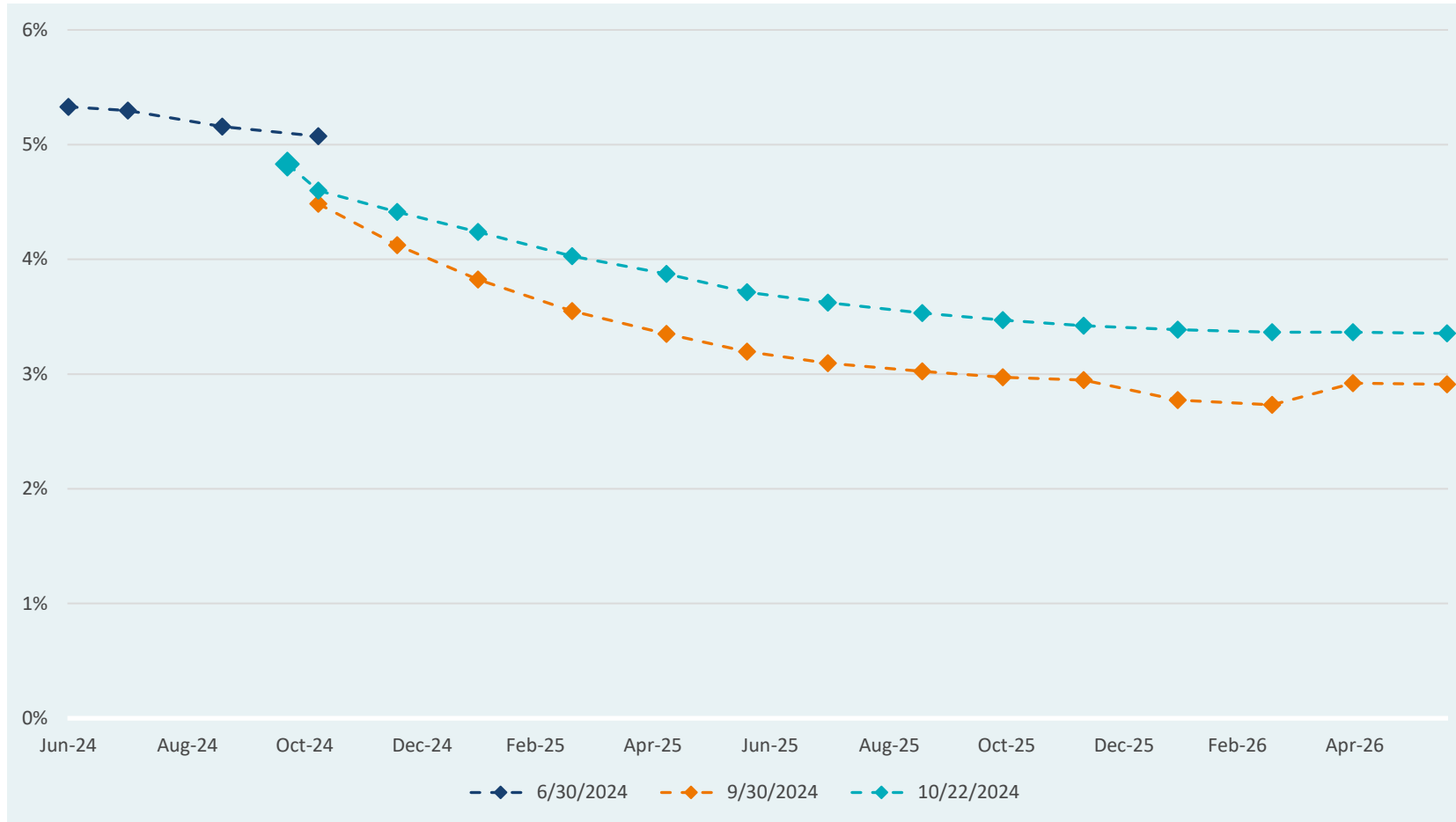
- On September 18<sup>th</sup>, the Federal Reserve cut interest rates by 50 bps, bringing the target rate from 5.25-5.50% to 4.75-5.00%. This larger cut surprised many investors who still see inflation risks and a generally strong economy. This move likely kicks off a multi-year period of cuts as the Fed brings interest rates towards what they believe to be a more neutral level. Investors have now focused sharply on what the neutral interest rate level, or “R-star”, might be today.
- The 10-year U.S. Treasury yield fell from 4.36% to 3.79% during the quarter, alongside a series of economic data releases that suggested inflation is moving further towards the Fed’s 2% target, and that the labor market is softening. Interestingly, yields moved slightly higher in late September after the Fed rate cut.
- Most credit indices saw positive returns, rising with the rest of the fixed income universe. However, greater credit risk only provided marginally higher returns, with high yield outperforming investment grade by +0.1%. Bank Loans (S&P/LSTA Leveraged Loan) underperformed other major fixed income indices, as the floating rate nature (and ultra-low duration) of bank loans meant these bonds did not benefit from the decline in yields.
- The U.S. yield curve *uninverted* during the quarter, indicated by the 10-year minus the 2-year Treasury yield, as shorter-term interest rates dropped along with more aggressive Federal Reserve rate cut expectations. This ended more than two years of yield curve inversion.
- Default activity remained low in Q3 as the economy remained strong. High yield bond default rates continued to decline, falling to 1.4%, down from 2.2% a year ago and well below the long-term annual average of 3.4%. However, distressed exchange activity was high. Total distressed credit volume was roughly \$13.5 billion, the second largest quarterly total on record (since Q4 2008).

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	5.2%	11.6%
Core Plus Fixed Income (Bloomberg U.S. Universal)	5.2%	12.1%
U.S. Treasuries (Bloomberg U.S. Treasury)	4.7%	9.7%
U.S. Treasuries: Long (Bloomberg U.S. Treasury 20+)	8.0%	15.2%
U.S. High Yield (Bloomberg U.S. Corporate HY)	5.3%	15.7%
Bank Loans (S&P/LSTA Leveraged Loan)	2.1%	9.6%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	9.0%	13.4%
Emerging Market Debt Hard (JPM EMBI Global Diversified)	6.2%	18.6%
Mortgage-Backed Securities (Bloomberg MBS)	5.5%	12.3%

Source: Standard & Poor’s, J.P. Morgan, Bloomberg, as of 9/30/24

# A new interest rate regime

*Looking at the upcoming expected path of the Fed Funds rate (short-term rate)*



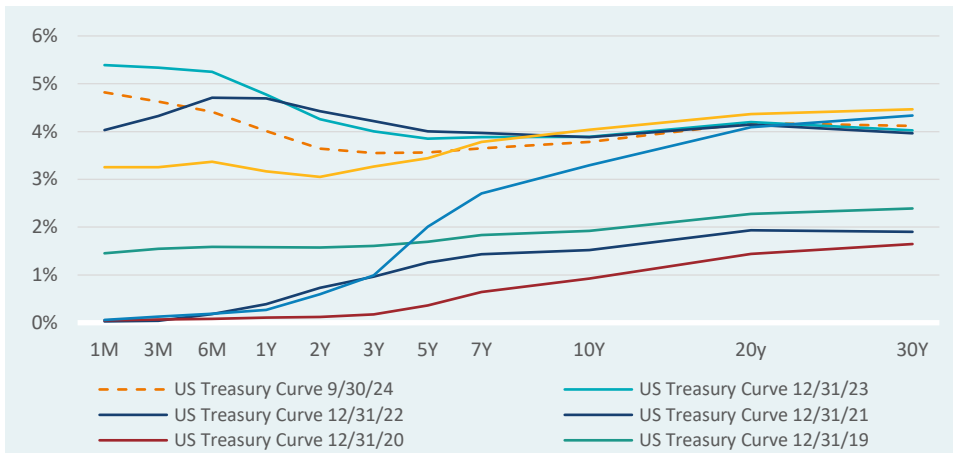
Investors are pricing in considerable near-term rate cuts

Sticky inflation and/or ongoing economic strength could lead to disappointment if the Fed takes a more restrained stance

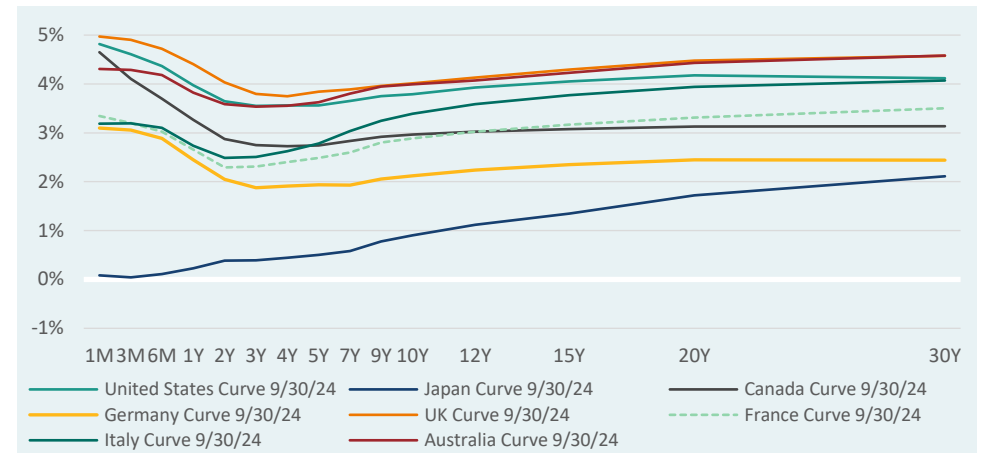
Source: Verus, as of 10/22/24

# Yield environment

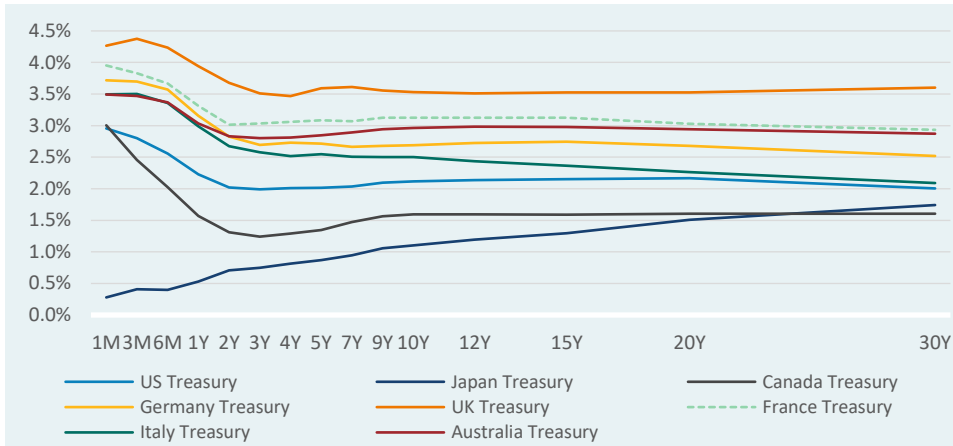
U.S. YIELD CURVE



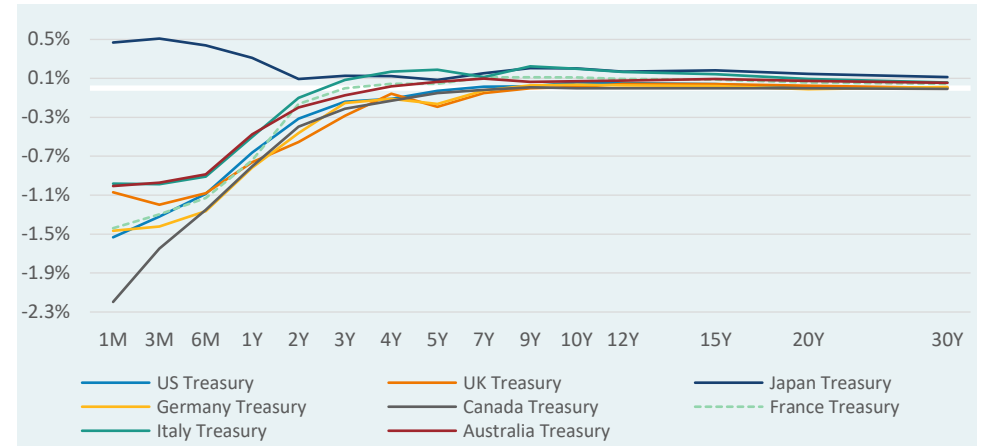
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/24

# Credit environment

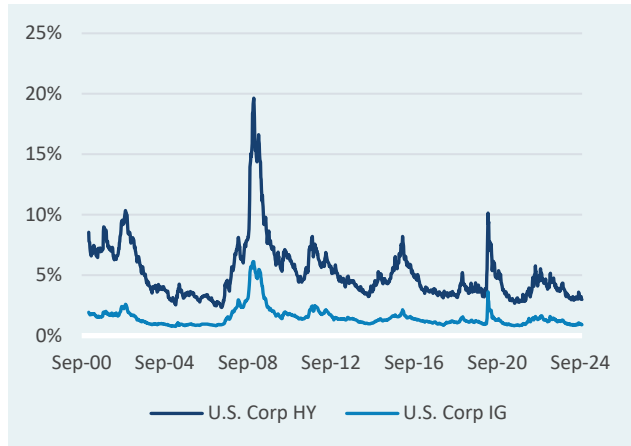
During the third quarter, longer duration credit outperformed shorter duration as U.S. interest rates headed downward. Long duration investment grade corporate bonds (Bloomberg U.S. Long Corporate Credit) gained 8.1% while lower quality credit markets also delivered strong returns—high yield and bank loans added +5.3% (Bloomberg U.S. Corporate High Yield) and +2.1% (CS Leveraged Loans), respectively.

Returns within the high yield bond market were broadly positive. Lower quality credits saw the strongest performance. Bonds rated CCC, which include distressed credit, returned +11.6%, compared to higher quality BB-rated bonds which returned +4.3%. Non-distressed CCC-rated bonds also delivered robust returns, gaining +6.9%. Similarly, lower quality

bank loans outperformed higher quality, with CCC-rated loans returning +2.6%, compared to +2.0% and +1.9% for B- and BB-rated loans.

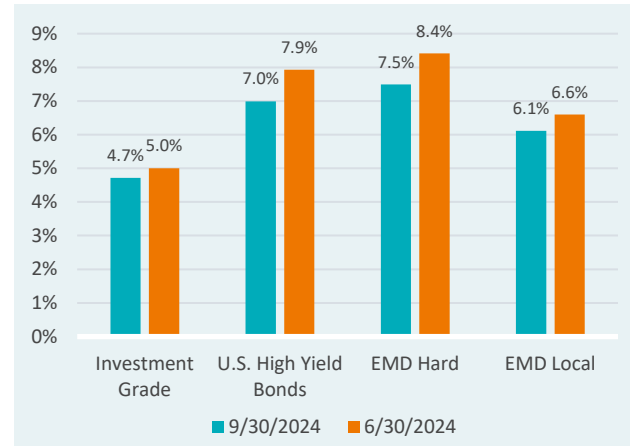
Credit spreads broadly declined alongside an easing of perceived U.S. recession risk. Lower-quality high yield bond spreads fell by roughly 0.2%, to 3.0%, while investment grade spreads tightened slightly to 0.9%. Broadly, across credit ratings, spreads remain well below their long-term historical averages. While some technical factors may be contributing to relative tightness, spreads suggest that investors are fairly confident in the ability of businesses to service debt in the future.

## SPREADS



Source: Barclays, Bloomberg, as of 9/30/24

## YIELD TO MATURITY



Source: Bloomberg, J.P. Morgan as of 9/30/24

## CREDIT SPREAD (OAS)

Market	9/30/24	9/30/23
Long U.S. Corp	1.1%	1.3%
U.S. Inv Grade Corp	0.9%	1.2%
U.S. High Yield	3.0%	3.9%
U.S. Bank Loans*	4.7%	5.2%

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/24

\*Discount margin (4-year life)



# Default & issuance

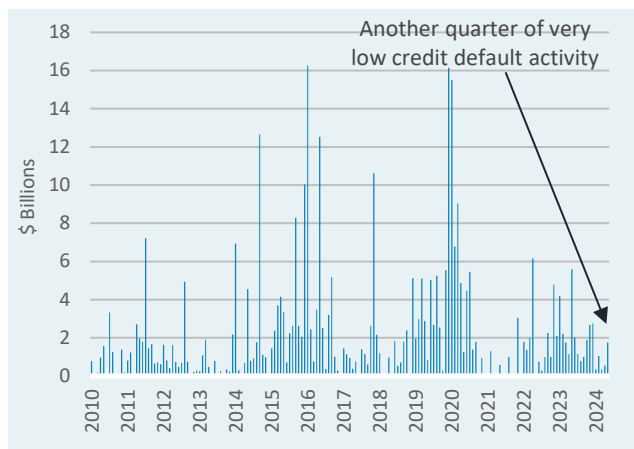
Default activity remained low during the quarter as economic growth was solid and strong economic data releases around the labor market and spending suggested a lower chance of near-term recession. During the period, \$11.1 billion of bank loans and high yield bonds were affected by default or distressed exchanges, down from roughly \$15.0 billion in the prior quarter. Year-to-date, 27 companies have defaulted, totaling more than \$3.0 billion in bonds and \$15.4 billion in loans.

While defaults have remained subdued, distressed exchange activity has been high. During the quarter, total distressed credit volume was roughly \$13.5 billion, the second largest quarterly total on record (since Q4 2008). Despite a rise in exchanges, the year-to-date combination of defaults and distressed exchanges of \$56.1 billion trailed the pace of 2023 by -13%.

High yield bond default rates continued to decline, falling to 1.4%, down from 2.2% a year ago, and are well below the long-term annual average of 3.4%. Recovery rates ended the quarter at 37.7%, down slightly from Q2, but up from the calendar year 2023 level of 32.8%.

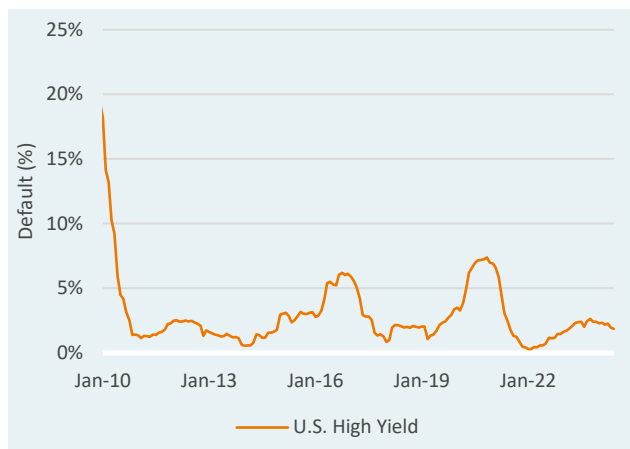
New issuance volume for high yield bonds and bank loans was mixed during the quarter. High yield bond issuance was \$74.0 billion, compared to \$79.4 billion in Q2, while bank loan issuance increased to \$204 billion, up from \$148.4 billion. Lower interest rates likely acted as a catalyst for bank loan issuance activity. Importantly, credit spreads remain near their all-time lows, which allows companies to issue and refinance their debt at more competitive rates.

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



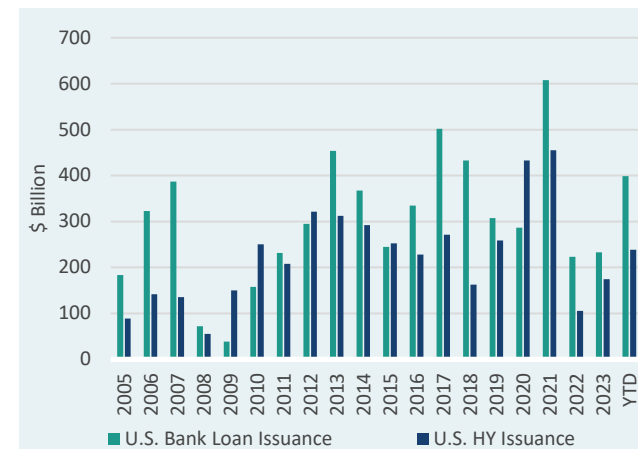
Source: BofA Merrill Lynch, as of 9/30/24

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



Source: BofA Merrill Lynch, as of 9/30/24 – par weighted

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



Source: BofA Merrill Lynch, as of 9/30/24

# Credit hedge funds & high yield spreads

- Credit hedge funds tend to outperform high yield when spreads are compressed, based on data since 2000. When high yield spreads are especially wide, high yield typically outperform both U.S. Treasuries and credit hedge funds by a wide margin.
- Current high yield spread levels are well within the first quartile (i.e. are low relative to history), reflecting recent sustained economic growth, easing inflation fears, and the beginning of a rate cut cycle driven by lower inflation and a *soft landing* rather than concerns of recession or weakness.
- This supports our view that now may be an attractive time to consider alternative credit funds as a means of earning a premium over comparable liquid markets. Less liquid, more complex areas of the credit market typically offer premium yields, more idiosyncratic trading opportunities, and fund managers often possess more tools for generating alpha.
- Now may also be an appropriate time to plan for future spread widening, in setting up dedicated “trigger” vehicles with traditional or alternative managers to pre-commit to investing in liquid credit markets at certain spread thresholds, when those markets tend to offer the best return premium.

## HF CREDIT AVERAGE EXCESS RETURN VS HIGH YIELD BY SPREAD QUARTILE SINCE JULY 2000

Prior month High Yield Spread over Intermediate Treasury	Avg Monthly Excess Return of HY over Intermediate Treasury	Avg Monthly Excess Return of HF Credit over High Yield Bonds			
		HFRI Convert Arb	HFRI Distressed	HFRI L/S Corporate	HFRI Asset Backed
< 4.2% (Current spread is 3.6%)	0.12%	0.11%	0.13%	0.45%	0.30%
4.2 – 5.4%	0.51%	(0.12%)	(0.03%)	(0.02%)	0.09%
5.4 – 7.3%	0.47%	0.07%	(0.10%)	0.09%	0.08%
> 7.3%	1.13%	(0.33%)	(0.54%)	(0.54%)	(0.28%)

Source: Bloomberg, HFR, MPI. Time period: July 2000 – September 2024. Indexes used: BB US Intermediate Treasury, BB US Corporate High Yield, HFRI RV: Convertible Arbitrage, HFRI ED: Distressed/Restructuring, HFRI RV: Fixed Income: Corporate, HFRI RV: Fixed Income: Asset Backed

# Equity

# Equity environment

- Global markets delivered strong performance during the quarter, with fairly consistent results across broad regions. Emerging markets (MSCI EM +8.7%) led, followed by international developed equities (MSCI EAFE +7.3%), and lastly the domestic market (S&P 500 +5.9%). Dollar weakness provided particular benefits to investors in international developed equities.
- Market expectations for Federal Reserve rate cuts became aggressive, after the Fed cut by 50 basis points on September 18<sup>th</sup>. This likely contributed to dollar weakness, since expectations for lower rates make U.S. dollar holdings less attractive.
- S&P 500 blended year-over-year earnings growth was +3.4%, as of October 18th. Once again, technology companies led the way on earnings, providing growth of +15.2%, while Healthcare ranked second at +10.9%. Materials (-2.7%) and Energy (-20.9%) both

acted as a drag on overall index earnings.

- Small cap and value reversed their run of underperformance. Small cap led large cap by +3.2% (Russell 2000 +9.3% vs. Russell 1000 +6.1%) in Q3, while value outperformed growth by +6.2% (Russell 1000 Value +9.4% vs. Russell 1000 Growth +3.2%). Despite size and style factors performing well during Q3, both have done poorly over the past full year, with small cap and value underperforming by -8.9% and -14.4%, respectively.
- On August 5th, volatility spiked 42 points to 66, marking the largest one day jump in volatility in modern market history. This was widely attributed to significant investor unwinding of carry trade positions (borrowing in Yen to purchase U.S. equities) following a weak labor market data release and an unexpected interest rate hike from the Bank of Japan.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	5.9%		36.4%	
U.S. Small Cap (Russell 2000)	9.3%		26.8%	
U.S. Equity (Russell 3000)	6.2%		35.2%	
U.S. Large Value (Russell 1000 Value)	9.4%		27.8%	
US Large Growth (Russell 1000 Growth)	3.2%		42.2%	
Global Equity (MSCI ACWI)	6.6%	5.1%	31.8%	30.8%
International Large (MSCI EAFE)	7.3%	1.5%	24.8%	20.9%
Eurozone (EURO STOXX 50)	6.6%	2.9%	29.4%	25.1%
U.K. (FTSE 100)	8.0%	1.9%	23.5%	12.9%
Japan (TOPIX)	(4.9%)	(4.0%)	21.7%	22.2%
Emerging Markets (MSCI Emerging Markets)	8.7%	6.7%	26.1%	25.2%

Source: Standard & Poor's, FTSE, MSCI, STOXX, JPX, as of 9/30/24

# Domestic equity

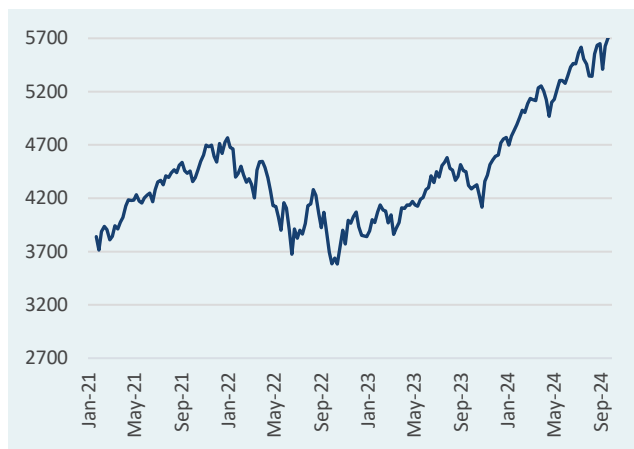
U.S. equities underperformed both international and emerging market shares—the S&P 500 ended Q3 up +5.9%. Market momentum was fueled by strengthening earnings expectations and a solid macro environment. Easing inflation and a normalizing labor market allowed for the Fed to kick off its rate cutting cycle on September 18<sup>th</sup> with a 50 bps cut. Many other central banks have also pivoted towards lower interest rates.

S&P 500 blended year-over-year earnings growth was +3.4%, as of October 18<sup>th</sup>. If earnings growth remains positive, it will mark a fifth straight quarter of positive earnings growth for large cap domestic equities. Once again, the Technology sector has led the way in earnings,

providing gains of +15.6%, year-over-year. The Communication Services sector was close behind at a +10.6% pace. Industrials (-8.4%) and Energy (-26.0%) both acted as a drag on the index.

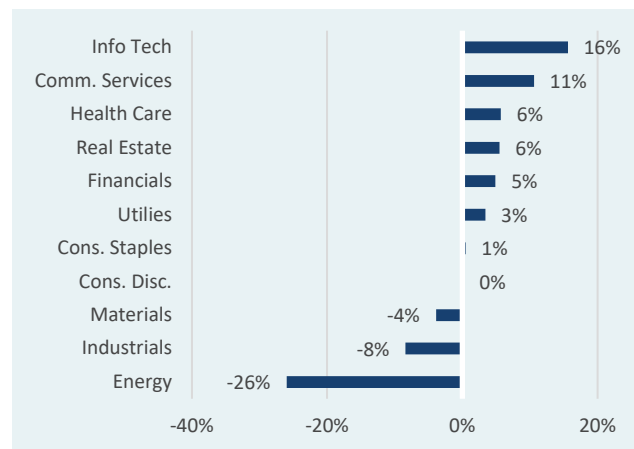
Robust price gains have continued to push valuations higher for the S&P 500, further generating concerns that U.S. equities are *priced for perfection*. Despite this, a resilient economy, interest rate cuts, and decreasing inflation risks arguably provide some fundamental justification for richer prices. Investors will be looking for these conditions to persist, specifically the trajectory of earnings and a path to profitability for recent substantial investments into artificial intelligence capabilities.

**S&P 500 PRICE INDEX**



Source: Standard & Poor's, as of 9/30/24

**S&P 500 BLENDED EPS GROWTH (YOY)**



Source: Factset, as of 9/30/24

**S&P 500 EPS GROWTH (YEAR-OVER-YEAR)**



Source: Factset, Verus, as of 10/18/24

# Domestic equity size & style

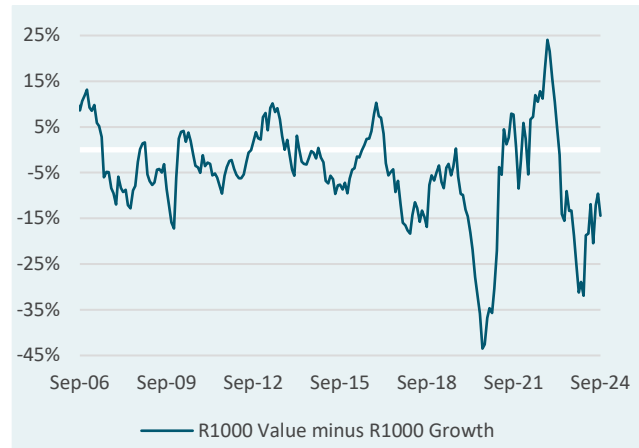
Small cap and value reversed their run of underperformance. Small cap led large cap by +3.2% (Russell 2000 +9.3% vs. Russell 1000 +6.1%) in Q3, while value outperformed growth by +6.2% (Russell 1000 Value +9.4% vs. Russell 1000 Growth +3.2%). Despite size and style factors performing well during the quarter, both have done poorly over the past year, with small cap and value underperforming by -8.9% and -14.4%, respectively.

Sector performance differences continue to fuel significant volatility across size and style factors. The Information

Technology sector, which has a much greater concentration to Growth stocks, has delivered outside performance. Mega cap technology companies have led other S&P 500 constituents during the past year. On the other hand, the Energy sector which has a much greater concentration of Value stocks, has lagged the overall index considerably over the same time period. For investors who engage in tactical factor timing, the current environment has likely proved particularly difficult to do so profitably.

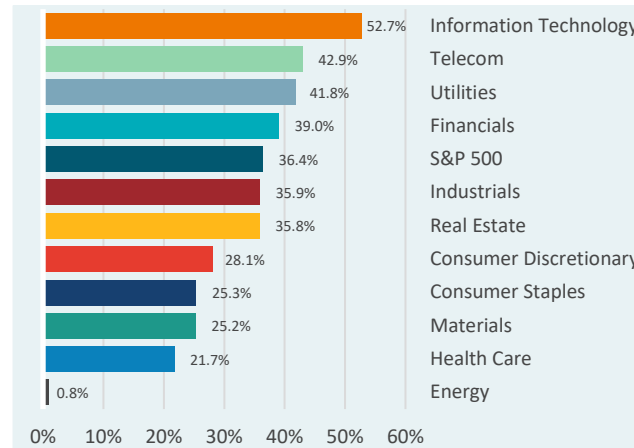
Despite a strong showing in Q3, small cap and value underperformed by -8.9% and -14.4% over the past year, respectively

VALUE VS. GROWTH 1-YR ROLLING



Source: FTSE, as of 9/30/24

S&P 500 SECTOR RETURNS (PAST 1 YEAR)



Source: Standard & Poor's, as of 9/30/24

1-YEAR SIZE & STYLE PERFORMANCE

	Value	Core	Growth
Large Cap	27.8%	35.7%	42.2%
Mid Cap	29.0%	29.3%	29.3%
Small Cap	25.9%	26.8%	27.7%

Source: FTSE, as of 9/30/24

# International developed equity

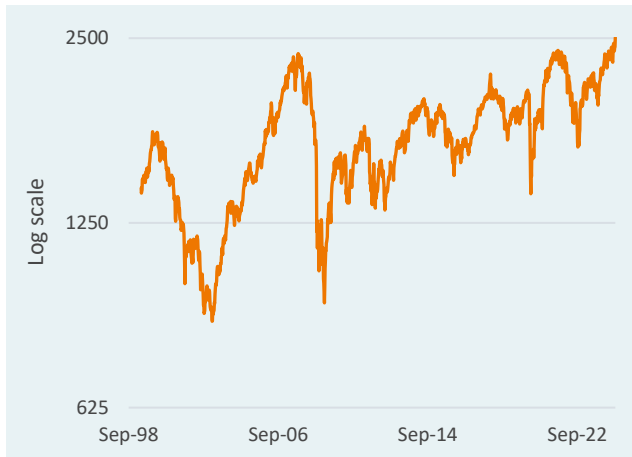
International developed shares (MSCI EAFE +7.3%) outperformed the U.S. market (S&P 500 +5.9%) during the quarter, but trailed emerging market equities (MSCI EM +8.7%). It should be noted that most of this performance was due to currency movements, rather than equity market performance. Unhedged currency exposure contributed +5.8% of the +7.3% index total return.

On a hedged basis, the international developed equity market underperformed the rest of the world (MSCI EAFE Hedged +1.5%). Many developed economies face more sluggish growth, with Europe's largest economy, Germany, now expected to contract -0.2% this year. High energy prices and increased competition with China have weighed on

European manufacturing. The European Union announced duties on these foreign exports with the goal of protecting their manufacturing sector. The European Central Bank has also implemented an accelerated rate cutting cycle in comparison to the U.S., where inflation is under the 2% target, and rate cuts may be necessary to stimulate growth.

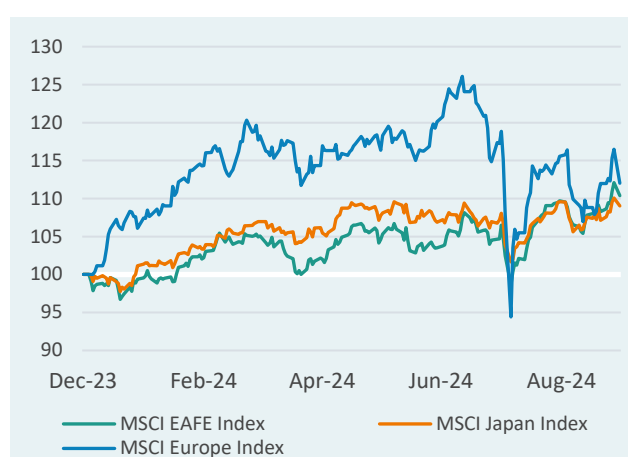
Japanese equities saw significant volatility in Q3, as an unexpected rate hike followed by weak U.S. economic data triggered what appeared to be the unwinding of a carry trade, triggering a sharp sell-off. Japanese equities recovered most of these losses, but the MSCI Japan (hedged) ended the quarter down -4.0%.

INTERNATIONAL DEVELOPED EQUITY



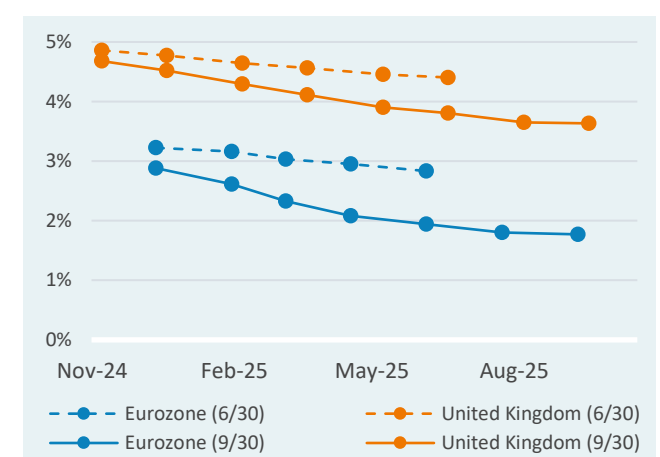
Source: MSCI, as of 9/30/24

MSCI EAFE PERFORMANCE



Source: MSCI, as of 9/30/24

ECB & BOE RATE EXPECTATIONS VS Q2



Source: Bloomberg, as of 9/30/24

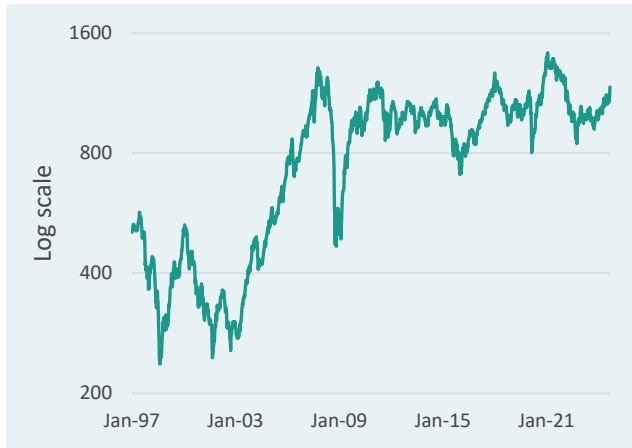
# Emerging market equity

Emerging market equities (MSCI EM +8.7%) outperformed both international developed (MSCI EAFE +7.3%) and domestic equities (S&P 500 +5.9%) over the quarter. After dragging the index lower for multiple years, Chinese equities delivered an aggressive rally in September on government stimulus news, though in early October this reversed and much of those gains were lost.

China announced an aggressive economic stimulus program in September, with President Xi pledging both fiscal and

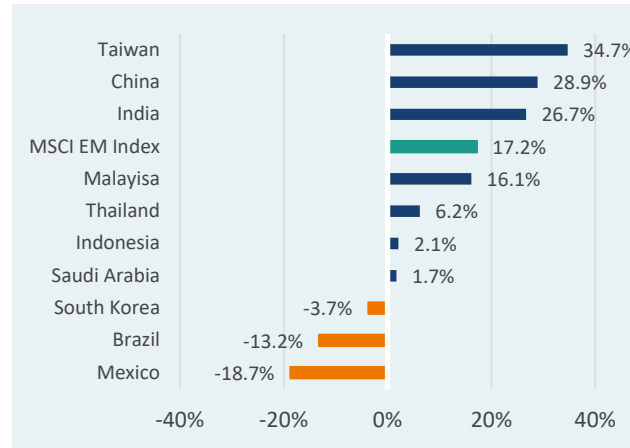
monetary support. Spending was specifically aimed at the ailing real estate market, and at mitigating the downward trajectory of the stock market. Those moves followed the People's Bank of China rate cut from 2.3% to 2.0%. It is not yet clear whether these developments will be sufficient to help turn around the Chinese economy, which faces serious structural issues such as a declining population, shrinking workforce, and a real estate crisis due to substantial excess inventory.

EMERGING MARKET EQUITY



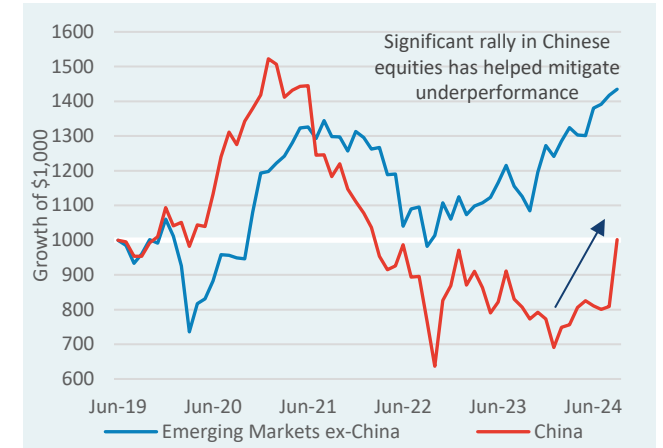
Source: MSCI, as of 9/30/24

MSCI EM 2024 SECTOR RETURNS YTD (USD)



Source: MSCI, J.P. Morgan, as of 9/30/24

CHINA UNDERPERFORMANCE PARTLY REVERSED



Source: MSCI, as of 9/30/24



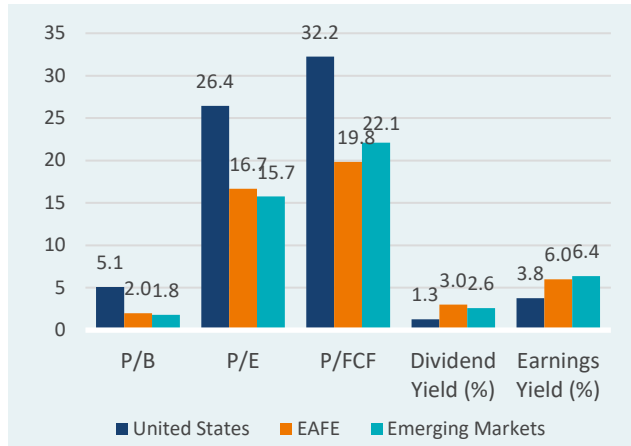
# Equity valuations

Valuations moved higher in Q3, fueled by central bank rate cut news, further signs of inflation normalization, and a generally great corporate earnings outlook. The U.S. continues to trade at a large premium to other markets, though high multiples can be partly attributed to the importance of the Information Technology sector in the index (which tends to demand a higher price-to-earnings ratio than other sectors), a stronger expected earnings growth rate, and a business environment that has more effectively fostered innovation.

As U.S. stock valuations head upwards and growth stocks play

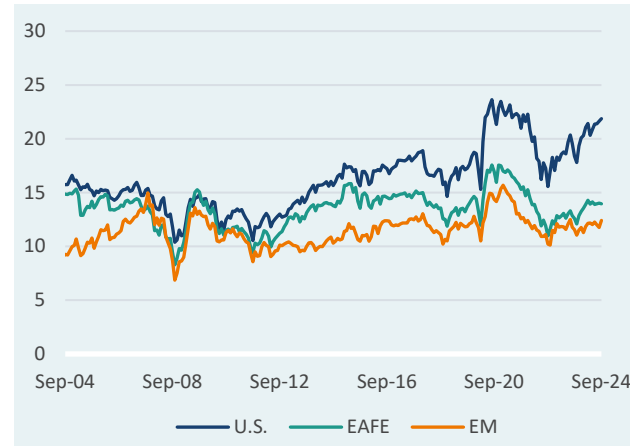
a larger role in the index, these effects have pushed total index dividend yield to a historically depressed level of 1.4%, as of September 30<sup>th</sup>. Meanwhile, non-U.S. stocks offer a 3.3% dividend yield (MSCI ACWI ex-U.S.). This is a large gap and has rarely occurred historically. However, changes in yield appear partly due to fundamental changes in marketplace characteristics, such as a greater proportion of the index being comprised of high growth companies that choose to reinvest a greater share of earnings, rather than paying those earnings out in the form of dividends.

**MSCI VALUATION METRICS (3-MONTH AVG)**



Source: MSCI, Verus, as of 6/30/24 – Trailing P/E

**FORWARD PRICE/EARNINGS RATIO**



Source: MSCI, Verus, as of 9/30/24

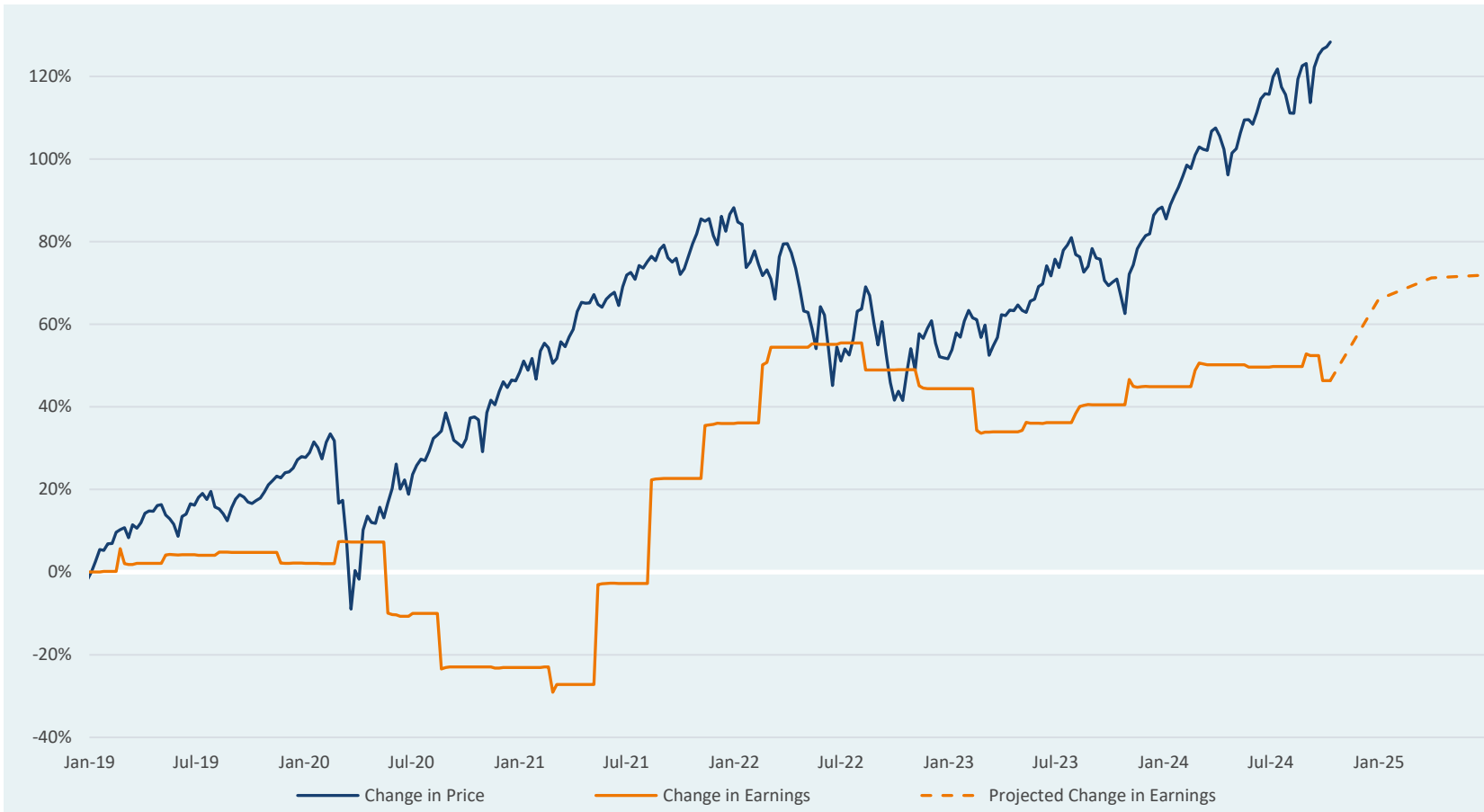
**S&P 500 HISTORICAL DIVIDEND YIELD**



Source: Standard & Poor's, Verus, as of 9/30/24

# Lofty U.S. equity valuations, but strong earnings are expected

S&P 500 PRICE GROWTH VS. EARNINGS GROWTH (SINCE 2019)



Valuations are in the 94th percentile relative to history, meaning multiples have only been this expensive 6% of the time.

But higher valuations may be partly justified by strong earnings forecasts

Source: Standard & Poor's, Verus, as of 10/10/24

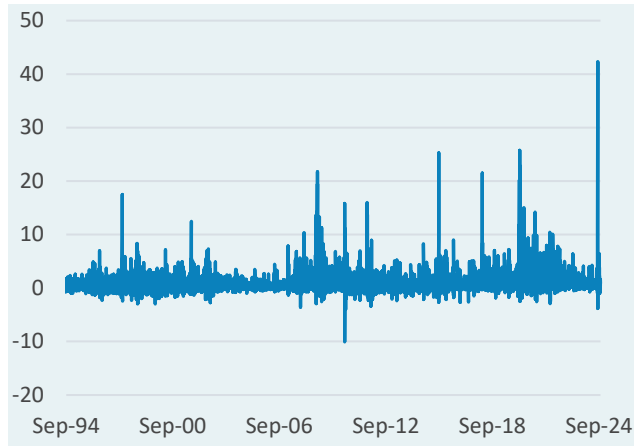
# Market volatility

Market-priced volatility (Cboe VIX Index) rose during Q3, starting the quarter at 12.4% and ending at 16.7%—closer to the longer-term average of 19.5%. On August 5<sup>th</sup>, volatility spiked 42 points to 66, making the largest one day jump in volatility in modern market history. The previous record was set during market turmoil among COVID-19 lockdowns. This market shock in August was widely attributed to unwinding of carry trade positions (borrowing in Yen to purchase U.S. equities) following a weak labor market data release, as well as an unexpected interest rate hike from the Bank of Japan. Volatility has since subsided, and markets have recovered much of their losses. With valuations at elevated levels, it would not be surprising to see further market shakiness.

Bond market volatility remains significantly above the longer-term average, but has trended downward as inflation risk has eased, and economic conditions have outperformed expectations. The Federal Reserve path to lower interest rates, and bumps that will inevitably occur along that path, could result in elevated fixed income volatility.

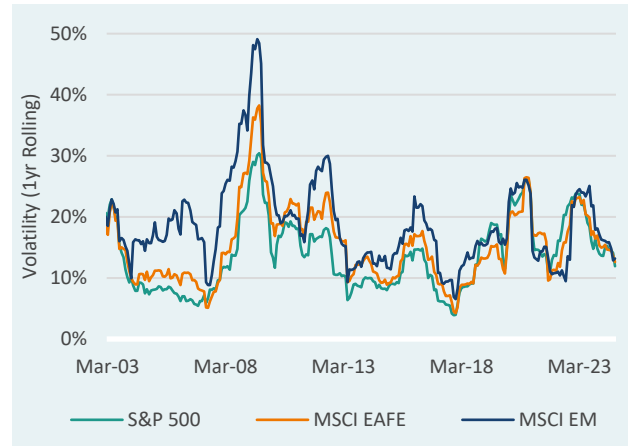
Recent realized one-year volatility has drifted to very low levels, despite uncertainty around inflation and interest rates, geopolitical risk flareups, and the upcoming election. Domestic and foreign markets showed similar volatility levels during that time.

**U.S. IMPLIED VOLATILITY (VIX)**



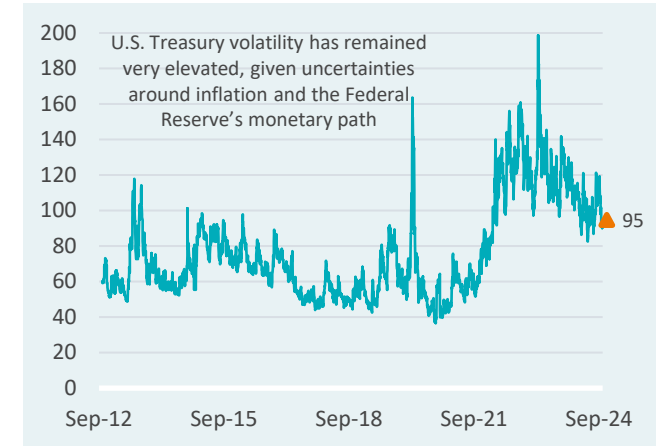
Source: Cboe, as of 9/30/24

**REALIZED VOLATILITY**



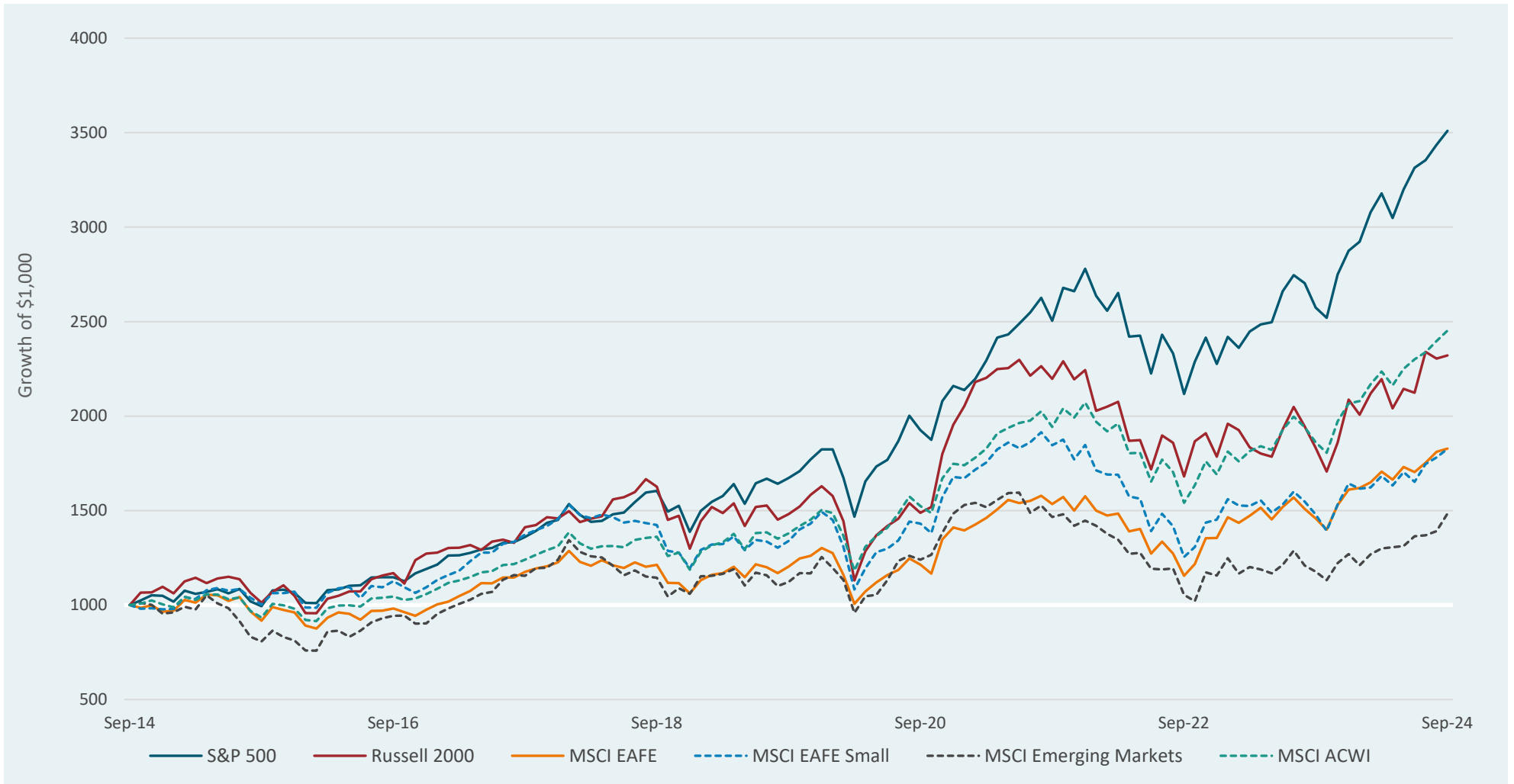
Source: Standard & Poor's, MSCI, Verus, as of 9/30/24

**U.S. TREASURY IMPLIED VOL ("MOVE" INDEX)**



Source: BofA, as of 9/30/24

# Long-term equity performance



Source: Standard & Poor's, FTSE, MSCI, Verus, as of 9/30/24

# Other assets

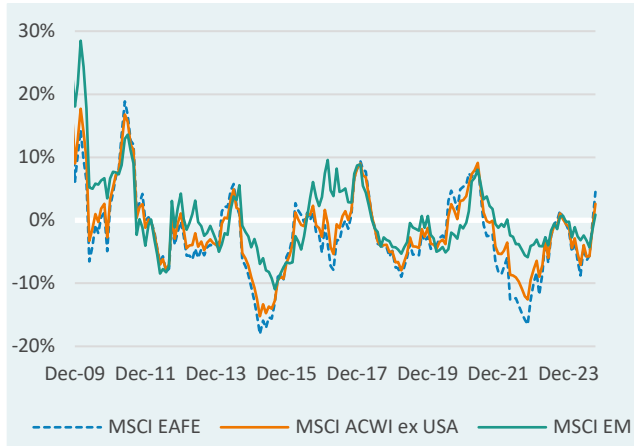
# Currency

U.S. dollar weakness resulted in gains for investors with unhedged foreign currency exposure. Market expectations for Federal Reserve rate cuts have become fairly aggressive over the past month, following the surprise 50 basis point cut on September 18<sup>th</sup>. This has contributed to dollar weakness— expectations for lower rates in the future make holding the U.S. dollars less attractive.

Investors without a currency hedging program gained +5.8% from their international developed equity exposure (MSCI EAFE) during the quarter due to currency movements, and +3.9% over the past year. The return impact from unhedged Japanese currency exposure, which has delivered extreme losses in recent quarters, sharply reversed direction and resulted in a +10.9% gain (represented by the TOPIX Index).

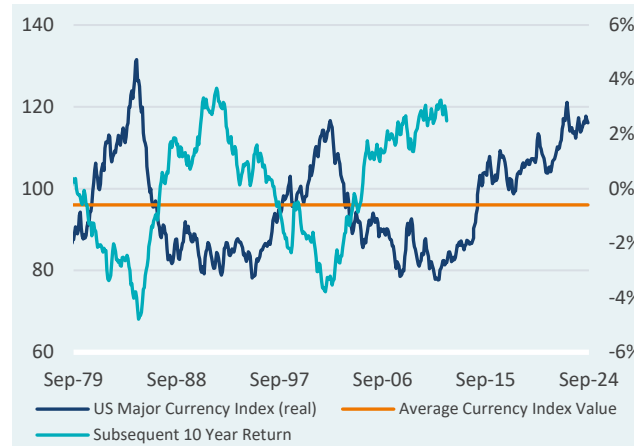
A more thoughtful portfolio approach to currency exposure has provided the dual benefit of lower portfolio volatility and also higher returns—a rare proposition in markets. This approach involves reducing the uncompensated risk of unhedged foreign currency exposure, and instead of unhedged exposure, making a passive investment in the currency market by investing in currencies with higher interest rates, currencies that are undervalued, and currencies that are showing positive price momentum. This approach, represented by the MSCI Currency Factor Mix Index—has offered a positive one-year rolling return over most periods with far lower volatility than the unhedged currency exposure that many investors hold. The past year of intense currency market volatility is testament to this approach.

