



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: MARCH 31, 2024**

Investment Performance Review for

**Kern County Employees' Retirement Association**

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[VERUSINVESTMENTS.COM](https://www.verusinvestments.com)

**SEATTLE** 206.622.3700

**CHICAGO** 312.815.5228

**PITTSBURGH** 412.784.6678

**LOS ANGELES** 310.297.1777

**SAN FRANCISCO** 415.362.3484

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Investment Landscape

**TAB I**

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Investment Performance  
Review

**TAB II**

An aerial photograph of a coastal town and beach, viewed from a high vantage point. The town is nestled between a large, forested hill and the ocean. A sandy beach runs along the coast, with waves breaking onto the shore. The sky is blue with some clouds. A semi-transparent geometric pattern of triangles is overlaid on the left side of the image. A white triangle points upwards, and a blue triangle points downwards, framing the main title text.

**PERSPECTIVES  
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SUCCESS**

2<sup>ND</sup> 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](https://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](https://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.

# 1<sup>st</sup> 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 10<sup>th</sup>, 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 30<sup>th</sup>, 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 27<sup>th</sup>, 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%

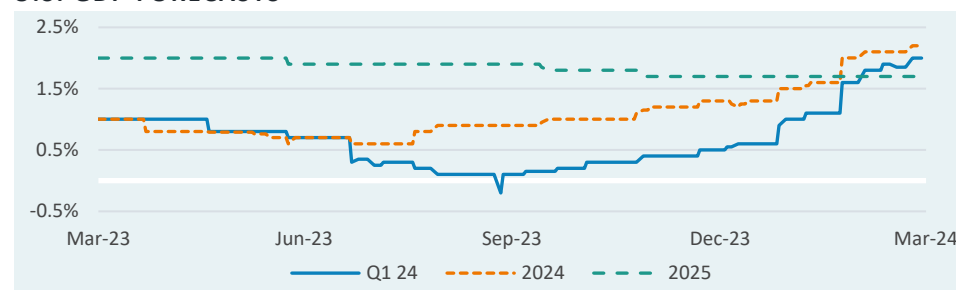
Article Source: Bloomberg, March 2<sup>nd</sup>, 2024

## CPI COMPONENT: SHELTER (YEAR-OVER-YEAR)



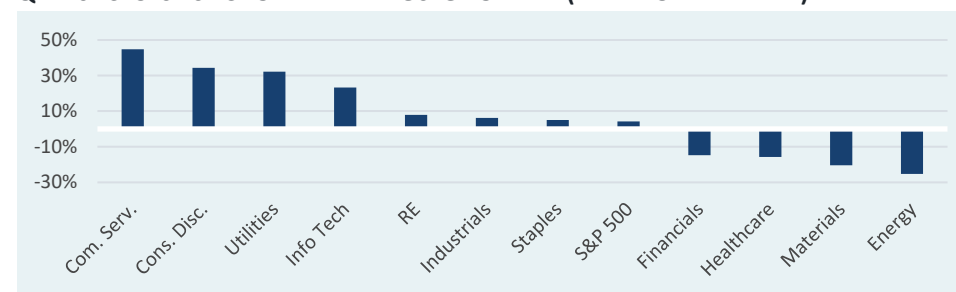
Source: BLS, as of 3/31/24

## 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

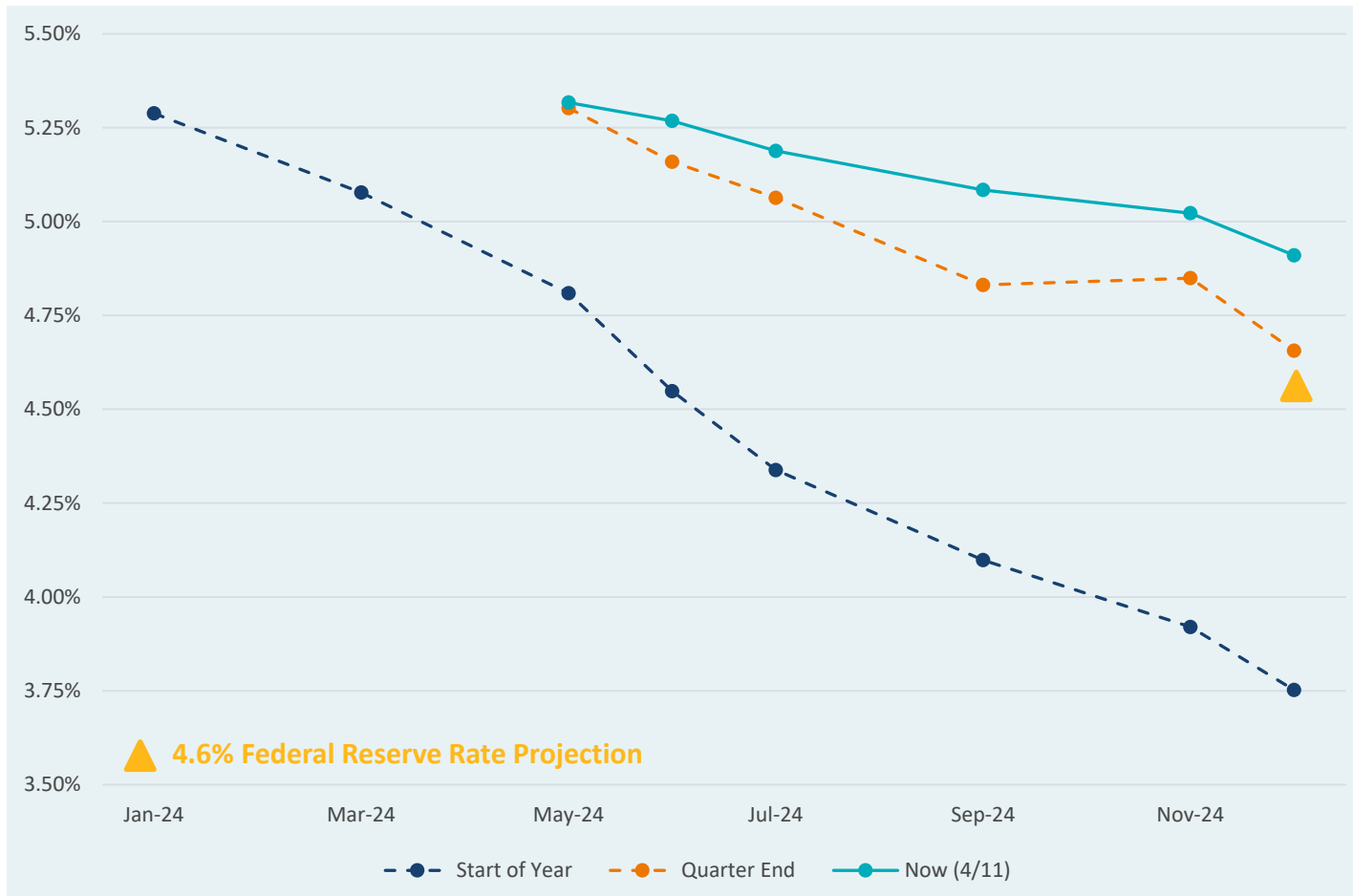
# U.S. economics summary

- 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.

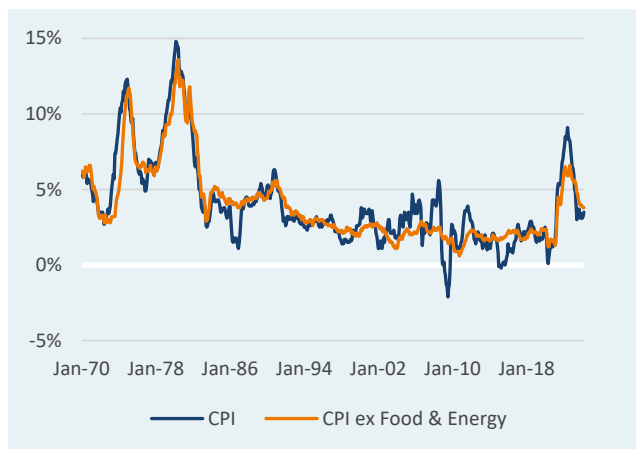
The outsized impact of Shelter—which makes up more than a third of the entire CPI basket—remains a major force keeping inflation elevated. While shelter prices reported by the Bureau

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.

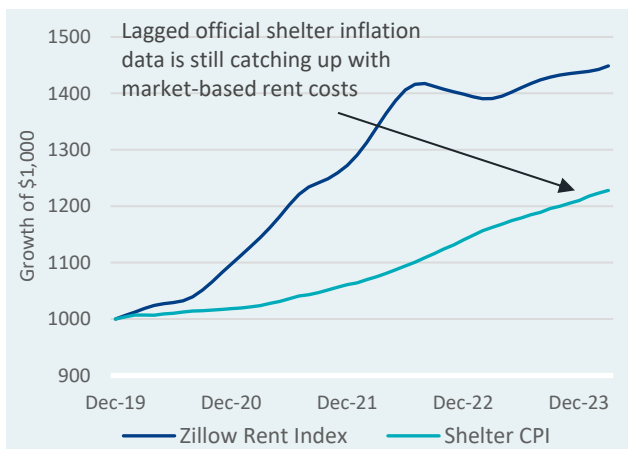
Q1 inflation remains above the Fed’s target, affecting market expectations for a “higher for longer” rate environment

U.S. CPI (YOY)



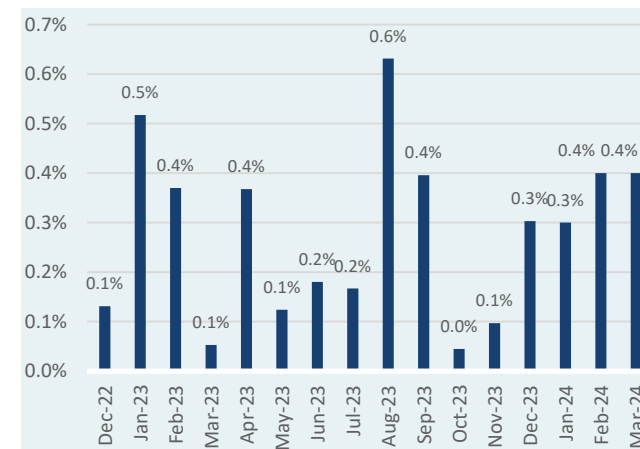
Source: BLS, as of 3/31/24

ZILLOW OBSERVED RENT VS. SHELTER CPI



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

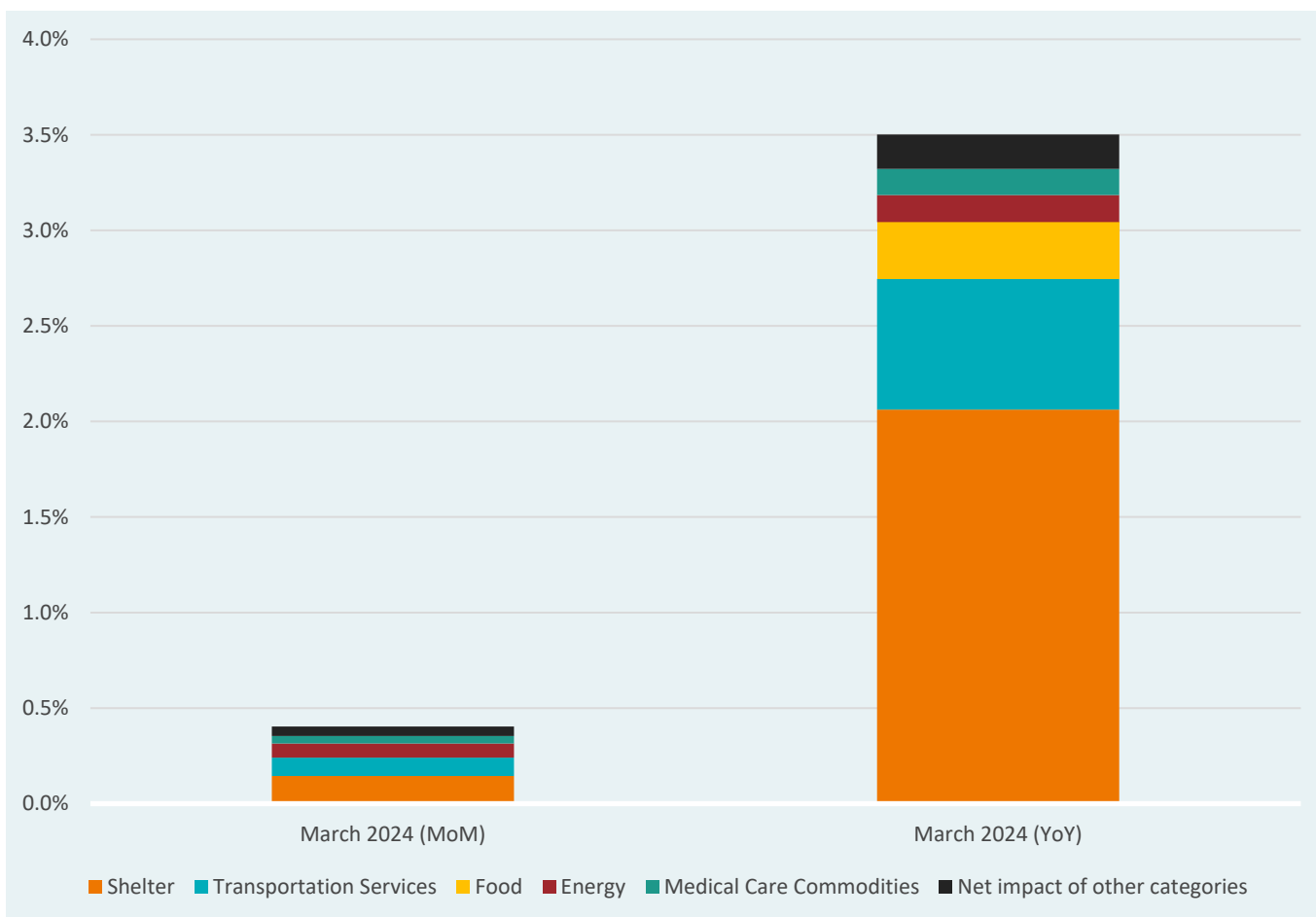
MONTHLY PRICE MOVEMENT (CPI)



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

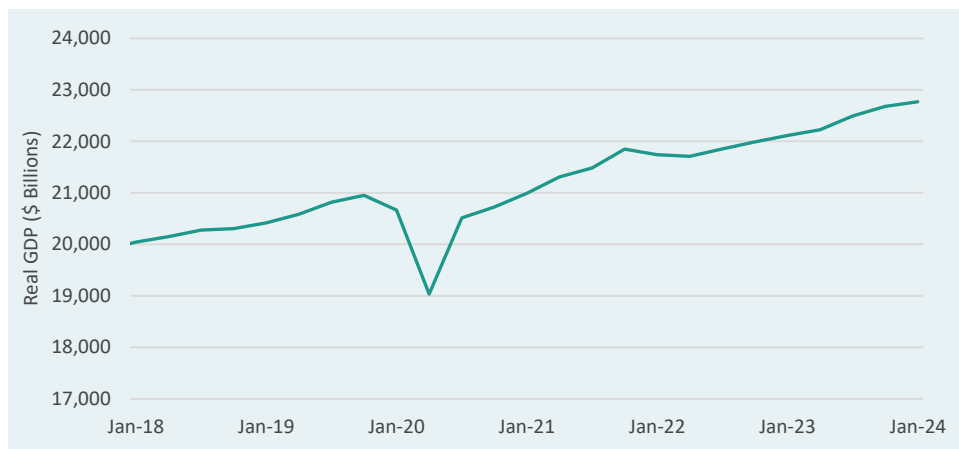
Real GDP growth unexpectedly slowed in Q1 to 1.6% quarter-over-quarter (3.0% year-over-year), falling short of economist forecasts for 2.5% growth. The GDP release reflected positive but decelerating spending by households, slowing exports, and less government expenditures. Residential fixed investment 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.

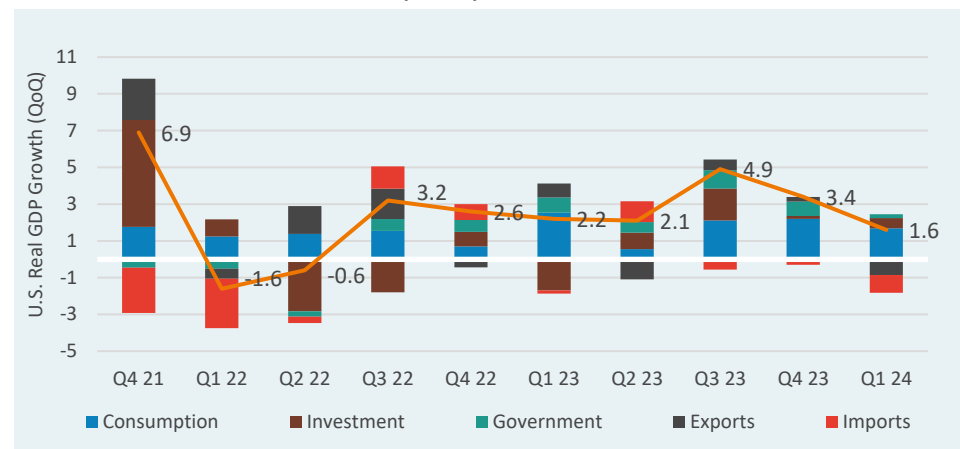
U.S. growth slowed a bit in Q1 but continues to show resilience despite aggressive monetary tightening

## U.S. REAL GROSS DOMESTIC PRODUCT



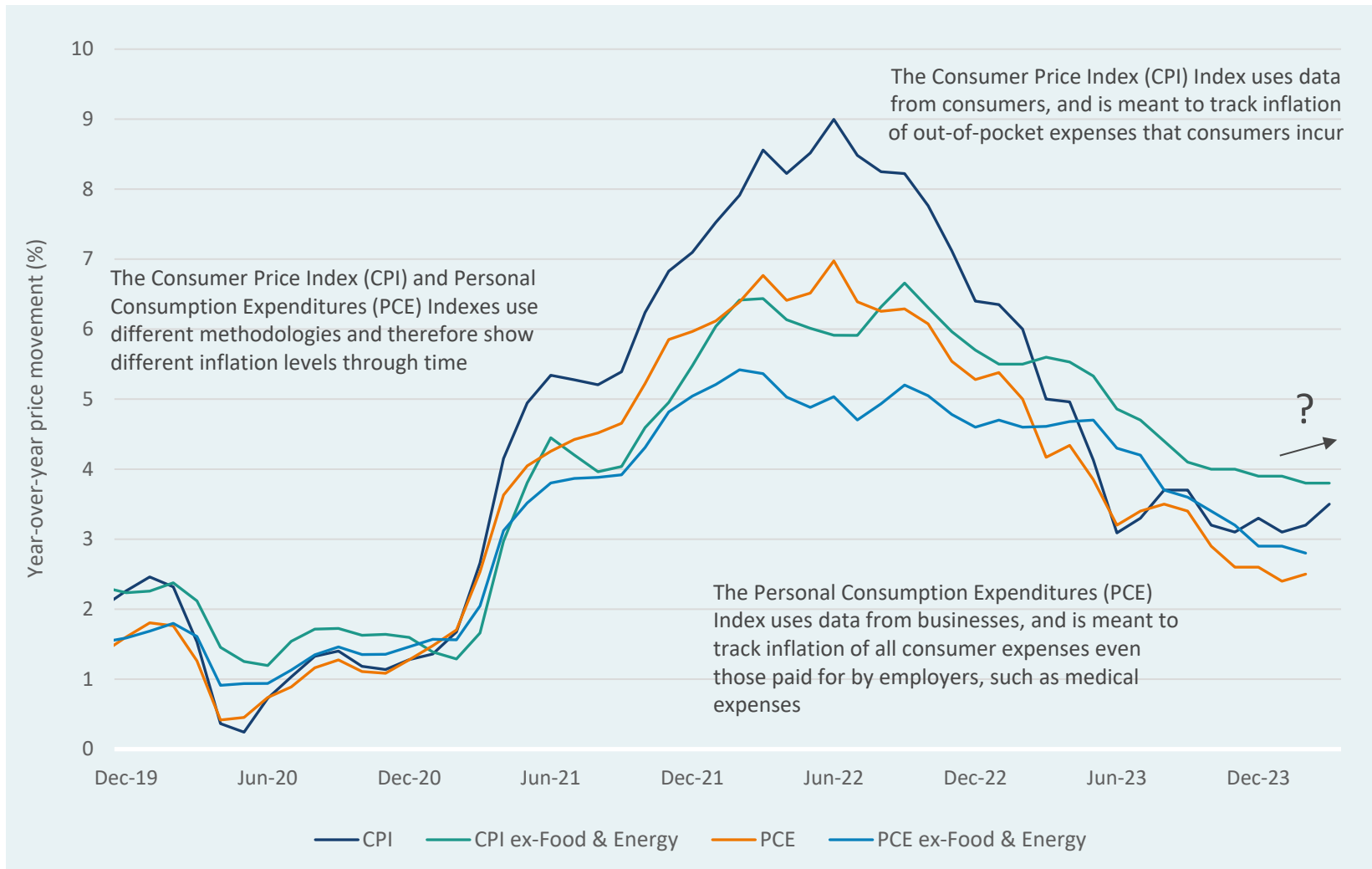
Source: FRED, as of 3/31/24

## 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%.

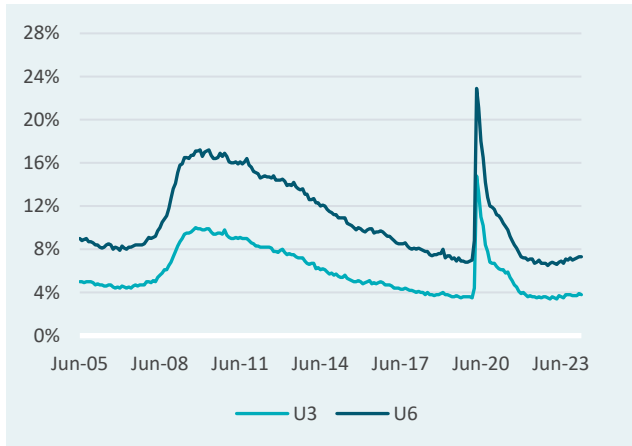
The U.S. job market has been incredibly resilient in the face of higher interest rates, and ongoing employment data releases continue to show outsized labor market gains. Some economists and investors have begun to partially attribute the record labor market gains to substantial immigration (both legal 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.

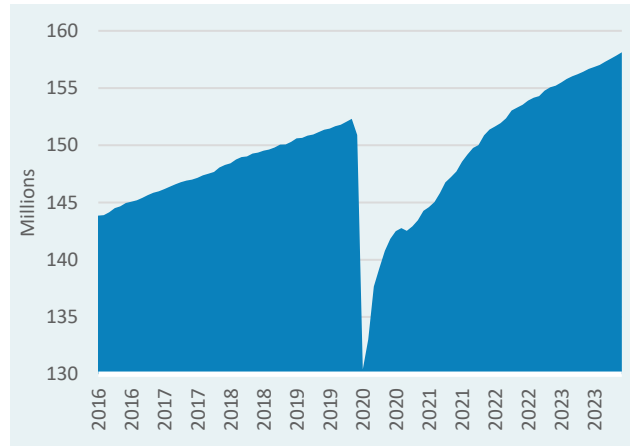
A substantial rise in different types of immigration over recent years may partially describe strong labor data

## U.S. UNEMPLOYMENT



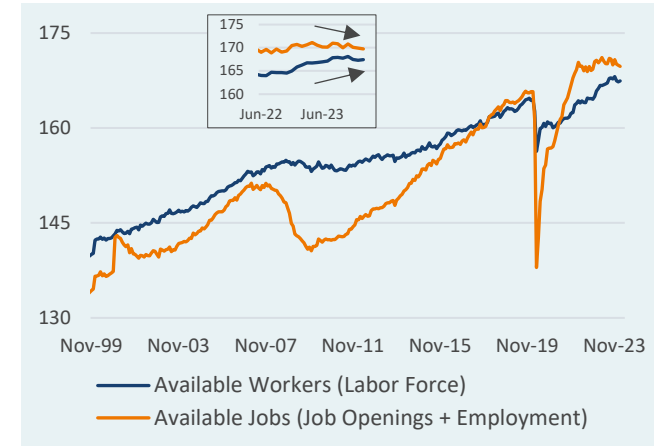
Source: FRED, as of 3/31/24

## 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.

Personal savings rates had been improving through mid-2023

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.

