



AGENDA

RETIREMENT BOARD MEETING

REGULAR MEETING
May 22, 2024
9:00 a.m.

Board Conference Room
1200 Concord Avenue, Suite 350
Concord, California

THE RETIREMENT BOARD MAY DISCUSS AND TAKE ACTION ON THE FOLLOWING:

1. Pledge of Allegiance.
2. Public Comment (3 minutes/speaker).
3. Approve minutes from the April 24, 2024 meeting.

CLOSED SESSION

4. The Board will go in to closed session pursuant to Govt. Code Section 54956.9(d)(4) to confer with legal counsel regarding potential litigation (one case).
5. The Board will continue in closed session pursuant to Govt. Code Section 54956.9(d)(1) to confer with legal counsel regarding pending litigation:

Nowicki v. CCCERA, et al., Contra Costa County Superior Court, Case No. C17-01266

OPEN SESSION

6. Consider and take possible action to authorize the CEO to renew a maintenance and support agreement with CPAS Systems, Inc. (Action Item)
7. Review of total portfolio performance for period ending March 31, 2024. (Presentation Item)
 - a. Presentation from Verus
 - b. Presentation from staff
8. Review of Portfolio Rebalancing Report. (Presentation Item)

The Retirement Board will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Retirement Office at least 24 hours before a meeting.

9. Consider authorizing the attendance of Board: (Action Item)
 - a. NCPERS Public Pension Funding Forum, August 18-20, 2024, Boston, MA.
 - b. CALAPRS Principles of Pension Governance for Trustees, August 26-29, 2024, Tiburon, CA. (Note: Conflict with Board Meeting)
 - c. Value Edge Advisors Public Funds Forum, September 3-5, 2024, Laguna Beach, CA.

10. Miscellaneous
 - a. Staff Report
 - b. Outside Professionals' Report
 - c. Trustees' comments

The Retirement Board will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Retirement Office at least 24 hours before a meeting.



RETIREMENT BOARD MEETING MINUTES

REGULAR MEETING
April 24, 2024
9:00 a.m.

Board Conference Room
1200 Concord Avenue, Suite 350
Concord, California

Present: Candace Andersen, Dennis Chebotarev, Donald Finley, Scott Gordon, Louis Kroll, Jay Kwon, David MacDonald, Dan Mierzwa, Mike Sloan, and Samson Wong

Absent: Jerry Holcombe and John Phillips

Staff: Christina Dunn, Chief Executive Officer; Karen Levy, General Counsel; and Tim Price, Chief Investment Officer

Outside Professional Support:

Susan Kunz
Aaron Mucha
Jesse Rivera
Scott Whalen

Representing:

Sagitec
Sagitec
Segal
Verus

1. Pledge of Allegiance

The Board, staff and audience joined in the *Pledge of Allegiance*.

2. Accept comments from the public

No member of the public offered comment.

3. Consent Items:

It was **M/S/C** to approve all consent items. (Yes: Andersen, Chebotarev, Finley, Gordon, Kroll, Kwon, MacDonald and Mierzwa).

3B. Consider and take possible action on Consent Items if previously removed, if any

No consent Items were removed.

Wong was present for subsequent discussion and voting.

4. Asset class education

Whalen provided an educational presentation on Asset classes.

6. Notice of planned termination of Acadian Multi-Asset Absolute Return strategy

Price discussed the termination of Acadian Multi-Asset Absolute Return strategy.

5. Consider and take possible action to adopt Board of Retirement Resolution No. 2024-3, Investment Asset Allocation Targets and Ranges

It was **M/S/C** to adopt Board of Retirement Resolution No 2024-3, Investment Asset Allocation Targets and Ranges. (Yes: Andersen, Chebotarev, Gordon, Kroll, Kwon, MacDonald, Mierzwa, and Wong).

7. Pension administration project update:

- a. Update from staff – Dunn gave an update on the pension administration system project.
- b. Presentation from Segal – Rivera presented an update on the project.
- c. Presentation from Sagitec – Kunz and Mucha provided an update on the project.

8. Consider and take possible action to authorize the CEO to execute an amendment to the pension administration consulting agreement for Segal Consulting

It was **M/S/C** to authorize the CEO to execute an amendment to the pension administration consulting agreement for Segal Consulting. (Yes: Andersen, Chebotarev, Gordon, Kroll, Kwon, MacDonald, Mierzwa, and Wong).

Andersen was not present for subsequent discussion and voting.

9. Consider and take possible action on SACRS Board of Directors Election

It was **M/S/C** to support the SACRS Nominating Committee recommended ballot. (Yes: Chebotarev, Gordon, Kroll, Kwon, MacDonald, Mierzwa, and Wong).

Andersen was present for subsequent discussion and voting.

10. Consider and take possible action on SACRS voting proxy form

It was **M/S/C** to appoint Sloan as the Voting Delegate and MacDonald as the alternate, at the upcoming SACRS Conference. (Yes: Andersen, Chebotarev, Gordon, Kroll, Kwon, MacDonald, Mierzwa, and Wong).

11. Consider authorizing the attendance of Board:

- a. It was **M/S/C** to authorize the attendance of 2 Board members at the Southern California Institutional Forum, Markets Group, June 4, 2024, Beverly Hills, CA.
(Yes: Andersen, Chebotarev, Gordon, Kroll, Kwon, MacDonald, Mierzwa, and Wong).
- b. There was no action taken on this item. IFEBP/Wharton, July 22-24, 2024, San Francisco, CA.

12. Miscellaneous:

- a. Staff Report –Dunn gave a reminder that the next board meeting will take place on May 1, 2024, and all agendas have been distributed. The Actuaries will be presenting on tail volatility and the effect on employer contribution rates.

Price – Introduced the new Investment Analyst, Juan del Rio Navarro.

- b. Outside Professionals’ Report – None
- c. Trustees’ Comments – None

It was **M/S/C** to adjourn the meeting. (Yes: Andersen, Chebotarev, Gordon, Kroll, Kwon, MacDonald, Mierzwa, and Wong)

Scott W. Gordon, Chairperson

Jerry R. Holcombe, Secretary



MEMORANDUM

Date: May 22, 2024
To: CCCERA Board of Retirement
From: Christina Dunn, Chief Executive Officer
Subject: Consider and take possible action to authorize the CEO to renew a maintenance and support agreement with CPAS Systems, Inc.

Summary

Since 2009, CCCERA has had a maintenance and system software support services agreement with CPAS Systems, Inc. for its pension administration system. It is renewed on an annual basis. These services include legislative compliance updates, maintenance updates, and overall system support services. The maintenance and support is necessary for continued operation of the system and data preparation for the new pension administration system. The annual renewal amounts are \$39,787.25 for maintenance and \$26,082.00 for system support services. This is a 3% increase compared to the prior year.

Recommendation

Consider and take possible action to authorize the CEO to renew a maintenance and support agreement with CPAS Systems, Inc.

Verus⁷⁷⁷

Meeting Date

05/22/2024

Agenda Item

#7a.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: MARCH 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 geometric pattern of overlapping triangles in shades of blue and green is overlaid on the left side of the image. A prominent white triangle is positioned to the left of the main text.

**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

**2ND QUARTER 2024
Investment Landscape**

Verus business update

Since our last Investment Landscape webinar:

- Verus hired Joe Ratliffe as a Performance Analyst in our Los Angeles office
- Brent Nelson, Managing Director | Senior Consultant, received the 2023 Verus North Star Award for championing client success
- Verus will be partnering with Rainier Scholars for a 2024 Summer internship in our Seattle office
- Recent research, found at verusinvestments.com/research:
 - *Market concentration & equal weighted indexing*
 - *Ten thoughts for 2024*
 - *What are continuation funds?*

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Recent Verus research

Visit: verusinvestments.com/research

Topics of interest

TEN THOUGHTS FOR 2024

Every January we write a list of 10 things we expect to be important in the coming year. Many firms do this—we do something unusual, which is mark ourselves on the success or failure of the previous year’s predictions. Some years we do well in our predictions, some years less well, but we find the self-enforced humility worthwhile when taking on the task of forecasting. This year is no different. We can look back with some pleasure: in a year where many forecasts went awry, five of our ten forecasts can be counted as a success, with two more a partial success, and three misses.

Other thought leadership

WHAT ARE CONTINUATION FUNDS?

Continuation funds are an innovative financial tool that have been transforming the landscape of private equity. But this new opportunity leaves many investors wondering: What are they? Who can invest in them? What are the risks? Our video explores this concept and how Verus recommends to assess them.

MARKET CONCENTRATION & EQUAL-WEIGHTED INDEXING

Equal-weighted indexing presents an intriguing proposition to the issue of market concentration often seen in market cap-weighted indexes, such as the S&P 500. However, a closer look shows that this approach has failed to deliver on many of the qualities that investors may be seeking. This video provides a look into the equal-weighted index strategy and examines its track record from a few vital angles.

1st quarter summary

THE ECONOMIC CLIMATE

- Real GDP growth unexpectedly slowed in Q1 to 1.6% quarter-over-quarter (3.0% year-over-year), falling short of economist forecasts for 2.5% growth. The GDP release reflected positive but decelerating spending by households, slowing exports, and less government expenditures. Residential fixed investment accelerated partly driven by new single-family home construction, while private inventory investment fell.
- The U.S. job market has been incredibly resilient, with unemployment rising slightly from 3.7% to 3.8% but labor participation improving from 62.5% to 62.7%. Some economists and investors have begun to partially attribute surprisingly strong labor conditions to substantial immigration (both legal and illegal) in recent years.

PORTFOLIO IMPACTS

- The 10-year U.S. Treasury yield rose 32 basis points to 4.20% during Q1 on broad acknowledgment that disinflation trends have stalled and that the Federal Reserve may not cut rates in 2024 as significantly as markets had hoped for.
- Market-priced volatility (Cboe VIX Index) remained incredibly low during the quarter, ending at 13.0 in March. Historically, market volatility of this level has coincided with strong upward trending risk markets and investor enthusiasm.

THE INVESTMENT CLIMATE

- Equity markets delivered another quarter of large gains—much of the performance fueled by richer valuations rather than fundamentals. Credit spreads declined further to very low levels, leading to moderate returns for higher risk credit. Many markets appear to be priced to perfection as recession fears subside.
- U.S. inflation increased in Q1, following a handful of hotter-than-expected inflation and jobs reports. Headline inflation increased from 3.3% to 3.5% year-over-year in March, while core CPI (ex-food & energy) declined slightly from 3.9% to 3.8%. It now seems more likely that inflation ends this year closer to, or above, 3% rather than 2%.

ASSET ALLOCATION ISSUES

- U.S. equities (S&P 500 +10.6%) once again outpaced international developed equities (MSCI EAFE +5.8%) and emerging market equities (MSCI EM +2.4%) during the quarter. The domestic market has also delivered outperformance over the past year, fueled by the artificial intelligence boom. Telecom (+49.8%) and Technology (+46.0%) saw the biggest gains across the S&P 500.
- Style factor investing underperformed during Q1. Small cap lagged large cap by -5.1% (Russell 2000 +5.2% vs. Russell 1000 +10.3%). Value underperformed Growth by -2.4% (Russell 1000 Value +9.0% vs. Russell 1000 Growth +11.4%). Mega cap companies continue to dominate large cap index performance and affect style behavior.

Equity markets delivered another large rally in Q1, while credit showed mildly positive returns

Stubborn inflation and fewer Fed interest rate cuts seem likely for 2024

What drove the market in Q1?

“U.S. Consumer Prices Heat Up in March; Seen Delaying Fed Rate Cut”

FED FUNDS FUTURES IMPLIED RATES: END OF 2024

Jan 15th	Jan 31st	Feb 15th	Feb 29th	Mar 15th	Mar 31st
3.76%	3.86%	4.37%	4.48%	4.61%	4.66%

Article Source: Reuters, April 10th, 2024

“Resilient U.S. Boosts IMF Forecast for Global Economic Growth”

IMF WORLD ECONOMIC OUTLOOK 2024 GLOBAL GDP FORECAST

Jan 23	April 23	July 23	Oct 23	Jan 24	April 24
3.1%	3.0%	3.0%	2.9%	3.1%	3.2%

Article Source: U.S. News & World Report, January 30th, 2024

“A Persistently Strong Labor Market Delivers Economic Stability”

NONFARM PAYROLL GROWTH

Oct	Nov	Dec	Jan	Feb	Mar
165k	182k	290k	256k	270k	303k

Article Source: Forbes, January 27th, 2024

“Earnings, Big Tech Gave Investors Reasons to Buy U.S. Stocks”

S&P 500 YEAR-OVER-YEAR EARNINGS GROWTH (DECLINE)

Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023
2.3%	-4.7%	-1.7%	-4.2%	4.9%	4.2%

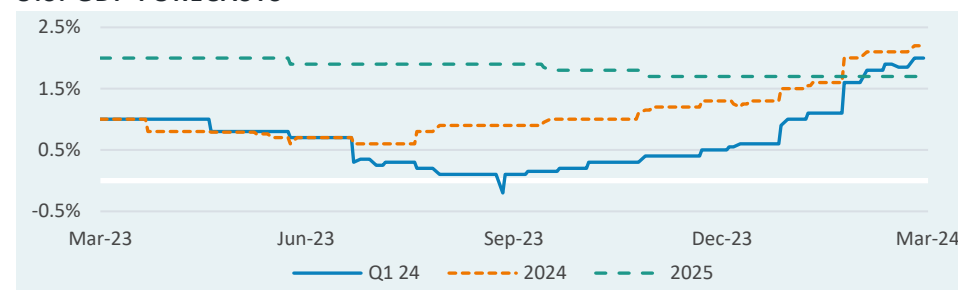
Article Source: Bloomberg, March 2nd, 2024

CPI COMPONENT: SHELTER (YEAR-OVER-YEAR)



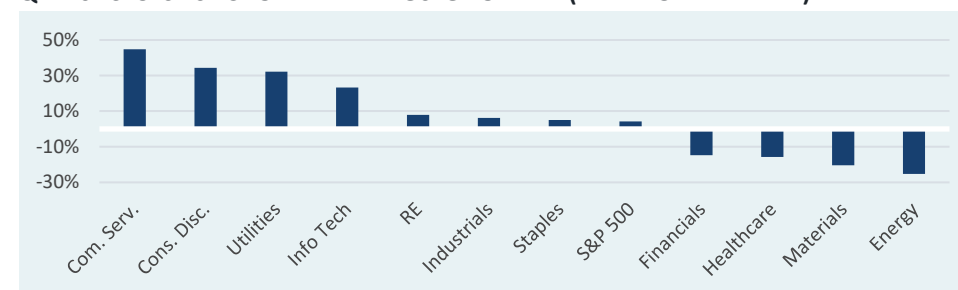
Source: BLS, as of 3/31/24

U.S. GDP FORECASTS



Source: Bloomberg, as of 3/31/24

Q4 2023 U.S. SECTOR EARNINGS GROWTH (YEAR-OVER-YEAR)



Source: FactSet, as of 3/31/24

Economic environment

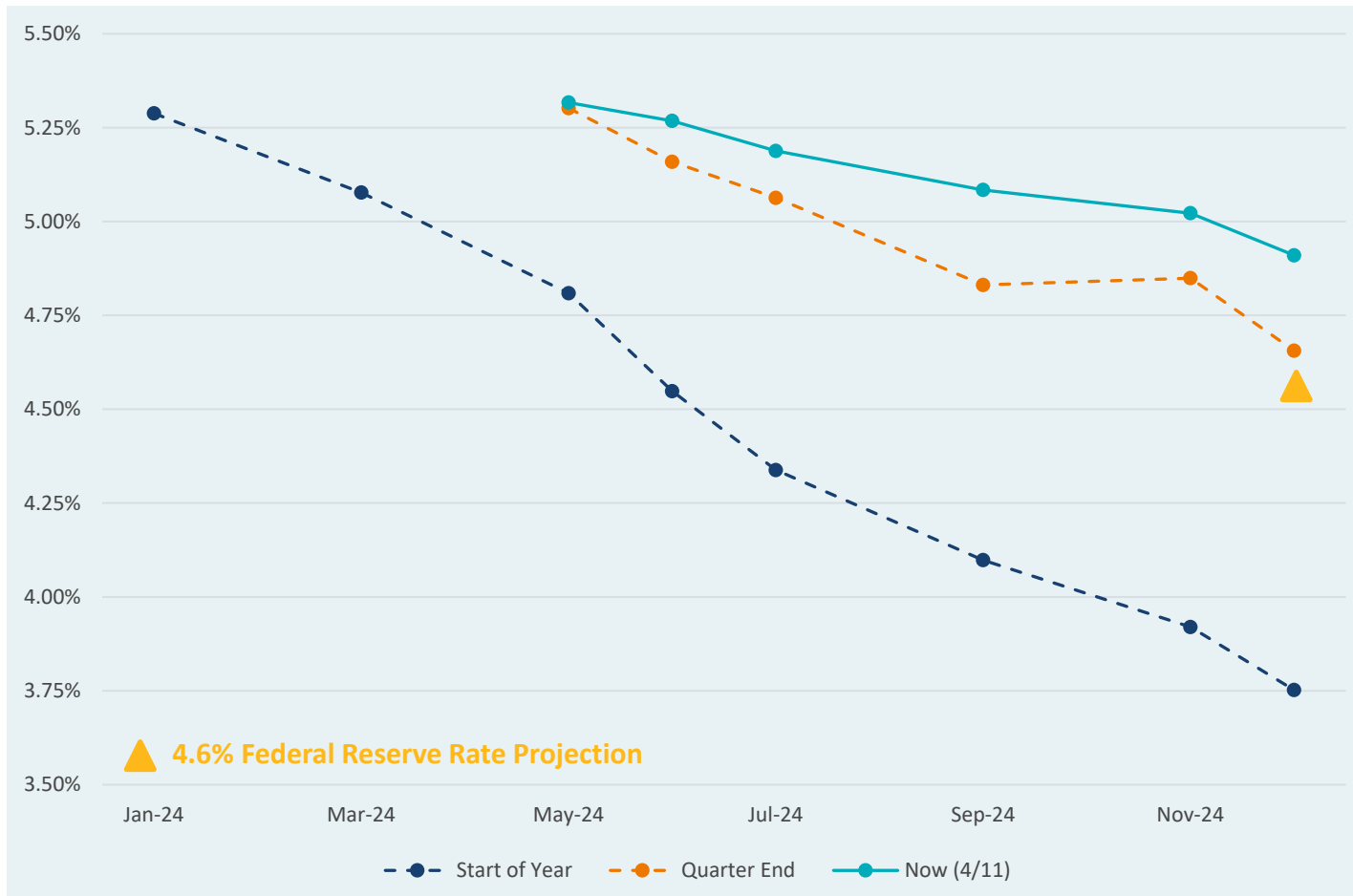
U.S. economics summary

- Real GDP growth unexpectedly slowed in Q1 to 1.6% quarter-over-quarter (3.0% year-over-year), falling short of economist forecasts for 2.5% growth. The GDP release reflected positive but decelerating spending by households, slowing exports, and less government expenditures. Residential fixed investment accelerated partly driven by new single-family home construction, while private inventory investment fell.
- U.S. inflation increased in Q1, following a handful of hotter-than-expected inflation and jobs reports. Headline inflation increased from 3.3% to 3.5% year-over-year in March, while core CPI (ex-food & energy) declined slightly from 3.9% to 3.8%. It seems more likely that inflation ends this year closer to, or above, 3% rather than 2%.
- Inflation adjusted consumer spending has remained moderate, at 2.4% YoY in February. Purchases of services have materially outpaced purchases of goods in recent years, a reversal of the historically unprecedented boom in goods purchases that occurred during the pandemic.
- Employment has been incredibly resilient. Unemployment was stable during Q1, while labor participation increased. Some economists and investors have partially attributed labor market gains to substantial immigration (both legal and illegal) in recent years—with millions of immigrants being of working age and seeking work. Given the level of immigration, we expect official labor data has been, and will continue to be, meaningfully impacted.
- Consumer sentiment has jumped significantly on better financial situations of households, expectations that inflation will further ease, and a steadying economy. At the same time, The NFIB Small Business Optimism index deteriorated to the weakest level since 2012. Inflation remains a top concern, and business owners indicated they could not find qualified candidates to fill job openings.

	Most Recent	12 Months Prior
Real GDP (YoY)	3.0% 3/31/24	1.7% 3/31/23
Inflation (CPI YoY, Core)	3.8% 3/31/24	5.6% 3/31/23
Expected Inflation (5yr-5yr forward)	2.3% 3/31/24	2.2% 3/31/23
Fed Funds Target Range	5.25–5.50% 3/31/24	4.75–5.00% 3/31/23
10-Year Rate	4.20% 3/31/24	3.47% 3/31/23
U-3 Unemployment	3.8% 3/31/24	3.5% 3/31/23
U-6 Unemployment	7.3% 3/31/24	6.7% 3/31/23

Federal Reserve policy

FED FUNDS FUTURES IMPLIED 2024 RATE PATH



Markets started the year pricing in six rate cuts by the end of 2024

Implied pricing now indicates expectations for just two rate cuts, a tighter path relative to the three forecasted rate cuts projected in the Federal Reserve's Summary of Economic Projections

Source: Bloomberg, as of 4/11/24

Inflation

U.S. inflation increased in Q1, following a handful of hotter-than-expected inflation and jobs reports. Headline inflation increased from 3.3% to 3.5% year-over-year in March, while core CPI (ex-food & energy) declined slightly from 3.9% to 3.8%. It seems more likely that inflation ends this year closer to, or above, 3% rather than 2%. Certain goods and services have further moderated in price growth, such as Used Vehicles and Food, while other price trends remain hot such as Housing and Auto Insurance.

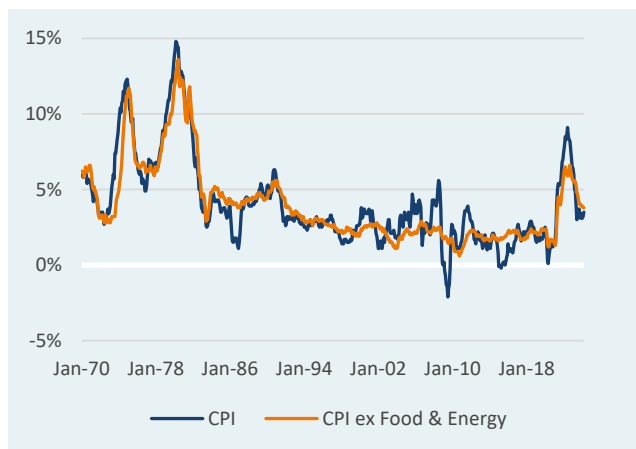
The outsized impact of Shelter—which makes up more than a third of the entire CPI basket—remains a major force keeping inflation elevated. While shelter prices reported by the Bureau

of Labor Statistics have moved closer to real-time price gauges, March’s 0.4% month-over-month increase still reflected an annualized rate of nearly 5%.

Inflation appears to be flattening out rather than continuing lower towards the Federal Reserve 2% target, which has been a catalyst for changing monetary policy expectations. Stubborn inflation combined with strong labor and other economic activity provides little incentive for the Federal Reserve to ease rates. At the beginning of the year the market expected six rate cuts in 2024. That has since fallen to two cuts.

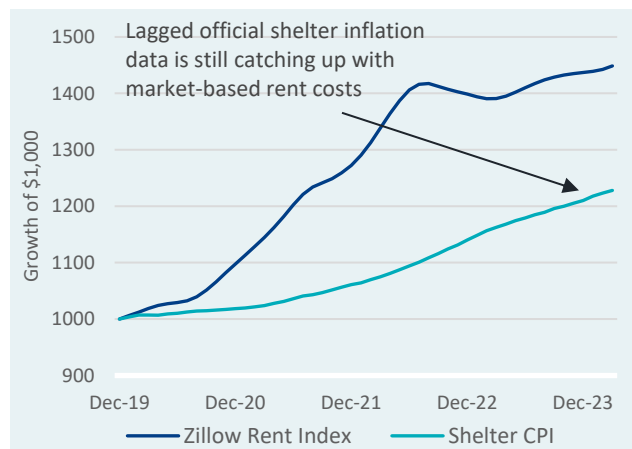
Q1 inflation remains above the Fed’s target, affecting market expectations for a “higher for longer” rate environment

U.S. CPI (YOY)



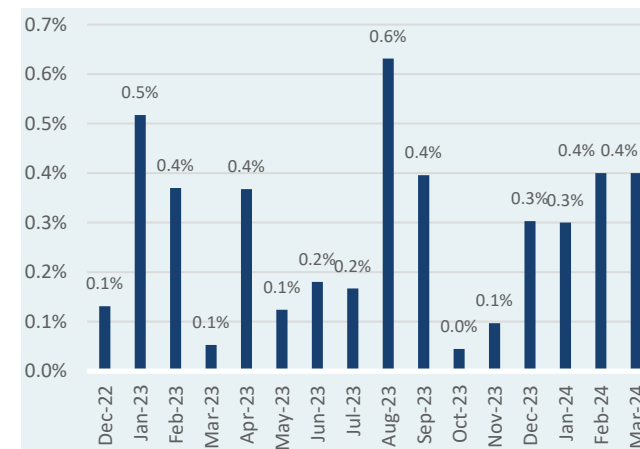
Source: BLS, as of 3/31/24

ZILLOW OBSERVED RENT VS. SHELTER CPI



Source: Zillow Observed Rent Index, FRED, of 3/31/24

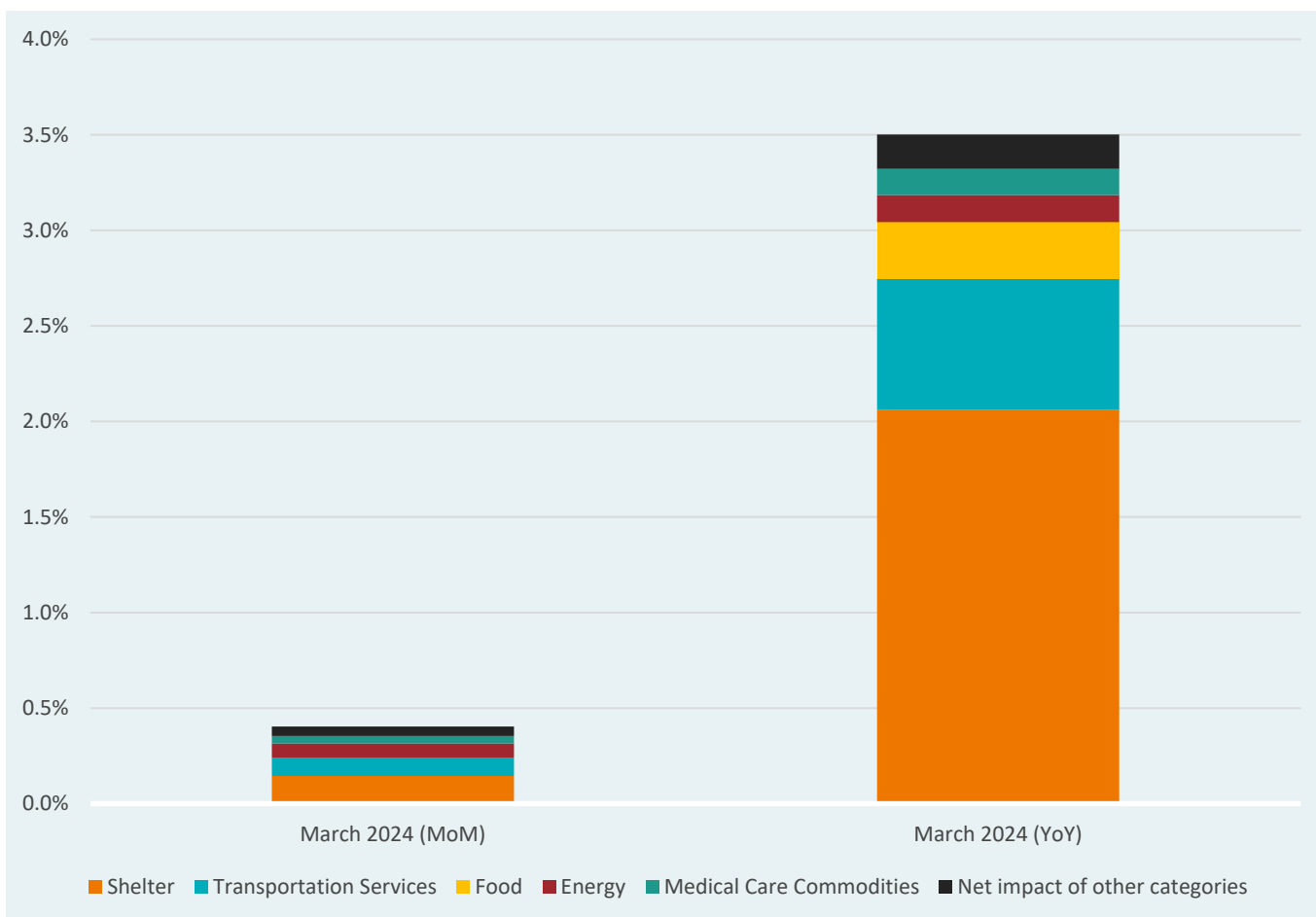
MONTHLY PRICE MOVEMENT (CPI)



Source: BLS, as of 3/31/24

Inflation: shelter's outsized impact

CONTRIBUTION TO MARCH 2024 CPI



Shelter's contribution to inflation remains outsized, making up more than two-percent of the 3.5% year-over-year headline print

Amongst services, transportation costs have materially increased from the past year, notably amongst motor vehicle insurance (+22.2%) and maintenance and repair (+8.2%)

Source: BLS, as of 3/31/24.

GDP growth

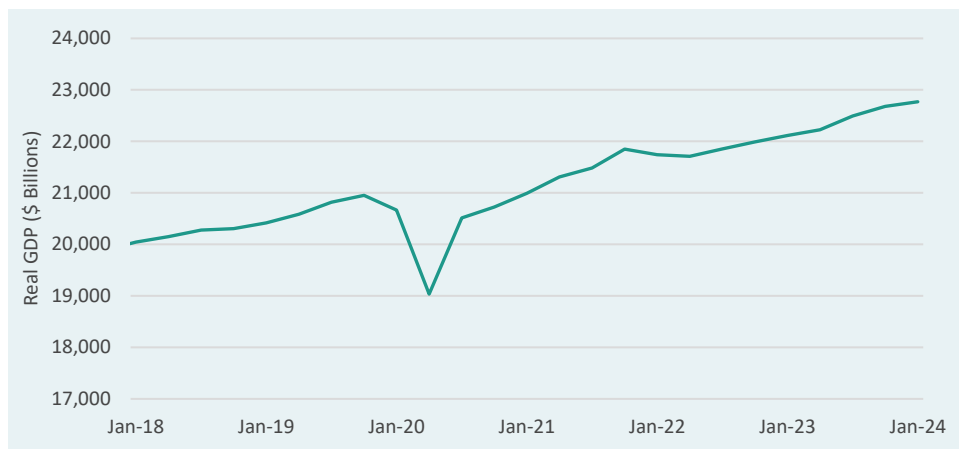
Real GDP growth unexpectedly slowed in Q1 to 1.6% quarter-over-quarter (3.0% year-over-year), falling short of economist forecasts for 2.5% growth. The GDP release reflected positive but decelerating spending by households, slowing exports, and less government expenditures. Residential fixed investment accelerated partly driven by new single-family home construction, while private inventory investment fell.

Slower economic growth in the first quarter appears to have been mostly driven by weakness in exports and imports, as well as a moderation in government spending. Other aspects of the economy such as consumer spending and investment

have slowed in recent quarters but growth remains moderately positive, as high inflation and weaker wage gains have not yet obviously resulted in a decline in spending. The first quarter GDP print marked the first instance of weak economic data after a seemingly months-long series of strong releases, from employment, to consumer sentiment, to spending. This was an abrupt change in direction of the data, and it will be important for investors to monitor whether it marks a true change in trend or is simply a bump in the road with further U.S. strength ahead.

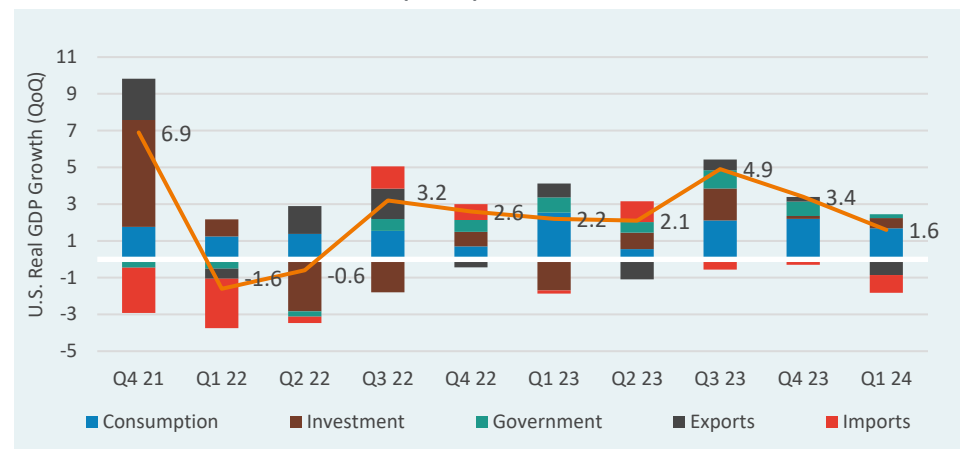
U.S. growth slowed a bit in Q1 but continues to show resilience despite aggressive monetary tightening

U.S. REAL GROSS DOMESTIC PRODUCT



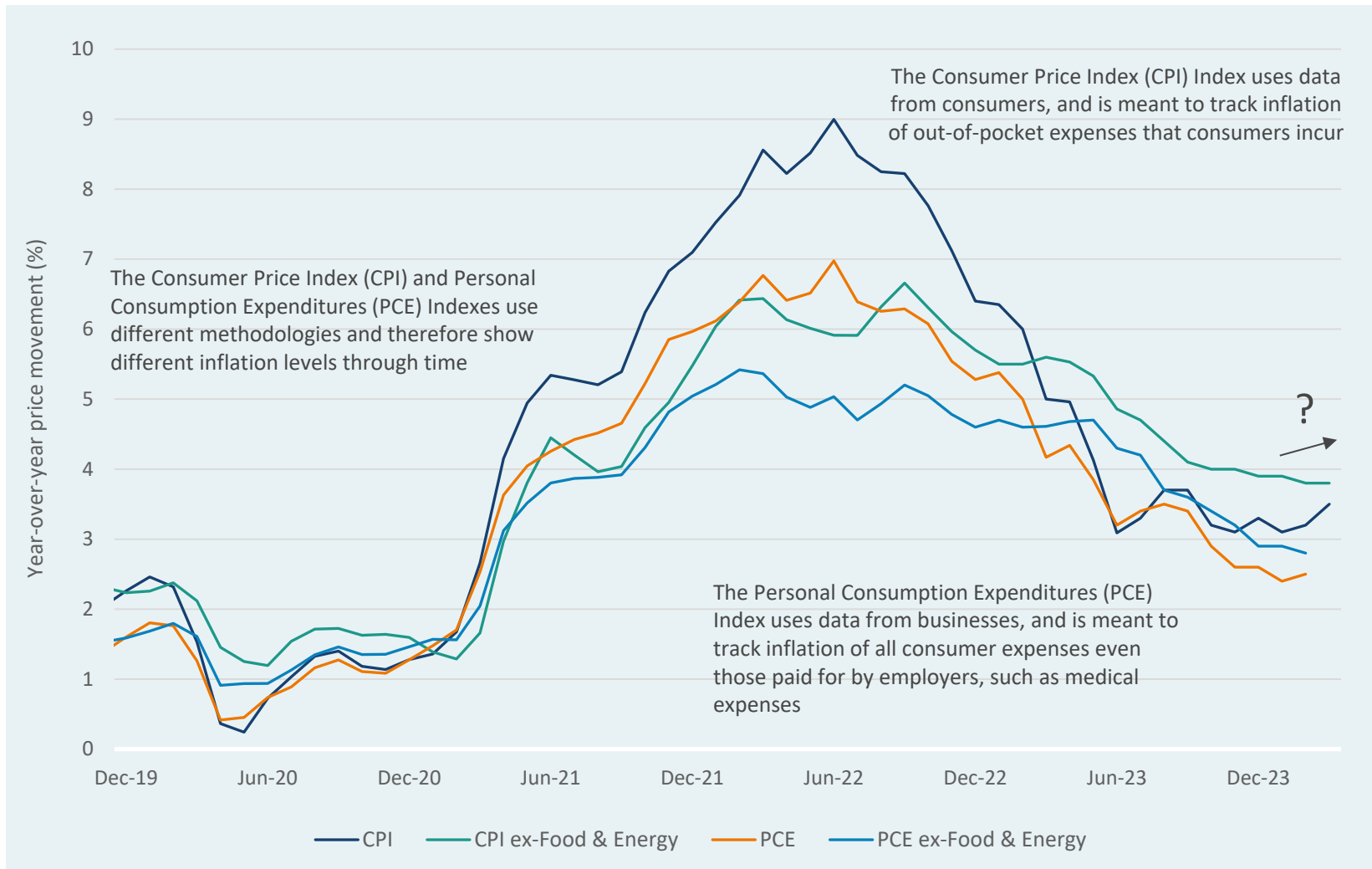
Source: FRED, as of 3/31/24

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 3/31/24

How are inflation conditions evolving?



Recent hot inflation numbers have created concerns that inflation may be stabilizing at a higher level than what is required for interest rate cuts to occur

Source: FRED, Verus, PCE data as of 3/31/24, CPI data as of 2/29/24

Labor market

The unemployment rate was fairly stable during the quarter, rising slightly from 3.7% to 3.8%. Meanwhile, labor participation improved from 62.5% to 62.7%.

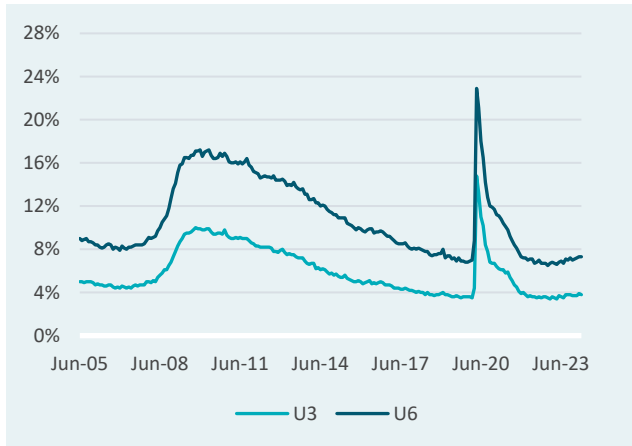
The U.S. job market has been incredibly resilient in the face of higher interest rates, and ongoing employment data releases continue to show outsized labor market gains. Some economists and investors have begun to partially attribute the record labor market gains to substantial immigration (both legal and illegal) into the country in recent years—with millions of immigrants being of working age and seeking employment. Given total immigration estimates, we would

expect that official jobs data, which is based on both phone surveys and also on employer payroll figures, to be meaningfully impacted.

Rebalancing within the labor market continued. The mismatch between the number of *workers available* and the number of *available jobs* was greater than 6 million in early 2022. Nearly two-thirds of that gap has now closed, with steady improvement over the past year.

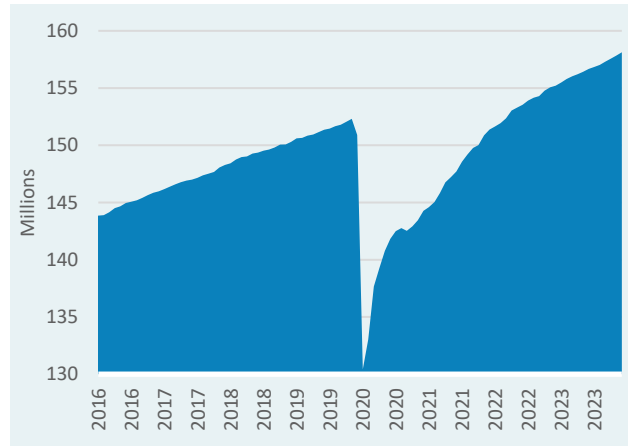
A substantial rise in different types of immigration over recent years may partially describe strong labor data

U.S. UNEMPLOYMENT



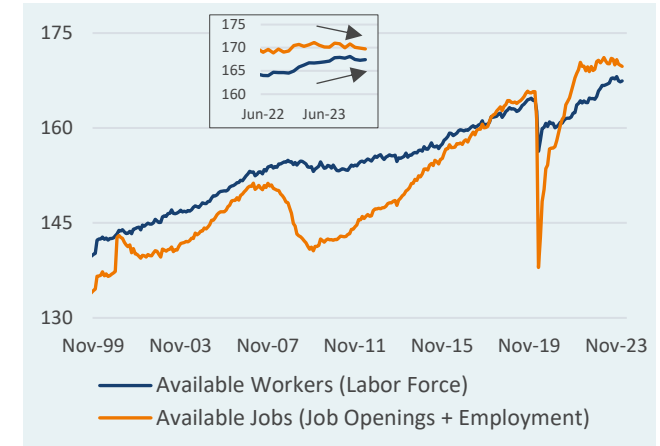
Source: FRED, as of 3/31/24

TOTAL U.S. EMPLOYMENT



Source: FRED, as of 3/31/24

WORKERS AVAILABLE VS. AVAILABLE JOBS



Source: BLS, Verus, as of 2/29/24

The consumer

Inflation adjusted spending has remained moderate, at 2.4% year-over-year in February. Purchases of services have materially outpaced purchases of goods in recent years in terms of growth, since the historically unprecedented boom in goods purchases that occurred during the pandemic. We believe that extreme surge in goods purchases effectively *pulled forward* these purchases from future years, such as in home sales activity, home improvement projects, and recreational vehicle sales, which has led to the recent lull.

but have since fallen back to extremely low levels. The reason for this trend is unclear, though it coincides with a notable improvement in consumer sentiment, which suggests lower savings rates for some households might reflect an improved outlook for the economy and personal finances. However, high prices and cost of living is likely a greater contributing factor. Overall, Americans continue to spend rather freely despite higher costs of goods and services taking up a greater portion of take-home income. This includes nonessential spending such as for travel.

Personal savings rates had been improving through mid-2023

REAL PERSONAL SPENDING



Source: FRED, as of 2/29/24

GOODS VS. SERVICES SPENDING (REAL)



Source: FRED, as of 2/29/24

PERSONAL SAVINGS RATE



Source: FRED, as of 2/29/24

Sentiment

Consumer sentiment has seen significant improvement over the past year. The University of Michigan Consumer Sentiment survey bounced from 69.7 to 79.4 in Q1 on better financial positions of U.S. households, expectations that inflation will continue to ease, and impressions that the economy has achieved a “steady state”.

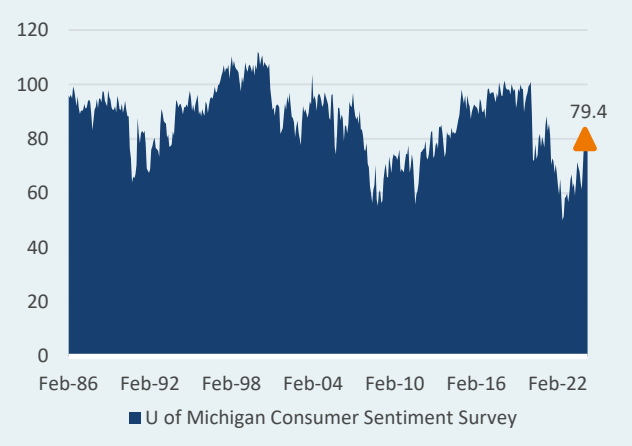
Although the domestic annual inflation rate is now closer to the longer-term average, sentiment surveys continue to reflect discontent with high costs of living. As we have discussed in recent quarters, this effect might be termed the “lower inflation conundrum”. As prices of many goods and services jumped significantly higher during and after the pandemic, the wages of

the average worker did not keep up in many respects. Although price *movement* (official inflation numbers) has come down recently, high prices persist and remain a thorn in household budgets, savings levels, and the overall financial security of Americans. This is reflected in sentiment survey responses.

The NFIB Small Business Optimism index has deteriorated to the weakest level since 2012. Inflation has been reported as a top business concern, and 37% of business owners indicated they could not find qualified candidates to fill job openings, overall reflecting a poor business climate.

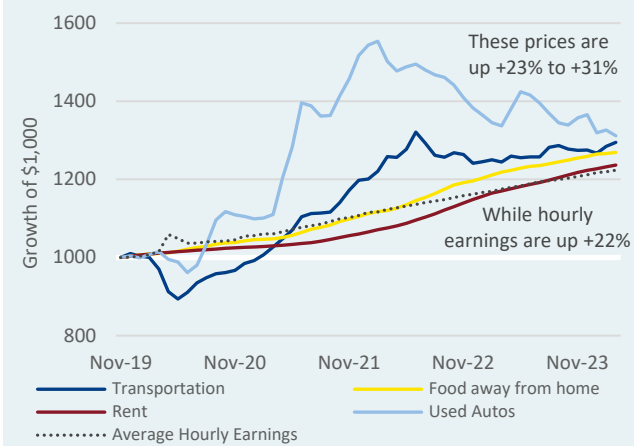
Consumer sentiment improved during Q1, while small business optimism dropped to the weakest level since 2012

CONSUMER SENTIMENT



Source: University of Michigan, as of 3/31/24

HOUSEHOLDS STILL FEELING THE SQUEEZE



Source: FRED, Verus, as of 3/31/24

NFIB SMALL BUSINESS SENTIMENT



Source: NFIB, as of 3/31/24

Housing

Domestic housing market activity picked up in Q1. Existing home sales increased 10% quarter-over-quarter, and the number of homes listed for sale rose by a similar magnitude. According to Redfin, the median home sales price was up +5.3% in March from the prior year. After an extended period of high mortgage rates and difficult affordability, it is possible that many sellers and buyers are accepting market conditions and choosing to no longer wait on the sidelines.

Housing affordability improved slightly but remains extremely poor, with the 30-year average fixed mortgage rate jumping slightly from 6.6% to 6.8%. Prospects for lower interest rates and therefore better affordability have diminished as investors expect fewer upcoming rate cuts from the Federal Reserve, though a rebound in home sales activity may suggest that the

market has stabilized. Real estate markets can stay out of balance in terms of affordability for very long periods of time. A path to affordability in the current environment is not yet clear, as interest rates will most likely stay high, and homeowners are not willing to, and seemingly do not need to, adjust their selling prices downwards.

Mortgage delinquency levels of single-family homeowners remain muted, at 1.69% as of Q4. This compares to 2.34% in Q4 of 2019 prior to the onset of the pandemic. Conditions have been supported by steadily increasing home prices that have led to robust home equity balances, as well as ultra-low interest rates following COVID-19 which allowed for attractive refinancing opportunities and lower monthly payments.

30-YEAR MORTGAGE RATE (%)



Source: Freddie Mac, as of 3/31/24

EXISTING HOME SALES



Source: FRED, as of 2/28/24

HOUSING AFFORDABILITY



Source: FRED, as of 12/31/23 – Housing affordability is calculated as the cost of a median priced single-family home at the current mortgage rate, as a percentage of the median family income

International economics summary

— The broad global narrative remains similar to last quarter, as global metrics paint a picture of slowing yet resilient economic growth. While a hotter March inflation print in the U.S. changed expectations around the policy path of the Federal Reserve, inflation in international developed economies has shown greater signs of moderation, putting central banks such as the European Central Bank and Bank of England on a path to policy easing.

— Developed economies continue to juggle economic growth and inflation. Price pressures have shown signs of easing across the Eurozone and U.K., with inflation sitting at 2.4% and 3.2%, respectively. Despite inflation moderation, conditions remain weak across the Eurozone, with GDP nearly flat on a year-over-year basis and unemployment elevated at 6.5%.

— In Japan, growth conditions also remain shaky, as the country nearly avoided a technical recession

following an upward revised GDP release. While the BOJ formally ended its zero-interest rate policy, the Japanese Yen weakened further against the U.S. dollar after unclear guidance from the BOJ and expectations for higher U.S. interest rates. The Japanese economic story remains challenged despite positive performance of the equity market.

— Growth in emerging markets continues to offset slowing activity in developed economies, as year-over-year GDP growth of 8.4% and 5.3% in India and China outpace most of the globe. China remains in the headlines given that economic and technological rivalry with the U.S. persists. Despite sentiment challenges, growth has remained above the target of 5%, even in the face of a lagging property market and financial stress seen amongst local-government financing vehicles and regional banks.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% 3/31/24	3.5% 3/31/24	3.8% 3/31/24
Eurozone	0.1% 12/31/23	2.4% 3/31/24	6.5% 2/29/24
Japan	1.2% 12/31/23	2.6% 3/31/24	2.6% 2/29/24
BRICS Nations	5.3% 12/31/23	1.7% 3/31/24	4.8% 12/31/22
Brazil	2.1% 12/31/23	3.9% 3/31/24	7.8% 2/29/24
Russia	4.9% 12/31/23	7.7% 3/31/24	2.8% 2/29/24
India	8.4% 12/31/23	4.9% 3/31/24	7.6% 3/31/24
China	5.3% 3/31/24	0.1% 3/31/24	5.2% 3/31/24

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.

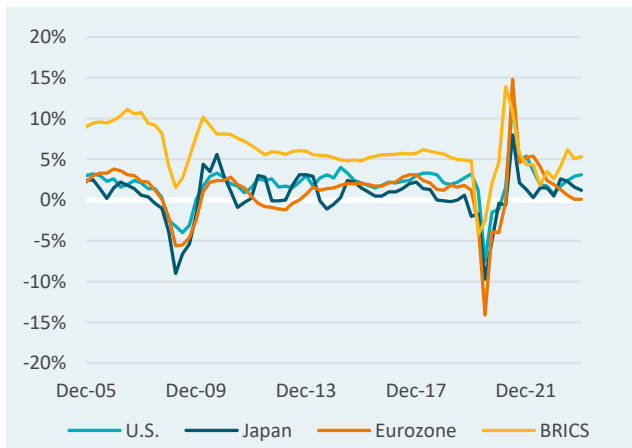
International economics

We believe the global narrative remains intact, and that many economies are set to slow in 2024 but will likely avoid recession. While hotter inflation data in the U.S. has led to changed policy expectations, inflation in international developed economies showed signs of moderation, putting central banks like the European Central Bank (ECB) and Bank of England (BOE) on a path to policy easing. The market is pricing three 25 bps interest rate cuts from the ECB and the BOE by end-of-year.

The IMF's April World Economic Outlook (WEO) communicated a much more balanced economic environment, as steady growth and disinflation has resulted in a lower likelihood of a "hard landing". The IMF sees global growth at 3.2% for 2024 and 2025, with the 2024 growth estimate revised up +0.1% from the January WEO update.

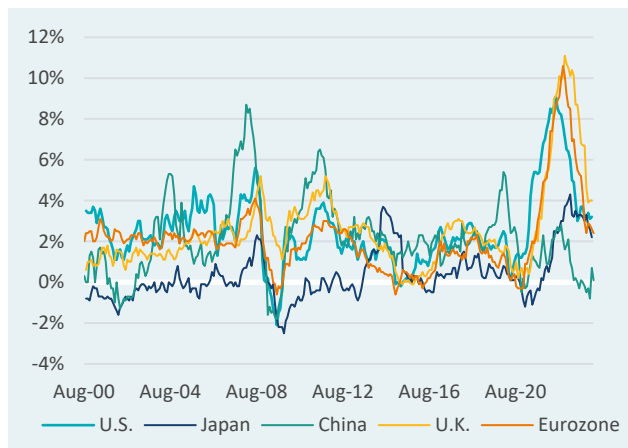
Going forward, we see material downside risks but also potential growth catalysts to the upside. Continuing and escalating conflicts in the Middle East and Eastern Europe have raised fears around energy market disruption, especially when considering that rising oil and natural gas prices were a major contributor to the recent four-decade-high bout of inflation. On the other hand, growth catalysts such as accelerated computing and artificial intelligence offer a broad range of applicability and impact that, although difficult to quantify, could act as a substantial driver of productivity and growth in the future. Additionally, if inflation pressures were to ease more quickly than expected, allowing for easier monetary policies, this may fuel growth and markets forward.

REAL GDP GROWTH (YEAR-OVER-YEAR)



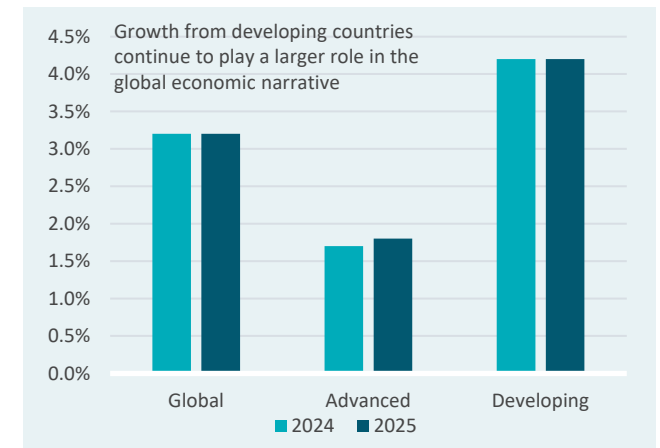
Source: Bloomberg, as of 12/31/23

INFLATION (CPI YEAR-OVER-YEAR)



Source: Bloomberg, as of 3/31/24 – or most recent release

IMF APRIL 2024 GDP FORECASTS



Source: IMF April World Economic Outlook, as of 4/16/24

Fixed income rates & credit

Fixed income environment

- The 10-year U.S. Treasury yield rose 32 basis points from 3.88% to 4.20% during Q1 on broad acknowledgment that disinflation trends have stalled and that the Federal Reserve may not cut rates in 2024 as significantly as markets had hoped for. Yields across the Treasury curve increased, with shorter-term rates rising more than longer-term.
- Domestic high-quality, duration-sensitive bonds experienced slight losses during the quarter, while most credit indices saw positive returns. High yield gained +1.5% (Bbg U.S. Corporate High Yield), while bank loans rose +2.5% (S&P/LSTA Leveraged Loan). Longer duration investment grade corporate bonds (Bloomberg U.S. Long Corporate Credit) declined by -1.7% during the quarter as both rising interest rates and concerns about inflation detracted from performance.
- The U.S. yield curve has remained inverted since June 6th, 2022, marking the longest yield curve inversion on

record. This is indicated by the 10-year minus 2-year Treasury yield—ending the quarter at -39bps, down slightly from -35bps in Q4. While the yield curve has historically been a reliable predictor of recession, economic growth remains robust.

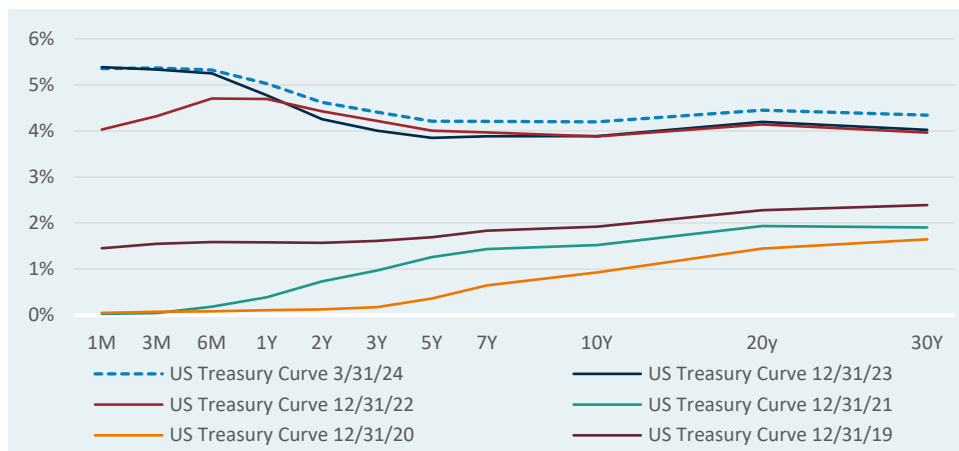
- Although default activity remains low, volumes increased as slowing economic growth and rising borrowing costs acted as headwinds. During the period, \$20.6 billion of bank loan and high yield bonds were affected by default or distressed exchanges, up from \$15.8 billion in the prior quarter. Notable company defaults included Jo-Ann’s (Retail), Hornblower (Travel & Leisure), and RobertShaw (Technology).
- Structured credit hedge funds, which focus on credit sectors such as CLOs, ABS (auto, credit card, etc), MBS, and CMBS, continue to deliver strong returns relative to traditional high yield and remain competitive versus leveraged loan indices.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(0.8%)	1.7%
Core Plus Fixed Income (Bloomberg U.S. Universal)	(0.5%)	2.7%
U.S. Treasuries (Bloomberg U.S. Treasury)	(1.0%)	0.1%
U.S. Treasuries: Long (Bloomberg U.S. Treasury 20+)	(3.8%)	(7.3%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	1.5%	11.2%
Bank Loans (S&P/LSTA Leveraged Loan)	2.5%	12.4%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(2.1%)	4.9%
Emerging Market Debt Hard (JPM EMBI Global Diversified)	2.0%	11.3%
Mortgage-Backed Securities (Bloomberg MBS)	(1.0%)	1.4%

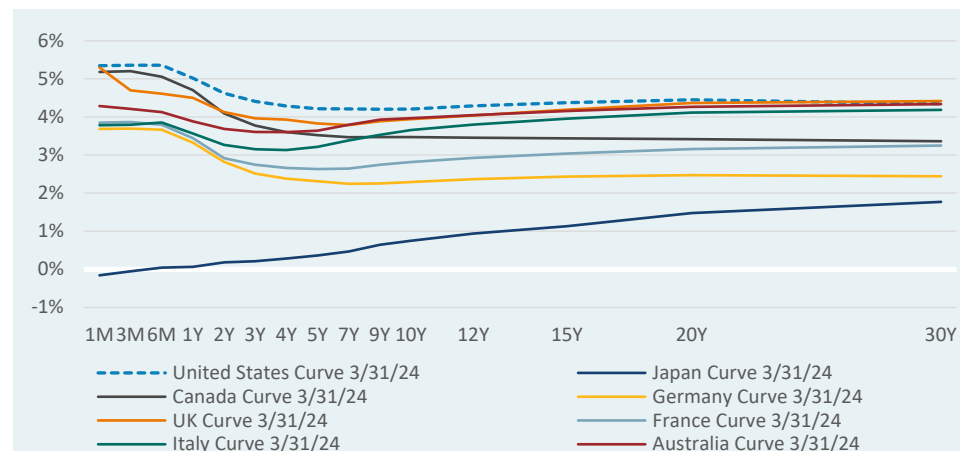
Source: Bloomberg, as of 3/31/24

Yield environment

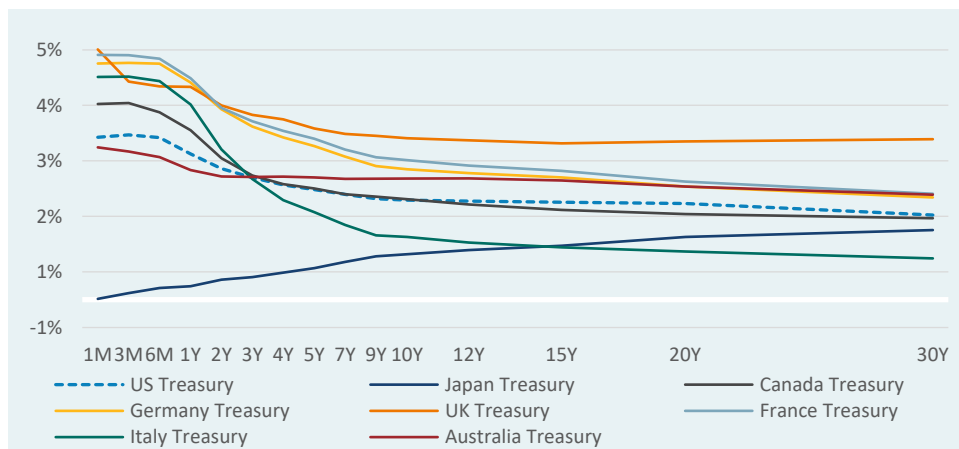
U.S. YIELD CURVE



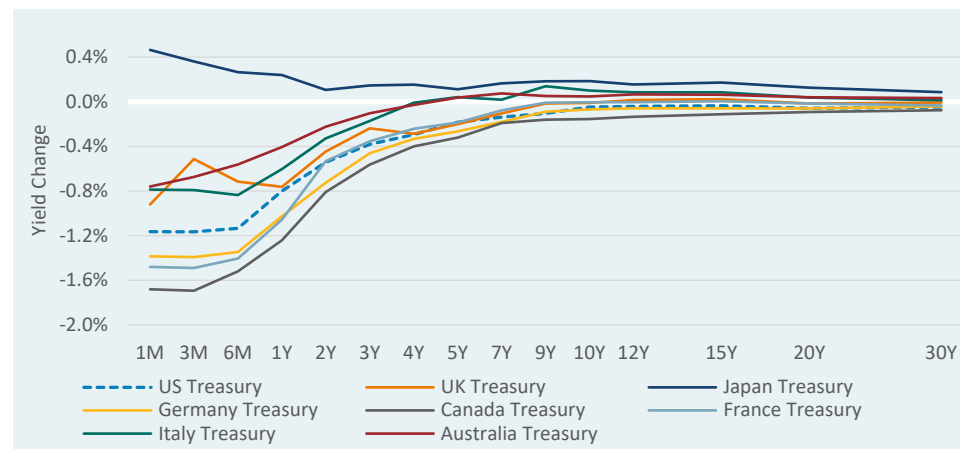
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/24

Credit environment

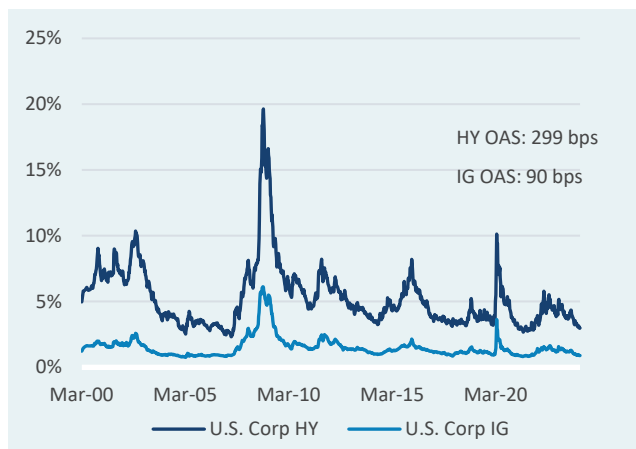
During the first quarter, credit markets delivered mixed returns with lower-quality credits such as high yield bonds and bank loans leading. Bank loans rose +2.5% (CS Leveraged Loans), while high yield bonds increased by +1.5% (Bbg U.S. Corporate High Yield). Longer duration investment grade corporate bonds (Bloomberg U.S. Long Corporate Credit) fell by -1.7% as pressure from both rising interest rates and higher expected inflation acted as a headwind to performance.

Returns across credit ratings were mixed during Q1. Higher-quality BB-rated bonds returned +1.3% compared to +1.0% for B-rated and +1.3% for and CCC-rated bonds, respectively. Lower-quality bank loans experienced strong returns with CCC-rated loans rising by +6.0%,

compared to +2.5% and +1.9% for BB- and B-rated loans, respectfully,

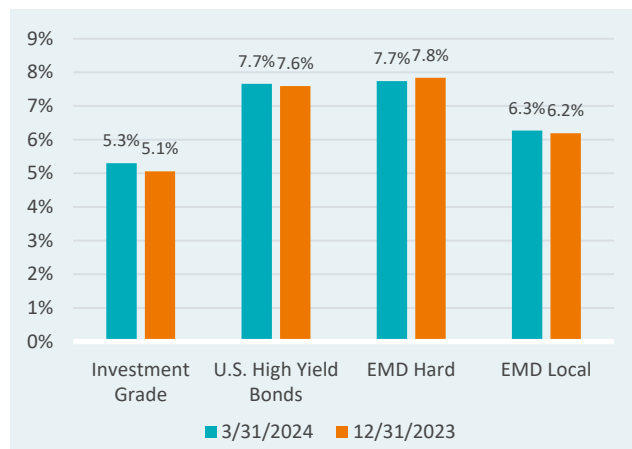
Credit spreads were slightly narrower during the quarter as stronger-than-expected economic growth eased concerns related to potential recession. Lower-quality high yield bond spreads fell by 0.2% to roughly 3.2%, while investment grade spreads decreased by roughly 0.1% to 1.2%. Broadly, spreads remain below their long-term historical averages, which suggests that investors are staying confident about the ability of those businesses to service debt. That said, slower U.S. economic growth could lead to wider credit spreads as investors might seek safety in higher quality assets.

