

Meeting Date
02/26/2025
Agenda Item
#4a.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2024

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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Investment Landscape

TAB I

Investment Performance
Review

TAB II

A decorative overlay consisting of a grid of interconnected triangles in various shades of blue and green, with some triangles containing white or blue geometric shapes.

**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

1ST QUARTER 2025
Investment Landscape

Verus business update

Since our last Investment Landscape webinar:

- Verus hired Aimee Hauff as a Senior Performance Analyst, Mallory Wallace as Senior Operations Analyst, Chloe Vo as a Performance Analyst, and Mouhamed Diop as an Accounting Specialist in our Seattle office.
- Palmer Pederson was promoted to Consulting Associate on the Not-For-Profit team.
- Ian Toner, CFA, had an in-depth interview with The Journal of Portfolio Management: “CIO Perspectives”.
- 2025 Verus Capital Market Assumptions were released.
- Recent research, found at verusinvestments.com/research:
 - *Top 10 ideas for 2025: Back to the 90s?*
 - *Examining the Case for Private Credit*
 - *Selecting Exceptional Private Markets Managers: Strategies for Success in a Complex Arena*
 - *Using Fixed Income to Avoid Downside Risk*

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Recent Verus research

Visit: verusinvestments.com/research

Thought leadership

TOP 10 IDEAS FOR 2025: BACK TO THE 90S?

Every year Verus identifies a series of topics that we believe will be important for investors to consider during the coming year. Some of those tend to be economics or markets focused, while others tend to focus on geopolitics or other broader issues.

SELECTING EXCEPTIONAL PRIVATE MARKETS MANAGERS: STRATEGIES FOR SUCCESS IN A COMPLEX ARENA

We examine the curated due diligence that Verus uses to select exceptional private markets managers, how our private market team identifies top-tier private markets managers, and the expertise required to do so.

EXAMINING THE CASE FOR PRIVATE CREDIT

We discuss the benefits of including private credit within an investment program. We also highlight the drawbacks and risks facing the asset class as we look to assist investors in answering the question of where to look for credit exposure.

USING FIXED INCOME TO AVOID DOWNSIDE RISK

Downside risk is the undesirable risk of market volatility. We explore how negative correlation of traditional fixed income to equities may mitigate equity drawdown risk and how these characteristics relate to the more active role that fixed income may play in broader portfolio risk management.

4th quarter summary

THE ECONOMY

- The election of Donald Trump and news of a unified government appears to have positively impacted household and business sentiment. The news has generally been perceived as implying easier business conditions, firmer economic growth, fewer interest rate cuts, and mildly higher inflation.
- U.S. inflation drifted upward during Q4, from 2.4% YoY in September to 2.9% in December. Core inflation (ex-food & energy) was fairly stable at 3.2%. Investors now expect the Fed to cut rates once or twice over the next year. Further increases in the rate of inflation could possibly push the Federal Reserve towards a rate hike—an outcome that would likely spook markets.

EQUITY

- The U.S. (S&P 500 +2.4%) provided a strong quarter while non-U.S. markets lagged. Emerging markets (MSCI EM -8.0%) and international developed (MSCI EAFE -8.1%) both delivered sharp losses, though these losses were caused by currency movements rather than equity weakness. For investors with hedged currency exposure, the MSCI EAFE index produced a +0.1% return.
- Small cap and value both continued to underperform. Small cap trailed large cap by -2.4% in Q4, while value trailed growth by -9.1%. This capped off a year of poor returns for both style factors, underperforming by -13% and -19%, respectively.

FIXED INCOME

- The 10-year U.S. Treasury yield jumped from 3.79% to 4.55% during the quarter, amid growing evidence that the economy may remain hotter than previously believed, and expectations around pro-growth policies of the Trump Administration, as well as the possibility that a tariff spat with trade partners could push inflation upwards.
- Default activity remained low, as the economy was strong and chances of recession have fallen. However, ‘distressed exchanges’, a renegotiation of debt that does not count as a technical default, have been rising substantially. During the quarter, total distressed credit volume was roughly \$19.4 billion, which marked the second largest quarterly total on record since Q4 2008.

ASSET ALLOCATION ISSUES

- U.S. election results triggered large market movements in early November. Equities rallied along with most risk assets, while treasury yields jumped materially. Although investors have interpreted this news as generally positive for the future, volatility along the way is also likely.
- Implied bond market volatility continued to moderate, following record highs that were achieved during the recent U.S. inflation scare. However, volatility levels remain materially above the longer-term average. We suspect that volatility will be elevated on an ongoing basis as investors are fixated on Federal Reserve actions and communications.

Evidence of a strong U.S. economy, and news of an incoming Trump Administration, have led to shifting expectations around growth, interest rates, and inflation

What drove the market in Q4?

“Donald Trump wins 2024 U.S. election in historic comeback”

Swing State Margin of Victory

Arizona	Georgia	Michigan	Nevada	NC	Pennsylvania	Wisconsin
+5.5%	+2.2%	+1.4%	+3.1%	+3.2%	+1.7%	+0.9%

Article Source: BBC, November 7th, 2024

“Fed cuts by a quarter point, indicates fewer reductions ahead”

Futures Implied Fed Funds Rate

Jan 25	March 25	May 25	June 25	July 25	Sep 25
4.32%	4.26%	4.19%	4.09%	4.05%	3.98%

Article Source: CNBC, December 18th, 2024

“U.S. inflation gauge ticks higher with consumer prices on the rise”

Personal Consumption Expenditures Price Index, Year-over-Year

June 24	July 24	Aug 24	Sep 24	Oct 24	Nov 24
2.4%	2.5%	2.3%	2.1%	2.3%	2.4%

Article Source: PBS, November 27th, 2024

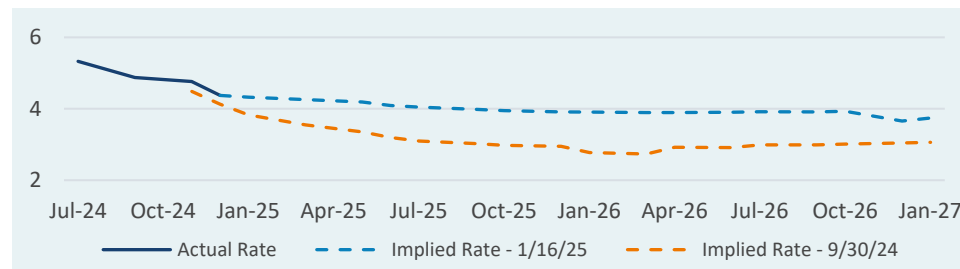
“Dollar hits one-year high as Trump clinches election victory”

ICE U.S. Dollar Index

July 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24
104.1	101.7	100.8	104.0	105.7	108.5

Article Source: Bloomberg, November 6th, 2024

U.S. MARKET IMPLIED FUTURE INTEREST RATES



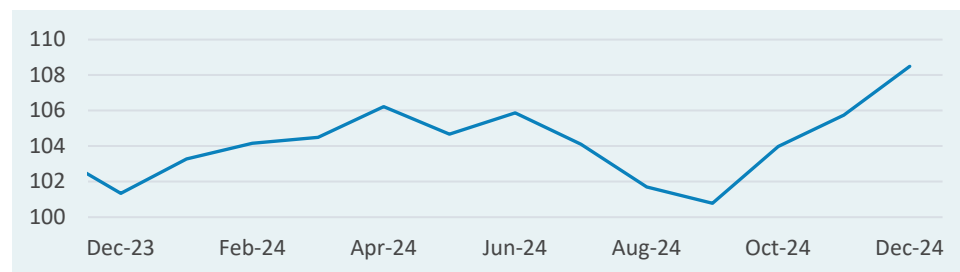
Source: CME Group, as of 1/16/25

PCE INFLATION, YEAR-OVER-YEAR



Source: BEA, as of 11/30/24

ICE U.S. DOLLAR INDEX



Source: ICE, as of 12/31/24

Economic environment

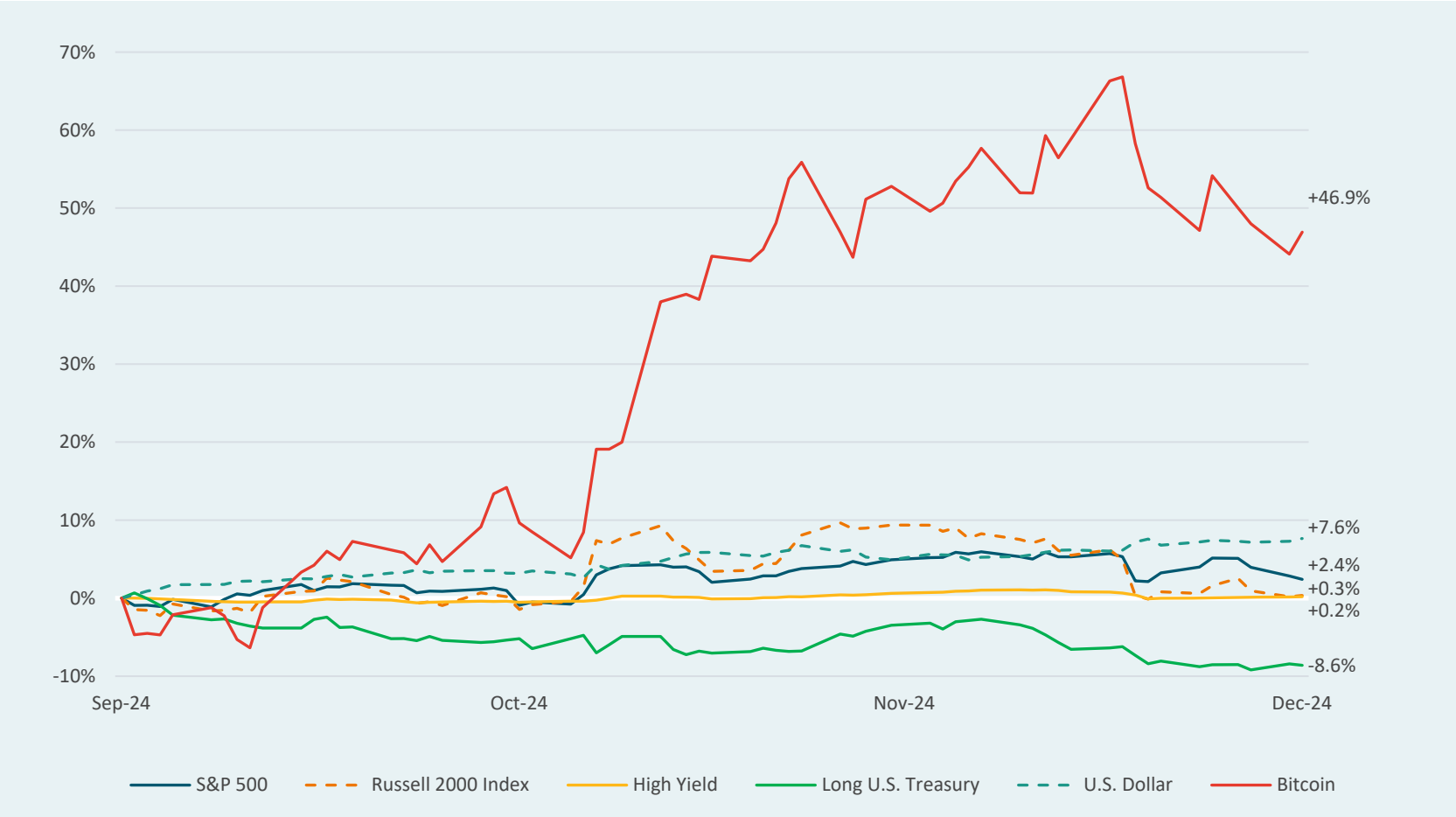
U.S. economics summary

- In early November, U.S. election results were announced, confirming the election of Donald Trump and a unified government as Republicans took the House and Senate. Household surveys and market movements suggest that the coming years may be characterized by easier business conditions, firmer economic growth, fewer interest rate cuts, and perhaps mildly higher inflation.
- Real GDP growth slowed during Q4, from 3.1% to 2.3% quarter-over-quarter annualized (2.5% year-over-year), but remained fairly robust. Economic growth continues to be supported largely by consumer purchases, with increases in government spending also providing notable support. Investment fell and was the largest drag on the economy.
- The Federal Reserve cut interest rates once in November and again in December—each time by a quarter point. This brought the Fed’s target rate from 4.75-5.00% down to 4.25-4.50%.
- U.S. inflation drifted upward during Q4, from 2.4% YoY in September to 2.9% in December. Core inflation (ex-food & energy) was fairly stable at 3.2%. Investors now expect the Fed to cut rates once or twice over the next full year. Further increases in the rate of inflation could potentially push the Federal Reserve towards a rate hike—an outcome that would likely spook markets.
- The labor market was broadly stable during the quarter. Unemployment remained at 4.1%, while the labor participation rate moved slightly lower. December nonfarm payrolls exceeded expectations, coming in at 256,000, which was 91,000 higher than forecast. Moderate, but stable, labor conditions further eased fears that the rise in unemployment of late-2023 might have indicated a trend towards recession.
- Consumer sentiment has improved materially since the results of the U.S. election became known. In November, small business optimism showed the largest monthly jump since 1980. Significant improvements in sentiment should bode well for household and business spending in the near-term.

	Most Recent	12 Months Prior
Real GDP (YoY)	2.5% <i>12/31/24</i>	3.2% <i>12/31/23</i>
Inflation (CPI YoY, Core)	3.2% <i>12/31/24</i>	3.3% <i>12/31/23</i>
Expected Inflation (5yr-5yr forward)	2.3% <i>12/31/24</i>	2.5% <i>12/31/23</i>
Fed Funds Target Range	4.25–4.50% <i>12/31/24</i>	5.25–5.50% <i>12/31/23</i>
10-Year Rate	4.55% <i>12/31/24</i>	3.88% <i>12/31/23</i>
U-3 Unemployment	4.1% <i>12/31/24</i>	3.7% <i>12/31/23</i>
U-6 Unemployment	7.5% <i>12/31/24</i>	7.1% <i>12/31/23</i>

Examining notable movements of Q4

Conditions shifted in Q4, fueled by economic surprises & U.S. election results



Source: S&P, FTSE Russell, Bloomberg, ICE, as of 12/31/24

Inflation

U.S. inflation (CPI) drifted upward during the quarter, from 2.4% year-over-year in September to 2.9% in December. Meanwhile, core inflation (excluding food & energy) was fairly stable year-over-year, at 3.2% in December. Investors now expect the Fed to cut rates perhaps once or twice over the next year, but the outcome, as always, will depend on the strength of the labor market and the trend of inflation. Further inflation pressures could potentially push the Federal Reserve towards a rate hike—an outcome that would likely spook markets. This is certainly not our expectation, but it is a risk worth watching.

In prior quarters we discussed topics such as deflationary trends in certain goods and services prices, as well as the

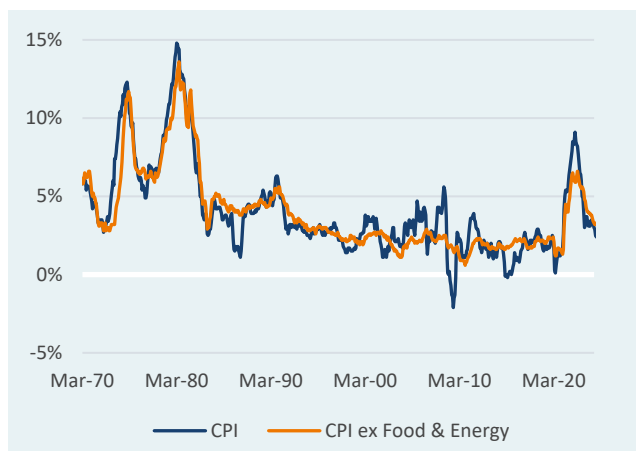
gradual decline of inflation (albeit slow) towards the Fed’s 2% target. Based on recent gains in consumer sentiment and very large gains in business sentiment, as well as positivity around the business and economic effects of a second Trump presidency, we are not as optimistic that inflation will move materially lower from this point. Instead, inflation appears to have stabilized around 3%, with more risks to the upside than to the downside.

Investors will likely remain focused intently on monthly economic data and how the Federal Reserve reacts to data surprises. Also, the *good news is bad news* market dynamics may continue, as strong economic data reduces the chance of rate cuts and therefore may be interpreted negatively.

Certain goods & services prices have been softening, but other areas have been rising at a concerning pace

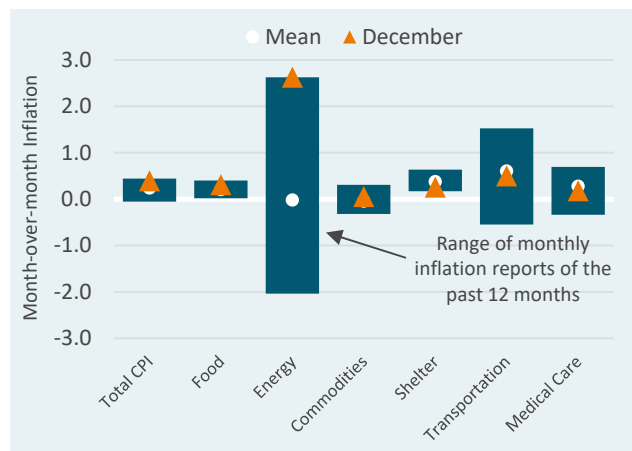
Energy prices fueled a hot December figure

U.S. CPI (YOY)



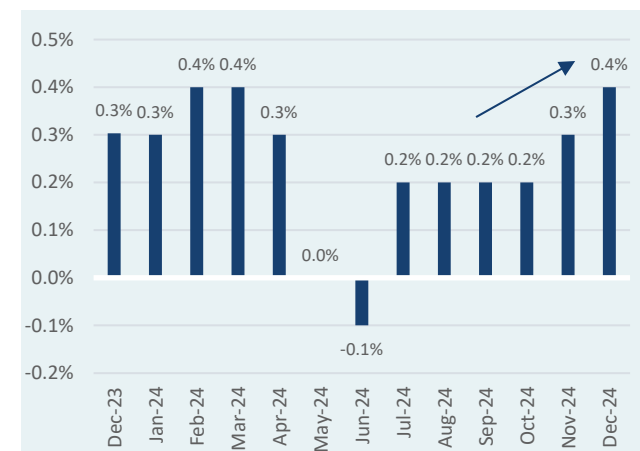
Source: BLS, as of 12/31/24

DECEMBER INFLATION REPORT



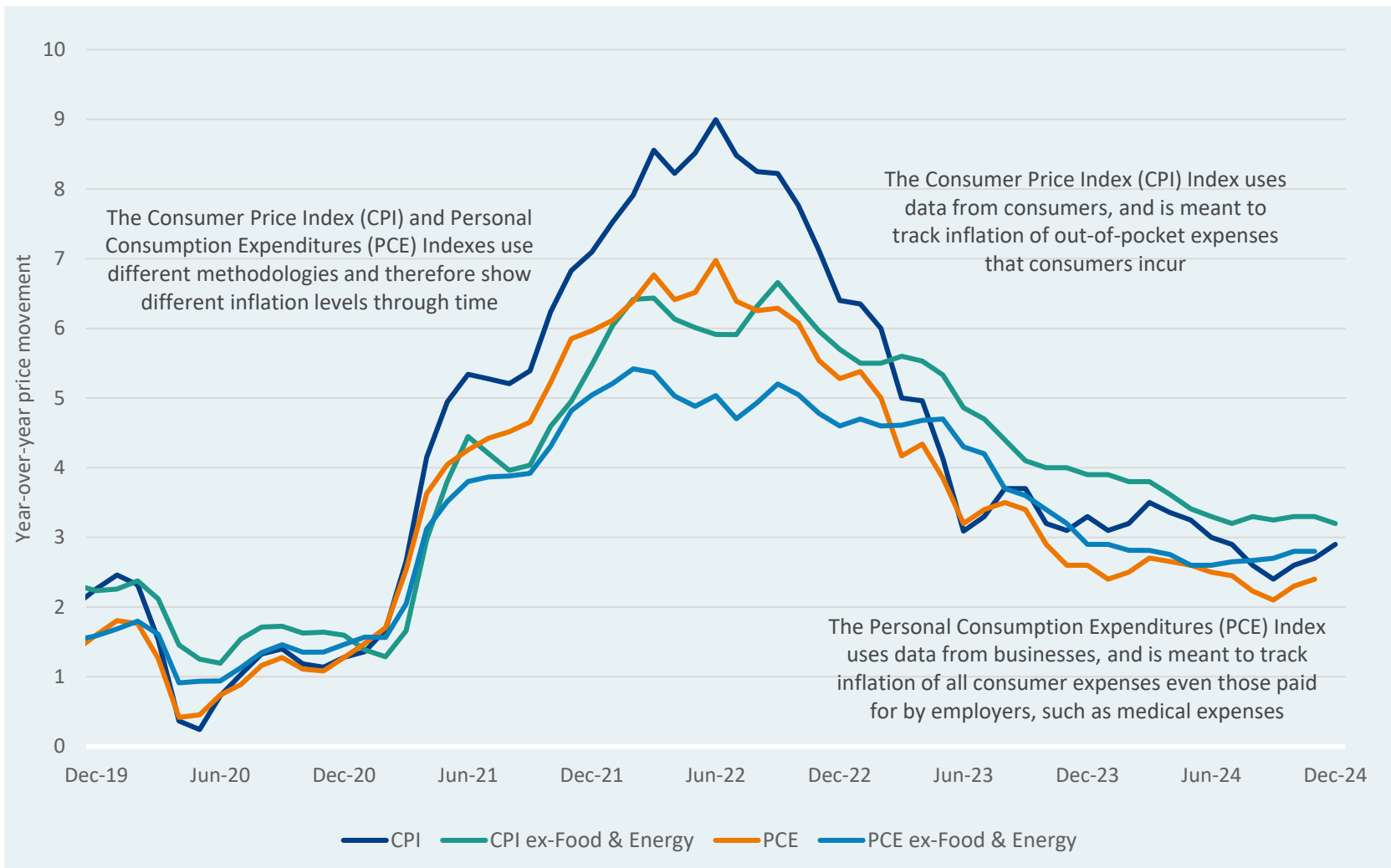
Source: BLS, Verus, of 12/31/24. Commodities exclude food and energy

MONTHLY PRICE MOVEMENT (CPI)



Source: BLS, as of 12/31/24

Inflation stabilizing above Fed's target



The rate of inflation appears to be stabilizing *above* the Fed's target of 2%

A surprisingly strong economy and ongoing price pressures have led investors to expect fewer interest rate cuts in 2025

Source: FRED, Verus, as of 12/31/24 – or most recent release

GDP growth

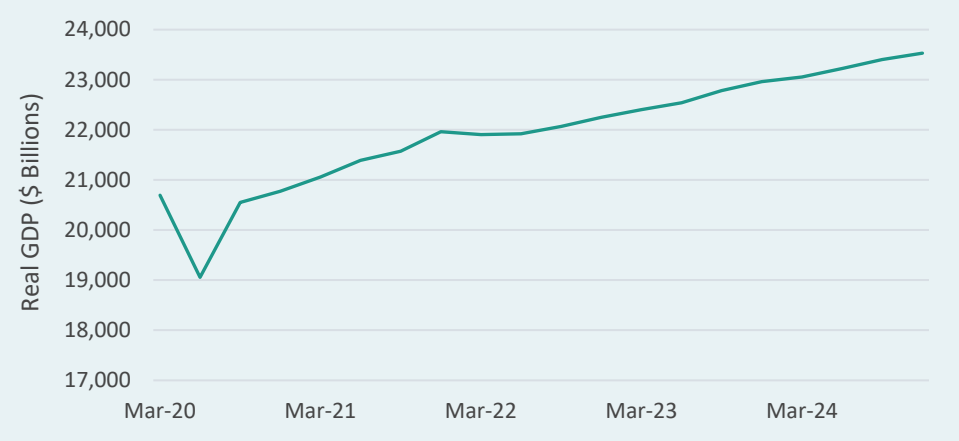
Real GDP growth slowed during Q4, from 3.1% to 2.3% quarter-over-quarter annualized (2.5% year-over-year), but remained fairly robust. Economic growth continues to be supported largely by consumer spending, with increases in government expenditures also providing notable support. Investment fell, and was the largest drag on the economy, followed by fewer imports. Spending gains were broad across goods and services—increases in healthcare spending acted as the largest change. Goods spending was boosted most notably by recreational goods and vehicles. The acceleration of government expenditures was fueled by employee compensation increases.

Economists and investors expect U.S. economic growth to slow

during 2025, reflecting more modest consumer spending as households face higher costs and lower savings rates. 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 towards something that suggests recession.

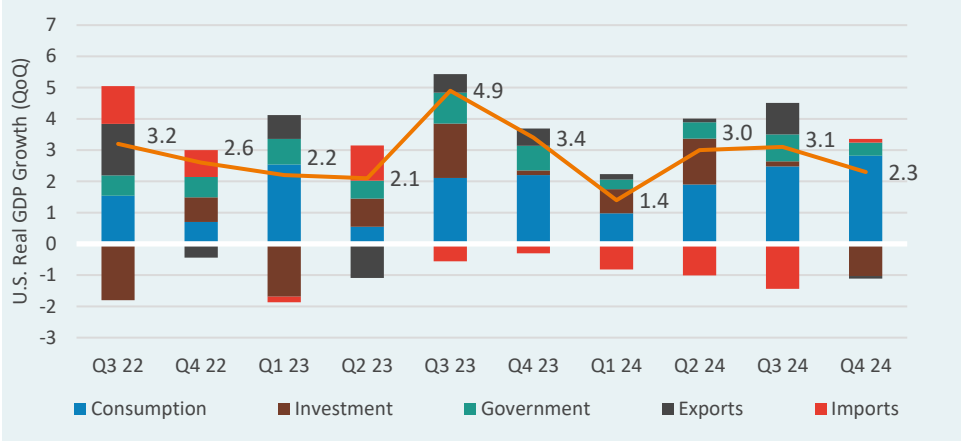
U.S. real GDP growth slowed during Q4, reflecting strong consumer spending but lower levels of private investment

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 12/31/24

U.S. REAL GDP COMPONENTS (QOQ)

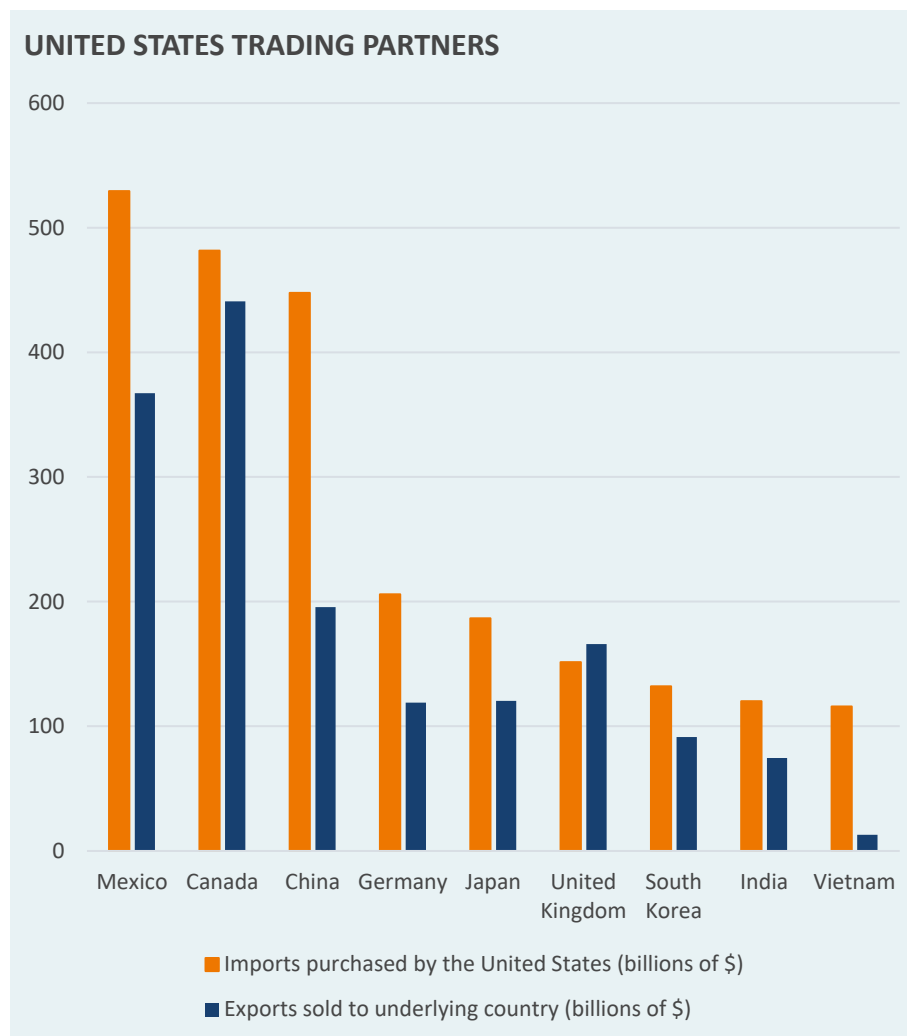


Source: FRED, as of 12/31/24

Trade negotiations: possible areas of focus

Since the re-election of Donald Trump, the topic of U.S. trade has been thrust back into the spotlight. While the President has publicly threatened large, across-the-board tariffs, lessons learned from the first Trump Administration suggest this may be a negotiation tactic. It is more likely that tariffs will be used tactically, without broad and large increases as some investors fear.

Here we provide an overview of the United States' largest trading partners, through two lenses: the total amount of goods and services that the U.S. purchases from each of our largest trading partners, and the total amount of goods and services that these trading partners purchase from the United States. The countries that sell a significant amount of goods and services to the U.S., but do not purchase nearly as much, may become targets for trade negotiation in the near future.



Source: Bureau of Economic Analysis, as of 2023

Countries which sell a significant amount of goods and services to the U.S., but do not purchase nearly as much, may become targets for trade negotiation

Labor market

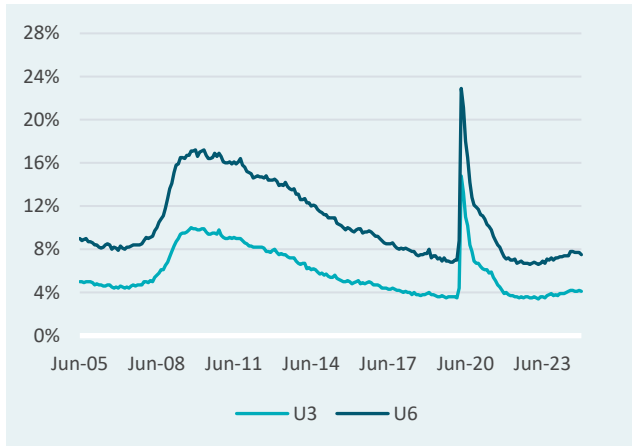
The labor market was broadly stable during the quarter. Unemployment remained at 4.1%, while the labor participation rate moved slightly from 62.7% to 62.5%. Labor data surprised to the upside in December with nonfarm payrolls exceeding expectations, coming in at 256,000, which was 91,000 higher than expectations for 165,000. Layoffs have been moving higher and are now back to pre-pandemic levels. Moderate, but stable, labor conditions have further eased fears that the rise in unemployment of late-2023 might have indicated a trend towards recession.

In recent editions of this document, we have explained that immigration, and specifically the difficulties of quantifying

unlawful immigration, have made certain labor statistics very difficult to interpret. Determining between a weak or strong job market, or whether the market is trending towards slack or tightness, requires data that is accurate and granular in nature. Relatively small changes in the size, or changes in trend, of the labor market can have real impacts on wage levels, the strength of the economy, and spending, for example. With the new administration coming into office, and many changes to border enforcement and overall immigration policy likely forthcoming, it will be important to closely monitor how these changes incrementally impact the size, trend, and nature of the U.S. job market.

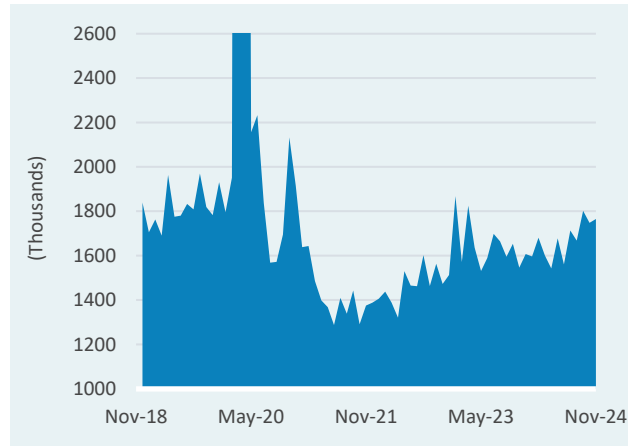
The job market appears to have shifted from *extremely tight* to *fairly balanced*, and is now showing greater stability

U.S. UNEMPLOYMENT



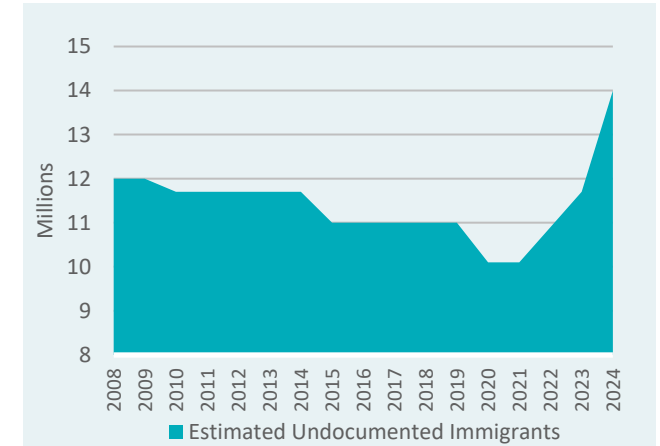
Source: FRED, as of 12/31/24

LAYOFFS



Source: FRED, as of 11/30/24

U.S. UNDOCUMENTED IMMIGRANTS



Source: Center for Immigration Studies

The consumer

Inflation adjusted personal spending growth was 2.9% year-over-year in November, remaining in a robust range. It is expected that consumer spending will slow in 2025, leading to a more moderate pace of overall economic growth.

The average cost of household debt payments has been rising in recent years, moving towards pre-pandemic levels. A helpful way to gauge the average household *debt burden* is to examine average monthly debt payments as a percentage of average monthly disposable income. This metric shows an important aspect of rising interest rate environments—higher interest rates gradually feed through to household costs over

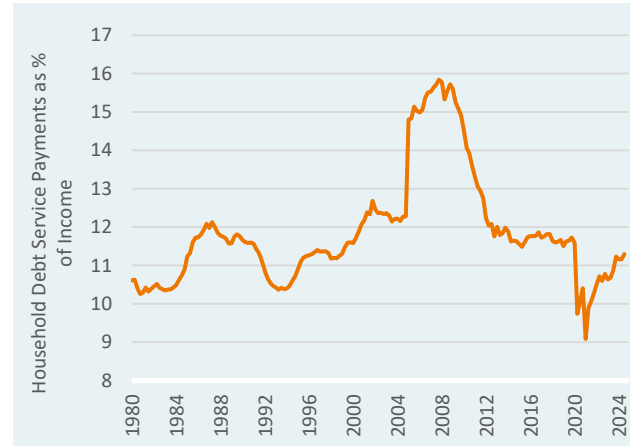
time, rather than all at once. This is due to fixed rate borrowing—most Americans who own a home or a car, for example, are not as impacted by higher interest rates for those items until they purchase a new home or purchase a new car and are then exposed to higher rates. As time goes by, more households must eventually make large purchases and therefore must borrow at higher rates. As this occurs, the higher costs of debt continues to eat into budgets. This hurts economic growth, as households must either reduce overall spending, or save less money—as observed recently. We expect that, although the economy is strong, this effect will act as an incremental drag on spending for years to come.

REAL PERSONAL SPENDING



Source: FRED, as of 11/30/24

HOUSEHOLD DEBT PAYMENTS AS % OF DISPOSABLE INCOME



Source: FRED, as of 12/31/24

PERSONAL SAVINGS RATE



Source: FRED, as of 11/30/24

Sentiment

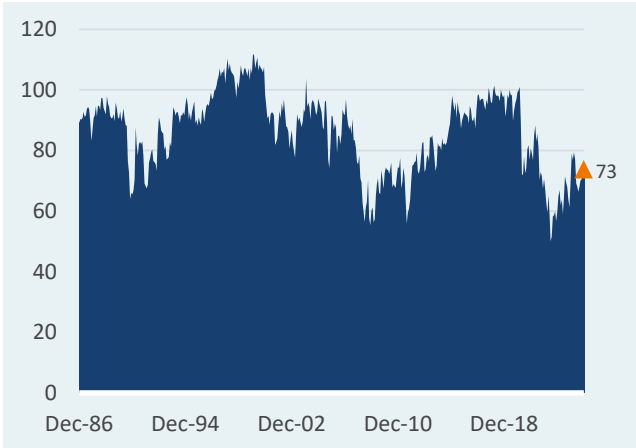
Consumer sentiment has improved materially since the results of the U.S. election became known. In November with small business optimism showing the largest monthly jump since 1980. Significant improvements in sentiment should bode well for household and business spending in the near-term.

According to the University of Michigan Consumer Sentiment survey, households expressed more optimism around the economy in December. Year-ahead inflation expectations changed, rising substantially to 3.3%, while long-run inflation expectations were more stable. We suspect ongoing news coverage and fear around tariffs has impacted expectations.

Throughout 2022, small business optimism had declined as companies grappled with high materials prices and labor shortages. Optimism remained very poor in the following years, until November showed the largest single-month increase in sentiment since 1980. As explained by NFIB Chief Economist Bill Dunkelberg, “Main Street also became more certain about future business conditions following the election, breaking a nearly three-year streak of record high uncertainty. Owners are particularly hopeful for tax and regulation policies that favor strong economic growth as well as relief from inflationary pressures.”

Consumer sentiment improved in Q4, while small business sentiment showed the largest monthly gain since 1980

CONSUMER SENTIMENT (UNIV. OF MICHIGAN)



Source: University of Michigan, as of 12/31/24

CONSUMER CONFIDENCE (CONFERENCE BOARD)



Source: Conference Board, as of 12/31/24

NFIB SMALL BUSINESS SENTIMENT



Source: NFIB, as of 12/31/24

Housing

The average 30-year mortgage rate jumped materially during the quarter, from 6.1% to 6.9%, alongside broader rises across the yield curve. Meanwhile, home prices have increased 3.4% year-over-year as of October, according to CoreLogic. These conditions have led to sustained extreme difficulties in affordability for many Americans. However, some aspects of the market have moved in a more favorable direction, such as total housing inventory, at 953,000 in November, closer to the level of 1,143,000 in November 2019 (pre-pandemic). Inventory reached a low of 346,000 in February 2022. The *average days on the market* of homes for sale has also risen to 62 days in November, which compares to 67 days in November 2019—suggesting that more power resides with homebuyers. This metric reached a low of 30 in April 2022. Overall, it appears that the market will

likely remain incredibly expensive, but perhaps with a more normal supply/demand balance. If inventory continues increasing and homes sit longer on the market, this may pressure sellers to reduce prices in the future in order to incentivize buyers who have more inventory to choose from.

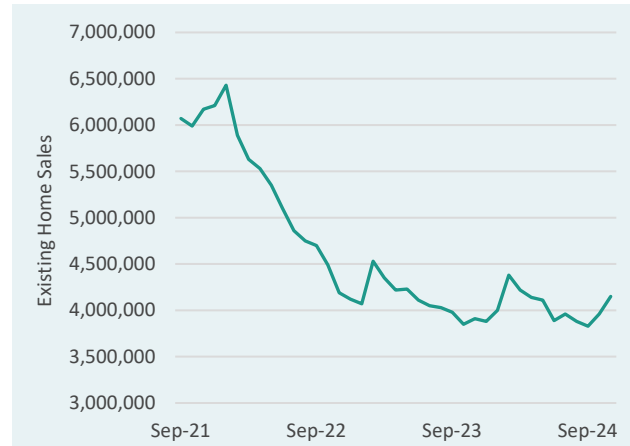
While home purchase affordability remains dire, the average cost of rent continues to fall nationwide. According to Redfin, in November rent costs were down -0.7% year-over-year and rents are now back to March 2022 levels. Substantial increases in multifamily supply have reportedly contributed to downward rent pressure, with the median asking rent price falling to \$1.79 per square foot for the first time since November 2021.

30-YEAR MORTGAGE RATE (%)



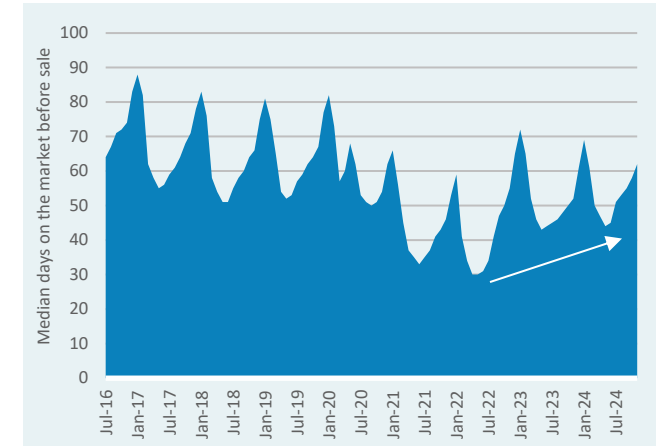
Source: Freddie Mac, as of 12/31/24

EXISTING HOME SALES



Source: National Association of Realtors, as of 11/30/24

AVERAGE DAYS ON THE MARKET



Source: FRED, as of 11/30/24

International economics summary

— The Eurozone grew only 0.9% YoY Q3. The region is also expected to show slow growth in 2025, with a +1.2% consensus estimate for the Euro Area. High energy prices have negatively impacted manufacturing and other business activities, while competition from China has also had dire impacts. Once the industrial heart of Europe, Germany’s manufacturing sector faces an uncertain future.

— Inflation has moderated across most global economies, with the European Central Bank (ECB) rounding out the year with its fourth interest rate cut. The ECB has shown a shift in concern away from inflation and towards growth—removing official language regarding keeping rates “sufficiently restrictive.” Economists now expect 4-5 rate cuts during 2025, to a rate level that is believed to be neutral to growth or slightly stimulative.

— After slipping into contractionary territory last quarter, the Japanese economy rebounded in Q3, delivering

growth of +0.5%. This coincided with a slight uptick in inflation, now at 3%. Growth has been assisted by a weak Yen, which makes exports cheaper for other countries to purchase. Domestic consumer demand has also provided a tailwind for growth and led to expectations of a more normal interest rate environment, with the Bank of Japan now expected to increase interest rates to 0.50% by March.

— China was reportedly able to achieve the official GDP growth target in 2024, claiming growth of 5.4% year-over-year, though the economy still faces deep structural issues. China is heavily reliant on exports, which may be interrupted by U.S. tariffs in the case of a trade spat. Home prices continue to fall alongside oversupply and weaker economic conditions. Deflation fears are weighing on consumer spending. Alongside these near-term issues, a declining population poses a multitude of problems to the overall economy, spending, and the housing market.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.7% 9/30/24	2.9% 12/31/24	4.1% 12/31/24
Eurozone	0.9% 9/30/24	2.4% 12/31/24	6.3% 11/30/24
Japan	0.5% 9/30/24	3.0% 12/31/24	2.4% 11/30/24
BRICS Nations	4.5% 9/30/24	2.1% 12/31/24	5.2% 12/31/24
Brazil	4.0% 9/30/24	4.8% 12/31/24	6.1% 11/30/24
Russia	3.1% 9/30/24	9.5% 12/31/24	2.3% 11/30/24
India	5.4% 9/30/24	5.2% 12/31/24	7.1% 12/31/24
China	5.4% 12/31/24	0.1% 12/31/24	5.1% 12/31/24

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

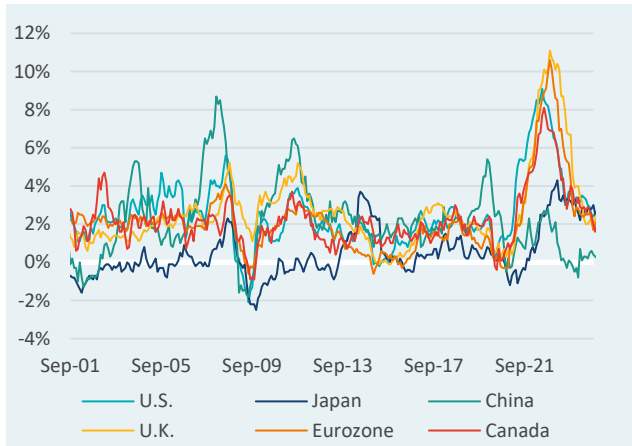
The Eurozone grew only 0.9% YoY Q3. The region is expected to show slow growth in 2025 of +1.2%. The ECB has communicated 4-5 rate cuts during the year, as low growth remains a concern, and the 2% inflation target has nearly been achieved. Although growth rates have ticked up slightly, strong headwinds remain. Many countries face high energy costs, greater competition from China, and deep side effects from a languishing Chinese economy. Europe's largest industrial power, Germany, has taken the brunt of these effects, with manufacturing activity contracting for many quarters.

The U.K. faces economic headwinds of its own, as tax increases introduced by the Labour Party, and uncertainty surrounding potential shifts in global trade due to a second Trump presidency, have made growth difficult for local companies. While inflation dropped in December to 2.5%, price

growth remains at levels that are too high for comfort. Despite the threat of inflation, economists expect four rate cuts in 2025.

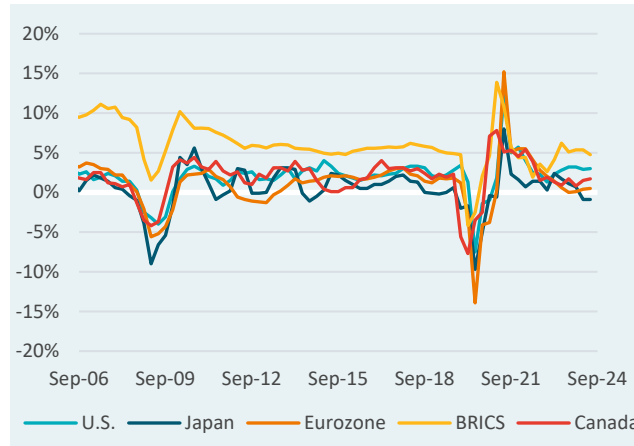
The Japanese economy has recently seen increasing costs, most notably in energy and food. An uptick in inflation following the pandemic and union wage negotiations led the Bank of Japan to reverse their negative interest rate policy in July, as they seek normalization and consistent growth. The BoJ is expected to hike interest rates to 0.5% in late January or March to the highest level in 17 years. Broad wage hikes were recently agreed upon between labor unions and employers, which were a prerequisite for the continued hiking of interest rates, which are expected to eventually reach 1%.

INFLATION (CPI YEAR-OVER-YEAR)



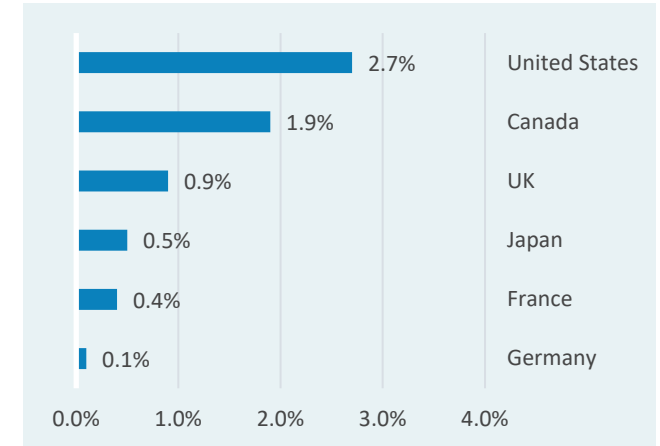
Source: BLS, Verus, as of 12/31/24

REAL GDP GROWTH (YEAR-OVER-YEAR)



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

Q3 REAL GDP GROWTH (YOY)



Source: BLS, Verus, as of Q3 2024

Fixed income rates & credit

Fixed income environment

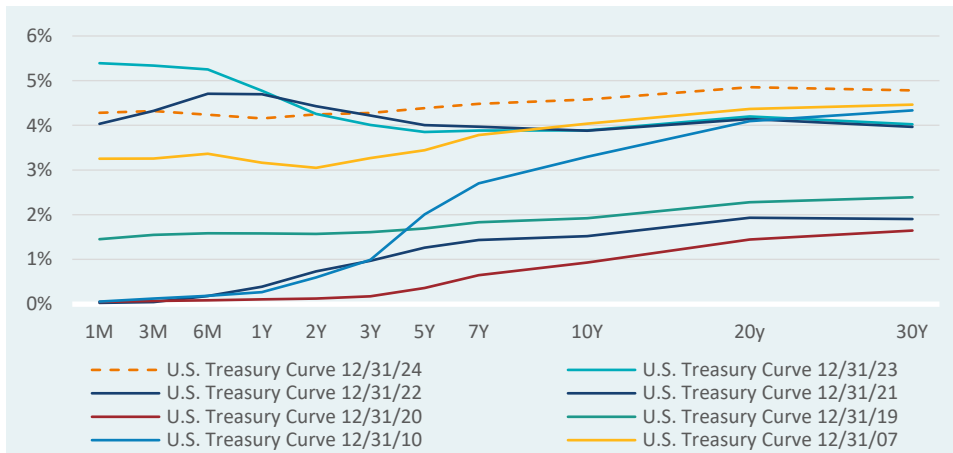
- The Federal Reserve cut interest rates once in November and again in December—each time by a quarter point. This brought the target rate from 4.75-5.00% to 4.25-4.50%. Rate expectations for 2025 have shifted, as better economic growth expectations and firmer inflation will likely lead the Fed towards fewer rate cuts.
- The 10-year U.S. Treasury yield jumped from 3.79% to 4.55% during the quarter, amid growing evidence that the economy may remain hotter than expected, expectations around pro-growth policies of the Trump Administration, as well as the possibility that a tariff spat with trade partners could push inflation upwards.
- Most credit indices delivered negative to slightly positive returns, with rising interest rates impacting duration-sensitive assets. Bank loans, which are much less sensitive to rate movements, returned +2.3%. High yield delivered slightly positive returns of +0.2% while investment grade lost -2.7%.
- Credit spreads were broadly tighter, a reflection of continued strength in the U.S. corporate sector. Lower-quality high yield bond spreads fell by -30bps to 2.7%, while investment grade spreads tightened slightly to 0.8%. Credit spreads across all ratings remain well below long-term historical averages, suggesting investors are confident in the ability of businesses to service debt.
- High yield default activity remained low, falling to 1.1%—down from 2.6% one-year prior. This compares to the long-term annual average of 3.4%. However, distressed exchange activity, particularly among LMEs, has continued to expand. Total distressed credit volume reached \$19.4 billion in Q4, far surpassing the previous quarter of \$13.5 billion. The level of Q4 was the second largest quarterly total on record since Q4 2008, with Q3 of 2024 being the third highest total on record.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(3.1%)	1.3%
Core Plus Fixed Income (Bloomberg U.S. Universal)	(2.7%)	2.0%
U.S. Treasuries (Bloomberg U.S. Treasury)	(3.1%)	0.6%
U.S. Treasuries: Long (Bloomberg U.S. Treasury 20+)	(9.4%)	(8.0%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	0.2%	8.2%
Bank Loans (S&P/LSTA Leveraged Loan)	2.3%	9.0%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(7.0%)	(2.4%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(1.9%)	6.5%
Mortgage-Backed Securities (Bloomberg MBS)	(3.2%)	1.2%

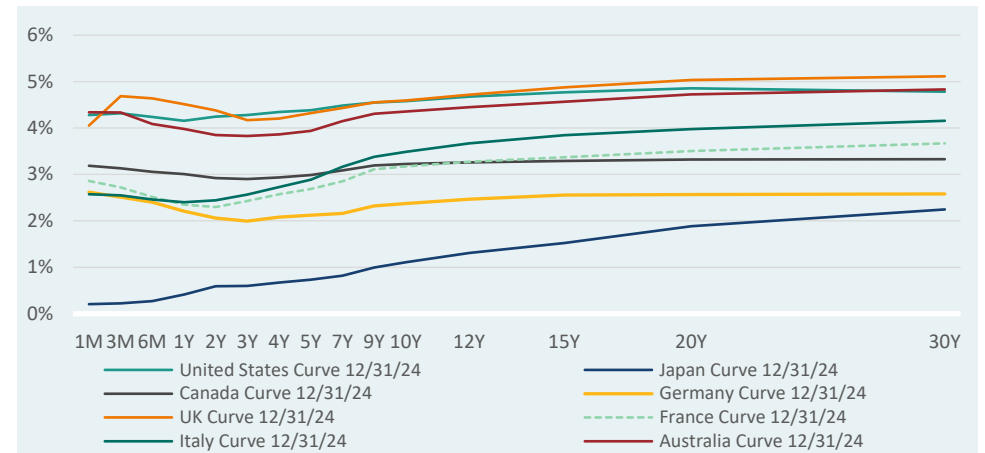
Source: Standard & Poor's, J.P. Morgan, Bloomberg, as of 12/31/24

Yield environment

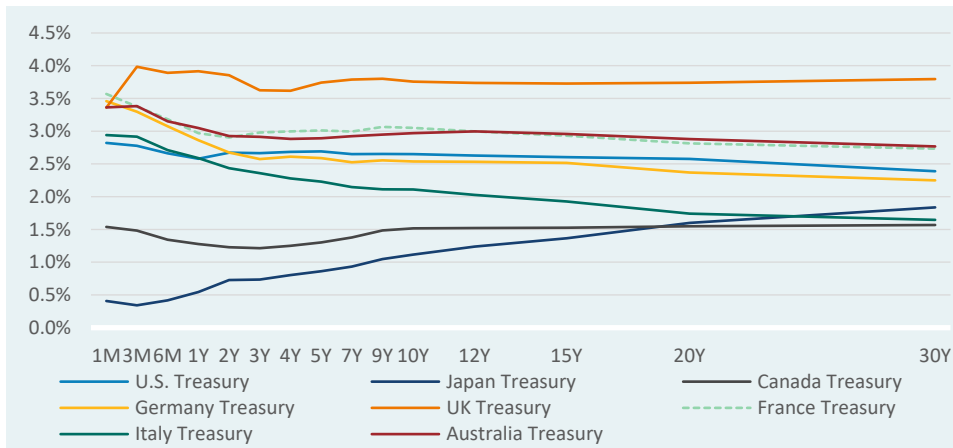
U.S. YIELD CURVE



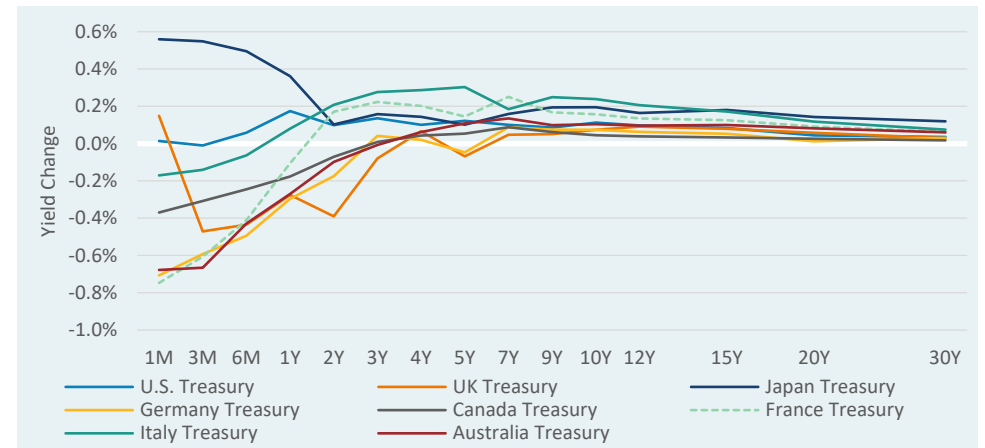
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/24

Credit environment

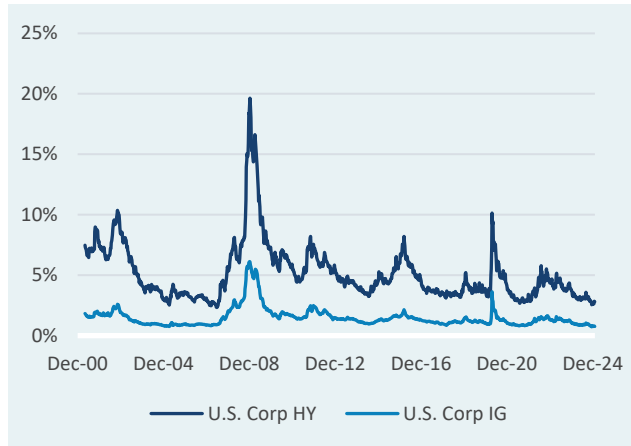
During the fourth quarter, longer duration credit underperformed shorter duration despite a 50bps rate cut by the Federal Reserve. Stronger economic growth expectations, sticky inflation, and a general repricing of the future Federal Funds Rate path, contributed to a rapid rise in the long end of the yield curve. Long duration investment grade corporate bonds (Bloomberg U.S. Long Corporate Credit) lost -6.3%. Bank loans added +2.3% (CS Leveraged Loans) while high yield returned +0.2% (Bloomberg U.S. Corporate High Yield).

Returns within the high yield bond market were mixed, with lower quality credits experiencing the best performance. Bonds rated CCC, which include distressed credit, returned +2.5%, compared to non-

distressed CCC-rated bonds which gained only +1.6%. Bonds rated B produced slightly positive returns of +0.3%, while BB-rated bonds lost -0.5% over the same period. Similarly, lower quality bank loans outperformed higher quality. CCC-rated loans returned +2.7%, compared to +2.6% and +2.1% for B- and BB-rated loans, respectively.