**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”.

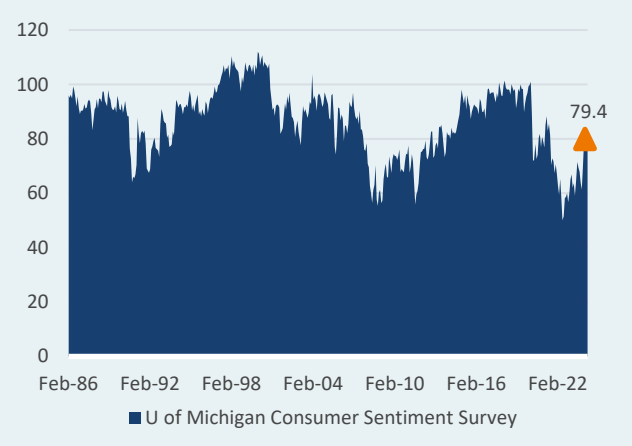
Although the domestic annual inflation rate is now closer to the longer-term average, sentiment surveys continue to reflect discontent with high costs of living. As we have discussed in recent quarters, this effect might be termed the “lower inflation conundrum”. As prices of many goods and services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

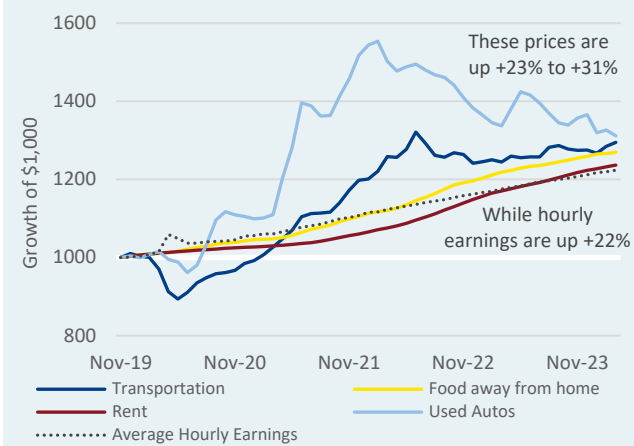
Consumer sentiment improved during Q1, while small business optimism dropped to the weakest level since 2012

**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.

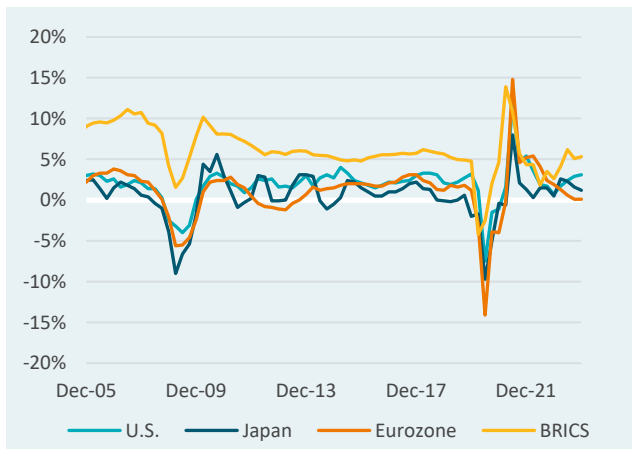
# International economics

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.

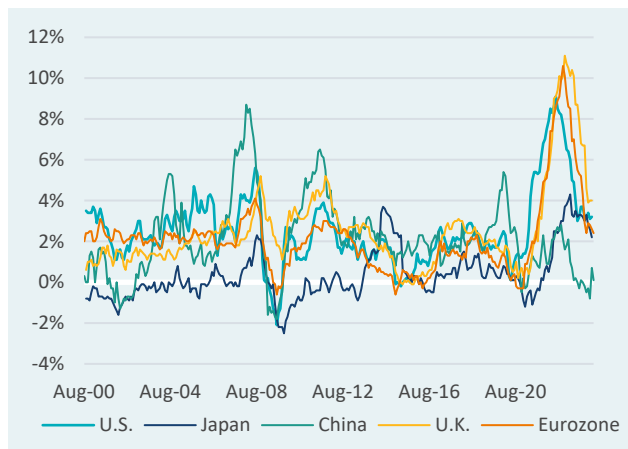
Going forward, we see material downside risks but also potential growth catalysts to the upside. Continuing and escalating conflicts in the Middle East and Eastern Europe have raised fears around energy market disruption, especially when considering that rising oil and natural gas prices were a major 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)**



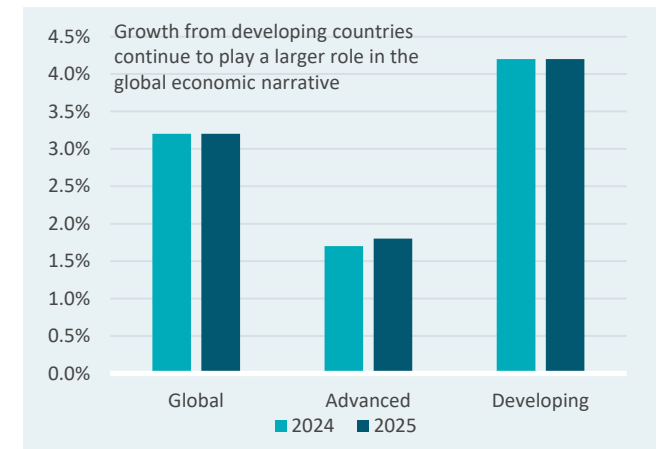
Source: Bloomberg, as of 12/31/23

**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 6<sup>th</sup>, 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.

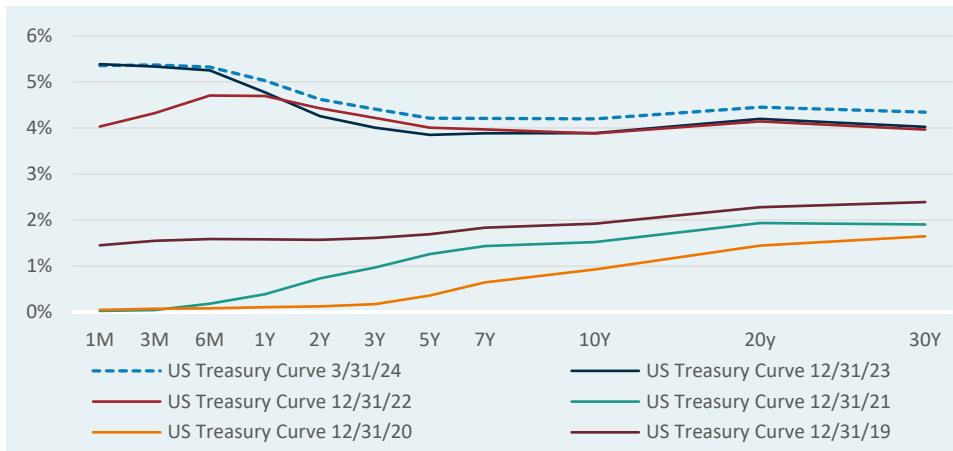
- Although default activity remains low, volumes increased as slowing economic growth and rising borrowing costs acted as headwinds. During the period, \$20.6 billion of bank loan and high yield bonds were affected by default or distressed exchanges, up from \$15.8 billion in the prior quarter. Notable 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%

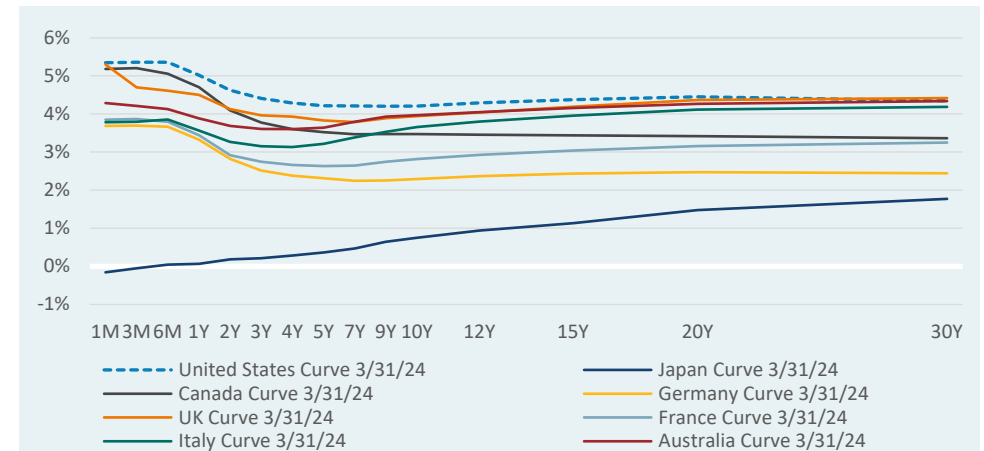
Source: Bloomberg, as of 3/31/24

# Yield environment

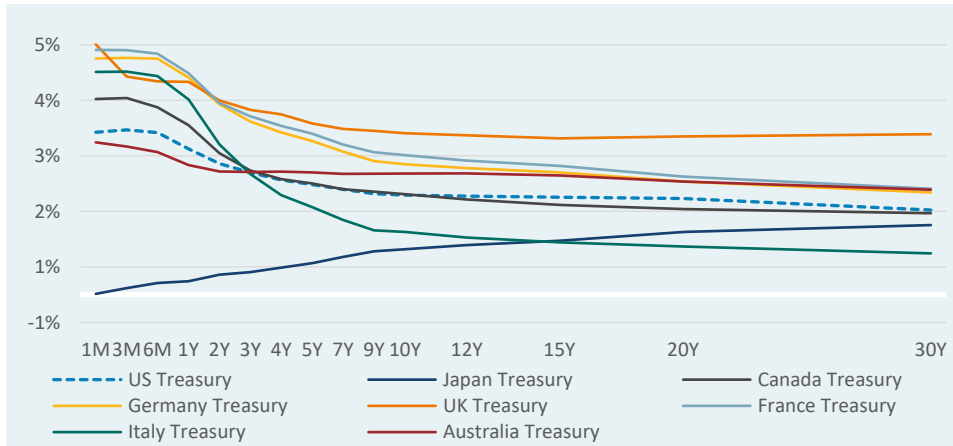
## U.S. YIELD CURVE



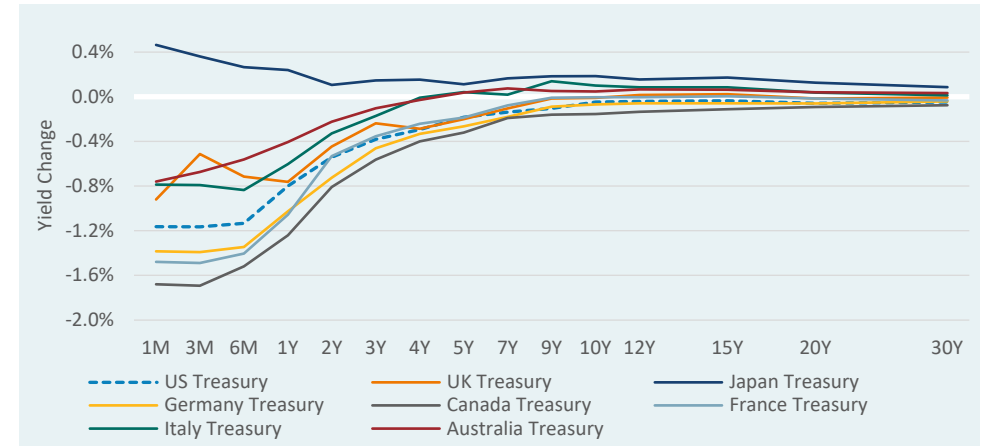
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/24



# Credit environment

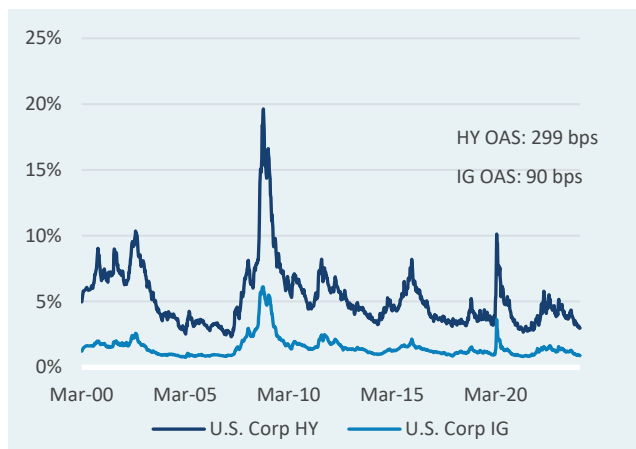
During the first quarter, credit markets delivered mixed returns with lower-quality credits such as high yield bonds and bank loans leading. Bank loans rose +2.5% (CS Leveraged Loans), while high yield bonds increased by +1.5% (Bbg U.S. Corporate High Yield). Longer duration investment grade corporate 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,

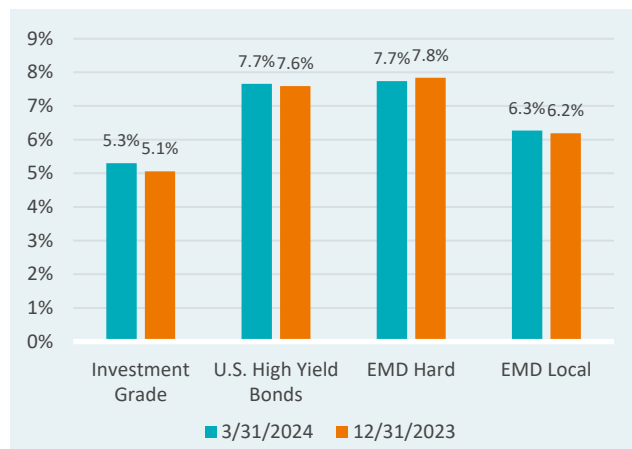
Credit spreads were slightly narrower during the quarter as stronger-than-expected economic growth eased concerns related to potential recession. Lower-quality high yield bond spreads fell by 0.2% to roughly 3.2%, while investment grade spreads decreased by roughly 0.1% to 1.2%. Broadly, spreads remain 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).

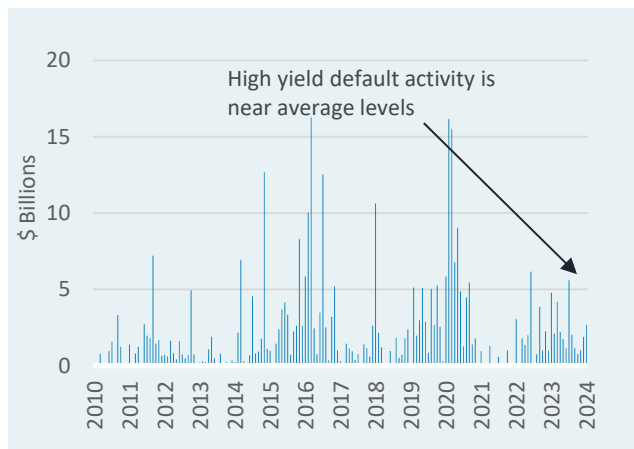
Year-to-date, the combined total of defaults and exchanges tracked slightly behind last year's pace by roughly -3.0%.

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%.

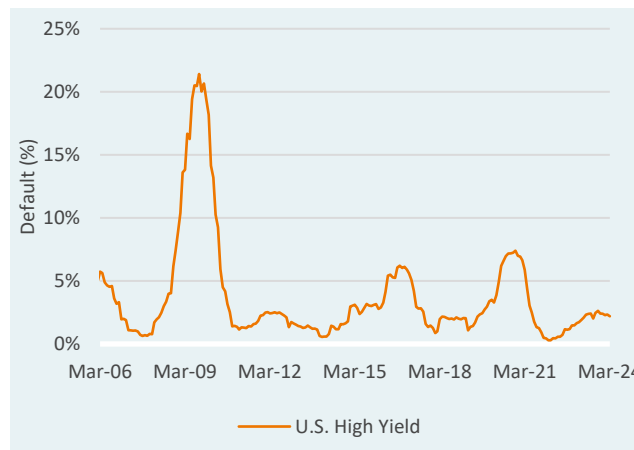
The issuance of investment grade credit increased significantly from the prior quarter, by \$328.0 billion (\$531.0 billion from \$208.0 billion). Despite higher borrowing costs, high-yield bond issuance climbed slightly to \$86.6 billion during the quarter (up from \$42.0 billion in Q4). On a year-over-year 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)**



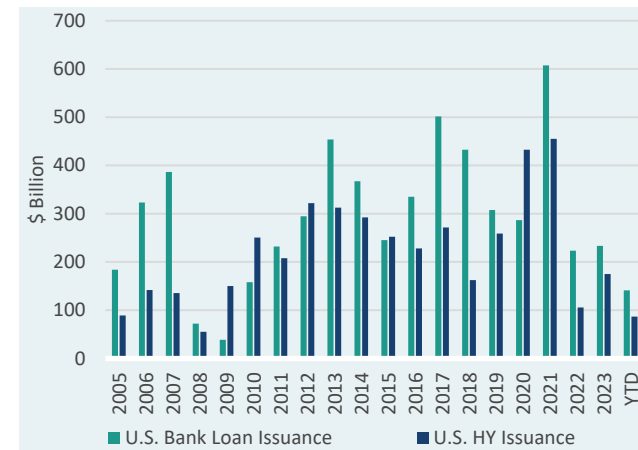
Source: BofA Merrill Lynch, as of 3/31/24

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



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

**DEVELOPED MARKET ISSUANCE (\$ BILLIONS)**

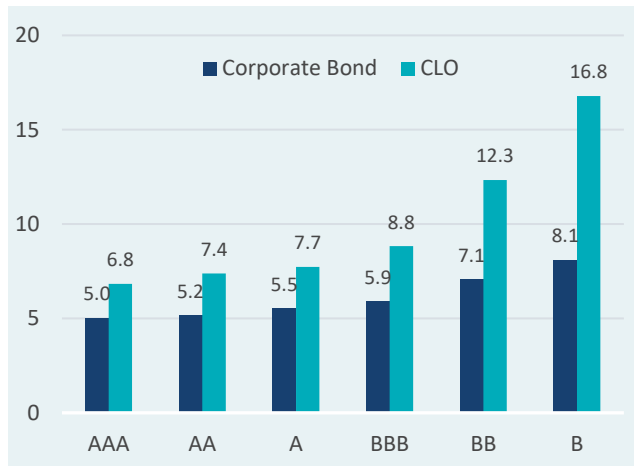


Source: BofA Merrill Lynch, all developed markets, as of 3/31/24

# Credit hedge funds

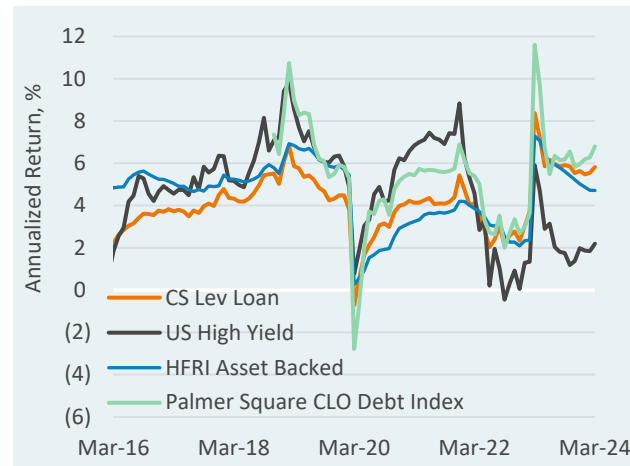
- Structured credit hedge funds, which focus on credit sectors such as CLOs, ABS (auto, credit card, etc), MBS, and CMBS, continue to deliver strong returns relative to traditional high yield and remain competitive relative to leveraged loan performance.
- Yields in those securitized markets remain wide 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 (%)**



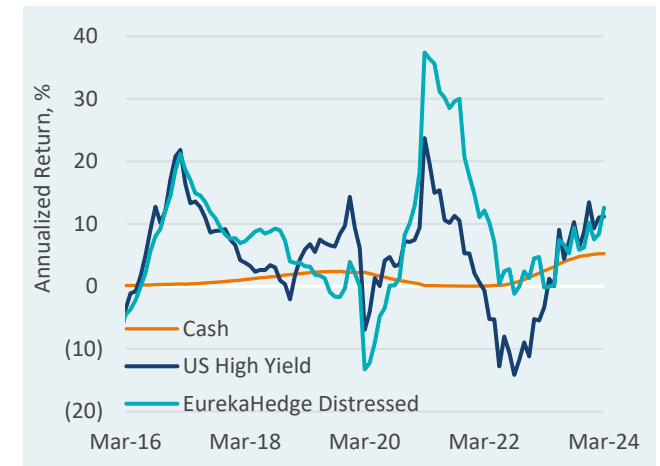
Source: Bloomberg, BofA, Federal Reserve, MPI. As of 3/31/24

**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.

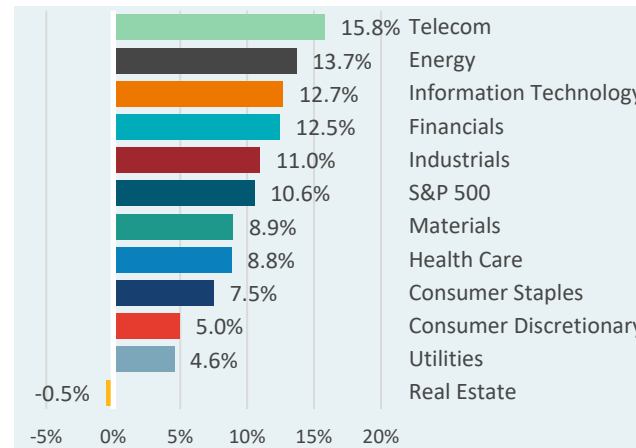
On the other hand, these strong price gains have moved valuations towards the richer side of the historical range, and the term "priced for perfection" has become more popular amongst the news lexicon. U.S. shares have also been relatively unbothered by changing expectations for the Federal Reserve rate 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**



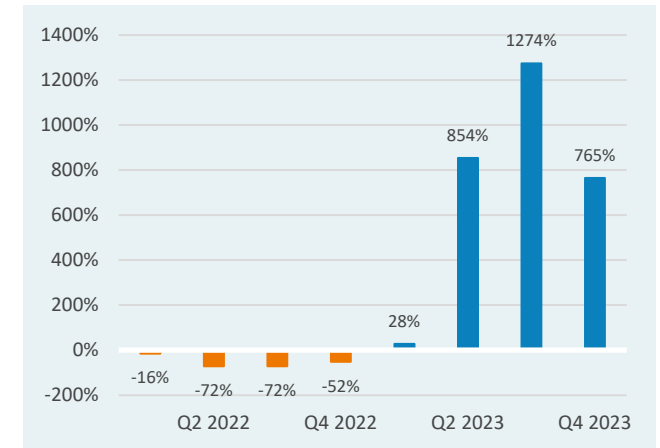
Source: Bloomberg, as of 3/31/24

**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

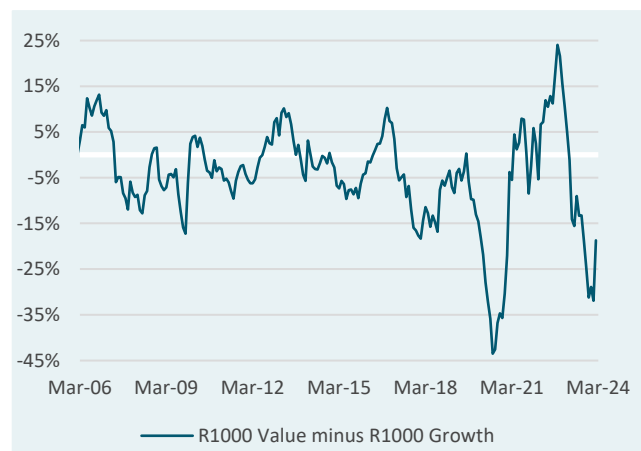
Small cap and value style investing underperformed during Q1. Small cap lagged large cap by -5.1% (Russell 2000 +5.2% vs. Russell 1000 +10.3%). Value underperformed Growth by -2.4% (Russell 1000 Value +9.0% vs. Russell 1000 Growth +11.4%). These style premia also suffered over the past full year. Small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

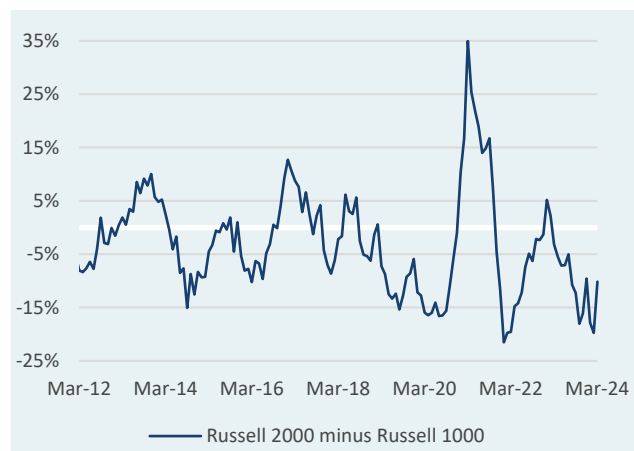
Variability in the behavior of style factors, often driven by idiosyncratic sector moves and broader macro themes, continues to provide evidence that style investing should typically be a longer-term endeavor. Short-term factor timing decisions should in most circumstances be pursued only in the rare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

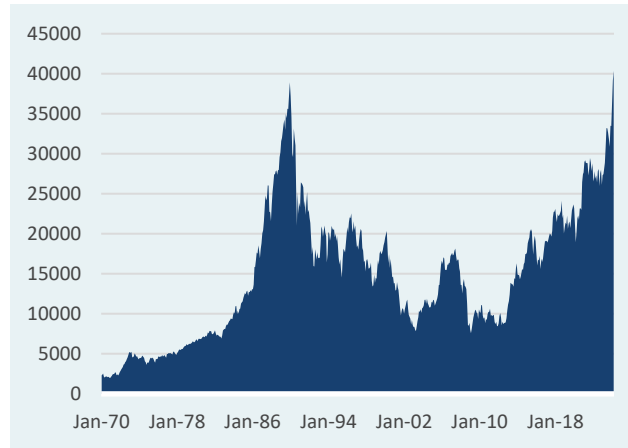
While performance has been better than expected, future growth catalysts remain uncertain. Falling Eurozone inflation boosted regional risk assets, as inflation fell from 3.1% to 2.4% in March. Easing inflation has taken some pressure off the ECB, resulting in rising expectations for rate cuts in June. 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



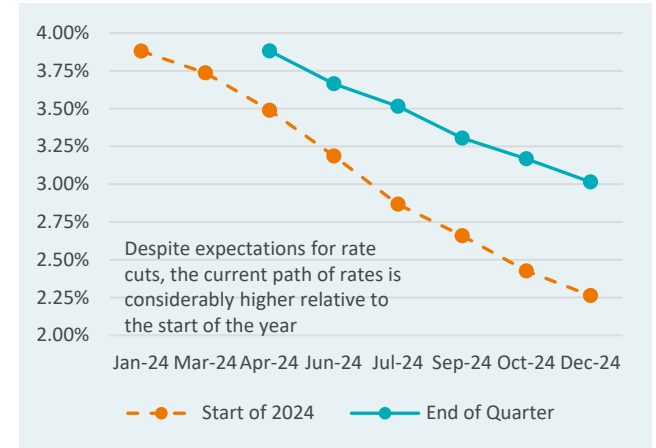
Source: MSCI, as of 3/31/24

## NIKKEI 225 INDEX



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

## ECB RATE EXPECTATIONS



Source: Bloomberg, as of 3/31/24



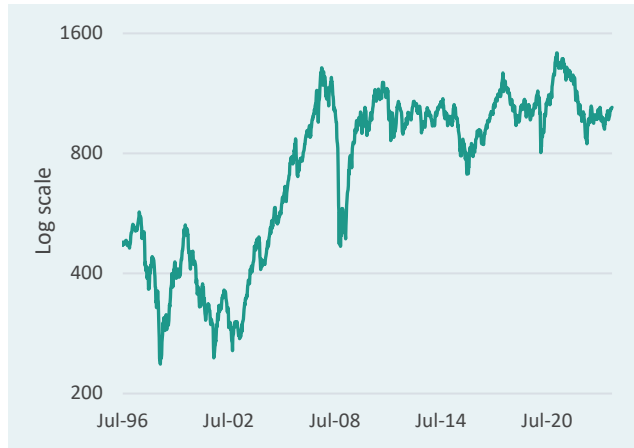
# Emerging market equity

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.