SPREADS



Source: Barclays, Bloomberg, as of 3/31/24

YIELD TO WORST



Source: Bloomberg, J.P. Morgan as of 3/31/24

CREDIT SPREAD (OAS)

Market	3/31/24	3/31/23
Long U.S. Corp	1.1%	1.6%
U.S. Inv Grade Corp	0.9%	1.4%
U.S. High Yield	3.1%	4.6%
U.S. Bank Loans*	3.9%	3.7%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/24
*Discount margin (4-year life)

Default & issuance

Default activity increased during the quarter as slowing economic growth and rising borrowing costs acted as headwinds. During the period, \$20.6 billion of bank loan and high yield bonds were affected by default or distressed exchanges, up from \$15.8 billion in the prior quarter. Notable company defaults included Jo-Ann's (Retail), Hornblower (Travel & Leisure), and RobertShaw (Technology).

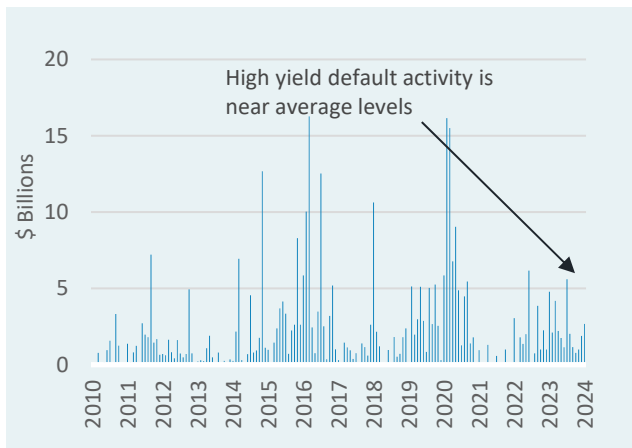
Year-to-date, the combined total of defaults and exchanges tracked slightly behind last year's pace by roughly -3.0%.

High yield bond default rates increased to 2.6%, up from 1.9% a year earlier, but were still below the long-term annual average of roughly 3.4%. High-yield default recovery rates ended the quarter at 33.1%, up slightly from

32.8% at the end of 2023, but below the long-term average of roughly 40%.

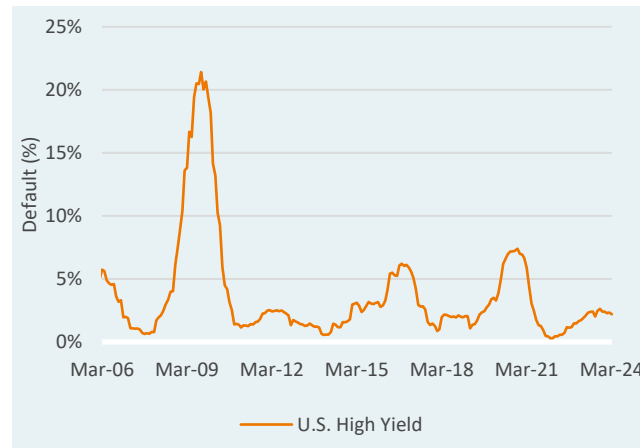
The issuance of investment grade credit increased significantly from the prior quarter, by \$328.0 billion (\$531.0 billion from \$208.0 billion). Despite higher borrowing costs, high-yield bond issuance climbed slightly to \$86.6 billion during the quarter (up from \$42.0 billion in Q4). On a year-over-year basis, the volume of both investment-grade and high yield issuance increased by roughly \$181.0 billion, (\$636.0 billion from \$436.0 billion). Low credit spreads improve the relative attractiveness of borrowing, which was likely a factor driving recent strong issuance.

U.S. HY MONTHLY DEFAULTS (PAR WEIGHTED)



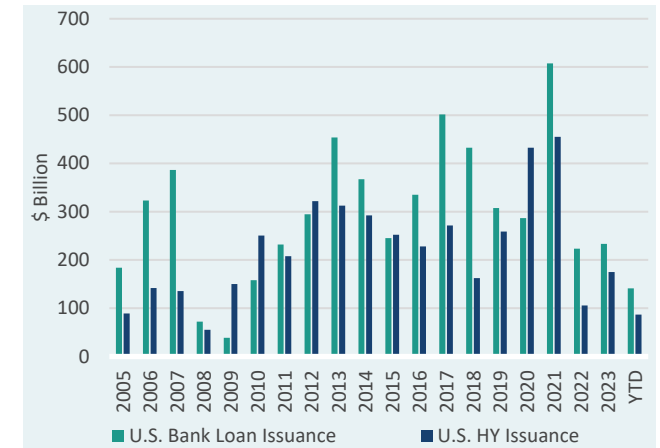
Source: BofA Merrill Lynch, as of 3/31/24

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



Source: BofA Merrill Lynch, as of 3/31/24 – par weighted

DEVELOPED MARKET ISSUANCE (\$ BILLIONS)

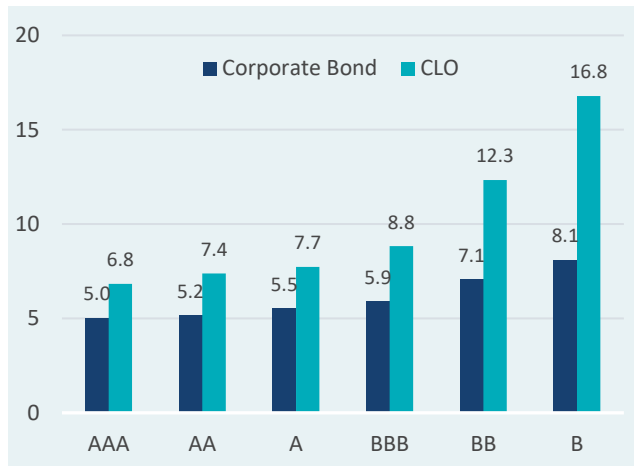


Source: BofA Merrill Lynch, all developed markets, as of 3/31/24

Credit hedge funds

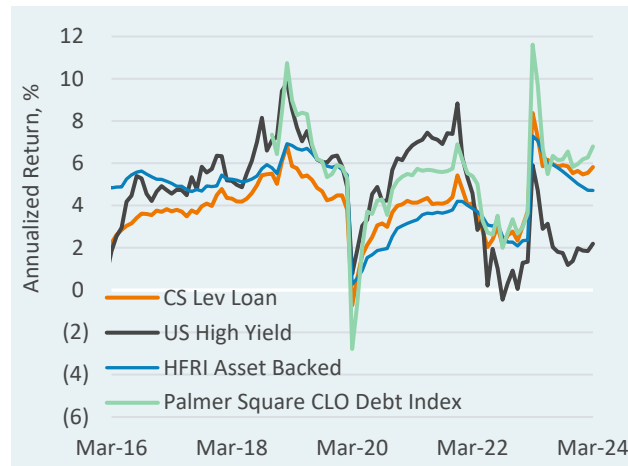
- Structured credit hedge funds, which focus on credit sectors such as CLOs, ABS (auto, credit card, etc), MBS, and CMBS, continue to deliver strong returns relative to traditional high yield and remain competitive relative to leveraged loan performance.
- Yields in those securitized markets remain wide in contrast to equivalent rating-risk corporate yields, with CLOs offering 150-300bps of spread in the IG tranches and up to 800bps in sub-investment grade tranches. Other sectors, such as CMBS, offer significantly wider spreads, evidence of the uncertainty and stress unfolding in the commercial property market.
- Distressed credit hedge funds performed well after the pandemic due to the amount of dry powder these strategies typically keep on hand and the abundance of opportunities created by market stress during that period. Strategies have kept up with high yield in the last 12-18 months and have seen their opportunity set gradually improve as interest rates remain elevated.

CLO VS CORPORATE BOND YIELDS (%)



Source: Bloomberg, BofA, Federal Reserve, MPI. As of 3/31/24

3 YEAR ROLLING RETURN



Source: CS, HFR, Bloomberg, Palmer Square, MPI

1 YEAR ROLLING RETURN



Source: Bloomberg, EurekaHedge, MPI

Equity

Equity environment

- U.S. equities (S&P 500 +10.6%) continued an impressive rally during the first quarter, once again outpacing international developed equities (MSCI EAFE +5.8%) and emerging markets (MSCI EM +2.4%). The domestic market has also delivered outperformance over the past year, fueled by the artificial intelligence boom. Telecom (+49.8%) and Technology (+46.0%) saw the biggest gains during the period.
- The U.S. dollar gained in value during Q1, likely buoyed by the higher for longer interest rate narrative. A reassessment of the Federal Reserve policy path for 2024 has improved the outlook for the dollar, as currencies which offer higher interest rates, and relatively attractive prospects for continued higher interest rates, tend to better hold their value. Losses from unhedged Japanese currency exposure has been extreme (-9.3% over the quarter, -25.2% over the past year, as indicated by the TOPIX Index).
- Style investing underperformed during Q1. Small cap lagged large cap by -5.1% (Russell 2000 +5.2% vs. Russell 1000 +10.3%). Value underperformed Growth by -2.4% (Russell 1000 Value +9.0% vs. Russell 1000 Growth +11.4%). Style premia has also suffered over the past full year. Small cap underperformed large cap by -10.2% while value stocks underperformed growth by -18.7%.
- Market-priced volatility (Cboe VIX Index) remained incredibly low during the quarter, ending at 13.0 in March. Historically, market volatility of this level has coincided with strong upward trending risk asset prices and investor enthusiasm.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	10.6%		29.9%	
U.S. Small Cap (Russell 2000)	5.2%		19.7%	
U.S. Equity (Russell 3000)	10.0%		29.3%	
U.S. Large Value (Russell 1000 Value)	9.0%		20.3%	
US Large Growth (Russell 1000 Growth)	11.4%		39.0%	
Global Equity (MSCI ACWI)	8.2%	9.6%	23.2%	25.4%
International Large (MSCI EAFE)	5.8%	10.5%	15.3%	22.4%
Eurozone (EURO STOXX 50)	10.3%	13.1%	20.1%	23.6%
U.K. (FTSE 100)	3.0%	4.0%	10.7%	9.1%
Japan (TOPIX)	10.0%	19.3%	24.0%	49.2%
Emerging Markets (MSCI Emerging Markets)	2.4%	4.4%	8.2%	10.7%

Source: Russell Investments, MSCI, STOXX, FTSE, JPX, as of 3/31/24

Domestic equity

U.S. equities notched another quarter of outperformance over international developed and emerging market shares, with the S&P 500 finishing up +10.6%. Market momentum carried forward from the end of 2023, as large cap equities advanced off a boost to corporate earnings from developments in accelerated computing and artificial intelligence. At the same time, economic indicators reflected resilience across labor and economic activity, alleviating some fears around potential recession.

Large technology company performance has helped push the broader index higher, as the Magnificent Seven contributed around 37% of the S&P 500's total return in the first quarter, per Morningstar. A combination of Nvidia, Microsoft, Meta, and Amazon drove 47% of total returns. The Magnificent 7

stocks fueled nearly two-thirds of index performance in 2023. These figures exemplify the outsized impact large companies have had on broader domestic equity returns, both to the downside and upside.

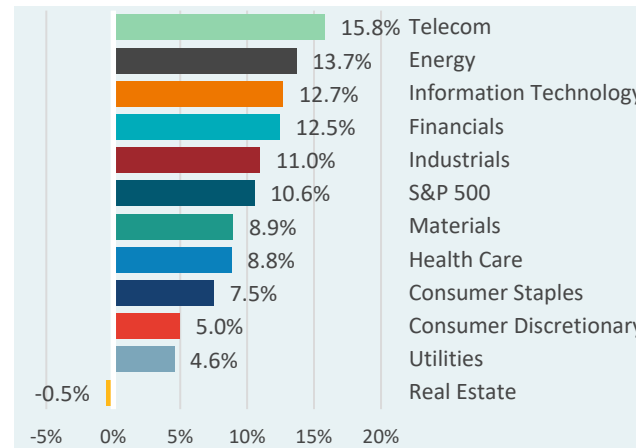
On the other hand, these strong price gains have moved valuations towards the richer side of the historical range, and the term “priced for perfection” has become more popular amongst the news lexicon. U.S. shares have also been relatively unbothered by changing expectations for the Federal Reserve rate hiking path. The higher for longer narrative has had a large negative impact on bond markets, but apparently little impact on risk assets, so far.

S&P 500 PRICE INDEX



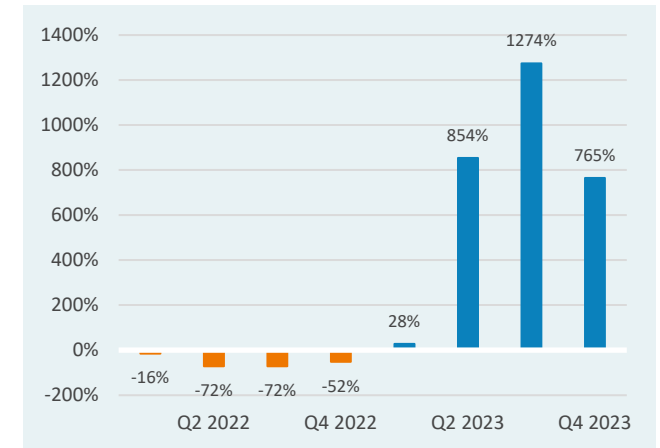
Source: Bloomberg, as of 3/31/24

Q1 2024 SECTOR PERFORMANCE



Source: Morningstar, as of 3/31/24

NVIDIA EPS GROWTH (YEAR-OVER-YEAR)



Source: Nvidia, as of 3/31/24. GAAP Diluted EPS

Domestic equity size & style

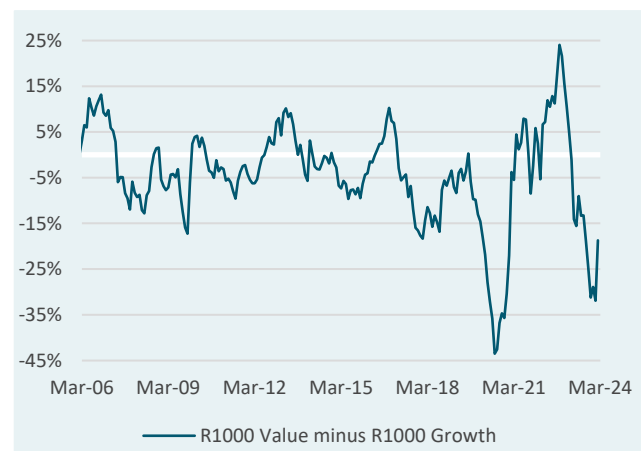
Small cap and value style investing underperformed during Q1. Small cap lagged large cap by -5.1% (Russell 2000 +5.2% vs. Russell 1000 +10.3%). Value underperformed Growth by -2.4% (Russell 1000 Value +9.0% vs. Russell 1000 Growth +11.4%). These style premia also suffered over the past full year. Small cap underperformed large cap by -10.2% while value stocks underperformed growth by -18.7%.

Mega cap companies continue to dominate large cap index performance. The “Magnificent 7” securities, including Amazon, Netflix, Google, Meta, Nvidia, Apple, and Tesla, drove the index into drawdown territory during 2022, contributed to a strong bounce back rally in 2023, then have pushed the index higher still in 2024. However, performance of this group

has been a bit mixed year-to-date, with Apple and Tesla lagging the overall index materially. Index concentration has created headwinds for the performance of active managers, on average, and dominant growth stocks have pushed the overall index towards a higher multiple while depressing dividend yields.

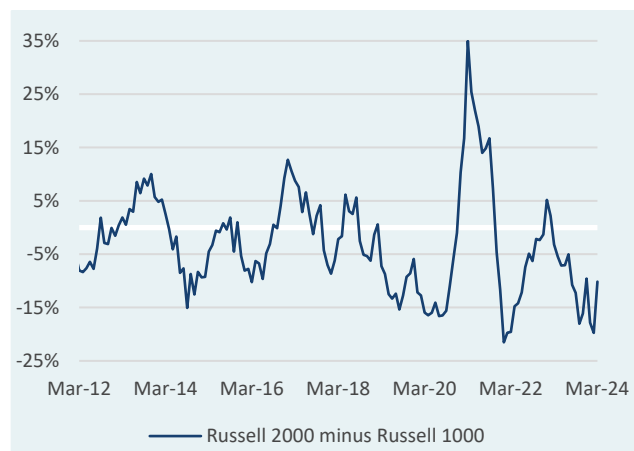
Variability in the behavior of style factors, often driven by idiosyncratic sector moves and broader macro themes, continues to provide evidence that style investing should typically be a longer-term endeavor. Short-term factor timing decisions should in most circumstances be pursued only in the rare occasion of obvious market mispricing and a foreseen catalyst for price correction.

VALUE VS. GROWTH 1-YR ROLLING



Source: FTSE, as of 3/31/24

SMALL CAP VS LARGE CAP 1-YR ROLLING



Source: FTSE, as of 3/31/24

1-YEAR SIZE & STYLE PERFORMANCE

	Value	Core	Growth
Large Cap	20.3%	29.9%	39.0%
Mid Cap	20.4%	22.3%	26.3%
Small Cap	18.8%	19.7%	20.3%

Source: FTSE, as of 3/31/24

International developed equity

International developed shares notched a strong first quarter, although returns trailed domestic equities. The MSCI EAFE index returned +5.8% in unhedged U.S. dollar terms, materially lower than the hedged return of +10.5%. The dollar's advance was likely fueled by higher rate expectations for the Federal Reserve, along with expected policy easing decisions from the European Central Bank and Bank of Japan, both of which are positive for the U.S. dollar (i.e. led to losses for unhedged investors).

Resilient global economic growth has been a tailwind to performance amongst international developed shares. All major regional equities (Eurozone, Japan, and United Kingdom)

saw positive returns over the period.

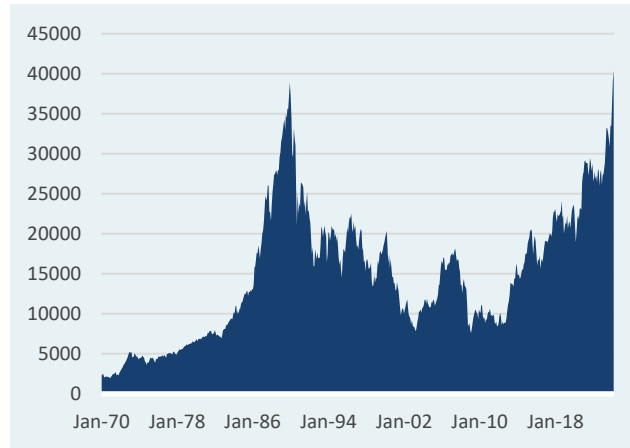
While performance has been better than expected, future growth catalysts remain uncertain. Falling Eurozone inflation boosted regional risk assets, as inflation fell from 3.1% to 2.4% in March. Easing inflation has taken some pressure off the ECB, resulting in rising expectations for rate cuts in June. In Japan, equities have carried forward positive momentum from 2023, evident by the Nikkei achieving a 34-year high in February. Easy monetary policy from the BOJ continues to provide a boost to local earnings, while poor inflation and wage growth metrics have provided little evidence for the BOJ to quickly move away from their low interest rate policy.

INTERNATIONAL DEVELOPED EQUITY



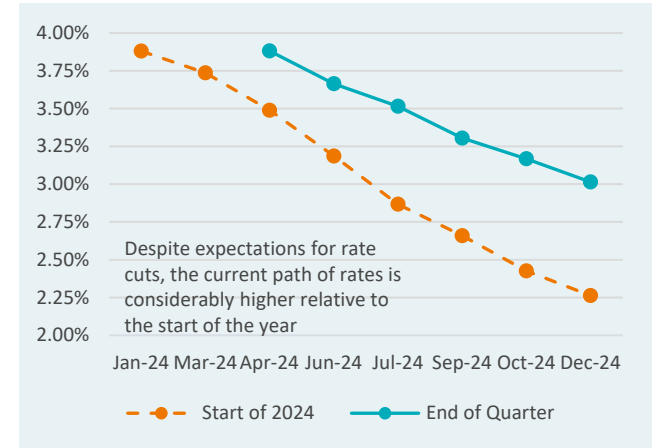
Source: MSCI, as of 3/31/24

NIKKEI 225 INDEX



Source: Bloomberg, Nikkei, as of 3/31/24

ECB RATE EXPECTATIONS



Source: Bloomberg, as of 3/31/24

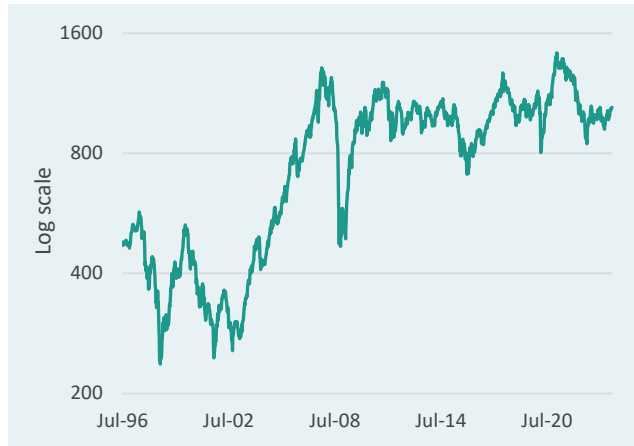
Emerging market equity

Emerging markets have delivered mild gains year-to-date, rising +2.4%, and are up +8.2% over the past year. Chinese equities have continued to act as a drag the index, down -2.2% in 2024, and -17.1% over the past year.

From a sector perspective, the momentum behind accelerated computing carried into emerging markets, as the information technology sector outperformed (+9.5%), driven by gains from South Korea & Taiwan. Peru, Turkey, and Columbia were the best performing countries in the first quarter, seeing gains of +15.5%, +14.1%, and +12.5% - broadly gaining off strength in oil and copper.

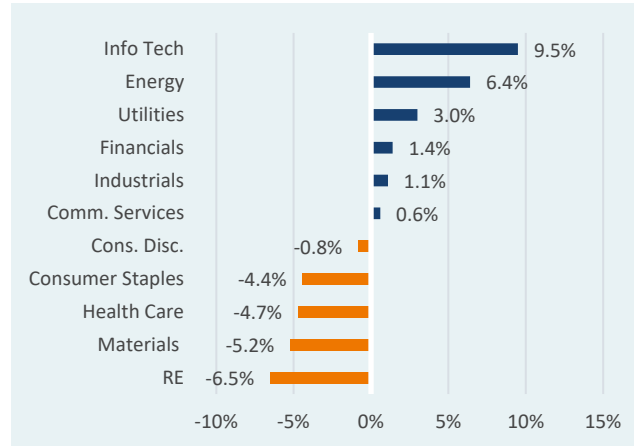
China remains a large question mark among emerging market country exposures, facing significant structural headwinds in the form of a declining population, imbalances in the real estate market, and a reversal in sentiment from the international community which contributed to a broad withdrawal of foreign direct investment, for example. Additionally, many U.S.-based institutional investors have centered on the possibility of top-down government restrictions on China investment that, if imposed, could result in losses to existing exposure as this could cause a way of selling activity. An invasion of Taiwan remains another risk, though we believe the chances of this are remote.

EMERGING MARKET EQUITY



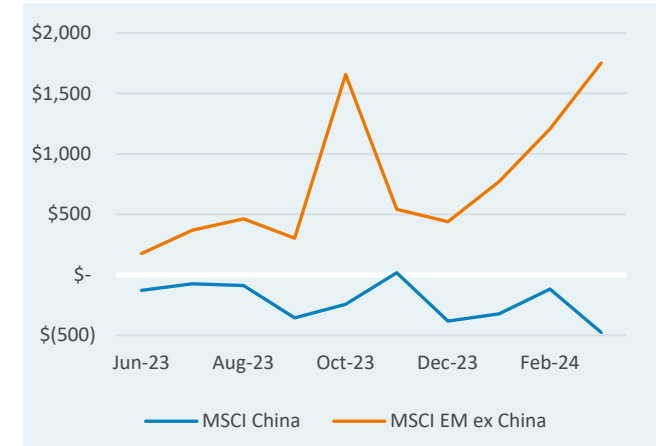
Source: MSCI, as of 3/31/24

MSCI EM Q1 2024 SECTOR RETURNS (USD)



Source: MSCI, J.P. Morgan, as of 3/31/24

ISHARES ETF MONTHLY FUND FLOWS (\$M USD)



Source: BlackRock, Bloomberg, as of 3/31/24

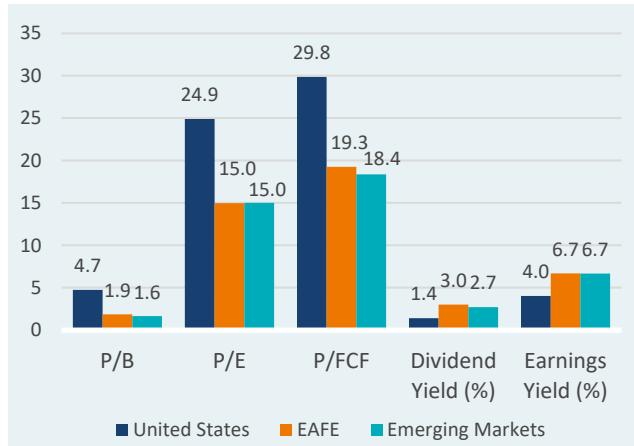
Equity valuations

Valuations drifted upward during the quarter, as the equity rally has been driven partially by higher price multiples. Larger multiples and a greater concentration of growth stocks in the index, which tend to have lower dividend payout ratios, have led the S&P 500 to offer a nearly all-time low dividend yield of 1.4%. In an environment where investors can receive more than a 5% yield from risk-free cash, this is testament to the rising attractiveness of fixed income relative to equities.

Domestic equities are priced at a 40% premium over international developed markets, and have shown little sensitivity so far to investors'

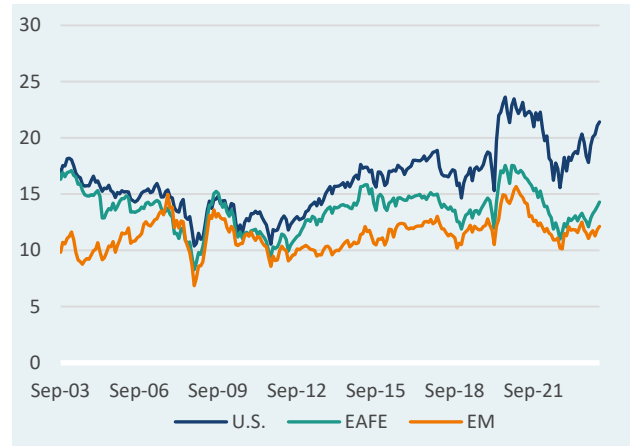
repricing of the interest rate path in 2024. Future stock market returns must come from either: corporate earnings growth, expansion of stock multiples (meaning stocks become more expensive), higher dividend yields (an increase in dividend payments), or higher inflation (assuming businesses pass this on by raising prices in line with inflation). In the current environment of already high stock multiples, a very low dividend yield, and high corporate profit margins, the likelihood of seeing another decade of performance like investors have received over the past ten years seems low.

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 3/31/24

FORWARD PRICE/EARNINGS RATIO



Source: MSCI, Bloomberg, as of 3/31/24

S&P 500 HISTORICAL DIVIDEND YIELD



Source: S&P, Bloomberg, as of 3/31/24

Market volatility

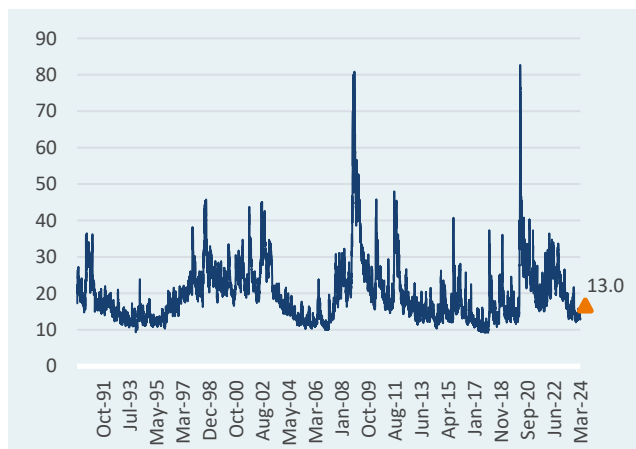
Market-priced volatility (Cboe VIX Index) remained incredibly low during the quarter, ending at 13.0 in March. Historically, market volatility of this level has coincided with strong upward trending risk markets and investor enthusiasm.

The realized past one-year volatility of global equity markets has moderated, with U.S. equity volatility at 13.6%—very close to current VIX implied volatility. The relative volatility of markets has moved back in line with historical behavior—U.S. equities showing the lowest volatility, followed closely by international developed equities, and with emerging market equities delivering greater risk.

However, many investors might be surprised to know that international developed equities have shown similar risk to U.S. equities over the long term, if currency movements are excluded. It is unhedged currency exposure that has historically caused the difference in risk.

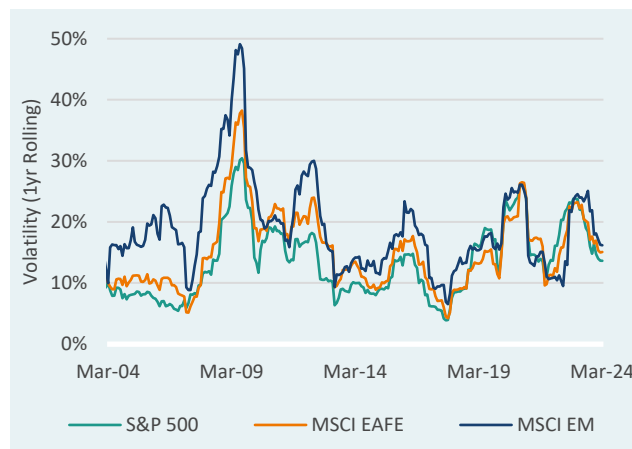
Bond market implied volatility has moderated considerably from extreme levels of 2023. This is indicated by the “MOVE” Index—which calculates the implied volatility of U.S. Treasury securities. However, notable uncertainty remains around inflation, the Federal Reserve’s interest rate path and the extent of rate cuts (if any) in 2024, and economic growth.

U.S. IMPLIED VOLATILITY (VIX)



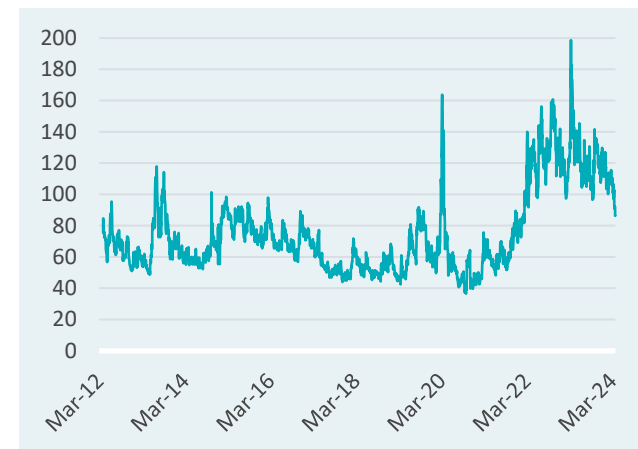
Source: Cboe, as of 3/31/24

REALIZED VOLATILITY



Source: S&P, MSCI, as of 3/31/24

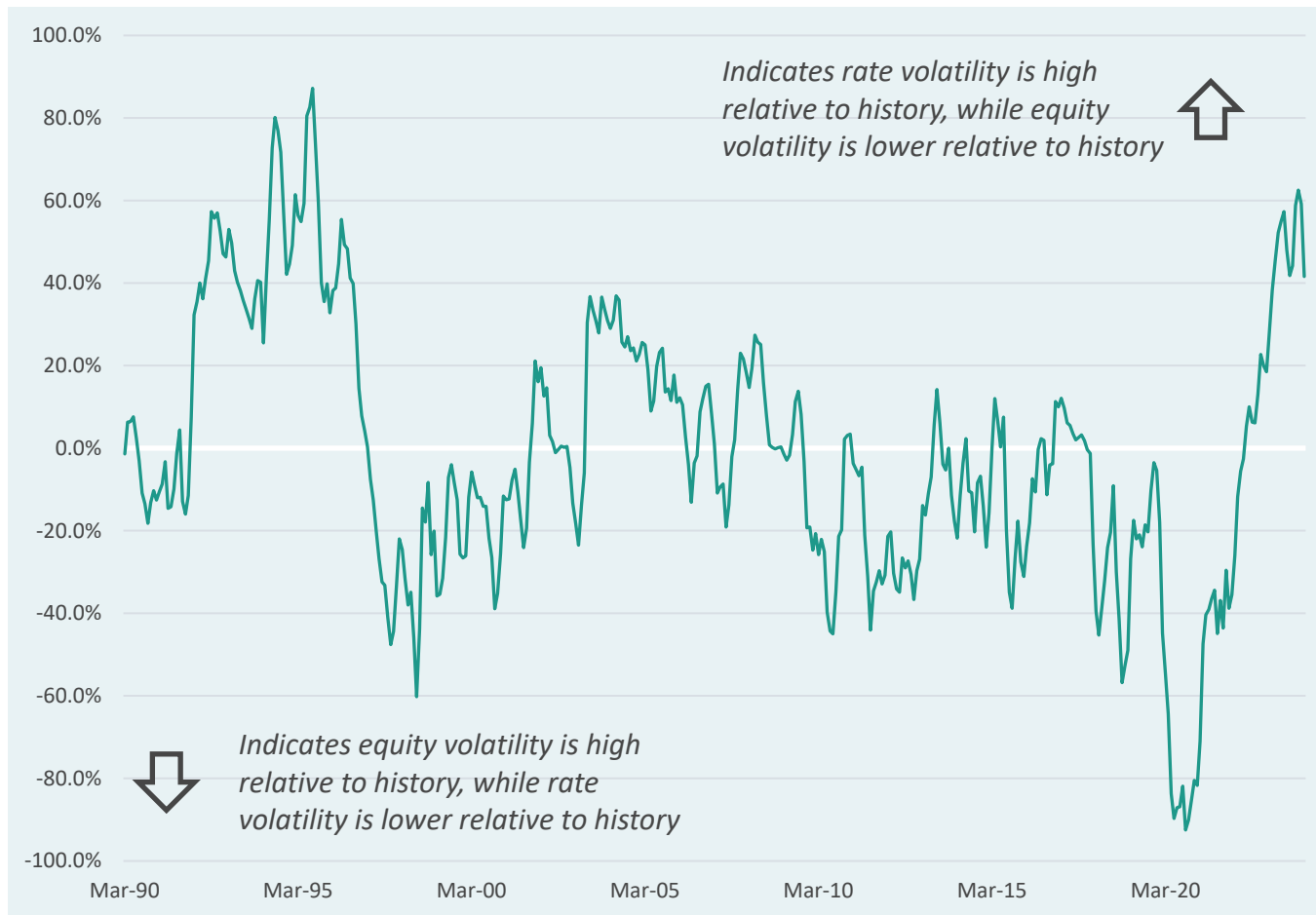
U.S. TREASURY IMPLIED VOL (“MOVE” INDEX)



Source: Bloomberg, as of 3/31/24

Implied volatility: domestic rates vs. equity

RATES VS. EQUITIES VOLATILITY: HISTORICAL PERCENTILE SPREAD

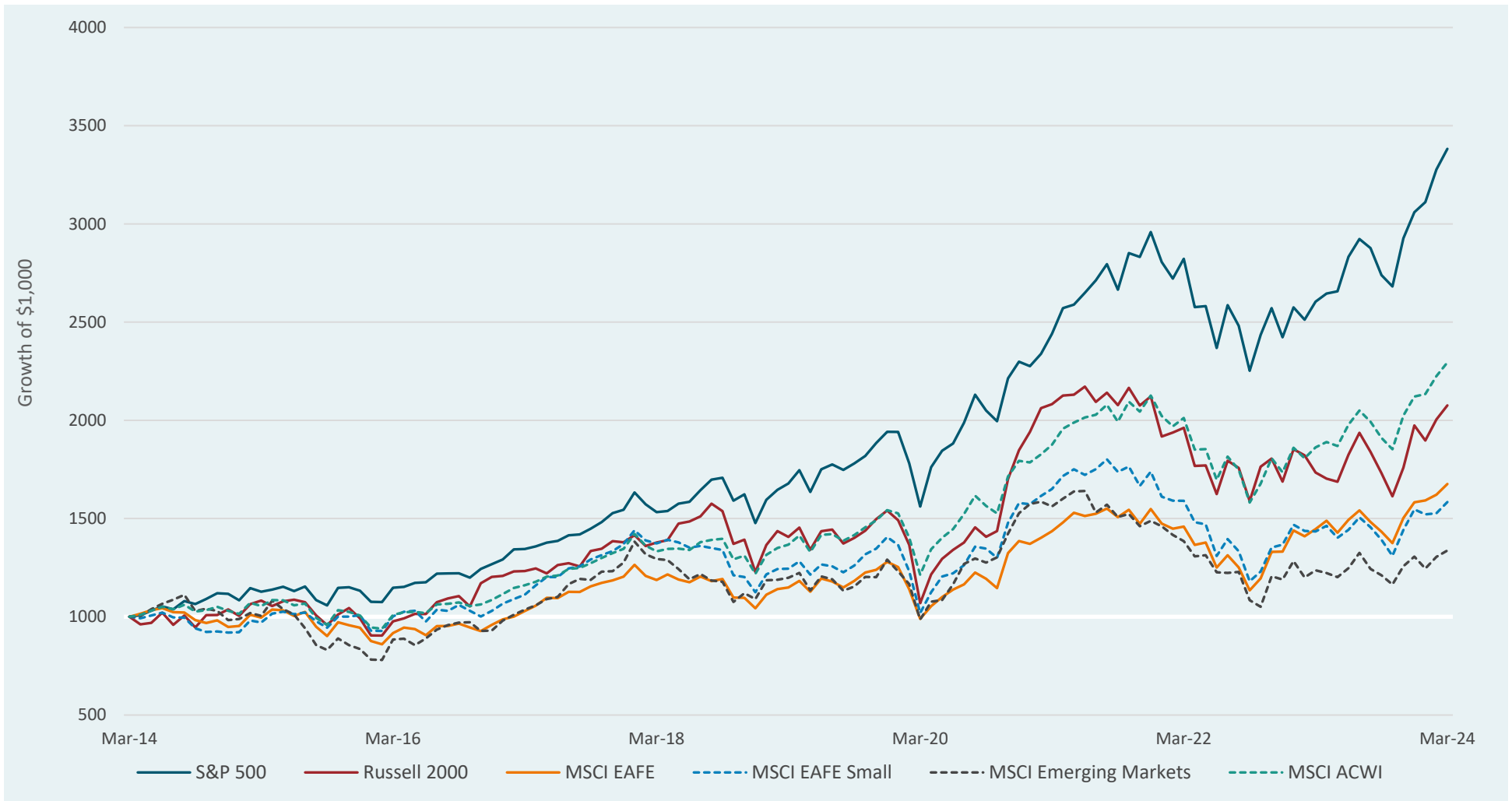


This chart looks at the relationship between rate and equity volatility by comparing historical percentiles dating back to 1990. By taking a spread between the rate and equity percentile, we get a clear picture of environments when implied volatility is relatively higher for one asset class compared to the other.

Our chart shows that we have not seen an environment like this since 1995 (which is also viewed as the Fed's only "soft landing").

Source: ICE BofA, CBOE, as of 3/31/24

Long-term equity performance



Source: MPI, as of 3/31/24

Other assets

Currency

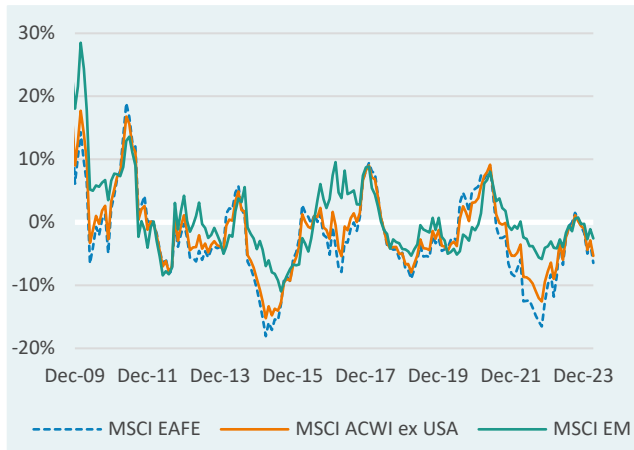
The U.S. dollar gained in value during the quarter, likely buoyed by the *higher for longer* interest rate narrative. A reassessment of the Federal Reserve policy path for 2024 has improved the outlook for the dollar, as currencies which offer higher interest rates, and relatively attractive prospects for continued higher interest rates, tend to better hold their value.

Investors without a currency hedging program in place lost -4.7% from their international developed equity exposure (MSCI EAFE) during the quarter and -7.1% over the past year. Losses from unhedged Japanese currency exposure have been extreme (-9.3% over the quarter, -25.2% over the past year, based on the TOPIX Index), while unhedged European equity exposure losses due to currency have been milder (-2.8% over the quarter, -2.5% over

the past year, based on the EURO Stoxx 50 Index).

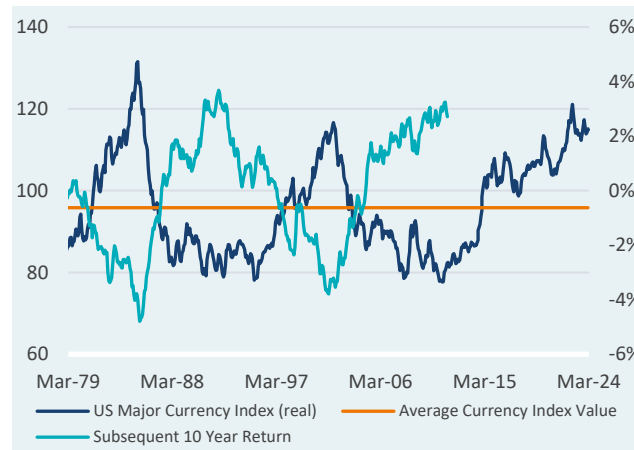
This past year marks another period of uncompensated volatility and losses caused by unhedged currency market exposure. The benefits which a more thoughtful currency approach might deliver have been on display for a number of years. This approach involves reducing the uncompensated risk of unhedged foreign currency exposure, and instead of unhedged exposure to currency markets, making a passive investment in the currency market by investing in currencies with higher interest rates, currencies that are undervalued, and currencies that are showing positive price momentum. This approach, represented by the MSCI Currency Factor Mix Index—has offered a positive one-year rolling return over most periods with far lower volatility than the unhedged currency exposure that many investors hold.

EFFECT OF CURRENCY (1-YEAR ROLLING)



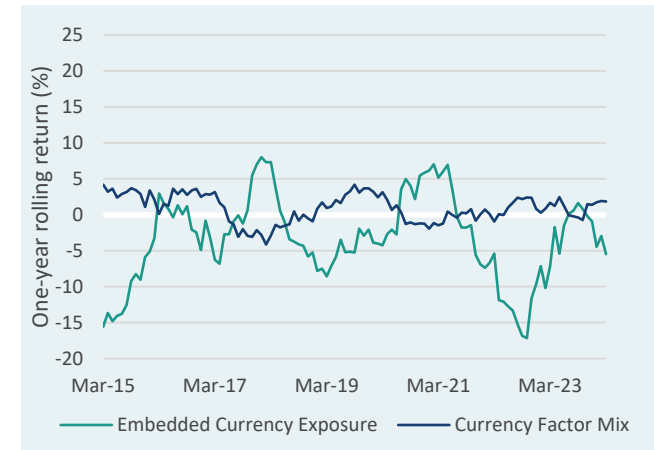
Source: MSCI, as of 3/31/24

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Bloomberg, as of 3/31/24

EMBEDDED CURRENCY VS CURRENCY FACTORS



Source: Bloomberg, MSCI, as of 3/31/24

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	11.4	18.5	16.0
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	10.3	14.8	12.7
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	9.0	10.3	9.0
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	7.6	8.2	7.9
International 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	5.8	8.1	7.6
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	5.2	7.4	6.9
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	4.0	7.3	6.8
Hedge Funds of Funds	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	3.9	6.4	5.3
Small Cap Value	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	8.9	-17.3	9.8	2.9	6.2	4.8
Emerging Markets Equity	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	2.4	5.0	3.6
Commodities	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	2.8	-20.1	5.5	2.2	4.3	2.9
Cash	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	1.3	2.2	1.5
Real Estate	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	0.0	1.9	1.3
US Bonds	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	-0.8	0.4	-1.6

↑ BEST

↓ WORST

Light Blue: Large Cap Equity

Blue: Large Cap Value

Dark Blue: Large Cap Growth

Light Green: Small Cap Equity

Dark Green: Small Cap Value

Dark Green: Small Cap Growth

Orange: International Equity

Dark Orange: Emerging Markets Equity

Grey: US Bonds

Light Grey: Cash

Brown: Commodities

Blue-Grey: Real Estate

Light Green: Hedge Funds of Funds

Red: 60% MSCI ACWI/40% Bloomberg Global Bond

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 12/31/23.

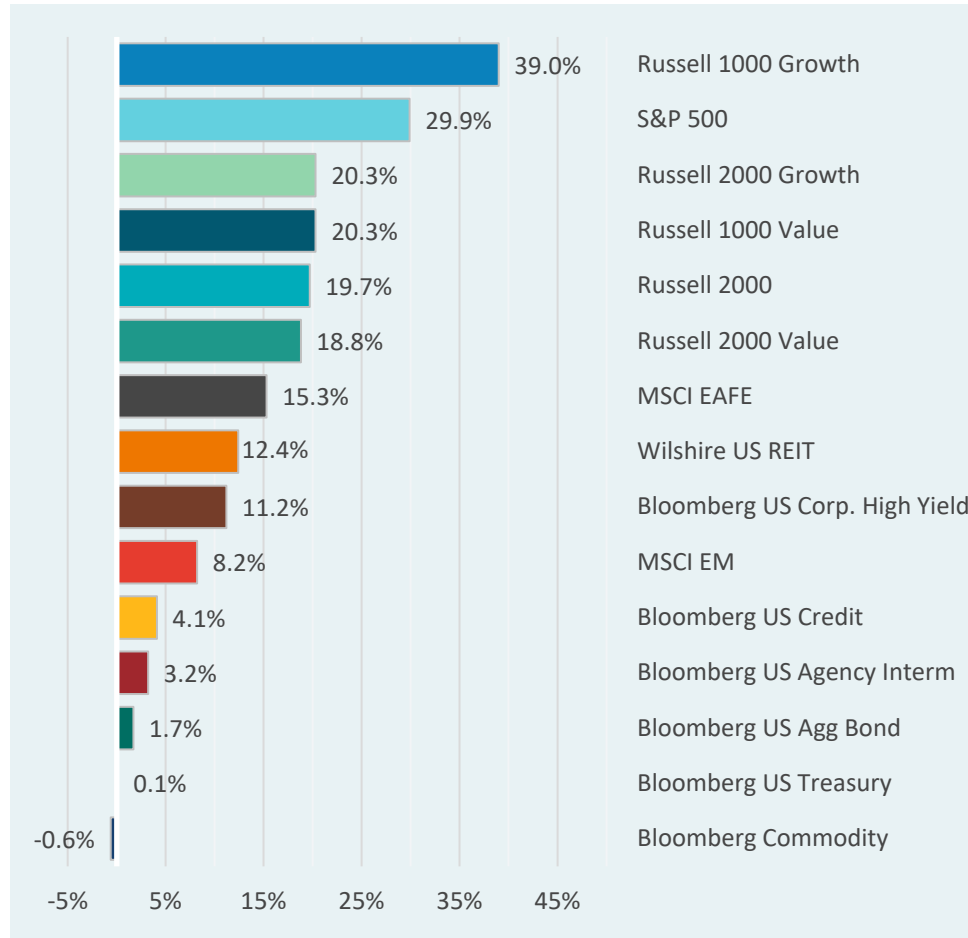
Verus⁷⁷⁷

Investment Landscape
2nd Quarter 2024

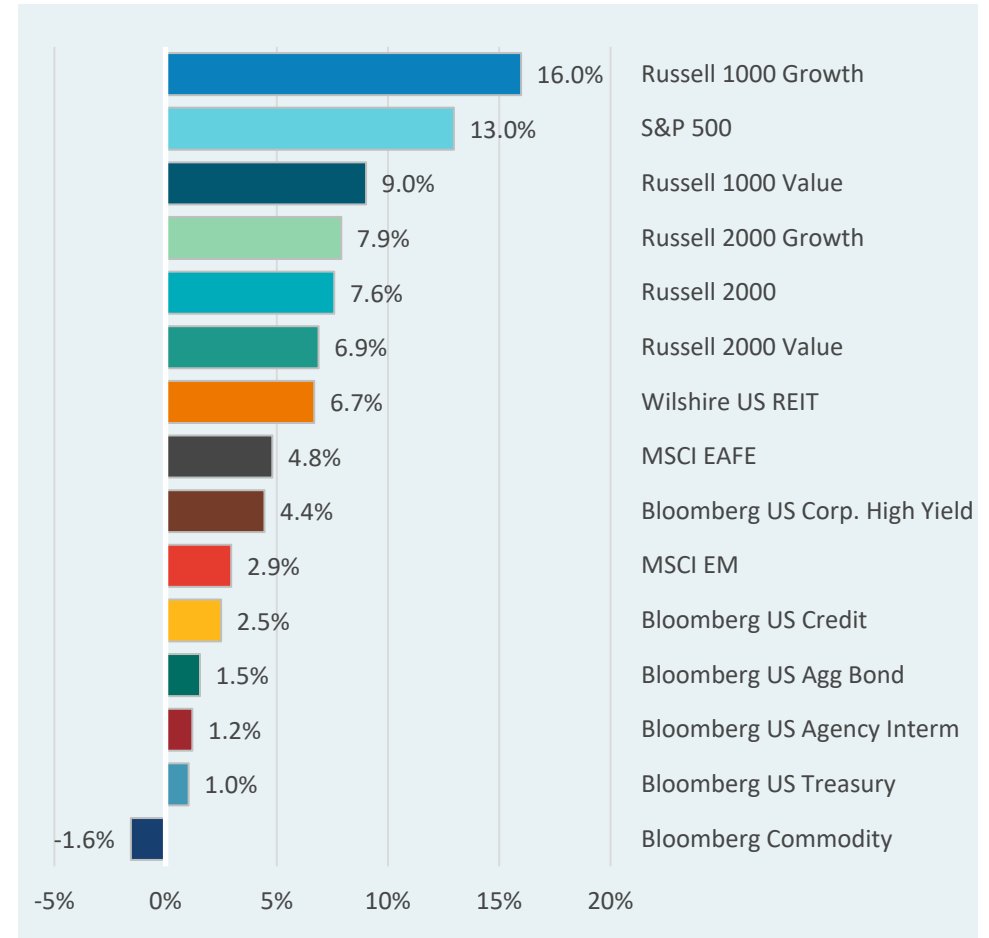
41

Major asset class returns

ONE YEAR ENDING MARCH



TEN YEARS ENDING MARCH



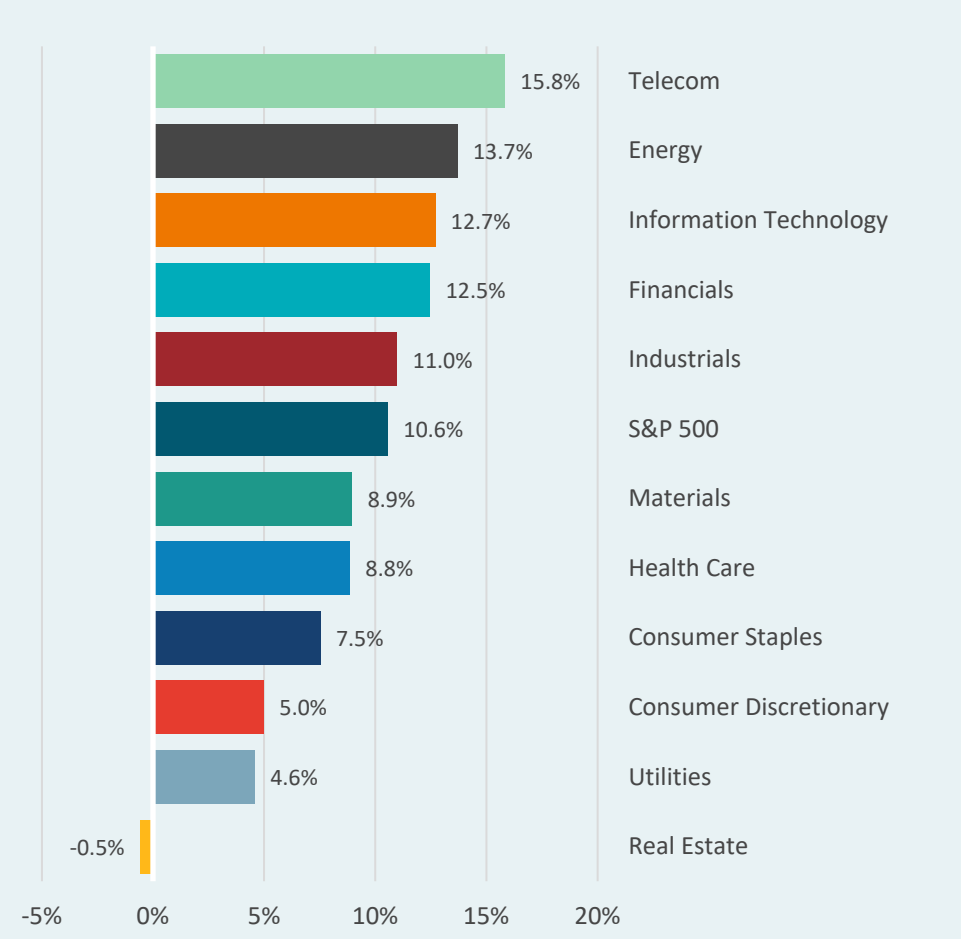
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 3/31/24

Source: Morningstar, as of 3/31/24

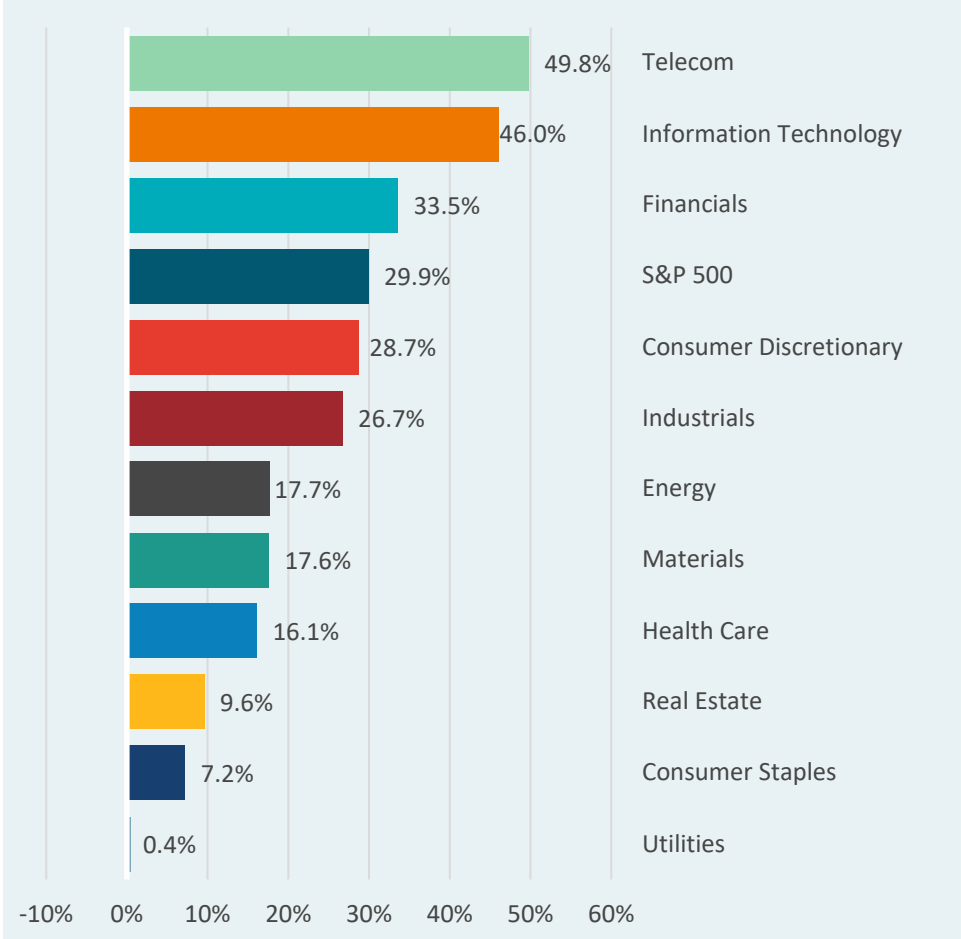
S&P 500 sector returns

QTD



Source: Morningstar, as of 3/31/24

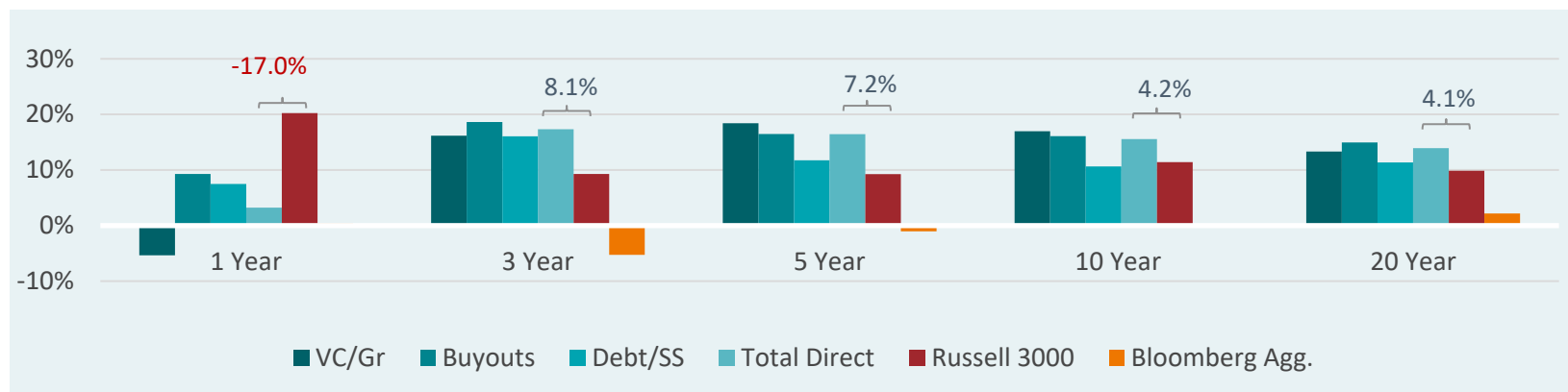
ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/24

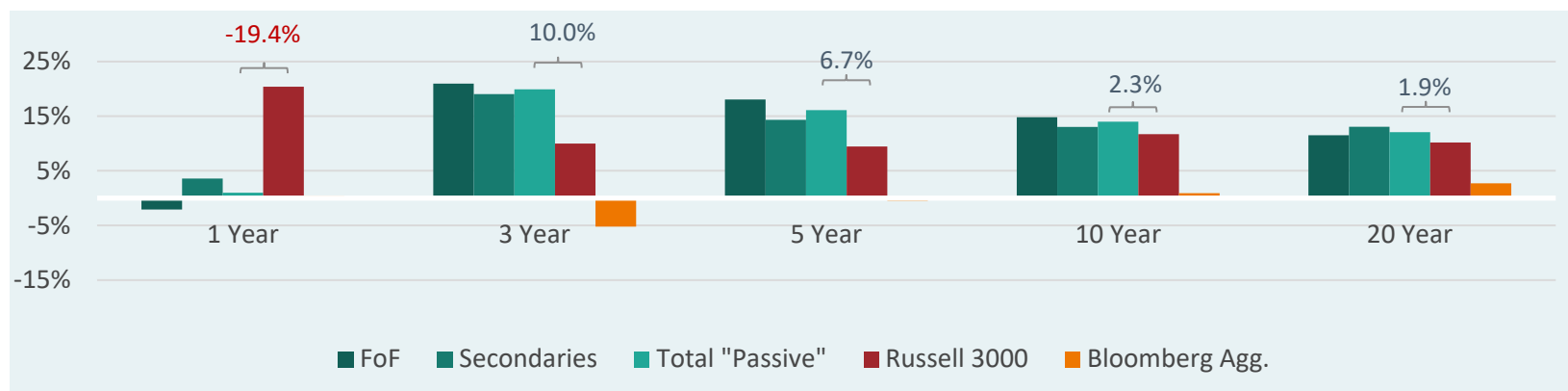
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund investments outperformed comparable public equities across all time periods, aside from the 1-year

“PASSIVE” STRATEGIES

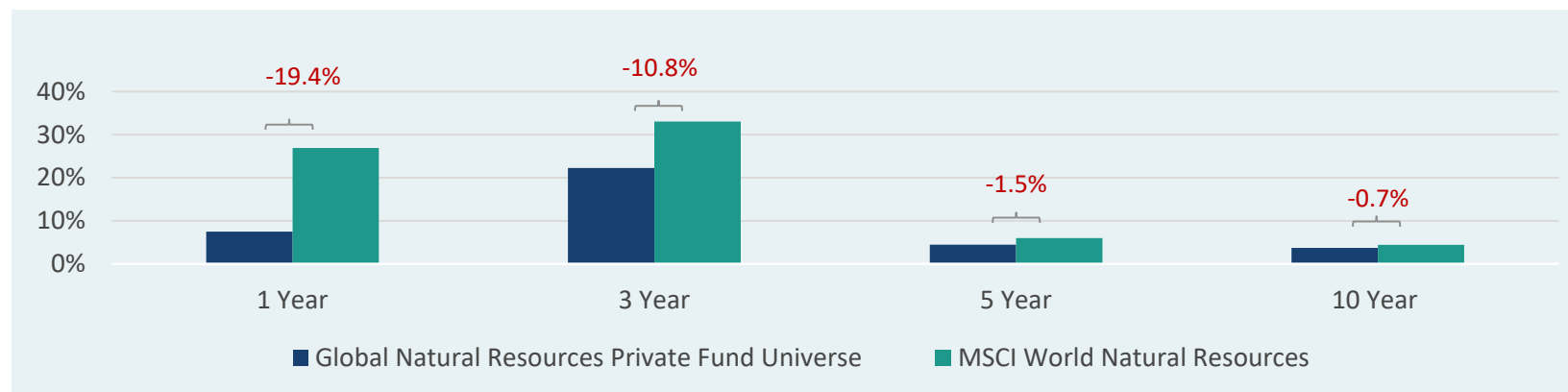


“Passive” strategies outperformed comparable public equities across all time periods, aside from the 1-year

Sources: Refinitiv PME: U.S. Private Equity Funds sub asset classes as of September 30, 2023. Public Market Equivalent returns resulted from “Total Passive” and Total Direct’s identical cash flows invested into and distributed from respective traditional asset comparable.