## EFFECT OF CURRENCY (1-YEAR ROLLING)



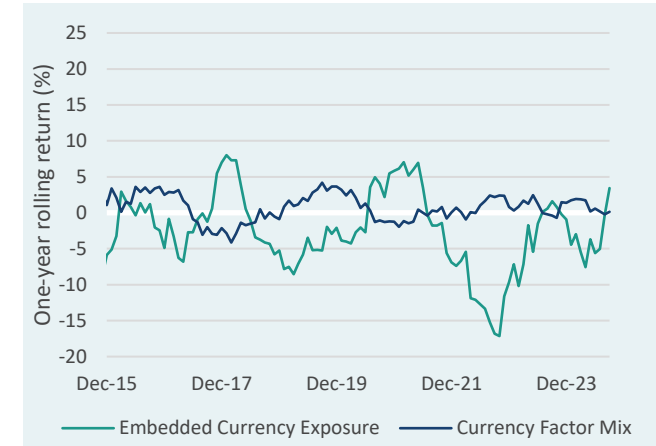
Source: MSCI, Verus, as of 9/30/24

## U.S. DOLLAR MAJOR CURRENCY INDEX



Source: FRED, Verus, as of 9/30/24

## EMBEDDED CURRENCY VS CURRENCY FACTORS



Source: MSCI, Verus, as of 9/30/24 "Embedded Currency Exposure" is the currency return impact from not hedging currency risk

# Appendix

# Periodic table of returns

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	5-Year	10-Year
Large Cap Growth	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	16.1	42.7	24.5	19.7	16.5
Large Cap Equity	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	9.4	26.5	21.2	15.6	13.1
Emerging Markets Equity	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	1.5	18.7	16.9	10.7	9.2
Large Cap Value	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	-4.7	18.2	16.7	7.8	8.9
Small Cap Growth	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	-7.5	16.9	13.2	9.3	8.8
International Equity	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	22.4	14.0	17.7	-13.0	15.4	13.0	9.4	6.4
60/40 Global Portfolio	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	22.0	10.3	14.8	-14.5	14.6	12.5	8.2	8.2
Small Cap Equity	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	-14.5	11.5	11.2	8.8	5.0
Small Cap Value	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	-17.3	9.8	9.2	5.7	5.7
Hedge Funds of Funds	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	-19.1	6.3	6.0	5.3	3.6
Commodities	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	-20.1	5.5	5.9	3.8	4.0
US Bonds	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	-20.4	5.0	4.4	5.7	1.5
Cash	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	-26.4	-7.9	4.0	2.1	1.8
Real Estate	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	-29.1	-7.9	-1.2	0.3	0.0

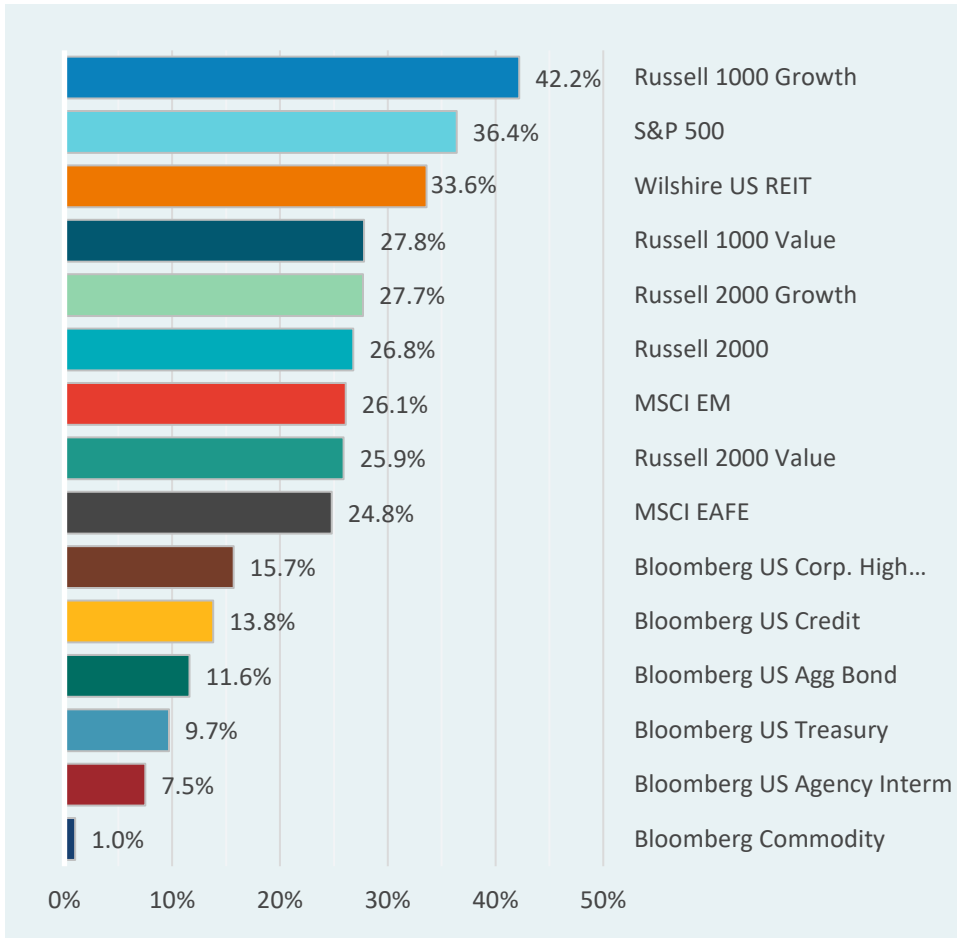


Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 6/30/24.

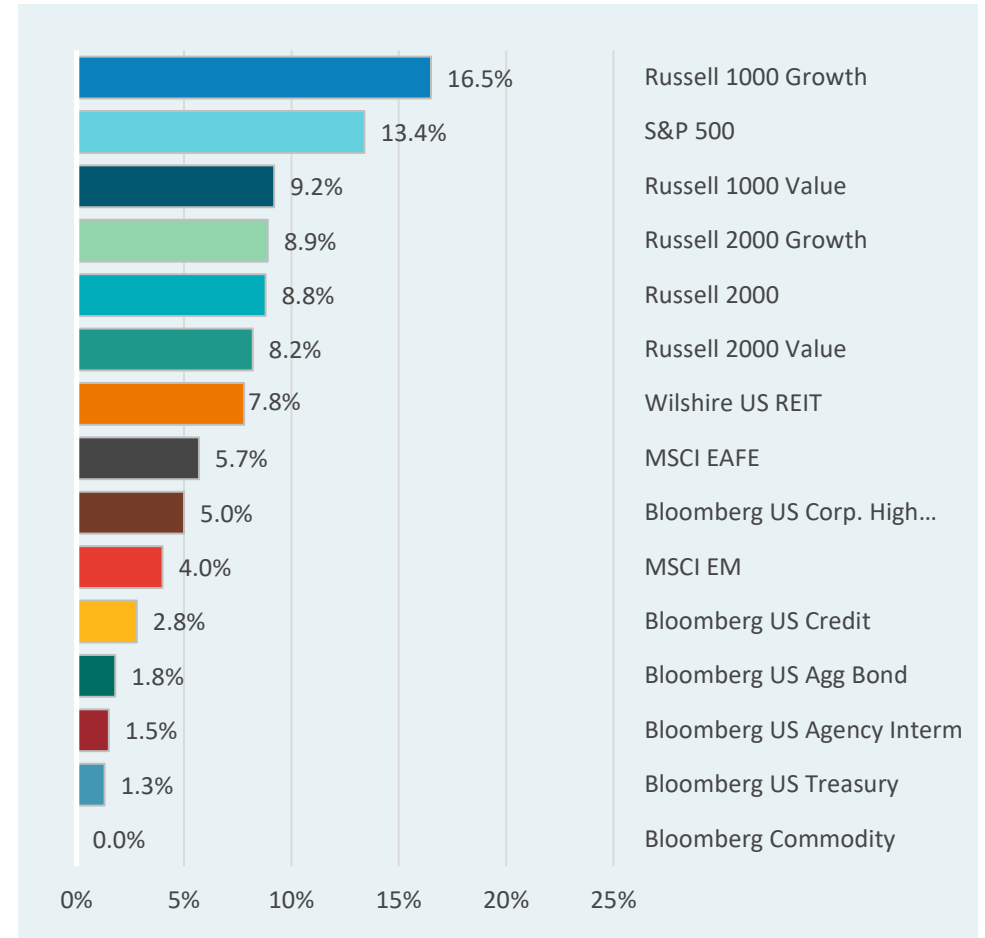


# Major asset class returns

ONE YEAR ENDING SEPTEMBER



TEN YEARS ENDING SEPTEMBER



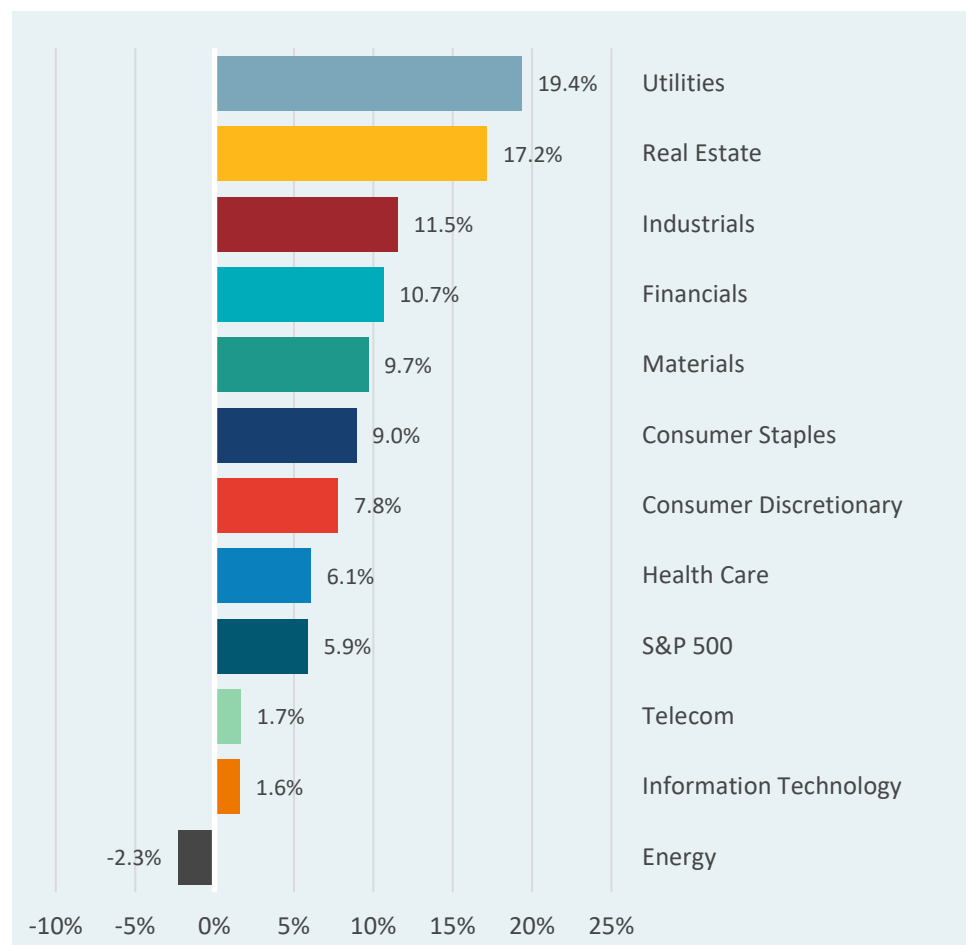
\*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 9/30/24

Source: Morningstar, as of 9/30/24

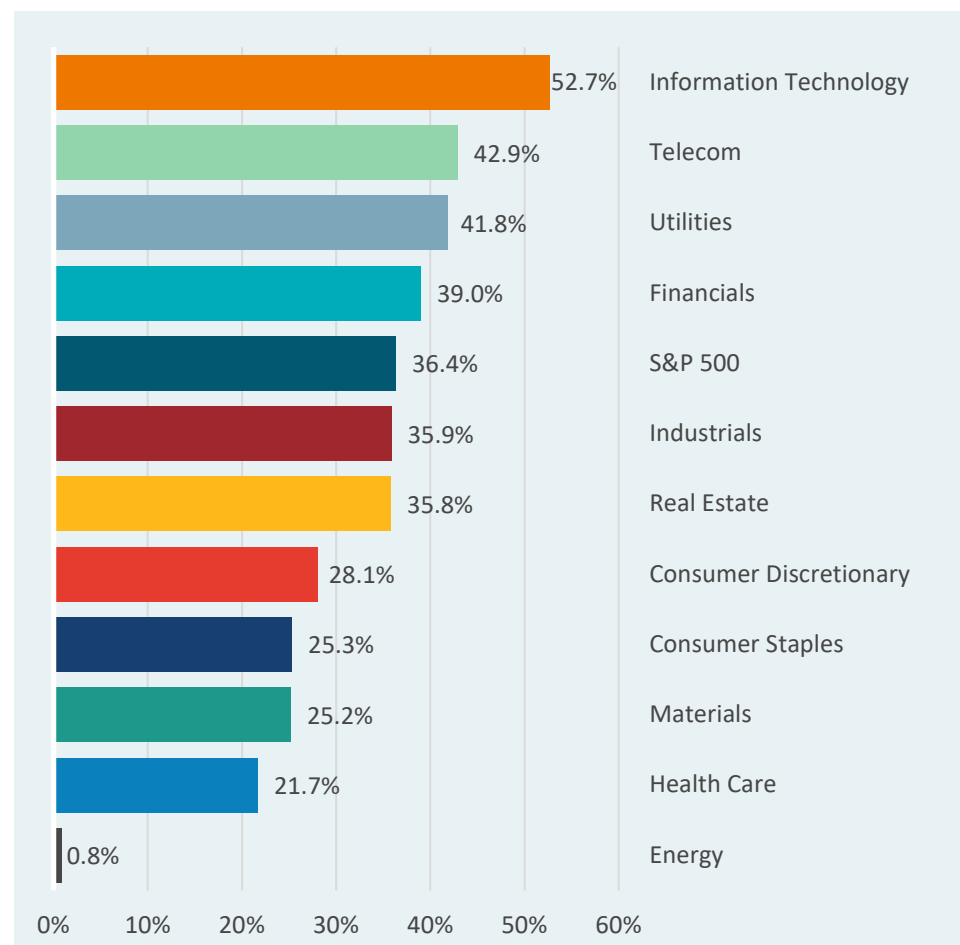
# S&P 500 sector returns

QTD



Source: Morningstar, as of 9/30/24

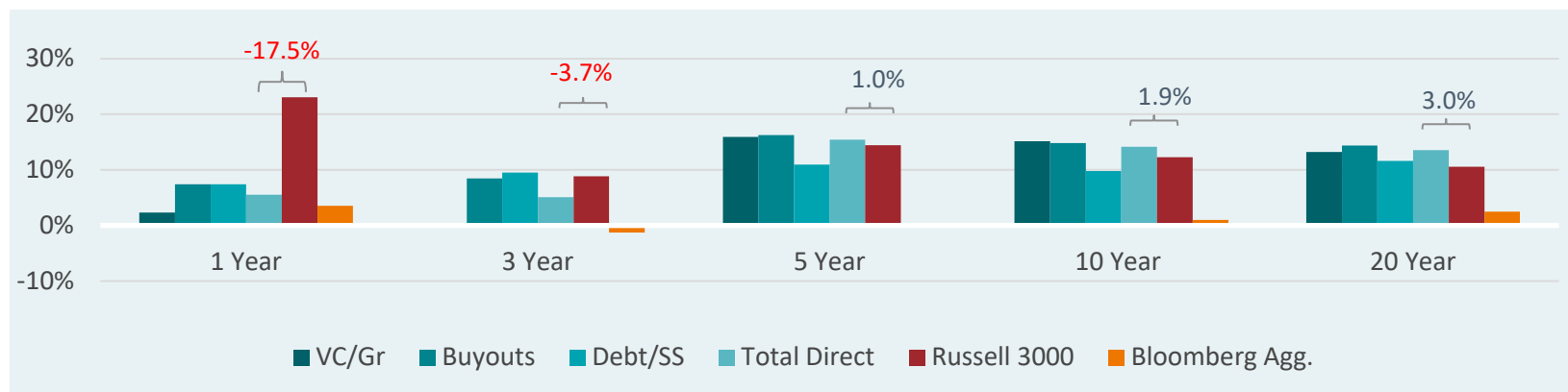
ONE YEAR ENDING AUGUST



Source: Morningstar, as of 9/30/24

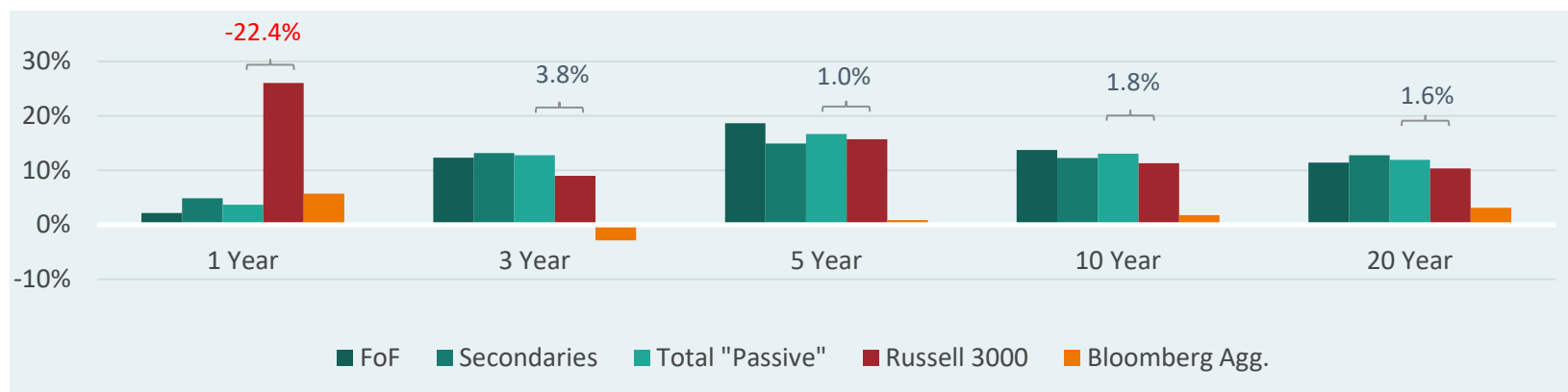
# Private equity vs. traditional assets performance

## DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments vs. public equities has been mixed.

## "PASSIVE" STRATEGIES

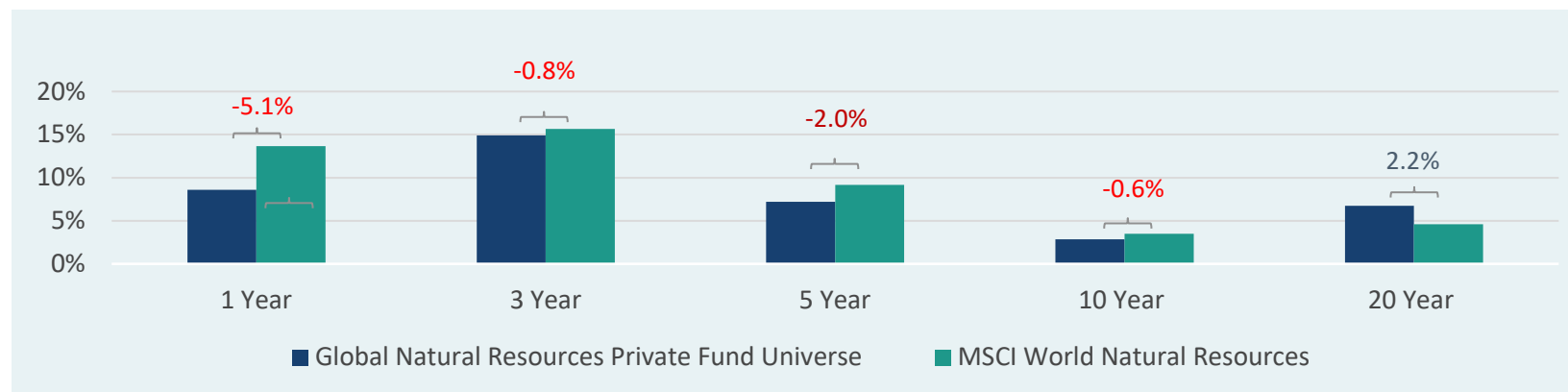


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 1-year.

Sources: FTSE PME: U.S. Direct Private Equity returns are as of June 30, 2024, whereas "Passive" strategies as of March 31, 2024. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

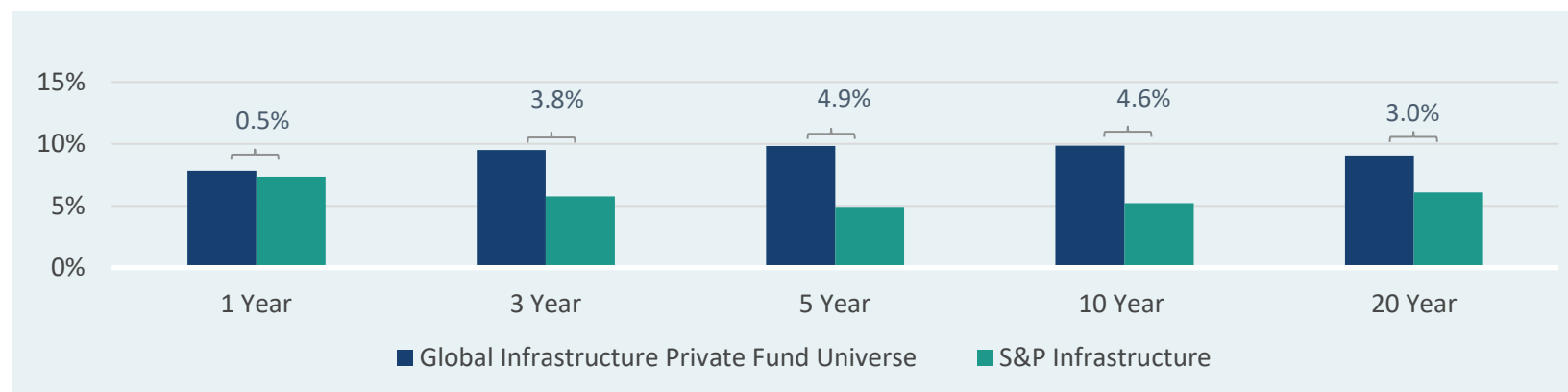
# Private vs. liquid real assets performance

## GLOBAL NATURAL RESOURCES FUNDS



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

## GLOBAL INFRASTRUCTURE FUNDS

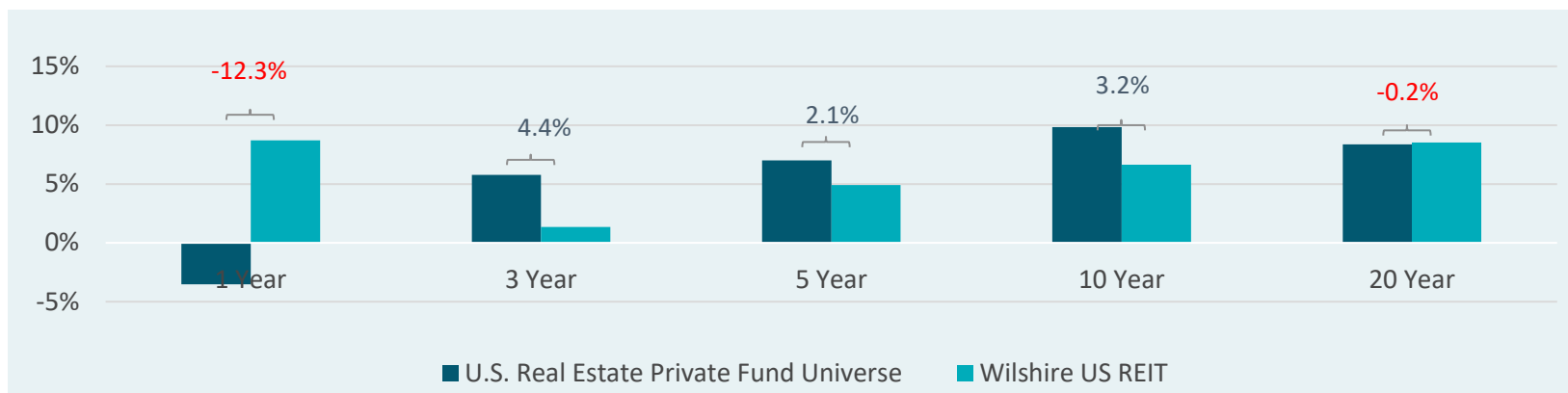


Infra. funds outperformed the S&P Infra. across all periods.

Sources: FTSE 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 June 30, 2024. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

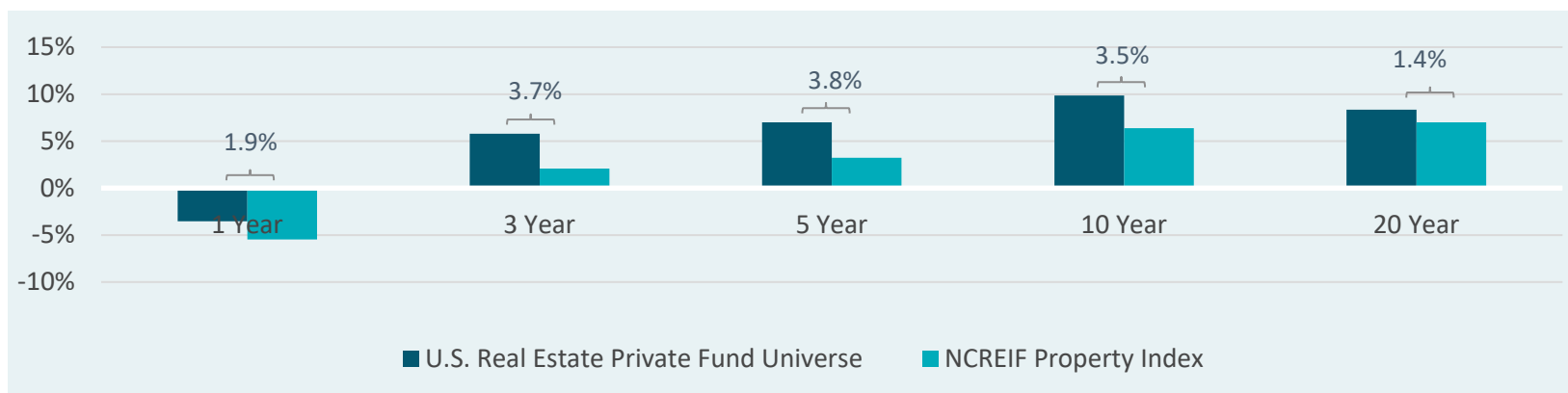
# Private vs. liquid and core real estate performance

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



U.S. Private R.E. funds performance vs. the Wilshire U.S. REIT Index has been mixed.

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



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods.

Sources: FTSE PME: U.S. Real Estate universes as of June 30, 2024. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	2.1	5.9	22.1	36.4	11.9	16.0	13.4
S&P 500 Equal Weighted	2.3	9.6	15.2	28.8	8.2	12.8	11.1
DJ Industrial Average	2.0	8.7	13.9	28.8	10.0	11.8	12.0
Russell Top 200	2.1	5.2	23.3	37.7	12.6	17.2	14.1
Russell 1000	2.1	6.1	21.2	35.7	10.8	15.6	13.1
Russell 2000	0.7	9.3	11.2	26.8	1.8	9.4	8.8
Russell 3000	2.1	6.2	20.6	35.2	10.3	15.3	12.8
Russell Mid Cap	2.2	9.2	14.6	29.3	5.8	11.3	10.2
<b>Style Index</b>							
Russell 1000 Growth	2.8	3.2	24.5	42.2	12.0	19.7	16.5
Russell 1000 Value	1.4	9.4	16.7	27.8	9.0	10.7	9.2
Russell 2000 Growth	1.3	8.4	13.2	27.7	(0.4)	8.8	8.9
Russell 2000 Value	0.1	10.2	9.2	25.9	3.8	9.3	8.2

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI ACWI	2.3	6.6	18.7	31.8	8.1	12.2	9.4
MSCI ACWI ex US	2.7	8.1	14.2	25.4	4.1	7.6	5.2
MSCI EAFE	0.9	7.3	13.0	24.8	5.5	8.2	5.7
MSCI EM	6.7	8.7	16.9	26.1	0.4	5.7	4.0
MSCI EAFE Small Cap	2.6	10.5	11.1	23.5	(0.4)	6.4	6.2
<b>Style Index</b>							
MSCI EAFE Growth	0.4	5.7	12.3	26.5	1.9	7.7	6.6
MSCI EAFE Value	1.4	8.9	13.8	23.1	8.9	8.3	4.6
<b>Regional Index</b>							
MSCI UK	0.3	7.9	15.4	23.3	9.8	7.9	4.1
MSCI Japan	(0.6)	5.7	12.4	21.6	2.7	7.1	6.4
MSCI Euro	1.8	6.9	12.8	27.3	6.7	9.1	5.7
MSCI EM Asia	8.0	9.5	21.6	29.7	0.8	7.2	5.6
MSCI EM Latin American	0.1	3.7	(12.5)	2.8	7.2	2.1	0.6

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
Bloomberg US TIPS	1.5	4.1	4.9	9.8	(0.6)	2.6	2.5
Bloomberg US Treasury Bills	0.5	1.4	4.1	5.6	3.5	2.3	1.7
Bloomberg US Agg Bond	1.3	5.2	4.4	11.6	(1.4)	0.3	1.8
Bloomberg US Universal	1.4	5.2	4.9	12.1	(1.1)	0.7	2.2
<b>Duration</b>							
Bloomberg US Treasury 1-3 Yr	0.8	2.9	4.1	6.8	1.3	1.5	1.4
Bloomberg US Treasury Long	2.0	7.8	2.4	15.4	(8.4)	(4.3)	1.1
Bloomberg US Treasury	1.2	4.7	3.8	9.7	(1.8)	(0.2)	1.3
<b>Issuer</b>							
Bloomberg US MBS	1.2	5.5	4.5	12.3	(1.2)	0.0	1.4
Bloomberg US Corp. High Yield	1.6	5.3	8.0	15.7	3.1	4.7	5.0
Bloomberg US Agency Interm	0.9	3.1	4.2	7.5	0.5	1.1	1.5
Bloomberg US Credit	1.7	5.7	5.2	13.8	(1.1)	1.1	2.8

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	4.9	0.7	5.9	1.0	3.7	7.8	0.0
Wilshire US REIT	2.6	15.2	14.9	33.6	4.6	5.4	7.8
CS Leveraged Loans	0.7	2.1	6.6	9.7	6.3	5.6	4.9
S&P Global Infrastructure	3.8	13.4	18.0	30.9	9.6	6.9	6.3
Alerian MLP	(0.4)	0.7	20.0	23.6	25.3	12.5	1.6
<b>Regional Index</b>							
JPM EMBI Global Div	1.8	6.2	8.6	18.6	(0.4)	0.9	3.3
JPM GBI-EM Global Div	3.4	9.0	4.9	13.4	0.6	0.6	0.6
<b>Hedge Funds</b>							
HFRI Composite	0.3	1.3	6.2	10.7	3.4	7.0	4.9
HFRI FOF Composite	0.2	1.1	6.0	9.3	2.3	5.3	3.6
<b>Currency (Spot)</b>							
Euro	0.8	4.1	1.0	5.4	(1.3)	0.5	(1.2)
Pound Sterling	2.1	6.1	5.2	9.9	(0.2)	1.7	(1.9)
Yen	1.8	12.5	(1.4)	4.3	(8.0)	(5.5)	(2.6)

Source: Morningstar, HFRI, as of 9/30/24

# Definitions

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

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

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

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

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# Contra Costa County Employees Retirement Association

Investment Performance Review  
Period Ending: September 30, 2024



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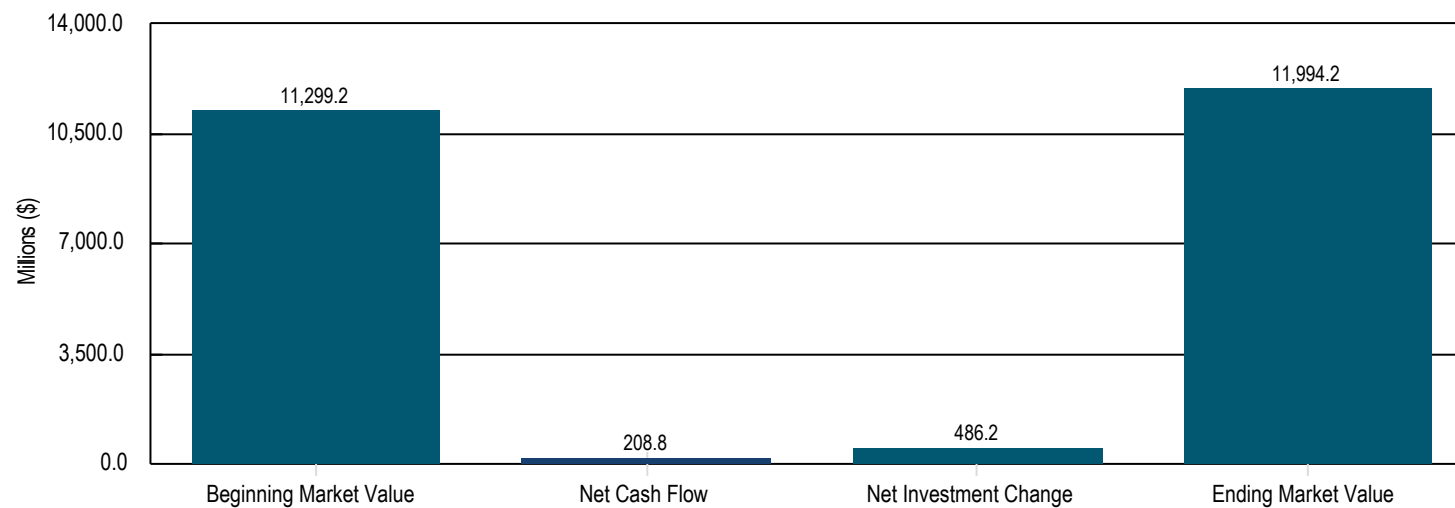
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Portfolio Reconciliation

	Last Three Months	YTD
Beginning Market Value	\$11,299,200,066	\$11,026,398,894
Net Cash Flow	\$208,808,666	-\$36,115,283
Net Investment Change	\$486,155,076	\$1,003,880,198
<b>Ending Market Value</b>	<b>\$11,994,163,809</b>	<b>\$11,994,163,809</b>

Change in Market Value  
Last Three Months

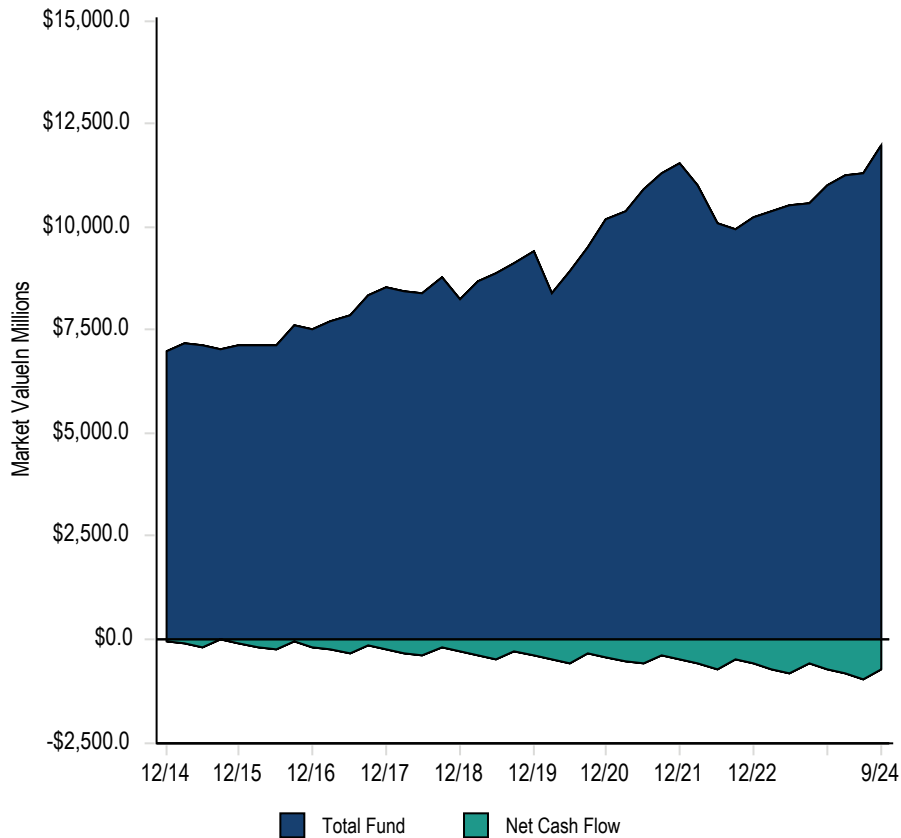


Contributions and withdrawals may include intra-account transfers between managers/funds.

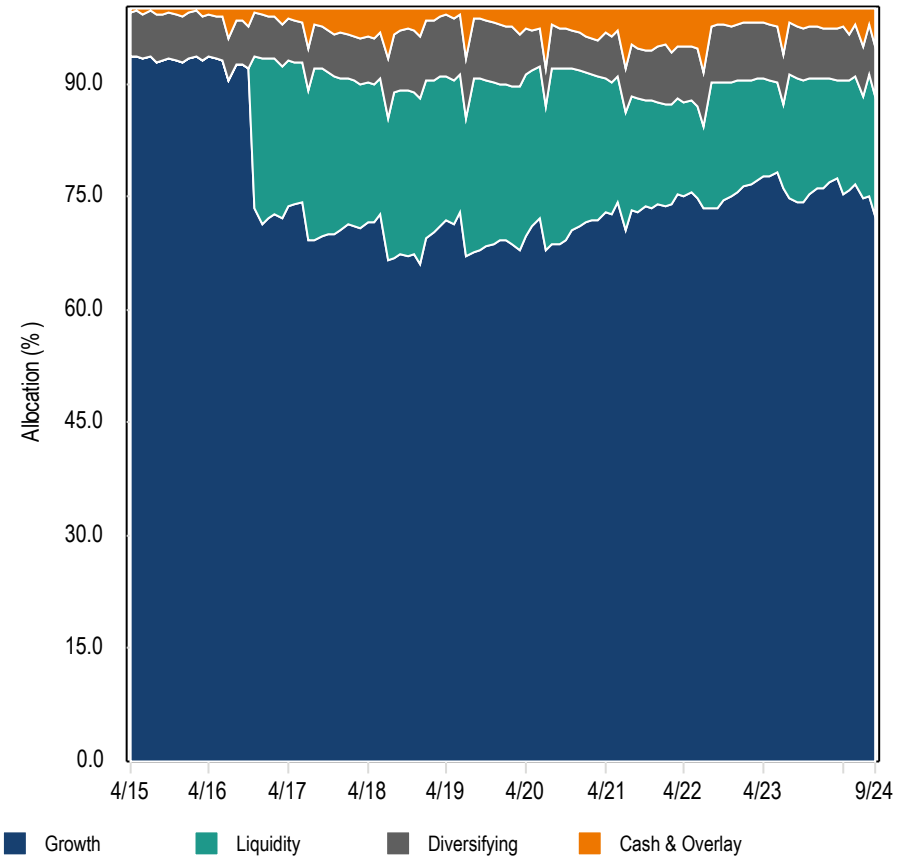
Total Fund  
Asset Allocation History

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Market Value History  
Cumulative Cash Flows

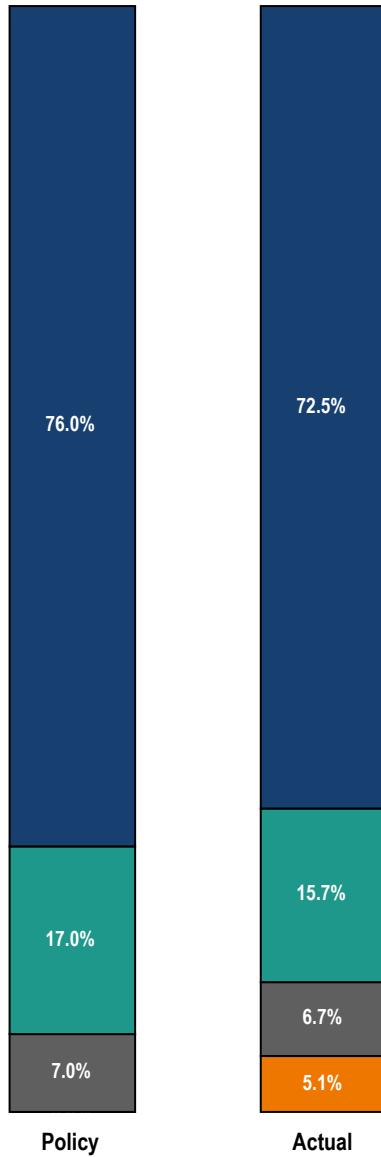


Asset Allocation History



Total Fund  
Asset Allocation vs. Policy Target

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024



**Allocation vs. Policy Target**

	Current Balance	Current Allocation	Policy Target	Difference
Growth	\$8,698,902,915	72.5	76.0	-\$416,661,580
Liquidity	\$1,881,293,350	15.7	17.0	-\$157,714,498
Diversifying	\$804,403,169	6.7	7.0	-\$35,188,298
Cash & Overlay	\$609,564,376	5.1	0.0	\$609,564,376
<b>Total</b>	<b>\$11,994,163,809</b>	<b>100.0</b>	<b>100.0</b>	

Policy Targets approved July 2023.

Total Fund  
Executive Summary (Net of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	% of Portfolio	QTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
<b>Total Fund</b>	<b>100.0</b>	<b>4.3</b>	<b>9.2</b>	<b>15.2</b>	<b>3.1</b>	<b>6.6</b>	<b>6.5</b>	<b>9.0</b>	<b>-10.6</b>	<b>13.9</b>	<b>9.2</b>	<b>14.6</b>
Policy Index		4.4	8.5	14.4	4.4	7.8	7.3	9.9	-8.4	15.3	10.8	14.6
Implementation Benchmark		4.4	8.5	14.4	3.8	6.9	6.6	9.0	-8.7	14.2	8.7	13.6
<b>Growth</b>	<b>72.5</b>	<b>4.8</b>	<b>10.7</b>	<b>17.7</b>	<b>3.9</b>	<b>8.7</b>	<b>8.2</b>	<b>10.1</b>	<b>-11.7</b>	<b>19.2</b>	<b>12.0</b>	<b>18.3</b>
Custom Growth Benchmark		4.4	9.9	16.6	5.1	10.0	9.1	11.2	-10.3	21.6	13.8	19.3
<b>Diversifying</b>	<b>6.7</b>	<b>2.1</b>	<b>2.1</b>	<b>4.4</b>	<b>-0.7</b>	<b>-0.2</b>	<b>0.3</b>	<b>2.2</b>	<b>-5.7</b>	<b>1.7</b>	<b>-1.7</b>	<b>6.8</b>
Custom Diversifying Benchmark		4.6	5.8	11.9	2.5	2.8	3.3	7.4	-5.7	1.6	4.7	6.1
<b>Liquidity</b>	<b>15.7</b>	<b>2.7</b>	<b>4.8</b>	<b>8.0</b>	<b>2.0</b>	<b>2.0</b>	<b>-</b>	<b>5.4</b>	<b>-3.5</b>	<b>-0.3</b>	<b>3.4</b>	<b>4.8</b>
Bloomberg U.S. Gov/Credit 1-3 Year Index		3.0	4.4	7.2	1.5	1.7	-	4.6	-3.7	-0.5	3.3	4.0

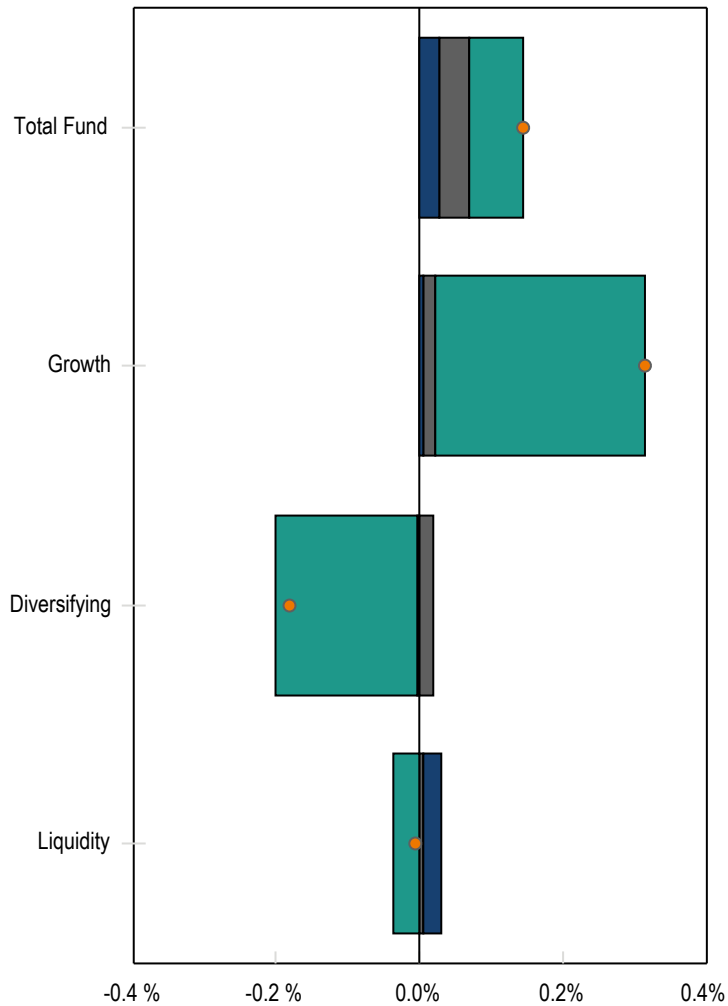
\*Correlation between the Growth and Diversifying composites is .81, .60, and .66 over the previous 1, 3, and 5 year periods respectively.

As of 1/1/2024, the Policy Index matches the Implementation Benchmark. The Implementation Benchmark weights can be found in the Data Sources and Methodology pages.

Total Fund  
 Attribution Analysis - Asset Class Level (Net of Fees)

Contra Costa County Employees' Retirement Association  
 Period Ending: September 30, 2024

Attribution Effects  
 3 Months Ending September 30, 2024



Selection Effect Allocation Effect  
 Interaction Effect Total Effects

Performance Attribution

	3 Mo
Wtd. Actual Return	4.30
Wtd. Index Return	4.40
<b>Excess Return</b>	<b>-0.10</b>
Selection Effect	-0.08
Allocation Effect	-0.02
Interaction Effect	0.00

Attribution Summary  
 Last 3 Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Growth	4.8	4.7	0.1	-0.1	0.0	0.0	0.1
Diversifying	2.1	4.6	-2.5	-0.2	0.0	0.0	-0.2
Custom Diversifying Benchmark - Liquidity	0.0	3.1	-3.1	0.0	0.2	0.0	0.2
<b>Total Fund</b>	<b>4.3</b>	<b>4.4</b>	<b>-0.1</b>	<b>-0.3</b>	<b>0.3</b>	<b>0.0</b>	<b>-0.1</b>

Performance attribution calculated from benchmark returns and weightings of each component.

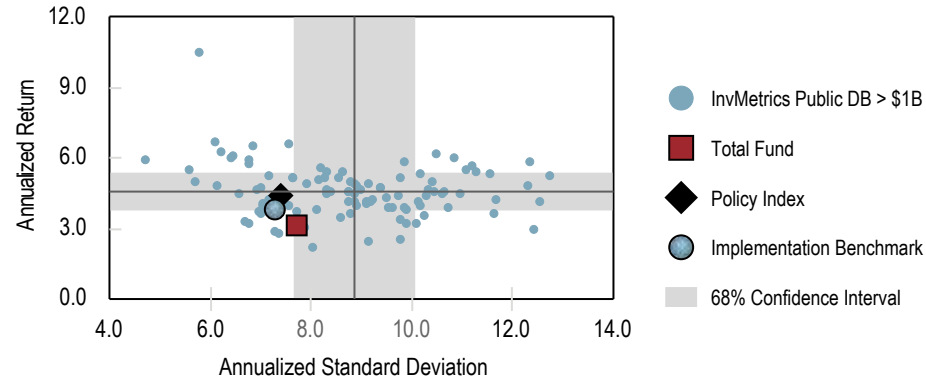
Total Fund  
Executive Summary (Net of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

3 Years

	Anlzd Return	Ann Excess Performance	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
Total Fund	3.13	-0.72	7.73	-0.87	1.05	1.10	0.98	-0.01	-0.61	100.08	113.99

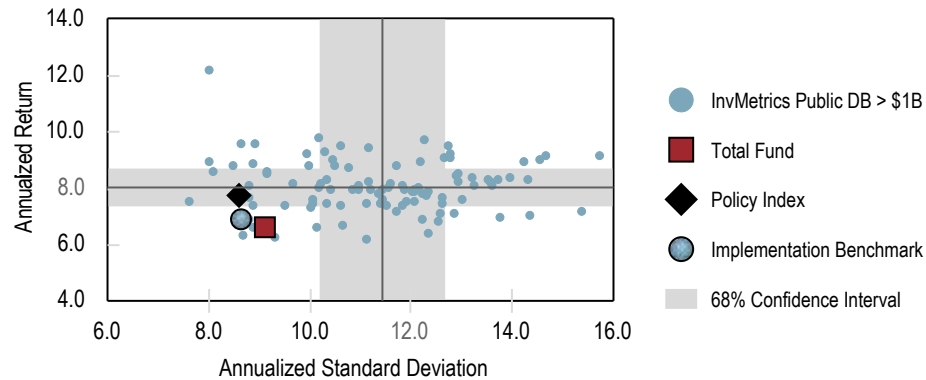
Risk vs. Return



5 Years

	Anlzd Return	Ann Excess Performance	Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
Total Fund	6.63	-0.28	9.12	-0.58	1.05	1.11	0.99	0.50	-0.20	102.31	110.45

Risk vs. Return



Total Fund  
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Total Fund</b>	<b>11,994,163,809</b>	<b>100.0</b>	<b>4.4</b>	<b>9.4</b>	<b>15.5</b>	<b>3.4</b>	<b>6.9</b>	<b>6.8</b>	<b>9.2</b>	<b>-10.4</b>	<b>14.2</b>	<b>9.5</b>	<b>14.9</b>		
Policy Index			4.4	8.5	14.4	4.4	7.8	7.3	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			4.4	8.5	14.4	3.8	6.9	6.6	9.0	-8.7	14.2	8.7	13.6		
InvMetrics Public DB > \$1B Rank			61	64	70	87	89	64	85	51	65	81	87		
<b>Total Fund ex Overlay &amp; Cash</b>	<b>11,384,599,433</b>	<b>94.9</b>	<b>4.3</b>	<b>9.4</b>	<b>15.5</b>	<b>3.5</b>	<b>7.1</b>	<b>7.0</b>	<b>9.1</b>	<b>-9.9</b>	<b>14.6</b>	<b>9.7</b>	<b>14.7</b>		
Policy Index			4.4	8.5	14.4	4.4	7.8	7.3	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			4.4	8.5	14.4	3.8	6.9	6.6	9.0	-8.7	14.2	8.7	13.6		
InvMetrics Public DB > \$1B Rank			62	64	70	86	85	61	86	45	61	76	88		
<b>Growth</b>	<b>8,698,902,915</b>	<b>72.5</b>	<b>4.8</b>	<b>10.9</b>	<b>18.0</b>	<b>4.1</b>	<b>9.0</b>	<b>8.5</b>	<b>10.3</b>	<b>-11.4</b>	<b>19.6</b>	<b>12.4</b>	<b>18.7</b>		
Custom Growth Benchmark			4.4	9.9	16.6	5.1	10.0	9.1	11.2	-10.3	21.6	13.8	19.3		
<b>Total Domestic Equity</b>	<b>2,167,371,124</b>	<b>18.1</b>	<b>6.4</b>	<b>18.9</b>	<b>32.6</b>	<b>7.9</b>	<b>13.3</b>	<b>11.9</b>	<b>21.6</b>	<b>-18.3</b>	<b>20.6</b>	<b>22.2</b>	<b>26.7</b>		
Russell 3000 Index			6.2	20.6	35.2	10.3	15.3	12.8	26.0	-19.2	25.7	20.9	31.0		
InvMetrics Public DB US Equity Rank			56	44	59	78	79	75	77	52	98	15	99		
BlackRock Russell 1000 Index	1,259,173,538	10.5	6.1	21.2	35.7	10.8	15.7	-	26.6	-19.1	26.5	21.0	31.4	14.3	May-17
Russell 1000 Index			6.1	21.2	35.7	10.8	15.6	-	26.5	-19.1	26.5	21.0	31.4	14.3	
eV US Large Cap Equity Rank			52	36	37	46	37	-	34	69	56	35	40		
Boston Partners	452,859,069	3.8	6.1	17.3	27.8	12.3	13.6	10.8	14.7	-3.8	31.3	3.0	24.3	11.0	Jun-95
Russell 1000 Value Index			9.4	16.7	27.8	9.0	10.7	9.2	11.5	-7.5	25.2	2.8	26.5	9.5	
eV US Large Cap Value Equity Rank			84	43	55	20	30	40	39	36	19	64	79		
Emerald Advisers	237,270,219	2.0	6.3	16.3	33.6	2.0	11.5	11.6	19.2	-23.8	5.5	39.0	30.3	12.7	Apr-03
Russell 2000 Growth Index			8.4	13.2	27.7	-0.4	8.8	8.9	18.7	-26.4	2.8	34.6	28.5	10.5	
eV US Small Cap Growth Equity Rank			78	29	17	32	42	46	41	27	77	57	48		
Ceredex	218,068,297	1.8	9.0	12.3	24.2	8.6	10.0	9.6	16.0	-8.5	28.4	2.3	18.4	10.8	Nov-11
Russell 2000 Value Index			10.2	9.2	25.9	3.8	9.3	8.2	14.6	-14.5	28.3	4.6	22.4	9.9	
eV US Small Cap Value Equity Rank			39	34	61	36	76	51	62	28	59	70	88		

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

Total Fund  
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Total International Equity</b>	<b>1,487,310,889</b>	<b>12.4</b>	<b>7.3</b>	<b>14.1</b>	<b>25.8</b>	<b>2.6</b>	<b>8.4</b>	<b>5.9</b>	<b>15.4</b>	<b>-18.2</b>	<b>8.3</b>	<b>15.8</b>	<b>23.7</b>		
MSCI AC World ex USA Index			8.2	14.7	26.0	4.7	8.1	5.7	16.2	-15.6	8.3	11.1	22.1		
MSCI EAFE Index			7.3	13.5	25.4	6.0	8.7	6.2	18.9	-14.0	11.8	8.3	22.7		
InvMetrics Public DB Global ex-US Equity Rank			54	26	27	75	37	53	80	63	54	27	41		
<b>International Equity</b>	<b>922,932,486</b>	<b>7.7</b>	<b>8.3</b>	<b>12.3</b>	<b>24.8</b>	<b>2.7</b>	<b>8.6</b>	<b>6.5</b>	<b>15.6</b>	<b>-18.1</b>	<b>9.0</b>	<b>19.0</b>	<b>27.0</b>	<b>6.8</b>	<b>Oct-10</b>
MSCI AC World ex USA Index			8.2	14.7	26.0	4.7	8.1	5.7	16.2	-15.6	8.3	11.1	22.1	5.6	
InvMetrics Public DB Global ex-US Equity Rank			8	77	41	75	29	34	77	59	43	15	19		
Pyrford	474,014,109	4.0	11.7	14.2	24.0	7.8	8.3	5.9	15.2	-7.0	7.6	4.7	22.1	5.6	May-14
MSCI AC World ex USA Value			9.3	14.4	24.0	7.5	7.8	4.3	17.3	-8.6	10.5	-0.8	15.7	3.9	
eV ACWI ex-US Value Equity Rank			3	45	44	42	71	51	83	22	84	47	38		
William Blair	448,918,377	3.7	4.9	10.2	25.6	-2.1	8.6	6.8	16.2	-27.7	10.5	33.3	32.0	7.0	Nov-10
MSCI AC World ex USA Growth			6.9	14.1	26.7	0.8	7.1	6.0	14.0	-23.1	5.1	22.2	27.3	5.7	
eV ACWI ex-US Growth Equity Rank			72	63	53	68	48	82	59	57	41	35	37		
<b>Emerging Markets Equity</b>	<b>564,378,403</b>	<b>4.7</b>	<b>5.3</b>	<b>17.6</b>	<b>27.8</b>	<b>2.7</b>	<b>8.1</b>	<b>-</b>	<b>14.4</b>	<b>-18.4</b>	<b>7.6</b>	<b>11.4</b>	<b>19.4</b>	<b>6.2</b>	<b>Feb-17</b>
MSCI Emerging Markets			8.7	16.9	26.1	0.4	5.7	-	9.8	-20.1	-2.5	18.3	18.4	5.5	
InvMetrics Public DB Emerging Markets Equity Rank			64	3	13	35	23	-	60	36	20	76	26		
PIMCO RAE Emerging Markets	291,269,074	2.4	6.4	17.3	27.7	9.4	11.6	-	23.1	-9.7	17.1	2.1	14.6	8.3	Mar-17
MSCI Emerging Markets Value			8.1	15.1	24.4	3.3	5.9	-	14.2	-15.8	4.0	5.5	12.0	4.9	
eV Emg Mkts All Cap Value Equity Rank			74	30	25	7	5	-	11	33	8	85	78		
TT Emerging Markets	273,109,329	2.3	4.1	17.9	28.0	-3.7	4.7	-	5.8	-26.4	-0.2	20.8	24.8	3.3	Aug-17
MSCI Emerging Markets			8.7	16.9	26.1	0.4	5.7	-	9.8	-20.1	-2.5	18.3	18.4	3.8	
eV Emg Mkts Equity Rank			87	28	26	92	86	-	91	90	59	39	23		
<b>Total Global Equity</b>	<b>1,328,060,493</b>	<b>11.1</b>	<b>7.1</b>	<b>18.5</b>	<b>30.7</b>	<b>6.1</b>	<b>11.9</b>	<b>10.3</b>	<b>19.0</b>	<b>-18.8</b>	<b>14.1</b>	<b>25.3</b>	<b>28.9</b>	<b>-</b>	<b>Dec-03</b>
MSCI AC World Index			6.6	18.7	31.8	8.1	12.2	9.4	22.2	-18.4	18.5	16.3	26.6	8.2	
InvMetrics Public DB Global Equity Rank			25	17	25	67	42	1	67	61	51	1	9		
Artisan Partners	661,459,866	5.5	4.4	17.9	33.5	2.7	13.1	12.5	24.5	-29.6	15.0	41.7	37.0	12.9	Oct-12
MSCI ACWI Growth NR USD			4.1	21.0	36.5	7.2	14.7	11.8	33.2	-28.6	17.1	33.6	32.7	12.2	
eV Global Growth Equity Rank			63	29	27	52	31	20	38	60	56	33	12		
First Eagle	666,600,627	5.6	10.0	18.8	27.7	9.9	10.4	8.5	13.7	-5.6	13.0	8.5	21.0	8.9	Jan-11
MSCI ACWI Value NR USD			9.4	16.2	26.9	8.5	9.0	6.7	11.8	-7.5	19.6	-0.3	20.6	7.2	
eV Global Value Equity Rank			20	7	22	18	42	23	66	22	86	33	64		