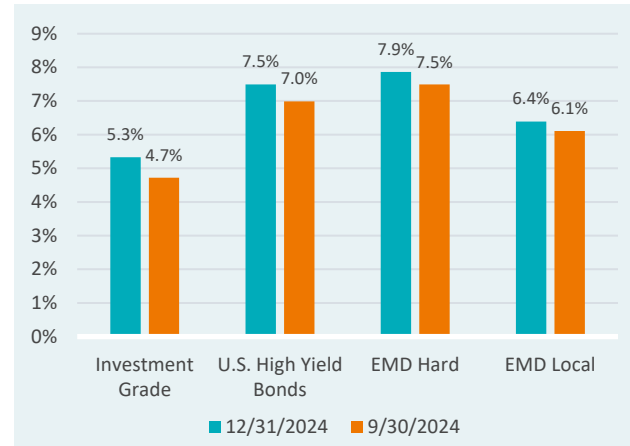
Credit spreads were broadly tighter, a reflection of continued strength in the U.S. corporate sector. Lower-quality high yield bond spreads fell by -30bps, to 2.7%, while investment grade spreads tightened slightly to 0.8%. Credit spreads across all ratings remain well below long-term historical averages, suggesting investors are confident in the ability of businesses to service debt.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/24

YIELD TO MATURITY



Source: Bloomberg, J.P. Morgan as of 12/31/24

CREDIT SPREAD (OAS)

Market	12/31/24	12/31/23
Long U.S. Corp	1.0%	1.2%
U.S. Inv Grade Corp	0.8%	1.0%
U.S. High Yield	2.7%	3.2%
U.S. Bank Loans*	4.5%	5.0%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/24

*Discount margin (4-year life)

Default & issuance

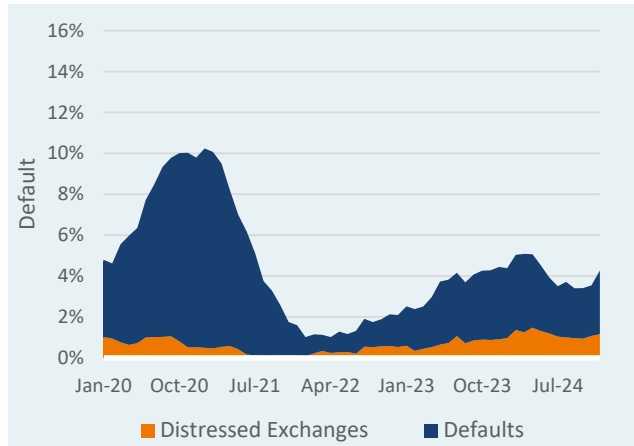
Default activity remained low during Q4, as economic data was strong and trends overall suggested a lower chance of near-term recession. During the period, \$27.9 billion of bank loans and high yield bonds were affected by default or distressed exchanges, well over double the \$11.0 billion in the prior quarter. Year-to-date, 38 companies defaulted, totaling more than \$4.8 billion in bonds and \$23.8 billion in loans.

While defaults have remained subdued, distressed exchange activity has increased rapidly. During the quarter, total distressed credit volume was roughly \$19.4 billion, surpassing the \$13.5 billion pace in Q2. This marked the second largest quarterly total on record since Q4 2008. However, the year-to-date combination of defaults and distressed exchanges of \$83.6 billion was still 3% less than the total of 2023.

High yield bond default rates continued their decline, falling to 1.1%, down from 2.6% one year ago. The current figures remain well below the long-term annual average of 3.4%. Recovery rates hit record lows in Q4, but ended the quarter at 24.8%, depressed relative to earlier quarters and 32.8% experienced during 2023.

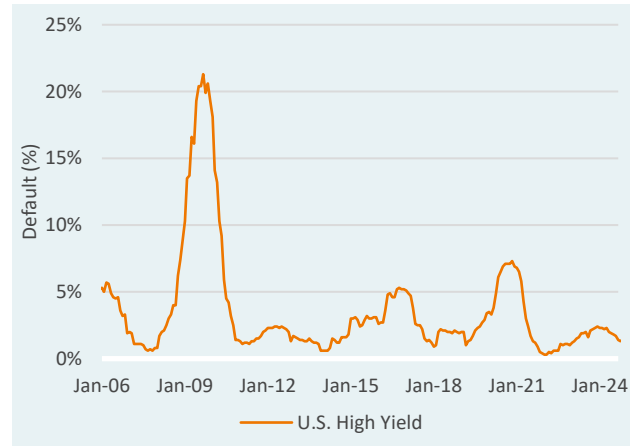
New issuance volume for high yield bonds was lower for the quarter, totaling \$49 billion, compared to \$74 billion in Q3. Bank loans saw record levels of issuance, reaching a record \$515 billion, up from \$204 billion. A further reduction in lending rates and credit spreads likely acted as a catalyst for higher issuance in bank loans as companies are able to issue and refinance their debt at more competitive rates.

U.S. BANK LOAN DEFAULTS (LAST 12 MONTHS)



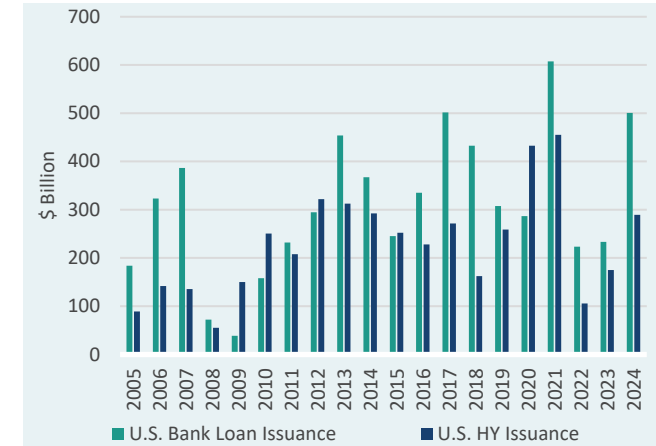
Source: BofA Merrill Lynch, Verus, as of 12/31/24 – par weighted

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



Source: BofA Merrill Lynch, as of 12/31/24 – par weighted

U.S. ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, as of 12/31/24

Equity

Equity environment

- Global equities were mixed during Q4. Emerging markets (MSCI EM -8.0%) and international developed (MSCI EAFE -8.1%) delivered poor returns to U.S. investors with unhedged currency exposure, though most of those losses were driven by currency movement. During 2024, large currency moves created a wide gap between U.S. and non-U.S. returns. For example, currency hedged Japanese equities slightly outperformed U.S. (S&P 500 +25.0%, TOPIX +25.8%) but returned only +8.0% on an unhedged basis
- Expectations for interest rate cuts lessened after economic strength and stubborn inflation led the Fed to emphasize that they would not budge on their 2% inflation target. The *higher for longer* interest rate narrative likely contributed to U.S. dollar strength during the quarter.
- S&P 500 earnings growth is expected to be +11.9% for Q4,

which would mark the highest growth rate of the past three years. Financials (+39.5%) led the way, followed by Communication Services (+20.7%), while Energy (-24.6%) was a drag on the index.

- Small cap and value both continued to underperform. Small cap trailed large cap by -2.4% (Russell 2000 +0.3% vs. Russell 1000 +2.7%) in Q4, while growth outperformed value by +9.1% (Russell 1000 Growth +7.1% vs. Russell 1000 Value -2.0%). This capped off a year of poor performance for both of these size and style factors, underperforming by -13% and -19%, respectively.
- Market-priced volatility (Cboe VIX Index) was stable during Q4, beginning the quarter at 16.7% and ending at 17.4%. While the level of volatility has been far less than what was experienced during the spike in August, a few bouts of volatility occurred throughout the quarter.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	2.4%		25.0%	
U.S. Small Cap (Russell 2000)	0.3%		11.5%	
U.S. Equity (Russell 3000)	2.6%		23.8%	
U.S. Large Value (Russell 1000 Value)	(2.0%)		14.4%	
U.S. Large Growth (Russell 1000 Growth)	7.1%		33.4%	
Global Equity (MSCI ACWI)	(1.0%)	1.4%	17.5%	21.0%
International Large (MSCI EAFE)	(8.1%)	0.1%	3.8%	14.1%
Eurozone (EURO STOXX 50)	(8.9%)	(1.4%)	4.1%	12.9%
U.K. (FTSE 100)	(6.8%)	(0.1%)	7.7%	9.9%
Japan (TOPIX)	5.4%	6.7%	8.0%	25.8%
Emerging Markets (MSCI Emerging Markets)	(8.0%)	(4.3%)	7.5%	13.3%

Source: Standard & Poor's, FTSE, MSCI, STOXX, JPX, as of 12/31/24

Domestic equity

U.S. equities outperformed both international and emerging markets, with the S&P 500 ending Q4 up +2.4%. The market rallied in early November following the re-election of President Trump, which seems to have provided an animal spirits boost to sentiment, with markets pricing in firmer growth, a bit higher inflation, and elevated interest rates. Later in December, comments from Fed Chair Jerome Powell led markets to expect fewer rate cuts in 2025, which was received poorly by investors.

Earnings came in above expectations. The S&P 500 delivered year-over-year earnings growth of +5.9% in Q3, greater than the +4.2% growth that was expected going into the quarter. Growth expectations are very bullish for the final quarter of the year, with the S&P 500 forecast to

deliver growth of +11.9%. Financials (+39.5%) are expected to deliver the highest growth, with expectations also lofty for Communication Services (+20.7%) and Information Technology (+12.9%).

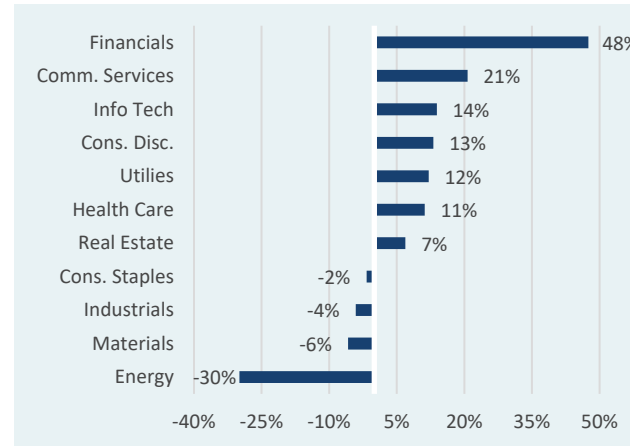
While valuations have been rising throughout the year, they remained at a consistent level over the course of Q4. On top of elevated valuations, U.S. equities are expected to deliver strong earnings growth of 14.8% and 13.6% in 2025 and 2026, respectively. If the U.S. market fails to achieve these estimates, it would place further upward pressure on valuation levels.

S&P 500 PRICE INDEX



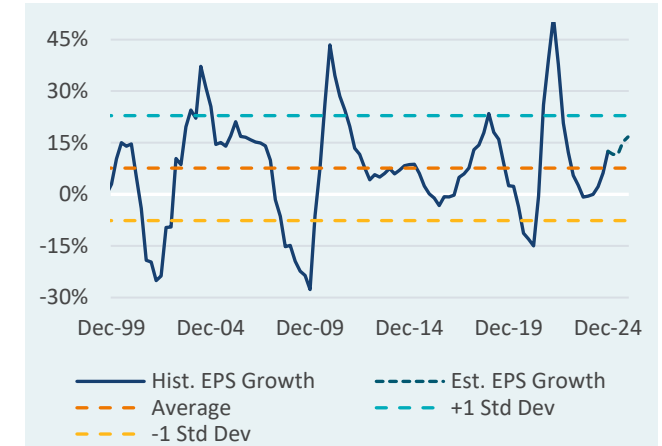
Source: Standard & Poor's, as of 12/31/24

S&P 500 BLENDED EPS GROWTH (YOY)



Source: Factset, as of 12/31/24

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



Source: Factset, Verus, as of 1/17/25

Domestic equity size & style

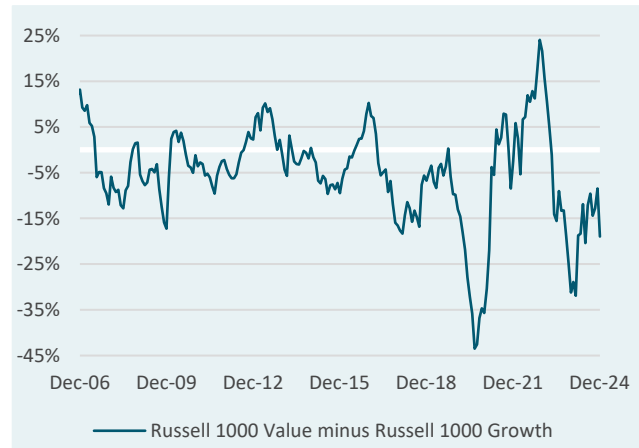
Small cap and value both continued to underperform. Small cap trailed large cap by -2.4% (Russell 2000 +0.3% vs. Russell 1000 +2.7%) in Q4, while growth outperformed value by +9.1% (Russell 1000 Growth +7.1% vs. Russell 1000 Value -2.0%). This capped off a year of poor performance for both of those size and style factors, underperforming by -13% and -19%, respectively.

The Magnificent 7 stocks delivered an exceptional +67.3% during 2024, substantially outperforming the index. However, recent years have shown investors that mega-cap

growth stocks can both act as a big boost to overall index returns or lead the index lower with large losses. The Magnificent 7 stocks delivered 21.7% earnings growth year-over-year in Q4, while the rest of the index reported 9.7% growth, per FactSet. But forecasts are for Magnificent 7 earnings growth to begin to converge with the broader index during 2025 (20.3% year-over-year in Q4 2025 relative to 15.4% overall for the index). If these stocks begin to stand out less from the rest of the S&P 500 in terms of growth, performance may become less differentiated, which could have a notable impact on size and style factor performance.

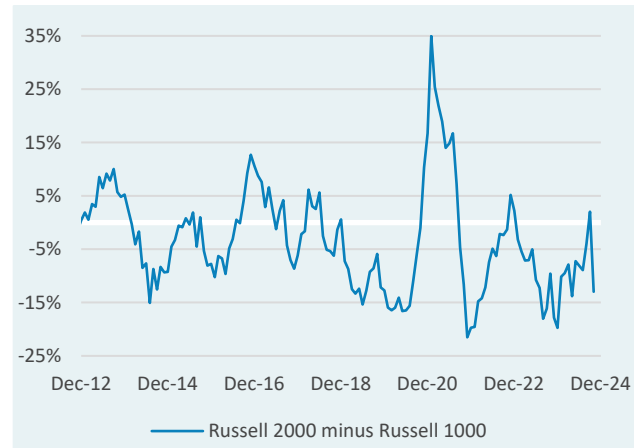
Small cap & value lagged in Q4, lagging in 2024 by -13% and -19%, respectively

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, as of 12/31/24

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE Russell, as of 12/31/24

1-YEAR SIZE & STYLE PERFORMANCE

	Value	Core	Growth
Large Cap	14.4%	24.5%	33.4%
Mid Cap	13.1%	15.3%	22.1%
Small Cap	8.1%	11.5%	15.2%

Source: FTSE Russell, as of 12/31/24

International developed equity

International developed shares (MSCI EAFE -8.1%) underperformed both the U.S. market (S&P 500 +2.4%) and emerging market equities (MSCI EM -8.0%). Most of this underperformance was due to currency movements rather than equity market behavior. On a hedged basis, international developed markets delivered slightly positive returns (+0.1%), with currency contributing losses of -8.2%.

European equities performed very poorly over the course of the quarter, falling -9.7% (MSCI Europe, -2.4% on a hedged basis), and acting as a drag on the overall index. European economies face turmoil due to political instability and a fairly bleak macroeconomic picture. Europe's largest economy, Germany, experienced a second consecutive year of contracting growth. Germany faces high energy costs, weak global demand for its

exports, and risks that its automobile manufacturers are left behind as electric vehicle competition heats up from Chinese and American manufacturers. In early December, the French government fell apart after Prime Minister Michel Barnier was ousted in a no-confidence vote. This followed Mr. Barnier's controversial move to use special powers to force through his budget without a vote.

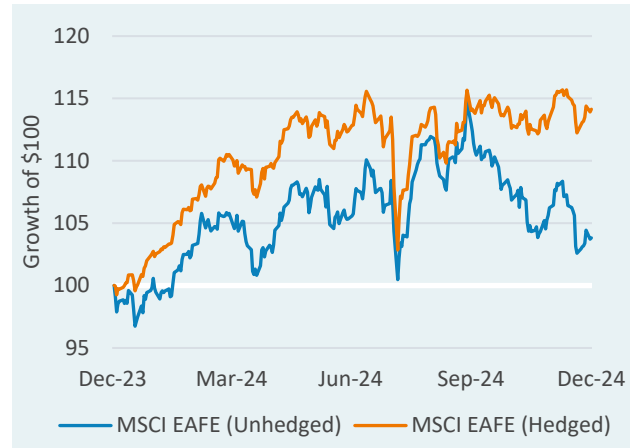
Currency moves also played a major role during the past year. Domestic investors without a currency hedging program lost -10.3% from currency volatility regarding their international equities (MSCI EAFE). The impact from unhedged Japanese asset exposure was particularly extreme—investors without a currency hedging program lost -17.8% from currency moves over the past year (TOPIX Index).

INTERNATIONAL DEVELOPED EQUITY



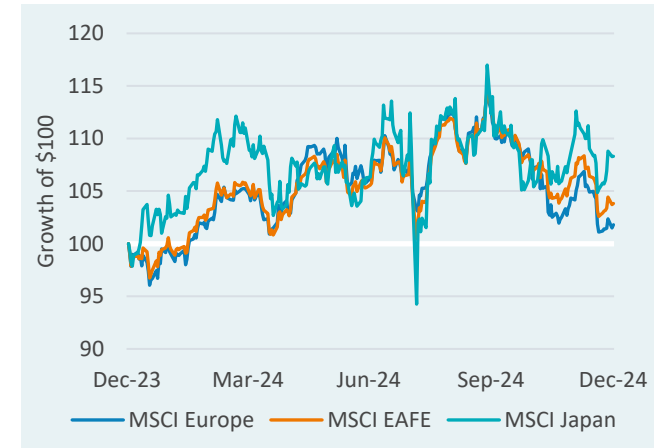
Source: MSCI, as of 12/31/24

MSCI EAFE HEDGED VS UNHEDGED



Source: MSCI, as of 12/31/24

REGIONAL RETURNS OF INTL. DEVELOPED



Source: MSCI, as of 12/31/24

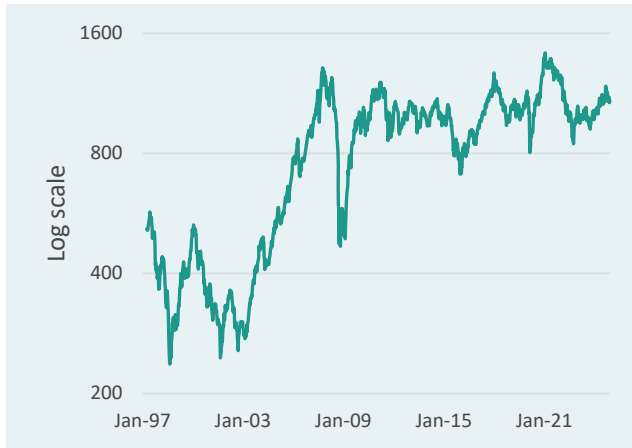
Emerging market equity

Emerging market equities (MSCI EM -8.0%) underperformed U.S. markets (S&P 500 +2.4%) during the quarter, and narrowly outperformed international developed equities (MSCI EAFE -8.1%). While not as drastic as seen across international developed equities, currency movements were also a drag on performance, with the hedged index returning -4.3%.

During 2024, Chinese equities clawed back some of the losses of prior years, gaining +19.4% (MSCI China) relative to the broader index return of +7.5%. The Chinese Communist Party (CCP) has struggled to instill confidence in its citizens to look

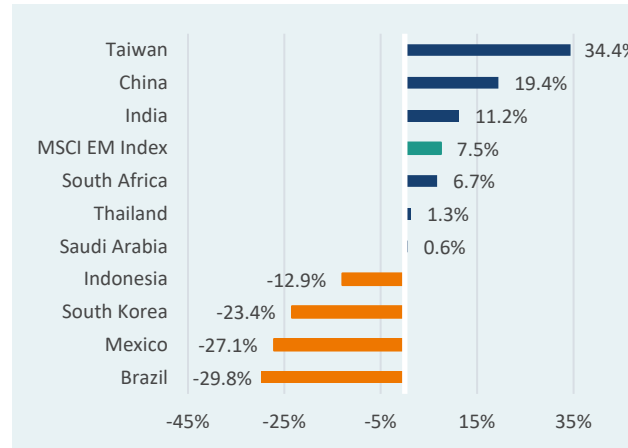
past China's various structural problems, and to have faith in the country's economic future and therefore to spend more freely. A severe drop in residential property prices has had a large impact on confidence, as the average citizen has most of their wealth and retirement savings in home equity. Much of that wealth has disappeared. Investors continue to wait for some sort of aggressive policy response or stimulus from the CCP. In September, major government announcements were made regarding market and economic stimulus, which sent the MSCI China Index up nearly +50%. However, the finer details of those plans were seen as lackluster by investors, and index prices had headed back down towards prior levels.

EMERGING MARKET EQUITY



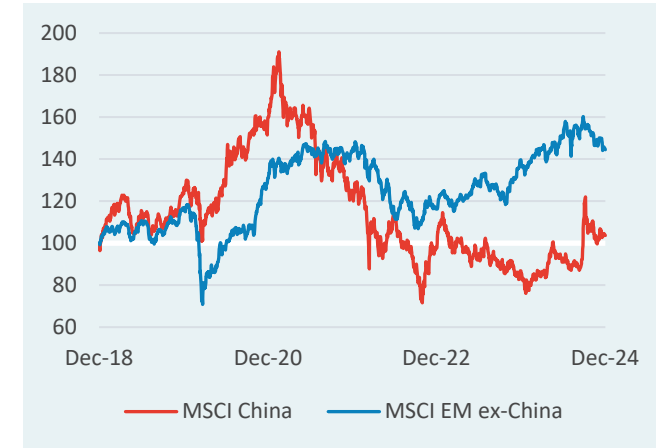
Source: MSCI, as of 12/31/24

MSCI EM 2024 COUNTRY RETURNS (USD)



Source: MSCI, J.P. Morgan, as of 12/31/24

CHINA'S RALLY HAS PARTIALLY REVERSED



Source: MSCI, as of 12/31/24

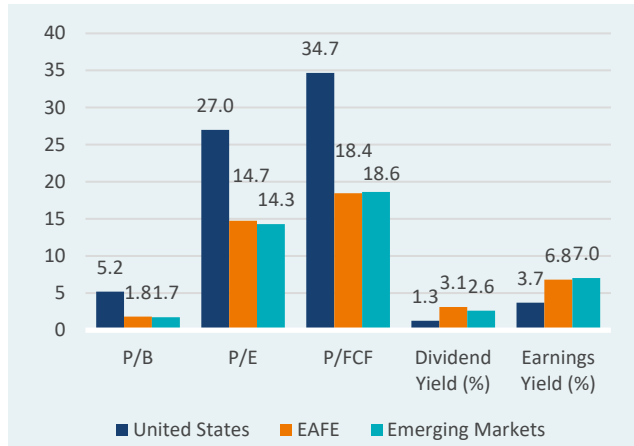
Equity valuations

Domestic equity valuations remained very elevated but were unchanged in Q4. A moderate return of +2.4%, combined with slightly higher expected earnings over the next 12 months, led the S&P 500 to continue to trade at a forward price-to-earnings of 22 during the quarter.

A historically wide gap between U.S. equity valuations and international equity valuations has drawn much attention in recent years. Domestic equities (S&P 500) trade at a 60% premium to international developed equity (MSCI EAFE Index) on a forward price-to-earnings bases, as of the end of the quarter. At first glance this may suggest that international

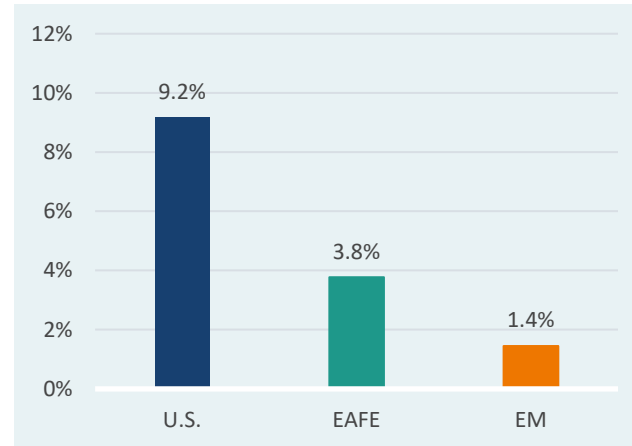
equities provide a particularly attractive opportunity for investors. However, these markets, specifically in Europe, face relatively sluggish growth—much of this due to China’s structural problems and economic slowdown. Europe has also faced a fairly severe lack of business innovation and entrepreneurialism—much of that driven by weak venture capital funding activity—lagging the U.S. in terms of earnings growth and new business formation. Additionally, changes in marketplace characteristics within the U.S. index help describe some of the valuation “gap”, with a greater proportion of the index being comprised of high growth companies that tend to command higher valuation multiples.

MSCI VALUATION METRICS (3-MONTH AVG)



Source: MSCI, Verus, as of 12/31/24 – trailing P/E

FORWARD P/E PERCENTAGE CHANGE IN 2024



Source: MSCI, Verus, as of 12/31/24

S&P 500 HISTORICAL DIVIDEND YIELD



Source: Standard & Poor’s, Verus, as of 12/31/24

Quant equity hedge funds outperform

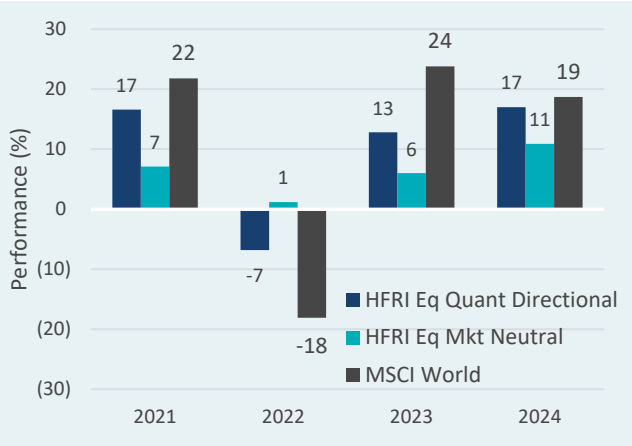
Quantitative equity hedge funds in 2024 had their best year in at least 20 years, as measured by the HFRI Equity Market Neutral and Quantitative Directional indices. Equity Market Neutral returned 10.9% and Quantitative Directional gained 17.0%, the highest annual returns for each since 2000 and 2003, respectively.

These strategies have outpaced their fundamental peers in the last few years while keeping up with global equity indices over the same time. We think this quantitative outperformance and the success of Equity Market Neutral

funds are related, as both strategies typically use similar techniques such as statistical arbitrage or factor investing.

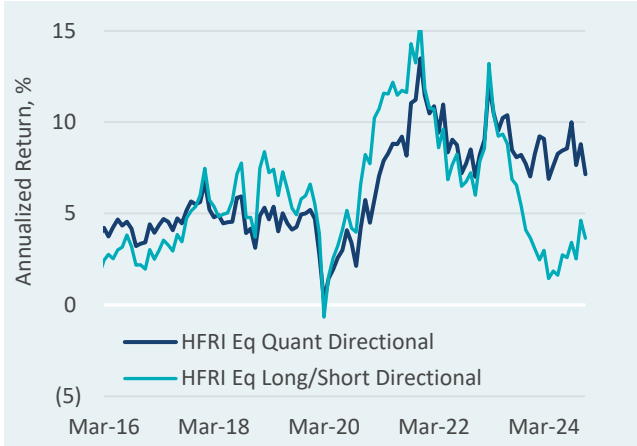
One of the market factors that may be contributing to quantitative strategies' success is the increase in single stock dispersion, which measures the variance in index constituent returns vs. the overall index. Higher dispersion, along with lower intra-stock correlation, theoretically should support strong potential returns for quant programs, which typically hold large numbers of stocks and take a relative value approach.

CALENDAR YEAR RETURNS (%)



Source: MPI, Morningstar, MSCI, HFR

3-YEAR ROLLING RETURN



Source: HFR, MPI, as of 12/31/24

AVERAGE IMPLIED STOCK DISPERSION – S&P 500



Source: S&P DowJones, CBOE S&P 500 Dispersion Index (DSPX)

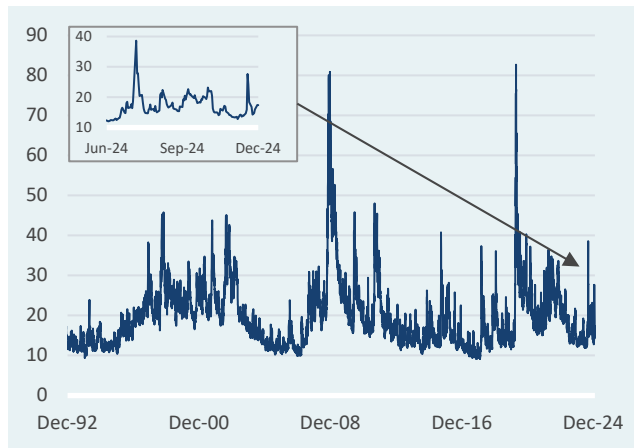
Market volatility

Market-priced volatility (Cboe VIX Index) rose slightly during Q4, beginning the quarter at 16.7% and ending at 17.4%. While the level of volatility was much less than what was experienced during the historic spike in August, a few bouts of volatility did occur throughout the quarter. Implied volatility was above average in the immediate lead-up to the presidential election, reaching 23.4%, while settling back down to below 17% after the results were known. Market volatility increased to its highest level of the quarter in mid-December, after Fed Chair Jerome Powell reiterated the Fed’s 2% inflation target, which led markets to expect fewer interest rate cuts.

Implied bond market volatility continued to moderate, following the record highs that were experienced during the recent U.S. inflation scare. However, volatility levels remain materially above the longer-term average. We suspect that volatility will continue to be elevated as investors remain fixated on Federal Reserve actions and communications.

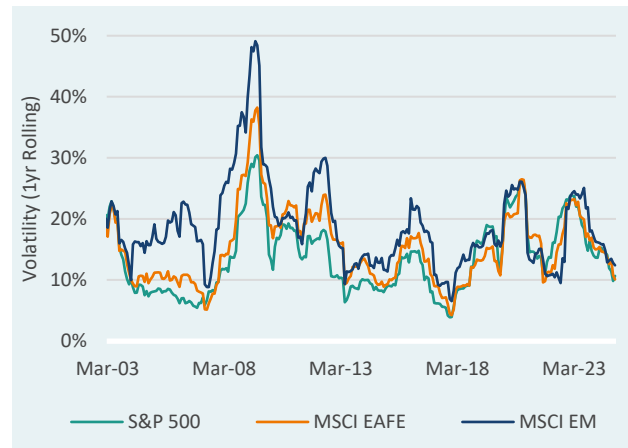
Recent realized one-year volatility drifted further lower, alongside positive equity performance and some easing of fears around recession or an inflation resurgence.

U.S. IMPLIED VOLATILITY (VIX)



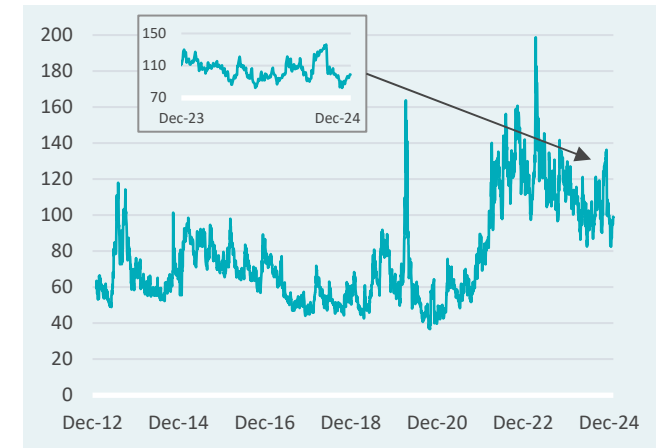
Source: Cboe, as of 12/31/24

REALIZED VOLATILITY



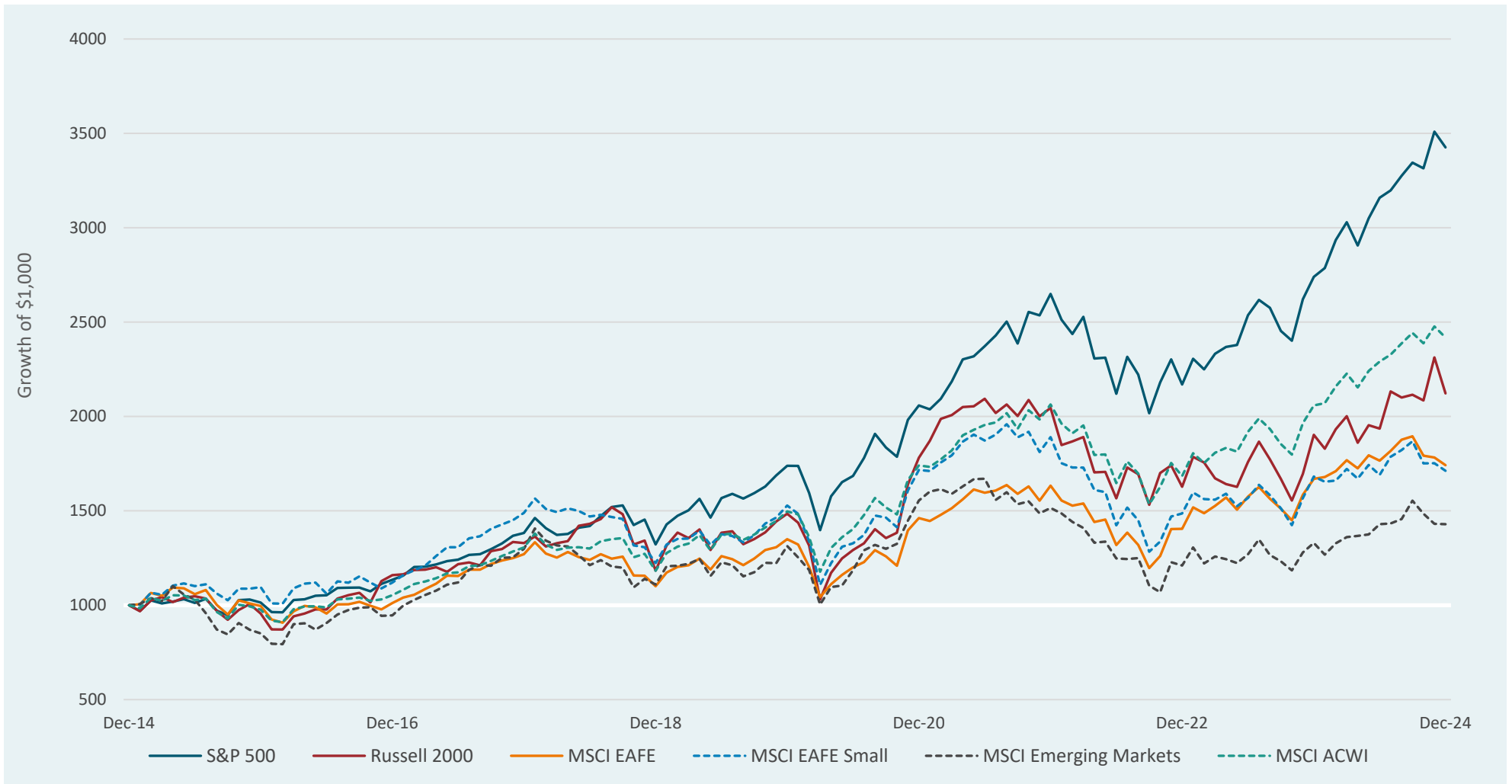
Source: Standard & Poor’s, MSCI, Verus, as of 12/31/24

U.S. TREASURY IMPLIED VOL (“MOVE” INDEX)



Source: BofA, as of 12/31/24

Long-term equity performance



Source: Standard & Poor's, FTSE, MSCI, Verus, as of 12/31/24

Other assets

Currency

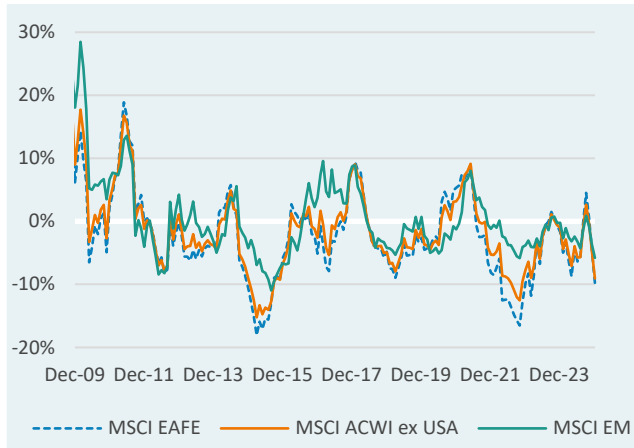
The U.S. dollar gained sharply in value during Q4—the DXY Index rising from 100.8 to 108.5. Strong economic data and evidence of sticky inflation led investors to reassess the number of upcoming Fed rate cuts and helped push up bond yields. Next, ongoing weak economic data in many international markets, as well as central bank rate cuts, created a bleaker outlook for foreign currency strength. Lastly, the U.S. election resulted in a rerating of expectations around the potential strength of the economy and led to some fears of higher inflation, which contributed to higher interest rates (lifting the U.S. dollar).

Dollar strength resulted in losses for investors with unhedged foreign asset exposure. Those without a currency hedging program lost -8.2% from international equities (MSCI EAFE) during Q4, and -10.3% over the past year. The impact from unhedged Japanese asset exposure was particularly

extreme. Investors without a currency hedging program lost -1.3% during the quarter from currency movements, and -17.8% over the past year (TOPIX Index).

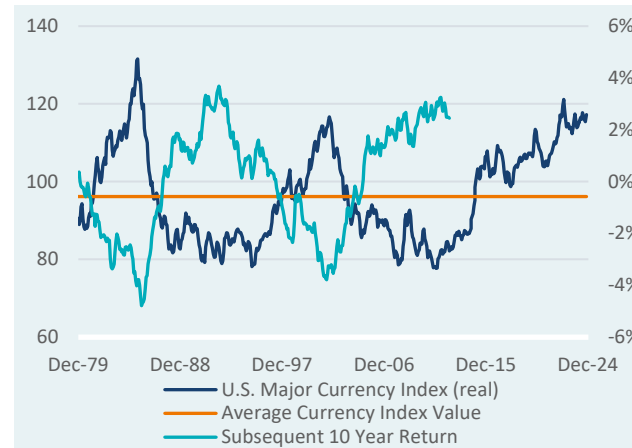
A more thoughtful portfolio approach to currency exposure has provided lower portfolio volatility and higher returns—a rare proposition. This approach involves reducing the uncompensated risk of unhedged foreign currency exposure, and instead of unhedged exposure, making a passive investment in the currency market by investing in currencies with higher interest rates, undervalued currencies, and currencies 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 an unhedged approach. The past year of intense currency volatility is testament to this approach.

EFFECT OF CURRENCY (1-YEAR ROLLING)



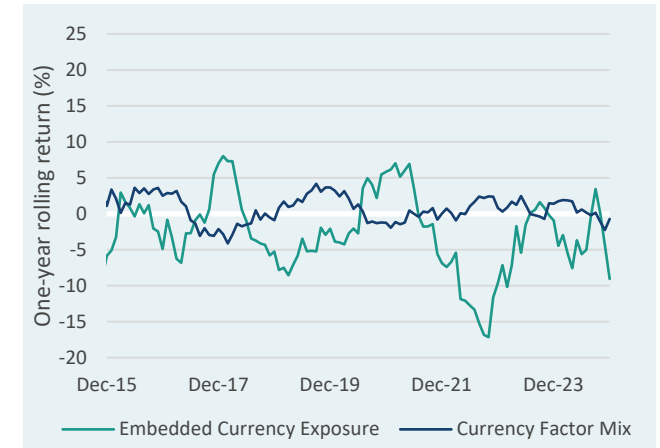
Source: MSCI, Verus, as of 12/31/24

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: FRED, Verus, as of 12/31/24

EMBEDDED CURRENCY VS CURRENCY FACTORS



Source: MSCI, Verus, as of 12/31/24 “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	33.4	19.0	16.8
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	24.5	14.3	12.9
Large Cap Value	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	15.2	8.7	8.5
Small Cap Growth	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	14.4	7.4	8.1
Emerging Markets Equity	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	11.5	7.3	7.8
Small Cap 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	9.9	6.9	7.1
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	9.5	6.8	5.9
Small Cap Value	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	8.1	5.4	5.7
International Equity	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	7.5	5.4	5.2
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	5.4	4.7	3.9
Cash	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	5.3	3.3	3.6
Commodities	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	3.8	2.4	1.7
US Bonds	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	1.3	1.7	1.3
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	-0.5	-0.3	1.3

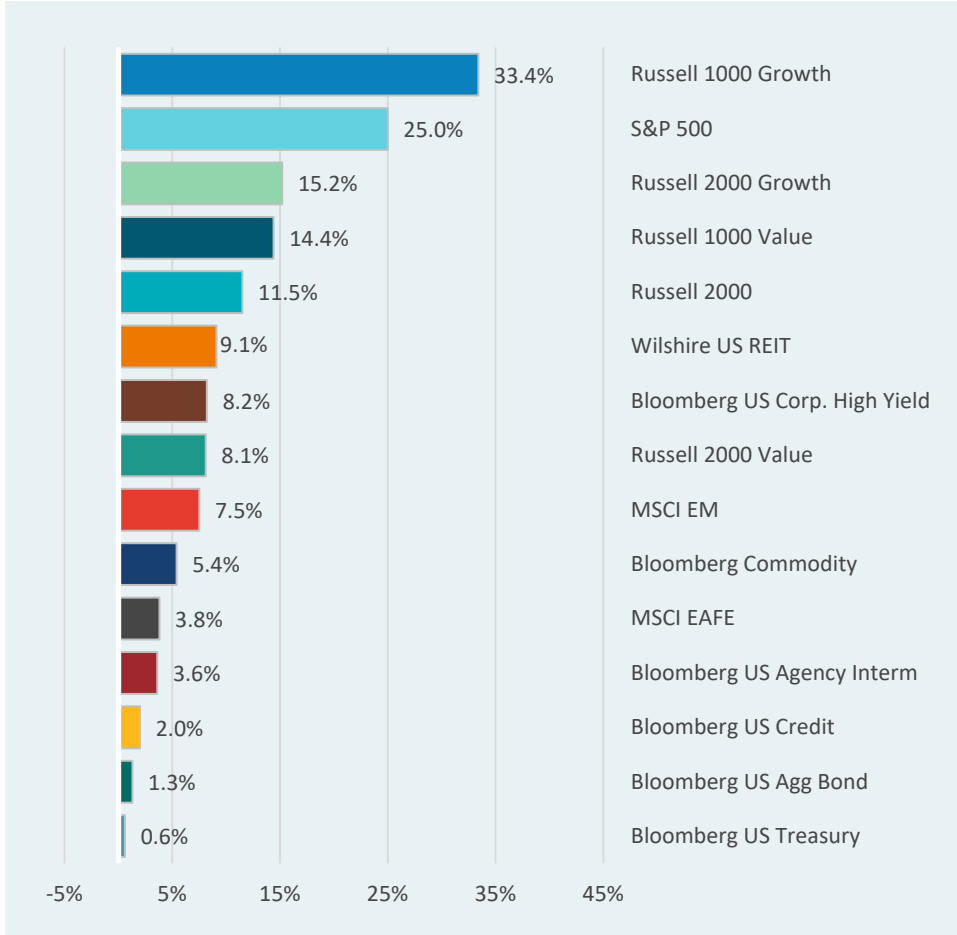
BEST
↑
WORST
↓

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

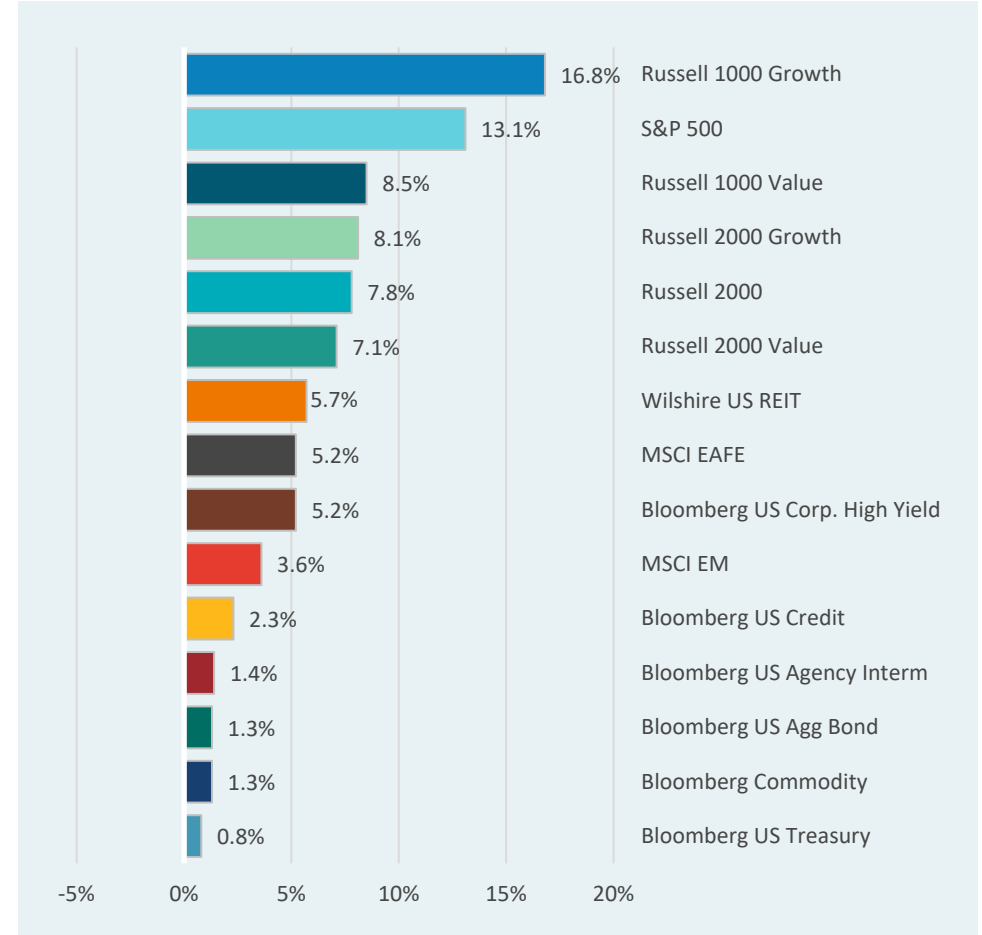
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 9/30/24.

Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



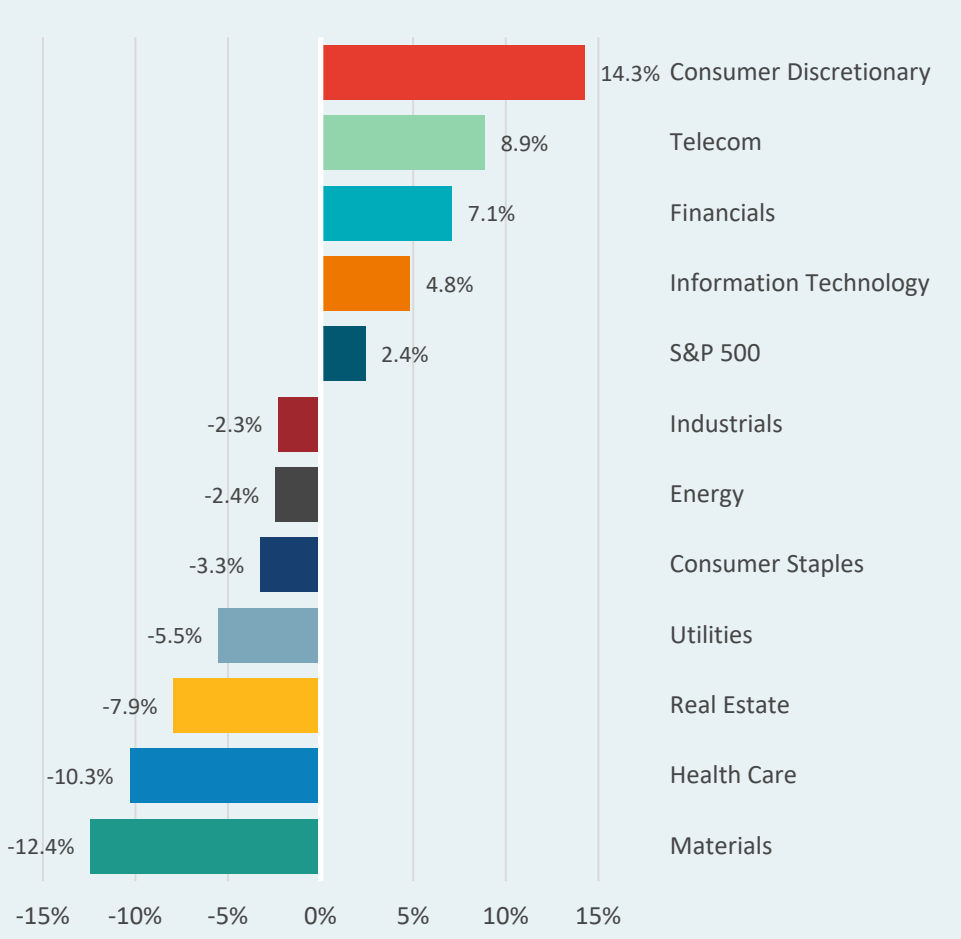
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 12/31/24

Source: Morningstar, as of 12/31/24

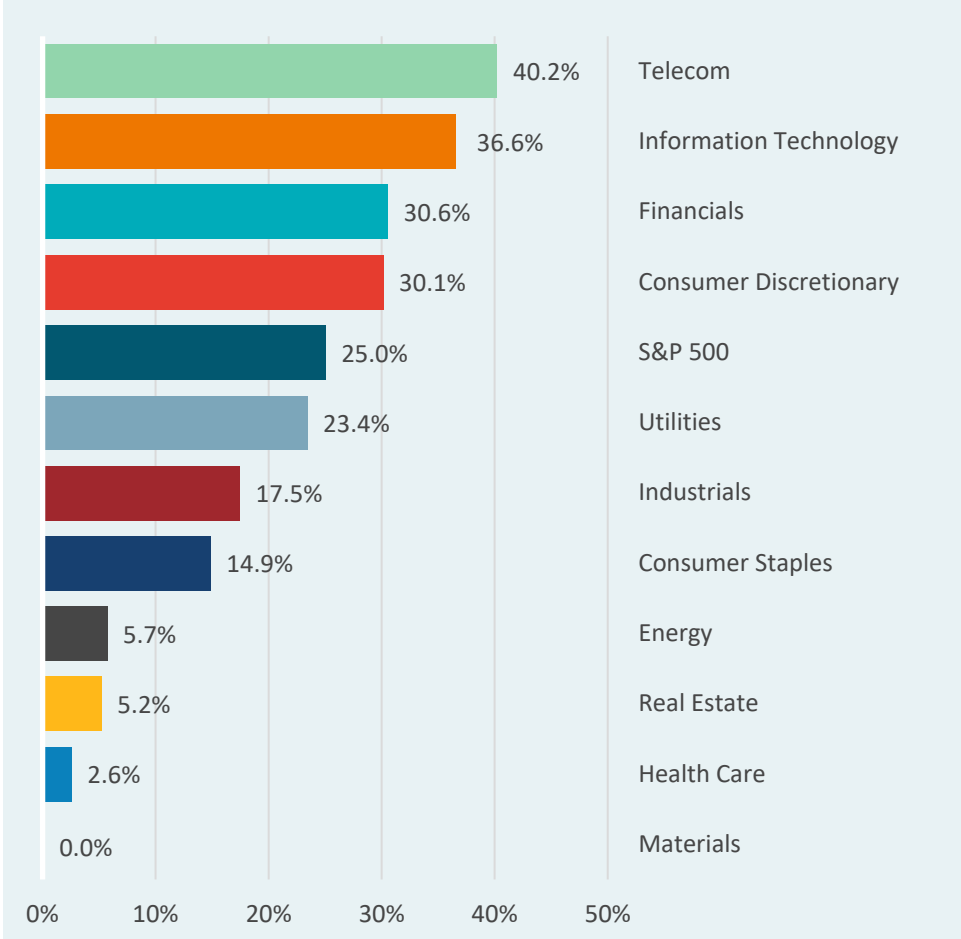
S&P 500 sector returns

QTD



Source: Morningstar, as of 12/31/24

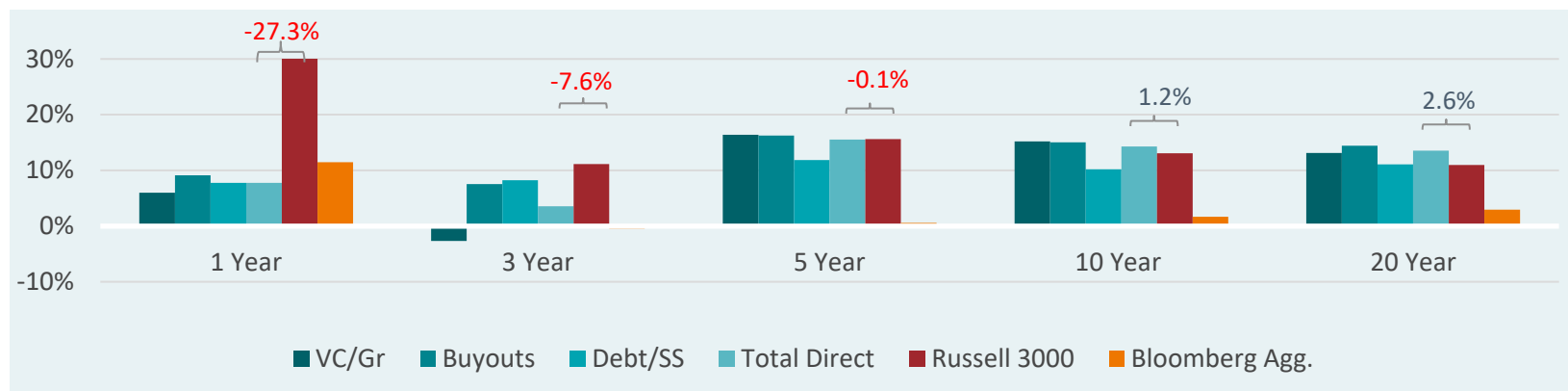
ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/24

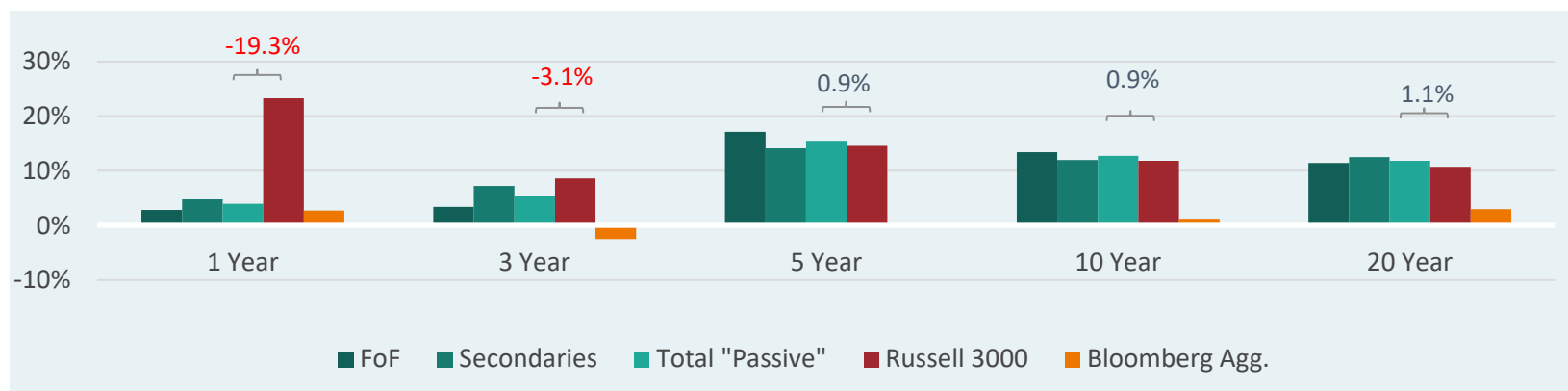
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E fund performance vs. public equities has been mixed

“PASSIVE” STRATEGIES

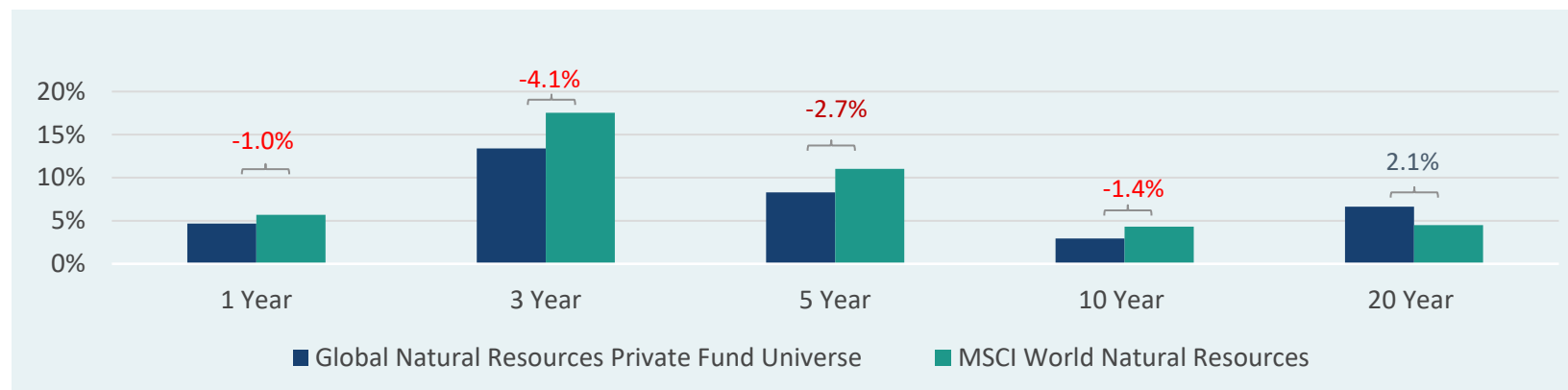


“Passive” strategy performance vs. public equities has been mixed

Sources: FTSE PME: U.S. Direct Private Equity returns are as of September 30, 2024, whereas “Passive” strategies as of June 30, 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.