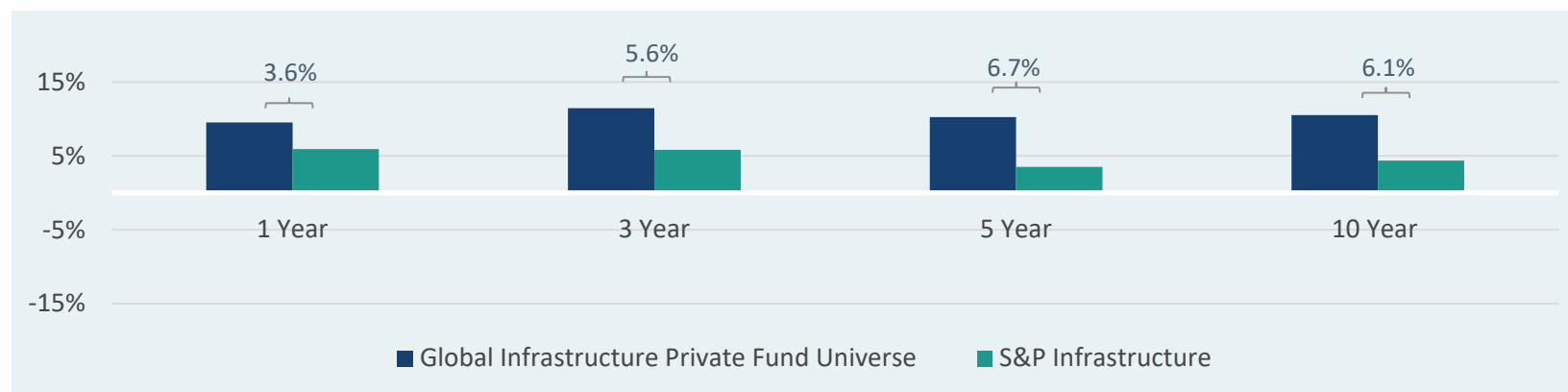
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS



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

GLOBAL INFRASTRUCTURE FUNDS

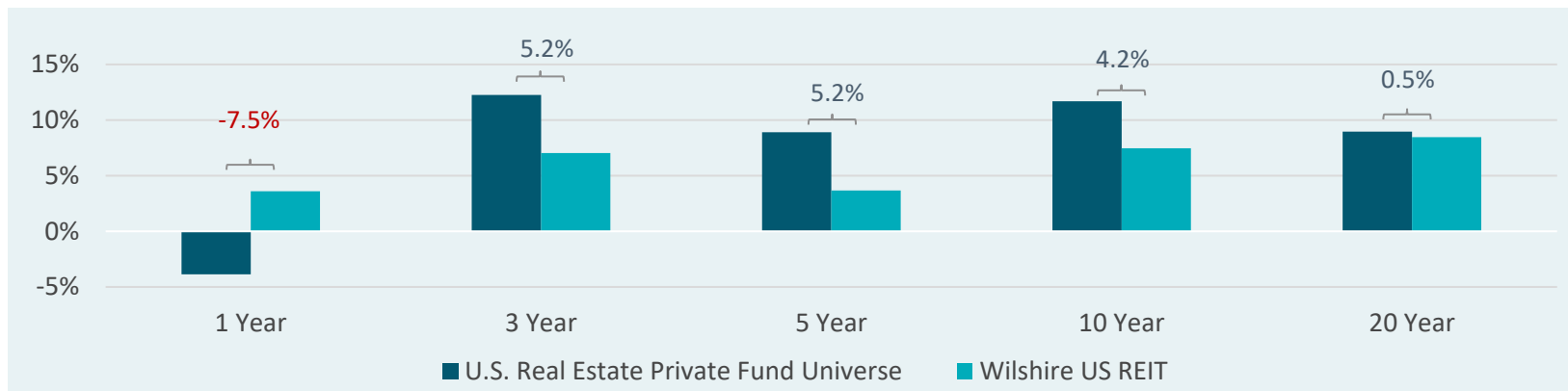


Infra. funds outperformed the S&P Infra. across all periods

Sources: Refinitiv PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2023. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

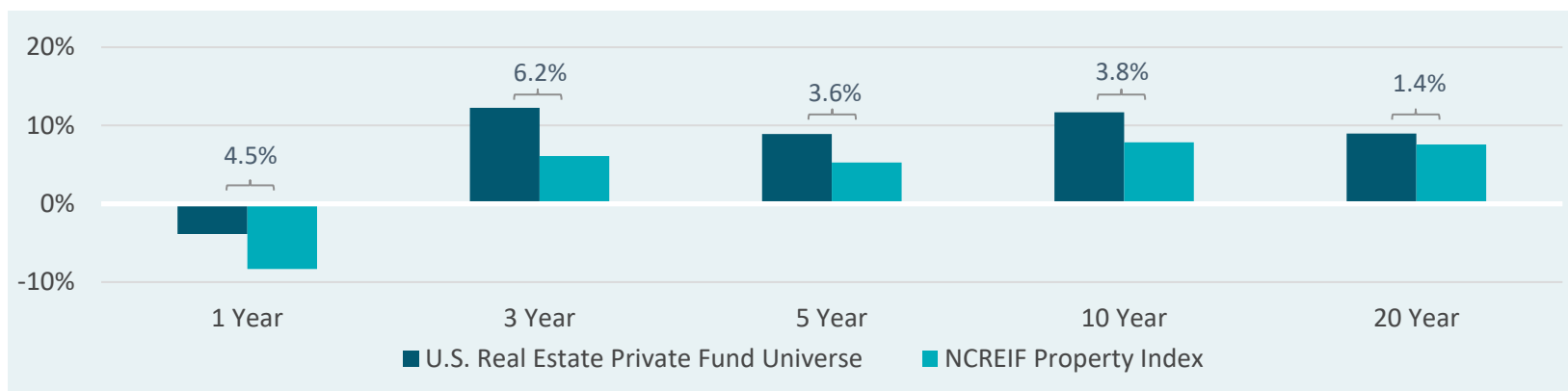
Private vs. liquid and core real estate performance

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



U.S. Private R.E. funds outperformed the Wilshire U.S. REIT Index across most time periods, aside from the 1-year

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: Refinitiv PME: U.S. Real Estate universes as of September 30, 2023. 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	3.2	10.6	10.6	29.9	11.5	15.1	13.0
S&P 500 Equal Weighted	4.5	7.9	7.9	19.4	8.2	12.4	10.9
DJ Industrial Average	2.2	6.1	6.1	22.2	8.7	11.3	11.8
Russell Top 200	2.9	10.8	10.8	32.4	12.0	16.1	13.7
Russell 1000	3.2	10.3	10.3	29.9	10.5	14.8	12.7
Russell 2000	3.6	5.2	5.2	19.7	(0.1)	8.1	7.6
Russell 3000	3.2	10.0	10.0	29.3	9.8	14.3	12.3
Russell Mid Cap	4.3	8.6	8.6	22.3	6.1	11.1	9.9
Style Index							
Russell 1000 Growth	1.8	11.4	11.4	39.0	12.5	18.5	16.0
Russell 1000 Value	5.0	9.0	9.0	20.3	8.1	10.3	9.0
Russell 2000 Growth	2.8	7.6	7.6	20.3	(2.7)	7.4	7.9
Russell 2000 Value	4.4	2.9	2.9	18.8	2.2	8.2	6.9

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	3.1	8.2	8.2	23.2	7.0	10.9	8.7
MSCI ACWI ex US	3.1	4.7	4.7	13.3	1.9	6.0	4.3
MSCI EAFE	3.3	5.8	5.8	15.3	4.8	7.3	4.8
MSCI EM	2.5	2.4	2.4	8.2	(5.1)	2.2	2.9
MSCI EAFE Small Cap	3.7	2.4	2.4	10.4	(1.4)	4.9	4.7
Style Index							
MSCI EAFE Growth	2.3	7.0	7.0	13.3	2.8	7.8	5.9
MSCI EAFE Value	4.4	4.5	4.5	17.3	6.6	6.4	3.5
Regional Index							
MSCI UK	4.5	3.1	3.1	10.9	7.7	5.1	2.9
MSCI Japan	3.0	11.0	11.0	25.8	3.7	7.8	6.7
MSCI Euro	4.1	8.4	8.4	17.4	6.9	9.0	4.7
MSCI EM Asia	3.0	3.4	3.4	6.3	(6.5)	2.8	4.5
MSCI EM Latin American	1.0	(4.0)	(4.0)	22.6	10.5	3.7	1.7

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	0.8	(0.1)	(0.1)	0.5	(0.5)	2.5	2.2
Bloomberg US Treasury Bills	0.5	1.3	1.3	5.3	2.6	2.0	1.4
Bloomberg US Agg Bond	0.9	(0.8)	(0.8)	1.7	(2.5)	0.4	1.5
Bloomberg US Universal	1.0	(0.5)	(0.5)	2.7	(2.1)	0.7	1.8
Duration							
Bloomberg US Treasury 1-3 Yr	0.4	0.3	0.3	2.9	0.0	1.1	1.1
Bloomberg US Treasury Long	1.2	(3.3)	(3.3)	(6.1)	(8.0)	(2.8)	1.2
Bloomberg US Treasury	0.6	(1.0)	(1.0)	0.1	(2.7)	(0.1)	1.0
Issuer							
Bloomberg US MBS	1.1	(1.0)	(1.0)	1.4	(2.8)	(0.4)	1.1
Bloomberg US Corp. High Yield	1.2	1.5	1.5	11.2	2.2	4.2	4.4
Bloomberg US Agency Interm	0.4	0.2	0.2	3.2	(0.6)	0.8	1.2
Bloomberg US Credit	1.2	(0.4)	(0.4)	4.1	(1.9)	1.4	2.5

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	3.3	2.2	2.2	(0.6)	9.1	6.4	(1.6)
Wilshire US REIT	1.5	(0.0)	(0.0)	12.4	4.5	4.4	6.7
CS Leveraged Loans	0.8	2.5	2.5	12.4	5.8	5.3	4.6
S&P Global Infrastructure	4.6	1.3	1.3	4.1	5.5	4.9	5.2
Alerian MLP	4.9	14.7	14.7	37.3	29.2	10.4	2.9
Regional Index							
JPM EMBI Global Div	2.1	2.0	2.0	11.3	(1.4)	0.7	3.0
JPM GBI-EM Global Div	(0.0)	(2.1)	(2.1)	4.9	(1.6)	0.1	(0.3)
Hedge Funds							
HFRI Composite	2.5	4.9	4.9	12.1	4.3	7.0	5.0
HFRI FOF Composite	1.3	3.9	3.9	9.4	2.8	5.0	3.6
Currency (Spot)							
Euro	(0.2)	(2.2)	(2.2)	(0.6)	(2.8)	(0.8)	(2.4)
Pound Sterling	(0.1)	(0.9)	(0.9)	2.2	(2.9)	(0.6)	(2.7)
Yen	(1.1)	(6.9)	(6.9)	(12.1)	(10.0)	(6.1)	(3.8)

Source: Morningstar, HFRI, as of 3/31/24

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: March 31, 2024



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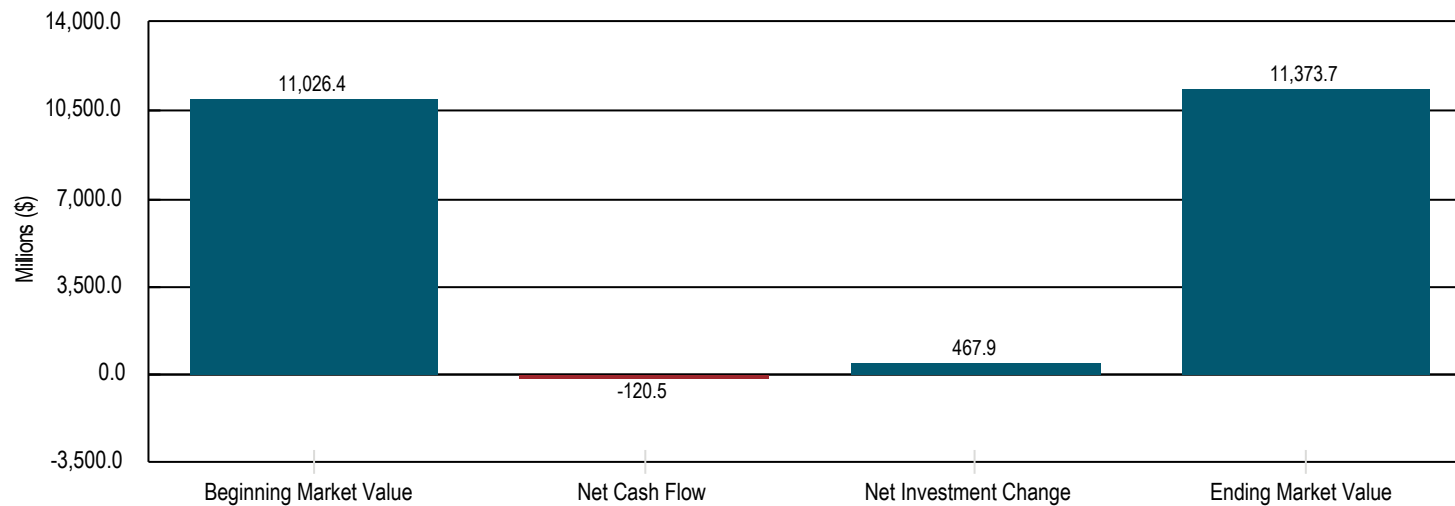
LOS ANGELES 310.297.1777

SAN FRANCISCO 415.362.3484

Portfolio Reconciliation

	Last Three Months	YTD
Beginning Market Value	\$11,026,356,498	\$11,026,356,498
Net Cash Flow	-\$120,466,360	-\$120,466,360
Net Investment Change	\$467,856,833	\$467,856,833
Ending Market Value	\$11,373,746,970	\$11,373,746,970

Change in Market Value
Last Three Months

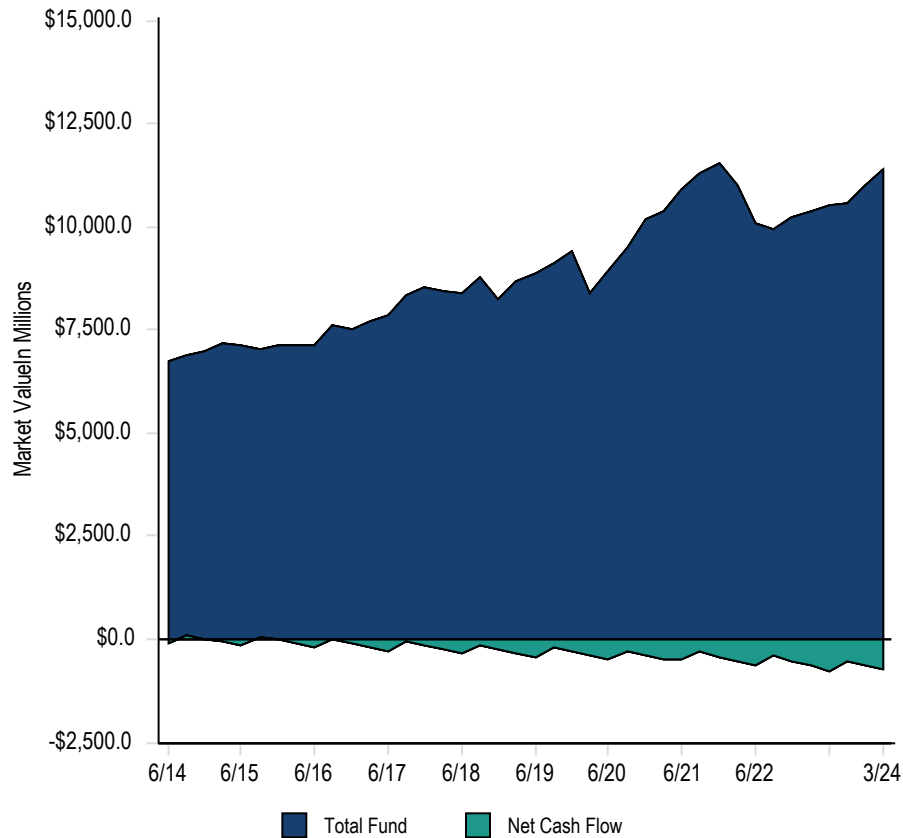


Contributions and withdrawals may include intra-account transfers between managers/funds.

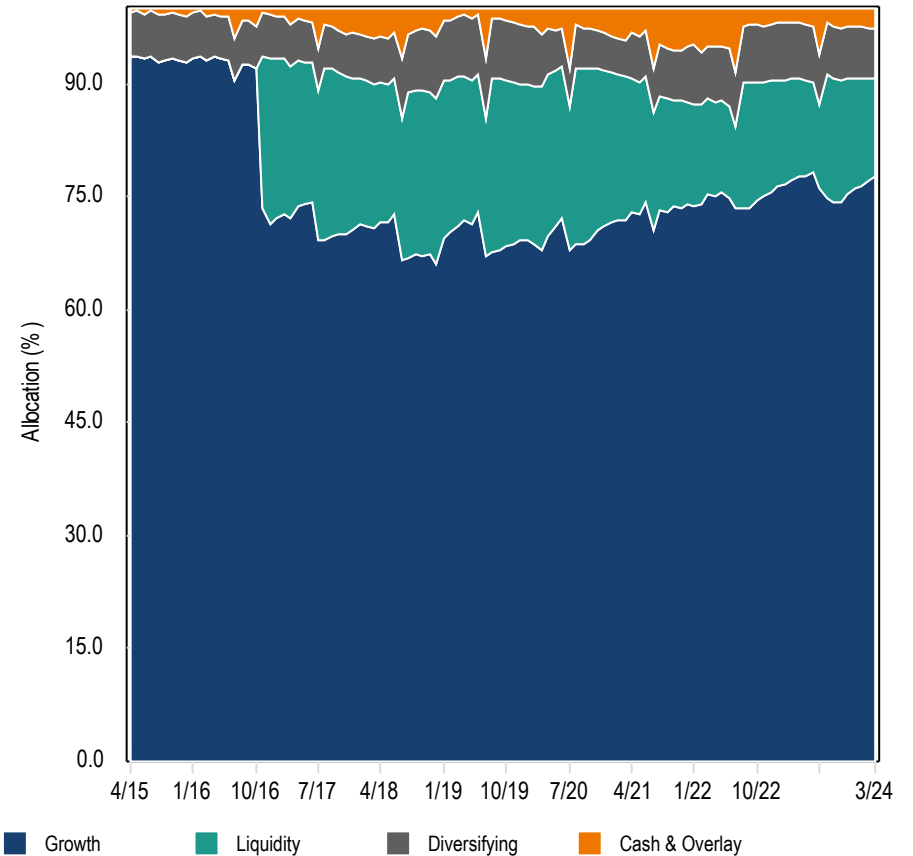
Total Fund
Asset Allocation History

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

Market Value History
Cumulative Cash Flows

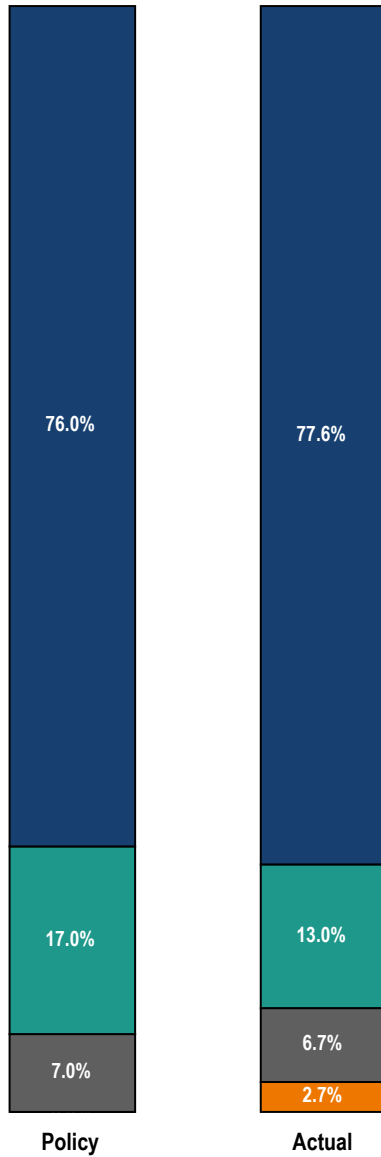


Asset Allocation History



Total Fund
Asset Allocation vs. Policy Target

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



	Current Balance	Current Allocation	Policy Target	Difference
Growth	\$8,828,582,250	77.6	76.0	\$184,534,552
Liquidity	\$1,482,972,885	13.0	17.0	-\$450,564,099
Diversifying	\$756,529,288	6.7	7.0	-\$39,633,000
Cash & Overlay	\$305,662,547	2.7	0.0	\$305,662,547
Total	\$11,373,746,970	100.0	100.0	

Policy Targets approved July 2023.

Total Fund
Executive Summary (Net of Fees)

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

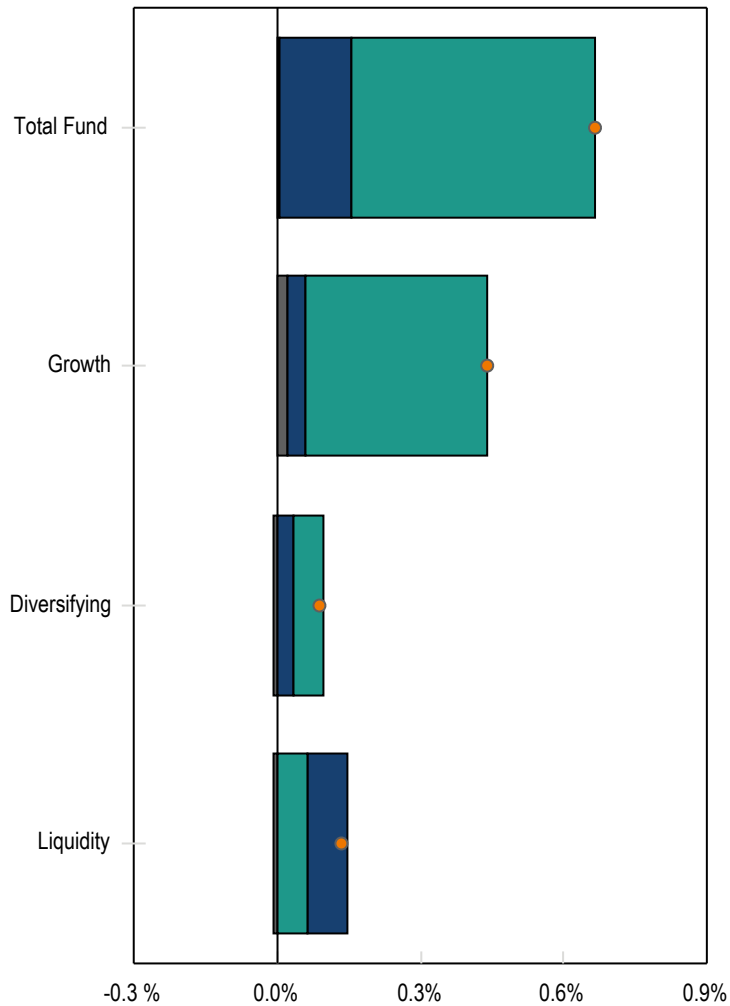
	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
Total Fund	100.0	4.3	10.7	4.0	6.4	6.3	9.0	-10.6	13.9	9.2	14.6
Policy Index		3.6	10.3	5.2	7.8	7.2	9.9	-8.4	15.3	10.8	14.6
Implementation Benchmark		3.4	9.7	4.4	6.4	6.5	9.0	-8.7	14.2	8.7	13.6
Growth	77.6	5.2	12.5	5.5	8.4	7.9	10.1	-11.7	19.2	12.0	18.3
Custom Growth Benchmark		4.7	12.4	6.7	10.2	8.9	11.3	-10.3	21.6	13.8	19.3
Diversifying	6.7	1.0	1.9	-0.2	0.3	0.3	2.2	-5.7	1.7	-1.7	6.8
Custom Diversifying Benchmark		0.3	4.7	1.4	2.3	3.0	7.4	-5.7	1.6	4.7	6.1
Liquidity	13.0	0.8	4.6	0.8	1.7	-	5.4	-3.5	-0.3	3.4	4.8
Bloomberg U.S. Gov/Credit 1-3 Year Index		0.4	3.5	0.2	1.4	-	4.6	-3.7	-0.5	3.3	4.0

*Correlation between the Growth and Diversifying composites is .82, .58, and .63 over the previous 1, 3, and 5 year periods respectively.

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

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

Attribution Effects
 3 Months Ending March 31, 2024



Performance Attribution

	3 Mo
Wtd. Actual Return	4.26
Wtd. Index Return	3.59
Excess Return	0.67
Selection Effect	0.51
Allocation Effect	0.15
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	5.2	4.7	0.5	0.4	0.0	0.0	0.4
Diversifying	1.0	0.3	0.8	0.1	0.0	0.0	0.1
Liquidity	0.8	0.4	0.4	0.1	0.1	0.0	0.1
Total Fund	4.3	3.6	0.7	0.5	0.2	0.0	0.7

Selection Effect Allocation Effect
 Interaction Effect Total Effects

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



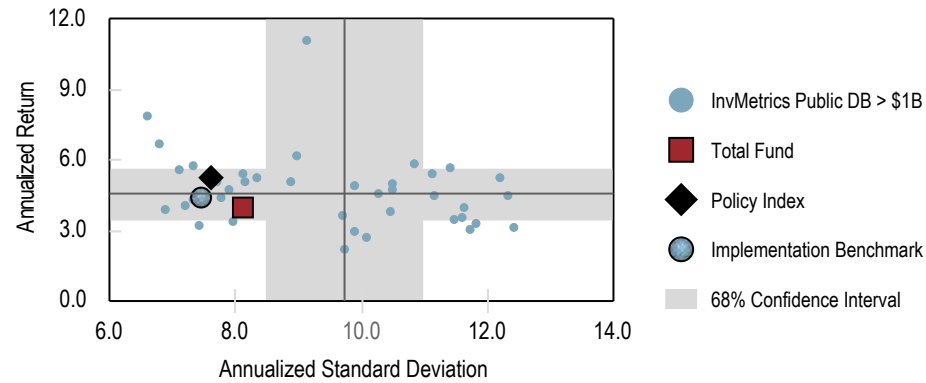
Total Fund
Executive Summary (Net of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: March 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	4.01	-1.24	8.27	-1.33	1.03	0.91	0.99	0.21	-1.27	98.56	110.07

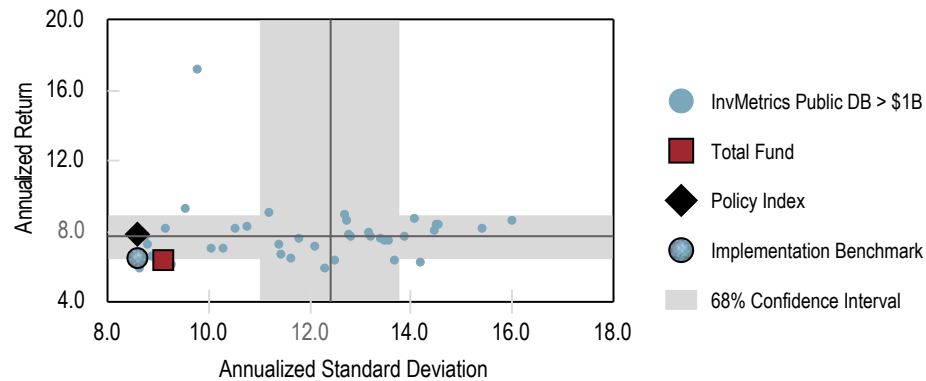
Risk vs. Return



5 Years

	Anlzd Return	Ann Excess Performance	Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
Total Fund	6.35	-1.48	8.20	-1.16	0.97	1.75	0.96	0.55	-0.80	94.72	106.59

Risk vs. Return



Total Fund
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: March 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	11,373,746,970	100.0	4.3	10.9	4.3	6.6	6.7	9.2	-10.4	14.2	9.5	14.9		
<i>Policy Index</i>			3.6	10.3	5.2	7.8	7.2	9.9	-8.4	15.3	10.8	14.6		
<i>Implementation Benchmark</i>			3.4	9.7	4.4	6.4	6.5	9.0	-8.7	14.2	8.7	13.6		
<i>InvMetrics Public DB > \$1B Rank</i>			30	54	52	81	56	82	46	66	81	90		
Total Fund ex Overlay & Cash	11,068,084,423	97.3	4.3	10.9	4.6	6.8	6.8	9.2	-9.9	14.6	9.7	14.7		
<i>Policy Index</i>			3.6	10.3	5.2	7.8	7.2	9.9	-8.4	15.3	10.8	14.6		
<i>Implementation Benchmark</i>			3.4	9.7	4.4	6.4	6.5	9.0	-8.7	14.2	8.7	13.6		
<i>InvMetrics Public DB > \$1B Rank</i>			30	54	48	76	51	82	41	61	76	92		
Growth	8,828,582,250	77.6	5.3	12.8	5.7	8.7	8.3	10.4	-11.4	19.6	12.4	18.7		
<i>Custom Growth Benchmark</i>			4.7	12.4	6.7	10.2	8.9	11.3	-10.3	21.6	13.8	19.3		
Total Domestic Equity	2,266,119,060	19.9	9.5	27.0	7.1	12.4	11.1	21.6	-18.3	20.6	22.2	26.7		
<i>Russell 3000 Index</i>			10.0	29.3	9.8	14.3	12.3	26.0	-19.2	25.7	20.9	31.0		
<i>InvMetrics Public DB US Equity Rank</i>			51	76	100	96	83	83	61	100	19	100		
BlackRock Russell 1000 Index	1,333,773,686	11.7	10.3	29.9	10.5	14.8	-	26.6	-19.1	26.5	21.0	31.4	13.9	May-17
<i>Russell 1000 Index</i>			10.3	29.9	10.5	14.8	-	26.5	-19.1	26.5	21.0	31.4	13.8	
<i>eV US Large Cap Equity Rank</i>			50	41	49	41	-	34	69	55	35	40		
Boston Partners	452,725,674	4.0	12.0	28.8	12.1	13.6	10.6	14.7	-3.8	31.3	3.0	24.3	11.1	Jun-95
<i>Russell 1000 Value Index</i>			9.0	20.3	8.1	10.3	9.0	11.5	-7.5	25.2	2.8	26.5	9.4	
<i>eV US Large Cap Value Equity Rank</i>			15	16	15	28	38	39	36	19	64	79		
Emerald Advisers	246,393,154	2.2	5.8	21.0	-0.4	8.6	9.7	19.2	-23.8	5.5	39.0	30.3	12.6	Apr-03
<i>Russell 2000 Growth Index</i>			7.6	20.3	-2.7	7.4	7.9	18.7	-26.4	2.8	34.6	28.5	10.5	
<i>eV US Small Cap Growth Equity Rank</i>			69	39	50	71	65	41	27	77	57	48		
Ceredex	233,226,547	2.1	4.1	16.2	7.4	9.1	8.0	16.0	-8.5	28.4	2.3	18.4	10.6	Nov-11
<i>Russell 2000 Value Index</i>			2.9	18.8	2.2	8.2	6.9	14.6	-14.5	28.3	4.6	22.4	9.8	
<i>eV US Small Cap Value Equity Rank</i>			69	77	37	82	73	61	28	60	70	88		

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

Total Fund
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: March 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	1,522,616,110	13.4	4.6	13.8	0.9	6.7	5.2	15.4	-18.2	8.3	15.8	23.7		
MSCI AC World ex USA Index			4.8	13.8	2.4	6.5	4.7	16.2	-15.6	8.3	11.1	22.1		
MSCI EAFE Index			5.9	15.9	5.3	7.9	5.3	18.9	-14.0	11.8	8.3	22.7		
InvMetrics Public DB Global ex-US Equity Rank			62	57	81	46	47	91	53	57	32	45		
International Equity	1,015,609,403	8.9	4.1	11.6	2.3	7.8	5.9	15.6	-18.1	9.0	19.0	27.0	6.4	Oct-10
MSCI AC World ex USA Index			4.8	13.8	2.4	6.5	4.7	16.2	-15.6	8.3	11.1	22.1	5.1	
InvMetrics Public DB Global ex-US Equity Rank			80	86	65	31	11	89	46	47	7	17		
Pyrford	511,137,914	4.5	1.7	9.1	4.6	6.5	-	15.2	-7.0	7.6	4.7	22.1	4.7	May-14
MSCI AC World ex USA Value			3.4	15.3	4.6	5.4	-	17.3	-8.6	10.5	-0.8	15.7	3.0	
eV ACWI ex-US Value Equity Rank			84	91	57	72	-	83	21	84	47	38		
William Blair	504,471,490	4.4	6.7	14.2	0.0	8.8	6.4	16.2	-27.7	10.5	33.3	32.0	7.1	Nov-10
MSCI AC World ex USA Growth			5.9	11.2	-0.8	6.2	5.1	14.0	-23.1	5.1	22.2	27.3	5.3	
eV ACWI ex-US Growth Equity Rank			38	36	52	35	55	59	56	41	36	38		
Emerging Markets Equity	507,006,707	4.5	5.6	16.4	-0.9	5.1	-	14.4	-18.4	7.6	11.4	19.4	5.0	Feb-17
MSCI Emerging Markets			2.4	8.2	-5.1	2.2	-	9.8	-20.1	-2.5	18.3	18.4	4.0	
InvMetrics Public DB Emerging Markets Equity Rank			16	-	-	-	-	-	-	-	-	-		
PIMCO RAE Emerging Markets	259,484,680	2.3	4.5	23.3	6.8	8.4	-	23.1	-9.7	17.1	2.1	14.6	7.2	Mar-17
MSCI Emerging Markets Value			1.3	11.4	-0.9	2.1	-	14.2	-15.8	4.0	5.5	12.0	3.3	
eV Emg Mkts All Cap Value Equity Rank			22	5	8	9	-	11	34	8	85	78		
TT Emerging Markets	247,522,027	2.2	6.9	9.4	-8.0	1.9	-	5.8	-26.4	-0.2	20.8	24.8	2.1	Aug-17
MSCI Emerging Markets			2.4	8.2	-5.1	2.2	-	9.8	-20.1	-2.5	18.3	18.4	2.1	
eV Emg Mkts Equity Rank			7	55	90	88	-	91	90	58	39	24		
Total Global Equity	1,264,011,448	11.1	8.9	20.6	5.9	11.3	9.7	19.0	-18.8	14.1	25.3	28.9	-	Dec-03
MSCI AC World Index			8.2	23.2	7.0	10.9	8.7	22.2	-18.4	18.5	16.3	26.6	7.9	
InvMetrics Public DB Global Equity Rank			11	-	-	-	-	50	-	-	-	-		
Artisan Partners	665,966,950	5.9	11.1	26.7	4.4	13.3	12.3	24.5	-29.6	15.0	41.7	37.0	12.9	Oct-12
MSCI ACWI Growth NR USD			9.5	28.2	6.7	13.6	11.0	33.2	-28.6	17.1	33.6	32.7	11.8	
eV Global Growth Equity Rank			27	28	43	19	19	37	62	57	32	12		
First Eagle	597,922,680	5.3	6.6	14.6	7.4	9.1	7.4	13.7	-5.6	13.0	8.5	21.0	8.3	Jan-11
MSCI ACWI Value NR USD			6.9	18.0	6.7	7.6	6.0	11.8	-7.5	19.6	-0.3	20.6	6.8	
eV Global Value Equity Rank			40	69	35	49	31	67	21	86	33	64		

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

Total Fund
Performance Summary (Gross of Fees)

Contra Costa County Employees' Retirement Association
Period Ending: March 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	1,108,381,180	9.7	0.3	9.5	10.0	8.4	9.3	9.1	10.5	10.0	4.0	7.7		
Total High Yield	159,409,366	1.4	1.4	9.6	2.0	3.8	3.8	12.4	-10.6	5.3	5.2	15.3		
ICE BofA U.S. High Yield Index			1.5	11.0	2.2	4.0	4.4	13.5	-11.2	5.4	6.2	14.4		
eV US High Yield Fixed Inc Rank			76	82	86	86	91	63	74	55	73	36		
Voya Global Investors	159,409,366	1.4	1.4	9.6	2.0	3.8	3.8	12.4	-10.6	5.3	5.2	15.3	6.3	May-00
ICE BofA U.S. High Yield Index			1.5	11.0	2.2	4.0	4.4	13.5	-11.2	5.4	6.2	14.4	6.5	
eV US High Yield Fixed Inc Rank			76	82	86	86	91	63	74	55	73	36		
Total Real Estate	738,277,537	6.5	-6.0	-13.8	-2.9	-1.4	4.5	-10.1	-5.2	19.2	-5.9	8.1		
Real Estate Benchmark			-6.6	-15.1	-3.1	-0.1	4.3	-11.0	-4.5	19.3	0.6	7.5		
NCREIF-ODCE			-2.4	-11.3	3.4	3.5	6.8	-12.0	7.5	22.2	1.2	5.3		
NCREIF Property Index			-1.0	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4		
Total Core Real Estate	213,084,094	1.9	-0.4	9.7	4.7	5.4	7.5	12.8	-24.8	48.3	-4.6	28.2		
Adelante	98,152,536	0.9	0.8	13.6	5.6	5.9	7.8	17.2	-26.7	48.3	-4.6	28.2	9.6	Oct-01
Wilshire U.S. REIT Index			0.0	12.4	4.6	4.4	6.7	16.2	-26.8	46.2	-7.9	25.8	9.0	
Invesco US Fundamental Beta	114,931,558	1.0	-1.5	6.6	-	-	-	9.4	-	-	-	-	-4.1	Mar-22
Wilshire U.S. REIT Index			0.0	12.4	-	-	-	16.2	-	-	-	-	-2.6	
Total Private Real Estate	525,193,442	4.6	-8.2	-21.3	-5.0	-3.0	3.7	-17.2	1.3	15.3	-6.1	6.2		
Private Equity	1,419,763,076	12.5	8.0	8.0	15.6	14.7	13.0	-1.0	-0.5	60.4	8.7	8.4		
Risk Parity	350,004,472	3.1	3.0	3.5	-1.9	2.5	-	4.9	-21.5	9.7	10.0	18.1		
60% MSCI ACWI Net/40% Blmbg. Global Aggregate			4.0	13.7	2.3	6.2	-	15.4	-17.3	8.8	14.0	18.6		
AQR Global Risk Premium-EL	182,826,494	1.6	3.4	6.4	1.1	3.9	-	7.0	-16.3	10.7	6.2	18.7	5.0	Jan-19
HFR Risk Parity Vol 10 Index			4.2	10.2	0.7	2.5	-	10.5	-18.3	6.8	3.6	18.4	4.1	
PanAgora Risk Parity Multi Asset	167,177,978	1.5	2.6	0.5	-4.7	1.2	-	2.8	-26.1	8.7	14.0	-	1.8	Mar-19
HFR Risk Parity Vol 10 Index			4.2	10.2	0.7	2.5	-	10.5	-18.3	6.8	3.6	-	3.0	

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: March 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	756,529,288	6.7	1.1	2.3	0.2	0.7	0.7	2.6	-5.4	2.0	-1.3	7.1		
<i>Custom Diversifying Benchmark</i>			0.3	4.7	1.4	2.3	3.0	7.4	-5.7	1.6	4.7	6.1		
Diversifying Fixed Income	220,693,360	1.9	-0.2	2.3	-2.5	-0.6	1.0	5.5	-13.3	-0.7	1.6	8.6		
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	1.7	-2.5	0.4	1.5	5.5	-13.0	-1.5	7.5	8.7		
<i>eV US Core Fixed Inc Rank</i>			27	68	91	100	100	85	75	32	100	79		
AFL-CIO	220,632,514	1.9	-0.2	2.3	-2.5	0.4	1.7	5.5	-13.3	-0.7	6.6	8.2	5.2	Jul-91
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	1.7	-2.5	0.4	1.5	5.5	-13.0	-1.5	7.5	8.7	4.9	
<i>eV US Core Fixed Inc Rank</i>			27	67	92	95	89	86	75	32	95	86		
Diversifying Multi-Asset	535,835,929	4.7	1.7	2.3	1.3	-	-	1.4	-1.9	2.8	-	-		
<i>Custom Diversifying Multi-Asset Benchmark</i>			1.1	6.8	3.1	-	-	8.7	-3.1	4.1	-	-		
Acadian Multi-Asset Absolute Return Fund	163,606,323	1.4	1.4	-3.1	-0.9	-	-	-5.4	-0.1	1.7	-	-	-0.2	Aug-20
<i>FTSE 3-Month T-bill +5%</i>			2.6	10.8	7.8	-	-	10.5	6.6	5.0	-	-	7.3	
Sit LLCAR	372,229,605	3.3	1.8	6.4	3.2	-	-	6.9	-3.3	-	-	-	3.2	Apr-21
<i>Blmbg. U.S. Aggregate Index +1%</i>			-0.5	2.7	-1.5	-	-	6.6	-12.1	-	-	-	-1.5	
Liquidity	1,482,972,885	13.0	0.8	4.8	0.9	1.8	-	5.5	-3.4	-0.2	3.5	4.9		
<i>Blmbg. 1-3 Year Gov/Credit Index</i>			0.4	3.5	0.2	1.4	-	4.6	-3.7	-0.5	3.3	4.0		
<i>eV US Short Duration Fixed Inc Rank</i>			37	38	48	53	-	43	49	47	75	39		
DFA Short Credit	336,917,694	3.0	1.4	5.5	0.3	1.4	-	5.4	-5.3	-0.4	2.9	5.2	1.6	Dec-16
<i>ICE BofA 1-5 Year U.S. Corp/Govt Index</i>			0.2	3.3	-0.4	1.3	-	4.9	-5.5	-0.9	4.6	5.1	1.5	
<i>eV US Short Duration Fixed Inc Rank</i>			10	21	77	86	-	47	90	68	89	27		
Insight Short Duration	549,439,086	4.8	0.9	5.4	1.9	2.4	-	5.7	-1.1	0.1	3.2	4.7	2.3	Dec-16
<i>Bloomberg U.S. Gov/Credit 1-3 Year Index</i>			0.4	3.5	0.2	1.4	-	4.6	-3.7	-0.5	3.3	4.0	1.4	
<i>eV US Short Duration Fixed Inc Rank</i>			29	23	13	19	-	32	6	32	85	48		
Sit Short Duration	596,616,105	5.2	0.4	3.8	0.1	1.5	-	5.4	-4.8	-0.3	4.6	4.9	1.8	Dec-16
<i>Blmbg. 1-3 Year Govt Index</i>			0.3	3.0	0.0	1.1	-	4.3	-3.8	-0.6	3.1	3.6	1.2	
<i>eV US Short Duration Fixed Inc Rank</i>			82	79	86	77	-	50	79	58	30	40		
Total Cash	174,034,250	1.5	1.3	5.7	2.1	2.1	1.1	2.5	2.4	0.4	1.3	3.3		
<i>90 Day U.S. Treasury Bill</i>			1.3	5.2	2.6	2.0	1.4	5.0	1.5	0.0	0.7	2.3		
Cash	174,029,827	1.5	1.3	5.7	3.3	2.8	1.9	6.1	2.2	0.4	1.3	3.4	17.4	Apr-98
Northern Trust Transition	4,423	0.0	1.3	5.5	-80.7	-57.2	-	-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. \$60,845.58 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: March 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	11,373,746,970	100.0	4.3	10.7	4.0	6.4	6.3	9.0	-10.6	13.9	9.2	14.6		
Policy Index			3.6	10.3	5.2	7.8	7.2	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			3.4	9.7	4.4	6.4	6.5	9.0	-8.7	14.2	8.7	13.6		
Total Fund ex Overlay & Cash	11,068,084,423	97.3	4.3	10.7	4.3	6.6	6.4	9.0	-10.1	14.3	9.4	14.3		
Policy Index			3.6	10.3	5.2	7.8	7.2	9.9	-8.4	15.3	10.8	14.6		
Implementation Benchmark			3.4	9.7	4.4	6.4	6.5	9.0	-8.7	14.2	8.7	13.6		
Growth	8,828,582,250	77.6	5.2	12.5	5.5	8.4	7.9	10.1	-11.7	19.2	12.0	18.3		
Custom Growth Benchmark			4.7	12.4	6.7	10.2	8.9	11.3	-10.3	21.6	13.8	19.3		
Total Domestic Equity	2,266,119,060	19.9	9.4	26.7	6.9	12.1	10.8	21.4	-18.5	20.2	21.8	26.1		
Russell 3000 Index			10.0	29.3	9.8	14.3	12.3	26.0	-19.2	25.7	20.9	31.0		
BlackRock Russell 1000 Index	1,333,773,686	11.7	10.3	29.9	10.5	14.7	-	26.6	-19.1	26.5	20.9	31.4	13.8	May-17
Russell 1000 Index			10.3	29.9	10.5	14.8	-	26.5	-19.1	26.5	21.0	31.4	13.8	
Boston Partners	452,725,674	4.0	11.9	28.3	11.8	13.3	10.3	14.3	-4.1	31.0	2.6	23.8	10.9	Jun-95
Russell 1000 Value Index			9.0	20.3	8.1	10.3	9.0	11.5	-7.5	25.2	2.8	26.5	9.4	
Emerald Advisers	246,393,154	2.2	5.6	20.4	-0.9	8.0	9.1	18.6	-24.2	4.9	38.2	29.4	12.2	Apr-03
Russell 2000 Growth Index			7.6	20.3	-2.7	7.4	7.9	18.7	-26.4	2.8	34.6	28.5	10.4	
Ceredex	233,226,547	2.1	4.0	15.7	6.9	8.5	7.4	15.5	-9.0	27.7	1.7	17.7	10.0	Nov-11
Russell 2000 Value Index			2.9	18.8	2.2	8.2	6.9	14.6	-14.5	28.3	4.6	22.4	9.8	
Total International Equity	1,522,616,110	13.4	4.6	13.5	0.5	6.2	4.7	15.1	-18.6	7.8	15.2	23.2		
MSCI AC World ex USA Index			4.8	13.8	2.4	6.5	4.7	16.2	-15.6	8.3	11.1	22.1		
MSCI EAFE Index			5.9	15.9	5.3	7.9	5.3	18.9	-14.0	11.8	8.3	22.7		
International Equity	1,015,609,403	8.9	4.1	11.3	1.9	7.4	5.4	15.2	-18.4	8.6	18.5	26.5		
MSCI AC World ex USA Index			4.8	13.8	2.4	6.5	4.7	16.2	-15.6	8.3	11.1	22.1		
Pyrford	511,137,914	4.5	1.6	8.7	4.2	6.0	-	14.7	-7.4	7.1	4.2	21.6	4.2	May-14
MSCI AC World ex USA Value			3.4	15.3	4.6	5.4	-	17.3	-8.6	10.5	-0.8	15.7	3.0	
William Blair	504,471,490	4.4	6.7	14.0	-0.4	8.5	6.0	15.8	-28.0	10.1	32.8	31.5	6.7	Nov-10
MSCI AC World ex USA Growth			5.9	11.2	-0.8	6.2	5.1	14.0	-23.1	5.1	22.2	27.3	5.3	
Emerging Markets Equity	507,006,707	4.5	5.6	16.4	-1.2	4.6	-	14.4	-18.9	7.0	10.7	18.7		
MSCI Emerging Markets			2.4	8.2	-5.1	2.2	-	9.8	-20.1	-2.5	18.3	18.4		
PIMCO RAE Emerging Markets	259,484,680	2.3	4.5	23.3	6.5	8.0	-	23.0	-10.1	16.5	1.6	14.0	6.7	Mar-17
MSCI Emerging Markets Value			1.3	11.4	-0.9	2.1	-	14.2	-15.8	4.0	5.5	12.0	3.3	
TT Emerging Markets	247,522,027	2.2	6.9	9.4	-8.3	1.4	-	5.8	-26.8	-0.9	20.0	24.0	1.5	Aug-17
MSCI Emerging Markets			2.4	8.2	-5.1	2.2	-	9.8	-20.1	-2.5	18.3	18.4	2.1	

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: March 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	1,264,011,448	11.1	8.7	19.7	5.1	10.5	9.0	18.2	-19.4	13.2	24.4	27.9		
MSCI AC World Index			8.2	23.2	7.0	10.9	8.7	22.2	-18.4	18.5	16.3	26.6		
Artisan Partners	665,966,950	5.9	10.9	25.7	3.6	12.4	11.4	23.6	-30.1	14.1	40.6	36.0	12.1	Oct-12
MSCI ACWI Growth NR USD			9.5	28.2	6.7	13.6	11.0	33.2	-28.6	17.1	33.6	32.7	11.8	
First Eagle	597,922,680	5.3	6.4	13.7	6.6	8.3	6.6	12.9	-6.3	12.1	7.7	20.1	7.6	Jan-11
MSCI ACWI Value NR USD			6.9	18.0	6.7	7.6	6.0	11.8	-7.5	19.6	-0.3	20.6	6.8	
Private Credit	1,108,381,180	9.7	0.3	9.5	10.0	8.4	8.9	9.1	10.5	10.0	4.0	7.7		
Total High Yield	159,409,366	1.4	1.3	9.4	1.7	3.4	3.4	12.0	-10.9	4.9	4.7	14.7		
ICE BofA US High Yield Master II			1.5	11.1	2.2	4.0	4.4	13.5	-11.2	5.3	6.1	14.4		
Voya Global Investors	159,409,366	1.4	1.3	9.1	1.6	3.4	3.4	11.8	-10.9	4.9	4.7	14.7	6.1	May-00
ICE BofA US High Yield Master II			1.5	11.1	2.2	4.0	4.4	13.5	-11.2	5.3	6.1	14.4	6.5	
Total Real Estate	738,277,537	6.5	-6.3	-14.1	-3.0	-1.5	4.2	-10.2	-5.3	19.2	-6.0	8.1		
Real Estate Benchmark			-6.6	-15.1	-3.1	-0.1	4.3	-11.0	-4.5	19.3	0.6	7.5		
NCREIF-ODCE			-2.4	-11.3	3.4	3.5	6.8	-12.0	7.5	22.2	1.2	5.3		
NCREIF Property Index			-1.0	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4		
Total Core Real Estate	213,084,094	1.9	-0.5	9.3	4.3	4.9	7.0	12.4	-25.1	47.5	-5.2	27.5		
Adelante	98,152,536	0.9	0.6	12.9	5.0	5.4	7.3	16.5	-27.2	47.5	-5.2	27.5	9.3	Oct-01
Wilshire U.S. REIT Index			0.0	12.4	4.6	4.4	6.7	16.2	-26.8	46.2	-7.9	25.8	9.0	
Invesco US Fundamental Beta	114,931,558	1.0	-1.5	6.4	-	-	-	9.2	-	-	-	-	-4.2	Mar-22
Wilshire U.S. REIT Index			0.0	12.4	-	-	-	16.2	-	-	-	-	-2.6	
Total Private Real Estate	525,193,442	4.6	-8.4	-21.5	-5.1	-3.0	3.4	-17.2	1.3	15.3	-6.1	6.2		
Private Equity	1,419,763,076	12.5	8.0	8.0	15.6	14.7	12.6	-1.0	-0.5	60.4	8.7	8.4		
Risk Parity	350,004,472	3.1	3.0	3.3	-2.2	2.2	-	4.7	-21.8	9.3	9.6	17.7		
60% MSCI ACWI Net/40% Blmbg. Global Aggregate			4.0	13.7	2.3	6.2	-	15.4	-17.3	8.8	14.0	18.6		
AQR Global Risk Premium-EL	182,826,494	1.6	3.4	6.3	0.9	3.6	-	6.8	-16.6	10.3	5.8	18.3	4.7	Jan-19
HFR Risk Parity Vol 10 Index			4.2	10.2	0.7	2.5	-	10.5	-18.3	6.8	3.6	18.4	4.1	
PanAgora Risk Parity Multi Asset	167,177,978	1.5	2.5	0.2	-5.0	0.8	-	2.4	-26.3	8.3	13.6	-	1.5	Mar-19
HFR Risk Parity Vol 10 Index			4.2	10.2	0.7	2.5	-	10.5	-18.3	6.8	3.6	-	3.0	

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: March 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	756,529,288	6.7	1.0	1.9	-0.2	0.3	0.3	2.2	-5.7	1.7	-1.7	6.8		
Custom Diversifying Benchmark			0.3	4.7	1.4	2.3	3.0	7.4	-5.7	1.6	4.7	6.1		
Diversifying Fixed Income	220,693,360	1.9	-0.3	1.9	-2.8	-0.9	0.7	5.2	-13.5	-1.0	1.2	8.3		
Blmbg. U.S. Aggregate Index			-0.8	1.7	-2.5	0.4	1.5	5.5	-13.0	-1.5	7.5	8.7		
AFL-CIO	220,632,514	1.9	-0.3	1.9	-2.8	0.0	1.3	5.2	-13.6	-1.0	6.2	7.8	4.8	Jul-91
Blmbg. U.S. Aggregate Index			-0.8	1.7	-2.5	0.4	1.5	5.5	-13.0	-1.5	7.5	8.7	4.9	
Diversifying Multi-Asset	535,835,929	4.7	1.6	1.8	0.9	-	-	0.9	-2.3	2.4	-	-		
Custom Diversifying Multi-Asset Benchmark			1.1	6.8	3.1	-	-	8.7	-3.1	4.1	-	-		
Acadian Multi-Asset Absolute Return Fund	163,606,323	1.4	1.3	-3.6	-1.4	-	-	-5.9	-0.6	1.1	-	-	-0.7	Aug-20
FTSE 3-Month T-bill +5%			2.6	10.8	7.8	-	-	10.5	6.6	5.0	-	-	7.3	
Sit LLCAR	372,229,605	3.3	1.7	6.0	2.9	-	-	6.5	-3.7	-	-	-	2.9	Apr-21
Blmbg. U.S. Aggregate +1%			-0.5	2.7	-1.5	-	-	6.6	-12.1	-	-	-	-1.5	
Liquidity	1,482,972,885	13.0	0.8	4.6	0.8	1.7	-	5.4	-3.5	-0.3	3.4	4.8		
Blmbg. 1-3 Year Gov/Credit Index			0.4	3.5	0.2	1.4	-	4.6	-3.7	-0.5	3.3	4.0		
DFA Short Credit	336,917,694	3.0	1.4	5.4	0.2	1.3	-	5.3	-5.4	-0.5	2.8	5.2	1.5	Dec-16
ICE BofA 1-5 Year U.S. Corp/Govt			0.2	3.3	-0.4	1.3	-	4.9	-5.5	-0.9	4.6	5.1	1.5	
Insight Short Duration	549,439,086	4.8	0.9	5.4	1.8	2.3	-	5.7	-1.2	0.0	3.1	4.6	2.2	Dec-16
Bloomberg U.S. Gov/Credit 1-3 Year Index			0.4	3.5	0.2	1.4	-	4.6	-3.7	-0.5	3.3	4.0	1.4	
Sit Short Duration	596,616,105	5.2	0.4	3.6	-0.1	1.4	-	5.2	-5.0	-0.5	4.4	4.7	1.7	Dec-16
Blmbg. 1-3 Year Govt Index			0.3	3.0	0.0	1.1	-	4.3	-3.8	-0.6	3.1	3.6	1.2	
Total Cash	174,034,250	1.5	1.3	5.7	2.1	2.1	1.1	2.5	2.4	0.4	1.3	3.3		
90 Day U.S. Treasury Bill			1.3	5.2	2.6	2.0	1.4	5.0	1.5	0.0	0.7	2.3		
Cash	174,029,827	1.5	1.3	5.7	3.3	2.8	1.9	6.1	2.2	0.4	1.3	3.4		
Northern Trust Transition	4,423	0.0	1.3	5.5	-80.7	-57.2	-	-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. \$60,845.58 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: March 31, 2024

StepStone Group Analysis (*)													
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 3/31/2024 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 Partners	\$113,123,885	\$210,000,000	93%	\$195,823,407	\$0	\$4,306,886	\$284,046,340	\$14,176,593	1.45	2.03	12/31/2023	
1/15/2009	Adams Street Partners II	\$3,282,372	\$30,000,000	95%	\$28,365,000	\$0	\$0	\$45,661,555	\$1,635,000	1.61	1.73	12/31/2023	
9/21/2012	Adams Street Partners - Fund 5	\$10,213,142	\$40,000,000	77%	\$30,845,875	\$0	\$0	\$32,286,795	\$9,154,125	1.05	1.38	12/31/2023	
1/18/1996	Adams Street Partners - BPF	\$103,896,144	\$59,565,614	97%	\$57,517,409	\$0	\$57,517,409	\$59,565,614	\$0	1.04	2.84	12/31/2023	
3/31/2016	Adams Street Venture Innovation	\$158,085,571	\$75,000,000	92%	\$69,280,251	\$0	\$3,725,925	\$39,623,191	\$5,719,749	0.57	2.85	12/31/2023	
5/18/2018	AE Industrial Partners Fund II, LP	\$35,700,818	\$35,000,000	105%	\$36,649,120	\$581,403	\$5,052,014	\$20,723,966	\$7,831,761	0.57	1.54	12/31/2023	
11/27/2013	Aether Real Assets III	\$16,582,656	\$25,000,000	107%	\$26,652,932	\$248,083	\$84,305	\$7,869,733	\$781,176	0.30	0.92	9/30/2023	
11/30/2013	Aether Real Assets III Surplus	\$39,371,841	\$50,000,000	107%	\$53,461,322	\$454,357	\$57,543	\$15,173,205	\$341,629	0.28	1.02	9/30/2023	
1/30/2016	Aether Real Assets IV	\$51,326,271	\$50,000,000	102%	\$51,119,027	\$226,254	\$3,439,886	\$11,746,689	\$5,412,880	0.23	1.23	9/30/2023	
4/30/2004	Bay Area Equity Fund I ⁴	\$0	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$37,018,019	\$0	3.70	3.70	12/31/2023	
6/29/2009	Bay Area Equity Fund II ⁴	\$13,081,700	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$3,684,910	\$0	0.37	1.68	12/31/2023	
6/30/2013	Commonfund	\$36,436,174	\$50,000,000	95%	\$47,749,993	\$100,000	\$1,519,343	\$35,403,142	\$2,250,007	0.74	1.50	12/31/2023	
7/15/2005	EIF US Power Fund I ⁴	\$10,602	\$50,000,000	130%	\$65,029,556	\$0	\$0	\$76,092,655	\$0	1.17	1.17	9/30/2023	
5/31/2007	EIF US Power Fund II ⁴	\$2,206,910	\$65,000,000	110%	\$71,409,097	\$0	\$0	\$93,077,887	\$0	1.30	1.33	12/31/2023	
11/28/2011	EIF US Power Fund IV	\$18,909,056	\$50,000,000	130%	\$64,917,547	\$0	\$0	\$50,464,797	\$4	0.78	1.07	9/30/2023	
11/28/2016	EIF US Power Fund V	\$31,247,444	\$50,000,000	143%	\$71,633,870	\$0	\$0	\$65,340,271	\$3,888,697	0.91	1.35	12/31/2023	
3/31/2023	EQT X, L.P.	\$13,721,976	\$100,000,000	19%	\$18,562,823	\$1,112,071	\$15,769	\$2,685,612	\$84,044,628	0.14	0.88	12/31/2023	
12/31/2023	EQT Infrastructure VI	-\$345,151	\$125,000,000	6%	\$7,026,756	\$7,026,756	\$898,459	\$118,774,614	\$0	0.13	0.08	12/31/2023	
2/21/2019	Genstar Capital Partners IX, L.P.	\$70,455,686	\$50,000,000	98%	\$48,956,858	\$873,309	\$0	\$27,299,645	\$6,983,671	0.56	2.00	12/31/2023	
4/1/2021	Genstar Capital Partners X, L.P.	\$40,605,958	\$42,500,000	94%	\$40,094,572	\$688,524	\$0	\$181,283	\$2,586,711	0.00	1.02	12/31/2023	
6/30/2023	Genstar Capital Partners XI, L.P.	\$106,530	\$75,000,000	0%	\$298,210	\$0	\$0	\$0	\$74,701,790	0.00	0.36	12/31/2023	
6/30/2023	Green Equity Investors IX	\$14,173,414	\$60,000,000	19%	\$11,589,568	\$11,012,592	\$640,219	\$640,219	\$49,050,651	0.06	1.28	3/31/2024	
10/27/2020	GTCR Fund XIII, L.P.	\$27,406,158	\$50,000,000	53%	\$26,577,753	\$185,000	\$0	\$5,556,257	\$23,422,247	0.21	1.24	12/31/2023	
6/30/2023	GTCR Fund XIV	\$0	\$100,000,000	0%	\$0	\$0	\$0	\$0	\$100,000,000	N/A	N/A	N/A	
5/10/2021	Hellman & Friedman Capital Partners X, L.P.	\$57,503,532	\$75,000,000	72%	\$54,291,281	\$47,396	\$5,193,311	\$5,333,316	\$24,705,082	0.10	1.16	12/31/2023	
3/31/2023	Jade Equity Investors II, LP	-\$43,719	\$15,000,000	0%	\$0	\$0	\$0	\$0	\$15,000,000	N/A	N/A	12/31/2023	
11/18/2009	Oaktree PIF 2009	\$326,303	\$40,000,000	87%	\$34,812,560	\$0	\$0	\$47,032,470	\$6,308,961	1.35	1.36	12/31/2023	
5/2/2013	Ocean Avenue Fund II	\$20,139,066	\$30,000,000	90%	\$27,000,000	\$0	\$4,719,005	\$49,013,249	\$3,000,000	1.82	2.56	12/31/2023	
4/15/2016	Ocean Avenue Fund III	\$50,182,111	\$50,000,000	93%	\$46,500,000	\$0	\$0	\$57,709,752	\$3,500,000	1.24	2.32	12/31/2023	
11/30/2007	Paladin III	\$8,478,402	\$25,000,000	140%	\$35,078,514	\$124,252	\$721,711	\$72,045,990	\$263,230	2.05	2.30	12/31/2023	
8/22/2011	Pathway 6	\$24,580,260	\$40,000,000	99%	\$39,665,012	\$45,000	\$2,420,923	\$57,026,307	\$3,626,887	1.44	2.06	9/30/2023	
7/10/2013	Pathway 7	\$58,581,040	\$70,000,000	100%	\$69,826,036	\$100,975	\$1,791,423	\$90,950,487	\$5,127,103	1.30	2.14	9/30/2023	
11/23/2015	Pathway 8	\$62,295,500	\$50,000,000	99%	\$49,395,415	\$140,295	\$1,411,497	\$44,666,138	\$2,949,208	0.90	2.17	9/30/2023	
1/19/1999	Pathway	\$1,527,909	\$125,000,000	101%	\$126,605,914	\$88,864	\$367,253	\$190,811,769	\$10,513,800	1.51	1.52	9/30/2023	
7/31/2009	Pathway 2008	\$9,860,893	\$30,000,000	101%	\$30,330,813	\$67,606	\$956,772	\$53,699,608	\$2,588,505	1.77	2.10	9/30/2023	
6/3/2014	Siguler Guff CCCERA Opportunities	\$99,199,947	\$200,000,000	88%	\$175,083,208	\$0	\$17,518,870	\$241,209,810	\$28,597,500	1.38	1.94	12/31/2023	
5/18/2018	Sinis Partners IV, L.P.	\$44,553,253	\$35,000,000	110%	\$38,356,543	\$5,392,603	\$555,156	\$6,375,168	\$943,230	0.17	1.33	12/31/2023	
6/30/2023	Symphony Technology Group VII	\$4,153,818	\$50,000,000	12%	\$6,068,399	\$6,068,399	\$0	\$0	\$43,931,601	0.00	0.68	12/31/2023	
5/27/2021	TA XIV-A, L.P.	\$39,337,859	\$50,000,000	84%	\$41,750,000	\$3,750,000	\$0	\$1,500,000	\$9,750,000	0.04	0.98	12/31/2023	
6/30/2023	TA XV-A, L.P.	\$0	\$90,000,000	0%	\$0	\$0	\$0	\$0	\$90,000,000	N/A	N/A	N/A	
6/28/2019	TPG Healthcare Partners, L.P.	\$24,963,424	\$24,000,000	99%	\$23,653,717	\$118,756	\$48,405	\$6,311,536	\$3,098,020	0.27	1.32	12/31/2023	
3/31/2023	TPG Healthcare Partners II	\$12,042,201	\$60,000,000	23%	\$13,790,105	\$6,288,905	\$0	\$0	\$46,233,847	0.00	0.87	12/31/2023	
3/31/2023	TPG Partners IX	\$16,766,691	\$65,000,000	27%	\$17,253,812	\$928,823	\$22,473	\$26,805	\$47,746,188	0.00	0.97	12/31/2023	
9/17/2021	Trident IX, L.P.	\$27,266,520	\$50,000,000	51%	\$25,500,385	\$2,298,894	\$115,762	\$115,762	\$24,615,378	0.00	1.07	12/31/2023	
5/24/2019	Trident VIII, L.P.	\$50,073,726	\$40,000,000	96%	\$38,314,293	\$0	\$0	\$3,792,372	\$4,992,136	0.10	1.41	12/31/2023	
12/8/2015	Wastewater Opportunity Fund	\$8,375,182	\$25,000,000	126%	\$31,512,759	\$0	\$0	\$27,076,172	\$521,541	0.86	1.12	9/30/2023	
Total Private Equity and Venture Capital		\$1,419,763,076	\$2,701,065,614	73%	\$1,968,349,711	\$47,969,117	\$113,100,317	\$1,869,736,955	\$888,768,150	0.95	1.67		
% of Portfolio (Market Value)		12.5%											