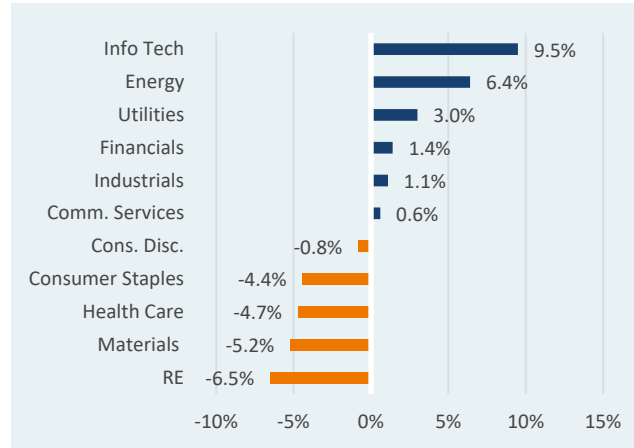
China remains a large question mark among emerging market country exposures, facing significant structural headwinds in the form of a declining population, imbalances in the real estate market, and a reversal in sentiment from the international community which contributed to a broad withdrawal of foreign 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**



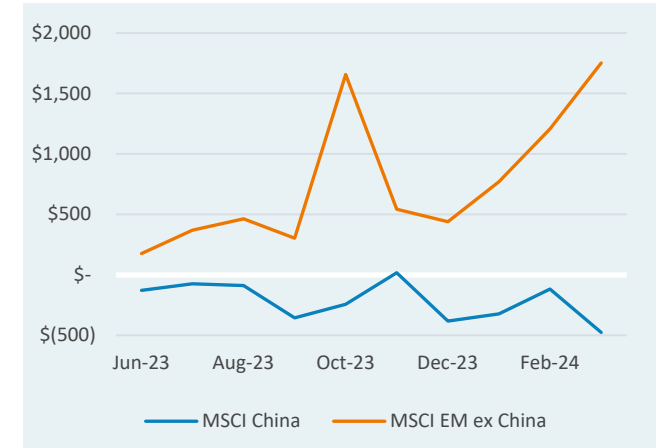
Source: MSCI, as of 3/31/24

**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

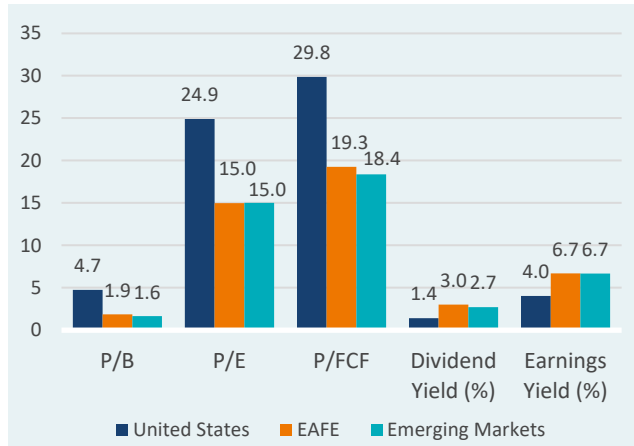
# Equity valuations

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'

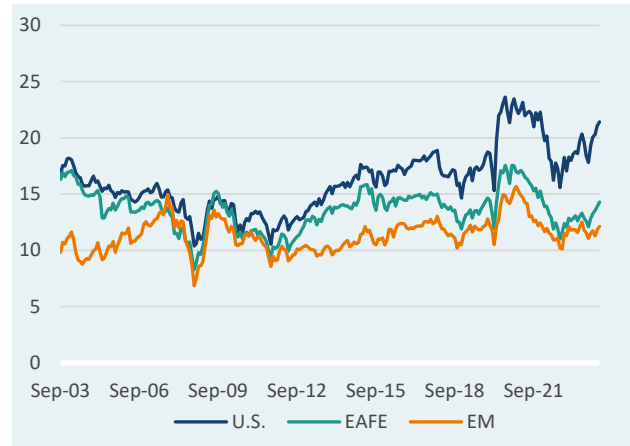
repricing of the interest rate path in 2024. Future stock market returns must come from either: corporate earnings growth, expansion of stock multiples (meaning stocks become more expensive), higher dividend yields (an increase in dividend payments), or higher inflation (assuming businesses pass this 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

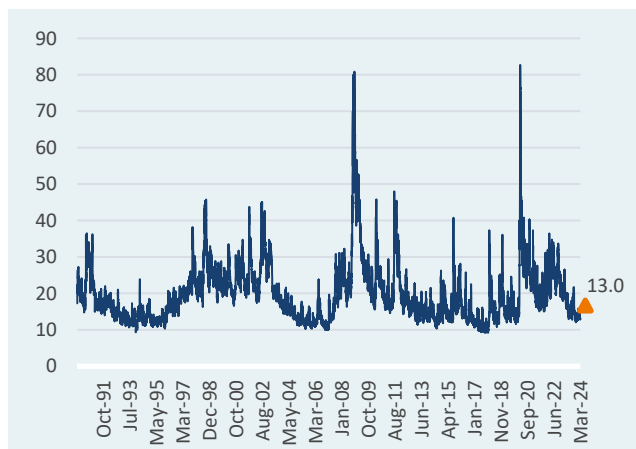
Market-priced volatility (Cboe VIX Index) remained incredibly low during the quarter, ending at 13.0 in March. Historically, market volatility of this level has coincided with strong upward trending risk markets and investor enthusiasm.

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.

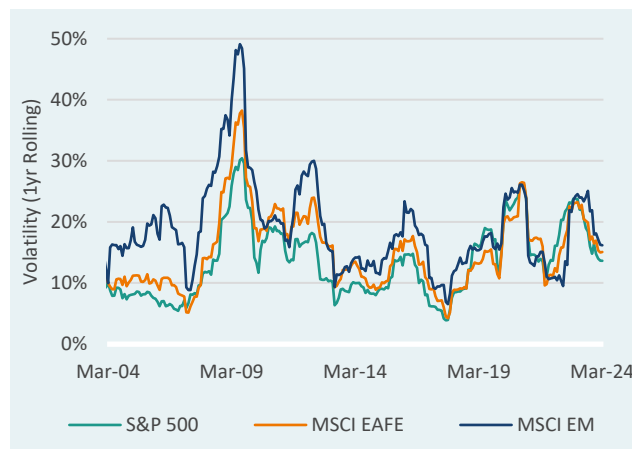
Bond market implied volatility has moderated considerably from extreme levels of 2023. This is indicated by the “MOVE” Index—which calculates the implied volatility of U.S. Treasury securities. However, notable uncertainty remains around inflation, the Federal Reserve’s interest rate path and the extent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

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



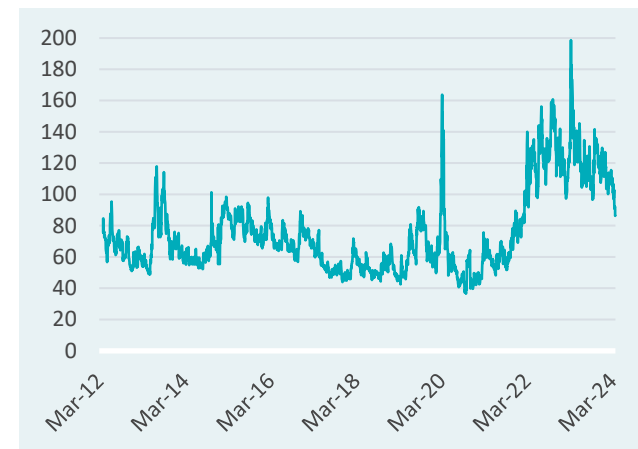
Source: Cboe, as of 3/31/24

**REALIZED VOLATILITY**



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

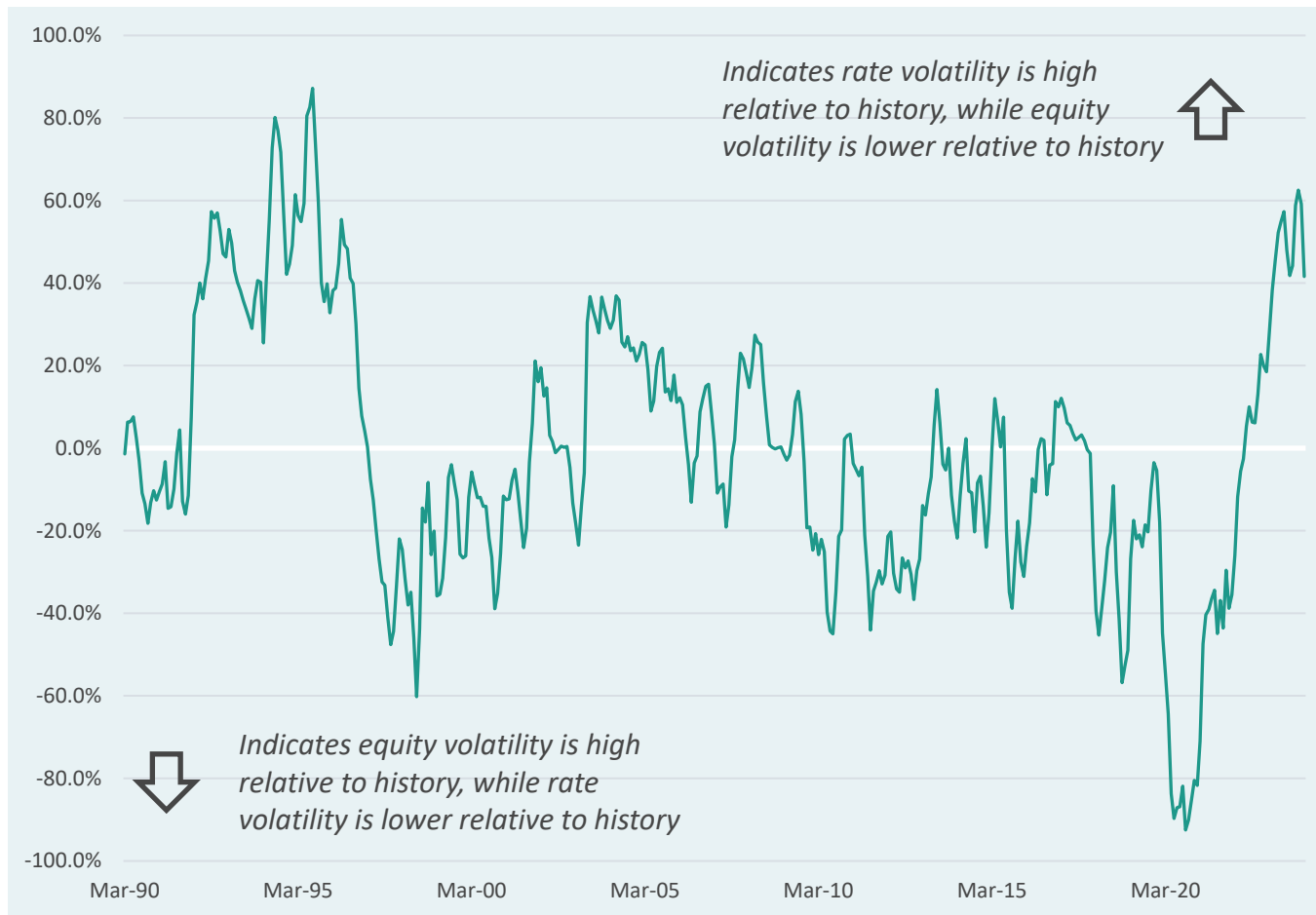
**U.S. TREASURY IMPLIED VOL (“MOVE” INDEX)**



Source: Bloomberg, as of 3/31/24

# Implied volatility: domestic rates vs. equity

RATES VS. EQUITIES VOLATILITY: HISTORICAL PERCENTILE SPREAD

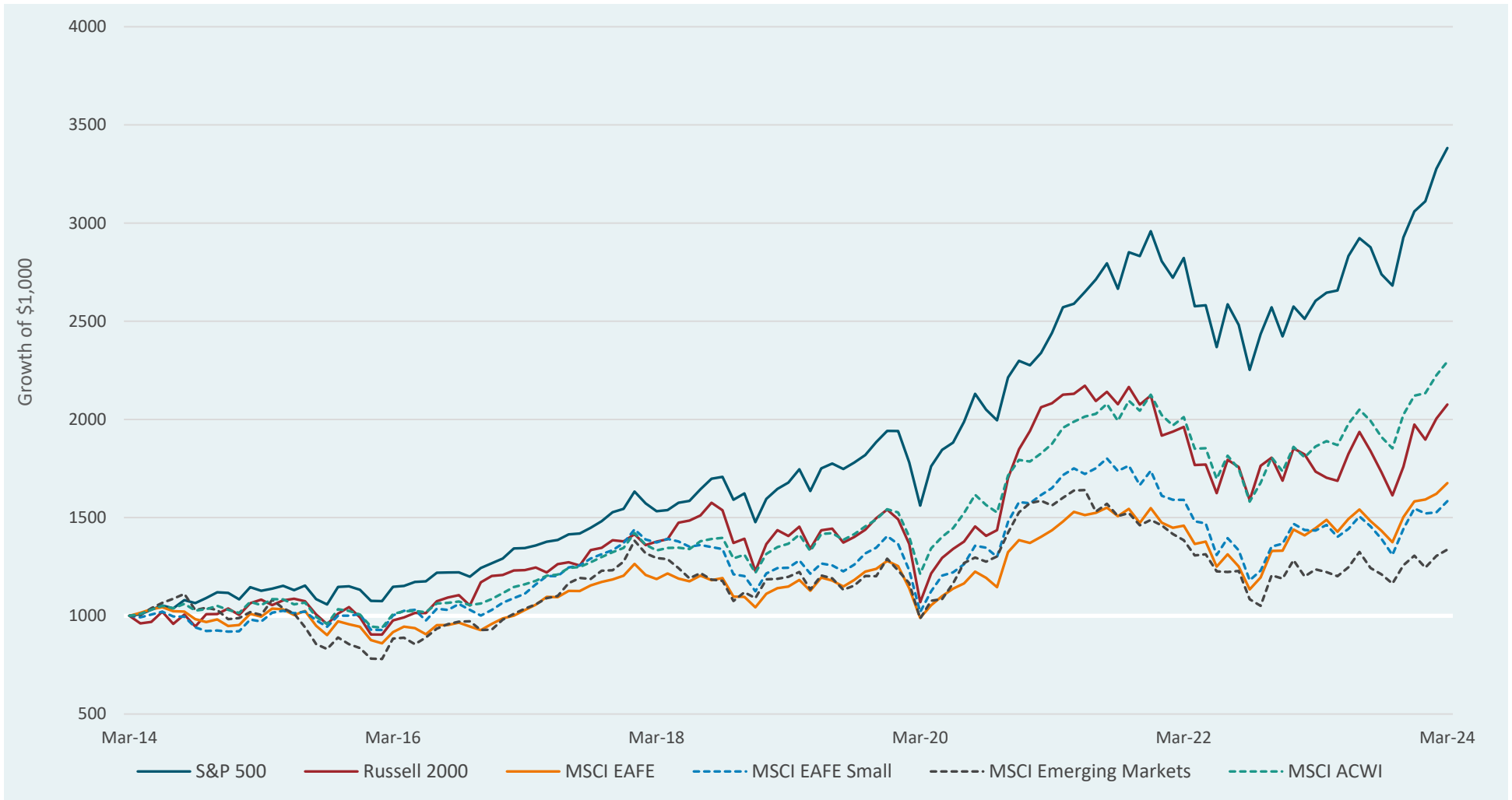


This chart looks at the relationship between rate and equity volatility by comparing historical percentiles dating back to 1990. By taking a spread between the rate and equity percentile, we get a clear picture of environments when implied volatility is relatively higher for one asset class compared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

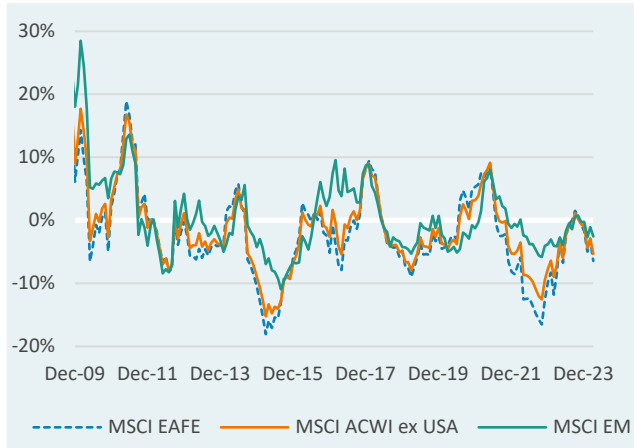
The U.S. dollar gained in value during the quarter, likely buoyed by the *higher for longer* interest rate narrative. A reassessment of the Federal Reserve policy path for 2024 has improved the outlook for the dollar, as currencies which offer higher interest rates, and relatively attractive prospects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

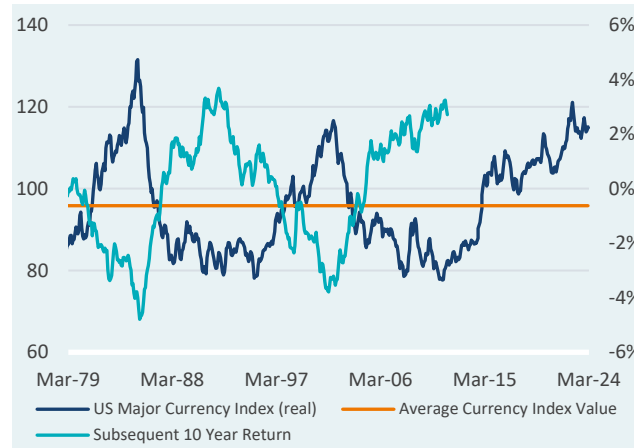
This past year marks another period of uncompensated volatility and losses caused by unhedged currency market exposure. The benefits which a more thoughtful currency approach might deliver have been on display for a number of years. This approach involves reducing the uncompensated risk of unhedged foreign 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)**