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



Total Fund  
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Private Credit</b>	<b>1,202,554,142</b>	<b>10.0</b>	<b>3.1</b>	<b>8.9</b>	<b>10.7</b>	<b>10.5</b>	<b>8.8</b>	<b>9.3</b>	<b>9.1</b>	<b>10.5</b>	<b>10.0</b>	<b>4.0</b>	<b>7.7</b>		
<b>Total High Yield</b>	<b>168,307,571</b>	<b>1.4</b>	<b>3.9</b>	<b>7.0</b>	<b>14.2</b>	<b>2.7</b>	<b>4.1</b>	<b>4.4</b>	<b>12.4</b>	<b>-10.6</b>	<b>5.3</b>	<b>5.2</b>	<b>15.3</b>		
ICE BofA U.S. High Yield Index			5.3	8.0	15.7	3.1	4.5	5.0	13.5	-11.2	5.4	6.2	14.4		
eV US High Yield Fixed Inc Rank			77	75	71	85	88	88	62	74	54	73	36		
Voya Global Investors	168,307,571	1.4	3.9	7.0	14.2	2.7	4.1	4.4	12.4	-10.6	5.3	5.2	15.3	6.4	May-00
ICE BofA U.S. High Yield Index			5.3	8.0	15.7	3.1	4.5	5.0	13.5	-11.2	5.4	6.2	14.4	6.6	
eV US High Yield Fixed Inc Rank			77	75	71	85	88	88	62	74	54	73	36		
<b>Total Real Estate</b>	<b>813,639,415</b>	<b>6.8</b>	<b>1.7</b>	<b>-6.3</b>	<b>-7.5</b>	<b>-5.5</b>	<b>-2.1</b>	<b>3.8</b>	<b>-10.6</b>	<b>-5.2</b>	<b>19.2</b>	<b>-5.9</b>	<b>8.1</b>		
Real Estate Benchmark			0.0	-8.4	-10.6	-6.0	-1.2	3.6	-11.3	-4.5	19.3	0.6	7.5		
NCREIF-ODCE			0.2	-2.6	-7.3	-0.2	2.9	6.1	-12.0	7.5	22.2	1.2	5.3		
NCREIF Property Index			0.8	-0.5	-3.5	0.9	3.3	5.9	-7.9	5.5	17.7	1.6	6.4		
<b>Total Core Real Estate</b>	<b>246,094,972</b>	<b>2.1</b>	<b>15.9</b>	<b>15.0</b>	<b>33.7</b>	<b>4.4</b>	<b>6.5</b>	<b>8.5</b>	<b>12.8</b>	<b>-24.8</b>	<b>48.3</b>	<b>-4.6</b>	<b>28.2</b>		
Adelante	112,810,672	0.9	15.4	15.8	33.6	5.1	6.9	8.8	17.2	-26.7	48.3	-4.6	28.2	10.0	Oct-01
Wilshire U.S. REIT Index			15.2	14.9	33.6	4.6	5.4	7.8	16.2	-26.8	46.2	-7.9	25.8	9.5	
Invesco US Fundamental Beta	133,284,299	1.1	16.4	14.3	33.7	-	-	-	9.4	-	-	-	-	2.4	Mar-22
Wilshire U.S. REIT Index			15.2	14.9	33.6	-	-	-	16.2	-	-	-	-	3.3	
<b>Total Private Real Estate</b>	<b>567,544,444</b>	<b>4.7</b>	<b>-3.6</b>	<b>-13.6</b>	<b>-19.5</b>	<b>-8.9</b>	<b>-4.6</b>	<b>2.5</b>	<b>-17.6</b>	<b>1.3</b>	<b>15.3</b>	<b>-6.1</b>	<b>6.2</b>		
<b>Private Equity</b>	<b>1,303,773,874</b>	<b>10.9</b>	<b>0.7</b>	<b>1.7</b>	<b>2.2</b>	<b>2.5</b>	<b>12.4</b>	<b>11.4</b>	<b>-1.0</b>	<b>-0.5</b>	<b>60.4</b>	<b>8.7</b>	<b>8.4</b>		
<b>Risk Parity</b>	<b>227,885,407</b>	<b>1.9</b>	<b>6.3</b>	<b>9.8</b>	<b>17.1</b>	<b>-2.4</b>	<b>2.1</b>	<b>-</b>	<b>4.9</b>	<b>-21.5</b>	<b>9.7</b>	<b>10.0</b>	<b>18.1</b>		
60% MSCI ACWI Net/40% Blmbg. Global Aggregate			6.8	12.5	23.6	3.6	7.0	-	15.4	-17.3	8.8	14.0	18.6		
AQR Global Risk Premium-EL	49,989,010	0.4	6.3	10.3	17.5	0.6	3.8	-	7.0	-16.3	10.7	6.2	18.7	5.7	Jan-19
HFR Risk Parity Vol 10 Index			5.4	10.1	20.5	0.7	2.4	-	10.5	-18.3	6.8	3.6	18.4	4.7	
PanAgora Risk Parity Multi Asset	177,896,397	1.5	6.3	9.4	16.7	-5.2	0.6	-	2.8	-26.1	8.7	14.0	-	2.8	Mar-19
HFR Risk Parity Vol 10 Index			5.4	10.1	20.5	0.7	2.4	-	10.5	-18.3	6.8	3.6	-	3.7	

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

Total Fund  
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Diversifying</b>	<b>804,403,169</b>	<b>6.7</b>	<b>2.1</b>	<b>2.3</b>	<b>4.7</b>	<b>-0.3</b>	<b>0.1</b>	<b>0.6</b>	<b>2.6</b>	<b>-5.4</b>	<b>2.0</b>	<b>-1.3</b>	<b>7.1</b>		
Custom Diversifying Benchmark			4.6	5.8	11.9	2.5	2.8	3.3	7.4	-5.7	1.6	4.7	6.1		
<b>Diversifying Fixed Income</b>	<b>228,544,167</b>	<b>1.9</b>	<b>5.0</b>	<b>5.4</b>	<b>12.7</b>	<b>-1.2</b>	<b>-0.4</b>	<b>1.3</b>	<b>5.5</b>	<b>-13.3</b>	<b>-0.7</b>	<b>1.6</b>	<b>8.6</b>		
Blmbg. U.S. Aggregate Index			5.2	4.4	11.6	-1.4	0.3	1.8	5.5	-13.0	-1.5	7.5	8.7		
eV US Core Fixed Inc Rank			80	18	22	80	100	100	84	75	32	100	79		
AFL-CIO	228,497,091	1.9	5.0	5.4	12.7	-1.2	0.4	2.0	5.5	-13.3	-0.7	6.6	8.2	5.3	Jul-91
Blmbg. U.S. Aggregate Index			5.2	4.4	11.6	-1.4	0.3	1.8	5.5	-13.0	-1.5	7.5	8.7	5.0	
eV US Core Fixed Inc Rank			80	18	21	81	94	91	86	75	32	94	86		
<b>Diversifying Multi-Asset</b>	<b>575,859,002</b>	<b>4.8</b>	<b>1.1</b>	<b>1.1</b>	<b>1.7</b>	<b>-0.1</b>	<b>-</b>	<b>-</b>	<b>1.4</b>	<b>-1.9</b>	<b>2.8</b>	<b>-</b>	<b>-</b>		
Custom Diversifying Multi-Asset Benchmark			4.0	6.7	11.9	4.2	-	-	8.7	-3.1	4.1	-	-		
Sit LLCAR	388,147,756	3.2	4.1	6.2	11.3	3.0	-	-	6.9	-3.3	-	-	-	4.0	Apr-21
Blmbg. U.S. Aggregate Index +1%			5.5	5.2	12.7	-0.4	-	-	6.6	-12.1	-	-	-	0.3	
BH-DG Systematic	187,711,246	1.6	-4.7	-	-	-	-	-	-	-	-	-	-	-7.6	Apr-24
SG Trend Index			-5.4	-	-	-	-	-	-	-	-	-	-	-9.4	
<b>Liquidity</b>	<b>1,881,293,350</b>	<b>15.7</b>	<b>2.8</b>	<b>4.9</b>	<b>8.1</b>	<b>2.1</b>	<b>2.1</b>	<b>-</b>	<b>5.5</b>	<b>-3.4</b>	<b>-0.2</b>	<b>3.5</b>	<b>4.9</b>		
Blmbg. 1-3 Year Gov/Credit Index			3.0	4.4	7.2	1.5	1.7	-	4.6	-3.7	-0.5	3.3	4.0		
eV US Short Duration Fixed Inc Rank			80	47	51	44	58	-	43	49	47	74	39		
DFA Short Credit	424,432,380	3.5	1.6	4.5	6.5	1.2	1.5	-	5.4	-5.3	-0.4	2.9	5.2	1.9	Dec-16
ICE BofA 1-5 Year U.S. Corp/Govt Index			3.5	4.6	8.1	1.0	1.6	-	4.9	-5.5	-0.9	4.6	5.1	1.9	
eV US Short Duration Fixed Inc Rank			99	77	96	90	96	-	46	90	68	89	27		
Insight Short Duration	707,127,703	5.9	2.5	4.8	7.3	3.0	2.7	-	5.7	-1.1	0.1	3.2	4.7	2.6	Dec-16
Bloomberg U.S. Gov/Credit 1-3 Year Index			3.0	4.4	7.2	1.5	1.7	-	4.6	-3.7	-0.5	3.3	4.0	1.8	
eV US Short Duration Fixed Inc Rank			87	52	81	10	22	-	32	6	33	84	48		
Sit Short Duration	749,733,267	6.3	3.6	5.2	9.7	1.6	1.9	-	5.4	-4.8	-0.3	4.6	4.9	2.3	Dec-16
Blmbg. 1-3 Year Govt Index			2.9	4.1	6.8	1.3	1.5	-	4.3	-3.8	-0.6	3.1	3.6	1.6	
eV US Short Duration Fixed Inc Rank			7	31	13	75	73	-	50	79	59	31	40		
<b>Total Cash</b>	<b>463,767,961</b>	<b>3.9</b>	<b>1.5</b>	<b>4.3</b>	<b>5.7</b>	<b>4.1</b>	<b>2.9</b>	<b>2.1</b>	<b>5.5</b>	<b>2.4</b>	<b>0.4</b>	<b>1.3</b>	<b>3.3</b>		
90 Day U.S. Treasury Bill			1.4	4.0	5.5	3.5	2.3	1.6	5.0	1.5	0.0	0.7	2.3		
Cash	463,763,278	3.9	1.5	4.3	5.7	4.2	3.0	2.1	6.1	2.2	0.4	1.3	3.4	17.1	Apr-98
Northern Trust Transition	4,684	0.0	1.5	7.3	8.8	-80.2	-56.7	-	-99.2	-4.8	-6.1	104.1	-		

Individual closed end funds are not shown in performance summary table. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. Wellington Real Total Return was liquidated 4/30/2020. BH-DG Systematic funded on 4/19/2024. Acadian Multi-Asset Absolute Return Fund liquidated on 5/15/2024. \$47,075.25 in residual value is reflected in the Diversifying Fixed Income composite.

Total Fund  
Performance Summary (Net of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Total Fund</b>	<b>11,994,163,809</b>	<b>100.0</b>	<b>4.3</b>	<b>9.2</b>	<b>15.2</b>	<b>3.1</b>	<b>6.6</b>	<b>6.5</b>	<b>9.0</b>	<b>-10.6</b>	<b>13.9</b>	<b>9.2</b>	<b>14.6</b>		
Policy Index			4.4	8.5	14.4	4.4	7.8	7.3	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			4.4	8.5	14.4	3.8	6.9	6.6	9.0	-8.7	14.2	8.7	13.6		
<b>Total Fund ex Overlay &amp; Cash</b>	<b>11,384,599,433</b>	<b>94.9</b>	<b>4.3</b>	<b>9.2</b>	<b>15.2</b>	<b>3.3</b>	<b>6.8</b>	<b>6.6</b>	<b>8.9</b>	<b>-10.1</b>	<b>14.3</b>	<b>9.4</b>	<b>14.3</b>		
Policy Index			4.4	8.5	14.4	4.4	7.8	7.3	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			4.4	8.5	14.4	3.8	6.9	6.6	9.0	-8.7	14.2	8.7	13.6		
<b>Growth</b>	<b>8,698,902,915</b>	<b>72.5</b>	<b>4.8</b>	<b>10.7</b>	<b>17.7</b>	<b>3.9</b>	<b>8.7</b>	<b>8.2</b>	<b>10.1</b>	<b>-11.7</b>	<b>19.2</b>	<b>12.0</b>	<b>18.3</b>		
Custom Growth Benchmark			4.4	9.9	16.6	5.1	10.0	9.1	11.2	-10.3	21.6	13.8	19.3		
<b>Total Domestic Equity</b>	<b>2,167,371,124</b>	<b>18.1</b>	<b>6.3</b>	<b>18.7</b>	<b>32.3</b>	<b>7.7</b>	<b>13.0</b>	<b>11.5</b>	<b>21.4</b>	<b>-18.5</b>	<b>20.2</b>	<b>21.8</b>	<b>26.1</b>		
Russell 3000 Index			6.2	20.6	35.2	10.3	15.3	12.8	26.0	-19.2	25.7	20.9	31.0	12.0	
BlackRock Russell 1000 Index	1,259,173,538	10.5	6.1	21.2	35.7	10.8	15.6	-	26.6	-19.1	26.5	20.9	31.4	14.3	May-17
Russell 1000 Index			6.1	21.2	35.7	10.8	15.6	-	26.5	-19.1	26.5	21.0	31.4	14.3	
Boston Partners	452,859,069	3.8	6.0	17.0	27.4	12.0	13.2	10.4	14.3	-4.1	31.0	2.6	23.8	10.9	Jun-95
Russell 1000 Value Index			9.4	16.7	27.8	9.0	10.7	9.2	11.5	-7.5	25.2	2.8	26.5	9.5	
Emerald Advisers	237,270,219	2.0	6.2	15.8	32.7	1.4	10.8	10.9	18.6	-24.2	4.9	38.2	29.4	12.4	Apr-03
Russell 2000 Growth Index			8.4	13.2	27.7	-0.4	8.8	8.9	18.7	-26.4	2.8	34.6	28.5	10.4	
Ceredex	218,068,297	1.8	8.9	11.8	23.4	8.0	9.4	9.0	15.5	-9.0	27.7	1.7	17.7	10.2	Nov-11
Russell 2000 Value Index			10.2	9.2	25.9	3.8	9.3	8.2	14.6	-14.5	28.3	4.6	22.4	9.9	
<b>Total International Equity</b>	<b>1,487,310,889</b>	<b>12.4</b>	<b>7.2</b>	<b>13.9</b>	<b>25.6</b>	<b>2.3</b>	<b>8.0</b>	<b>5.4</b>	<b>15.1</b>	<b>-18.6</b>	<b>7.8</b>	<b>15.2</b>	<b>23.2</b>		
MSCI AC World ex USA Index			8.2	14.7	26.0	4.7	8.1	5.7	16.2	-15.6	8.3	11.1	22.1		
MSCI EAFE Index			7.3	13.5	25.4	6.0	8.7	6.2	18.9	-14.0	11.8	8.3	22.7		
<b>International Equity</b>	<b>922,932,486</b>	<b>7.7</b>	<b>8.3</b>	<b>12.1</b>	<b>24.4</b>	<b>2.4</b>	<b>8.2</b>	<b>6.0</b>	<b>15.2</b>	<b>-18.4</b>	<b>8.6</b>	<b>18.5</b>	<b>26.5</b>		
MSCI AC World ex USA Index			8.2	14.7	26.0	4.7	8.1	5.7	16.2	-15.6	8.3	11.1	22.1		
Pyrford	474,014,109	4.0	11.7	14.0	23.6	7.4	7.9	5.5	14.7	-7.4	7.1	4.2	21.6	5.2	May-14
MSCI AC World ex USA Value			9.3	14.4	24.0	7.5	7.8	4.3	17.3	-8.6	10.5	-0.8	15.7	3.9	
William Blair	448,918,377	3.7	4.8	10.0	25.3	-2.4	8.2	6.4	15.8	-28.0	10.1	32.8	31.5	6.7	Nov-10
MSCI AC World ex USA Growth			6.9	14.1	26.7	0.8	7.1	6.0	14.0	-23.1	5.1	22.2	27.3	5.7	
<b>Emerging Markets Equity</b>	<b>564,378,403</b>	<b>4.7</b>	<b>5.3</b>	<b>17.6</b>	<b>27.8</b>	<b>2.4</b>	<b>7.7</b>	<b>-</b>	<b>14.4</b>	<b>-18.9</b>	<b>7.0</b>	<b>10.7</b>	<b>18.7</b>		
MSCI Emerging Markets			8.7	16.9	26.1	0.4	5.7	-	9.8	-20.1	-2.5	18.3	18.4		
PIMCO RAE Emerging Markets	291,269,074	2.4	6.4	17.3	27.7	9.2	11.2	-	23.0	-10.1	16.5	1.6	14.0	7.9	Mar-17
MSCI Emerging Markets Value			8.1	15.1	24.4	3.3	5.9	-	14.2	-15.8	4.0	5.5	12.0	4.9	
TT Emerging Markets	273,109,329	2.3	4.1	17.9	28.0	-4.0	4.3	-	5.8	-26.8	-0.9	20.0	24.0	2.8	Aug-17
MSCI Emerging Markets			8.7	16.9	26.1	0.4	5.7	-	9.8	-20.1	-2.5	18.3	18.4	3.8	

Individual closed end funds are not shown in performance summary table. Jackson Square has a residual market value of \$83,514.15.

Total Fund  
Performance Summary (Net of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Total Global Equity</b>	<b>1,328,060,493</b>	<b>11.1</b>	<b>6.9</b>	<b>17.8</b>	<b>29.7</b>	<b>5.3</b>	<b>11.1</b>	<b>9.5</b>	<b>18.2</b>	<b>-19.4</b>	<b>13.2</b>	<b>24.4</b>	<b>27.9</b>		
MSCI AC World Index			6.6	18.7	31.8	8.1	12.2	9.4	22.2	-18.4	18.5	16.3	26.6		
Artisan Partners	661,459,866	5.5	4.2	17.3	32.5	2.0	12.2	11.6	23.6	-30.1	14.1	40.6	36.0	12.1	Oct-12
MSCI ACWI Growth NR USD			4.1	21.0	36.5	7.2	14.7	11.8	33.2	-28.6	17.1	33.6	32.7	12.2	
First Eagle	666,600,627	5.6	9.8	18.2	26.7	9.1	9.6	7.7	12.9	-6.3	12.1	7.7	20.1	8.1	Jan-11
MSCI ACWI Value NR USD			9.4	16.2	26.9	8.5	9.0	6.7	11.8	-7.5	19.6	-0.3	20.6	7.2	
<b>Private Credit</b>	<b>1,202,554,142</b>	<b>10.0</b>	<b>3.1</b>	<b>8.9</b>	<b>10.7</b>	<b>10.5</b>	<b>8.8</b>	<b>9.0</b>	<b>9.1</b>	<b>10.5</b>	<b>10.0</b>	<b>4.0</b>	<b>7.7</b>		
<b>Total High Yield</b>	<b>168,307,571</b>	<b>1.4</b>	<b>3.8</b>	<b>6.7</b>	<b>13.7</b>	<b>2.3</b>	<b>3.7</b>	<b>4.0</b>	<b>11.8</b>	<b>-10.9</b>	<b>4.9</b>	<b>4.7</b>	<b>14.7</b>		
ICE BofA US High Yield Master II			5.3	8.0	15.7	3.1	4.5	4.9	13.5	-11.2	5.3	6.1	14.4	6.6	
Voya Global Investors	168,307,571	1.4	3.8	6.7	13.7	2.3	3.7	4.0	11.8	-10.9	4.9	4.7	14.7	6.2	May-00
ICE BofA US High Yield Master II			5.3	8.0	15.7	3.1	4.5	4.9	13.5	-11.2	5.3	6.1	14.4	6.7	
<b>Total Real Estate</b>	<b>813,639,415</b>	<b>6.8</b>	<b>1.6</b>	<b>-6.5</b>	<b>-7.8</b>	<b>-5.6</b>	<b>-2.2</b>	<b>3.6</b>	<b>-10.7</b>	<b>-5.3</b>	<b>19.2</b>	<b>-6.0</b>	<b>8.1</b>		
Real Estate Benchmark			0.0	-8.4	-10.6	-6.0	-1.2	3.6	-11.3	-4.5	19.3	0.6	7.5		
NCREIF-ODCE			0.2	-2.6	-7.3	-0.2	2.9	6.1	-12.0	7.5	22.2	1.2	5.3		
NCREIF Property Index			0.8	-0.5	-3.5	0.9	3.3	5.9	-7.9	5.5	17.7	1.6	6.4		
<b>Total Core Real Estate</b>	<b>246,094,972</b>	<b>2.1</b>	<b>15.8</b>	<b>14.7</b>	<b>33.2</b>	<b>4.0</b>	<b>6.0</b>	<b>8.0</b>	<b>12.4</b>	<b>-25.1</b>	<b>47.5</b>	<b>-5.2</b>	<b>27.5</b>		
Adelante	112,810,672	0.9	15.2	15.3	32.9	4.5	6.3	8.2	16.5	-27.2	47.5	-5.2	27.5	9.7	Oct-01
Wilshire U.S. REIT Index			15.2	14.9	33.6	4.6	5.4	7.8	16.2	-26.8	46.2	-7.9	25.8	9.5	
Invesco US Fundamental Beta	133,284,299	1.1	16.3	14.2	33.5	-	-	-	9.2	-	-	-	-	2.3	Mar-22
Wilshire U.S. REIT Index			15.2	14.9	33.6	-	-	-	16.2	-	-	-	-	3.3	
<b>Total Private Real Estate</b>	<b>567,544,444</b>	<b>4.7</b>	<b>-3.6</b>	<b>-13.9</b>	<b>-19.8</b>	<b>-9.0</b>	<b>-4.6</b>	<b>2.2</b>	<b>-17.6</b>	<b>1.3</b>	<b>15.3</b>	<b>-6.1</b>	<b>6.2</b>		
<b>Private Equity</b>	<b>1,303,773,874</b>	<b>10.9</b>	<b>0.7</b>	<b>1.7</b>	<b>2.2</b>	<b>2.5</b>	<b>12.4</b>	<b>11.1</b>	<b>-1.0</b>	<b>-0.5</b>	<b>60.4</b>	<b>8.7</b>	<b>8.4</b>		
<b>Risk Parity</b>	<b>227,885,407</b>	<b>1.9</b>	<b>6.3</b>	<b>9.7</b>	<b>16.9</b>	<b>-2.6</b>	<b>1.8</b>	<b>-</b>	<b>4.7</b>	<b>-21.8</b>	<b>9.3</b>	<b>9.6</b>	<b>17.7</b>		
60% MSCI ACWI Net/40% Blmbg. Global Aggregate			6.8	12.5	23.6	3.6	7.0	-	15.4	-17.3	8.8	14.0	18.6		
AQR Global Risk Premium-EL	49,989,010	0.4	6.3	10.3	17.5	0.4	3.5	-	6.8	-16.6	10.3	5.8	18.3	5.4	Jan-19
HFR Risk Parity Vol 10 Index			5.4	10.1	20.5	0.7	2.4	-	10.5	-18.3	6.8	3.6	18.4	4.7	
PanAgora Risk Parity Multi Asset	177,896,397	1.5	6.2	9.1	16.3	-5.5	0.2	-	2.4	-26.3	8.3	13.6	-	2.5	Mar-19
HFR Risk Parity Vol 10 Index			5.4	10.1	20.5	0.7	2.4	-	10.5	-18.3	6.8	3.6	-	3.7	

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

Total Fund  
Performance Summary (Net of Fees)

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
<b>Diversifying</b>	<b>804,403,169</b>	<b>6.7</b>	<b>2.1</b>	<b>2.1</b>	<b>4.4</b>	<b>-0.7</b>	<b>-0.2</b>	<b>0.3</b>	<b>2.2</b>	<b>-5.7</b>	<b>1.7</b>	<b>-1.7</b>	<b>6.8</b>		
Custom Diversifying Benchmark			4.6	5.8	11.9	2.5	2.8	3.3	7.4	-5.7	1.6	4.7	6.1		
<b>Diversifying Fixed Income</b>	<b>228,544,167</b>	<b>1.9</b>	<b>4.9</b>	<b>5.2</b>	<b>12.4</b>	<b>-1.5</b>	<b>-0.7</b>	<b>0.9</b>	<b>5.2</b>	<b>-13.5</b>	<b>-1.0</b>	<b>1.2</b>	<b>8.3</b>		
Blmbg. U.S. Aggregate Index			5.2	4.4	11.6	-1.4	0.3	1.8	5.5	-13.0	-1.5	7.5	8.7		
AFL-CIO	228,497,091	1.9	4.9	5.2	12.4	-1.5	0.0	1.6	5.2	-13.6	-1.0	6.2	7.8	4.9	Jul-91
Blmbg. U.S. Aggregate Index			5.2	4.4	11.6	-1.4	0.3	1.8	5.5	-13.0	-1.5	7.5	8.7	5.0	
<b>Diversifying Multi-Asset</b>	<b>575,859,002</b>	<b>4.8</b>	<b>1.0</b>	<b>0.9</b>	<b>1.3</b>	<b>-0.4</b>	<b>-</b>	<b>-</b>	<b>0.9</b>	<b>-2.3</b>	<b>2.4</b>	<b>-</b>	<b>-</b>		
Custom Diversifying Multi-Asset Benchmark			4.0	6.7	11.9	4.2	-	-	8.7	-3.1	4.1	-	-		
Sit LLCAR	388,147,756	3.2	4.0	5.9	10.9	2.7	-	-	6.5	-3.7	-	-	-	3.6	Apr-21
Blmbg. U.S. Aggregate +1%			5.5	5.2	12.7	-0.4	-	-	6.6	-12.1	-	-	-	0.3	
BH-DG Systematic	187,711,246	1.6	-4.7	-	-	-	-	-	-	-	-	-	-	-7.6	Apr-24
SG Trend Index			-5.4	-	-	-	-	-	-	-	-	-	-	-9.4	
<b>Liquidity</b>	<b>1,881,293,350</b>	<b>15.7</b>	<b>2.7</b>	<b>4.8</b>	<b>8.0</b>	<b>2.0</b>	<b>2.0</b>	<b>-</b>	<b>5.4</b>	<b>-3.5</b>	<b>-0.3</b>	<b>3.4</b>	<b>4.8</b>		
Blmbg. 1-3 Year Gov/Credit Index			3.0	4.4	7.2	1.5	1.7	-	4.6	-3.7	-0.5	3.3	4.0		
DFA Short Credit	424,432,380	3.5	1.6	4.5	6.4	1.1	1.4	-	5.3	-5.4	-0.5	2.8	5.2	1.8	Dec-16
ICE BofA 1-5 Year U.S. Corp/Govt			3.5	4.6	8.1	1.0	1.6	-	4.9	-5.5	-0.9	4.6	5.1	1.9	
Insight Short Duration	707,127,703	5.9	2.5	4.8	7.3	2.9	2.6	-	5.7	-1.2	0.0	3.1	4.6	2.6	Dec-16
Bloomberg U.S. Gov/Credit 1-3 Year Index			3.0	4.4	7.2	1.5	1.7	-	4.6	-3.7	-0.5	3.3	4.0	1.8	
Sit Short Duration	749,733,267	6.3	3.6	5.0	9.6	1.4	1.8	-	5.2	-5.0	-0.5	4.4	4.7	2.2	Dec-16
Blmbg. 1-3 Year Govt Index			2.9	4.1	6.8	1.3	1.5	-	4.3	-3.8	-0.6	3.1	3.6	1.6	
<b>Total Cash</b>	<b>463,767,961</b>	<b>3.9</b>	<b>1.5</b>	<b>4.3</b>	<b>5.7</b>	<b>4.1</b>	<b>2.9</b>	<b>2.1</b>	<b>5.5</b>	<b>2.4</b>	<b>0.4</b>	<b>1.3</b>	<b>3.3</b>		
90 Day U.S. Treasury Bill			1.4	4.0	5.5	3.5	2.3	1.6	5.0	1.5	0.0	0.7	2.3		
Cash	463,763,278	3.9	1.5	4.3	5.7	4.2	3.0	2.1	6.1	2.2	0.4	1.3	3.4		
Northern Trust Transition	4,684	0.0	1.5	7.3	8.8	-80.2	-56.7	-	-99.2	-4.8	-6.1	104.1	-		

Individual closed end funds are not shown in performance summary table. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. Wellington Real Total Return was liquidated 4/30/2020. BH-DG Systematic funded on 4/19/2024. Acadian Multi-Asset Absolute Return Fund liquidated on 5/15/2024. \$47,075.25 in residual value is reflected in the Diversified Fixed Income composite.

Total Fund  
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

StepStone Group Analysis (\*)

Closing Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2024 <sup>1</sup>	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) <sup>2</sup>	Tot. Value/Paid-In (TVPI) <sup>3</sup>	Latest Valuation
<b>Private Equity &amp; Venture Capital</b>												
2/11/2004	Adams Street 2007 Direct Fund	\$659,404	\$4,000,000	97%	\$3,896,000	\$0	\$131,066	\$8,839,815	\$104,000	2.27	2.44	6/30/2024
2/11/2004	Adams Street 2009 Direct Fund	\$1,240,022	\$5,000,000	98%	\$4,901,000	\$0	\$64,615	\$8,593,595	\$99,000	1.75	2.01	6/30/2024
2/11/2004	Adams Street 2012 Global Fund	\$27,431,965	\$40,000,000	93%	\$37,155,172	\$0	\$1,104,581	\$49,236,502	\$2,844,828	1.33	2.06	6/30/2024
2/11/2004	Adams Street 2014 Global Fund	\$49,602,744	\$50,000,000	92%	\$46,193,610	\$0	\$2,135,182	\$50,897,900	\$3,806,390	1.10	2.18	6/30/2024
1/15/2009	Adams Street Partners II	\$3,173,859	\$30,000,000	95%	\$28,365,000	\$0	\$0	\$45,661,555	\$1,635,000	1.61	1.72	6/30/2024
9/21/2012	Adams Street Partners - Fund 5	\$8,577,325	\$40,000,000	77%	\$30,845,875	\$0	\$1,521,594	\$33,808,389	\$9,154,125	1.10	1.37	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2004 Non-U.S. Fund	\$152,397	\$3,750,000	95%	\$3,574,125	\$0	\$0	\$4,905,442	\$175,875	1.37	1.42	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2004 U.S. Fund	\$73,565	\$11,250,000	95%	\$10,687,500	\$0	\$0	\$16,786,638	\$562,500	1.57	1.58	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2005 Non-U.S. Fund	\$133,735	\$4,500,000	95%	\$4,277,250	\$0	\$0	\$5,644,261	\$222,750	1.32	1.35	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2005 U.S. Fund	\$137,736	\$10,500,000	95%	\$9,969,750	\$0	\$0	\$15,815,927	\$530,250	1.59	1.60	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2007 Non-U.S. Fund	\$1,439,221	\$14,000,000	95%	\$13,307,000	\$0	\$0	\$20,259,995	\$693,000	1.52	1.63	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2007 U.S. Fund	\$2,207,879	\$22,000,000	95%	\$20,977,000	\$0	\$0	\$40,296,514	\$1,023,000	1.92	2.03	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2009 Non-U.S. Developed Markets Fund	\$4,871,732	\$15,000,000	89%	\$13,342,500	\$0	\$0	\$20,934,570	\$1,657,500	1.57	1.93	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2009 Non-U.S. Emerging Markets Fund	\$2,552,353	\$5,000,000	92%	\$4,592,500	\$0	\$216,265	\$5,904,710	\$407,500	1.29	1.84	6/30/2024
2/11/2004	Adams Street Partnership Fund - 2009 U.S. Fund	\$10,404,050	\$25,000,000	92%	\$22,950,000	\$0	\$0	\$43,740,168	\$2,050,000	1.91	2.36	6/30/2024
3/31/2016	Adams Street Venture Innovation	\$150,301,073	\$75,000,000	92%	\$69,280,251	\$0	\$4,355,016	\$45,982,228	\$5,719,749	0.66	2.83	6/30/2024
5/18/2018	AE Industrial Partners Fund II, LP	\$35,790,107	\$35,000,000	105%	\$36,649,120	\$0	\$2,763,931	\$24,614,638	\$7,831,761	0.67	1.65	6/30/2024
11/27/2013	Aether Real Assets III	\$14,790,302	\$25,000,000	107%	\$26,776,453	\$69,198	\$457,927	\$8,965,250	\$771,568	0.33	0.89	6/30/2024
11/30/2013	Aether Real Assets III Surplus	\$35,982,509	\$50,000,000	107%	\$53,550,511	\$0	\$0	\$15,779,909	\$353,806	0.29	0.97	6/30/2024
1/30/2016	Aether Real Assets IV	\$47,403,697	\$50,000,000	102%	\$51,178,527	\$0	\$0	\$12,584,299	\$5,367,254	0.25	1.17	6/30/2024
6/30/2024	Altaris Health Partners VI, L.P.	\$0	\$50,000,000	0%	\$0	\$0	\$0	\$0	\$50,000,000	N/A	N/A	N/A
6/30/2024	Arbor Investments VI, L.P.	\$0	\$50,000,000	0%	\$0	0	0	\$0	\$50,000,000	N/A	N/A	N/A
6/29/2009	Bay Area Equity Fund II <sup>4</sup>	\$13,162,301	\$10,000,000	100%	\$10,000,000	\$0	\$1,326,260	\$5,011,170	\$0	0.50	1.82	6/30/2024
1/18/1996	Brinson 1998 Primary, Secondary Int	\$19,819	\$7,269,204	99%	\$7,229,851	\$0	\$0	\$11,149,671	\$39,353	1.54	1.54	6/30/2024
1/18/1996	Brinson 1999 Primary	\$52,856	\$6,665,276	96%	\$6,387,427	\$0	\$0	\$8,255,606	\$277,849	1.29	1.30	6/30/2024
1/18/1996	Brinson 2000 Primary	\$24,355	\$5,304,515	95%	\$5,044,010	\$0	\$0	\$7,787,951	\$260,505	1.54	1.55	6/30/2024
1/18/1996	Brinson 2001 Primary	\$57,884	\$5,946,438	96%	\$5,690,829	\$0	\$0	\$9,112,676	\$255,609	1.60	1.61	6/30/2024
1/18/1996	Brinson 2002 Primary	\$48,470	\$6,778,776	97%	\$6,565,328	\$0	\$0	\$12,093,845	\$213,448	1.84	1.85	6/30/2024
1/18/1996	Brinson 2003 Primary	\$108,935	\$6,808,039	95%	\$6,456,626	\$0	\$0	\$11,045,056	\$351,413	1.71	1.73	6/30/2024
1/18/1996	Brinson Partnership Fund Trust - 2002 Secondary Fund	\$37,593	\$1,204,071	96%	\$1,153,197	\$0	\$0	\$2,176,033	\$50,874	1.89	1.92	6/30/2024
1/18/1996	Brinson Partnership Fund Trust - 2004 Primary Fund	\$80,083	\$3,785,244	94%	\$3,573,896	\$0	\$0	\$6,441,146	\$211,348	1.80	1.82	6/30/2024
6/30/2013	Commonfund	\$31,312,231	\$50,000,000	95%	\$47,749,993	\$0	\$4,794,570	\$41,026,147	\$2,250,007	0.86	1.51	6/30/2024
7/15/2005	EIF US Power Fund II <sup>4</sup>	\$14,312	\$50,000,000	130%	\$65,029,556	\$0	\$0	\$76,092,655	\$0	1.17	1.17	6/30/2024
5/31/2007	EIF US Power Fund III <sup>4</sup>	\$3,137,120	\$65,000,000	110%	\$71,409,097	\$0	\$0	\$93,077,887	\$0	1.30	1.35	6/30/2024
11/28/2011	EIF US Power Fund IV	\$16,969,778	\$50,000,000	130%	\$64,917,547	\$0	\$128,525	\$50,593,322	\$4	0.78	1.04	6/30/2024
11/28/2016	EIF US Power Fund V	\$34,160,508	\$50,000,000	143%	\$71,633,870	\$0	\$2,872,616	\$68,212,887	\$5,512,350	0.95	1.43	6/30/2024
3/31/2023	EQT X, L.P.	\$13,816,483	\$100,000,000	19%	\$18,737,788	\$737,500	\$0	\$2,471,665	\$83,603,094	0.13	0.87	6/30/2024
12/31/2023	EQT Infrastructure VI	\$19,327,946	\$125,000,000	20%	\$24,856,960	-\$449,177	\$90,243	\$971,304	\$100,876,070	0.04	0.82	6/30/2024
2/21/2019	Genstar Capital Partners IX, L.P.	\$67,213,963	\$50,000,000	99%	\$49,277,034	\$171,728	\$9,063,037	\$36,803,682	\$7,025,520	0.75	2.11	6/30/2024
4/1/2021	Genstar Capital Partners X, L.P.	\$41,936,868	\$42,500,000	95%	\$40,417,310	\$161,533	\$0	\$181,283	\$2,263,973	0.00	1.04	6/30/2024
6/30/2023	Genstar Capital Partners XI, L.P.	\$1,869,741	\$75,000,000	3%	\$2,120,636	\$1,526,543	\$0	\$276,405	\$73,155,769	0.13	1.01	6/30/2024
6/30/2023	Green Equity Investors IX	\$20,074,144	\$60,000,000	30%	\$17,866,412	\$0	\$0	\$640,219	\$42,773,807	0.04	1.16	9/30/2024
10/27/2020	GTCR Fund XIII, L.P.	\$40,289,986	\$50,000,000	73%	\$36,712,753	\$4,150,000	\$0	\$5,556,257	\$13,287,247	0.15	1.25	6/30/2024
6/30/2023	GTCR Fund XIV	-\$76,032	\$100,000,000	0%	\$0	\$0	\$0	\$0	\$100,000,000	N/A	N/A	6/30/2024

\* All Data provided by StepStone Group

<sup>1</sup>Latest valuation + capital calls - distributions

<sup>2</sup>(DPI) is equal to (capital returned / capital called)

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

<sup>4</sup>Capital has been fully called and fund is in redemption.

Total Fund  
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

StepStone Group Analysis (*)													
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2024 <sup>1</sup>	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) <sup>2</sup>	Tot. Value/Paid-In (TVPI) <sup>3</sup>	Latest Valuation	
<b>Private Equity &amp; Venture Capital</b>													
5/10/2021	Hellman & Friedman Capital Partners X, L.P.	\$63,659,466	\$75,000,000	77%	\$58,107,501	\$3,816,220	\$0	\$5,333,316	\$20,888,862	0.09	1.19	6/30/2024	
6/30/2024	Hellman & Friedman Capital Partners XI, L.P.	\$0	\$100,000,000	0%	\$0	\$0	\$0	\$0	\$100,000,000	N/A	N/A	N/A	
3/31/2023	Jade Equity Investors II, LP	\$118,935	\$15,000,000	1%	\$142,632	\$142,632	\$0	\$0	\$14,857,368	0.00	0.83	9/30/2024	
11/18/2009	Oaktree PIF 2009	\$310,882	\$40,000,000	87%	\$34,812,560	\$0	\$0	\$47,032,470	\$6,308,961	1.35	1.36	6/30/2024	
5/2/2013	Ocean Avenue Fund II	\$14,039,503	\$30,000,000	90%	\$27,000,000	\$0	\$277,500	\$49,845,749	\$3,000,000	1.85	2.37	6/30/2024	
4/15/2016	Ocean Avenue Fund III	\$50,661,270	\$50,000,000	93%	\$46,500,000	\$0	\$1,750,000	\$59,459,752	\$3,500,000	1.28	2.37	6/30/2024	
11/30/2007	Paladin III	\$4,708,555	\$25,000,000	140%	\$35,078,514	\$0	\$0	\$72,045,990	\$387,482	2.05	2.19	6/30/2024	
8/22/2011	Pathway 6	\$22,367,310	\$40,000,000	99%	\$39,742,254	\$36,000	\$1,425,480	\$59,982,010	\$3,642,788	1.51	2.07	3/31/2024	
7/10/2013	Pathway 7	\$53,728,174	\$70,000,000	100%	\$69,920,536	\$0	\$2,753,709	\$97,690,002	\$5,359,393	1.40	2.17	3/31/2024	
11/23/2015	Pathway 8	\$60,868,138	\$50,000,000	99%	\$49,553,190	\$78,888	\$1,800,605	\$48,861,304	\$3,056,658	0.99	2.21	3/31/2024	
1/19/1999	Pathway	\$1,432,551	\$125,000,000	101%	\$126,694,939	\$89,025	\$0	\$190,811,769	\$10,512,398	1.51	1.52	6/30/2024	
7/31/2009	Pathway 2008	\$8,936,559	\$30,000,000	101%	\$30,390,729	\$50,559	\$367,763	\$54,381,681	\$2,557,597	1.79	2.08	6/30/2024	
6/3/2014	Siguler Guff CCCERA Opportunities	\$71,278,664	\$200,000,000	88%	\$175,083,208	\$0	\$7,105,323	\$267,704,252	\$28,597,500	1.53	1.94	6/30/2024	
5/18/2018	Siris Partners IV, L.P.	\$43,095,784	\$35,000,000	111%	\$38,885,534	\$111,639	\$4,524,210	\$10,899,378	\$3,412,566	0.28	1.39	6/30/2024	
6/30/2023	Symphony Technology Group VII	\$4,809,769	\$50,000,000	12%	\$6,068,399	\$0	\$0	\$0	\$43,931,601	0.00	0.79	6/30/2024	
5/27/2021	TA XIV-A, L.P.	\$46,169,848	\$50,000,000	96%	\$47,750,000	\$750,000	\$0	\$1,500,000	\$3,750,000	0.03	1.00	6/30/2024	
6/30/2023	TA XV-A, L.P.	-\$142,695	\$90,000,000	0%	\$0	\$0	\$0	\$0	\$90,000,000	N/A	N/A	6/30/2024	
6/28/2019	TPG Healthcare Partners, L.P.	\$24,069,613	\$24,000,000	99%	\$23,712,289	\$58,572	\$46,062	\$6,645,514	\$3,039,448	0.28	1.30	6/30/2024	
3/31/2023	TPG Healthcare Partners II	\$16,624,654	\$60,000,000	28%	\$16,798,666	\$3,008,561	\$8,201	\$8,201	\$43,225,286	0.00	0.99	6/30/2024	
3/31/2023	TPG Partners IX	\$27,017,409	\$65,000,000	40%	\$26,070,432	\$6,967,758	\$0	\$26,805	\$38,930,724	0.00	1.04	6/30/2024	
9/17/2021	Trident IX, L.P.	\$37,851,311	\$50,000,000	66%	\$33,099,832	\$4,257,593	\$364,987	\$480,750	\$17,380,918	0.01	1.16	6/30/2024	
5/24/2019	Trident VIII, L.P.	\$50,526,405	\$40,000,000	97%	\$38,866,724	\$110,406	\$1,434,879	\$7,144,556	\$4,819,990	0.18	1.48	6/30/2024	
12/8/2015	Wastewater Opportunity Fund	\$1,076,750	\$25,000,000	126%	\$31,579,656	\$0	\$0	\$31,480,004	\$521,541	1.00	1.03	6/30/2024	
<b>Total Private Equity and Venture Capital</b>		<b>\$1,303,773,874</b>	<b>\$2,875,261,563</b>	<b>70%</b>	<b>\$2,011,156,859</b>	<b>\$25,845,178</b>	<b>\$52,884,148</b>	<b>\$1,939,562,674</b>	<b>\$1,029,099,177</b>	<b>0.96</b>	<b>1.61</b>		
<b>% of Portfolio (Market Value)</b>		<b>10.9%</b>											

\* All Data provided by StepStone Group

<sup>1</sup>Latest valuation + capital calls - distributions

<sup>2</sup>(DPI) is equal to (capital returned / capital called)

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

<sup>4</sup>Capital has been fully called and fund is in redemption.

Total Fund  
Closed End Funds - IRR Summary

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Private Equity & Venture Capital	Closing Date	Fund Level (G) <sup>2</sup>	CCCERA (G)	Fund Level (N) <sup>2,3</sup>	CCCERA (N) <sup>3</sup>	IRR Date
Adams Street Partners	2/11/2004	-	13.2%	-	11.2%	6/30/2024
Adams Street Partners II	12/31/2008	-	16.3%	-	13.7%	6/30/2024
Adams Street Partners - Fund 5	12/31/2008	-	9.0%	-	6.4%	6/30/2024
Adams Street Partners Venture	1/18/1996	-	28.6%	-	26.7%	6/30/2024
Adams Street Partners - BPF	3/31/2016	-	14.2%	-	11.6%	6/30/2024
AE Industrial Partners Fund II, LP	5/18/2018	23.8%	-	20.8%	-	6/30/2024
Aether Real Assets III	11/27/2013	-0.4%	-	-2.0%	-	6/30/2024
Aether Real Assets III Surplus	11/30/2013	0.5%	-	-0.5%	-	6/30/2024
Aether Real Assets IV	1/30/2016	4.8%	-	3.2%	-	6/30/2024
Bay Area Equity Fund II <sup>9</sup>	11/26/2003	9.6%	9.6%	6.0%	6.0%	6/30/2024
CommonFund <sup>1</sup>	6/30/2013	-	-	-	6.7%	12/31/2023
Energy Investor Fund II <sup>9</sup>	7/15/2005	5.6%	5.3%	2.9%	2.6%	3/31/2024
Energy Investor Fund V	11/28/2016	18.5%	-	12.8%	-	6/30/2024
Genstar Capital Partners IX, L.P.	2/21/2019	40.6%	-	32.6%	-	6/30/2024
Oaktree PIF 2009	2/28/2010	6.8%	-	6.5%	-	6/30/2024
Ocean Avenue II	8/15/2013	-	-	17.9%	-	3/31/2024
Ocean Avenue III	4/15/2016	-	-	23.2%	-	3/31/2024
Paladin III	11/30/2007	19.7%	-	-	-	6/30/2024
Pathway 6	8/22/2011	16.5%	16.5%	13.7%	13.7%	6/30/2024
Benchmark <sup>4</sup>		14.2%	-	-	-	3/31/2024
Pathway 7	7/10/2013	18.0%	18.0%	15.3%	15.3%	6/30/2024
Benchmark <sup>5</sup>		14.7%	-	-	-	3/31/2024
Pathway 8	11/23/2015	19.6%	19.6%	17.7%	17.7%	6/30/2024
Benchmark <sup>6</sup>		15.6%	-	-	-	3/31/2024
Pathway Private Equity Fund	1/19/1999	10.8%	10.8%	8.3%	8.3%	6/30/2024
Benchmark <sup>7</sup>		10.3%	-	-	-	3/31/2024
Pathway Private Equity Fund 2008	7/31/2009	16.8%	16.8%	13.7%	13.7%	6/30/2024
Benchmark <sup>8</sup>		13.2%	-	-	-	3/31/2024
Siguler Guff CCCERA Opportunities	6/3/2014	-	18.1%	-	15.5%	6/30/2024
Siguler Guff Secondary Opportunities <sup>9</sup>	8/31/2013	55.3%	118.4%	49.5%	69.0%	9/30/2020
Siris Partners IV, L.P. <sup>1</sup>	5/18/2018	15.0%	0.0%	11.0%	-	6/30/2024
TPG Healthcare Partners, L.P.	6/28/2019	-	-	-	14.0%	6/30/2024
Trident VIII, L.P.	5/24/2019	14.0%	-	-	12.8%	12/31/2023
Wastewater Opportunity Fund <sup>1</sup>	12/8/2015	-	-	3.7%	-	9/30/2023

<sup>1</sup>Manager has yet to report IRR figure.

<sup>2</sup>Fund level data includes CCCERA and all other fund investors.

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

<sup>4</sup>Private iQ global all private equity median pooled return for vintage years 2011-2014, as of September 30, 2022.

<sup>5</sup>Private iQ global all private equity median pooled return for vintage years 2012-2016, as of September 30, 2022.

<sup>6</sup>Private iQ global all private equity median pooled return for vintage years 2015-2018, as of September 30, 2022.

<sup>7</sup>Private iQ global all private equity median pooled return for vintage years 1999-2011, as of September 30, 2022.

<sup>8</sup>Private iQ global all private equity median pooled return for vintage years 2008-2014, as of September 30, 2022.

<sup>9</sup>Capital has been fully called and fund is in redemption.



Total Fund  
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 6/30/2024 <sup>1</sup>	Total Commitment	% Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) <sup>2</sup>	Tot. Value/Paid-In (TVPI) <sup>3</sup>	Latest Valuation
<b>Private Credit</b>												
8/31/2015	Angelo Gordon Energy Credit Opp. <sup>4</sup>	\$396,825	\$16,500,000	114%	\$18,750,000	\$0	\$0	\$22,660,158	\$2,319,783	1.21	1.23	6/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series A	\$235,679,085	\$320,000,000	107%	\$343,098,612	\$9,341,635	\$10,592,047	\$182,770,667	\$6,977,526	0.53	1.22	6/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series B	\$416,852,616	\$350,000,000	77%	\$268,400,318	\$0	\$0	\$20,017,732	\$101,599,682	0.07	1.63	6/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series C	\$219,359,628	\$200,000,000	91%	\$182,317,456	\$0	\$0	\$59,500,716	\$77,182,544	0.33	1.53	6/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series D	\$216,782,589	\$150,000,000	99%	\$147,793,242	\$0	\$0	\$5,768	\$2,206,758	0.00	1.47	6/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series E	\$102,470,054	\$150,000,000	55%	\$82,689,286	\$0	\$0	\$920,000	\$67,310,714	0.01	1.25	6/30/2024
8/1/2012	Torchlight IV	\$3,450,275	\$60,000,000	141%	\$84,866,971	\$0	\$0	\$109,589,365	\$0	1.29	1.33	6/30/2024
3/12/2015	Torchlight V	\$7,563,070	\$75,000,000	80%	\$60,000,000	\$0	\$0	\$71,460,214	\$15,000,000	1.19	1.32	6/30/2024
<b>Total Private Credit</b>		<b>\$1,202,554,142</b>	<b>\$1,321,500,000</b>	<b>90%</b>	<b>\$1,187,915,884</b>	<b>\$9,341,635</b>	<b>\$10,592,047</b>	<b>\$466,924,620</b>	<b>\$272,597,008</b>	<b>0.39</b>	<b>1.41</b>	
<b>% of Portfolio (Market Value)</b>		<b>10.1%</b>										

\*All Data provided by StepStone Group

<sup>1</sup>Latest valuation + capital calls - distributions

<sup>2</sup>(DPI) is equal to (capital returned / capital called)

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

<sup>4</sup>Capital has been fully called and fund is in redemption.

Total Fund  
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2024 <sup>1</sup>	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions <sup>8</sup>	Remaining Commitment	Distrib./Paid-In (DPI) <sup>2</sup>	Tot. Value/Paid-In (TVPI) <sup>3</sup>	Latest Valuation
<b>Real Estate</b>												
1/23/2012	Angelo Gordon Realty Fund VIII <sup>4</sup>	\$7,864,795	\$80,000,000	94%	\$75,401,855	\$0	\$0	\$101,711,550	\$12,334,302	1.35	1.45	6/30/2024
12/8/2014	Angelo Gordon Realty Fund IX	\$14,450,234	\$65,000,000	93%	\$60,125,000	\$0	\$1,300,000	\$59,312,501	\$7,572,500	0.99	1.23	6/30/2024
3/24/2023	BlackStone Strategic Partners Real Estate VIII	\$21,031,152	\$80,000,000	22%	\$17,882,104	\$1,226,074	\$0	\$0	\$62,117,896	0.00	1.18	6/30/2024
3/24/2023	Blackstone Real Estate Partners X	\$25,453,073	\$100,000,000	26%	\$26,170,548	\$926,285	\$963,171	\$963,171	\$73,829,452	0.04	1.01	6/30/2024
12/14/2023	Cross Lake RE IV	\$185,443	\$60,000,000	3%	\$1,880,326	\$0	\$0	\$0	\$58,119,674	0.00	0.10	6/30/2024
3/18/2024	Cross Lake RE IV SRO AIV	\$3,034,613	\$8,975,352	32%	\$2,875,142	\$1,379,248	\$0	\$0	\$6,100,210	0.00	1.06	6/30/2024
6/23/2005	DLJ RECP III	\$10,874,872	\$75,000,000	95%	\$70,968,662	\$28,508	\$0	\$77,985,055	\$4,031,338	1.10	1.25	6/30/2024
2/11/2008	DLJ RECP IV	\$32,726,854	\$100,000,000	119%	\$118,992,879	\$198,546	\$0	\$99,841,735	\$1,876,084	0.84	1.11	6/30/2024
7/1/2014	DLJ RECP V	\$6,689,849	\$75,000,000	146%	\$109,426,397	\$32,901	\$0	\$100,933,448	\$2,155,507	0.92	0.98	6/30/2024
3/19/2019	DLJ RECP VI	\$10,022,634	\$50,000,000	88%	\$43,951,508	\$0	\$0	\$11,369,099	\$10,251,671	0.26	0.49	6/30/2024
12/14/2023	EQT Exeter Industrial Value Fund VI	\$14,004,887	\$60,000,000	25%	\$15,000,000	\$0	\$0	\$0	\$45,000,000	0.00	0.93	6/30/2024
N/A	EQT Multifamily Value II	\$0	\$40,000,000	0%	\$0	\$0	\$0	\$0	\$40,000,000	N/A	N/A	N/A
6/30/2014	Invesco Real Estate IV <sup>4</sup>	\$102,165	\$35,000,000	87%	\$30,546,401	\$0	\$0	\$39,986,504	\$4,453,599	1.31	1.31	6/30/2024
2/20/2019	Invesco Real Estate V	\$56,682,189	\$75,000,000	97%	\$73,118,800	\$0	\$0	\$9,319,462	\$6,581,101	0.13	0.90	9/30/2024
9/27/2022	Invesco Real Estate VI	\$48,710,716	\$100,000,000	59%	\$59,145,260	\$2,411,213	\$0	\$2,230,131	\$40,854,740	0.04	0.86	6/30/2024
9/27/2024	Jadian Real Estate II	\$3,770,675	\$60,000,000	6%	\$3,770,675	\$3,770,675	\$0	\$0	\$56,229,325	0.00	1.00	6/30/2024
11/10/2023	KSL Capital Partners VI, L.P.	\$9,986,686	\$50,000,000	26%	\$13,233,564	\$967,516	\$0	\$0	\$36,766,436	0.00	0.75	6/30/2024
7/16/2013	LaSalle Income & Growth VI <sup>4</sup>	\$8,384,738	\$75,000,000	95%	\$71,428,571	\$0	\$0	\$84,541,423	\$0	1.18	1.30	6/30/2024
2/28/2017	LaSalle Income & Growth VII	\$21,200,995	\$75,000,000	114%	\$85,708,742	\$0	\$0	\$61,623,058	\$2,845,685	0.72	0.97	6/30/2024
7/3/2013	Long Wharf Fund IV <sup>4</sup>	\$103,662	\$25,000,000	100%	\$25,000,000	\$0	\$0	\$34,948,087	\$0	1.40	1.40	9/30/2024
9/30/2016	Long Wharf Fund V <sup>4</sup>	\$23,828,409	\$50,000,000	100%	\$50,000,000	\$0	\$0	\$37,701,359	\$0	0.75	1.23	9/30/2024
6/27/2019	Long Wharf Fund VI	\$33,595,954	\$50,000,000	100%	\$49,999,998	\$0	\$0	\$28,047,570	\$2	0.56	1.23	9/30/2024
5/30/2023	Long Wharf Fund VII	\$20,403,156	\$50,000,000	45%	\$22,533,036	\$6,291,262	\$0	\$0	\$27,466,964	0.00	0.91	9/30/2024
12/31/2011	Oaktree REOF V <sup>4</sup>	\$164,264	\$50,000,000	101%	\$50,315,673	\$0	\$0	\$78,780,733	\$5,000,000	1.57	1.57	9/30/2024
9/30/2013	Oaktree REOF VI <sup>4</sup>	\$15,772,203	\$80,000,000	100%	\$80,000,000	\$0	\$0	\$84,810,175	\$18,400,000	1.06	1.26	9/30/2024
4/1/2015	Oaktree REOF VII	\$37,163,980	\$65,000,000	100%	\$65,000,000	\$0	\$0	\$47,054,688	\$18,915,000	0.72	1.30	9/30/2024
11/10/2013	Paulson Real Estate Fund II <sup>4</sup>	\$12,591,188	\$20,000,000	97%	\$19,345,623	\$0	\$0	\$25,449,660	\$654,377	1.32	1.97	6/30/2024
4/28/2022	PCCP IX	\$70,588,854	\$75,000,000	86%	\$64,301,564	\$2,250,000	\$625,000	\$0	\$10,698,436	0.00	1.10	6/30/2024
1/25/2012	Siguler Guff DREOF	\$9,830,941	\$75,000,000	93%	\$69,375,000	\$0	\$839,735	\$104,610,846	\$5,625,000	1.51	1.65	6/30/2024
8/31/2013	Siguler Guff DREOF II	\$24,232,347	\$70,000,000	89%	\$61,985,000	\$0	\$679,515	\$56,371,301	\$8,015,000	0.91	1.30	6/30/2024
1/27/2016	Siguler Guff DREOF II Co-Inv	\$10,859,044	\$25,000,000	85%	\$21,277,862	\$0	\$465,160	\$14,336,421	\$3,722,138	0.67	1.18	6/30/2024
6/26/2024	Stockbridge Value Fund I	\$13,233,872	\$60,000,000	24%	\$14,459,322	\$14,459,322	\$0	\$0	\$45,540,678	0.00	0.92	6/30/2024
<b>Total Closed End Real Estate</b>		<b>\$567,544,444</b>	<b>\$1,918,975,352</b>	<b>75%</b>	<b>\$1,443,760,192</b>	<b>\$33,941,550</b>	<b>\$4,872,581</b>	<b>\$1,161,927,976</b>	<b>\$575,157,114</b>	<b>0.80</b>	<b>1.20</b>	
<b>% of Portfolio (Market Value)</b>		<b>4.8%</b>										

<sup>1</sup>Latest valuation + capital calls - distributions

<sup>2</sup>(DPI) is equal to (capital returned / capital called)

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

<sup>4</sup>Capital has been fully called and fund is in redemption.