* II 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: March 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	14.7%	14.7%	-	12.6%	12/31/2023
Adams Street Partners II	12/31/2008	16.3%	13.2%	-	10.5%	12/31/2023
Adams Street Partners - Fund 5	12/31/2008	9.1%	8.1%	-	6.7%	12/31/2023
Adams Street Partners Venture	1/18/1996	31.5%	31.4%	-	29.5%	12/31/2023
Adams Street Partners - BPF	3/31/2016	14.2%	14.2%	-	11.6%	12/31/2023
AE Industrial Partners Fund II, LP	5/18/2018	29.9%	-	27.6%	-	12/31/2023
Aether Real Assets III ¹	11/27/2013	0.1%	-	-1.4%	-	9/30/2023
Aether Real Assets III Surplus ¹	11/30/2013	1.5%	-	0.4%	-	9/30/2023
Aether Real Assets IV ¹	1/30/2016	6.5%	-	4.9%	-	9/30/2023
Bay Area Equity Fund I ⁹	11/26/2003	31.3%	31.3%	22.9%	22.9%	12/31/2023
Bay Area Equity Fund II ⁹	11/26/2003	9.1%	9.1%	5.4%	5.4%	12/31/2023
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%	12/31/2023
Energy Investor Fund V	11/28/2016	17.7%	15.4%	14.5%	12.1%	12/31/2023
Genstar Capital Partners IX, L.P.	2/21/2019	43.1%	-	33.9%	-	12/31/2023
Oaktree PIF 2009	2/28/2010	6.8%	-	6.5%	-	12/31/2023
Ocean Avenue II	8/15/2013	-	-	18.6%	-	12/31/2023
Ocean Avenue III	4/15/2016	-	-	23.4%	-	12/31/2023
Paladin III	11/30/2007	-	-	13.4%	-	12/31/2023
Pathway 6	8/22/2011	16.8%	16.8%	13.9%	13.9%	12/31/2023
Benchmark ⁴		14.4%	-	-	-	12/31/2023
Pathway 7	7/10/2013	18.7%	18.7%	16.0%	16.0%	12/31/2023
Benchmark ⁵		15.1%	-	-	-	12/31/2023
Pathway 8	11/23/2015	18.5%	18.5%	15.8%	15.8%	12/31/2023
Benchmark ⁶		14.9%	-	-	-	12/31/2023
Pathway Private Equity Fund	1/19/1999	10.8%	10.8%	8.3%	8.3%	12/31/2023
Benchmark ⁷		10.4%	-	-	-	12/31/2023
Pathway Private Equity Fund 2008	7/31/2009	20.4%	19.0%	18.4%	18.4%	12/31/2023
Benchmark ⁸		16.1%	-	-	-	12/31/2023
Siguler Guff CCCERA Opportunities	6/3/2014	17.7%	18.4%	17.1%	16.0%	12/31/2023
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	19.9%	-	19.0%	-	3/31/2023
TPG Healthcare Partners, L.P.	6/28/2019	-	-	-	19.0%	12/31/2023
Trident VIII, L.P.	5/24/2019	14.0%	-	-	-	12/31/2023
Wastewater Opportunity Fund ¹	12/8/2015	8.5%	-	4.5%	-	3/31/2023

Total Fund
Closed End Funds - Investment Summary

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

StepStone Group Analysis (*)

Closing Date	Manager Name/Fund Name	Estimated Market Value as of 3/31/2024 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	\$2,323,574	\$16,500,000	114%	\$18,750,000	\$0	\$0	\$20,410,032	\$2,319,783	1.09	1.21	12/31/2023
12/18/2017	Stepstone CC Opportunities Fund	\$1,095,229,074	\$1,170,000,000	88%	\$1,024,707,278	\$7,831,691	\$7,220,917	\$252,622,836	\$254,868,860	0.25	1.32	9/30/2023
8/1/2012	Torchlight IV	\$3,392,189	\$60,000,000	141%	\$84,866,971	\$0	\$0	\$109,589,365	\$0	1.29	1.33	3/31/2024
3/12/2015	Torchlight V	\$7,436,343	\$75,000,000	80%	\$60,000,000	\$0	\$0	\$71,460,214	\$15,000,000	1.19	1.31	12/31/2023
	Total Private Credit	\$1,108,381,180										
	% of Portfolio (Market Value)	9.7%										

*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: March 31, 2024

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 3/31/2024 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	\$10,216,357	\$80,000,000	94%	\$75,401,855	\$0	\$0	\$101,711,550	\$12,334,302	1.35	1.48	12/31/2023
12/8/2014	Angelo Gordon Realty Fund IX	\$17,585,156	\$65,000,000	93%	\$60,125,000	\$0	\$0	\$58,012,501	\$7,572,500	0.96	1.26	12/31/2023
3/24/2023	BlackStone Strategic Partners Real Estate VIII	\$8,756,632	\$80,000,000	10%	\$7,720,746	\$3,584,914	\$0	\$0	\$72,279,254	0.00	1.13	12/31/2023
3/24/2023	Blackstone Real Estate Partners X	\$5,535,067	\$100,000,000	6%	\$6,473,629	\$1,004,980	\$0	\$0	\$93,526,371	0.00	0.86	12/31/2023
12/14/2023	Cross Lake RE IV	\$2,138,173	\$60,000,000	6%	\$3,376,220	\$1,495,894	\$0	\$0	\$56,623,780	0.00	0.63	12/31/2023
6/23/2005	DLJ RECP III	\$11,434,409	\$75,000,000	95%	\$70,968,662	\$0	\$0	\$77,985,055	\$4,031,338	1.10	1.26	12/31/2023
2/11/2008	DLJ RECP IV	\$37,967,574	\$100,000,000	119%	\$118,794,333	\$0	\$0	\$99,841,735	\$1,876,084	0.84	1.16	12/31/2023
7/1/2014	DLJ RECP V	\$12,435,721	\$75,000,000	146%	\$109,393,496	\$0	\$1,548,706	\$102,482,154	\$1,766,747	0.94	1.05	12/31/2023
3/19/2019	DLJ RECP VI	\$12,109,351	\$50,000,000	77%	\$38,496,759	\$0	\$0	\$11,369,099	\$15,396,028	0.30	0.61	12/31/2023
12/14/2023	EQT Exeter Industrial Value Fund VI	\$4,962,651	\$60,000,000	10%	\$6,000,000	\$0	\$0	\$0	\$54,000,000	N/A	N/A	N/A
N/A	EQT Multifamily Value II	\$0	\$40,000,000	0%	\$0	\$0	\$0	\$0	\$40,000,000	N/A	N/A	N/A
6/30/2014	Invesco Real Estate IV ⁴	\$356,326	\$35,000,000	87%	\$30,546,401	\$0	\$0	\$39,777,325	\$4,453,599	1.30	1.31	12/31/2023
2/20/2019	Invesco Real Estate V	\$58,043,244	\$75,000,000	87%	\$65,318,898	\$0	\$0	\$9,319,462	\$9,681,102	0.14	1.03	3/31/2024
9/27/2022	Invesco Real Estate VI	\$45,377,700	\$100,000,000	56%	\$55,892,926	\$2,114,017	\$0	\$2,230,131	\$66,873,408	0.04	0.85	12/31/2023
11/10/2023	KSL Capital Partners VI, L.P.	\$8,926,995	\$50,000,000	24%	\$11,766,813	\$0	\$0	\$0	\$38,233,187	N/A	N/A	N/A
7/16/2013	LaSalle Income & Growth VI ⁴	\$12,520,362	\$75,000,000	95%	\$71,428,571	\$0	\$0	\$84,541,423	\$0	1.18	1.36	3/31/2024
2/28/2017	LaSalle Income & Growth VII	\$23,461,488	\$75,000,000	114%	\$85,708,742	\$0	\$0	\$61,623,058	\$2,845,685	0.72	0.99	3/31/2024
7/3/2013	Long Wharf Fund IV ⁴	\$292,567	\$25,000,000	100%	\$25,000,000	\$0	\$0	\$34,948,087	\$0	1.40	1.41	3/31/2024
9/30/2016	Long Wharf Fund V ⁴	\$26,625,270	\$50,000,000	100%	\$50,000,000	\$0	\$0	\$37,244,373	\$0	0.74	1.28	3/31/2024
6/27/2019	Long Wharf Fund VI	\$34,458,333	\$50,000,000	100%	\$49,999,998	\$0	\$0	\$27,056,490	\$2	0.54	1.23	3/31/2024
5/30/2023	Long Wharf Fund VII	\$8,475,163	\$50,000,000	22%	\$10,999,056	\$1,890,556	\$0	\$0	\$39,000,944	0.00	0.77	3/31/2024
12/31/2011	Oaktree REOF VI ⁴	\$404,755	\$50,000,000	101%	\$50,315,673	\$0	\$0	\$78,780,733	\$5,000,000	1.57	1.57	3/31/2024
9/30/2013	Oaktree REOF VI ⁴	\$17,641,640	\$80,000,000	100%	\$80,000,000	\$0	\$0	\$84,810,175	\$18,400,000	1.06	1.28	3/31/2024
4/1/2015	Oaktree REOF VII	\$37,903,512	\$65,000,000	139%	\$90,378,928	\$28,928	\$0	\$26,277,174	\$18,915,000	0.29	0.71	3/31/2024
11/10/2013	Paulson Real Estate Fund II ⁴	\$12,539,072	\$20,000,000	97%	\$19,345,623	\$0	\$0	\$25,449,660	\$654,377	1.32	1.96	12/31/2023
4/28/2022	PCCP IX	\$64,923,960	\$75,000,000	80%	\$60,176,564	\$3,375,000	\$0	\$0	\$14,823,436	0.00	1.08	12/31/2023
1/25/2012	Siguler Guff DREOF	\$11,896,219	\$75,000,000	93%	\$69,375,000	\$0	\$7,759	\$103,778,870	\$5,625,000	1.50	1.67	12/31/2023
8/31/2013	Siguler Guff DREOF II	\$25,937,302	\$70,000,000	89%	\$61,985,000	\$0	\$13,107	\$55,704,893	\$8,015,000	0.90	1.32	12/31/2023
1/27/2016	Siguler Guff DREOF II Co-Inv	\$12,268,444	\$25,000,000	85%	\$21,277,862	\$0	\$0	\$13,871,261	\$3,722,138	0.65	1.23	12/31/2023
Total Closed End Real Estate		\$525,193,442	\$1,730,000,000	81%	\$1,400,266,756	\$13,494,289	\$1,569,573	\$1,136,815,209	\$501,649,282	0.81	1.19	
% of Portfolio (Market Value)		4.6%										

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: March 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	-	-	-	7.6%	3/31/2024
Stepstone CC Opportunities Fund ¹	2/2/2018	-	9.9%	-	9.2%	12/31/2023
Torchlight IV	8/1/2012	11.0%	11.6%	8.9%	9.8%	12/31/2023
Torchlight V	3/12/2015	14.1%	11.6%	8.9%	9.8%	12/31/2023
Real Estate	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon VIII ⁴	1/23/2012	-	-	-	12.0%	12/31/2023
Angelo Gordon IX	12/8/2014	-	-	-	5.2%	12/31/2023
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	-	-	-	-	N/A
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	12.8%	-	10.2%	-	12/31/2023
Invesco Fund V	2/20/2019	0.6%	-	-2.3%	-	12/31/2023
Invesco Fund VI	9/27/2022	-	-	-	-	N/A
KSL Capital Partners VI ¹	11/10/2023	-	-	-	-	N/A
LaSalle Income & Growth VI ⁴	7/16/2013	10.3%	10.3%	8.3%	8.3%	3/31/2024
LaSalle Income & Growth VII	2/28/2017	2.1%	2.0%	0.1%	0.0%	3/31/2024
Long Wharf IV ⁴	7/3/2013	14.7%	14.5%	11.1%	11.0%	3/31/2024
Long Wharf V ⁴	9/30/2016	8.8%	9.1%	6.2%	6.4%	3/31/2024
Long Wharf VI	6/27/2019	24.6%	26.0%	15.1%	15.8%	3/31/2024
Long Wharf VII	5/1/2023	-2.6%	-2.6%	-24.9%	-24.1%	3/31/2024
Oaktree REOF V ⁴	12/31/2011	16.6%	-	12.2%	-	3/31/2024
Oaktree REOF VI ⁴	9/30/2013	10.3%	-	6.5%	-	3/31/2024
Oaktree REOF VII	4/1/2015	15.7%	-	9.9%	-	3/31/2024
Paulson ⁴	11/10/2013	-	-	12.0%	-	12/31/2023
PCCP IX	5/27/2021	9.9%	-	6.6%	-	12/31/2023
Siguler Guff I	1/25/2012	12.2%	14.9%	10.6%	11.8%	12/31/2023
Siguler Guff II	8/31/2013	8.5%	8.7%	7.3%	7.1%	12/31/2023
Siguler Guff DREOF II Co-Inv	1/27/2016	5.5%	5.7%	4.6%	4.3%	12/31/2023

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.

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: March 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	10.45	0.00	17.52	0.00	1.00	0.02	1.00	0.51	0.00	99.99	99.99
Boston Partners	11.80	3.69	15.87	3.74	0.96	3.14	0.96	0.63	1.06	102.21	86.52
Emerald Advisers	-0.91	1.77	21.83	1.75	0.97	4.44	0.96	-0.05	0.39	103.78	98.11
Ceredex	6.86	4.65	18.99	4.79	0.85	6.77	0.90	0.31	0.59	94.09	79.39
Pyrford	4.20	-0.38	13.55	0.32	0.83	5.02	0.90	0.18	-0.13	85.87	85.08
William Blair	-0.36	0.40	19.20	0.65	1.03	5.81	0.91	-0.06	0.12	107.15	104.70
PIMCO RAE Emerging Markets	6.46	7.37	16.86	7.61	0.98	6.40	0.86	0.31	1.15	116.39	82.23
TT Emerging Markets	-8.31	-3.26	19.52	-2.79	1.07	5.42	0.93	-0.48	-0.57	109.53	120.22
Artisan Partners	3.64	-3.10	19.64	-2.65	0.97	4.91	0.94	0.15	-0.60	90.49	99.19
First Eagle	6.57	-0.10	12.95	0.89	0.83	4.16	0.93	0.36	-0.09	83.42	78.71
Voya Global Investors	1.60	-0.60	8.41	-0.58	1.00	1.10	0.98	-0.07	-0.53	96.06	101.28
Adelante	4.97	0.41	20.40	0.51	0.96	1.60	1.00	0.21	0.13	96.84	95.36
AQR Global Risk Premium-EL	0.86	0.20	10.54	0.23	0.90	2.44	0.96	-0.11	0.04	91.38	90.09
PanAgora Risk Parity Multi Asset	-5.04	-5.70	15.02	-5.54	1.27	4.60	0.95	-0.44	-1.16	107.70	141.09
AFL-CIO	-2.82	-0.36	6.84	-0.50	0.95	1.00	0.98	-0.77	-0.39	91.78	97.15
DFA Short Credit	0.24	0.60	2.74	0.53	0.79	1.43	0.78	-0.91	0.41	90.91	77.85
Insight Short Duration	1.79	1.54	1.77	1.65	0.55	1.62	0.47	-0.49	0.94	75.65	19.91
Sit Short Duration	-0.07	-0.09	3.51	-0.08	1.47	1.83	0.81	-0.76	-0.03	149.86	152.67

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: March 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	14.75	-0.01	18.61	-0.01	1.00	0.02	1.00	0.73	-0.56	99.97	100.00
Boston Partners	13.28	2.97	19.16	2.63	1.02	3.03	0.98	0.64	0.92	104.49	93.58
Emerald Advisers	7.99	0.61	23.14	0.95	0.95	5.17	0.95	0.36	0.08	99.93	98.42
Ceredex	8.49	0.32	22.47	1.21	0.87	7.11	0.92	0.39	-0.03	88.78	85.23
Pyrford	6.04	0.68	14.75	1.75	0.75	6.77	0.89	0.34	0.00	83.60	78.31
William Blair	8.47	2.23	19.04	2.04	1.05	5.04	0.93	0.42	0.47	110.76	103.33
PIMCO RAE Emerging Markets	7.97	5.87	20.52	5.97	1.06	6.02	0.92	0.38	1.01	116.34	92.12
TT Emerging Markets	1.39	-0.83	22.31	-0.67	1.15	6.05	0.94	0.09	-0.01	116.09	119.15
Artisan Partners	12.42	-1.14	18.78	-0.27	0.94	4.89	0.94	0.61	-0.23	92.92	93.27
First Eagle	8.26	0.62	13.90	2.16	0.76	5.64	0.93	0.50	-0.01	81.43	73.47
Voya Global Investors	3.39	-0.64	8.75	-0.32	0.92	1.70	0.97	0.20	-0.40	92.33	96.27
Adelante	5.35	0.93	19.48	1.01	0.95	1.66	1.00	0.26	0.40	97.64	94.29
AFL-CIO	0.01	-0.35	5.75	-0.33	0.93	1.07	0.97	-0.32	-0.35	88.36	92.40
DFA Short Credit	1.27	0.01	2.47	0.28	0.78	1.50	0.68	-0.30	0.00	81.18	72.26
Insight Short Duration	2.30	0.95	2.03	1.49	0.60	1.86	0.29	0.15	0.50	83.05	16.28
Sit Short Duration	1.39	0.25	3.01	-0.21	1.42	1.59	0.79	-0.20	0.17	145.22	158.94

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: March 31, 2024

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Expense Fee (%)
BlackRock Russell 1000 Index	Growth	0.03 % of Assets	\$1,333,773,686	\$400,132	0.03
Boston Partners	Growth	0.50 % of First \$25 M 0.30 % Thereafter	\$452,725,674	\$1,408,177	0.31
Emerald Advisers	Growth	0.75 % of First \$10 M 0.60 % Thereafter	\$246,393,154	\$1,493,359	0.61
Ceredex	Growth	0.85 % of First \$10 M 0.68 % of Next \$40 M 0.51 % Thereafter	\$233,226,547	\$1,291,455	0.55
Pyrford	Growth	0.70 % of First \$50 M 0.50 % of Next \$50 M 0.35 % Thereafter	\$511,137,914	\$2,038,983	0.40
William Blair	Growth	0.80 % of First \$20 M 0.60 % of Next \$30 M 0.50 % of Next \$50 M 0.45 % of Next \$50 M 0.40 % of Next \$50 M 0.30 % Thereafter	\$504,471,490	\$1,928,414	0.38
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	\$259,484,680	\$1,480,181	0.57
TT Emerging Markets	Growth	0.70 % of First \$100 M 0.65 % of Next \$100 M 0.60 % Thereafter	\$247,522,027	\$1,635,132	0.66
Artisan Partners	Growth	0.75 % of Assets	\$665,966,950	\$4,994,752	0.75
First Eagle	Growth	0.75 % of Assets	\$597,922,680	\$4,484,420	0.75
Voya Global Investors	Growth	0.50 % of First \$50 M 0.40 % of Next \$50 M 0.35 % Thereafter	\$159,409,366	\$657,933	0.41
Invesco US Fundamental Beta	Growth	0.15 % of Assets	\$114,931,558	\$172,397	0.15
AQR Global Risk Premium-EL	Growth	0.38 % of Assets	\$182,826,494	\$694,741	0.38

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

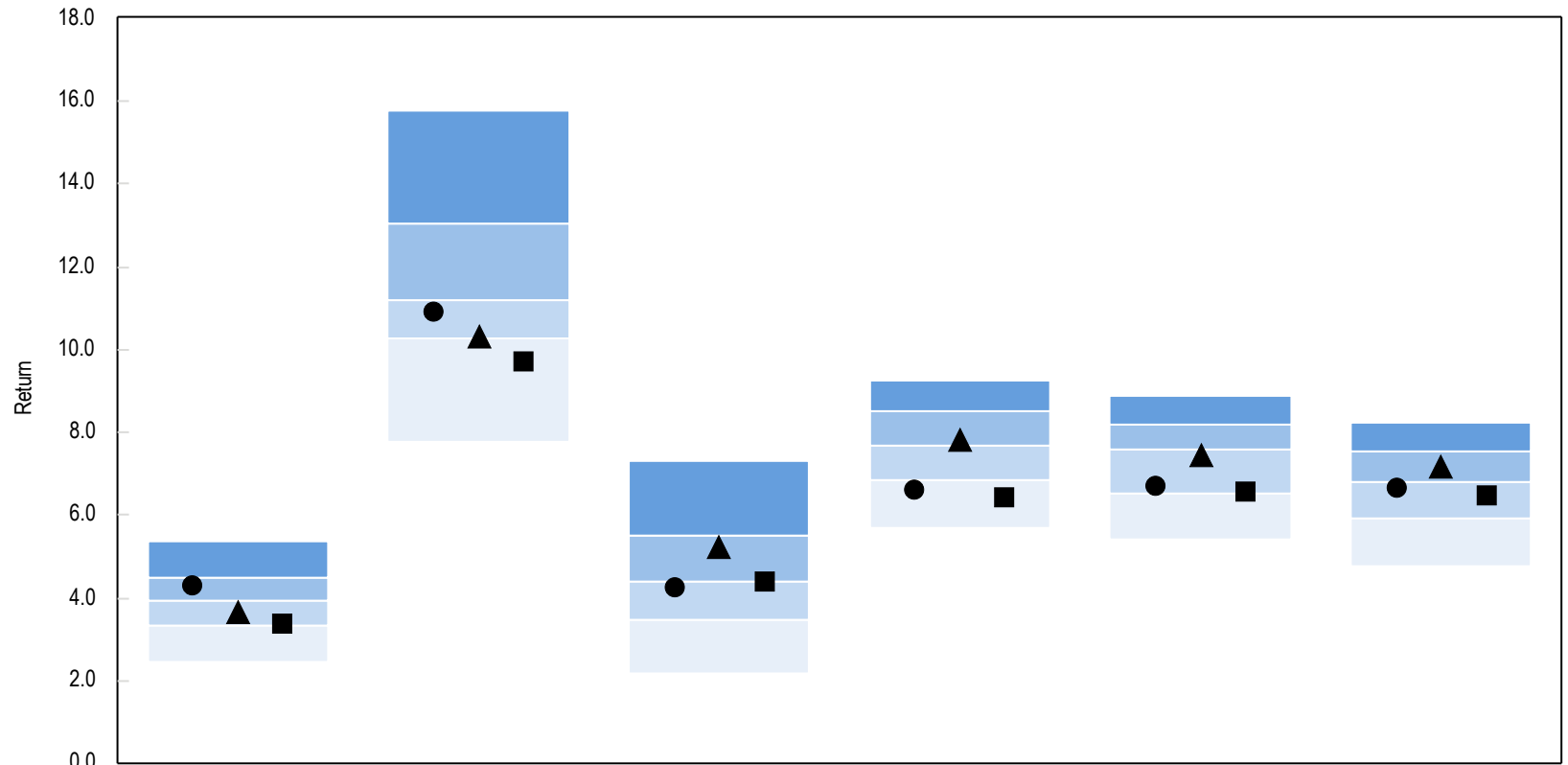
Total Fund
Investment Fund Fee Analysis

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

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Expense Fee (%)
PanAgora Risk Parity Multi Asset	Growth	0.35 % of Assets	\$167,177,978	\$585,123	0.35
AFL-CIO	Diversifying	0.32 % of Assets	\$220,632,514	\$706,024	0.32
Acadian Multi-Asset Absolute Return Fund	Diversifying	0.50 % of Assets	\$163,606,323	\$818,032	0.50
Sit LLCAR	Diversifying	0.39 % of First \$200 M 0.35 % Thereafter	\$372,229,605	\$1,414,473	0.38
DFA Short Credit	Liquidity	0.20 % of First \$25 M 0.10 % Thereafter	\$336,917,694	\$361,918	0.11
Insight Short Duration	Liquidity	0.06 % of First \$500 M 0.05 % of Next \$500 M 0.04 % Thereafter	\$549,439,086	\$324,720	0.06
Sit Short Duration	Liquidity	0.15 % of Assets	\$596,616,105	\$894,924	0.15

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

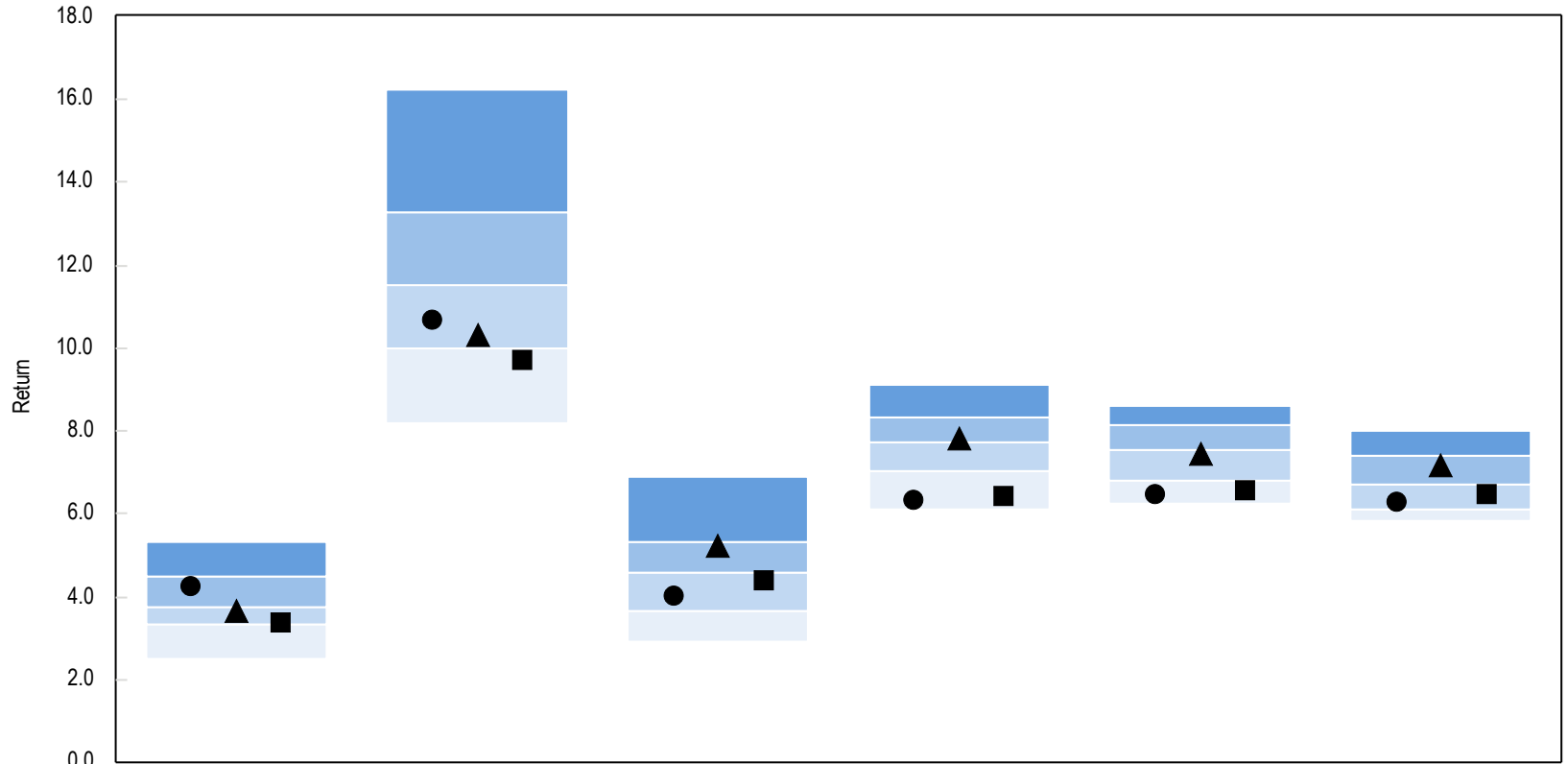
Total Fund Cumulative Performance vs. InvMetrics Public DB >\$1B Gross



	3 Mo	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	4.32 (30)	10.92 (54)	4.25 (52)	6.61 (81)	6.73 (74)	6.66 (56)
▲ Policy Index	3.63 (67)	10.31 (75)	5.25 (30)	7.83 (47)	7.47 (54)	7.16 (42)
■ Implementation Benchmark	3.36 (74)	9.70 (80)	4.41 (50)	6.44 (87)	6.57 (75)	6.50 (60)
5th Percentile	5.38	15.77	7.32	9.27	8.87	8.23
1st Quartile	4.49	13.06	5.49	8.50	8.20	7.55
Median	3.95	11.20	4.39	7.67	7.59	6.79
3rd Quartile	3.34	10.25	3.48	6.84	6.55	5.91
95th Percentile	2.44	7.78	2.16	5.71	5.39	4.75
Population	98	55	51	51	50	47

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

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

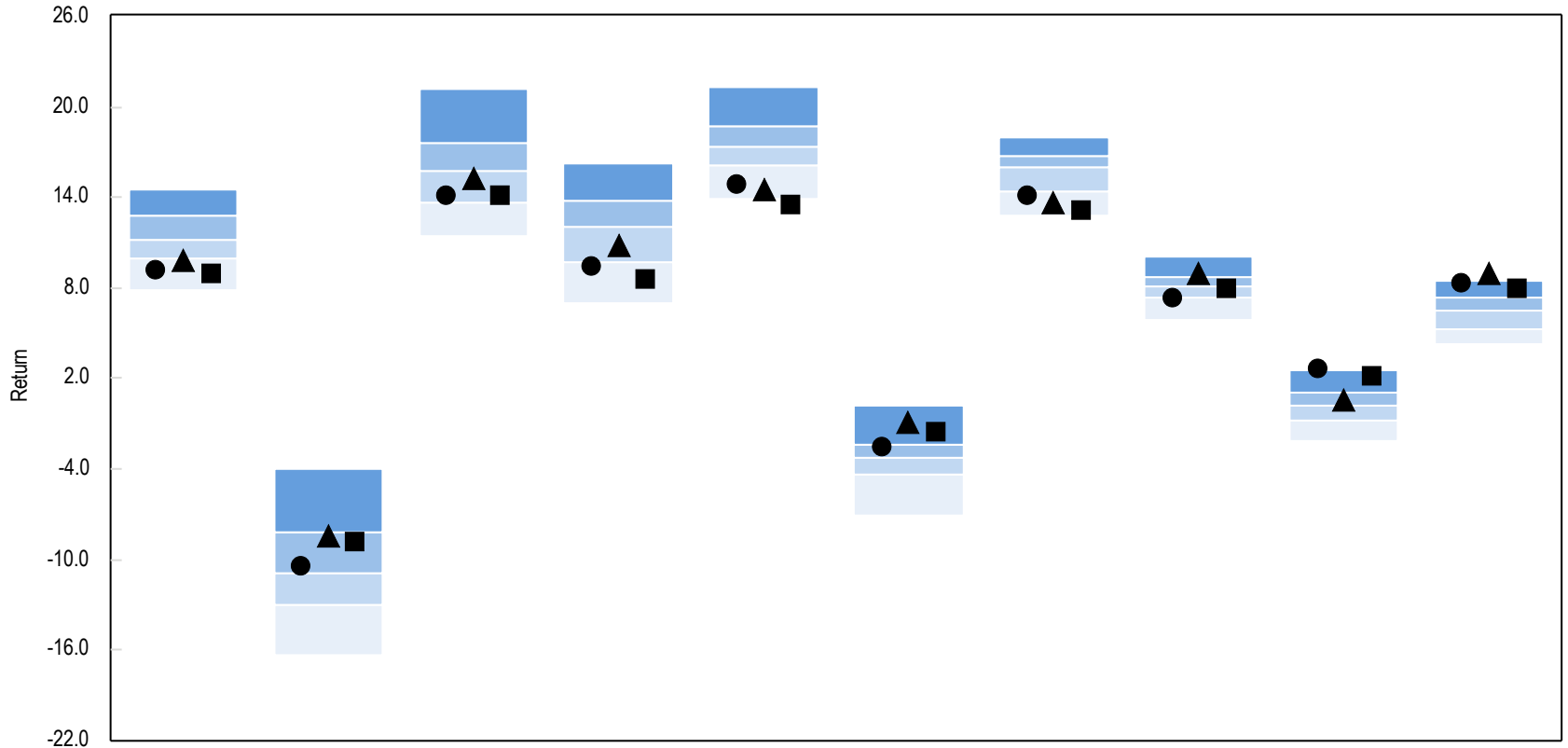


	3 Mo	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	4.26 (32)	10.71 (57)	4.01 (66)	6.35 (89)	6.46 (87)	6.30 (68)
▲ Policy Index	3.63 (62)	10.31 (66)	5.25 (27)	7.83 (42)	7.47 (52)	7.16 (33)
■ Implementation Benchmark	3.36 (75)	9.70 (80)	4.41 (58)	6.44 (87)	6.57 (82)	6.50 (63)
5th Percentile	5.33	16.24	6.88	9.11	8.62	8.03
1st Quartile	4.47	13.27	5.34	8.31	8.15	7.39
Median	3.74	11.50	4.59	7.71	7.56	6.71
3rd Quartile	3.34	9.97	3.65	7.03	6.80	6.10
95th Percentile	2.50	8.17	2.93	6.10	6.24	5.83
Population	88	45	39	38	37	33

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

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

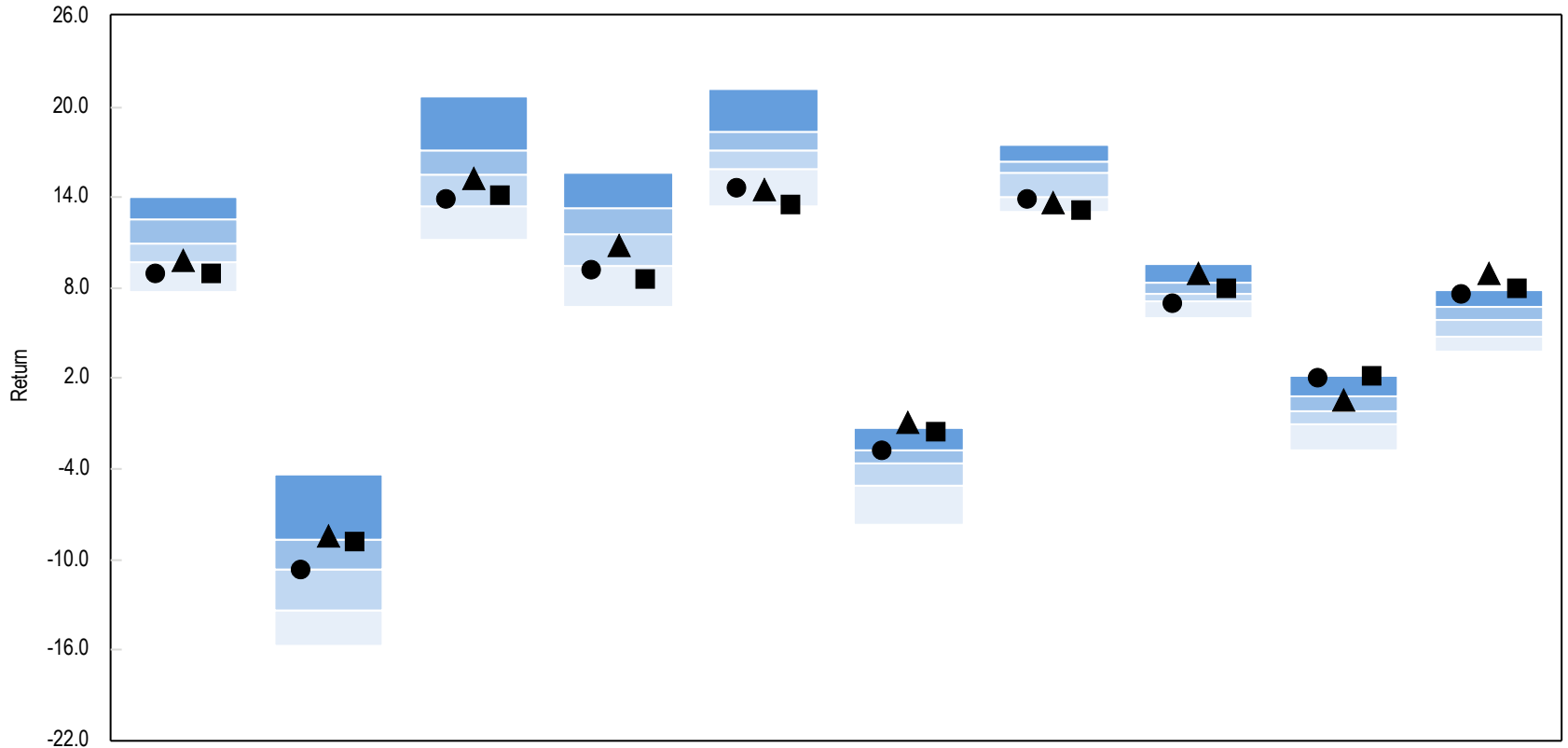
Total Fund Consecutive Periods vs. InvMetrics Public DB >\$1B Gross



	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
● Total Fund	9.23 (82)	-10.39 (46)	14.21 (66)	9.52 (81)	14.92 (90)	-2.46 (29)	14.18 (79)	7.43 (74)	2.70 (2)	8.40 (6)
▲ Policy Index	9.89 (76)	-8.38 (26)	15.29 (56)	10.81 (65)	14.58 (92)	-0.94 (9)	13.69 (91)	8.93 (21)	0.58 (37)	9.03 (2)
■ Implementation Benchmark	9.03 (83)	-8.74 (31)	14.17 (68)	8.66 (91)	13.59 (97)	-1.52 (14)	13.21 (95)	8.00 (56)	2.18 (10)	8.03 (10)
5th Percentile	14.58	-3.98	21.20	16.27	21.28	0.20	18.02	10.03	2.50	8.43
1st Quartile	12.86	-8.21	17.57	13.79	18.71	-2.33	16.79	8.67	1.07	7.37
Median	11.19	-10.84	15.77	12.11	17.31	-3.23	16.01	8.06	0.22	6.46
3rd Quartile	9.95	-12.97	13.67	9.75	16.18	-4.35	14.36	7.40	-0.80	5.21
95th Percentile	7.86	-16.37	11.44	7.01	13.93	-7.10	12.79	5.84	-2.12	4.27
Population	86	95	129	144	108	88	97	102	98	93

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.

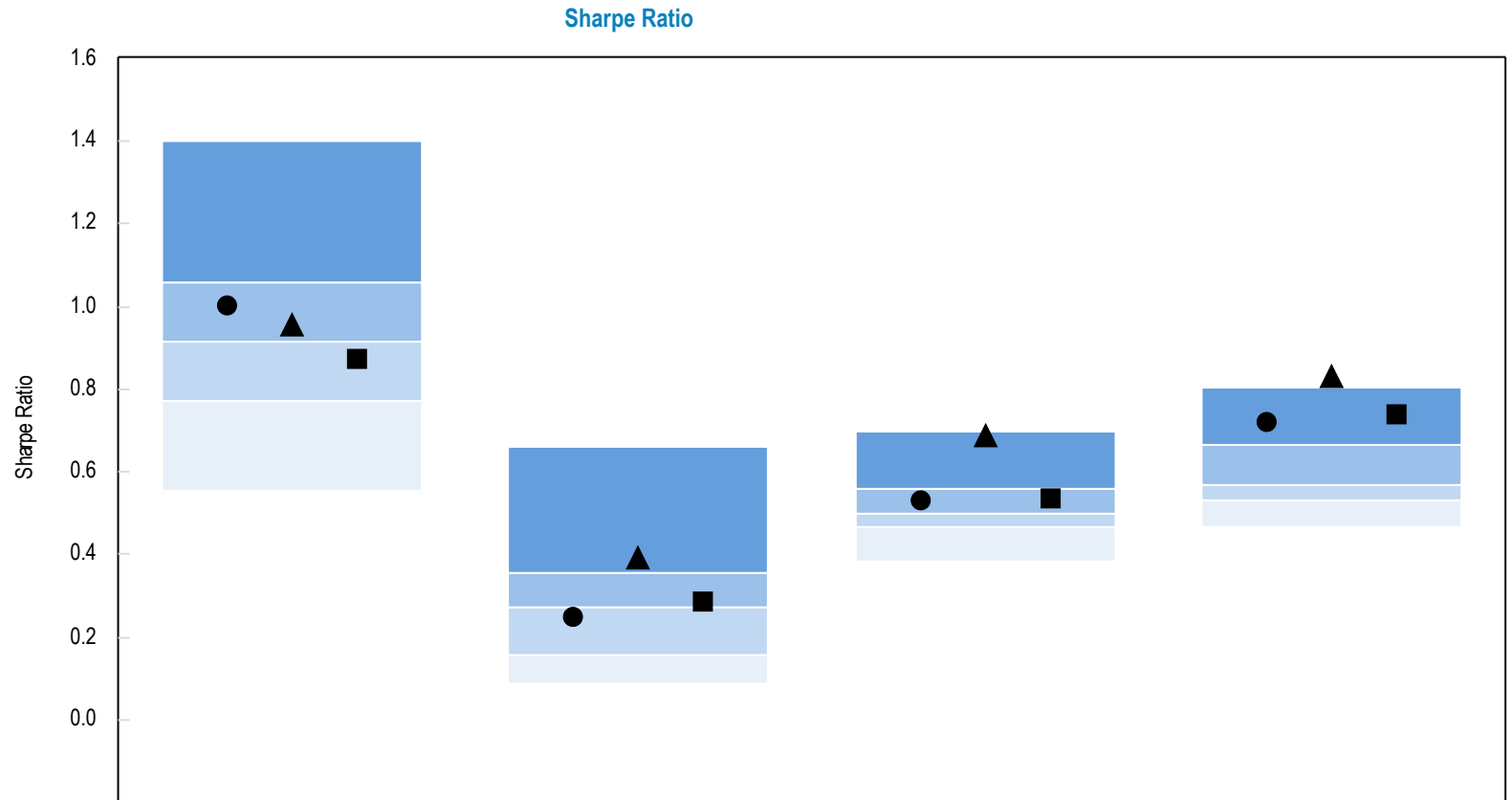
Total Fund Consecutive Periods vs. InvMetrics Public DB >\$1B Net



	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
● Total Fund	9.02 (82)	-10.61 (51)	13.90 (67)	9.23 (77)	14.61 (93)	-2.72 (25)	13.86 (81)	6.94 (79)	2.09 (9)	7.67 (8)
▲ Policy Index	9.89 (75)	-8.38 (24)	15.29 (52)	10.81 (62)	14.58 (93)	-0.94 (3)	13.69 (86)	8.93 (17)	0.58 (28)	9.03 (1)
■ Implementation Benchmark	9.03 (82)	-8.74 (28)	14.17 (63)	8.66 (88)	13.59 (95)	-1.52 (6)	13.21 (94)	8.00 (36)	2.18 (5)	8.03 (3)
5th Percentile	14.07	-4.40	20.67	15.67	21.23	-1.28	17.49	9.62	2.14	7.80
1st Quartile	12.54	-8.64	17.15	13.27	18.36	-2.74	16.35	8.40	0.86	6.72
Median	10.93	-10.61	15.53	11.54	17.08	-3.64	15.63	7.62	-0.20	5.89
3rd Quartile	9.70	-13.34	13.46	9.41	15.92	-5.04	14.03	7.08	-1.06	4.74
95th Percentile	7.77	-15.68	11.22	6.75	13.41	-7.74	13.00	6.00	-2.75	3.79
Population	73	73	104	120	99	79	89	88	85	80

Total Fund
Sharpe Ratio Ranking (Gross of Fees)

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

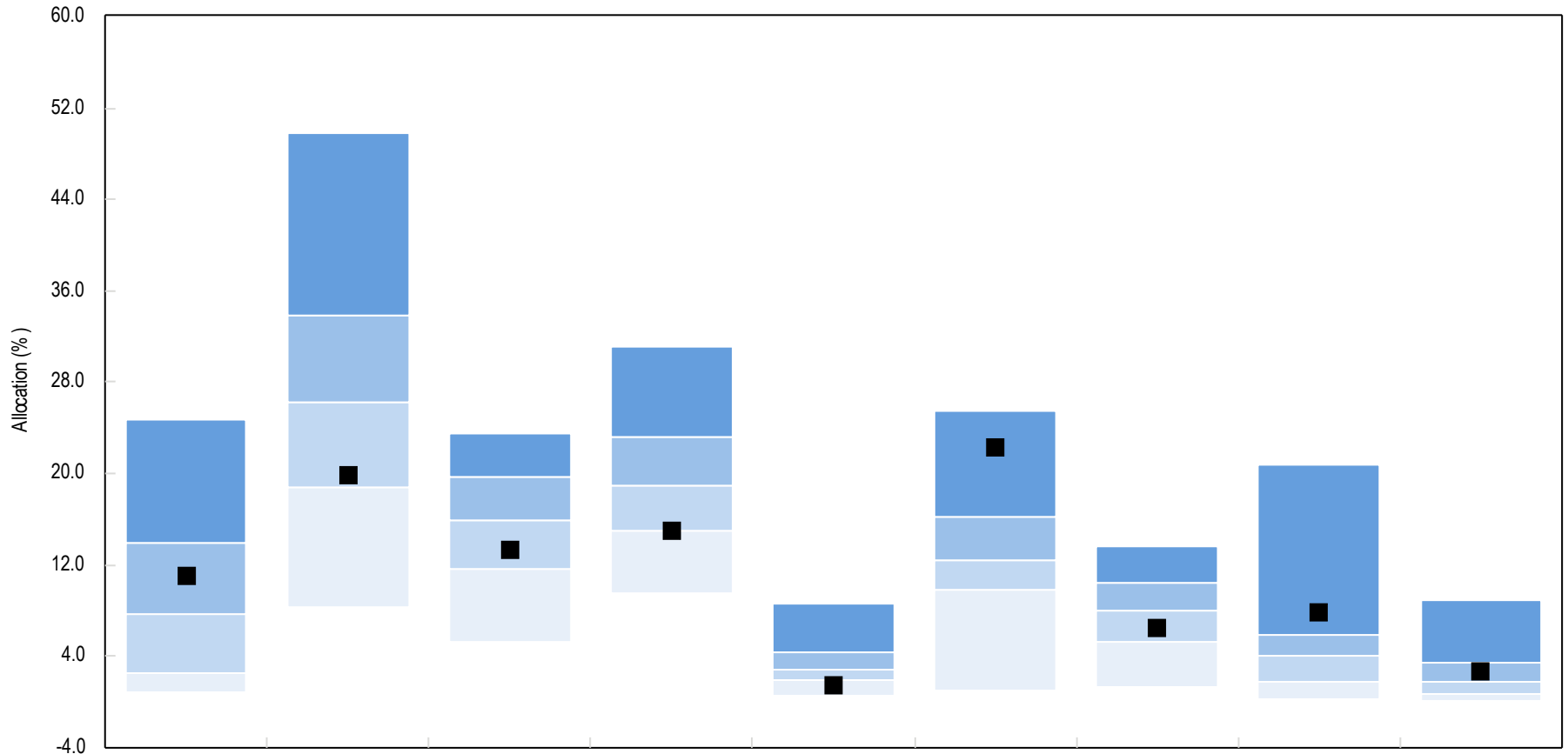


	1 Yr	3 Yrs	5 Yrs	10 Yrs
● Total Fund	1.00 (35)	0.25 (56)	0.53 (32)	0.72 (16)
▲ Policy Index	0.96 (36)	0.39 (17)	0.69 (6)	0.83 (4)
■ Implementation Benchmark	0.87 (52)	0.29 (42)	0.54 (30)	0.74 (13)
5th Percentile	1.40	0.66	0.70	0.80
1st Quartile	1.06	0.36	0.56	0.66
Median	0.92	0.27	0.50	0.57
3rd Quartile	0.77	0.16	0.47	0.53
95th Percentile	0.55	0.09	0.38	0.47
Population	45	39	38	33

Total Fund
Peer Universe Comparison: Asset Allocation

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

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



	Global Equity	US Equity	Global ex-US Equity	US Fixed	Global ex-US Fixed	Private Equity	Total Real Estate	Multi-Asset	Cash & Equivalents
■ Total Fund	11.1 (34)	19.9 (74)	13.4 (69)	15.0 (76)	1.4 (81)	22.2 (9)	6.5 (66)	7.8 (16)	2.7 (34)
5th Percentile	24.7	49.8	23.5	31.1	8.7	25.4	13.6	20.8	8.9
1st Quartile	14.0	33.8	19.7	23.2	4.4	16.3	10.5	5.8	3.5
Median	7.7	26.3	15.9	19.0	2.8	12.4	8.0	4.1	1.8
3rd Quartile	2.6	18.8	11.7	15.1	2.0	9.8	5.3	1.8	0.7
95th Percentile	0.8	8.3	5.2	9.6	0.6	1.0	1.3	0.3	0.1
Population	37	94	93	92	33	76	77	32	85

Domestic Equity Managers

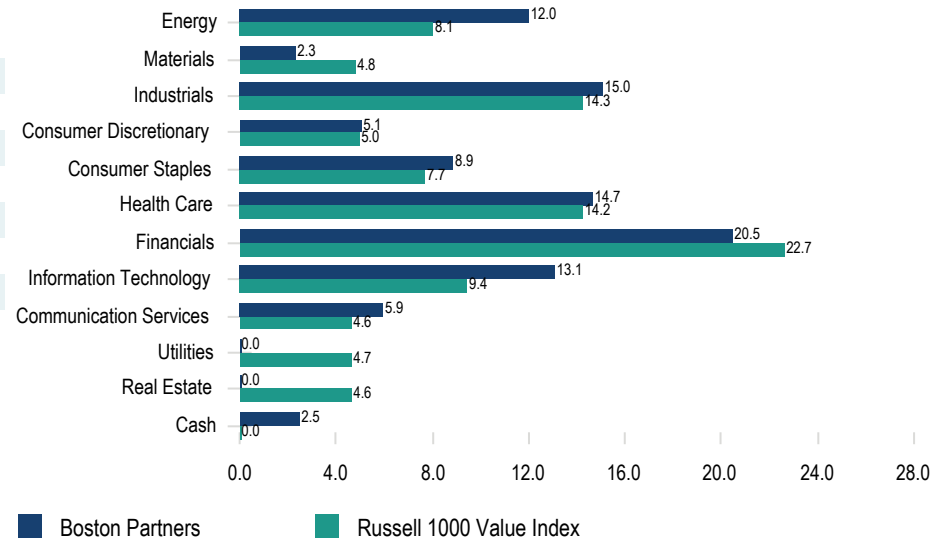
Boston Partners
Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	90	845
Wtd. Avg. Mkt. Cap \$M	171,177.95	158,797.93
Median Mkt. Cap \$M	48,462.48	13,476.47
Price/Earnings ratio	18.48	18.76
Price/Book ratio	2.93	2.58
Return on Equity (%)	3.53	3.75
Current Yield (%)	1.67	2.17
Beta (5 Years, Monthly)	1.02	1.00

Sector Allocation (%) vs. Russell 1000 Value Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
JPMorgan Chase & Co	4.62	18.47
Alphabet Inc	3.09	8.05
Morgan Stanley	2.19	1.95
Oracle Corp	2.12	19.60
Wells Fargo & Co	1.91	18.60
AutoZone Inc	1.80	21.89
Marathon Petroleum Corp	1.78	36.50
Philip Morris International Inc	1.73	-1.26
Micron Technology Inc.	1.72	38.28
Cenovus Energy Inc	1.70	20.73

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
JPMorgan Chase & Co	4.24	18.47	0.78
Dell Technologies Inc	1.24	49.84	0.62
Berkshire Hathaway Inc	3.45	17.91	0.62
Marathon Petroleum Corp	1.42	36.50	0.52
Micron Technology Inc.	1.35	38.28	0.52
United Rentals Inc.	1.63	26.08	0.43
CRH PLC	1.41	25.24	0.36
AutoZone Inc	1.60	21.89	0.35
Applied Materials Inc	1.27	27.46	0.35
Wells Fargo & Co	1.75	18.60	0.33

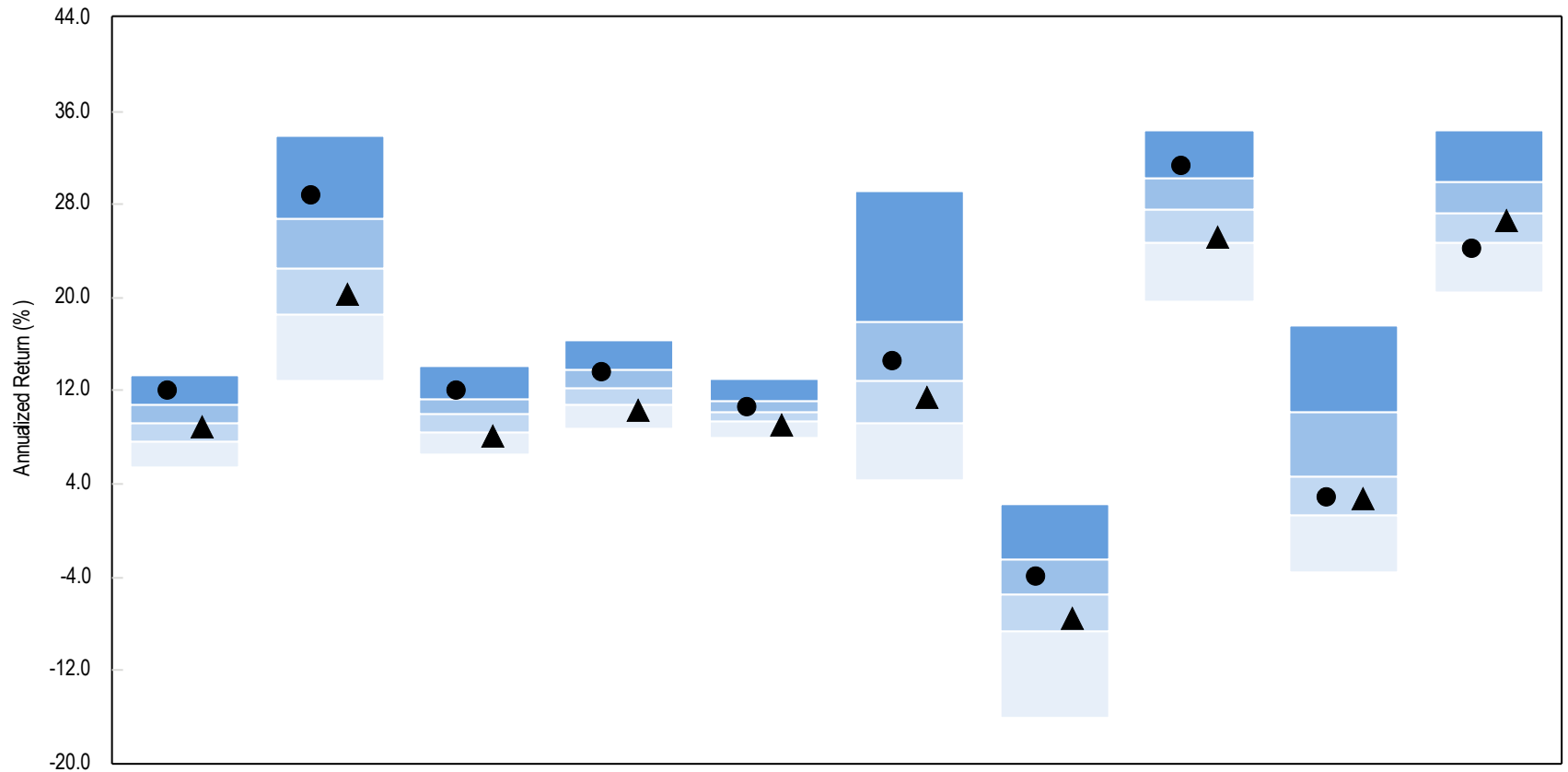
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Boeing Co	1.35	-25.96	-0.35
Warner Bros. Discovery Inc	0.62	-23.29	-0.15
UnitedHealth Group	1.71	-5.66	-0.10
Keurig Dr Pepper Inc	1.00	-6.69	-0.07
Sanofi	1.82	-2.27	-0.04
Take-Two Software	0.41	-7.74	-0.03
Cognizant Technology	0.93	-2.59	-0.02
Philip Morris International Inc	1.82	-1.26	-0.02
WESCO International Inc	0.96	-1.24	-0.01
BorgWarner Inc	0.30	-2.75	-0.01

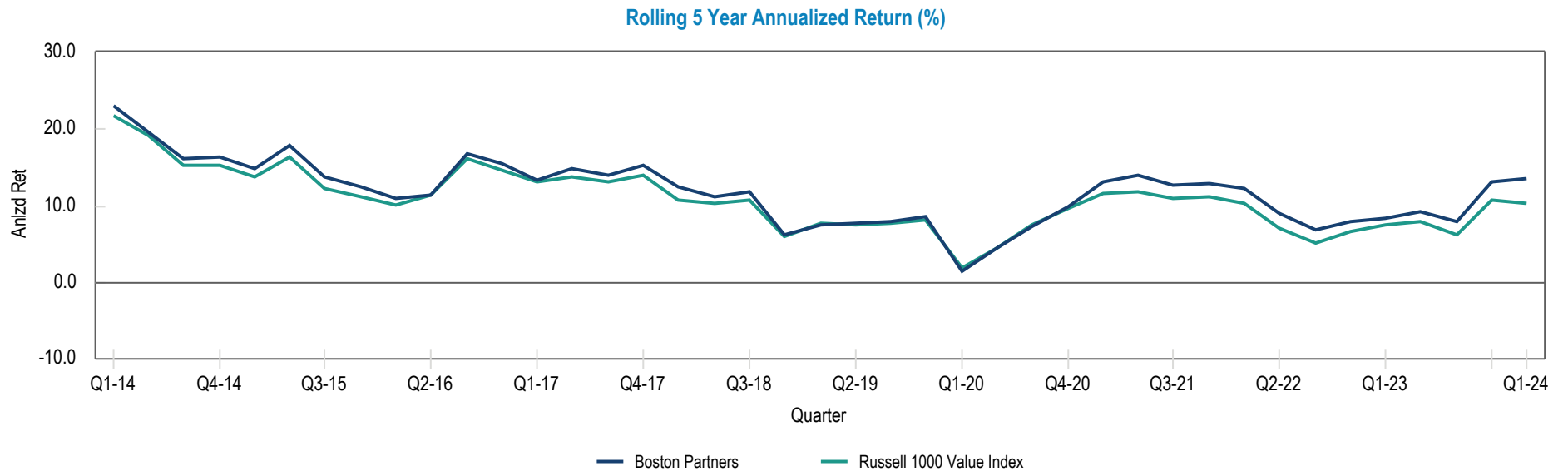
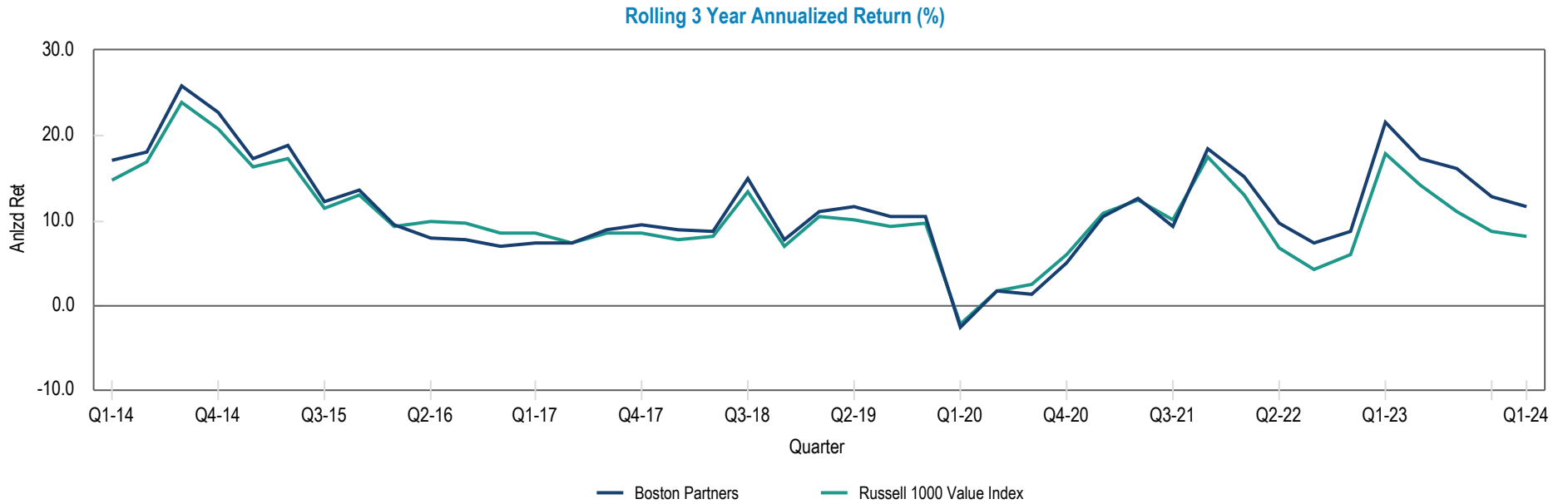
% of Portfolio 19.36 4.86 % of Portfolio 10.92 -0.80

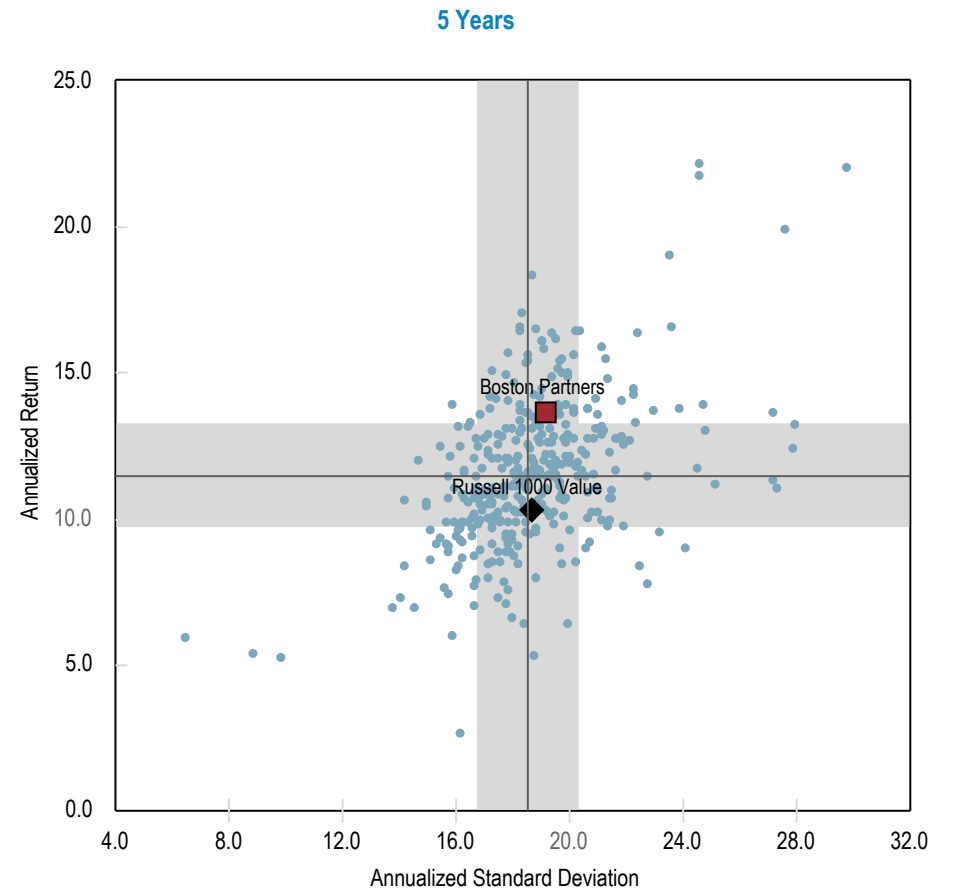
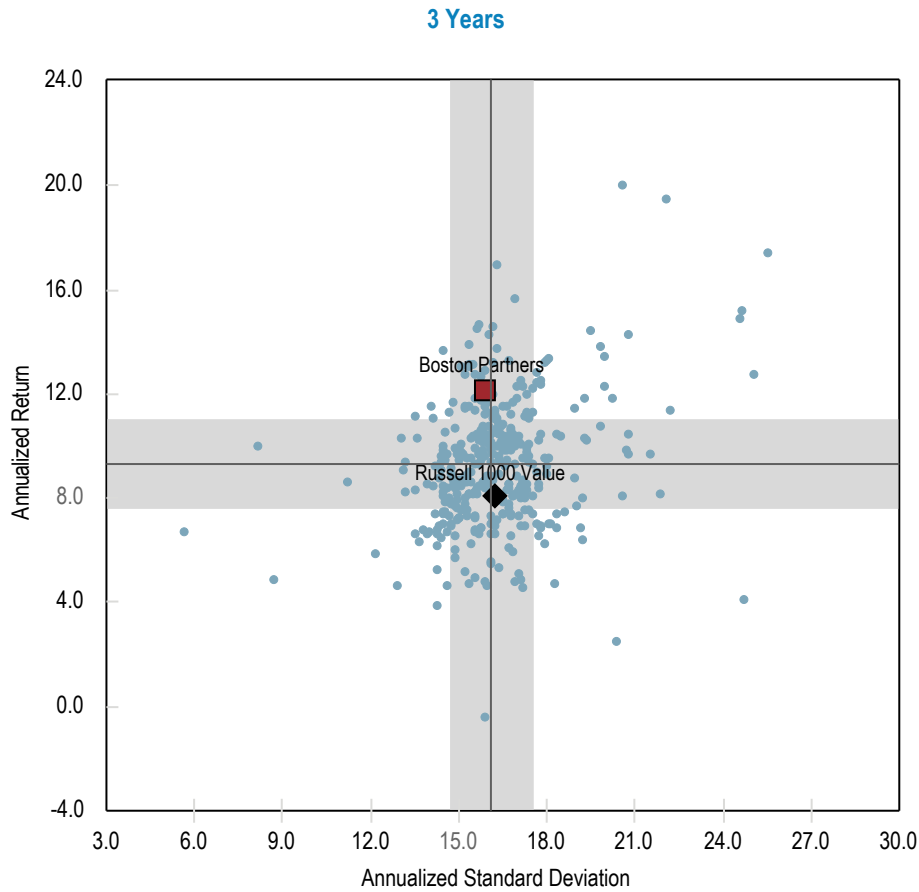
Domestic equity large cap value portfolio exhibiting low turnover in companies with low valuations relative to intrinsic value. Primary personnel include Mark Donovan and David Pyle.