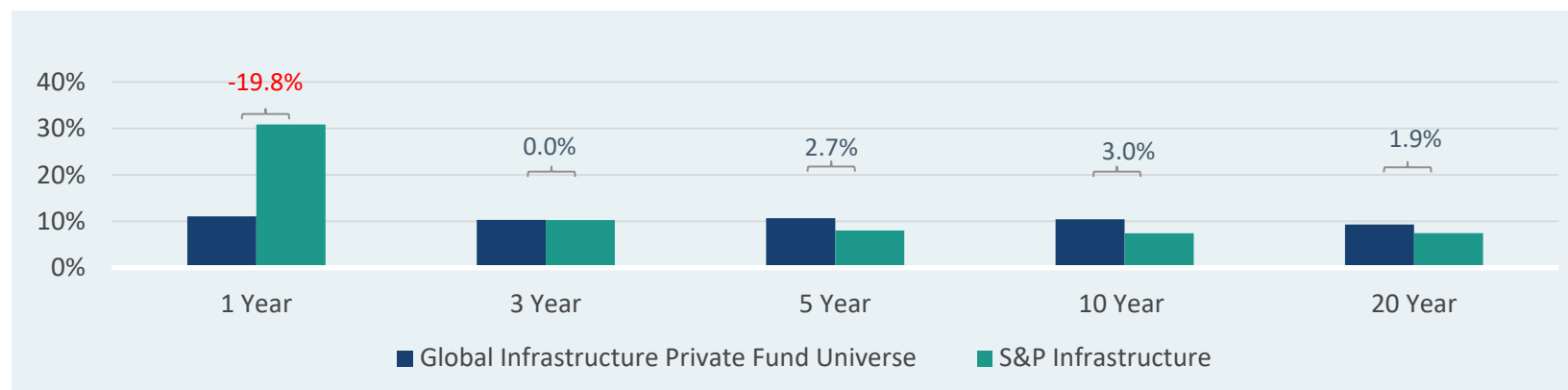
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS



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

GLOBAL INFRASTRUCTURE FUNDS

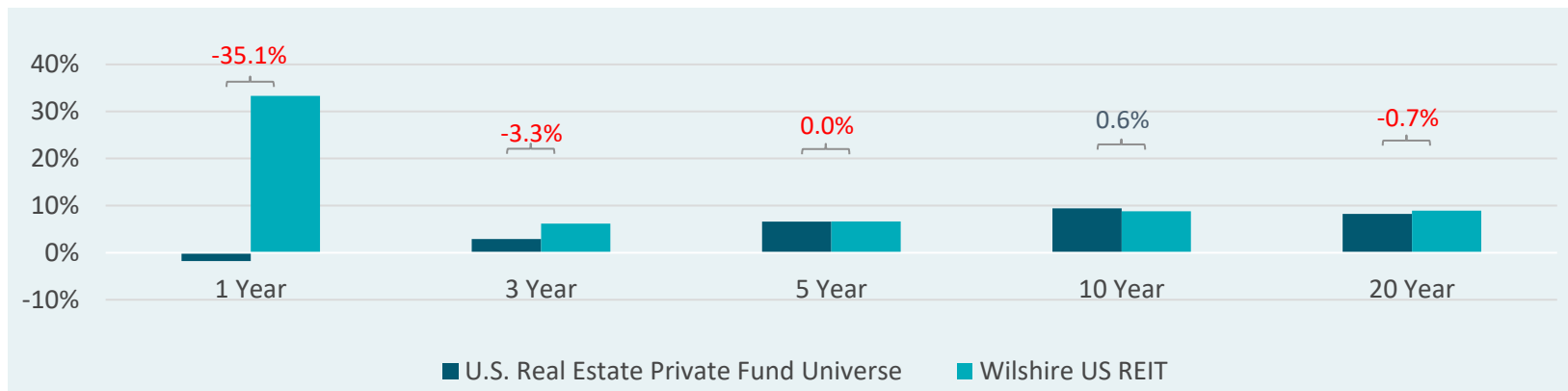


Infra. fund performance relative to the S&P Infra. was mixed

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

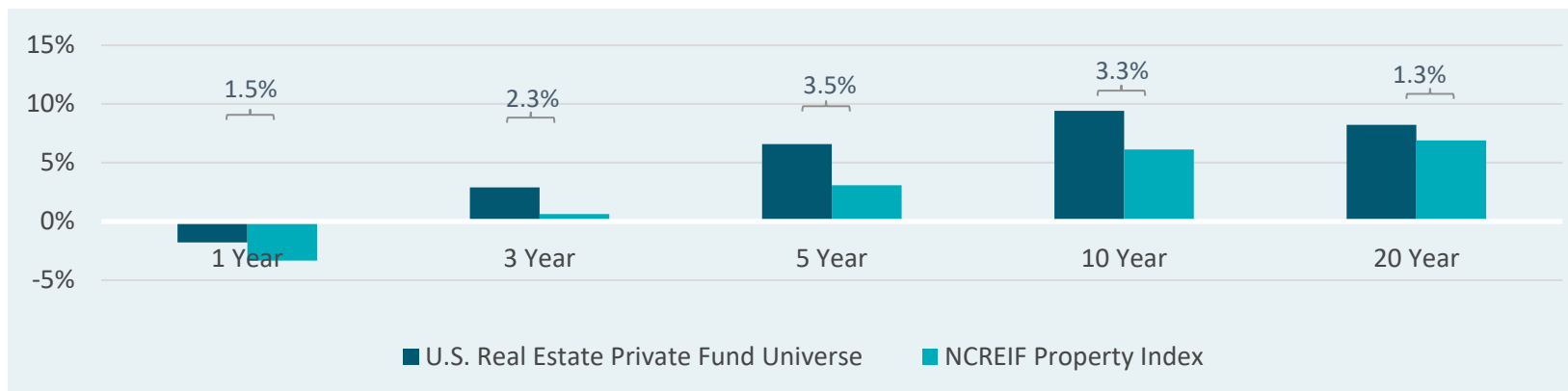
Private vs. liquid and core real estate performance

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



U.S. Private R.E. funds underperformed the Wilshire U.S. REIT Index across most time periods.

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 September 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
Core Index							
S&P 500	(2.4)	2.4	25.0	25.0	8.9	14.5	13.1
S&P 500 Equal Weighted	(6.3)	(1.9)	13.0	13.0	4.5	10.8	10.3
DJ Industrial Average	(5.1)	0.9	15.0	15.0	7.6	10.6	11.6
Russell Top 200	(1.5)	3.4	27.4	27.4	9.9	15.8	14.0
Russell 1000	(2.8)	2.7	24.5	24.5	8.4	14.3	12.9
Russell 2000	(8.3)	0.3	11.5	11.5	1.2	7.4	7.8
Russell 3000	(3.1)	2.6	23.8	23.8	8.0	13.9	12.5
Russell Mid Cap	(7.0)	0.6	15.3	15.3	3.8	9.9	9.6
Style Index							
Russell 1000 Growth	0.9	7.1	33.4	33.4	10.5	19.0	16.8
Russell 1000 Value	(6.8)	(2.0)	14.4	14.4	5.6	8.7	8.5
Russell 2000 Growth	(8.2)	1.7	15.2	15.2	0.2	6.9	8.1
Russell 2000 Value	(8.3)	(1.1)	8.1	8.1	1.9	7.3	7.1

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(2.4)	(1.0)	17.5	17.5	5.4	10.1	9.2
MSCI ACWI ex US	(1.9)	(7.6)	5.5	5.5	0.8	4.1	4.8
MSCI EAFE	(2.3)	(8.1)	3.8	3.8	1.6	4.7	5.2
MSCI EM	(0.1)	(8.0)	7.5	7.5	(1.9)	1.7	3.6
MSCI EAFE Small Cap	(2.3)	(8.4)	1.8	1.8	(3.2)	2.3	5.5
Style Index							
MSCI EAFE Growth	(2.8)	(9.1)	2.0	2.0	(2.6)	4.0	5.8
MSCI EAFE Value	(1.8)	(7.1)	5.7	5.7	5.9	5.1	4.3
Regional Index							
MSCI UK	(2.8)	(6.8)	7.5	7.5	5.3	4.4	3.8
MSCI Japan	(0.3)	(3.6)	8.3	8.3	2.8	4.8	6.2
MSCI Euro	(0.4)	(9.4)	2.1	2.1	1.9	5.3	5.2
MSCI EM Asia	0.2	(7.9)	12.0	12.0	(1.6)	3.0	4.8
MSCI EM Latin American	(6.1)	(15.8)	(26.4)	(26.4)	2.1	(3.4)	0.3

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(1.6)	(2.9)	1.8	1.8	(2.3)	1.9	2.2
Bloomberg US Treasury Bills	0.4	1.2	5.3	5.3	3.9	2.5	1.8
Bloomberg US Agg Bond	(1.6)	(3.1)	1.3	1.3	(2.4)	(0.3)	1.3
Bloomberg US Universal	(1.5)	(2.7)	2.0	2.0	(2.0)	0.1	1.7
Duration							
Bloomberg US Treasury 1-3 Yr	0.2	(0.1)	4.0	4.0	1.4	1.4	1.4
Bloomberg US Treasury Long	(5.3)	(8.6)	(6.4)	(6.4)	(12.0)	(5.2)	(0.6)
Bloomberg US Treasury	(1.5)	(3.1)	0.6	0.6	(2.9)	(0.7)	0.8
Issuer							
Bloomberg US MBS	(1.6)	(3.2)	1.2	1.2	(2.1)	(0.7)	0.9
Bloomberg US Corp. High Yield	(0.4)	0.2	8.2	8.2	2.9	4.2	5.2
Bloomberg US Agency Interm	(0.2)	(0.6)	3.6	3.6	0.5	0.9	1.4
Bloomberg US Credit	(1.9)	(3.0)	2.0	2.0	(2.2)	0.2	2.3

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	1.0	(0.4)	5.4	5.4	4.1	6.8	1.3
Wilshire US REIT	(7.3)	(5.0)	9.1	9.1	(2.5)	4.5	5.7
CS Leveraged Loans	0.6	2.3	9.1	9.1	6.8	5.7	5.1
S&P Global Infrastructure	(4.5)	(2.5)	15.1	15.1	7.1	5.3	5.9
Alerian MLP	(7.2)	5.6	26.7	26.7	27.2	14.8	3.3
Regional Index							
JPM EMBI Global Div	(1.4)	(1.9)	6.5	6.5	(0.9)	0.1	3.1
JPM GBI-EM Global Div	(1.9)	(7.0)	(2.4)	(2.4)	(1.0)	(1.9)	0.4
Hedge Funds							
HFRI Composite	(0.2)	1.5	8.8	8.8	4.1	6.8	5.2
HFRI FOF Composite	0.5	2.7	9.9	9.9	3.3	5.4	3.9
Currency (Spot)							
Euro	(2.0)	(7.2)	(6.3)	(6.3)	(3.1)	(1.6)	(1.5)
Pound Sterling	(1.5)	(6.6)	(1.8)	(1.8)	(2.6)	(1.1)	(2.2)
Yen	(4.4)	(9.0)	(10.3)	(10.3)	(9.8)	(7.1)	(2.7)

Source: Morningstar, HFRI, as of 12/31/24

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)

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

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

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

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Contra Costa County Employees Retirement Association

Investment Performance Review
Period Ending: December 31, 2024



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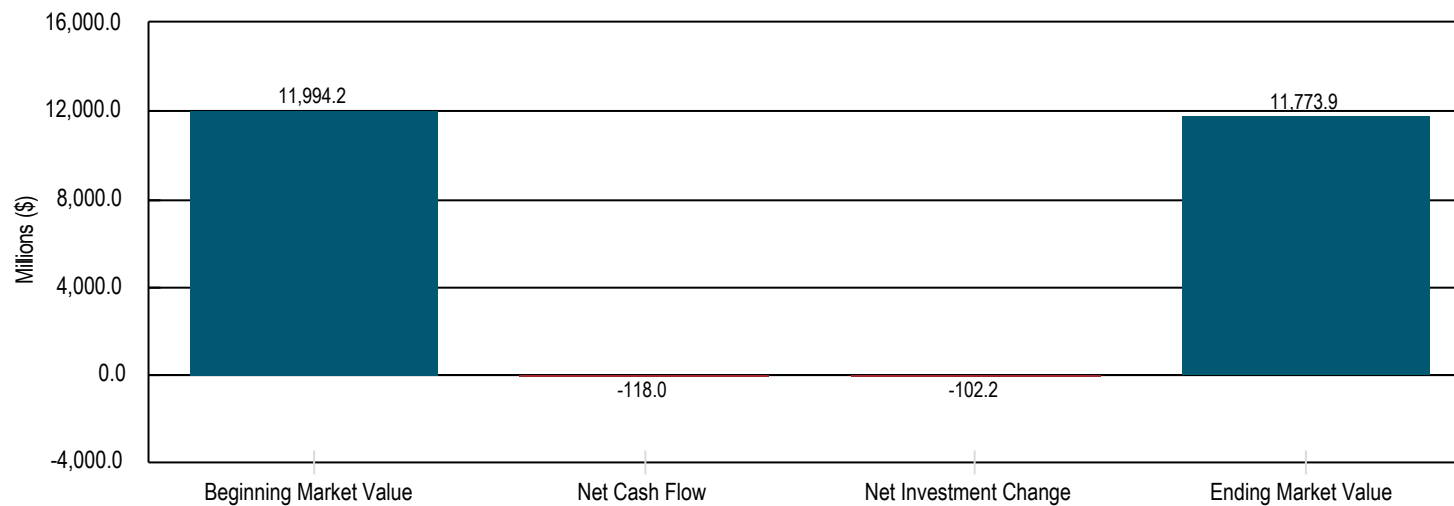
Total Fund
Portfolio Reconciliation

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Portfolio Reconciliation

	Last Three Months	YTD
Beginning Market Value	\$11,994,163,809	\$11,026,398,894
Net Cash Flow	-\$118,047,730	-\$154,163,013
Net Investment Change	-\$102,191,373	\$901,688,826
Ending Market Value	\$11,773,924,707	\$11,773,924,707

Change in Market Value
Last Three Months

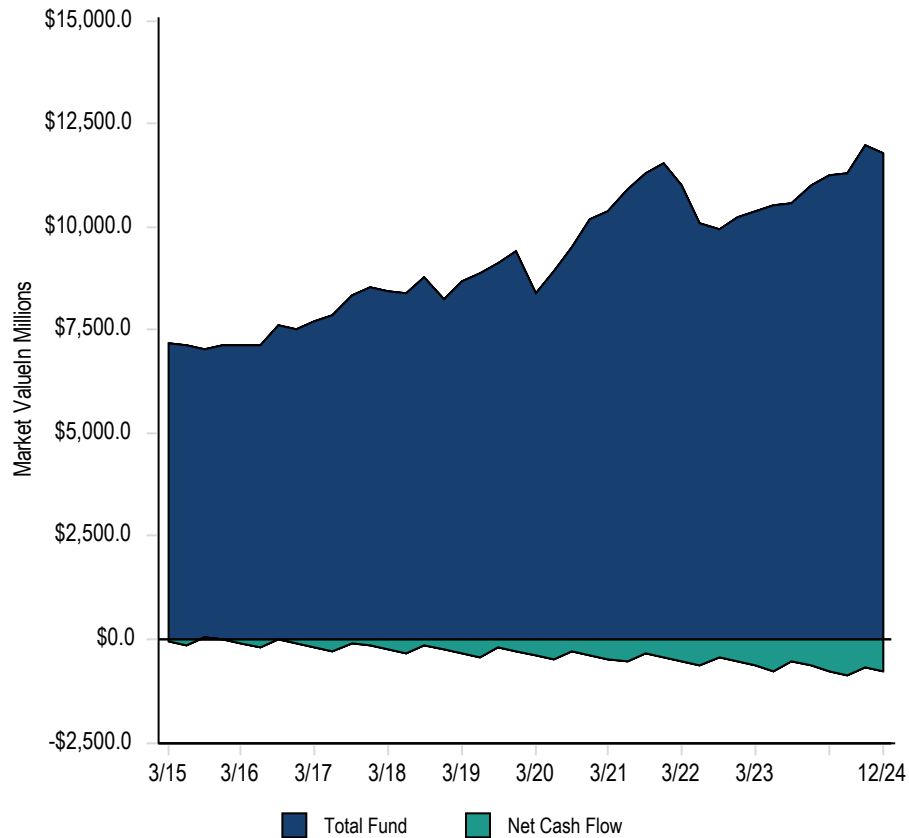


Contributions and withdrawals may include intra-account transfers between managers/funds.

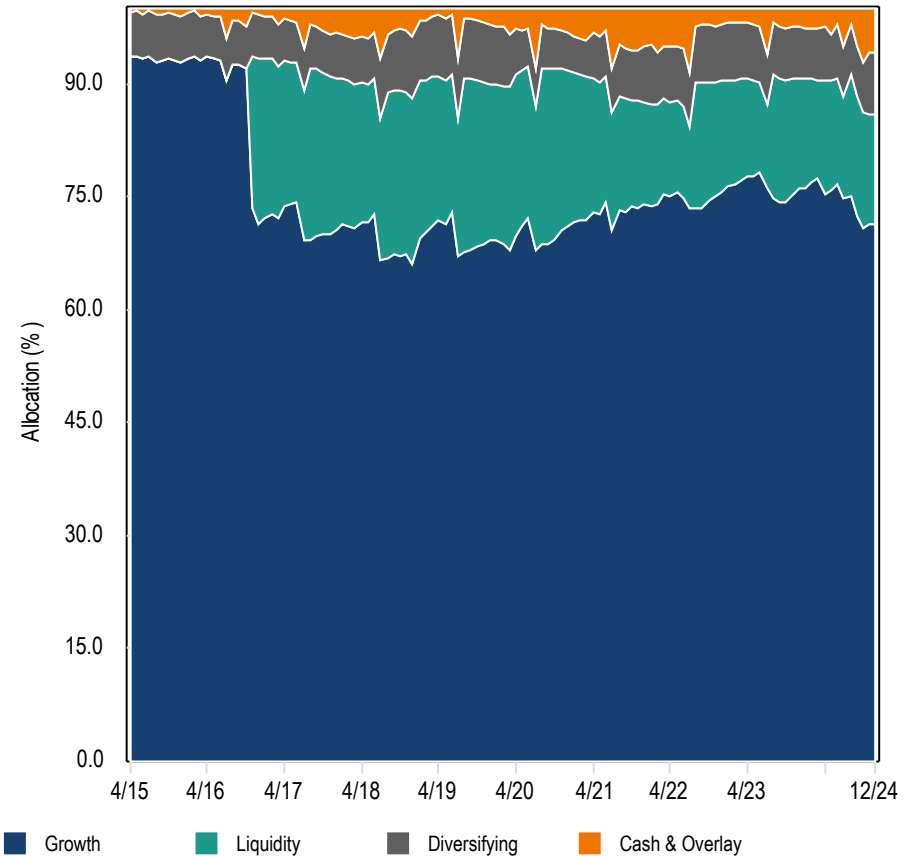
Total Fund
Asset Allocation History

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Market Value History
Cumulative Cash Flows

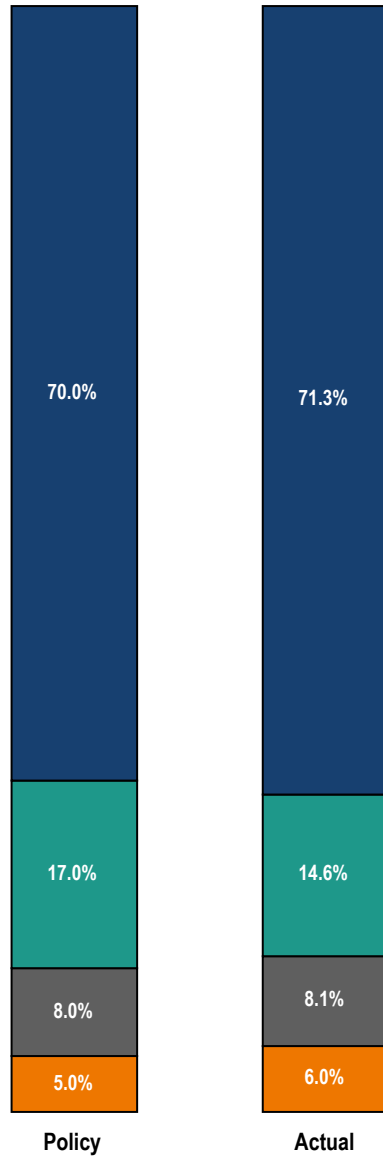


Asset Allocation History



Total Fund
Asset Allocation vs. Policy Target

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024



	Current Balance	Current Allocation	Policy Target	Difference
Growth	\$8,389,870,693	71.3	70.0	\$148,123,398
Liquidity	\$1,723,469,978	14.6	17.0	-\$278,097,222
Diversifying	\$958,015,277	8.1	8.0	\$16,101,300
Cash & Overlay	\$702,568,759	6.0	5.0	\$113,872,524
Total	\$11,773,924,707	100.0	100.0	

Policy Targets as of 10/1/2024.

Total Fund
Executive Summary (Net of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
Total Fund	100.0	-0.9	8.3	1.8	5.6	6.2	9.0	-10.6	13.9	9.2	14.6
Policy Index		-0.6	7.8	2.7	6.7	7.0	9.9	-8.4	15.3	10.8	14.6
Implementation Benchmark		-0.6	7.8	2.3	5.9	6.4	9.0	-8.7	14.2	8.7	13.6
Growth	71.3	-0.9	9.7	2.2	7.3	7.8	10.1	-11.7	19.2	12.0	18.3
Custom Growth Benchmark		-0.6	9.2	2.9	8.6	8.8	11.2	-10.3	21.6	13.8	19.3
Diversifying	8.1	-2.9	-0.4	-1.4	-0.8	0.2	2.2	-5.7	1.7	-1.7	6.8
Custom Diversifying Benchmark		-1.4	4.3	1.8	2.4	3.1	7.4	-5.7	1.6	4.7	6.1
Liquidity	14.6	0.2	5.0	2.2	1.9	-	5.4	-3.5	-0.3	3.4	4.8
Bloomberg U.S. Gov/Credit 1-3 Year Index		0.0	4.4	1.7	1.6	-	4.6	-3.7	-0.5	3.3	4.0

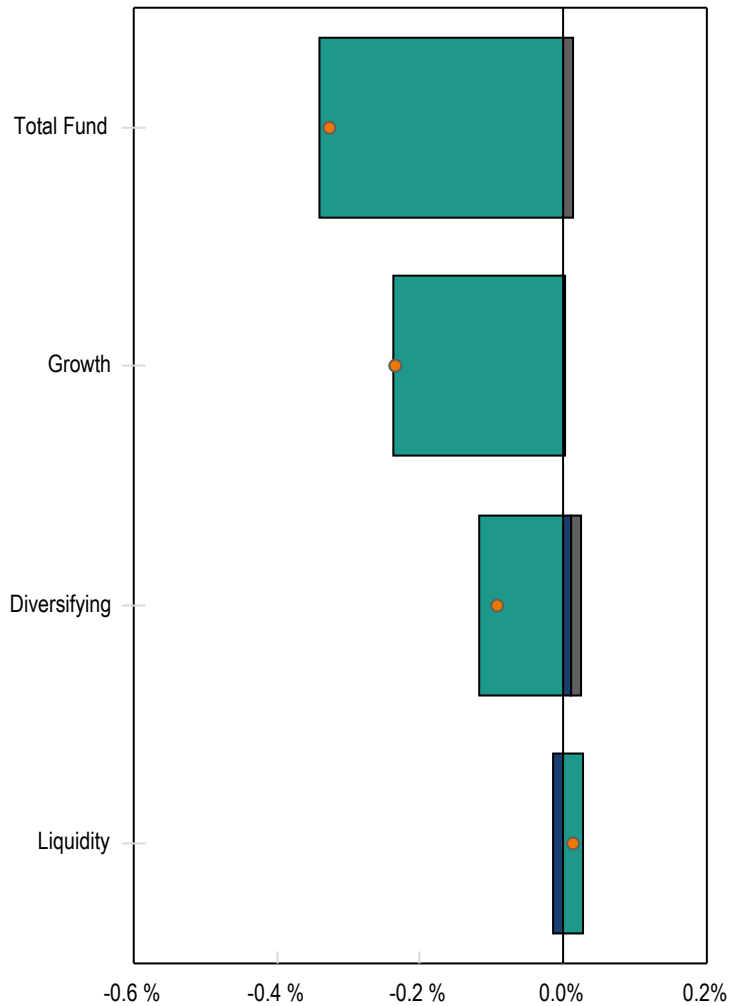
*Correlation between the Growth and Diversifying composites is .65, .61, and .68 over the previous 1, 3, and 5 year periods respectively.

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: December 31, 2024

Attribution Effects
 3 Months Ending December 31, 2024



Performance Attribution

	3 Mo
Wtd. Actual Return	-0.90
Wtd. Index Return	-0.62
Excess Return	-0.28
Selection Effect	-0.28
Allocation Effect	0.00
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	-0.9	-0.7	-0.3	-0.3	0.0	0.0	-0.2
Diversifying	-2.9	-2.2	-0.6	-0.1	0.0	0.0	0.0
Liquidity	0.2	-0.2	0.3	0.0	0.0	0.0	0.1
Cash	1.3	1.2	0.0	0.0	0.0	0.0	0.0
Total Fund	-0.9	-0.6	-0.3	-0.3	0.0	0.0	-0.3

■ Selection Effect
 ■ Allocation Effect
■ Interaction Effect
 ● Total Effects

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



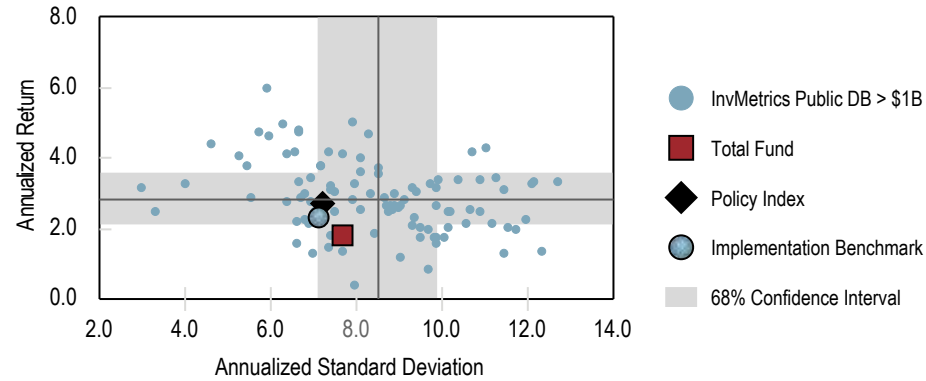
Total Fund
Executive Summary (Net of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 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	1.80	-0.55	7.66	-0.67	1.07	1.04	0.99	-0.25	-0.48	103.61	115.36

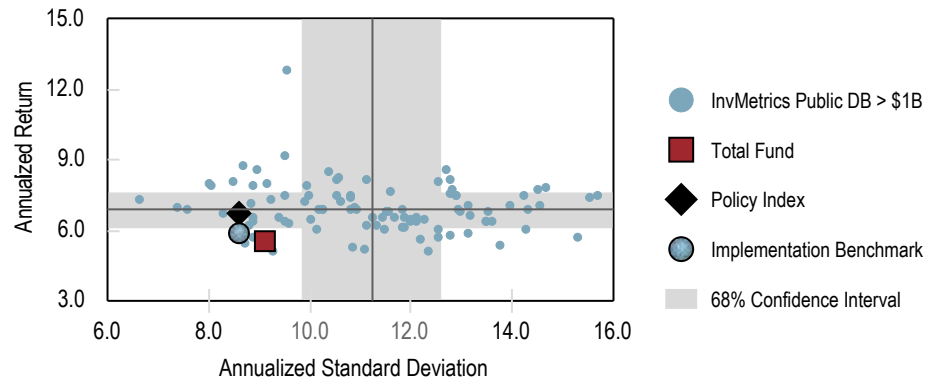
Risk vs. Return



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	5.59	-0.28	9.12	-0.55	1.05	1.11	0.99	0.38	-0.20	103.03	111.39

Risk vs. Return



Total Fund
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Total Fund	11,773,924,707	100.0	-0.9	8.5	2.0	5.8	6.5	9.2	-10.4	14.2	9.5	14.9		
<i>Policy Index</i>			-0.6	7.8	2.7	6.7	7.0	9.9	-8.4	15.3	10.8	14.6		
<i>Implementation Benchmark</i>			-0.6	7.8	2.3	5.9	6.4	9.0	-8.7	14.2	8.7	13.6		
<i>InvMetrics Public DB > \$1B Rank</i>			55	67	79	89	77	87	50	65	81	87		
Total Fund ex Overlay & Cash	11,071,355,948	94.0	-0.8	8.5	2.2	6.1	6.6	9.1	-9.9	14.6	9.7	14.7		
<i>Policy Index</i>			-0.6	7.8	2.7	6.7	7.0	9.9	-8.4	15.3	10.8	14.6		
<i>Implementation Benchmark</i>			-0.6	7.8	2.3	5.9	6.4	9.0	-8.7	14.2	8.7	13.6		
<i>InvMetrics Public DB > \$1B Rank</i>			55	67	77	84	72	87	45	60	77	88		
Growth	8,389,870,693	71.3	-0.9	9.9	2.4	7.6	8.2	10.3	-11.4	19.6	12.4	18.7		
<i>Custom Growth Benchmark</i>			-0.6	9.2	2.9	8.6	8.8	11.2	-10.3	21.6	13.8	19.3		
Total Domestic Equity	2,200,988,827	18.7	1.6	20.7	6.3	12.1	11.2	21.6	-18.3	20.6	22.2	26.7		
<i>Russell 3000 Index</i>			2.6	23.8	8.0	13.9	12.5	26.0	-19.2	25.7	20.9	31.0		
<i>InvMetrics Public DB US Equity Rank</i>			68	57	80	78	72	78	62	99	12	99		
BlackRock Russell 1000 Index	1,293,693,551	11.0	2.7	24.5	8.4	14.3	-	26.6	-19.1	26.5	21.0	31.4	14.2	May-17
<i>Russell 1000 Index</i>			2.7	24.5	8.4	14.3	-	26.5	-19.1	26.5	21.0	31.4	14.2	
<i>eV US Large Cap Equity Rank</i>			30	33	41	36	-	34	70	56	35	40	39	
Boston Partners	449,226,677	3.8	-0.8	16.4	8.7	11.7	10.1	14.7	-3.8	31.3	3.0	24.3	10.9	Jun-95
<i>Russell 1000 Value Index</i>			-2.0	14.4	5.6	8.7	8.5	11.5	-7.5	25.2	2.8	26.5	9.4	
<i>eV US Large Cap Value Equity Rank</i>			38	42	26	30	40	39	36	19	64	79	24	
Emerald Advisers	244,106,491	2.1	2.9	19.7	2.8	9.8	10.7	19.2	-23.8	5.5	39.0	30.3	12.7	Apr-03
<i>Russell 2000 Growth Index</i>			1.7	15.2	0.2	6.9	8.1	18.7	-26.4	2.8	34.6	28.5	10.5	
<i>eV US Small Cap Growth Equity Rank</i>			33	28	19	43	50	41	27	77	57	48	35	
Ceredex	213,962,108	1.8	-1.9	10.2	5.4	9.0	8.3	16.0	-8.5	28.4	2.3	18.4	10.4	Nov-11
<i>Russell 2000 Value Index</i>			-1.1	8.1	1.9	7.3	7.1	14.6	-14.5	28.3	4.6	22.4	9.6	
<i>eV US Small Cap Value Equity Rank</i>			84	59	44	68	66	62	28	59	70	88	79	

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: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Total International Equity	1,352,603,095	11.5	-6.2	7.0	0.3	4.8	5.3	15.4	-18.2	8.3	15.8	23.7		
MSCI AC World ex USA Index			-7.5	6.1	1.3	4.6	5.3	16.2	-15.6	8.3	11.1	22.1		
MSCI EAFE Index			-8.1	4.3	2.2	5.2	5.7	18.9	-14.0	11.8	8.3	22.7		
InvMetrics Public DB Global ex-US Equity Rank			17	25	50	30	58	74	63	50	30	39		
International Equity	852,843,496	7.2	-7.6	3.7	-0.6	5.0	5.8	15.6	-18.1	9.0	19.0	27.0	6.1	Oct-10
MSCI AC World ex USA Index			-7.5	6.1	1.3	4.6	5.3	16.2	-15.6	8.3	11.1	22.1	4.9	
InvMetrics Public DB Global ex-US Equity Rank			63	78	69	28	36	68	59	36	14	16		
Pyrford	431,793,167	3.7	-8.9	4.0	3.7	4.6	5.2	15.2	-7.0	7.6	4.7	22.1	4.5	May-14
MSCI AC World ex USA Value			-7.3	6.0	4.4	4.5	4.1	17.3	-8.6	10.5	-0.8	15.7	3.1	
eV ACWI ex-US Value Equity Rank			83	60	59	76	64	82	24	84	47	36		
William Blair	421,050,329	3.6	-6.2	3.4	-4.6	5.0	6.2	16.2	-27.7	10.5	33.3	32.0	6.4	Nov-10
MSCI AC World ex USA Growth			-7.9	5.1	-2.7	3.4	5.3	14.0	-23.1	5.1	22.2	27.3	5.0	
eV ACWI ex-US Growth Equity Rank			44	61	70	56	81	59	57	41	35	37		
Emerging Markets Equity	499,759,599	4.2	-3.8	13.1	1.8	4.8	-	14.4	-18.4	7.6	11.4	19.4	5.4	Feb-17
MSCI Emerging Markets			-8.0	7.5	-1.9	1.7	-	9.8	-20.1	-2.5	18.3	18.4	4.2	
InvMetrics Public DB Emerging Markets Equity Rank			1	1	14	9	-	50	39	16	82	34		
PIMCO RAE Emerging Markets	244,065,554	2.1	-8.3	7.5	6.1	7.4	-	23.1	-9.7	17.1	2.1	14.6	6.8	Mar-17
MSCI Emerging Markets Value			-9.2	4.5	0.2	2.0	-	14.2	-15.8	4.0	5.5	12.0	3.4	
eV Emg Mkts All Cap Value Equity Rank			56	41	6	10	-	11	33	8	85	78		
TT Emerging Markets	255,694,045	2.2	1.0	19.1	-2.5	2.3	-	5.8	-26.4	-0.2	20.8	24.8	3.4	Aug-17
MSCI Emerging Markets			-8.0	7.5	-1.9	1.7	-	9.8	-20.1	-2.5	18.3	18.4	2.5	
eV Emg Mkts Equity Rank			1	2	72	65	-	91	90	59	39	23		
Total Global Equity	1,284,866,575	10.9	-3.2	14.7	3.5	9.6	9.9	19.0	-18.8	14.1	25.3	28.9	-	Dec-03
MSCI AC World Index			-1.0	17.5	5.4	10.1	9.2	22.2	-18.4	18.5	16.3	26.6	8.0	
InvMetrics Public DB Global Equity Rank			34	18	85	14	1	80	81	84	2	5		
Artisan Partners	651,114,905	5.5	-1.4	16.3	0.7	10.7	12.4	24.5	-29.6	15.0	41.7	37.0	12.5	Oct-12
MSCI ACWI Growth NR USD			2.6	24.2	5.7	13.1	11.9	33.2	-28.6	17.1	33.6	32.7	12.2	
eV Global Growth Equity Rank			42	34	49	31	17	38	60	56	33	12		
First Eagle	633,751,670	5.4	-4.9	13.0	6.7	8.2	7.9	13.7	-5.6	13.0	8.5	21.0	8.3	Jan-11
MSCI ACWI Value NR USD			-4.7	10.8	4.6	6.4	6.2	11.8	-7.5	19.6	-0.3	20.6	6.7	
eV Global Value Equity Rank			60	16	17	27	25	66	23	87	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: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Private Credit	1,187,220,409	10.1	2.8	11.9	10.5	9.1	9.3	9.1	10.5	10.0	4.0	7.7		
Total High Yield	168,216,052	1.4	-0.1	7.0	2.4	3.5	4.5	12.4	-10.6	5.3	5.2	15.3		
<i>ICE BofA U.S. High Yield Index</i>			0.2	8.2	2.9	4.0	5.1	13.5	-11.2	5.4	6.2	14.4		
<i>eV US High Yield Fixed Inc Rank</i>			82	83	89	91	87	63	74	55	74	35		
Voya Global Investors	168,216,052	1.4	-0.1	7.0	2.4	3.5	4.5	12.4	-10.6	5.3	5.2	15.3	6.3	May-00
<i>ICE BofA U.S. High Yield Index</i>			0.2	8.2	2.9	4.0	5.1	13.5	-11.2	5.4	6.2	14.4	6.6	
<i>eV US High Yield Fixed Inc Rank</i>			82	83	89	91	87	63	74	55	74	35		
Total Real Estate	831,924,148	7.1	-3.1	-9.1	-8.4	-2.9	2.9	-10.6	-5.2	19.2	-5.9	8.1		
<i>Real Estate Benchmark</i>			-2.4	-10.5	-8.8	-1.9	2.6	-11.3	-4.5	19.3	0.6	7.5		
<i>NCREIF-ODCE</i>			1.2	-1.4	-2.3	2.9	5.9	-12.0	7.5	22.2	1.2	5.3		
<i>NCREIF Property Index</i>			0.9	0.4	-0.8	3.1	5.7	-7.9	5.5	17.7	1.6	6.4		
Total Core Real Estate	230,796,724	2.0	-6.2	7.8	-2.9	5.3	6.3	12.8	-24.8	48.3	-4.6	28.2		
Adelante	107,717,700	0.9	-4.5	10.6	-1.7	6.1	6.8	17.2	-26.7	48.3	-4.6	28.2	9.7	Oct-01
<i>Wilshire U.S. REIT Index</i>			-5.0	9.1	-2.4	4.6	5.7	16.2	-26.8	46.2	-7.9	25.8	9.1	
Invesco US Fundamental Beta	123,079,023	1.0	-7.7	5.5	-	-	-	9.4	-	-	-	-	-0.6	Mar-22
<i>Wilshire U.S. REIT Index</i>			-5.0	9.1	-	-	-	16.2	-	-	-	-	1.1	
Total Private Real Estate	601,127,424	5.1	-1.8	-15.1	-10.8	-5.2	1.9	-17.6	1.3	15.3	-6.1	6.2		
Private Equity	1,265,379,946	10.7	1.1	2.8	0.4	12.1	11.4	-1.0	-0.5	60.4	8.7	8.4		
Private Infrastructure	89,776,822	0.8	3.0	-	-	-	-	-	-	-	-	-		
Risk Parity	8,894,820	0.1	0.7	10.6	-3.1	1.9	-	4.9	-21.5	9.7	10.0	18.1		
<i>60% MSCI ACWI Net/40% Blmbg. Global Aggregate</i>			-2.6	9.5	1.5	5.3	-	15.4	-17.3	8.8	14.0	18.6		
PanAgora Risk Parity Multi Asset	8,894,820	0.1	0.1	9.5	-6.0	0.6	-	2.8	-26.1	8.7	14.0	-	2.7	Mar-19
<i>HFR Risk Parity Vol 10 Index</i>			-3.8	5.9	-1.5	1.1	-	10.5	-18.3	6.8	3.6	-	2.9	

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium-EL was liquidated of 11/6/2024.

Total Fund
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Diversifying	958,015,277	8.1	-2.8	-0.1	-1.0	-0.5	0.5	2.6	-5.4	2.0	-1.3	7.1		
Custom Diversifying Benchmark			-1.4	4.3	1.8	2.4	3.1	7.4	-5.7	1.6	4.7	6.1		
Diversifying Fixed Income	269,432,512	2.3	-2.7	2.6	-2.1	-1.1	0.8	5.5	-13.3	-0.7	1.6	8.6		
Blmbg. U.S. Aggregate Index			-3.1	1.3	-2.4	-0.3	1.3	5.5	-13.0	-1.5	7.5	8.7		
eV US Core Fixed Inc Rank			25	25	69	100	100	85	74	32	100	79		
AFL-CIO	269,385,437	2.3	-2.7	2.6	-2.1	-0.1	1.5	5.5	-13.3	-0.7	6.6	8.2	5.1	Jul-91
Blmbg. U.S. Aggregate Index			-3.1	1.3	-2.4	-0.3	1.3	5.5	-13.0	-1.5	7.5	8.7	4.8	
eV US Core Fixed Inc Rank			25	25	70	90	92	86	74	33	94	87	80	
Diversifying Multi-Asset	688,582,765	5.8	-2.9	-1.1	-0.6	-	-	1.4	-1.9	2.8	-	-		
Custom Diversifying Multi-Asset Benchmark			-0.2	6.5	3.9	-	-	8.7	-3.1	4.1	-	-		
Sit LLCAR	463,062,627	3.9	-1.1	6.1	3.1	-	-	6.9	-3.3	-	-	-	3.7	Apr-21
Blmbg. U.S. Aggregate Index +1%			-2.8	2.3	-1.4	-	-	6.6	-12.1	-	-	-	-0.4	
BH-DG Systematic	225,520,138	1.9	-6.6	-	-	-	-	-	-	-	-	-	-13.7	Apr-24
SG Trend Index			-0.2	-	-	-	-	-	-	-	-	-	-9.6	
Liquidity	1,723,469,978	14.6	0.2	5.1	2.3	2.0	-	5.5	-3.4	-0.2	3.5	4.9		
Blmbg. 1-3 Year Gov/Credit Index			0.0	4.4	1.7	1.6	-	4.6	-3.7	-0.5	3.3	4.0		
eV US Short Duration Fixed Inc Rank			42	46	46	59	-	45	48	47	74	40		
DFA Short Credit	394,050,033	3.3	1.2	5.8	1.8	1.6	-	5.4	-5.3	-0.4	2.9	5.2	2.0	Dec-16
ICE BofA 1-5 Year U.S. Corp/Govt Index			-0.7	3.9	1.0	1.3	-	4.9	-5.5	-0.9	4.6	5.1	1.8	
eV US Short Duration Fixed Inc Rank			5	19	73	86	-	48	90	69	88	27		
Insight Short Duration	650,402,897	5.5	0.5	5.4	3.3	2.6	-	5.7	-1.1	0.1	3.2	4.7	2.6	Dec-16
Bloomberg U.S. Gov/Credit 1-3 Year Index			0.0	4.4	1.7	1.6	-	4.6	-3.7	-0.5	3.3	4.0	1.8	
eV US Short Duration Fixed Inc Rank			15	32	12	20	-	34	6	34	85	49		
Sit Short Duration	679,017,047	5.8	-0.7	4.4	1.5	1.8	-	5.4	-4.8	-0.3	4.6	4.9	2.1	Dec-16
Blmbg. 1-3 Year Govt Index			-0.1	4.0	1.4	1.4	-	4.3	-3.8	-0.6	3.1	3.6	1.5	
eV US Short Duration Fixed Inc Rank			96	77	84	78	-	51	79	60	31	41		
Total Cash	571,532,827	4.9	1.3	5.6	4.5	3.0	2.2	5.5	2.4	0.4	1.3	3.3		
90 Day U.S. Treasury Bill			1.2	5.3	3.9	2.5	1.8	5.0	1.5	0.0	0.7	2.3		
Cash	571,532,826	4.9	1.3	5.6	4.6	3.1	2.2	6.1	2.2	0.4	1.3	3.4		
Northern Trust Transition	1	0.0	0.4	7.8	-80.2	-56.9	-	-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: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Total Fund	11,773,924,707	100.0	-0.9	8.3	1.8	5.6	6.2	9.0	-10.6	13.9	9.2	14.6		
Policy Index			-0.6	7.8	2.7	6.7	7.0	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			-0.6	7.8	2.3	5.9	6.4	9.0	-8.7	14.2	8.7	13.6		
Total Fund ex Overlay & Cash	11,071,355,948	94.0	-0.9	8.3	2.0	5.8	6.3	8.9	-10.1	14.3	9.4	14.3		
Policy Index			-0.6	7.8	2.7	6.7	7.0	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			-0.6	7.8	2.3	5.9	6.4	9.0	-8.7	14.2	8.7	13.6		
Growth	8,389,870,693	71.3	-0.9	9.7	2.2	7.3	7.8	10.1	-11.7	19.2	12.0	18.3		
Custom Growth Benchmark			-0.6	9.2	2.9	8.6	8.8	11.2	-10.3	21.6	13.8	19.3		
Total Domestic Equity	2,200,988,827	18.7	1.5	20.5	6.0	11.8	10.9	21.4	-18.5	20.2	21.8	26.1		
Russell 3000 Index			2.6	23.8	8.0	13.9	12.5	26.0	-19.2	25.7	20.9	31.0	12.0	
BlackRock Russell 1000 Index	1,293,693,551	11.0	2.7	24.5	8.4	14.3	-	26.6	-19.1	26.5	20.9	31.4	14.2	May-17
Russell 1000 Index			2.7	24.5	8.4	14.3	-	26.5	-19.1	26.5	21.0	31.4	14.2	
Boston Partners	449,226,677	3.8	-0.9	16.0	8.3	11.3	9.7	14.3	-4.1	31.0	2.6	23.8	10.8	Jun-95
Russell 1000 Value Index			-2.0	14.4	5.6	8.7	8.5	11.5	-7.5	25.2	2.8	26.5	9.4	
Emerald Advisers	244,106,491	2.1	2.7	18.9	2.2	9.1	10.0	18.6	-24.2	4.9	38.2	29.4	12.3	Apr-03
Russell 2000 Growth Index			1.7	15.2	0.2	6.9	8.1	18.7	-26.4	2.8	34.6	28.5	10.4	
Ceredex	213,962,108	1.8	-1.9	9.7	4.9	8.4	7.8	15.5	-9.0	27.7	1.7	17.7	9.9	Nov-11
Russell 2000 Value Index			-1.1	8.1	1.9	7.3	7.1	14.6	-14.5	28.3	4.6	22.4	9.6	
Total International Equity	1,352,603,095	11.5	-6.3	6.8	0.0	4.4	4.9	15.1	-18.6	7.8	15.2	23.2		
MSCI AC World ex USA Index			-7.5	6.1	1.3	4.6	5.3	16.2	-15.6	8.3	11.1	22.1		
MSCI EAFE Index			-8.1	4.3	2.2	5.2	5.7	18.9	-14.0	11.8	8.3	22.7		
International Equity	852,843,496	7.2	-7.7	3.4	-0.9	4.6	5.4	15.2	-18.4	8.6	18.5	26.5		
MSCI AC World ex USA Index			-7.5	6.1	1.3	4.6	5.3	16.2	-15.6	8.3	11.1	22.1		
Pyrford	431,793,167	3.7	-9.0	3.7	3.3	4.2	4.8	14.7	-7.4	7.1	4.2	21.6	4.1	May-14
MSCI AC World ex USA Value			-7.3	6.0	4.4	4.5	4.1	17.3	-8.6	10.5	-0.8	15.7	3.1	
William Blair	421,050,329	3.6	-6.3	3.1	-4.9	4.6	5.8	15.8	-28.0	10.1	32.8	31.5	6.1	Nov-10
MSCI AC World ex USA Growth			-7.9	5.1	-2.7	3.4	5.3	14.0	-23.1	5.1	22.2	27.3	5.0	
Emerging Markets Equity	499,759,599	4.2	-3.8	13.1	1.6	4.4	-	14.4	-18.9	7.0	10.7	18.7		
MSCI Emerging Markets			-8.0	7.5	-1.9	1.7	-	9.8	-20.1	-2.5	18.3	18.4		
PIMCO RAE Emerging Markets	244,065,554	2.1	-8.3	7.5	5.9	7.0	-	23.0	-10.1	16.5	1.6	14.0	6.4	Mar-17
MSCI Emerging Markets Value			-9.2	4.5	0.2	2.0	-	14.2	-15.8	4.0	5.5	12.0	3.4	
TT Emerging Markets	255,694,045	2.2	1.0	19.1	-2.7	1.9	-	5.8	-26.8	-0.9	20.0	24.0	2.9	Aug-17
MSCI Emerging Markets			-8.0	7.5	-1.9	1.7	-	9.8	-20.1	-2.5	18.3	18.4	2.5	

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: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Total Global Equity	1,284,866,575	10.9	-3.3	13.9	2.7	8.8	9.1	18.2	-19.4	13.2	24.4	27.9		
MSCI AC World Index			-1.0	17.5	5.4	10.1	9.2	22.2	-18.4	18.5	16.3	26.6		
Artisan Partners	651,114,905	5.5	-1.6	15.4	-0.1	9.9	11.5	23.6	-30.1	14.1	40.6	36.0	11.7	Oct-12
MSCI ACWI Growth NR USD			2.6	24.2	5.7	13.1	11.9	33.2	-28.6	17.1	33.6	32.7	12.2	
First Eagle	633,751,670	5.4	-5.1	12.2	5.9	7.5	7.1	12.9	-6.3	12.1	7.7	20.1	7.6	Jan-11
MSCI ACWI Value NR USD			-4.7	10.8	4.6	6.4	6.2	11.8	-7.5	19.6	-0.3	20.6	6.7	
Private Credit	1,187,220,409	10.1	2.8	11.9	10.5	9.1	9.0	9.1	10.5	10.0	4.0	7.7		
Total High Yield	168,216,052	1.4	-0.2	6.5	2.0	3.1	4.1	11.8	-10.9	4.9	4.7	14.7		
ICE BofA US High Yield Master II			0.2	8.2	2.9	4.0	5.1	13.5	-11.2	5.3	6.1	14.4	6.5	
Voya Global Investors	168,216,052	1.4	-0.2	6.5	2.0	3.1	4.1	11.8	-10.9	4.9	4.7	14.7	6.1	May-00
ICE BofA US High Yield Master II			0.2	8.2	2.9	4.0	5.1	13.5	-11.2	5.3	6.1	14.4	6.6	
Total Real Estate	831,924,148	7.1	-3.1	-9.4	-8.5	-3.0	2.7	-10.7	-5.3	19.2	-6.0	8.1		
Real Estate Benchmark			-2.4	-10.5	-8.8	-1.9	2.6	-11.3	-4.5	19.3	0.6	7.5		
NCREIF-ODCE			1.2	-1.4	-2.3	2.9	5.9	-12.0	7.5	22.2	1.2	5.3		
NCREIF Property Index			0.9	0.4	-0.8	3.1	5.7	-7.9	5.5	17.7	1.6	6.4		
Total Core Real Estate	230,796,724	2.0	-6.3	7.5	-3.3	4.8	5.9	12.4	-25.1	47.5	-5.2	27.5		
Adelante	107,717,700	0.9	-4.6	10.0	-2.3	5.5	6.2	16.5	-27.2	47.5	-5.2	27.5	9.4	Oct-01
Wilshire U.S. REIT Index			-5.0	9.1	-2.4	4.6	5.7	16.2	-26.8	46.2	-7.9	25.8	9.1	
Invesco US Fundamental Beta	123,079,023	1.0	-7.7	5.4	-	-	-	9.2	-	-	-	-	-0.8	Mar-22
Wilshire U.S. REIT Index			-5.0	9.1	-	-	-	16.2	-	-	-	-	1.1	
Total Private Real Estate	601,127,424	5.1	-1.8	-15.4	-10.9	-5.2	1.7	-17.6	1.3	15.3	-6.1	6.2		
Private Equity	1,265,379,946	10.7	1.1	2.8	0.4	12.1	11.1	-1.0	-0.5	60.4	8.7	8.4		
Private Infrastructure	89,776,822	0.8	3.0	-	-	-	-	-	-	-	-	-		
Risk Parity	8,894,820	0.1	0.6	10.3	-3.3	1.6	-	4.7	-21.8	9.3	9.6	17.7		
60% MSCI ACWI Net/40% Blmbg. Global Aggregate			-2.6	9.5	1.5	5.3	-	15.4	-17.3	8.8	14.0	18.6	7.4	
PanAgora Risk Parity Multi Asset	8,894,820	0.1	0.0	9.1	-6.3	0.2	-	2.4	-26.3	8.3	13.6	-	2.4	Mar-19
HFR Risk Parity Vol 10 Index			-3.8	5.9	-1.5	1.1	-	10.5	-18.3	6.8	3.6	-	2.9	

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium-EL was liquidated of 11/6/2024.