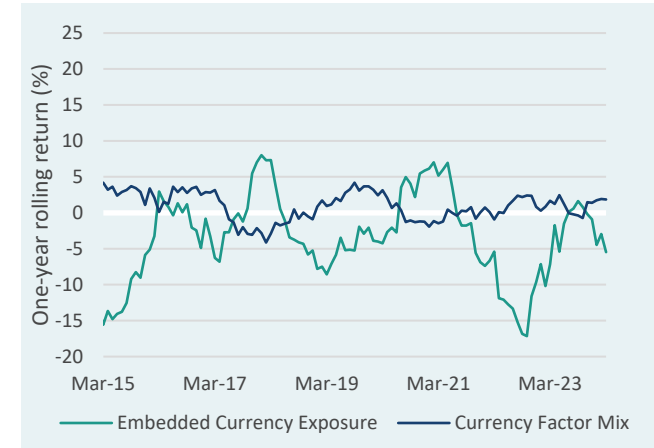
Source: MSCI, as of 3/31/24

**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.

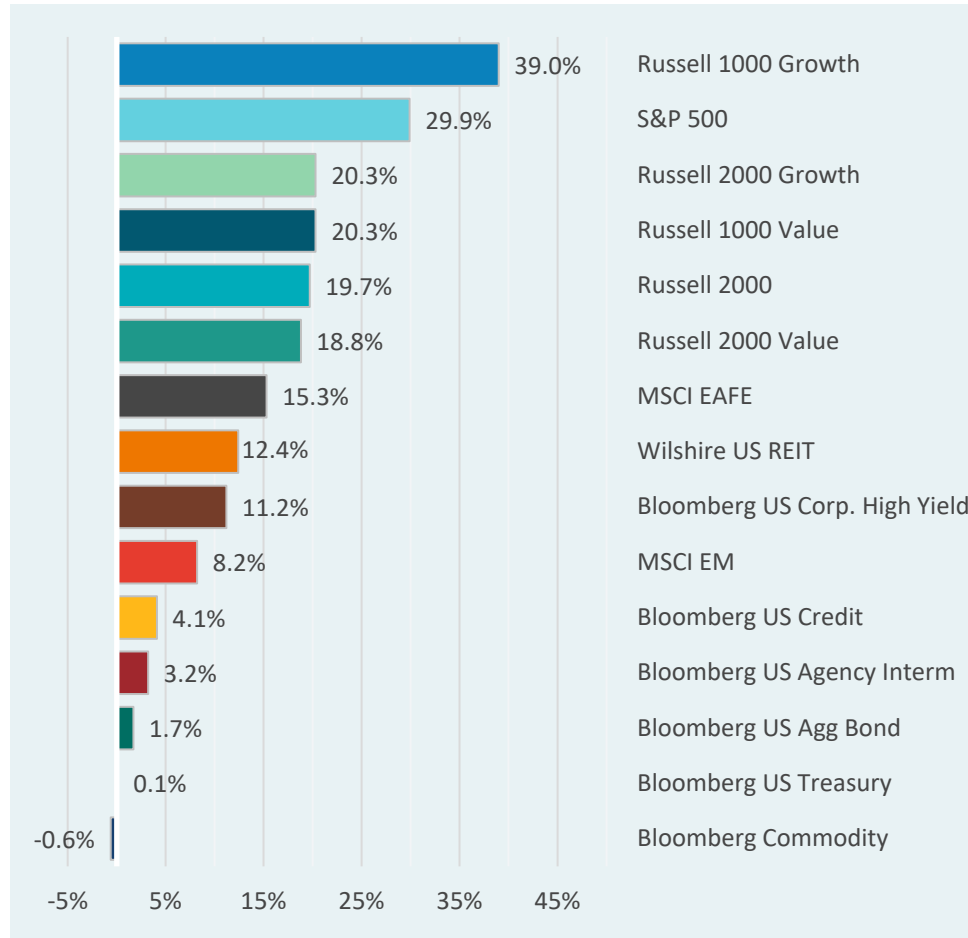
Verus<sup>777</sup>

Investment Landscape  
2nd Quarter 2024

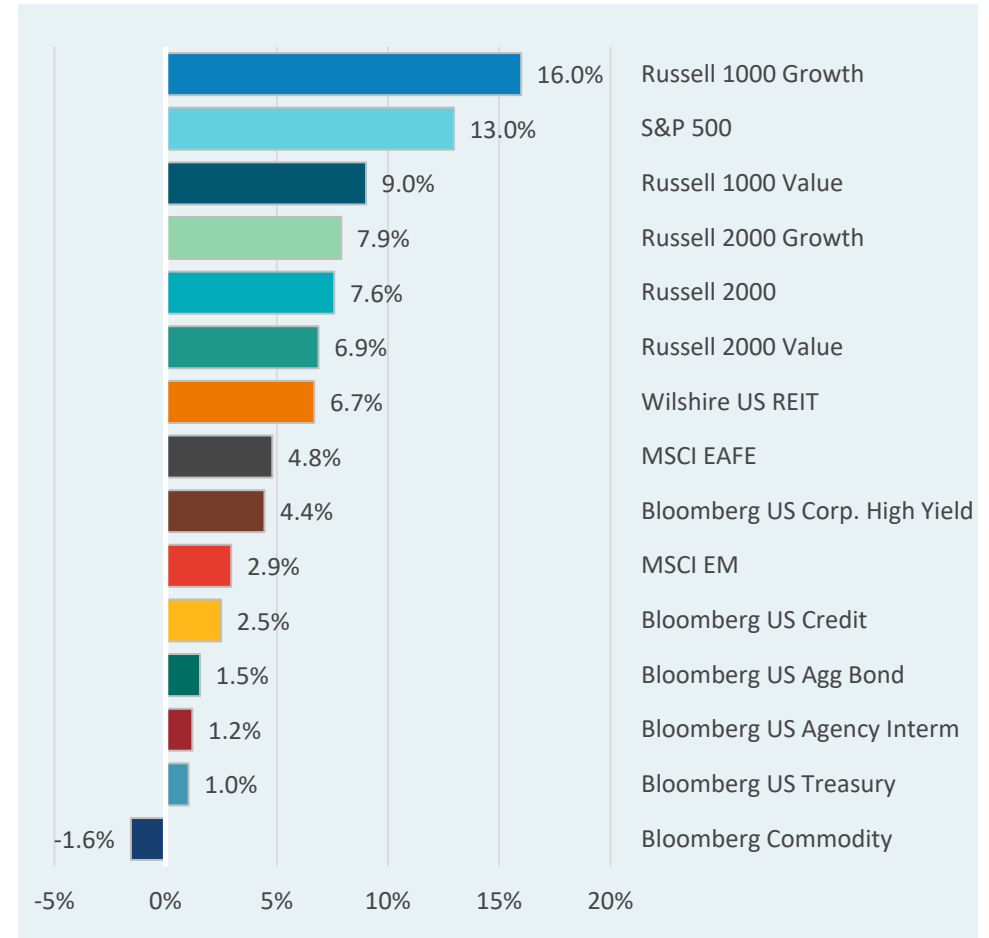
41

# Major asset class returns

ONE YEAR ENDING MARCH



TEN YEARS ENDING MARCH



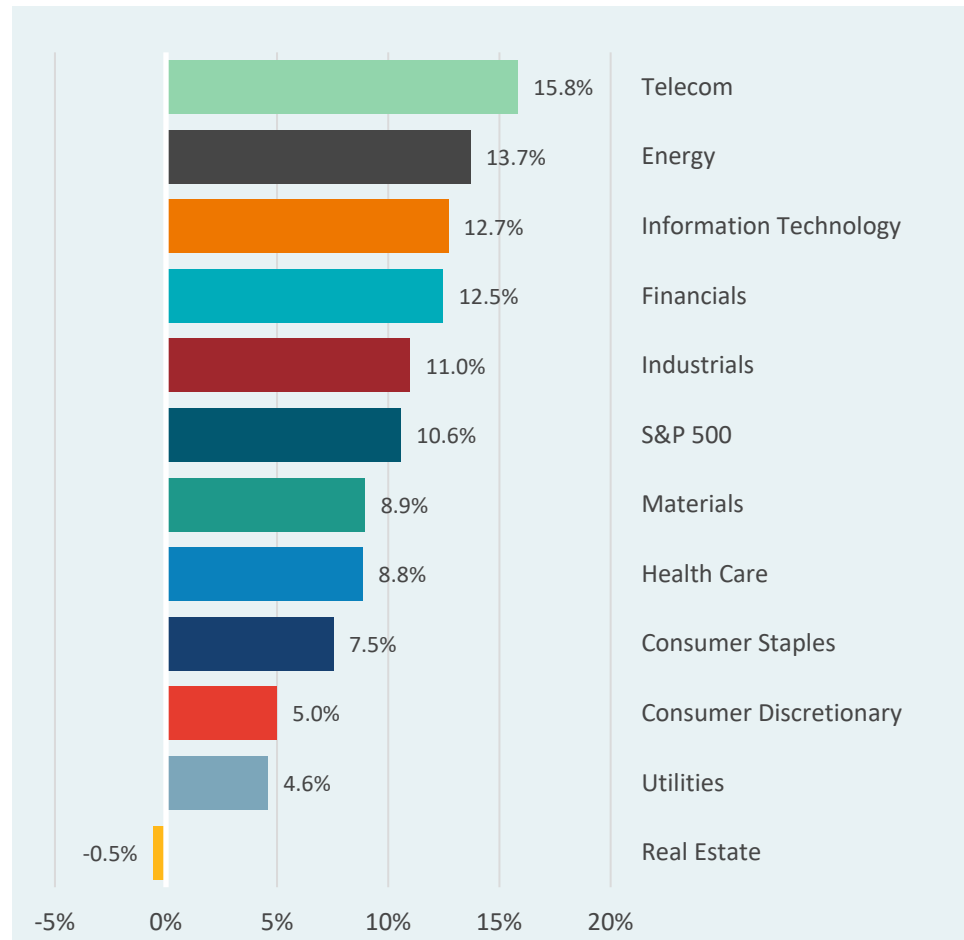
\*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 3/31/24

Source: Morningstar, as of 3/31/24

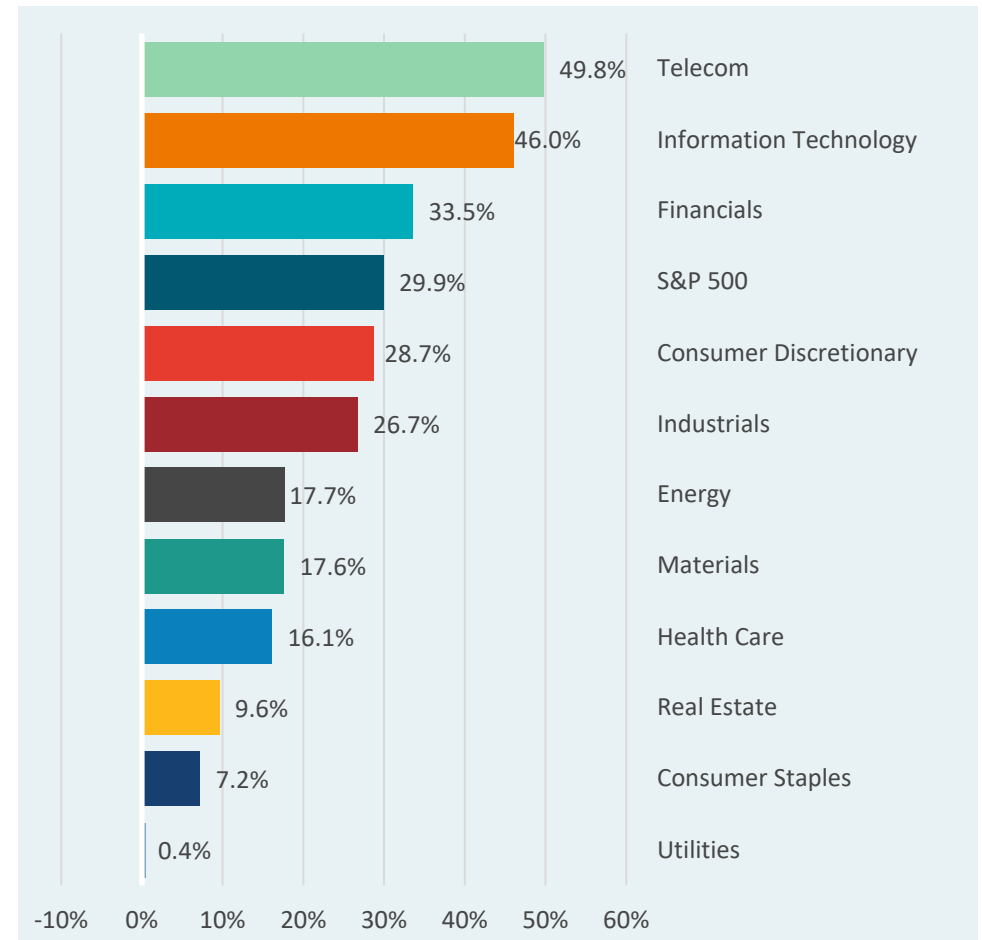
# S&P 500 sector returns

QTD



Source: Morningstar, as of 3/31/24

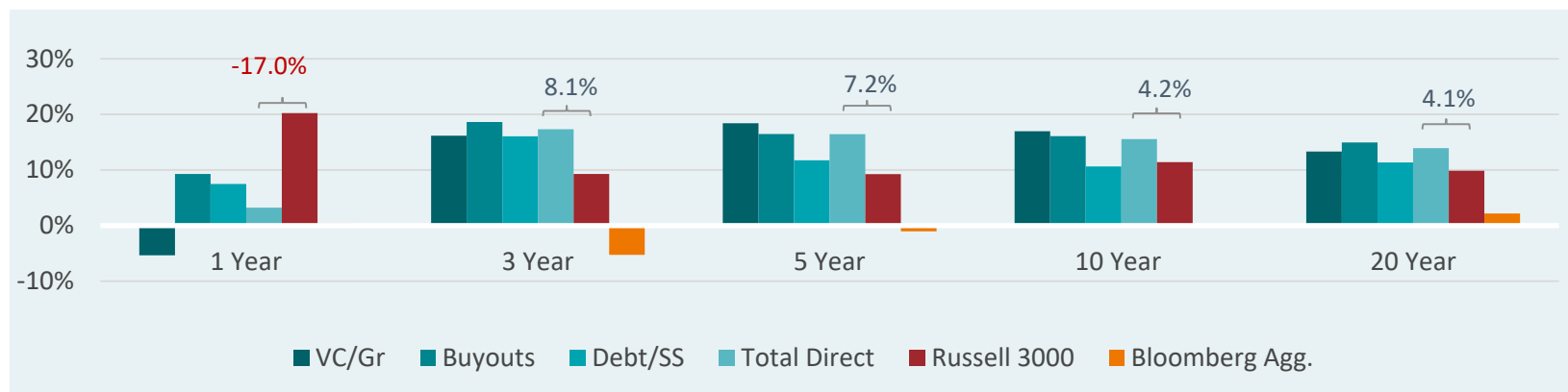
ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/24

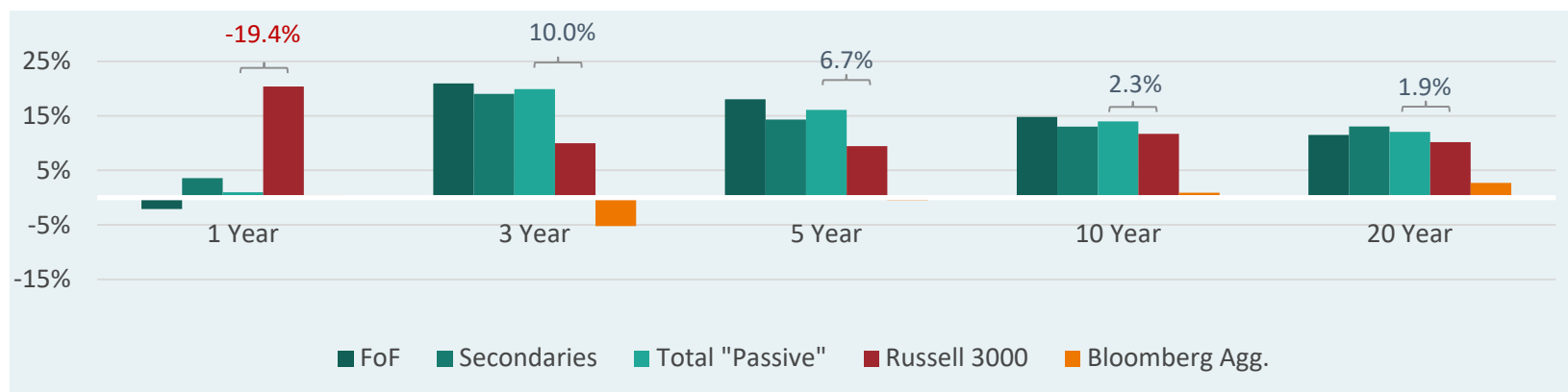
# Private equity vs. traditional assets performance

## 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

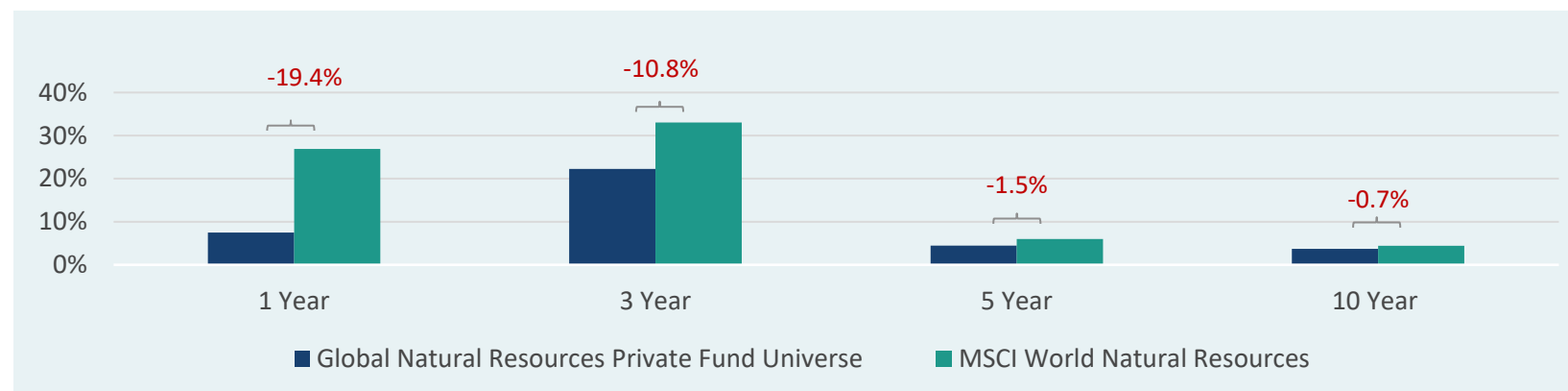


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 1-year

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.

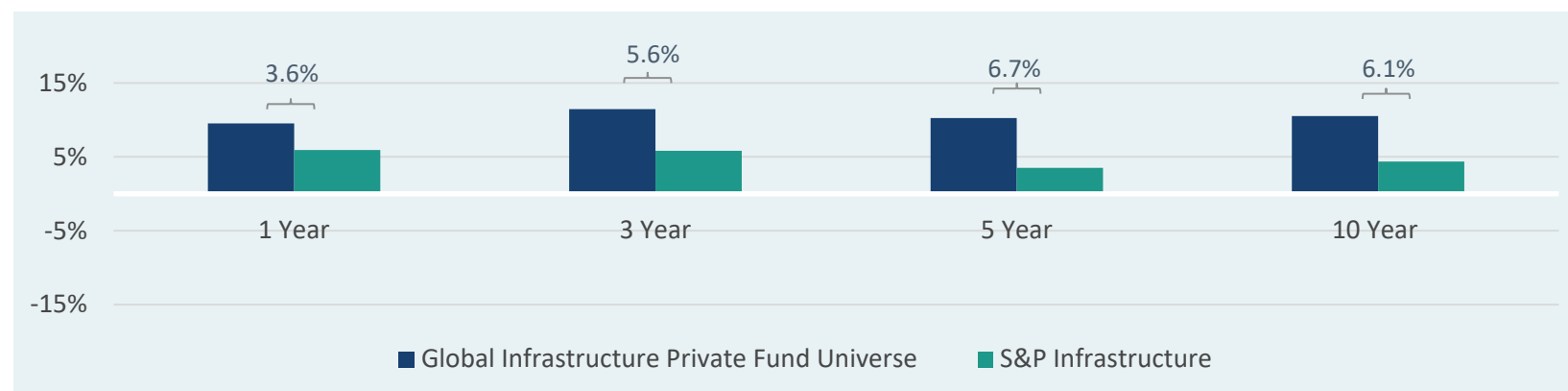
# Private vs. liquid real assets performance

## GLOBAL NATURAL RESOURCES FUNDS



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

## GLOBAL INFRASTRUCTURE FUNDS

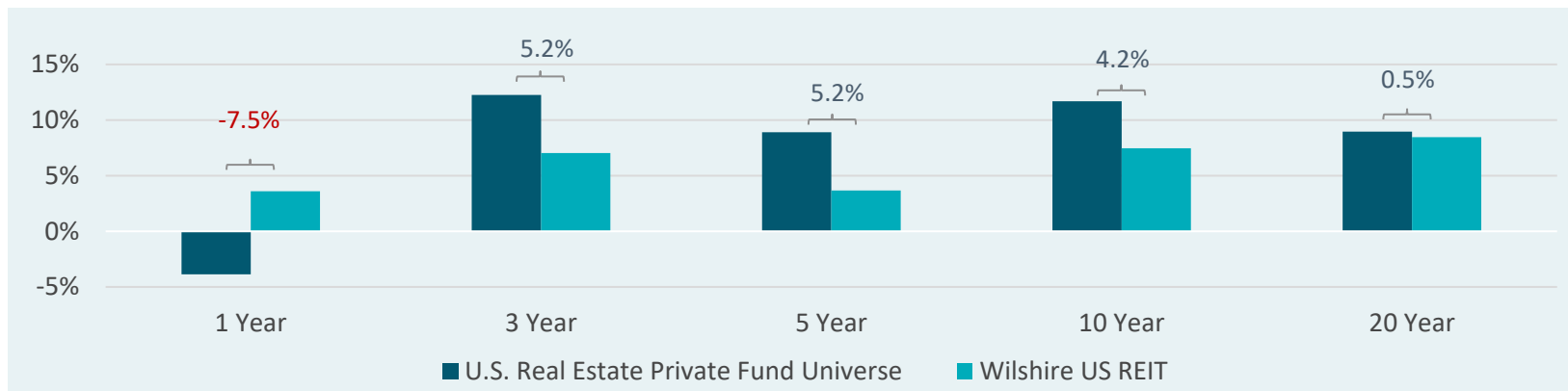


Infra. funds outperformed the S&P Infra. across all periods

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.

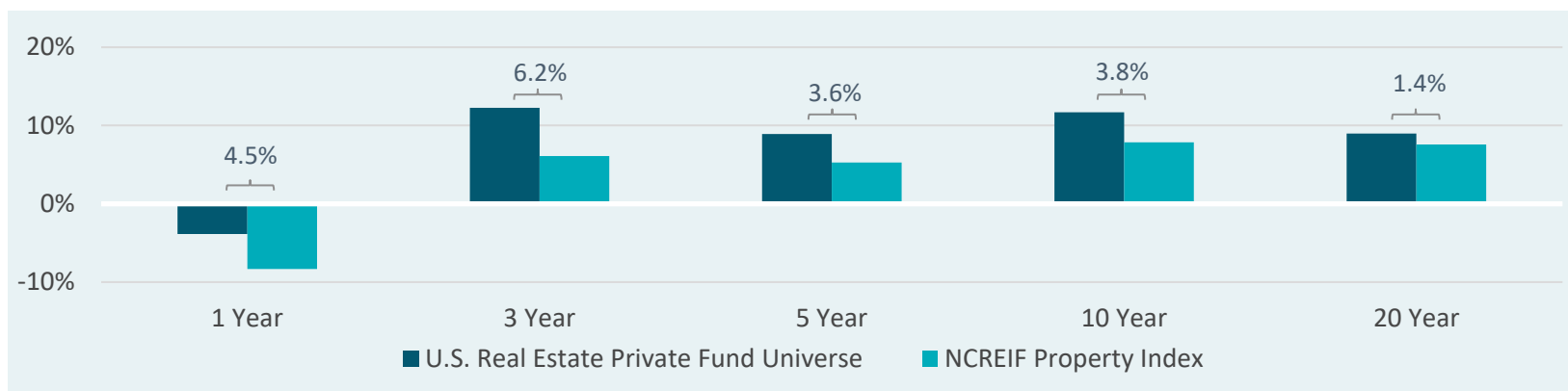
# Private vs. liquid and core real estate performance

## 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
<b>Core Index</b>							
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
<b>Style Index</b>							
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
<b>Broad Index</b>							
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
<b>Style Index</b>							
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
<b>Regional Index</b>							
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
<b>Broad Index</b>							
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
<b>Duration</b>							
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
<b>Issuer</b>							
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
<b>Index</b>							
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
<b>Regional Index</b>							
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)
<b>Hedge Funds</b>							
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
<b>Currency (Spot)</b>							
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](http://www.lanqerresearch.com))

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

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

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

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# Kern County Employees' Retirement Association

Investment Performance Review

Period Ending: March 31, 2024



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PITTSBURGH 412.784.6678  
LOS ANGELES 310.297.1777  
SAN FRANCISCO 415.362.3484

Total Fund  
Portfolio Reconciliation

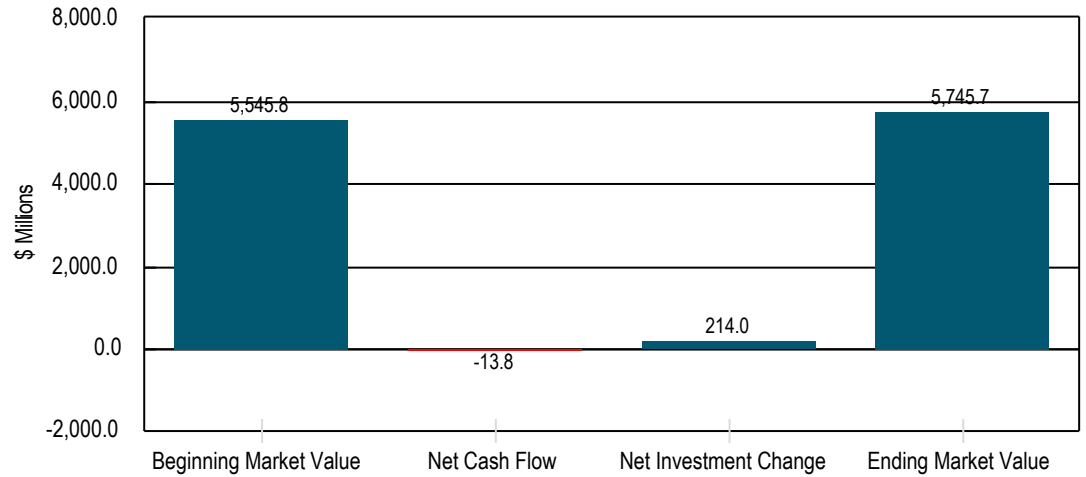
Kern County Employees' Retirement Association  
Period Ending: March 31, 2024

Portfolio Reconciliation

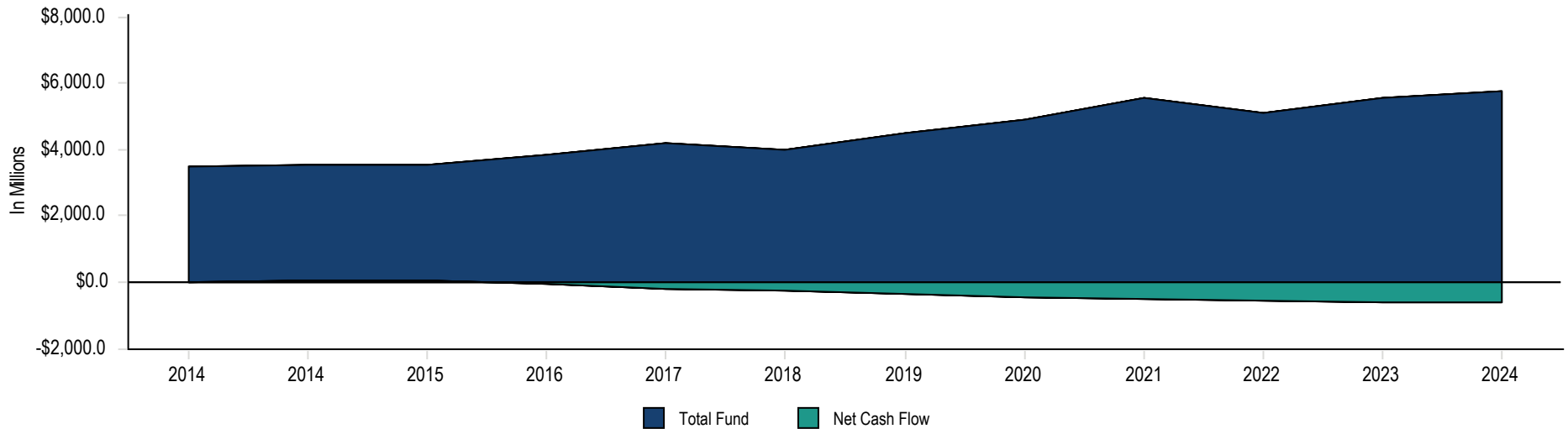
Last Three Months

Beginning Market Value	\$5,545,796,887
Net Cash Flows	-\$13,758,738
Net Investment Change	\$213,973,235
Ending Market Value	\$5,745,689,065