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	12.01 (15)	28.75 (16)	12.14 (15)	13.63 (28)	10.60 (38)	14.67 (39)	-3.82 (36)	31.34 (19)	2.96 (64)	24.26 (79)
▲ Russell 1000 Value Index	8.99 (53)	20.27 (66)	8.11 (82)	10.31 (84)	9.01 (84)	11.46 (62)	-7.54 (68)	25.16 (72)	2.80 (64)	26.54 (57)
5th Percentile	13.26	33.94	14.12	16.40	12.95	29.09	2.28	34.34	17.66	34.33
1st Quartile	10.85	26.72	11.21	13.80	11.14	18.00	-2.48	30.18	10.13	29.99
Median	9.21	22.49	9.96	12.19	10.20	12.89	-5.43	27.63	4.71	27.18
3rd Quartile	7.68	18.58	8.52	10.78	9.38	9.27	-8.69	24.64	1.30	24.73
95th Percentile	5.38	12.88	6.56	8.73	8.03	4.41	-16.12	19.62	-3.51	20.40
Population	383	383	378	364	329	401	417	427	433	460





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Boston Partners	12.1	15.9	0.6
Russell 1000 Value Index	8.1	16.2	0.4
eV US Large Cap Value Equity Median	10.0	16.1	0.5
Population	378	378	378

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Boston Partners	13.6	19.1	0.7
Russell 1000 Value Index	10.3	18.6	0.5
eV US Large Cap Value Equity Median	12.2	18.5	0.6
Population	364	364	364

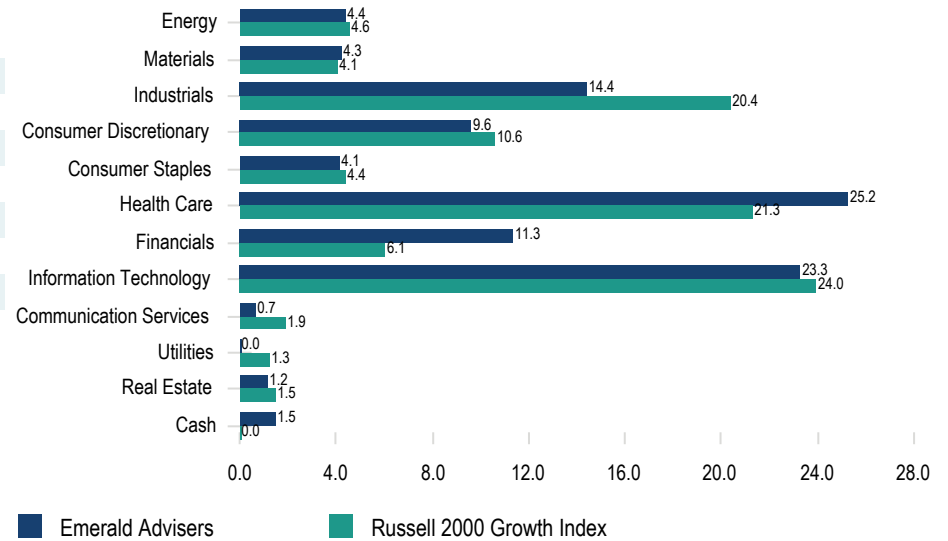
Emerald Advisers
 Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	114	1,064
Wtd. Avg. Mkt. Cap \$M	6,005.53	6,504.07
Median Mkt. Cap \$M	3,046.63	1,297.01
Price/Earnings ratio	22.72	23.31
Price/Book ratio	4.27	4.27
Return on Equity (%)	2.83	1.11
Current Yield (%)	0.47	0.60
Beta (5 Years, Monthly)	0.95	1.00

Sector Allocation (%) vs. Russell 2000 Growth Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Super Micro Computer Inc	3.83	255.32
Freshpet Inc	2.63	33.54
FTAI Aviation Ltd	2.42	45.79
Varonis Systems Inc	1.97	4.17
Carpenter Technology Corp	1.85	1.19
Tenable Holdings Inc	1.70	7.32
Chart Industries Inc	1.65	20.82
LivaNova PLC	1.61	8.12
Blueprint Medicines Corp	1.59	2.84
Churchill Downs Inc	1.59	-8.29

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Super Micro Computer Inc	1.96	255.32	5.01
FTAI Aviation Ltd	1.79	45.79	0.82
Freshpet Inc	2.11	33.54	0.71
Palomar Holdings Inc	1.12	51.05	0.57
CymaBay Therapeutics Inc	1.14	37.51	0.43
Celsius Holdings Inc	0.79	52.09	0.41
RadNet Inc	0.86	39.95	0.34
Chart Industries Inc	1.47	20.82	0.31
AeroVironment Inc	1.28	21.61	0.28
Arhaus Inc	0.73	34.35	0.25

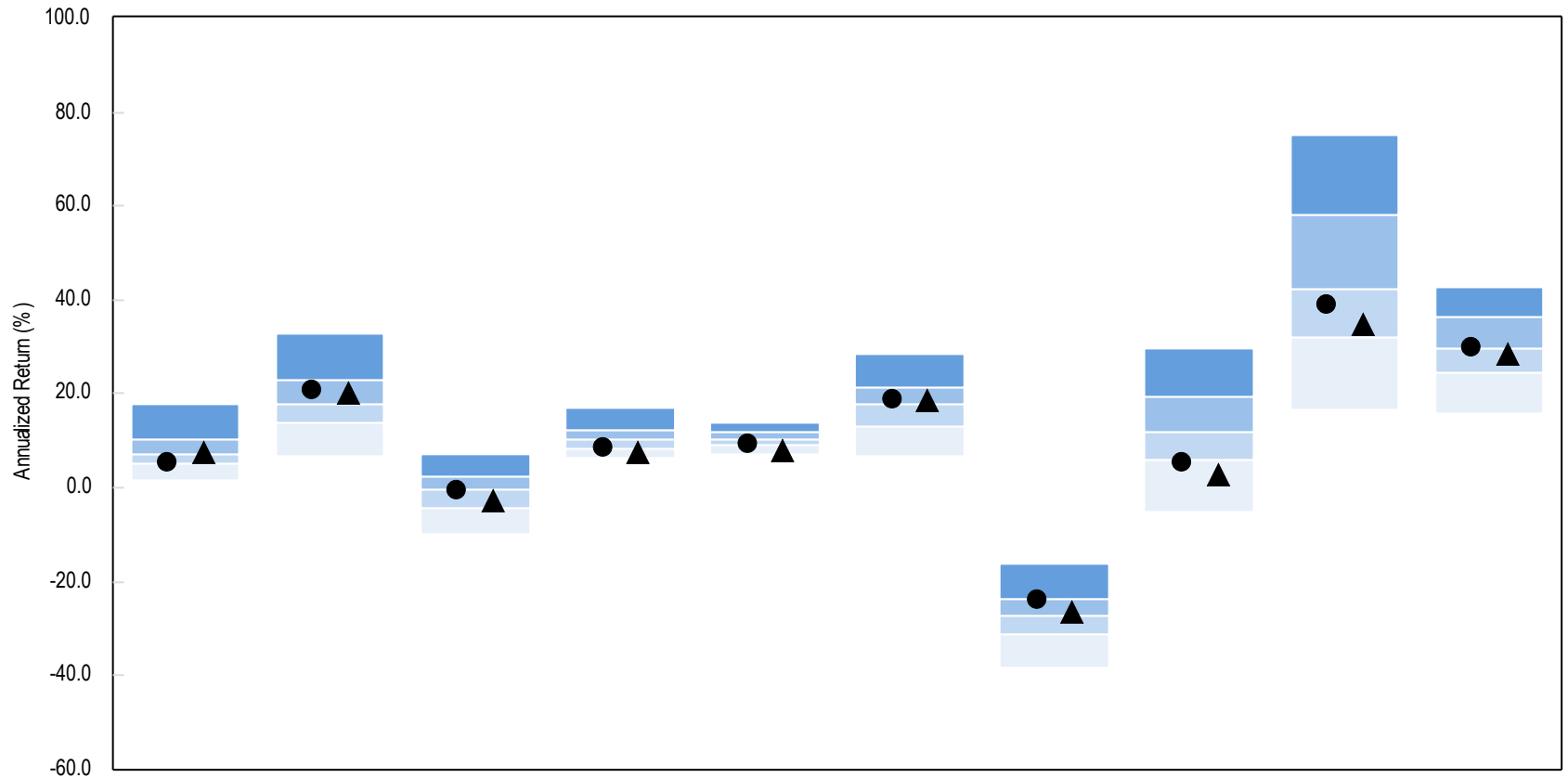
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Acadia Pharmaceuticals Inc	2.18	-40.95	-0.89
Amylyx Pharmaceuticals Inc	0.53	-80.71	-0.43
BridgeBio Pharma Inc	1.26	-23.41	-0.29
CVRx Inc	0.58	-42.08	-0.24
Shift4 Payments Inc	1.58	-11.12	-0.18
NV5 Global Inc	1.46	-11.80	-0.17
DocGo Inc	0.58	-27.73	-0.16
Insmed Inc	1.26	-12.46	-0.16
Churchill Downs Inc	1.86	-8.29	-0.15
Privia Health Group Inc	1.03	-14.94	-0.15

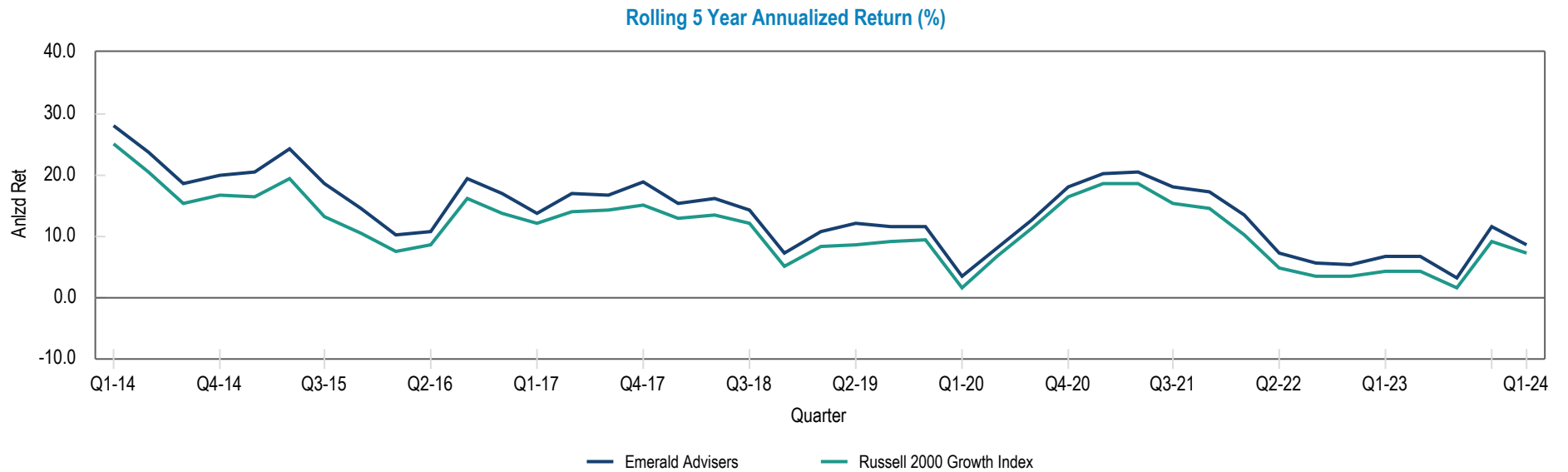
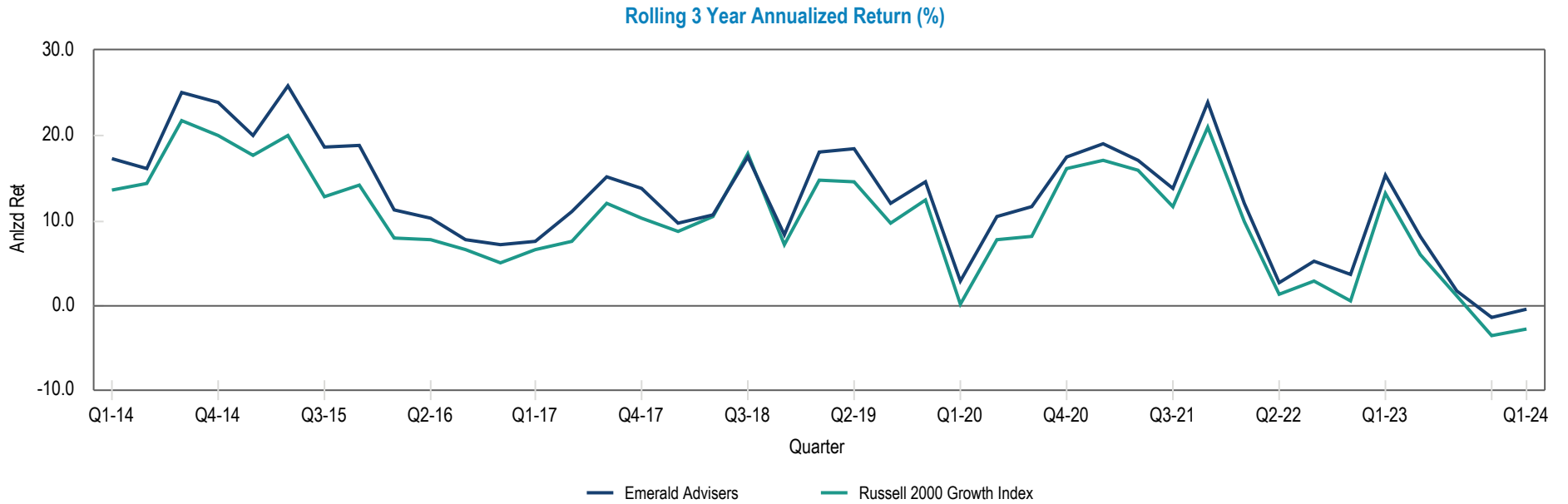
% of Portfolio 13.25 9.13 % of Portfolio 12.32 -2.83

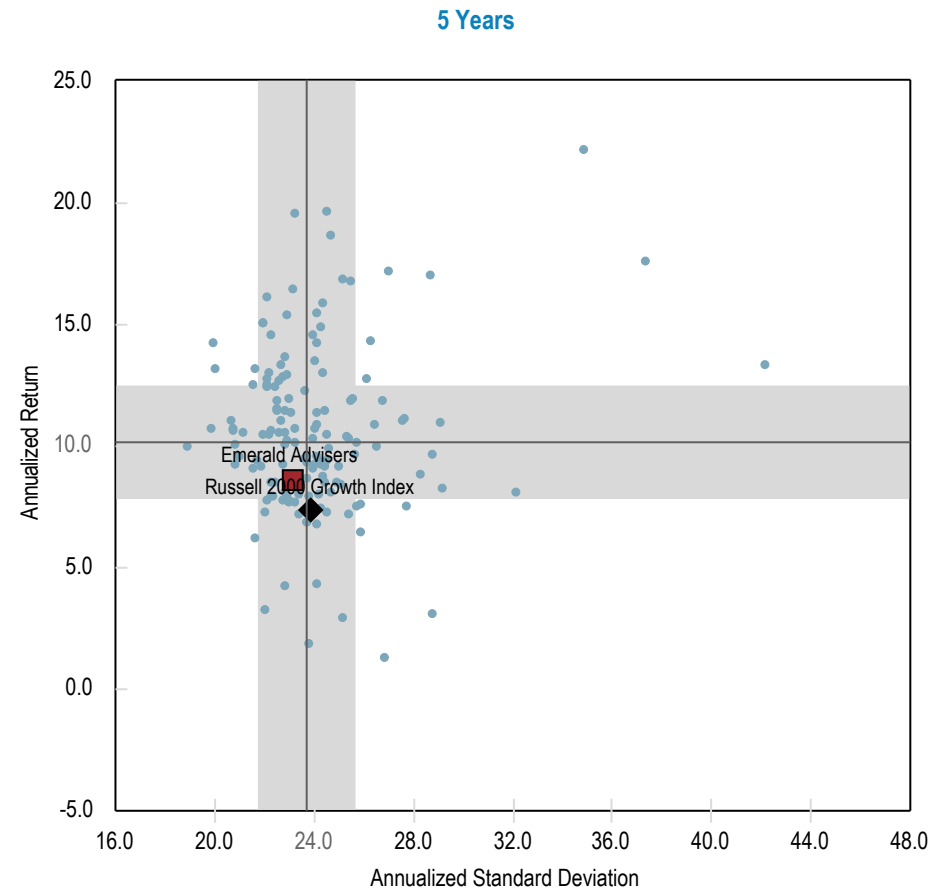
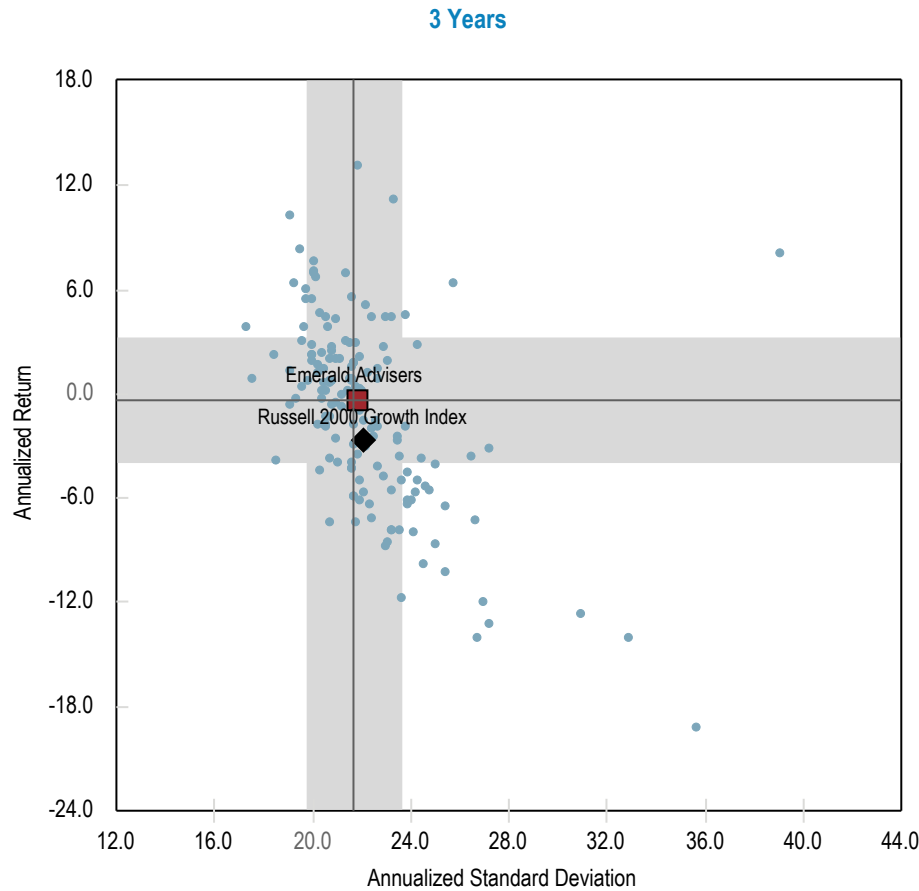
Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

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	5.76 (69)	20.97 (39)	-0.36 (50)	8.63 (71)	9.71 (65)	19.15 (41)	-23.75 (27)	5.53 (77)	38.96 (57)	30.26 (48)
▲ Russell 2000 Growth Index	7.58 (48)	20.35 (42)	-2.68 (64)	7.38 (89)	7.89 (95)	18.66 (45)	-26.36 (44)	2.83 (85)	34.63 (67)	28.48 (53)
5th Percentile	17.75	32.89	6.97	16.85	13.80	28.63	-16.20	29.85	74.95	42.60
1st Quartile	10.43	22.84	2.26	12.46	11.76	21.36	-23.57	19.36	58.30	36.52
Median	7.32	17.98	-0.37	10.19	10.37	17.72	-27.20	11.86	42.23	29.57
3rd Quartile	5.10	13.69	-4.33	8.30	9.28	13.28	-31.12	5.92	31.96	24.74
95th Percentile	1.52	6.86	-9.93	6.31	7.04	6.73	-38.40	-4.98	16.49	15.94
Population	155	155	154	150	135	160	171	182	183	190





	3 Years	3 Years	3 Years
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Emerald Advisers	-0.4	21.8	0.0
Russell 2000 Growth Index	-2.7	22.1	-0.1
eV US Small Cap Growth Equity Median	-0.4	21.7	0.0
Population	154	154	154

	5 Years	5 Years	5 Years
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Emerald Advisers	8.6	23.2	0.4
Russell 2000 Growth Index	7.4	23.9	0.3
eV US Small Cap Growth Equity Median	10.2	23.7	0.4
Population	150	150	150

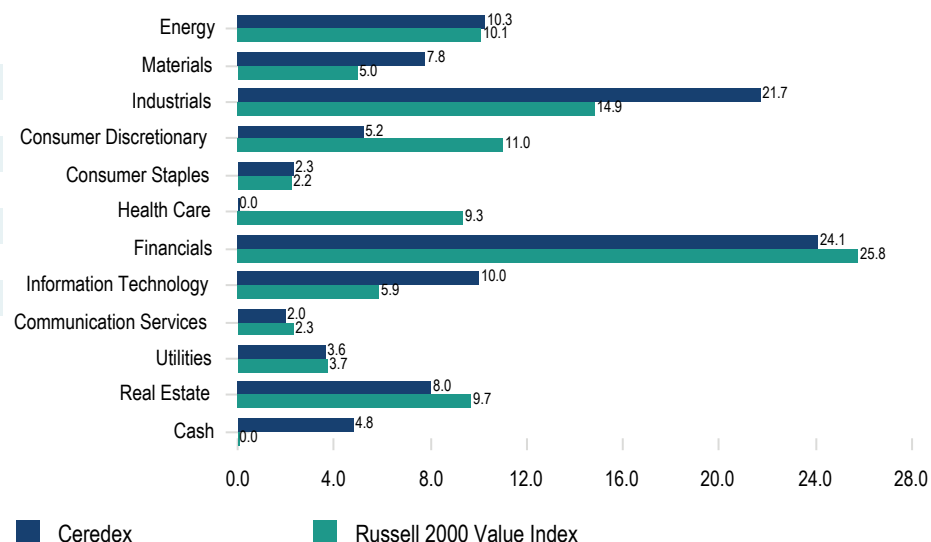
Ceredex Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	73	1,419
Wtd. Avg. Mkt. Cap \$M	5,512.32	2,966.91
Median Mkt. Cap \$M	5,669.44	829.70
Price/Earnings ratio	16.99	12.67
Price/Book ratio	2.16	1.71
Return on Equity (%)	4.24	-0.28
Current Yield (%)	2.37	2.21
Beta (5 Years, Monthly)	0.87	1.00

Sector Allocation (%) vs. Russell 2000 Value Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Camden Property Trust	2.17	0.15
Schneider National Inc	2.10	-10.68
KBR Inc	1.95	15.17
Matador Resources Co	1.93	17.81
Valmont Industries Inc	1.88	-1.98
ChampionX Corp	1.86	23.25
OGE Energy Corp	1.82	-0.65
IDACORP Inc.	1.80	-4.67
Ashland Inc	1.76	15.97
Progress Software Corp	1.76	-1.50

Top Contributors

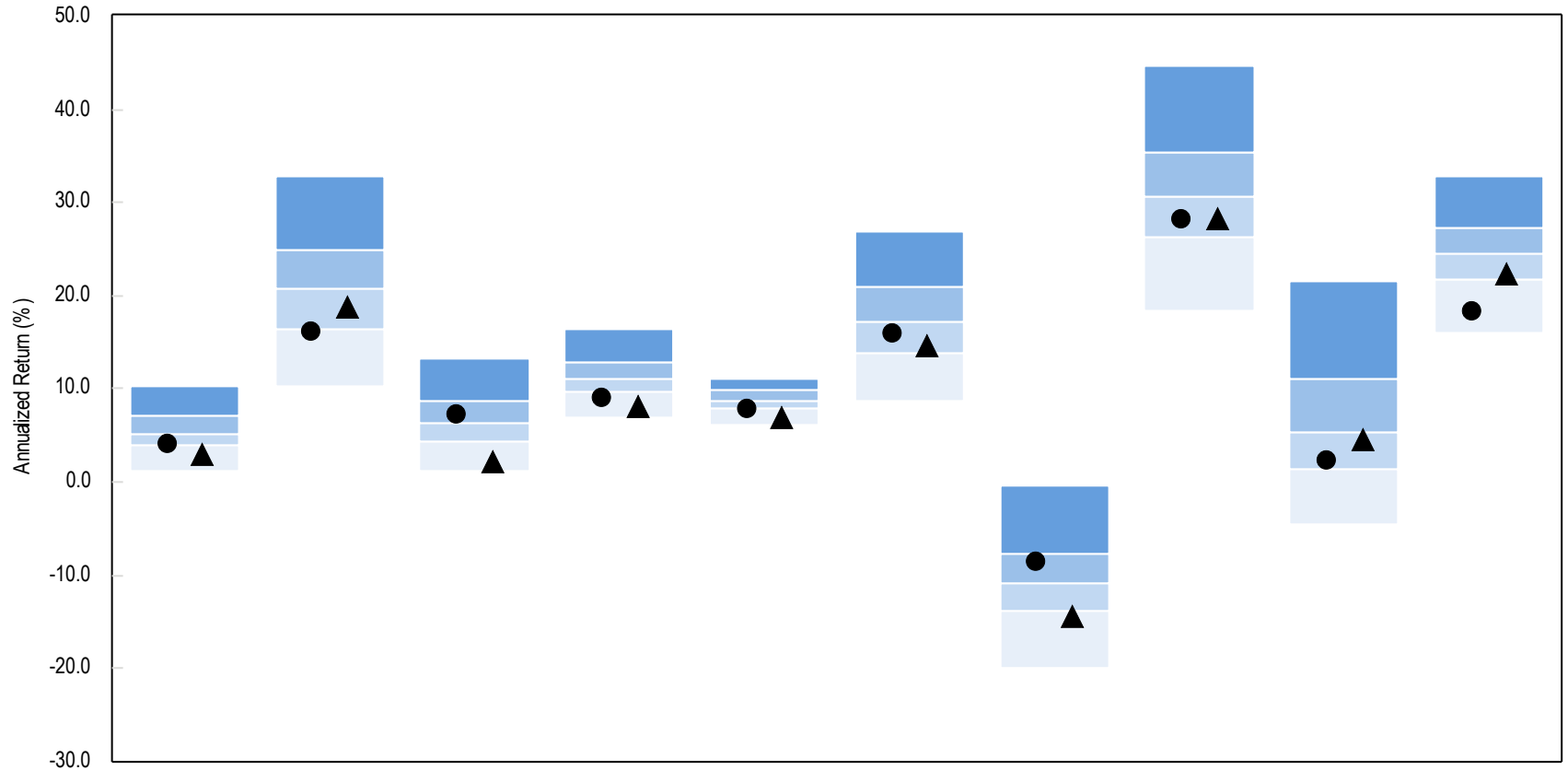
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Kemper Corp	1.50	27.88	0.42
ChampionX Corp	1.57	23.25	0.37
Ashland Inc	2.22	15.97	0.35
Louisiana-Pacific Corp	1.80	18.90	0.34
Hudbay Minerals Inc	1.23	26.96	0.33
Belden Inc	1.60	19.95	0.32
KBR Inc	2.01	15.17	0.30
Kinsale Capital Group Inc	0.52	56.73	0.30
Matador Resources Co	1.61	17.81	0.29
RB Global Inc	1.91	14.33	0.27
% of Portfolio	15.97		3.29

Top Detractors

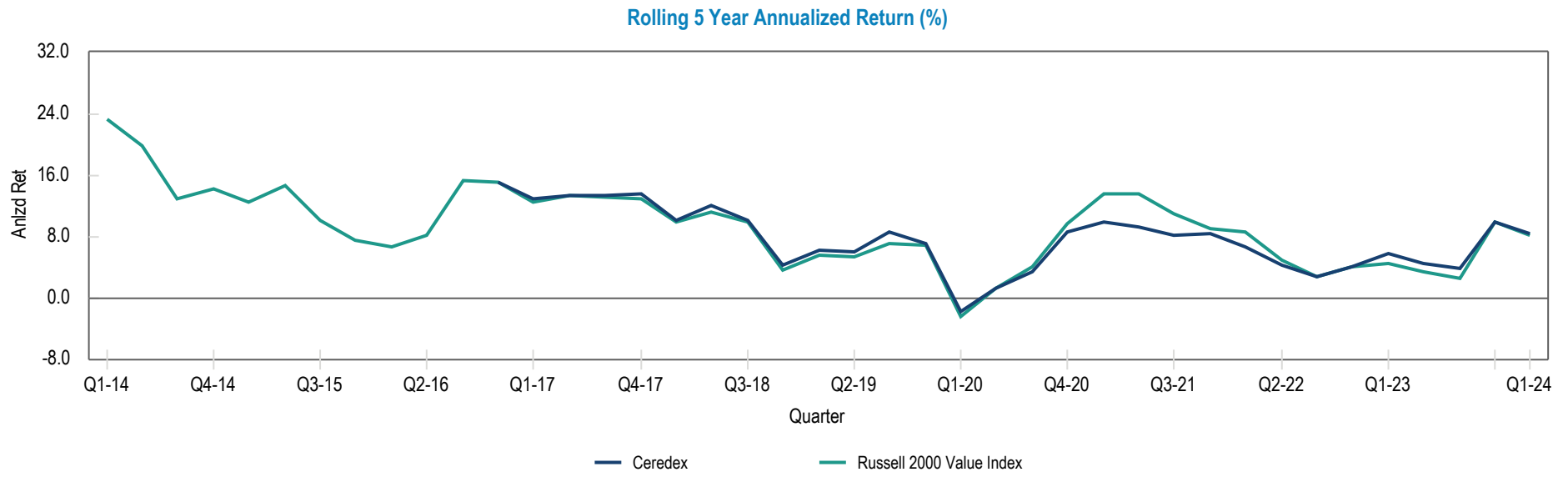
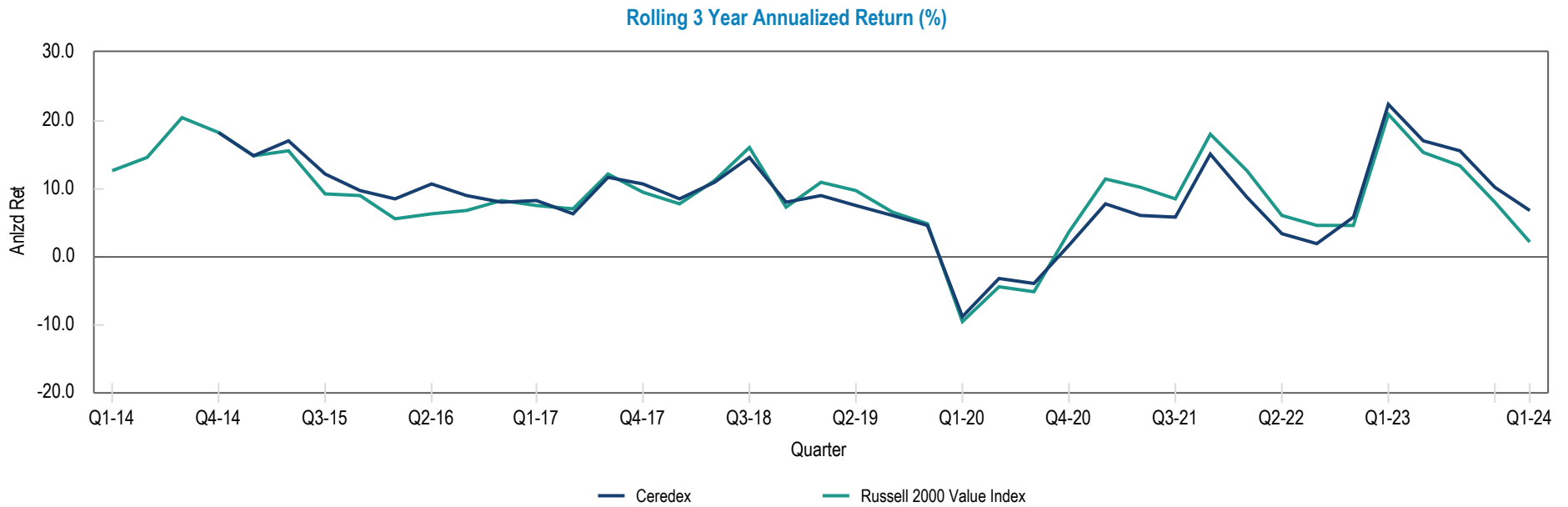
	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Iridium Communications Inc	1.33	-36.14	-0.48
Columbia Banking System Inc	1.79	-26.03	-0.47
Forward Air Corp	0.83	-50.52	-0.42
Bank of Hawaii Corp	2.05	-12.87	-0.26
Schneider National Inc	1.96	-10.68	-0.21
Power Integrations Inc	1.49	-12.61	-0.19
Seacoast Banking	1.78	-10.11	-0.18
Agree Realty Corp	2.04	-8.08	-0.17
Cogent Communications	1.16	-12.82	-0.15
Littelfuse Inc	1.04	-9.18	-0.10
% of Portfolio	15.47		-2.62

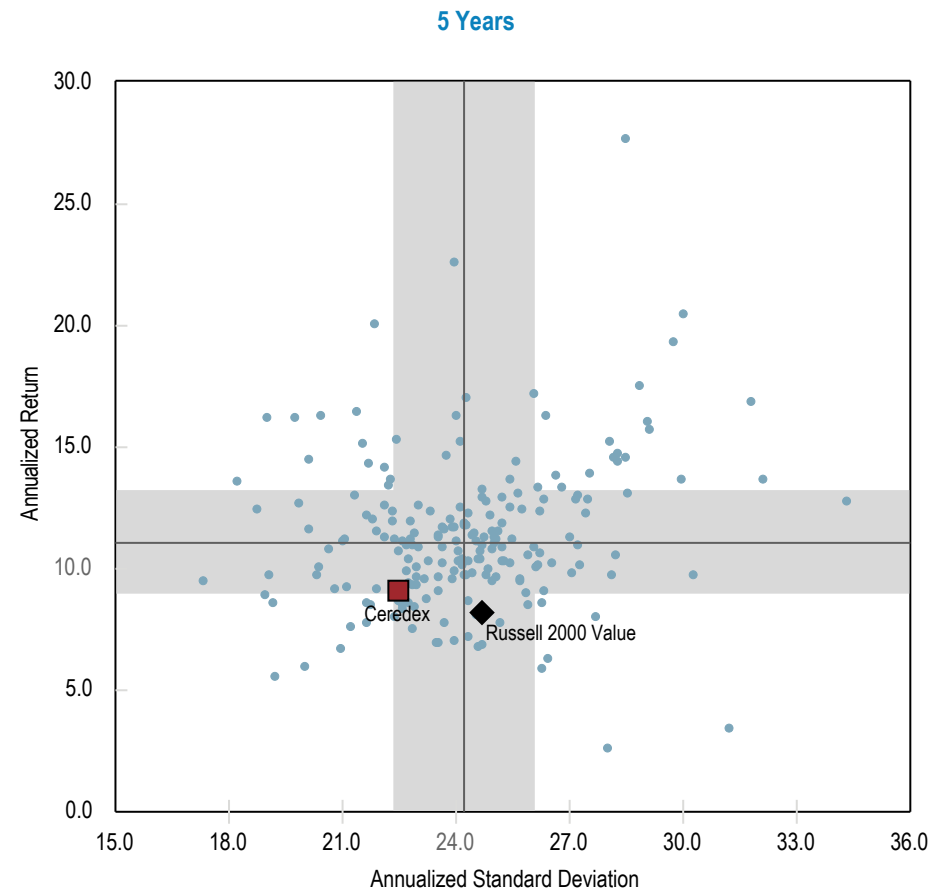
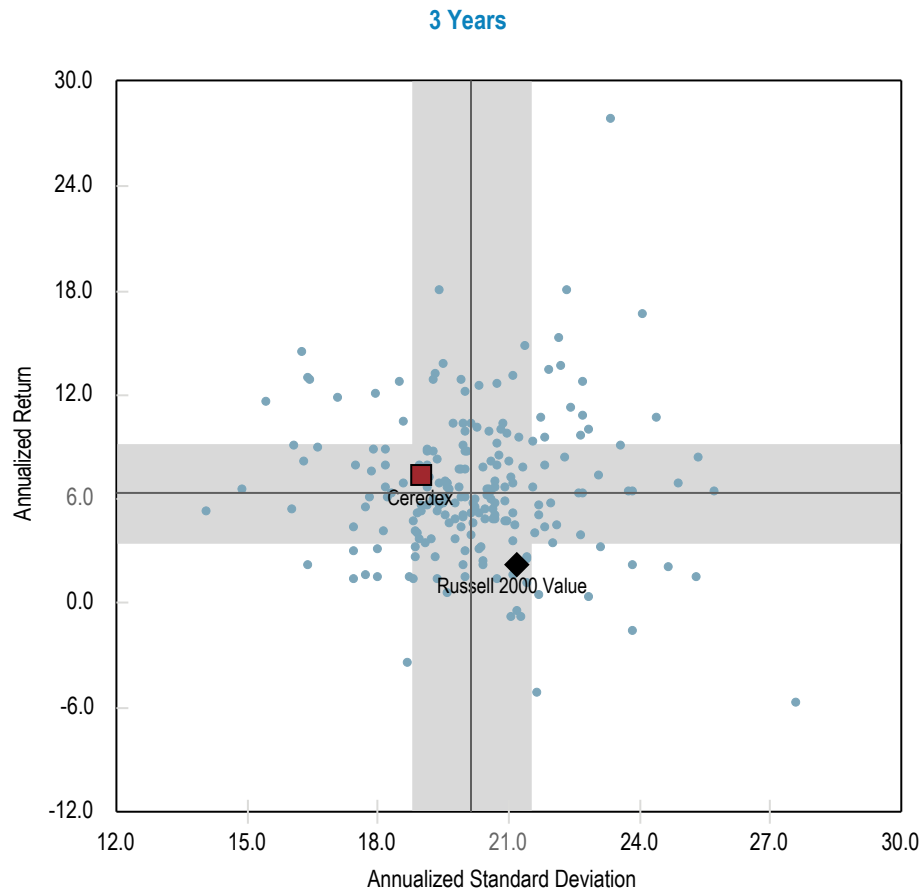
Domestic equity small cap value portfolio of companies with dividend yields and low valuations. Primary personnel include Brett Barner and David Maynard.

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	4.15 (69)	16.17 (77)	7.41 (37)	9.07 (82)	7.99 (73)	16.02 (61)	-8.46 (28)	28.37 (60)	2.32 (70)	18.36 (88)
▲ Russell 2000 Value Index	2.90 (88)	18.75 (62)	2.22 (90)	8.17 (90)	6.87 (92)	14.65 (71)	-14.48 (79)	28.27 (60)	4.63 (54)	22.39 (71)
5th Percentile	10.22	32.89	13.20	16.35	11.17	26.86	-0.39	44.60	21.46	32.77
1st Quartile	7.10	24.84	8.79	12.81	9.85	20.89	-7.71	35.35	10.99	27.36
Median	5.16	20.82	6.34	11.10	8.66	17.24	-10.93	30.55	5.32	24.45
3rd Quartile	4.02	16.42	4.39	9.64	7.94	13.93	-13.87	26.26	1.36	21.70
95th Percentile	1.12	10.25	1.24	6.98	6.22	8.80	-19.90	18.37	-4.58	15.95
Population	208	208	206	200	176	211	220	232	246	254





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Ceredex	7.4	19.0	0.3
Russell 2000 Value Index	2.2	21.2	0.1
eV US Small Cap Value Equity Median	6.3	20.1	0.3
Population	206	206	206

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Ceredex	9.1	22.5	0.4
Russell 2000 Value Index	8.2	24.7	0.4
eV US Small Cap Value Equity Median	11.1	24.2	0.5
Population	200	200	200

International Equity Managers

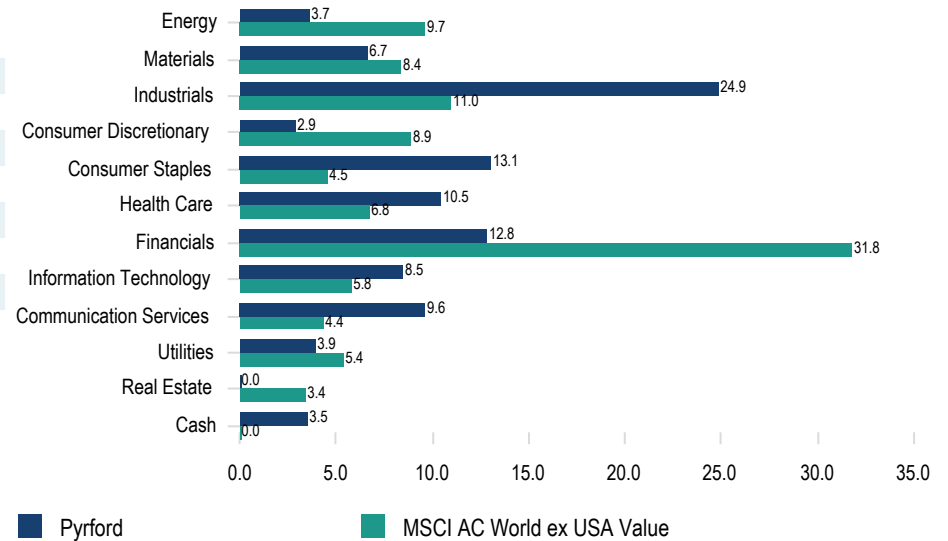
Pyrford
Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	79	1,315
Wtd. Avg. Mkt. Cap \$M	59,093.98	68,529.31
Median Mkt. Cap \$M	21,406.24	9,588.25
Price/Earnings ratio	17.12	11.08
Price/Book ratio	2.38	1.74
Return on Equity (%)	3.28	-1.13
Current Yield (%)	3.99	4.53
Beta (5 Years, Monthly)	0.75	1.00

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



Largest Holdings

	End Weight (%)	Quarterly Return (%)
Japan Tobacco Inc	2.59	3.60
Mitsubishi Electric Corp	2.51	18.45
United Overseas Bank Ltd	2.39	0.70
SAP SE	2.26	26.49
Brambles Ltd	2.23	15.23
L'Air Liquide SA	2.20	7.05
Nestle SA, Cham Und Vevey	2.15	-8.24
Roche Holding AG	2.04	-8.59
Kddi Corp	2.03	-5.47
Novartis AG	1.97	-0.19

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
SAP SE	1.81	26.49	0.48
Mitsubishi Electric Corp	2.16	18.45	0.40
Taiwan Semiconductor Man.	1.30	26.55	0.35
Brambles Ltd	1.98	15.23	0.30
QBE Insurance Group Limited	1.32	20.38	0.27
ASMP T Limited	0.82	31.78	0.26
Rubis	0.61	42.27	0.26
GSK plc	1.32	17.87	0.24
Bureau Veritas SA	1.10	20.90	0.23
Fuchs SE	1.76	11.36	0.20

Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
AIA Group Ltd	1.56	-22.95	-0.36
Nihon Kohden Corp	1.93	-15.78	-0.30
Nabtesco Corp	1.50	-17.13	-0.26
Deutsche Post AG	1.97	-13.00	-0.26
Woolworths Group Ltd	1.69	-13.52	-0.23
Perusahaan Perseroan	1.44	-14.69	-0.21
Reckitt Benckiser Group PLC	1.17	-17.51	-0.20
Roche Holding AG	2.35	-8.59	-0.20
Nestle SA, Cham Und Vevey	2.37	-8.24	-0.20
Brenntag SE	1.84	-8.27	-0.15

% of Portfolio

14.18

2.98

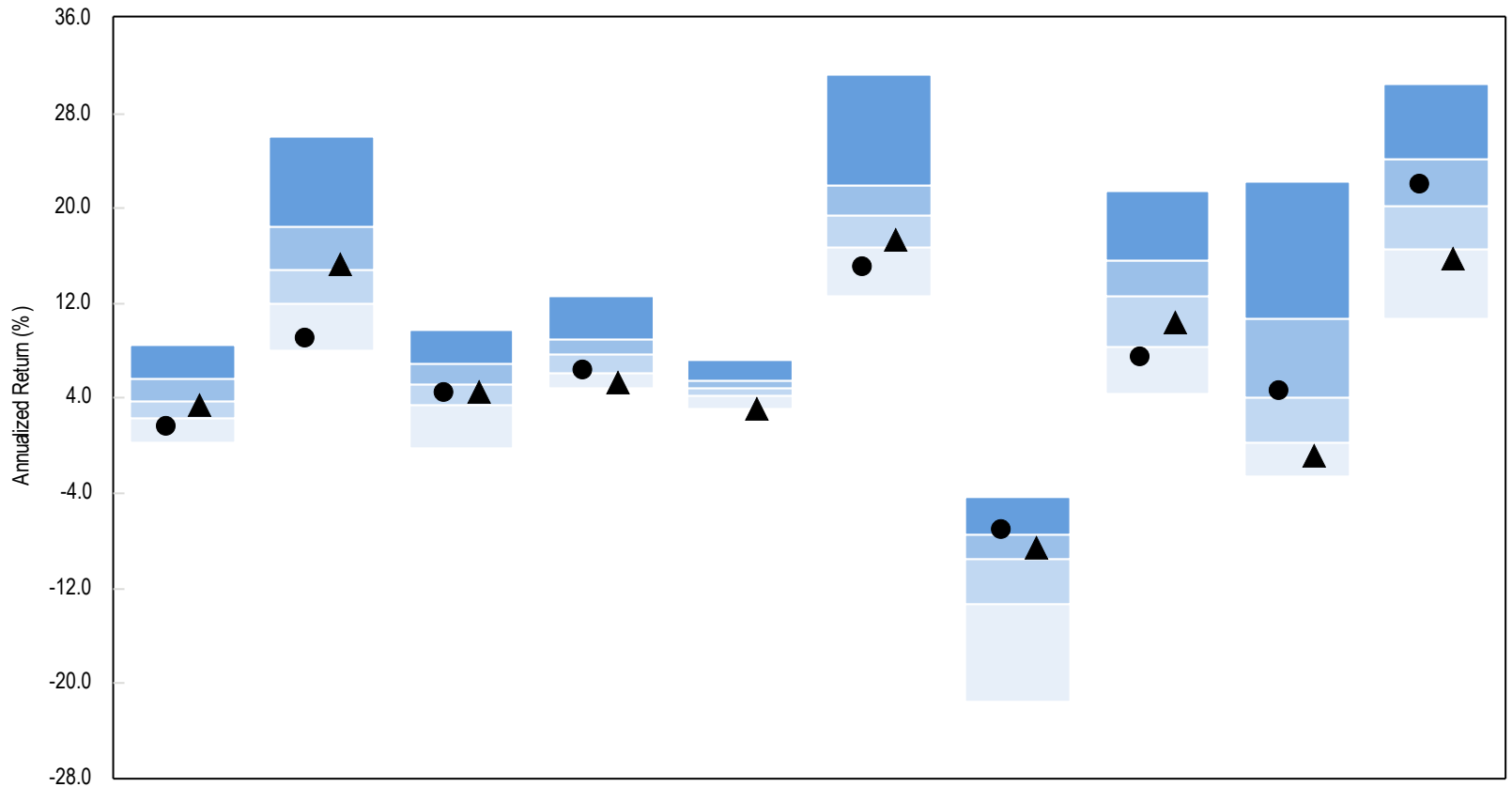
% of Portfolio

17.82

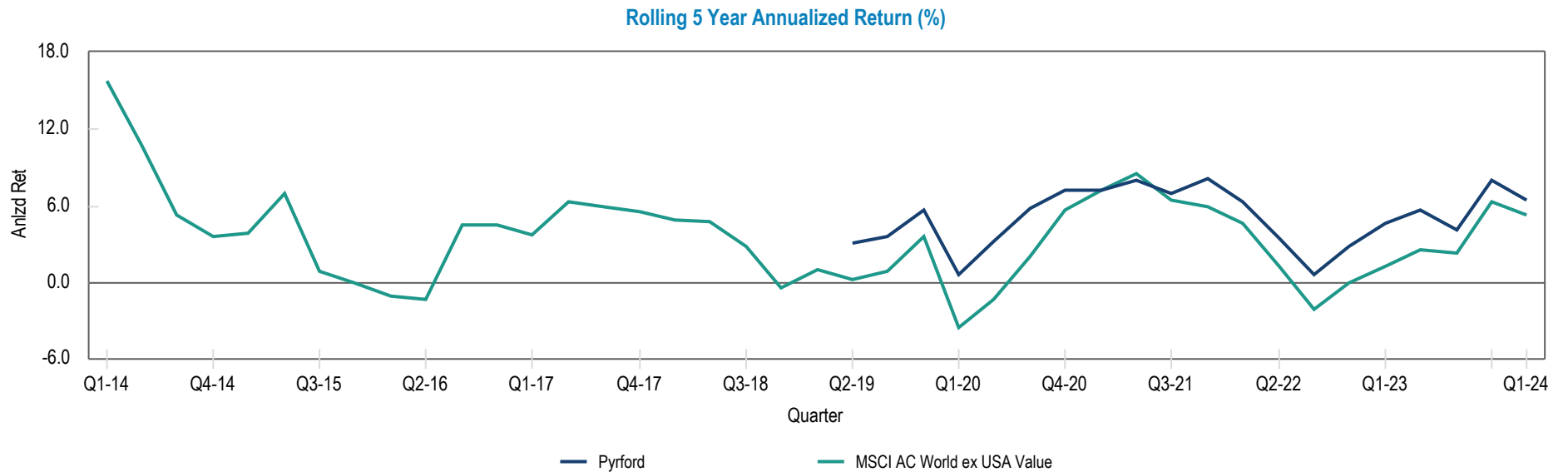
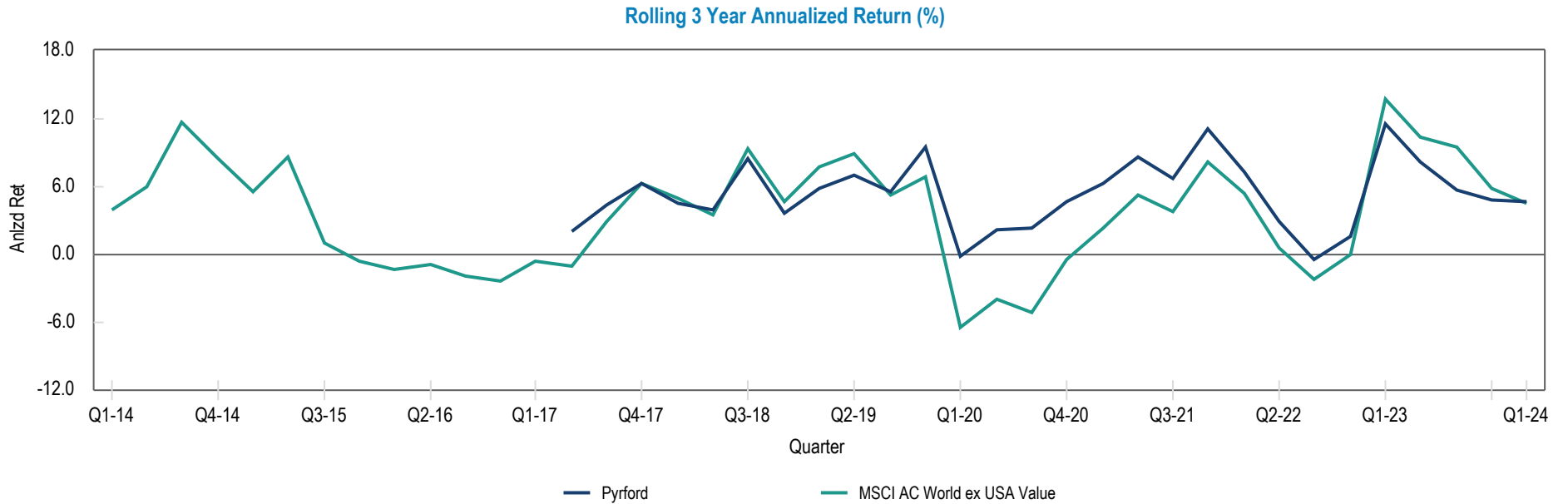
-2.37

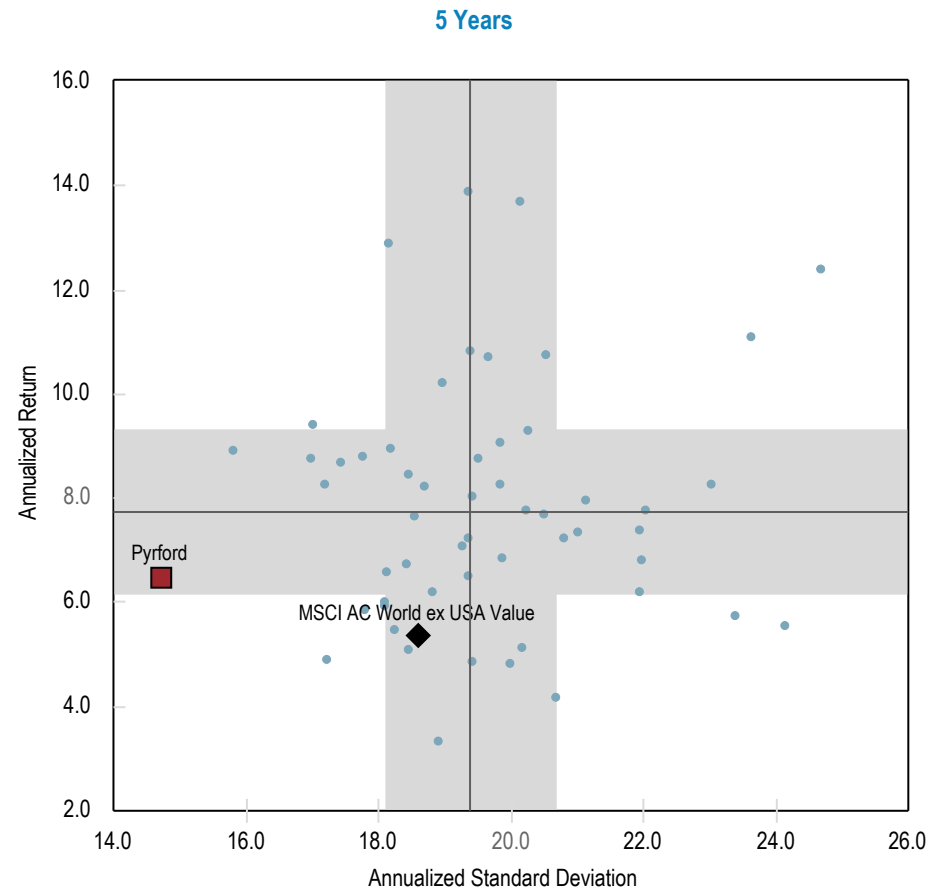
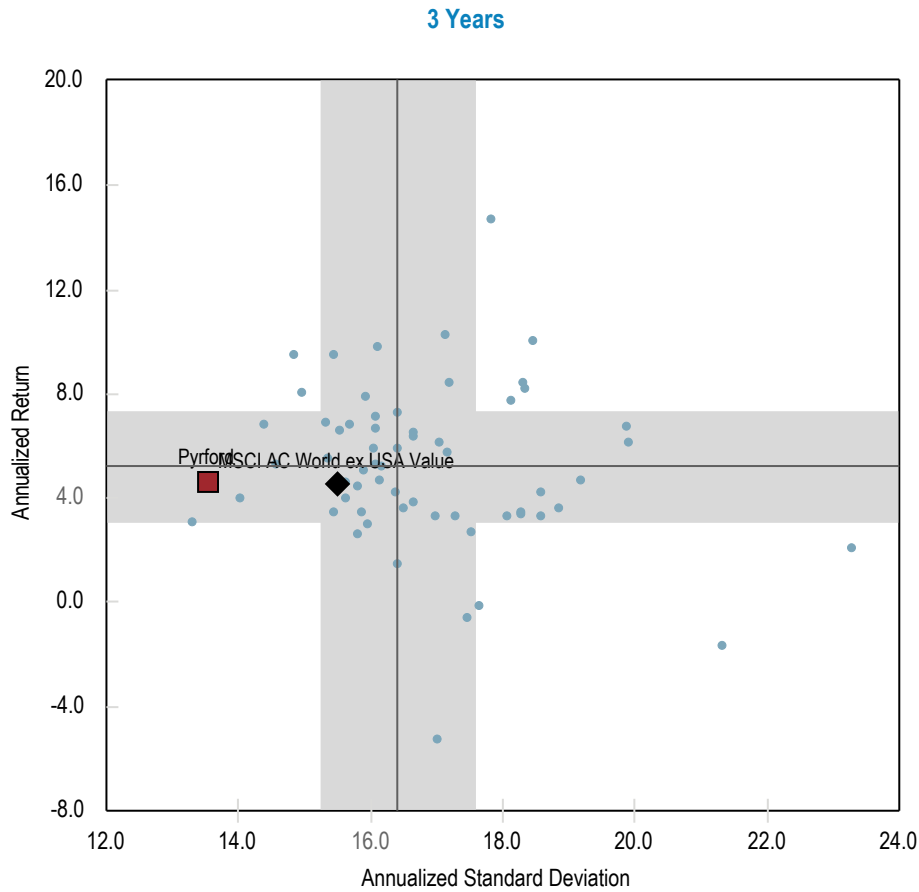
International equity value portfolio of non-US companies with low valuations at the country and stock level. Primary personnel include Tony Cousins, Daniel McDonagh, and Paul Simons.