Total Fund
Performance Summary (Net of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Diversifying	958,015,277	8.1	-2.9	-0.4	-1.4	-0.8	0.2	2.2	-5.7	1.7	-1.7	6.8		
Custom Diversifying Benchmark			-1.4	4.3	1.8	2.4	3.1	7.4	-5.7	1.6	4.7	6.1		
Diversifying Fixed Income	269,432,512	2.3	-2.8	2.3	-2.4	-1.4	0.5	5.2	-13.5	-1.0	1.2	8.3		
Blmbg. U.S. Aggregate Index			-3.1	1.3	-2.4	-0.3	1.3	5.5	-13.0	-1.5	7.5	8.7		
AFL-CIO	269,385,437	2.3	-2.8	2.3	-2.4	-0.5	1.2	5.2	-13.6	-1.0	6.2	7.8	4.8	Jul-91
Blmbg. U.S. Aggregate Index			-3.1	1.3	-2.4	-0.3	1.3	5.5	-13.0	-1.5	7.5	8.7	4.8	
Diversifying Multi-Asset	688,582,765	5.8	-2.9	-1.4	-0.9	-	-	0.9	-2.3	2.4	-	-		
Custom Diversifying Multi-Asset Benchmark			-0.2	6.5	3.9	-	-	8.7	-3.1	4.1	-	-		
Sit LLCAR	463,062,627	3.9	-1.1	5.8	2.8	-	-	6.5	-3.7	-	-	-	3.4	Apr-21
Blmbg. U.S. Aggregate +1%			-2.8	2.3	-1.4	-	-	6.6	-12.1	-	-	-	-0.4	
BH-DG Systematic	225,520,138	1.9	-6.6	-	-	-	-	-	-	-	-	-	-13.7	Apr-24
SG Trend Index			-0.2	-	-	-	-	-	-	-	-	-	-9.6	
Liquidity	1,723,469,978	14.6	0.2	5.0	2.2	1.9	-	5.4	-3.5	-0.3	3.4	4.8		
Blmbg. 1-3 Year Gov/Credit Index			0.0	4.4	1.7	1.6	-	4.6	-3.7	-0.5	3.3	4.0		
DFA Short Credit	394,050,033	3.3	1.2	5.7	1.7	1.5	-	5.3	-5.4	-0.5	2.8	5.2	1.9	Dec-16
ICE BofA 1-5 Year U.S. Corp/Govt			-0.7	3.9	1.0	1.3	-	4.9	-5.5	-0.9	4.6	5.1	1.8	
Insight Short Duration	650,402,897	5.5	0.5	5.3	3.2	2.6	-	5.7	-1.2	0.0	3.1	4.6	2.5	Dec-16
Bloomberg U.S. Gov/Credit 1-3 Year Index			0.0	4.4	1.7	1.6	-	4.6	-3.7	-0.5	3.3	4.0	1.8	
Sit Short Duration	679,017,047	5.8	-0.7	4.3	1.4	1.6	-	5.2	-5.0	-0.5	4.4	4.7	2.0	Dec-16
Blmbg. 1-3 Year Govt Index			-0.1	4.0	1.4	1.4	-	4.3	-3.8	-0.6	3.1	3.6	1.5	
Total Cash	571,532,827	4.9	1.3	5.6	4.5	3.0	2.2	5.5	2.4	0.4	1.3	3.3		
90 Day U.S. Treasury Bill			1.2	5.3	3.9	2.5	1.8	5.0	1.5	0.0	0.7	2.3		
Cash	571,532,826	4.9	1.3	5.6	4.6	3.1	2.2	6.1	2.2	0.4	1.3	3.4		
Northern Trust Transition	1	0.0	0.4	7.8	-80.2	-56.9	-	-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: December 31, 2024

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2024 ¹	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Private Equity & Venture Capital												
2/11/2004	Adams Street 2007 Direct Fund	\$65,751	\$4,000,000	97%	\$3,896,000	\$0	\$597,354	\$9,437,169	\$104,000	2.42	2.44	9/30/2024
2/11/2004	Adams Street 2009 Direct Fund	\$920,513	\$5,000,000	98%	\$4,901,000	\$0	\$207,138	\$8,800,733	\$99,000	1.80	1.98	9/30/2024
2/11/2004	Adams Street 2012 Global Fund	\$27,257,190	\$40,000,000	93%	\$37,155,172	\$0	\$1,300,763	\$50,537,265	\$2,844,828	1.36	2.09	9/30/2024
2/11/2004	Adams Street 2014 Global Fund	\$50,105,885	\$50,000,000	92%	\$46,193,610	\$0	\$1,362,049	\$52,259,949	\$3,806,390	1.13	2.22	9/30/2024
1/15/2009	Adams Street Partners II	\$3,166,419	\$30,000,000	95%	\$28,365,000	\$0	\$0	\$45,661,555	\$1,635,000	1.61	1.72	9/30/2024
9/21/2012	Adams Street Partners - Fund 5	\$8,646,261	\$40,000,000	77%	\$30,845,875	\$0	\$0	\$33,808,389	\$9,154,125	1.10	1.38	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2004 Non-U.S. Fund	\$154,646	\$3,750,000	95%	\$3,574,125	\$0	\$0	\$4,905,442	\$175,875	1.37	1.42	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2004 U.S. Fund	\$74,483	\$11,250,000	95%	\$10,687,500	\$0	\$0	\$16,786,638	\$562,500	1.57	1.58	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2005 Non-U.S. Fund	\$18,350	\$4,500,000	95%	\$4,277,250	\$0	\$115,440	\$5,759,701	\$222,750	1.35	1.35	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2005 U.S. Fund	\$138,890	\$10,500,000	95%	\$9,969,750	\$0	\$0	\$15,815,927	\$530,250	1.59	1.60	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2007 Non-U.S. Fund	\$85,504	\$14,000,000	95%	\$13,307,000	\$0	\$1,383,380	\$21,643,375	\$693,000	1.63	1.63	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2007 U.S. Fund	\$447,085	\$22,000,000	95%	\$20,977,000	\$0	\$1,771,924	\$42,068,438	\$1,023,000	2.01	2.03	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2009 Non-U.S. Developed Markets Fund	\$3,491,630	\$15,000,000	89%	\$13,342,500	\$0	\$1,533,268	\$22,467,838	\$1,657,500	1.68	1.95	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2009 Non-U.S. Emerging Markets Fund	\$2,428,174	\$5,000,000	92%	\$4,592,500	\$0	\$136,864	\$6,041,574	\$407,500	1.32	1.84	9/30/2024
2/11/2004	Adams Street Partnership Fund - 2009 U.S. Fund	\$8,782,824	\$25,000,000	92%	\$22,950,000	\$0	\$1,813,953	\$45,554,121	\$2,050,000	1.98	2.37	9/30/2024
3/31/2016	Adams Street Venture Innovation	\$146,762,936	\$75,000,000	92%	\$69,280,251	\$0	\$1,900,254	\$47,882,482	\$5,719,749	0.69	2.81	9/30/2024
5/18/2018	AE Industrial Partners Fund II, LP	\$34,587,295	\$35,000,000	110%	\$38,562,875	\$1,913,755	\$3,382,093	\$27,996,731	\$5,934,894	0.73	1.62	9/30/2024
11/27/2013	Aether Real Assets III	\$14,926,657	\$25,000,000	107%	\$26,776,453	\$0	\$0	\$8,965,250	\$771,568	0.33	0.89	9/30/2024
11/30/2013	Aether Real Assets III Surplus	\$36,458,749	\$50,000,000	107%	\$53,550,511	\$0	\$0	\$15,779,909	\$353,806	0.29	0.98	9/30/2024
1/30/2016	Aether Real Assets IV	\$46,125,926	\$50,000,000	103%	\$51,661,818	\$483,291	\$1,525,538	\$14,109,837	\$5,475,801	0.27	1.17	9/30/2024
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 ⁴	\$13,160,644	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$5,011,170	\$0	0.50	1.82	9/30/2024
12/17/2024	BlackFin Financial Services Fund IV	\$3,284,050	\$51,827,733	10%	\$5,252,802	\$5,252,802	N/A	\$0	\$46,574,931	N/A	N/A	N/A
1/18/1996	Brinson 1998 Primary.Secondary Int	\$20,051	\$7,269,204	99%	\$7,229,851	\$0	\$0	\$11,149,671	\$39,353	1.54	1.54	9/30/2024
1/18/1996	Brinson 1999 Primary	\$53,385	\$6,665,276	96%	\$6,387,427	\$0	\$0	\$8,255,606	\$277,849	1.29	1.30	9/30/2024
1/18/1996	Brinson 2000 Primary	\$24,616	\$5,304,515	95%	\$5,044,010	\$0	\$0	\$7,787,951	\$260,505	1.54	1.55	9/30/2024
1/18/1996	Brinson 2001 Primary	\$58,540	\$5,946,438	96%	\$5,690,829	\$0	\$0	\$9,112,676	\$255,609	1.60	1.61	9/30/2024
1/18/1996	Brinson 2002 Primary	\$49,073	\$6,778,776	97%	\$6,565,328	\$0	\$0	\$12,093,845	\$213,448	1.84	1.85	9/30/2024
1/18/1996	Brinson 2003 Primary	\$110,714	\$6,808,039	95%	\$6,456,626	\$0	\$0	\$11,045,056	\$351,413	1.71	1.73	9/30/2024
1/18/1996	Brinson Partnership Fund Trust - 2002 Secondary Fund	\$37,933	\$1,204,071	96%	\$1,153,197	\$0	\$0	\$2,176,033	\$50,874	1.89	1.92	9/30/2024
1/18/1996	Brinson Partnership Fund Trust - 2004 Primary Fund	\$82,233	\$3,785,244	94%	\$3,573,896	\$0	\$0	\$6,441,146	\$211,348	1.80	1.83	9/30/2024
6/30/2013	Commonfund	\$30,025,895	\$50,000,000	96%	\$47,949,993	\$200,000	\$997,986	\$42,024,133	\$2,050,007	0.88	1.50	9/30/2024
12/11/2024	EPIC Fund III, SLP	\$3,594,673	\$51,757,211	10%	\$5,184,551	\$5,184,551	\$0	\$0	\$46,572,660	N/A	0.69	9/30/2024
3/31/2023	EQT X, L.P.	\$14,888,728	\$100,000,000	19%	\$18,737,788	\$0	\$0	\$2,471,665	\$83,603,094	0.13	0.93	9/30/2024
2/21/2019	Genstar Capital Partners IX, L.P.	\$69,489,063	\$50,000,000	100%	\$50,185,125	\$908,092	\$574,615	\$37,378,298	\$6,281,446	0.74	2.13	9/30/2024
4/1/2021	Genstar Capital Partners X, L.P.	\$43,937,714	\$42,500,000	98%	\$41,814,577	\$1,397,266	\$1,315,035	\$1,496,318	\$866,706	0.04	1.09	9/30/2024
6/30/2023	Genstar Capital Partners XI, L.P.	\$6,436,459	\$75,000,000	8%	\$6,217,161	\$4,096,524	\$0	\$276,405	\$69,059,245	0.04	1.08	9/30/2024
6/30/2023	Green Equity Investors IX	\$24,752,844	\$60,000,000	38%	\$22,748,349	\$4,881,937	\$203,237	\$843,456	\$38,095,107	0.04	1.13	9/30/2024
10/27/2020	GTCR Fund XIII, L.P.	\$45,545,702	\$50,000,000	82%	\$41,179,902	\$4,467,149	\$1,199,517	\$6,755,774	\$9,642,247	0.16	1.27	9/30/2024
6/30/2023	GTCR Fund XIV	\$10,178,373	\$100,000,000	10%	\$10,480,000	\$10,480,000	\$0	\$0	\$89,520,000	N/A	0.97	9/30/2024

* All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

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

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

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

Total Fund
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2024 ¹	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Private Equity & Venture Capital												
5/10/2021	Hellman & Friedman Capital Partners X, L.P.	\$69,072,673	\$75,000,000	86%	\$64,194,881	\$6,087,380	\$2,073,227	\$7,406,543	\$15,191,999	0.12	1.19	9/30/2024
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	\$3,731,030	\$15,000,000	25%	\$3,754,727	\$3,612,095	\$0	\$0	\$11,245,273	0.00	0.99	9/30/2024
11/18/2009	Oaktree PIF 2009	\$295,431	\$40,000,000	87%	\$34,812,560	\$0	\$0	\$47,032,470	\$6,308,961	1.35	1.36	9/30/2024
5/2/2013	Ocean Avenue Fund II	\$13,801,197	\$30,000,000	90%	\$27,000,000	\$0	\$277,500	\$50,123,249	\$3,000,000	1.86	2.37	12/31/2024
4/15/2016	Ocean Avenue Fund III	\$51,675,142	\$50,000,000	93%	\$46,500,000	\$0	\$0	\$59,459,752	\$3,500,000	1.28	2.39	12/31/2024
11/30/2007	Paladin III	\$4,944,915	\$25,000,000	140%	\$35,078,514	\$0	\$0	\$72,045,990	\$387,482	2.05	2.19	9/30/2024
8/22/2011	Pathway 6	\$20,341,153	\$40,000,000	99%	\$39,778,254	\$36,000	\$1,914,235	\$61,896,244	\$3,773,356	1.56	2.07	9/30/2024
7/10/2013	Pathway 7	\$49,421,915	\$70,000,000	100%	\$70,109,536	\$189,000	\$3,493,007	\$101,183,009	\$5,279,018	1.44	2.15	9/30/2024
11/23/2015	Pathway 8	\$57,519,847	\$50,000,000	99%	\$49,632,078	\$78,888	\$3,469,877	\$52,331,181	\$3,049,307	1.05	2.21	6/30/2024
1/19/1999	Pathway	\$1,266,177	\$125,000,000	102%	\$126,954,525	\$259,586	\$368,577	\$191,180,347	\$10,326,704	1.51	1.52	9/30/2024
7/31/2009	Pathway 2008	\$8,640,727	\$30,000,000	101%	\$30,422,308	\$31,579	\$322,572	\$54,704,253	\$2,526,019	1.80	2.08	6/30/2024
6/3/2014	Siguler Guff CCCERA Opportunities	\$69,802,554	\$200,000,000	88%	\$175,083,208	\$0	\$2,217,975	\$269,922,227	\$28,597,500	1.54	1.94	12/31/2024
5/18/2018	Siris Partners IV, L.P.	\$38,785,138	\$35,000,000	113%	\$39,704,843	\$819,309	\$2,932,580	\$13,831,958	\$4,077,813	0.35	1.33	9/30/2024
6/30/2023	Symphony Technology Group VII	\$4,556,503	\$50,000,000	12%	\$6,068,399	\$0	\$0	\$0	\$43,931,601	0.00	0.75	9/30/2024
5/27/2021	TA XIV-A, L.P.	\$48,861,185	\$50,000,000	100%	\$49,989,130	\$2,239,130	\$1,364,130	\$2,864,130	\$2,625,000	0.06	1.03	12/31/2024
6/30/2023	TA XV-A, L.P.	-\$1,047,499	\$90,000,000	0%	\$0	\$0	\$0	\$0	\$90,000,000	N/A	N/A	12/31/2024
6/28/2019	TPG Healthcare Partners, L.P.	\$25,477,901	\$24,000,000	99%	\$23,770,861	\$58,572	\$49,502	\$6,695,016	\$2,980,876	0.28	1.35	9/30/2024
3/31/2023	TPG Healthcare Partners II	\$22,271,626	\$60,000,000	36%	\$21,350,017	\$4,551,351	\$0	\$8,201	\$38,673,935	0.00	1.04	9/30/2024
3/31/2023	TPG Partners IX	\$35,253,288	\$65,000,000	53%	\$34,329,853	\$8,259,421	\$0	\$26,805	\$30,671,303	0.00	1.03	9/30/2024
9/17/2021	Trident IX, L.P.	\$38,627,006	\$50,000,000	69%	\$34,389,202	\$1,289,370	\$3,652,527	\$4,133,277	\$19,744,074	0.12	1.24	9/30/2024
5/24/2019	Trident VIII, L.P.	\$51,706,179	\$40,000,000	99%	\$39,535,362	\$668,638	\$971,546	\$8,116,102	\$4,370,727	0.21	1.51	9/30/2024
Total Private Equity & Venture Capital		\$1,265,379,946	\$2,613,846,507	67%	\$1,749,175,858	\$67,445,685	\$44,427,664	\$1,663,562,279	\$967,408,327	0.95	1.67	
% of Portfolio (Market Value)		10.7%										

* All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

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

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

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

Total Fund
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

StepStone Group Analysis (*)													
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2024 ¹	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation	
Infrastructure													
10/31/2024	Altor ACT I	-\$1,349,072	\$67,291,427	2%	\$1,565,511	\$1,565,511	\$0	\$0	\$65,782,658	N/A	N/A	N/A	
7/15/2005	EIF US Power Fund II ⁴	\$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 ⁴	\$3,131,663	\$65,000,000	110%	\$71,409,097	\$0	\$0	\$93,077,887	\$0	1.30	1.35	9/30/2024	
11/28/2011	EIF US Power Fund IV	\$19,365,546	\$50,000,000	130%	\$64,917,547	\$0	\$128,526	\$50,721,848	\$4	0.78	1.08	9/30/2024	
11/28/2016	EIF US Power Fund V	\$35,564,375	\$50,000,000	143%	\$71,633,870	\$0	\$0	\$68,212,887	\$3,888,697	0.95	1.45	9/30/2024	
12/31/2023	EQT Infrastructure VI	\$32,072,866	\$125,000,000	29%	\$36,361,718	\$11,504,758	\$917	\$972,221	\$89,320,329	0.03	0.91	9/30/2024	
12/8/2015	Wastewater Opportunity Fund	\$977,131	\$25,000,000	126%	\$31,579,656	\$0	\$73,865	\$31,553,869	\$521,541	1.00	1.03	9/30/2024	
Total Infrastructure		\$89,776,822	\$432,291,427	79%	\$342,496,955	\$13,070,269	\$203,307	\$320,631,366	\$159,513,229	0.94	1.20		
% of Portfolio (Market Value)		0.6%											

* All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

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

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

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

Total Fund
Closed End Funds - IRR Summary

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Private Equity & Venture Capital	Closing Date	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Adams Street Partners	2/11/2004	-	13.2%	-	11.2%	9/30/2024
Adams Street Partners II	12/31/2008	-	16.2%	-	13.7%	9/30/2024
Adams Street Partners - Fund 5	12/31/2008	-	8.9%	-	6.7%	9/30/2024
Adams Street Partners Venture	1/18/1996	-	27.2%	-	25.4%	9/30/2024
Adams Street Partners - BPF	3/31/2016	-	14.2%	-	11.6%	9/30/2024
AE Industrial Partners Fund II, LP	5/18/2018	22.9%	-	20.0%	-	9/30/2024
Aether Real Assets III	11/27/2013	-0.3%	-	-1.9%	-	9/30/2024
Aether Real Assets III Surplus	11/30/2013	0.7%	-	-0.4%	-	9/30/2024
Aether Real Assets IV	1/30/2016	4.6%	-	3.1%	-	9/30/2024
Bay Area Equity Fund II ⁹	11/26/2003	9.6%	9.5%	5.9%	5.9%	9/30/2024
CommonFund ¹	6/30/2013	-	-	-	6.7%	12/31/2023
Energy Investor Fund II ⁹	7/15/2005	5.6%	5.3%	2.9%	2.6%	9/30/2024
Energy Investor Fund V	11/28/2016	18.8%	16.5%	15.8%	13.4%	9/30/2024
Genstar Capital Partners IX, L.P.	2/21/2019	39.0%	-	31.7%	-	9/30/2024
Oaktree PIF 2009	2/28/2010	7.0%	-	3.0%	-	9/30/2024
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%	-	-	-	9/30/2024
Pathway 6	8/22/2011	16.3%	16.3%	13.5%	13.5%	9/30/2024
Benchmark ⁴		14.2%	-	-	-	3/31/2024
Pathway 7	7/10/2013	17.8%	17.8%	15.2%	15.2%	9/30/2024
Benchmark ⁵		14.7%	-	-	-	3/31/2024
Pathway 8	11/23/2015	19.3%	19.3%	17.4%	17.4%	9/30/2024
Benchmark ⁶		15.6%	-	-	-	3/31/2024
Pathway Private Equity Fund	1/19/1999	10.8%	10.8%	8.3%	8.3%	9/30/2024
Benchmark ⁷		10.3%	-	-	-	3/31/2024
Pathway Private Equity Fund 2008	7/31/2009	16.8%	16.8%	13.7%	13.7%	9/30/2024
Benchmark ⁸		13.2%	-	-	-	3/31/2024
Siguler Guff CCCERA Opportunities	6/3/2014	-	-	-	15.4%	9/30/2024
Siguler Guff Secondary Opportunities ⁹	8/31/2013	55.3%	118.4%	49.5%	69.0%	9/30/2020
Siris Partners IV, L.P. ¹	5/18/2018	14.7%	-	10.7%	-	6/30/2024
TPG Healthcare Partners, L.P.	6/28/2019	-	-	-	11.0%	9/30/2024
Trident VIII, L.P.	5/24/2019	14.0%	-	-	12.8%	12/31/2023
Wastewater Opportunity Fund ¹	12/8/2015	-	-	3.7%	-	9/30/2023

¹Manager has yet to report IRR figure.

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

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

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

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

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

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

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

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

Total Fund
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2024 ¹	Total Commitment	% Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Private Credit												
8/31/2015	Angelo Gordon Energy Credit Opp. ⁴	\$224,629	\$16,500,000	114%	\$18,750,000	\$0	\$214,458	\$22,874,616	\$2,319,783	1.22	1.23	9/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series A	\$238,662,949	\$320,000,000	109%	\$349,621,508	\$6,522,896	\$7,421,467	\$190,192,134	\$454,630	0.54	1.23	9/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series B	\$412,382,943	\$350,000,000	72%	\$253,453,186	-\$14,947,132	\$0	\$20,017,732	\$116,546,814	0.08	1.71	9/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series C	\$196,070,016	\$200,000,000	91%	\$182,349,797	\$32,341	\$32,500,000	\$92,000,716	\$77,150,203	0.50	1.58	9/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series D	\$223,429,935	\$200,000,000	74%	\$147,793,242	\$0	\$0	\$5,768	\$52,206,758	0.00	1.51	9/30/2024
12/18/2017	StepStone CC Opportunities Fund, LLC - Series E	\$106,350,204	\$150,000,000	55%	\$82,689,286	\$0	\$0	\$920,000	\$67,310,714	0.01	1.30	9/30/2024
8/1/2012	Torchlight IV	\$2,507,284	\$60,000,000	141%	\$84,866,971	\$0	\$0	\$109,589,365	\$0	1.29	1.32	12/31/2024
3/12/2015	Torchlight V	\$7,592,449	\$75,000,000	80%	\$60,000,000	\$0	\$0	\$71,460,214	\$15,000,000	1.19	1.32	9/30/2024
Total Private Credit		\$1,187,220,409	\$1,371,500,000	86%	\$1,179,523,989	-\$8,391,895	\$40,135,925	\$507,060,545	\$330,988,903	0.43	1.44	
% of Portfolio (Market Value)		10.1%										

*All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

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

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

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

Total Fund
Closed End Funds - Investment Summary

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2024 ¹	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions ⁸	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Real Estate												
1/23/2012	Angelo Gordon Realty Fund VIII ⁴	\$7,574,687	\$80,000,000	94%	\$75,401,855	\$0	\$0	\$101,711,550	\$12,334,302	1.35	1.45	9/30/2024
12/8/2014	Angelo Gordon Realty Fund IX	\$14,251,348	\$65,000,000	93%	\$60,125,000	\$0	\$0	\$59,312,501	\$7,572,500	0.99	1.22	9/30/2024
10/10/2024	Ares US Real Estate Opportunity Fund IV	\$5,963,314	\$60,000,000	10%	\$5,963,314	\$5,963,314	\$0	\$0	\$54,036,686	N/A	N/A	9/30/2024
3/24/2023	BlackStone Strategic Partners Real Estate VIII	\$28,939,732	\$80,000,000	32%	\$25,932,103	\$8,049,999	\$0	\$0	\$54,067,897	0.00	1.12	9/30/2024
3/24/2023	Blackstone Real Estate Partners X	\$31,322,169	\$100,000,000	30%	\$30,119,554	\$3,949,005	\$1,065,383	\$2,028,554	\$69,880,446	0.07	1.11	9/30/2024
12/14/2023	Cross Lake RE IV	\$1,302,329	\$60,000,000	5%	\$3,259,574	\$0	\$0	\$0	\$56,740,426	0.00	0.40	9/30/2024
3/18/2024	Cross Lake RE IV SRO AIV	\$58,680	\$8,975,352	17%	\$1,495,894	\$0	\$1,721,991	\$1,721,991	\$7,479,458	1.15	1.19	9/30/2024
6/23/2005	DLJ RECP III	\$8,377,693	\$75,000,000	95%	\$70,968,662	\$0	\$0	\$77,985,055	\$4,031,338	1.10	1.22	9/30/2024
2/11/2008	DLJ RECP IV	\$28,078,500	\$100,000,000	119%	\$118,992,879	\$0	\$0	\$99,841,735	\$1,876,084	0.84	1.08	9/30/2024
7/1/2014	DLJ RECP V	\$5,994,402	\$75,000,000	146%	\$109,459,298	\$32,901	\$0	\$100,933,448	\$2,155,507	0.92	0.98	9/30/2024
3/19/2019	DLJ RECP VI	\$12,912,717	\$50,000,000	94%	\$47,142,849	\$3,191,341	\$0	\$11,369,099	\$7,165,056	0.24	0.52	9/30/2024
12/14/2023	EQT Exeter Industrial Value Fund VI	\$22,706,684	\$60,000,000	40%	\$24,000,000	\$9,000,000	\$0	\$0	\$36,000,000	0.00	0.95	9/30/2024
	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 ⁴	\$102,826	\$35,000,000	87%	\$30,546,401	\$0	\$0	\$39,986,504	\$4,453,599	1.31	1.31	9/30/2024
2/20/2019	Invesco Real Estate V	\$57,091,749	\$75,000,000	97%	\$73,118,800	\$0	\$0	\$9,319,462	\$6,581,101	0.13	0.91	12/31/2024
9/27/2022	Invesco Real Estate VI	\$49,394,736	\$100,000,000	62%	\$61,724,697	\$2,579,437	\$0	\$2,230,131	\$38,275,303	0.04	0.84	9/30/2024
9/27/2024	Jadian Real Estate II	\$7,106,454	\$60,000,000	12%	\$7,106,454	\$3,335,779	\$0	\$0	\$52,893,546	0.00	1.00	9/30/2024
11/10/2023	KSL Capital Partners VI, L.P.	\$13,358,796	\$50,000,000	37%	\$18,551,583	\$5,318,019	\$462,180	\$0	\$31,448,417	0.00	0.72	9/30/2024
7/16/2013	LaSalle Income & Growth VI ⁴	\$8,388,191	\$75,000,000	95%	\$71,428,571	\$0	\$0	\$84,541,423	\$0	1.18	1.30	9/30/2024
2/28/2017	LaSalle Income & Growth VII	\$18,861,806	\$75,000,000	114%	\$85,708,742	\$0	\$1,257,939	\$62,880,996	\$2,845,685	0.73	0.95	9/30/2024
7/3/2013	Long Wharf Fund IV ⁴	\$0	\$25,000,000	100%	\$25,000,000	\$0	\$99,527	\$35,047,614	\$0	1.40	1.40	12/31/2024
9/30/2016	Long Wharf Fund V ⁴	\$23,497,661	\$50,000,000	100%	\$50,000,000	\$0	\$0	\$37,701,359	\$0	0.75	1.22	12/31/2024
6/27/2019	Long Wharf Fund VI	\$32,906,083	\$50,000,000	100%	\$49,999,998	\$0	\$495,540	\$28,543,110	\$2	0.57	1.23	12/31/2024
5/30/2023	Long Wharf Fund VII	\$26,791,459	\$50,000,000	62%	\$30,814,084	\$8,281,048	\$1,885,881	\$1,885,881	\$19,185,916	0.06	0.93	12/31/2024
12/31/2011	Oaktree REOF V ⁴	\$58,418	\$50,000,000	101%	\$50,315,673	\$0	\$139,345	\$79,059,424	\$5,000,000	1.57	1.57	12/31/2024
9/30/2013	Oaktree REOF VI ⁴	\$14,303,004	\$80,000,000	100%	\$80,000,000	\$0	\$800,000	\$85,610,175	\$18,400,000	1.07	1.25	12/31/2024
4/1/2015	Oaktree REOF VII	\$37,237,996	\$65,000,000	100%	\$65,000,000	\$0	\$0	\$47,054,688	\$18,915,000	0.72	1.30	12/31/2024
11/10/2013	Paulson Real Estate Fund II ⁴	\$12,645,179	\$20,000,000	97%	\$19,345,623	\$0	\$0	\$25,449,660	\$654,377	1.32	1.97	9/30/2024
4/28/2022	PCCP IX	\$75,708,478	\$75,000,000	89%	\$66,926,564	\$2,625,000	\$0	\$0	\$8,073,436	0.00	1.13	9/30/2024
1/25/2012	Siguler Guff DREOF	\$8,916,953	\$75,000,000	93%	\$69,375,000	\$0	\$973,450	\$104,744,561	\$5,625,000	1.51	1.64	9/30/2024
8/31/2013	Siguler Guff DREOF II	\$23,783,334	\$70,000,000	89%	\$61,985,000	\$0	\$10,486	\$55,702,272	\$8,015,000	0.90	1.28	9/30/2024
1/27/2016	Siguler Guff DREOF II Co-Inv	\$10,663,716	\$25,000,000	85%	\$21,277,862	\$0	\$0	\$14,336,421	\$3,722,138	0.67	1.17	9/30/2024
6/26/2024	Stockbridge Value Fund I	\$12,828,332	\$60,000,000	24%	\$14,459,322	\$14,459,322	\$256,554	\$256,554	\$45,540,678	0.02	0.90	9/30/2024
Total Closed End Real Estate		\$601,127,424	\$1,978,975,352	75%	\$1,487,086,035	\$66,785,165	\$9,168,275	\$1,169,254,167	\$582,968,898	0.79	1.19	
% of Portfolio (Market Value)		5.1%										

¹Latest valuation + capital calls - distributions

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

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

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

⁵Total distributions may include recallable distributions

⁶Remianing commitment includes recallable distributions

Total Fund
Closed End Funds - IRR Summary

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Private Credit	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon Energy Cred Opp. ⁴	9/24/2015	-	-	-	7.7%	9/30/2024
Stepstone CC Opportunities Fund ¹	2/2/2018	-	9.9%	-	9.2%	12/31/2023
Torchlight IV	8/1/2012	-	-	8.6%	9.6%	12/31/2024
Torchlight V	3/12/2015	13.9%	14.0%	10.0%	10.0%	9/30/2024
Real Estate	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon VIII ⁴	1/23/2012	-	-	-	11.6%	9/30/2024
Angelo Gordon IX	12/8/2014	-	-	-	4.9%	9/30/2024
Ares US RE Opportunities IV	10/10/2024	-	-	-	-	N/A
Blackstone Real Estate Partners X ¹	3/24/2023	-	-	-	-	N/A
BlackStone Strategic Partners Real Estate VIII ¹	3/25/2022	-	-	-	-	N/A
Cross Lake RE IV ¹	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 ¹	12/14/2023	19.3%	-	-	-	9/30/2024
EQT Industrial Value VI ¹	12/31/2023	-	-	-	-	N/A
EQT Multifamily Value II ¹	N/A	-	-	-	-	N/A
Invesco Fund IV ⁴	6/30/2014	12.6%	-	10.1%	-	6/30/2024
Invesco Fund V	2/20/2019	0.4%	-	-2.7%	-	9/30/2024
Invesco Fund VI	9/27/2022	-	-	-	-	N/A
Jadian Real Estate Fund II	9/27/2024	-	-	-	-	N/A
KSL Capital Partners VI ¹	11/10/2023	-	-	-	-	N/A
LaSalle Income & Growth VI ⁴	7/16/2013	9.6%	9.6%	7.5%	7.6%	9/30/2024
LaSalle Income & Growth VII	2/28/2017	0.8%	0.6%	-1.3%	-1.5%	9/30/2024
Long Wharf IV ⁴	7/3/2013	14.4%	14.3%	11.0%	11.0%	12/31/2024
Long Wharf V ⁴	9/30/2016	7.5%	7.7%	4.9%	5.0%	12/31/2024
Long Wharf VI	6/27/2019	19.7%	20.5%	11.9%	12.3%	12/31/2024
Long Wharf VII	5/1/2023	6.7%	5.0%	-7.8%	-5.8%	12/31/2024
Oaktree REOF V ⁴	12/31/2011	16.6%	-	12.2%	-	12/31/2024
Oaktree REOF VI ⁴	9/30/2013	9.9%	-	6.0%	-	12/31/2024
Oaktree REOF VII	4/1/2015	13.1%	-	8.5%	-	12/31/2024
Paulson ⁴	11/10/2013	-	-	12.0%	-	12/31/2023
PCCP IX	5/27/2021	11.0%	-	8.5%	-	9/30/2024
Siguler Guff I	1/25/2012	-	-	-	11.1%	12/31/2024
Siguler Guff II	8/31/2013	-	-	-	6.3%	9/30/2024
Siguler Guff DREOF II Co-Inv	1/27/2016	-	-	-	3.3%	9/30/2024
Stockbridge Value Fund I	6/26/2024	-	-	-	-	N/A

¹Manager has yet to report IRR figure.

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

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

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

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

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 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	8.40	-0.01	17.41	-0.01	1.00	0.02	1.00	0.34	-0.38	99.99	100.01
Boston Partners	8.34	2.71	16.18	2.83	0.95	3.27	0.96	0.34	0.75	97.98	85.92
Emerald Advisers	2.24	2.04	23.16	2.00	0.95	4.68	0.96	0.05	0.39	98.46	92.63
Ceredex	4.89	2.95	20.58	3.00	0.85	6.64	0.93	0.15	0.34	89.80	81.45
Pyrford	3.29	-1.09	13.81	-0.48	0.86	4.98	0.89	0.03	-0.25	89.01	92.66
William Blair	-4.95	-2.27	18.70	-2.13	1.01	5.44	0.92	-0.39	-0.40	99.53	108.04
PIMCO RAE Emerging Markets	5.92	5.76	16.58	5.96	0.95	6.81	0.83	0.20	0.84	110.74	83.34
TT Emerging Markets	-2.67	-0.75	18.79	-0.52	1.01	6.30	0.89	-0.26	-0.08	102.36	104.56
Artisan Partners	-0.09	-5.81	19.12	-5.21	0.95	5.18	0.93	-0.11	-1.10	81.45	98.97
First Eagle	5.87	1.26	12.74	1.92	0.82	4.31	0.93	0.21	0.21	83.54	74.24
Voya Global Investors	1.98	-0.93	8.42	-0.86	0.99	1.20	0.98	-0.18	-0.76	93.35	100.58
Adelante	-2.27	0.17	20.49	0.01	0.96	1.55	1.00	-0.20	0.01	96.17	96.14
PanAgora Risk Parity Multi Asset	-6.28	-4.79	14.76	-4.33	1.18	5.49	0.88	-0.63	-0.83	100.04	125.31
Sit LLCAR	2.77	5.18	5.34	4.11	0.54	4.88	0.61	-0.18	1.03	68.87	34.06
AFL-CIO	-2.39	0.01	7.45	-0.10	0.96	1.00	0.98	-0.82	-0.01	95.47	96.30
DFA Short Credit	1.73	0.75	2.77	1.06	0.68	1.90	0.69	-0.84	0.38	77.85	56.78
Insight Short Duration	3.21	1.52	1.89	2.23	0.57	1.66	0.54	-0.40	0.89	79.72	16.53
Sit Short Duration	1.40	-0.04	3.91	-0.70	1.48	1.98	0.83	-0.63	0.00	139.72	159.58

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: December 31, 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	14.27	-0.01	18.48	-0.01	1.00	0.02	1.00	0.69	-0.55	99.98	100.00
Boston Partners	11.32	2.63	19.19	2.42	1.01	3.17	0.97	0.53	0.79	102.35	91.80
Emerald Advisers	9.15	2.29	23.69	2.54	0.94	5.29	0.95	0.39	0.36	99.16	92.23
Ceredex	8.43	1.14	22.46	1.93	0.85	7.00	0.93	0.37	0.05	87.28	81.70
Pyrford	4.23	-0.27	14.89	0.58	0.77	6.59	0.89	0.19	-0.13	85.62	85.43
William Blair	4.65	1.21	18.90	1.24	1.05	5.24	0.93	0.21	0.28	109.03	104.31
PIMCO RAE Emerging Markets	7.04	5.08	20.09	5.24	1.05	6.50	0.90	0.32	0.82	114.67	92.30
TT Emerging Markets	1.87	0.17	21.42	0.42	1.12	6.68	0.91	0.08	0.12	113.81	112.32
Artisan Partners	9.86	-3.21	18.58	-2.04	0.93	5.37	0.92	0.47	-0.56	87.34	93.17
First Eagle	7.45	1.03	13.83	2.27	0.76	5.57	0.93	0.41	0.07	82.95	74.69
Voya Global Investors	3.11	-0.93	8.69	-0.59	0.91	1.67	0.97	0.12	-0.58	89.51	95.19
Adelante	5.48	0.91	20.65	0.98	0.95	1.66	1.00	0.25	0.40	98.18	95.34
PanAgora Risk Parity Multi Asset	0.25	-0.88	13.63	-0.83	1.16	4.74	0.90	-0.09	-0.12	111.90	116.94
AFL-CIO	-0.46	-0.13	6.02	-0.16	0.93	1.07	0.97	-0.46	-0.15	90.02	91.93
DFA Short Credit	1.49	0.17	2.48	0.57	0.70	1.76	0.61	-0.39	0.09	75.68	59.75
Insight Short Duration	2.55	0.98	2.09	1.59	0.61	1.88	0.33	0.05	0.51	83.65	19.62
Sit Short Duration	1.61	0.25	3.18	-0.30	1.41	1.65	0.80	-0.26	0.16	142.91	159.37

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: December 31, 2024

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Expense Fee (%)
BlackRock Russell 1000 Index	Growth	0.03 % of Assets	\$1,293,693,551	\$388,108	0.03
Boston Partners	Growth	0.50 % of First \$25 M 0.30 % Thereafter	\$449,226,677	\$1,397,680	0.31
Emerald Advisers	Growth	0.75 % of First \$10 M 0.60 % Thereafter	\$244,106,491	\$1,479,639	0.61
Ceredex	Growth	0.85 % of First \$10 M 0.68 % of Next \$40 M 0.51 % Thereafter	\$213,962,108	\$1,193,207	0.56
Pyrford	Growth	0.70 % of First \$50 M 0.50 % of Next \$50 M 0.35 % Thereafter	\$431,793,167	\$1,761,276	0.41
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	\$421,050,329	\$1,678,151	0.40
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	\$244,065,554	\$1,410,795	0.58
TT Emerging Markets	Growth	0.70 % of First \$100 M 0.65 % of Next \$100 M 0.60 % Thereafter	\$255,694,045	\$1,684,164	0.66
Artisan Partners	Growth	0.75 % of Assets	\$651,114,905	\$4,883,362	0.75
First Eagle	Growth	0.75 % of Assets	\$633,751,670	\$4,753,138	0.75
Voya Global Investors	Growth	0.50 % of First \$50 M 0.40 % of Next \$50 M 0.35 % Thereafter	\$168,216,052	\$688,756	0.41
Invesco US Fundamental Beta	Growth	0.15 % of Assets	\$123,079,023	\$184,619	0.15

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

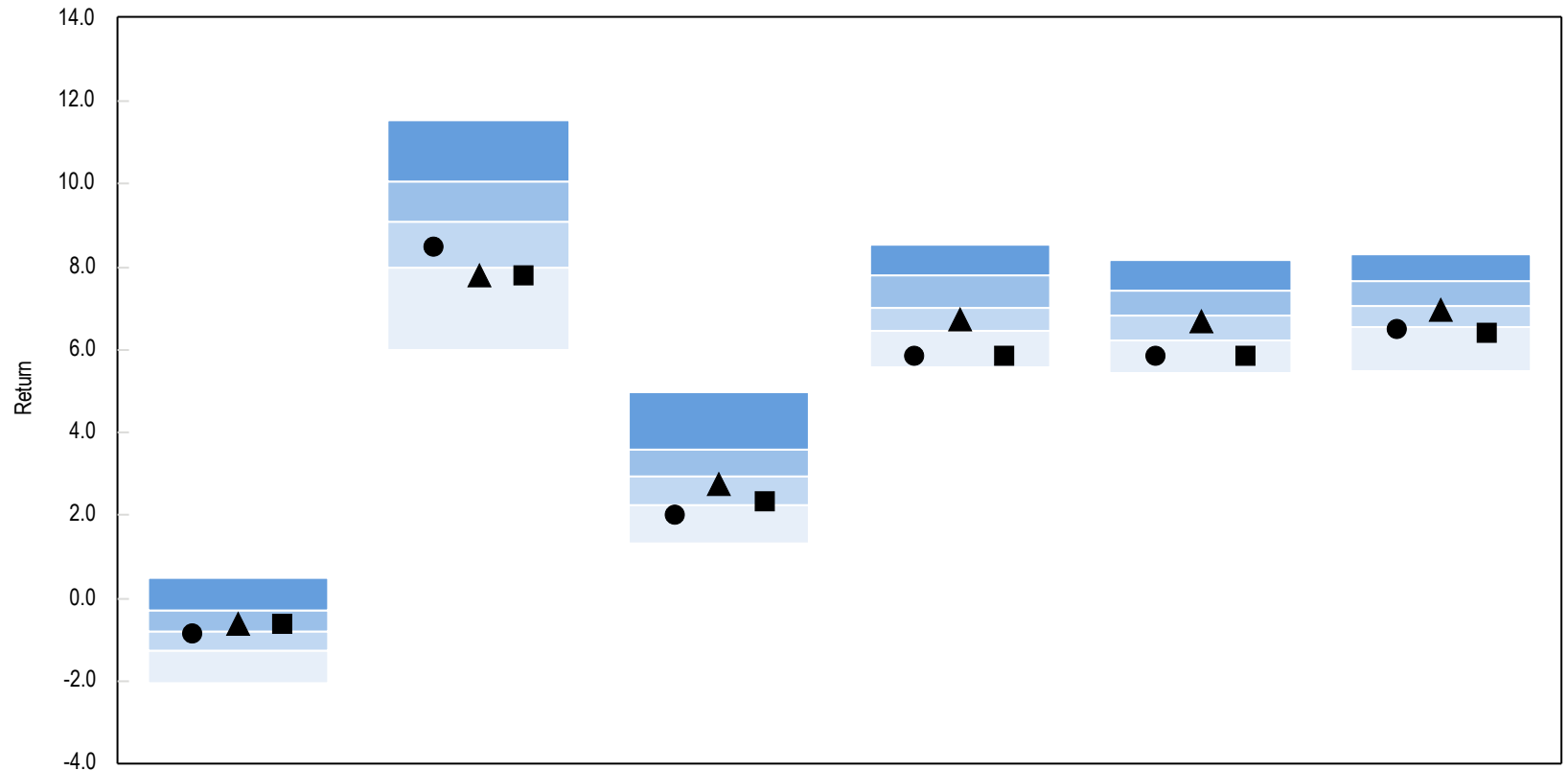
Total Fund
Investment Fund Fee Analysis

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Expense Fee (%)
PanAgora Risk Parity Multi Asset	Growth	0.35 % of Assets	\$8,894,820	\$31,132	0.35
AFL-CIO	Diversifying	0.32 % of Assets	\$269,385,437	\$862,033	0.32
Sit LLCAR	Diversifying	0.39 % of First \$200 M 0.35 % Thereafter	\$463,062,627	\$1,759,638	0.38
DFA Short Credit	Liquidity	0.20 % of First \$25 M 0.10 % Thereafter	\$394,050,033	\$419,050	0.11
Insight Short Duration	Liquidity	0.06 % of First \$500 M 0.05 % of Next \$500 M 0.04 % Thereafter	\$650,402,897	\$375,201	0.06
Sit Short Duration	Liquidity	0.15 % of Assets	\$679,017,047	\$1,018,526	0.15

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

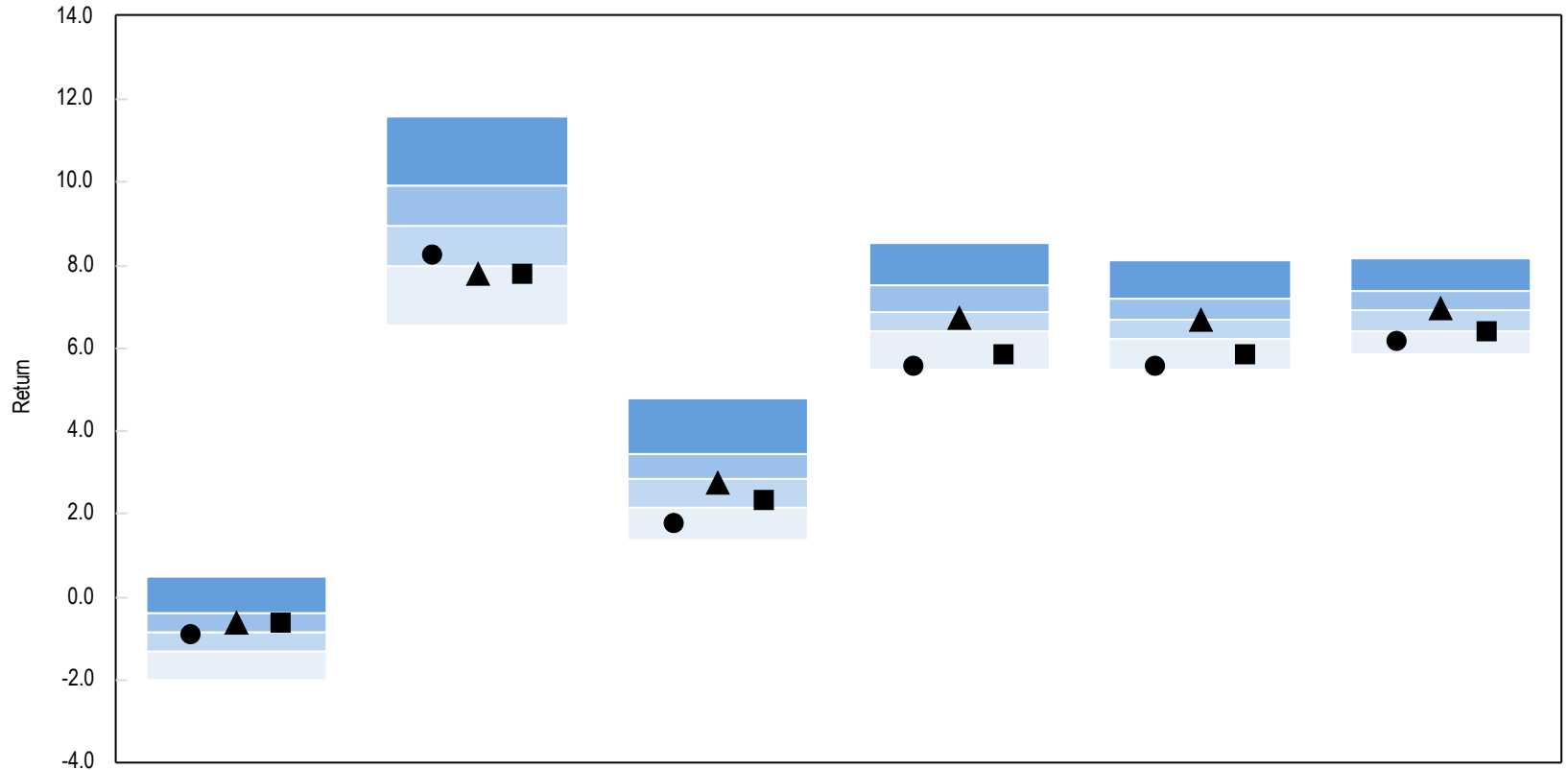
Total Fund Cumulative Performance vs. InvMetrics Public DB >\$1B Gross



	3 Mo	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	-0.86 (55)	8.50 (67)	2.03 (79)	5.84 (89)	5.85 (86)	6.49 (77)
▲ Policy Index	-0.62 (35)	7.78 (80)	2.75 (60)	6.74 (60)	6.68 (58)	6.96 (57)
■ Implementation Benchmark	-0.61 (34)	7.79 (80)	2.35 (72)	5.87 (89)	5.84 (87)	6.40 (81)
5th Percentile	0.50	11.55	4.97	8.52	8.17	8.33
1st Quartile	-0.28	10.08	3.61	7.80	7.43	7.64
Median	-0.82	9.12	2.93	7.01	6.85	7.05
3rd Quartile	-1.27	8.00	2.26	6.44	6.23	6.55
95th Percentile	-2.04	6.01	1.32	5.56	5.43	5.48
Population	110	109	106	105	103	102

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

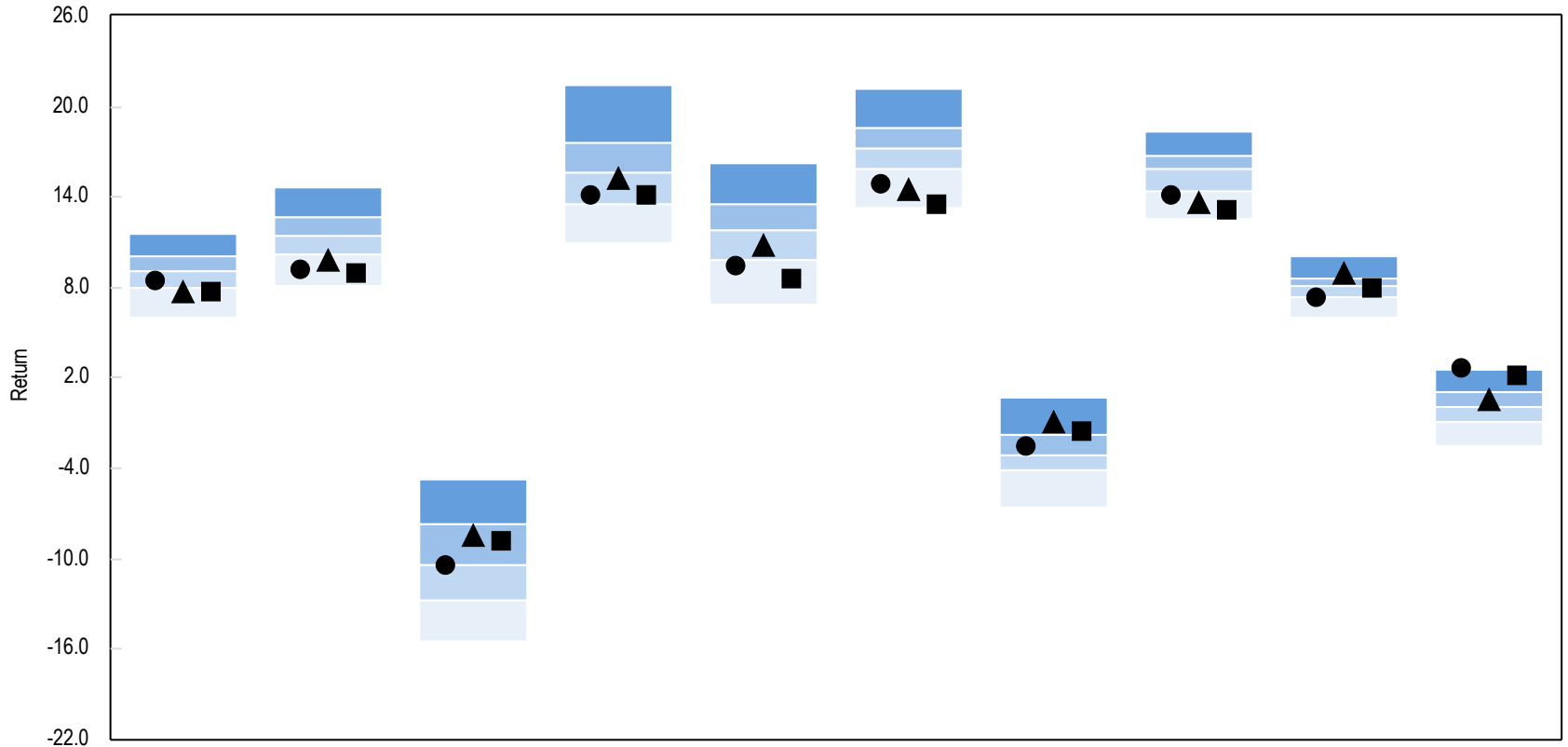


	3 Mo	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	-0.90 (58)	8.28 (68)	1.80 (85)	5.59 (94)	5.59 (91)	6.17 (88)
▲ Policy Index	-0.62 (36)	7.78 (80)	2.75 (54)	6.74 (58)	6.68 (51)	6.96 (47)
■ Implementation Benchmark	-0.61 (36)	7.79 (80)	2.35 (71)	5.87 (88)	5.84 (84)	6.40 (75)
5th Percentile	0.48	11.61	4.77	8.56	8.13	8.17
1st Quartile	-0.37	9.92	3.44	7.53	7.21	7.38
Median	-0.85	8.98	2.85	6.89	6.69	6.91
3rd Quartile	-1.34	7.99	2.17	6.40	6.21	6.40
95th Percentile	-1.99	6.56	1.36	5.47	5.49	5.85
Population	104	103	99	97	95	92

Total Fund
Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

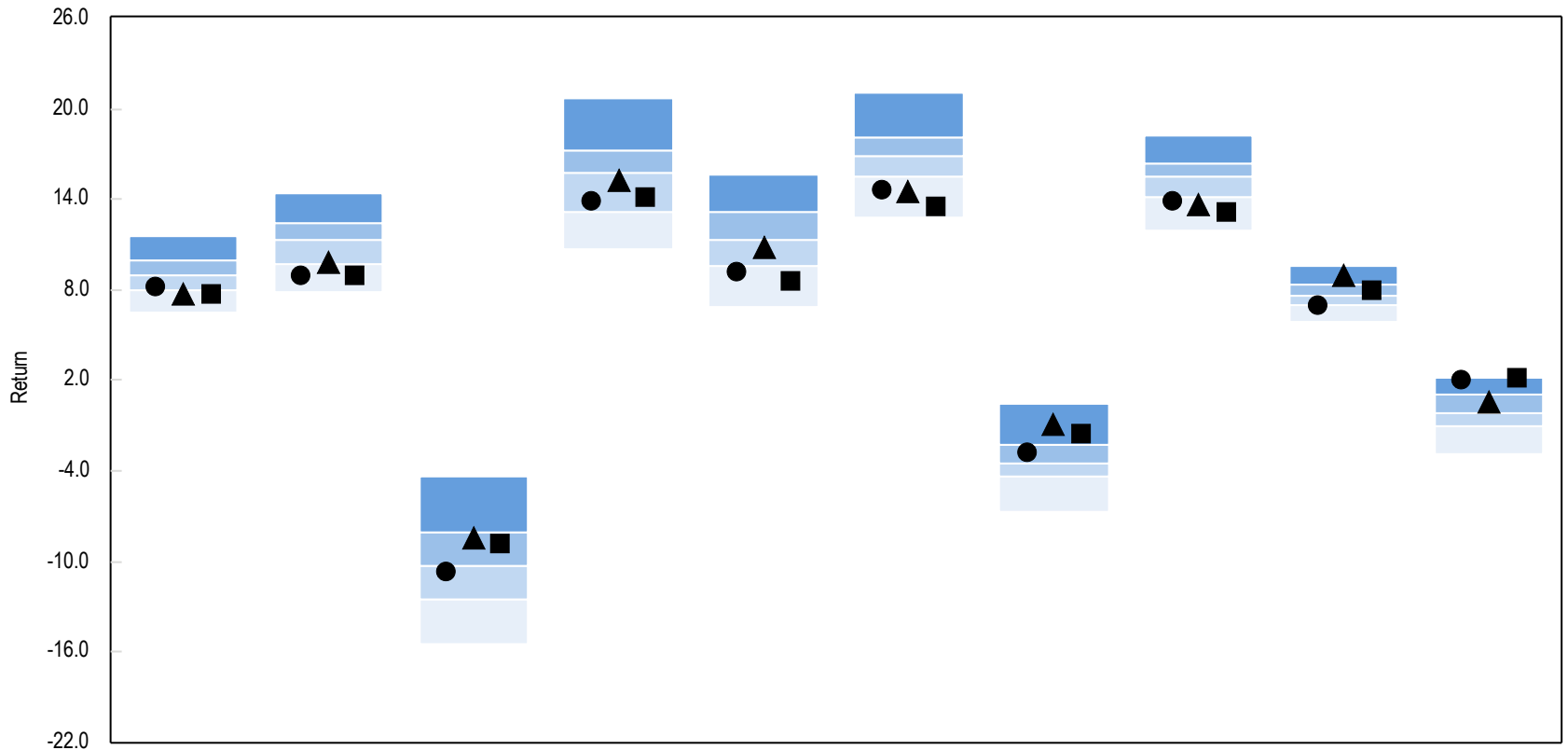
Total Fund Consecutive Periods vs. InvMetrics Public DB >\$1B Gross



	YTD	2023	2022	2021	2020	2019	2018	2017	2016	2015
● Total Fund	8.50 (67)	9.23 (87)	-10.39 (50)	14.21 (65)	9.52 (81)	14.92 (87)	-2.46 (34)	14.18 (79)	7.43 (71)	2.70 (3)
▲ Policy Index	7.78 (80)	9.85 (80)	-8.38 (30)	15.29 (55)	10.81 (65)	14.58 (88)	-0.94 (13)	13.69 (88)	8.93 (16)	0.58 (32)
■ Implementation Benchmark	7.79 (80)	8.99 (88)	-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	11.55	14.60	-4.70	21.39	16.27	21.15	0.69	18.39	10.03	2.53
1st Quartile	10.08	12.70	-7.71	17.59	13.53	18.61	-1.82	16.78	8.58	1.06
Median	9.12	11.43	-10.39	15.66	11.83	17.30	-3.17	15.91	8.08	0.10
3rd Quartile	8.00	10.25	-12.71	13.51	9.85	15.90	-4.14	14.36	7.35	-0.89
95th Percentile	6.01	8.11	-15.45	10.94	6.83	13.33	-6.55	12.56	5.98	-2.53
Population	109	188	195	228	238	198	175	184	181	176

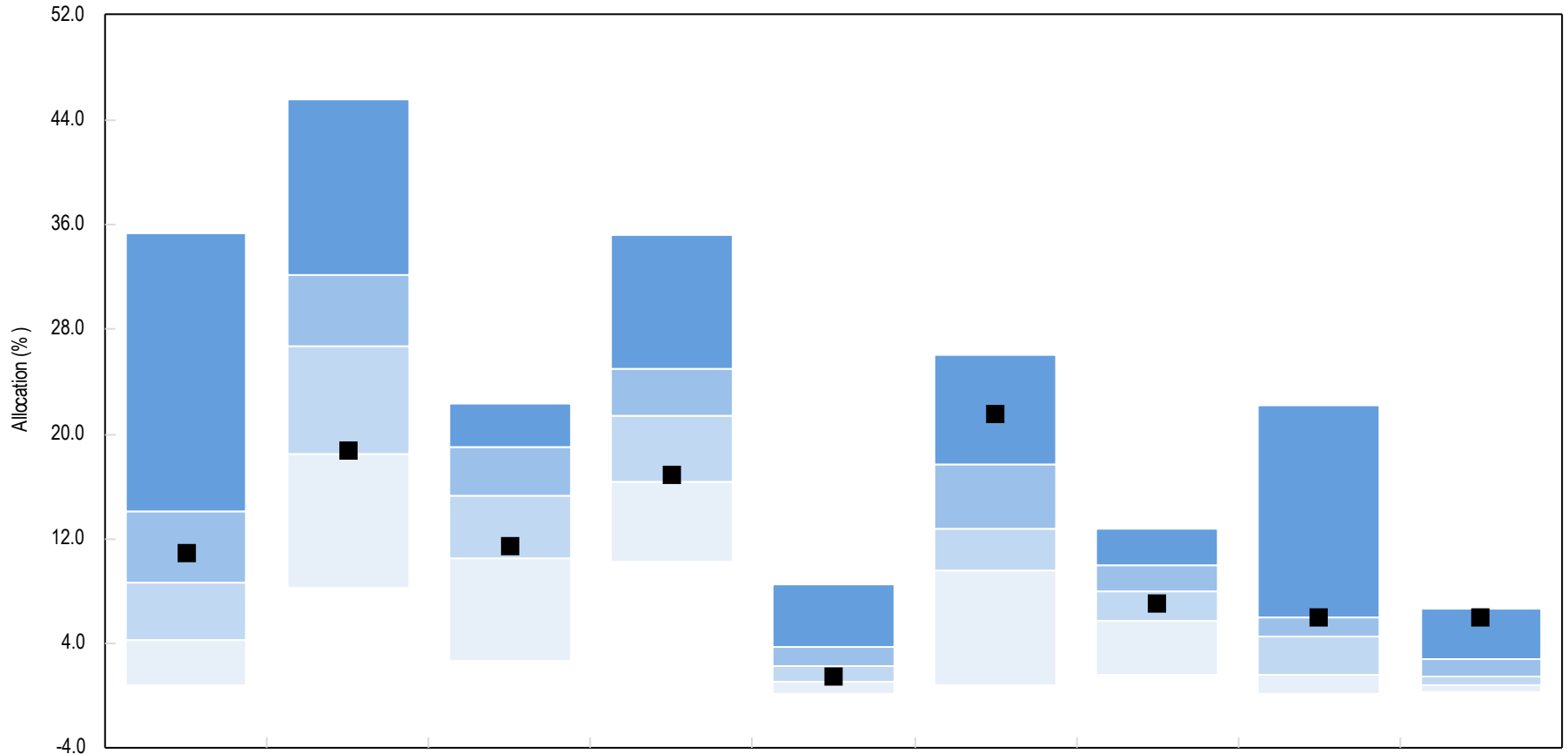
Effective 1/01/2017, only traditional asset class (public equity, fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

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



	YTD	2023	2022	2021	2020	2019	2018	2017	2016	2015
● Total Fund	8.28 (68)	9.01 (85)	-10.61 (55)	13.90 (66)	9.23 (78)	14.61 (88)	-2.72 (34)	13.86 (81)	6.94 (77)	2.09 (8)
▲ Policy Index	7.78 (80)	9.85 (75)	-8.38 (30)	15.29 (53)	10.81 (61)	14.58 (88)	-0.94 (9)	13.69 (85)	8.93 (11)	0.58 (30)
■ Implementation Benchmark	7.79 (80)	8.99 (85)	-8.74 (31)	14.17 (63)	8.66 (87)	13.59 (93)	-1.52 (14)	13.21 (90)	8.00 (38)	2.18 (5)
5th Percentile	11.61	14.37	-4.32	20.71	15.59	21.06	0.46	18.19	9.53	2.14
1st Quartile	9.92	12.46	-8.01	17.22	13.14	18.11	-2.31	16.42	8.30	1.03
Median	8.98	11.26	-10.33	15.71	11.31	16.83	-3.52	15.53	7.67	-0.12
3rd Quartile	7.99	9.70	-12.50	13.20	9.58	15.55	-4.40	14.17	7.03	-1.06
95th Percentile	6.56	7.84	-15.52	10.66	6.91	12.83	-6.66	11.94	5.91	-2.87
Population	103	189	189	219	229	205	182	191	186	181

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	10.9 (39)	18.7 (73)	11.5 (71)	16.9 (73)	1.4 (64)	21.6 (12)	7.1 (62)	5.9 (29)	6.0 (7)
5th Percentile	35.4	45.6	22.4	35.2	8.5	26.1	12.7	22.2	6.7
1st Quartile	14.1	32.2	19.0	24.9	3.7	17.7	10.0	6.0	2.8
Median	8.6	26.8	15.2	21.5	2.3	12.7	8.0	4.5	1.4
3rd Quartile	4.3	18.5	10.5	16.3	1.0	9.5	5.7	1.5	0.8
95th Percentile	0.8	8.2	2.7	10.2	0.1	0.9	1.6	0.2	0.2
Population	43	103	104	106	37	97	97	28	98

Domestic Equity Managers

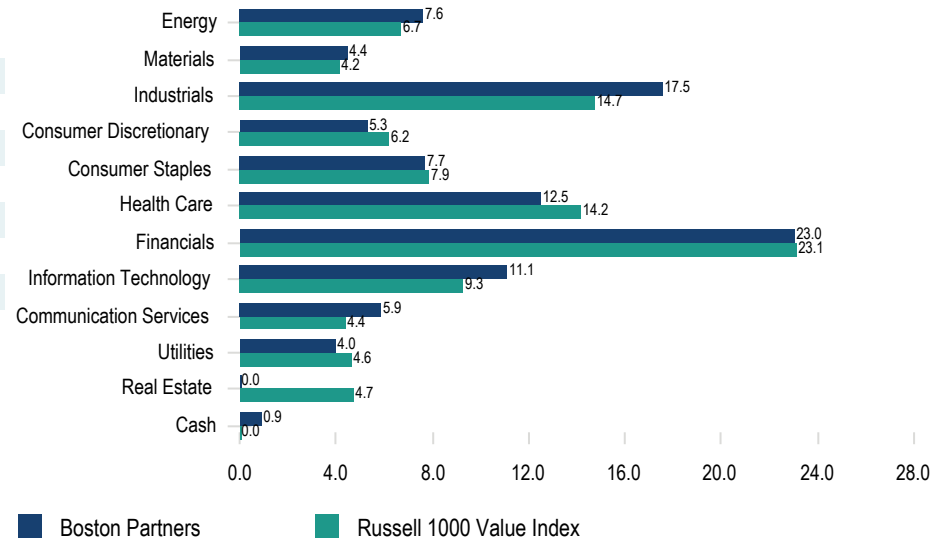
Boston Partners
Manager Portfolio Overview

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	88	869
Wtd. Avg. Mkt. Cap \$M	189,084.75	171,890.98
Median Mkt. Cap \$M	46,226.76	14,079.63
Price/Earnings ratio	20.03	19.87
Price/Book ratio	3.11	2.75
Return on Equity (%)	3.59	3.02
Current Yield (%)	1.83	2.12
Beta (5 Years, Monthly)	1.01	1.00

Sector Allocation (%) vs. Russell 1000 Value Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
JPMorgan Chase & Co	4.92	14.36
Alphabet Inc	2.85	14.27
Oracle Corp	2.43	-1.98
Philip Morris International Inc	2.27	0.23
Honeywell International Inc	2.21	9.82
AbbVie Inc	2.19	-9.29
UnitedHealth Group	2.09	-13.16
Sysco Corporation	1.94	-1.39
LPL Financial Holdings Inc	1.87	40.49
CRH PLC	1.76	0.11

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
JPMorgan Chase & Co	4.40	14.36	0.63
Morgan Stanley	1.93	21.57	0.42
LPL Financial Holdings Inc	0.89	40.49	0.36
Alphabet Inc	2.48	14.27	0.35
Discover Financial Services	1.36	23.97	0.33
Wells Fargo & Co	1.29	25.05	0.32
Blue Owl Capital Inc	0.99	21.09	0.21
Flex Ltd	1.18	14.84	0.18
McKesson Corp	1.12	15.40	0.17
Walmart Inc	1.41	12.14	0.17