<sup>5</sup>Total distributions may include recallable distributions

<sup>6</sup>Remianing commitment includes recallable distributions

Total Fund  
Closed End Funds - IRR Summary

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Private Credit	Inception	Fund Level (G) <sup>2</sup>	CCCERA (G)	Fund Level (N) <sup>2,3</sup>	CCCERA (N) <sup>3</sup>	IRR Date
Angelo Gordon Energy Cred Opp. <sup>4</sup>	9/24/2015	-	-	-	8.3%	6/30/2024
Stepstone CC Opportunities Fund <sup>1</sup>	2/2/2018	-	9.9%	-	9.2%	12/31/2023
Torchlight IV	8/1/2012	11.0%	11.6%	8.8%	9.7%	6/30/2024
Torchlight V	3/12/2015	13.9%	14.0%	10.0%	10.0%	6/30/2024

Real Estate	Inception	Fund Level (G) <sup>2</sup>	CCCERA (G)	Fund Level (N) <sup>2,3</sup>	CCCERA (N) <sup>3</sup>	IRR Date
Angelo Gordon VIII <sup>4</sup>	1/23/2012	-	-	-	11.6%	6/30/2024
Angelo Gordon IX	12/8/2014	-	-	-	5.0%	6/30/2024
Blackstone Real Estate Partners X <sup>1</sup>	3/24/2023	-	-	-	-	N/A
BlackStone Strategic Partners Real Estate VIII <sup>1</sup>	3/25/2022	-	-	-	-	N/A
Cross Lake RE IV <sup>1</sup>	12/14/2023	-	-	-	-	N/A
DLJ RECP III	6/23/2005	-1.0%	-1.0%	-3.0%	-3.0%	9/30/2023
DLJ RECP IV	2/11/2008	4.0%	4.0%	1.0%	2.0%	9/30/2023
DLJ RECP V	7/1/2014	11.0%	11.0%	5.0%	5.0%	9/30/2023
DLJ RECP VI	3/19/2019	11.0%	11.0%	2.0%	3.0%	9/30/2023
EQT Exeter Industrial Value Fund VI <sup>1</sup>	12/14/2023	-	-	-	-	N/A
EQT Industrial Value VI <sup>1</sup>	12/31/2023	-	-	-	-	N/A
EQT Multifamily Value II <sup>1</sup>	N/A	-	-	-	-	N/A
Invesco Fund IV <sup>4</sup>	6/30/2014	12.6%	-	10.1%	-	6/30/2024
Invesco Fund V	2/20/2019	0.4%	-	-2.7%	-	6/30/2024
Invesco Fund VI	9/27/2022	-	-	-	-	N/A
Jadian Real Estate Fund II	9/27/2024	-	-	-	-	N/A
KSL Capital Partners VI <sup>1</sup>	11/10/2023	-	-	-	-	N/A
LaSalle Income & Growth VI <sup>4</sup>	7/16/2013	9.7%	9.7%	7.6%	7.7%	6/30/2024
LaSalle Income & Growth VII	2/28/2017	1.7%	1.6%	-0.3%	-0.4%	6/30/2024
Long Wharf IV <sup>4</sup>	7/3/2013	14.5%	14.2%	11.0%	10.9%	9/30/2024
Long Wharf V <sup>4</sup>	9/30/2016	7.7%	8.0%	5.1%	5.3%	9/30/2024
Long Wharf VI	6/27/2019	21.3%	22.3%	13.0%	13.5%	9/30/2024
Long Wharf VII	5/1/2023	6.7%	6.6%	-7.6%	-7.5%	9/30/2024
Oaktree REOF V <sup>4</sup>	12/31/2011	16.6%	-	12.2%	-	9/30/2024
Oaktree REOF VI <sup>4</sup>	9/30/2013	10.0%	-	6.1%	-	9/30/2024
Oaktree REOF VII	4/1/2015	13.7%	-	8.8%	-	9/30/2024
Paulson <sup>4</sup>	11/10/2013	-	-	12.0%	-	12/31/2023
PCCP IX	5/27/2021	9.9%	-	6.6%	-	3/31/2024
Siguler Guff I	1/25/2012	12.0%	14.8%	10.4%	11.6%	6/30/2024
Siguler Guff II	8/31/2013	8.2%	8.4%	6.9%	6.8%	6/30/2024
Siguler Guff DREOF II Co-Inv	1/27/2016	4.6%	4.8%	3.7%	3.4%	6/30/2024
Stockbridge Value Fund I	6/26/2024	-	-	-	-	N/A

<sup>1</sup>Manager has yet to report IRR figure.

<sup>2</sup>Fund level data includes CCCERA and all other fund investors.

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

<sup>4</sup>Capital has been fully called and fund is in redemption.

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

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

3 Years

	Anlzd Return	Anlzd Excess Performance	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
BlackRock Russell 1000 Index	10.83	0.00	17.45	0.00	1.00	0.02	1.00	0.49	-0.13	99.99	100.00
Boston Partners	11.98	2.95	15.86	3.18	0.95	3.30	0.96	0.58	0.79	98.38	84.65
Emerald Advisers	1.42	1.77	22.23	1.76	0.96	4.66	0.96	0.02	0.35	100.09	94.71
Ceredex	8.01	4.24	19.71	4.53	0.84	6.65	0.92	0.32	0.52	91.60	78.57
Pyrford	7.40	-0.09	13.71	1.00	0.84	4.98	0.90	0.34	-0.07	89.84	86.93
William Blair	-2.43	-3.24	18.77	-3.05	1.01	5.42	0.92	-0.22	-0.57	98.45	111.06
PIMCO RAE Emerging Markets	9.17	5.88	16.60	6.06	0.96	6.79	0.83	0.41	0.84	112.18	84.35
TT Emerging Markets	-3.98	-4.39	18.88	-4.18	1.04	5.38	0.92	-0.31	-0.78	100.37	119.29
Artisan Partners	1.95	-5.22	19.28	-4.58	0.96	4.87	0.94	0.02	-1.04	85.91	101.52
First Eagle	9.07	0.58	12.87	1.87	0.82	4.14	0.94	0.48	0.05	84.54	75.44
Voya Global Investors	2.31	-0.77	8.49	-0.71	0.99	1.21	0.98	-0.10	-0.62	94.36	100.17
Adelante	4.52	-0.10	20.83	0.01	0.96	1.55	1.00	0.15	-0.16	96.29	96.29
AQR Global Risk Premium-EL	0.44	-0.26	10.22	-0.23	0.88	2.08	0.98	-0.25	-0.19	87.95	89.40
PanAgora Risk Parity Multi Asset	-5.49	-6.19	14.83	-6.05	1.26	4.53	0.95	-0.54	-1.30	103.54	140.19
Sit LLCAR	2.68	4.07	5.28	3.42	0.53	4.98	0.56	-0.13	0.78	60.83	29.98
AFL-CIO	-1.53	-0.14	7.24	-0.21	0.95	0.99	0.98	-0.67	-0.16	94.71	96.69
DFA Short Credit	1.11	0.14	2.79	0.42	0.71	1.73	0.73	-0.93	0.07	77.37	69.29
Insight Short Duration	2.95	1.44	1.90	2.07	0.57	1.66	0.53	-0.32	0.85	77.76	17.31
Sit Short Duration	1.45	0.17	3.83	-0.39	1.46	1.90	0.84	-0.53	0.11	141.90	153.34

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

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

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

5 Years

	Anlzd Return	Anlzd Excess Performance	Standard Deviation	Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
BlackRock Russell 1000 Index	15.63	-0.01	18.27	-0.01	1.00	0.02	1.00	0.76	-0.51	99.97	99.99
Boston Partners	13.25	2.56	18.74	2.28	1.01	3.14	0.97	0.64	0.76	102.68	92.24
Emerald Advisers	10.83	2.01	23.01	2.37	0.94	5.34	0.95	0.46	0.31	99.29	92.85
Ceredex	9.37	0.08	21.82	1.28	0.85	7.14	0.92	0.42	-0.08	84.87	80.55
Pyrford	7.93	0.14	14.65	1.76	0.76	6.59	0.89	0.44	-0.07	86.48	82.46
William Blair	8.23	1.14	18.85	0.94	1.05	5.23	0.93	0.39	0.26	109.28	106.30
PIMCO RAE Emerging Markets	11.24	5.30	20.05	5.07	1.05	6.42	0.90	0.52	0.83	113.74	91.81
TT Emerging Markets	4.30	-1.45	21.72	-1.67	1.13	6.29	0.93	0.20	-0.11	112.80	120.56
Artisan Partners	12.23	-2.47	18.46	-1.25	0.93	5.13	0.93	0.60	-0.45	89.75	93.23
First Eagle	9.59	0.55	13.66	2.39	0.76	5.46	0.93	0.57	-0.01	83.31	74.75
Voya Global Investors	3.67	-0.88	8.68	-0.48	0.91	1.71	0.97	0.20	-0.53	89.85	94.63
Adelante	6.30	0.90	20.23	1.01	0.95	1.67	1.00	0.29	0.38	98.04	95.03
AQR Global Risk Premium-EL	3.48	1.03	10.03	1.21	0.91	2.20	0.96	0.16	0.42	95.69	88.10
PanAgora Risk Parity Multi Asset	0.21	-2.24	13.64	-2.48	1.21	4.17	0.94	-0.08	-0.45	111.58	127.58
AFL-CIO	0.02	-0.32	5.86	-0.30	0.93	1.07	0.97	-0.37	-0.31	88.86	92.32
DFA Short Credit	1.40	-0.17	2.47	0.25	0.73	1.64	0.65	-0.37	-0.11	75.97	68.70
Insight Short Duration	2.60	0.90	2.08	1.56	0.61	1.87	0.32	0.15	0.47	83.12	17.73
Sit Short Duration	1.76	0.27	3.10	-0.30	1.40	1.60	0.80	-0.17	0.19	140.95	158.26

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

Total Fund  
Investment Fund Fee Analysis

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Expense Fee (%)
BlackRock Russell 1000 Index	Growth	0.03 % of Assets	\$1,259,173,538	\$377,752	0.03
Boston Partners	Growth	0.50 % of First \$25 M 0.30 % Thereafter	\$452,859,069	\$1,408,577	0.31
Emerald Advisers	Growth	0.75 % of First \$10 M 0.60 % Thereafter	\$237,270,219	\$1,438,621	0.61
Ceredex	Growth	0.85 % of First \$10 M 0.68 % of Next \$40 M 0.51 % Thereafter	\$218,068,297	\$1,214,148	0.56
Pyrford	Growth	0.70 % of First \$50 M 0.50 % of Next \$50 M 0.35 % Thereafter	\$474,014,109	\$1,909,049	0.40
William Blair	Growth	0.80 % of First \$20 M 0.60 % of Next \$30 M 0.50 % of Next \$50 M 0.45 % of Next \$50 M 0.40 % of Next \$50 M 0.30 % Thereafter	\$448,918,377	\$1,761,755	0.39
PIMCO RAE Emerging Markets	Growth	0.75 % of First \$50 M 0.68 % of Next \$50 M 0.50 % of Next \$100 M 0.45 % Thereafter	\$291,269,074	\$1,623,211	0.56
TT Emerging Markets	Growth	0.70 % of First \$100 M 0.65 % of Next \$100 M 0.60 % Thereafter	\$273,109,329	\$1,788,656	0.65
Artisan Partners	Growth	0.75 % of Assets	\$661,459,866	\$4,960,949	0.75
First Eagle	Growth	0.75 % of Assets	\$666,600,627	\$4,999,505	0.75
Voya Global Investors	Growth	0.50 % of First \$50 M 0.40 % of Next \$50 M 0.35 % Thereafter	\$168,307,571	\$689,077	0.41
Invesco US Fundamental Beta	Growth	0.15 % of Assets	\$133,284,299	\$199,926	0.15
AQR Global Risk Premium-EL	Growth	0.38 % of Assets	\$49,989,010	\$189,958	0.38

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

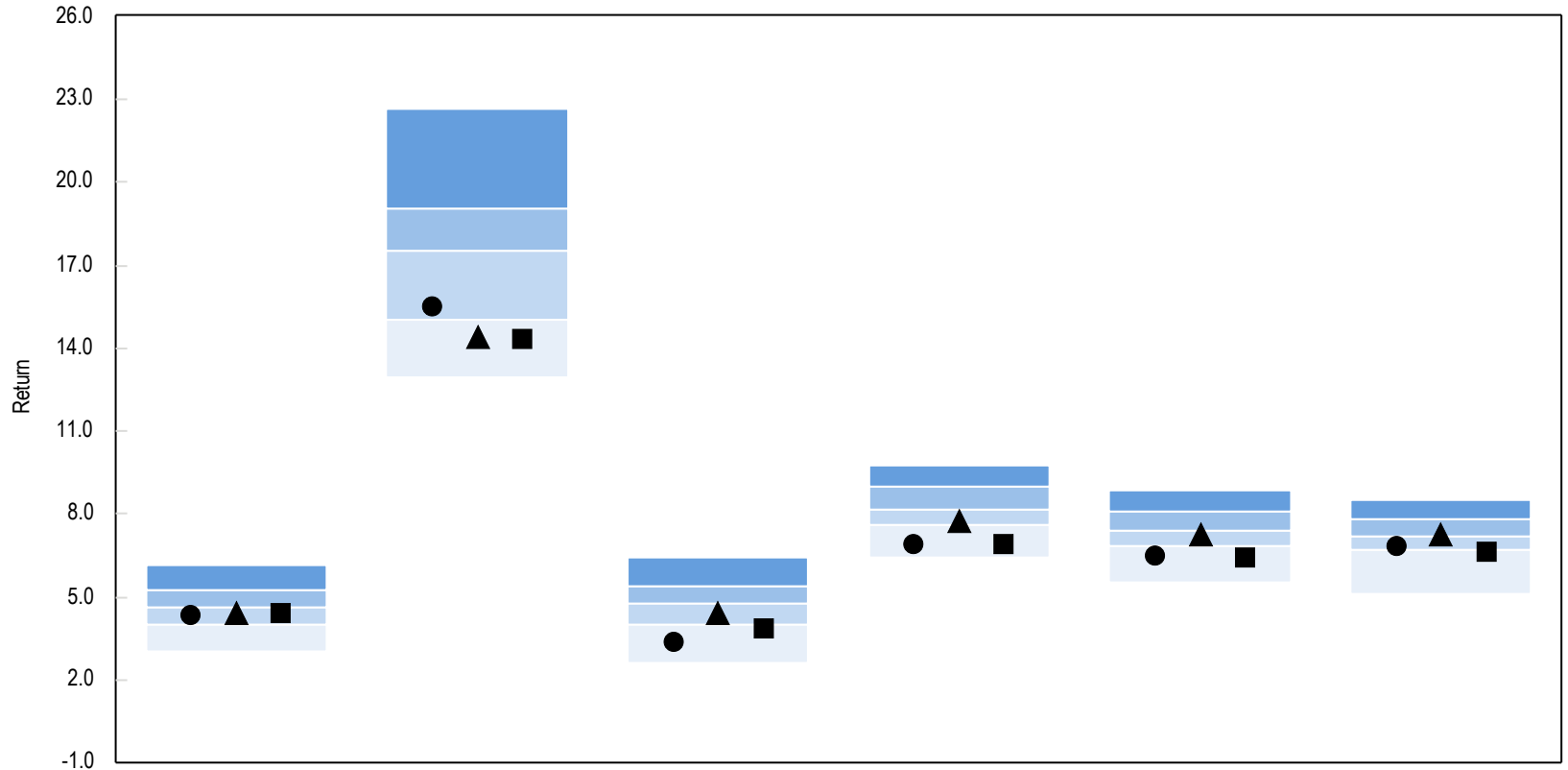
Total Fund  
Investment Fund Fee Analysis

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Expense Fee (%)
PanAgora Risk Parity Multi Asset	Growth	0.35 % of Assets	\$177,896,397	\$622,637	0.35
AFL-CIO	Diversifying	0.32 % of Assets	\$228,497,091	\$731,191	0.32
Sit LLCAR	Diversifying	0.39 % of First \$200 M 0.35 % Thereafter	\$388,147,756	\$1,474,961	0.38
DFA Short Credit	Liquidity	0.20 % of First \$25 M 0.10 % Thereafter	\$424,432,380	\$449,432	0.11
Insight Short Duration	Liquidity	0.06 % of First \$500 M 0.05 % of Next \$500 M 0.04 % Thereafter	\$707,127,703	\$403,564	0.06
Sit Short Duration	Liquidity	0.15 % of Assets	\$749,733,267	\$1,124,600	0.15

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

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



	3 Mo	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	4.35 (61)	15.49 (70)	3.36 (87)	6.89 (89)	6.48 (85)	6.84 (64)
▲ Policy Index	4.40 (60)	14.42 (81)	4.40 (58)	7.77 (67)	7.26 (59)	7.29 (45)
■ Implementation Benchmark	4.40 (60)	14.36 (82)	3.85 (79)	6.90 (88)	6.40 (86)	6.60 (80)

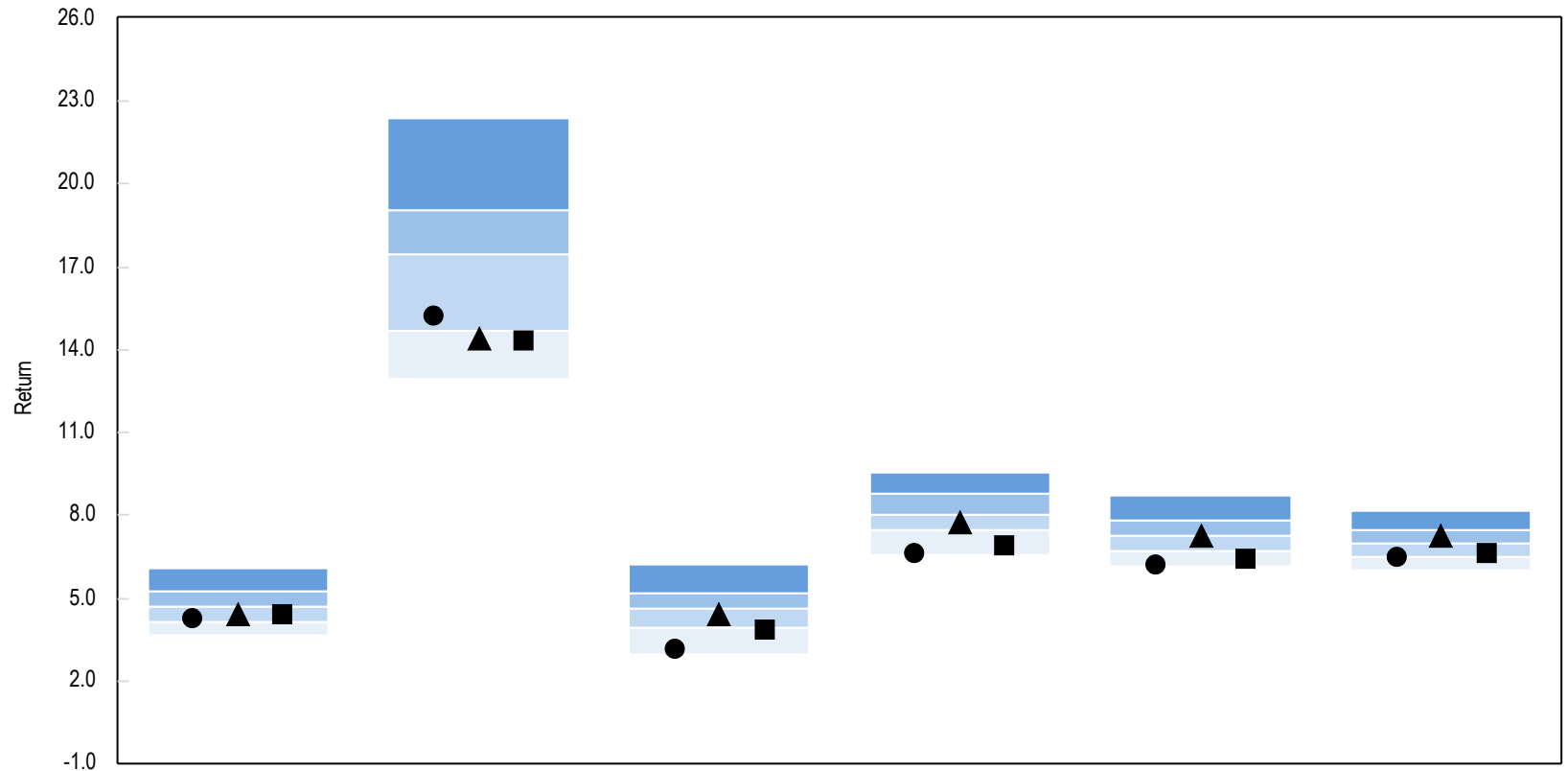
5th Percentile	6.14	22.66	6.41	9.73	8.83	8.53
1st Quartile	5.22	19.04	5.38	8.97	8.10	7.81
Median	4.63	17.52	4.74	8.15	7.42	7.19
3rd Quartile	4.01	15.01	3.99	7.58	6.86	6.71
95th Percentile	3.03	12.92	2.59	6.43	5.55	5.12

Population	120	120	118	117	115	115
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Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

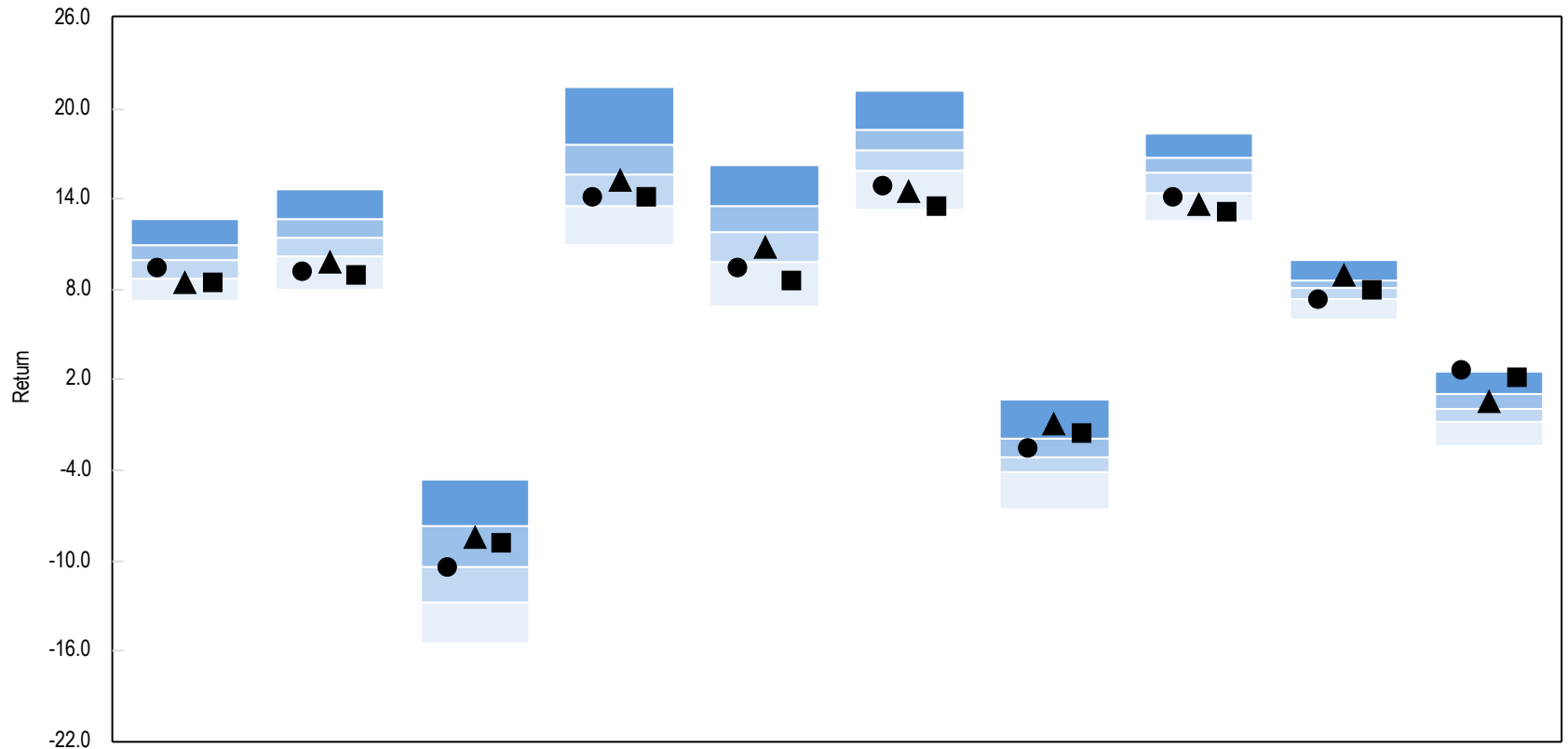


Total Fund Cumulative Performance vs. InvMetrics Public DB >\$1B Net



	3 Mo	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	4.30 (70)	15.24 (73)	3.13 (93)	6.63 (95)	6.21 (94)	6.50 (75)
▲ Policy Index	4.40 (66)	14.42 (81)	4.40 (58)	7.77 (64)	7.26 (49)	7.29 (33)
■ Implementation Benchmark	4.40 (66)	14.36 (81)	3.85 (79)	6.90 (91)	6.40 (87)	6.60 (69)
5th Percentile	6.10	22.42	6.23	9.52	8.74	8.18
1st Quartile	5.28	19.05	5.21	8.78	7.81	7.44
Median	4.70	17.47	4.60	8.03	7.25	6.98
3rd Quartile	4.13	14.70	3.95	7.48	6.74	6.47
95th Percentile	3.65	12.98	2.93	6.59	6.12	5.98
Population	104	104	101	100	98	96

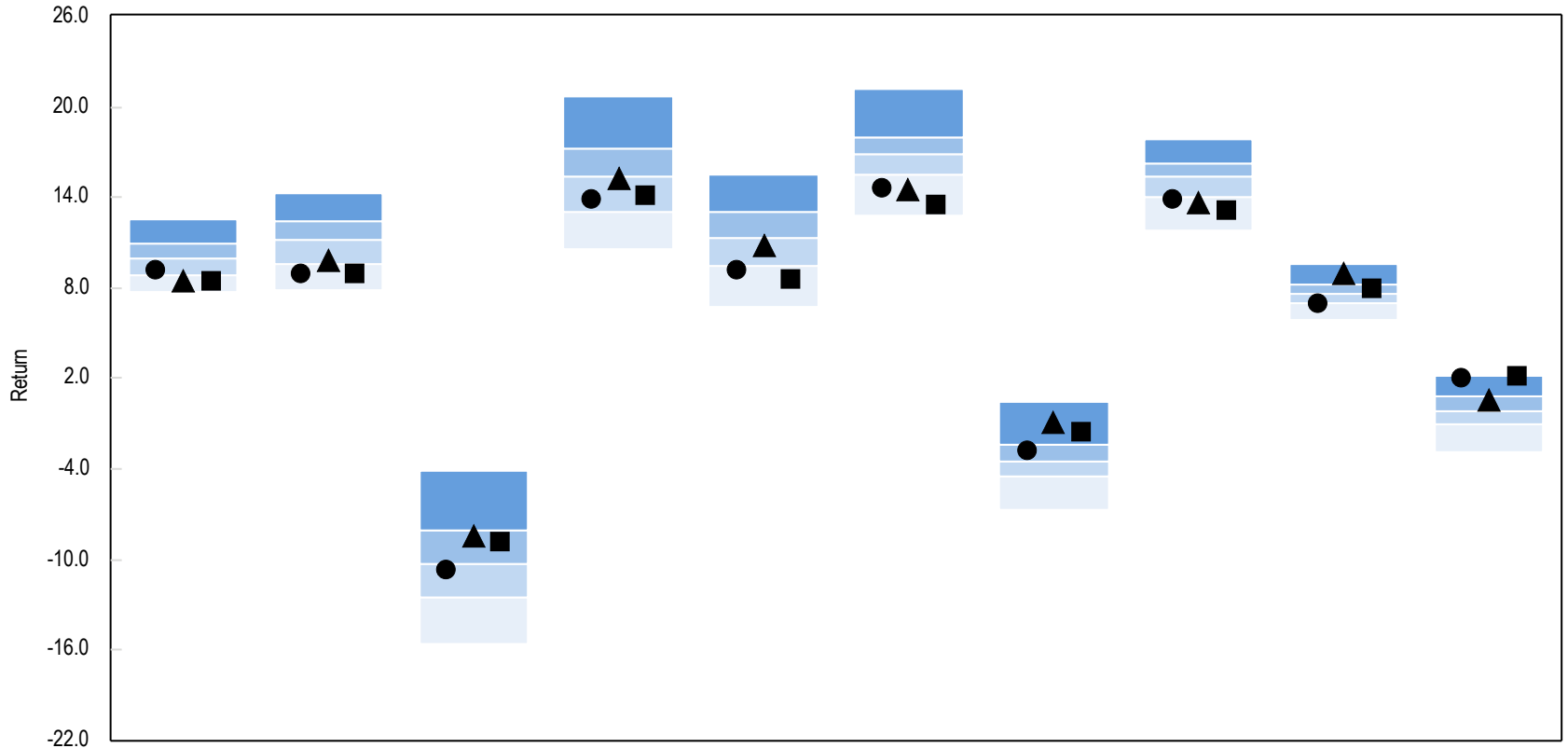
Total Fund Consecutive Periods vs. InvMetrics Public DB >\$1B Gross



	YTD	2023	2022	2021	2020	2019	2018	2017	2016	2015
● Total Fund	9.40 (64)	9.23 (85)	-10.39 (51)	14.21 (65)	9.52 (81)	14.92 (87)	-2.46 (34)	14.18 (79)	7.43 (71)	2.70 (3)
▲ Policy Index	8.45 (79)	9.85 (79)	-8.38 (30)	15.29 (55)	10.81 (64)	14.58 (88)	-0.94 (13)	13.69 (88)	8.93 (15)	0.58 (34)
■ Implementation Benchmark	8.45 (79)	8.99 (87)	-8.74 (33)	14.17 (66)	8.66 (90)	13.59 (95)	-1.52 (17)	13.21 (91)	8.00 (55)	2.18 (11)
5th Percentile	12.69	14.62	-4.61	21.40	16.27	21.18	0.70	18.35	9.91	2.51
1st Quartile	10.90	12.73	-7.71	17.56	13.53	18.55	-1.84	16.78	8.57	1.03
Median	9.98	11.42	-10.37	15.66	11.81	17.28	-3.16	15.80	8.06	0.13
3rd Quartile	8.75	10.15	-12.69	13.49	9.84	15.90	-4.13	14.36	7.35	-0.83
95th Percentile	7.28	8.03	-15.48	10.93	6.83	13.30	-6.57	12.56	5.98	-2.43
Population	120	188	192	226	236	196	173	182	183	178

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

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

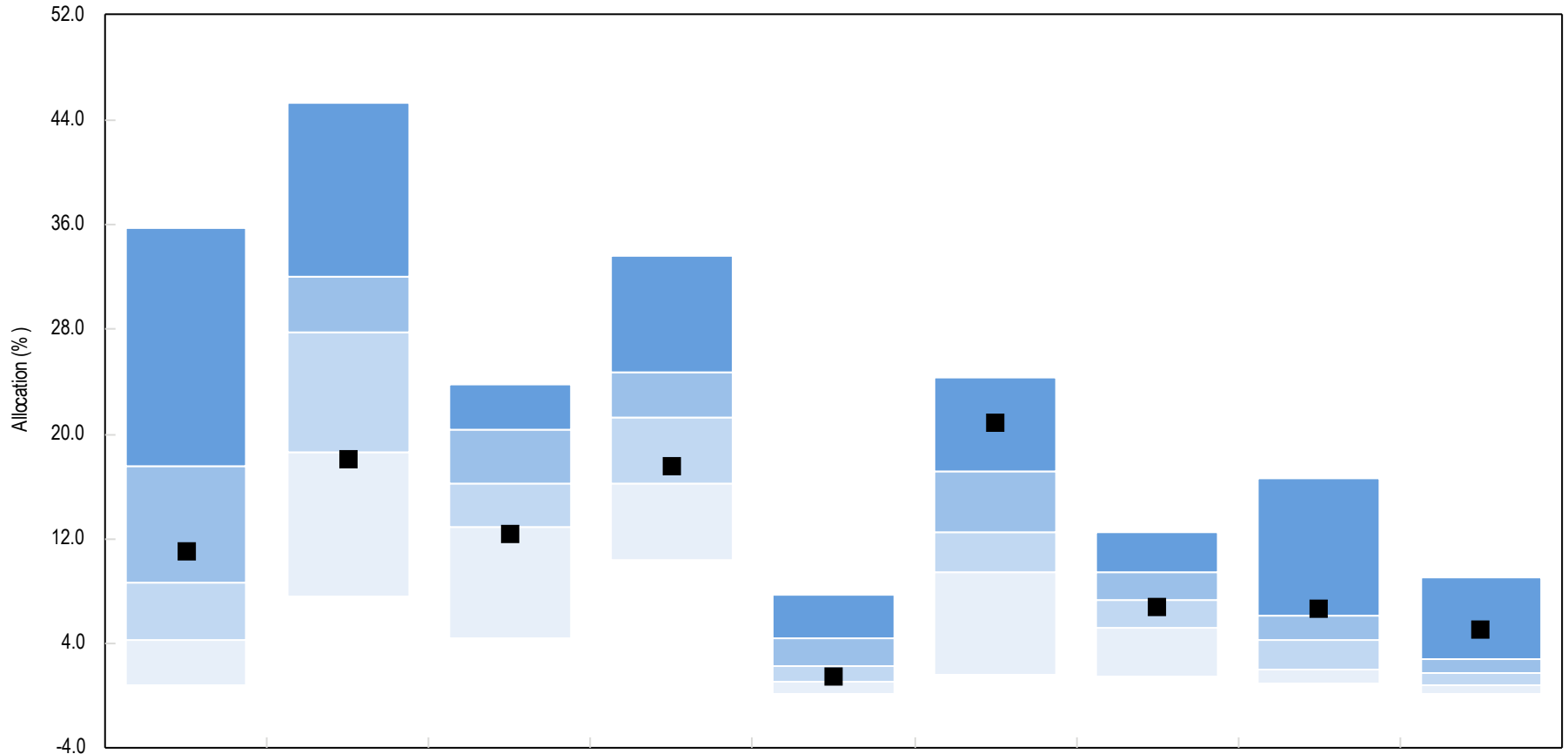


	YTD	2023	2022	2021	2020	2019	2018	2017	2016	2015
● Total Fund	9.23 (71)	9.01 (84)	-10.61 (56)	13.90 (65)	9.23 (77)	14.61 (87)	-2.72 (34)	13.86 (80)	6.94 (77)	2.09 (9)
▲ Policy Index	8.45 (83)	9.85 (74)	-8.38 (29)	15.29 (51)	10.81 (60)	14.58 (88)	-0.94 (9)	13.69 (85)	8.93 (11)	0.58 (27)
■ Implementation Benchmark	8.45 (83)	8.99 (84)	-8.74 (31)	14.17 (62)	8.66 (86)	13.59 (92)	-1.52 (14)	13.21 (89)	8.00 (37)	2.18 (6)
5th Percentile	12.56	14.30	-4.05	20.70	15.50	21.19	0.48	17.87	9.53	2.21
1st Quartile	10.93	12.44	-8.02	17.19	13.09	18.03	-2.33	16.31	8.24	0.83
Median	9.92	11.24	-10.32	15.34	11.27	16.83	-3.52	15.36	7.63	-0.16
3rd Quartile	8.83	9.62	-12.50	13.11	9.45	15.54	-4.47	14.09	7.02	-1.08
95th Percentile	7.71	7.84	-15.59	10.59	6.81	12.77	-6.74	11.82	5.86	-2.87
Population	104	177	177	207	217	193	170	180	175	171

Total Fund  
Peer Universe Comparison: Asset Allocation

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

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



	Global Equity	US Equity	Global ex-US Equity	US Fixed	Global ex-US Fixed	Private Equity	Total Real Estate	Multi-Asset	Cash & Equivalents
■ Total Fund	11.1 (39)	18.1 (77)	12.4 (78)	17.6 (69)	1.4 (66)	20.9 (12)	6.8 (57)	6.7 (19)	5.1 (12)
5th Percentile	35.8	45.3	23.8	33.7	7.7	24.4	12.5	16.6	9.0
1st Quartile	17.5	32.0	20.4	24.7	4.4	17.2	9.4	6.1	2.8
Median	8.7	27.8	16.3	21.3	2.3	12.4	7.4	4.3	1.8
3rd Quartile	4.2	18.6	12.9	16.2	1.1	9.4	5.2	2.0	0.8
95th Percentile	0.7	7.6	4.4	10.3	0.1	1.6	1.5	1.0	0.1
Population	40	104	104	106	44	96	95	23	100

# Domestic Equity Managers

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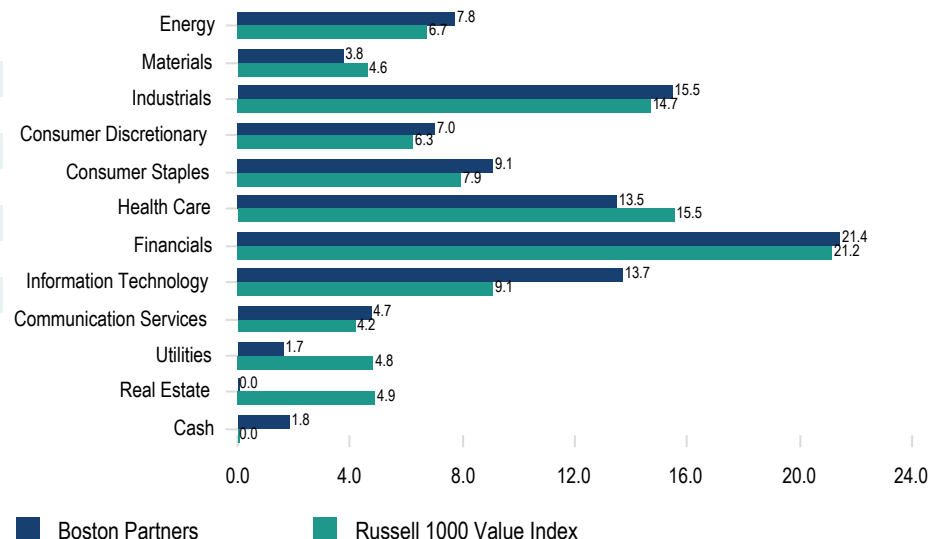
# Boston Partners Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

## Characteristics

	Portfolio	Benchmark
Number of Stocks	88	872
Wtd. Avg. Mkt. Cap \$M	179,896.66	172,124.77
Median Mkt. Cap \$M	50,908.95	14,225.07
Price/Earnings ratio	20.58	20.80
Price/Book ratio	3.19	2.85
Return on Equity (%)	-1.73	3.06
Current Yield (%)	1.72	2.06
Beta (5 Years, Monthly)	1.01	1.00

## Sector Allocation (%) vs. Russell 1000 Value Index



## Largest Holdings

## Top Contributors

## Top Detractors

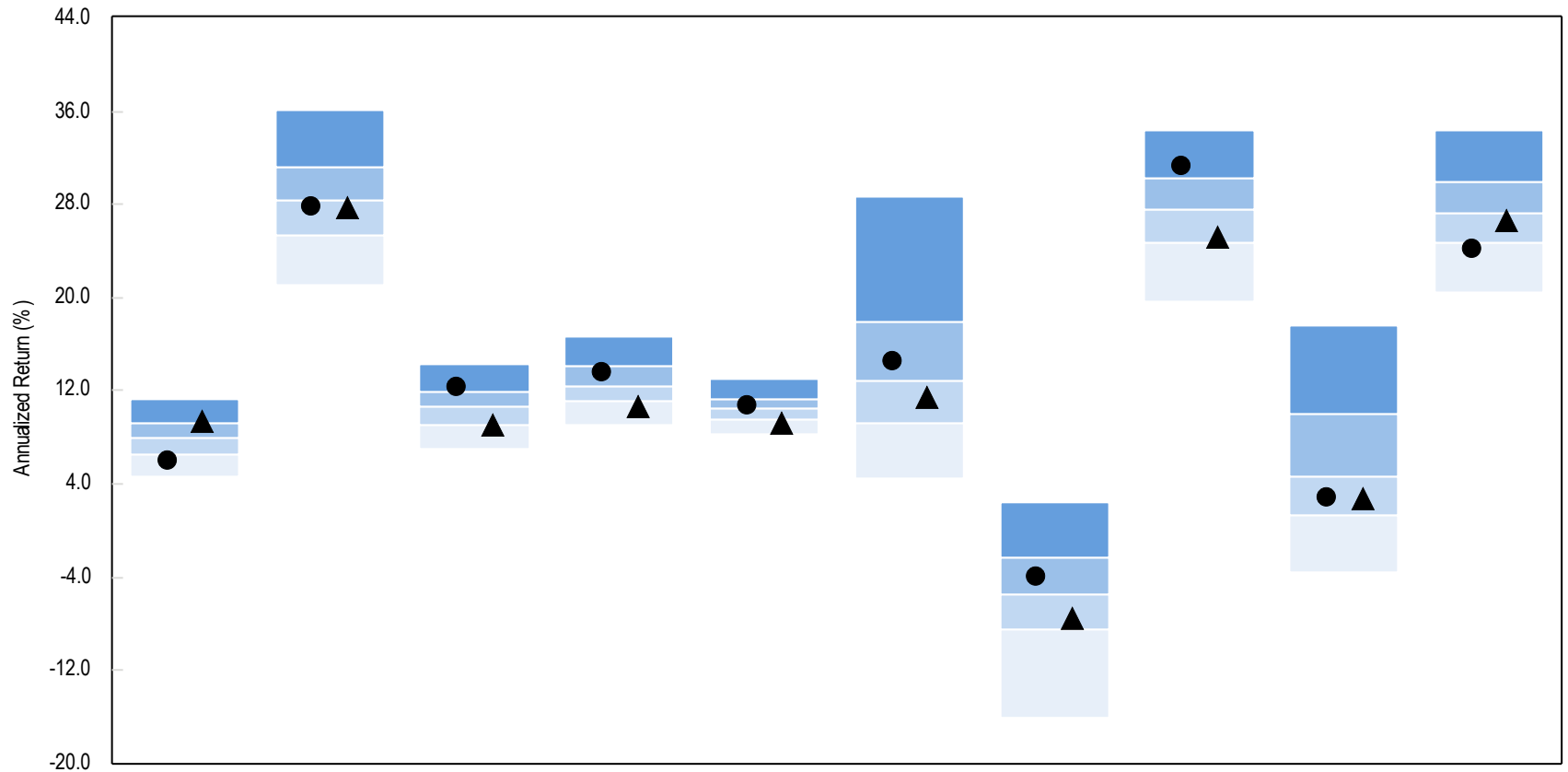
	End Weight (%)	Quarterly Return (%)
JPMorgan Chase & Co	4.40	4.84
Oracle Corp	2.96	21.02
Alphabet Inc	2.48	-8.83
UnitedHealth Group	2.16	15.22
Philip Morris International Inc	2.08	21.14
Morgan Stanley	1.93	8.22
Fidelity National Information Services Inc	1.76	11.61
CRH PLC	1.75	24.17
American Express Co	1.72	17.47
AMERISOURCEBERGEN	1.68	0.12

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Oracle Corp	2.45	21.02	0.51
Philip Morris International Inc	1.97	21.14	0.42
Walmart Inc	1.96	19.60	0.38
Howmet Aerospace Inc	1.17	29.25	0.34
United Rentals Inc.	1.25	25.49	0.32
Sanofi	1.69	18.78	0.32
CRH PLC	1.30	24.17	0.31
American Express Co	1.66	17.47	0.29
T-Mobile US Inc	1.52	17.51	0.27
Bristol-Myers Squibb Co	0.96	26.47	0.25
% of Portfolio	15.93		3.42

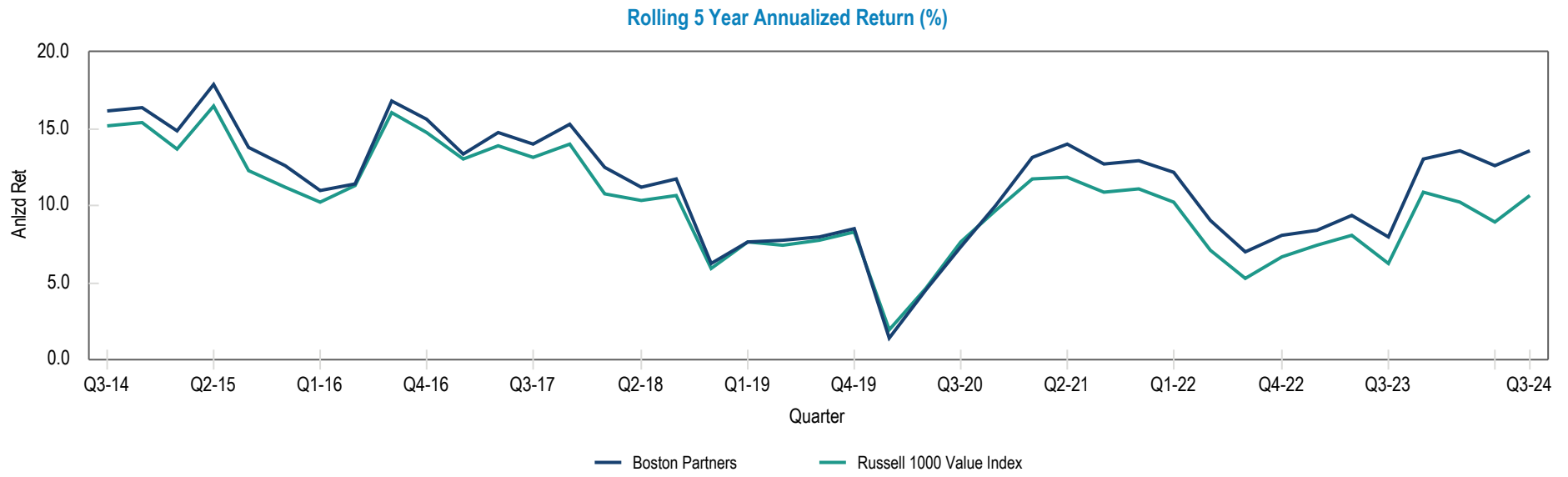
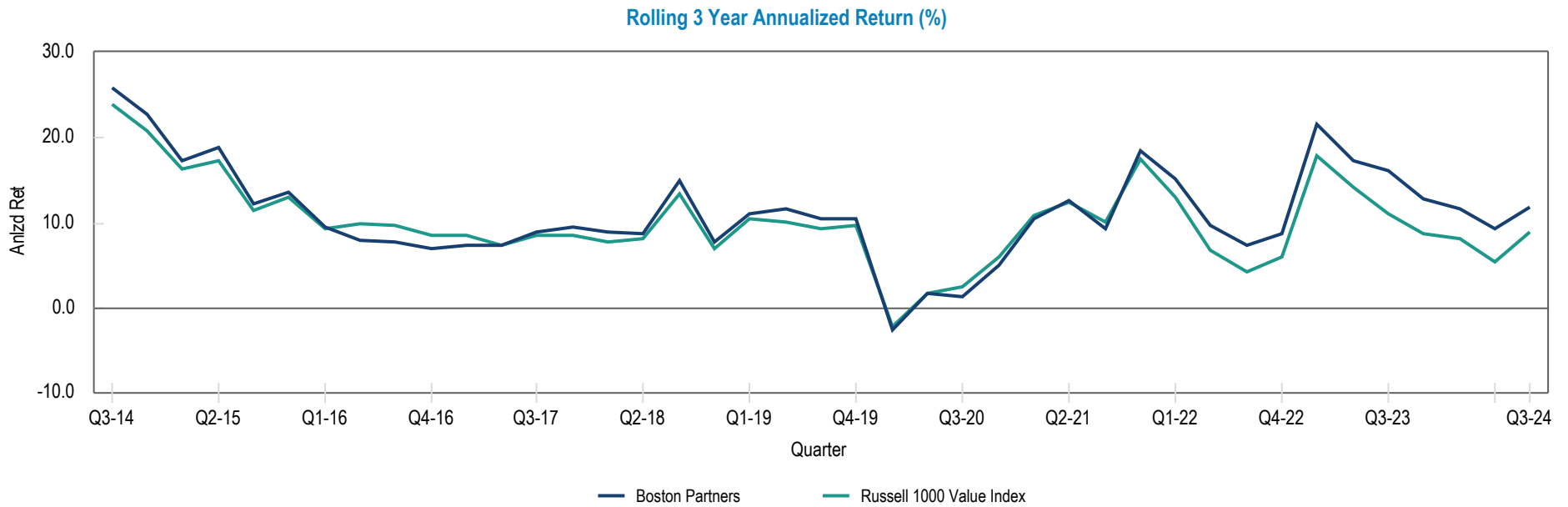
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Micron Technology Inc.	1.97	-21.08	-0.41
Alphabet Inc	3.82	-8.83	-0.34
Dell Technologies Inc	1.95	-13.74	-0.27
Cenovus Energy Inc	1.72	-14.21	-0.24
Applied Materials Inc	1.63	-14.21	-0.23
McKesson Corp	1.40	-15.24	-0.21
Microchip Technology Inc	1.34	-11.75	-0.16
Lam Research Corp	0.65	-23.13	-0.15
Diamondback Energy Inc	1.10	-12.86	-0.14
Schlumberger Ltd	1.29	-10.49	-0.14
% of Portfolio	16.87		-2.30

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

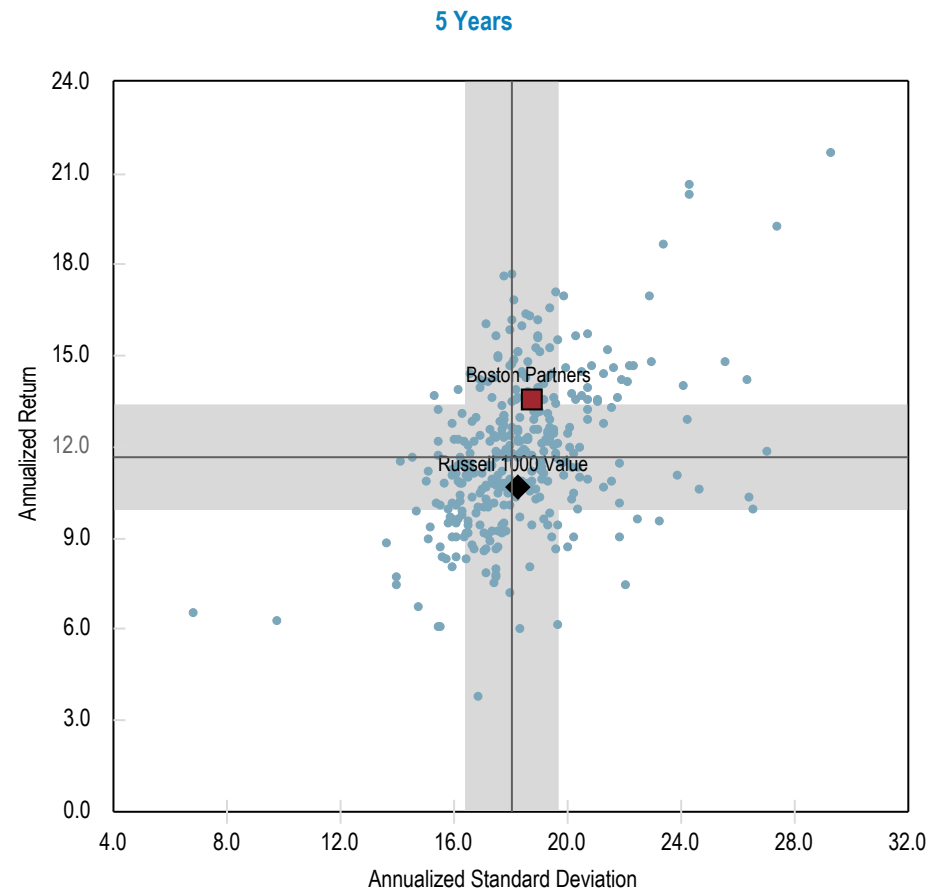
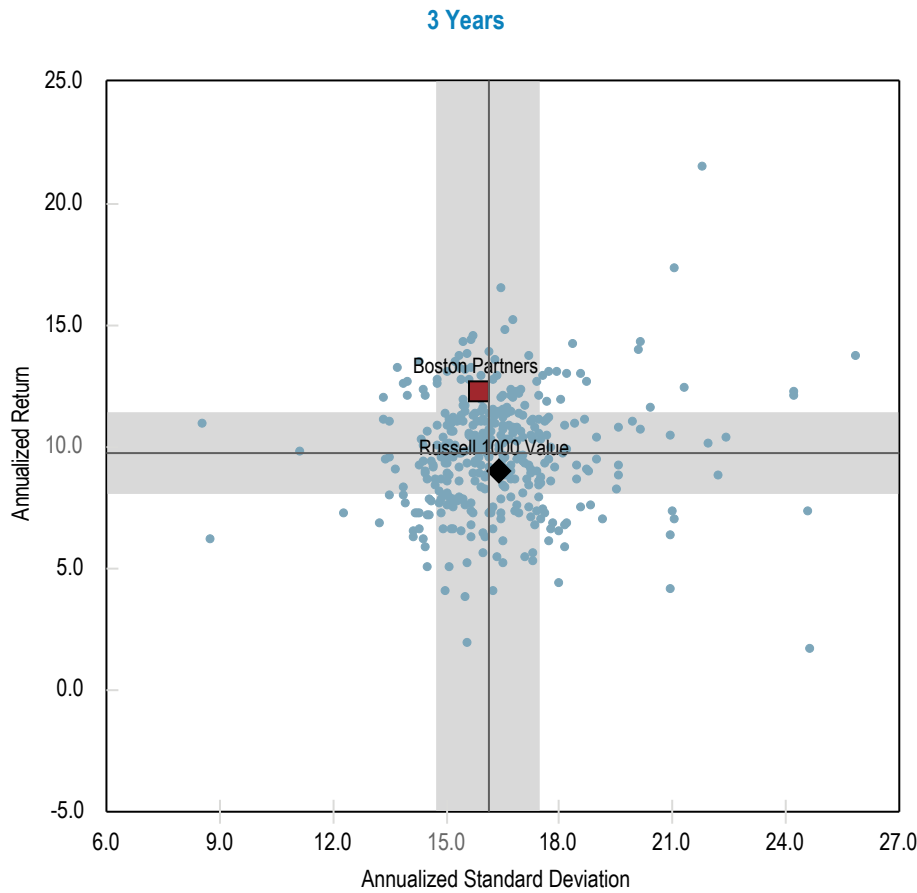
Boston Partners vs. eV US Large Cap Value Equity Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Boston Partners	6.07 (84)	27.84 (55)	12.32 (20)	13.59 (30)	10.78 (40)	14.67 (39)	-3.82 (36)	31.34 (19)	2.96 (64)	24.26 (79)
▲ Russell 1000 Value Index	9.43 (24)	27.76 (56)	9.03 (76)	10.69 (82)	9.23 (84)	11.46 (62)	-7.54 (69)	25.16 (72)	2.80 (64)	26.54 (57)
5th Percentile	11.36	36.08	14.29	16.59	13.08	28.64	2.36	34.34	17.56	34.33
1st Quartile	9.31	31.15	11.84	14.15	11.31	17.90	-2.38	30.18	10.06	29.95
Median	8.00	28.34	10.60	12.35	10.51	12.86	-5.43	27.60	4.69	27.18
3rd Quartile	6.58	25.40	9.05	11.06	9.57	9.25	-8.50	24.70	1.30	24.74
95th Percentile	4.69	21.16	6.99	9.10	8.36	4.43	-16.01	19.62	-3.52	20.39
Population	376	375	367	354	317	405	417	425	432	458