Change in Market Value  
Last Three Months



Market Value History

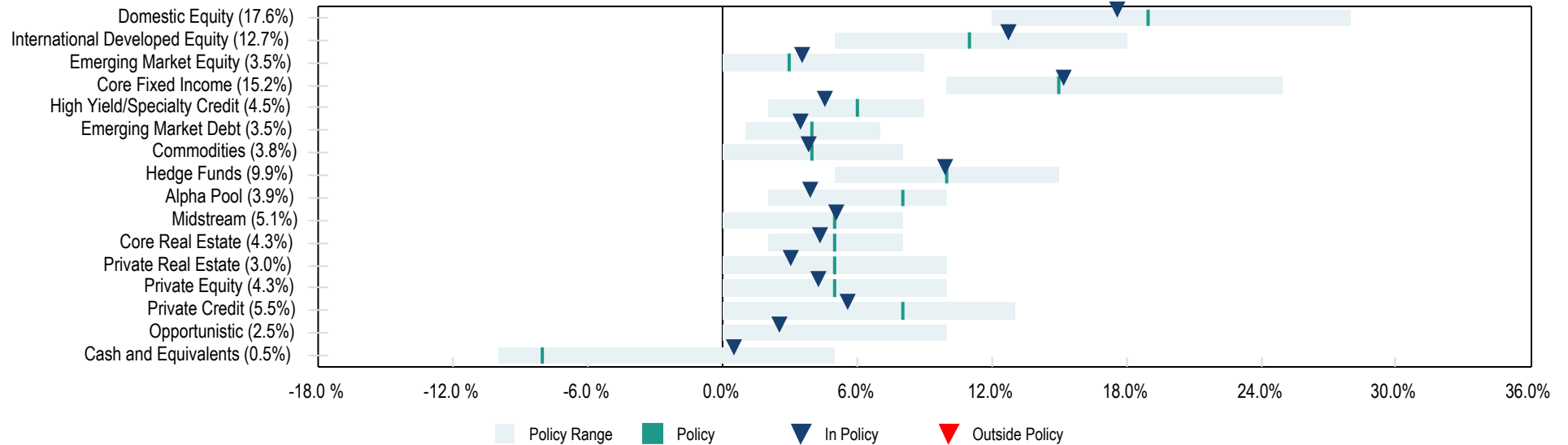


Total Fund  
Asset Allocation vs. Policy

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

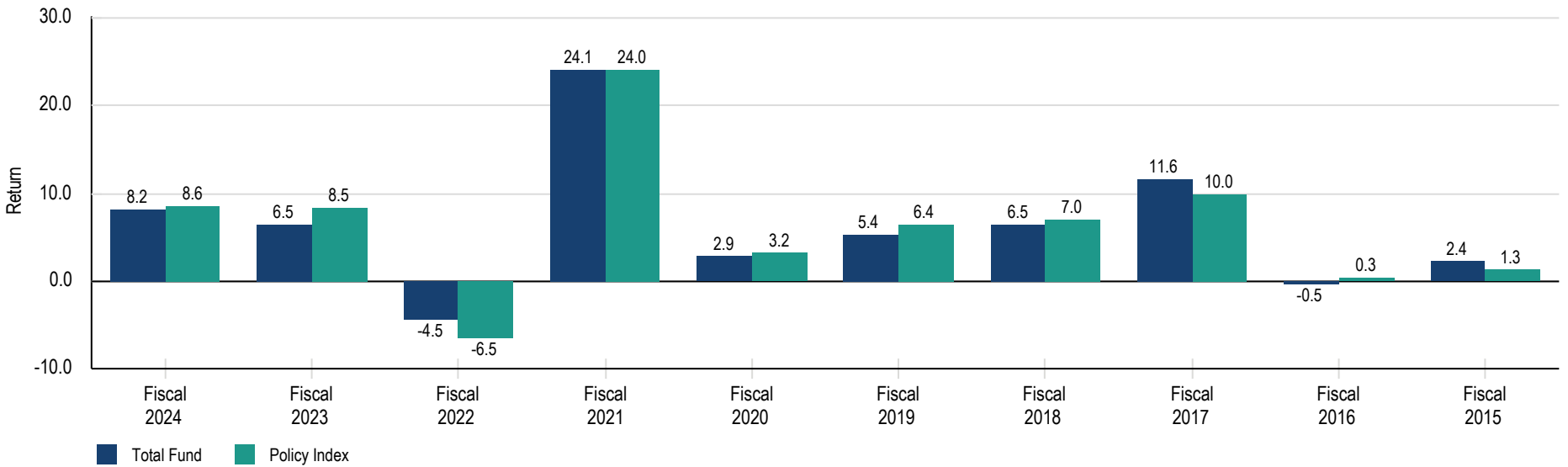
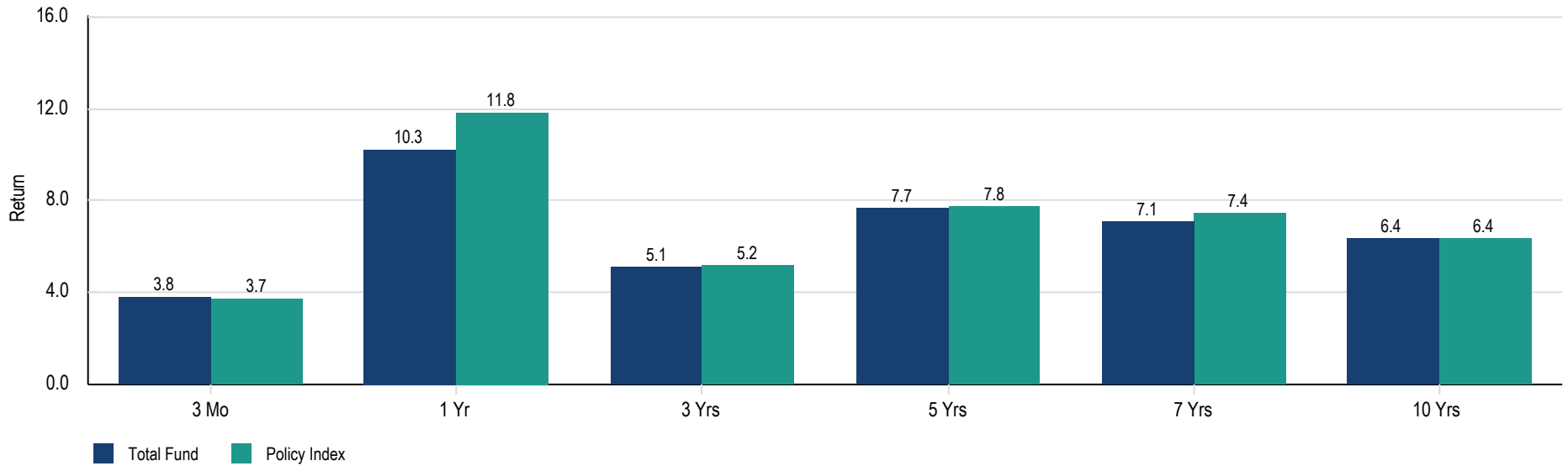
	Current Balance (\$)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Policy Range (%)	Within IPS Range?
Equity	1,947,024,404	33.9	33.0	0.9	23.0 - 45.0	Yes
Fixed Income	1,330,993,517	23.2	25.0	-1.8	15.0 - 35.0	Yes
Core Real Estate	247,841,190	4.3	5.0	-0.7	2.0 - 8.0	Yes
Hedge Funds	570,388,005	9.9	10.0	-0.1	5.0 - 15.0	Yes
Alpha Pool	225,846,861	3.9	8.0	-4.1	2.0 - 10.0	Yes
Private Equity	244,684,706	4.3	5.0	-0.7	0.0 - 10.0	Yes
Private Credit	318,443,874	5.5	8.0	-2.5	0.0 - 13.0	Yes
Private Real Estate	173,778,519	3.0	5.0	-2.0	0.0 - 10.0	Yes
Commodities	218,661,777	3.8	4.0	-0.2	0.0 - 8.0	Yes
Opportunistic	145,854,173	2.5	0.0	2.5	0.0 - 10.0	Yes
Midstream	292,089,375	5.1	5.0	0.1	0.0 - 8.0	Yes
Cash and Equivalents	30,082,663	0.5	-8.0	8.5	-10.0 - 5.0	Yes
<b>Total</b>	<b>5,745,689,065</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>		

Executive Summary



Total Fund  
Performance vs. Policy (Net of Fees)

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



Total Fund  
Executive Summary (Gross of Fees)

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

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019
<b>Total Fund</b>	<b>5,745,689,065</b>	<b>100.0</b>	<b>3.9</b>	<b>8.4</b>	<b>10.5</b>	<b>5.4</b>	<b>8.0</b>	<b>6.8</b>	<b>6.7</b>	<b>-4.2</b>	<b>24.4</b>	<b>3.2</b>	<b>5.7</b>
<i>Policy Index</i>			3.7	8.6	11.8	5.2	7.8	6.4	8.5	-6.5	24.0	3.2	6.4
<i>InvMetrics Public DB &gt; \$1B Rank</i>			52	56	69	29	36	51	70	34	88	24	65
<b>Equity</b>	<b>1,947,024,404</b>	<b>33.9</b>	<b>7.9</b>	<b>15.0</b>	<b>21.1</b>	<b>6.6</b>	<b>10.9</b>	<b>9.3</b>	<b>15.9</b>	<b>-14.9</b>	<b>41.2</b>	<b>0.7</b>	<b>5.3</b>
<i>MSCI AC World IMI Index (Net)</i>			7.7	15.6	22.5	6.3	10.6	8.4	16.1	-16.5	40.9	1.2	4.6
Domestic Equity	1,011,652,212	17.6	9.8	18.5	27.7	9.9	14.4	-	17.8	-12.0	43.6	6.3	9.2
<i>MSCI USA IMI</i>			10.0	19.3	29.3	10.0	14.5	-	19.2	-13.7	44.4	6.7	9.0
International Developed Equity	732,299,566	12.7	7.1	12.2	15.4	4.9	8.0	-	17.2	-17.2	37.0	-5.5	-0.6
<i>MSCI World ex U.S. IMI Index (Net)</i>			5.2	11.6	14.6	4.1	7.2	-	16.3	-17.7	34.8	-5.1	0.2
Emerging Markets Equity	203,071,515	3.5	2.4	8.3	11.5	-2.2	2.6	-	5.3	-21.4	40.6	-10.9	0.4
<i>MSCI Emerging Markets IMI (Net)</i>			2.2	8.0	9.8	-3.9	3.0	-	3.2	-24.8	43.2	-4.0	0.5
<b>Fixed Income</b>	<b>1,330,993,517</b>	<b>23.2</b>	<b>-0.1</b>	<b>3.9</b>	<b>4.0</b>	<b>-1.3</b>	<b>1.6</b>	<b>2.4</b>	<b>3.1</b>	<b>-12.7</b>	<b>5.4</b>	<b>6.6</b>	<b>7.9</b>
<i>Fixed Income Custom Benchmark</i>			-0.1	4.5	4.3	-1.2	1.2	2.2	1.9	-11.6	4.0	5.2	8.4
Core Fixed Income	871,601,612	15.2	-0.7	2.4	1.4	-2.7	0.5	-	-0.9	-11.2	1.0	9.5	8.0
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	-	-0.9	-10.3	-0.3	8.7	7.9
High Yield/ Specialty Credit	260,776,484	4.5	1.6	6.2	8.1	2.1	3.9	-	7.9	-9.7	13.6	0.0	7.5
<i>ICE BofA U.S. High Yield Index</i>			1.5	9.3	11.0	2.2	4.0	-	8.9	-12.7	15.6	-1.1	7.6
Emerging Market Debt	198,367,452	3.5	0.4	7.2	10.1	0.1	1.5	-	11.7	-19.6	9.4	-1.2	8.5
<i>50 JPM EMBI Global Div / 50 JPM GBI EM Global Div</i>			-0.1	5.6	8.1	-1.5	0.5	-	9.4	-20.2	7.1	-1.1	10.8
<b>Commodities</b>	<b>218,661,777</b>	<b>3.8</b>	<b>5.4</b>	<b>11.7</b>	<b>8.8</b>	<b>12.0</b>	<b>10.0</b>	<b>1.0</b>	<b>-6.3</b>	<b>20.1</b>	<b>43.5</b>	<b>-10.7</b>	<b>-6.2</b>
<i>Bloomberg Commodity Index Total Return</i>			2.2	2.1	-0.6	9.1	6.4	-1.6	-9.6	24.3	45.6	-17.4	-6.8
<b>Hedge Funds</b>	<b>570,388,005</b>	<b>9.9</b>	<b>2.3</b>	<b>7.3</b>	<b>9.0</b>	<b>6.4</b>	<b>8.4</b>	<b>6.5</b>	<b>6.9</b>	<b>2.8</b>	<b>16.3</b>	<b>7.3</b>	<b>2.6</b>
<i>75% 90 Day TBills +3% / 25% MSCI ACWI IMI (Net)</i>			3.6	9.0	12.4	6.9	7.5	6.5	10.1	-0.9	12.3	5.1	6.6
<b>Alpha Pool</b>	<b>225,846,861</b>	<b>3.9</b>	<b>1.0</b>	<b>1.2</b>	<b>-0.2</b>	<b>1.1</b>	<b>-</b>	<b>-</b>	<b>-0.9</b>	<b>1.5</b>	<b>14.5</b>	<b>-</b>	<b>-</b>
<i>3-Month Treasury Bill +3%</i>			2.0	6.4	8.4	5.7	-	-	6.7	3.2	3.1	-	-
<b>Midstream Energy</b>	<b>292,089,375</b>	<b>5.1</b>	<b>11.6</b>	<b>24.3</b>	<b>28.3</b>	<b>23.7</b>	<b>-</b>	<b>-</b>	<b>20.1</b>	<b>9.6</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Alerian Midstream Energy Index</i>			10.2	20.2	24.6	20.5	-	-	12.2	11.4	-	-	-
<b>Core Real Estate</b>	<b>247,841,190</b>	<b>4.3</b>	<b>-6.2</b>	<b>-16.4</b>	<b>-19.9</b>	<b>-1.7</b>	<b>0.4</b>	<b>-</b>	<b>-11.9</b>	<b>25.6</b>	<b>6.6</b>	<b>2.3</b>	<b>6.1</b>
<i>NCREIF ODCE</i>			-2.4	-8.8	-11.3	3.4	3.5	-	-10.0	29.5	8.0	2.2	6.4
<b>Private Real Estate</b>	<b>173,778,519</b>	<b>3.0</b>	<b>0.0</b>	<b>-4.4</b>	<b>-5.3</b>	<b>10.8</b>	<b>9.8</b>	<b>11.6</b>	<b>7.9</b>	<b>31.3</b>	<b>12.1</b>	<b>4.4</b>	<b>9.0</b>
			0.0	-4.4	-5.3	10.8	9.8	11.6	7.9	31.3	12.1	4.4	9.0
<b>Private Equity</b>	<b>244,684,706</b>	<b>4.3</b>	<b>4.7</b>	<b>8.9</b>	<b>12.2</b>	<b>11.8</b>	<b>11.8</b>	<b>10.7</b>	<b>-0.6</b>	<b>23.0</b>	<b>41.7</b>	<b>-10.5</b>	<b>10.9</b>
			4.7	8.9	12.2	11.8	11.8	10.7	-0.6	23.0	41.7	-10.5	10.9
<b>Private Credit</b>	<b>318,443,874</b>	<b>5.5</b>	<b>2.8</b>	<b>8.7</b>	<b>11.7</b>	<b>5.3</b>	<b>5.3</b>	<b>-</b>	<b>3.2</b>	<b>1.2</b>	<b>4.8</b>	<b>5.5</b>	<b>9.7</b>
			2.8	8.7	11.7	5.3	5.3	-	3.2	1.2	4.8	5.5	9.7

Policy Index: 34% MSCI ACWI IMI (Net), 18% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +3%, 2.5% MSCI ACWI (Net), 8% 90 Day T-Bill + 3%, 7% NCREIF-ODCE Gross Monthly, 4% actual time-weighted Private Equity Returns\*, 5% actual time-weighted Private Credit Returns\*, 3% actual time-weighted Private Real Estate Returns\*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 90 Day T-bill. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.

Total Fund  
Executive Summary (Gross of Fees)

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

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019
<b>Opportunistic</b>	145,854,173	2.5	1.8	2.8	3.9	2.8	-	-	0.6	-5.4	59.9	-	-
Assumed Rate of Return +3%			2.4	7.4	10.0	10.0	-	-	10.0	10.0	10.0	-	-
<b>Cash</b>	425,244,044	7.4	1.6	4.9	5.4	2.3	1.7	2.1	2.3	-0.2	0.1	1.0	2.0
3 Month T-Bill			1.3	4.0	5.2	2.6	2.0	1.4	3.6	0.2	0.1	1.6	2.3

# Performance and Attribution

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Total Fund  
Performance (Net of Fees)

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

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Inception	Inception Date
<b>Total Fund</b>	<b>5,745,689,065</b>	<b>100.0</b>	<b>3.8</b>	<b>8.2</b>	<b>10.3</b>	<b>5.1</b>	<b>7.7</b>	<b>6.4</b>	<b>6.5</b>	<b>-4.5</b>	<b>24.1</b>	<b>2.9</b>	<b>5.4</b>	<b>6.7</b>	<b>Jun-11</b>
<i>Policy Index</i>			3.7	8.6	11.8	5.2	7.8	6.4	8.5	-6.5	24.0	3.2	6.4	6.6	
<b>Equity</b>	<b>1,947,024,404</b>	<b>33.9</b>	<b>7.9</b>	<b>14.8</b>	<b>20.9</b>	<b>6.4</b>	<b>10.6</b>	<b>8.9</b>	<b>15.7</b>	<b>-15.1</b>	<b>40.7</b>	<b>0.3</b>	<b>4.8</b>	<b>9.4</b>	<b>Jun-11</b>
<i>MSCI AC World IMI Index (Net)</i>			7.7	15.6	22.5	6.3	10.6	8.4	16.1	-16.5	40.9	1.2	4.6	8.8	
<b>Domestic Equity</b>	<b>1,011,652,212</b>	<b>17.6</b>	<b>9.7</b>	<b>18.3</b>	<b>27.5</b>	<b>9.7</b>	<b>14.2</b>	<b>-</b>	<b>17.6</b>	<b>-12.2</b>	<b>43.2</b>	<b>6.0</b>	<b>8.8</b>	<b>12.3</b>	<b>Jul-14</b>
<i>MSCI USA IMI</i>			10.0	19.3	29.3	10.0	14.5	-	19.2	-13.7	44.4	6.7	9.0	12.2	
Equity Beta Exposure	74,849,850	1.3	10.3	19.2	29.5	11.0	-	-	19.2	-11.0	-	-	-	15.2	Aug-20
<i>S&amp;P 500 Index</i>			10.6	19.4	29.9	11.5	-	-	19.6	-10.6	-	-	-	15.6	
Mellon DB SL Stock Index Fund	640,105,317	11.1	10.5	19.4	29.9	11.5	15.0	-	19.6	-10.6	40.8	7.5	10.4	13.8	Oct-17
<i>S&amp;P 500 Index</i>			10.6	19.4	29.9	11.5	15.0	-	19.6	-10.6	40.8	7.5	10.4	13.7	
PIMCO StocksPLUS	140,270,349	2.4	11.0	20.5	31.1	10.7	14.8	12.8	18.8	-12.8	41.7	7.7	10.6	11.2	Jul-03
<i>S&amp;P 500 Index</i>			10.6	19.4	29.9	11.5	15.0	13.0	19.6	-10.6	40.8	7.5	10.4	10.5	
AB US Small Cap Value Equity	97,451,717	1.7	3.8	12.0	12.4	0.3	7.6	-	4.3	-16.1	77.5	-19.4	-6.9	7.1	Jul-15
<i>Russell 2000 Value Index</i>			2.9	15.1	18.8	2.2	8.2	-	6.0	-16.3	73.3	-17.5	-6.2	7.6	
Geneva Capital Small Cap Growth	58,974,980	1.0	7.0	11.1	17.4	1.6	9.8	-	15.6	-22.1	37.6	9.3	8.6	10.6	Jul-15
<i>Russell 2000 Growth Index</i>			7.6	12.4	20.3	-2.7	7.4	-	18.5	-33.4	51.4	3.5	-0.5	7.3	
<b>International Developed Equity</b>	<b>732,299,566</b>	<b>12.7</b>	<b>7.0</b>	<b>12.2</b>	<b>15.3</b>	<b>4.8</b>	<b>7.8</b>	<b>-</b>	<b>17.1</b>	<b>-17.3</b>	<b>36.7</b>	<b>-5.7</b>	<b>-0.9</b>	<b>5.2</b>	<b>Jul-14</b>
<i>MSCI World ex U.S. IMI Index (Net)</i>			5.2	11.6	14.6	4.1	7.2	-	16.3	-17.7	34.8	-5.1	0.2	4.4	
Mellon DB SL World ex-US Index Fund	438,411,988	7.6	5.6	12.1	15.8	5.7	8.2	-	17.9	-16.1	35.6	-5.5	-	6.5	Jul-18
<i>MSCI World ex U.S. IMI Index (Net)</i>			5.2	11.6	14.6	4.1	7.2	-	16.3	-17.7	34.8	-5.1	-	5.5	
Cevian Capital II	46,636,862	0.8	5.9	20.0	23.3	11.9	14.1	-	25.3	-8.2	46.8	-8.2	-5.0	9.0	Dec-14
<i>MSCI Europe (Net)</i>			5.2	11.1	14.1	6.2	8.0	-	21.8	-17.6	35.1	-6.8	1.9	5.6	
Lazard Japanese Equity	123,534,244	2.2	13.2	-	-	-	-	-	-	-	-	-	-	23.6	Nov-23
<i>TOPIX Net Total Return Index</i>			9.9	-	-	-	-	-	-	-	-	-	-	20.7	
American Century Non-US Small Cap	65,312,790	1.1	8.2	9.6	8.4	-2.8	-	-	7.9	-27.4	-	-	-	-0.3	Dec-20
<i>MSCI World ex U.S. Small Cap Growth Index (Net)</i>			2.3	7.0	7.2	-4.2	-	-	9.5	-28.6	-	-	-	-1.9	
Dalton Japan Long Only	58,403,682	1.0	5.7	-	-	-	-	-	-	-	-	-	-	16.8	Oct-23
<i>MSCI Japan Small Cap Index (Net)</i>			5.0	-	-	-	-	-	-	-	-	-	-	17.6	
<b>Emerging Markets Equity</b>	<b>203,071,515</b>	<b>3.5</b>	<b>2.3</b>	<b>7.9</b>	<b>11.0</b>	<b>-2.8</b>	<b>1.8</b>	<b>-</b>	<b>4.6</b>	<b>-21.9</b>	<b>39.5</b>	<b>-11.8</b>	<b>-0.6</b>	<b>1.7</b>	<b>Jul-14</b>
<i>MSCI Emerging Markets IMI (Net)</i>			2.2	8.0	9.8	-3.9	3.0	-	3.2	-24.8	43.2	-4.0	0.5	2.6	
DFA Emerging Markets Value I	89,884,072	1.6	2.7	10.2	15.3	3.5	4.8	4.1	7.9	-12.9	47.6	-17.7	2.0	4.6	Mar-14
<i>MSCI Emerging Markets Value (Net)</i>			1.3	8.6	11.4	-0.9	2.1	2.2	4.1	-18.6	41.6	-15.7	5.0	2.5	
Mellon Emerging Markets Stock Index Fund	113,187,443	2.0	2.0	6.5	7.3	-5.4	-	-	1.6	-25.5	41.1	-	-	3.3	Jun-20
<i>MSCI Emerging Markets (Net)</i>			2.4	7.2	8.2	-5.1	-	-	1.7	-25.3	40.9	-	-	5.6	
<b>Fixed Income</b>	<b>1,330,993,517</b>	<b>23.2</b>	<b>-0.1</b>	<b>3.7</b>	<b>3.7</b>	<b>-1.6</b>	<b>1.3</b>	<b>2.1</b>	<b>2.9</b>	<b>-13.0</b>	<b>5.1</b>	<b>6.3</b>	<b>7.6</b>	<b>3.2</b>	<b>Jun-10</b>
<i>Fixed Income Custom Benchmark</i>			-0.1	4.5	4.3	-1.2	1.2	2.2	1.9	-11.6	4.0	5.2	8.4	3.0	
<b>Core Fixed Income</b>	<b>871,601,612</b>	<b>15.2</b>	<b>-0.7</b>	<b>2.4</b>	<b>1.2</b>	<b>-2.8</b>	<b>0.4</b>	<b>-</b>	<b>-1.0</b>	<b>-11.4</b>	<b>0.8</b>	<b>9.3</b>	<b>7.9</b>	<b>1.5</b>	<b>Jul-14</b>
<i>Bloomberg U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	-	-0.9	-10.3	-0.3	8.7	7.9	1.4	
Fixed Income Beta Exposure	409,545,497	7.1	-0.9	1.4	-0.1	-	-	-	-2.5	-	-	-	-	0.7	Jun-22
<i>Bloomberg U.S. Aggregate Index</i>			-0.8	2.6	1.7	-	-	-	-0.9	-	-	-	-	0.0	
Mellon DB SL Aggregate Bond Index Fund	165,191,596	2.9	-0.8	2.5	1.7	-2.5	0.3	1.5	-0.9	-10.4	-0.4	8.8	7.9	2.0	Jan-11
<i>Bloomberg U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	1.5	-0.9	-10.3	-0.3	8.7	7.9	2.1	
PIMCO Core Plus	170,876,531	3.0	-0.1	3.7	2.8	-1.8	0.8	1.8	-0.7	-9.9	1.1	8.7	6.3	2.4	Feb-11
<i>Bloomberg U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	1.5	-0.9	-10.3	-0.3	8.7	7.9	2.0	

Policy Index: 34% MSCI ACWI IMI (Net), 18% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill + 3%, 2.5% MSCI ACWI (Net), 8% 90 Day T-Bill + 3%, 7% NCREIF-ODCE Gross Monthly, 4% actual time-weighted Private Equity Returns\*, 5% actual time-weighted Private Credit Returns\*, 3% actual time-weighted Private Real Estate Returns\*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 90 Day T-bill.. All data prior to 2Q 2011 has been provided by the investments managers. FY : 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool. Cevian Capital II Benchmark MSCI Europe Index return shown in Euro to reflect currency exchange rate.