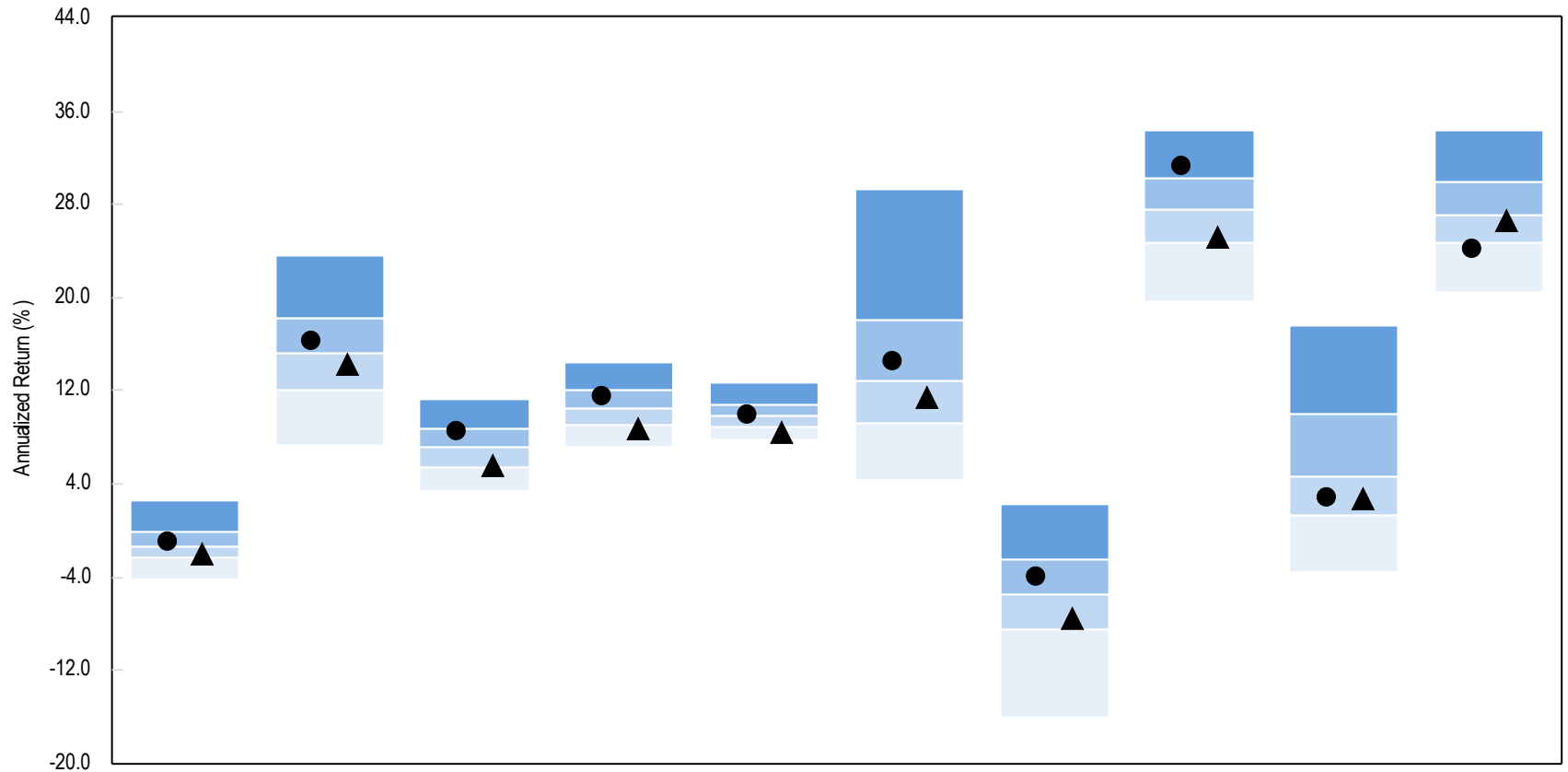
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Microchip Technology Inc	1.28	-28.08	-0.36
Lennar Corp	1.22	-27.06	-0.33
Advanced Micro Devices Inc	1.24	-26.38	-0.33
Builders FirstSource Inc	1.18	-26.27	-0.31
UnitedHealth Group	2.16	-13.16	-0.28
Micron Technology Inc.	1.48	-18.65	-0.28
Teck Resources Ltd	1.23	-22.26	-0.27
ICON Public Limited Company	0.97	-27.01	-0.26
Amgen Inc	1.40	-18.46	-0.26
The Cigna Group	1.27	-19.95	-0.25

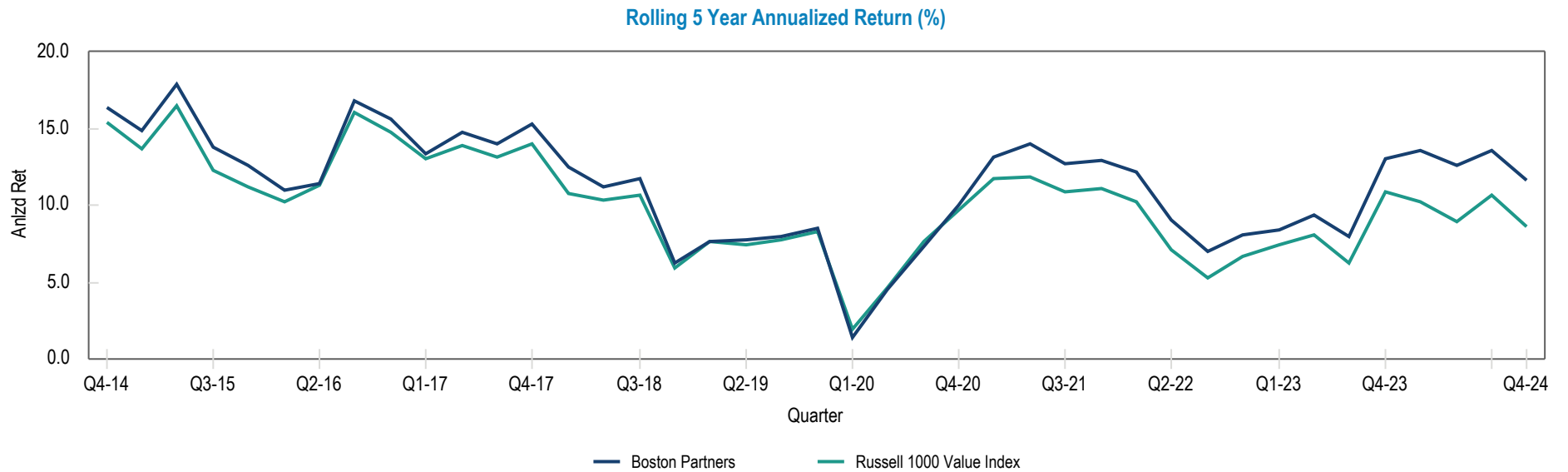
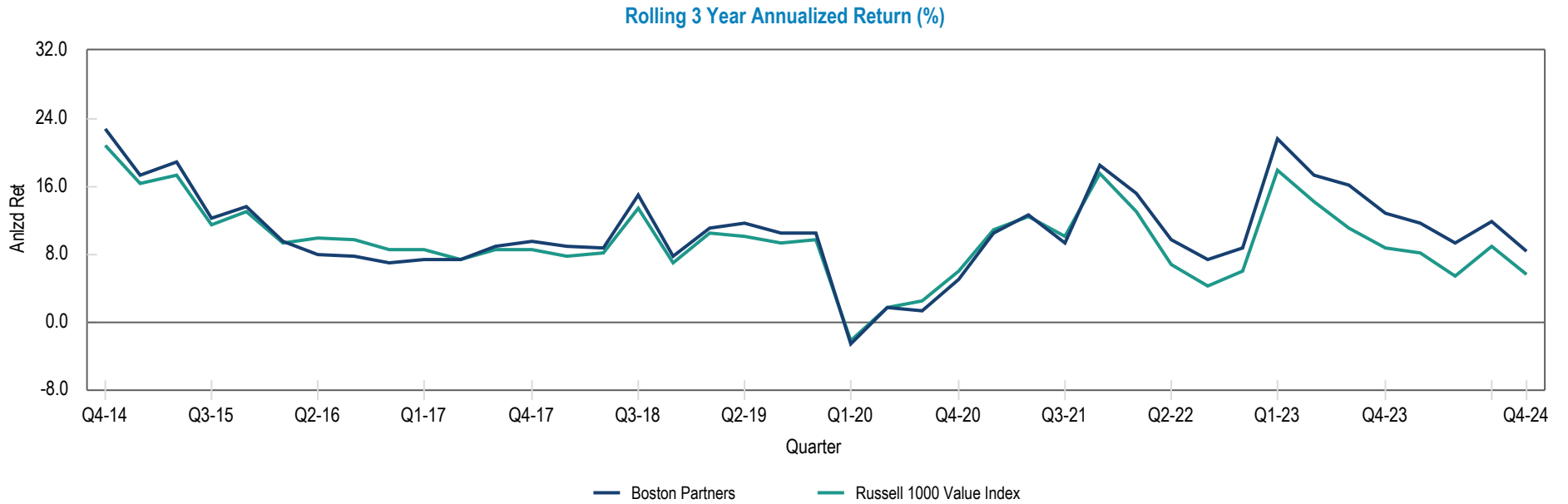
% of Portfolio 17.05 3.14 % of Portfolio 13.43 -2.94

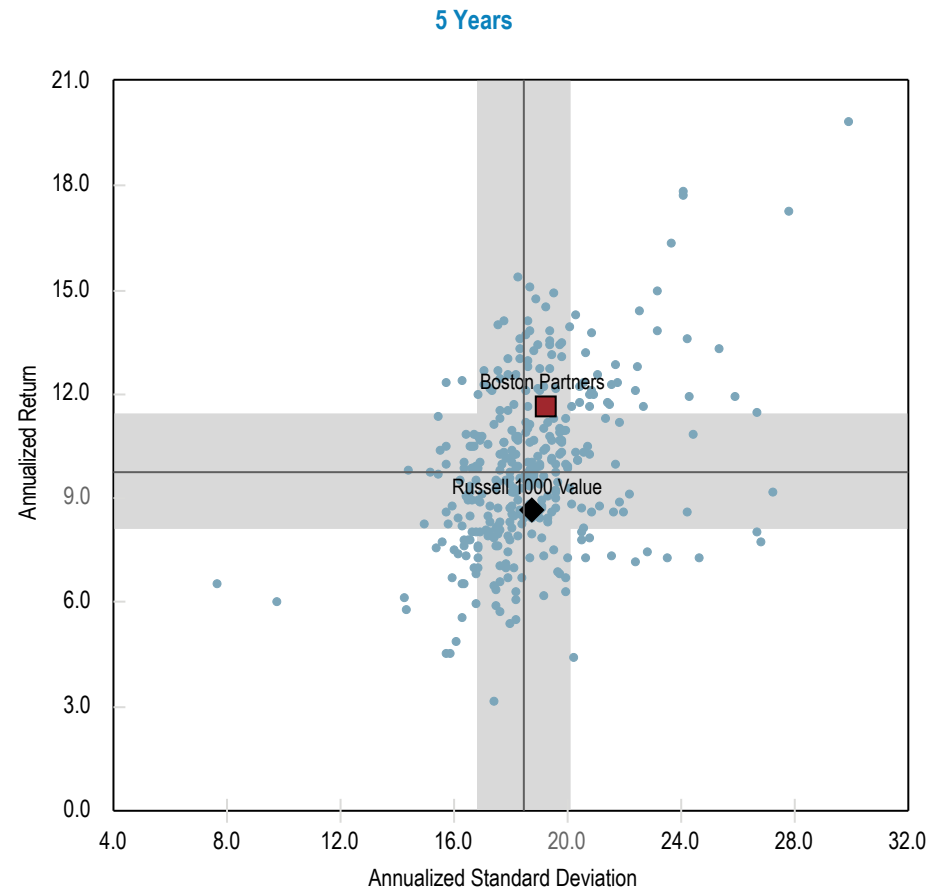
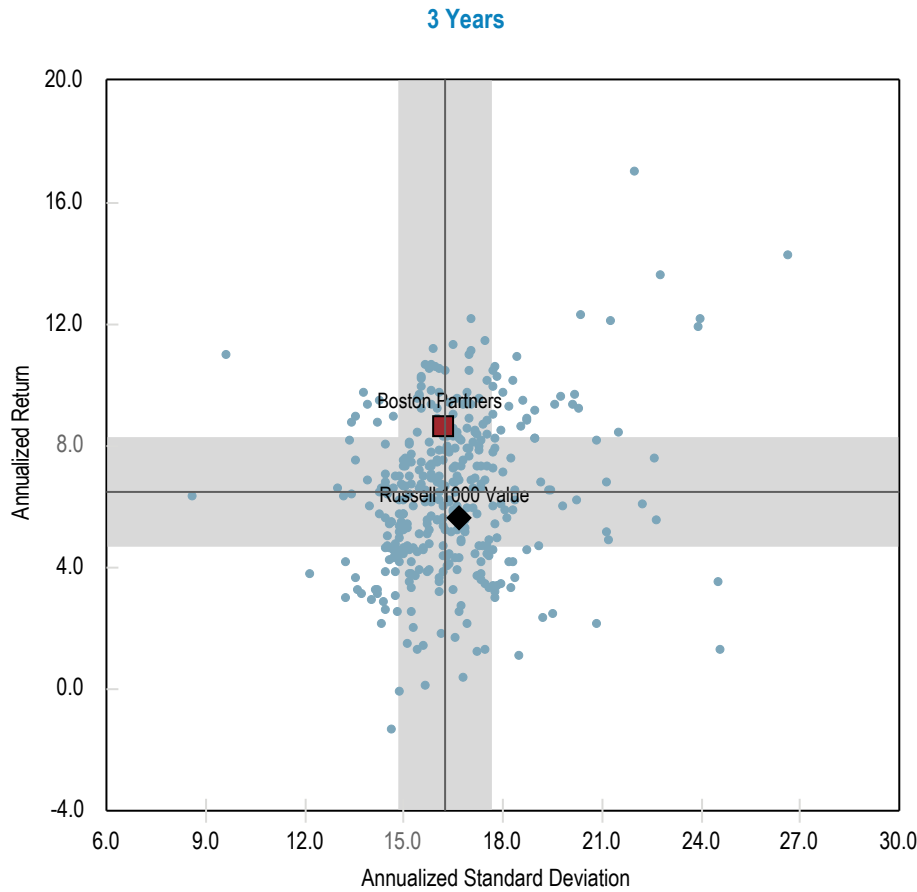
Domestic equity large cap value portfolio exhibiting low turnover in companies with low valuations relative to intrinsic value. Primary personnel include Mark Donovan and David Pyle.

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	-0.80 (38)	16.37 (42)	8.67 (26)	11.66 (30)	10.09 (40)	14.67 (39)	-3.82 (36)	31.34 (19)	2.96 (64)	24.26 (79)
▲ Russell 1000 Value Index	-1.98 (66)	14.37 (56)	5.63 (73)	8.68 (81)	8.49 (87)	11.46 (62)	-7.54 (68)	25.16 (72)	2.80 (65)	26.54 (57)
5th Percentile	2.53	23.61	11.32	14.45	12.72	29.33	2.35	34.34	17.56	34.33
1st Quartile	-0.13	18.23	8.72	12.16	10.84	18.06	-2.41	30.18	10.06	29.92
Median	-1.41	15.30	7.12	10.47	9.80	12.94	-5.43	27.61	4.71	27.17
3rd Quartile	-2.38	12.06	5.41	9.09	8.94	9.26	-8.51	24.70	1.30	24.74
95th Percentile	-4.26	7.31	3.37	7.23	7.79	4.29	-16.00	19.62	-3.51	20.40
Population	373	372	366	351	316	411	421	426	433	459





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Boston Partners	8.7	16.2	0.4
Russell 1000 Value Index	5.6	16.7	0.2
eV US Large Cap Value Equity Median	7.1	16.3	0.3
Population	366	366	366

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Boston Partners	11.7	19.2	0.5
Russell 1000 Value Index	8.7	18.7	0.4
eV US Large Cap Value Equity Median	10.5	18.5	0.5
Population	351	351	351

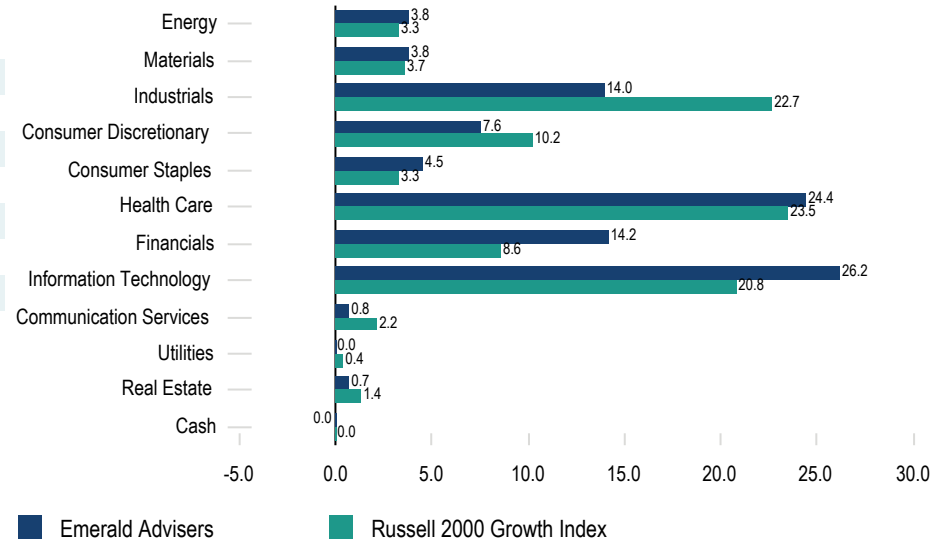
Emerald Advisers Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	114	1,117
Wtd. Avg. Mkt. Cap \$M	4,865.76	4,306.44
Median Mkt. Cap \$M	3,224.39	1,152.98
Price/Earnings ratio	27.03	24.01
Price/Book ratio	4.35	4.22
Return on Equity (%)	18.13	2.77
Current Yield (%)	0.41	0.57
Beta (5 Years, Monthly)	0.94	1.00

Sector Allocation (%) vs. Russell 2000 Growth Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Credo Technology Group Holding Ltd	3.77	18.21
FTAI Aviation Ltd	3.63	8.59
Freshpet Inc	2.90	8.29
Palomar Holdings Inc	2.00	11.54
Q2 Holdings Inc	1.99	26.17
Insmed Inc	1.85	-5.43
RadNet Inc	1.77	0.65
Chart Industries Inc	1.74	53.73
Kratos Defense & Security Solutions	1.70	13.22
Skyward Specialty Insurance Group Inc	1.70	24.08

Top Contributors

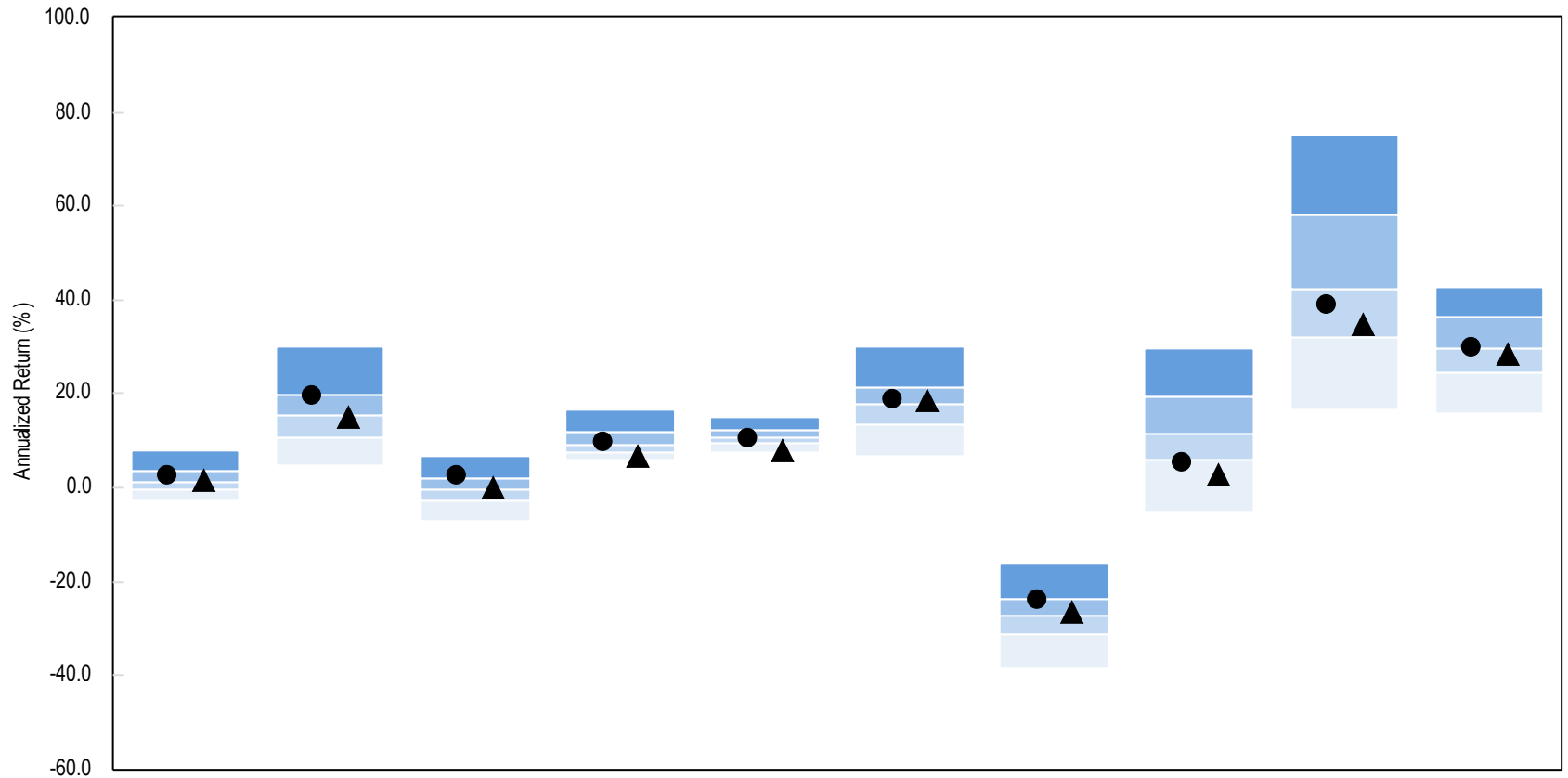
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Credo Technology Group Holding Ltd	1.96	118.21	2.32
Chart Industries Inc	1.16	53.73	0.62
Q2 Holdings Inc	2.14	26.17	0.56
Applied Optoelectronics Inc	0.33	157.58	0.52
Wave Life Sciences Ltd	0.91	50.85	0.46
InterDigital Inc	1.03	37.20	0.38
Skyward Specialty Insurance Group Inc	1.39	24.08	0.34
Lumentum Holdings Inc	0.95	32.46	0.31
FTAI Aviation Ltd	3.42	8.59	0.29
Traverse Therapeutics Inc	1.13	24.52	0.28
% of Portfolio	14.42		6.09

Top Detractors

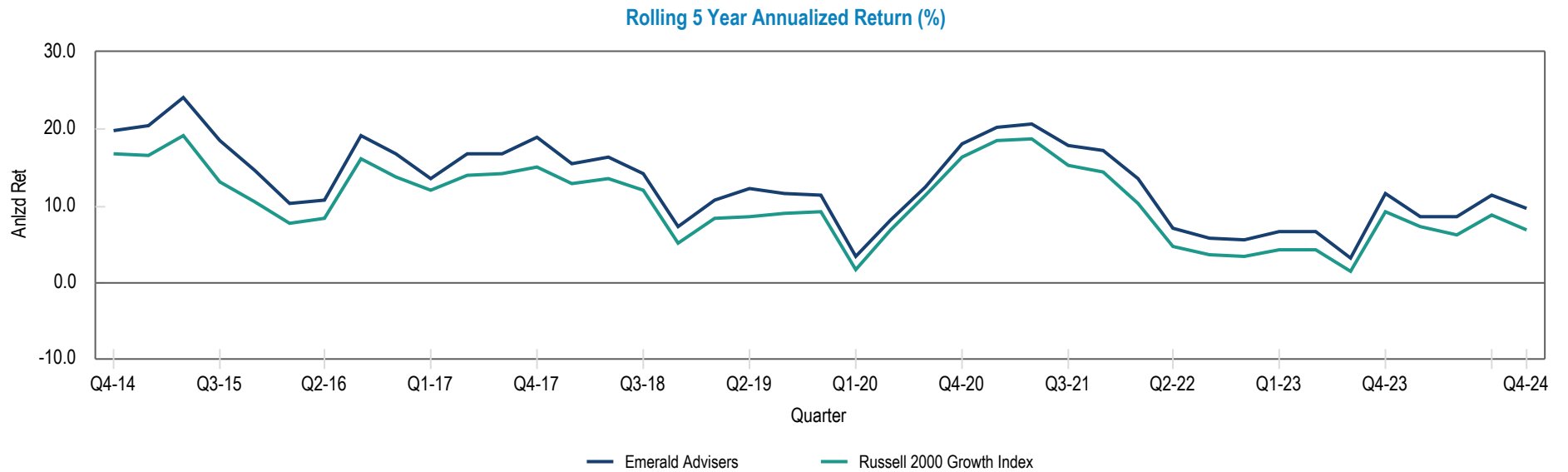
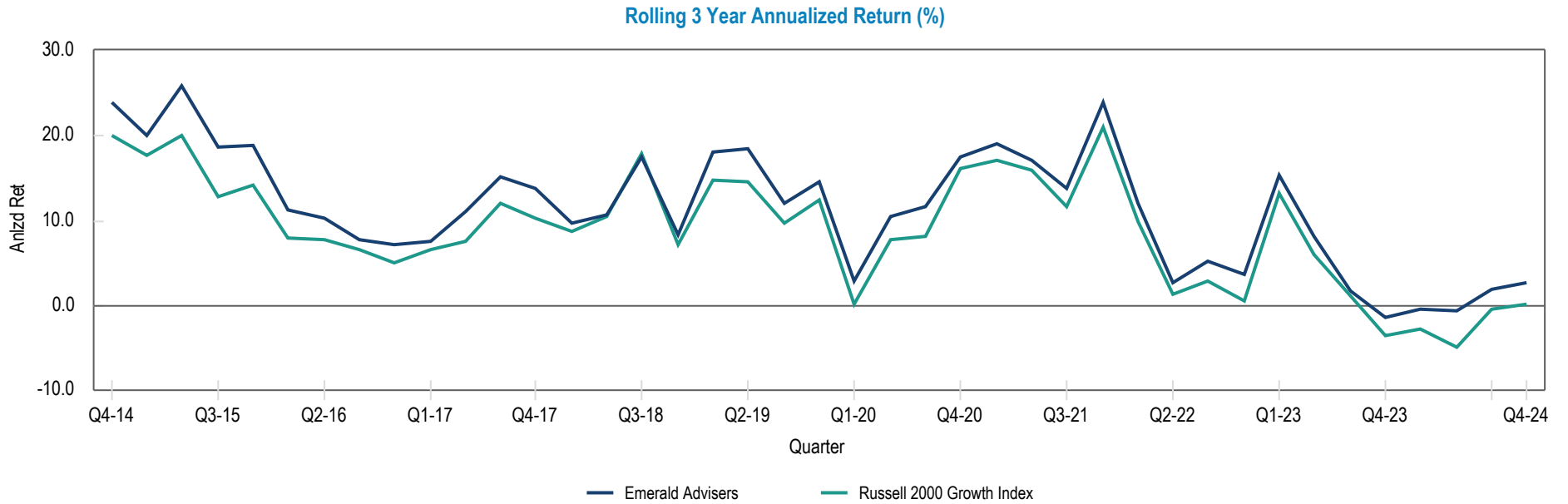
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
TransMedics Group Inc	1.01	-60.29	-0.61
Impinj Inc	1.63	-32.91	-0.54
Varonis Systems Inc	2.17	-21.36	-0.46
AeroVironment Inc	1.75	-23.25	-0.41
Baldwin Insurance Group Inc (The)	1.76	-22.17	-0.39
Collegium Pharmaceutical Inc	1.28	-25.85	-0.33
Ultragenyx Pharmaceutical Inc	1.31	-24.27	-0.32
Viking Therapeutics Inc	0.86	-36.44	-0.31
ATI Inc	1.72	-17.74	-0.30
LendingTree Inc	0.85	-33.22	-0.28
% of Portfolio	14.34		-3.95

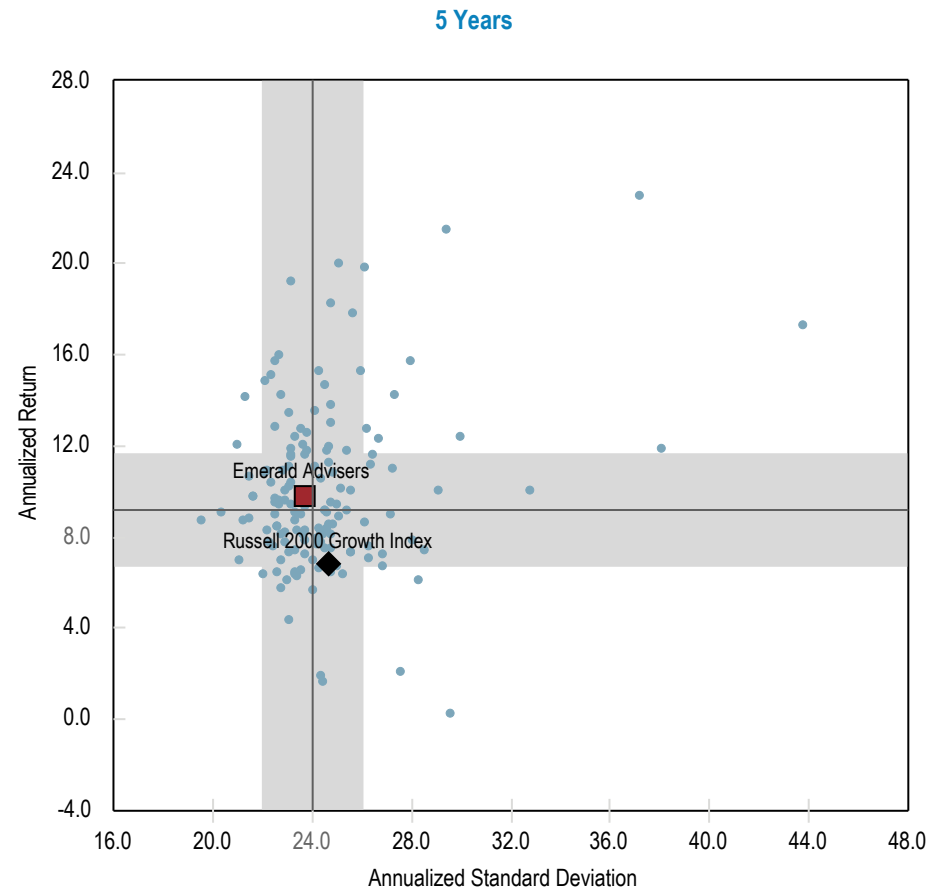
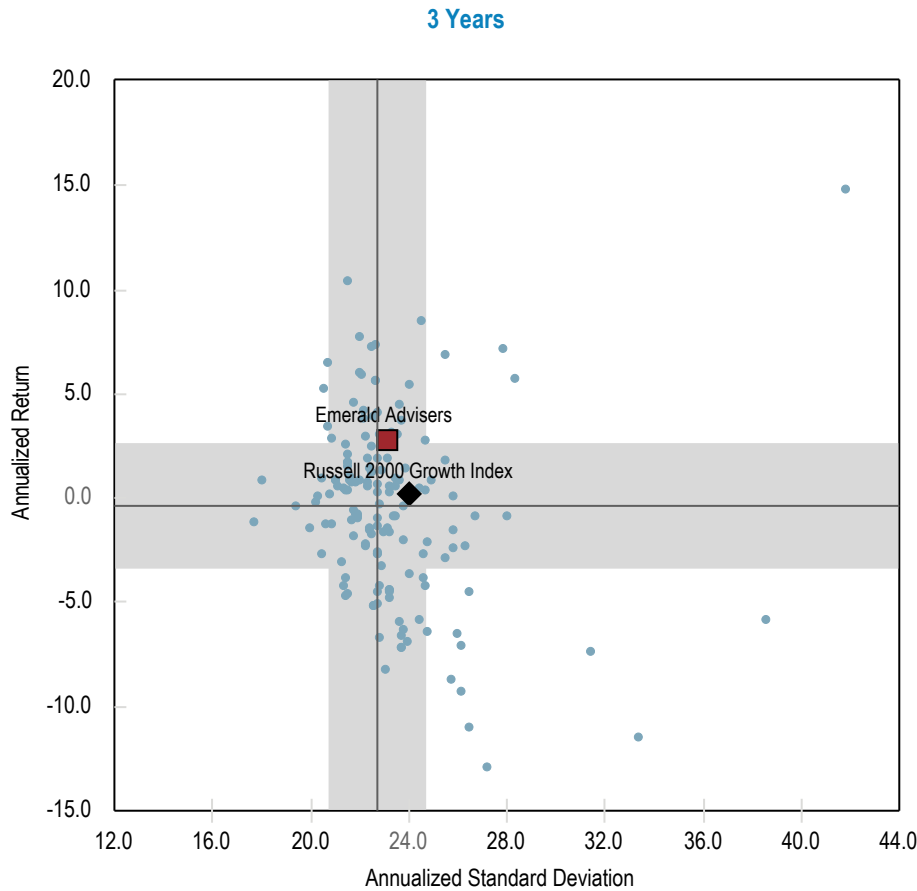
Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

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	2.88 (33)	19.67 (28)	2.83 (19)	9.78 (43)	10.66 (50)	19.15 (41)	-23.75 (27)	5.53 (77)	38.96 (57)	30.26 (48)
▲ Russell 2000 Growth Index	1.70 (44)	15.15 (52)	0.21 (47)	6.86 (87)	8.09 (94)	18.66 (45)	-26.36 (44)	2.83 (85)	34.63 (67)	28.48 (53)
5th Percentile	8.02	29.88	6.69	16.82	15.15	30.24	-16.24	29.85	74.94	42.60
1st Quartile	3.75	19.93	1.88	11.78	12.24	21.33	-23.58	19.34	58.29	36.52
Median	1.13	15.49	-0.34	9.21	10.63	17.67	-27.28	11.57	42.23	29.57
3rd Quartile	-0.53	10.81	-2.91	7.73	9.53	13.44	-31.28	5.90	31.98	24.74
95th Percentile	-2.63	4.85	-7.16	6.12	7.38	6.75	-38.39	-4.90	16.54	15.94
Population	152	152	152	149	137	163	173	183	184	190





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Emerald Advisers	2.8	23.1	0.1
Russell 2000 Growth Index	0.2	24.0	0.0
eV US Small Cap Growth Equity Median	-0.3	22.7	-0.1
Population	152	152	152

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Emerald Advisers	9.8	23.7	0.4
Russell 2000 Growth Index	6.9	24.7	0.3
eV US Small Cap Growth Equity Median	9.2	24.0	0.4
Population	149	149	149

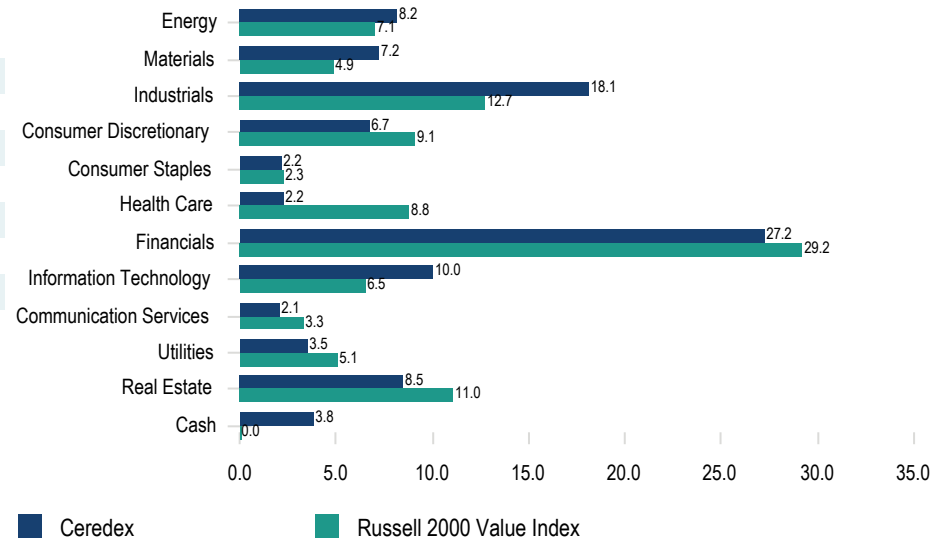
Ceredex
Manager Portfolio Overview

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	81	1,434
Wtd. Avg. Mkt. Cap \$M	5,542.32	2,831.40
Median Mkt. Cap \$M	5,665.64	786.66
Price/Earnings ratio	18.38	14.39
Price/Book ratio	2.08	1.60
Return on Equity (%)	1.61	5.43
Current Yield (%)	2.41	2.13
Beta (5 Years, Monthly)	0.85	1.00

Sector Allocation (%) vs. Russell 2000 Value Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Hexcel Corp	2.07	1.67
IDACORP Inc.	1.90	6.84
Matador Resources Co	1.85	14.34
Range Resources Corp.	1.69	17.23
OGE Energy Corp	1.64	1.63
TD SYNEX Corporation	1.59	-2.00
Kulicke and Soffa Industries Inc	1.59	3.84
Amkor Technology Inc	1.59	-14.50
Vail Resorts Inc.	1.57	10.22
MKS Instruments Inc	1.54	-3.79

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Cullen/Frost Bankers Inc	1.36	20.83	0.28
Herc Holdings Inc	1.45	19.15	0.28
Range Resources Corp.	1.54	17.23	0.27
Pinnacle Financial Partners Inc	1.47	17.01	0.25
Matador Resources Co	1.60	14.34	0.23
Wintrust Financial Corp.	1.48	15.32	0.23
Glacier Bancorp Inc	1.46	11.36	0.17
Perella Weinberg Partners	0.68	23.80	0.16
Vail Resorts Inc.	1.46	10.22	0.15
AXIS Capital Holdings Ltd	1.14	11.87	0.14

Top Detractors

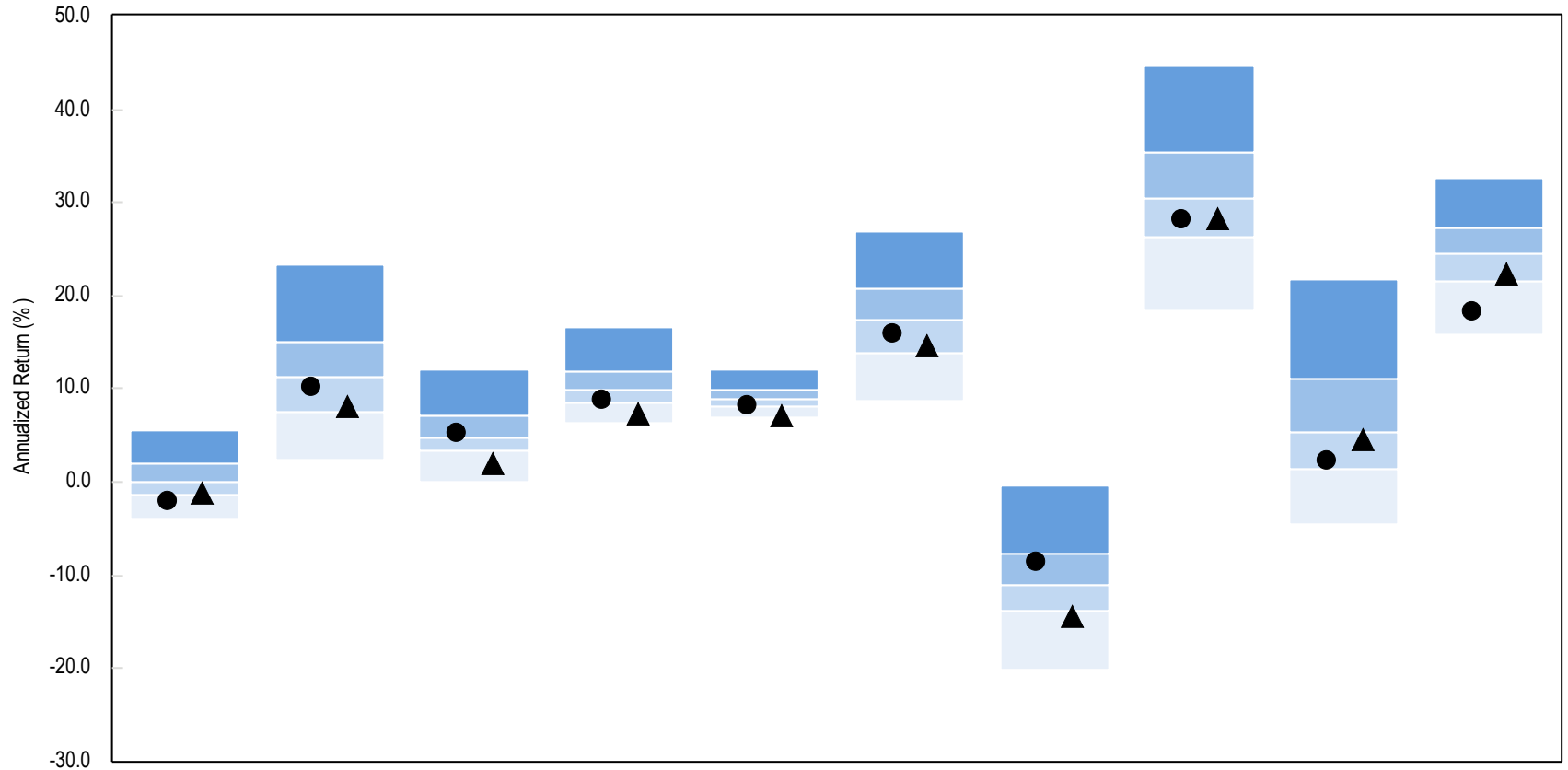
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Huntington Ingalls Industries Inc	1.48	-28.04	-0.42
Teleflex Inc	1.12	-27.91	-0.31
Fortune Brands Innovations Inc	1.32	-23.44	-0.31
Avient Corp	1.44	-18.34	-0.26
MSC Industrial Direct Co Inc.	1.93	-12.37	-0.24
Amkor Technology Inc	1.55	-14.50	-0.22
Scorpio Tankers Inc	0.75	-29.78	-0.22
Timken Co (The)	1.49	-14.94	-0.22
NNN REIT Inc	1.48	-14.63	-0.22
Science Applications International Corp	1.10	-19.53	-0.21

% of Portfolio 13.64 2.14

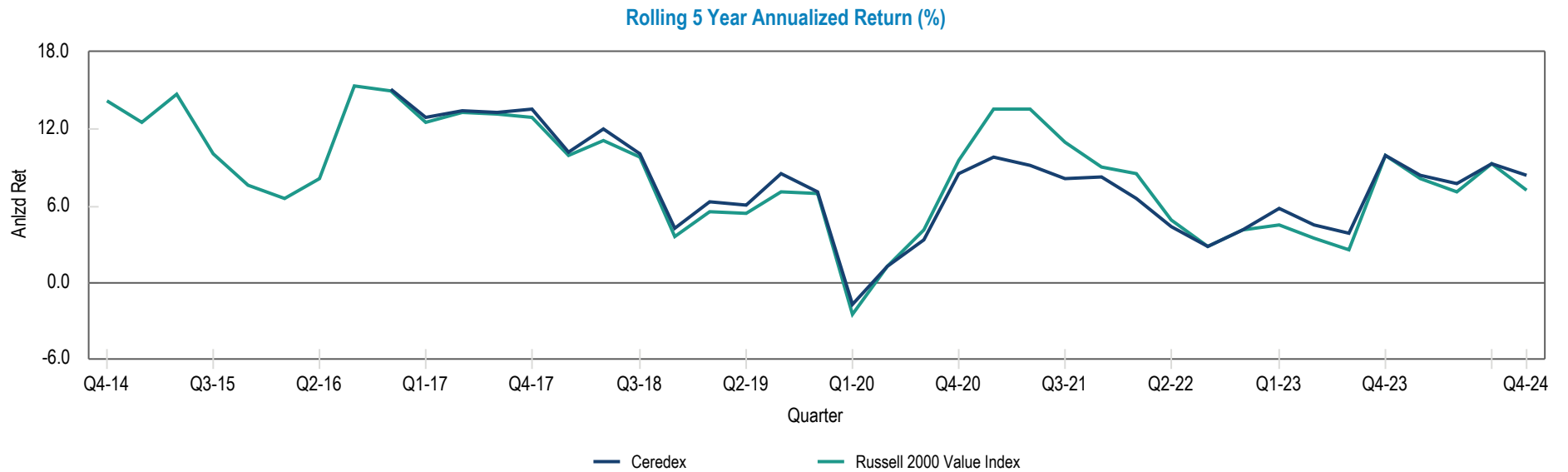
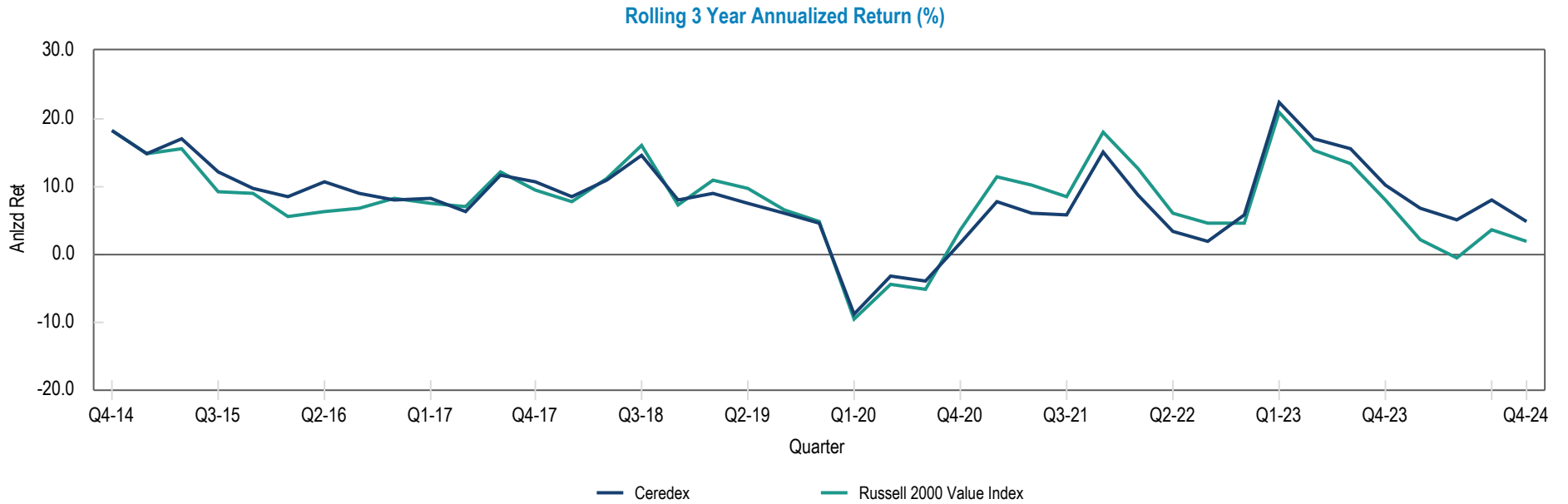
% of Portfolio 13.66 -2.64

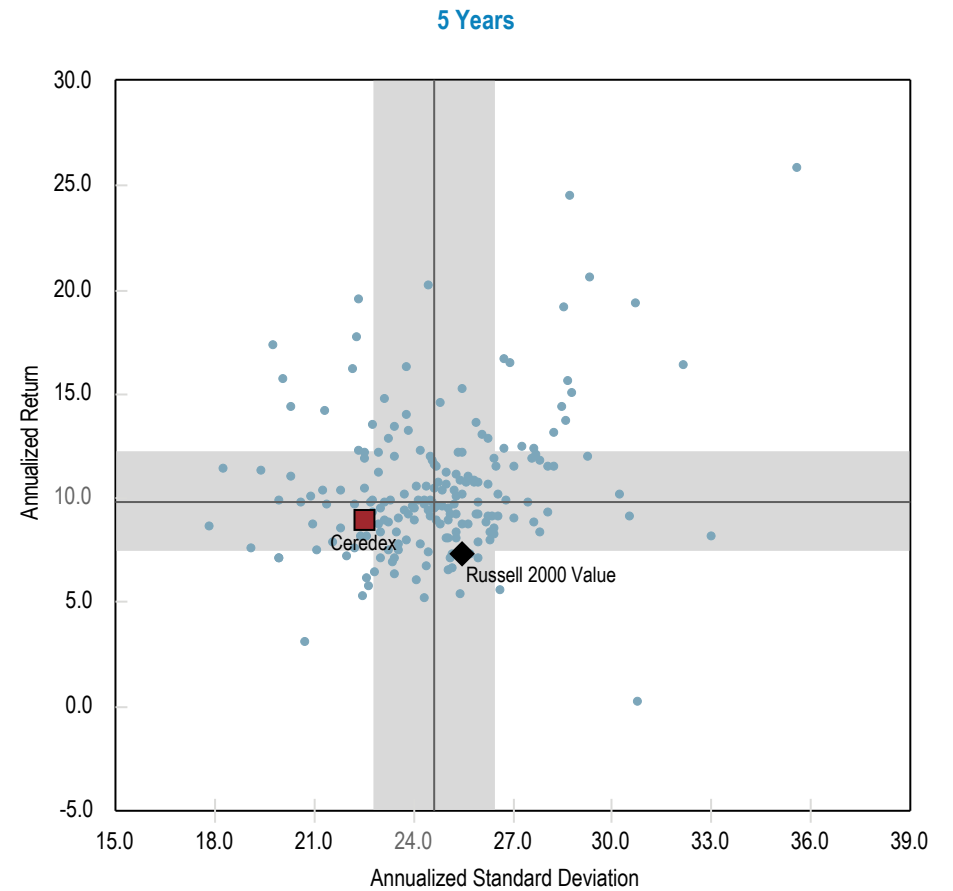
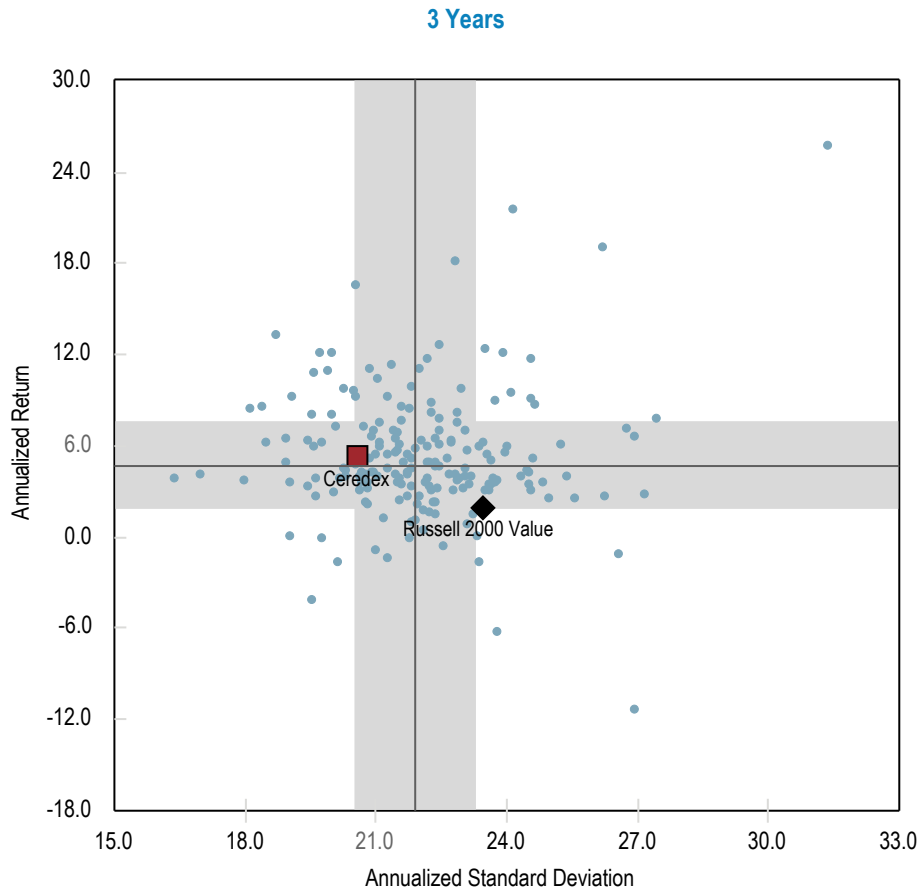
Domestic equity small cap value portfolio of companies with dividend yields and low valuations. Primary personnel include Brett Barner and David Maynard.

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	-1.88 (84)	10.21 (59)	5.39 (44)	8.98 (68)	8.34 (66)	16.02 (62)	-8.46 (28)	28.37 (59)	2.32 (70)	18.36 (88)
▲ Russell 2000 Value Index	-1.06 (73)	8.05 (74)	1.94 (89)	7.29 (89)	7.14 (94)	14.65 (71)	-14.48 (79)	28.27 (59)	4.63 (55)	22.39 (70)
5th Percentile	5.52	23.36	12.16	16.59	12.08	26.83	-0.41	44.60	21.68	32.72
1st Quartile	2.06	14.99	7.08	11.92	9.94	20.71	-7.73	35.35	11.03	27.36
Median	-0.05	11.34	4.73	9.85	8.86	17.34	-10.95	30.48	5.40	24.42
3rd Quartile	-1.27	7.57	3.40	8.48	8.06	13.94	-13.88	26.22	1.38	21.58
95th Percentile	-3.96	2.34	-0.04	6.44	6.84	8.80	-20.05	18.39	-4.57	15.75
Population	197	195	193	191	165	213	221	233	248	256





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Ceredex	5.4	20.6	0.2
Russell 2000 Value Index	1.9	23.4	0.0
eV US Small Cap Value Equity Median	4.7	21.9	0.1
Population	193	193	193

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Ceredex	9.0	22.5	0.4
Russell 2000 Value Index	7.3	25.4	0.3
eV US Small Cap Value Equity Median	9.9	24.6	0.4
Population	191	191	191

International Equity Managers

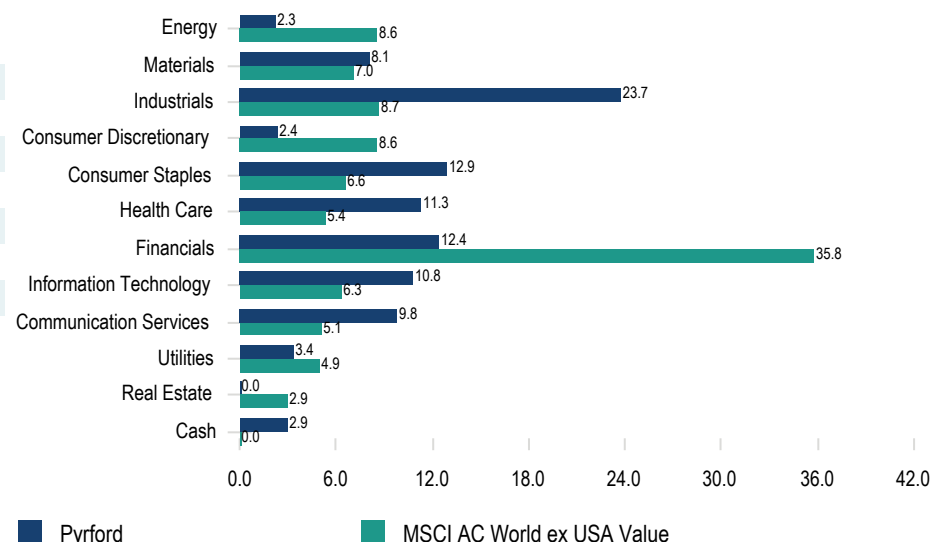
Pyrford Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	77	1,201
Wtd. Avg. Mkt. Cap \$M	64,583.27	72,708.42
Median Mkt. Cap \$M	22,055.94	9,747.66
Price/Earnings ratio	18.72	11.68
Price/Book ratio	2.46	1.73
Return on Equity (%)	4.82	3.68
Current Yield (%)	3.78	4.37
Beta (5 Years, Monthly)	0.77	1.00

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



Largest Holdings

	End Weight (%)	Quarterly Return (%)
SAP SE	2.56	7.26
Japan Tobacco Inc	2.53	-9.03
United Overseas Bank Ltd	2.50	6.13
Nestle SA, Cham Und Vevey	2.41	-17.96
Mitsubishi Electric Corp	2.39	6.17
KDDI Corp	2.39	-0.11
Roche Holding AG	2.39	-12.11
Brambles Ltd	2.29	-9.77
Unilever PLC	2.11	-11.84
AIA Group Ltd	2.06	-19.17

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Computershare Ltd	1.78	19.90	0.35
SAP SE	2.17	7.26	0.16
United Overseas Bank Ltd	2.45	6.13	0.15
Mitsubishi Electric Corp	2.24	6.17	0.14
Taiwan Semiconductor Man.	1.42	8.84	0.13
Power Assets Holdings Ltd	1.21	8.83	0.11
Nabtesco Corp	1.66	4.99	0.08
QBE Insurance Group Limited	1.46	3.60	0.05
Sumitomo Rubber Industries Ltd	0.80	5.25	0.04
Advantech Co Ltd	0.56	4.04	0.02

% of Portfolio 15.75 1.23

Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Nestle SA, Cham Und Vevey	2.67	-17.96	-0.48
Deutsche Post AG	1.98	-21.24	-0.42
AIA Group Ltd	2.12	-19.17	-0.41
L'Air Liquide SA	2.22	-15.97	-0.35
Brenntag SE	1.70	-19.82	-0.34
Woolworths Group Ltd	1.81	-18.28	-0.33
Novartis AG	2.15	-15.01	-0.32
Roche Holding AG	2.46	-12.11	-0.30
Merck KGaA	1.60	-17.85	-0.29
PT Bank Rakyat Indonesia (Persero) Tbk	1.40	-19.91	-0.28

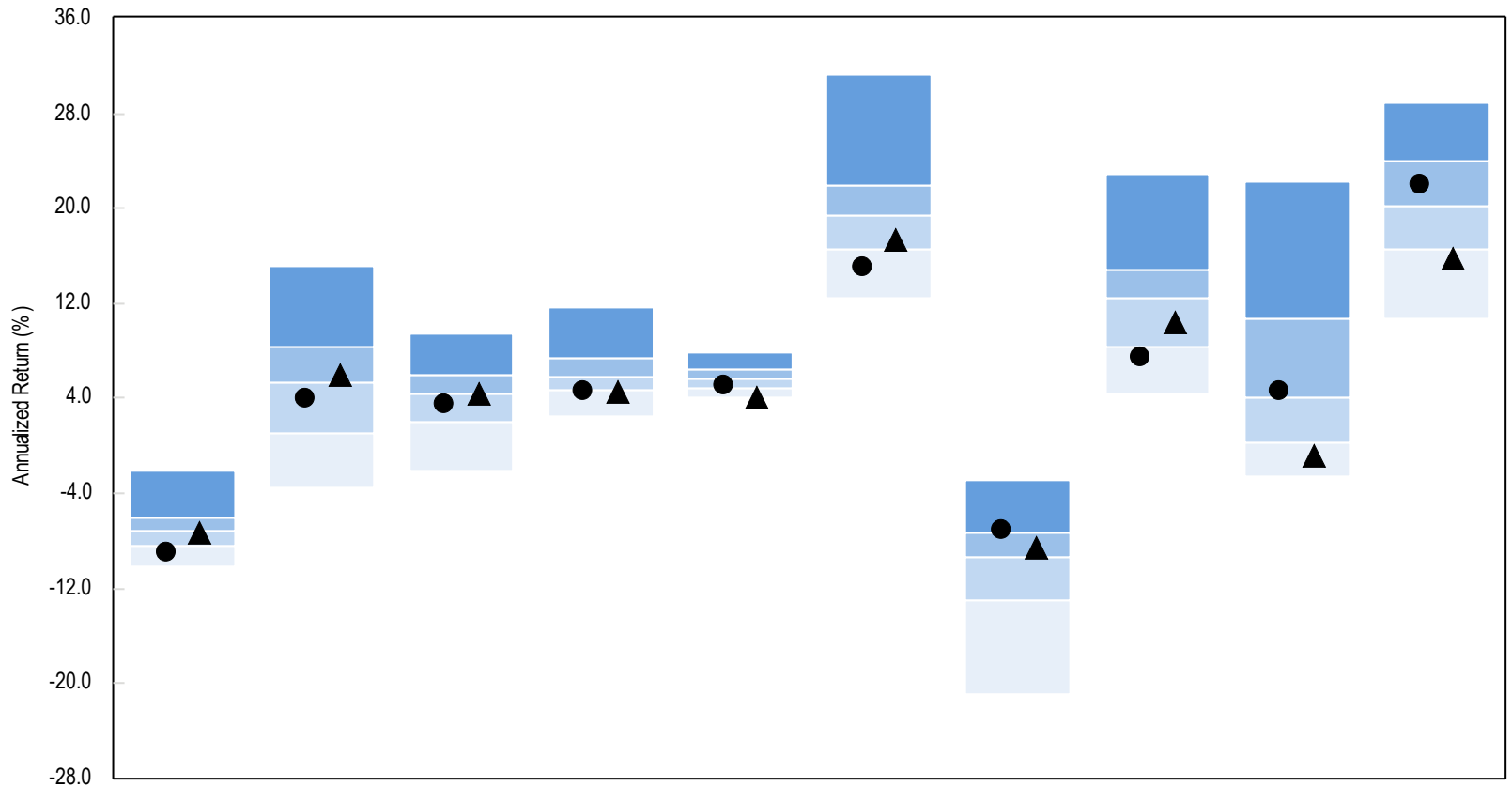
% of Portfolio 20.11 -3.51

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.