	<b>3 Years</b>		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Boston Partners	12.3	15.9	0.6
Russell 1000 Value Index	9.0	16.4	0.4
eV US Large Cap Value Equity Median	10.6	16.2	0.5
Population	367	367	367

	<b>5 Years</b>		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Boston Partners	13.6	18.7	0.7
Russell 1000 Value Index	10.7	18.3	0.5
eV US Large Cap Value Equity Median	12.3	18.0	0.6
Population	354	354	354

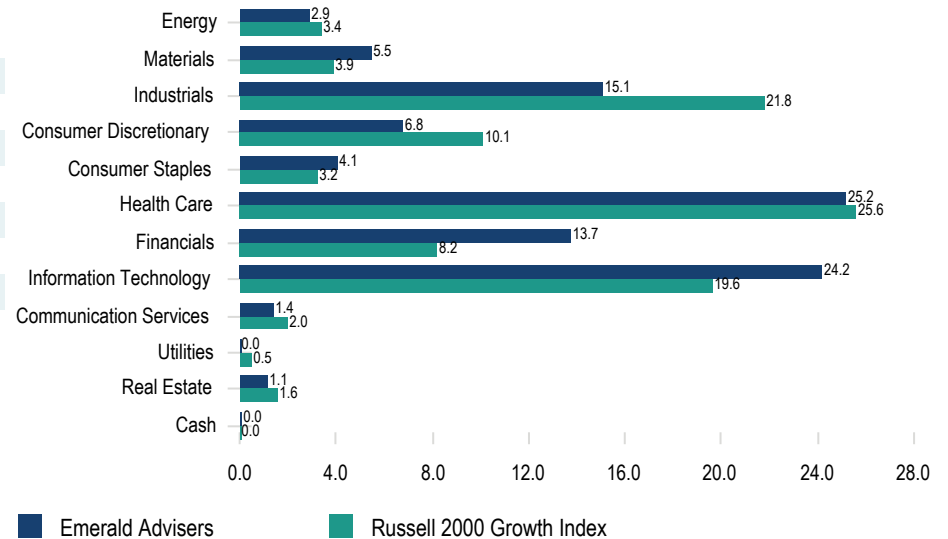
Emerald Advisers  
 Manager Portfolio Overview

Contra Costa County Employees' Retirement Association  
 Period Ending: September 30, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	115	1,120
Wtd. Avg. Mkt. Cap \$M	4,649.01	4,130.75
Median Mkt. Cap \$M	3,210.49	1,176.31
Price/Earnings ratio	29.04	24.08
Price/Book ratio	4.19	4.27
Return on Equity (%)	-22.41	3.53
Current Yield (%)	0.45	0.59
Beta (5 Years, Monthly)	0.94	1.00

Sector Allocation (%) vs. Russell 2000 Growth Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
FTAI Aviation Ltd	3.42	29.11
Freshpet Inc	2.74	5.70
Carpenter Technology Corp	2.47	45.83
Varonis Systems Inc	2.17	17.78
Q2 Holdings Inc	2.14	32.22
Insmed Inc	2.00	8.95
Credo Technology Group Holding Ltd	1.96	-3.57
Palomar Holdings Inc	1.83	16.66
RadNet Inc	1.80	17.77
Baldwin Insurance Group Inc (The)	1.76	40.40

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Carpenter Technology Corp	2.78	45.83	1.27
FTAI Aviation Ltd	3.62	29.11	1.05
Baldwin Insurance Group Inc (The)	1.31	40.40	0.53
Q2 Holdings Inc	1.57	32.22	0.51
Traverse Therapeutics Inc	0.63	70.19	0.44
Impinj Inc	1.05	38.11	0.40
Varonis Systems Inc	1.95	17.78	0.35
ATI Inc	1.58	20.67	0.33
RadNet Inc	1.62	17.77	0.29
Ultragenyx Pharmaceutical Inc	0.79	35.16	0.28

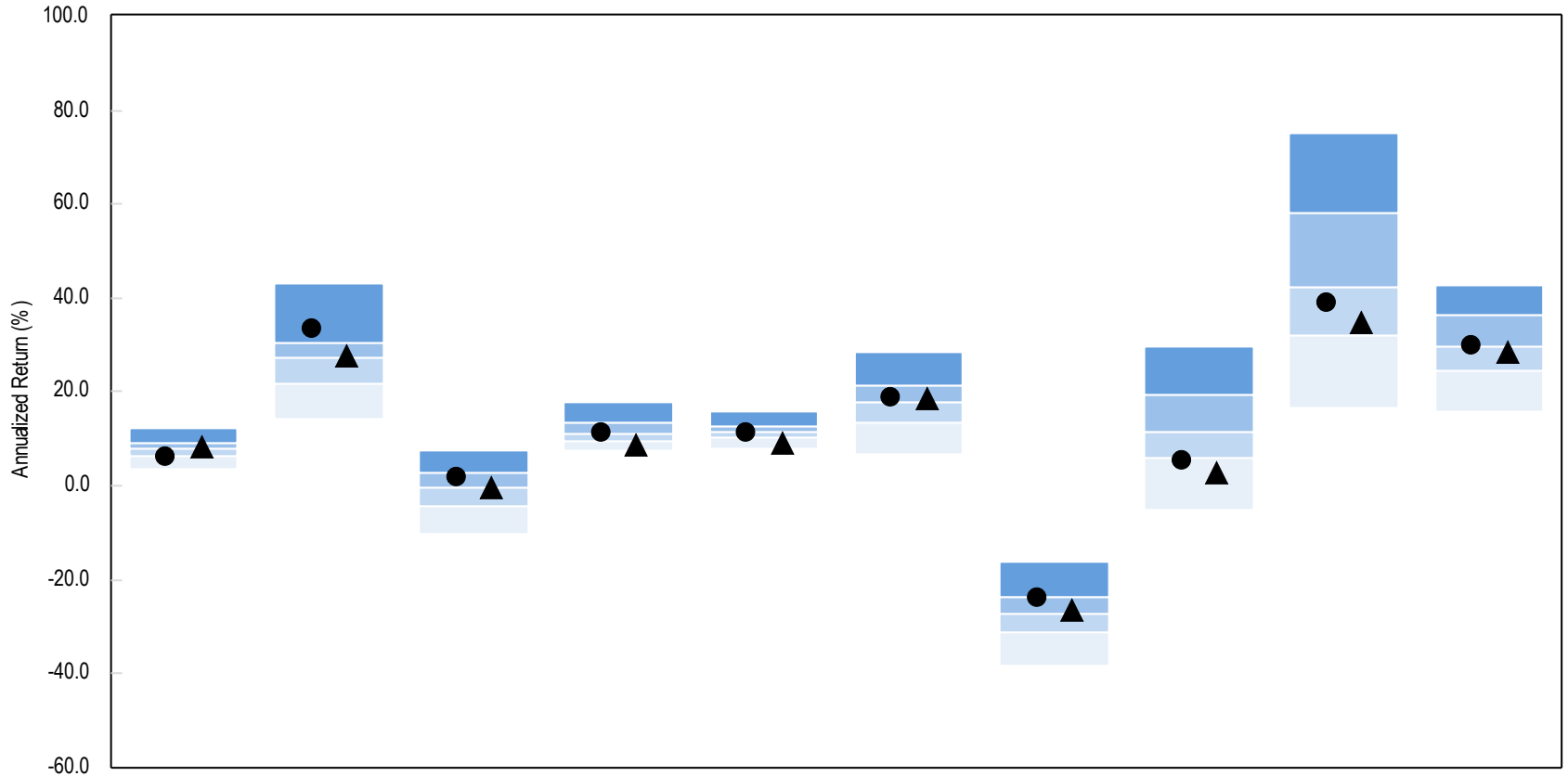
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Super Micro Computer Inc	3.03	-49.18	-1.49
Montrose Environmental Group Inc	1.31	-40.98	-0.54
FormFactor Inc	1.41	-24.00	-0.34
Madrigal Pharmaceuticals Inc	1.14	-24.25	-0.28
Arhaus Inc	0.95	-27.33	-0.26
Blueprint Medicines Corp	1.77	-14.18	-0.25
Rambus Inc	0.87	-28.15	-0.24
indie Semiconductor Inc	0.66	-35.33	-0.23
Tidewater Inc.	0.82	-24.60	-0.20
Chart Industries Inc	1.42	-13.99	-0.20

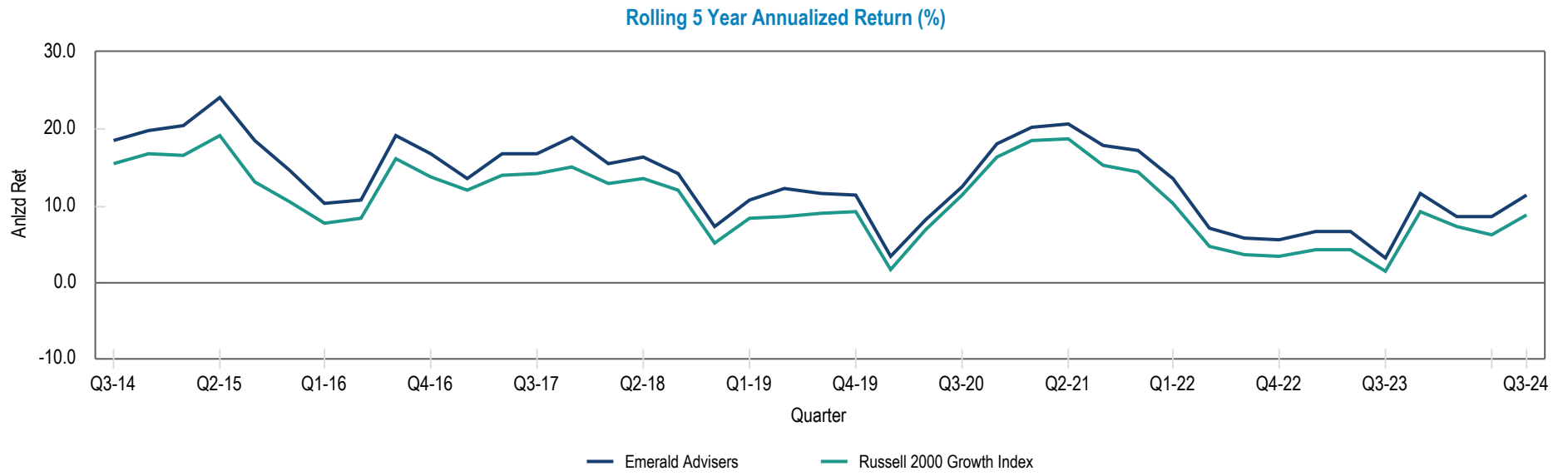
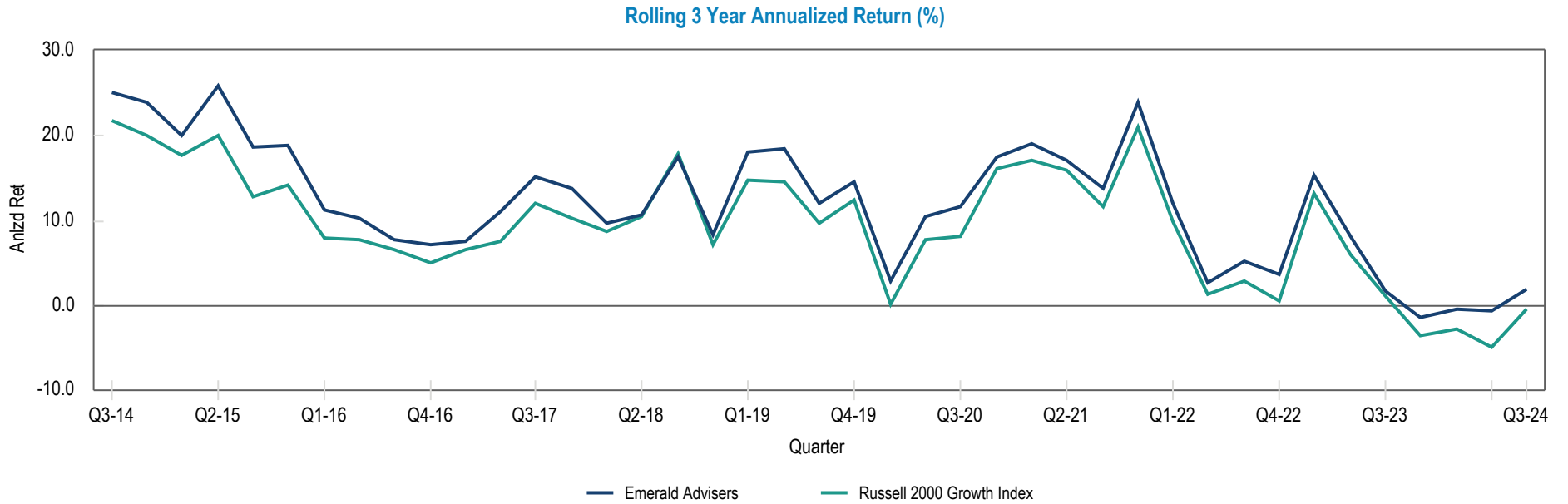
% of Portfolio 16.90 5.44 % of Portfolio 13.38 -4.03

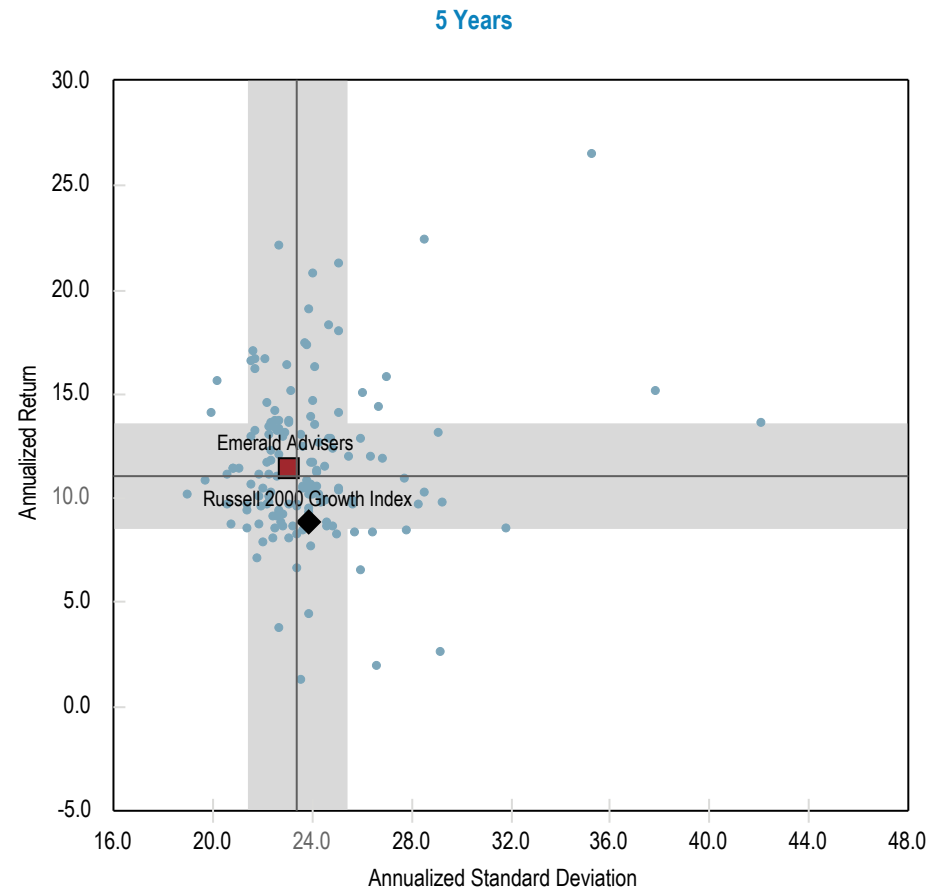
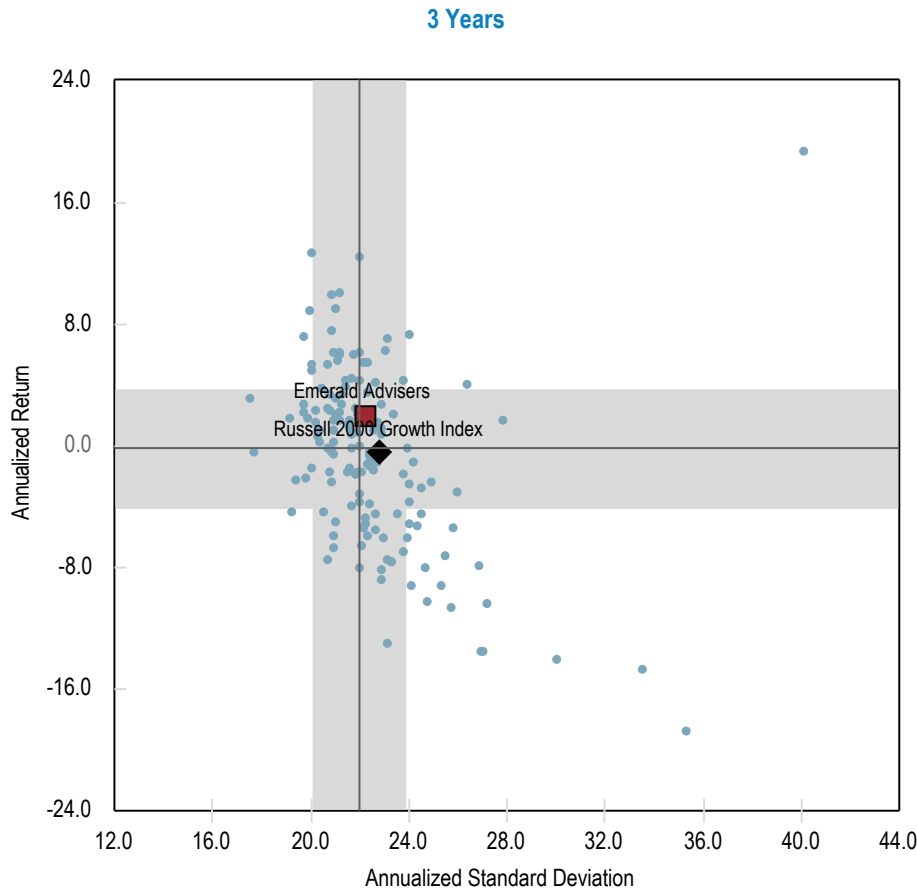
Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

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



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Emerald Advisers	6.33 (78)	33.58 (17)	1.99 (32)	11.48 (42)	11.61 (46)	19.15 (41)	-23.75 (27)	5.53 (77)	38.96 (57)	30.26 (48)
▲ Russell 2000 Growth Index	8.41 (38)	27.66 (50)	-0.35 (52)	8.82 (82)	8.95 (94)	18.66 (44)	-26.36 (44)	2.83 (85)	34.63 (67)	28.48 (53)
5th Percentile	12.41	43.20	7.45	17.74	15.87	28.49	-16.22	29.85	74.94	42.60
1st Quartile	9.19	30.50	2.79	13.40	12.87	21.30	-23.57	19.34	58.29	36.52
Median	7.77	27.49	-0.19	11.04	11.42	17.64	-27.24	11.57	42.23	29.57
3rd Quartile	6.40	21.60	-4.42	9.57	10.32	13.41	-31.04	5.90	31.98	24.74
95th Percentile	3.52	14.37	-10.28	7.47	8.05	6.75	-38.39	-4.90	16.54	15.94
Population	155	155	155	151	138	162	172	183	184	190





	3 Years Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Emerald Advisers	2.0	22.2	0.0
Russell 2000 Growth Index	-0.4	22.8	-0.1
eV US Small Cap Growth Equity Median	-0.2	22.0	-0.1
Population	155	155	155

	5 Years Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Emerald Advisers	11.5	23.0	0.5
Russell 2000 Growth Index	8.8	23.9	0.4
eV US Small Cap Growth Equity Median	11.0	23.4	0.5
Population	151	151	151

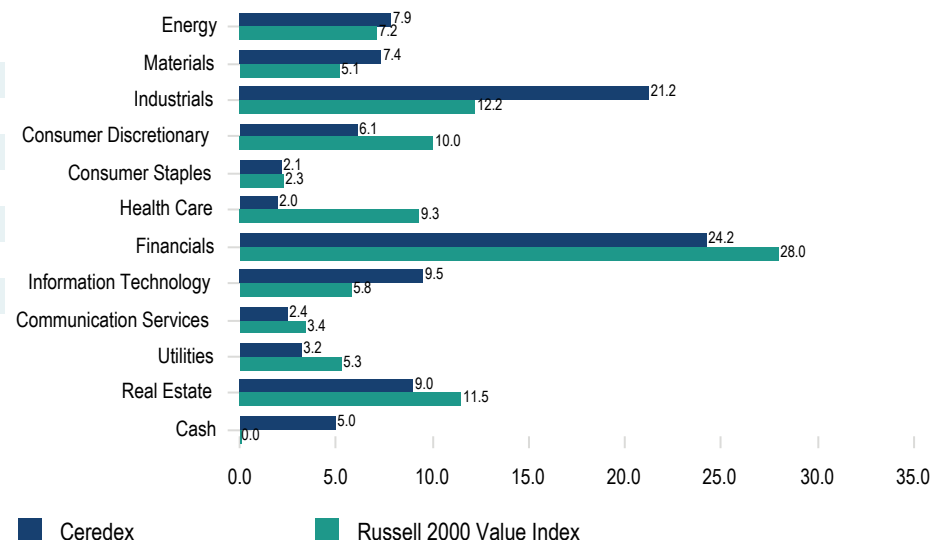
Ceredex  
Manager Portfolio Overview

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	78	1,438
Wtd. Avg. Mkt. Cap \$M	5,842.90	2,842.43
Median Mkt. Cap \$M	6,168.41	782.32
Price/Earnings ratio	19.51	14.21
Price/Book ratio	2.25	1.65
Return on Equity (%)	2.61	-0.04
Current Yield (%)	2.29	2.13
Beta (5 Years, Monthly)	0.85	1.00

Sector Allocation (%) vs. Russell 2000 Value Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
MSC Industrial Direct Co Inc.	1.93	9.70
Hexcel Corp	1.90	-0.75
IDACORP Inc.	1.62	11.58
Matador Resources Co	1.60	-16.79
OGE Energy Corp	1.60	16.27
Amkor Technology Inc	1.55	-23.33
Littelfuse Inc	1.55	4.05
Range Resources Corp.	1.54	-8.01
Prosperity Bancshares Inc	1.52	18.79
TD SYNEX Corporation	1.49	4.42

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Carpenter Technology Corp	1.87	45.83	0.86
Belden Inc	1.81	24.94	0.45
Progress Software Corp	1.83	24.54	0.45
PROG Holdings Inc	1.10	40.19	0.44
Schneider National Inc	2.29	18.53	0.42
Cogent Communications	1.05	36.35	0.38
Colliers International Group Inc	1.04	35.97	0.37
SouthState Corporation	1.33	27.94	0.37
Curtiss-Wright Corp	1.71	21.37	0.37
Agree Realty Corp	1.59	22.88	0.36

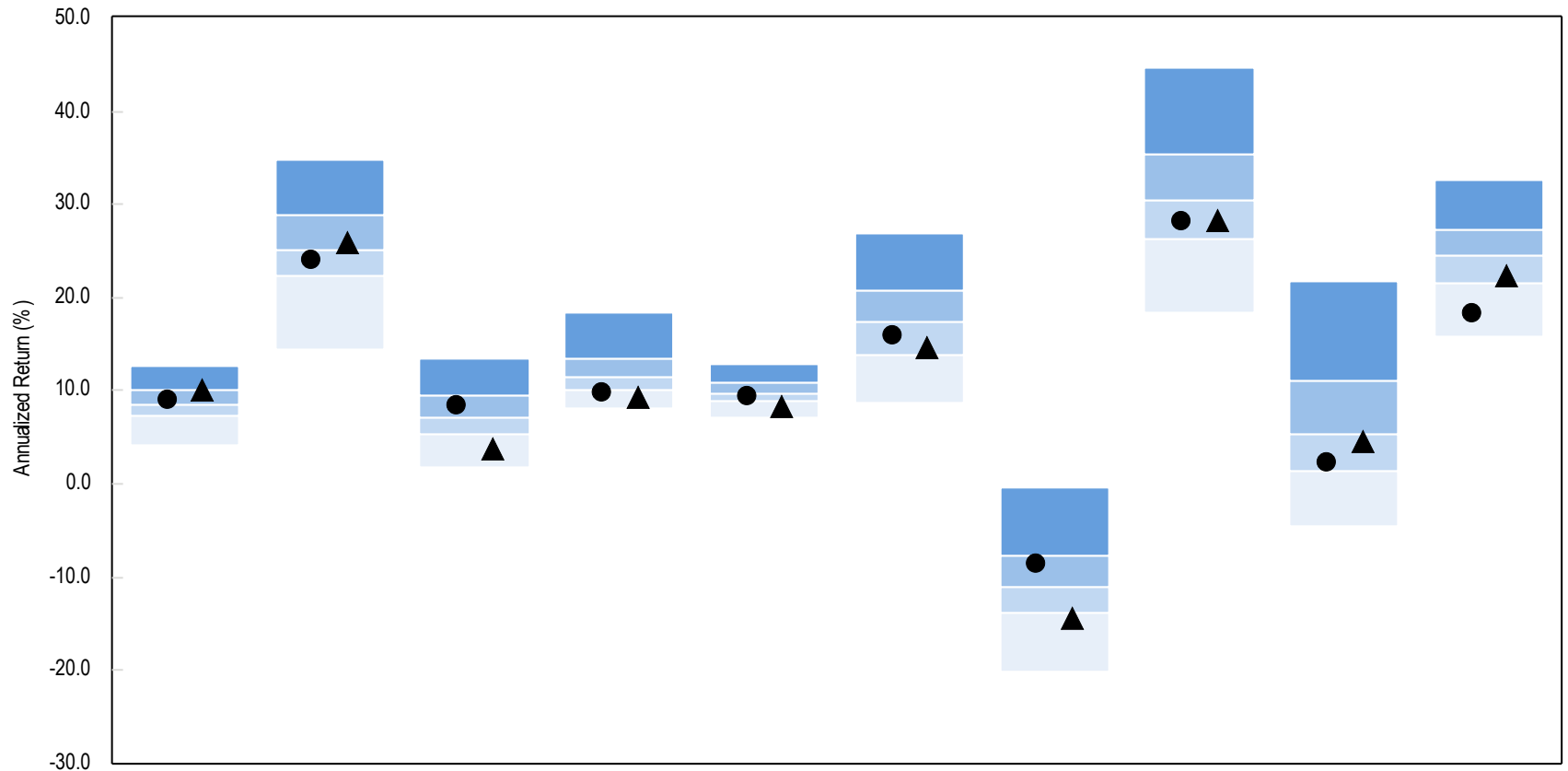
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Chord Energy Corp	1.64	-21.02	-0.34
Matador Resources Co	1.76	-16.79	-0.30
Atkore Inc	0.68	-36.99	-0.25
NOV Inc	1.49	-15.59	-0.23
MKS Instruments Inc	1.16	-16.59	-0.19
ChampionX Corp	1.76	-8.95	-0.16
Autoliv Inc	1.25	-12.14	-0.15
Ashland Inc	1.74	-7.54	-0.13
Range Resources Corp.	1.54	-8.01	-0.12
Kulicke and Soffa Industries Inc	1.54	-7.82	-0.12

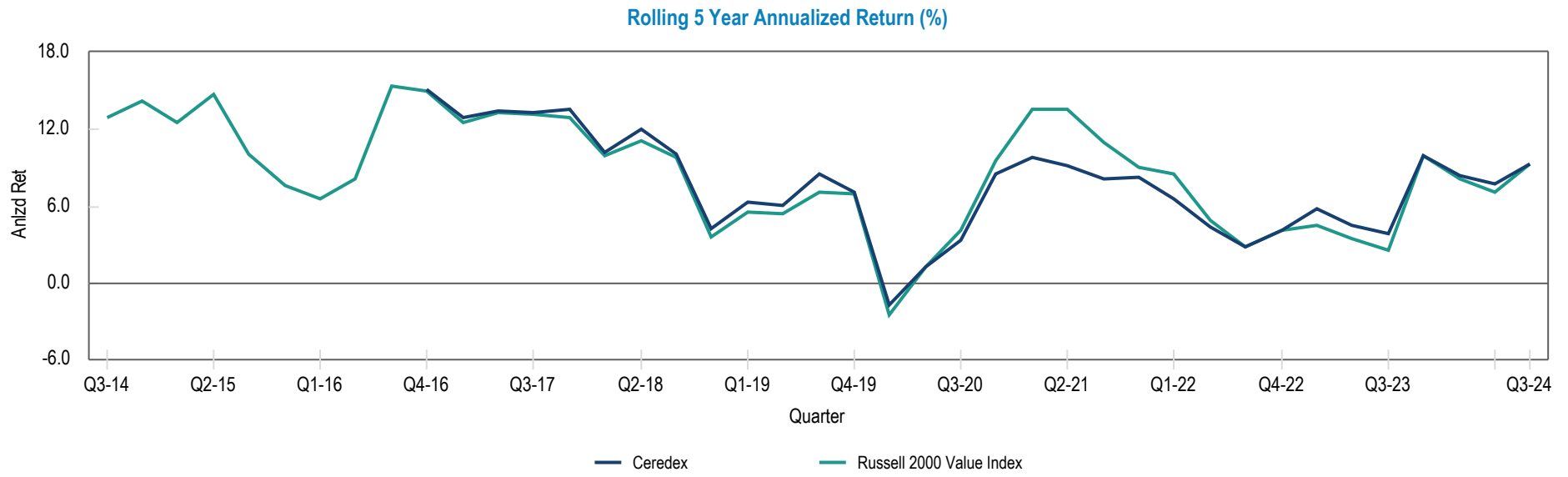
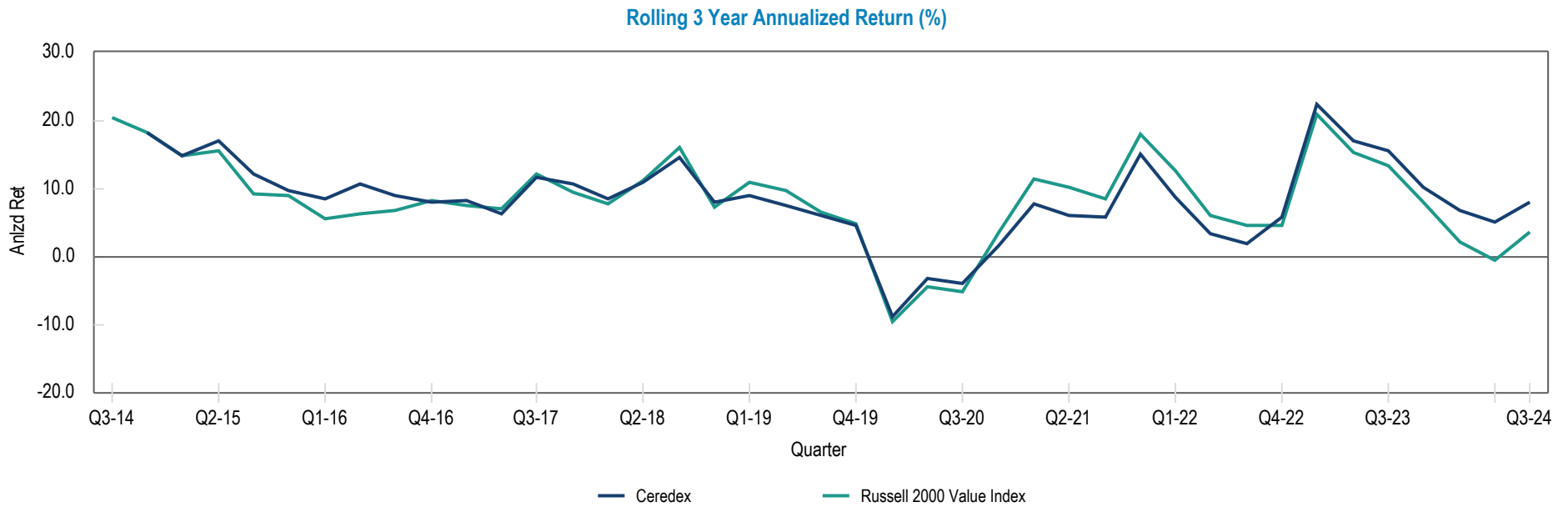
% of Portfolio 15.62 4.48 % of Portfolio 14.56 -2.00

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

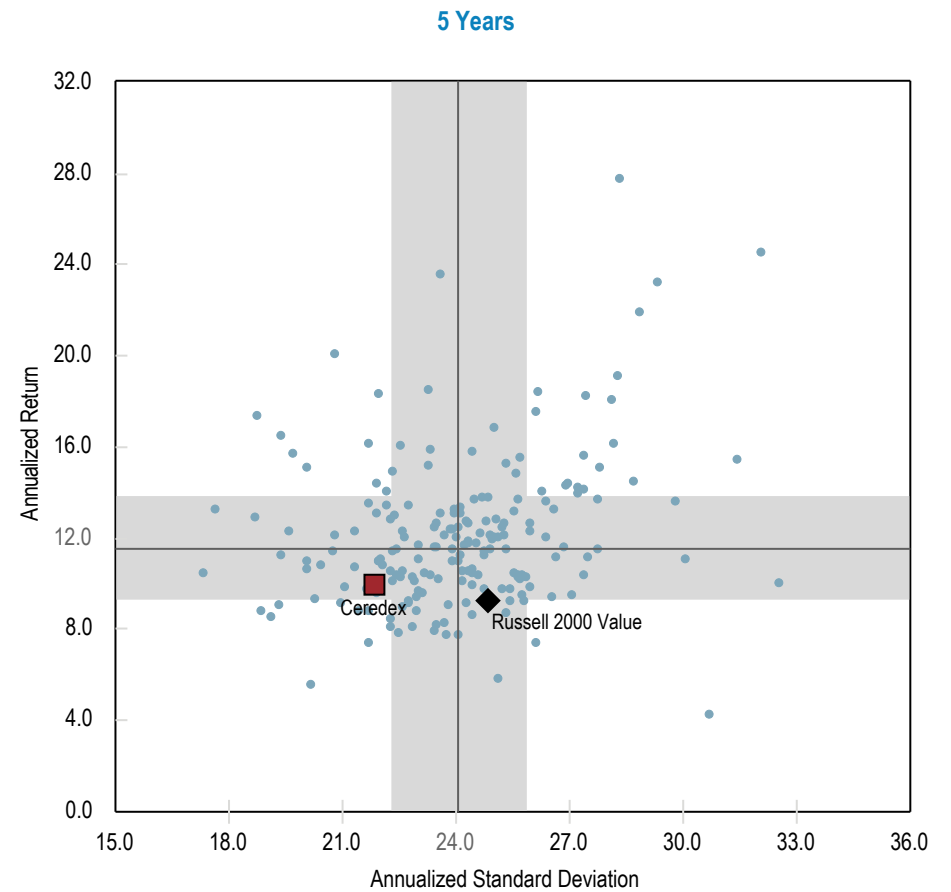
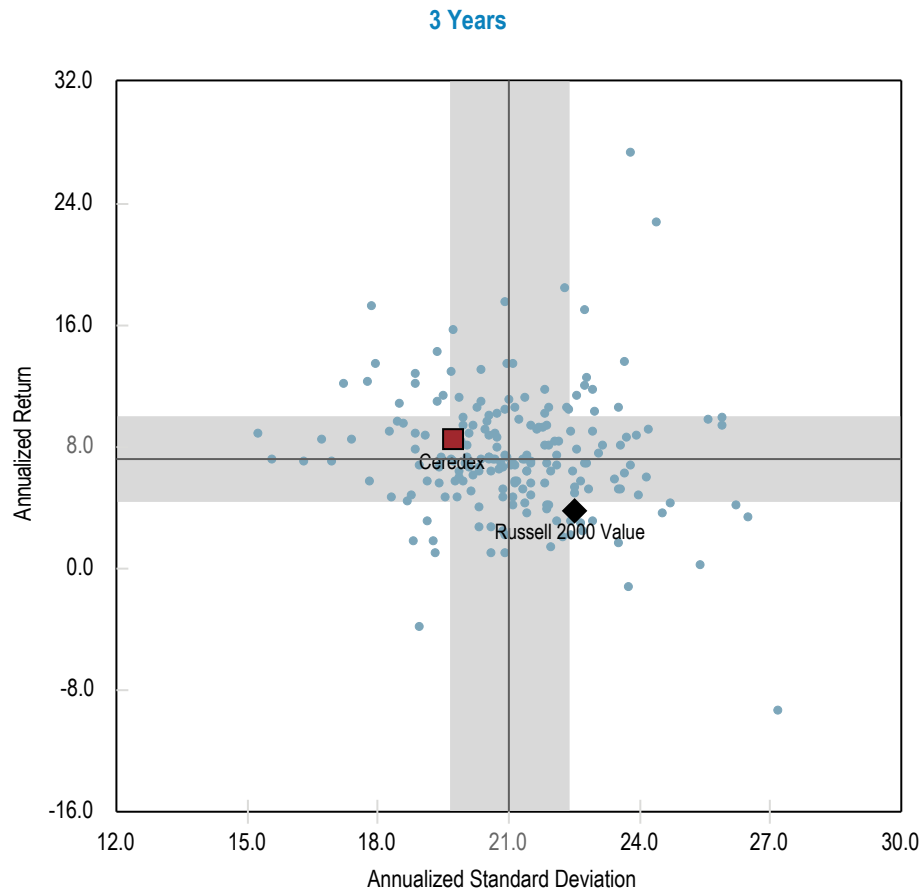
Ceredex vs. eV US Small Cap Value Equity Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Ceredex	9.05 (39)	24.16 (61)	8.57 (36)	9.96 (76)	9.59 (51)	16.02 (62)	-8.46 (28)	28.37 (59)	2.32 (70)	18.36 (88)
▲ Russell 2000 Value Index	10.15 (25)	25.88 (43)	3.77 (88)	9.29 (86)	8.22 (90)	14.65 (71)	-14.48 (79)	28.27 (59)	4.63 (55)	22.39 (70)
5th Percentile	12.57	34.88	13.55	18.32	12.80	26.83	-0.41	44.60	21.68	32.72
1st Quartile	10.13	28.83	9.44	13.45	10.80	20.71	-7.73	35.35	11.03	27.36
Median	8.58	25.06	7.20	11.57	9.63	17.34	-10.95	30.48	5.40	24.42
3rd Quartile	7.32	22.28	5.33	10.11	8.84	13.94	-13.88	26.22	1.38	21.58
95th Percentile	4.11	14.39	1.82	8.12	7.15	8.80	-20.05	18.39	-4.57	15.75
Population	200	200	198	195	170	213	221	233	248	256







	<b>3 Years</b>		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Ceredex	8.6	19.7	0.3
Russell 2000 Value Index	3.8	22.5	0.1
eV US Small Cap Value Equity Median	7.2	21.0	0.3
Population	198	198	198

	<b>5 Years</b>		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Ceredex	10.0	21.8	0.4
Russell 2000 Value Index	9.3	24.8	0.4
eV US Small Cap Value Equity Median	11.6	24.1	0.5
Population	195	195	195

# International Equity Managers

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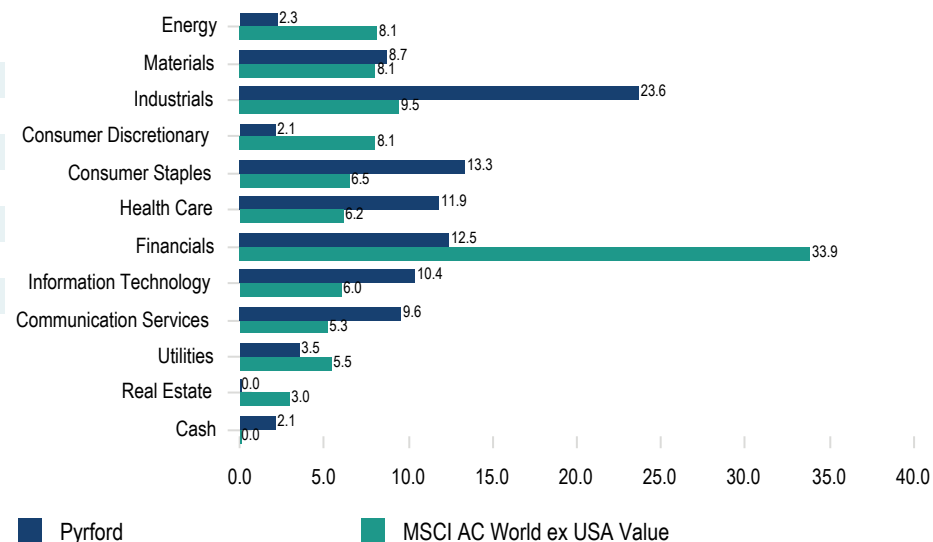
# Pyrford Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

## Characteristics

	Portfolio	Benchmark
Number of Stocks	77	1,202
Wtd. Avg. Mkt. Cap \$M	72,058.99	73,910.29
Median Mkt. Cap \$M	27,160.37	10,661.64
Price/Earnings ratio	19.11	11.75
Price/Book ratio	2.57	1.88
Return on Equity (%)	4.91	3.46
Current Yield (%)	3.58	4.20
Beta (5 Years, Monthly)	0.76	1.00

## Sector Allocation (%) vs. MSCI AC World ex USA Value



## Largest Holdings

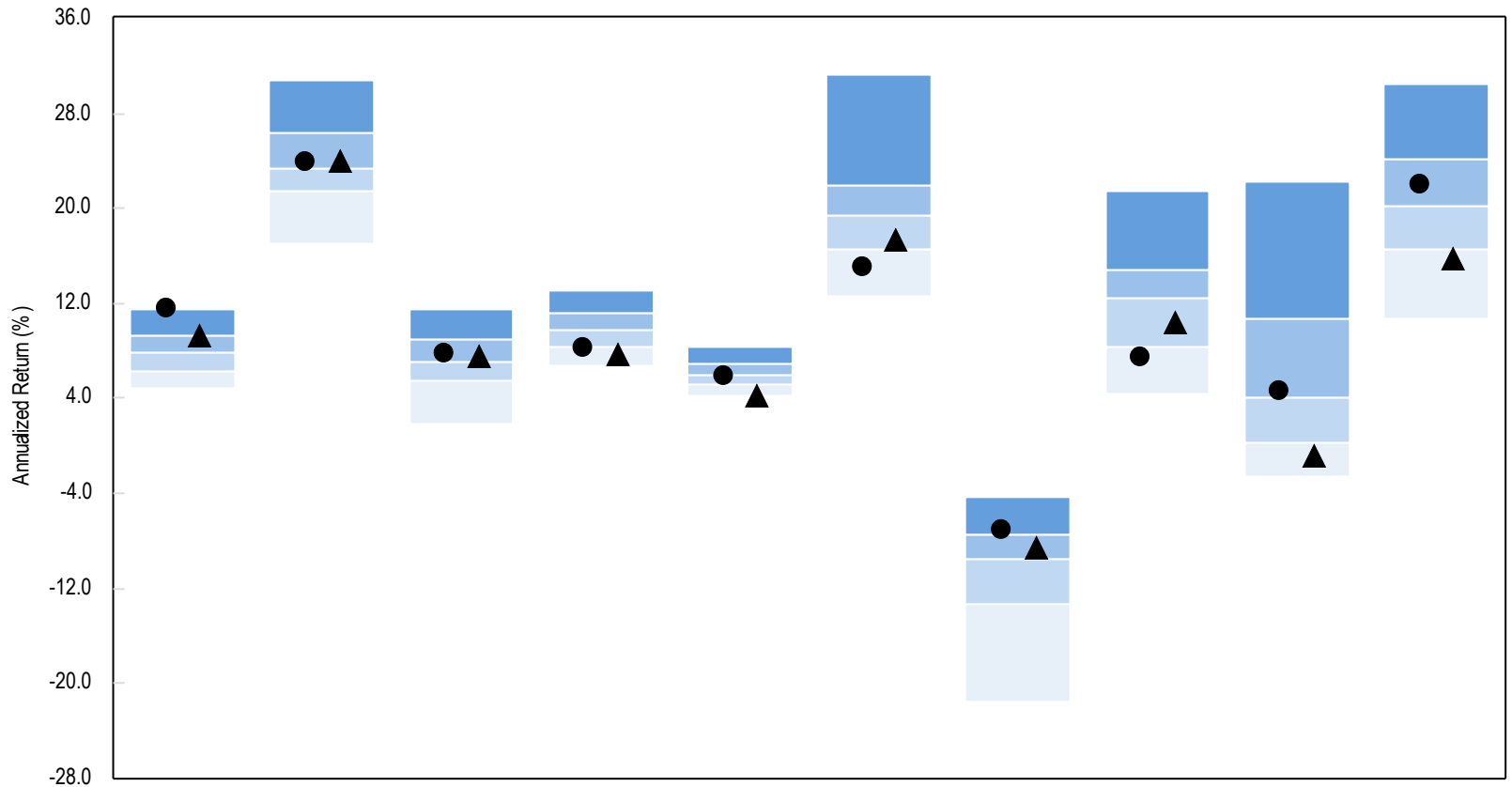
## Top Contributors

## Top Detractors

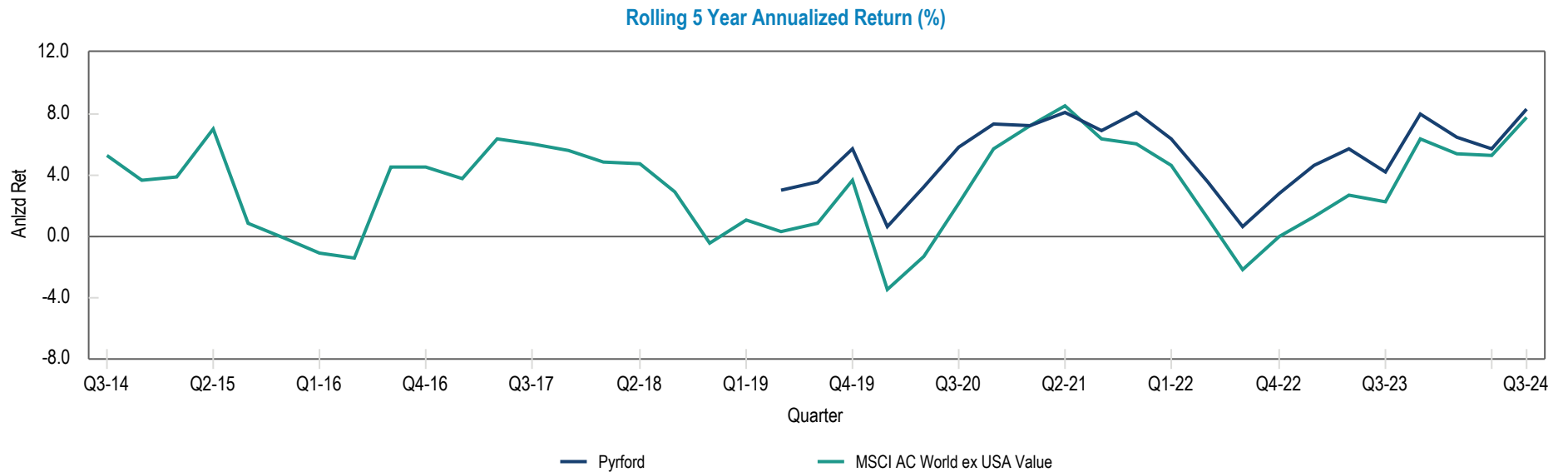
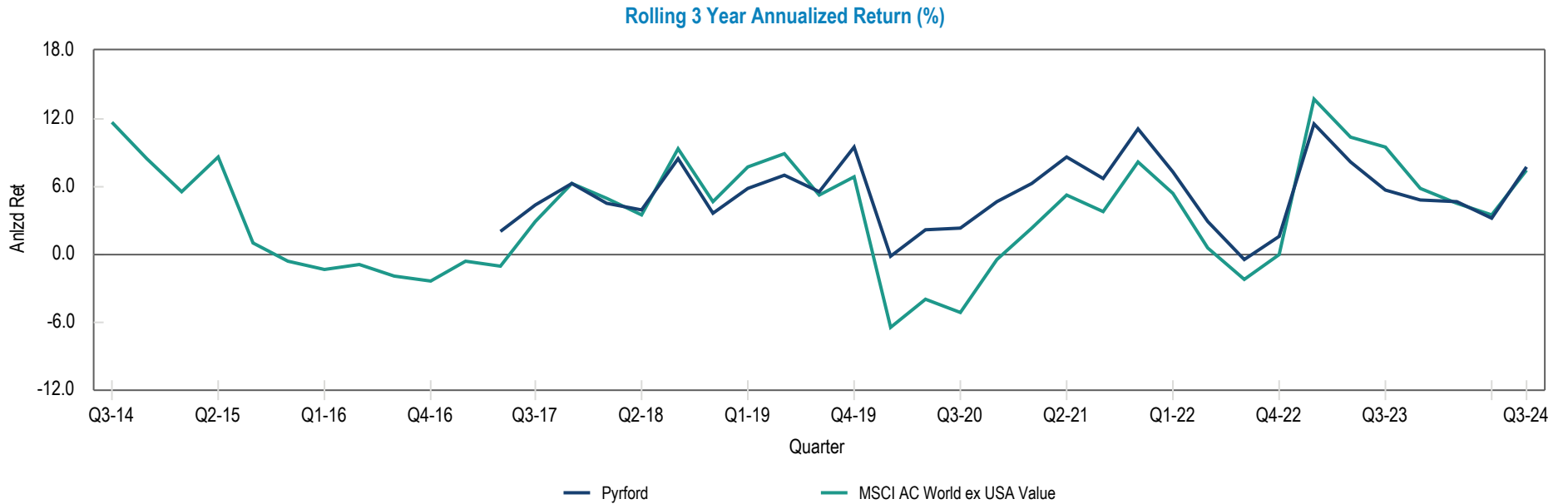
	End Weight (%)	Quarterly Return (%)		Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)		Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Nestle SA, Cham Und Vevey	2.67	-1.33	Brambles Ltd	2.10	38.20	0.80	ASMPT Limited	1.21	-11.91	-0.14
Japan Tobacco Inc	2.58	8.09	Singapore Telecommunications	1.91	27.89	0.53	BP plc	0.81	-11.26	-0.09
Roche Holding AG	2.46	15.53	Malayan Banking Berhad	1.99	23.65	0.47	Shell Plc	1.10	-8.34	-0.09
United Overseas Bank Ltd	2.45	11.81	Kddi Corp	1.86	23.23	0.43	Advantech Co Ltd	0.59	-8.65	-0.05
Brambles Ltd	2.30	38.20	AIA Group Ltd	1.23	33.18	0.41	Woodside Energy Group Ltd	1.09	-3.42	-0.04
Mitsubishi Electric Corp	2.24	1.72	Unilever PLC	1.94	19.14	0.37	Nestle SA, Cham Und Vevey	2.12	-1.33	-0.03
L'Air Liquide SA	2.22	11.87	Roche Holding AG	2.28	15.53	0.35	Rubis	0.70	-2.77	-0.02
Unilever PLC	2.19	19.14	National Grid plc	1.41	23.83	0.34	Toyota Tsusho Corp	0.17	-5.49	-0.01
Kddi Corp	2.17	23.23	Sanofi	1.69	19.14	0.32	QBE Insurance Group Limited	1.54	0.25	0.00
SAP SE	2.17	12.31	British American Tobacco	1.49	21.48	0.32	VTech Holdings Ltd	1.42	0.46	0.01
			% of Portfolio	17.90		4.35	% of Portfolio	10.75		-0.46

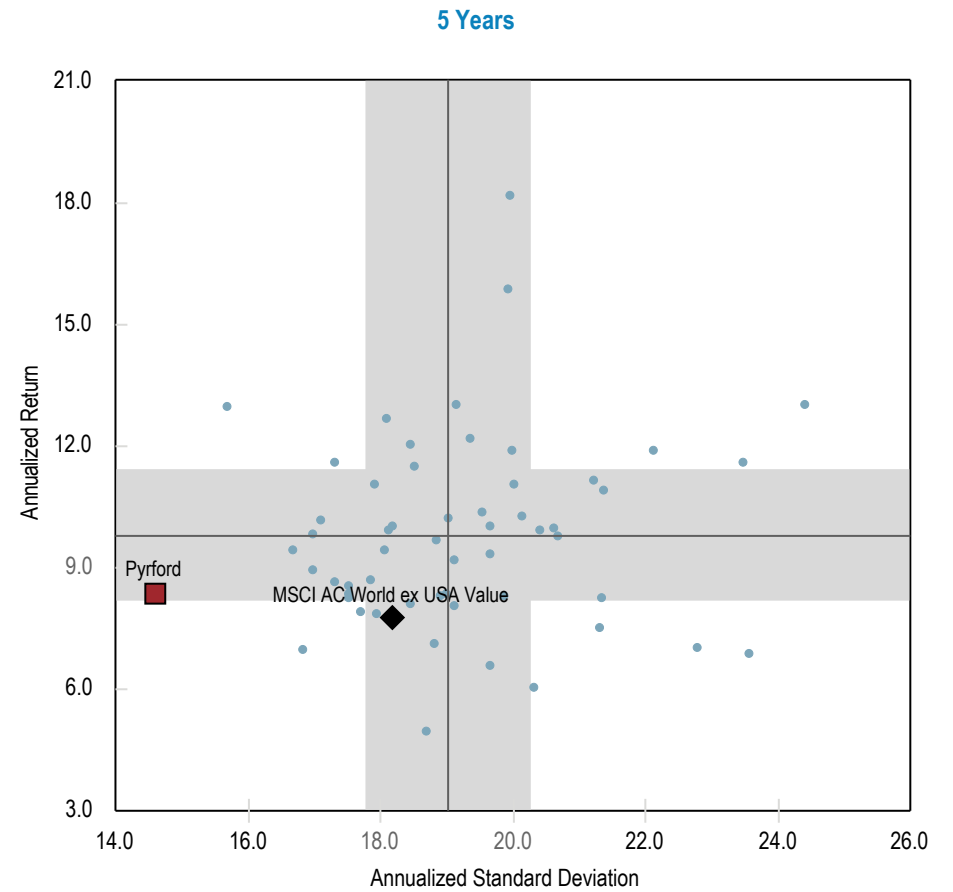
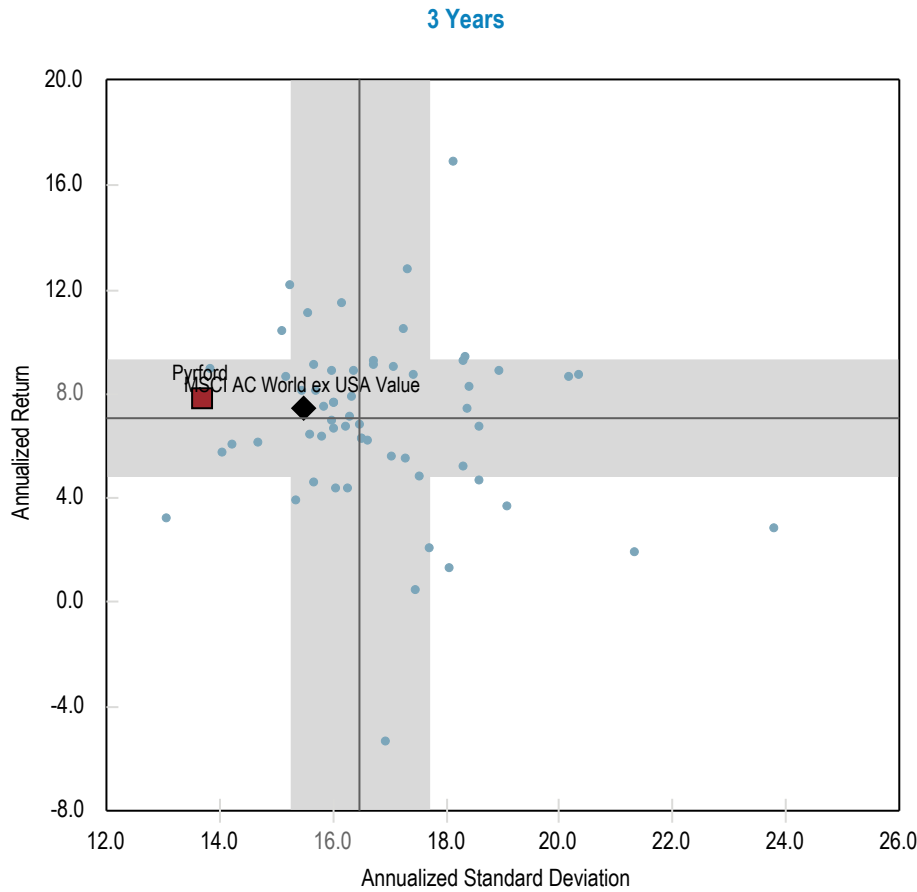
International equity value portfolio of non-US companies with low valuations at the country and stock level. Primary personnel include Tony Cousins, Daniel McDonagh, and Paul Simons.