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



	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Pyrford	1.72 (84)	9.14 (91)	4.63 (57)	6.47 (72)	-	15.17 (83)	-6.97 (21)	7.57 (84)	4.66 (47)	22.07 (38)
▲ MSCI AC World ex USA Value (Net)	3.40 (56)	15.34 (48)	4.58 (57)	5.36 (88)	3.20 (89)	17.30 (69)	-8.59 (40)	10.46 (67)	-0.77 (80)	15.72 (78)
5th Percentile	8.55	26.07	9.79	12.59	7.26	31.18	-4.22	21.42	22.18	30.55
1st Quartile	5.67	18.40	6.85	8.90	5.58	21.97	-7.47	15.58	10.71	24.23
Median	3.75	14.87	5.22	7.73	4.92	19.46	-9.50	12.61	4.15	20.24
3rd Quartile	2.32	11.95	3.45	6.19	4.20	16.72	-13.27	8.41	0.31	16.63
95th Percentile	0.29	7.99	-0.14	4.87	3.11	12.54	-21.51	4.37	-2.63	10.68
Population	63	63	61	54	38	65	68	70	71	69





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Pyrford	4.6	13.5	0.2
MSCI AC World ex USA Value (Net)	4.6	15.5	0.2
eV ACWI ex-US Value Equity Median	5.2	16.4	0.2
Population	61	61	61

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Pyrford	6.5	14.7	0.4
MSCI AC World ex USA Value (Net)	5.4	18.6	0.3
eV ACWI ex-US Value Equity Median	7.7	19.4	0.4
Population	54	54	54

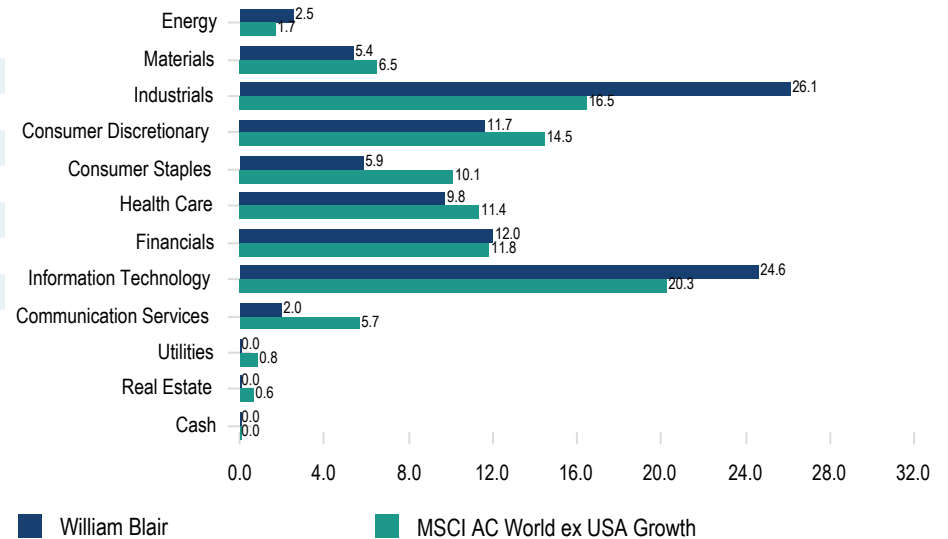
William Blair
 Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	173	1,246
Wtd. Avg. Mkt. Cap \$M	105,676.01	133,009.81
Median Mkt. Cap \$M	19,500.47	10,799.47
Price/Earnings ratio	27.95	23.85
Price/Book ratio	4.52	3.80
Return on Equity (%)	6.95	4.01
Current Yield (%)	1.56	1.72
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.	2.96	31.35
ASML Holding NV	2.49	28.18
Novo Nordisk A/S	2.45	24.24
Airbus SE	1.68	19.41
Safran SA	1.55	28.79
London Stock Exchange Group	1.50	1.40
Keyence Corp	1.47	4.50
Tokyo Electron Ltd	1.36	46.77
Reliance Industries Ltd	1.35	14.70
Samsung Electronics Co Ltd	1.35	0.42

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Taiwan Semiconductor Man.	2.27	31.35	0.71
ASML Holding NV	1.95	28.18	0.55
Novo Nordisk A/S	1.99	24.24	0.48
Tokyo Electron Ltd	0.93	46.77	0.44
Safran SA	1.21	28.79	0.35
Disco Corp	0.55	52.79	0.29
Airbus SE	1.41	19.41	0.27
Sumitomo Mitsui	1.07	22.47	0.24
Tokio Marine Holdings Inc	0.93	25.73	0.24
SK Hynix Inc	0.84	23.72	0.20

Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Lululemon Athletica Inc	0.80	-23.59	-0.19
H D F C Bank Ltd	1.18	-15.48	-0.18
Dassault Systemes SA	1.40	-9.29	-0.13
Infineon Technologies AG	0.72	-17.63	-0.13
AIA Group Ltd	0.48	-22.95	-0.11
SHIFT Inc	0.25	-38.33	-0.10
B3 S.A.-Brasil Bolsa Balcao	0.47	-18.68	-0.09
Global Unichip Corp	0.28	-31.38	-0.09
Baycurrent Consulting Inc	0.20	-43.69	-0.09
Amadeus IT Group SA	0.78	-9.81	-0.08

% of Portfolio

13.15

3.77

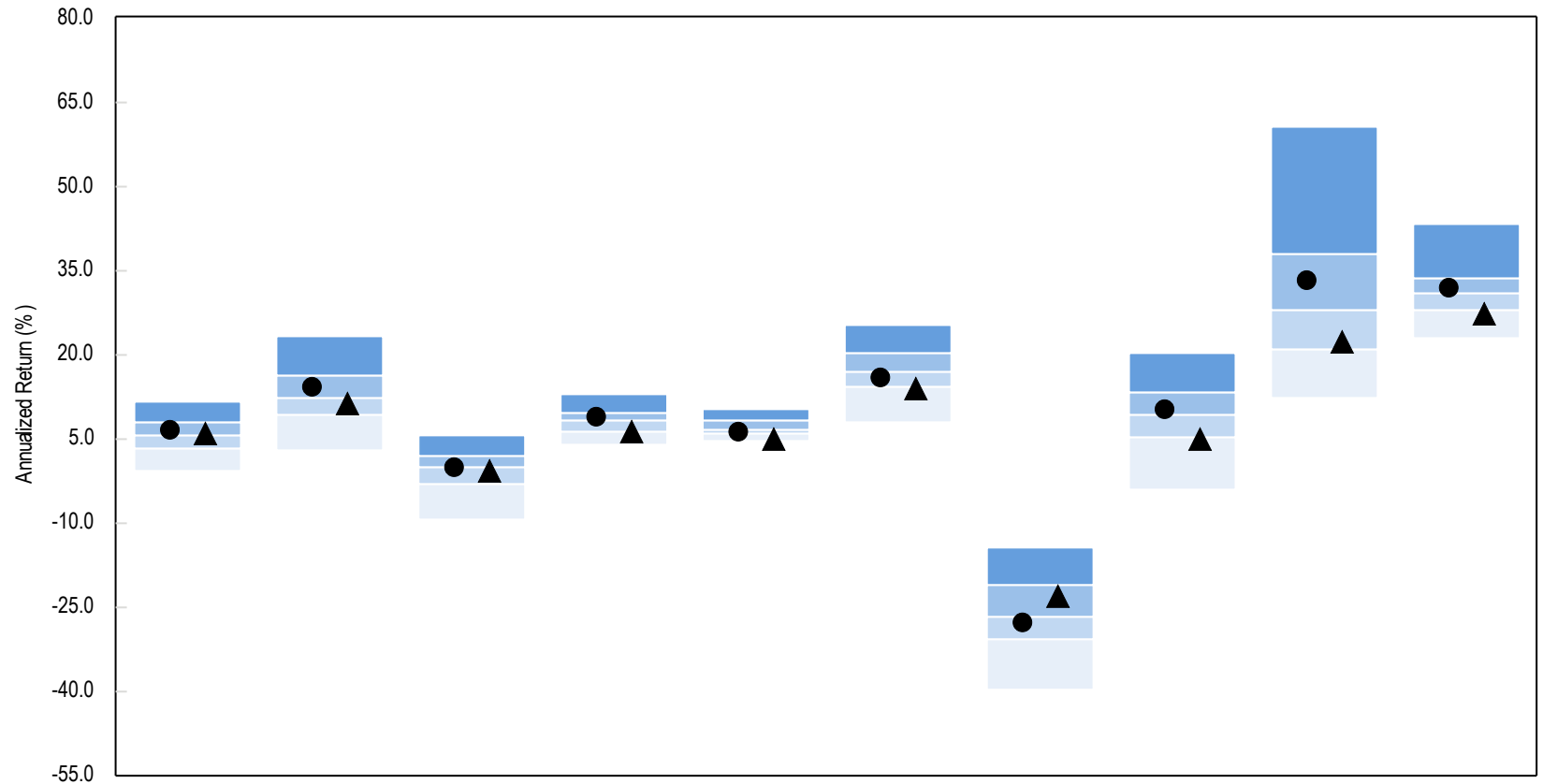
% of Portfolio

6.56

-1.17

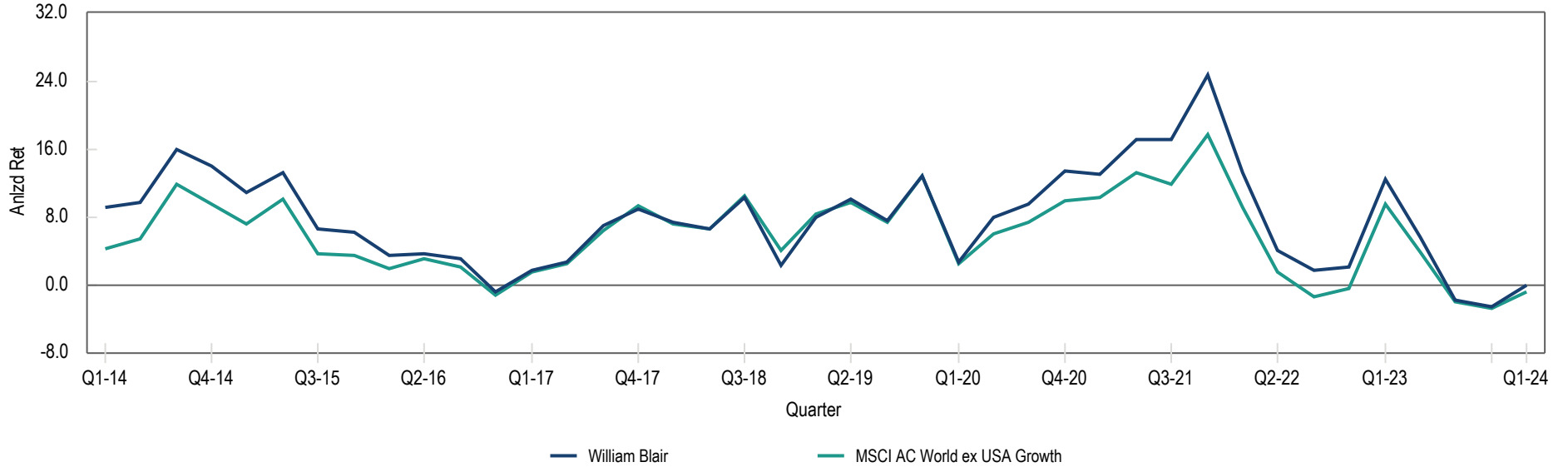
International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Kenneth McAtamney.

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

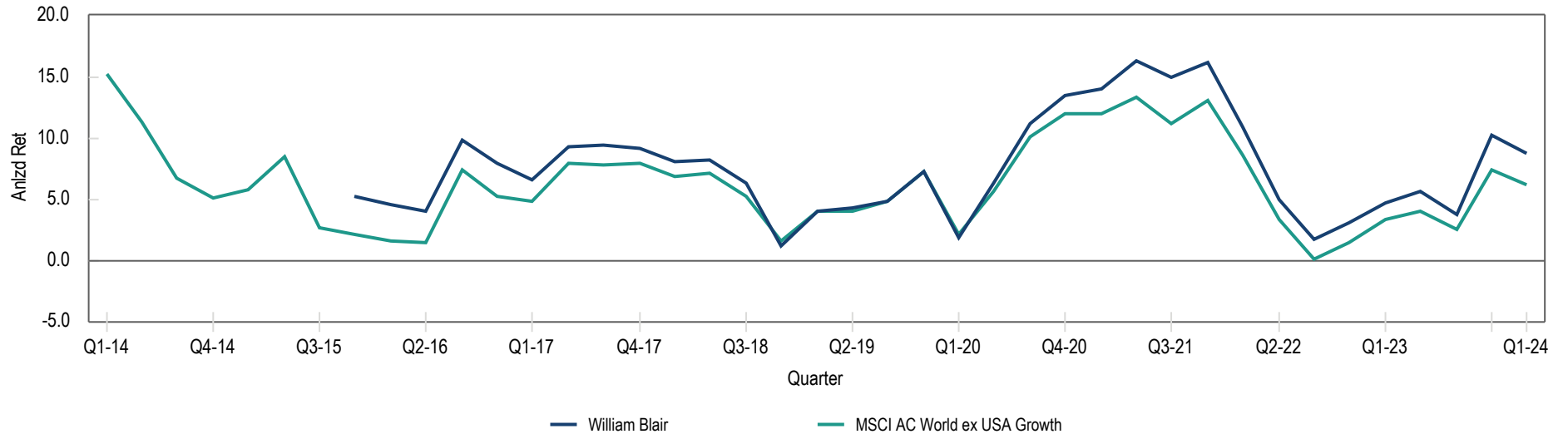


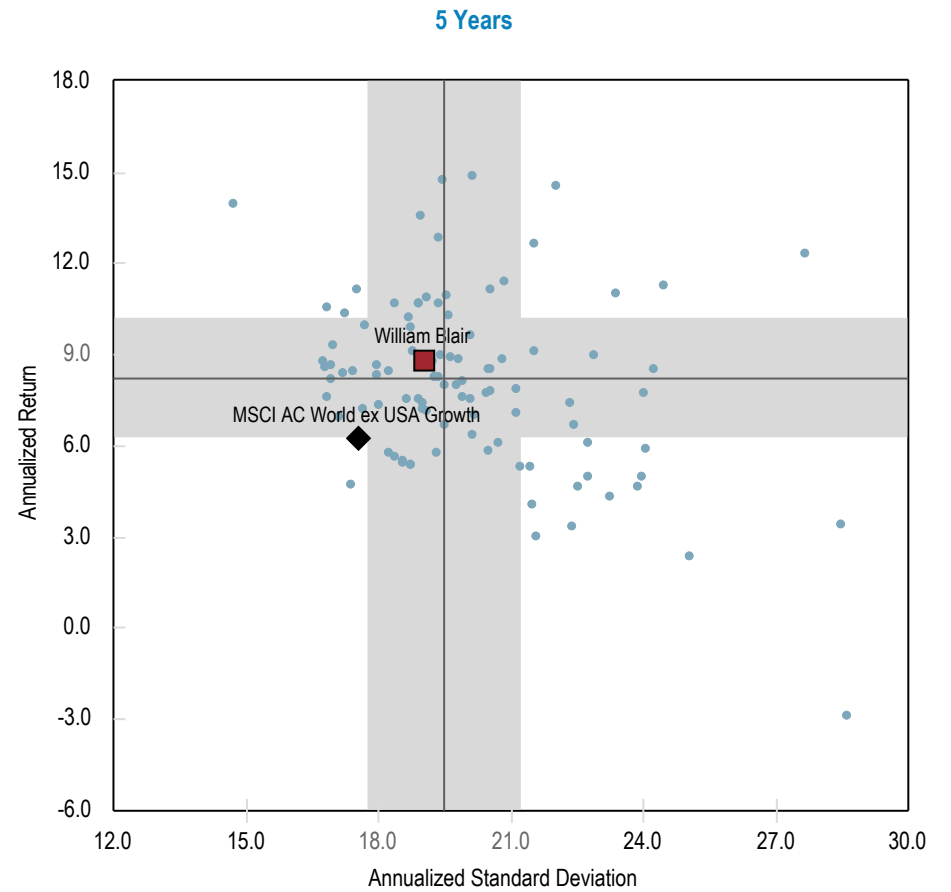
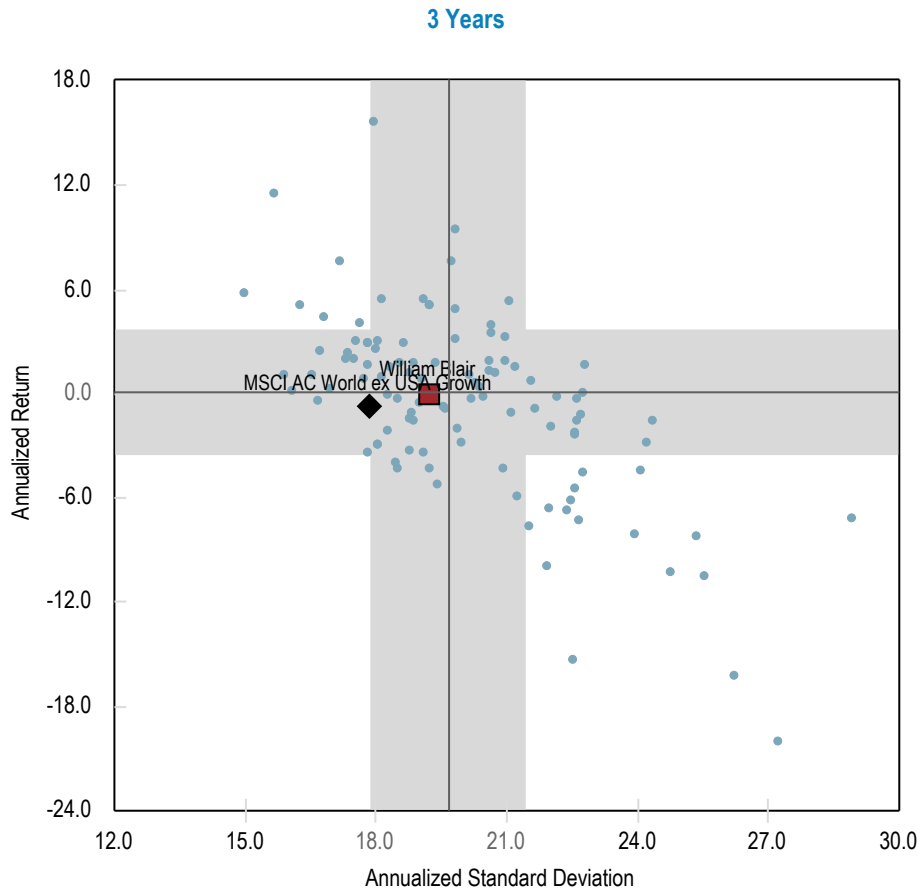
	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● William Blair	6.73 (38)	14.19 (36)	-0.03 (52)	8.85 (35)	6.41 (55)	16.15 (59)	-27.75 (56)	10.48 (41)	33.25 (36)	32.01 (38)
▲ MSCI AC World ex USA Growth	5.91 (46)	11.22 (61)	-0.76 (60)	6.24 (76)	5.12 (90)	14.03 (77)	-23.05 (31)	5.09 (76)	22.20 (73)	27.34 (78)
5th Percentile	11.81	23.43	5.76	12.96	10.39	25.47	-14.29	20.35	60.75	43.36
1st Quartile	7.83	16.29	2.13	9.78	8.23	20.18	-20.98	13.39	37.97	33.67
Median	5.51	12.29	0.10	8.26	6.70	17.08	-26.69	9.33	28.13	30.96
3rd Quartile	3.41	9.46	-2.87	6.24	6.11	14.18	-30.77	5.17	21.13	27.84
95th Percentile	-0.63	3.05	-9.32	4.04	4.64	7.96	-39.81	-3.97	12.38	23.07
Population	109	109	108	99	72	111	115	118	113	111

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
William Blair	0.0	19.2	0.0
MSCI AC World ex USA Growth (Net)	-0.8	17.9	-0.1
eV ACWI ex-US Growth Equity Median	0.1	19.7	0.0
Population	108	108	108

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
William Blair	8.8	19.0	0.4
MSCI AC World ex USA Growth (Net)	6.2	17.6	0.3
eV ACWI ex-US Growth Equity Median	8.3	19.5	0.4
Population	99	99	99

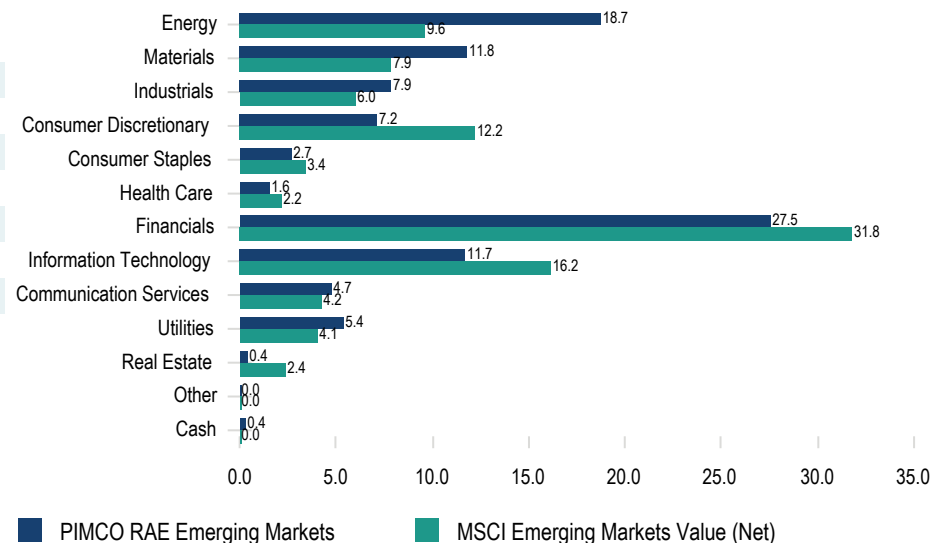
PIMCO RAE Emerging Markets Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	335	800
Wtd. Avg. Mkt. Cap \$M	24,410.09	65,640.58
Median Mkt. Cap \$M	4,151.87	6,897.75
Price/Earnings ratio	7.73	10.87
Price/Book ratio	1.79	1.90
Return on Equity (%)	1.49	2.69
Current Yield (%)	6.15	4.29
Beta (5 Years, Monthly)	1.06	1.00

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



Largest Holdings

	End Weight (%)	Quarterly Return (%)
China Construction Bank Corp	4.13	1.27
Petroleo Brasileiro S.A	3.80	-2.64
Petrochina Co Ltd	2.97	29.36
China Petroleum & Chemical	2.68	8.31
POSCO Holdings Inc	2.57	-18.72
Bank of China Ltd	2.54	8.14
Industrial & Comm. Bank of China	2.41	2.91
Cemex SAB de CV	1.91	13.06
Quanta Computer Inc	1.76	25.37
Vipshop Holdings Limited	1.58	-4.49

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Tencent Music	3.97	24.20	0.96
Cemex SAB de CV	5.30	16.26	0.86
Petrochina Co Ltd	2.77	29.36	0.81
Netease Inc	5.83	12.16	0.71
Cielo SA	2.26	16.67	0.38
Embraer SA	0.80	44.37	0.35
Piraeus Financial Holdings SA	1.80	18.42	0.33
National Bank of Greece S A	2.00	12.78	0.26
Bank of China Ltd	3.08	8.14	0.25
China Petroleum & Chemical	2.98	8.31	0.25

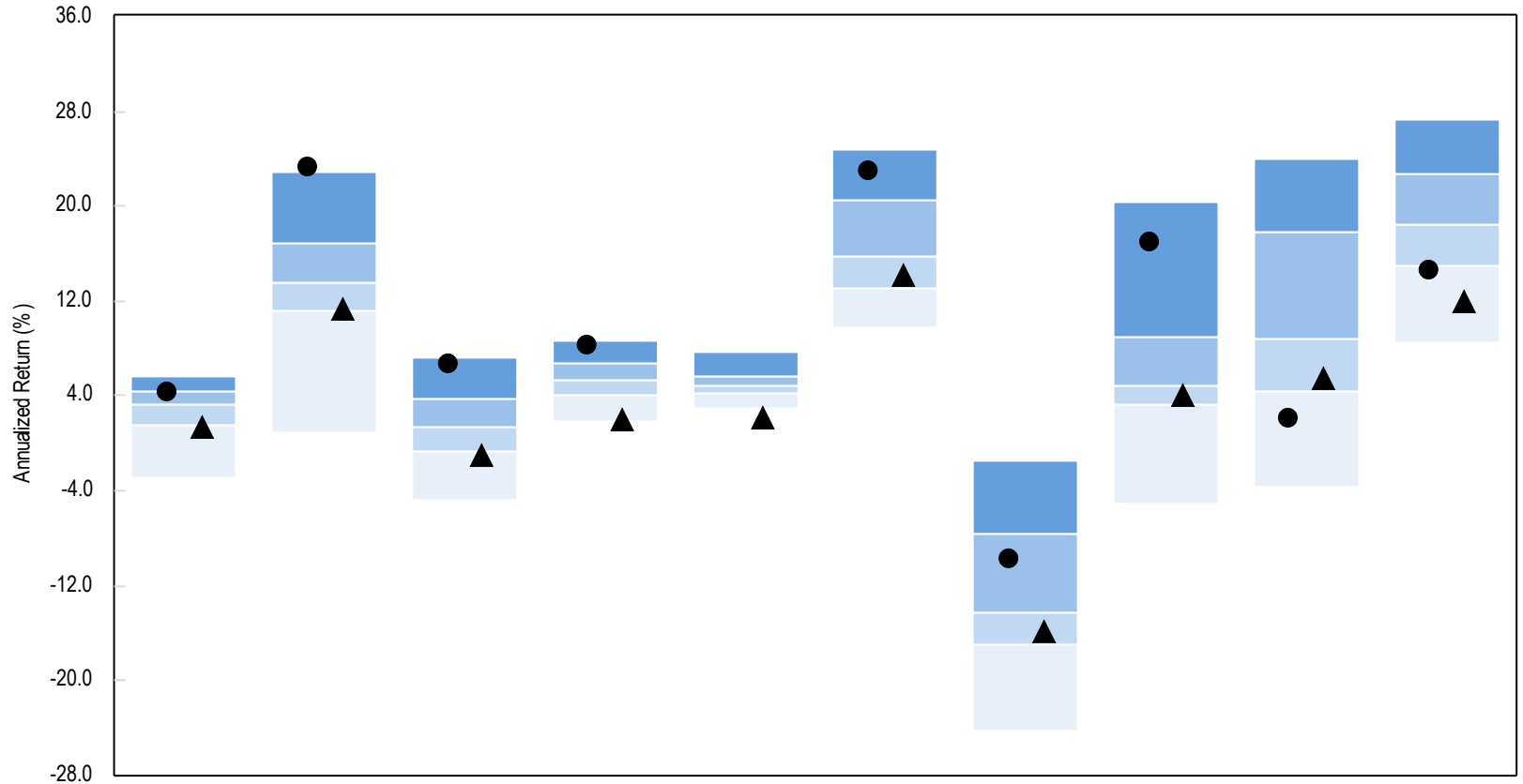
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Vipshop Holdings Limited	15.96	-4.49	-0.72
Lenovo Group Ltd	1.66	-17.13	-0.28
Petroleo Brasileiro S.A	6.43	-2.64	-0.17
Ping An Insurance Group	1.49	-6.72	-0.10
Polska Grupa Energetyczna SA	0.50	-18.16	-0.09
Cogna Educacao S A	0.22	-34.38	-0.08
Capital A Berhad	0.41	-16.45	-0.07
Kunlun Energy Co Ltd	0.67	-7.46	-0.05
BYD Electronic	0.22	-21.36	-0.05
MTN Group Ltd	0.20	-21.62	-0.04

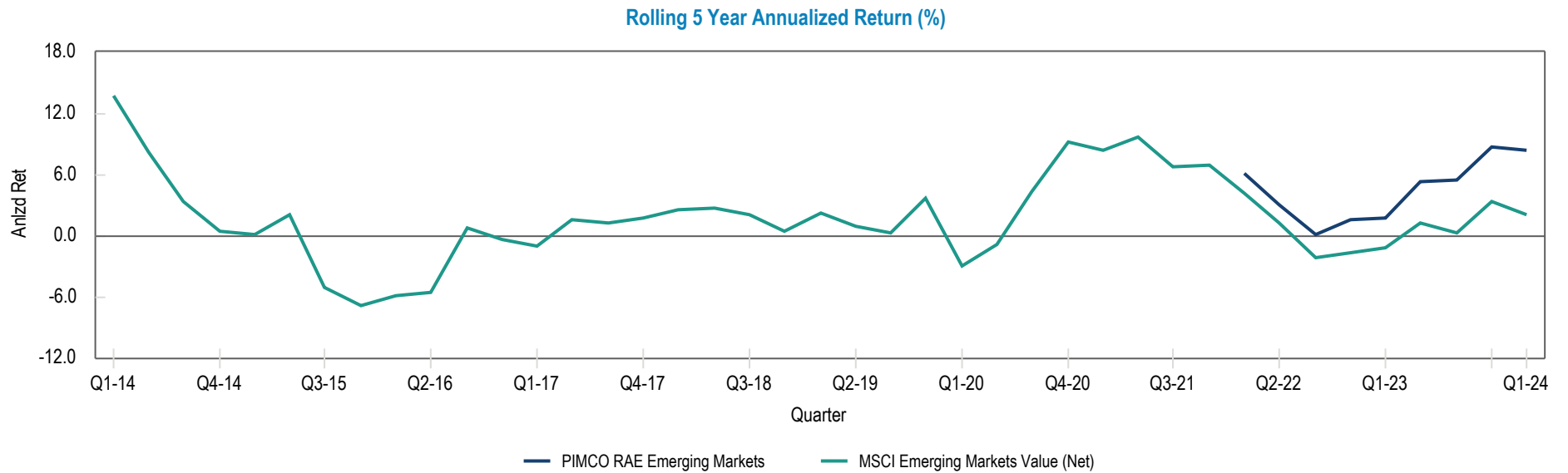
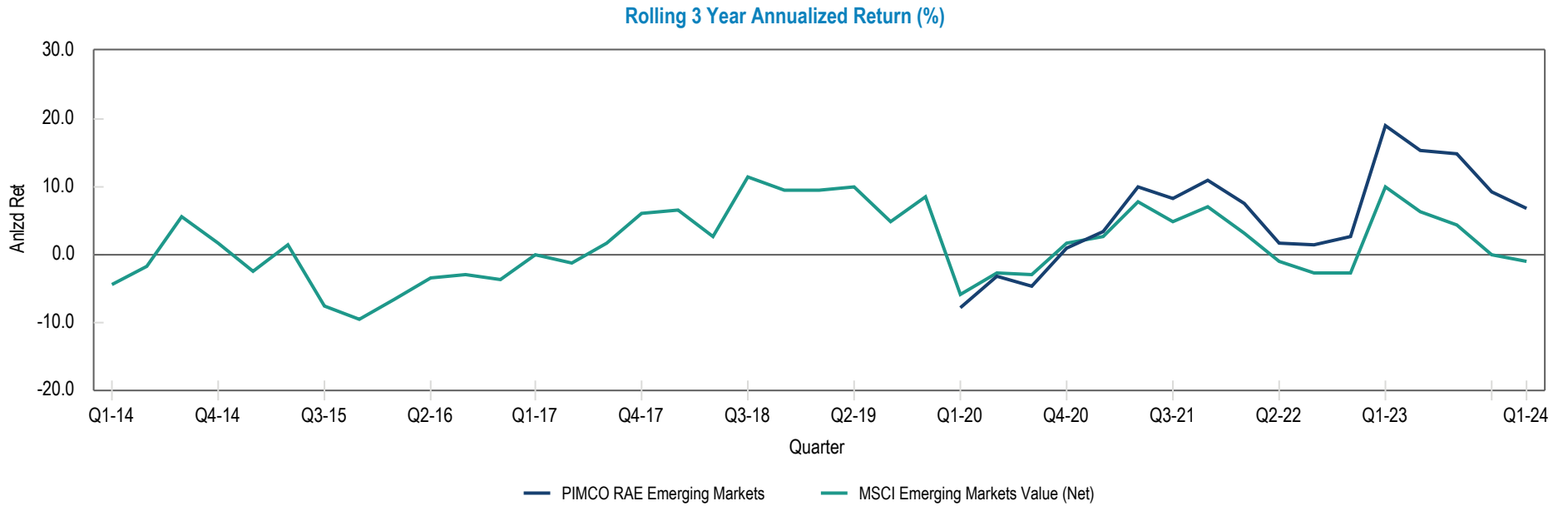
% of Portfolio 30.79 5.16 % of Portfolio 27.76 -1.65

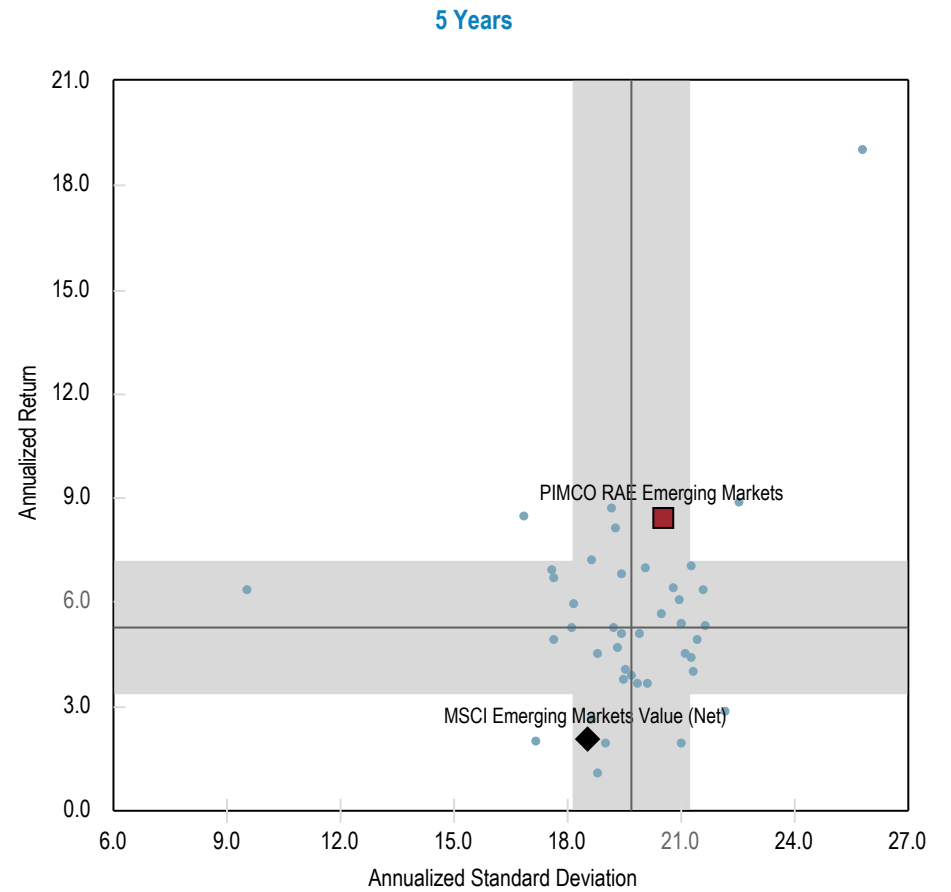
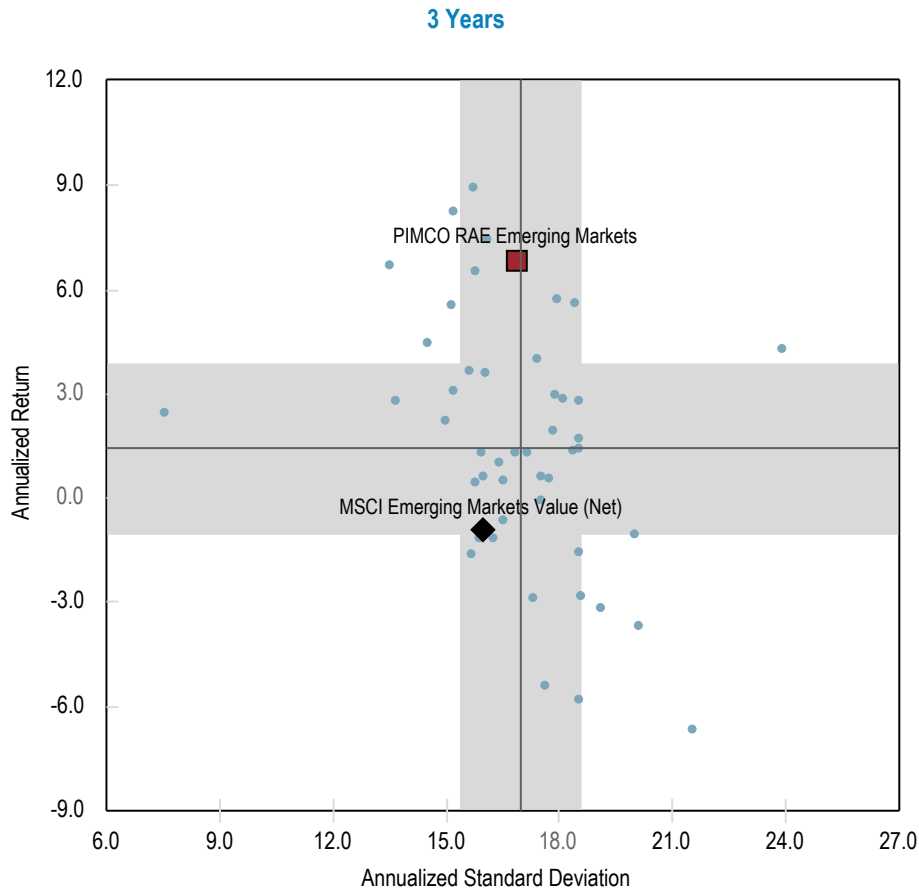
The PIMCO RAE Emerging Markets seeks to invest 80% of its assets in investments that are economically tied to emerging market countries. The portfolio is sub-advised by Research Affiliates, LLC.

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	4.47 (22)	23.30 (5)	6.81 (8)	8.41 (9)	-	23.09 (11)	-9.66 (34)	17.08 (8)	2.13 (85)	14.63 (78)
▲ MSCI Emerging Markets Value NR	1.31 (78)	11.36 (74)	-0.91 (77)	2.09 (93)	2.15 (100)	14.21 (67)	-15.83 (62)	4.00 (68)	5.48 (71)	11.96 (93)
5th Percentile	5.68	22.90	7.28	8.72	7.68	24.78	-1.44	20.40	23.96	27.36
1st Quartile	4.43	16.85	3.77	6.78	5.70	20.53	-7.67	9.02	17.81	22.69
Median	3.27	13.51	1.43	5.27	4.89	15.78	-14.26	4.86	8.90	18.43
3rd Quartile	1.52	11.14	-0.72	4.04	4.28	13.03	-16.88	3.26	4.47	14.93
95th Percentile	-2.91	0.93	-4.80	1.94	2.91	9.79	-24.26	-5.01	-3.71	8.58
Population	50	50	48	43	29	52	57	56	58	59





3 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
PIMCO RAE Emerging Markets	6.8	16.9	0.3
MSCI Emerging Markets Value (Net)	-0.9	16.0	-0.1
eV Emg Mkts All Cap Value Equity Median	1.4	17.0	0.0
Population	48	48	48

5 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
PIMCO RAE Emerging Markets	8.4	20.5	0.4
MSCI Emerging Markets Value (Net)	2.1	18.5	0.1
eV Emg Mkts All Cap Value Equity Median	5.3	19.7	0.3
Population	43	43	43

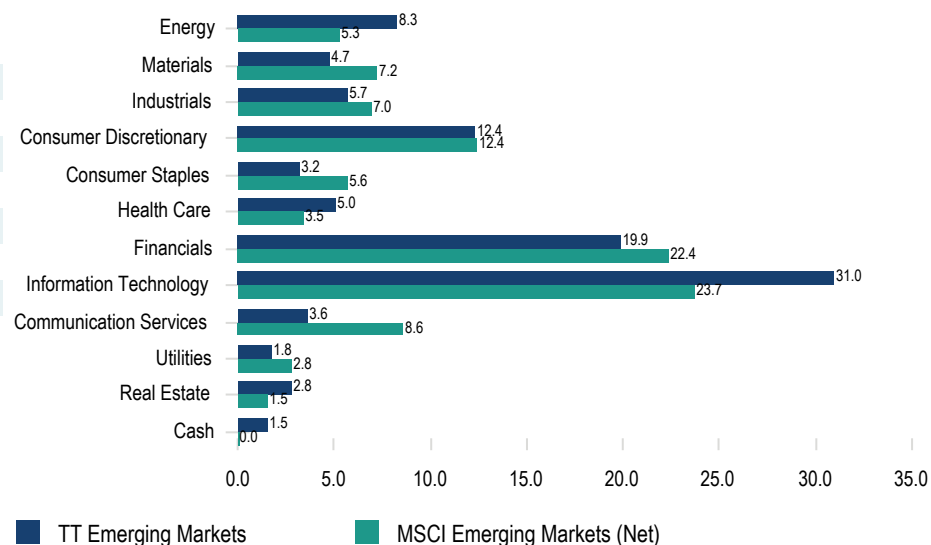
TT Emerging Markets Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	61	1,376
Wtd. Avg. Mkt. Cap \$M	140,478.87	121,493.60
Median Mkt. Cap \$M	11,709.19	7,229.11
Price/Earnings ratio	14.31	14.82
Price/Book ratio	2.82	2.59
Return on Equity (%)	3.84	3.59
Current Yield (%)	2.00	2.86
Beta (5 Years, Monthly)	1.15	1.00

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



Largest Holdings

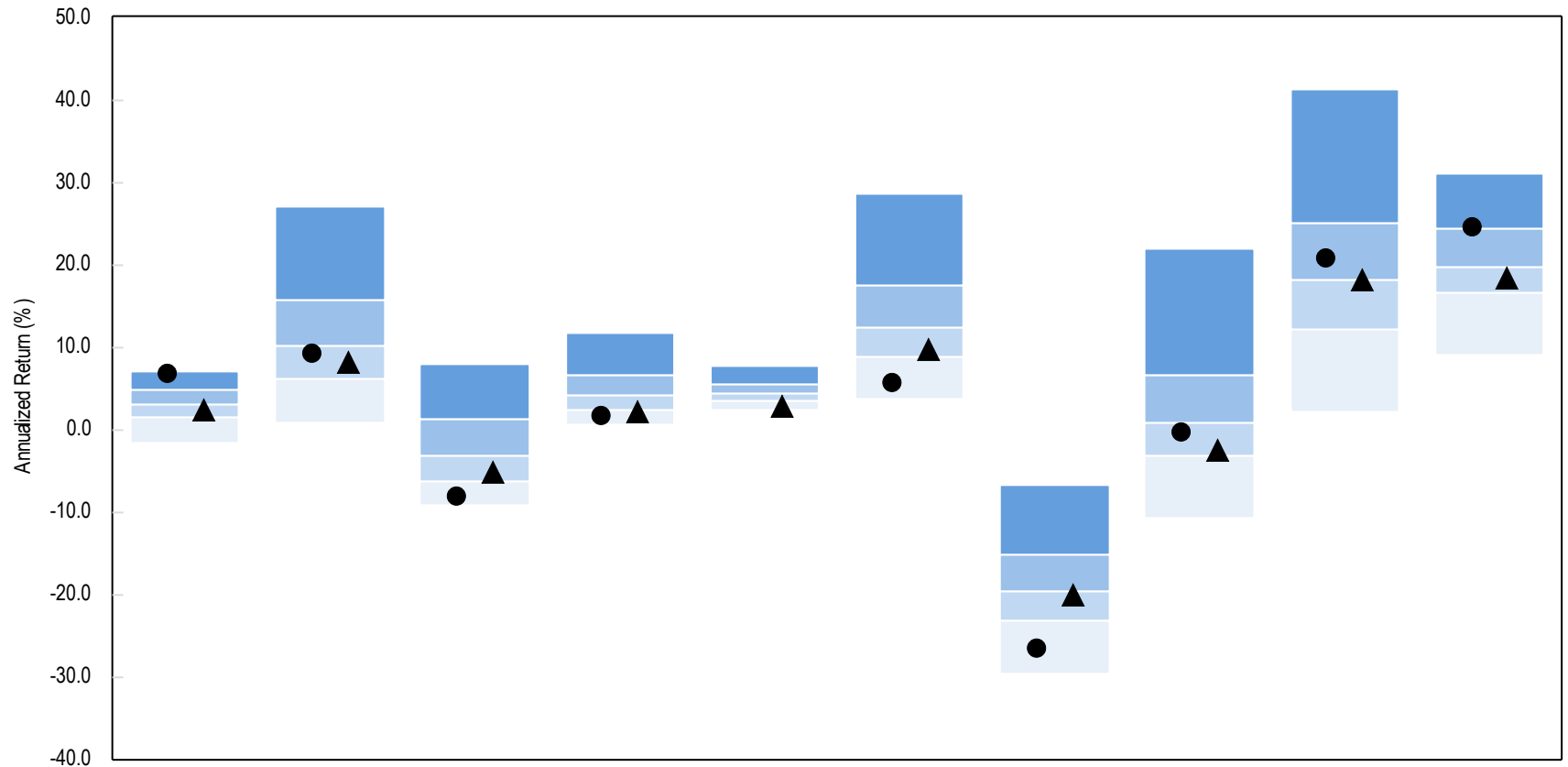
Top Contributors

Top Detractors

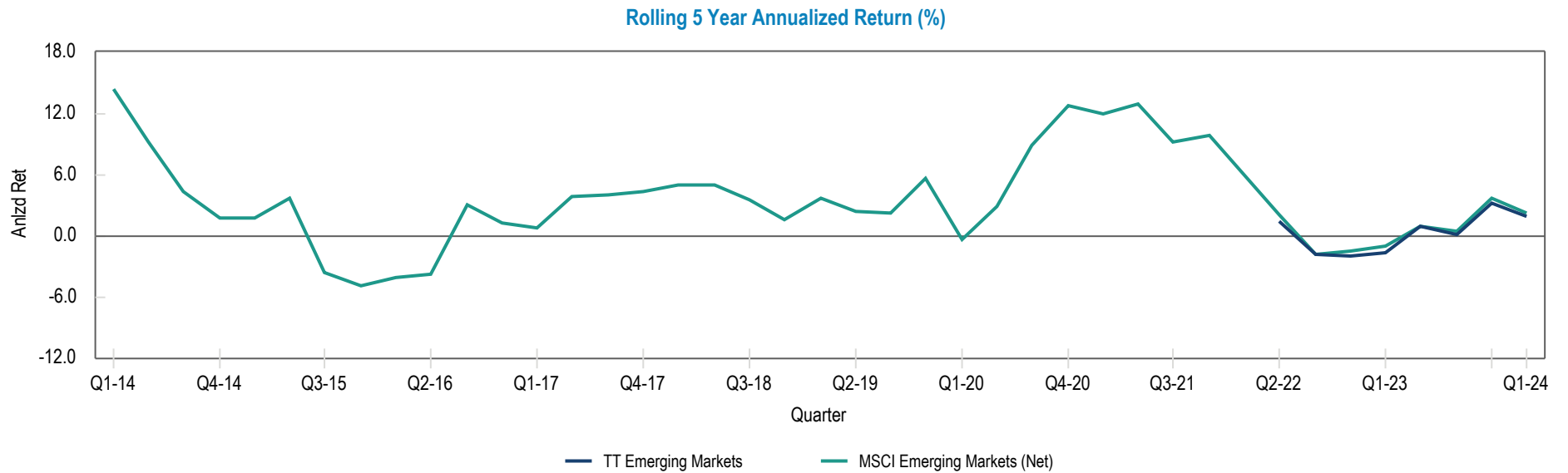
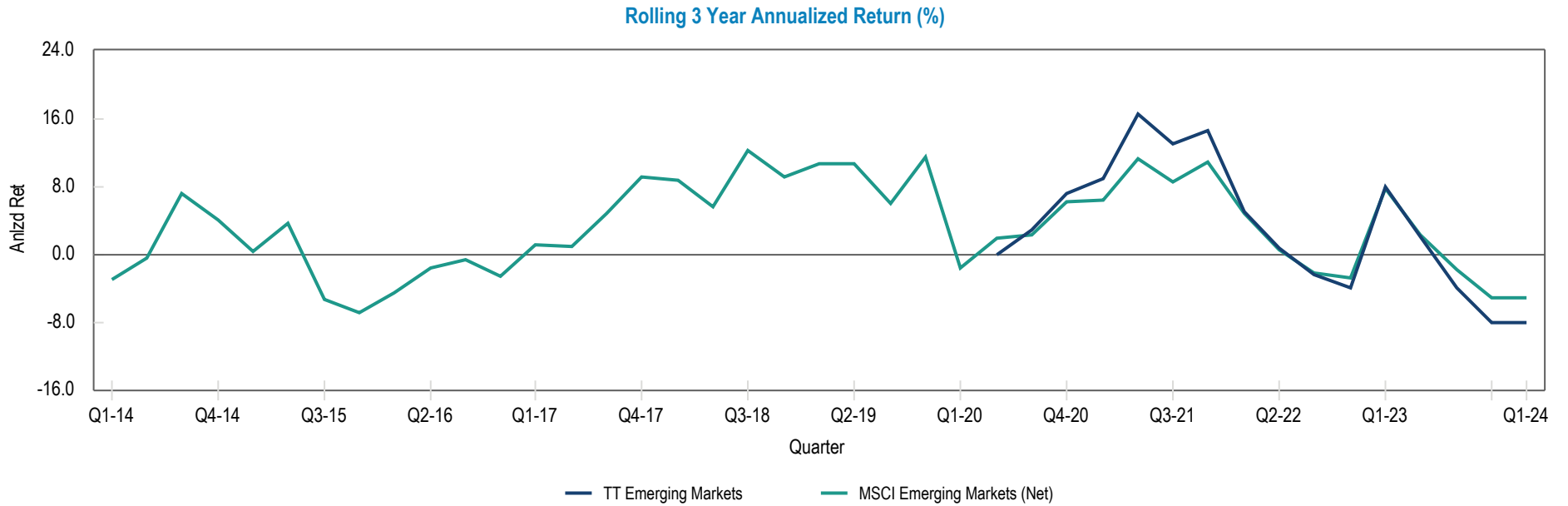
	End Weight (%)	Quarterly Return (%)		Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)		Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Taiwan Semiconductor Man.	11.26	26.55	Taiwan Semiconductor Man.	9.44	26.55	2.51	Vamos Locacao	1.87	-19.53	-0.37
Samsung Electronics Co Ltd	4.01	4.42	Nova Ljubljanska Banka d.d	2.70	25.95	0.70	Hapvida Participacoes	1.86	-19.31	-0.36
Axis Bank Ltd	3.84	-5.21	Vista Energy SAB de CV	1.56	37.79	0.59	WuXi Biologics (Cayman) Inc	0.64	-51.80	-0.33
Grupo Financiero Banorte	3.61	5.23	Ypf Sociedad Anonima	2.35	23.41	0.55	Equatorial Energia SA	2.12	-11.57	-0.25
Samsung Electronics Co Ltd	3.57	0.42	SK Hynix Inc	2.22	23.72	0.53	Axis Bank Ltd	4.28	-5.21	-0.22
Nova Ljubljanska Banka d.d	3.23	25.95	AngloGold Ashanti plc	1.98	19.80	0.39	Banco Bradesco S A	0.98	-18.72	-0.18
Icici Bank Ltd	3.03	9.45	PT Bank Mandiri TBK	1.64	22.21	0.36	PVR INOX Limited	0.90	-20.24	-0.18
Emaar Properties	2.81	3.17	KLA Corp	1.75	20.44	0.36	Hansol Chemience Co Ltd	1.40	-12.91	-0.18
Ypf Sociedad Anonima	2.74	23.41	Reliance Industries Ltd	2.24	14.70	0.33	ANJOY FOODS	0.77	-22.47	-0.17
SK Hynix Inc	2.60	23.72	Qifu Technology Inc	1.72	16.50	0.28	Localiza Rent A Car SA	0.99	-16.57	-0.16
			% of Portfolio	27.60		6.60	% of Portfolio	15.81		-2.41

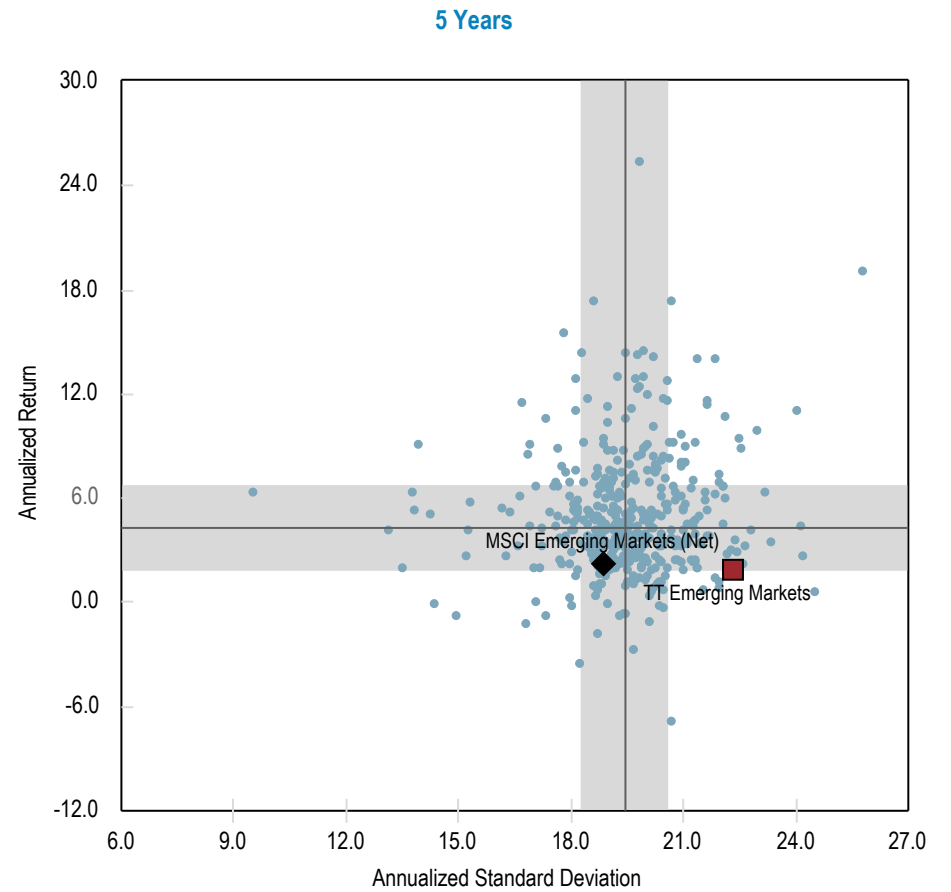
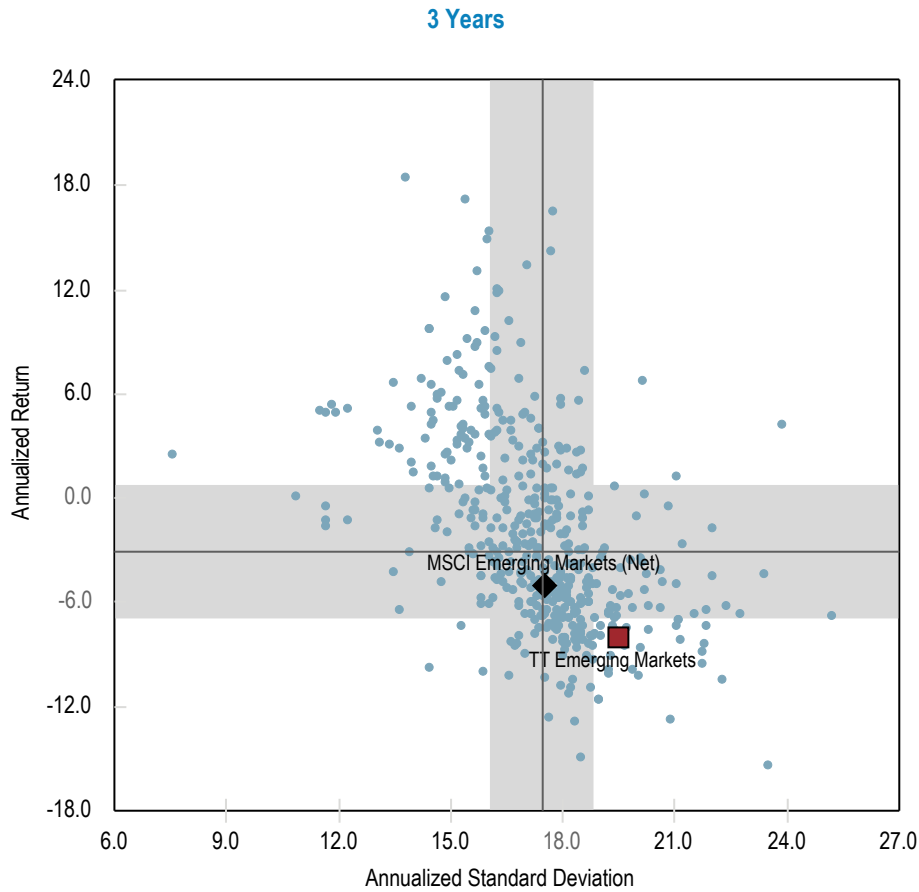
The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded 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	6.85 (7)	9.42 (55)	-7.96 (90)	1.88 (88)	-	5.80 (91)	-26.36 (90)	-0.23 (58)	20.79 (39)	24.77 (24)
▲ MSCI Emerging Markets	2.37 (59)	8.15 (64)	-5.05 (65)	2.22 (81)	2.95 (88)	9.83 (66)	-20.09 (56)	-2.54 (72)	18.31 (51)	18.42 (62)
5th Percentile	7.09	27.09	7.98	11.73	7.85	28.74	-6.66	22.04	41.37	31.07
1st Quartile	4.82	15.68	1.38	6.56	5.55	17.52	-15.03	6.76	25.14	24.36
Median	3.03	10.15	-3.14	4.27	4.55	12.46	-19.54	1.00	18.33	19.71
3rd Quartile	1.58	6.30	-6.15	2.53	3.64	8.93	-23.03	-3.09	12.30	16.58
95th Percentile	-1.45	0.86	-9.04	0.67	2.48	3.74	-29.64	-10.71	2.12	9.14
Population	512	512	479	430	303	532	569	580	579	601





3 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
TT Emerging Markets	-8.0	19.5	-0.5
MSCI Emerging Markets (Net)	-5.1	17.5	-0.4
eV Emg Mkts Equity Median	-3.1	17.4	-0.3
Population	479	479	479

5 Years

	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
TT Emerging Markets	1.9	22.3	0.1
MSCI Emerging Markets (Net)	2.2	18.9	0.1
eV Emg Mkts Equity Median	4.3	19.4	0.2
Population	430	430	430

Global Equity Managers

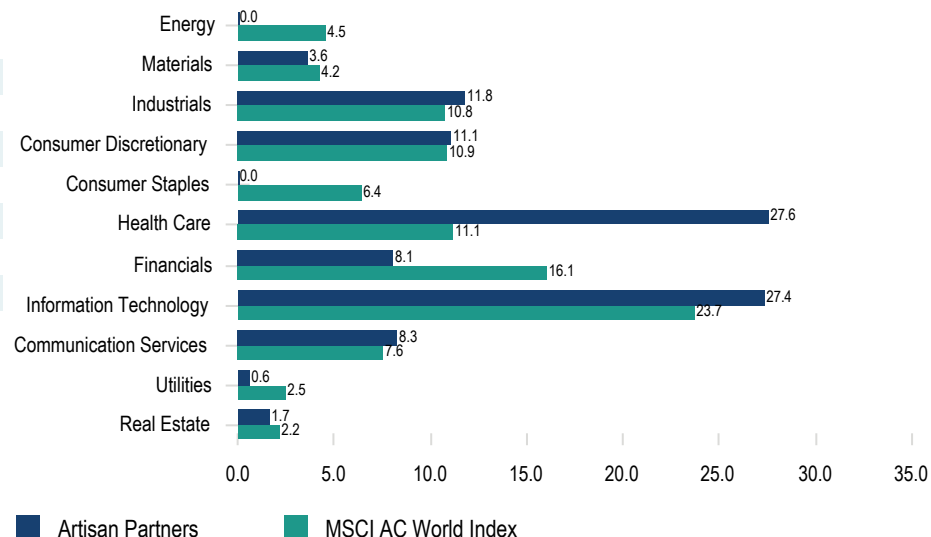
Artisan Partners Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	43	2,841
Wtd. Avg. Mkt. Cap \$M	353,414.16	517,391.04
Median Mkt. Cap \$M	81,677.14	13,737.40
Price/Earnings ratio	45.68	21.17
Price/Book ratio	6.41	3.75
Return on Equity (%)	4.86	8.76
Current Yield (%)	0.51	1.98
Beta (5 Years, Monthly)	0.98	1.00

Sector Allocation (%) vs. MSCI AC World Index



Largest Holdings

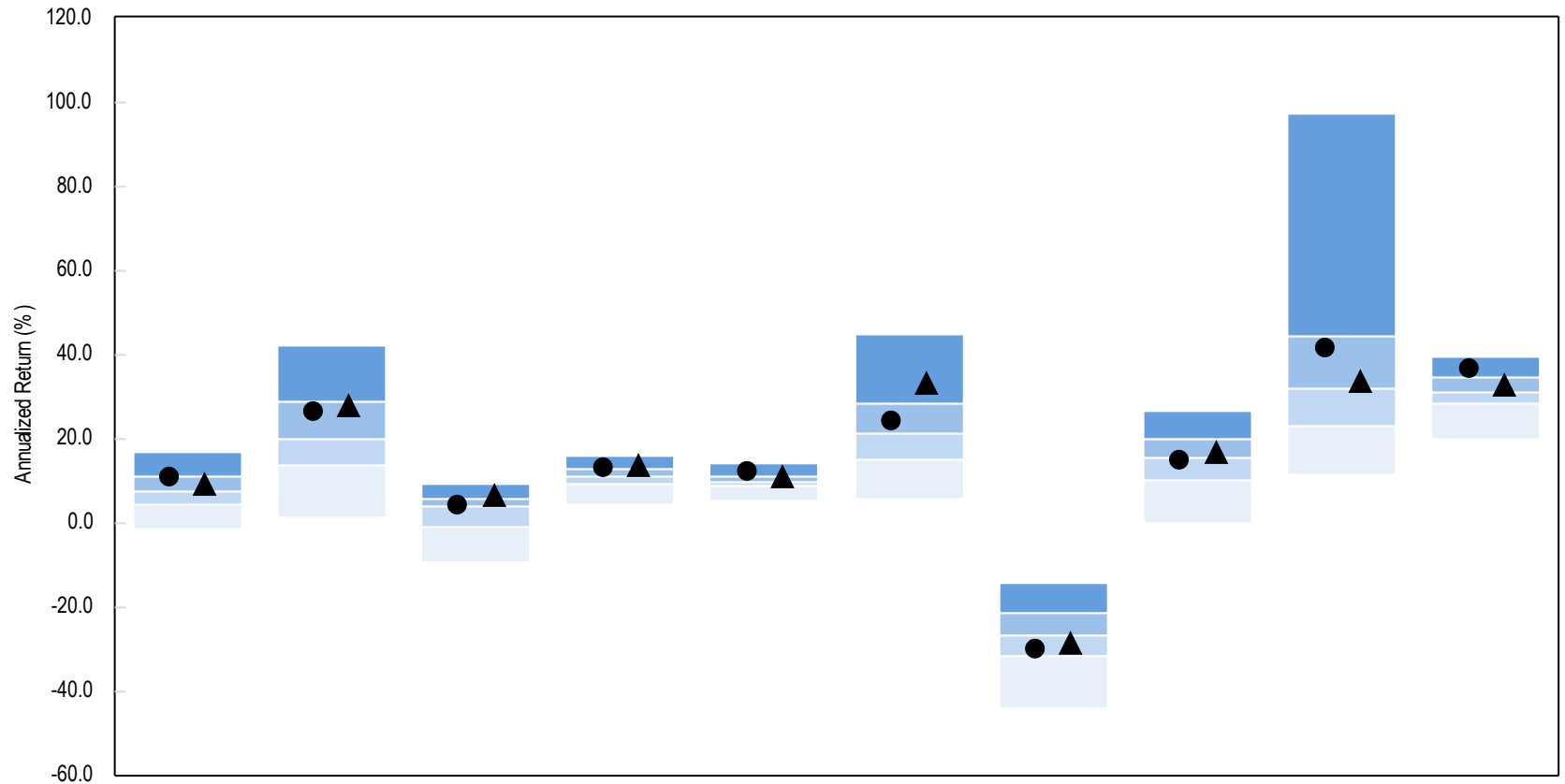
Top Contributors

Top Detractors

	End Weight (%)	Quarterly Return (%)		Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)		Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Novo Nordisk A/S	6.03	24.24	Advanced Micro Devices Inc	6.52	22.44	1.46	Atlassian Corp	4.34	-17.97	-0.78
Advanced Micro Devices Inc	5.31	22.44	Novo Nordisk A/S	5.30	24.24	1.29	Lululemon Athletica Inc	1.26	-23.59	-0.30
Boston Scientific Corp	5.09	18.47	Boston Scientific Corp	4.79	18.47	0.88	Vestas Wind Systems A/S	1.89	-12.00	-0.23
Netflix Inc	4.02	24.74	Netflix Inc	3.48	24.74	0.86	ON Semiconductor Corp	1.73	-11.95	-0.21
Techtronic Industries Co Ltd	3.94	13.76	Chipotle Mexican Grill Inc	3.13	27.10	0.85	S&P Global Inc	2.83	-3.22	-0.09
Intuit Inc.	3.80	4.15	Veeva Systems Inc	3.79	20.35	0.77	Hexagon AB	1.88	-1.27	-0.02
Chipotle Mexican Grill Inc	3.69	27.10	LONZA GROUP AG	1.73	42.72	0.74	Hoya Corp	1.86	-0.96	-0.02
Amazon.com Inc	3.38	18.72	Nu Holdings Ltd	1.28	43.22	0.55	Shopify Inc	1.36	-0.94	-0.01
Taiwan Semiconductor Man.	3.37	31.35	Techtronic Industries Co Ltd	3.95	13.76	0.54	UBS Group AG	1.83	-0.68	-0.01
Veeva Systems Inc	3.36	20.35	Taiwan Semiconductor Man.	1.69	31.35	0.53	ABB Ltd	0.43	7.13	0.03
			% of Portfolio	35.66		8.48	% of Portfolio	19.41		-1.64

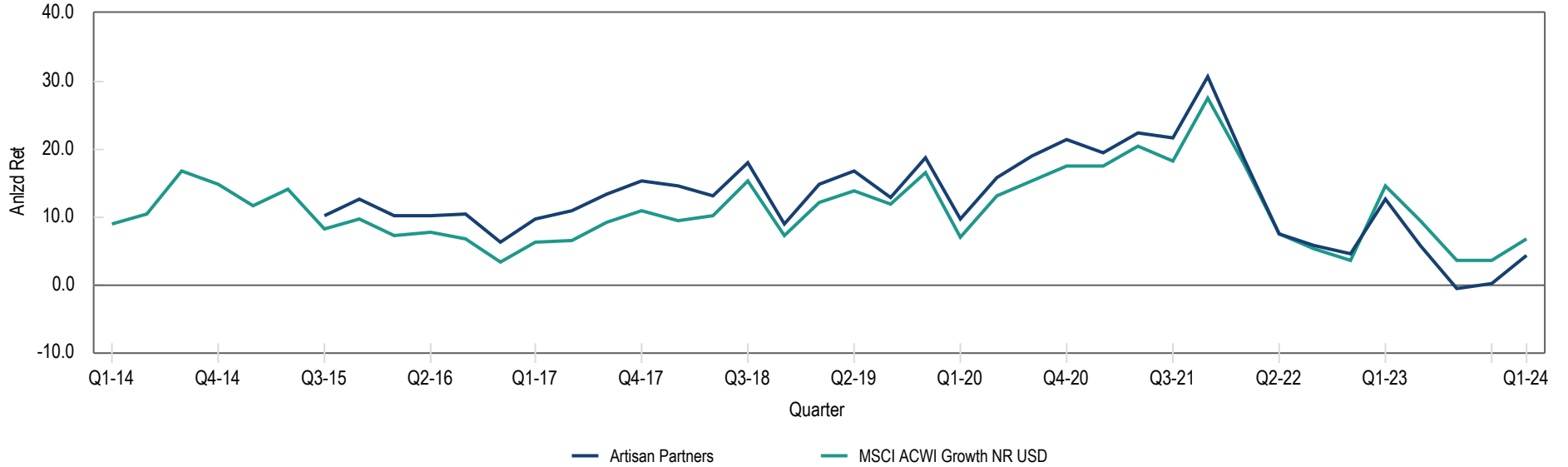
Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craigh Cepukenas, and Matthew Kamm.