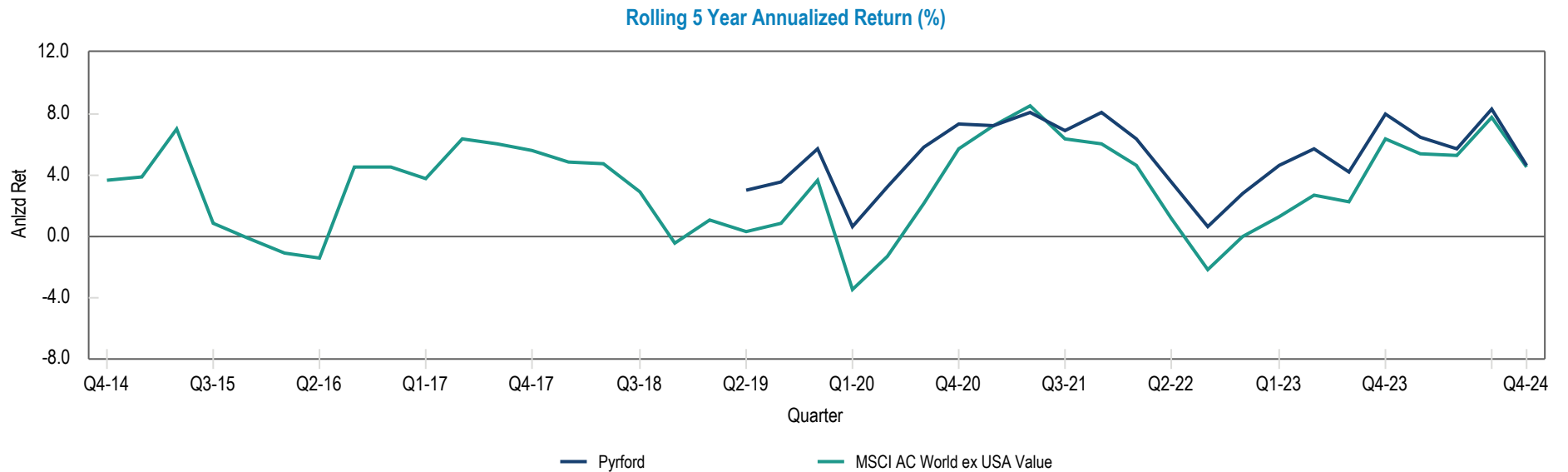
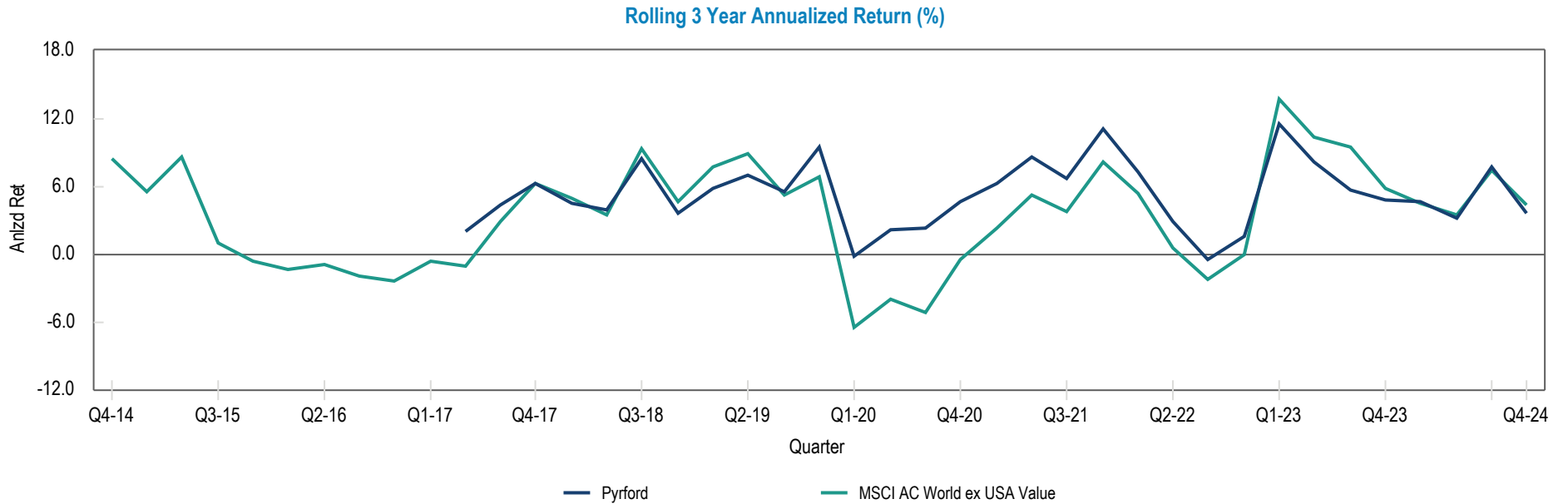
Pyrford
 Manager Performance Comparisons (Gross of Fees)

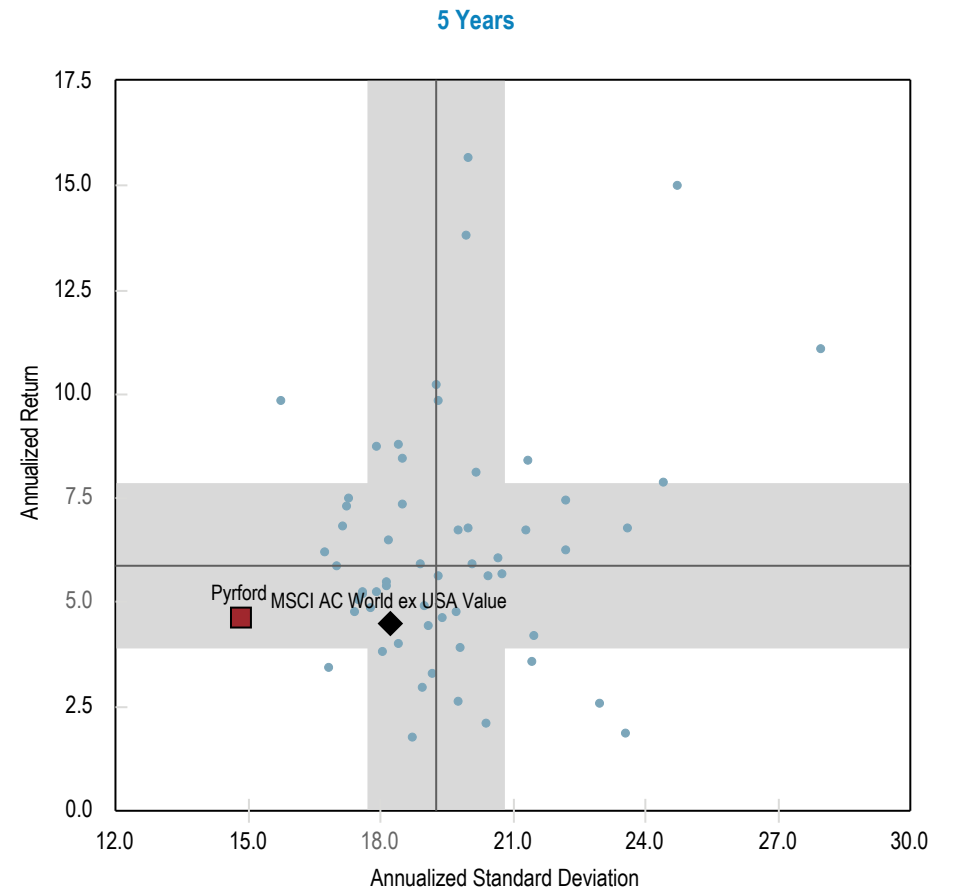
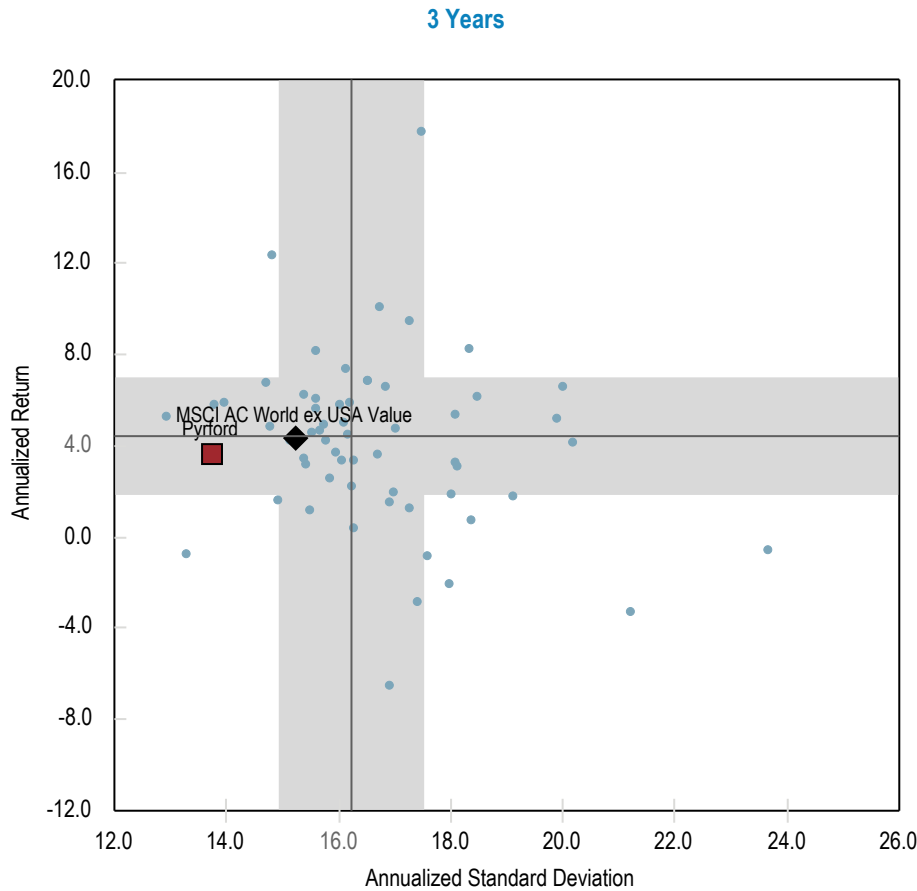
Contra Costa County Employees' Retirement Association
 Period Ending: December 31, 2024

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	-8.91 (83)	4.01 (60)	3.68 (59)	4.64 (76)	5.17 (64)	15.17 (82)	-6.97 (24)	7.57 (84)	4.66 (47)	22.07 (36)
▲ MSCI AC World ex USA Value (Net)	-7.31 (53)	6.04 (43)	4.37 (51)	4.50 (77)	4.07 (96)	17.30 (66)	-8.59 (42)	10.46 (66)	-0.77 (80)	15.72 (77)
5th Percentile	-2.07	15.12	9.52	11.64	7.83	31.21	-2.92	22.89	22.18	28.94
1st Quartile	-6.07	8.29	5.95	7.47	6.49	21.96	-7.29	14.88	10.71	23.93
Median	-7.18	5.30	4.40	5.88	5.71	19.44	-9.35	12.53	4.15	20.23
3rd Quartile	-8.46	1.04	1.97	4.66	4.90	16.54	-12.97	8.35	0.31	16.60
95th Percentile	-10.21	-3.45	-2.04	2.51	4.13	12.48	-20.94	4.34	-2.63	10.68
Population	66	65	60	57	39	65	67	69	71	69





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Pyrford	3.7	13.7	0.1
MSCI AC World ex USA Value (Net)	4.4	15.2	0.1
eV ACWI ex-US Value Equity Median	4.4	16.2	0.1
Population	60	60	60

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Pyrford	4.6	14.9	0.2
MSCI AC World ex USA Value (Net)	4.5	18.2	0.2
eV ACWI ex-US Value Equity Median	5.9	19.2	0.3
Population	57	57	57

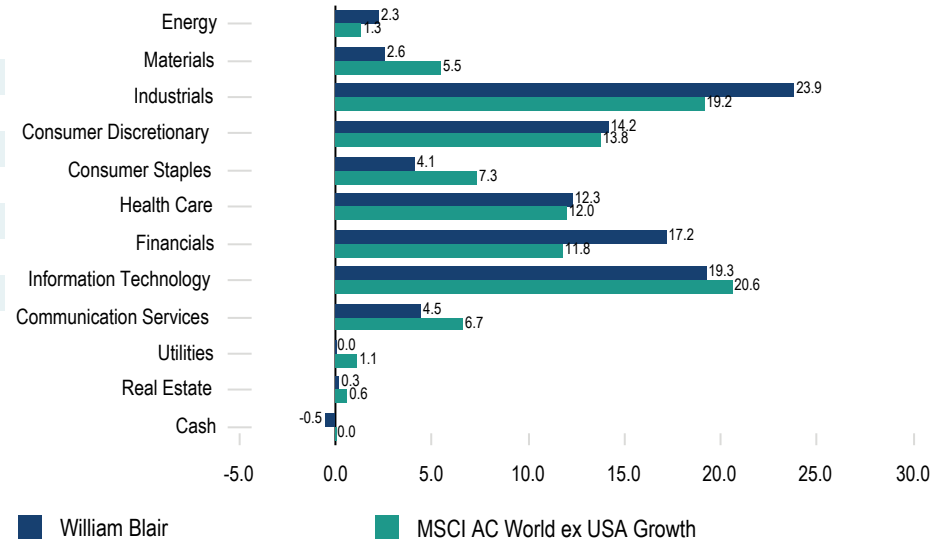
William Blair
Manager Portfolio Overview

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	185	1,121
Wtd. Avg. Mkt. Cap \$M	116,152.41	142,050.10
Median Mkt. Cap \$M	19,555.60	9,880.64
Price/Earnings ratio	24.75	24.00
Price/Book ratio	4.24	3.93
Return on Equity (%)	5.81	5.45
Current Yield (%)	1.55	1.60
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.	3.99	14.08
SAP SE	2.16	7.26
Tencent Holdings LTD	2.12	-6.21
London Stock Exchange Group	1.71	3.10
Novo Nordisk A/S	1.67	-26.42
3i Group PLC	1.65	1.52
Hermes International SA	1.35	-2.34
Safran SA	1.34	-6.78
Astrazeneca PLC	1.30	-15.66
LONZA GROUP AG	1.28	-6.71

Top Contributors

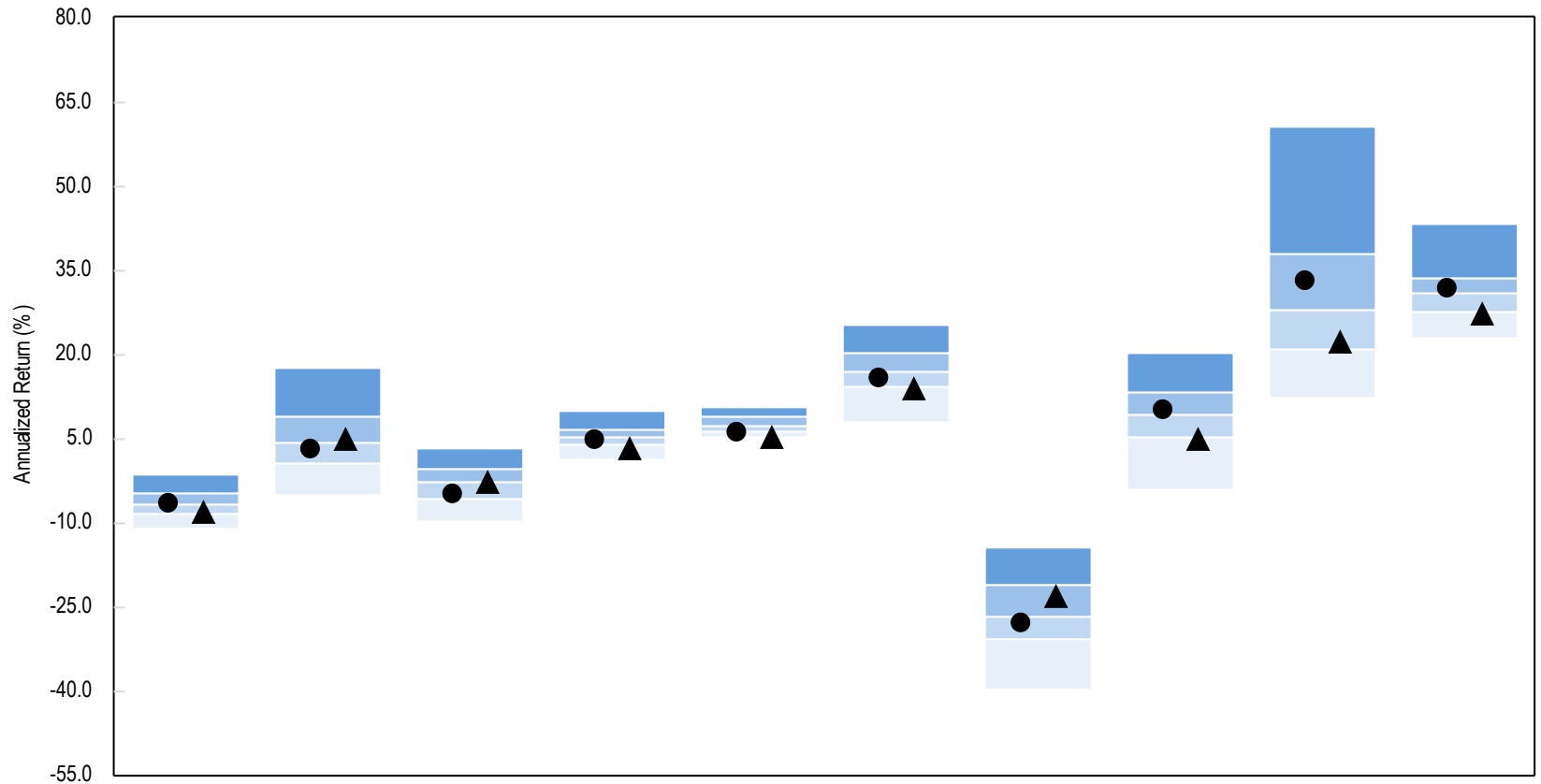
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Taiwan Semiconductor Man.	3.27	14.08	0.46
Shopify Inc	0.59	32.68	0.19
Teva Pharmaceutical Industries Ltd	0.78	22.31	0.17
Advantest Corp	0.64	24.19	0.15
Pro Medicus Ltd	0.57	25.23	0.14
SAP SE	1.87	7.26	0.14
Alchip Technologies Inc	0.17	60.31	0.10
Brookfield Asset Management Ltd	0.65	15.35	0.10
Sumitomo Mitsui	0.78	12.51	0.10
Mediatek Incorporation	0.54	16.25	0.09
% of Portfolio	9.86		1.65

Top Detractors

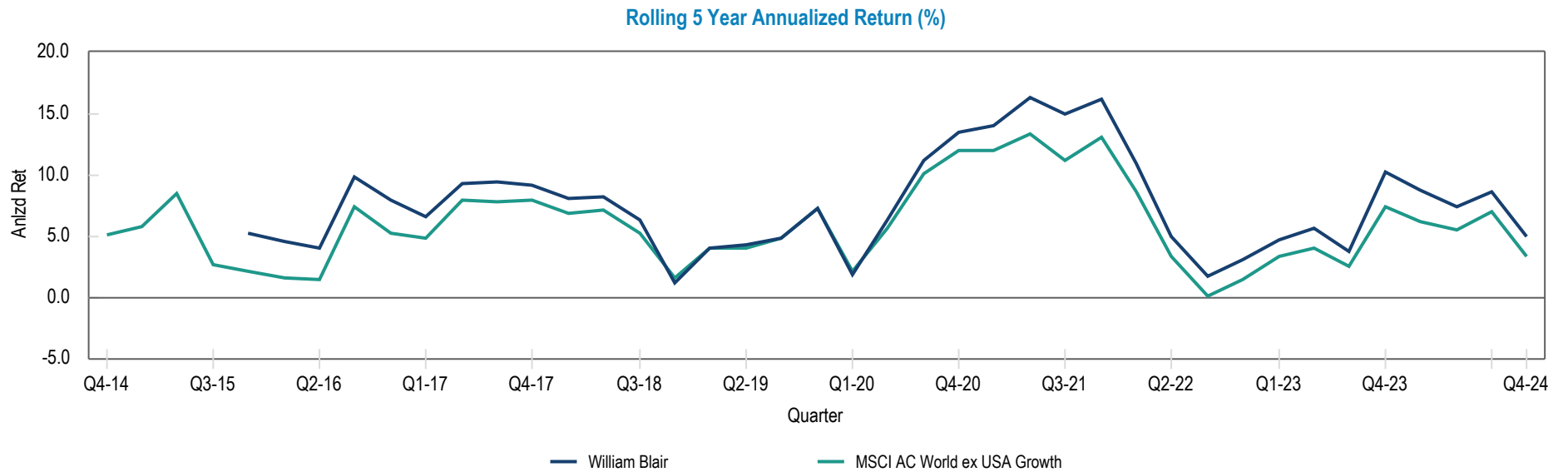
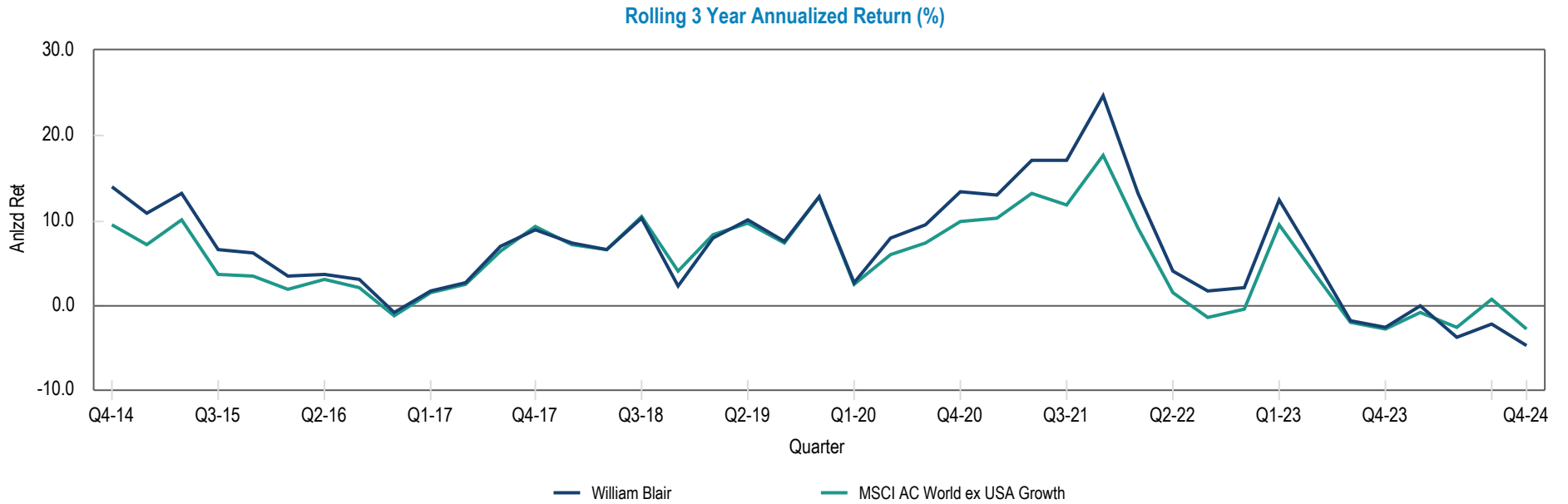
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Novo Nordisk A/S	2.11	-26.42	-0.56
Reliance Industries Ltd	1.63	-19.43	-0.32
Astrazeneca PLC	1.44	-15.66	-0.23
Sika AG, Baar	0.79	-28.29	-0.22
MercadoLibre Inc	1.14	-17.13	-0.20
ASML Holding NV	1.20	-15.35	-0.18
Kingspan Group PLC	0.82	-22.51	-0.18
Keyence Corp	1.28	-13.95	-0.18
Samsung Electronics Co Ltd	0.77	-23.16	-0.18
LVMH Moet Hennessy Louis V	1.28	-13.58	-0.17
% of Portfolio	12.46		-2.42

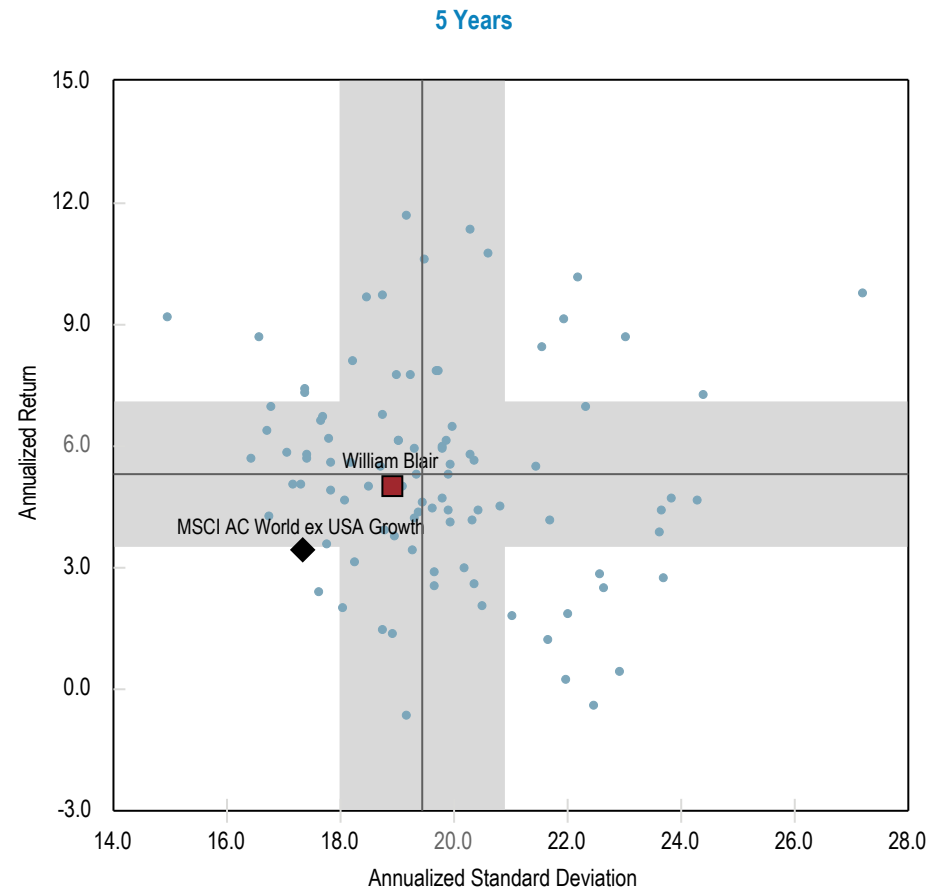
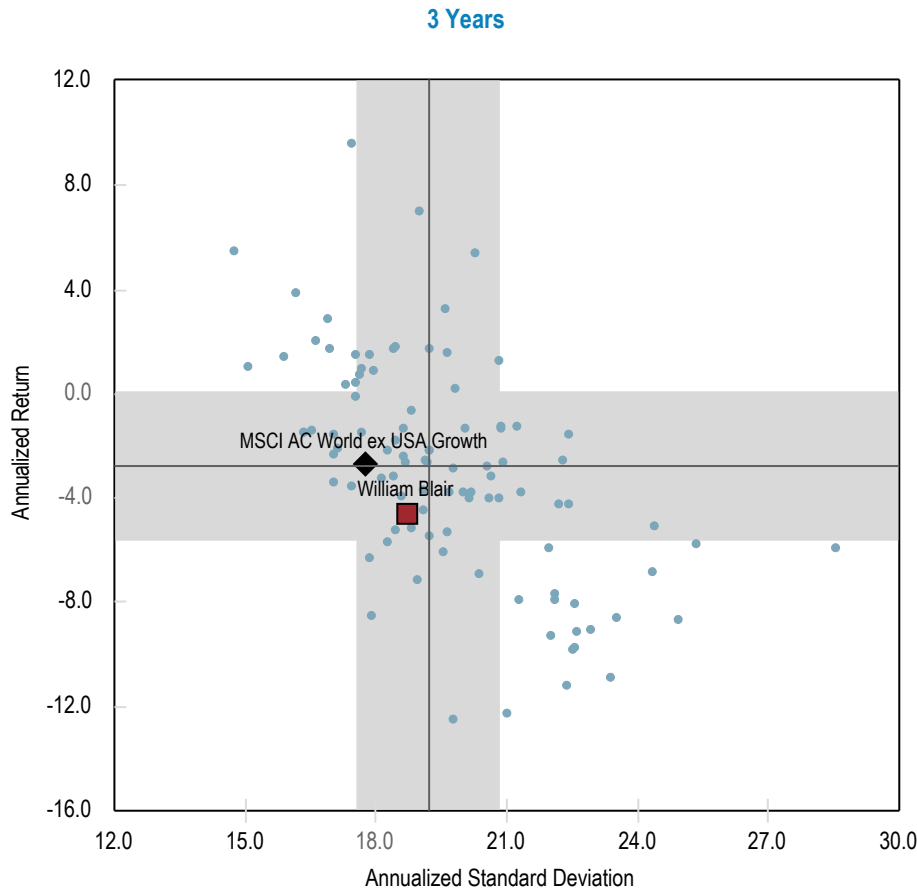
International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Kenneth McAtamney.

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	-6.21 (44)	3.39 (61)	-4.62 (70)	5.02 (56)	6.17 (81)	16.15 (59)	-27.75 (57)	10.48 (41)	33.25 (35)	32.01 (37)
▲ MSCI AC World ex USA Growth	-7.88 (67)	5.07 (47)	-2.67 (50)	3.44 (79)	5.35 (96)	14.03 (77)	-23.05 (31)	5.09 (76)	22.20 (73)	27.34 (77)
5th Percentile	-1.40	17.75	3.30	9.90	10.68	25.47	-14.29	20.35	60.75	43.23
1st Quartile	-4.76	8.96	-0.37	6.77	8.97	20.18	-20.98	13.39	37.97	33.53
Median	-6.82	4.47	-2.79	5.30	7.22	17.08	-26.60	9.33	28.06	30.90
3rd Quartile	-8.22	0.52	-5.54	3.90	6.27	14.18	-30.77	5.17	21.13	27.76
95th Percentile	-10.90	-5.17	-9.73	1.34	5.44	7.96	-39.81	-3.97	12.38	23.07
Population	100	100	99	95	72	111	115	118	113	111





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
William Blair	-4.6	18.7	-0.4
MSCI AC World ex USA Growth (Net)	-2.7	17.7	-0.3
eV ACWI ex-US Growth Equity Median	-2.8	19.2	-0.2
Population	99	99	99

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
William Blair	5.0	18.9	0.2
MSCI AC World ex USA Growth (Net)	3.4	17.3	0.1
eV ACWI ex-US Growth Equity Median	5.3	19.4	0.2
Population	95	95	95

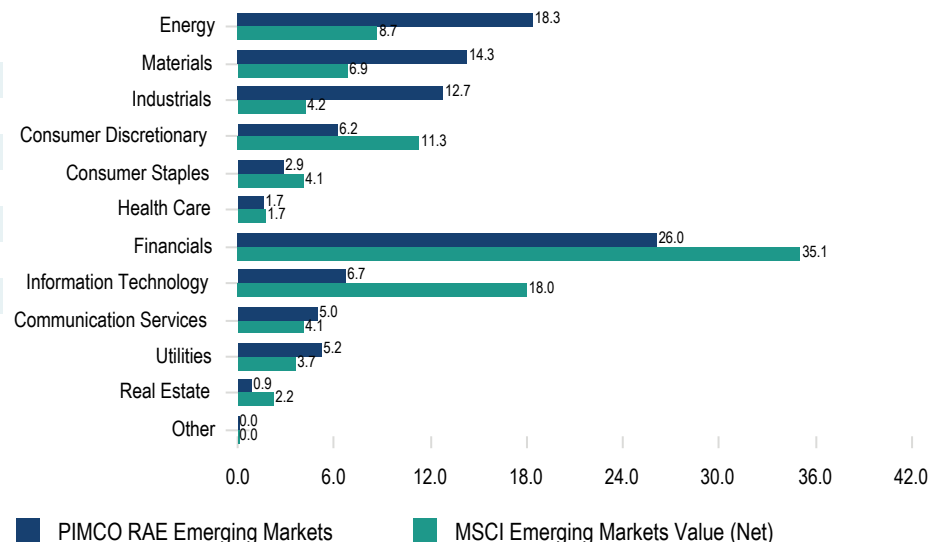
PIMCO RAE Emerging Markets Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	357	713
Wtd. Avg. Mkt. Cap \$M	23,164.39	75,219.14
Median Mkt. Cap \$M	4,227.50	7,585.67
Price/Earnings ratio	7.28	10.28
Price/Book ratio	1.62	1.93
Return on Equity (%)	6.44	4.31
Current Yield (%)	6.24	4.10
Beta (5 Years, Monthly)	1.05	1.00

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



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Petroleo Brasileiro S.A	4.41	-4.40
China Petroleum & Chemical	3.92	-8.06
Vale SA	3.86	3.59
China Construction Bank Corp	3.83	10.20
Evergreen Marine Corp (Taiwan) Ltd	3.73	8.06
Bank of China Ltd	3.05	8.17
PetroChina Company Limited	2.87	-3.63
Ping An Insurance Group Co of China Ltd	2.56	-8.18
Vedanta Ltd	2.13	13.58
SCB X PCL	1.82	1.30

Top Contributors

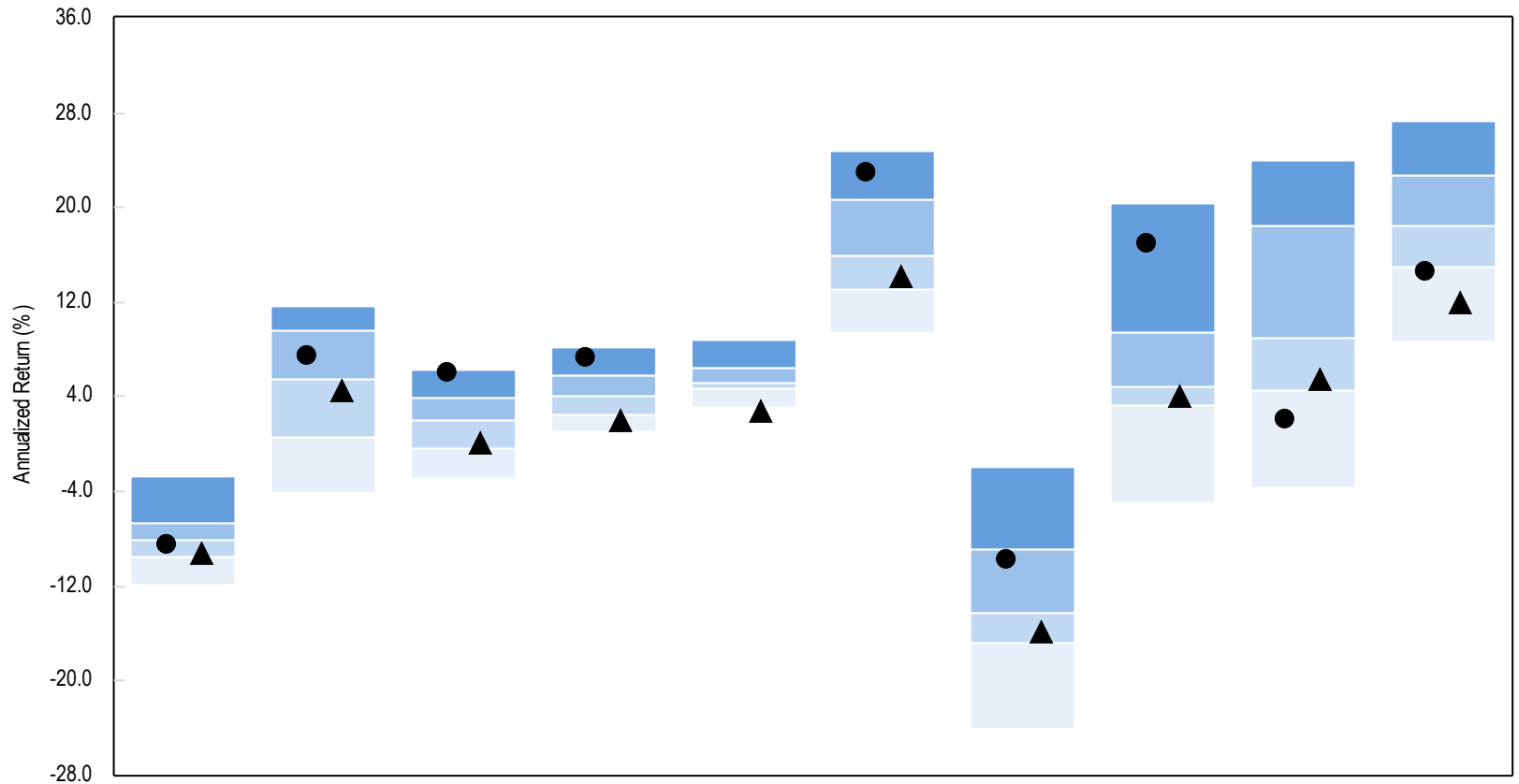
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
China Construction Bank Corp	3.86	10.20	0.39
Evergreen Marine Corp (Taiwan) Ltd	2.76	8.06	0.22
Bank of China Ltd	2.53	8.17	0.21
Industrial & Comm. Bank of China	1.30	12.28	0.16
IS Yatirim Menkul Degerler A.S.	0.41	34.97	0.14
Mediatek Incorporation	0.85	16.25	0.14
Doosan Corp	0.30	33.64	0.10
AAC Technologies Holdings Inc	0.46	17.55	0.08
Compal Electronics Inc	0.84	9.14	0.08
Yang Ming Marine Transport Corp	1.14	5.90	0.07
% of Portfolio	14.45		1.59

Top Detractors

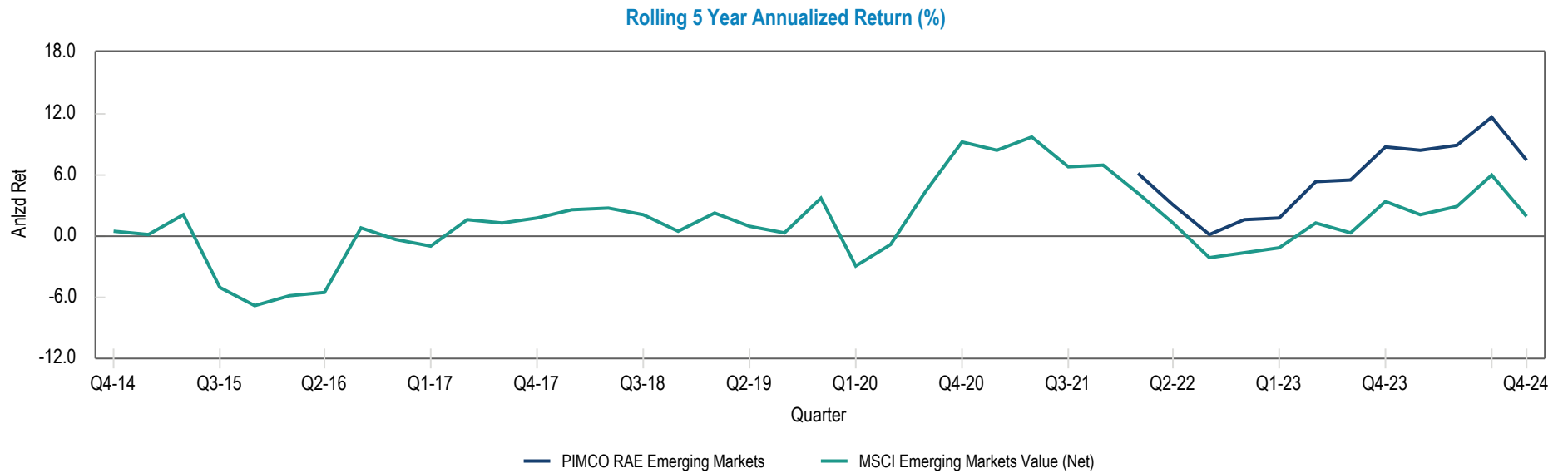
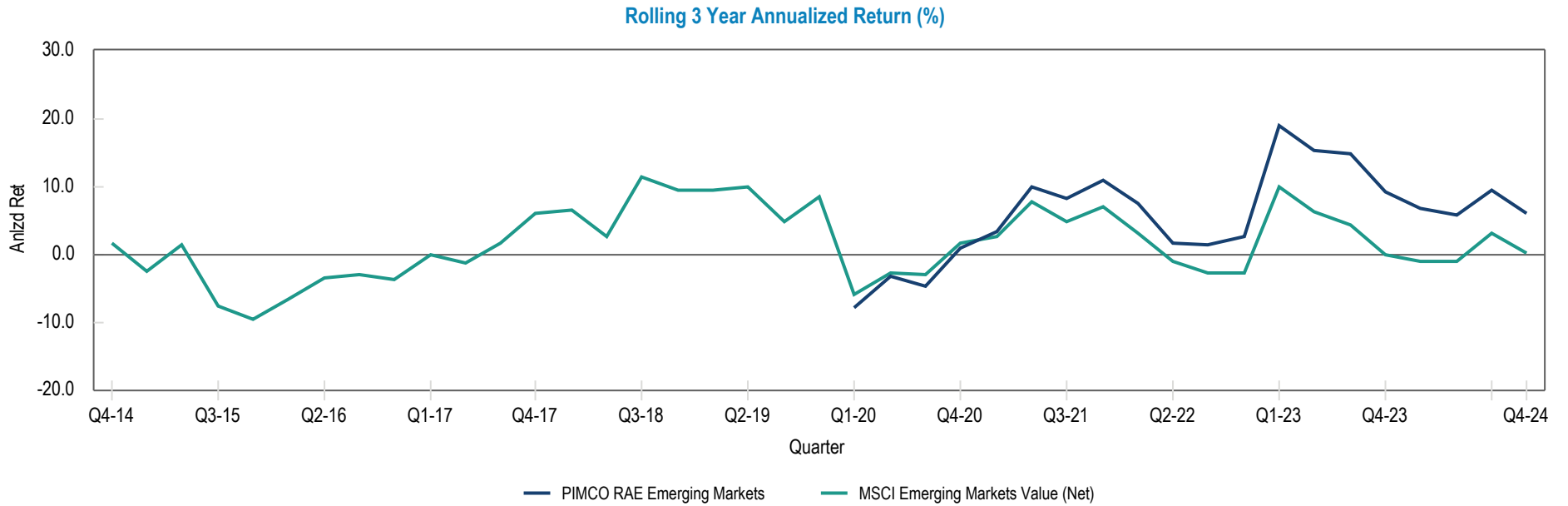
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Vale SA	4.58	-23.59	-1.08
POSCO Holdings Inc	1.92	-41.51	-0.80
Kasikornbank Public Co Ltd	1.11	-38.66	-0.43
Indian Oil Corp Ltd	1.62	-25.88	-0.42
Vedanta Ltd	2.28	-13.58	-0.31
Oil & Natural Gas Corp Ltd	1.45	-19.41	-0.28
China Petroleum & Chemical	3.45	-8.06	-0.28
Lg Electronics Inc	0.90	-28.89	-0.26
Vipshop Holdings Limited	1.61	-14.37	-0.23
Bharat Petroleum Co Ltd	0.84	-22.62	-0.19
% of Portfolio	19.76		-4.28

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.

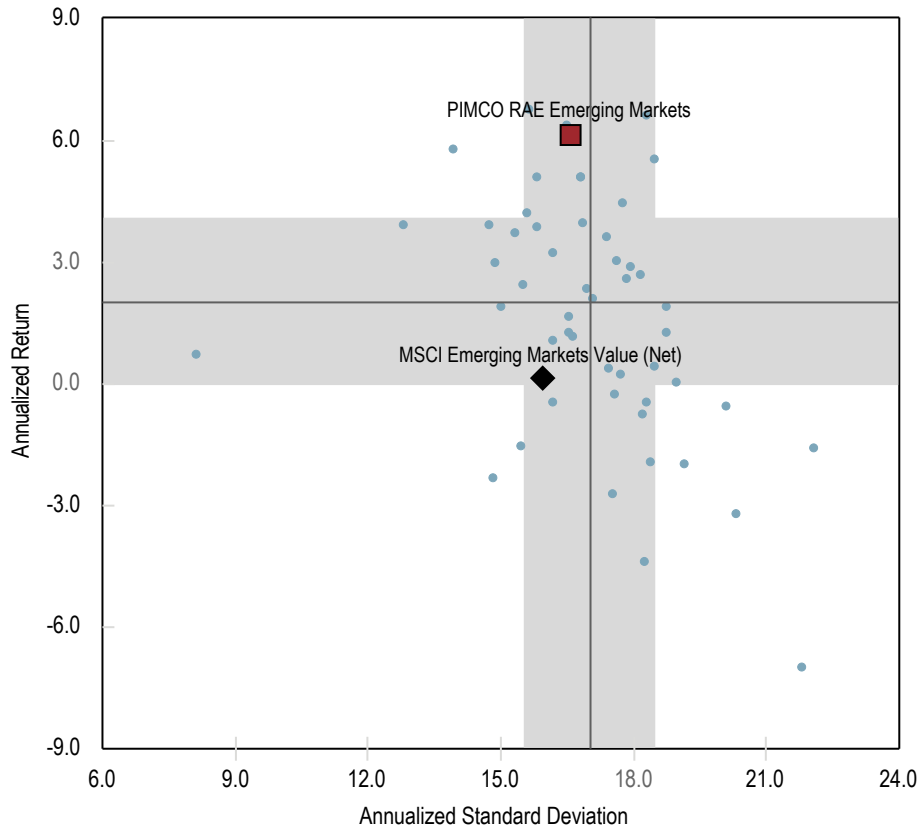
PIMCO RAE Emerging Markets vs. eV Emg Mkts All Cap Value Equity Gross Universe



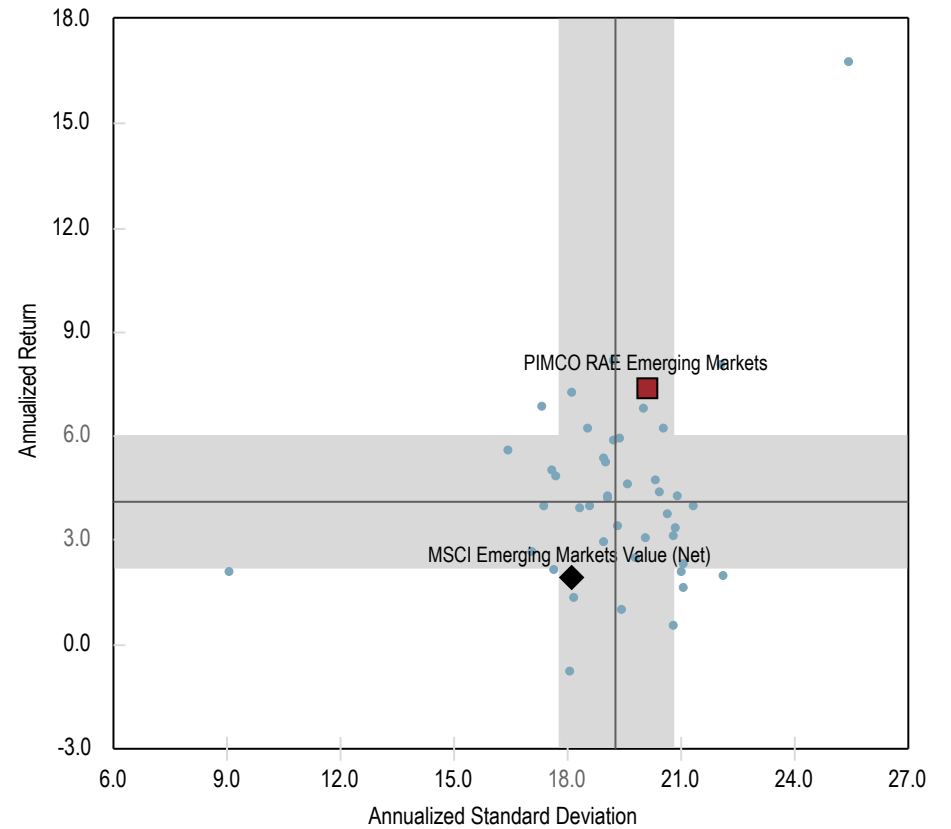
	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● PIMCO RAE Emerging Markets	-8.34 (56)	7.49 (41)	6.12 (6)	7.40 (10)	-	23.09 (11)	-9.66 (33)	17.08 (8)	2.13 (85)	14.63 (78)
▲ MSCI Emerging Markets Value NR	-9.21 (69)	4.51 (52)	0.16 (72)	1.96 (89)	2.81 (100)	14.21 (67)	-15.83 (63)	4.00 (68)	5.48 (72)	11.96 (93)
5th Percentile	-2.69	11.68	6.24	8.17	8.83	24.75	-1.92	20.32	23.96	27.29
1st Quartile	-6.72	9.59	3.93	5.82	6.49	20.68	-8.83	9.47	18.49	22.65
Median	-8.10	5.54	2.03	4.11	5.11	15.92	-14.26	4.87	8.93	18.51
3rd Quartile	-9.53	0.57	-0.28	2.54	4.66	13.06	-16.84	3.27	4.50	15.01
95th Percentile	-11.83	-4.10	-2.93	1.08	3.15	9.52	-24.07	-4.86	-3.63	8.63
Population	55	55	52	46	32	53	58	57	59	60



3 Years



5 Years



3 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
PIMCO RAE Emerging Markets	6.1	16.6	0.2
MSCI Emerging Markets Value (Net)	0.2	16.0	-0.2
eV Emg Mkts All Cap Value Equity Median	2.0	17.0	0.0
Population	52	52	52

5 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
PIMCO RAE Emerging Markets	7.4	20.1	0.3
MSCI Emerging Markets Value (Net)	2.0	18.1	0.1
eV Emg Mkts All Cap Value Equity Median	4.1	19.3	0.2
Population	46	46	46

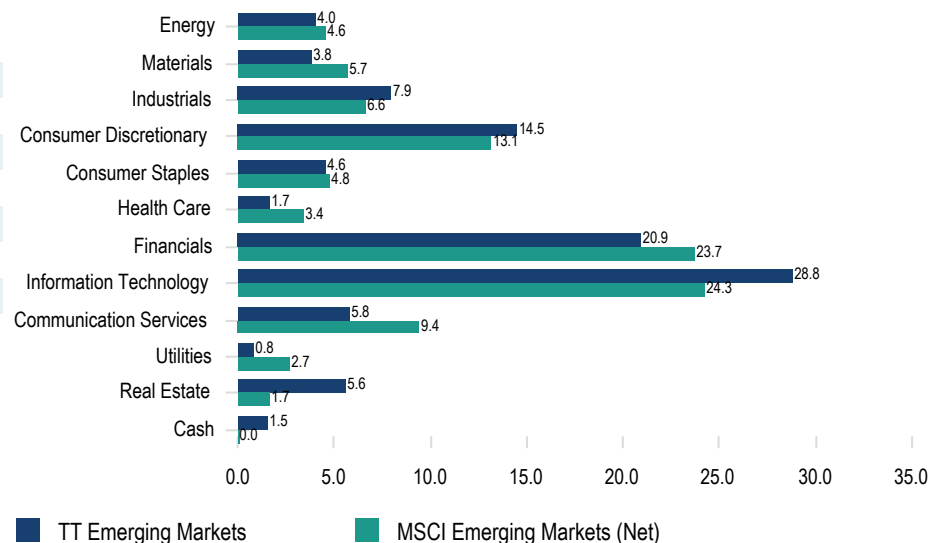
TT Emerging Markets Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	65	1,252
Wtd. Avg. Mkt. Cap \$M	160,706.74	165,630.41
Median Mkt. Cap \$M	15,938.43	7,596.54
Price/Earnings ratio	16.19	14.04
Price/Book ratio	3.04	2.79
Return on Equity (%)	5.42	5.15
Current Yield (%)	1.98	2.68
Beta (5 Years, Monthly)	1.12	1.00

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



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Taiwan Semiconductor Man.	11.97	8.84
Tencent Holdings LTD	5.75	-6.21
Akbank T A S	3.60	1.78
Nova Ljubljanska Banka d.d	3.59	2.85
Mediatek Incorporation	3.58	16.25
Emaar Properties	3.48	47.36
MercadoLibre Inc	3.33	-17.13
Alchip Technologies Inc	2.78	60.31
Alibaba Group Holding Ltd	2.54	-25.09
Ase Technology Holdings Co	2.44	3.56

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Ypf Sociedad Anonima	3.09	100.43	3.11
Grupo Financiero Galicia Sa, Buenos Aires	2.42	48.06	1.16
Taiwan Semiconductor Man.	8.99	8.84	0.79
Emaar Properties	1.51	47.36	0.71
Alchip Technologies Inc	0.96	60.31	0.58
Vista Energy SAB de CV	2.57	22.48	0.58
Banco Macro SA	1.04	52.38	0.54
CarTrade Tech Limited	1.03	50.78	0.52
Mediatek Incorporation	0.95	16.25	0.15
Qifu Technology Inc	0.50	28.75	0.14

Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Alibaba Group Holding Ltd	2.80	-25.09	-0.70
Hapvida Participacoes	1.36	-50.86	-0.69
PDD Holdings Inc	2.29	-28.05	-0.64
Capstone Copper Corp	2.48	-21.00	-0.52
Banco BTG Pactual SA	1.18	-27.17	-0.32
Samsung Electronics Co Ltd	1.39	-22.86	-0.32
Luzhou Laojiao Co Ltd	1.58	-19.61	-0.31
AngloGold Ashanti plc	2.20	-13.33	-0.29
SK Hynix Inc	2.34	-11.53	-0.27
PT Bank Rakyat Indonesia (Persero) Tbk	1.32	-19.91	-0.26