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



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Pyrford	11.68 (3)	23.97 (44)	7.80 (42)	8.35 (71)	5.95 (51)	15.17 (83)	-6.97 (22)	7.57 (84)	4.66 (47)	22.07 (38)
▲ MSCI AC World ex USA Value (Net)	9.26 (26)	24.04 (44)	7.49 (47)	7.79 (86)	4.28 (95)	17.30 (67)	-8.59 (41)	10.46 (66)	-0.77 (80)	15.72 (78)
5th Percentile	11.50	30.78	11.57	13.02	8.40	31.21	-4.22	21.44	22.18	30.55
1st Quartile	9.26	26.29	8.91	11.12	6.97	21.96	-7.45	14.88	10.71	24.23
Median	7.91	23.29	7.08	9.80	5.97	19.46	-9.43	12.53	4.15	20.24
3rd Quartile	6.36	21.43	5.46	8.28	5.24	16.60	-13.27	8.35	0.31	16.63
95th Percentile	4.95	17.04	1.90	6.79	4.27	12.54	-21.52	4.34	-2.63	10.68
Population	64	64	60	55	39	65	67	69	71	69





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Pyrford	7.8	13.7	0.4
MSCI AC World ex USA Value (Net)	7.5	15.5	0.3
eV ACWI ex-US Value Equity Median	7.1	16.5	0.3
Population	60	60	60

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Pyrford	8.3	14.6	0.5
MSCI AC World ex USA Value (Net)	7.8	18.2	0.4
eV ACWI ex-US Value Equity Median	9.8	19.0	0.5
Population	55	55	55

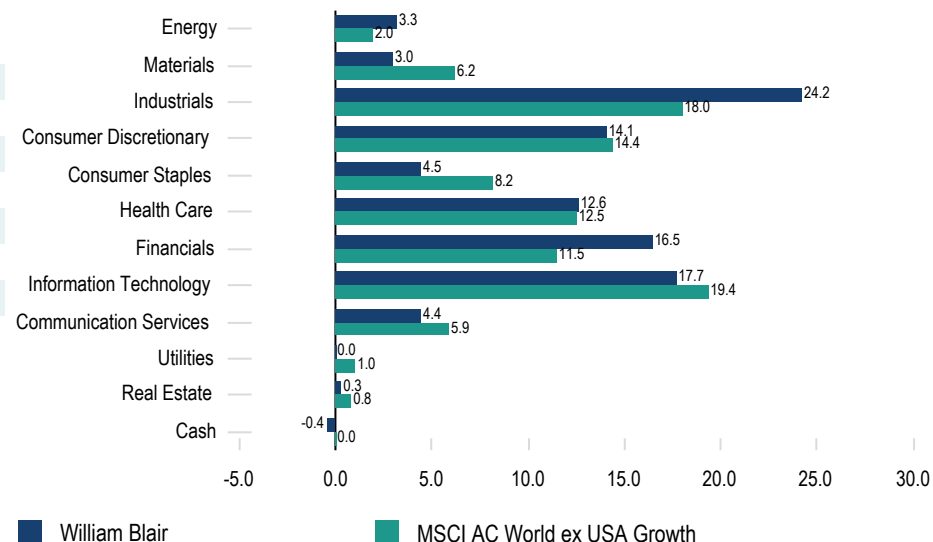
# William Blair Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

## Characteristics

	Portfolio	Benchmark
Number of Stocks	184	1,188
Wtd. Avg. Mkt. Cap \$M	119,367.68	145,293.72
Median Mkt. Cap \$M	20,820.15	10,270.15
Price/Earnings ratio	26.71	22.35
Price/Book ratio	4.40	3.87
Return on Equity (%)	5.64	5.21
Current Yield (%)	1.47	1.64
Beta (5 Years, Monthly)	1.05	1.00

## Sector Allocation (%) vs. MSCI AC World ex USA Growth



## Largest Holdings

	End Weight (%)	Quarterly Return (%)
Taiwan Semiconductor Man.	3.27	0.29
Novo Nordisk A/S	2.11	-18.19
Tencent Holdings LTD	2.11	20.00
SAP SE	1.87	12.31
Reliance Industries Ltd	1.63	-5.82
London Stock Exchange Group	1.54	15.84
3I Group PLC	1.52	14.38
Astrazeneca PLC	1.44	0.13
Safran SA	1.34	11.36
PT Bank Central Asia TBK	1.30	12.52

## Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
DSV A/S	0.84	34.97	0.29
Chugai Pharmaceutical Co Ltd	0.77	36.38	0.28
London Stock Exchange Group	1.53	15.84	0.24
Haleon plc	0.75	29.92	0.22
MTU Aero Engines AG	0.97	22.10	0.21
MercadoLibre Inc	0.80	24.86	0.20
Hoya Corp	1.01	18.95	0.19
CRH PLC	0.77	24.17	0.19
3I Group PLC	1.28	14.38	0.18
Compass Group PLC	1.04	17.61	0.18

## Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
ASML Holding NV	2.75	-19.32	-0.53
Novo Nordisk A/S	2.85	-18.19	-0.52
Disco Corp	1.18	-30.75	-0.36
SK Hynix Inc	1.35	-22.29	-0.30
Samsung Electronics Co Ltd	1.35	-20.57	-0.28
Tokyo Electron Ltd	1.16	-17.80	-0.21
Lasertec Corp	0.70	-26.45	-0.18
Mediatek Incorporation	1.15	-12.06	-0.14
BE Semiconductor Industries NV	0.56	-24.28	-0.14
ICON Public Limited Company	1.10	-8.35	-0.09

% of Portfolio

9.76

2.20

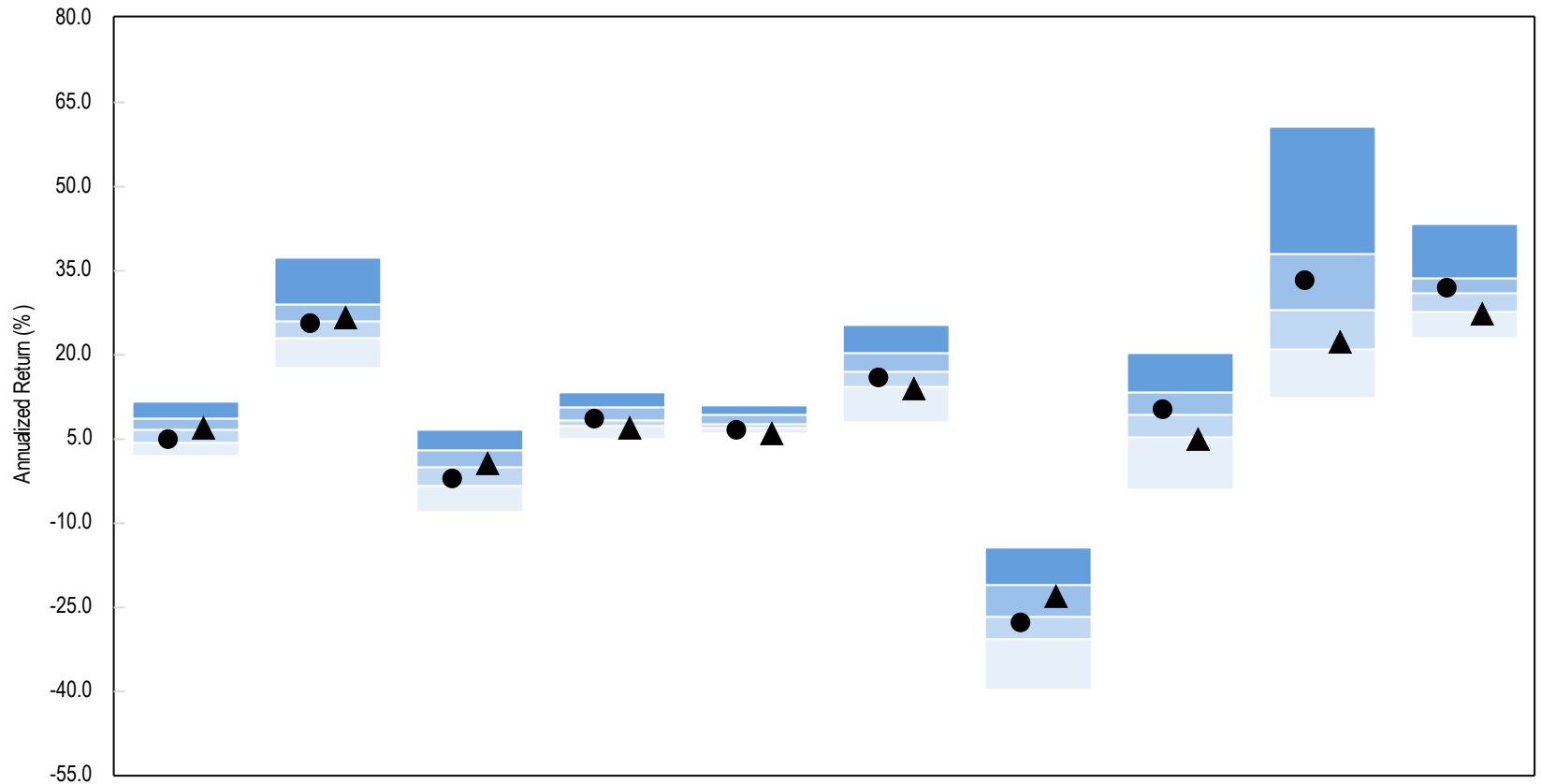
% of Portfolio

14.15

-2.75

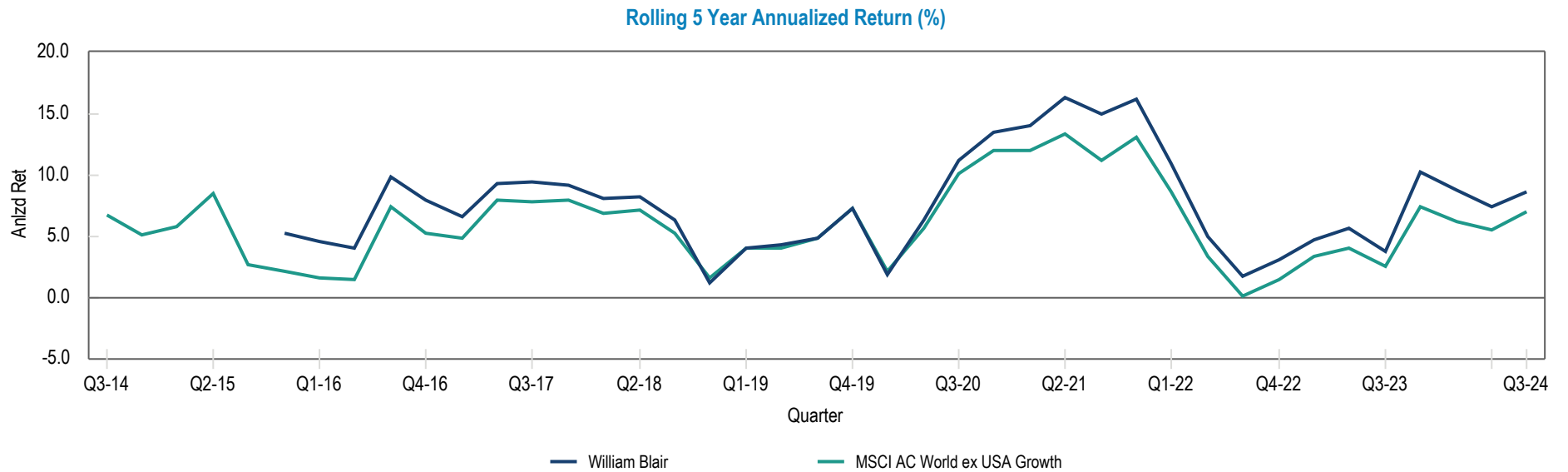
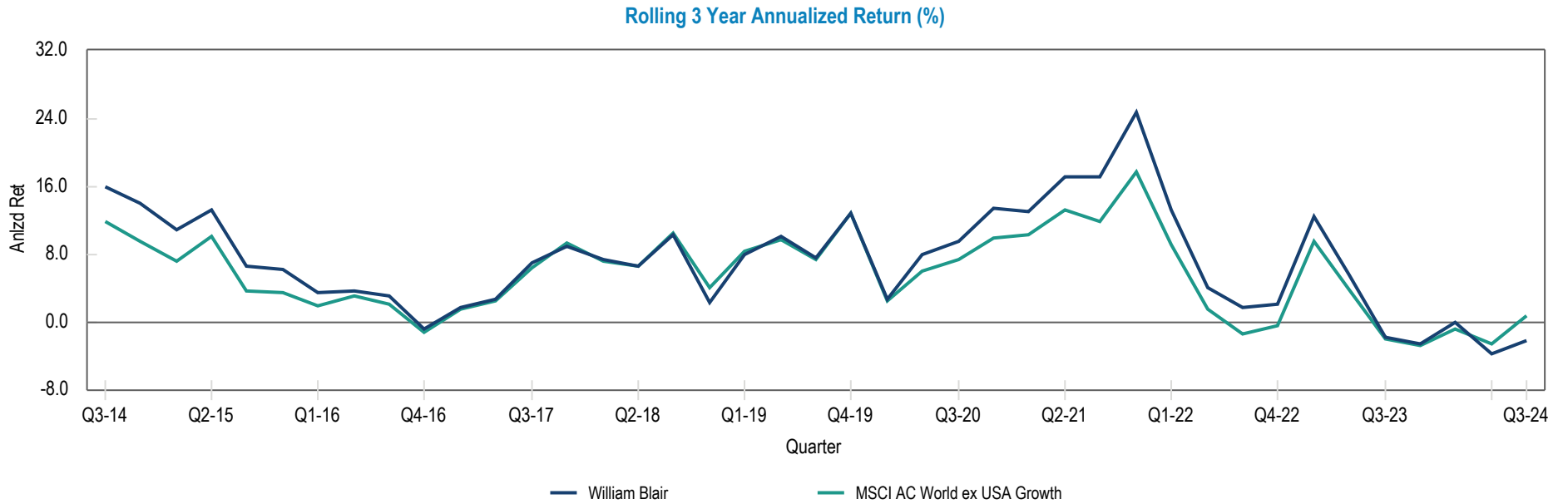
International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Kenneth McAtamney.

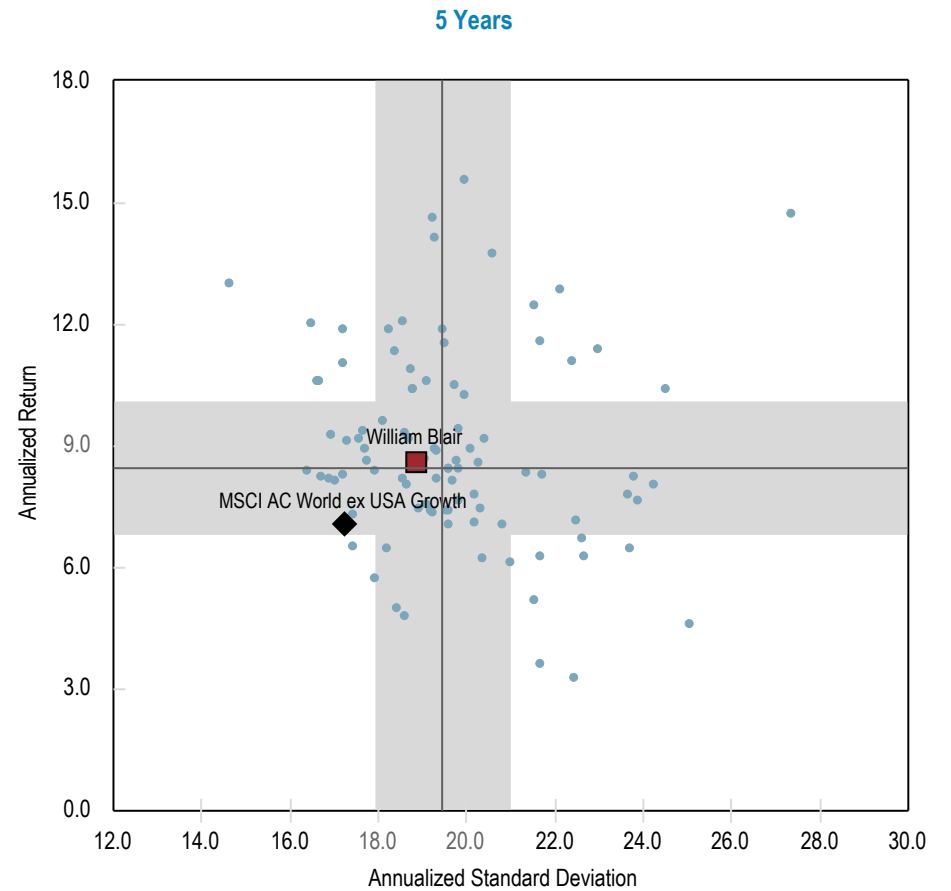
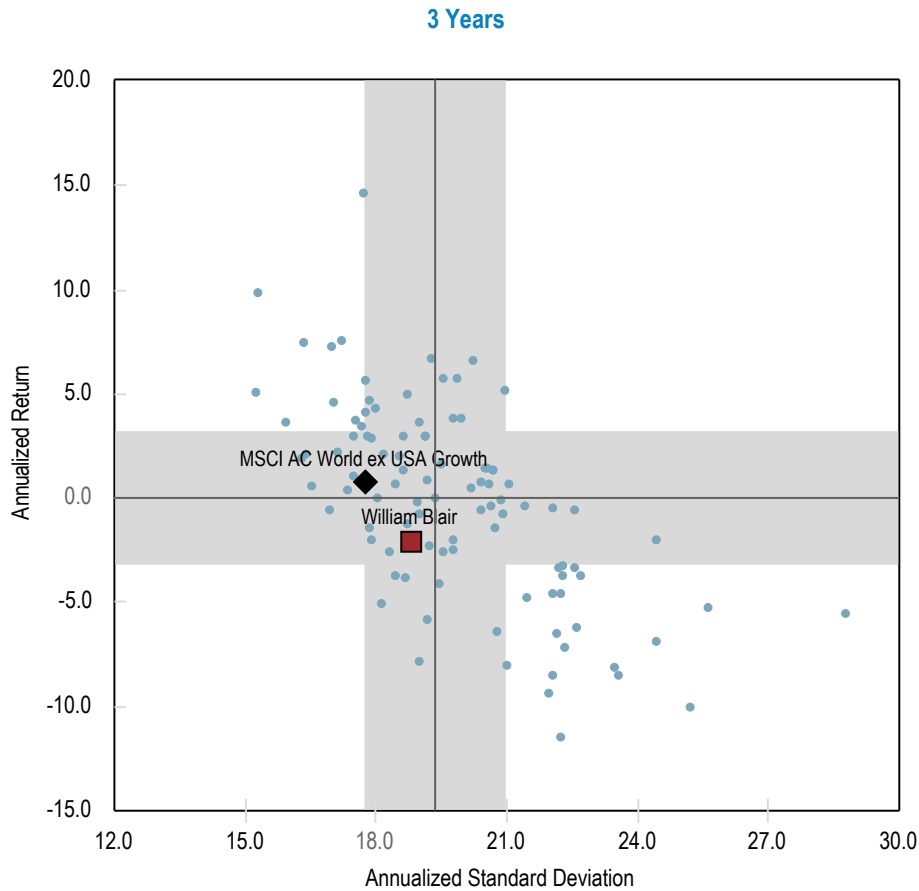
William Blair vs. eV ACWI ex-US Growth Equity Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● William Blair	4.86 (72)	25.64 (53)	-2.11 (68)	8.61 (48)	6.75 (82)	16.15 (59)	-27.75 (57)	10.48 (41)	33.25 (35)	32.01 (37)
▲ MSCI AC World ex USA Growth	6.92 (47)	26.75 (41)	0.81 (42)	7.09 (84)	5.97 (97)	14.03 (77)	-23.05 (31)	5.09 (76)	22.20 (73)	27.34 (77)
5th Percentile	11.69	37.29	6.66	13.31	11.03	25.47	-14.29	20.35	60.75	43.23
1st Quartile	8.66	29.14	2.99	10.51	9.39	20.18	-20.98	13.39	37.97	33.53
Median	6.67	25.89	0.03	8.45	7.64	17.08	-26.60	9.33	28.06	30.90
3rd Quartile	4.46	22.90	-3.35	7.44	6.93	14.18	-30.77	5.17	21.13	27.76
95th Percentile	2.01	17.80	-8.07	5.14	6.09	7.96	-39.81	-3.97	12.38	23.07
Population	102	102	101	93	71	111	115	118	113	111







	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
William Blair	-2.1	18.8	-0.2
MSCI AC World ex USA Growth (Net)	0.8	17.7	-0.1
eV ACWI ex-US Growth Equity Median	0.0	19.3	-0.1
Population	101	101	101

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
William Blair	8.6	18.9	0.4
MSCI AC World ex USA Growth (Net)	7.1	17.2	0.4
eV ACWI ex-US Growth Equity Median	8.5	19.5	0.4
Population	93	93	93

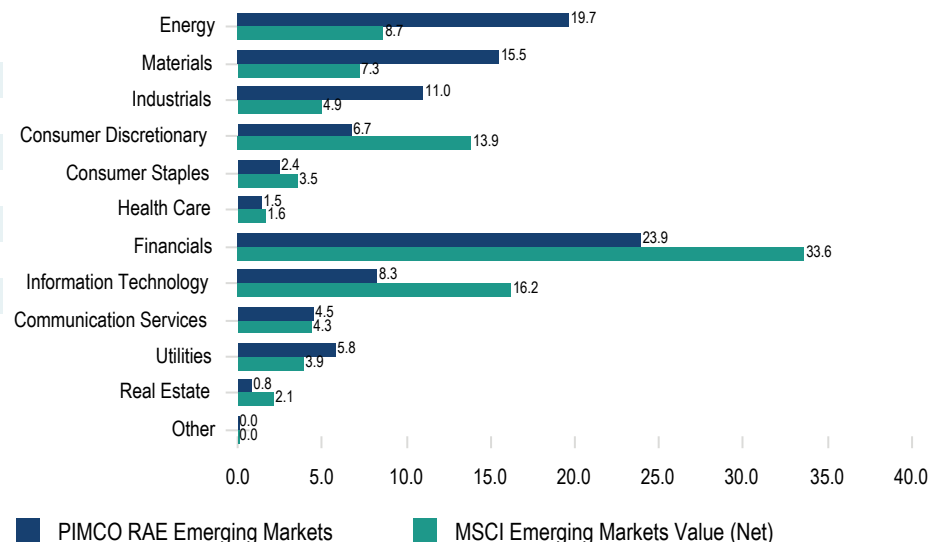
# PIMCO RAE Emerging Markets Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

## Characteristics

	Portfolio	Benchmark
Number of Stocks	361	703
Wtd. Avg. Mkt. Cap \$M	26,862.49	71,917.45
Median Mkt. Cap \$M	4,473.75	8,466.76
Price/Earnings ratio	8.06	11.42
Price/Book ratio	1.73	2.12
Return on Equity (%)	-3.93	3.42
Current Yield (%)	5.90	3.84
Beta (5 Years, Monthly)	1.05	1.00

## Sector Allocation (%) vs. MSCI Emerging Markets Value (Net)



## Largest Holdings

	End Weight (%)	Quarterly Return (%)
Vale SA	4.58	7.93
Petroleo Brasileiro S.A	4.27	-0.73
China Construction Bank Corp	3.86	10.54
China Petroleum & Chemical	3.45	3.71
Evergreen Marine Corp (Taiwan) Ltd	2.76	6.76
PetroChina Company Limited	2.68	-15.88
Bank of China Ltd	2.53	2.91
Vedanta Ltd	2.28	18.55
POSCO Holdings Inc	1.92	11.64
Ping An Insurance Group Co of China Ltd	1.66	46.53

## Top Contributors

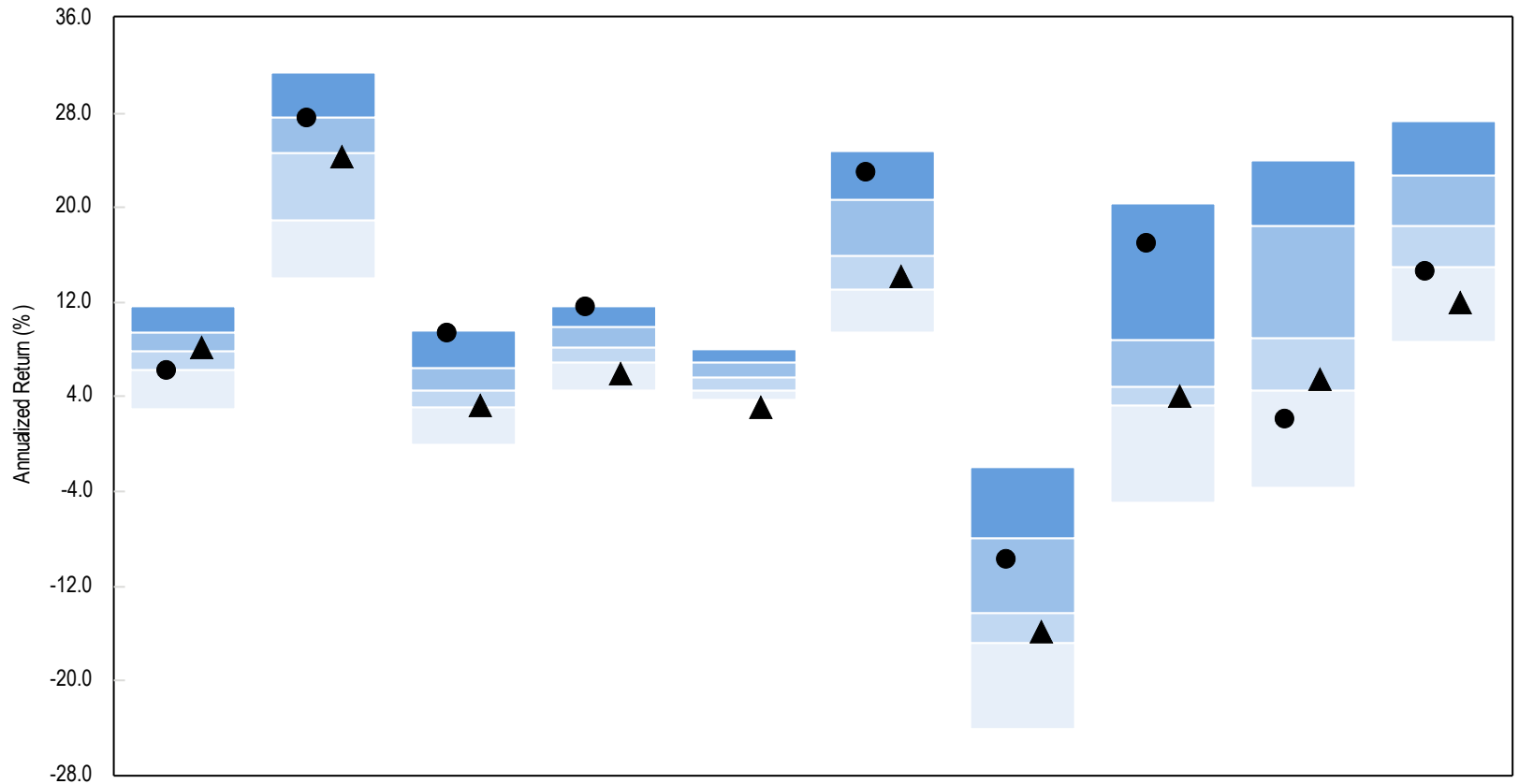
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Ping An Insurance Group Co of China Ltd	1.24	46.53	0.58
China Construction Bank Corp	5.03	10.54	0.53
Vedanta Ltd	2.15	18.55	0.40
SCB X PCL	1.39	22.93	0.32
Vipshop Holdings Limited	1.23	20.81	0.26
POSCO Holdings Inc	2.15	11.64	0.25
Industrial & Comm. Bank of China	2.82	8.31	0.23
Indian Oil Corp Ltd	1.54	12.77	0.20
Hindustan Petroleum Corp Ltd	0.55	35.86	0.20
PICC Property & Casualty	0.72	26.41	0.19
<b>% of Portfolio</b>	<b>18.82</b>		<b>3.15</b>

## Top Detractors

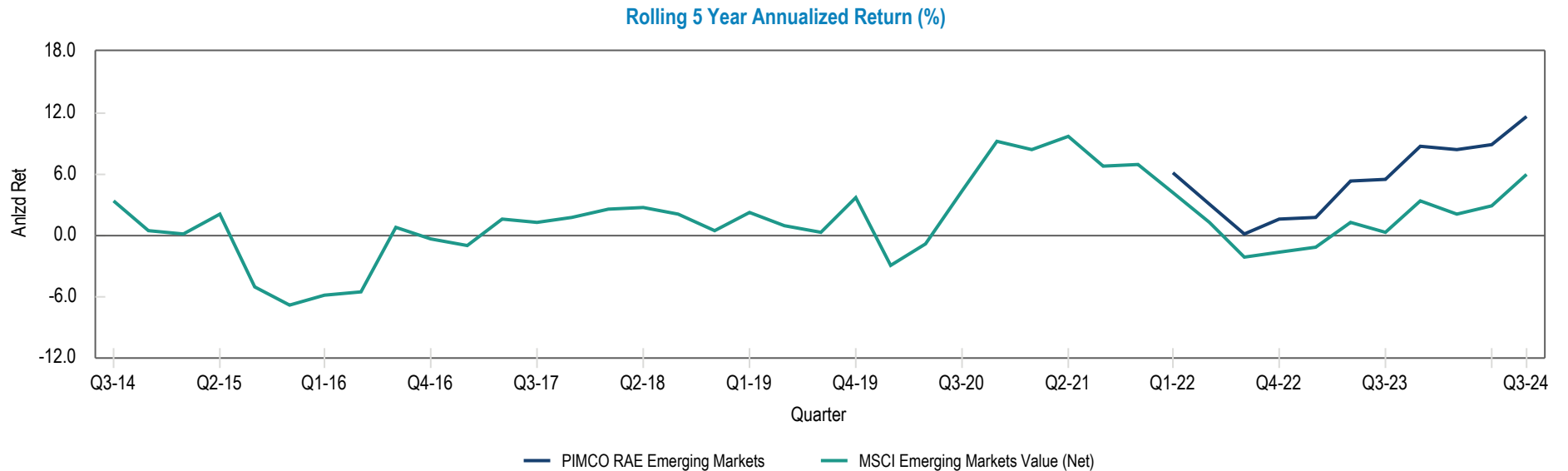
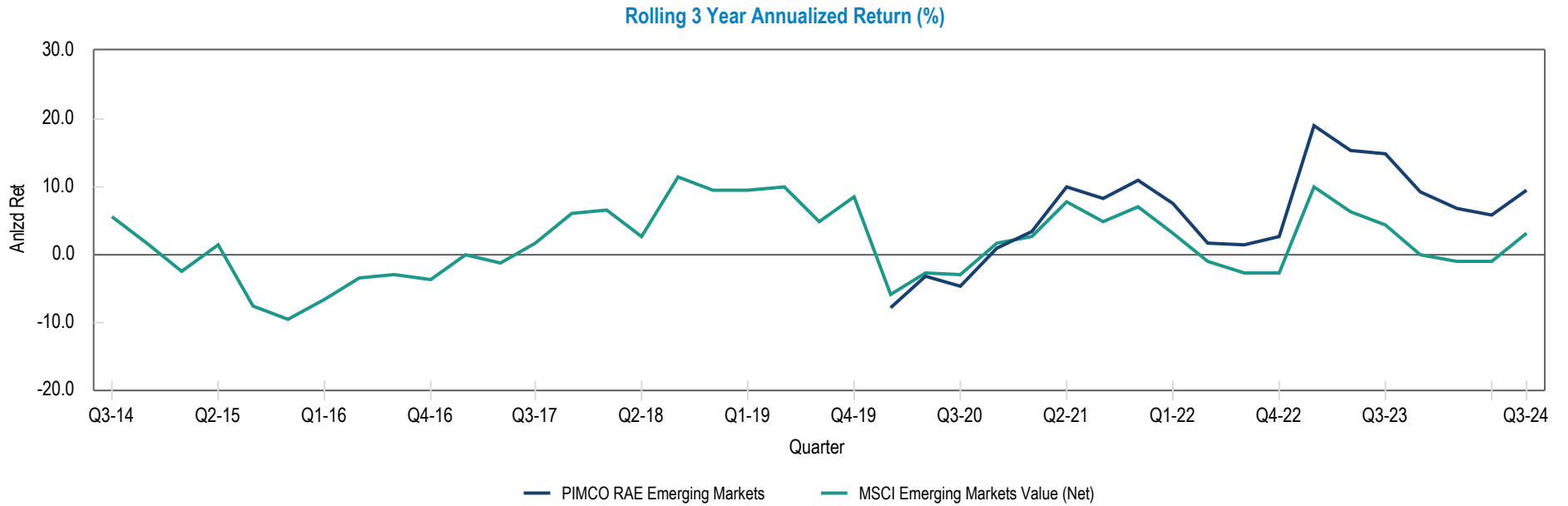
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
PetroChina Company Limited	3.49	-15.88	-0.55
Quanta Computer Inc	1.84	-13.26	-0.24
Kia Corporation	1.13	-18.67	-0.21
Hon Hai Precision Industry	1.69	-7.81	-0.13
China Motor Co Ltd	0.27	-35.94	-0.10
Bharat Heavy Electricals Ltd	1.25	-7.41	-0.09
Powertech Technology Inc	0.41	-21.89	-0.09
Nanya Technology Corp	0.27	-30.36	-0.08
IS Yatirim Menkul Degerler A.S.	0.49	-13.96	-0.07
Doosan Corp	0.38	-17.78	-0.07
<b>% of Portfolio</b>	<b>11.22</b>		<b>-1.64</b>

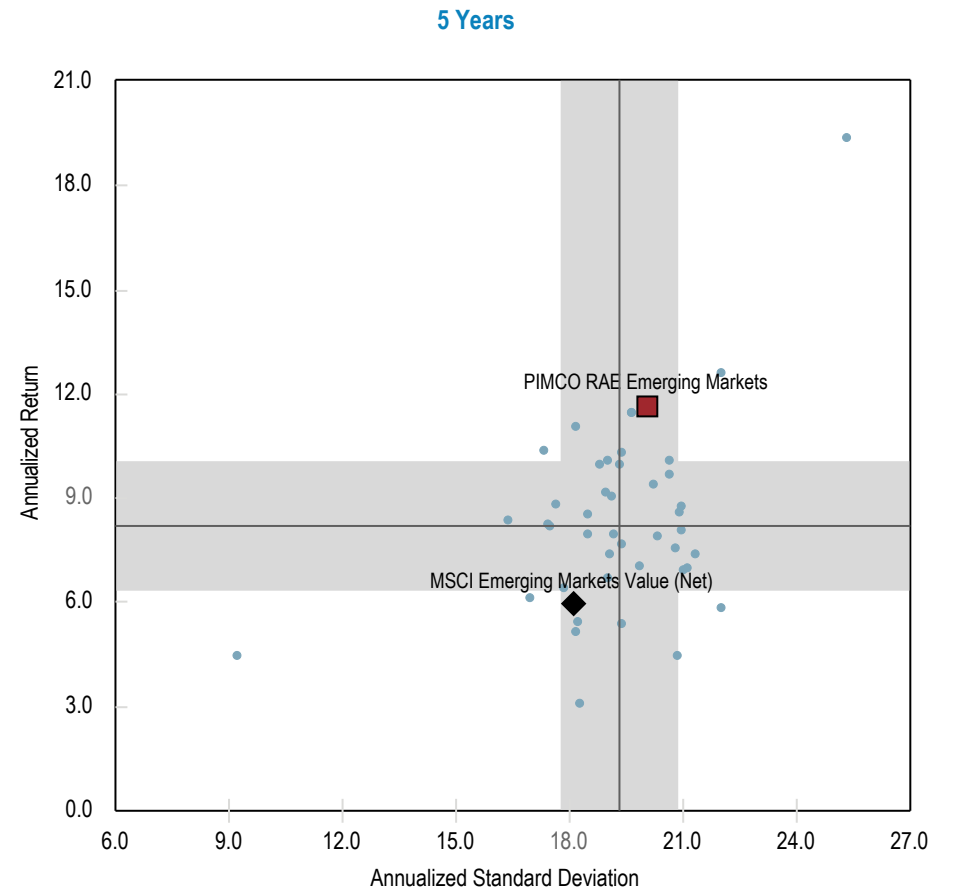
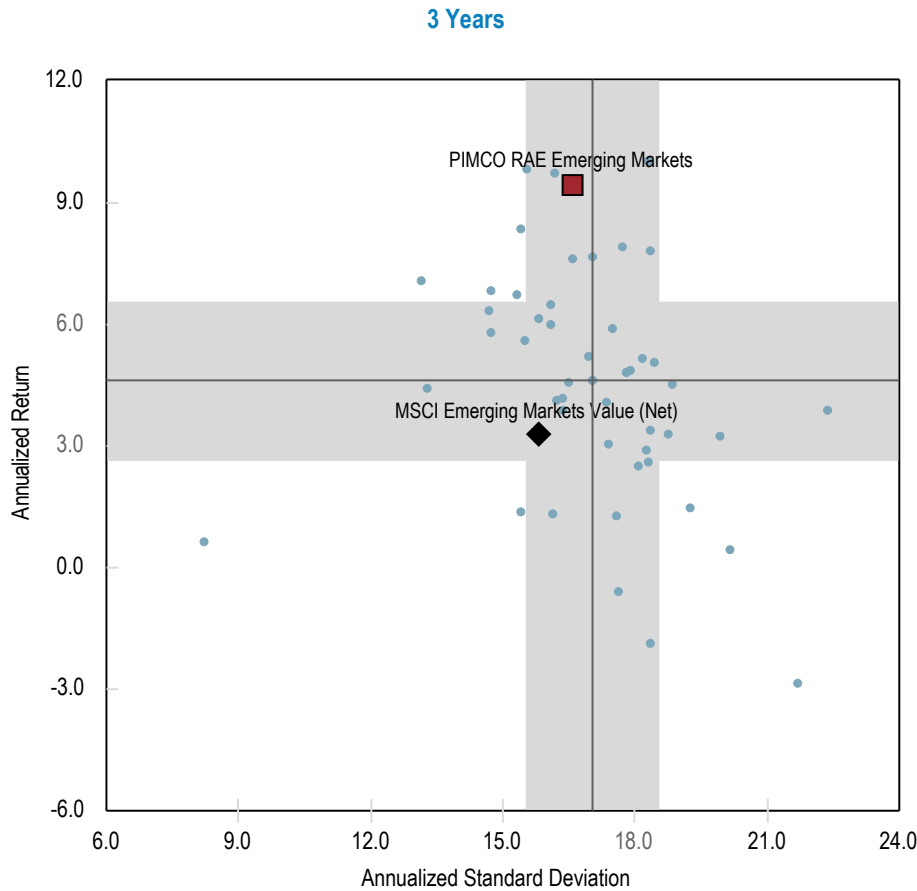
The PIMCO RAE Emerging Markets seeks to invest 80% of its assets in investments that are economically tied to emerging market countries. The portfolio is sub-advised by Research Affiliates, LLC.

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



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● PIMCO RAE Emerging Markets	6.35 (74)	27.67 (25)	9.44 (7)	11.64 (5)	-	23.09 (11)	-9.66 (33)	17.08 (8)	2.13 (85)	14.63 (78)
▲ MSCI Emerging Markets Value NR	8.12 (47)	24.38 (54)	3.29 (72)	5.94 (86)	3.12 (100)	14.21 (67)	-15.83 (63)	4.00 (68)	5.48 (72)	11.96 (93)
5th Percentile	11.72	31.41	9.66	11.61	8.02	24.75	-1.92	20.32	23.96	27.29
1st Quartile	9.45	27.63	6.43	10.00	6.94	20.68	-7.96	8.87	18.49	22.65
Median	7.91	24.63	4.61	8.21	5.65	15.92	-14.26	4.87	8.93	18.51
3rd Quartile	6.28	18.92	3.14	6.97	4.59	13.06	-16.84	3.27	4.50	15.01
95th Percentile	2.97	14.10	-0.09	4.56	3.69	9.52	-24.07	-4.86	-3.63	8.63
Population	53	53	51	44	32	53	58	57	59	60





3 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
PIMCO RAE Emerging Markets	9.4	16.6	0.4
MSCI Emerging Markets Value (Net)	3.3	15.8	0.1
eV Emg Mkts All Cap Value Equity Median	4.6	17.0	0.1
Population	51	51	51

5 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
PIMCO RAE Emerging Markets	11.6	20.1	0.5
MSCI Emerging Markets Value (Net)	5.9	18.1	0.3
eV Emg Mkts All Cap Value Equity Median	8.2	19.3	0.4
Population	44	44	44

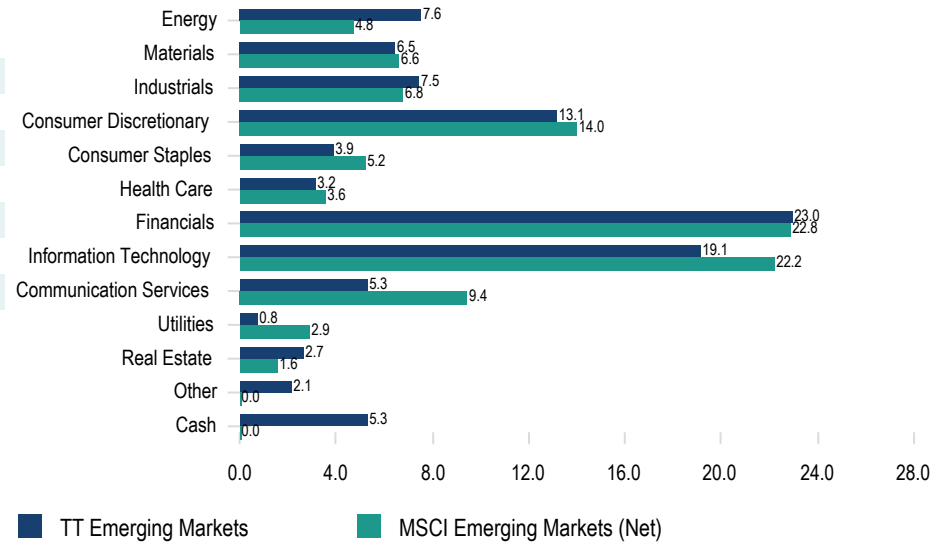
TT Emerging Markets  
Manager Portfolio Overview

Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	100	1,277
Wtd. Avg. Mkt. Cap \$M	131,071.23	153,636.76
Median Mkt. Cap \$M	14,382.41	8,154.72
Price/Earnings ratio	16.04	15.68
Price/Book ratio	2.78	2.93
Return on Equity (%)	5.59	4.64
Current Yield (%)	1.94	2.59
Beta (5 Years, Monthly)	1.13	1.00

Sector Allocation (%) vs. MSCI Emerging Markets (Net)



Largest Holdings

End of Year Weight (%)	Quarterly Return (%)
Taiwan Semiconductor Man.	8.99 1.99
Tencent Holdings LTD	3.86 0.00
Ypf Sociedad Anonima	3.09 5.42
Alibaba Group Holding Ltd	2.80 6.83
Vista Energy SAB de CV	2.57 2.86
Capstone Copper Corp	2.48 0.37
Grupo Financiero Galicia Sa, Buenos Aires	2.42 3.87
SK Hynix Inc	2.34 2.29
Akbank T A S	2.32 7.77
PDD Holdings Inc	2.29 1.40

Top Contributors

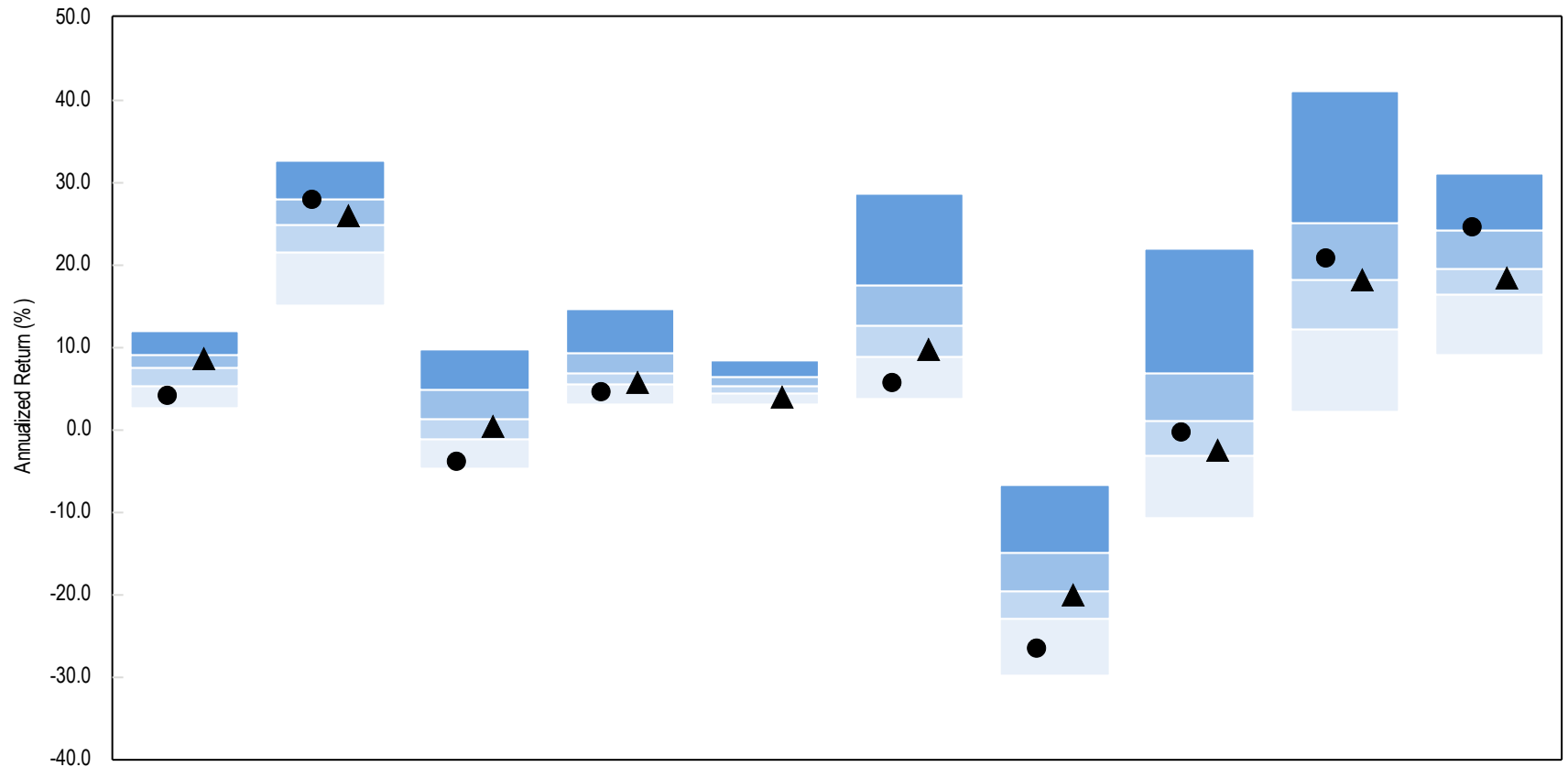
Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)	
Alibaba Group Holding Ltd	1.87	56.83	1.07
Qifu Technology Inc	1.93	54.15	1.05
MercadoLibre Inc	2.63	24.86	0.65
Tencent Holdings LTD	2.93	20.00	0.59
Meituan	0.93	55.61	0.52
PT Bank Mandiri TBK	1.41	21.79	0.31
Taiwan Semiconductor Man.	13.10	1.99	0.26
Samsung Biologics Co Ltd	0.56	41.46	0.23
Prosus NV	0.98	22.92	0.22
Trip com Group Ltd	0.69	31.75	0.22
% of Portfolio	27.03		5.11

Top Detractors

Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)	
SK Hynix Inc	3.13	-22.29	-0.70
Samsung Electronics Co Ltd	3.29	-20.57	-0.68
Samsung Electronics Co Ltd	3.49	-15.76	-0.55
Kia Corporation	2.28	-18.67	-0.43
Unimicron Technology Corp	2.13	-16.69	-0.36
Amkor Technology Inc	1.24	-23.33	-0.29
Ypf Sociedad Anonima	3.06	-8.85	-0.27
Sendas Distribuidora S.A.	0.92	-26.32	-0.24
Grupo Financiero Banorte	2.53	-8.72	-0.22
Hansol Chemience Co Ltd	0.95	-22.57	-0.21
% of Portfolio	23.02		-3.94

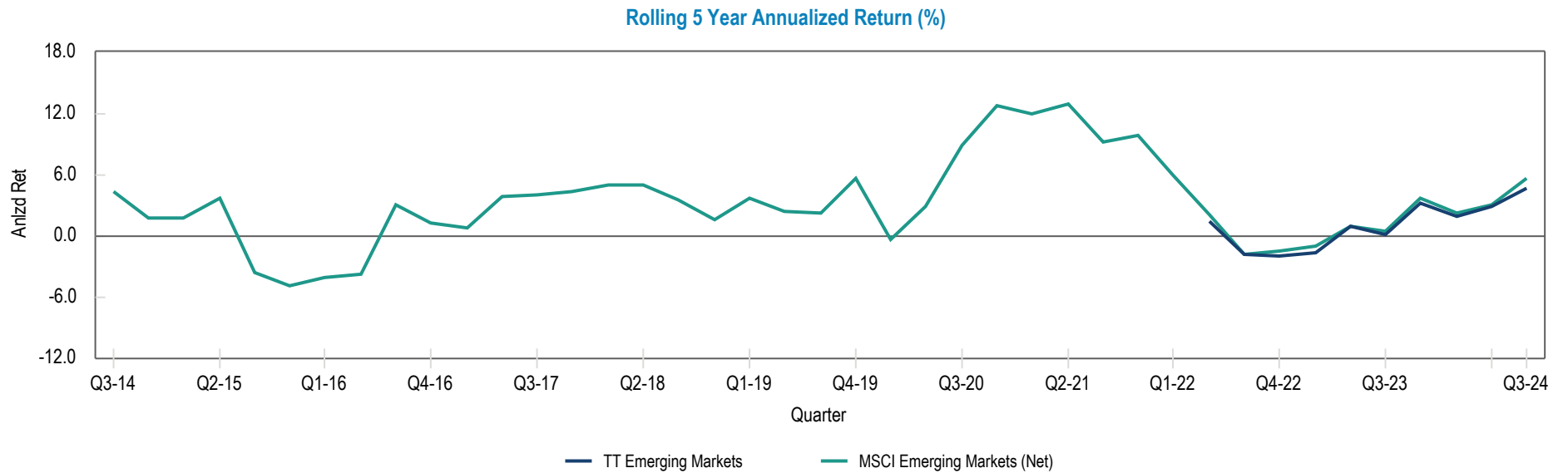
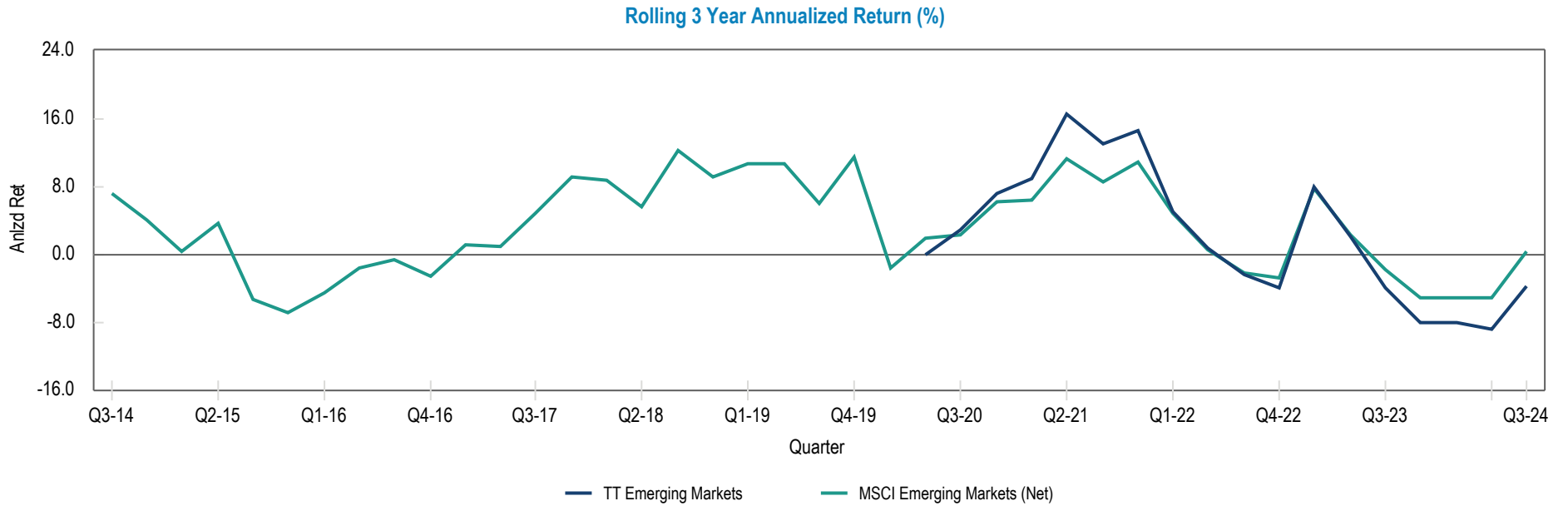
The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded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