Total Fund  
Performance (Net of Fees)

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

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Inception	Inception Date
Western Asset Core Plus	125,987,988	2.2	-0.8	3.1	2.7	-3.0	0.6	2.1	0.8	-14.5	2.4	9.3	9.4	3.7	Jun-04
<i>Bloomberg U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	1.5	-0.9	-10.3	-0.3	8.7	7.9	3.2	
<b>High Yield/ Speciality Credit</b>	<b>260,776,484</b>	<b>4.5</b>	<b>1.5</b>	<b>5.9</b>	<b>7.7</b>	<b>1.6</b>	<b>3.4</b>	<b>-</b>	<b>7.5</b>	<b>-10.2</b>	<b>13.1</b>	<b>-0.5</b>	<b>7.0</b>	<b>2.9</b>	<b>Jul-14</b>
<i>ICE BofA U.S. High Yield Index</i>			1.5	9.3	11.0	2.2	4.0	-	8.9	-12.7	15.6	-1.1	7.6	4.2	
Western Asset High Yield Fixed Income	170,504,476	3.0	1.6	8.6	10.8	1.8	3.7	3.8	9.5	-14.1	16.5	-2.2	8.3	6.0	Jun-05
<i>Bloomberg US HY Ba/B 2% Cap TR</i>			1.3	8.7	10.2	2.1	4.3	4.5	8.9	-12.4	13.4	2.1	8.8	6.2	
TCW Securitized Opportunities	90,272,008	1.6	1.1	1.1	2.4	1.0	2.3	-	4.4	-4.0	6.4	2.2	5.2	3.2	Feb-16
<i>Bloomberg U.S. High Yield - 2% Issuer Cap</i>			1.5	9.2	11.2	2.2	4.2	-	9.1	-12.8	15.3	0.0	7.5	6.3	
<b>Emerging Market Debt</b>	<b>198,367,452</b>	<b>3.5</b>	<b>0.3</b>	<b>6.8</b>	<b>9.7</b>	<b>-0.3</b>	<b>1.1</b>	<b>-</b>	<b>11.2</b>	<b>-19.9</b>	<b>9.1</b>	<b>-1.7</b>	<b>7.9</b>	<b>0.6</b>	<b>Jul-14</b>
<i>50 JPM EMBI Global Div / 50 JPM GBI EM Global Div</i>			-0.1	5.6	8.1	-1.5	0.5	-	9.4	-20.2	7.1	-1.1	10.8	1.0	
Stone Harbor Emerging Markets Debt Blend Portfolio	40,753,547	0.7	-0.1	7.6	10.7	-0.6	1.1	1.1	10.8	-20.9	9.5	-1.8	8.2	0.6	Aug-12
<i>50 JPM GBI-EM Global Div/ 40 JPM EMBI Global Div/ 10 JPM Corporate EM Bond Idx</i>			0.0	5.5	7.9	-1.3	0.7	1.5	9.2	-19.5	7.2	-0.8	10.6	1.4	
PIMCO EMD	157,613,905	2.7	0.4	6.5	9.2	-0.1	-	-	11.3	-19.2	8.7	-	-	-0.1	Feb-20
<i>50 JPM EMBI Global Div / 50 JPM GBI EM Global Div</i>			-0.1	5.6	8.1	-1.5	-	-	9.4	-20.2	7.1	-	-	-1.5	
<b>Commodities</b>	<b>218,661,777</b>	<b>3.8</b>	<b>5.2</b>	<b>11.1</b>	<b>8.0</b>	<b>11.3</b>	<b>9.3</b>	<b>0.4</b>	<b>-7.0</b>	<b>19.4</b>	<b>42.5</b>	<b>-11.3</b>	<b>-6.7</b>	<b>0.6</b>	<b>Jul-13</b>
<i>Bloomberg Commodity Index Total Return</i>			2.2	2.1	-0.6	9.1	6.4	-1.6	-9.6	24.3	45.6	-17.4	-6.8	-0.7	
Gresham MTAP Commodity Builder Fund	35,387,098	0.6	3.3	3.5	1.6	8.9	6.7	-1.0	-11.5	24.7	46.8	-16.3	-9.0	-0.5	Oct-13
<i>Bloomberg Commodity Index Total Return</i>			2.2	2.1	-0.6	9.1	6.4	-1.6	-9.6	24.3	45.6	-17.4	-6.8	-0.8	
Wellington Commodities	183,274,679	3.2	5.6	12.8	9.4	11.7	10.5	1.6	-5.2	17.2	40.2	-7.5	-5.4	1.4	Sep-13
<i>S&amp;P GSCI Commodity Equal Weighted</i>			6.7	8.8	3.4	10.6	8.5	1.2	-6.0	19.0	40.9	-12.4	-3.5	1.2	
<b>Hedge Funds</b>	<b>570,388,005</b>	<b>9.9</b>	<b>2.2</b>	<b>7.5</b>	<b>9.1</b>	<b>6.4</b>	<b>8.3</b>	<b>6.0</b>	<b>6.8</b>	<b>2.8</b>	<b>16.1</b>	<b>7.0</b>	<b>2.5</b>	<b>6.1</b>	<b>Sep-10</b>
<i>75% 90 Day TBills +3% / 25% MSCI ACWI IMI (Net)</i>			3.6	9.0	12.4	6.9	7.5	6.5	10.1	-0.9	12.3	5.1	6.6	6.4	
Aristeia International Limited	74,092,689	1.3	1.0	4.5	5.9	4.5	8.8	-	5.5	1.8	21.6	8.7	9.2	5.4	May-14
Brevan Howard Fund	55,643,110	1.0	-2.0	2.5	-0.4	4.9	10.4	7.3	-1.0	15.2	6.1	20.5	12.7	6.9	Sep-13
D.E. Shaw Composite Fund	62,332,223	1.1	5.0	10.8	14.0	18.0	17.5	14.5	11.0	29.0	19.0	15.6	11.5	14.3	Jul-13
HBK Fund II	49,186,197	0.9	2.5	9.2	9.9	7.0	6.7	5.3	7.9	2.3	11.0	1.5	5.5	5.0	Nov-13
Hudson Bay Cap Structure Arbitrage Enhanced Fund	79,215,595	1.4	0.9	3.3	4.4	6.8	-	-	7.7	7.7	14.2	16.2	-	10.2	Jun-19
Indus Pacific Opportunities Fund	48,475,711	0.8	6.1	4.5	1.7	0.9	8.6	-	-0.4	-8.2	38.0	15.8	-19.2	6.7	Jul-14
Pharo Macro Fund	69,581,938	1.2	1.5	10.5	13.3	-0.1	-	-	1.2	-11.1	3.5	-	-	1.4	Dec-19
PIMCO Commodity Alpha Fund	79,895,079	1.4	2.3	11.9	19.0	14.0	10.9	-	18.3	8.6	14.2	4.8	5.2	11.6	Jun-16
Enhanced Domestic Partners to Sculptor Master Fund	51,965,463	0.9	5.0	11.2	14.5	-0.2	5.1	-	8.8	-19.9	16.8	6.5	-	6.5	Feb-19
<b>Alpha Pool</b>	<b>225,846,861</b>	<b>3.9</b>	<b>1.0</b>	<b>1.2</b>	<b>-0.2</b>	<b>1.1</b>	<b>-</b>	<b>-</b>	<b>-0.9</b>	<b>1.5</b>	<b>14.5</b>	<b>-</b>	<b>-</b>	<b>4.2</b>	<b>Jul-20</b>
<i>3-Month Treasury Bill +3%</i>			2.0	6.4	8.4	5.7	-	-	6.7	3.2	3.1	-	-	5.1	
Hudson Bay - Alpha Pool	65,084,519	1.1	0.0	-2.0	-3.5	1.6	-	-	-1.1	6.7	-	-	-	4.2	Aug-20
Davidson Kempner Institutional Partners	59,379,556	1.0	2.3	1.7	0.1	-1.0	-	-	-4.1	-3.4	-	-	-	0.7	Dec-20
HBK Fund II	37,055,770	0.6	1.5	3.8	1.8	1.8	-	-	-1.0	1.3	-	-	-	2.7	Dec-20
Garda Fixed Income Relative Value Opportunity Fund	64,327,016	1.1	0.7	2.2	1.6	-	-	-	3.6	-	-	-	-	4.4	Sep-21

Policy Index: 34% MSCI ACWI IMI (Net), 18% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +3%, 2.5% MSCI ACWI (Net), 8% 90 Day T-Bill + 3%, 7% NCREIF-ODCE Gross Monthly, 4% actual time-weighted Private Equity Returns\*, 5% actual time-weighted Private Credit Returns\*, 3% actual time-weighted Private Real Estate Returns\*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 90 Day T-bill.. All data prior to 2Q 2011 has been provided by the investments managers. FY : 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool. Cevian Capital II Benchmark MSCI Europe Index return shown in Euro to reflect currency exchange rate.

Total Fund  
Performance (Net of Fees)

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

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Inception	Inception Date
<b>Midstream Energy</b>	292,089,375	5.1	11.4	23.8	27.5	23.2	-	-	19.3	9.3	-	-	-	28.9	Sep-20
<i>Alerian Midstream Energy Index</i>			10.2	20.2	24.6	20.5	-	-	12.2	11.4	-	-	-	25.7	
<b>Harvest Midstream</b>	153,718,313	2.7	14.0	27.8	30.6	28.1	-	-	20.9	15.3	-	-	-	34.8	Aug-20
<i>Alerian Midstream Energy Index</i>			10.2	20.2	24.6	20.5	-	-	12.2	11.4	-	-	-	25.1	
<b>PIMCO Midstream</b>	138,371,062	2.4	8.8	19.8	24.4	17.4	-	-	16.9	2.2	-	-	-	23.4	Oct-20
<i>50/25/25 Alerian Midstream/ ICE BofA US Pipeline/ ICE BofA US HY Midstream</i>			5.8	13.9	16.6	11.2	-	-	10.1	-0.7	-	-	-	15.9	
<b>Core Real Estate</b>	247,841,190	4.3	-6.4	-16.8	-20.3	-2.3	-0.3	-	-12.4	24.8	5.6	1.4	5.9	4.0	Oct-14
<i>NCREIF ODCE</i>			-2.4	-8.8	-11.3	3.4	3.5	-	-10.0	29.5	8.0	2.2	6.4	6.4	
<b>ASB Allegiance Real Estate Fund</b>	133,800,042	2.3	-6.9	-17.5	-22.7	-3.5	-1.0	3.8	-13.3	23.0	5.4	1.5	6.8	4.2	Sep-13
<i>NCREIF ODCE</i>			-2.4	-8.8	-11.3	3.4	3.5	6.8	-10.0	29.5	8.0	2.2	6.4	7.0	
<b>JPMCB Strategic Property Fund</b>	114,041,148	2.0	-5.7	-15.9	-17.4	-0.7	0.6	-	-11.4	27.9	5.9	1.3	5.0	4.4	Jul-14
<i>NCREIF ODCE</i>			-2.4	-8.8	-11.3	3.4	3.5	-	-10.0	29.5	8.0	2.2	6.4	6.6	
<b>Private Real Estate</b>	173,778,519	3.0	0.0	-4.4	-5.3	10.8	9.8	11.2	7.9	31.3	12.1	4.4	9.0	11.3	Mar-11
<i>NCREIF ODCE</i>			0.0	-4.4	-5.3	10.8	9.8	11.6	7.9	31.3	12.1	4.4	9.0	11.4	
<b>Private Equity</b>	244,684,706	4.3	4.7	8.9	12.2	11.8	11.8	10.3	-0.6	22.9	41.7	-10.5	10.9	10.7	Sep-10
<i>NCREIF ODCE</i>			4.7	8.9	12.2	11.8	11.8	10.7	-0.6	23.0	41.7	-10.5	10.9	10.9	
<b>Private Credit</b>	318,443,874	5.5	2.8	8.7	11.7	5.3	5.3	-	3.2	1.2	4.8	5.5	9.7	7.4	Jan-16
<i>NCREIF ODCE</i>			2.8	8.7	11.7	5.3	5.3	-	3.2	1.2	4.8	5.5	9.7	7.4	
<b>Opportunistic</b>	145,854,173	2.5	1.7	2.7	3.9	2.7	-	-	0.6	-5.4	59.9	-	-	8.8	Jan-20
<i>Assumed Rate of Return +3%</i>			2.4	7.4	10.0	10.0	-	-	10.0	10.0	10.0	-	-	10.0	
<b>River Birch International</b>	5,412,216	0.1	1.1	20.9	40.3	-	-	-	45.1	-	-	-	-	45.2	Jun-22
<i>Assumed Rate of Return +3%</i>			2.4	7.4	10.0	-	-	-	10.0	-	-	-	-	10.0	
<b>Sixth Street TAO Partners (D)</b>	91,197,527	1.6	2.9	9.5	15.0	10.3	-	-	4.4	9.6	39.6	-	-	15.0	Mar-20
<i>Assumed Rate of Return +3%</i>			2.4	7.4	10.0	10.0	-	-	10.0	10.0	10.0	-	-	10.0	
<b>Aristeia Select Opportunities II</b>	45,787,157	0.8	-0.5	-5.3	-7.6	-	-	-	-7.2	-	-	-	-	-2.9	Jul-21
<i>Assumed Rate of Return +3%</i>			2.4	7.4	10.0	-	-	-	10.0	-	-	-	-	10.0	
<b>Hudson Bay Special Opportunities Fund LP</b>	3,457,272	0.1	-	-	-	-	-	-	-	-	-	-	-	0.0	Feb-24
<i>Assumed Rate of Return +3%</i>			-	-	-	-	-	-	-	-	-	-	-	1.0	
<b>Cash</b>	425,244,044	7.4	1.6	4.8	5.3	2.2	1.7	2.0	2.2	-0.2	0.1	1.0	2.0	1.7	Apr-11
<i>3 Month T-Bill</i>			1.3	4.0	5.2	2.6	2.0	1.4	3.6	0.2	0.1	1.6	2.3	1.1	

Policy Index: 34% MSCI ACWI IMI (Net), 18% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +3%, 2.5% MSCI ACWI (Net), 8% 90 Day T-Bill + 3%, 7% NCREIF-ODCE Gross Monthly, 4% actual time-weighted Private Equity Returns\*, 5% actual time-weighted Private Credit Returns\*, 3% actual time-weighted Private Real Estate Returns\*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 90 Day T-bill.. All data prior to 2Q 2011 has been provided by the investments managers. FY : 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool. Cevian Capital II Benchmark MSCI Europe Index return shown in Euro to reflect currency exchange rate.

Total Fund  
Total Private Equity

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

IRR Analysis as of IRR date												
Vintage Year	Manager/Fund	Estimated Market Value as of 03/31/2024	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>3</sup>	IRR Date
<b>Private Equity</b>												
2008	Abbott Capital PE VI	\$14,751,729	\$50,000,000	\$49,750,000	100%	\$250,000	\$80,834,694	\$16,921,054	1.62x	1.92x	12.6%	09/30/23
2006	Pantheon Global III	\$542,524	\$50,000,000	\$47,300,000	95%	\$2,700,000	\$52,000,000	\$545,326	1.10x	1.11x	1.9%	12/31/23
2002	Pantheon USA V	\$372,041	\$25,000,000	\$24,350,000	97%	\$650,000	\$37,950,000	\$374,357	1.56x	1.57x	9.0%	12/31/23
2004	Pantheon USA VI	\$329,223	\$35,000,000	\$33,075,000	95%	\$1,925,000	\$50,623,827	\$329,324	1.53x	1.54x	6.7%	12/31/23
2006	Pantheon USA VII	\$6,431,968	\$50,000,000	\$46,600,000	93%	\$3,400,000	\$80,999,998	\$6,739,818	1.74x	1.88x	10.1%	12/31/23
2020	Vista Foundation Fund IV	\$19,440,908	\$25,000,000	\$19,970,294	80%	\$5,029,706	\$30,252	\$36,047,551	0.00x	0.98x	-0.2%	12/31/23
2021	Crown Global Secondaries V Master S.C.Sp	\$39,156,263	\$50,000,000	\$30,800,000	62%	\$19,200,000	\$1,550,000	\$39,156,263	0.05x	1.32x	24.5%	03/31/24
2021	Brighton Park Capital Fund I	\$41,250,646	\$30,000,000	\$29,517,163	98%	\$482,837	\$1,325,801	\$41,250,646	0.04x	1.44x	13.1%	03/31/24
2021	Warren Equity Partners Fund III	\$35,816,645	\$32,500,000	\$27,590,020	85%	\$4,909,980	\$508,290	\$35,816,645	0.02x	1.32x	21.0%	03/31/24
2021	Peak Rock Capital Fund III	\$16,945,661	\$30,000,000	\$14,069,566	47%	\$15,930,434	\$2,667,265	\$16,945,661	0.19x	1.39x	26.1%	03/31/24
2021	Level Equity Growth Partners V	\$8,532,754	\$15,000,000	\$7,550,363	50%	\$7,449,637	\$0	\$8,532,754	0.00x	1.13x	10.0%	03/31/24
2021	Level Equity Opportunities Fund 2021	\$6,565,113	\$15,000,000	\$5,788,419	39%	\$9,211,581	\$0	\$6,565,113	0.00x	1.13x	11.1%	03/31/24
2022	Linden Capital Partners V LP	\$13,779,144	\$22,500,000	\$12,011,178	53%	\$10,488,822	\$0	\$13,014,916	0.00x	1.15x	13.2%	12/31/24
2022	Rubicon Technology Partners IV LP	\$9,838,432	\$30,000,000	\$10,757,463	36%	\$19,242,537	\$0	\$5,135,484	0.00x	0.91x	-31.0%	12/31/24
2022	OrbiMed Private Investments IV, LP	\$2,039,772	\$10,000,000	\$2,150,000	22%	\$7,850,000	\$0	\$1,167,203	0.00x	0.95x	31.9%	03/31/24
2022	Brighton Park Capital Fund II	\$3,391,755	\$30,000,000	\$4,174,920	14%	\$25,825,080	\$0	N/A	0.00x	0.81x	N/A	N/A
2022	Linden Co-Investment V LP	\$4,413,688	\$7,500,000	\$7,499,177	100%	\$823	\$55,503	\$4,113,076	0.01x	0.60x	21.7%	12/31/23
2022	Warren Equity Partners Fund IV	\$12,910,057	\$32,500,000	\$7,612,883	23%	\$24,887,117	\$0	\$12,910,057	0.00x	1.70x	15.9%	03/31/24
2023	WEP Co-Invest IV	\$7,235,509	\$10,000,000	\$7,470,589	75%	\$2,529,411	\$173,170	N/A	0.02x	0.99x	N/A	N/A
2023	Crown Global Secondaries Fund VI	\$940,874	\$30,000,000	\$450,000	2%	\$29,550,000	\$0	N/A	0.00x	2.09x	N/A	N/A
2024	Accel-KKR Capital Partners VII	\$0	\$25,000,000	\$0	0%	\$25,000,000	\$0	N/A	N/A	N/A	N/A	N/A
2023	Parthenon Investors VII	\$0	\$30,000,000	\$0	0%	\$30,000,000	\$0	N/A	N/A	N/A	N/A	N/A
<b>Total Private Equity</b>		<b>\$244,684,706</b>	<b>\$635,000,000</b>	<b>\$388,487,035</b>	<b>61%</b>	<b>\$246,512,965</b>	<b>\$308,718,801</b>	<b>\$245,565,248</b>	<b>0.79x</b>	<b>1.42x</b>		
<b>% of Portfolio (Market Value)</b>		<b>4.3%</b>										

<sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>3</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

Total Fund  
Total Private Credit

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

IRR Analysis as of IRR date												
Vintage	Estimated Market Value	Total	Capital	%	Remaining	Capital		Distrib./	Tot. Value/	Net IRR	IRR	
Year	3/31/2024	Commitment	Called	Called	Commitment	Returned	Market Value as of IRR date	Paid-In (DPI) <sup>1</sup>	Paid-In (TVPI) <sup>2</sup>	Since Inception <sup>3</sup>	Date	
Manager/Fund												
<b>Private Credit</b>												
2015	DC Value Recovery Fund IV <sup>4</sup>	\$18,041,473	\$74,360,749	\$73,340,099	99%	\$1,020,650	\$41,560,033	\$18,041,473	0.57x	0.81x	N/A	N/A
2017	Sixth Street TAO Partners (B)	\$42,298,855	\$108,035,958	\$86,061,180	80%	\$21,974,778	\$46,945,528	\$42,694,725	0.55x	1.04x	10.4%	12/31/23
2017	Brookfield Real Estate Finance Fund V	\$12,698,028	\$50,000,000	\$36,019,917	72%	\$13,980,083	\$31,444,596	\$12,698,028	0.87x	1.23x	8.8%	3/31/24
2018	Magnetar Constellation Fund V	\$25,053,561	\$60,000,000	\$56,445,318	94%	\$3,554,682	\$44,340,876	\$25,053,561	0.79x	1.23x	5.3%	3/31/24
2019	H.I.G Bayside Loan Opportunity Fund V	\$45,495,767	\$60,000,000	\$35,821,497	60%	\$24,178,503	\$16,755,402	\$45,495,767	0.47x	1.74x	18.3%	3/31/24
2020	Blue Torch Credit Opportunities Fund II	\$15,532,183	\$20,000,000	\$16,613,092	83%	\$3,386,908	\$5,642,562	\$15,184,695	0.34x	1.27x	13.1%	12/31/23
2020	Fortress Credit Opportunites Fund V Expansion	\$24,853,353	\$40,000,000	\$22,134,324	55%	\$17,865,676	\$468,590	\$22,238,689	0.02x	1.14x	19.7%	12/31/23
2021	Fortress Lending Fund II	\$27,428,105	\$40,000,000	\$34,937,851	87%	\$5,062,149	\$11,945,219	\$28,269,695	0.34x	1.13x	10.0%	12/31/23
2022	Blue Torch Credit Opportunities Fund III	\$25,574,861	\$40,000,000	\$26,999,891	67%	\$13,000,109	\$5,108,700	\$25,242,588	0.19x	1.14x	18.7%	12/31/23
2022	Fortress Lending Fund III	\$29,132,881	\$40,000,000	\$26,432,701	66%	\$13,567,299	\$4,701,532	\$27,777,855	0.18x	1.28x	11.8%	12/31/23
2022	OrbiMed Royalty & Credit Opportunities IV	\$7,598,005	\$30,000,000	\$8,983,980	30%	\$21,016,020	\$2,145,444	\$7,598,005	0.24x	1.08x	11.8%	3/31/24
2023	Cerberus Business Finance V	\$18,215,431	\$30,000,000	\$16,734,852	56%	\$13,265,148	\$0	\$16,415,118	0.00x	1.09x	20.2%	2/29/24
2023	Silver Point – Specialty Credit Fund III	\$9,520,807	\$30,000,000	\$9,705,708	32%	\$20,294,292	\$1,056,630	\$9,520,807	N/A	N/A	16.6%	3/31/24
2023	Ares Pathfinder II	\$3,799,094	\$30,000,000	\$3,662,335	12%	\$26,337,665	\$0	\$2,450,370	N/A	N/A	17.0%	12/31/23
2023	Oak Hill Advisors Structured Products Fund III, L.P.	\$13,201,470	\$25,000,000	\$12,420,411	50%	\$12,579,589	\$0	\$5,486,324	N/A	N/A	23.9%	12/31/23
2023	Ares Senior Direct Lending III	\$0	\$30,000,000	\$0	0%	\$30,000,000	\$0	\$0	N/A	N/A	N/A	N/A
<b>Total Private Credit</b>		<b>\$318,443,874</b>	\$562,396,707	\$423,789,849	75%	\$138,606,858	\$211,058,482	\$304,167,700	0.50x	1.25x		
<b>% of Portfolio (Market Value)</b>		<b>5.5%</b>										

<sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>3</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

<sup>4</sup>Name changed from Colony Distressed Credit fund to DC Value Recovery Fund IV

IRR Analysis as of IRR date												
Vintage Year	Manager/Fund	Estimated Market Value 3/31/2024	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>3</sup>	IRR Date
<b>Private Real Estate</b>												
2014	Invesco Real Estate Value-Add Fund IV	\$509,038	\$50,000,000	\$43,637,717	87%	\$6,362,283	\$56,824,750	\$509,038	1.30x	1.31x	10.1%	03/31/24
2017	Landmark Real Estate Partners VIII	\$32,731,187	\$60,000,000	\$45,109,466	75%	\$14,890,534	\$25,662,388	\$31,486,250	0.57x	1.29x	14.1%	12/31/23
2018	Long Wharf Real Estate Partners VI	\$34,458,333	\$50,000,000	\$50,000,000	100%	\$0	\$24,281,467	\$34,458,333	0.49x	1.17x	15.1%	03/31/24
2020	Covenant Apartment Fund X	\$30,237,283	\$30,000,000	\$25,507,333	85%	\$4,492,667	\$7,920,010	\$30,237,283	0.31x	1.50x	14.1%	03/31/24
2021	Singerman Real Estate Opportunity Fund IV	\$15,505,631	\$35,000,000	\$13,527,500	39%	\$21,472,500	\$0	\$14,774,492	0.00x	1.15x	19.1%	12/31/23
2022	LBA Logistics Value Fund IX, L.P.	\$15,799,980	\$40,000,000	\$14,230,769	36%	\$25,769,231	\$0	\$15,799,980	0.00x	1.11x	-8.1%	03/31/24
2022	Covenant Apartment Fund XI	\$19,508,856	\$30,000,000	\$15,600,000	52%	\$38,076,924	\$3,112	\$19,508,856	0.00x	1.25x	0.1%	\$45,382
2022	KSL Capital Partners VI	\$5,344,102	\$30,000,000	\$6,945,876	23%	\$23,054,124	\$212,603	\$5,344,102	0.03x	0.80x	-28.4%	03/31/24
2023	Merit Hill V	\$14,569,101	\$30,000,000	\$17,529,762	58%	\$12,470,238	\$2,062,594	N/A	0.12x	0.95x	N/A	N/A
2024	Juniper Capital IV, L.P.	\$5,115,008	\$30,000,000	\$5,115,008	17%	\$24,884,992	\$0	N/A	0.00x	1.00x	N/A	N/A
2024	Landmark Real Estate Partners IX	\$0	\$40,000,000	\$0	0%	\$40,000,000	\$0	N/A	N/A	N/A	N/A	N/A
2024	Juniper High Noon Partners, L.P.	\$0	\$5,000,000	\$0	0%	\$5,000,000	\$0	N/A	N/A	N/A	N/A	N/A
<b>Total Private Real Estate</b>		<b>\$173,778,519</b>	\$430,000,000	\$237,203,431	55%	\$216,473,493	\$116,966,924	\$152,118,334	0.49x	1.23x		
<b>% of Portfolio (Market Value)</b>		<b>3.0%</b>										