% of Portfolio

23.06

8.30

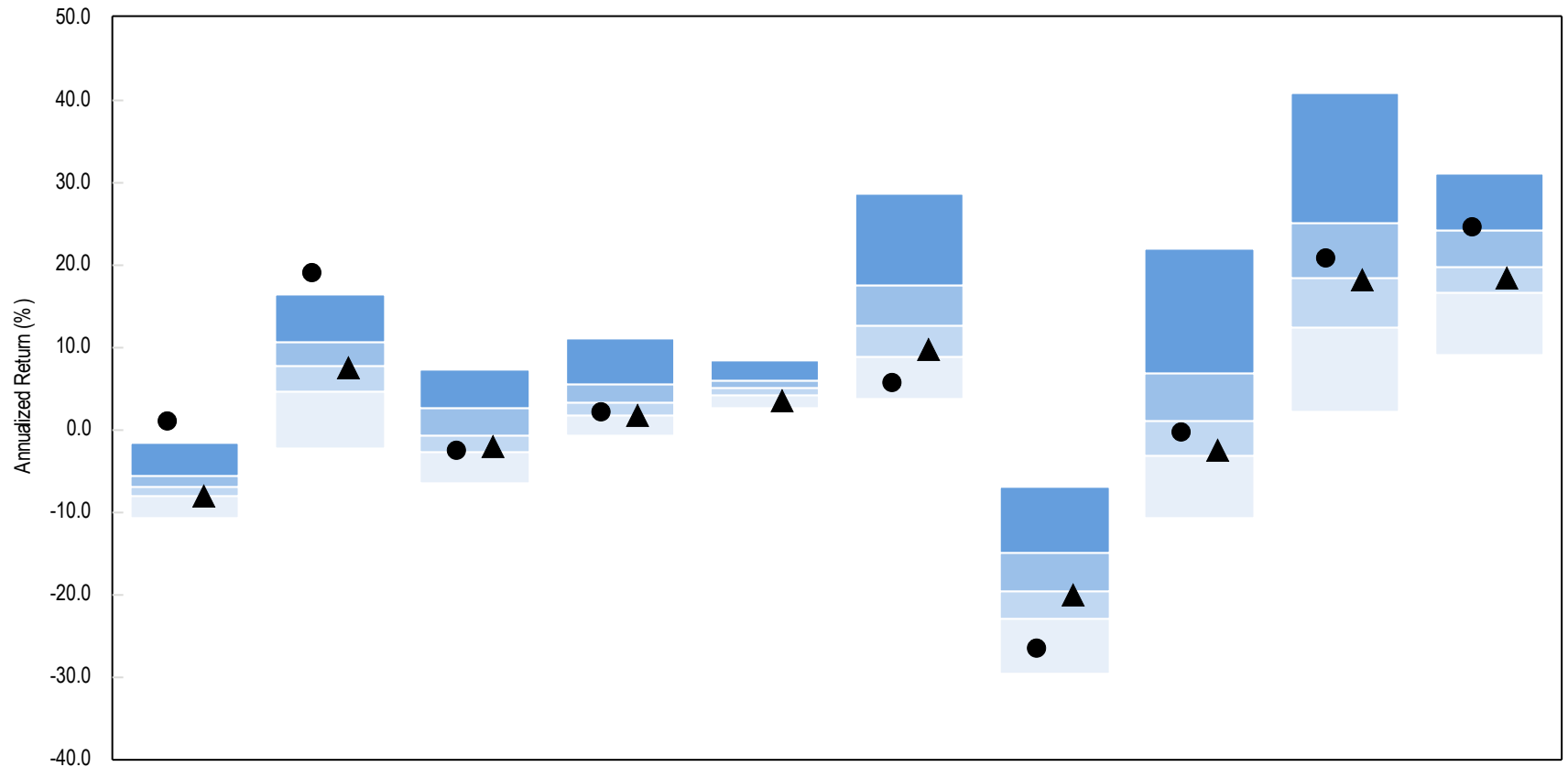
% of Portfolio

18.94

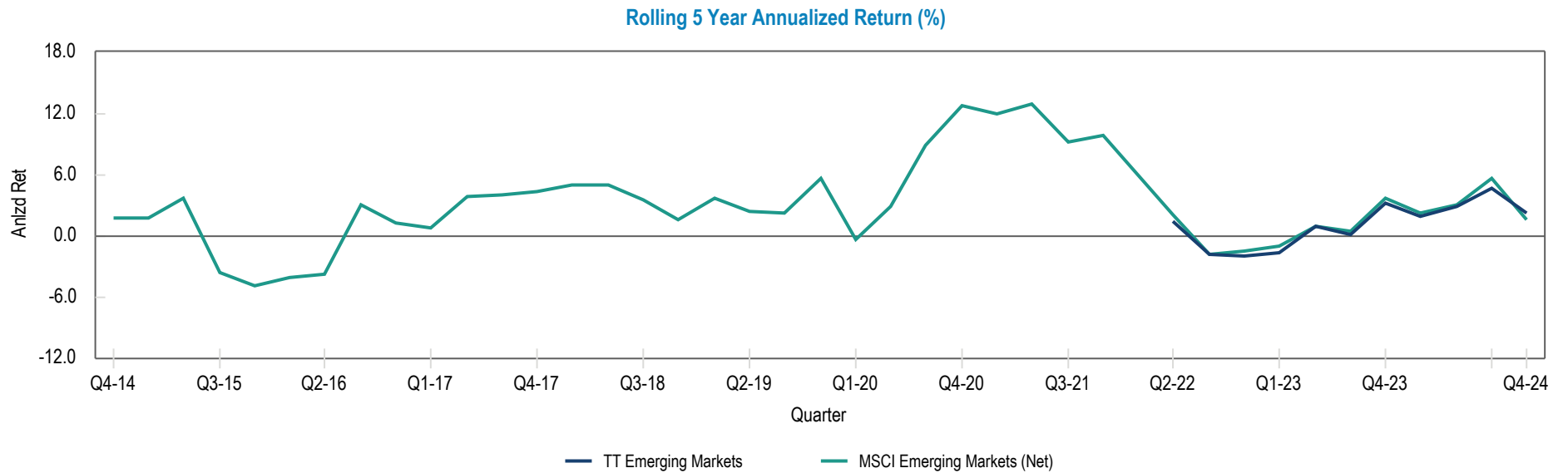
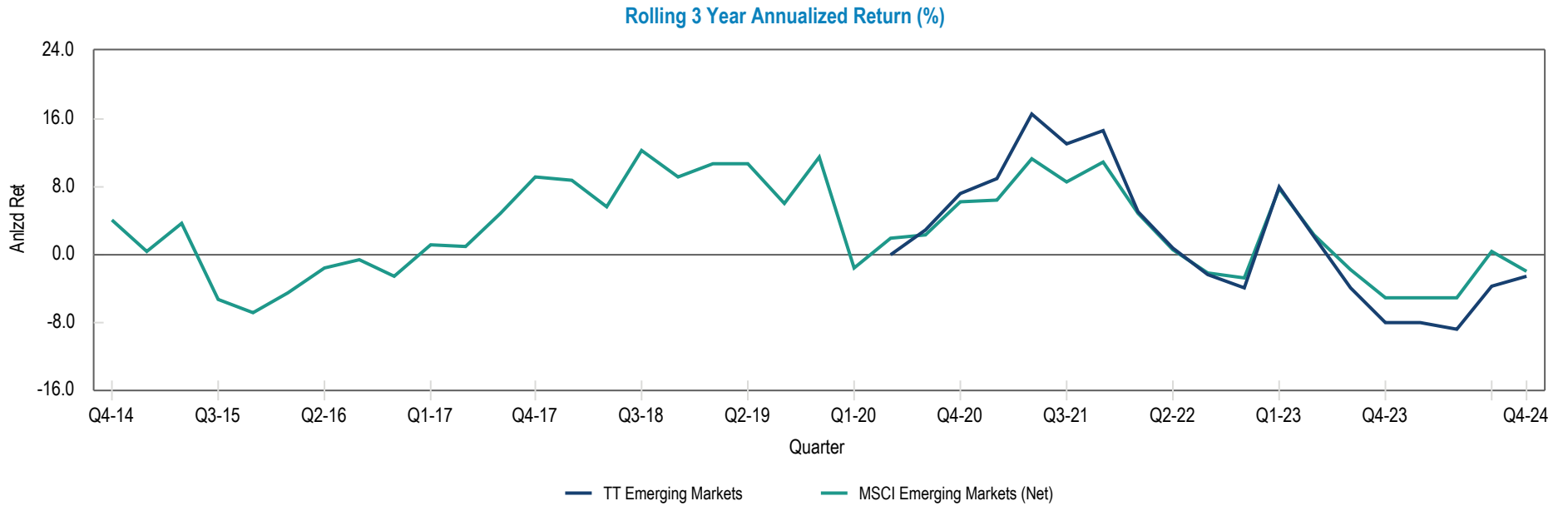
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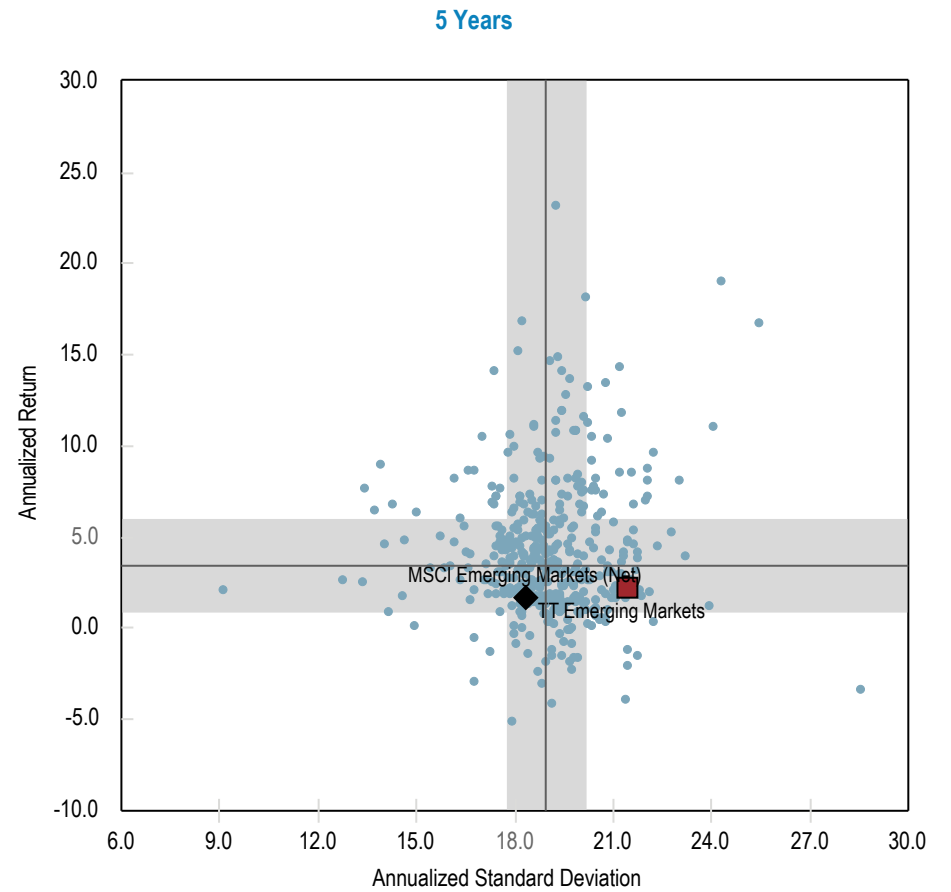
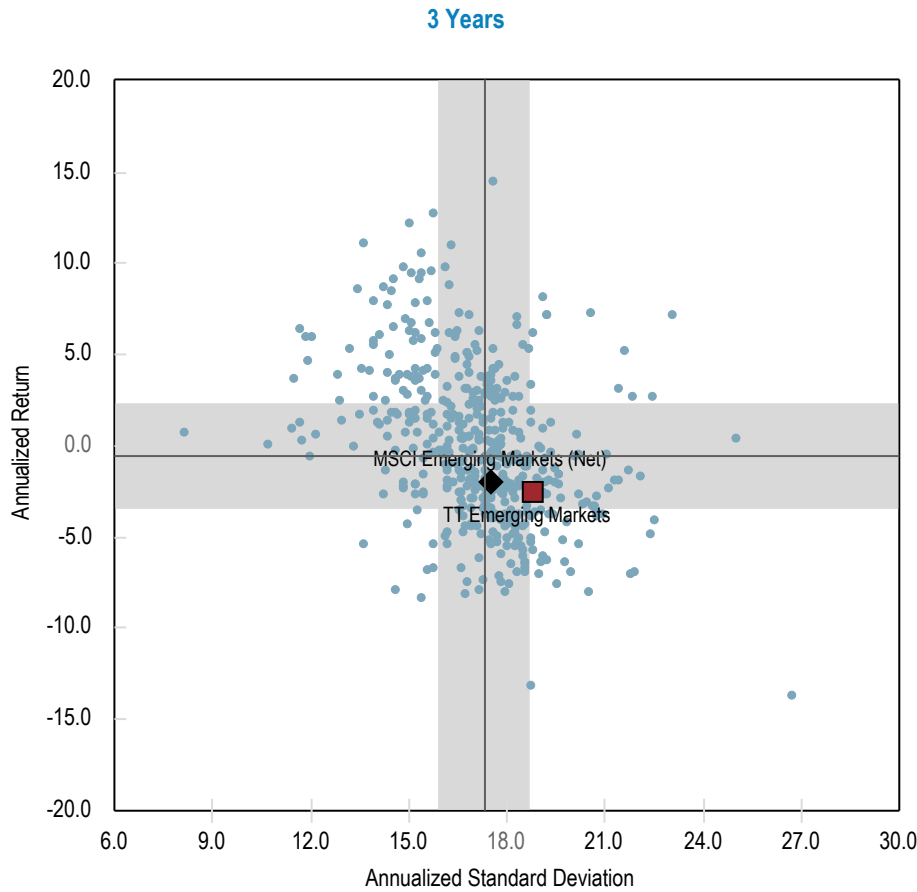
The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded 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	1.02 (1)	19.10 (2)	-2.46 (72)	2.26 (65)	-	5.80 (91)	-26.36 (90)	-0.23 (59)	20.79 (39)	24.77 (23)
▲ MSCI Emerging Markets	-8.01 (76)	7.50 (54)	-1.92 (62)	1.70 (75)	3.64 (85)	9.83 (66)	-20.09 (57)	-2.54 (72)	18.31 (51)	18.42 (62)
5th Percentile	-1.57	16.44	7.23	11.12	8.39	28.67	-6.84	22.07	40.94	31.04
1st Quartile	-5.45	10.77	2.59	5.65	6.11	17.63	-14.88	6.85	25.11	24.26
Median	-6.94	7.84	-0.56	3.40	5.01	12.59	-19.50	1.03	18.35	19.71
3rd Quartile	-8.00	4.71	-2.72	1.67	4.13	8.97	-22.86	-3.02	12.37	16.56
95th Percentile	-10.56	-2.21	-6.45	-0.70	2.56	3.74	-29.66	-10.70	2.14	9.03
Population	529	528	497	446	316	553	581	589	586	607





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
TT Emerging Markets	-2.5	18.8	-0.2
MSCI Emerging Markets (Net)	-1.9	17.5	-0.2
eV Emg Mkts Equity Median	-0.6	17.3	-0.2
Population	497	497	497

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
TT Emerging Markets	2.3	21.4	0.1
MSCI Emerging Markets (Net)	1.7	18.3	0.1
eV Emg Mkts Equity Median	3.4	18.9	0.1
Population	446	446	446

Global Equity Managers

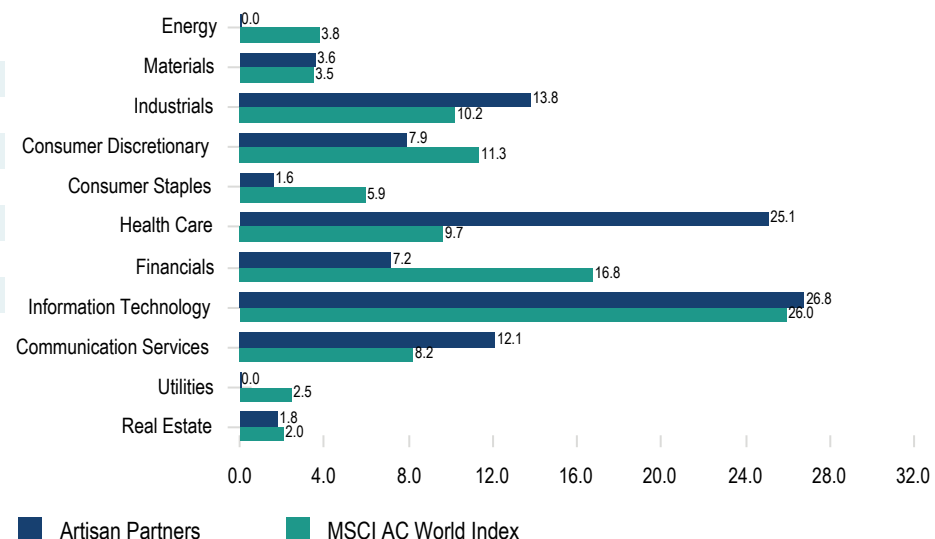
Artisan Partners Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	46	2,647
Wtd. Avg. Mkt. Cap \$M	399,939.99	740,869.68
Median Mkt. Cap \$M	93,121.46	12,789.71
Price/Earnings ratio	39.83	22.27
Price/Book ratio	6.09	3.94
Return on Equity (%)	6.69	7.84
Current Yield (%)	0.65	1.85
Beta (5 Years, Monthly)	0.99	1.00

Sector Allocation (%) vs. MSCI AC World Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Netflix Inc	5.33	25.67
Boston Scientific Corp	5.23	6.59
Taiwan Semiconductor Man.	4.72	14.08
arGEN-X SE	4.21	13.45
Advanced Micro Devices Inc	3.81	-26.38
London Stock Exchange Group	3.80	3.10
Tencent Holdings LTD	3.36	-6.21
LONZA GROUP AG	3.32	-6.71
Amazon.com Inc	3.23	17.74
Apple Inc	3.08	7.60

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Netflix Inc	4.19	25.67	1.07
Shopify Inc	1.85	32.68	0.61
Taiwan Semiconductor Man.	4.09	14.08	0.58
Atlassian Corp	1.02	53.25	0.54
Amazon.com Inc	2.71	17.74	0.48
arGEN-X SE	3.46	13.45	0.47
Boston Scientific Corp	5.06	6.59	0.33
Alphabet Inc	2.30	14.27	0.33
Arista Networks Inc	1.70	15.19	0.26
Apple Inc	2.62	7.60	0.20

Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Advanced Micro Devices Inc	5.12	-26.38	-1.35
Novo Nordisk A/S	3.79	-26.42	-1.00
Danaher Corp	2.91	-17.34	-0.50
Techtronic Industries Co Ltd	3.78	-13.21	-0.50
Keyence Corp	2.42	-13.95	-0.34
Astrazeneca PLC	2.09	-15.66	-0.33
Nu Holdings Ltd	1.13	-24.10	-0.27
Linde Plc	2.27	-11.94	-0.27
BAE Systems PLC	2.07	-12.52	-0.26
Adidas AG	3.04	-7.65	-0.23

% of Portfolio

29.00

4.86

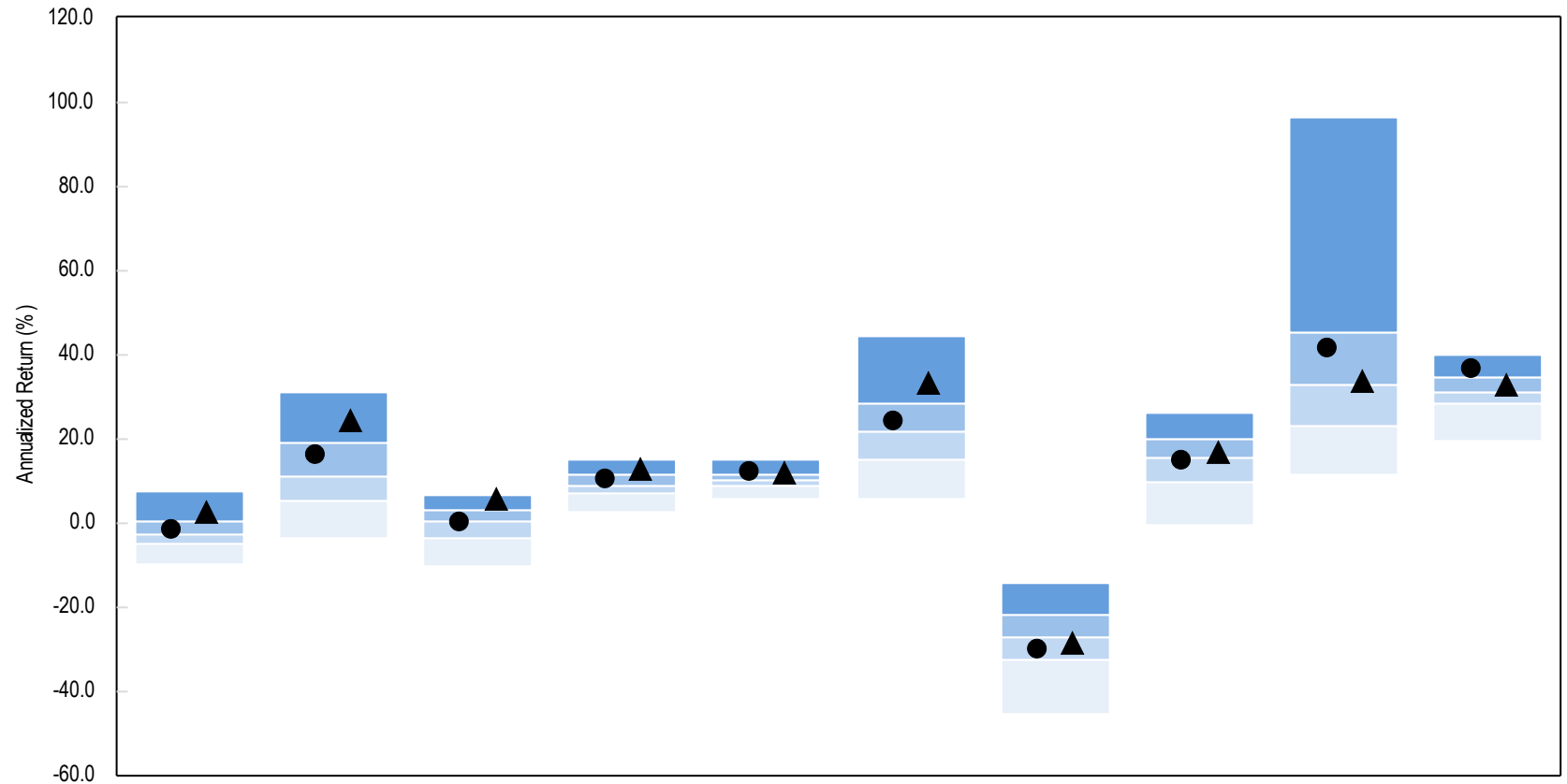
% of Portfolio

28.62

-5.05

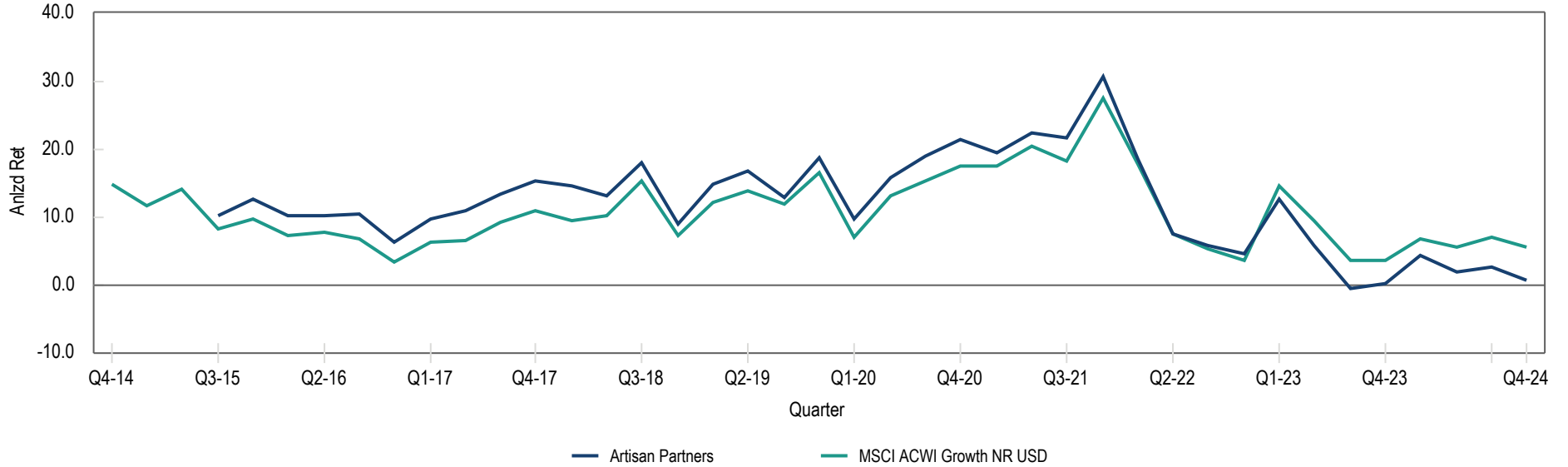
Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craigh Cepukenas, and Matthew Kamm.

Artisan Partners vs. eV Global Growth Equity Gross Universe

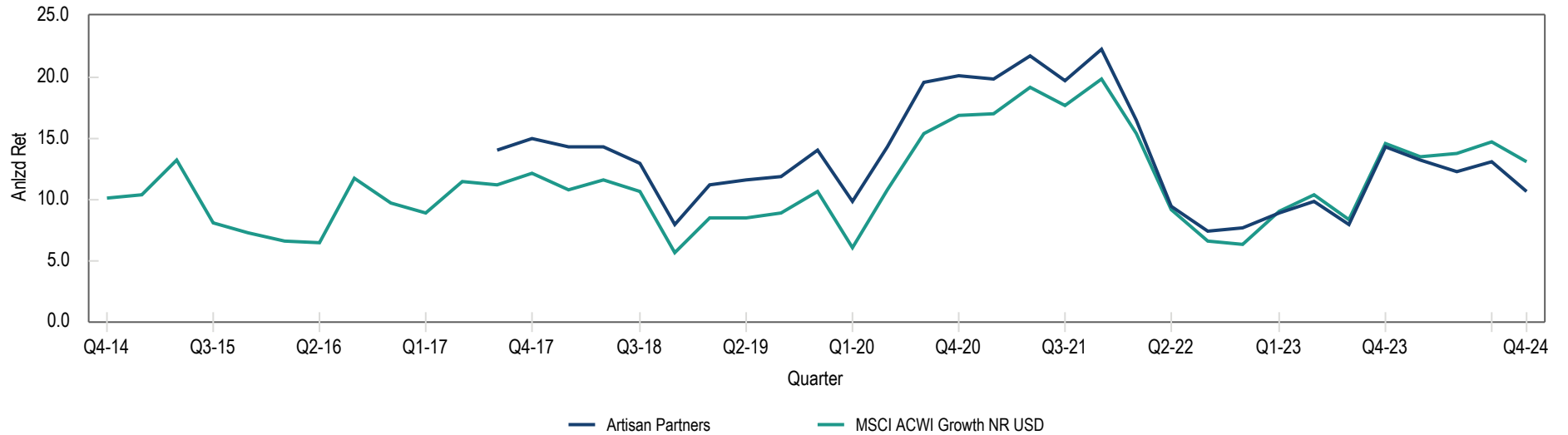


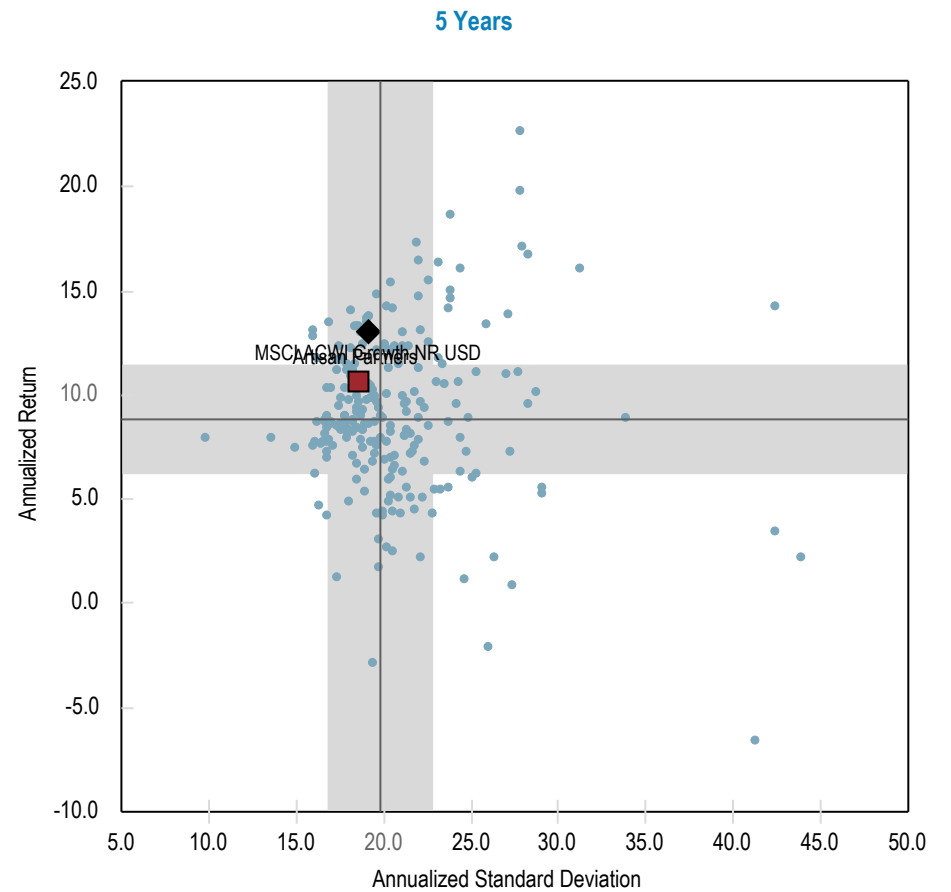
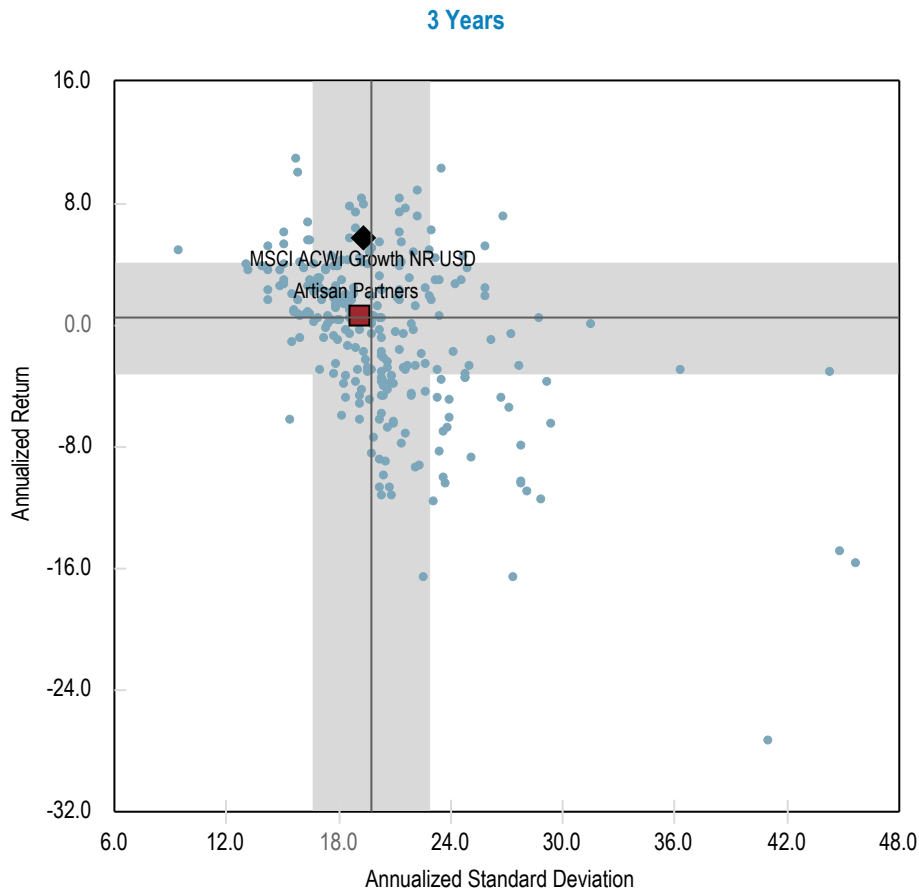
	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Artisan Partners	-1.38 (42)	16.30 (34)	0.65 (49)	10.68 (31)	12.37 (17)	24.54 (38)	-29.59 (60)	14.99 (56)	41.66 (33)	37.00 (12)
▲ MSCI ACWI Growth NR USD	2.64 (15)	24.23 (15)	5.72 (8)	13.07 (15)	11.88 (23)	33.22 (18)	-28.61 (56)	17.10 (43)	33.60 (49)	32.72 (37)
5th Percentile	7.45	30.99	6.76	15.31	15.03	44.61	-14.17	26.08	96.26	39.99
1st Quartile	0.66	19.07	3.02	11.41	11.67	28.53	-21.87	19.82	45.27	34.66
Median	-2.54	11.25	0.48	8.82	10.04	21.98	-27.10	15.66	33.01	31.31
3rd Quartile	-5.07	5.55	-3.50	7.24	8.86	15.31	-32.28	9.93	23.21	28.29
95th Percentile	-9.99	-3.70	-10.34	2.84	5.73	5.76	-45.27	-0.57	11.56	19.45
Population	285	285	264	227	136	301	304	289	269	252

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Artisan Partners	0.7	19.1	-0.1
MSCI ACWI Growth NR USD	5.7	19.4	0.2
eV Global Growth Equity Median	0.5	19.8	-0.1
Population	264	264	264

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Artisan Partners	10.7	18.6	0.5
MSCI ACWI Growth NR USD	13.1	19.1	0.6
eV Global Growth Equity Median	8.8	19.8	0.4
Population	227	227	227

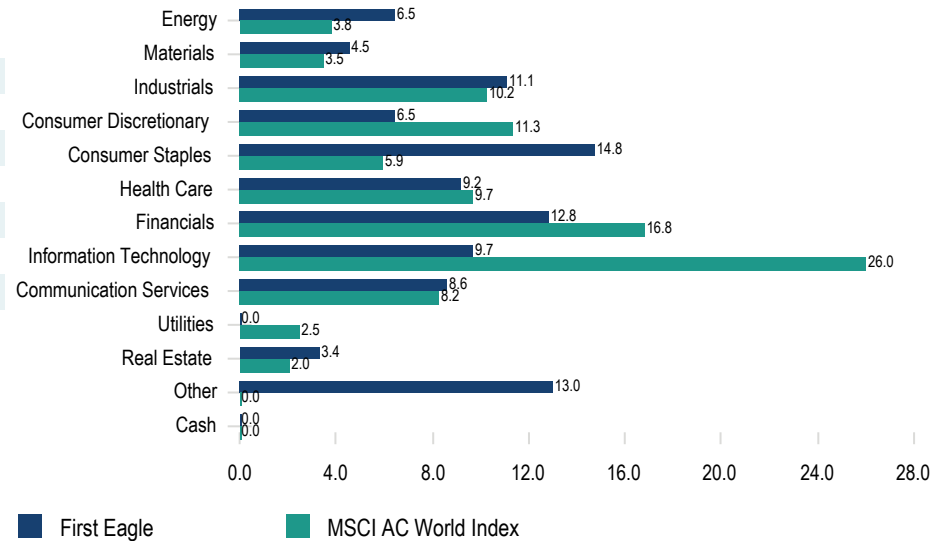
First Eagle Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

Characteristics

	Portfolio	Benchmark
Number of Stocks	125	2,647
Wtd. Avg. Mkt. Cap \$M	209,303.59	740,869.68
Median Mkt. Cap \$M	29,569.28	12,789.71
Price/Earnings ratio	17.15	22.27
Price/Book ratio	2.43	3.94
Return on Equity (%)	4.17	7.84
Current Yield (%)	2.18	1.85
Beta (5 Years, Monthly)	0.75	1.00

Sector Allocation (%) vs. MSCI AC World Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
SPDR Gold Trust	12.98	-0.38
Oracle Corp	2.99	-1.98
Meta Platforms Inc	2.98	2.36
Alphabet Inc	2.06	14.04
HCA Healthcare Inc	1.94	-25.99
Comcast Corp	1.81	-9.48
Philip Morris International Inc	1.72	0.23
Elevance Health Inc	1.72	-28.76
Schlumberger Ltd	1.63	-8.02
Willis Towers Watson plc	1.60	6.65

Top Contributors

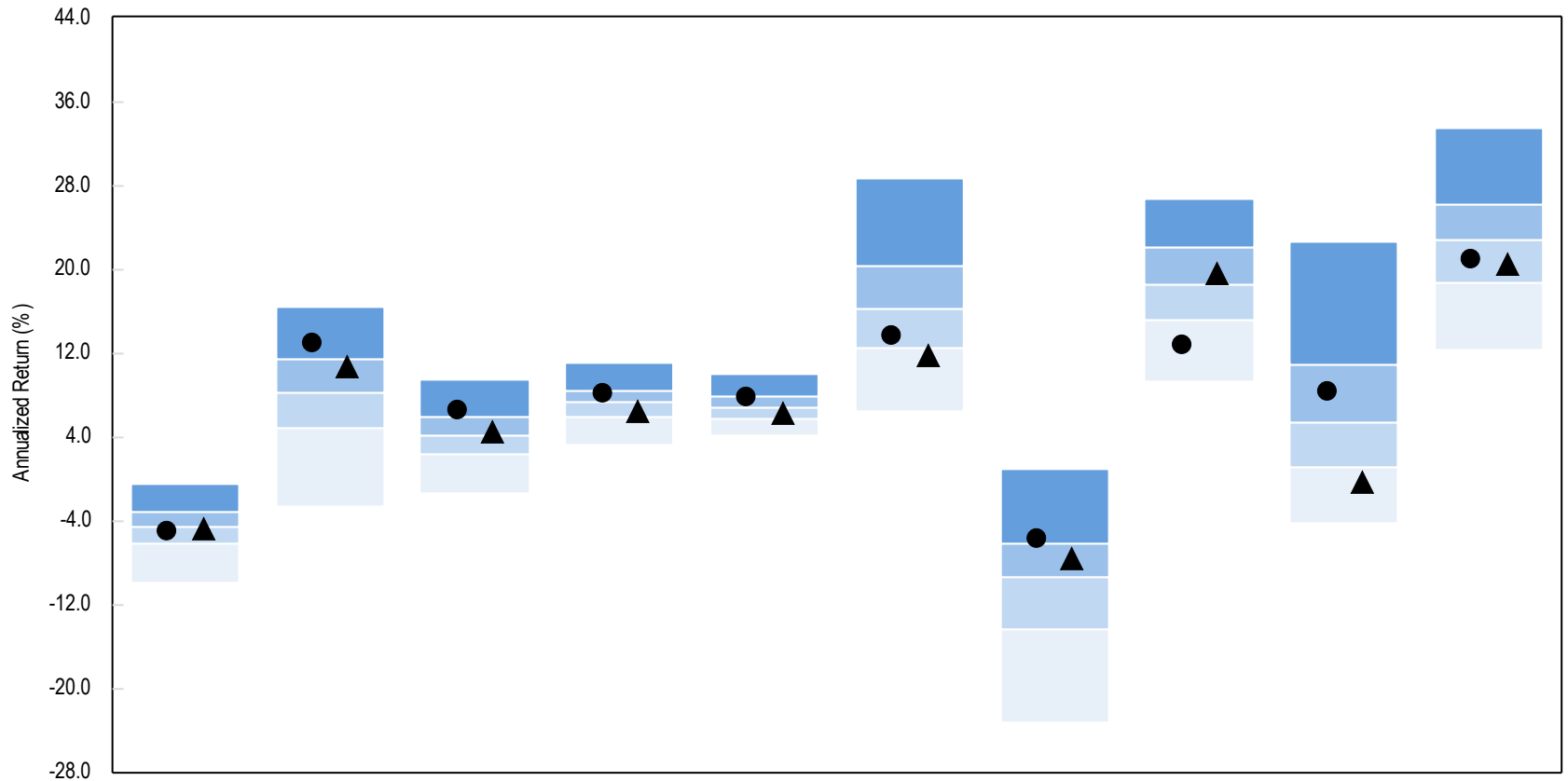
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Alphabet Inc	1.74	14.04	0.24
SALESFORCE INC	0.99	22.29	0.22
Taiwan Semiconductor Man.	1.00	14.08	0.14
Sompo Holdings Inc	0.74	17.12	0.13
Bank of New York Mellon Corp (The)	1.46	7.58	0.11
Willis Towers Watson plc	1.55	6.65	0.10
American Express Co	1.00	9.71	0.10
Walt Disney Co (The)	0.52	16.28	0.09
Flowserve Corp.	0.72	11.68	0.08
Alphabet Inc	0.56	14.27	0.08
% of Portfolio	10.28		1.29

Top Detractors

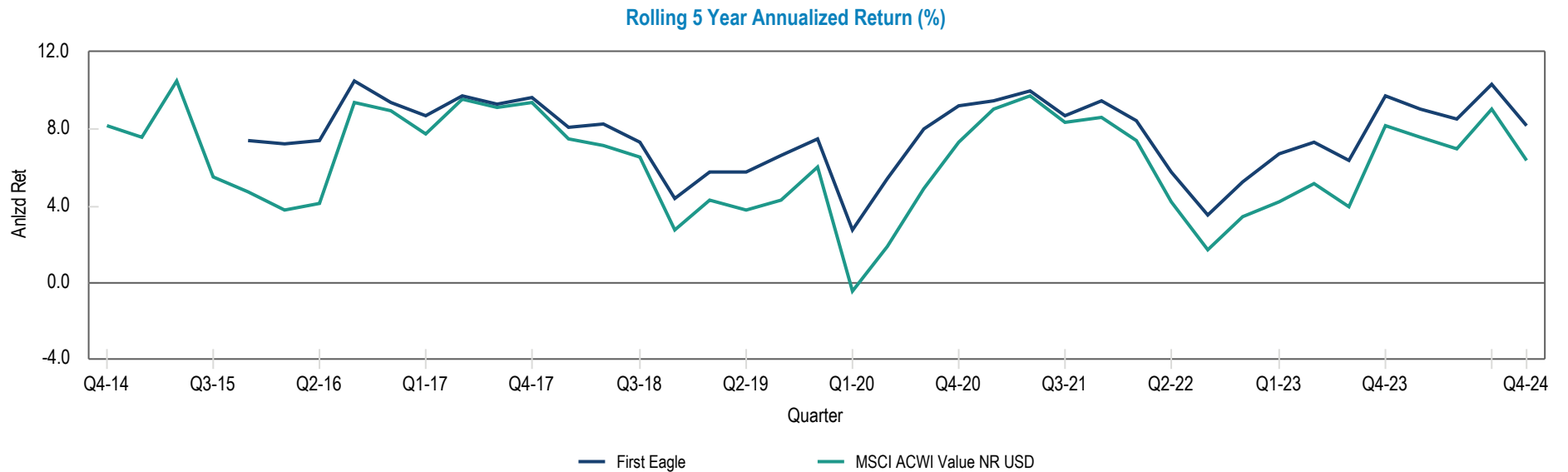
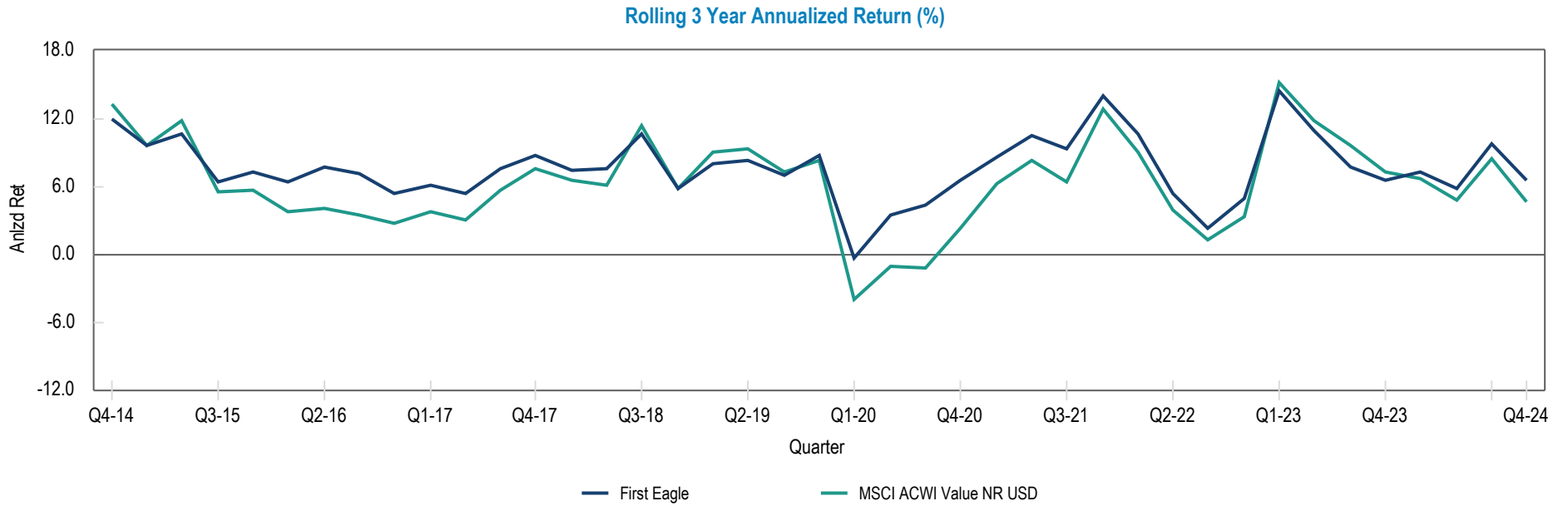
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
HCA Healthcare Inc	2.23	-25.99	-0.58
Elevance Health Inc	1.54	-28.76	-0.44
Universal Health Services	1.36	-21.58	-0.29
Alibaba Group Holding Ltd	1.00	-25.09	-0.25
Newmont Corporation	0.84	-29.95	-0.25
Shimano Inc	0.87	-27.83	-0.24
Barrick Gold Corp	0.94	-21.63	-0.20
Unilever PLC	1.56	-11.84	-0.19
Berkeley Group Holdings PLC	0.76	-22.85	-0.17
Imperial Oil Ltd	1.42	-12.03	-0.17
% of Portfolio	12.52		-2.80

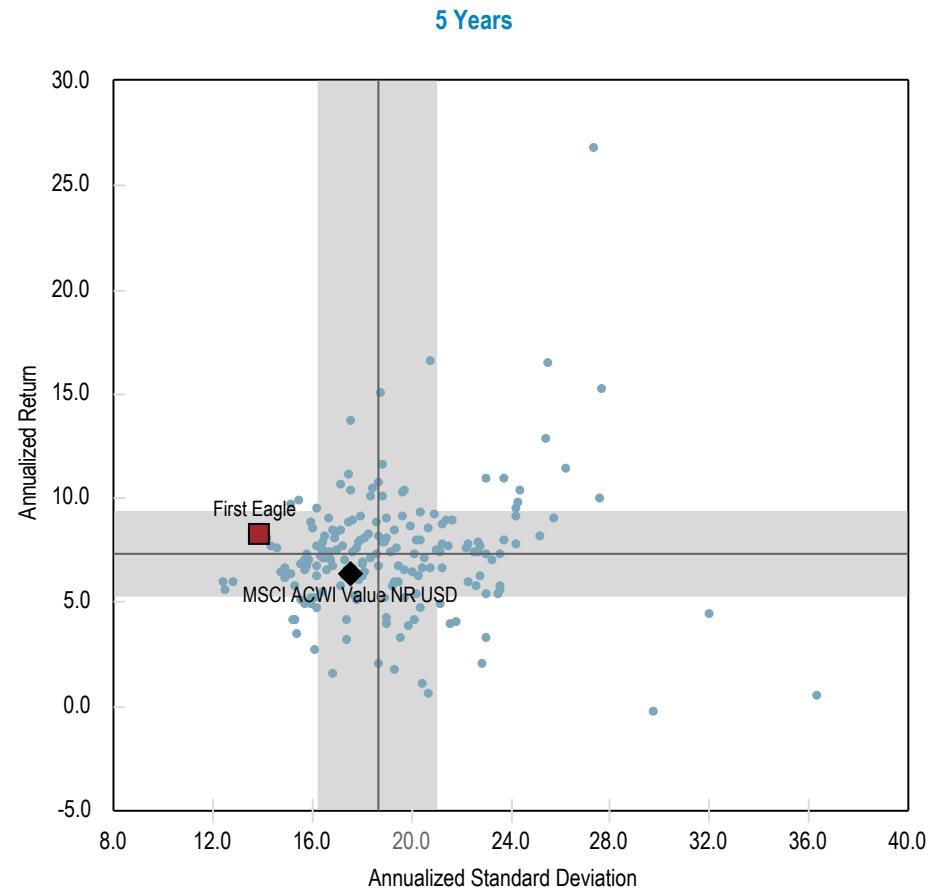
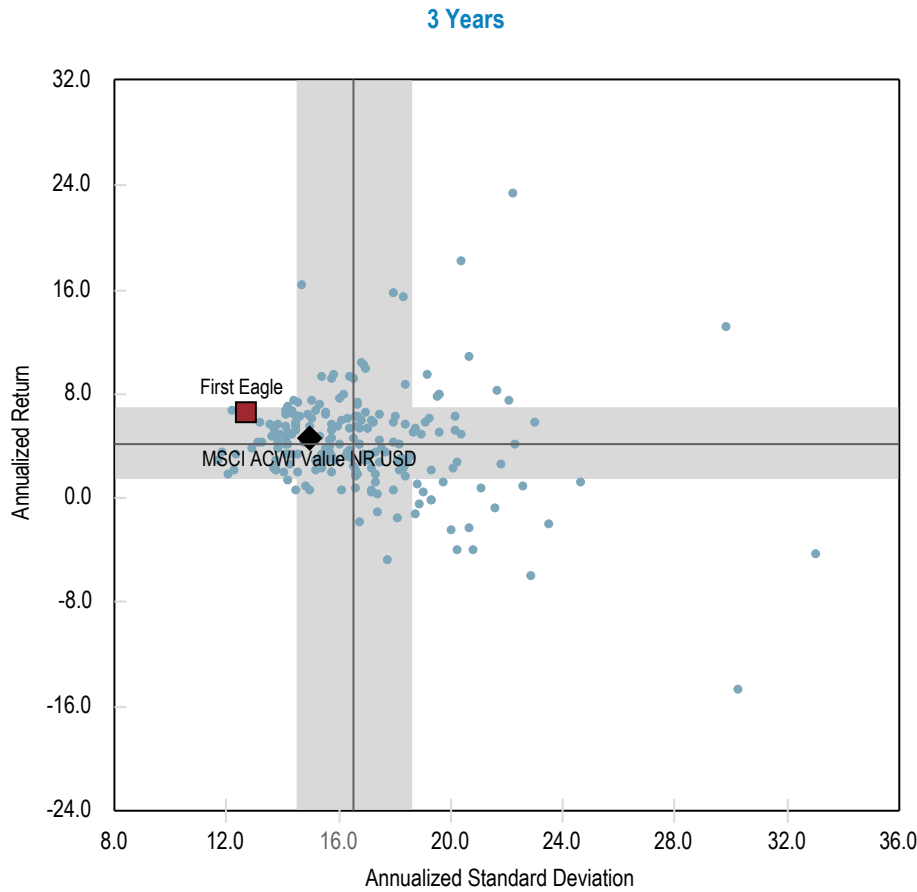
Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

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	-4.93 (60)	12.98 (16)	6.65 (17)	8.25 (27)	7.90 (25)	13.75 (66)	-5.61 (23)	12.95 (87)	8.47 (33)	21.01 (64)
▲ MSCI ACWI Value NR USD	-4.71 (55)	10.76 (31)	4.61 (46)	6.42 (68)	6.24 (70)	11.81 (80)	-7.55 (36)	19.62 (41)	-0.33 (80)	20.59 (66)
5th Percentile	-0.38	16.44	9.49	11.10	9.97	28.73	1.03	26.72	22.59	33.51
1st Quartile	-3.05	11.55	6.03	8.49	7.89	20.33	-6.15	22.05	11.00	26.20
Median	-4.57	8.23	4.22	7.31	6.83	16.27	-9.34	18.60	5.41	22.80
3rd Quartile	-6.18	4.82	2.38	5.96	5.83	12.53	-14.32	15.16	1.08	18.81
95th Percentile	-9.88	-2.51	-1.35	3.22	4.19	6.53	-23.13	9.28	-4.25	12.27
Population	229	229	212	189	141	235	235	235	241	236





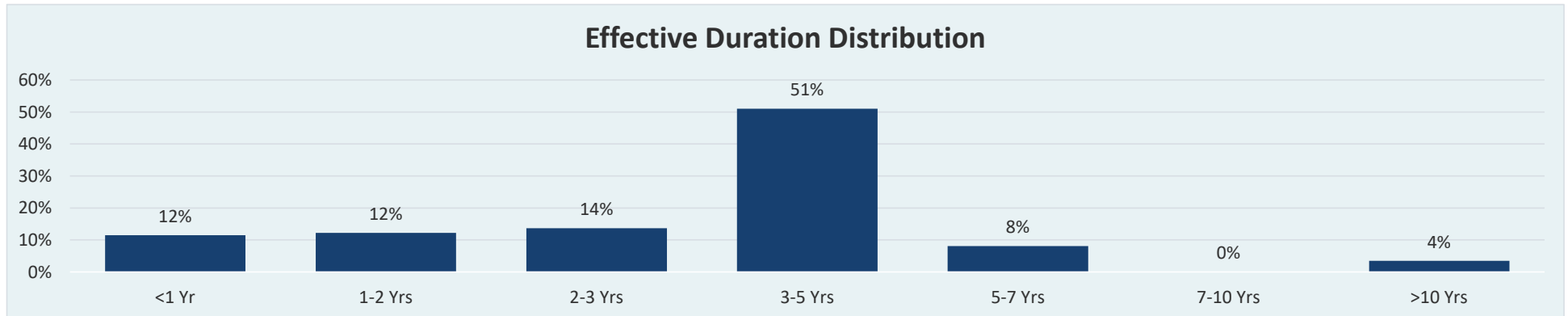
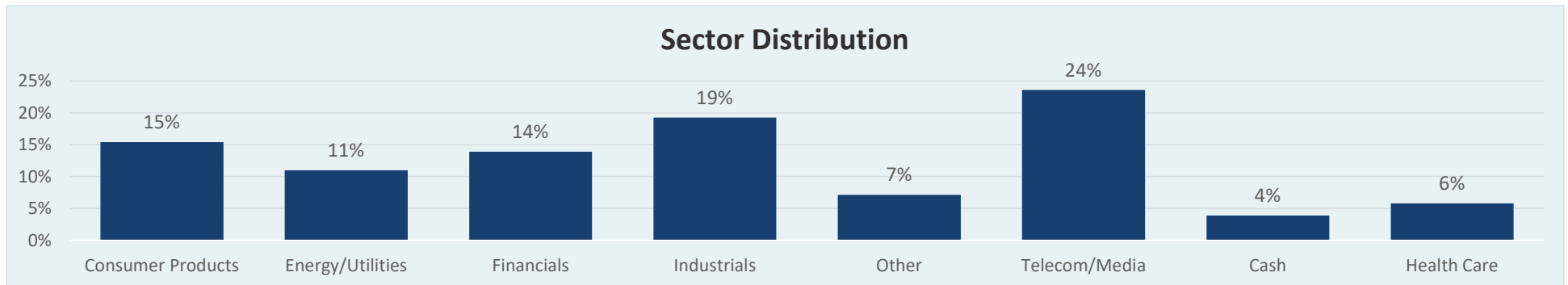
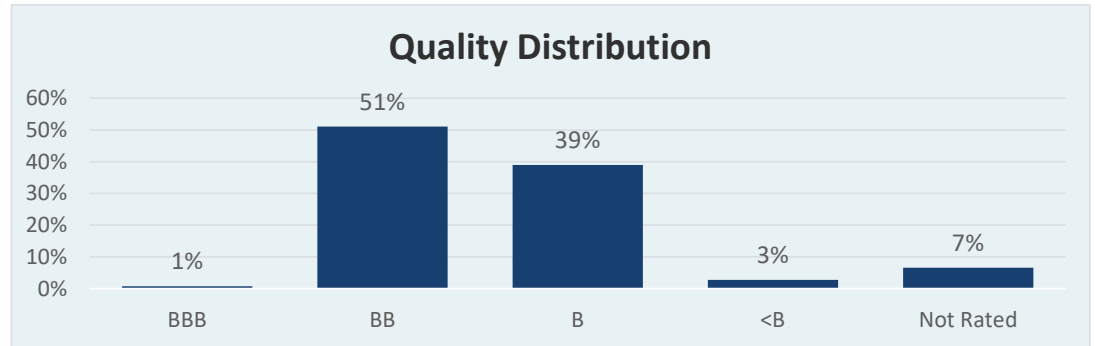
	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
First Eagle	6.7	12.7	0.3
MSCI ACWI Value NR USD	4.6	15.0	0.1
eV Global Value Equity Median	4.2	16.5	0.1
Population	212	212	212

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
First Eagle	8.2	13.8	0.5
MSCI ACWI Value NR USD	6.4	17.6	0.3
eV Global Value Equity Median	7.3	18.6	0.3
Population	189	189	189