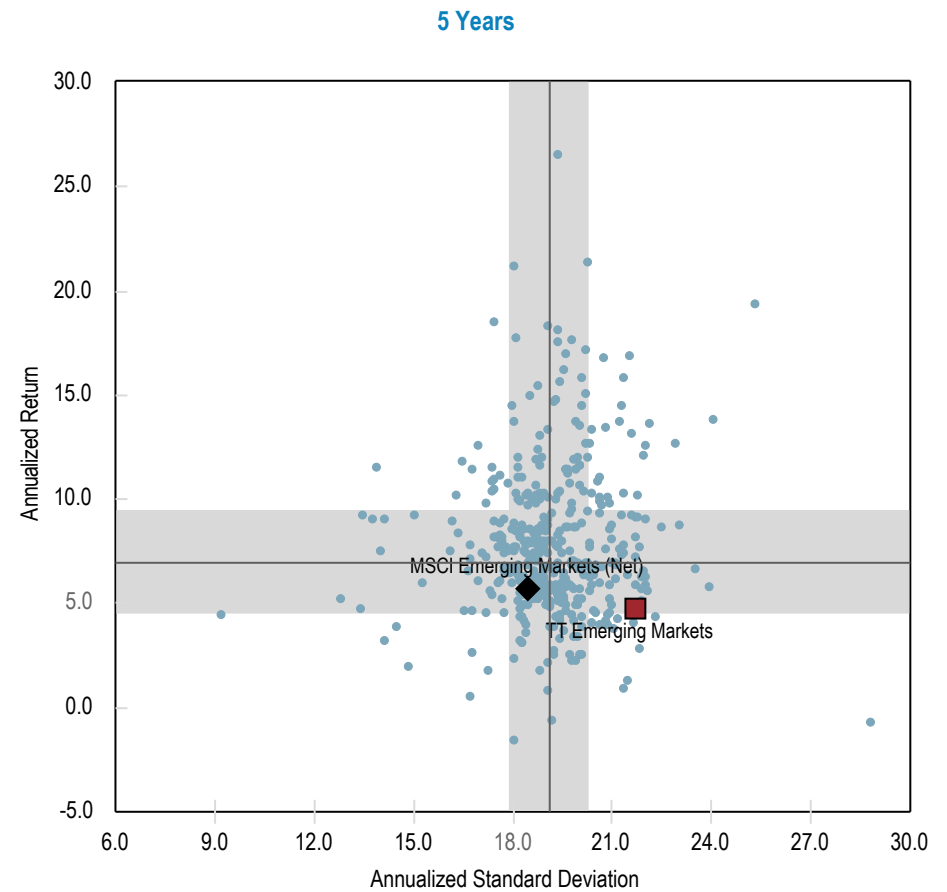
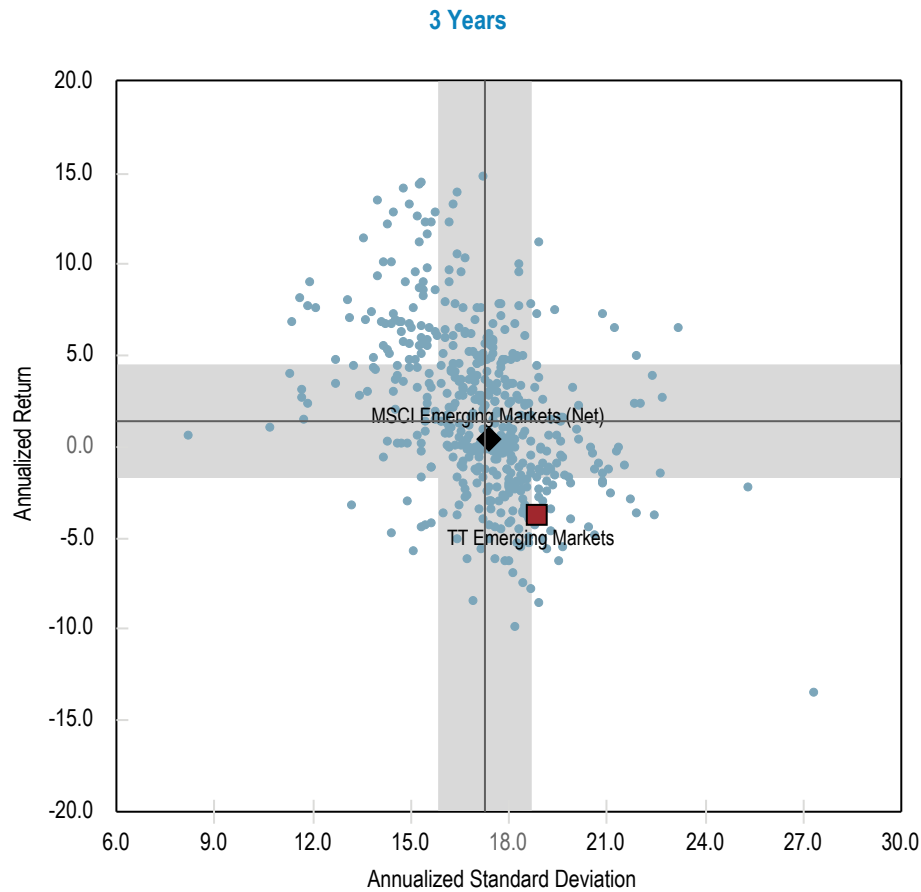
TT Emerging Markets vs. eV Emg Mkts Equity Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● TT Emerging Markets	4.12 (87)	27.98 (26)	-3.73 (92)	4.74 (86)	-	5.80 (91)	-26.36 (90)	-0.23 (59)	20.79 (39)	24.77 (23)
▲ MSCI Emerging Markets	8.72 (29)	26.05 (41)	0.40 (58)	5.75 (70)	4.02 (83)	9.83 (66)	-20.09 (57)	-2.54 (72)	18.31 (51)	18.42 (62)
5th Percentile	12.06	32.74	9.77	14.72	8.42	28.68	-6.68	22.07	41.01	31.04
1st Quartile	9.02	27.99	4.83	9.31	6.33	17.65	-14.89	6.88	25.07	24.26
Median	7.48	24.98	1.39	6.99	5.36	12.58	-19.50	1.12	18.33	19.61
3rd Quartile	5.41	21.56	-1.15	5.50	4.50	8.96	-22.96	-3.05	12.28	16.50
95th Percentile	2.60	15.17	-4.65	3.14	3.04	3.73	-29.67	-10.70	2.14	9.03
Population	526	526	494	438	315	548	579	587	585	607







	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
TT Emerging Markets	-3.7	18.9	-0.3
MSCI Emerging Markets (Net)	0.4	17.4	-0.1
eV Emg Mkts Equity Median	1.4	17.3	0.0
Population	494	494	494

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
TT Emerging Markets	4.7	21.7	0.2
MSCI Emerging Markets (Net)	5.7	18.5	0.3
eV Emg Mkts Equity Median	7.0	19.1	0.3
Population	438	438	438

# Global Equity Managers

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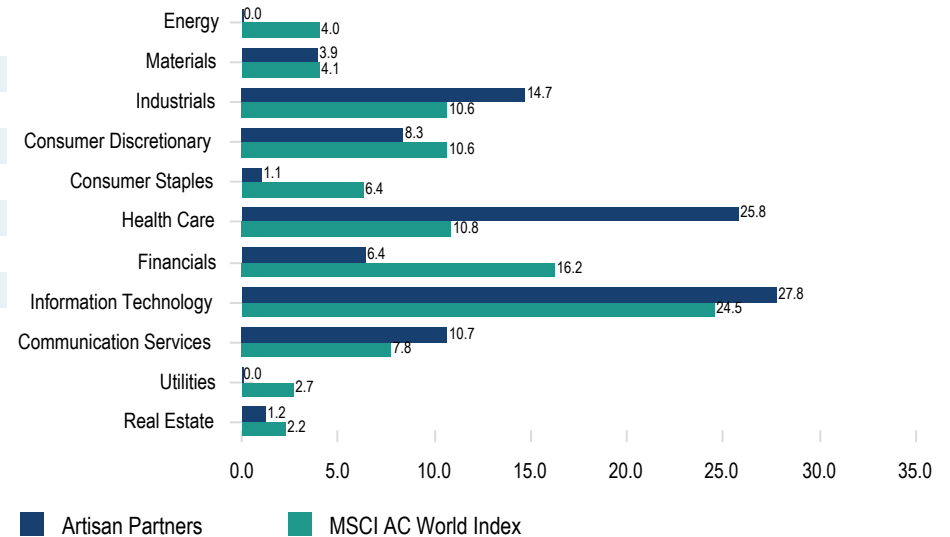
# Artisan Partners Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

## Characteristics

	Portfolio	Benchmark
Number of Stocks	47	2,687
Wtd. Avg. Mkt. Cap \$M	410,291.50	640,634.21
Median Mkt. Cap \$M	106,209.24	13,516.68
Price/Earnings ratio	42.77	22.13
Price/Book ratio	6.31	3.97
Return on Equity (%)	5.56	8.54
Current Yield (%)	0.63	1.87
Beta (5 Years, Monthly)	0.98	1.00

## Sector Allocation (%) vs. MSCI AC World Index



## Largest Holdings

	End Weight (%)	Quarterly Return (%)
Advanced Micro Devices Inc	5.12	1.15
Boston Scientific Corp	5.06	8.82
Netflix Inc	4.19	5.10
Taiwan Semiconductor Man.	4.09	0.29
Novo Nordisk A/S	3.79	-18.19
Techtronic Industries Co Ltd	3.78	34.45
London Stock Exchange Group	3.64	15.84
arGEN-X SE	3.46	26.05
Tencent Holdings LTD	3.18	20.00
Adidas AG	3.04	11.09

## Top Contributors

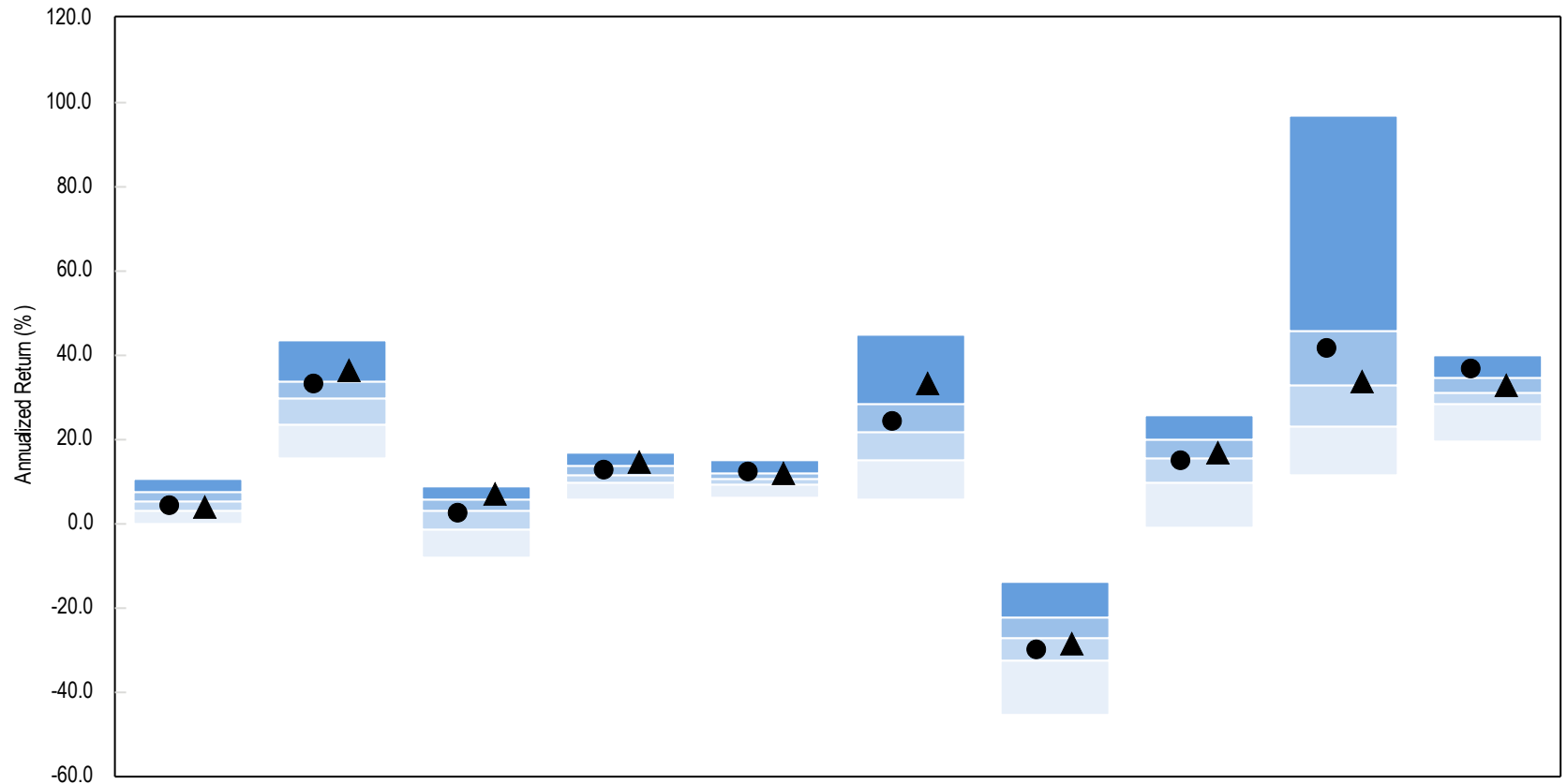
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Techtronic Industries Co Ltd	3.42	34.45	1.18
arGEN-X SE	2.38	26.05	0.62
London Stock Exchange Group	3.32	15.84	0.53
Boston Scientific Corp	5.89	8.82	0.52
Veeva Systems Inc	2.73	14.68	0.40
LONZA GROUP AG	2.46	16.13	0.40
Tencent Holdings LTD	1.78	20.00	0.36
Quanta Services Inc.	1.90	17.38	0.33
Hoya Corp	1.65	18.95	0.31
S&P Global Inc	1.87	16.04	0.30
<b>% of Portfolio</b>	<b>27.40</b>		<b>4.94</b>

## Top Detractors

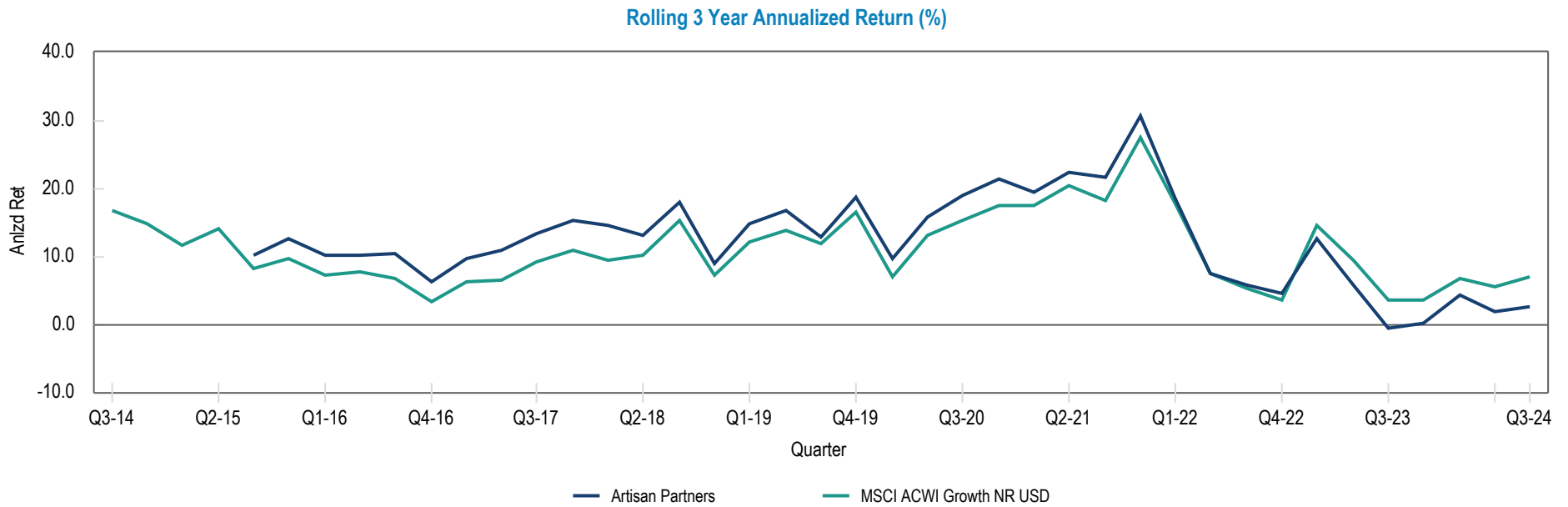
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Novo Nordisk A/S	7.03	-18.19	-1.28
DexCom Inc	1.54	-40.87	-0.63
Alphabet Inc	3.52	-8.83	-0.31
Atlassian Corp	2.82	-10.22	-0.29
Intuit Inc.	3.95	-5.37	-0.21
Airbnb Inc	1.11	-16.37	-0.18
Amazon.com Inc	3.72	-3.58	-0.13
Microsoft Corp	3.65	-3.55	-0.13
West Pharmaceutical Services Inc.	1.33	-8.81	-0.12
Hexagon AB	1.68	-4.65	-0.08
<b>% of Portfolio</b>	<b>30.35</b>		<b>-3.36</b>

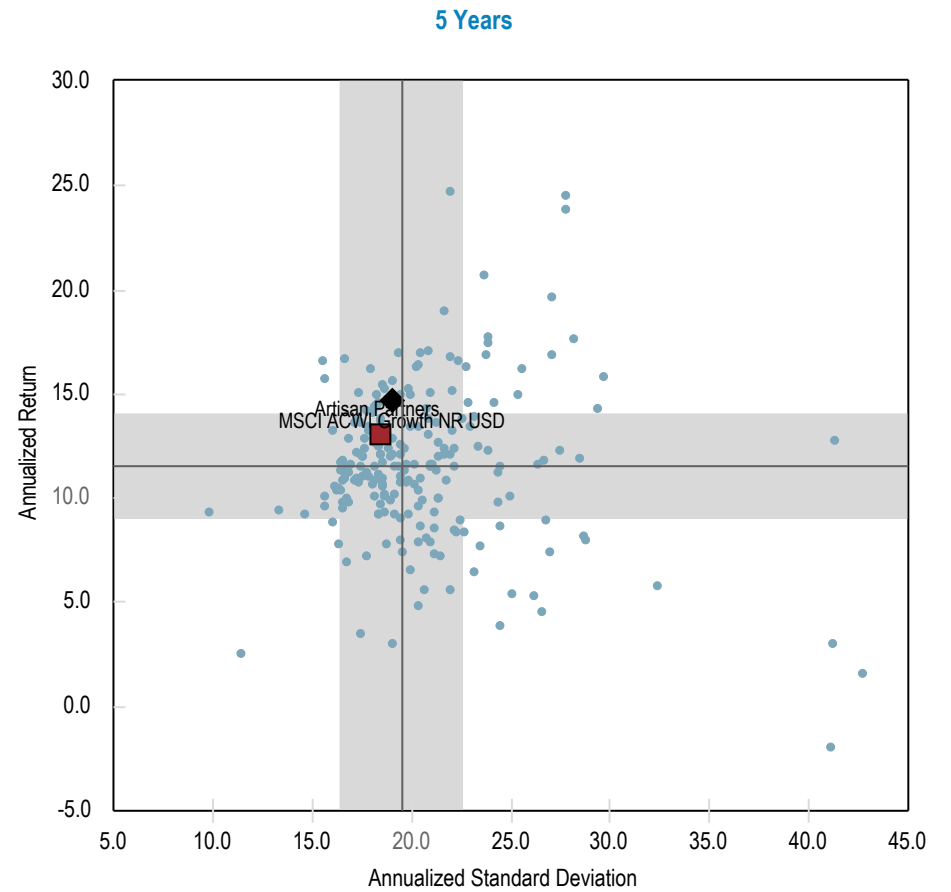
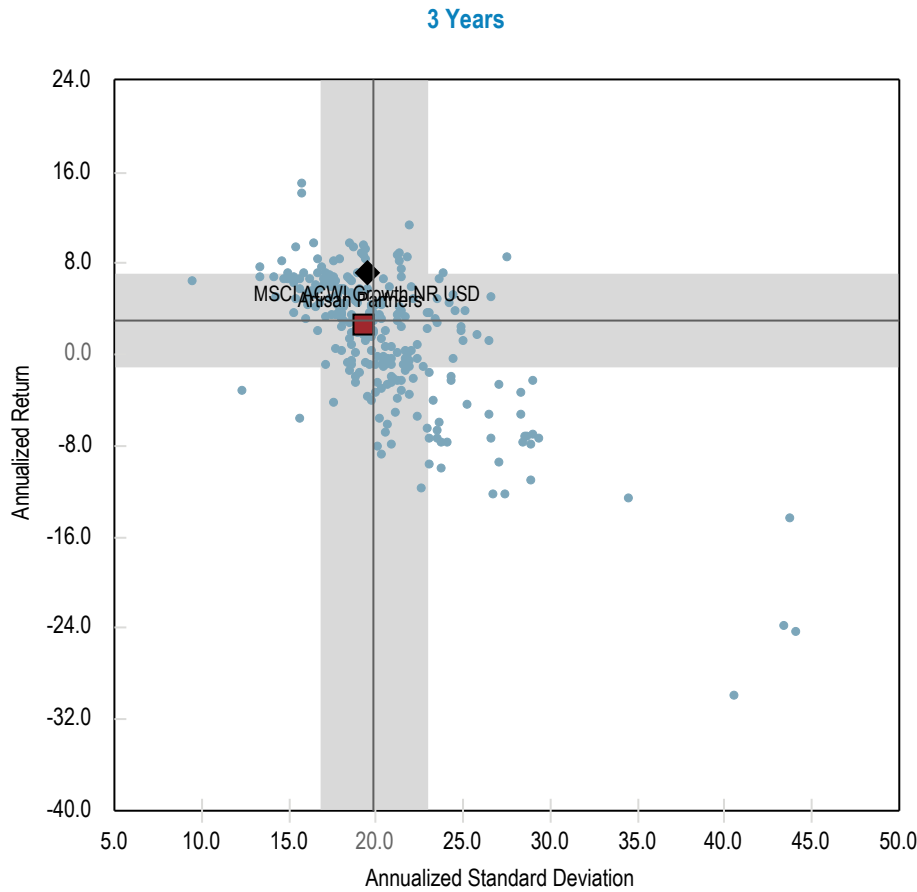
Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craigh Cepukenas, and Matthew Kamm.

Artisan Partners vs. eV Global Growth Equity Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Artisan Partners	4.43 (63)	33.52 (27)	2.71 (52)	13.07 (31)	12.48 (20)	24.54 (38)	-29.59 (60)	14.99 (56)	41.66 (33)	37.00 (12)
▲ MSCI ACWI Growth NR USD	4.07 (67)	36.45 (18)	7.18 (12)	14.70 (17)	11.78 (27)	33.22 (17)	-28.61 (56)	17.10 (43)	33.60 (49)	32.72 (37)
5th Percentile	10.83	43.54	8.68	16.96	14.93	44.80	-13.98	25.95	96.98	40.08
1st Quartile	7.39	33.96	5.70	13.62	11.94	28.48	-22.14	19.83	45.72	34.65
Median	5.35	29.75	3.02	11.56	10.46	21.68	-27.16	15.65	32.85	31.28
3rd Quartile	3.29	23.44	-1.45	9.79	9.26	15.31	-32.26	9.87	23.22	28.24
95th Percentile	0.00	15.53	-8.13	5.56	6.21	5.61	-45.47	-0.67	11.41	19.44
Population	278	276	257	216	133	292	297	284	266	250





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Artisan Partners	2.7	19.3	0.1
MSCI ACWI Growth NR USD	7.2	19.5	0.3
eV Global Growth Equity Median	3.0	19.9	0.1
Population	257	257	257

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Artisan Partners	13.1	18.5	0.6
MSCI ACWI Growth NR USD	14.7	19.1	0.7
eV Global Growth Equity Median	11.6	19.5	0.5
Population	216	216	216

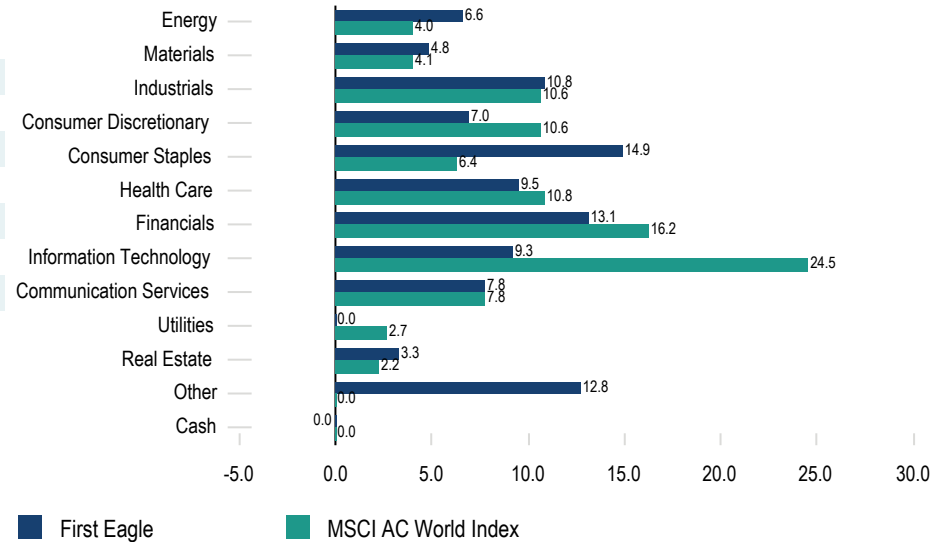
# First Eagle Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

## Characteristics

	Portfolio	Benchmark
Number of Stocks	123	2,687
Wtd. Avg. Mkt. Cap \$M	199,229.37	640,634.21
Median Mkt. Cap \$M	31,708.65	13,516.68
Price/Earnings ratio	19.24	22.13
Price/Book ratio	2.56	3.97
Return on Equity (%)	10.32	8.54
Current Yield (%)	2.14	1.87
Beta (5 Years, Monthly)	0.75	1.00

## Sector Allocation (%) vs. MSCI AC World Index



## Largest Holdings

	End Weight (%)	Quarterly Return (%)
SPDR Gold Trust	12.75	13.05
Oracle Corp	3.31	21.02
Meta Platforms Inc	2.81	13.64
HCA Healthcare Inc	2.23	26.71
Exxon Mobil Corp	2.10	2.64
Philip Morris International Inc	1.86	21.14
Alphabet Inc	1.74	-8.73
C.H. Robinson Worldwide Inc.	1.69	26.02
Comcast Corp	1.69	7.53
Schlumberger Ltd	1.57	-10.49

## Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
SPDR Gold Trust	12.22	13.05	1.59
Oracle Corp	2.82	21.02	0.59
HCA Healthcare Inc	1.82	26.71	0.49
Alibaba Group Holding Ltd	0.66	56.83	0.37
C.H. Robinson Worldwide Inc.	1.39	26.02	0.36
Meta Platforms Inc	2.55	13.64	0.35
Philip Morris International Inc	1.46	21.14	0.31
Universal Health Services	1.13	23.94	0.27
Bank of New York Mellon Corp (The)	1.25	20.88	0.26
Unilever PLC	1.36	19.14	0.26
<b>% of Portfolio</b>	<b>26.66</b>		<b>4.86</b>

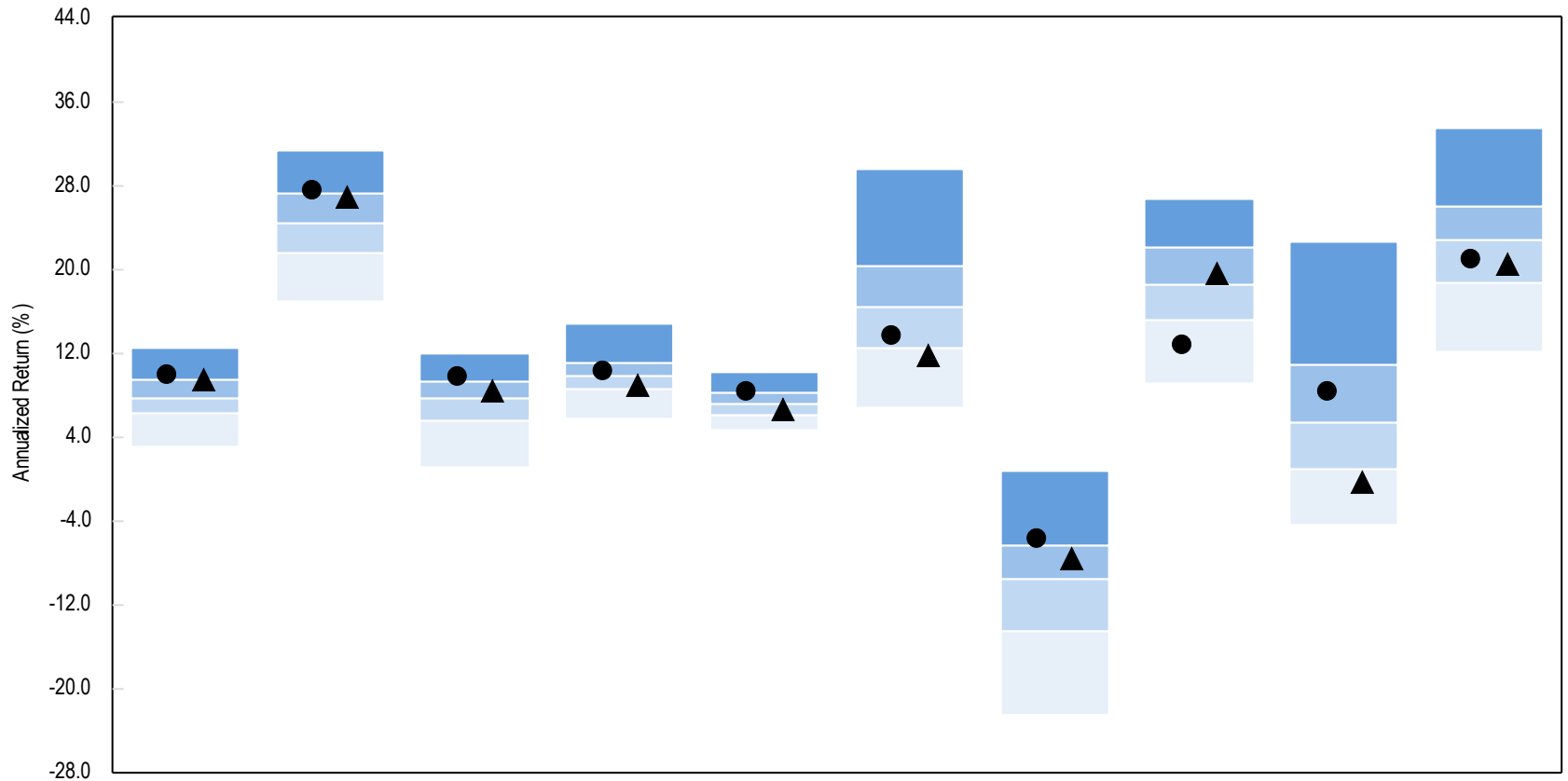
## Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Schlumberger Ltd	1.82	-10.49	-0.19
Alphabet Inc	1.97	-8.73	-0.17
NOV Inc	0.99	-15.59	-0.15
Fomento Economico Mexican	1.02	-7.49	-0.08
IPG Photonics Corp	0.48	-11.93	-0.06
Samsung Electronics Co Ltd	0.35	-15.76	-0.06
Alphabet Inc	0.63	-8.83	-0.06
Elevance Health Inc	1.27	-3.75	-0.05
Schwab (Charles) Corp	0.39	-11.70	-0.05
Noble Corporation Plc	0.17	-17.88	-0.03
<b>% of Portfolio</b>	<b>9.09</b>		<b>-0.89</b>

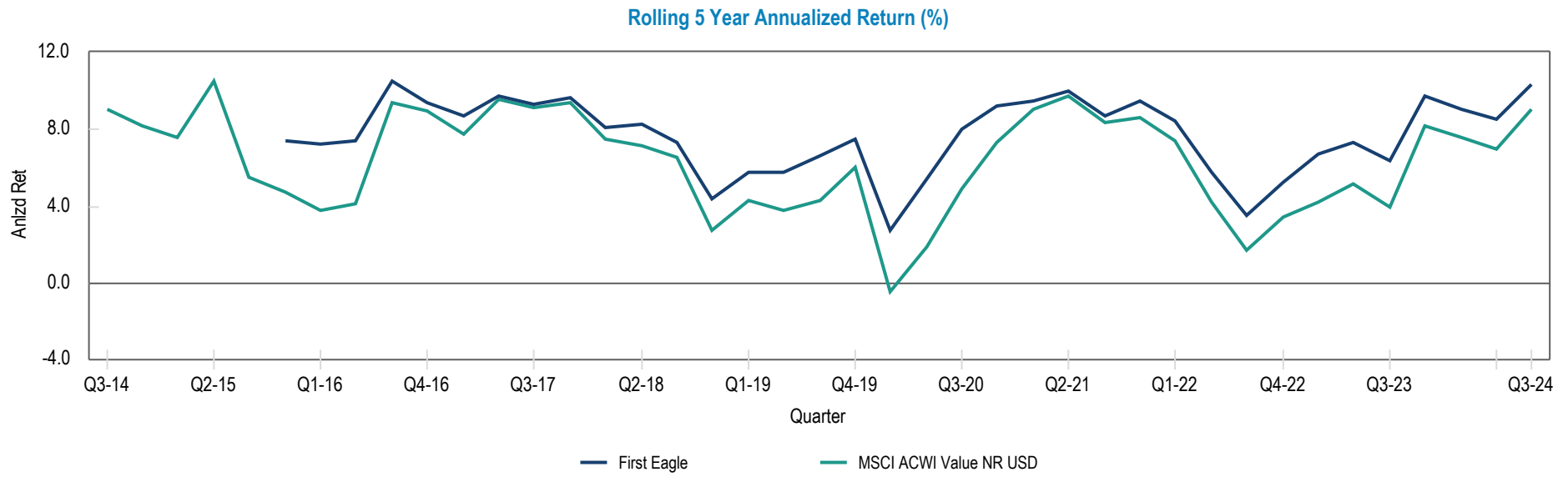
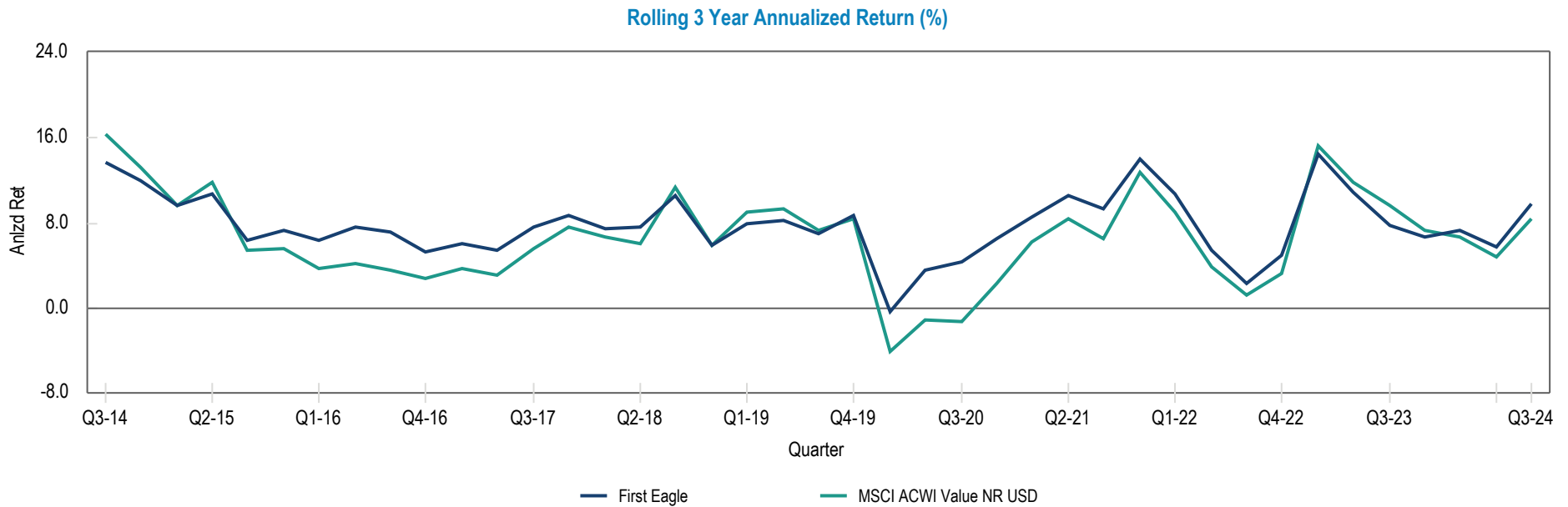
Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

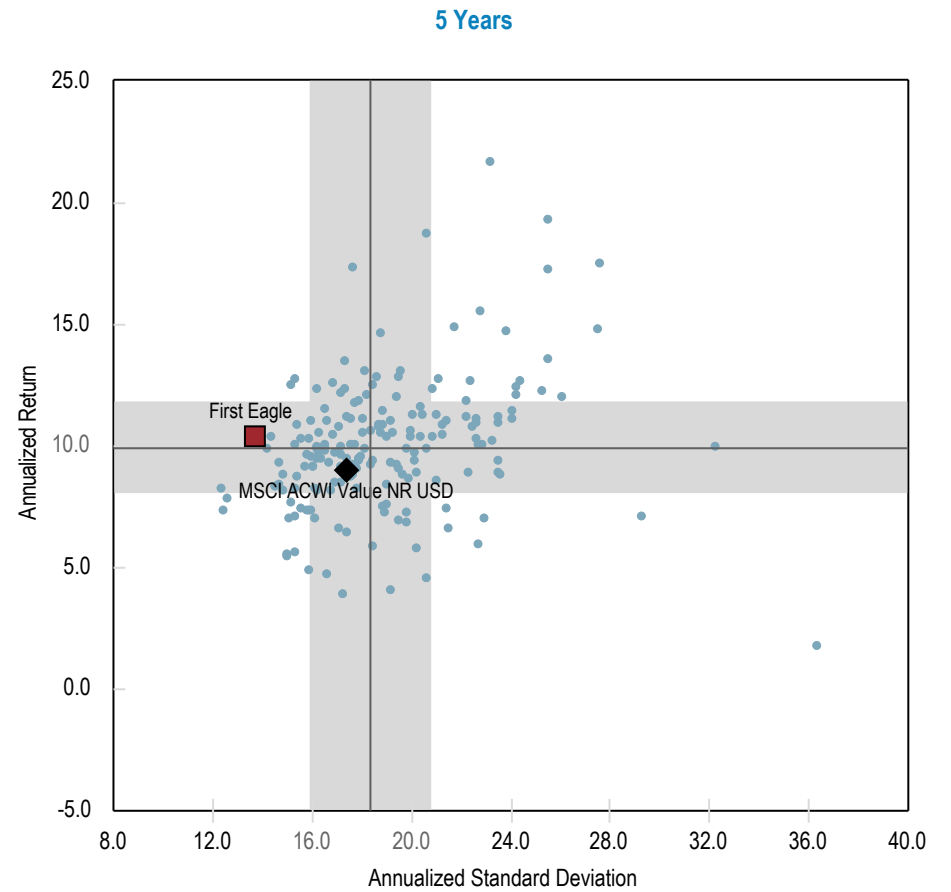
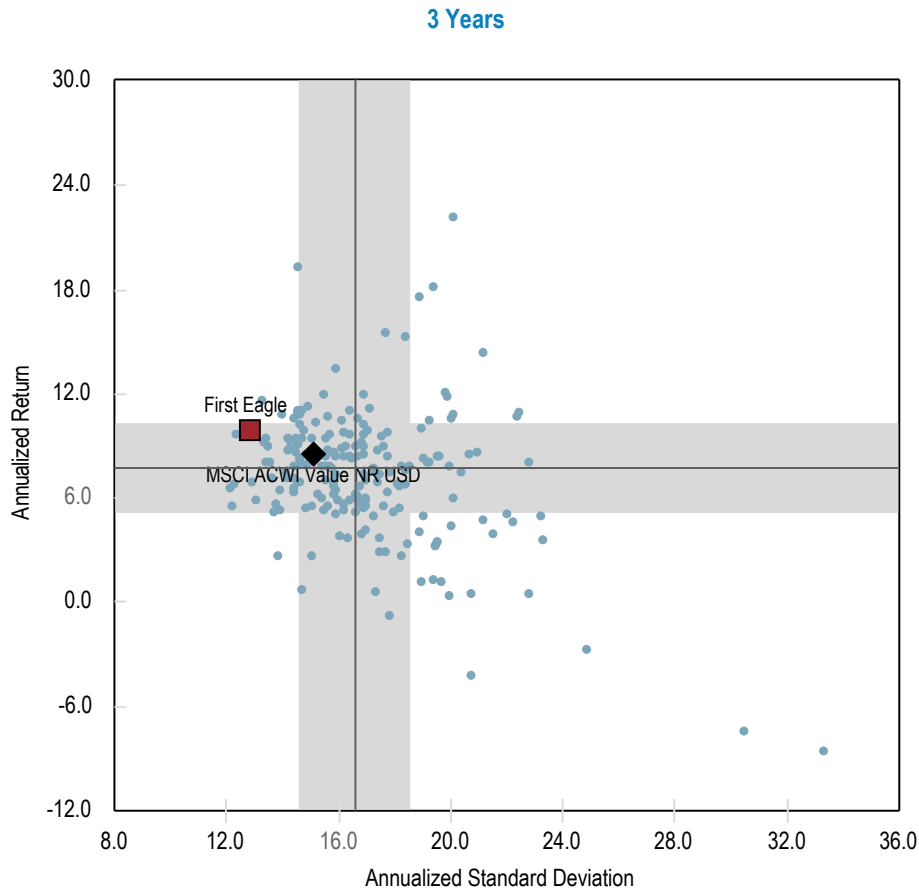


First Eagle vs. eV Global Value Equity Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● First Eagle	9.97 (20)	27.65 (22)	9.87 (18)	10.40 (42)	8.51 (23)	13.75 (66)	-5.61 (22)	12.95 (86)	8.47 (33)	21.01 (64)
▲ MSCI ACWI Value NR USD	9.42 (27)	26.89 (27)	8.49 (37)	9.04 (69)	6.65 (68)	11.81 (80)	-7.55 (35)	19.62 (42)	-0.33 (80)	20.59 (66)
5th Percentile	12.45	31.42	11.95	14.78	10.26	29.56	0.87	26.73	22.60	33.59
1st Quartile	9.52	27.29	9.38	11.20	8.32	20.39	-6.24	22.19	11.02	26.09
Median	7.72	24.37	7.72	9.94	7.27	16.39	-9.44	18.62	5.41	22.80
3rd Quartile	6.23	21.68	5.58	8.58	6.20	12.51	-14.55	15.15	1.06	18.81
95th Percentile	3.05	17.03	1.20	5.80	4.65	6.76	-22.50	9.07	-4.30	12.25
Population	222	219	204	183	137	230	231	232	239	235





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
First Eagle	9.9	12.9	0.5
MSCI ACWI Value NR USD	8.5	15.1	0.4
eV Global Value Equity Median	7.7	16.6	0.3
Population	204	204	204

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
First Eagle	10.4	13.7	0.6
MSCI ACWI Value NR USD	9.0	17.3	0.5
eV Global Value Equity Median	9.9	18.3	0.5
Population	183	183	183

# High Yield Managers

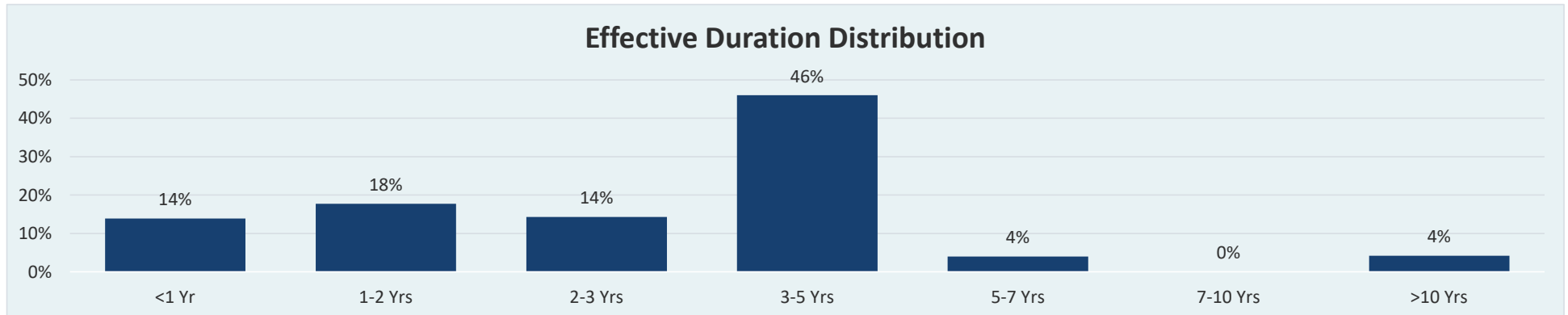
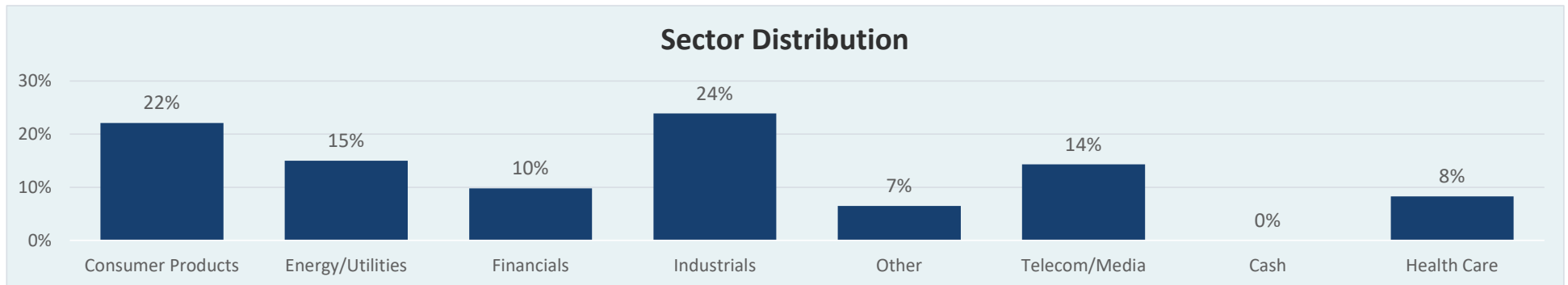
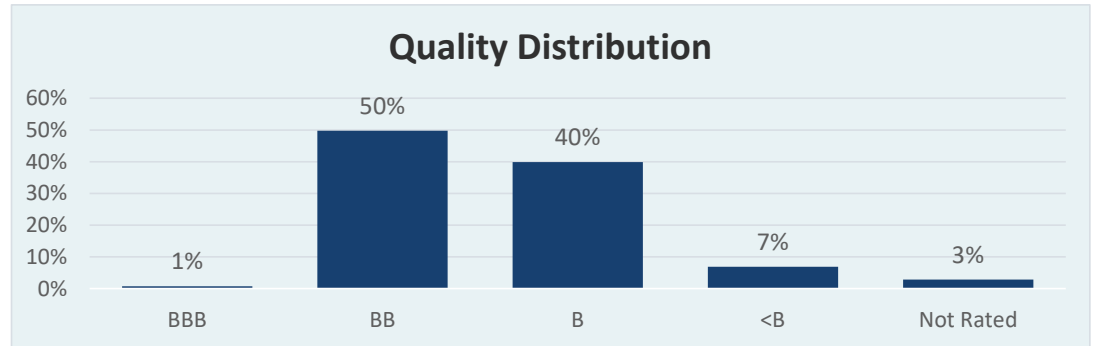
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Voya Global Investors  
 Manager Portfolio Overview

Contra Costa County Employees' Retirement Association  
 Period Ending: September 30, 2024

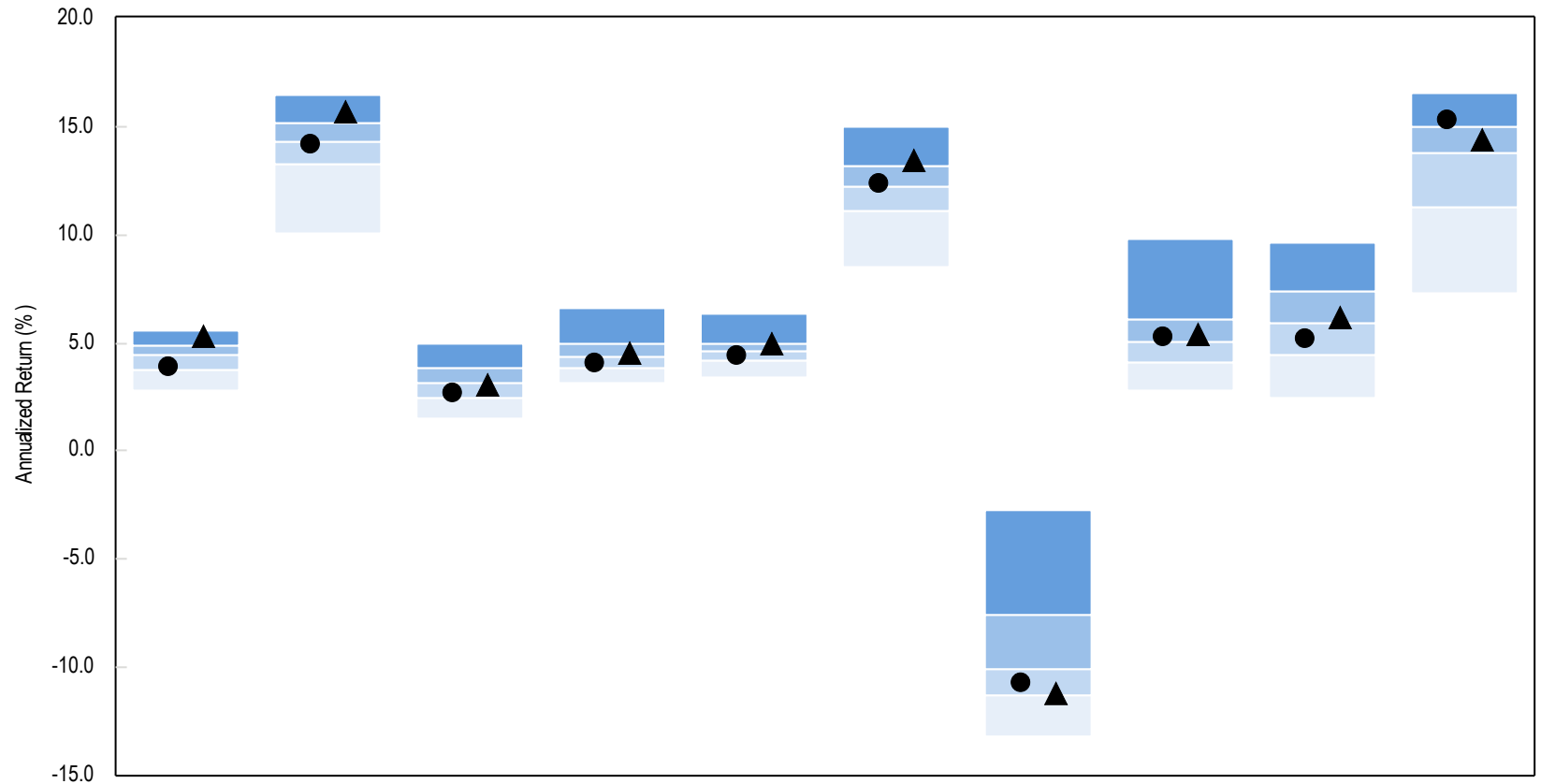
Domestic high yield fixed income portfolio with a focus on security selection. Primary personnel include Douglas Forsyth, Justin Kass, William Stickney, and Michael Yee.

	Voya	ICE BofAML HY Master II
Effective Duration	2.70	3.00
Yield to Maturity	6.4%	7.2%
Average Quality	B1	B1
Average Coupon	6.8%	6.3%

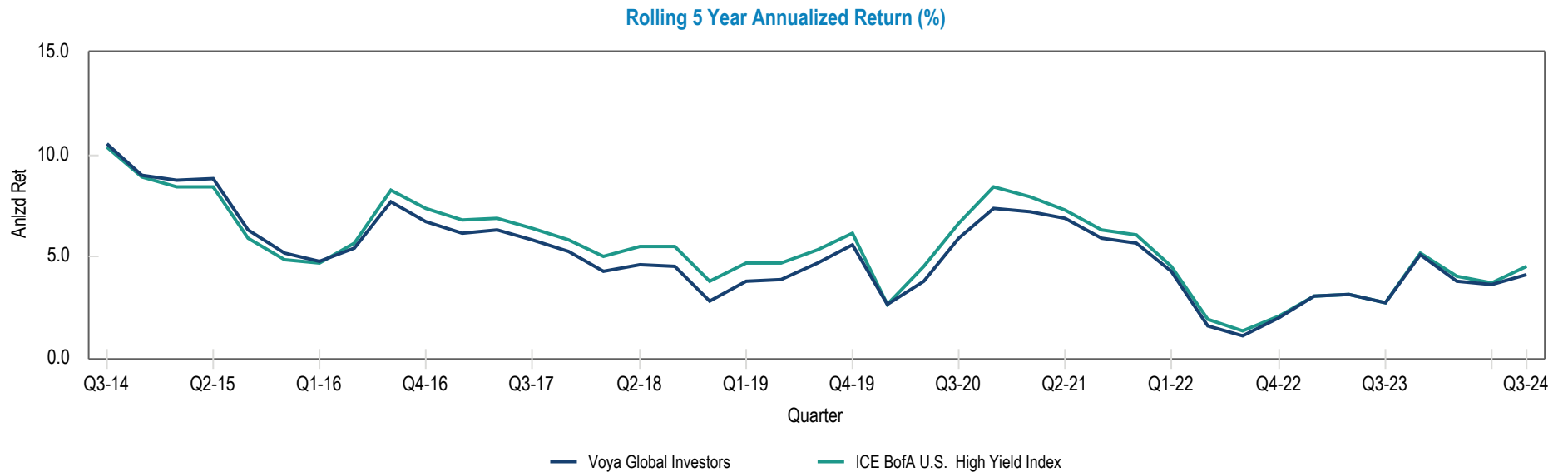
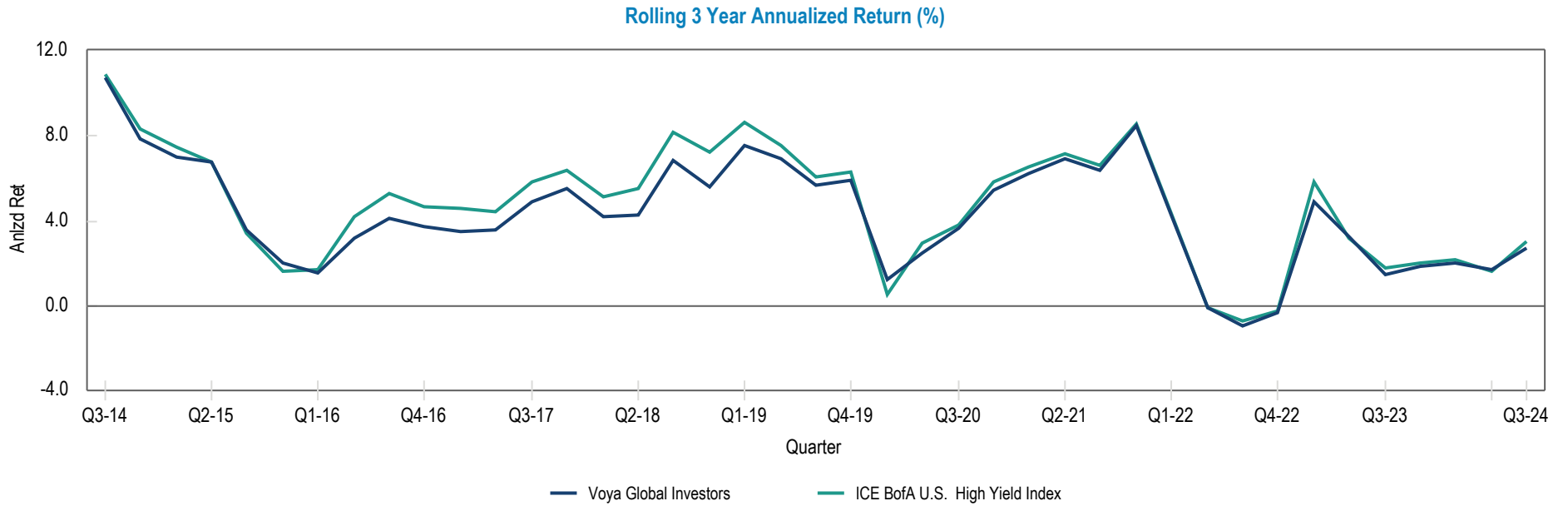


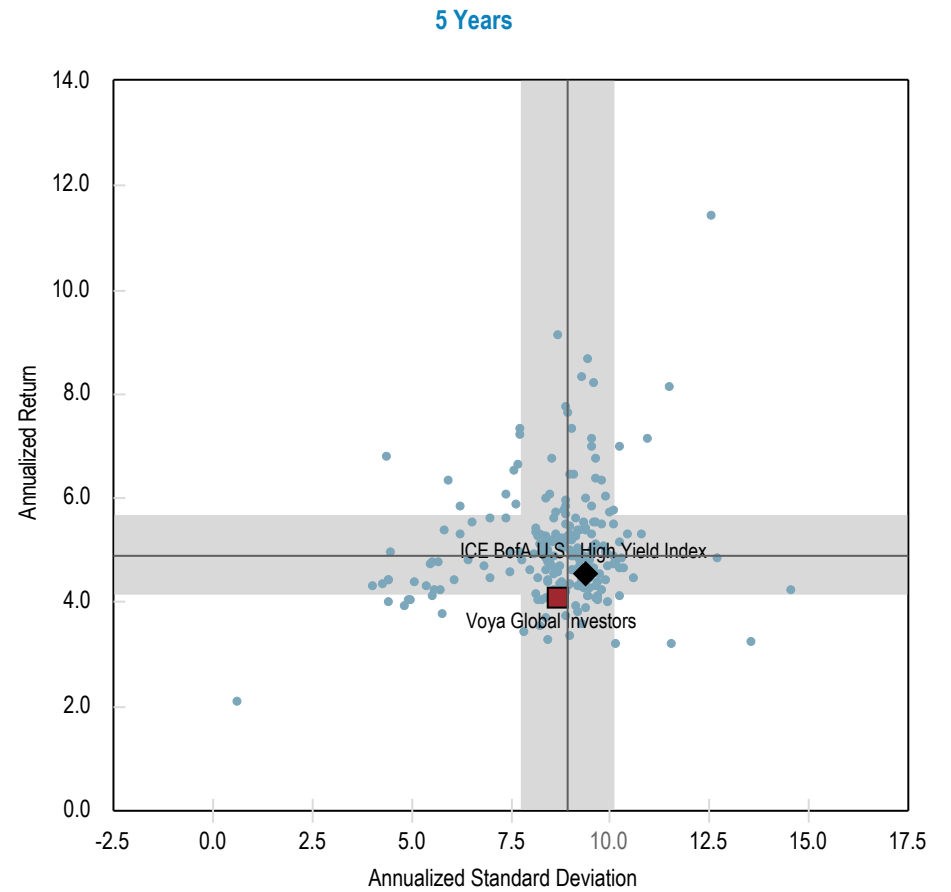
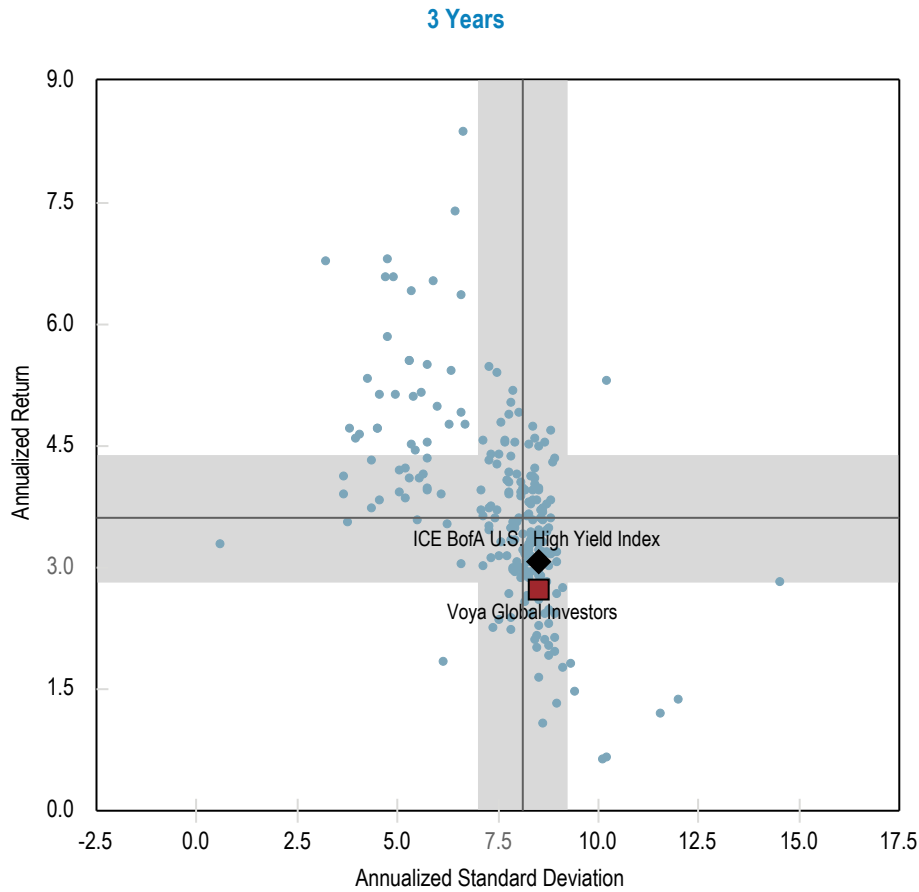
Quality distribution excludes cash.