Artisan Partners vs. eV Global Growth Equity Gross Universe

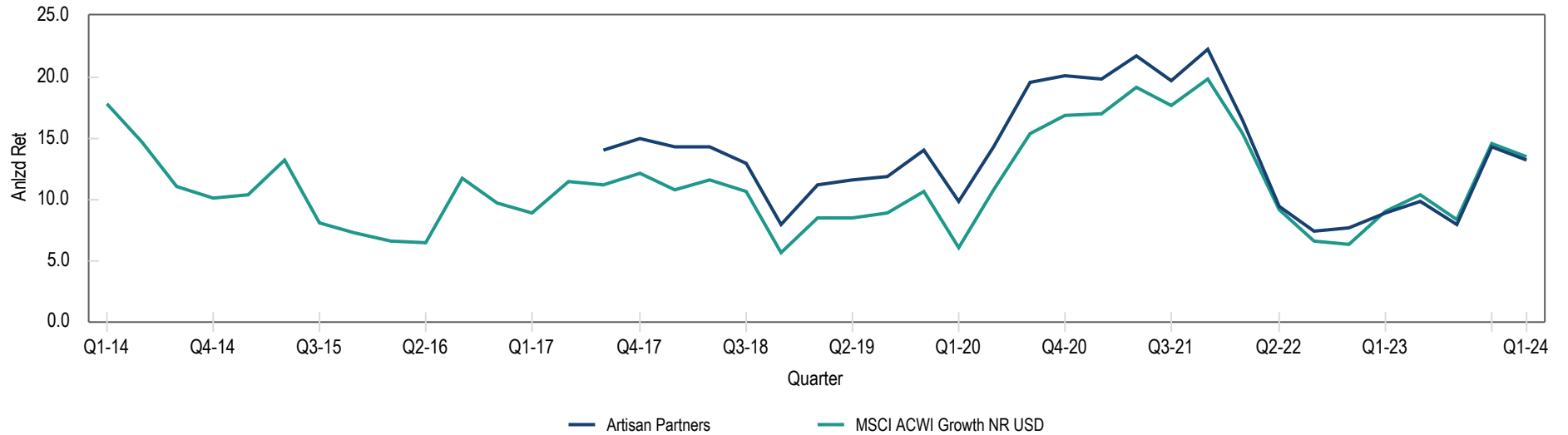


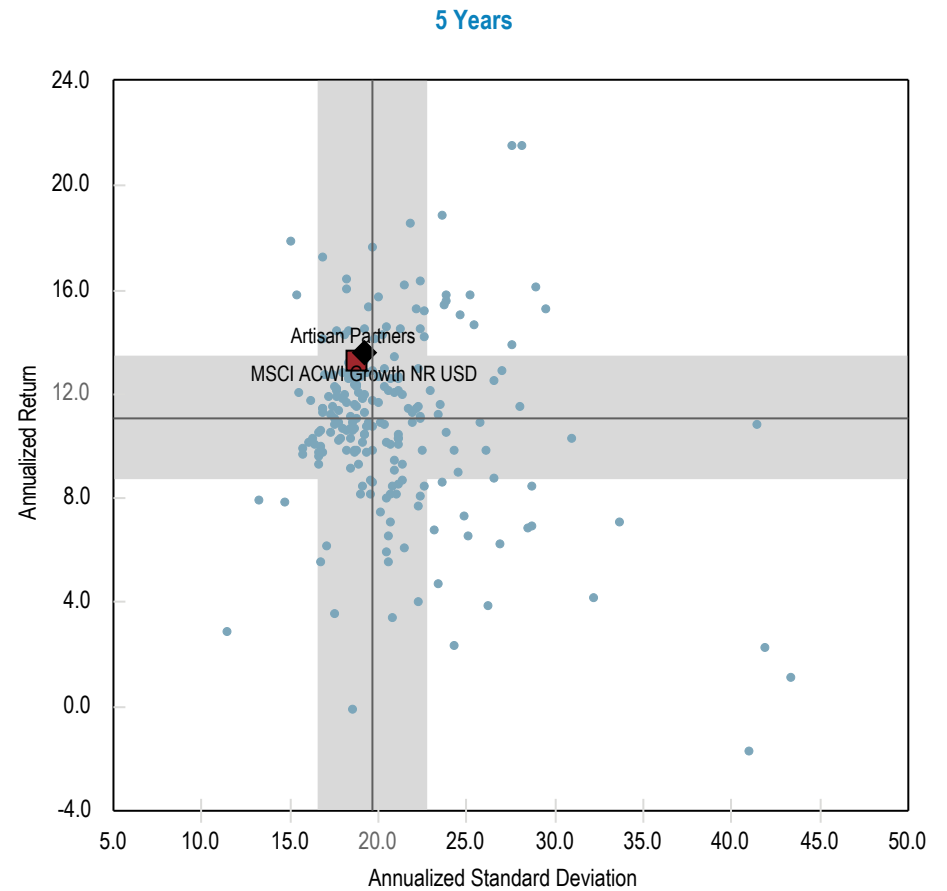
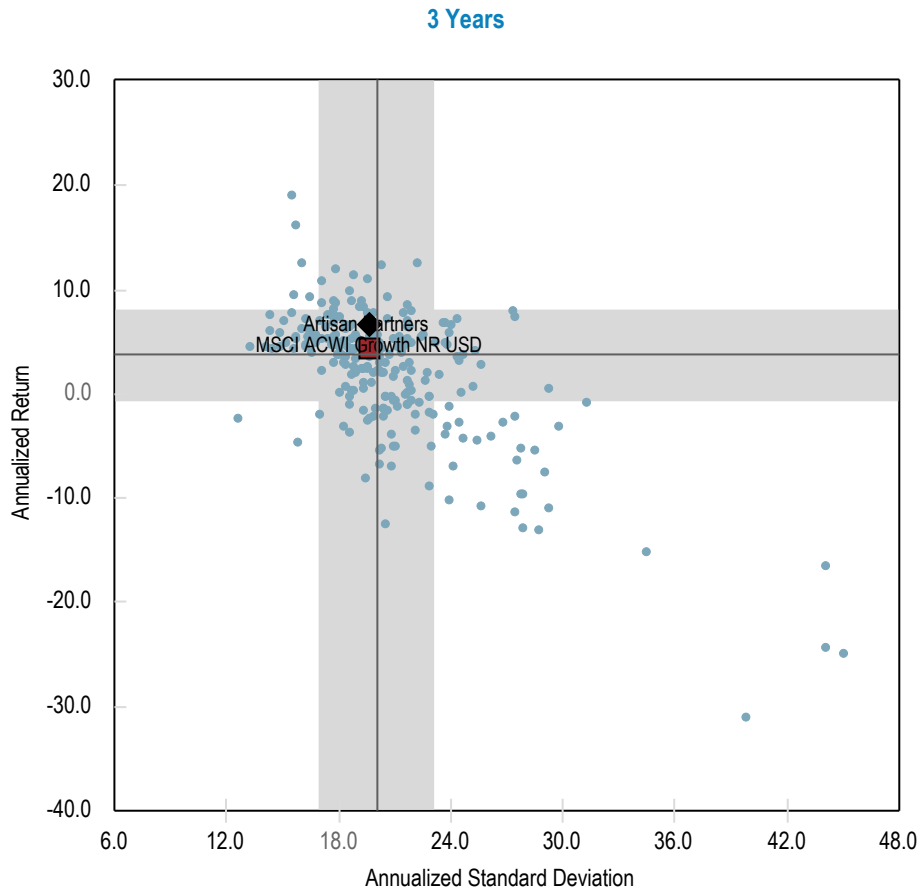
	Quarter	1 Year	3 Years	5 Years	10 Years	2023	2022	2021	2020	2019
● Artisan Partners	11.09 (27)	26.67 (28)	4.41 (43)	13.26 (19)	12.26 (19)	24.54 (37)	-29.59 (62)	14.99 (57)	41.66 (32)	37.00 (12)
▲ MSCI ACWI Growth NR USD	9.50 (34)	28.21 (26)	6.74 (19)	13.57 (18)	11.02 (32)	33.22 (16)	-28.61 (58)	17.10 (44)	33.60 (48)	32.72 (37)
5th Percentile	16.96	42.32	9.19	16.08	14.20	44.96	-14.18	26.63	97.21	39.53
1st Quartile	11.26	28.77	5.74	12.73	11.27	28.35	-21.51	19.99	44.60	34.66
Median	7.65	20.15	3.78	11.08	9.78	21.39	-26.75	15.72	31.81	31.27
3rd Quartile	4.64	13.64	-0.72	9.53	8.74	15.31	-31.76	10.09	23.12	28.38
95th Percentile	-1.32	1.13	-9.55	4.45	5.55	5.92	-43.97	0.21	11.36	20.06
Population	271	268	246	211	121	284	293	280	265	246

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Artisan Partners	4.4	19.6	0.2
MSCI ACWI Growth NR USD	6.7	19.6	0.3
eV Global Growth Equity Median	3.8	20.0	0.2
Population	246	246	246

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Artisan Partners	13.3	18.8	0.7
MSCI ACWI Growth NR USD	13.6	19.3	0.7
eV Global Growth Equity Median	11.1	19.7	0.5
Population	211	211	211

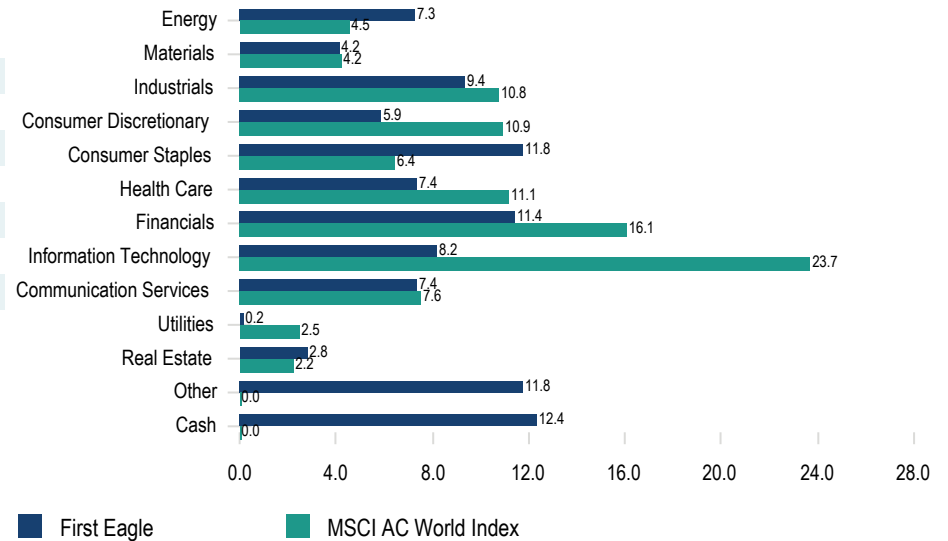
First Eagle Manager Portfolio Overview

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

Characteristics

	Portfolio	Benchmark
Number of Stocks	123	2,841
Wtd. Avg. Mkt. Cap \$M	161,195.69	517,391.04
Median Mkt. Cap \$M	28,807.48	13,737.40
Price/Earnings ratio	17.68	21.17
Price/Book ratio	2.51	3.75
Return on Equity (%)	3.86	8.76
Current Yield (%)	2.13	1.98
Beta (5 Years, Monthly)	0.75	1.00

Sector Allocation (%) vs. MSCI AC World Index



Largest Holdings

	End Weight (%)	Quarterly Return (%)
SPDR Gold Trust	11.77	7.61
Oracle Corp	2.53	19.60
Meta Platforms Inc	2.47	37.33
Exxon Mobil Corp	2.16	17.35
Schlumberger Ltd	2.13	5.93
HCA Healthcare Inc	1.90	23.47
Comcast Corp	1.81	-0.48
Alphabet Inc	1.64	8.04
Willis Towers Watson plc	1.50	14.38
Imperial Oil Ltd	1.44	21.45

Top Contributors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Meta Platforms Inc	3.21	37.33	1.20
SPDR Gold Trust	13.07	7.61	0.99
Oracle Corp	3.22	19.60	0.63
HCA Healthcare Inc	1.84	23.47	0.43
MS&AD Insurance Group	1.00	38.65	0.39
Exxon Mobil Corp	2.22	17.35	0.39
Taiwan Semiconductor Man.	1.10	31.35	0.34
Imperial Oil Ltd	1.43	21.45	0.31
Sompo Holdings Inc	0.83	31.32	0.26
Willis Towers Watson plc	1.58	14.38	0.23

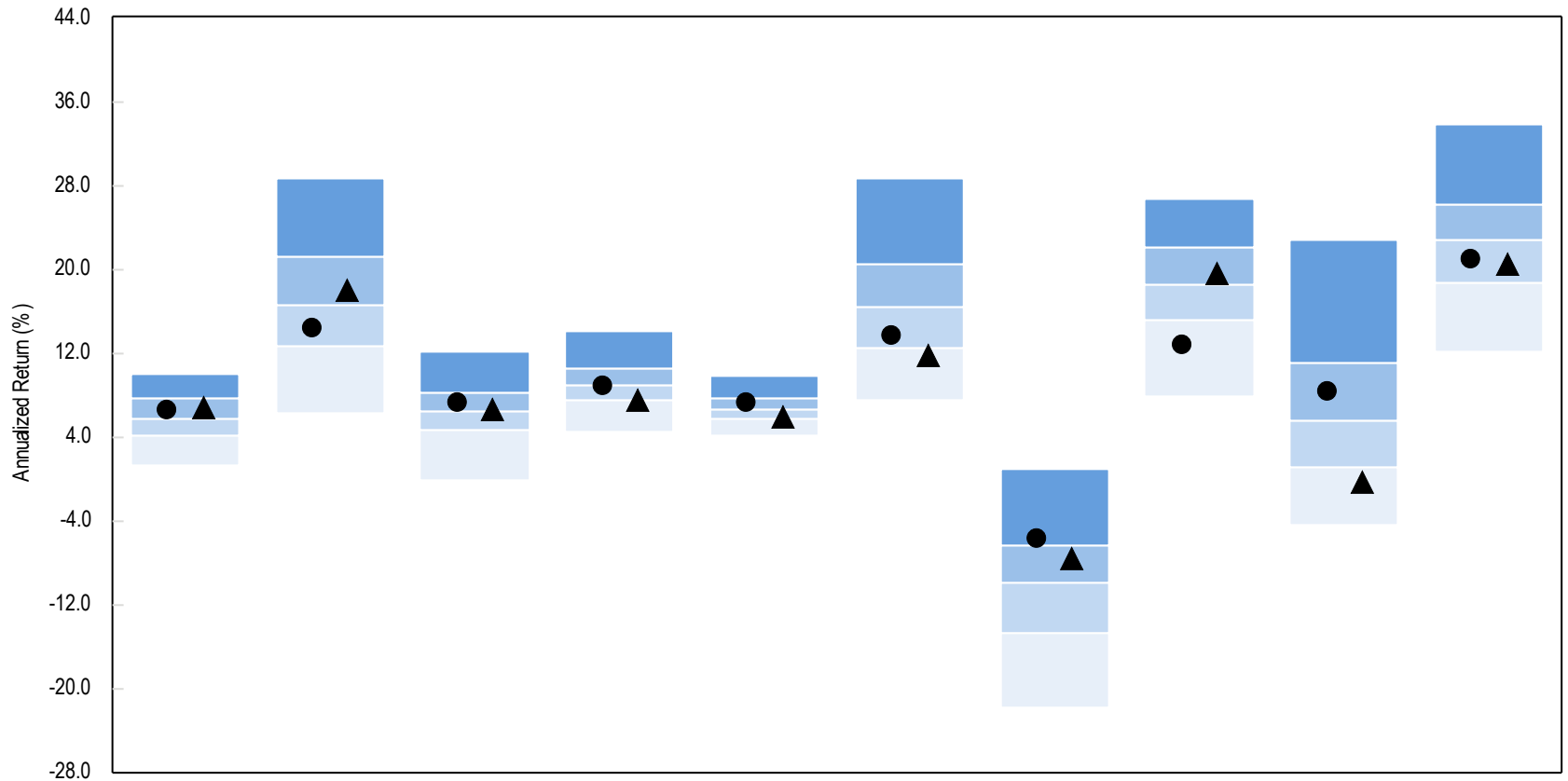
Top Detractors

	Portfolio Weight (%)	Quarterly Return (%)	Contribution to Return (%)
Reckitt Benckiser Group PLC	0.87	-17.51	-0.15
C.H. Robinson Worldwide Inc.	1.33	-11.14	-0.15
IPG Photonics Corp	0.74	-16.45	-0.12
Newmont Corporation	0.93	-12.76	-0.12
Ambev SA	0.95	-11.43	-0.11
Nestle SA, Cham Und Vevey	0.90	-8.24	-0.07
Bangkok Bank Public Co Ltd	0.44	-16.91	-0.07
CK ASSET HOLDINGS LIMITED	0.41	-18.05	-0.07
Fanuc Corp	1.08	-5.99	-0.06
Barrick Gold Corp	0.80	-7.37	-0.06

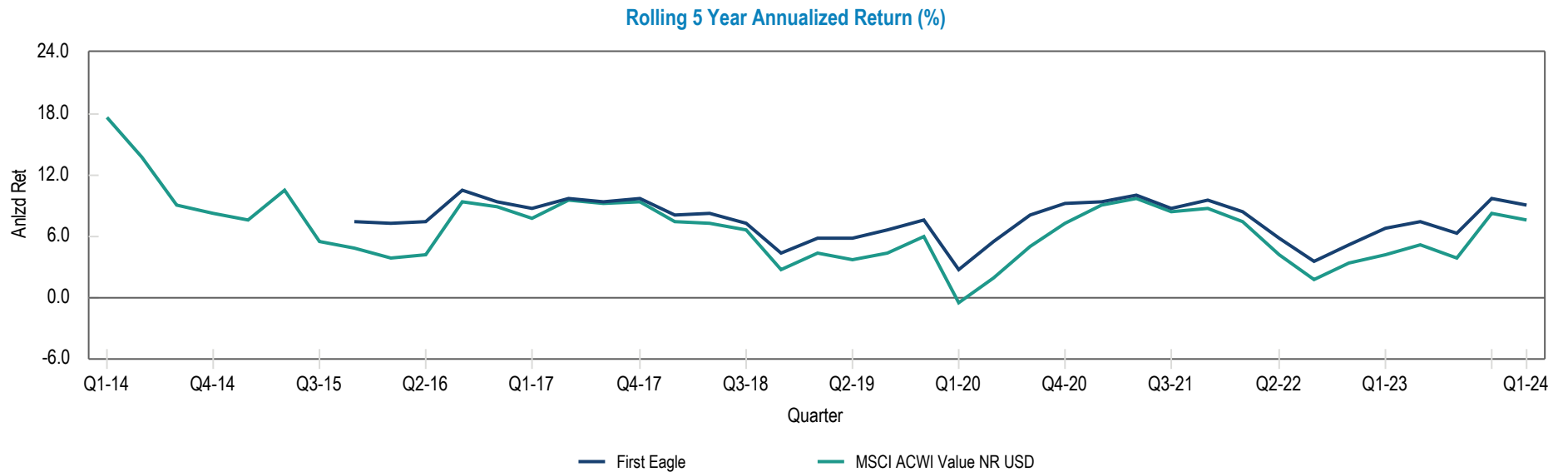
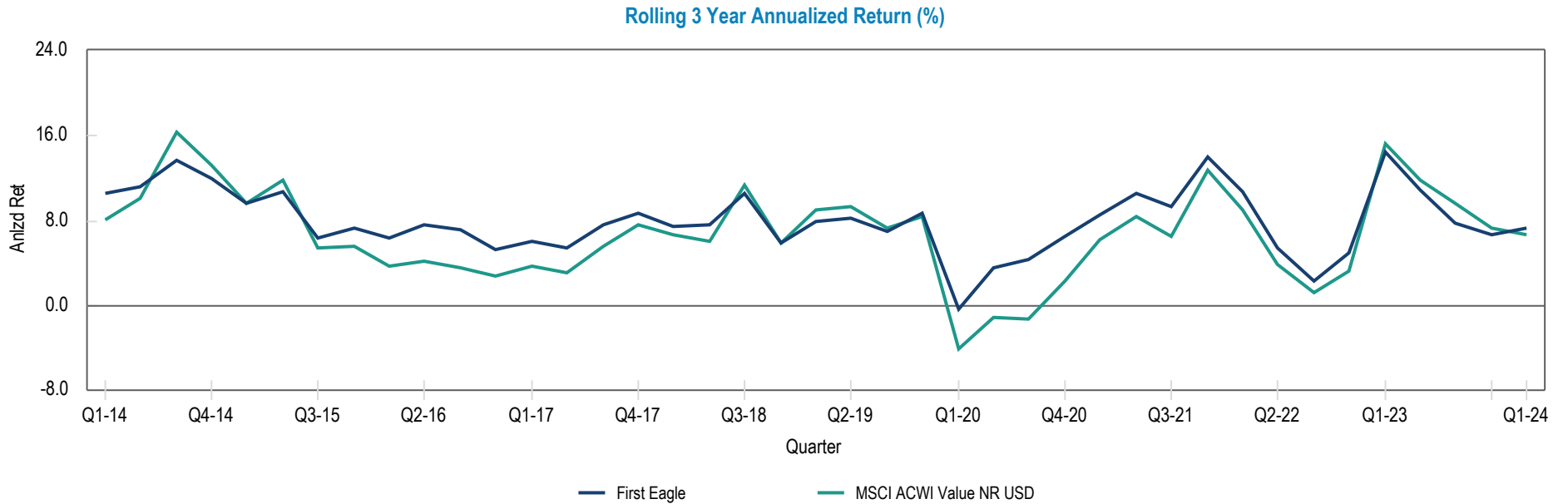
% of Portfolio 29.50 5.17 % of Portfolio 8.45 -0.99

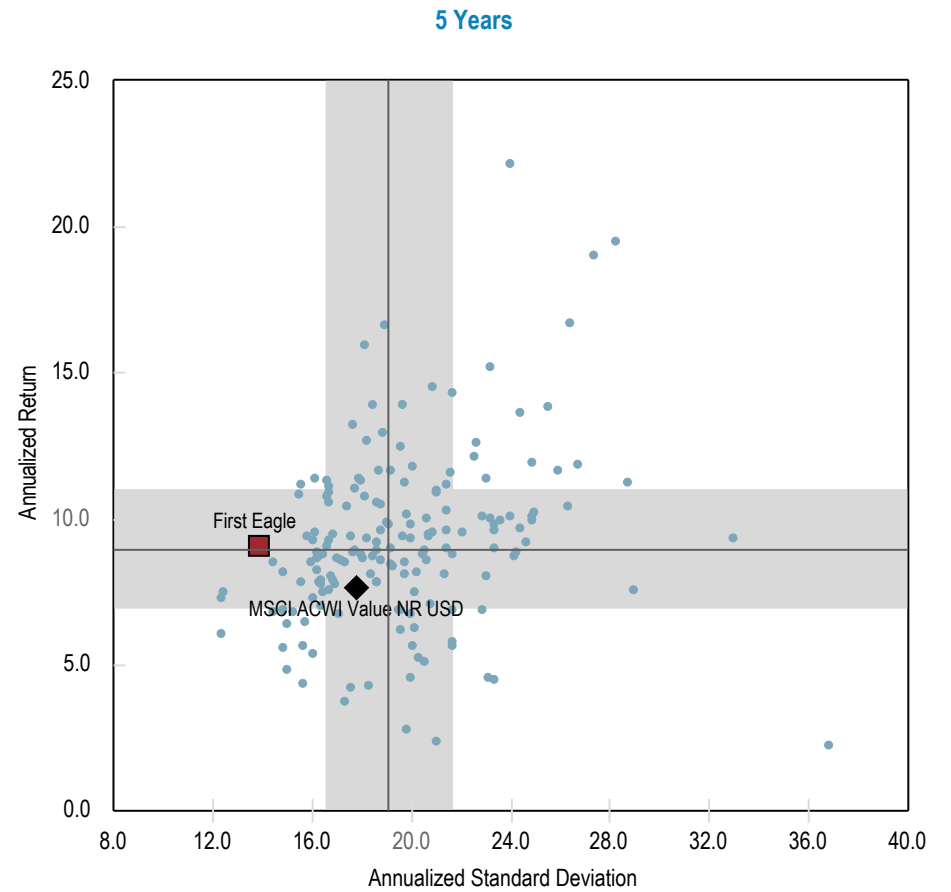
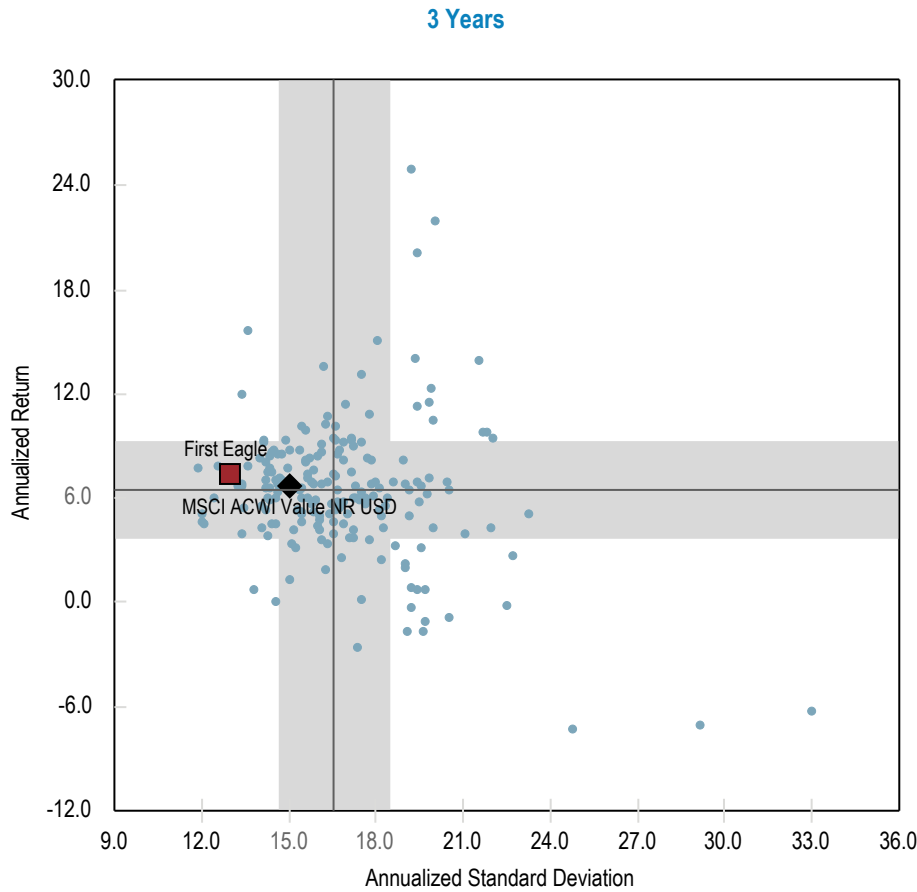
Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

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	6.60 (40)	14.57 (69)	7.35 (35)	9.06 (49)	7.40 (31)	13.75 (67)	-5.61 (21)	12.95 (86)	8.47 (33)	21.01 (64)
▲ MSCI ACWI Value NR USD	6.85 (38)	18.01 (43)	6.67 (48)	7.64 (75)	5.98 (72)	11.81 (82)	-7.55 (34)	19.62 (41)	-0.33 (81)	20.59 (66)
5th Percentile	10.12	28.69	12.13	14.13	9.78	28.63	0.97	26.74	22.92	33.93
1st Quartile	7.69	21.23	8.28	10.63	7.82	20.46	-6.26	22.19	11.14	26.20
Median	5.79	16.61	6.49	8.98	6.70	16.40	-9.81	18.62	5.66	22.80
3rd Quartile	4.12	12.75	4.63	7.60	5.84	12.59	-14.62	15.29	1.08	18.81
95th Percentile	1.28	6.24	-0.05	4.58	4.26	7.52	-21.84	7.94	-4.39	12.15
Population	212	210	194	172	128	219	225	228	235	231





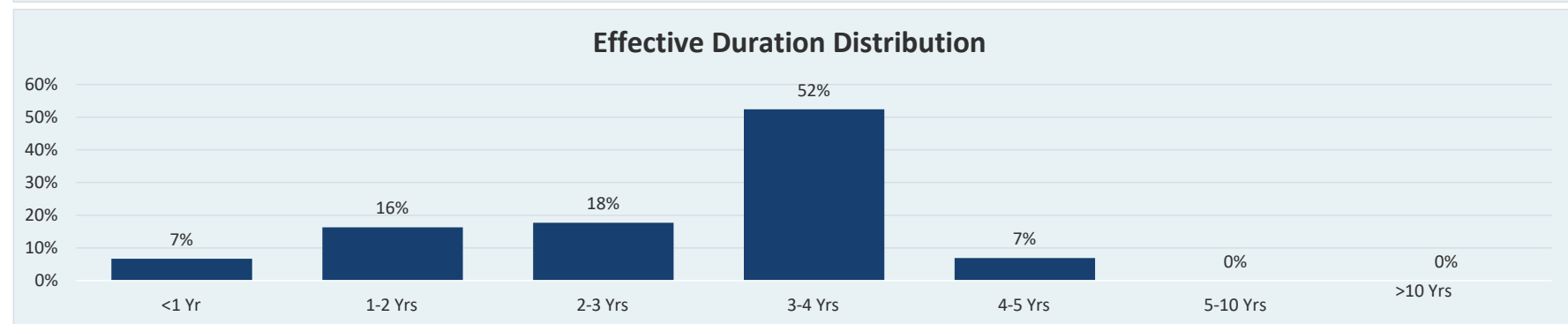
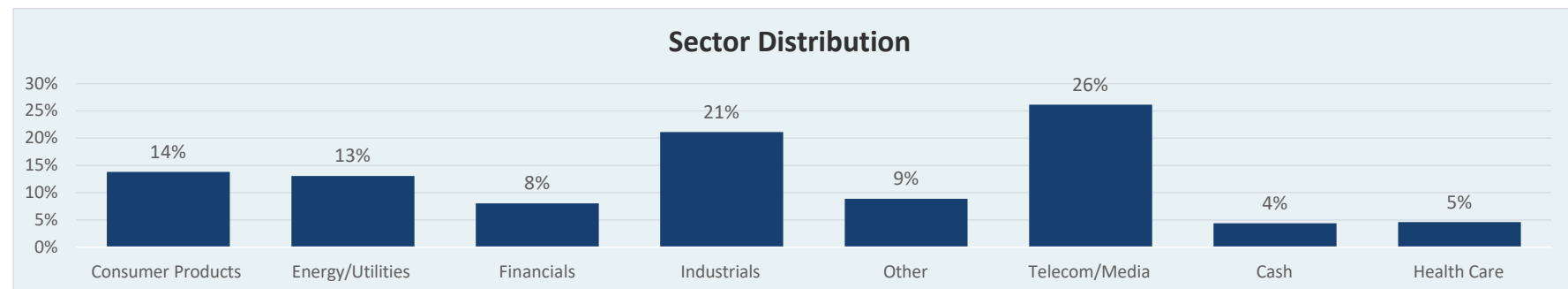
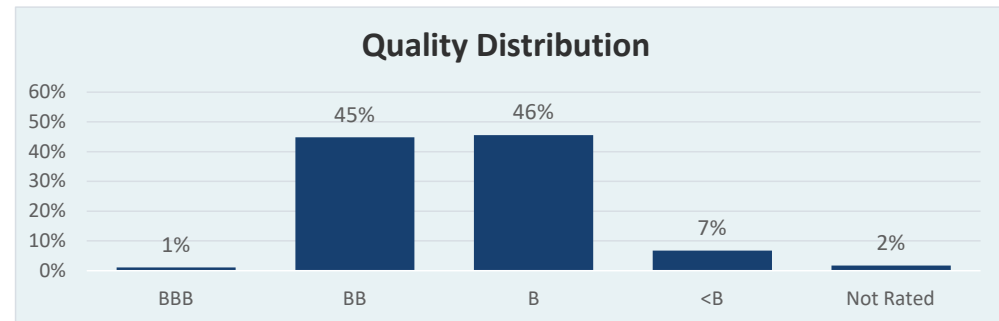
	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
First Eagle	7.4	12.9	0.4
MSCI ACWI Value NR USD	6.7	15.0	0.3
eV Global Value Equity Median	6.5	16.6	0.3
Population	194	194	194

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
First Eagle	9.1	13.9	0.6
MSCI ACWI Value NR USD	7.6	17.7	0.4
eV Global Value Equity Median	9.0	19.1	0.4
Population	172	172	172

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.

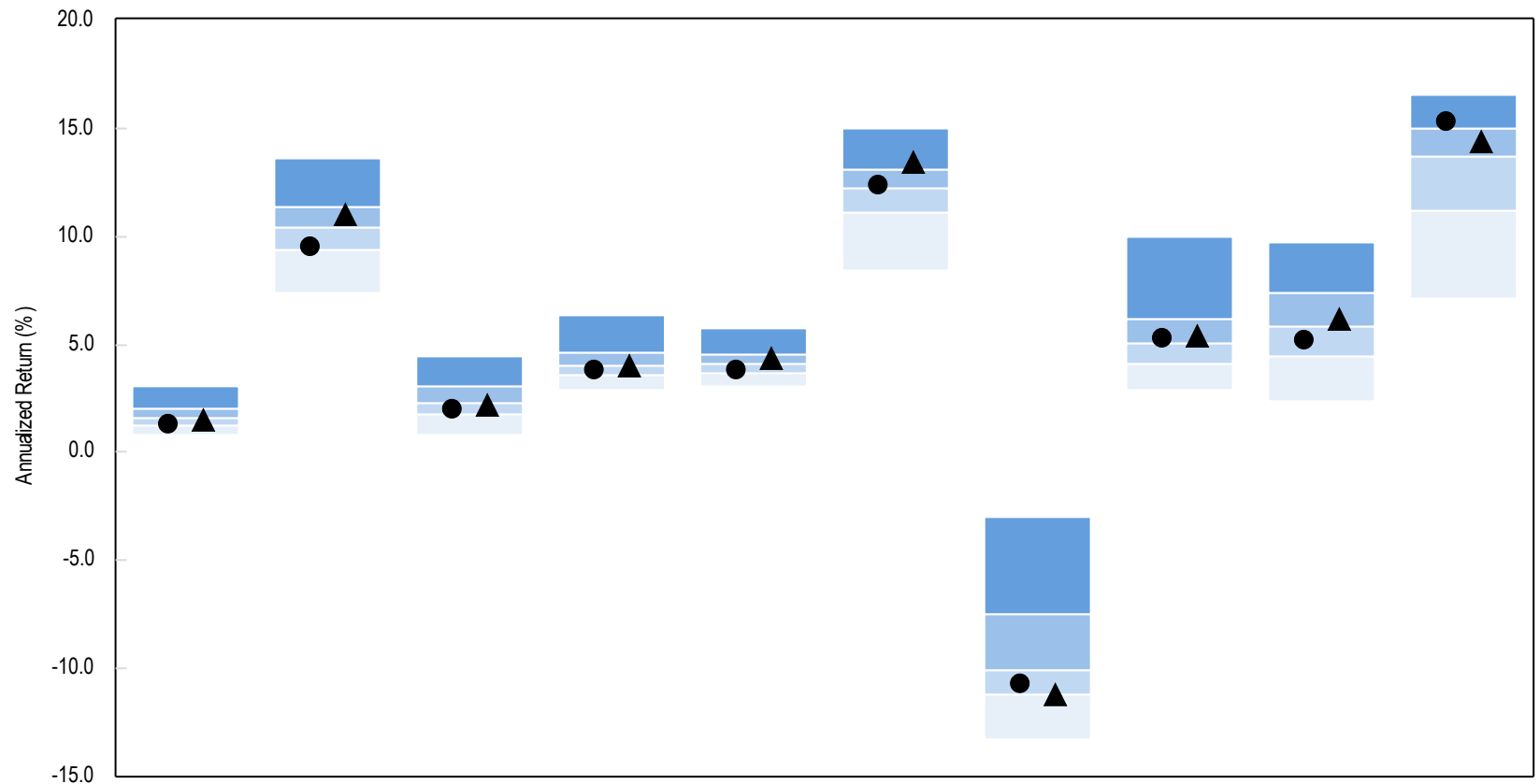
	Allianz	ICE BofAML HY Master II
Effective Duration	3.10	3.30
Yield to Maturity	0.05	0.05
Average Quality	B1	BB3
Average Coupon	6.7%	6.0%



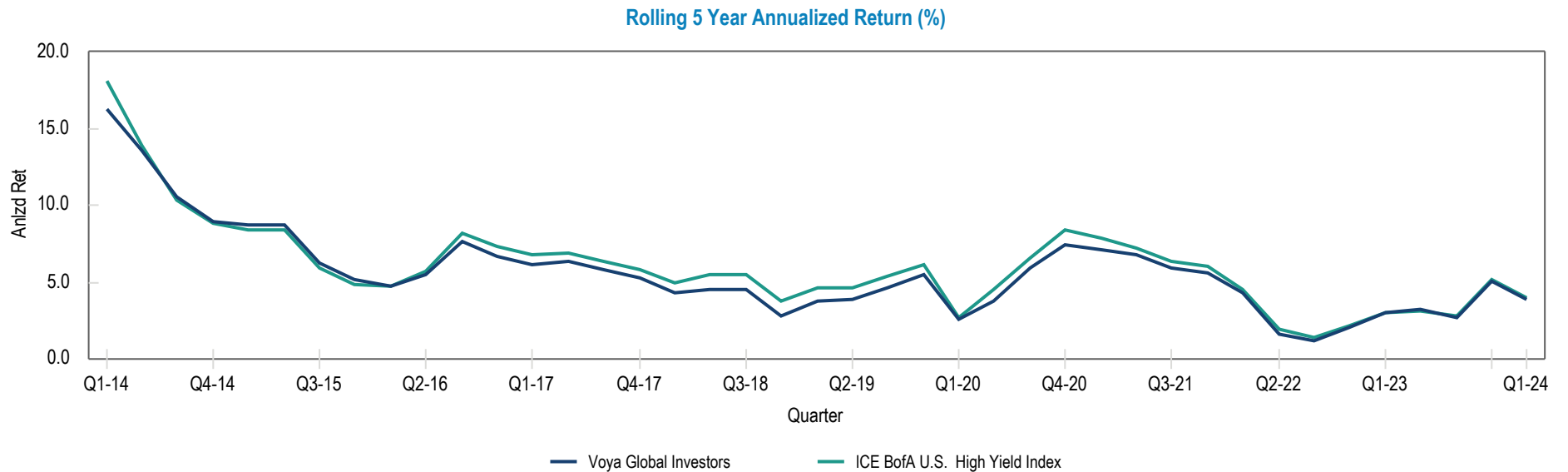
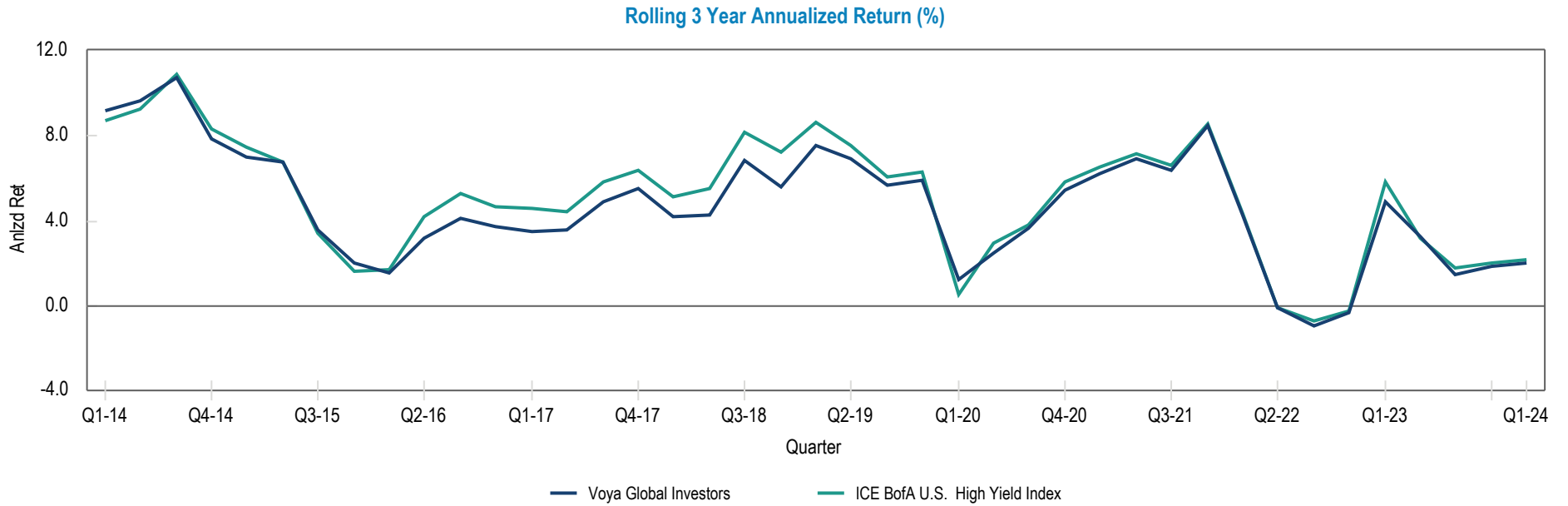
Quality distributions exclude cash.

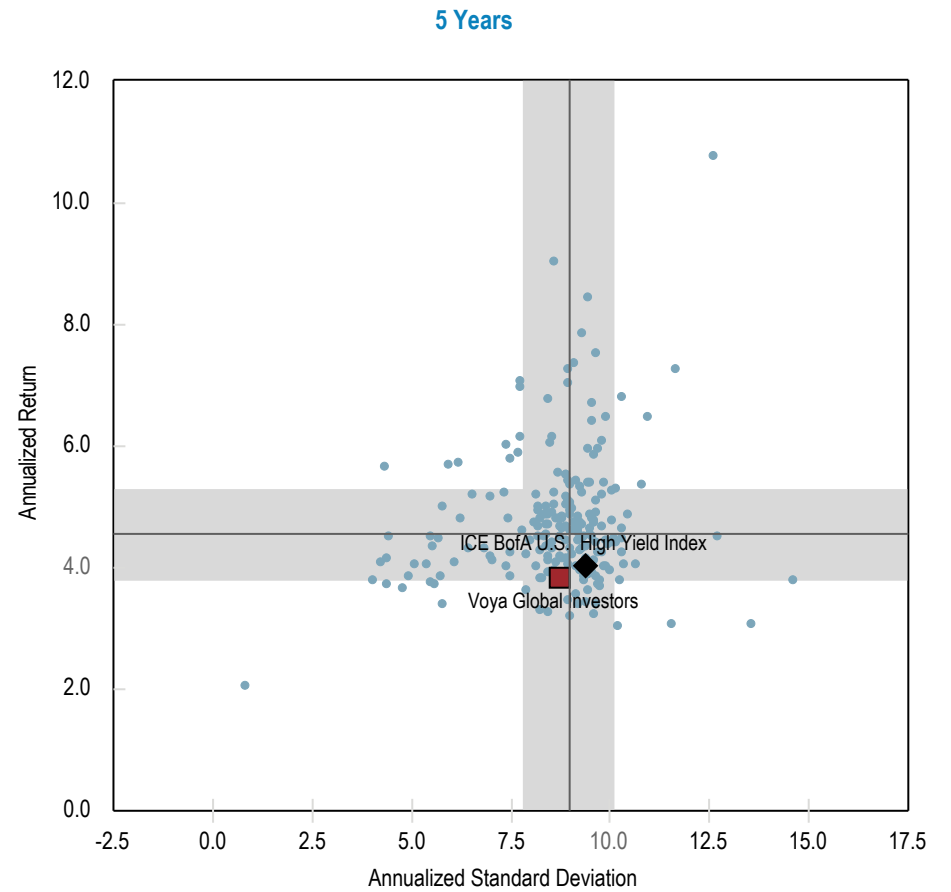
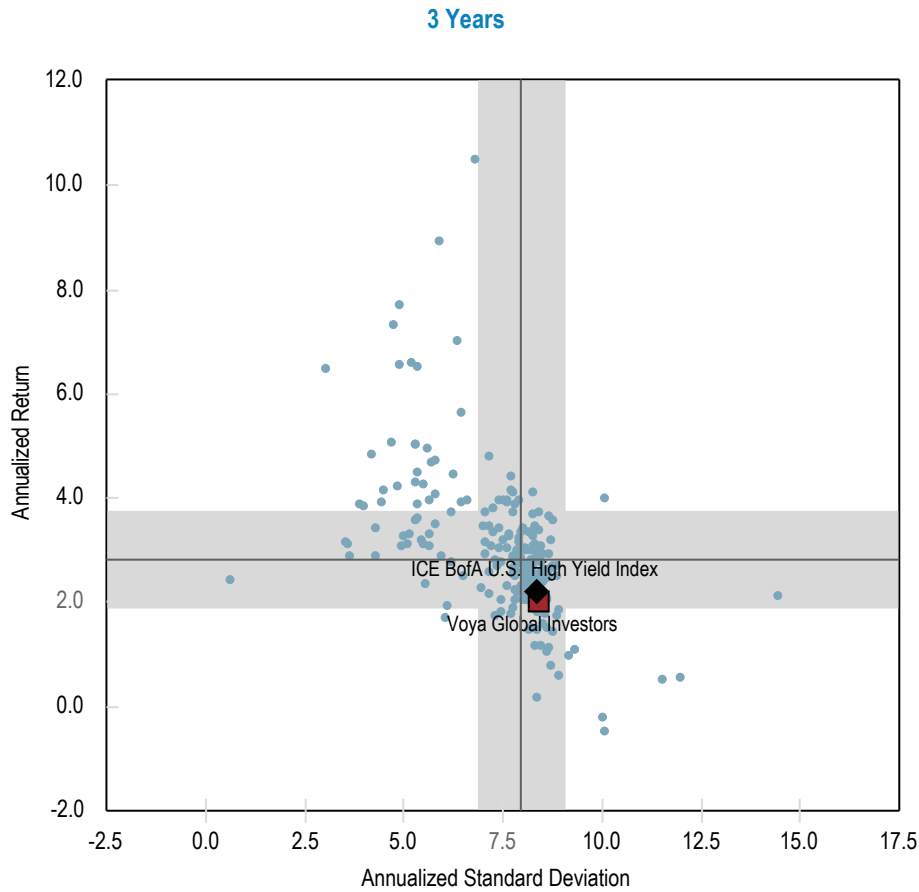
Voya Financial acquired Allianz Global Investors in 2022.

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	1.35 (65)	9.58 (71)	2.03 (64)	3.85 (59)	3.84 (66)	12.39 (45)	-10.64 (64)	5.34 (42)	5.18 (66)	15.32 (19)
▲ ICE BofA U.S. High Yield Index	1.51 (55)	11.04 (31)	2.21 (55)	4.03 (49)	4.36 (33)	13.46 (18)	-11.22 (76)	5.36 (42)	6.17 (43)	14.41 (36)
5th Percentile	3.10	13.60	4.48	6.37	5.73	15.00	-2.98	9.94	9.71	16.51
1st Quartile	1.99	11.39	3.07	4.64	4.55	13.10	-7.48	6.14	7.40	14.95
Median	1.56	10.44	2.31	4.02	4.11	12.20	-10.04	5.05	5.85	13.72
3rd Quartile	1.23	9.35	1.74	3.55	3.67	11.14	-11.22	4.06	4.41	11.15
95th Percentile	0.82	7.39	0.80	2.90	3.02	8.42	-13.28	2.87	2.38	7.14
Population	225	223	213	207	171	236	253	250	256	262





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Voya Global Investors	2.0	8.4	0.0
ICE BofA U.S. High Yield Index	2.2	8.4	0.0
eV US High Yield Fixed Inc Median	2.8	8.0	0.1
Population	219	219	219

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
Voya Global Investors	3.8	8.7	0.2
ICE BofA U.S. High Yield Index	4.0	9.4	0.3
eV US High Yield Fixed Inc Median	4.5	9.0	0.3
Population	213	213	213

Real Estate Managers

Adelante Manager Portfolio Overview

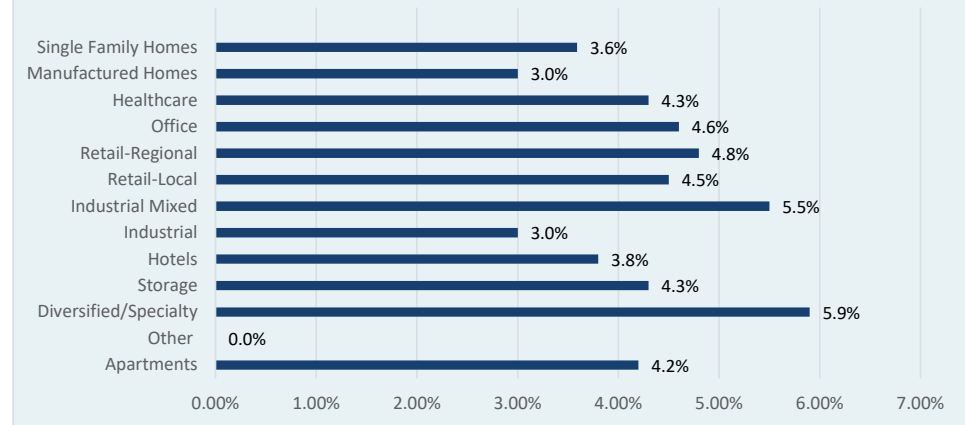
Contra Costa County Employees' Retirement Association Period Ending: March 31, 2024

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

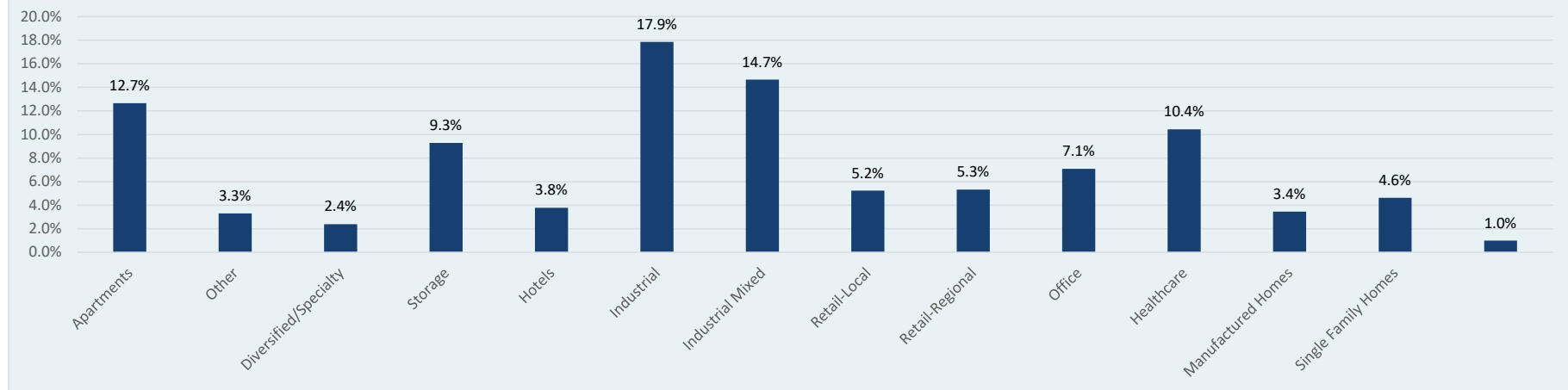
Top Five Holdings

Company	Property Type	Allocation
ProLogis Inc.	Industrial	13.6%
Equinix Inc	Industrial Mixed	9.8%
Welltower, Inc.	Healthcare	8.1%
Public Storage	Storage	6.5%
Simon Property Group, Inc.	Retail-Regional	6.4%

Dividend Yield by Property Type



Property Type Allocation



1.97% is allocated to Cash and Cash Equivalents.

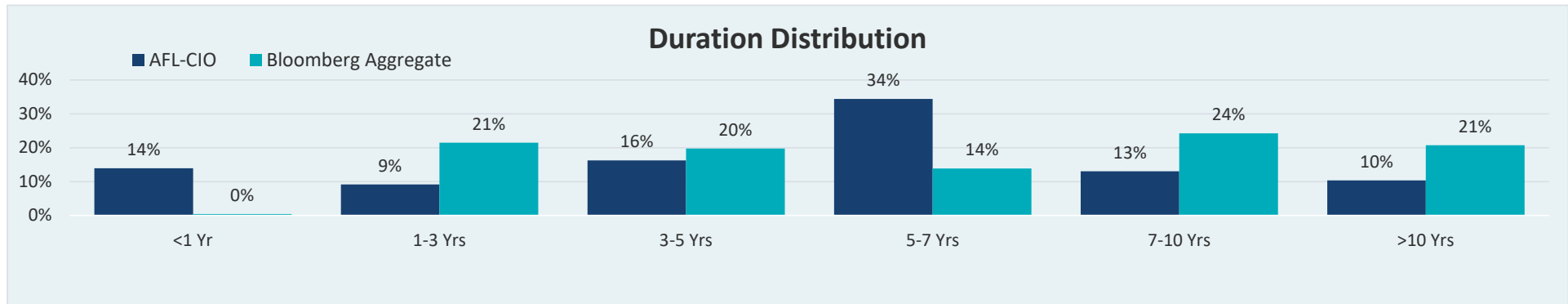
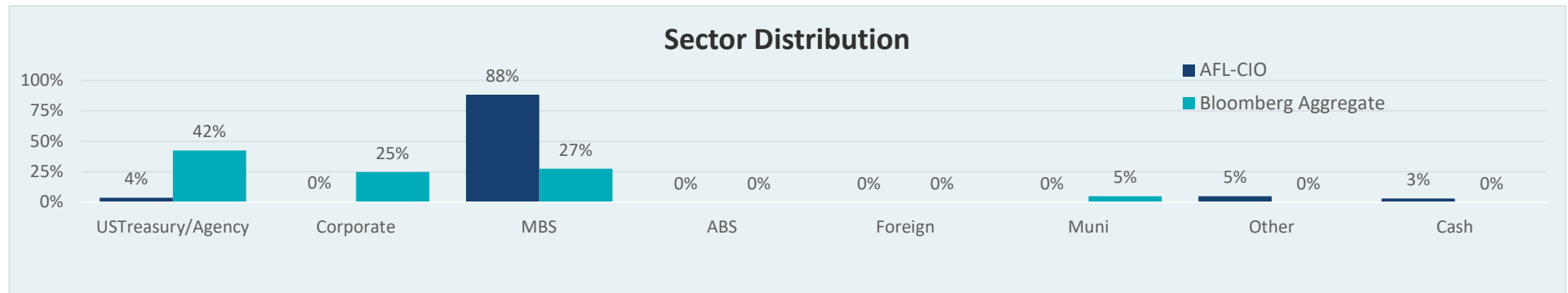
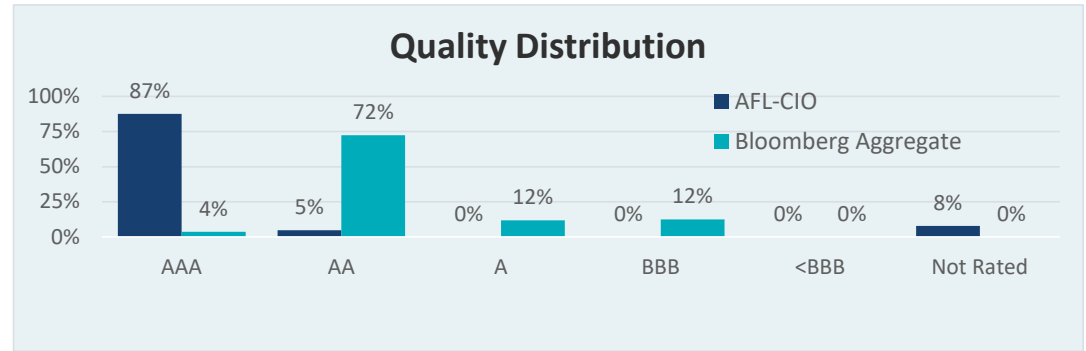
Diversifying Fixed Income Managers

AFL-CIO Manager Portfolio Overview

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

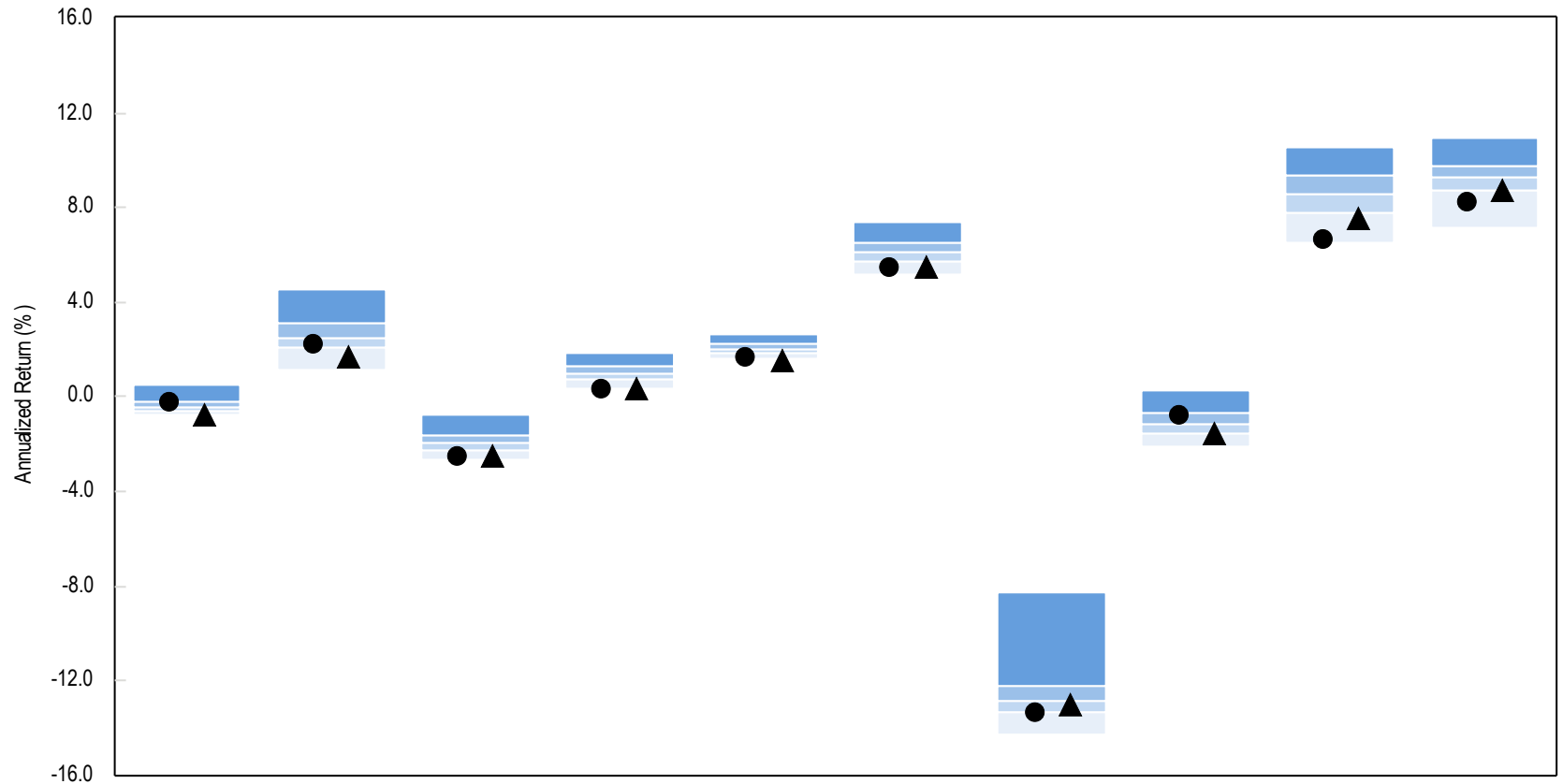
Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	Bloomberg Aggregate
Effective Duration	5.96	6.21
Yield to Maturity	3.99	4.85
Average Quality	AAA	AA/A
Average Coupon	3.6%	3.2%

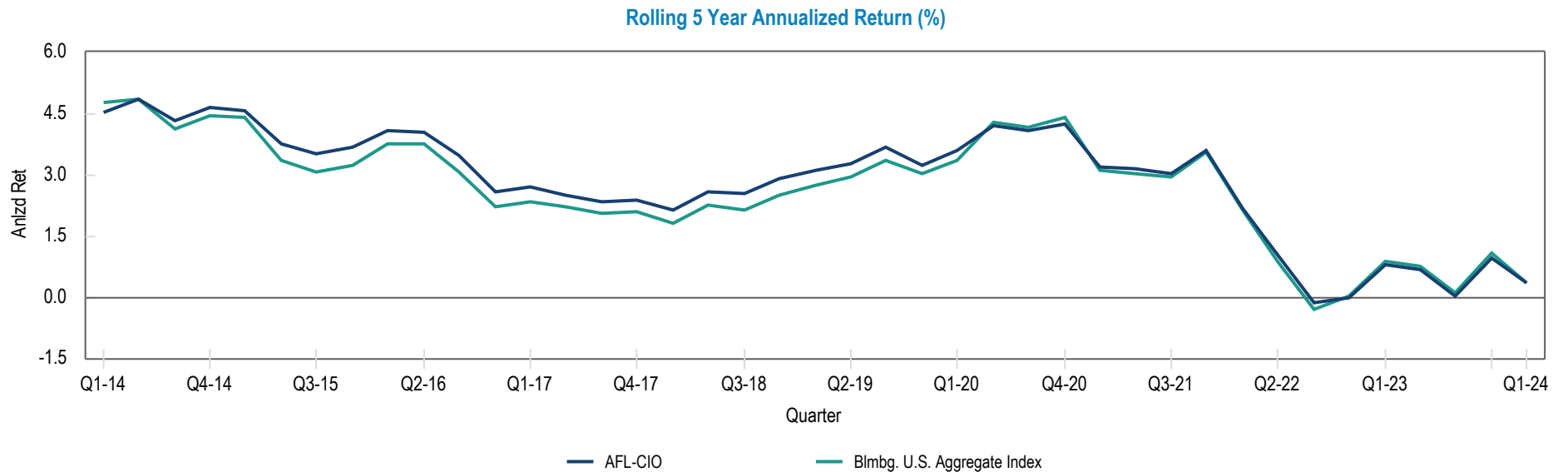
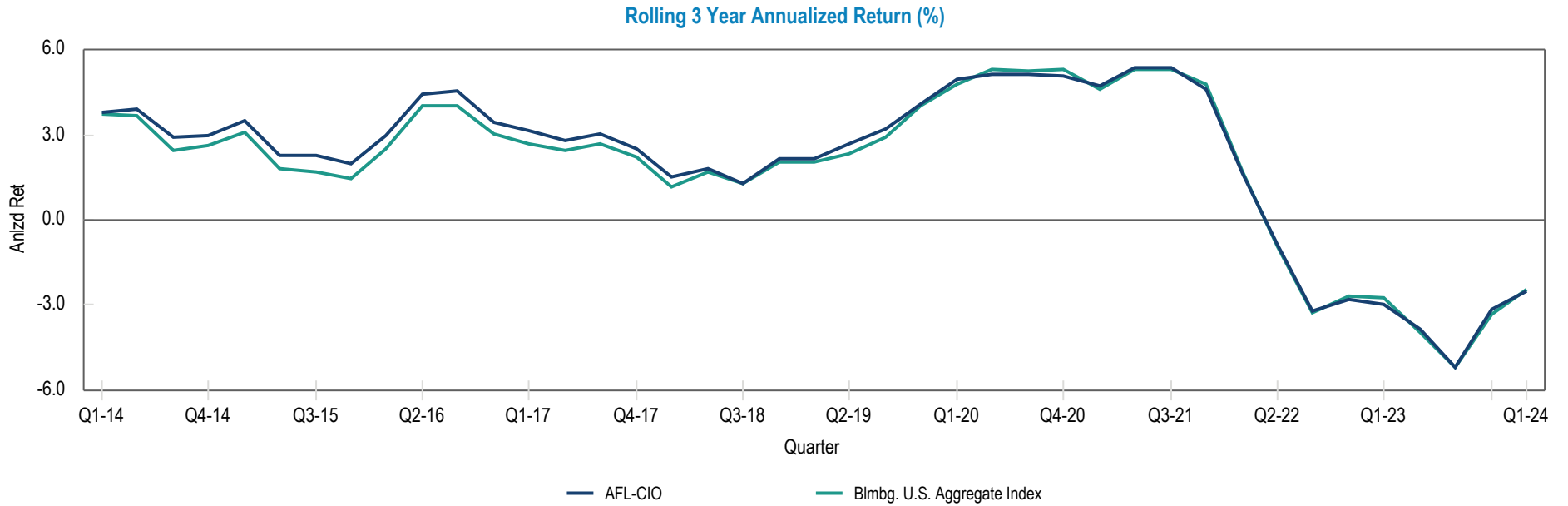


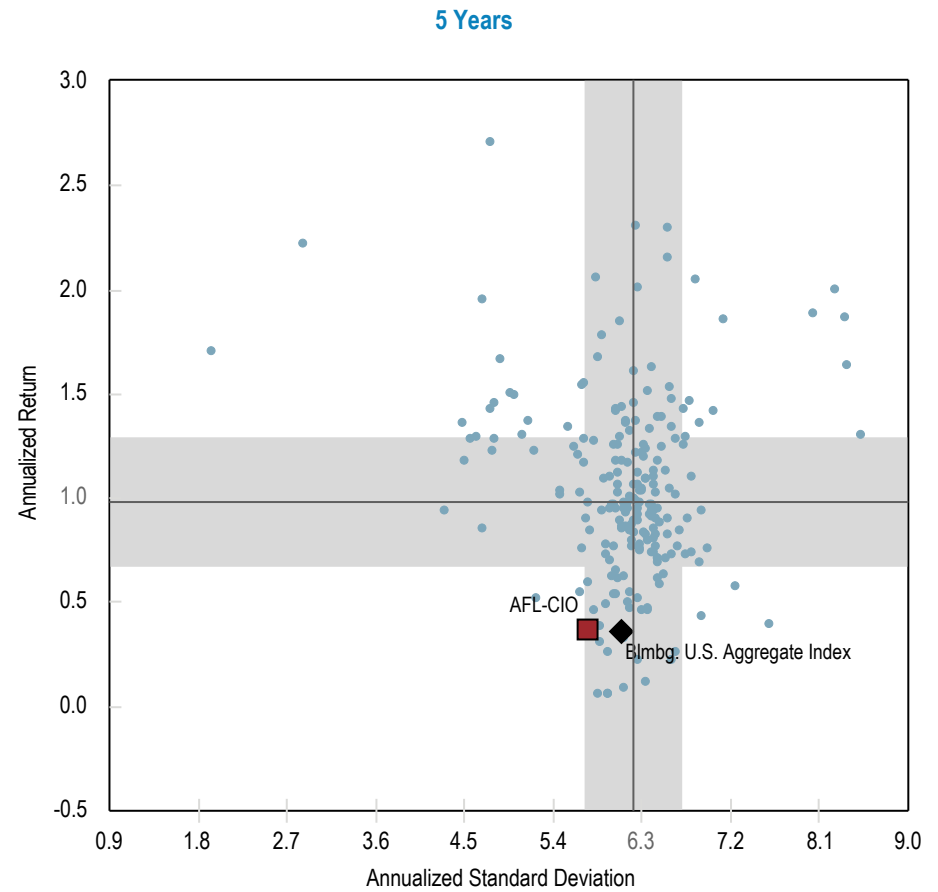
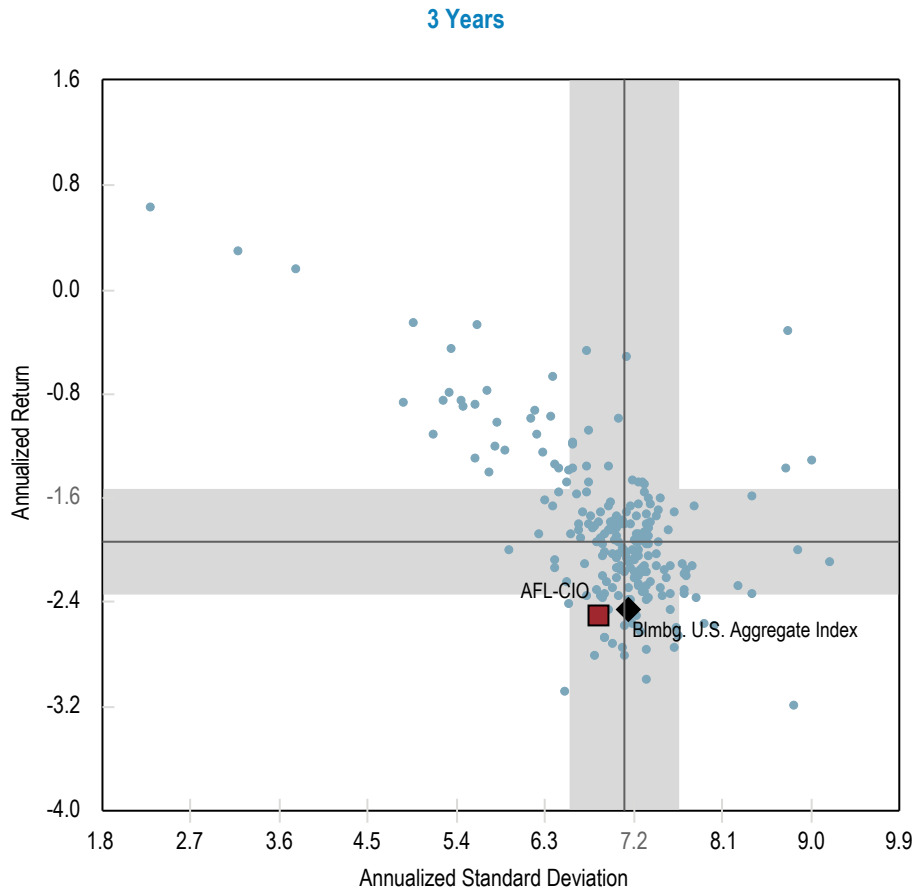
Duration and Quality distributions exclude cash.