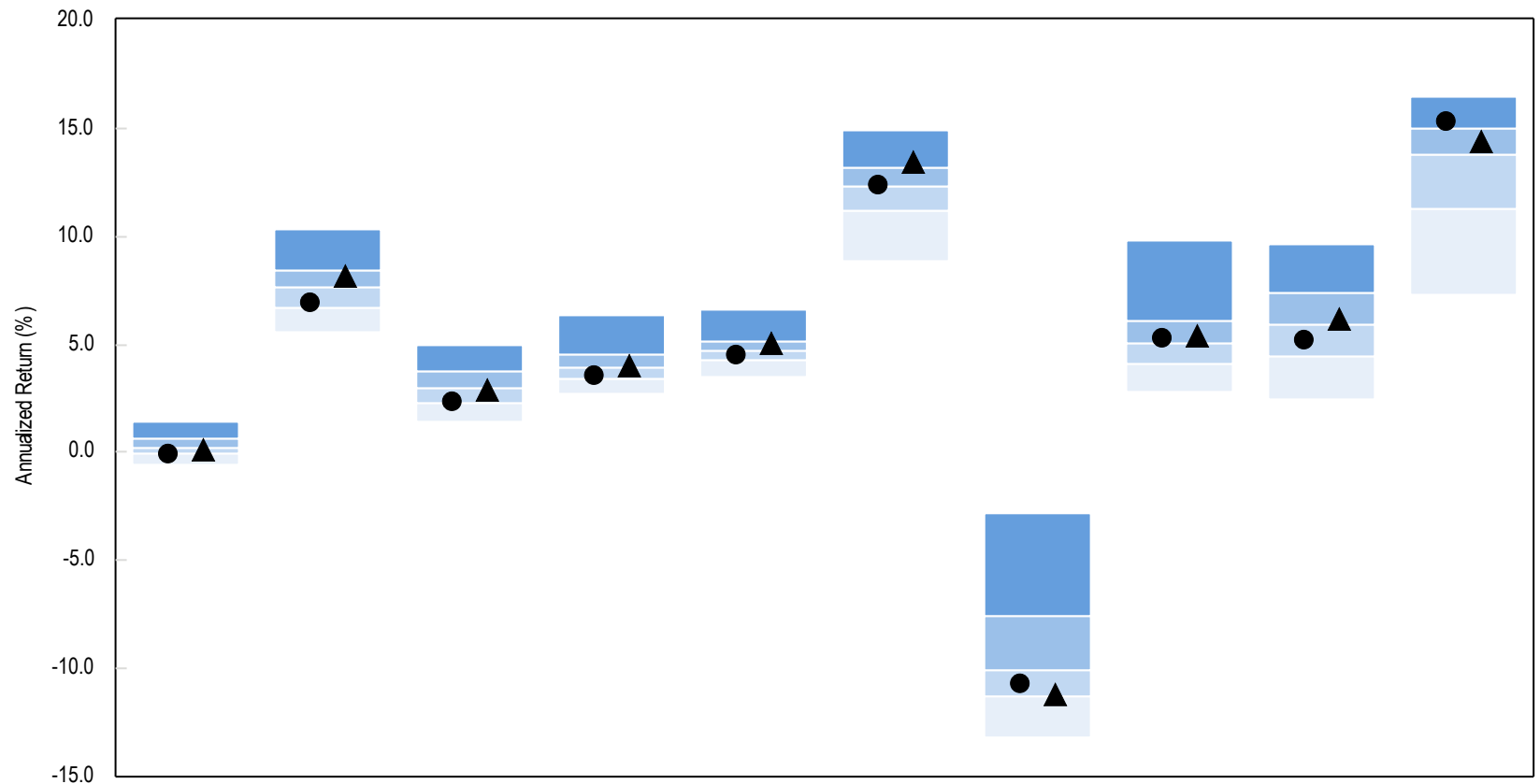
High Yield Managers

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

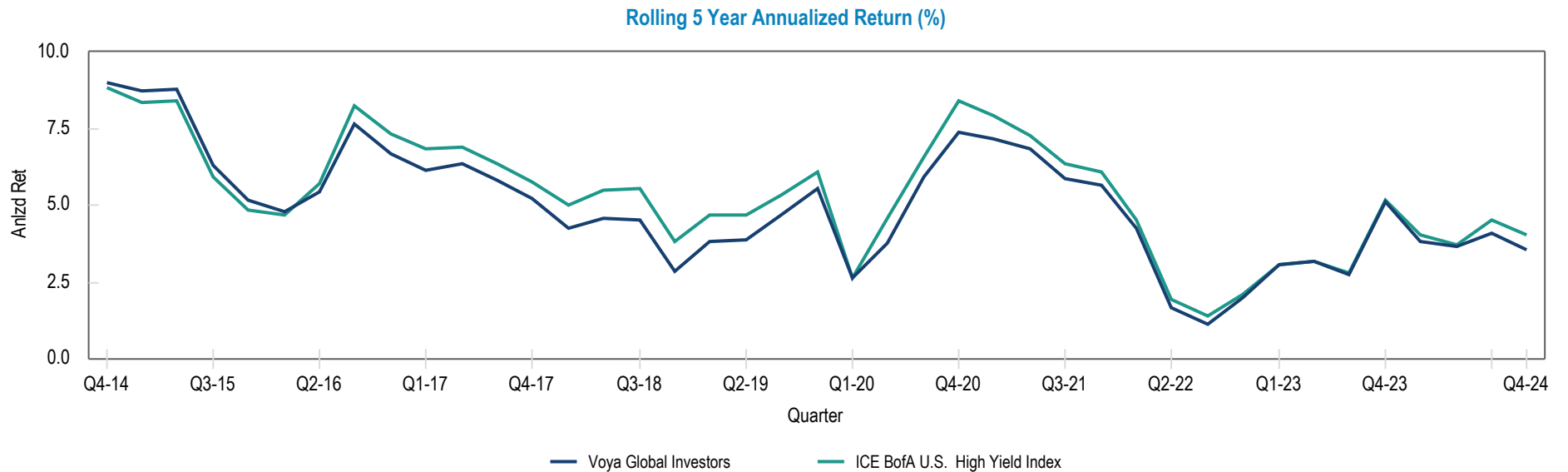
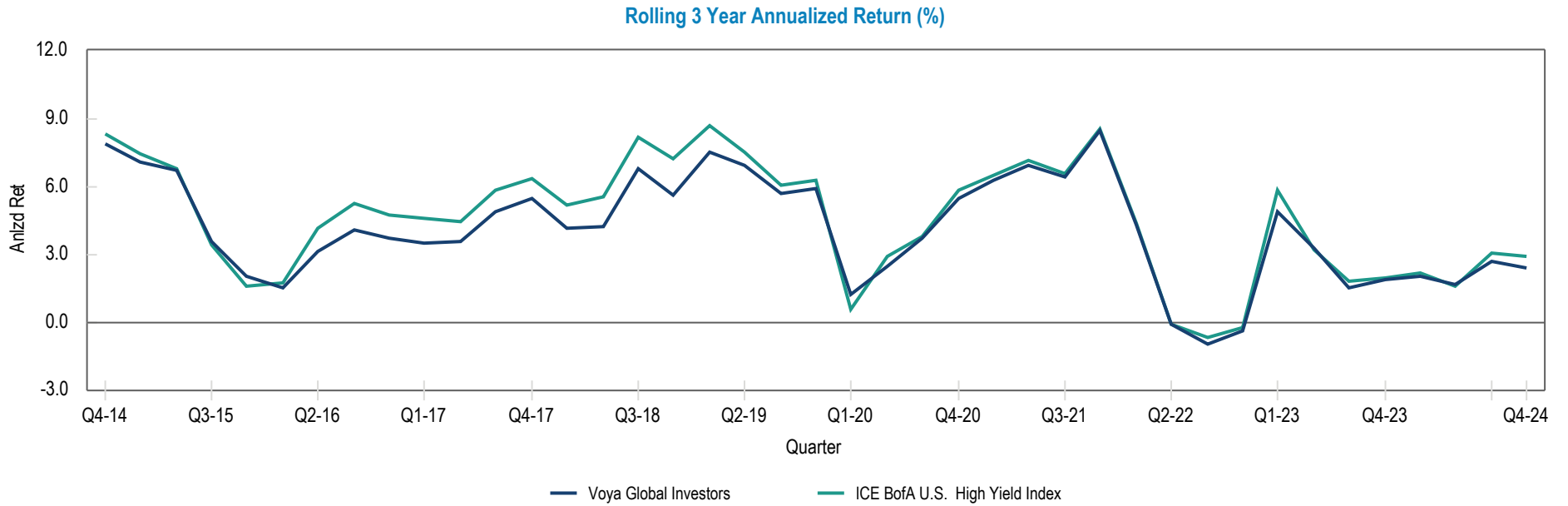
	Voya	ICE BofAML HY Master II
Effective Duration	3.10	3.20
Yield to Maturity	6.8%	7.7%
Average Quality	B1	B1
Average Coupon	6.9%	6.4%

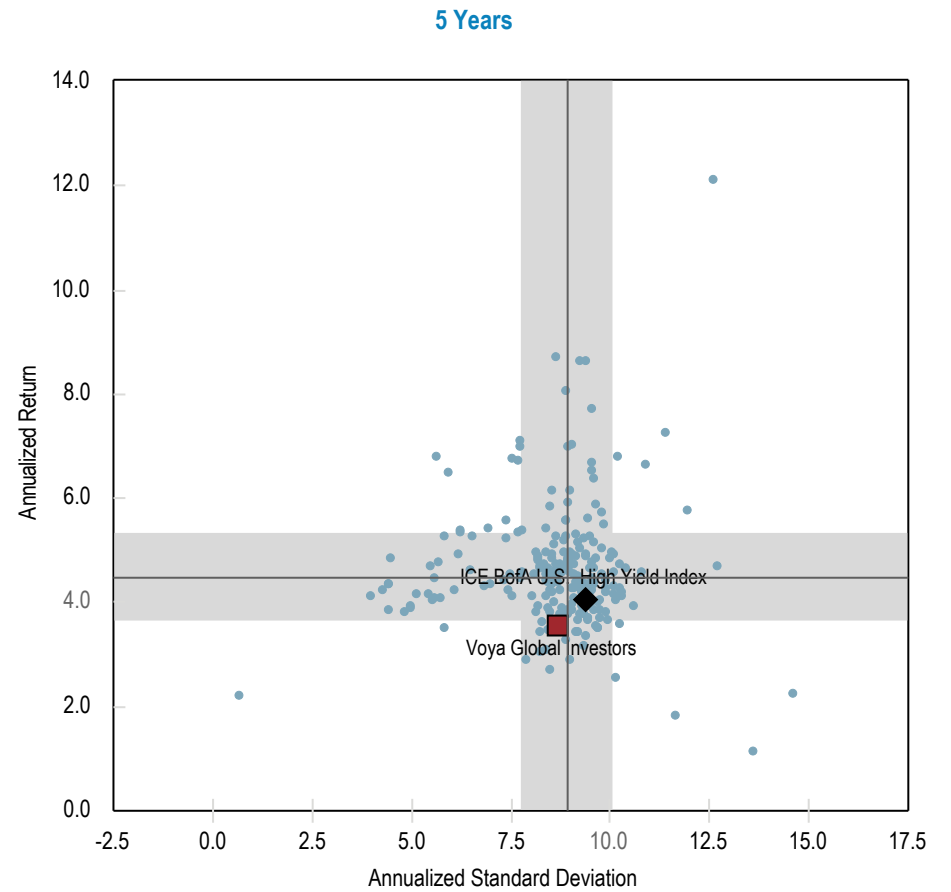
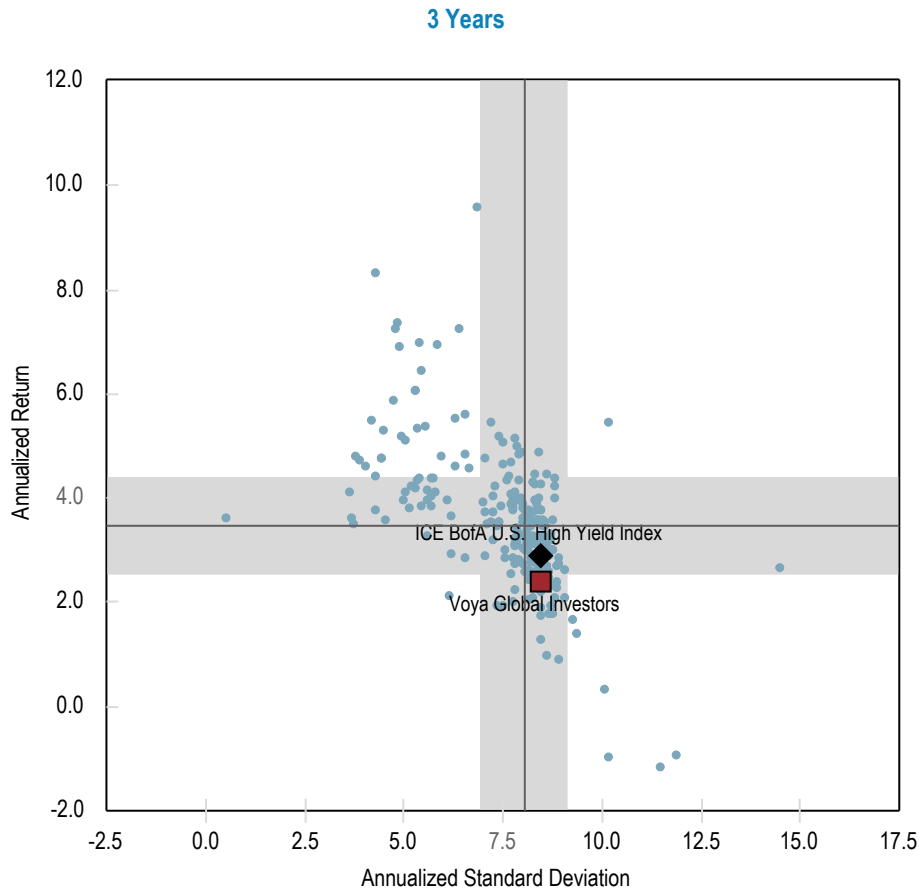


Voya Global Investors vs. eV US High Yield Fixed Inc Gross Universe



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Voya Global Investors	-0.05 (75)	6.95 (69)	2.41 (73)	3.54 (72)	4.55 (62)	12.39 (48)	-10.64 (63)	5.34 (42)	5.18 (67)	15.32 (19)
▲ ICE BofA U.S. High Yield Index	0.16 (59)	8.20 (32)	2.91 (52)	4.04 (44)	5.08 (28)	13.46 (19)	-11.22 (75)	5.36 (42)	6.17 (43)	14.41 (37)
5th Percentile	1.41	10.31	4.99	6.37	6.58	14.94	-2.82	9.79	9.67	16.50
1st Quartile	0.62	8.42	3.77	4.57	5.16	13.18	-7.61	6.11	7.40	14.98
Median	0.23	7.65	2.99	3.90	4.74	12.29	-10.05	5.05	5.88	13.80
3rd Quartile	-0.06	6.72	2.32	3.41	4.26	11.17	-11.29	4.07	4.47	11.25
95th Percentile	-0.59	5.61	1.42	2.74	3.49	8.84	-13.14	2.84	2.43	7.30
Population	240	236	228	214	183	254	268	262	265	270





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Voya Global Investors	2.4	8.4	-0.1
ICE BofA U.S. High Yield Index	2.9	8.4	-0.1
eV US High Yield Fixed Inc Median	3.5	8.0	0.0
Population	235	235	235

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Voya Global Investors	3.5	8.7	0.2
ICE BofA U.S. High Yield Index	4.0	9.4	0.2
eV US High Yield Fixed Inc Median	4.5	8.9	0.3
Population	220	220	220

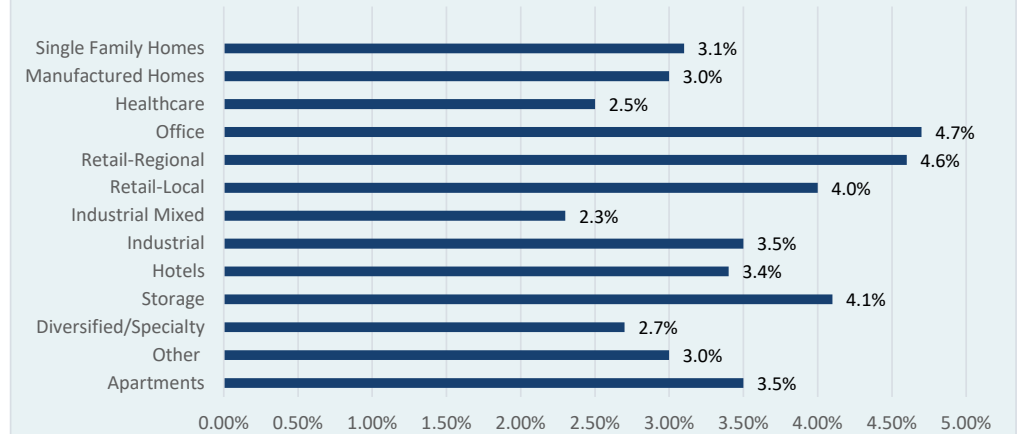
Real Estate Managers

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

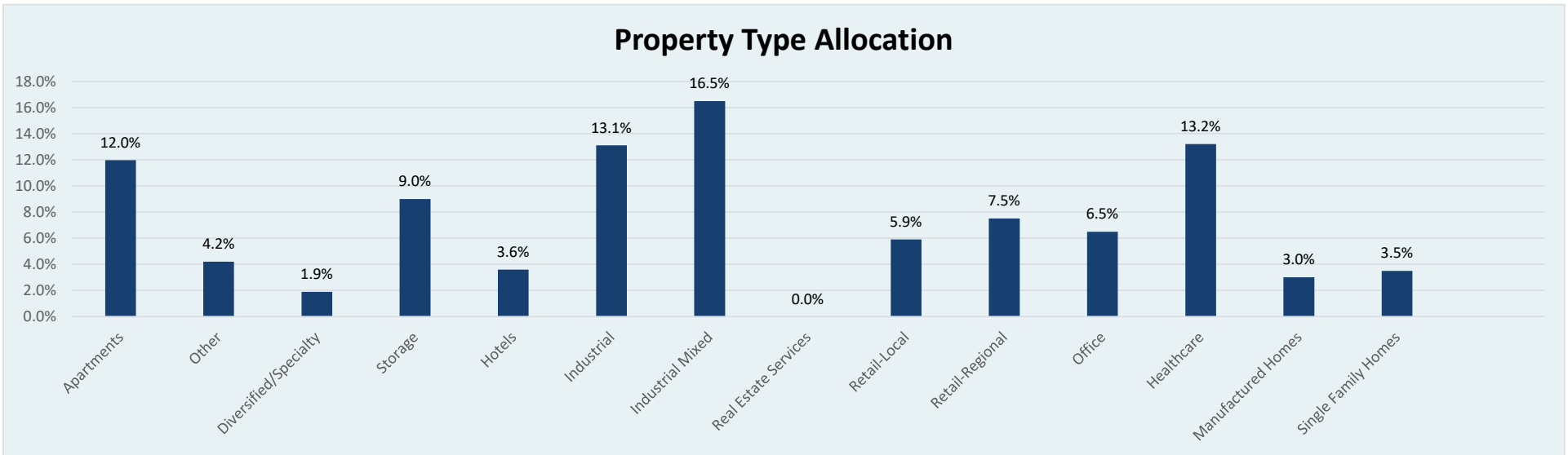
Top Five Holdings

Company	Property Type	Allocation
ProLogis Inc.	Industrial	9.8%
Welltower Inc.	Healthcare	9.7%
Equinix, Inc.	Industrial Mixed	9.4%
Simon Property Group, Inc.	Retail- Regional	6.2%
Digital Realty Trust	Industrial Mixed	6.1%

Dividend Yield by Property Type



Property Type Allocation



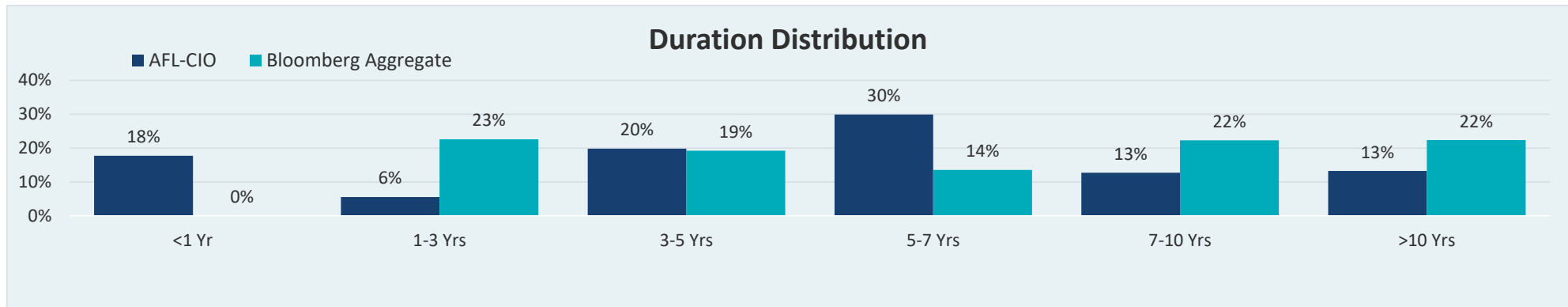
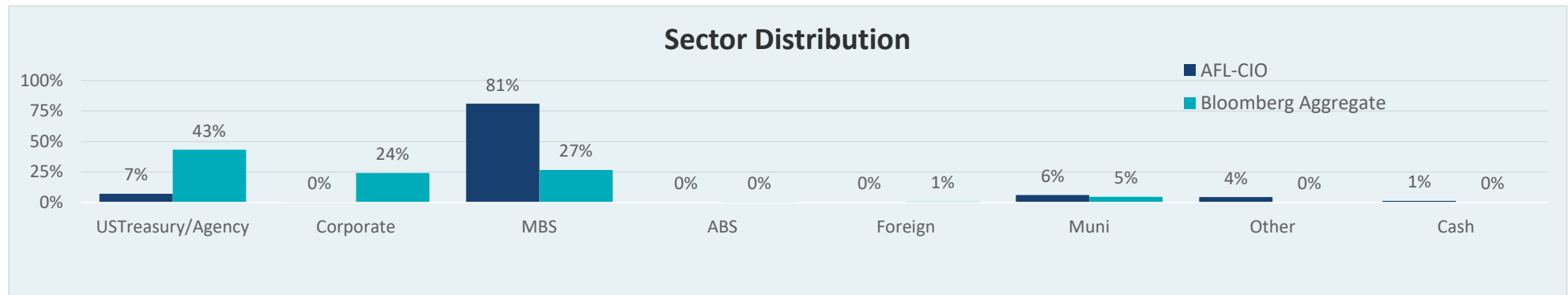
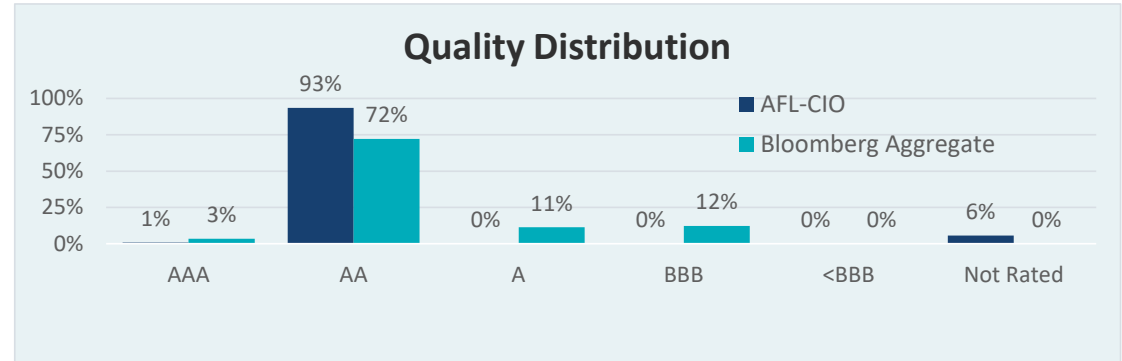
Diversifying Fixed Income Managers

AFL-CIO Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 2024

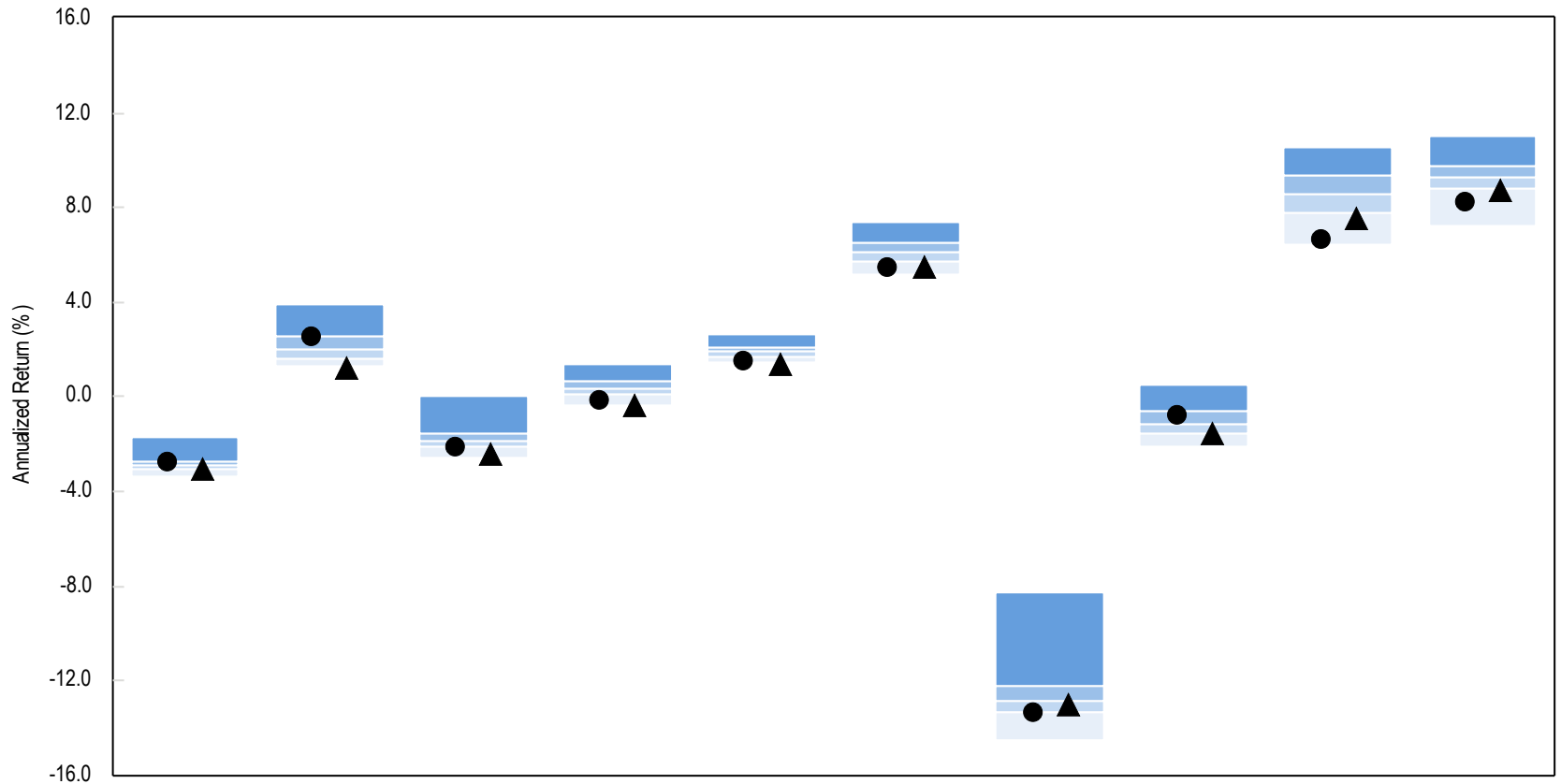
Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	Bloomberg Aggregate
Effective Duration	5.93	5.93
Yield to Maturity	4.1%	3.8%
Average Quality	Aa1	Aa2
Average Coupon	3.7%	3.5%

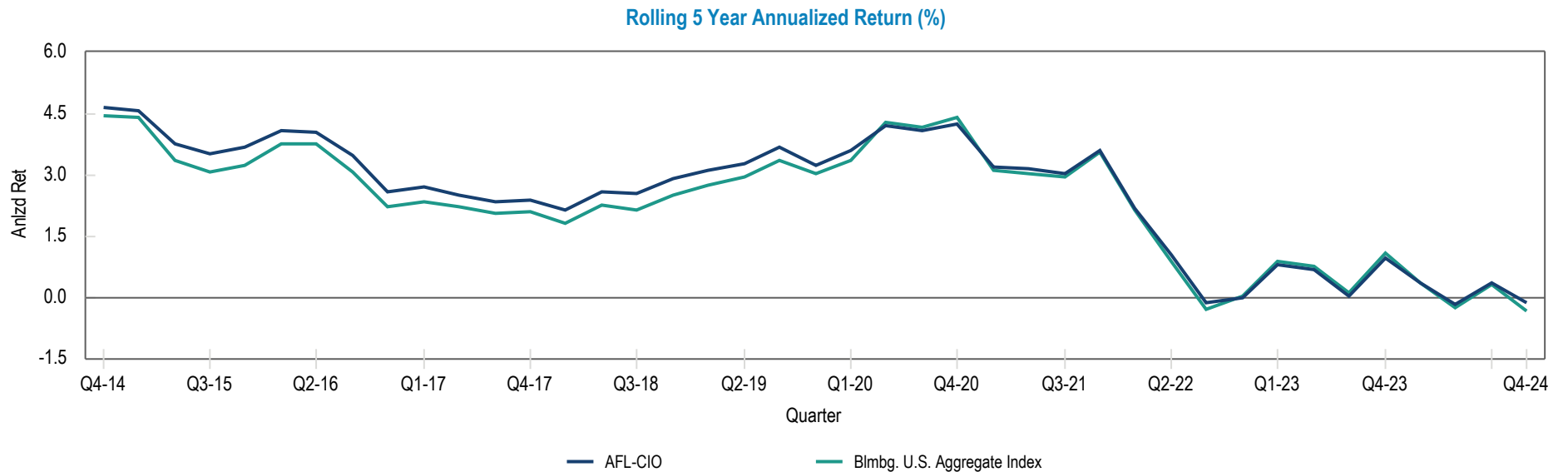
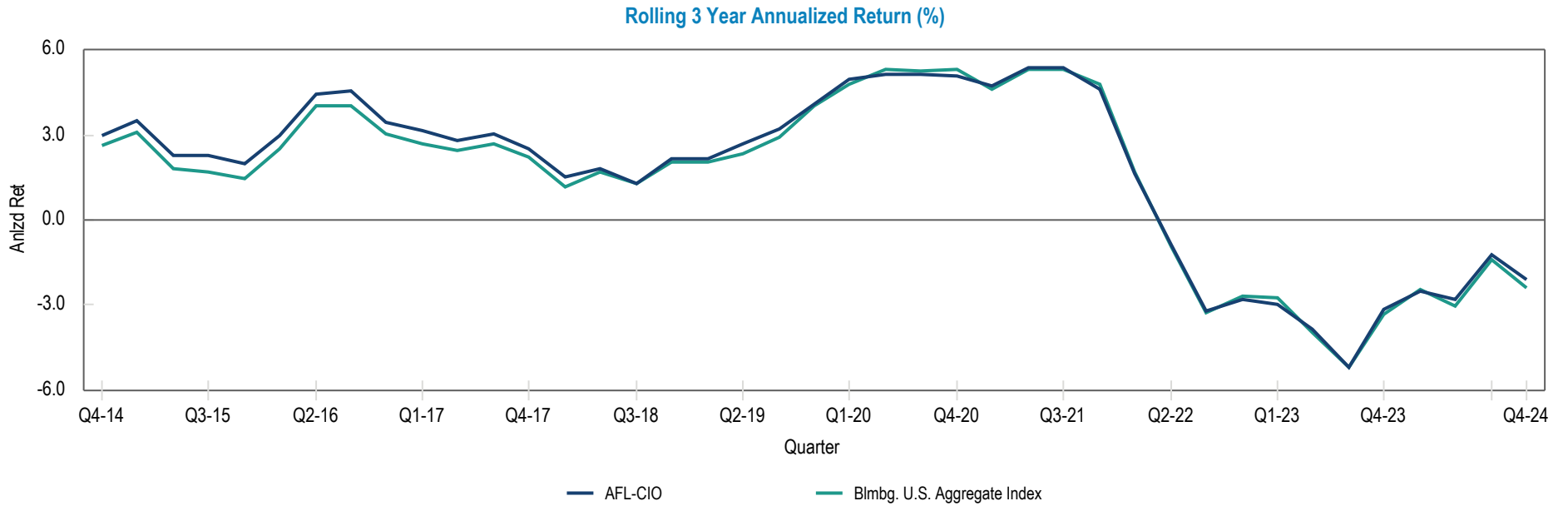


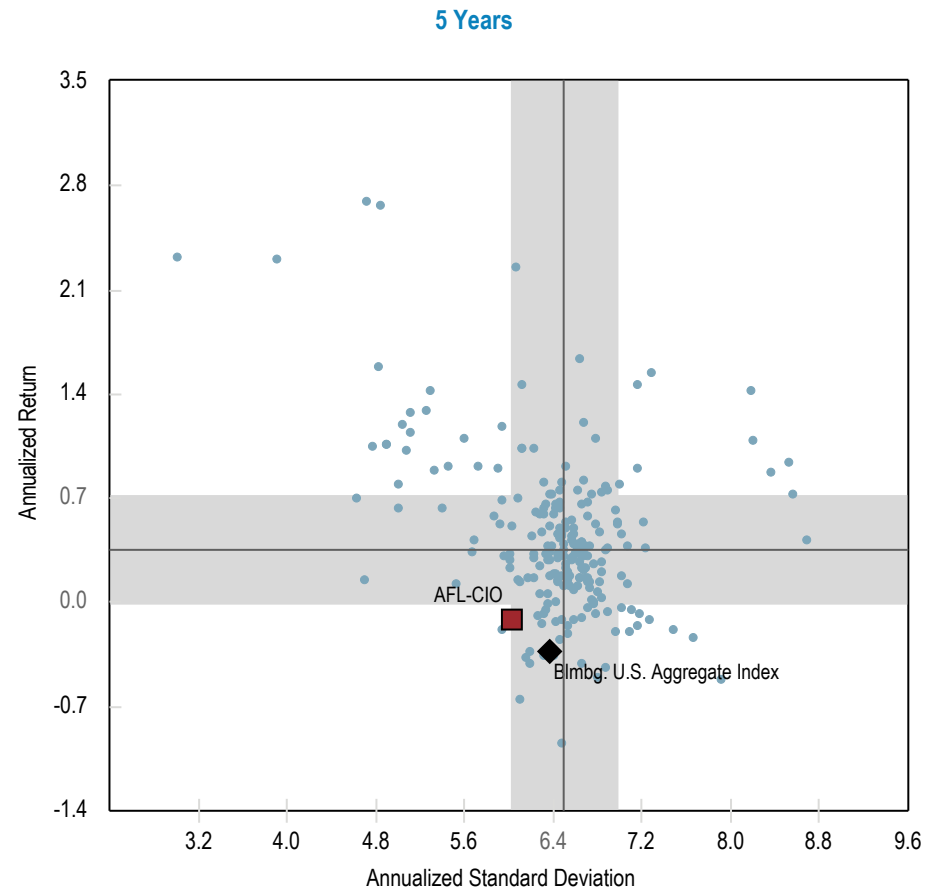
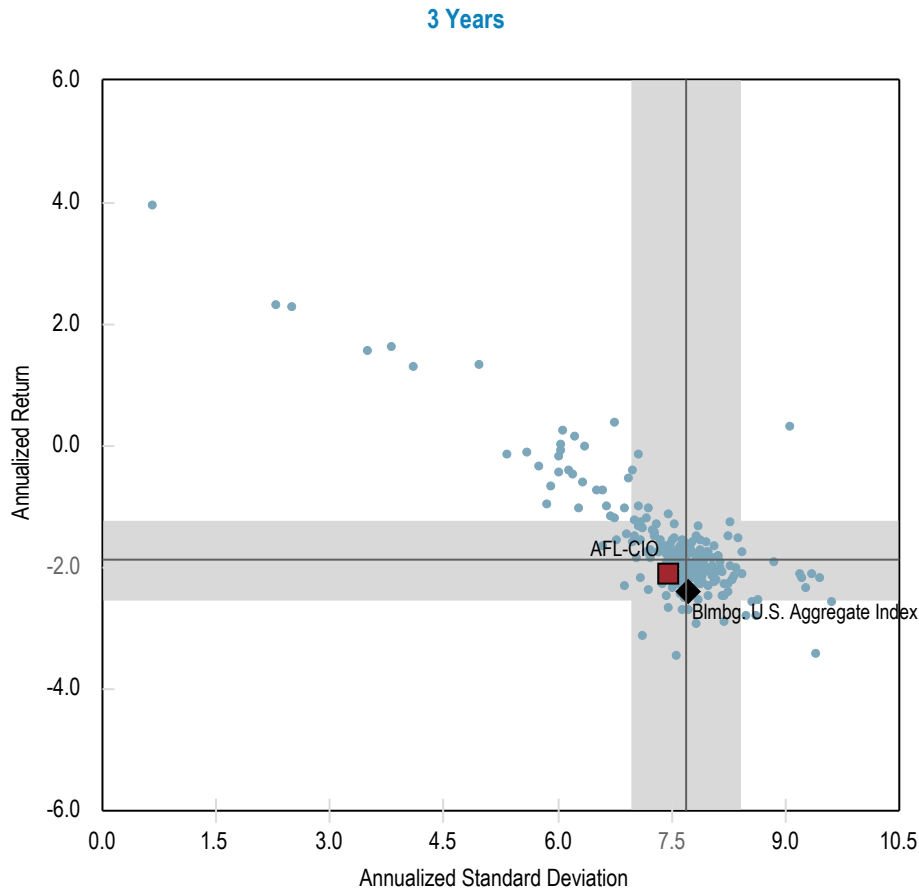
Duration and Quality distributions exclude cash.

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	-2.70 (25)	2.60 (25)	-2.08 (70)	-0.12 (90)	1.55 (92)	5.51 (86)	-13.27 (74)	-0.73 (33)	6.65 (94)	8.25 (87)
▲ Blmbg. U.S. Aggregate Index	-3.06 (77)	1.25 (96)	-2.41 (91)	-0.33 (96)	1.35 (99)	5.53 (85)	-13.01 (63)	-1.55 (77)	7.51 (83)	8.72 (77)
5th Percentile	-1.73	3.88	0.01	1.42	2.66	7.42	-8.28	0.50	10.57	11.01
1st Quartile	-2.70	2.59	-1.53	0.66	2.09	6.55	-12.19	-0.61	9.34	9.76
Median	-2.89	2.03	-1.88	0.35	1.91	6.15	-12.83	-1.11	8.54	9.31
3rd Quartile	-3.06	1.65	-2.13	0.14	1.70	5.73	-13.29	-1.51	7.75	8.77
95th Percentile	-3.34	1.27	-2.55	-0.32	1.48	5.18	-14.50	-2.11	6.42	7.22
Population	235	235	233	222	207	250	269	276	280	284





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
AFL-CIO	-2.1	7.4	-0.8
Bimbg. U.S. Aggregate Index	-2.4	7.7	-0.8
eV US Core Fixed Inc Median	-1.9	7.7	-0.7
Population	233	233	233

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
AFL-CIO	-0.1	6.0	-0.4
Bimbg. U.S. Aggregate Index	-0.3	6.4	-0.4
eV US Core Fixed Inc Median	0.4	6.5	-0.3
Population	222	222	222

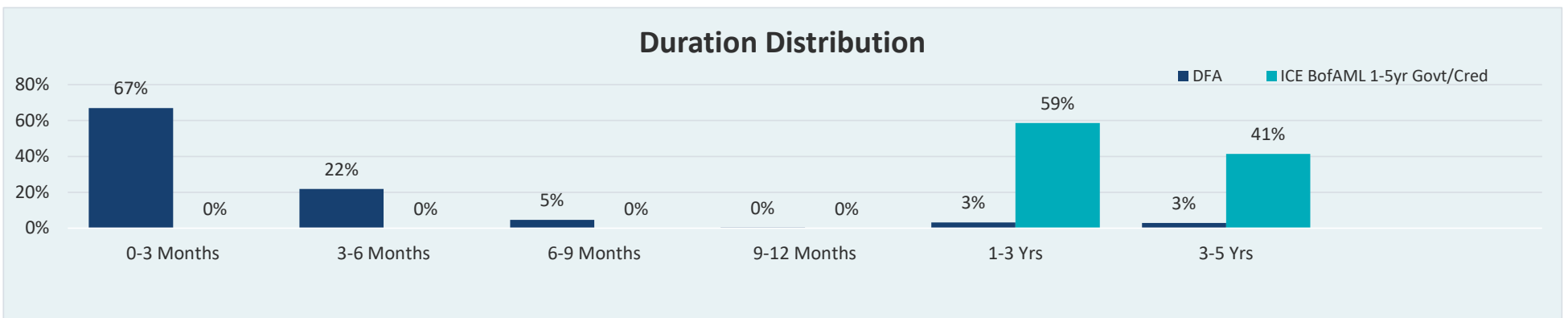
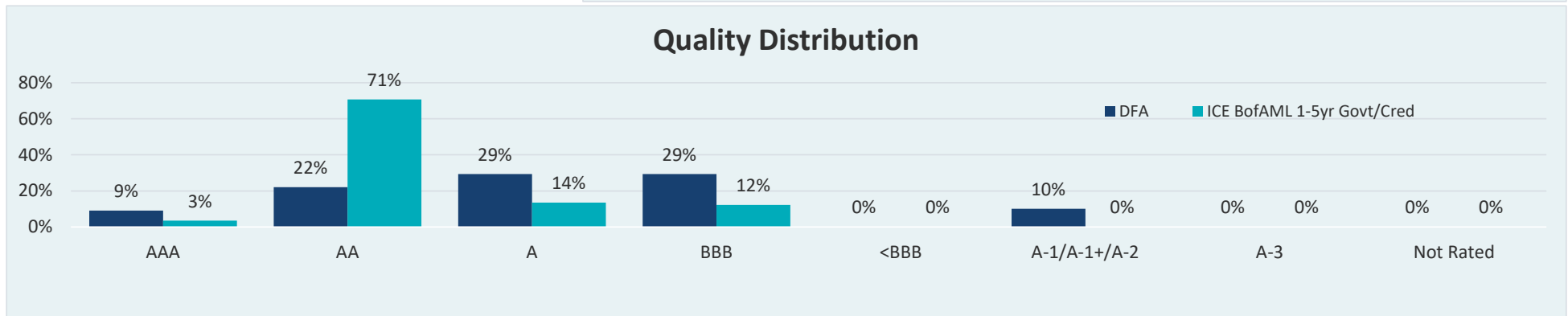
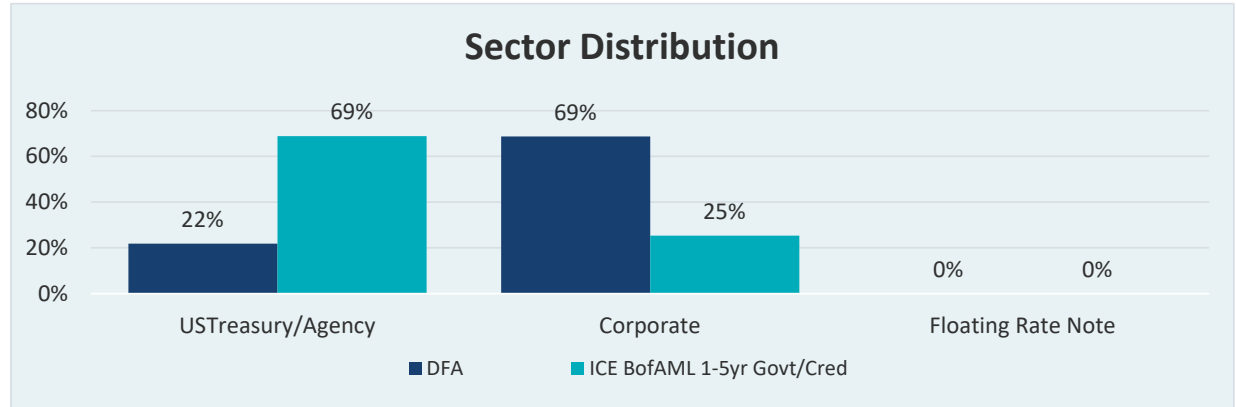
Liquidity Managers

DFA Short Credit Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 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	0.30	2.54
Yield to Maturity	5.16	4.51
Average Quality	A+	Aa2
Average Coupon	3.70%	3.23%

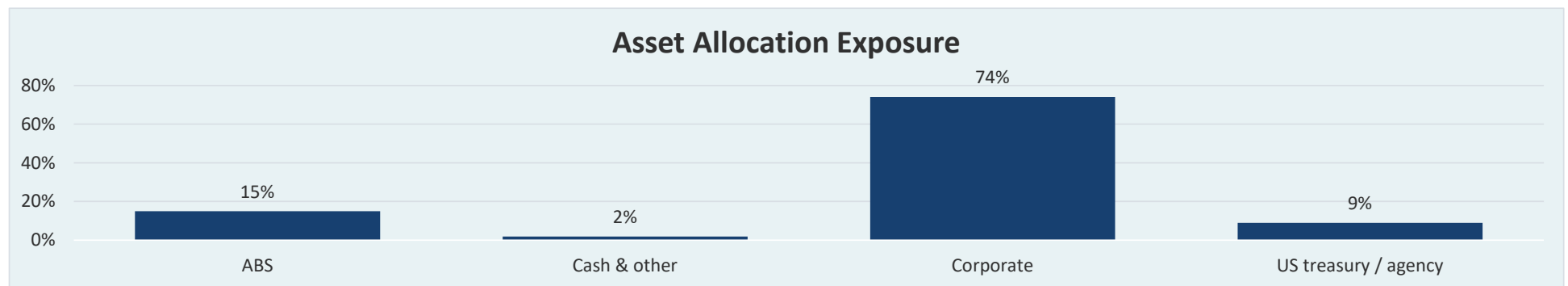
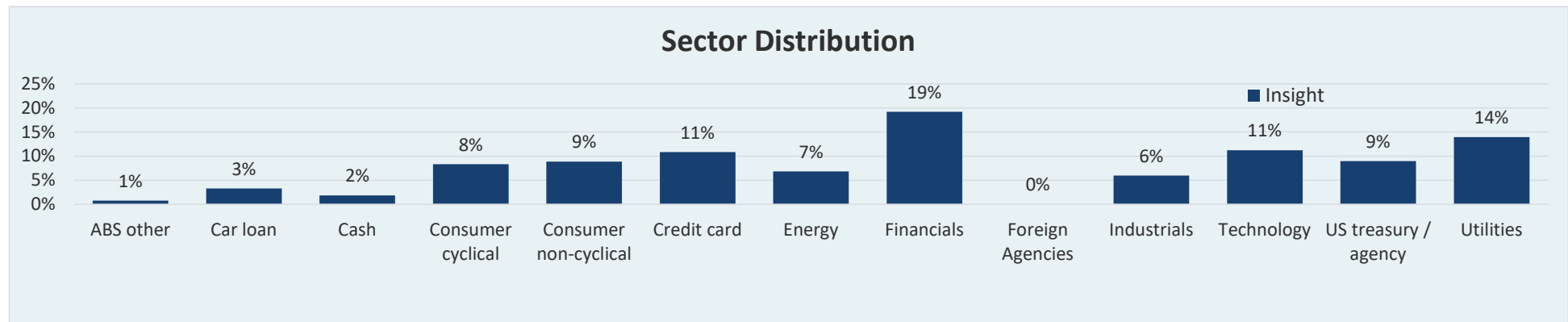
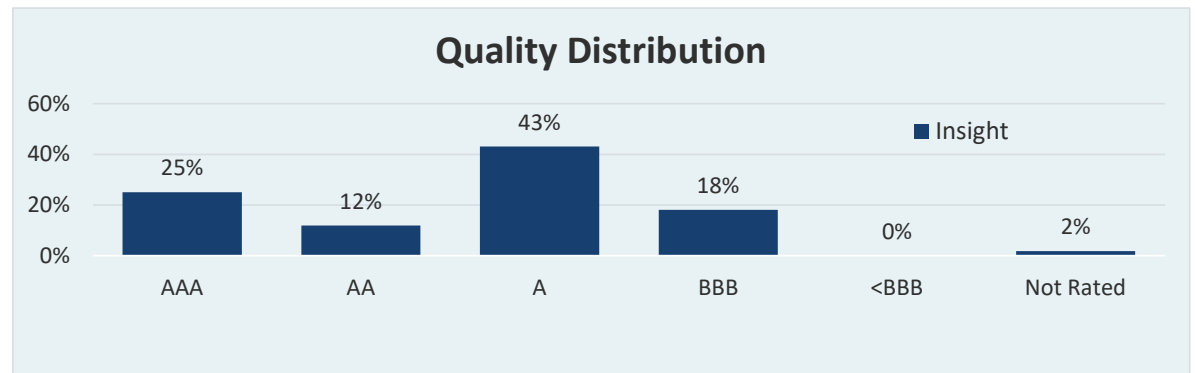


Insight Short Duration Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 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	1.25	1.90
Yield to Maturity	4.78	N/A
Average Quality	A+	AGY/AGY
Average Coupon	3.70%	2.90%

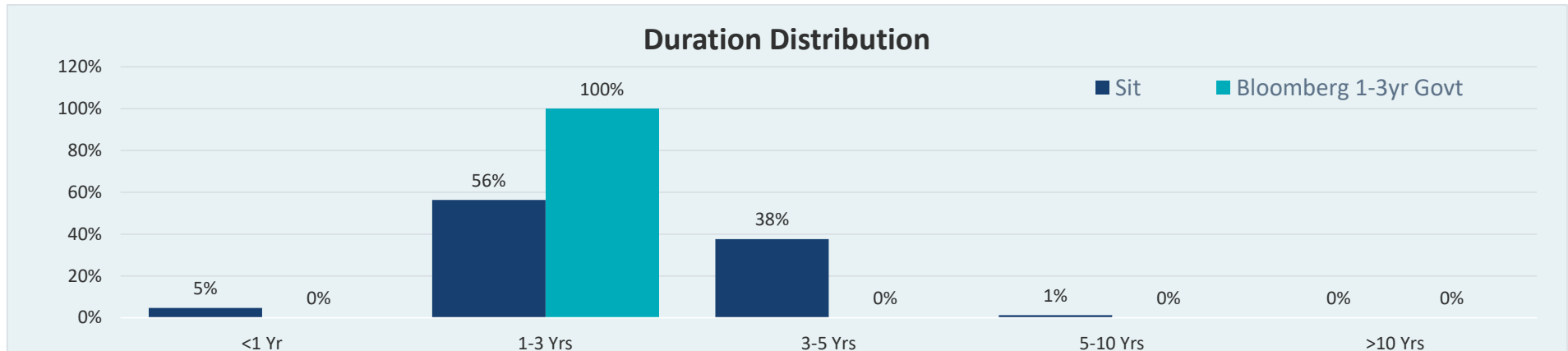
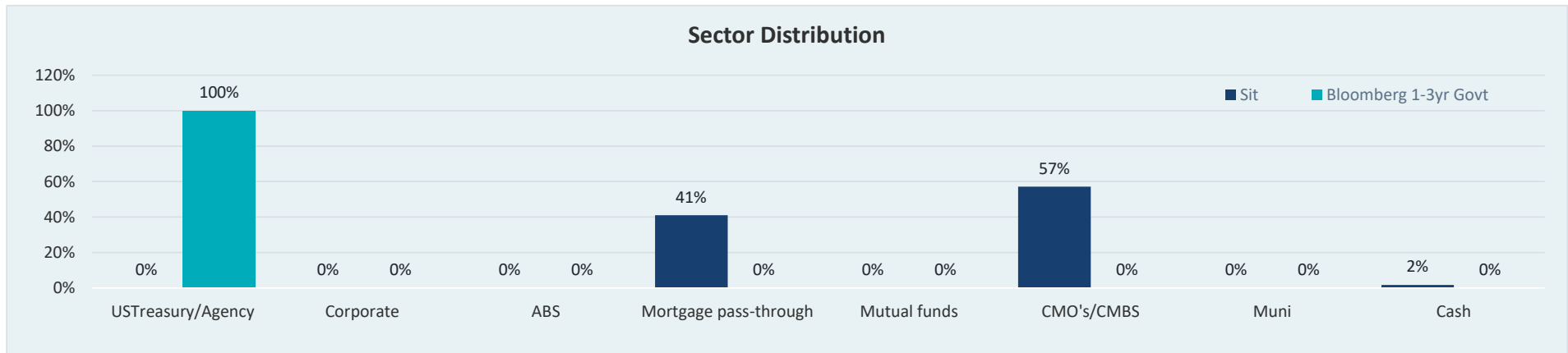


Sit Short Duration Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: December 31, 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
Modified Duration	2.70	1.90
Yield to Maturity	5.80	N/A
Average Quality	AGY/AGY	AGY/AGY
Average Coupon	5.90%	2.90%



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 (1/1/2024 - present)	The Policy Index now matches the Implementation Benchmark stated below.
Policy Index (8/1/2023 - 1/1/2024)	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.

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 (7/1/2021 - present)	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.

IMPLEMENTATION BENCHMARK WEIGHTS BY INVESTMENT ALLOCATION RESOLUTION (7/1/18 TO CURRENT)									
Manager	Benchmark	10/1/1017-6/30-2018	7/1/2018-6/30/2019	7/1/19-6/30/202	7/1/2020-6/30/2021	7/1/2021-6/30/2022	7/1/2022-7/31/2023	8/1/2023-9/30/2024	10/1/2024-Present
BlackRock Index Fund	Russell 1000	1.00%	1.00%	2.00%	2.00%	5.00%	9.00%	10.00%	10.00%
Boston Partners	Russell 1000 Value	4.50%	3.00%	2.50%	2.00%	4.00%	4.00%	3.00%	3.00%
Jackson Square	Russell 100 Growth	4.50%	3.00%	2.50%	2.00%	4.00%	0.00%	0.00%	0.00%
Emerald	Russell 2000 Growth	3.30%	2.00%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Ceredex	Russell 2000 Value	3.30%	2.00%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Pyrford	MSCI ACWI ex-US Value	5.40%	5.50%	5.00%	5.00%	4.00%	4.00%	4.00%	3.50%
William Blair	MSCI ACWI ex-US Growth	5.40%	5.50%	5.00%	5.00%	4.00%	4.00%	4.00%	3.50%
Artisan	MSCI ACWI Growth	4.30%	4.00%	4.00%	4.00%	4.50%	4.50%	5.00%	5.50%
First Eagle	MSCI ACWI Value	4.30%	4.00%	4.00%	4.00%	4.50%	4.50%	5.00%	5.50%
IT Emerging Markets	MSCI Emerging Markets	4.20%	4.00%	4.00%	4.00%	4.00%	3.50%	2.00%	2.00%
PIMCO RAE Emerging Markets	MSCI Emerging Markets Value	4.20%	4.00%	4.00%	4.00%	4.00%	3.50%	2.00%	2.00%
Torchlight	Private Equity Composite	1.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Opportunistic	Private Equity Composite	0.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Private Equity	Private Equity Composite	8.20%	10.00%	11.00%	11.00%	11.00%	13.00%	13.00%	10.00%
Infrastructure	Infrastructure Composite	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%
Voya	ICE BofA High Yield Master II	5.00%	2.00%	2.00%	1.50%	2.00%	1.50%	2.00%	3.00%
Private Credit	Private Credit Composite	0.00%	4.00%	5.00%	7.00%	8.00%	8.00%	10.00%	10.00%
Adelante REIT	Wilshire REIT	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
INVESCO REIT	Wilshire REIT	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%	1.00%	1.00%
Private RE (NPI)	Private RE Composite	1.40%	1.80%	1.60%	1.60%	0.00%	0.00%	0.00%	0.00%
Private RE (ODCE)	Private RE Composite	8.20%	7.20%	6.40%	6.40%	0.00%	0.00%	0.00%	0.00%
Private RE	Private RE Composite	0.00%	0.00%	0.00%	0.00%	8.00%	8.00%	8.00%	5.00%
Risk Parity	60% MSCI ACWI (Net) / 40% Bloomberg Globale Aggregate	0.00%	5.00%	5.00%	5.00%	3.00%	3.00%	3.00%	0.00%
Insight	Bloomberg 1-3 Yr Gov/Credit	10.70%	12.00%	12.00%	13.00%	7.00%	6.50%	6.50%	6.50%
DFA	ICE BofA 1-5 US Corp/Gov	5.30%	5.50%	6.00%	6.00%	4.00%	4.00%	4.00%	4.00%
Sit	Bloomberg 1-3 Yr Gov	6.00%	5.50%	6.00%	6.00%	7.00%	6.50%	6.50%	6.50%
AFL-CIO HIT	Bloomberg US Aggregate	3.50%	3.50%	3.50%	3.00%	2.50%	2.50%	2.50%	2.50%
Parametric Defensive Equity	CPI + 4%	0.00%	2.50%	2.50%	0.00%	1.50%	0.00%	0.00%	0.00%
BH-DG Systematic	SG CTA Index	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%
Wellington Real TR	Bloomberg Global Aggregate	2.50%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Acadian MAARS	FTSE 3-month T-Bill +5%	0.00%	0.00%	0.00%	1.50%	1.50%	2.50%	2.00%	0.00%
SitAR	Bloomberg US Aggregate + 1%	0.00%	0.00%	0.00%	2.00%	1.50%	2.50%	2.50%	3.50%
Cash	3-month T-Bill	1.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%

Contra Costa County Employees' Retirement Association
Period Ending: December 31, 2024

Data Sources and Methodology

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
Voya	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
Panagora Risk Parity Multi Asset	3/15/2019	Panagora	Adams Street Partners Venture	4/28/2017	StepStone Group
AFL-CIO	6/30/1991	AFL-CIO	Adams Street Partners - BFP	1/18/1996	StepStone Group
Wellington Real Total Return (in Liquidation)	2/26/2013	Wellington	Adams Street Partners - Fund 5	9/21/2012	StepStone Group
BH-DG Systematic Trading Fund L.P., - I	4/19/2024	BH-DG	Aether Real Assets IV	3/16/2016	StepStone Group
Sit LLCAR	4/15/2021	Northern Trust	Aether Real Assets III	11/27/2013	StepStone Group
Sit Short Duration	11/2/2016	Northern Trust	Aether Real Assets III Surplus	11/30/2013	StepStone Group
DFA Short Credit	11/21/2016	Northern Trust	Bay Area Equity Fund	6/14/2004	StepStone Group
Insight Short Duration	11/18/2016	Northern Trust	Bay Area Equity Fund II	12/7/2009	StepStone Group
Parametric Overlay	3/29/2017	Northern Trust	Commonfund	6/28/2013	StepStone Group
Cash	-	Northern Trust	EIF US Power Fund II	8/16/2005	StepStone Group
Angelo Gordon Energy Credit Opp	9/24/2015	StepStone Group	EIF US Power Fund III	5/30/2007	StepStone Group
StepStone CC Opportunities Fund	2/1/2018	StepStone Group	EIF US Power Fund IV	11/28/2011	StepStone Group
Torchlight II	9/30/2006	StepStone Group	EIF US Power Fund V	11/28/2016	StepStone Group
Torchlight IV	7/1/2012	StepStone Group	Genstar Capital Partners IX, L.P.	2/21/2019	StepStone Group
Torchlight V	7/1/2012	StepStone Group	Oaktree PIF 2009	2/28/2010	StepStone Group
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Paladin III	11/30/2007	StepStone Group
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Ocean Avenue Fund II	6/11/2014	StepStone Group
Blackstone Real Estate Partners VIII	3/24/2023	Blackstone	Ocean Avenue Fund III	4/15/2016	StepStone Group
DLJ RECP III	6/23/2005	DLJ	Pathway 6	5/24/2011	StepStone Group
DLJ RECP IV	2/11/2008	DLJ	Pathway 7	2/7/2013	StepStone Group
DLJ RECP V	7/1/2014	DLJ	Pathway 8	11/23/2015	StepStone Group
DLJ RECP VI	3/19/2019	DLJ	Pathway	11/9/1998	StepStone Group
LaSalle Income & Growth VI	7/16/2013	LaSalle	Pathway 2008	12/26/2008	StepStone Group
LaSalle Income & Growth VII	2/28/2017	LaSalle	Siguler Guff CCCERA Opps	6/3/2014	StepStone Group
Hearthstone II	6/17/1998	Hearthstone	Siguler Guff Secondary Opps	11/30/2016	StepStone Group
Long Wharf Fund IV	7/3/2013	Long Wharf	Siris Partners IV	3/15/2019	StepStone Group
Long Wharf Fund V	9/30/2016	Long Wharf	TPG Healthcare Partners, L.P.	6/28/2019	StepStone Group
Long Wharf Fund VI	2/5/2020	Long Wharf	Trident VIII, L.P.	5/24/2019	StepStone Group
Long Wharf Fund VII	5/30/2023	Long Wharf	Wastewater Opp. Fund	12/8/2015	StepStone Group
Invesco Real Estate IV	6/30/2014	Invesco	Cross Lake RE IV	12/14/2023	Cross Lake
Invesco Real Estate V	2/20/2019	Invesco	KSL Capital Partners VI, L.P.	11/10/2023	KSL
Stockbridge Value Fund I	6/26/2024	Stockbridge	EQT Infrastructure VI	12/31/2023	StepStone Group
Jadian Real Estate Fund II GP, LLC	9/27/2024	Citco	Altaris Health Partners VI, L.P.	6/30/2024	StepStone Group
Blackfin Financial Services Fund IV	9/30/2024	StepStone Group	Arbor Investments VI, L.P	6/30/2024	StepStone Group
EPIC Fund II, SLP	9/30/2024	StepStone Group	Altor ACT I	9/30/2024	StepStone Group
			Ares US Real Estate Opp. Fund IVV=	9/30/2024	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

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.

Disclosure

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