<sup>1</sup>(DPI) is equal to (capital returned / capital called)

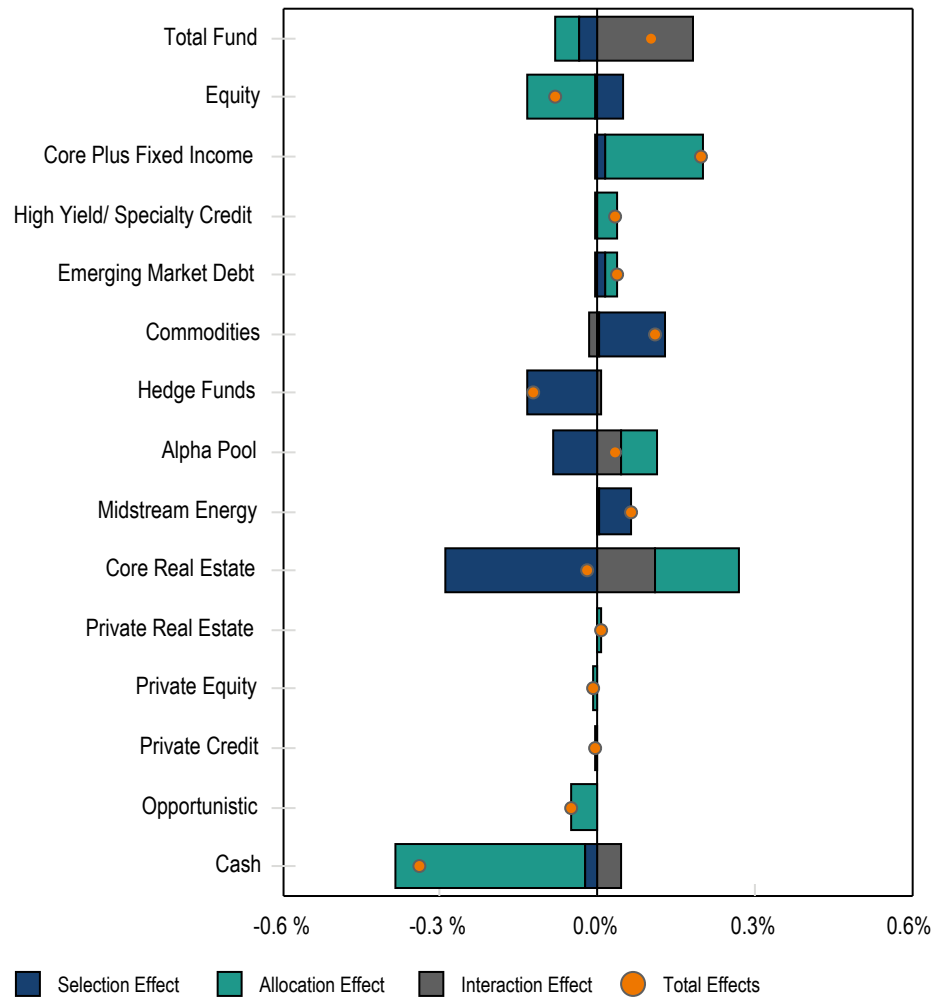
<sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>3</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

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

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

Attribution Effects  
Last Three Months



Performance Attribution

	Last Three Months
Wtd. Actual Return	3.8
Wtd. Index Return	3.7
<b>Excess Return</b>	<b>0.1</b>
Selection Effect	0.0
Allocation Effect	0.0
Interaction Effect	0.2

Attribution Summary  
Last Three Months

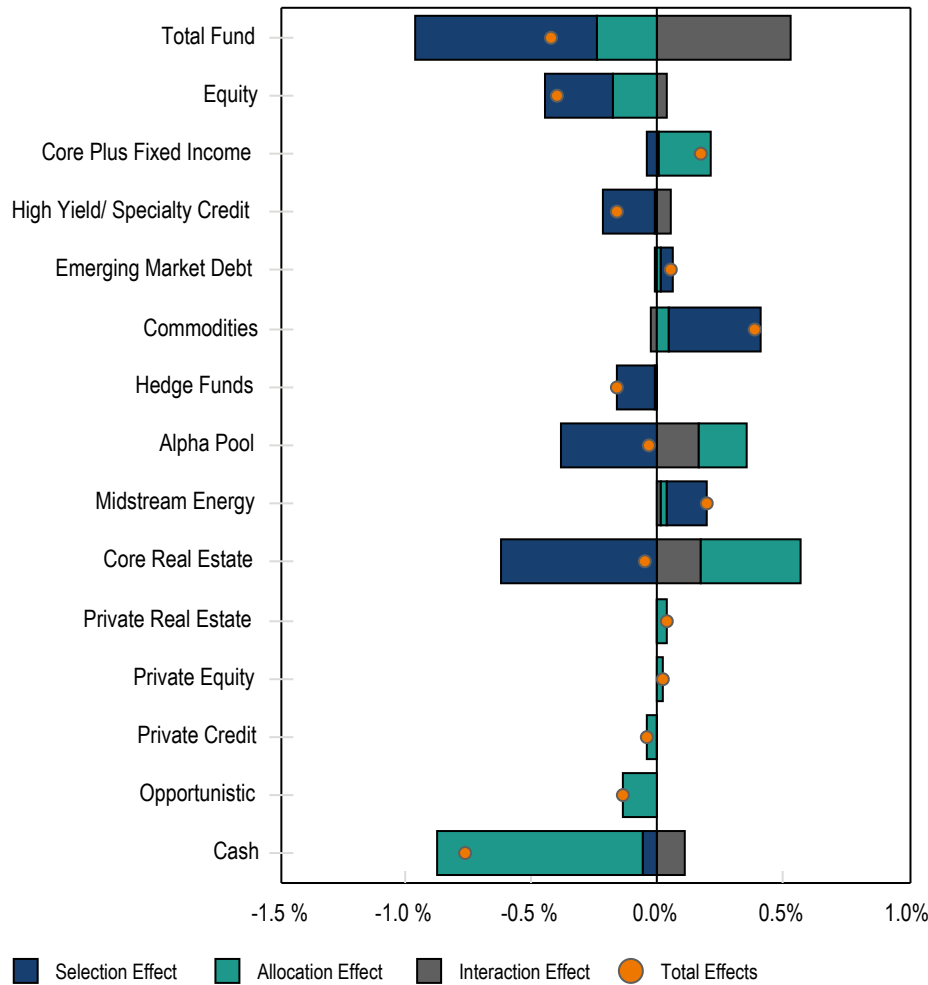
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	7.9	7.7	0.2	0.1	-0.1	0.0	-0.1
Core Plus Fixed Income	-0.7	-0.8	0.1	0.0	0.2	0.0	0.2
High Yield/ Specialty Credit	1.5	1.5	-0.1	0.0	0.0	0.0	0.0
Emerging Market Debt	0.3	-0.1	0.3	0.0	0.0	0.0	0.0
Commodities	5.2	2.2	3.0	0.1	0.0	0.0	0.1
Hedge Funds	2.2	3.6	-1.3	-0.1	0.0	0.0	-0.1
Alpha Pool	1.0	2.0	-1.0	-0.1	0.1	0.0	0.0
Midstream Energy	11.4	10.2	1.3	0.1	0.0	0.0	0.1
Core Real Estate	-6.4	-2.4	-4.0	-0.3	0.2	0.1	0.0
Private Real Estate	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Equity	4.7	4.7	0.0	0.0	0.0	0.0	0.0
Private Credit	2.8	2.8	0.0	0.0	0.0	0.0	0.0
Opportunistic	1.7	2.4	-0.7	0.0	0.0	0.0	0.0
Cash	1.6	1.3	0.3	0.0	-0.4	0.0	-0.3
<b>Total Fund</b>	<b>3.8</b>	<b>3.7</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.1</b>

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

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

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

Attribution Effects  
Fiscal YTD



Performance Attribution

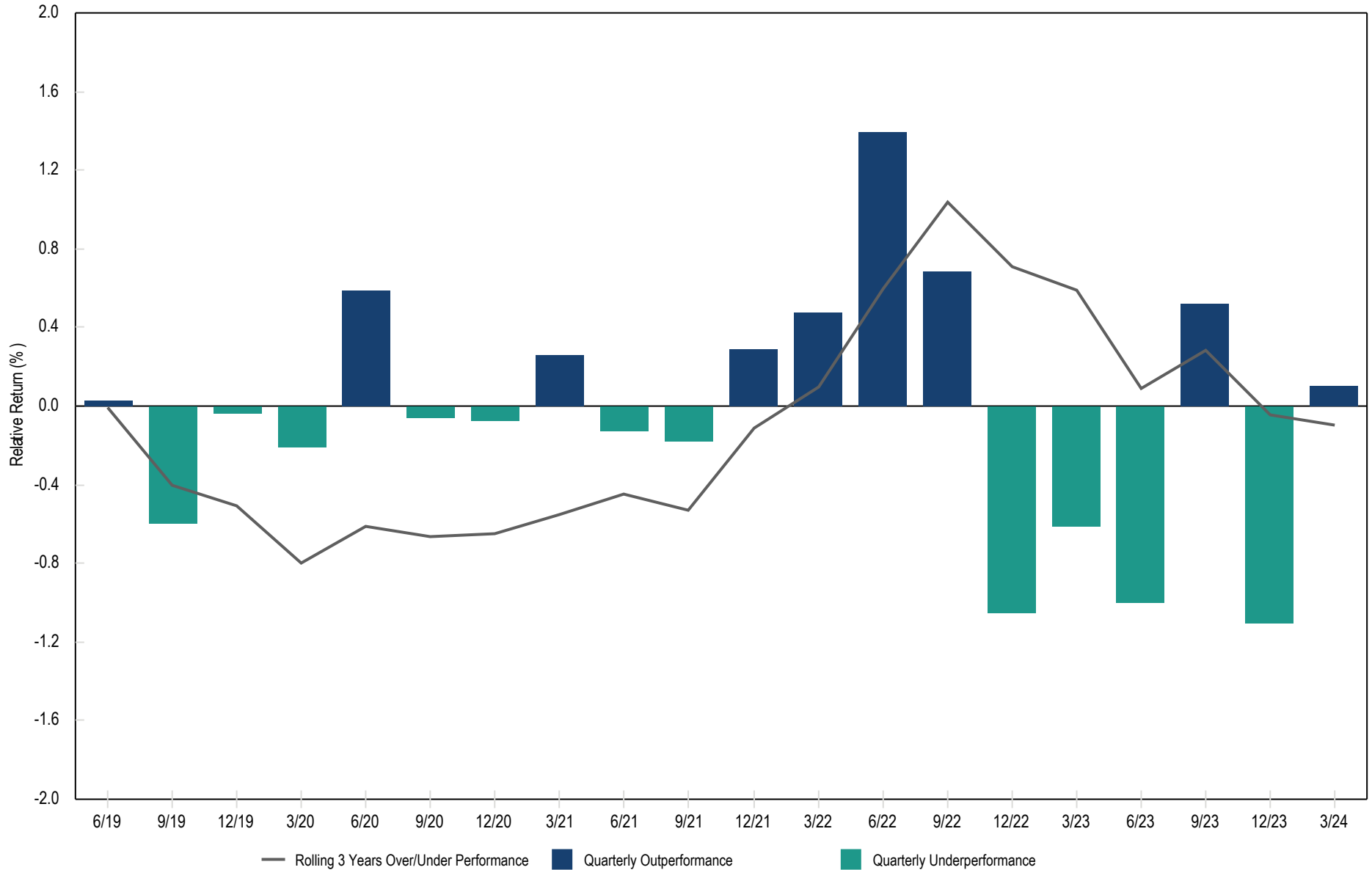
	Fiscal YTD
Wtd. Actual Return	8.2
Wtd. Index Return	8.6
<b>Excess Return</b>	<b>-0.4</b>
Selection Effect	-0.7
Allocation Effect	-0.2
Interaction Effect	0.5

Attribution Summary  
FYTD

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	14.8	15.6	-0.8	-0.1	-0.2	0.0	-0.4
Core Plus Fixed Income	2.4	2.6	-0.2	0.0	0.2	0.0	0.2
High Yield/ Specialty Credit	5.9	9.3	-3.4	-0.2	0.0	0.1	-0.2
Emerging Market Debt	6.8	5.6	1.3	0.1	0.0	0.0	0.1
Commodities	11.1	2.1	9.0	0.4	0.1	0.0	0.4
Hedge Funds	7.5	9.1	-1.6	-0.1	0.0	0.0	-0.2
Alpha Pool	1.2	6.6	-5.4	-0.4	0.2	0.2	0.0
Midstream Energy	23.8	20.2	3.7	0.2	0.0	0.0	0.2
Core Real Estate	-16.8	-8.8	-7.9	-0.6	0.4	0.2	0.0
Private Real Estate	-4.4	-4.4	0.0	0.0	0.0	0.0	0.0
Private Equity	8.9	8.9	0.0	0.0	0.0	0.0	0.0
Private Credit	8.7	8.7	0.0	0.0	0.0	0.0	0.0
Opportunistic	2.7	7.4	-4.7	0.0	-0.1	0.0	-0.1
Cash	4.8	4.0	0.7	0.0	-0.8	0.1	-0.8
<b>Total Fund</b>	<b>8.2</b>	<b>8.6</b>	<b>-0.4</b>	<b>-0.7</b>	<b>-0.2</b>	<b>0.5</b>	<b>-0.4</b>

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

Rolling 3 Year Annualized Excess Performance

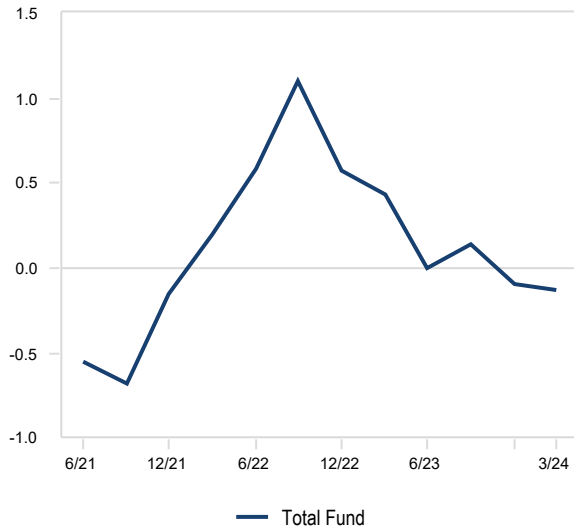




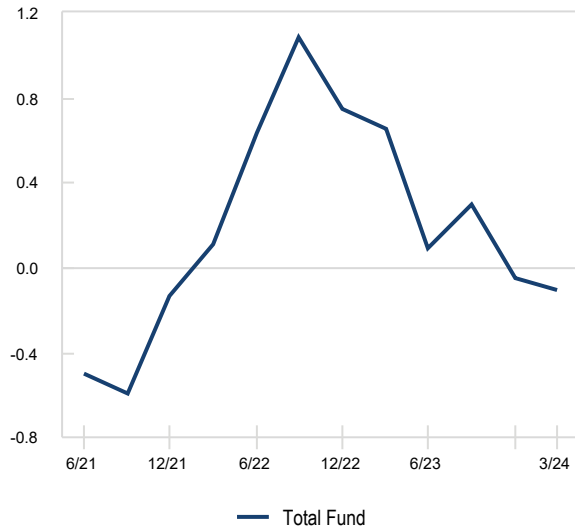
Total Fund  
Rolling Risk Statistics: 3 Years (Net of Fees)

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

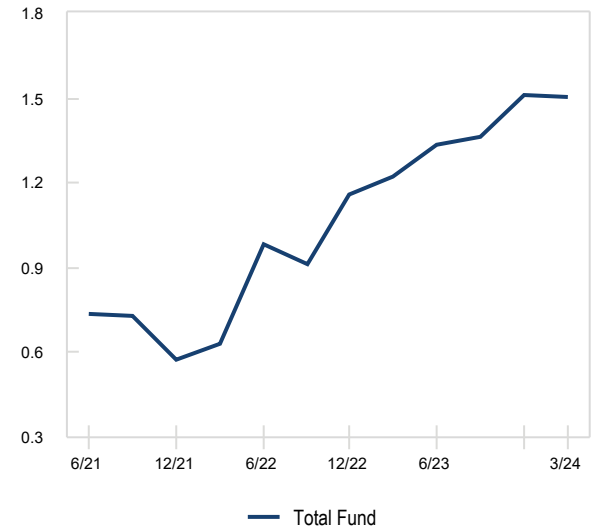
Rolling Information Ratio



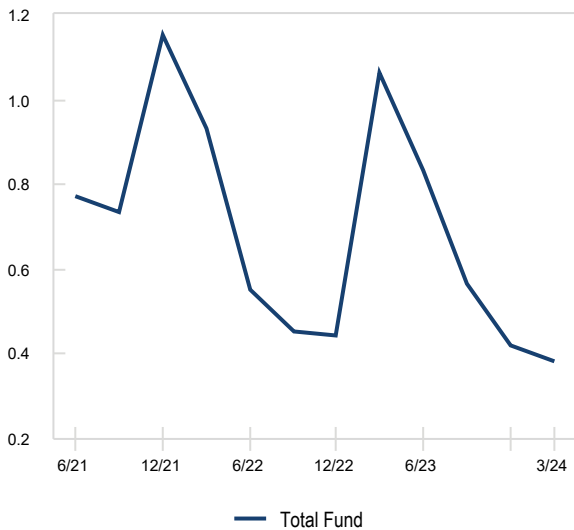
Rolling Annual Excess Benchmark Return



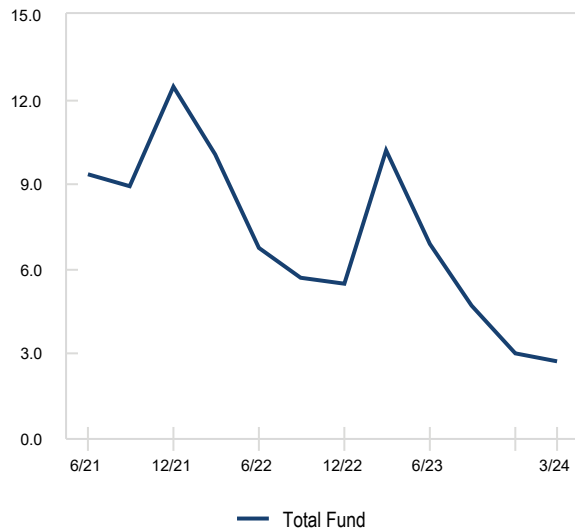
Rolling Tracking Error



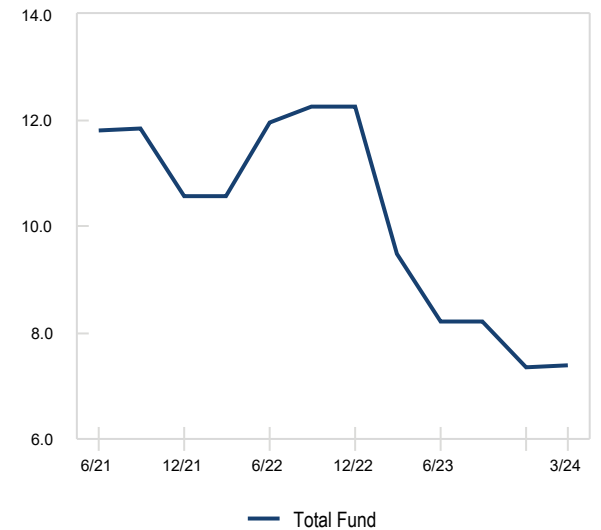
Rolling Sharpe Ratio



Rolling Annual Excess Risk Free Return



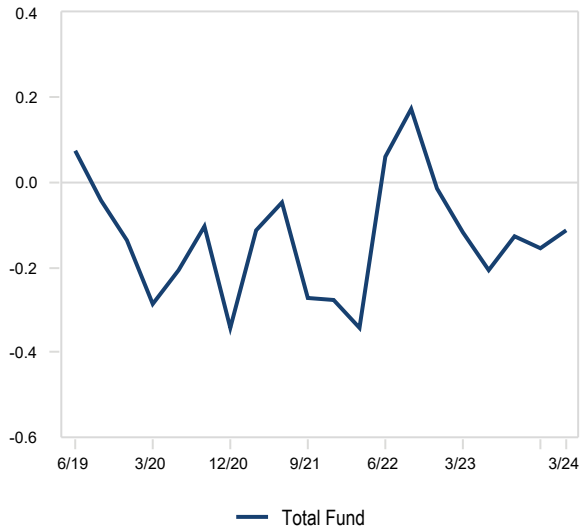
Rolling Annualized Standard Deviation



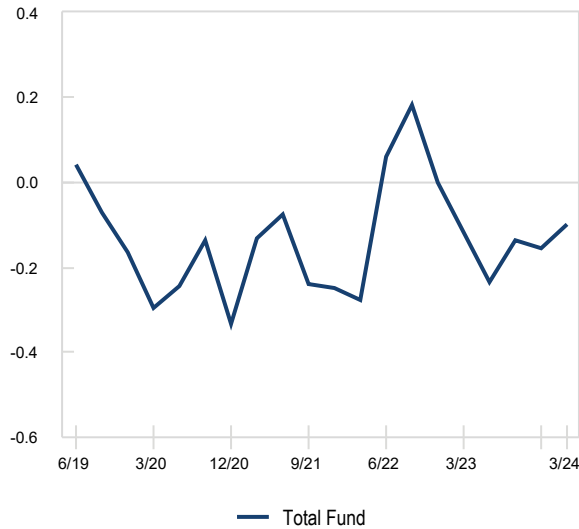
Total Fund  
Rolling Risk Statistics: 5 Years (Net of Fees)

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

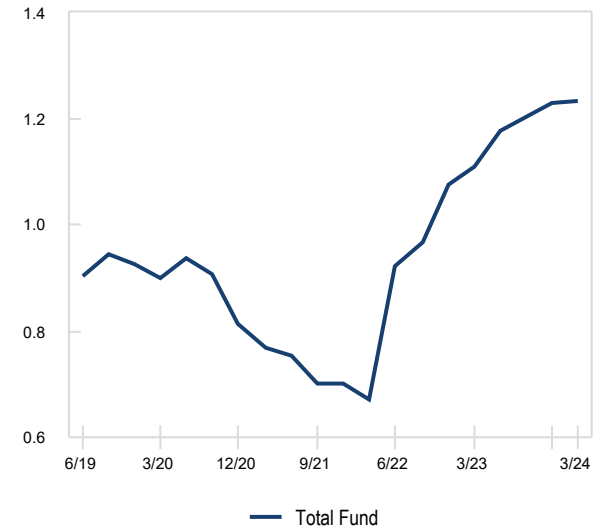
Rolling Information Ratio



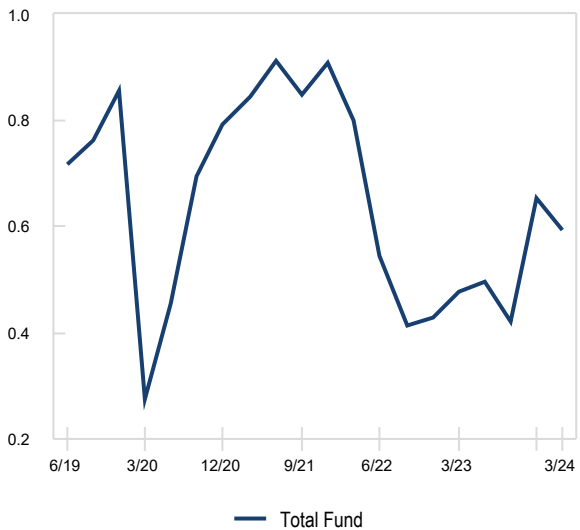
Rolling Annual Excess Benchmark Return



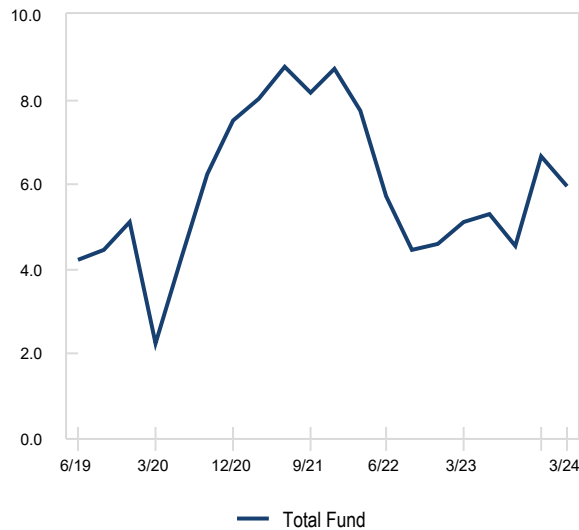
Rolling Tracking Error



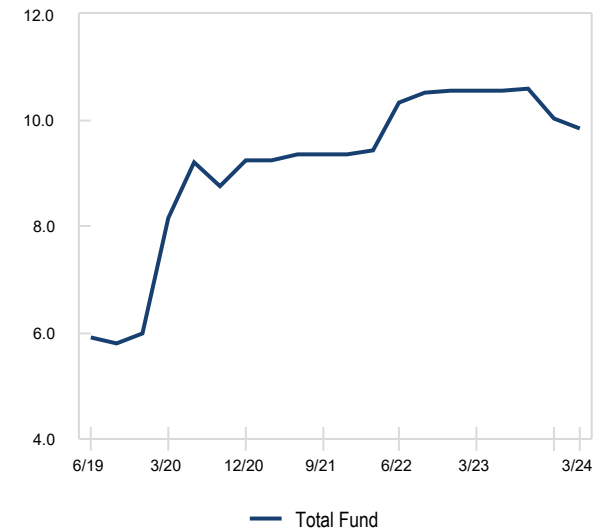
Rolling Sharpe Ratio



Rolling Annual Excess Risk Free Return



Rolling Annualized Standard Deviation



# Cash Flows

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Total Fund  
Net Cash Flow: Last 1 Quarter