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



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Voya Global Investors	3.93 (68)	14.21 (53)	2.74 (64)	4.11 (63)	4.40 (63)	12.39 (47)	-10.64 (63)	5.34 (42)	5.18 (66)	15.32 (19)
▲ ICE BofA U.S. High Yield Index	5.28 (11)	15.66 (13)	3.08 (52)	4.55 (43)	4.95 (27)	13.46 (19)	-11.22 (75)	5.36 (41)	6.17 (43)	14.41 (37)
5th Percentile	5.61	16.42	4.96	6.64	6.32	14.97	-2.77	9.80	9.67	16.50
1st Quartile	4.87	15.16	3.85	4.97	4.99	13.17	-7.53	6.08	7.39	14.97
Median	4.41	14.31	3.14	4.36	4.64	12.25	-10.05	5.05	5.88	13.78
3rd Quartile	3.78	13.28	2.49	3.88	4.16	11.14	-11.25	4.06	4.42	11.23
95th Percentile	2.79	10.02	1.50	3.18	3.39	8.53	-13.16	2.83	2.43	7.28
Population	235	231	225	212	181	246	263	258	262	268





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Voya Global Investors	2.7	8.5	0.0
ICE BofA U.S. High Yield Index	3.1	8.5	0.0
eV US High Yield Fixed Inc Median	3.6	8.1	0.1
Population	227	227	227

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Voya Global Investors	4.1	8.7	0.2
ICE BofA U.S. High Yield Index	4.5	9.4	0.3
eV US High Yield Fixed Inc Median	4.9	8.9	0.4
Population	214	214	214



# Real Estate Managers

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# Adelante Manager Portfolio Overview

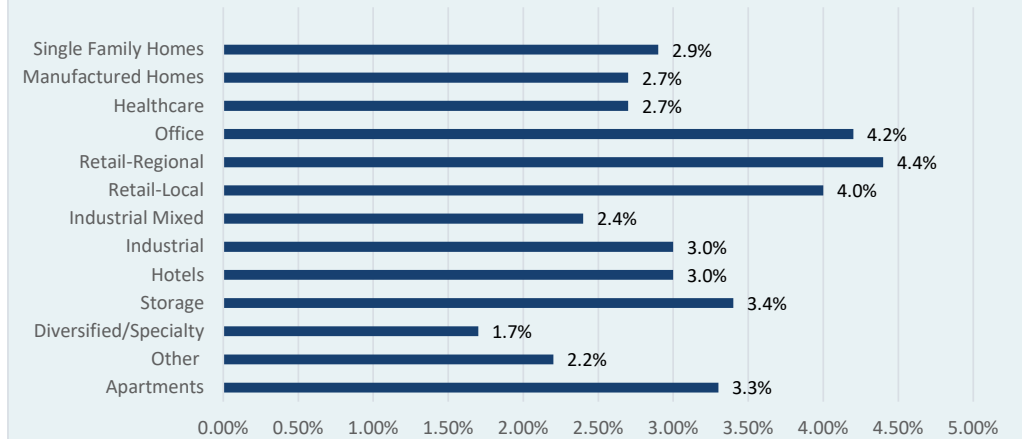
Contra Costa County Employees' Retirement Association  
Period Ending: September 30, 2024

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

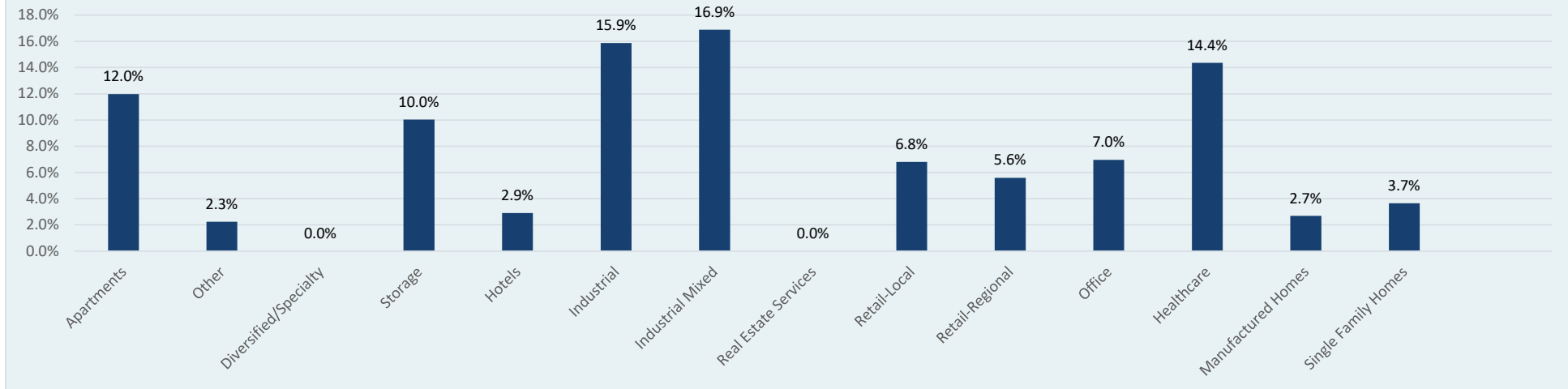
## Top Five Holdings

Company	Property Type	Allocation
ProLogis Inc.	Industrial	11.8%
Welltower Inc.	Healthcare	9.2%
Equinix, Inc.	Healthcare	9.1%
Public Storage	Storage	7.0%
AvalonBay Communities, Inc.	Apartments	5.6%

## Dividend Yield by Property Type



## Property Type Allocation



0.0225% is allocated to Cash and Cash Equivalents.

# Diversifying Fixed Income Managers

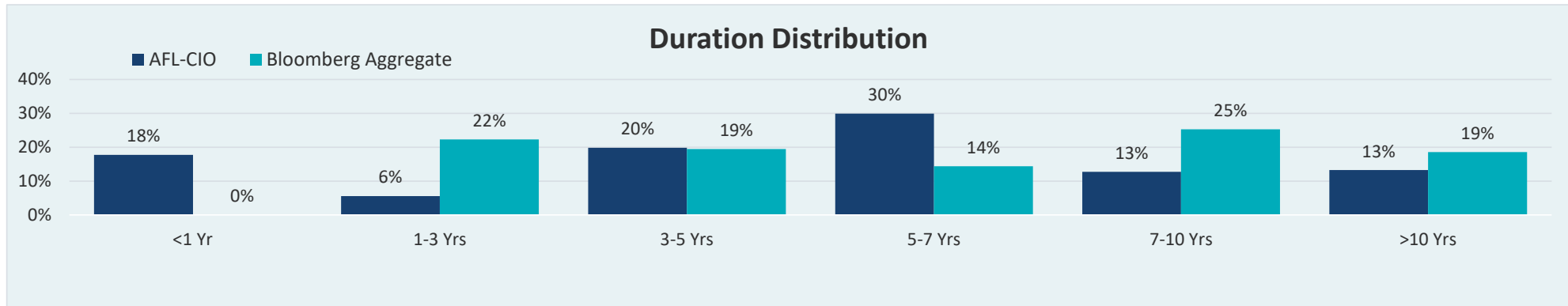
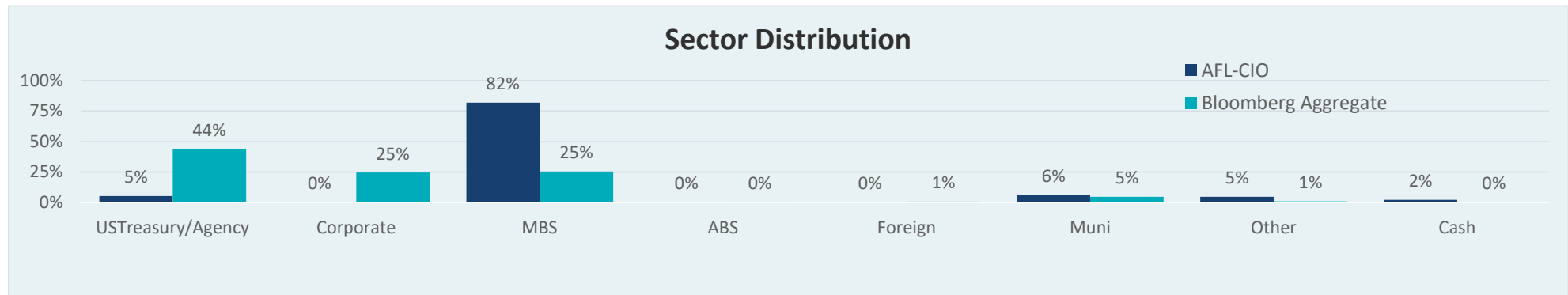
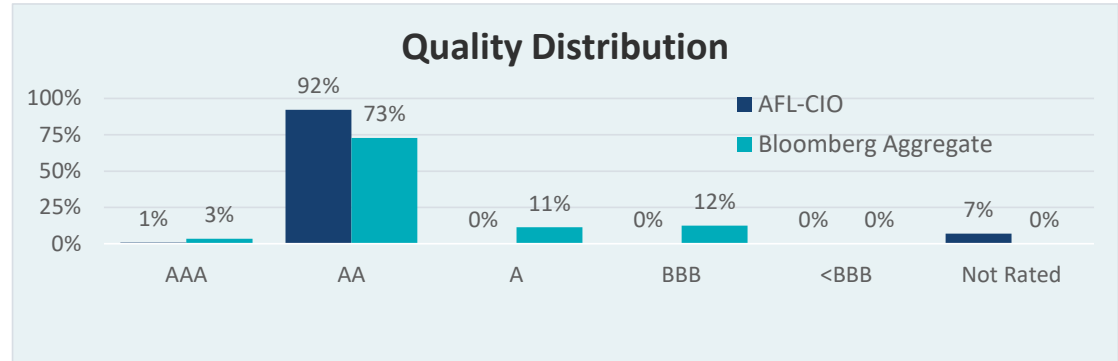
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# AFL-CIO Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

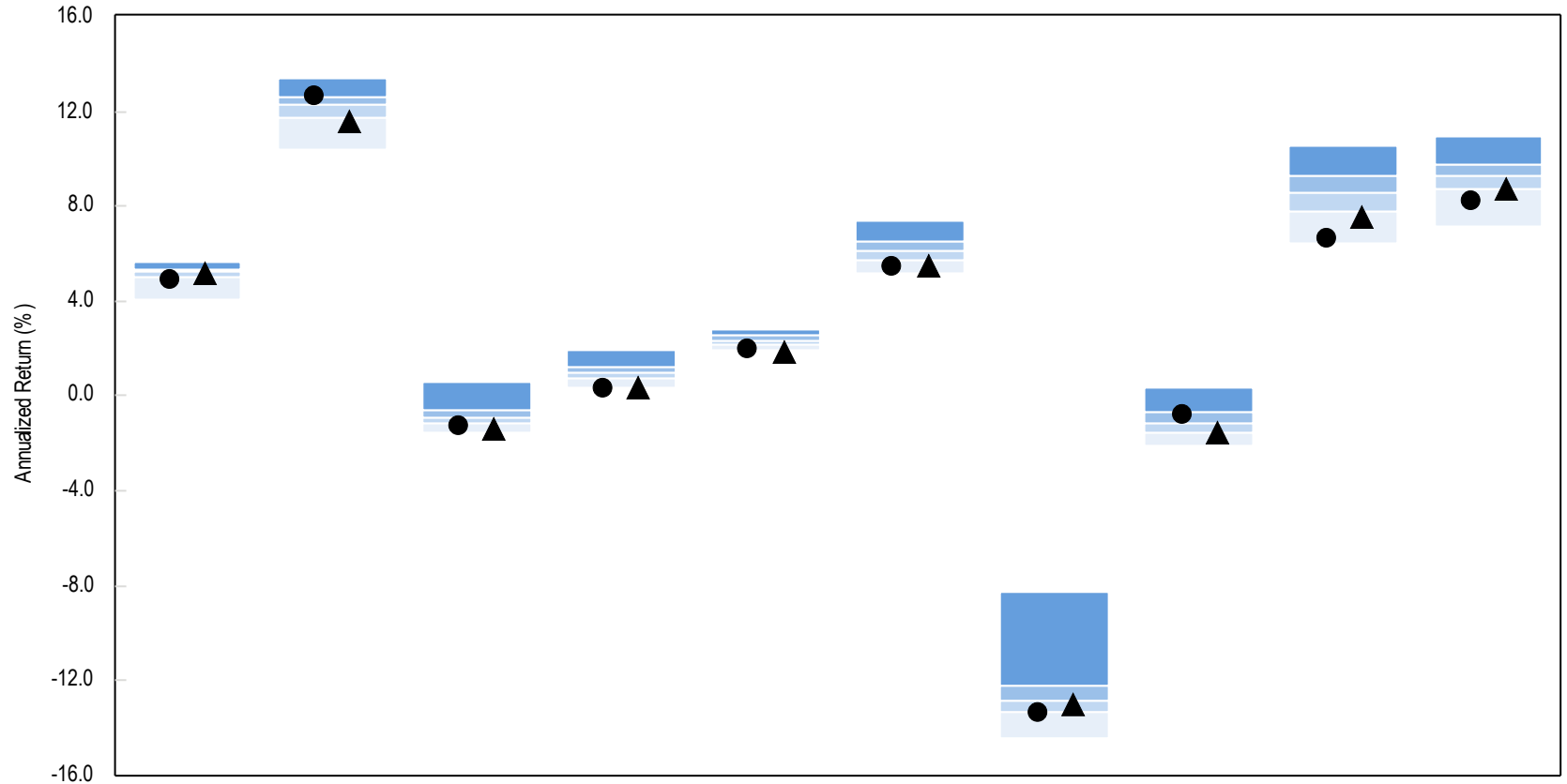
Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	Bloomberg Aggregate
Effective Duration	5.98	6.05
Yield to Maturity	4.0%	3.6%
Average Quality	Aa1	Aa2
Average Coupon	3.7%	3.3%

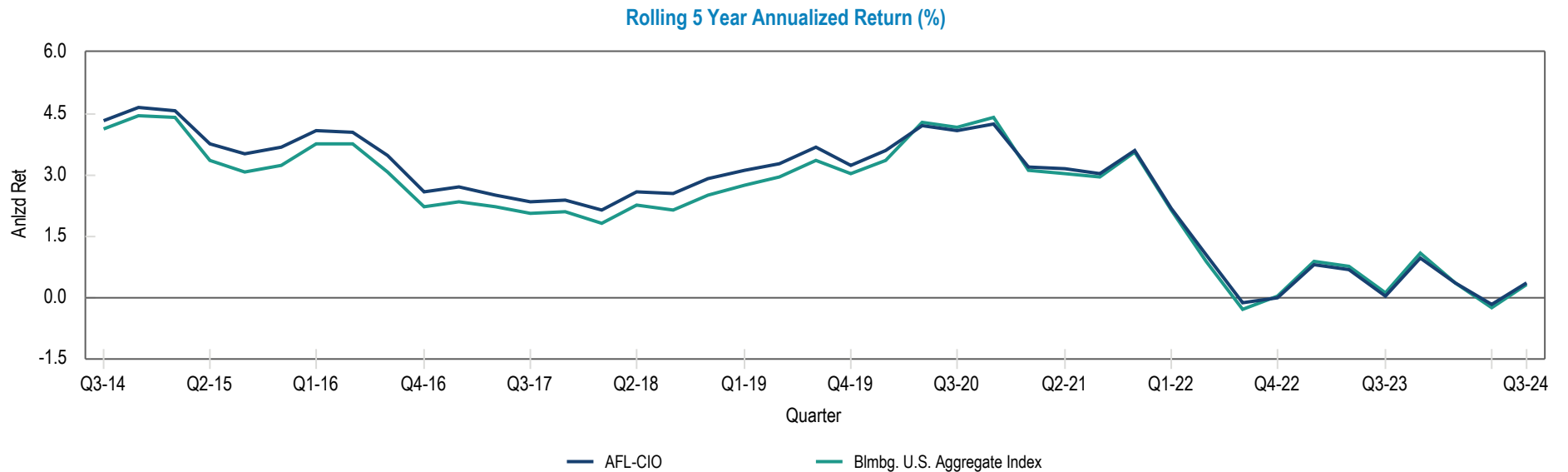
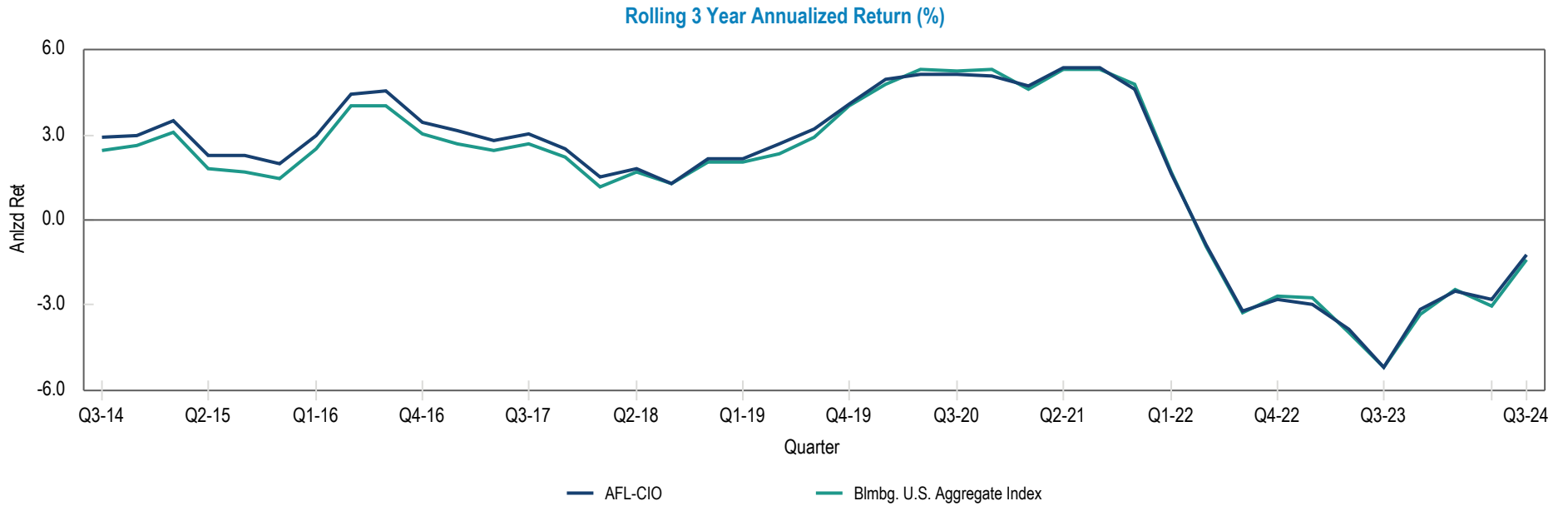


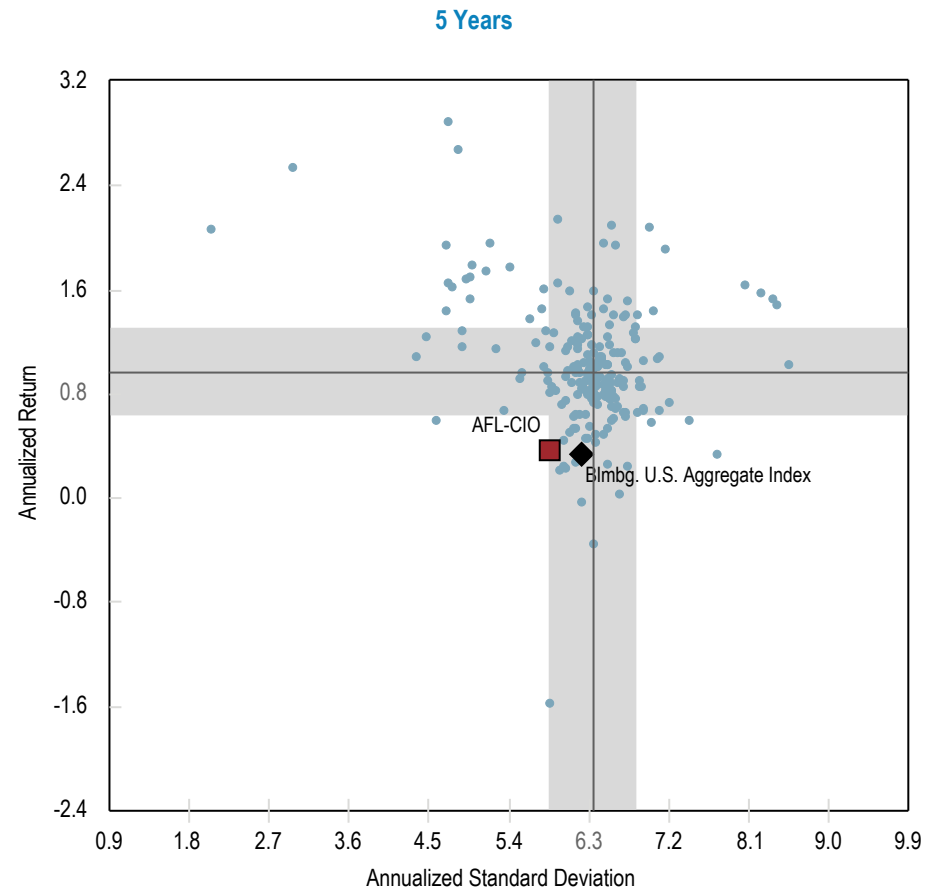
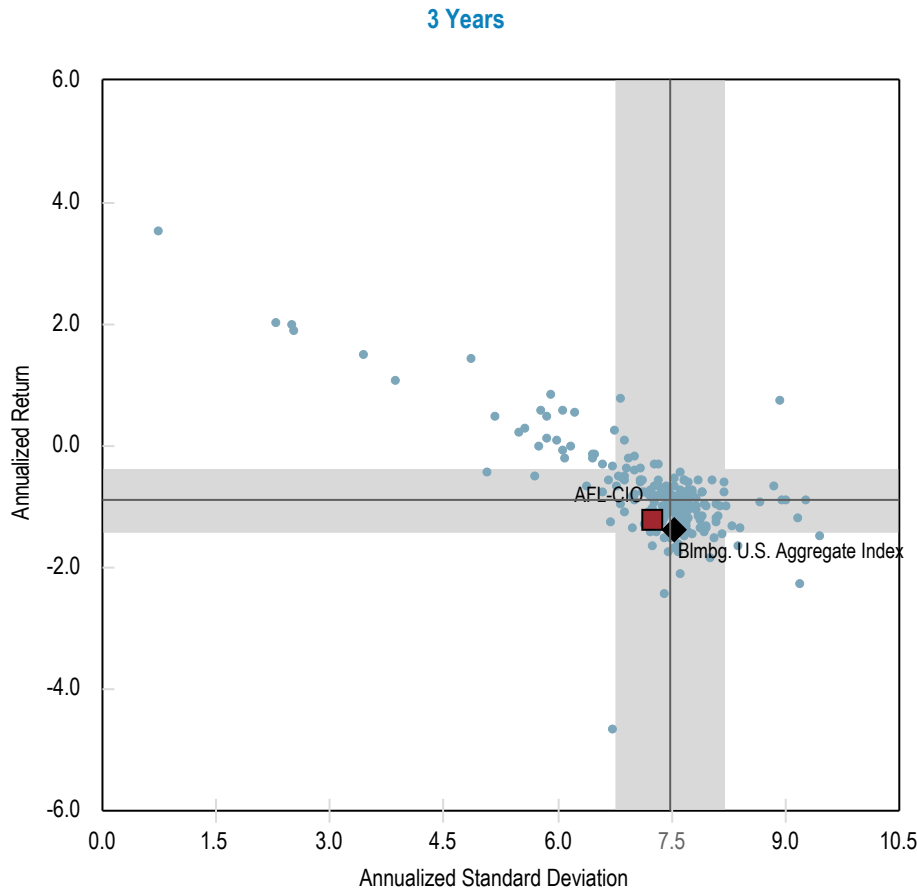
Duration and Quality distributions exclude cash.

AFL-CIO vs. eV US Core Fixed Inc Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● AFL-CIO	4.96 (80)	12.72 (21)	-1.21 (81)	0.36 (94)	2.01 (91)	5.51 (86)	-13.27 (75)	-0.73 (32)	6.65 (94)	8.25 (86)
▲ Blmbg. U.S. Aggregate Index	5.20 (57)	11.57 (82)	-1.39 (90)	0.33 (95)	1.84 (98)	5.53 (84)	-13.01 (63)	-1.55 (77)	7.51 (83)	8.72 (77)
5th Percentile	5.66	13.39	0.59	1.92	2.84	7.40	-8.26	0.38	10.57	10.95
1st Quartile	5.34	12.61	-0.63	1.25	2.54	6.55	-12.19	-0.64	9.30	9.76
Median	5.23	12.26	-0.89	0.97	2.33	6.15	-12.83	-1.13	8.54	9.30
3rd Quartile	5.05	11.77	-1.17	0.77	2.18	5.72	-13.28	-1.52	7.75	8.75
95th Percentile	4.11	10.40	-1.52	0.33	1.91	5.18	-14.44	-2.11	6.42	7.19
Population	231	231	228	219	202	246	265	272	277	281





3 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
AFL-CIO	-1.2	7.2	-0.6
Blmbg. U.S. Aggregate Index	-1.4	7.5	-0.6
eV US Core Fixed Inc Median	-0.9	7.5	-0.6
Population	228	228	228

5 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
AFL-CIO	0.4	5.9	-0.3
Blmbg. U.S. Aggregate Index	0.3	6.2	-0.3
eV US Core Fixed Inc Median	1.0	6.3	-0.2
Population	219	219	219

# Liquidity Managers

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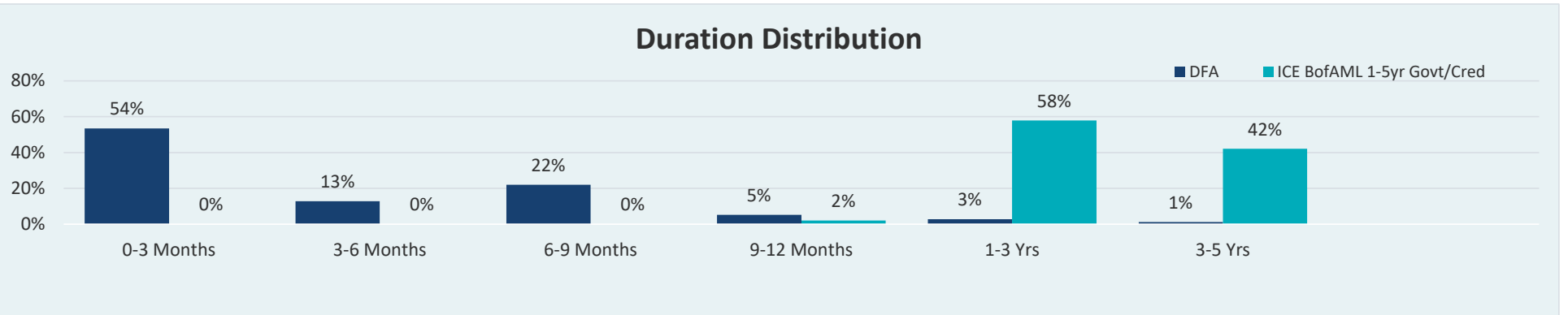
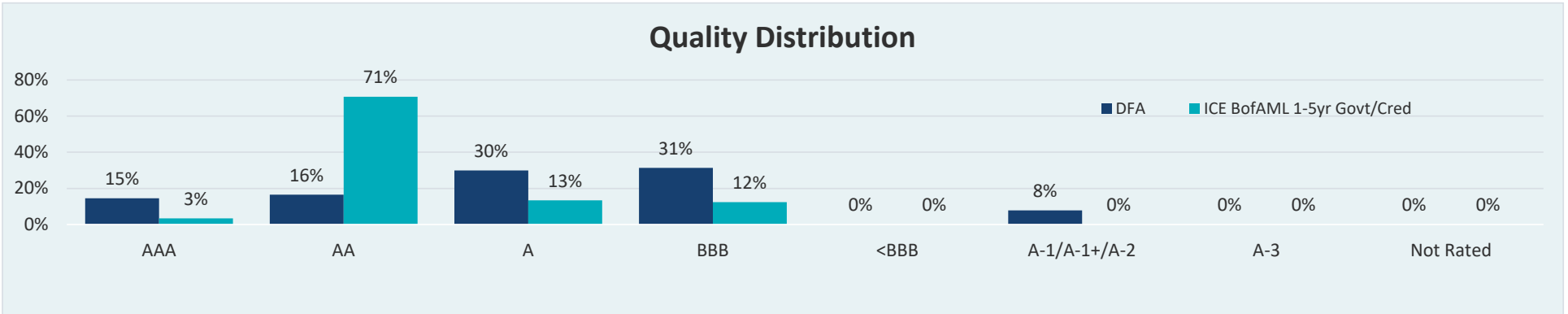
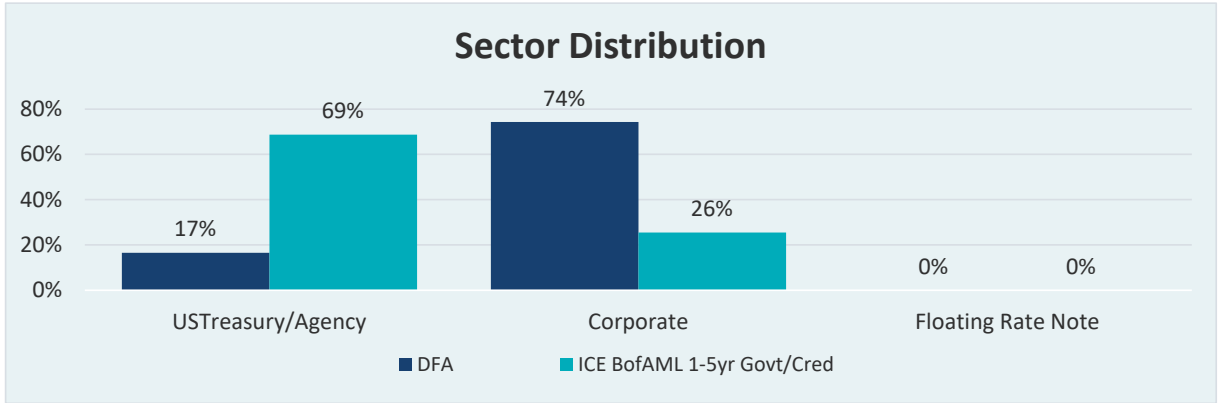


# DFA Short Credit Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

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

	DFA	ICE BofAML 1-5yr Govt/Cred
Effective Duration	0.32	2.58
Yield to Maturity	4.95	3.90
Average Quality	A+	Aa2
Average Coupon	3.86%	3.17%

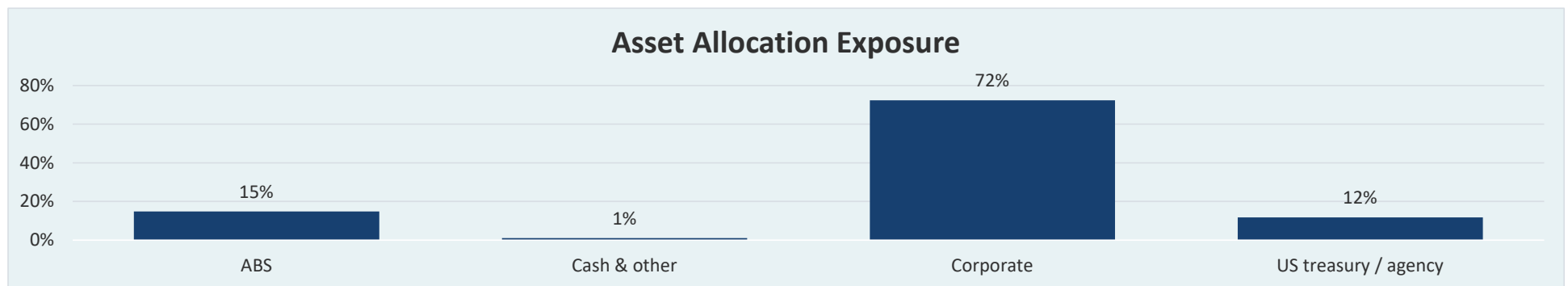
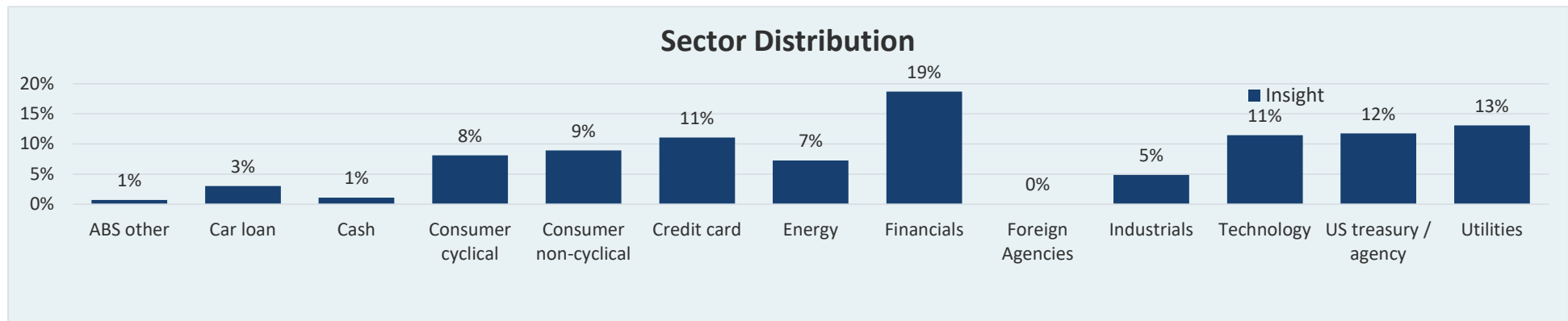
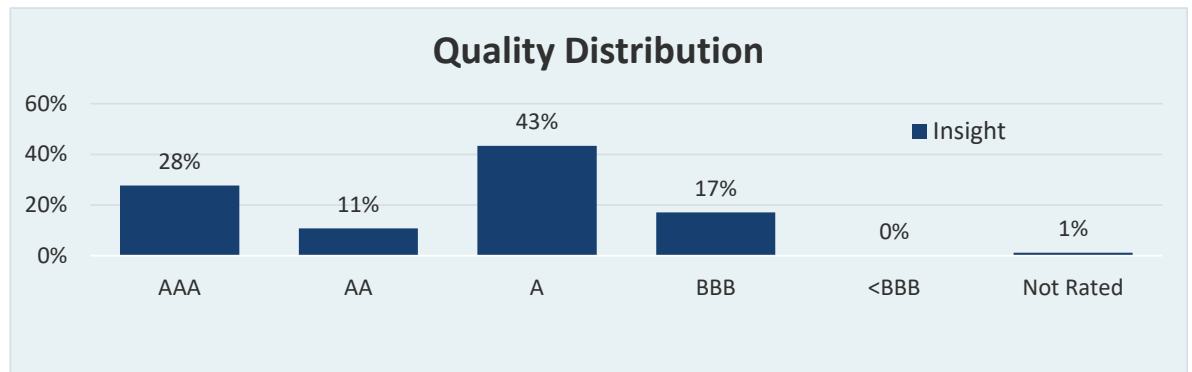


# Insight Short Duration Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

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

	Insight	Bloomberg 1-3yr Govt
Effective Duration	1.37	1.92
Yield to Maturity	4.30	N/A
Average Quality	A+	AGY/AGY
Average Coupon	3.49%	2.80%

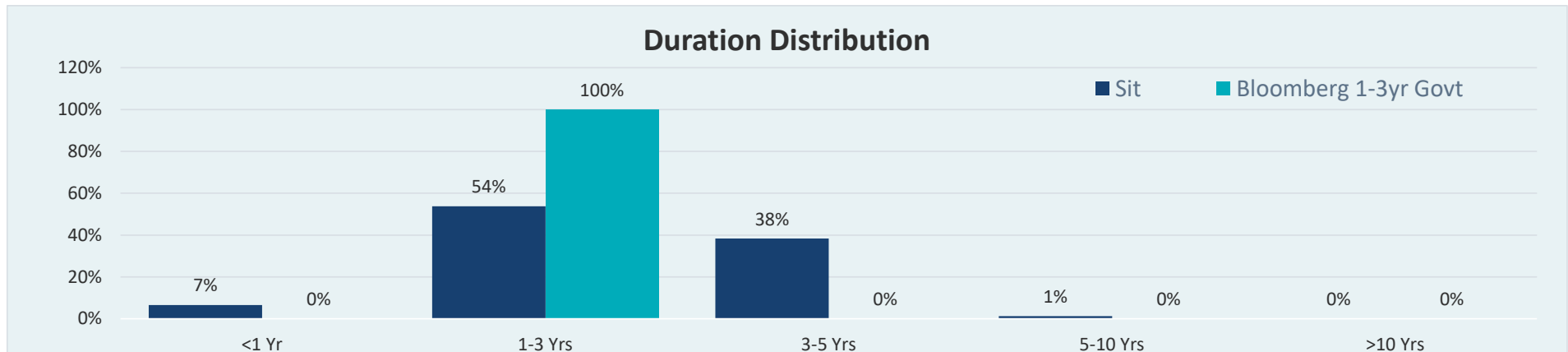
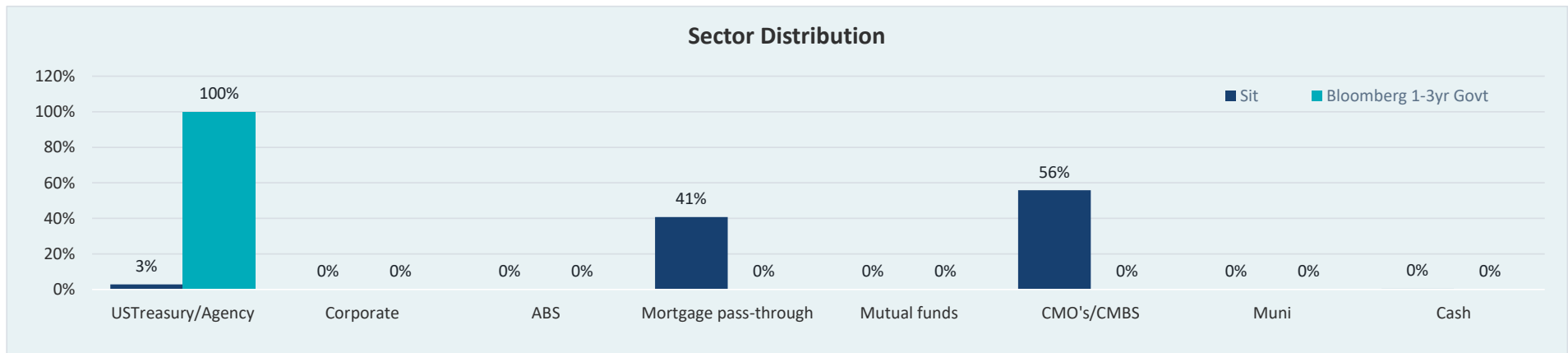
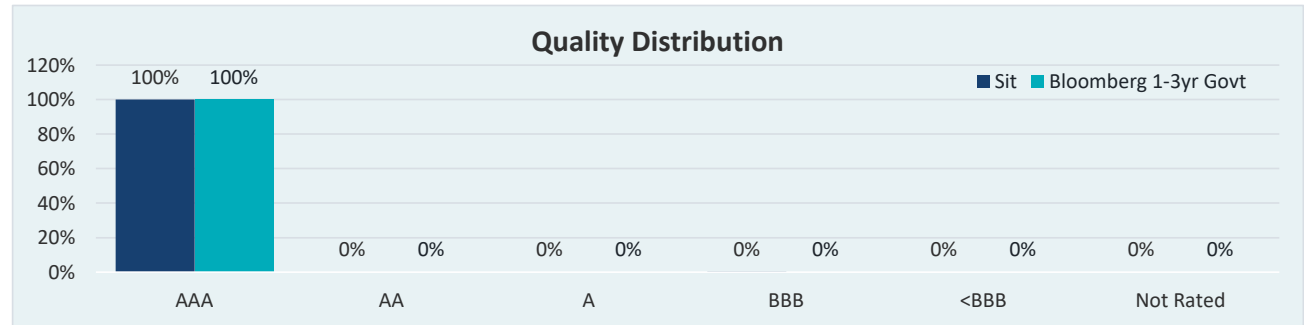


# Sit Short Duration Manager Portfolio Overview

# Contra Costa County Employees' Retirement Association Period Ending: September 30, 2024

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

	Sit	Bloomberg 1-3yr Govt
<b>Modified Duration</b>	<b>2.70</b>	<b>1.90</b>
<b>Yield to Maturity</b>	<b>5.60</b>	<b>N/A</b>
<b>Average Quality</b>	<b>AGY/AGY</b>	<b>AGY/AGY</b>
<b>Average Coupon</b>	<b>6.00%</b>	<b>2.80%</b>



Data Sources and Methodology

**Performance Return Calculations**

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

**Data Source**

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

**Illiquid Alternatives**

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

**Policy & Custom Index Composition**

Policy Index (8/1/2023 - present)	16% Russell 3000, 12% MSCI ACWI ex-US (Gross), 10% MSCI ACWI (Net), 2% Wilshire REIT, 8% Private Real Estate composite returns, 2% FTSE 3-month T-bill +5%, 13% Private Equity composite returns, 10% Private Credit composite returns, 2% ICE BofAML High Yield Master II, 17% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate, 2.5% Bloomberg US Aggregate TR +1%.
Policy Index (7/1/2022 - present)	16% Russell 3000, 15% MSCI ACWI ex-US (Gross), 9% MSCI ACWI (Net), 2% Wilshire REIT, 8% Private Real Estate composite returns, 2.5% FTSE 3-month T-bill +5%, 13% Private Equity composite returns, 8% Private Credit composite returns, 1.5% ICE BofAML High Yield Master II, 17% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate, 2.5% Bloomberg US Aggregate TR +1%.
Policy Index (7/1/2021 - 6/30/2022)	16% Russell 3000, 16% MSCI ACWI ex-US (Gross), 9% MSCI ACWI (Net), 2% Wilshire REIT, 8% Private Real Estate composite returns, 3% CPI + 4%, 11% Private Equity composite returns, 8% Private Credit composite returns, 2% ICE BofAML High Yield Master II, 18% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate, 1.5% HFRI EH Equity Market Neutral.
Policy Index (1/1/2021 - 6/30/2021)	9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 8% Private Real Estate composite returns, 1.5% CPI + 4%, 11% Private Equity composite returns, 7% Private Credit composite returns, 1.5% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2% HFRI EH Equity Market Neutral.
Policy Index (7/1/2020 - 12/31/2020)	9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 1.5% CPI + 4%, 11% S&P 500 +4% (Lagged), 7% ICE BofAML High Yield Master II +2%, 1.5% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2% HFRI EH Equity Market Neutral.
Policy Index (7/1/2019 - 6/30/2020)	10% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2% CPI + 4%, 11% S&P 500 +4% (Lagged), 5% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 24% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (7/1/2018 - 6/30/2019)	11% Russell 3000, 19% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.8% NCREIF Property Index, 7.2% NCREIF ODCE Index, 2% CPI + 4%, 10% S&P 500 +4% (Lagged), 4% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 23% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (10/1/2017 - 6/30/2018)	16.3% Russell 3000, 18.8% MSCI ACWI ex-US (Gross), 8.6% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2.5% CPI + 4%, 10.1% S&P 500 +4% (Lagged), 1.9% ICE BofAML High Yield Master II +2%, 4.3% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate.
Policy Index (1/1/2017 - 9/30/2017)	22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI + 4%, 8.1% S&P 500 +4% (Lagged), 1.7% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML High Yield Master II, 22.4% Bloomberg 1-3 Yr Gov/Credit, 3.2% Bloomberg US Aggregate, 1.6% 91-Day T-Bills.
Policy Index (4/1/2012-12/31/2016)	27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Bloomberg U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

# Contra Costa County Employees' Retirement Association

## Data Sources and Methodology

Period Ending: September 30, 2024

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

Data Sources and Methodology

Period Ending: September 30, 2024

IMPLEMENTATION BENCHMARK WEIGHTS BY INVESTMENT ALLOCATION RESOLUTION (1/1/17 TO CURRENT)									
Manager	Benchmark	1/1/17 - 9/30/17	10/1/17 - 6/30/18	7/1/18 - 6/30/19	7/1/19 - 6/30/20	7/1/20 - 6/30/21	7/1/21 - 6/30/22	7/1/22 - 7/31/23	8/1/2023 - current
BlackRock Index Fund	Russell 1000 Index	0.0%	1.0%	1.0%	2.0%	2.0%	5.0%	9.0%	10.0%
Intech Large Cap	S&P 500 Index	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pimco Stocks +	S&P 500 Index	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Boston Partners	Russell 1000 Value	4.2%	4.5%	3.0%	2.5%	2.0%	4.0%	4.0%	3.0%
Jackson Square	Russell 1000 Growth	4.3%	4.5%	3.0%	2.5%	2.0%	4.0%	0.0%	0.0%
Emerald	Russell 2000 Growth	3.2%	3.3%	2.0%	1.5%	1.5%	1.5%	1.5%	1.5%
Ceredex	Russell 2000 Value	3.0%	3.3%	2.0%	1.5%	1.5%	1.5%	1.5%	1.5%
Pyrford	MSCI AC World ex USA Value	5.5%	5.4%	5.5%	5.0%	5.0%	4.0%	4.0%	4.0%
William Blair	MSCI AC World ex USA Growth	5.5%	5.4%	5.5%	5.0%	5.0%	4.0%	4.0%	4.0%
TT Emerging Markets	MSCI Emerging Markets	0.0%	4.2%	4.0%	4.0%	4.0%	4.0%	3.5%	2.0%
PIMCO/RAE Emerging Markets	MSCI Emerging Markets Value	0.0%	4.2%	4.0%	4.0%	4.0%	4.0%	3.5%	2.0%
Artisan	MSCI ACWI Growth NR USD	4.5%	4.3%	4.0%	4.0%	4.0%	4.5%	4.5%	5.0%
Intech Global Low Vol	MSCI ACWI	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
JP Morgan	MSCI ACWI	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
First Eagle	MSCI ACWI Value NR USD	4.3%	4.3%	4.0%	4.0%	4.0%	4.5%	4.5%	5.0%
Voya	ICE BofA U.S. High Yield Index	5.1%	5.0%	2.0%	2.0%	1.5%	2.0%	1.5%	2.0%
Adelante REIT	Wilshire U.S. REIT Index	1.0%	1.0%	1.0%	1.0%	1.0%	2.0%	1.0%	1.0%
INVESCO REIT	Wilshire U.S. REIT Index	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%
Private RE (NPI)	Private RE Composite Returns	1.1%	1.4%	1.8%	1.6%	1.6%	0.0%	0.0%	0.0%
Private RE (ODCE)	Private RE Composite Returns	8.4%	8.2%	7.2%	6.4%	6.4%	0.0%	0.0%	0.0%
Private RE	Private RE Composite Returns	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.0%	8.0%
Private Credit	Private Equity Composite Returns	0.0%	0.0%	4.0%	5.0%	7.0%	8.0%	8.0%	10.0%
Torchlight	Private Equity Composite Returns	1.7%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private Equity	Private Equity Composite Returns	7.7%	8.2%	10.0%	11.0%	11.0%	11.0%	13.0%	13.0%
Opportunistic	Private Equity Composite Returns	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Risk Parity	60% MSCI ACWI (Net) / 40% Bloomberg Global Aggregate	0.0%	0.0%	5.0%	5.0%	5.0%	3.0%	3.0%	3.0%
Insight	Bloomberg 1-3 Yr Gov/Cred	10.5%	10.7%	12.0%	12.0%	13.0%	7.0%	6.5%	6.5%
DFA	ICE BofA 1-5 Year U.S. Corp/Gov't Index	6.0%	5.3%	5.5%	6.0%	6.0%	4.0%	4.0%	4.0%
Cash	3-month Tbills	1.6%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sit	Bloomberg 1-3 Yr Govt index	5.9%	6.0%	5.5%	6.0%	6.0%	7.0%	6.5%	6.5%
AFL-CIO HIT	Bloomberg US Aggregate TR	3.2%	3.5%	3.5%	3.5%	3.0%	2.5%	2.5%	2.5%
Parametric Defensive Equity	CPI + 4%	0.0%	0.0%	2.5%	2.5%	0.0%	1.5%	0.0%	0.0%
Wellington Real TR	Bloomberg Global Aggregate	2.5%	2.5%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%
Acadian MAARS	FTSE 3-month T-bill + 5%	0.0%	0.0%	0.0%	0.0%	1.5%	1.5%	2.5%	2.0%
Sit AR	Bloomberg US Aggregate TR +100	0.0%	0.0%	0.0%	0.0%	2.0%	1.5%	2.5%	2.5%

Manager Line Up					
Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 1000 Index	4/20/2017	BlackRock	Invesco Real Estate V	9/27/2022	Invesco
Boston Partners	6/1/1995	Northern Trust	Oaktree REOF V	12/31/2011	Oaktree
Emerald Advisors	4/7/2003	Northern Trust	Oaktree REOF VI	9/30/2013	Oaktree
Ceredex	11/6/2011	Northern Trust	Oaktree REOF VII	4/1/2015	Oaktree
Pyrford	4/25/2014	State Street	PCCI IX	4/28/2022	PCCP
William Blair	10/29/2010	William Blair	Siguler Guff DREOF	1/25/2012	Siguler Guff
PIMCO RAE Emerging Markets	2/28/2017	State Street	Siguler Guff DREOF II	8/31/2013	Siguler Guff
TT Emerging Markets	7/27/2017	TT	Siguler Guff DREOF II Co-Inv	1/27/2016	Siguler Guff
Artisan Partners	10/1/2012	SEI Trust	Paulson Real Estate Fund II	11/10/2013	Paulson
First Eagle	1/18/2011	Northern Trust	AE Industrial Partners Fund II	4/8/2019	StepStone Group
Allianz Global Investors	4/25/2000	Northern Trust	Adams Street Partners	3/18/1996	StepStone Group
Adelante	9/30/2001	Northern Trust	Adams Street Partners II	1/16/2009	StepStone Group
AQR Global Risk Premium - EL	1/18/2019	AQR	Adams Street Partners Venture	4/28/2017	StepStone Group
Panagora Risk Parity Multi Asset	3/15/2019	Panagora	Adams Street Partners - BFP	1/18/1996	StepStone Group
AFL-CIO	6/30/1991	AFL-CIO	Adams Street Partners - Fund 5	9/21/2012	StepStone Group
Wellington Real Total Return (in Liquidation)	2/26/2013	Wellington	Aether Real Assets IV	3/16/2016	StepStone Group
BH-DG Systematic Trading Fund L.P. - I	4/19/2024	BH-DG	Aether Real Assets III	11/27/2013	StepStone Group
Sit LLCAR	4/15/2021	Northern Trust	Aether Real Assets III Surplus	11/30/2013	StepStone Group
Sit Short Duration	11/2/2016	Northern Trust	Bay Area Equity Fund	6/14/2004	StepStone Group
DFA Short Credit	11/21/2016	Northern Trust	Bay Area Equity Fund II	12/7/2009	StepStone Group
Insight Short Duration	11/18/2016	Northern Trust	Commonfund	6/28/2013	StepStone Group
Parametric Overlay	3/29/2017	Northern Trust	EIF US Power Fund II	8/16/2005	StepStone Group
Cash	-	Northern Trust	EIF US Power Fund III	5/30/2007	StepStone Group
Angelo Gordon Energy Credit Opp	9/24/2015	StepStone Group	EIF US Power Fund IV	11/28/2011	StepStone Group
StepStone CC Opportunities Fund	2/1/2018	StepStone Group	EIF US Power Fund V	11/28/2016	StepStone Group
Torchlight II	9/30/2006	StepStone Group	Genstar Capital Partners IX, L.P.	2/21/2019	StepStone Group
Torchlight IV	7/1/2012	StepStone Group	Oaktree PIF 2009	2/28/2010	StepStone Group
Torchlight V	7/1/2012	StepStone Group	Paladin III	11/30/2007	StepStone Group
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Ocean Avenue Fund II	6/11/2014	StepStone Group
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Ocean Avenue Fund III	4/15/2016	StepStone Group
Blackstone Real Estate Partners VIII	3/24/2023	Blackstone	Pathway 6	5/24/2011	StepStone Group
DLJ RECP III	6/23/2005	DLJ	Pathway 7	2/7/2013	StepStone Group
DLJ RECP IV	2/11/2008	DLJ	Pathway 8	11/23/2015	StepStone Group
DLJ RECP V	7/1/2014	DLJ	Pathway	11/9/1998	StepStone Group
DLJ RECP VI	3/19/2019	DLJ	Pathway 2008	12/26/2008	StepStone Group
LaSalle Income & Growth VI	7/16/2013	LaSalle	Siguler Guff CCCERA Opps	6/3/2014	StepStone Group
LaSalle Income & Growth VII	2/28/2017	LaSalle	Siguler Guff Secondary Opps	11/30/2016	StepStone Group
Hearthstone II	6/17/1998	Hearthstone	Siris Partners IV	3/15/2019	StepStone Group
Long Wharf Fund IV	7/3/2013	Long Wharf	TPG Healthcare Partners, L.P.	6/28/2019	StepStone Group
Long Wharf Fund V	9/30/2016	Long Wharf	Trident VIII, L.P.	5/24/2019	StepStone Group
Long Wharf Fund VI	2/5/2020	Long Wharf	Wastewater Opp. Fund	12/8/2015	StepStone Group
Long Wharf Fund VII	5/30/2023	Long Wharf	Cross Lake RE IV	12/14/2023	Cross Lake
Invesco Real Estate IV	6/30/2014	Invesco	KSL Capital Partners VI, L.P.	11/10/2023	KSL
Invesco Real Estate V	2/20/2019	Invesco	EQT Infrastructure VI	12/31/2023	StepStone Group
Stockbridge Value Fund I	6/26/2024	Stockbridge	Altaris Health Partners VI, L.P.	6/30/2024	StepStone Group
Jadian Real Estate Fund II GP, LLC	9/27/2024	Citco	Arbor Investments VI, L.P	6/30/2024	StepStone Group

Other Disclosures

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

# Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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