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	-0.20 (27)	2.25 (67)	-2.51 (92)	0.37 (95)	1.73 (89)	5.51 (86)	-13.27 (75)	-0.73 (32)	6.65 (95)	8.25 (86)
▲ Blmbg. U.S. Aggregate Index	-0.78 (95)	1.70 (87)	-2.46 (90)	0.36 (95)	1.54 (97)	5.53 (85)	-13.01 (64)	-1.55 (77)	7.51 (84)	8.72 (77)
5th Percentile	0.54	4.53	-0.79	1.88	2.64	7.41	-8.23	0.31	10.57	10.93
1st Quartile	-0.19	3.16	-1.64	1.29	2.24	6.53	-12.19	-0.64	9.34	9.76
Median	-0.43	2.52	-1.93	0.98	2.02	6.15	-12.83	-1.11	8.56	9.30
3rd Quartile	-0.62	2.09	-2.21	0.76	1.86	5.72	-13.28	-1.52	7.77	8.75
95th Percentile	-0.78	1.18	-2.66	0.33	1.59	5.19	-14.29	-2.11	6.53	7.16
Population	229	229	222	215	199	237	259	266	271	276





	3 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
AFL-CIO	-2.5	6.8	-0.7
Blmbg. U.S. Aggregate Index	-2.5	7.1	-0.7
eV US Core Fixed Inc Median	-1.9	7.1	-0.6
Population	222	222	222

	5 Years		
	Anlzd Return (%)	Anlzd Standard Deviation (%)	Sharpe Ratio
AFL-CIO	0.4	5.8	-0.3
Blmbg. U.S. Aggregate Index	0.4	6.1	-0.2
eV US Core Fixed Inc Median	1.0	6.2	-0.1
Population	215	215	215

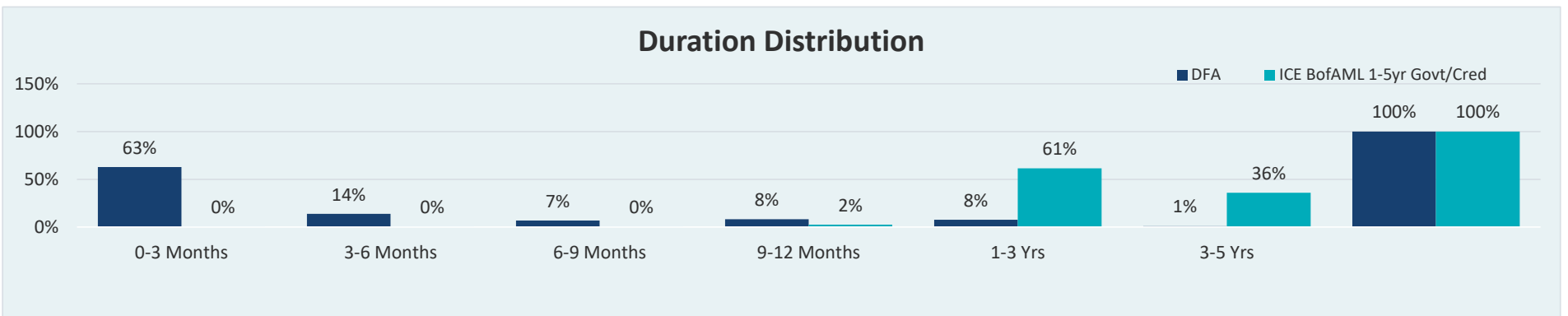
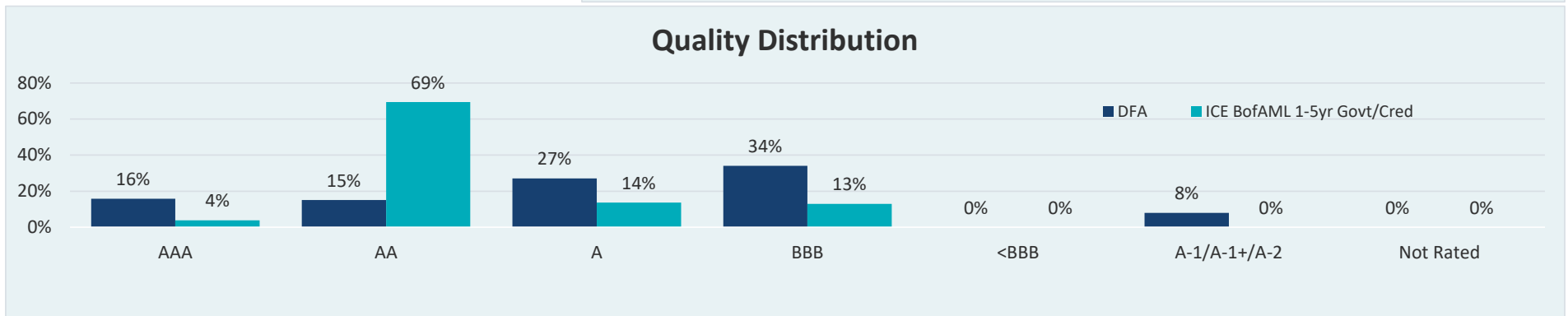
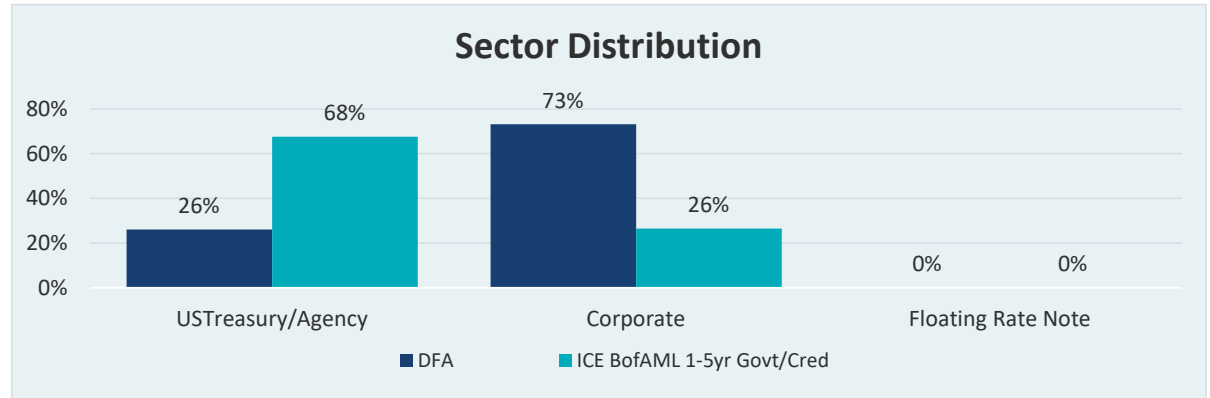
Liquidity Managers

DFA Short Credit Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: March 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	0.33	2.57
Yield to Maturity	5.74	4.80
Average Quality	A+	Aa2
Average Coupon	3.88%	2.95%

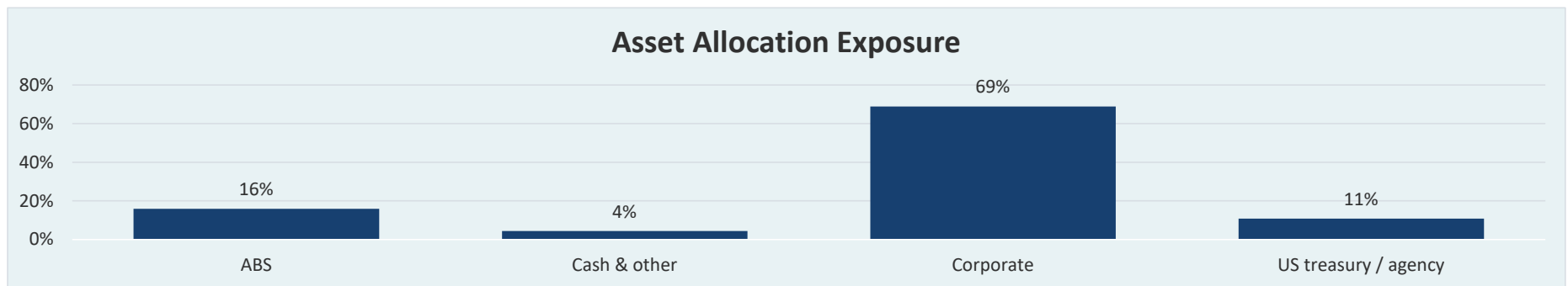
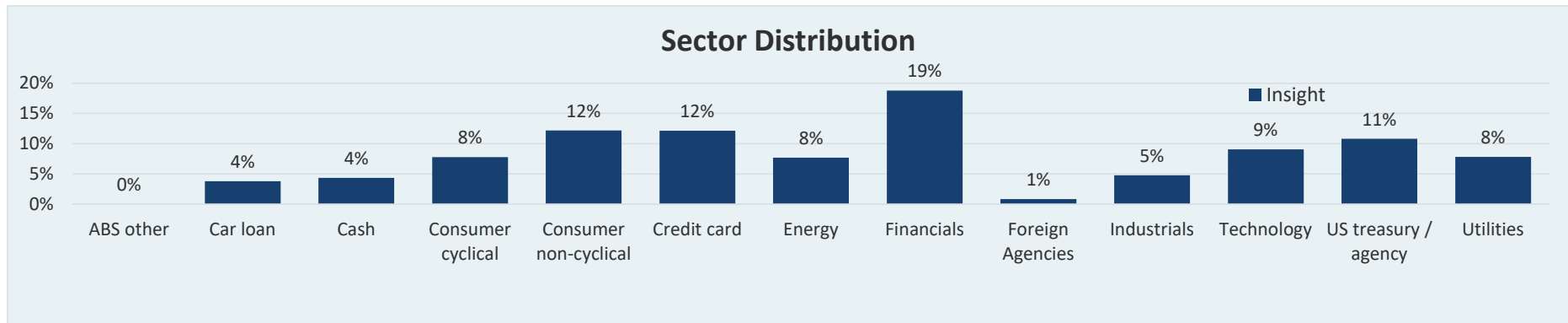
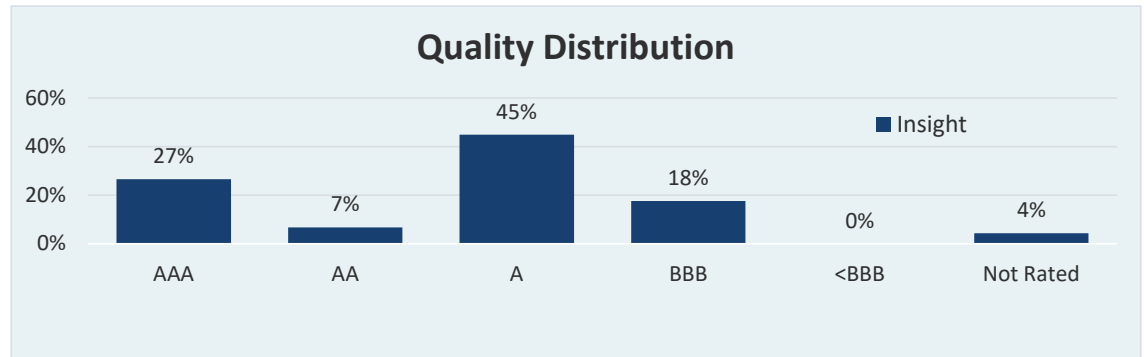


Insight Short Duration Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: March 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	BBgBarc 1-3yr Govt
Effective Duration	1.08	1.90
Yield to Maturity	0.05	N/A
Average Quality	A+	AGY / AGY
Average Coupon	3.41%	2.60%

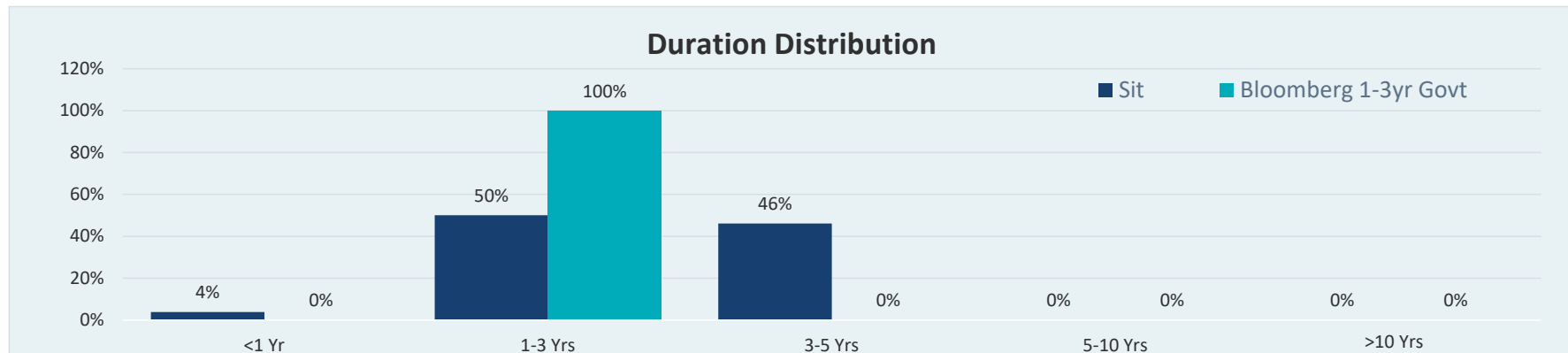
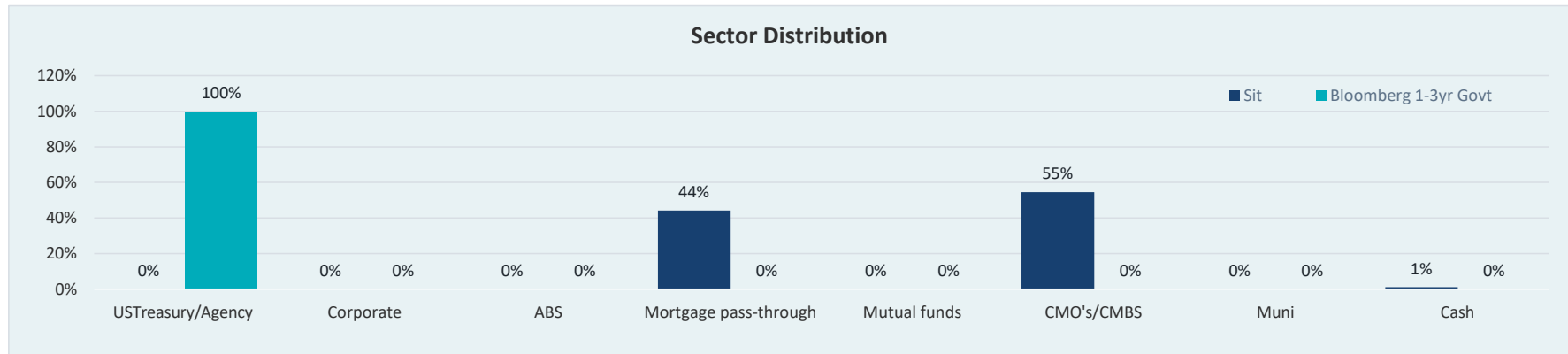
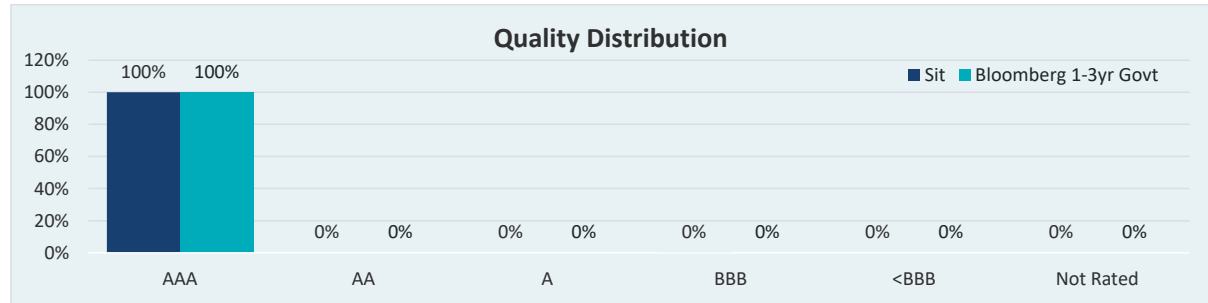


Sit Short Duration Manager Portfolio Overview

Contra Costa County Employees' Retirement Association Period Ending: March 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	BBgBarc 1-3yr Govt
Modified Duration	2.90	1.90
Yield to Maturity	5.90	N/A
Average Quality	AGY / AGY	AGY / AGY
Average Coupon	6.00%	2.60%



Data Sources and Methodology

Performance Return Calculations

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

Data Source

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

Illiquid Alternatives

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

Policy & Custom Index Composition

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

Policy & Custom Index Composition (continued)

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

Contra Costa County Employees' Retirement Association

Data Sources and Methodology

Period Ending: March 31, 2024

IMPLEMENTATION BENCHMARK WEIGHTS BY INVESTMENT ALLOCATION RESOLUTION (1/1/17 TO CURRENT)

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

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

Other Disclosures

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

Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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Meeting Date
05/22/2024
Agenda Item
#7b.

Memorandum

Date: May 22, 2024
To: CCCERA Board of Retirement Trustees
From: Timothy Price, Chief Investment Officer
Subject: Investment Staff Report – Q1 2024

Overview

On a quarterly basis CCCERA’s Board receives a report which details critical elements of CCCERA’s Functionally Focused Portfolio’s sub-portfolios. The purpose of the report is to highlight elements of the sub-portfolios which are good indicators to the Board of the program’s efficient and effective operation.

Summary

CCCERA’s Total Fund is largely performing as expected, exhibiting returns above expectations for the amount of risk taken over the long term. This is measured by the Sharpe Ratio (risk-adjusted return), and a comparison to the Simple Target Index. The Simple Target Index is the most basic index which could replicate CCCERA’s Total Fund, and is made up of 76% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills (please see the Total Fund pages in the appendix for additional details). CCCERA’s portfolio is much more complex, especially as it relates to allocations to private equity, private credit, and real estate.

Over shorter periods, there are aspects of the implementation that have fallen short of expectations, which are discussed in the Growth and Risk Diversifying sub-portfolio reviews.

CCCERA has experienced lower risk and return levels than the Simple Target Index over trailing periods, but has matched or exceeded the STI on a risk-adjusted basis over most trailing time periods. Details on performance relative to this index are included in the appendix. It is worth noting that CCCERA’s Total Fund return is an aggregate of the performance of the Liquidity, Growth, and Risk Diversifying sub-portfolios.

1) Liquidity

The purpose of the liquidity program is to match three years of benefit payments with high credit quality, low duration assets. The liquidity sub-portfolio is made up of three fixed income managers, all of whom pursue a high quality, low duration investment approach. In the first quarter of 2024, all managers held high quality (as measured by credit ratings), low duration portfolios. The average credit quality for the entire liquidity program is AA (AAA is the highest rating), and the duration is 1.7 years, which is considered short. Importantly, the current yield of all three portfolios is above 5%.

2) Growth

The Growth portfolio is designed to take advantage of capital appreciation and income opportunities globally. To achieve this, the Growth portfolio includes a variety of assets, from stocks and growth-oriented bonds to private equity, real estate, and private credit.

For the trailing five-year period ending March 31, 2024, the Growth portfolio returned 8.4% relative to the index return of 10.9%, for a relative underperformance of -2.6%. Over this period, the Growth program produced a superior Sharpe ratio of 0.53 relative to the index's 0.45. During the first quarter of 2024, CCCERA's Growth sub-portfolio returned 5.2% relative to MSCI ACWI Index return of 8.2%. We expect underperformance relative to the public equity markets during sharp rallies such as we experienced in 2023 and the first quarter of 2024 due to the private market investments where valuations lag.

The past five years have been exceptionally strong for public equities, both on the basis of earnings growth and mostly benign monetary policy. This growth has been concentrated in the US tech sector and even more so in the "Magnificent 7" mega cap stocks. Given this environment, underperformance of a diversified portfolio should be expected.

3) Risk Diversifying

The Risk Diversifying mandate holds assets that are expected to diversify the growth portfolio's volatility while offering moderate growth. The mandate as a whole seeks to be highly liquid, have a low beta to the growth market, and produce positive real returns. In the first quarter, the Risk Diversifying mandate fulfilled two of these goals. The entire mandate can be liquidated within 90 days, meeting the requirement of high liquidity. The correlation of the mandate to growth markets is 0.7, the same as in December 2023. The trailing real (net of inflation) return over the past five years is -3.9%, worsening slightly in the last quarter from -3.5%, and remaining below expectations.

Most of the product teams and asset managers across all sub-portfolios are stable. There have been two personnel changes announced at TT and Acadian in late 2023. We conducted on-site reviews with both firms and have gained comfort with the team at TT but elected to terminate the Acadian strategy.

CCCERA's Total Fund in aggregate is performing in line with expectations, having a similar or higher risk-adjusted return but a lower level of volatility compared to the Simple Target Index. Enclosed are additional details on CCCERA's Total Fund, sub-portfolios, and individual investment strategies.

CCCERA Portfolio Report Card

Below we have itemized those elements of each of CCCERA’s sub-portfolios and Total Fund which we believe the Board should pay particular attention to. Additional details on each of the sub-portfolios are available in the appendix. All CCCERA performance is stated on a net of fees basis.

Liquidity

Objective	Measurement	Current Period Data	Status
High Quality	Credit Quality	AA	Meeting Expectations
Low Risk	Duration	1.7 years	Meeting Expectations
Appropriately Sized	Months of Benefit Payments Invested	28 Months	Meeting Expectations

Growth

Objective	Measurement	Current Period Data	Status
Growth of Plan Assets	Absolute Returns	Trailing 5 yr return: 8.4%	Meeting Expectations
	Benchmark Relative Returns	-2.6% relative to ACWI over trailing 5 years	Below Expectations
Efficient Capital Deployment	Sharpe Ratio	CCCERA: 0.53 MSCI ACWI: 0.45 over trailing 5 years	Meeting Expectations

Risk Diversifying

Objective	Measurement	Current Period Data	Status
Offset Volatility in Growth Portfolio	Correlation	0.7 over trailing 5 years	Below Expectations
Positive Real Returns	Returns	5 yr real return: -3.9% 5 yr nominal return: 0.26%	Below Expectations
High Liquidity	% of Portfolio that can be liquidated within 90 days	100%	Meeting Expectations

Total Fund

Objective	Component/Measurement	Status
Store 3 Years of Benefit Payments	Liquidity Sub-portfolio	Meeting Expectations
Participate in Growth Opportunities	Growth Sub-portfolio	Meeting Expectations
Provide an offset to Growth volatility	Risk Diversifying Sub-portfolio	Below Expectations
Produce superior risk adjusted returns	Total Fund Sharpe Ratio	Meeting Expectations

Appendix – Liquidity Sub-Portfolio

Manager Reviews

Organizational Stability

	Portfolio Management Assessment	1 Year Product Asset Growth	1 Year Firm Asset Growth	Regulatory Action in Last Year?
Insight	Good	4%	-1%	N
Sit	Good	-6%	9%	N
DFA	Good	13%	17%	N

Performance

	Portfolio Average Credit Quality	Portfolio Average Duration	Portfolio Average Yield	1 Year Total Return
Insight	A+	1.1	5.1	5.3%
Sit	AAA	2.9	5.9	3.4%
DFA	A+	0.3	5.7	5.4%

Manager Notes:

Fixed income yields have moderated on the growing consensus that the Federal Reserve is done raising rates for this cycle and has priced in a “higher for longer” baseline with 1-2 rate cuts in late 2024. The shorter duration of CCCERA’s mandates have provided relative protection during the rate hikes, as has the buy and maintain bias of the portfolio.

Manager Theses:

The Liquidity Portfolio is a combination of three managers which work together to match three years of CCCERA’s liabilities. The portfolio is refreshed every year during the annual funding plan.

Insight: Insight plays a completion role in the liquidity program, matching out liabilities with short duration government and corporate fixed income securities.

DFA: Dimensional Fund Advisors runs a strategy that focuses on obtaining fixed income exposures via the most liquid securities available. DFA contributes to the Liquidity Program by selling securities at regular intervals to pay a portion of CCCERA’s monthly benefit payment.

Sit: Sit invests in high yielding government backed mortgages. The cash flow from these securities is harvested monthly to make up a portion of CCCERA’s monthly benefit payment.

Appendix – Growth Sub-Portfolio

Manager Reviews

Organizational Stability

	Portfolio Management Assessment	1 Year Product Asset Growth	1 Year Firm Asset Growth	Regulatory Action in Last Year?
Boston Partners	Good	22%	17%	N
BlackRock Index Fund	Good	18%	15%	N
Emerald Advisors	Good	15%	14%	N
Ceredex	Good	-15%	-13%	N
Pyrford	Good	-4%	-9%	N
William Blair	Good	5%	18%	N
First Eagle	Good	9%	6%	N
Artisan Global	Good	11%	16%	N
PIMCO/RAE EM	Good	17%	5%	N
TT EM	Good	-36%	-22%	N
Adelante	Good	11%	5%	N
Invesco REIT	Good	7%	16%	N
Voya	Good	11%	2%	N
AQR	Good	-1%	12%	N
PanAgora	Good	-28%	1%	N
Private Equity	Good	--	--	N
Private Credit	Good	--	--	N
Real Estate	Good	--	--	N

Performance

	Trailing 1-Yr Return	Trailing 5-yr Return	Trailing 10-yr Return	Performance in Line with Expectations?	Inception Date
MSCI ACWI-ND	23%	11%	9%		
Boston Partners	28%	13%	10%	Y	04/30/1995
BlackRock Index Fund	30%	15%	13%	Y	03/31/2017
Emerald Advisors	20%	8%	9%	Y	03/31/2003
Ceredex	16%	8%	7%	Y	09/30/2011
Total Domestic Equity	27%	12%	11%	Y	
Pyrford	9%	6%	4%	Y	03/31/2014
William Blair	14%	8%	6%	Y	09/30/2010
PIMCO/RAE EM	24%	8%	6%	Y	01/31/2017
TT EM	9%	1%	4%	N	06/30/2017
Total International Equity	14%	6%	5%	Y	
First Eagle	14%	8%	7%	Y	12/31/2010
Artisan Global	26%	12%	11%	Y	11/30/2012
Total Global Equity	20%	10%	9%	Y	
Adelante	13%	5%	7%	Y	07/31/2001
Invesco REIT	6%	N/A	N/A	Y	02/28/2022
Voya	9%	3%	3%	N	04/30/2000
AQR	6%	4%	3%	N	12/31/2018
PanAgora	0%	1%	4%	N	02/28/2019
Private Equity	8%	15%	12%	Y	
Private Credit	10%	8%	9%	Y	
Real Estate	-14%	-2%	4%	N	

For periods longer than inception date within CCCERA's Total Fund, the return is from a representative composite account.

Manager Notes:

Niall Paul, lead portfolio and architect of the TT International Global Emerging Market strategy, has announced that he intends to retire as of March 31, 2024. Rob James, who had been a co-PM on the strategy, will continue along with Diego Mauro, who joined the firm in 2020. We have conducted an on-site reviews with James and Mauro to vet the team's capacity to manage the strategy effectively on a go forward basis.

Manager Theses:

The growth portfolio includes all managers in public and private equity, real estate, and private credit. These managers grow CCCERA's assets for future benefit payments (beyond the three years already covered by the Liquidity program).

Boston Partners: Large cap domestic equity which follows a value discipline. Boston Partners will buy out of favor companies and sell them when their intrinsic values are reflected in the market. Expected to outperform in flat to falling markets.

BlackRock Index Fund: Large cap domestic equity portfolio which should follow the Russell 1000 Index.

Emerald Advisors: Small cap growth equity seeking companies with high growth rates. Expected to produce strong returns in rising markets, and weak returns in falling markets.

Ceredex: Domestic equity small cap value portfolio of companies with dividend yields and low valuations. This portfolio should outperform flat markets.

Pyrford (Columbia): International equity value portfolio of non-US companies with low valuations at the country and stock level. This portfolio should outperform in flat markets.

William Blair: International equity growth portfolio of non-US companies with high growth rates constructed from the security level. This portfolio should outperform in rapidly rising markets.

First Eagle: Global equity portfolio that is benchmark agnostic comprised of companies with low valuations.

Artisan Global Opportunities: Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation.

PIMCO/RAE Emerging Markets: Quantitative equity with a value orientation. This portfolio follows the fundamental indexing approach (ranking companies by metrics other than market capitalization), resulting in a diversified, low turnover portfolio. This portfolio underperforms in momentum driven markets.

TT International Emerging Markets: Concentrated, growth-oriented manager which invests in small and mid-cap emerging market companies. TT employs both a top-down and a bottom-up research approach and seeks to outperform by identifying companies that have a catalyst to drive future growth.

Adelante: Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets. Adelante is a public market proxy of the core real estate market.

INVESCO Fundamental Beta REIT: Invesco invests in US REITs following a sector neutral strategy that allocates to the securities that INVESCO believes have the strongest financial conditions.

Voya High Yield Fixed Income: Domestic high yield fixed income portfolio with a focus on security selection. Voya will focus on the higher quality segment of the high yield universe. Voya should provide a steady income stream and provide downside protection in falling markets.

Private Equity: CCCERA invests in private equity to generate returns above those available in the public equity markets.

Private Credit: CCCERA invests in private credit to generate cash flow streams above those available in the public debt markets.

Real Estate: CCCERA invests in value-add, distressed, and opportunistic real estate to generate returns from the capital appreciation and cash flow associated with commercial real estate investment.

Risk Parity: Multi-asset approach that strives for balanced contributions to total portfolio risk from multiple asset classes.

Appendix – Risk Diversifying Sub-Portfolio

Organizational Stability

	Portfolio Management Assessment	1 Year Product Asset Growth	1 Year Firm Asset Growth	Regulatory Action in Last Year?
AFL-CIO	Good	5%	5%	N
Acadian	Liquidating	5%	13%	N
Sit	Good	7%	9%	N

Performance

	Trailing 1 Year Correlation to Growth	Trailing 3 Year Correlation to Growth	1 Year Return	5 Year Return	% of Portfolio Liquid in 90 Days
AFL-CIO	0.8	0.8	2%	0%	100%
Acadian	-0.7	-0.6	-4%	1%	100%
Sit	0.7	0.5	6%	N/A	100%

Manager Notes:

CCCERA terminated the Acadian strategy and it will be wound down during the second quarter of 2024. The Board approved the BH-DG Systematic Trend Following strategy and this position is being funded in the second quarter as well.

Manager Theses:

Managers in the risk diversifying allocation seek to have a low correlation with the growth portfolio, positive returns in flat and falling equity markets, and a high degree of liquidity. These managers work together to offset some of the risks in the growth portfolio.

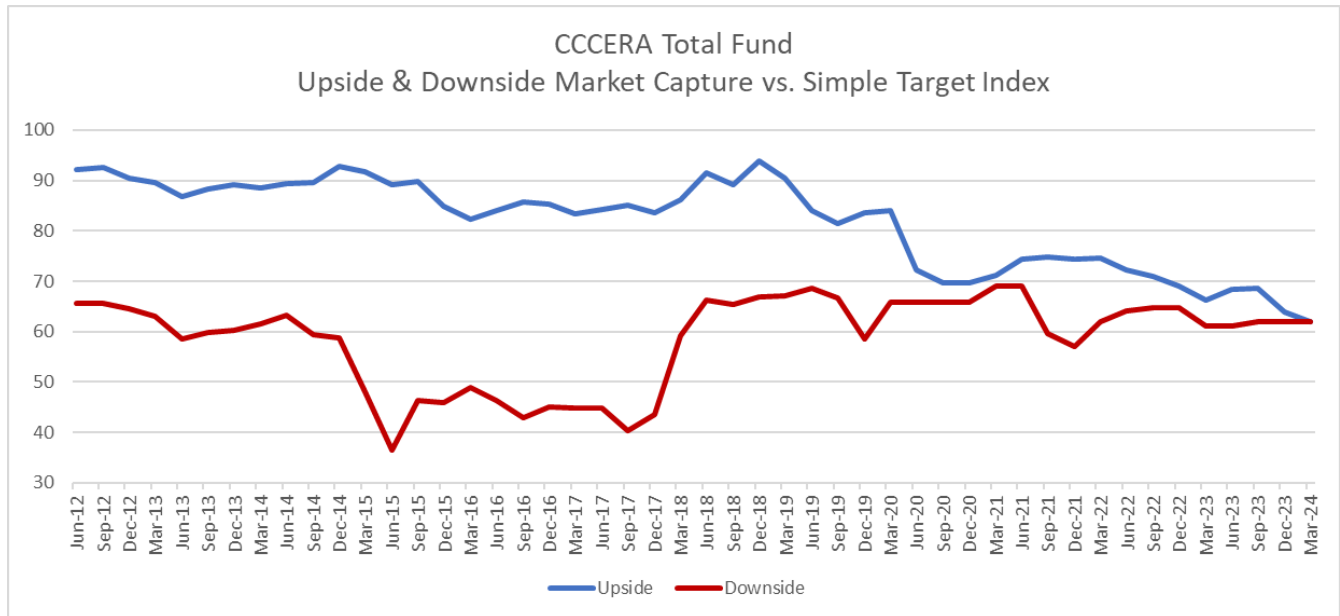
AFL-CIO: Portfolio of domestic, high quality fixed income securities which are backed by commercial and residential mortgages.

Acadian: Quantitatively managed multi-asset absolute return strategy that uses various models to capture pricing dislocations.

Sit LLCAR: Multiple fixed income strategies (closed end funds, mortgages, Treasuries) actively managed to target a modest positive return in most market environments.

Appendix Data – Total Fund

Rolling 3-Year Total Fund Upside/Downside Market Capture



*The composition of the Simple Target Index has mirrored changes in CCCERA's asset allocation over time: from 2008 to 2012 the benchmark was 73% MSCI ACWI, 23% Bloomberg 1-3 Year Gov/Credit, and 4% 3-Month Treasury Bills. From 2012 to 2016 the composition was 74% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 9% 3-Month Treasury Bills. From 2016 to 2017 the composition was 63% MSCI ACWI, 25% Bloomberg 1-3 Year Gov/Credit, and 12% 3-Month Treasury Bills, from 2017 to June 2018 the composition was 61% MSCI ACWI, 27% Bloomberg 1-3 Year Gov/Credit, and 12% 3-Month Treasury Bills, from July 2018 to June 2019 the composition is 69% MSCI ACWI, 23% Bloomberg 1-3 Year Gov/Credit, and 8% 3-Month Treasury Bills, from July 2019 to June 2020 the composition is 68% MSCI ACWI, 24% Bloomberg 1-3 Year Gov/Credit, and 8% 3-Month Treasury Bills, from July 2020 to June 2021 the composition is 68.5% MSCI ACWI, 25% Bloomberg 1-3 Year Gov/Credit, and 6.5% 3-Month Treasury Bills; from July 2021 to June 2022 the composition is 75% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills; from July 2022 to present the composition is 75.5% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7.5% 3-Month Treasury Bills; from July 2023 to present the composition is 76% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills.

Total Fund Quarterly Attribution

	CCCERA Total Fund			Simple Target Index			Analysis		
	Allocation	Return	Return Contribution	Allocation	Return	Return Contribution	Allocation Difference	Return Difference	Total Effect
Liquidity	16.0%	0.8%	0.1%	17.0%	0.4%	0.1%	-1.0%	0.4%	0.1%
Growth	76.1%	5.2%	3.9%	76.0%	8.2%	6.2%	0.1%	-3.0%	-2.3%
Risk Diversifying	6.8%	1.0%	0.1%	7.0%	1.3%	0.1%	-0.2%	-0.2%	0.0%
Overlay	1.1%	8.1%	0.1%	0%	0%	0%	1.1%	8.1%	0.1%
Total Fund	100%		4.2%	100%		6.4%	-0.1%		-2.2%

CCCERA Total Fund Performance vs. Simple Target Index

	One Year		Three Years		Five Years		Ten Years	
	CCCERA	STI	CCCERA	STI	CCCERA	STI	CCCERA	STI
Return	10.7	18.5	4.0	5.6	6.4	8.5	6.3	6.5
Volatility	6.3	9.7	8.5	12.8	9.4	14.1	7.6	11.2
Sharpe	0.8	1.3	0.2	0.2	0.5	0.5	0.7	0.5

The Simple Target Index is made up of 76% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bill. This purpose of this index is to examine whether CCCERA is being rewarded for pursuing a more nuanced portfolio versus a very simple representative portfolio.

CCCERA's Total Fund has produced good risk adjusted returns over all trailing time periods, but has lagged the absolute return of the Simple Target Index. This primarily reflects the exceptionally strong performance of the global equity markets in recent years relative to more modest private equity and credit returns and significant challenges in real estate.

The Sharpe ratio is a measure of risk adjusted returns which shows the amount of return a portfolio earns above the risk-free rate per unit of volatility. The Total Fund has matched or exceeded the Sharpe ratio relative to the Simple Target Index over all trailing time periods longer than one year, indicating that CCCERA is being favorably rewarded for the level of risk taken in the portfolio.



Memorandum

Date: May 22, 2024

To: CCCERA Board of Retirement Trustees

From: Timothy Price, Chief Investment Officer

Subject: Interim Rebalancing

Overview

In addition to our significant annual investment allocation rebalancing that occurs each July, CCCERA investment staff review the asset allocation monthly and make adjustments as necessary to maintain target allocations or adjust for various other factors. Upon review of the March asset allocation, our allocation to public equities was overweight relative to target due to strong performance within this portion of this portfolio in the fourth quarter of 2023 and first quarter of 2024.

We elected to trim this overweight by \$250 mm and allocated the proceeds to the Liquidity sub-portfolio. A total of \$170 mm was raised from domestic equity and \$80 mm from international and global equity managers. We invested \$60 mm into DFA, \$100 mm into Insight and \$90 into Sit Fixed Income. We also withdrew \$50 mm from Acadian MAARS. These trades, outlined below, occurred in mid-April and were completed by April 17.

Contributions		Withdrawals	
DFA	\$60,000,000	Boston Partners	\$20,000,000
Insight	100,000,000	BlackRock	90,000,000
Sit Short Duration	90,000,000	Emerald	30,000,000
		Ceredex	30,000,000
		Pyrford	20,000,000
		William Blair	20,000,000
		Artisan	40,000,000
		Acadian	50,000,000
Total	\$250,000,000	Total	\$250,000,000

The post-rebalancing allocations are shown on the following page.

CCCERA Asset Allocation as of April 17, 2024

	Market Value	Percentage of Total Fund	Current Target* Percentage	Current Target Over/(Under)	Long Term Target	Long Term Over/(Under)
Liquidity						
Dimensional Fund Advisors	397,688,075	3.6%	4.0%	-0.4%		
Insight	649,565,651	5.9%	6.5%	-0.6%		
Sit	680,662,792	6.1%	6.5%	-0.4%		
Total Liquidity	1,727,916,517	15.6%	17.0%	-1.4%	17.0%	-1.4%
		Range				
		11-22%				
Growth						
Domestic Equity						
Boston Partners	411,502,276	3.7%	3.0%	0.7%		
BlackRock Index Fund	1,186,217,159	10.7%	10.0%	0.7%		
Emerald Advisers	201,293,275	1.8%	1.5%	0.3%		
Ceredex	191,492,587	1.7%	1.5%	0.2%		
Total Domestic Equity	1,990,505,298	18.0%	16.0%	2.0%	13.0%	5.0%
Global & International Equity						
Pyrford (Columbia)	471,519,439	4.3%	4.0%	0.3%		
William Blair	461,055,412	4.2%	4.0%	0.2%		
First Eagle	583,654,764	5.3%	5.0%	0.3%		
Artisan Global Opportunities	625,966,950	5.7%	5.0%	0.7%		
PIMCO/RAE Emerging Markets	256,007,585	2.3%	2.0%	0.3%		
TT Emerging Markets	253,394,248	2.3%	2.0%	0.3%		
Total Global & International Equity	2,651,598,398	23.9%	22.0%	1.9%	19.0%	4.9%
Private Equity**						
Private Credit	1,312,911,959	11.9%	13.0%	-1.1%	18.0%	-6.1%
Real Estate - Value Add	1,105,621,501	10.0%	10.0%	-0.0%	13.0%	-3.0%
Real Estate - Opportunistic & Distressed	223,556,256	2.0%	4.0%	-2.0%	5.0%	-3.0%
Real Estate - REIT	308,197,460	2.8%	4.0%	-1.2%	5.0%	-2.2%
Adelante	89,543,598	0.8%	2.0%	-0.2%	0.0%	1.8%
Invesco	105,855,147	1.0%				
High Yield	156,879,090	1.4%	2.0%	-0.6%	0.0%	1.4%
Risk Parity			3.0%	0.1%	3.0%	0.1%
AQR GRP EL	178,365,528	1.6%				
PanAgora	167,177,979	1.5%				
Total Other Growth Assets	3,648,108,518	32.9%	38.0%	-5.1%	44.0%	-11.1%
Total Growth Assets	8,290,212,214	74.9%	76.0%	-1.1%	76.0%	-1.1%
		Range				
		65-85%				
Risk Diversifying						
AFL-CIO	216,109,059	2.0%	2.5%	-0.5%	2.5%	-0.5%
Acadian MAARS	113,288,036	1.0%	2.0%	-1.0%	2.5%	-1.5%
Sit LLCAR	365,161,598	3.3%	2.5%	0.8%	2.0%	1.3%
Total Risk Diversifying	694,558,694	6.3%	7.0%	-0.7%	7.0%	-0.7%
		Range				
		0% - 10%				
Cash and Overlay						
Overlay (Parametric)	119,663,636	1.1%		1.1%		
Cash	242,058,921	2.2%		2.2%		
Total Cash and Overlay	361,722,556	3.3%	0.0%	3.3%	0.0%	3.3%
Total Fund	11,074,409,981	100%	100%		100%	

*Current targets and ranges reflect asset allocation targets accepted by the Board on July 12, 2023 (BOR Resolution 2023-3).

**Private Equity long-term target includes Real Assets/Infrastructure (see Asset Allocation Mix 5 adopted December 9, 2020).



FINAL AGENDA

SUNDAY, AUGUST 18

3:30 pm – 5:30 pm REGISTRATION

4:30 pm – 5:30 pm How Do U.S. Demographic Challenges Matter for the Future of Pensions?
Diana Elliott, Population Reference Bureau

5:30 pm – 6:30 pm WELCOME RECEPTION

MONDAY, AUGUST 19

6:30 am – 4:30 pm REGISTRATION

7:00 am – 8:00 am BREAKFAST

8:00 am – 5:30 pm GENERAL SESSION I

8:00 am – 8:15 am Welcome & Opening Remarks
Hank Kim, NCPERS

8:15 am – 9:00 am Understanding Artificial Intelligence
Pia Malaney, Institute for New Economic Thinking

- 9:00 am – 9:45 am Artificial Intelligence and Future of Public Pensions
Frank Williams, Teacher Retirement System of Texas
- 9:45 am – 10: 45 am Strategies for Plans with Growing Negative Cash Flows
Dan Doonan, National Institute on Retirement Security
Russell Kamp, Ryan Alm
- 10:45 am – 11:00 am BREAK
- 11:00 am – 11:45 am Private Debt Perspectives: Balancing Risk and Opportunity
Jean Hsu, CalPERS
- 11:45 am – 12:30 pm A Survey of Private Debt Funds
Young Soo Jang, University of Chicago
- 12:30 pm – 1:30pm LUNCH
- 1:30 pm – 2:15 pm How did Connecticut’s Mature State Employees Retirement System
Become a Success Story?
*John Herrington, Division of Pensions, Office of the State Comptroller,
State of Connecticut*
- 2:15 pm – 3:00 pm Anticipating and Managing Negative Cash Flows for Mature Plans
David Lamoureux, CalSTRS
- 3:00 pm – 3:15 pm BREAK
- 3:15 pm – 4:00 pm Emerging State Restrictions on ESG Investing and Dollar Value of
Environmental Sustainability
Kendal Killian, NPPC (TBD)
Mariam Mhadhbi, Valueometrics
- 4:00 pm – 4:45 pm How States Can Best Benefit from Federal Stimulus Bills?
Greg LeRoy, Good Jobs First
- 5:30 pm – 6:30 pm NETWORKING RECEPTION

TUESDAY, AUGUST 20

7:00 am – 12:00 pm REGISTRATION

7:00 am – 8:00 am BREAKFAST

8:00 am – 11:30 am GENERAL SESSION II

8:00 am – 9:00 am States Have Shored up Funding, What Else Can They Do?
Jeff Hale, Human Resources Director, Athens-Clark County (TBD)
Eric Atwater, AON (TBD)

9:00 am – 10:00 am Actuarial and Investment Strategies for Mature Plans
Gene Kalwarski, Cheiron
David Wilson, Nuveen

10:00 am – 10:15 am BREAK

10:15 am – 11:00 am Political and Economic Consequences of So-Called Pensions Reforms
Robert Kuttner, Brandies University

11:00 am – 12:00 pm Outlook for the U.S. Economy in 2024 and Beyond
David Altig, Federal Reserve Bank of Atlanta

12:00 pm THANK YOU & CLOSING REMARKS
Hank Kim and Michael Kahn, NCPERS

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CALAPRS

EDUCATION · COMMUNICATION · NETWORKING

Register Now!

CALAPRS Principles of Pension Governance for Trustees 2024

**Monday, August 26 - Thursday, August 29, 2024
Tiburon, CA**



For over twenty years, Trustees of our member retirement systems have participated in this unique training program presented exclusively for California public retirement system board members. This training focuses on the practical aspects of our Trustees' duties.

WHO SHOULD ATTEND?

The course is for Trustees. Attendance is recommended within the first year after assuming office. Experienced Trustees will use the program as a comprehensive refresher course.

WHY ATTEND?

- To gain insight into public pension policy issues
- To discuss alternative solutions to common problems
- To understand the complexities involved in administering public pension plan
- To appreciate the differences and similarities among California public pension plans
- To network with other Trustees and pension professionals
- To increase familiarity with pension terminology and concepts
- To receive the ethics training required for new Trustees

*PRINCIPLES OF
PENSION GOVERNANCE*
A COURSE FOR TRUSTEES



*The Crane, An Age-Old
Symbol Of Long Life*

Sponsored By



to be held at
The Lodge at Tiburon
Tiburon, CA

Monday-Thursday, August 26-29, 2024

PRINCIPLES OF PENSION GOVERNANCE

A Course For Trustees

A COURSE FOR TRUSTEES

CALAPRS' MISSION

"CALAPRS sponsors educational forums for sharing information and exchanging ideas among Trustees and staff to enhance their ability to administer public pension benefits and manage investments consistent with their fiduciary duty."

ABOUT THE COURSE

Public Pension Fund Trustees bear a heavy fiduciary burden. On a cumulative basis, California's Constitution holds our members' **350** Trustees accountable for the stewardship of more than **\$450** Billion in retirement fund assets. **40** California public pension systems belong to CALAPRS. Over the past ten years, Trustees of our member retirement systems have participated in this unique training program presented exclusively for California public retirement system board members. This training focuses on the practical aspects of our Trustees' duties.

For over 25 years, CALAPRS has continued to offer this high-caliber coursework and carefully selected faculty.

WHO SHOULD ATTEND?

The course is for Trustees. Attendance is recommended within the first year after assuming office. Experienced Trustees will use the program as a comprehensive refresher course.

For more experienced Trustees, the Advanced Principles of Pension Governance course at UCLA is suggested.

WHY ATTEND?

- To gain insight into public pension policy issues
- To discuss alternative solutions to common problems
- To understand the complexities involved in administering public pension plans
- To appreciate the differences and similarities among California public pension plans
- To network with other Trustees and pension professionals
- To increase familiarity with pension terminology and concepts
- To receive the ethics training required for new Trustees

FACULTY

The Course will be taught by public pension practitioners, including Trustees, Consultants, Actuaries, Investment Managers, Attorneys & Administrators.

THE CURRICULUM COMMITTEE

Principles of Pension Governance is managed by CALAPRS' Curriculum Committee led by the course Dean: Kristen Santos, Retirement Plan Administrator, Merced County Employees' Retirement Association.

LOGISTICS

California Association of Public Retirement Systems:

Alison Trejo, Administrator

Adriana Pannick, Administrative Manager

PRINCIPLES OF PENSION GOVERNANCE

A Course For Trustees

THE CURRICULUM

Each participant must attend the full 3 days of intensive training. Sessions combine team teaching, case studies and mock board problem solving. All course materials are based on actual California public pension fund law, policies, practices and problems.

The *Tuesday Evening Case Study* will provide practical experience in a disability hearing. The *Wednesday Evening Session* will consist of a **TEAM CASE STUDY** to resolve significant Board of Retirement issues.

MONDAY – AUGUST 26

6:00 PM *Reception & Dinner*
7:30 PM **Introductions and Course Overview**

TUESDAY – AUGUST 27

8:00 AM **Fiduciary Duty and Sound Decision Making**
How a Board Should Function
Benefits Provided and the Board's Role
Key Issues in Disability Retirement
4:20 PM **Case Study: Disability Hearing**
6:00 PM *Reception & Dinner*

WEDNESDAY – AUGUST 28

8:00 AM **Addressing Pension Liabilities**
Investment Policy Basics
Overseeing the Investment Program
5:30PM **Stakeholder Case Study**
6:30PM *Networking Dinner*

THURSDAY – AUGUST 29

8:00 AM **Required Ethics Training for Public Fund Trustees**
Course Summary
11:30 AM *Certificate Luncheon* and **Final Course Evaluation**

CERTIFICATE OF COMPLETION

Participants who successfully complete the course will receive a Certificate of Completion as well as a Certificate for completion of the AB1234 Ethics in Public Service. Trustees must attend all sessions to receive a completion certificate, at the discretion of the course faculty, and attendees who do not complete the course may return the following year to make up missed sessions at no additional charge.

LOCATION & LODGING

The program and lodging will be located at The Lodge at Tiburon, 1651 Tiburon Blvd, Tiburon, CA 94920. Lodging will be provided at the Lodge for the nights of August 26, 27 and 28, and will be arranged by CALAPRS as part of the course for all participants. Meals will also be provided beginning with dinner on August 26 and ending with lunch to-go on August 29.

ENROLLMENT

Minimum 20, Maximum 34 Trustees.

APPLICATION & TUITION

All applications must be received no later than **JULY 15, 2024**. Unsigned applications will be returned to the sender for signature. Tuition of \$3,000 (includes lodging, meals and materials) must be paid in advance of the program, no later than **AUGUST 15, 2024**

APPLICATION FOR ENROLLMENT 2024

APPLICATIONS WITH BOTH REQUIRED SIGNATURES MUST BE RECEIVED BY JULY 15, 2024.

Applicants must be trustees of a California public employee pension system. Attendance is recommended within the first year after assuming office. Experienced trustees will use the program as a comprehensive refresher course. Each system should enroll one Trustee as a "Delegate" and designate one additional Trustee as "1st Alternate" with the remainder as "2nd Alternate". Should it become necessary due to high demand, CALAPRS reserves the right to limit the number of participants from each system based on these designations. All applicants will be notified regarding acceptance no later than the week of July 17th.

Applicant Information

Trustee's Name (for certificate/name badge): _____

Retirement System: _____

Trustee Type: Elected Appointed Ex-Officio Date Became a Trustee: _____ Date Term Expires: _____

Trustee's Mailing Address: _____

Trustee's Phone: _____ Trustees' Email: _____

Administrative Contact (name, email): _____

Emergency Contact (name, phone): _____

Dietary Restrictions (if any): _____

BIOGRAPHY: Email Trustee's biography (≤150 words) to register@calaprs.org for printing in the attendee binder.

Applicant Agreement

If admitted, I agree to attend the program in full and acknowledge that missing one or more sessions may result in forfeiture of my Certificate of Completion, as determined by the Faculty.

Trustee Signature (required) _____ Date: _____

Administrator Approval

Applicant Designation: Delegate 1st Alternate 2nd Alternate

Administrator Name: _____ Email: _____

Administrator Signature (required): _____

Tuition Payment

Tuition of \$3,000 must be paid in full by August 15, 2024 and includes all meals, materials, and lodging. Payable by check only (no credit cards) to "CALAPRS". This application form serves as an invoice. No additional invoice will be sent. Cancellation refunds may be provided to the extent that costs are not incurred by CALAPRS.

Lodging is mandatory for all participants. CALAPRS will make the hotel reservations and payment for the nights of August 26, 27, and 28.

**RETURN COMPLETED APPLICATION BY
JULY 15, 2024**

Mail, email or fax form and payment to
CALAPRS
575 Market Street, Suite 400
San Francisco, CA 94105
Phone: 415-764-4860 Fax: 415-764-4915
register@calaprs.org www.calaprs.org



If, due to a disability, you have any special needs, call 415-764-4860 to let us know. We will do our best to accommodate them.



Meeting Date
05/22/2024
Agenda Item
#9c.

ITINERARY

TUESDAY, SEPTEMBER 3, 2024

6:00 pm – 6:15 pm:	Welcome and Opening Remarks
6:15 pm – 7:30 pm:	Session 1: Keynote Address
7:30 pm – 10:00 pm:	Networking Dinner: Endless Summer

WEDNESDAY, SEPTEMBER 4, 2024

8:00 am – 9:00 am:	Session 2: World on Fire – Understanding Geopolitical Risks and Opportunities
9:00 am – 10:00 am:	Session 3: Election 2024
10:00 am – 10:15 am:	Networking Break
10:15 am – 11:00 am:	Session 4: The Death of Passive Management
11:00 am – 12:00 pm:	Session 5: Shareholder Litigation
12:00 pm – 1:00 pm:	Lunch
1:00 pm – 2:00 pm:	Session 6: Leadership and Happiness
2:00 pm – 3:00 pm:	Session 7: Investing in Genius – The Good, the Bad, and the Ugly of Founder-Driven Firms
3:00 pm – 4:00 pm:	Session 8: In-Depth Breakout Sessions (General Counsel Roundtable, Art of the Chair, or Personalizing AI)
6:30 pm – 7:30 pm:	Cocktail Reception
7:30 pm – 11:00 pm:	Networking Dinner: 007 Gala

THURSDAY, SEPTEMBER 5, 2024

8:00 am – 9:00 am:	Session 9: Best Practices in Fund Governance
9:00 am – 9:45 am:	Session 10: “Mind Blowing” – AI Revisited
9:45 am – 10:00 am:	Networking Break
10:00 am – 11:00 am:	Session 11: Trends to Watch in Governance and Investing
11:00 am – 12:10 pm:	Session 12: Closing Remarks
12:30 pm – 5:30 pm:	Networking Activities: Pickleball Tournament, Painting on Canvas, Charcuterie Board, and Whale Watching.

2024 PUBLIC FUNDS FORUM
MONTAGE LAGUNA BEACH, CALIFORNIA
SEPTEMBER 3-5, 2024

WEDNESDAY, SEPTEMBER 4, 2024

8:00 am – 9:00 am:

Session 2: World on Fire – Understanding Geopolitical Risks and Opportunities

With hot wars igniting and international tensions rising around the globe, political risk underlies even domestic investment. Investment strategists discuss how pension fund trustees can map potential impacts in their portfolios, hedge against negative effects, and provide long-term protection for their beneficiaries.

9:00 am – 10:00 am:

Session 3: Election 2024

This year's elections will have far-reaching influence for institutional investment, financial regulation, corporate governance, and portfolio management. From Washington, DC to the state houses, American politics is realigning under our feet, perhaps creating tectonic shifts for pension fund policies and expectations. Keen political observers offer insights and predictions on what this year's elections will mean for you.

10:00 am – 10:15 am:

Networking Break

10:15 am – 11:00 am:

Session 4: The Death of Passive Management

From voting proxies to company engagement, from divestment mandates to securities litigation strategies, pension funds are increasingly pressured to be active owners in their portfolios. How public fund fiduciaries are rising to the challenge and employing new tools and technologies to act as stewards for the capital markets.

11:00 am – 12:00 pm:

Session 5: Shareholder Litigation

Leading securities lawyers and fund managers present case studies on the successful use of securities litigation by pension funds to improve returns, reduce risk, and repair troubled companies in their portfolios.

12:00 pm – 1:00 pm:

Lunch

1:00 pm – 2:00 pm:

Session 6: Leadership and Happiness

According to research, to be successful in life, one should understand the importance of happiness and manage it appropriately. Social scientists have shown that there is an enormous opportunity for leaders to improve happiness practices in their organizations, thereby raising workplace engagement, facilitating recruitment, and increasing retention and productivity. This session explores the methods by which institutions can establish a culture of meaning, purpose, and life satisfaction, and prosper in highly competitive labor markets where culture and quality of life are so critical.

2:00 pm – 3:00 pm:

Session 7: Investing in Genius – The Good, the Bad, and the Ugly of Founder-Driven Firms

The top ten of the world's richest people are the creators of some of the companies with the best returns in the market. We examine what to watch out for when investing in the growth stocks that lead the indexes and that everyone needs in their portfolios.

3:00 pm – 4:00 pm:

Session 8: In-Depth Breakout Sessions

1: General Counsel Roundtable – Veteran general counsel discuss hot topics and share insights on legal issues facing public funds.

2: Art of the Chair – Top experts provide tips and training on how to chair boards and other organizations with equity, efficiency, and effectiveness.

3: Personalizing AI – Experts demonstrate how pension funds can use AI and other technology to provide an expanded range of personalized services to their beneficiaries.

THURSDAY, SEPTEMBER 5, 2024

8:00 am – 9:00 am:

Session 9: Best Practices in Fund Governance

Pension fund leaders share innovative insights and information on such topics as boardroom politics, trends in funding, operations management, and stakeholder accountability.

9:00 am – 9:45 am:

Session 10: “Mind Blowing” – AI Revisited

Earlier this year, Tyler Perry stunned the public when he paused plans to build a new \$800 million studio set near Atlanta. The reason? He saw a “shocking” demo of Sora – a new content-creating AI system from OpenAI – and immediately saw that near-Hollywood quality content could be created instantly with a few keystrokes. AI was said to be coming. Just one year later, it seems to have arrived everywhere.

9:45 am – 10:00 am:

Networking Break

10:00 am – 11:00 am:

Session 11: Trends to Watch in Governance and Investing

Experienced fund leaders and investment experts discuss emerging issues for public pensions, including developments in responsible investing, boardroom practices, and new focus points of systemic risk.

11:00 am – 12:10 pm:

Session 12: Closing Remarks

12:30 pm – 5:30 pm:

Networking Activities: Pickleball Tournament, Painting on Canvas, Charcuterie Board, and Whale Watching.

2024 PUBLIC FUNDS FORUM
MONTAGE LAGUNA BEACH, CALIFORNIA
SEPTEMBER 3-5, 2024

The registration fee for the Forum is \$995.

The guest fee is \$505.

- Credit Card Waiver Request*

IN-DEPTH BREAKOUT SESSIONS (please select one of the following):*

- General Counsel Roundtable Art of the Chair Personalizing AI

NETWORKING ACTIVITY (please select one of the following):*

- Pickleball Tournament Painting on Canvas Charcuterie Board
 Whale Watching None

(An additional fee of \$125 is required to participate in any of the networking activities.)

HOTEL ACCOMMODATIONS

A discounted block of rooms has been reserved at the Montage Laguna Beach for \$405 per night (not including applicable fees and taxes). Please visit [Montage Reservations](#) by August 21, 2024 to reserve your room.

* Upon request and as legally permissible, the registration fee may be waived subject to applicable gift and gratuity limitations. Public officials in certain jurisdictions may accept all or part of Forum benefits free of charge. Public officials are encouraged to contact their ethics officials with questions.

The registration fee includes admission to the conference sessions, educational materials, the Endless Summer and 007 Gala dinners, and other meals and refreshments that are integral to the Forum agenda.

For questions regarding the Forum, please contact a Forum Representative at (310) 476-8108 or info@veaglobalevents.com.

CONTINUING EDUCATION

CLE and CPE accreditations are available for attendance at the conference.

Please indicate the accreditations, if any, being sought:

- CLE CPE None