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

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
<b>Equity</b>	<b>1,804,668,699</b>	<b>898,534</b>	<b>-648,962</b>		<b>-333,000</b>	<b>142,439,133</b>	<b>1,947,024,404</b>
Equity Beta Exposure	67,962,000	898,534	-648,962		-333,000	6,971,278	74,849,850
Mellon DB SL Stock Index Fund	579,000,969					61,104,347	640,105,317
PIMCO StocksPLUS	126,366,009					13,904,340	140,270,349
AB US Small Cap Value Equity	93,666,254					3,785,463	97,451,717
Geneva Capital Small Cap Growth	55,025,832					3,949,148	58,974,980
Mellon DB SL World ex-US Index Fund	415,298,504					23,113,484	438,411,988
Cevian Capital II	44,029,220					2,607,642	46,636,862
Lazard Japanese Equity	109,154,063					14,380,181	123,534,244
American Century Non-US Small Cap	60,360,821					4,951,969	65,312,790
DFA Emerging Markets Value I	87,548,956					2,335,116	89,884,072
Mellon Emerging Markets Stock Index Fund	110,984,819					2,202,624	113,187,443
Dalton Japan Long Only	55,270,144					3,133,538	58,403,682
Transition Equity	1,108					3	1,111
<b>Fixed Income</b>	<b>1,276,401,377</b>	<b>63,667,444</b>	<b>-959,339</b>		<b>-7,236,689</b>	<b>-879,275</b>	<b>1,330,993,517</b>
Fixed Income Beta Exposure	351,655,645	63,667,444	-959,339		-1,754,000	-3,064,253	409,545,497
Mellon DB SL Aggregate Bond Index Fund	166,484,242					-1,292,646	165,191,596
PIMCO Core Plus	170,961,375					-84,844	170,876,531
Western Asset Core Plus	126,921,814					-933,826	125,987,988
Western Asset High Yield Fixed Income	170,770,013				-3,079,986	2,814,449	170,504,476
TCW Securitized Opportunities	91,132,542				-1,876,015	1,015,481	90,272,008
Stone Harbor Emerging Markets Debt Blend Portfolio	41,325,698				-526,597	-45,555	40,753,547
PIMCO EMD	156,891,690					722,215	157,613,905
Transition Fixed Income	258,357				-92	-10,296	247,968
<b>Commodities</b>	<b>207,453,782</b>					<b>11,207,995</b>	<b>218,661,777</b>
Gresham MTAP Commodity Builder Fund	34,270,350					1,116,748	35,387,098
Wellington Commodities	173,183,432					10,091,247	183,274,679
<b>Hedge Funds</b>	<b>557,778,481</b>					<b>12,609,524</b>	<b>570,388,005</b>
Aristeia International Limited	73,340,536					752,153	74,092,689
Brevan Howard Fund	56,802,993					-1,159,883	55,643,110
D.E. Shaw Composite Fund	59,341,499					2,990,724	62,332,223
HBK Fund II	48,006,986					1,179,211	49,186,197
Hudson Bay Cap Structure Arbitrage Enhanced Fund	78,511,107					704,488	79,215,595

Total Fund  
Net Cash Flow: Last 1 Quarter

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

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Indus Pacific Opportunities Fund	45,669,351					2,806,360	48,475,711
Pharo Macro Fund	68,570,627					1,011,311	69,581,938
PIMCO Commodity Alpha Fund	78,129,135					1,765,944	79,895,079
Enhanced Domestic Partners to Sculptor Master Fund	49,406,248					2,559,215	51,965,463
<b>Alpha Pool</b>	<b>221,490,241</b>				<b>2,087,000</b>	<b>2,269,620</b>	<b>225,846,861</b>
Hudson Bay - Alpha Pool	64,505,703				604,968	-26,152	65,084,519
Davidson Kempner Institutional Partners	57,525,287				544,189	1,310,080	59,379,556
HBK Fund II	36,167,379				341,888	546,503	37,055,770
Garda Fixed Income Relative Value Opportunity Fund	63,291,872				595,955	439,189	64,327,016
<b>Midstream Energy</b>	<b>302,780,890</b>				<b>-44,324,346</b>	<b>33,632,831</b>	<b>292,089,375</b>
Harvest Midstream	145,365,427				-12,206,965	20,559,851	153,718,313
PIMCO Midstream	157,415,463				-32,117,382	13,072,981	138,371,062
<b>Core Real Estate</b>	<b>267,156,219</b>			<b>-281,039</b>	<b>-2,607,640</b>	<b>-16,426,350</b>	<b>247,841,190</b>
ASB Allegiance Real Estate Fund	144,618,851				-1,025,740	-9,793,069	133,800,042
JPMCB Strategic Property Fund	122,537,368			-281,039	-1,581,900	-6,633,280	114,041,148
<b>Private Real Estate</b>	<b>161,001,260</b>				<b>12,713,304</b>	<b>63,955</b>	<b>173,778,519</b>
Invesco Real Estate Value-Add Fund IV	649,619					-140,581	509,038
Landmark Real Estate Partners VIII	31,486,250				1,083,912	161,025	32,731,187
Long Wharf Real Estate	34,319,023					139,310	34,458,333
Covenant Apartment Fund X	29,983,585				-351,343	605,041	30,237,283
Singerman Real Estate Opportunity Fund IV	14,774,492				131,250	599,889	15,505,631
LBA Logistics Value Fund IX, L.P.	15,969,138					-169,157	15,799,980
Covenant Apartment Fund XI, LP	14,987,980				4,500,000	20,876	19,508,856
KSL Capital Partners VI	5,598,482					-254,380	5,344,102
Merit Hill Self-Storage V, LP.	13,232,691				2,234,477	-898,067	14,569,101
Juniper Capital IV, L.P					5,115,008		5,115,008
<b>Private Equity</b>	<b>224,715,208</b>				<b>9,423,686</b>	<b>10,545,812</b>	<b>244,684,706</b>
Abbott VI	16,001,729				-1,250,000		14,751,729
Pantheon Secondary III	545,326					-2,802	542,524
Pantheon V	374,357					-2,316	372,041
Pantheon VI	329,324					-101	329,223

Total Fund  
Net Cash Flow: Last 1 Quarter

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

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Pantheon VII	6,739,818				-375,000	67,150	6,431,968
Vista Foundation Fund IV	18,765,984				448,991	225,933	19,440,908
Crown Global Secondaries V Master S.C.Sp	36,047,551				2,100,000	1,008,712	39,156,263
Brighton Park Capital Fund I	36,960,843				636,846	3,652,957	41,250,646
Warren Equity Partners Fund III	34,020,296					1,796,349	35,816,645
Peak Rock Capital Fund III	14,333,765				1,454,915	1,156,981	16,945,661
Level Equity Growth Partners V	7,597,497				435,712	499,545	8,532,754
Level Equity Opportunities Fund 2021	6,407,431					157,682	6,565,113
Linden Capital Partners V LP	13,014,916					764,227	13,779,144
Rubicon Technology Partners IV L.P.	5,135,484				4,572,222	130,726	9,838,432
OrbiMed Private Investments IX, LP	1,167,203				950,000	-77,431	2,039,772
Brighton Park Capital Fund II, L.P	3,658,153					-266,398	3,391,755
Linden Co-Investment V LP	4,113,076					300,612	4,413,688
Warren Equity Partners Fund IV	12,263,238					646,819	12,910,057
WEP IV TS Co-Investment, L.P.	7,239,217					-3,708	7,235,509
Crown Global Secondaries VI Master S.C.Sp					450,000	490,874	940,874
<b>Private Credit</b>	<b>304,080,326</b>				<b>6,183,042</b>	<b>8,180,506</b>	<b>318,443,874</b>
DC Value Recovery Fund IV	17,346,522					694,951	18,041,473
Sixth Street TAO Partners (B)	42,694,725				-982,835	586,965	42,298,855
Brookfield Real Estate Finance Fund V	15,305,465				-2,607,438		12,698,028
Magnetar Constellation Fund V	26,403,562				-1,557,696	207,695	25,053,561
H.I.G. Bayside Loan Opportunity Fund V	45,173,127				-2,276,381	2,599,021	45,495,767
Blue Torch Credit Opportunities Fund II	15,184,695					347,488	15,532,183
Fortress Credit Opportunitis Fund V Expansion	22,238,689				2,012,311	602,353	24,853,353
Fortress Lending Fund II	28,269,695				-1,827,930	986,340	27,428,105
Blue Torch Credit Opportunities Fund III	25,242,588					332,273	25,574,861
Fortress Lending Fund III	27,777,855				698,051	656,975	29,132,881
OrbiMed Royalty & Credit Opportunities IV	4,831,827				2,628,913	137,265	7,598,005
Cerberus Business Finance V	16,022,074				1,554,661	638,696	18,215,431
Silver Point Specialty Credit Fund III, L.P.	9,652,808				177,749	-309,750	9,520,807
Ares Pathfinder II	2,450,370				1,363,636	-14,912	3,799,094
Oak Hill Advisors Structured Products Fund III, L.P.	5,486,324				7,000,000	715,146	13,201,470

Total Fund  
Net Cash Flow: Last 1 Quarter

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

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
<b>Opportunistic</b>	<b>143,114,014</b>				<b>249,251</b>	<b>2,490,908</b>	<b>145,854,173</b>
Sixth Street TAO Partners (D)	91,747,562				-3,208,021	2,657,986	91,197,527
Aristeia Select Opportunities II	46,013,723					-226,566	45,787,157
River Birch International - Opportunistic Investment	5,352,729					59,488	5,412,216
Hudson Bay Special Opportunities Fund LP					3,457,272		3,457,272
<b>Cash</b>	<b>415,705,315</b>	<b>32,709,417</b>	<b>-54,031,300</b>	<b>-41,279</b>	<b>24,295,393</b>	<b>6,606,498</b>	<b>425,244,044</b>
Short Term Investment Funds	177,721,518	32,709,417	-54,031,300	-41,279	24,295,393	2,719,768	183,373,517
BlackRock Short Duration Fund	237,983,797					3,886,730	241,870,527
<b>Other</b>	<b>-340,548,925</b>	<b>87,184,388</b>	<b>-143,028,920</b>			<b>1,232,076</b>	<b>-395,161,380</b>
Parametric Cash Overlay	83,131,531	35,069,295	-37,771,789				80,429,037
Goldman Sachs Cash Account	-15,155,811	46,220,746	-34,907,006				-3,842,071
Futures Offset	-419,617,645	4,340,348	-70,350,126			1,232,076	-484,395,347
Collateral Cash	11,093,000	1,554,000					12,647,000

Total Fund  
Cash Flow History

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

Portfolio Reconciliation

	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Beginning Market Value	5,545,796,887	5,352,263,309	5,240,888,799	5,116,318,382	4,253,583,727	3,494,442,152
Contributions	308,652,260	1,431,685,945	1,800,444,131	8,647,761,778	13,253,555,746	19,403,332,673
Withdrawals	-322,410,998	-1,481,136,979	-1,841,708,518	-8,852,042,246	-13,633,031,562	-20,031,922,287
Fees	-322,318	-548,429	-471,296	-22,941,691	-51,584,938	-127,342,663
Net Cash Flows	-13,758,738	-49,451,033	-41,264,387	-204,280,468	-379,475,816	-628,589,614
Net Investment Change	213,650,916	442,876,789	546,064,653	833,651,151	1,871,581,154	2,879,836,527
Ending Market Value	5,745,689,065	5,745,689,065	5,745,689,065	5,745,689,065	5,745,689,065	5,745,689,065
Net Change \$	199,892,178	393,425,756	504,800,266	629,370,683	1,492,105,338	2,251,246,913

Contribution and withdrawals include transfers in and out of accounts. Ending market value is net of fees. Market value and flows do not include the Short Term Cash Account balance.



# Risk Metrics

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Total Fund  
Actual Correlation Matrix

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

Correlation Matrix  
3 Years Ending March 31, 2024

	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	0.98	1.00										
C	0.95	0.98	1.00									
D	0.96	0.97	0.90	1.00								
E	0.79	0.81	0.70	0.82	1.00							
F	0.85	0.85	0.79	0.86	0.79	1.00						
G	0.73	0.75	0.70	0.76	0.70	0.97	1.00					
H	0.89	0.87	0.84	0.86	0.69	0.89	0.80	1.00				
I	0.84	0.85	0.76	0.88	0.89	0.91	0.80	0.80	1.00			
J	0.55	0.43	0.37	0.47	0.40	0.23	0.11	0.35	0.32	1.00		
K	0.44	0.42	0.42	0.42	0.24	0.27	0.15	0.41	0.34	0.23	1.00	
L	-0.20	-0.27	-0.21	-0.31	-0.33	-0.39	-0.38	-0.31	-0.41	0.05	-0.18	1.00

- A = Total Fund
- B = Equity
- C = Domestic Equity
- D = International Developed Equity
- E = Emerging Markets Equity
- F = Fixed Income
- G = Core Fixed Income
- H = High Yield/ Specialty Credit
- I = Emerging Market Debt
- J = Commodities
- K = Hedge Funds
- L = Core Real Estate

- Low Interaction
- Moderate Interaction
- Moderate to High Interaction
- High Interaction

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

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

	Alpha	Beta	R-Squared	Return	Information Ratio	Excess Performance	Tracking Error	Sharpe Ratio	Excess Return	Standard Deviation	Sortino Ratio	Up Capture	Down Capture
Total Fund	0.6	0.9	1.0	5.1	-0.1	-0.1	1.6	0.3	2.8	8.1	0.5	88.5	84.8
Equity	0.2	1.0	1.0	6.4	0.0	0.1	1.1	0.3	5.0	16.1	0.5	99.0	98.4
Domestic Equity	-0.2	1.0	1.0	9.7	-0.3	-0.3	1.0	0.5	8.3	17.6	0.7	98.2	98.8
International Developed Equity	0.8	1.0	1.0	4.8	0.5	0.8	1.4	0.2	3.5	16.3	0.3	101.1	98.3
Emerging Markets Equity	0.9	0.9	1.0	-2.8	0.5	1.2	2.3	-0.3	-4.1	16.2	-0.4	94.6	90.9
Fixed Income	-0.3	1.0	1.0	-1.6	-0.4	-0.3	0.8	-0.6	-3.9	7.1	-0.7	99.6	102.8
Core Fixed Income	-0.4	1.0	1.0	-2.8	-0.8	-0.4	0.5	-0.7	-5.2	7.1	-0.9	98.6	102.4
High Yield/ Specialty Credit	-0.1	0.7	0.9	1.6	-0.3	-0.6	2.7	-0.1	-0.8	6.4	-0.2	71.7	71.9
Emerging Market Debt	1.3	1.0	1.0	-0.3	1.4	1.2	0.9	-0.2	-2.3	10.6	-0.3	105.6	96.7
Commodities	3.2	0.9	0.9	11.3	0.3	2.2	5.0	0.6	9.1	14.0	1.0	89.0	71.4
Hedge Funds	4.9	0.2	0.2	6.4	-0.2	-0.6	3.8	1.9	3.7	2.0	3.7	46.9	-42.4
Alpha Pool	5.9	-0.7	0.1	1.1	-2.5	-5.6	2.1	-0.7	-1.4	1.9	-0.9	17.6	-
Midstream Energy	5.0	0.9	1.0	23.2	0.4	2.7	4.2	1.2	19.8	16.5	2.0	91.7	72.0
Core Real Estate	-4.8	0.8	0.8	-2.3	-1.3	-5.7	4.4	-0.5	-4.6	8.2	-0.7	62.7	128.5
Private Real Estate	0.0	1.0	1.0	10.8	-	0.0	0.0	1.1	8.0	6.6	3.0	100.0	100.0
Private Equity	0.0	1.0	1.0	11.8	-0.6	0.0	0.0	1.3	8.9	6.9	3.4	100.0	100.3
Private Credit	0.0	1.0	1.0	5.3	-0.6	0.0	0.0	0.7	2.7	3.9	1.5	99.9	100.0
Opportunistic	-	-	-	2.7	-0.8	-7.3	8.4	0.1	0.5	8.4	0.1	31.8	-

Risk Return Statistics: Last Three Years

Period Ending: March 31, 2024

	Equity	MSCI AC World IMI (Net)	Core Plus Fixed Income	Bloomberg U.S. Aggregate Index	High Yield/ Specialty Credit	ICE BofA U.S. High Yield Index	Emerging Market Debt	3 Years 50 JPM EMBI Global Div/ 50 JPM GBI EM Global Div	Commodities	Bloomberg Commodity Index Total Return	Hedge Funds	75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)	Core Real Estate	NCREIF ODCE-monthly
<b>RETURN SUMMARY STATISTICS</b>														
Up Market Periods	22	22	14	14	22	22	17	17	21	21	23	23	30	30
Down Market Periods	14	14	22	22	14	14	19	19	15	15	13	13	6	6
Maximum Return	8.39	9.24	4.23	4.53	4.80	6.02	7.56	7.35	7.67	8.78	1.46	2.89	5.39	7.97
Minimum Return	-9.42	-9.65	-4.27	-4.32	-5.04	-6.81	-5.99	-5.81	-8.90	-10.77	-0.75	-1.96	-6.33	-4.97
Return	6.42	6.31	-2.83	-2.46	1.61	2.21	-0.27	-1.47	11.26	9.11	6.38	7.06	-2.32	3.37
Excess Return	4.99	4.95	-5.17	-4.78	-0.76	-0.02	-2.26	-3.50	9.14	7.40	3.67	4.37	-4.56	1.21
Excess Performance	0.10	0.00	-0.37	0.00	-0.60	0.00	1.20	0.00	2.15	0.00	-0.67	0.00	-5.69	0.00
<b>RISK SUMMARY STATISTICS</b>														
Beta	0.98	1.00	0.99	1.00	0.74	1.00	1.02	1.00	0.86	1.00	0.20	1.00	0.76	1.00
Upside Risk	12.33	12.52	4.87	4.99	4.74	6.14	7.44	7.09	11.41	12.02	2.60	4.18	5.12	8.17
Downside Risk	10.65	10.95	5.24	5.14	4.28	5.71	7.55	7.49	8.77	10.19	0.69	2.08	6.37	4.98
<b>RISK/RETURN SUMMARY STATISTICS</b>														
Standard Deviation	16.15	16.49	7.11	7.14	6.36	8.35	10.60	10.31	13.99	15.49	2.01	4.22	8.16	9.51
Alpha	0.21	0.00	-0.39	0.00	-0.07	0.00	1.27	0.00	3.23	0.00	4.93	0.00	-4.77	0.00
Sharpe Ratio	0.31	0.30	-0.74	-0.68	-0.12	0.00	-0.22	-0.35	0.65	0.47	1.88	1.07	-0.53	0.12
Excess Risk	16.04	16.38	7.01	7.03	6.25	8.22	10.41	10.12	14.12	15.70	1.96	4.07	8.65	9.89
Tracking Error	1.07	0.00	0.51	0.00	2.69	0.00	0.89	0.00	5.02	0.00	3.82	0.00	4.38	0.00
Information Ratio	0.04	-	-0.75	-	-0.27	-	1.40	-	0.35	-	-0.18	-	-1.32	-
<b>CORRELATION STATISTICS</b>														
R-Squared	1.00	1.00	0.99	1.00	0.94	1.00	0.99	1.00	0.90	1.00	0.18	1.00	0.79	1.00
Actual Correlation	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.43	1.00	0.89	1.00

Risk Return Statistics: Last Two Years

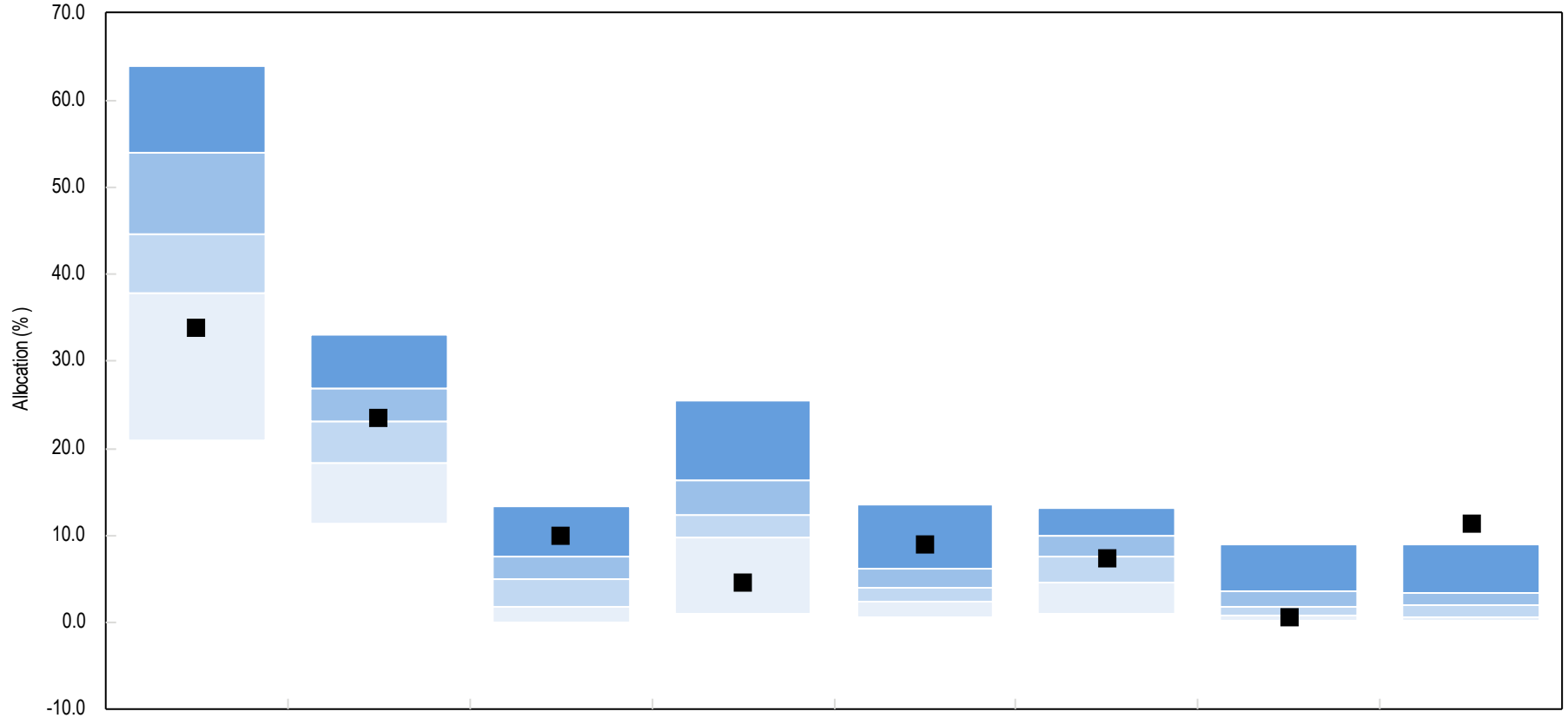
	Midstream Energy	Alerian Midstream Energy Index	2 Yrs Opportunistic	Assumed Rate of Return +3%
<b>RETURN SUMMARY STATISTICS</b>				
Up Market Periods	12	12	24	24
Down Market Periods	12	12	0	0
Maximum Return	11.14	11.05	5.16	0.80
Minimum Return	-11.84	-12.21	-4.04	0.80
Return	15.90	10.97	-3.50	10.00
Excess Return	12.63	8.62	-7.09	5.77
Excess Performance	4.93	0.00	-13.50	0.00
<b>RISK SUMMARY STATISTICS</b>				
Beta	0.88	1.00	-	-
Upside Risk	14.75	15.37	1.47	2.76
Downside Risk	10.95	12.87	5.37	0.00
<b>RISK/RETURN SUMMARY STATISTICS</b>				
Standard Deviation	17.75	19.72	7.35	0.00
Alpha	5.59	0.00	-	-
Sharpe Ratio	0.71	0.44	-0.99	11.05
Excess Risk	17.73	19.69	7.17	0.52
Tracking Error	4.06	0.00	7.35	0.00
Information Ratio	0.99	-	-1.75	-
<b>CORRELATION STATISTICS</b>				
R-Squared	0.96	1.00	-	-
Actual Correlation	0.98	1.00	-	-

Data for unavailable for positions held for less than two years.

# Peer Comparison

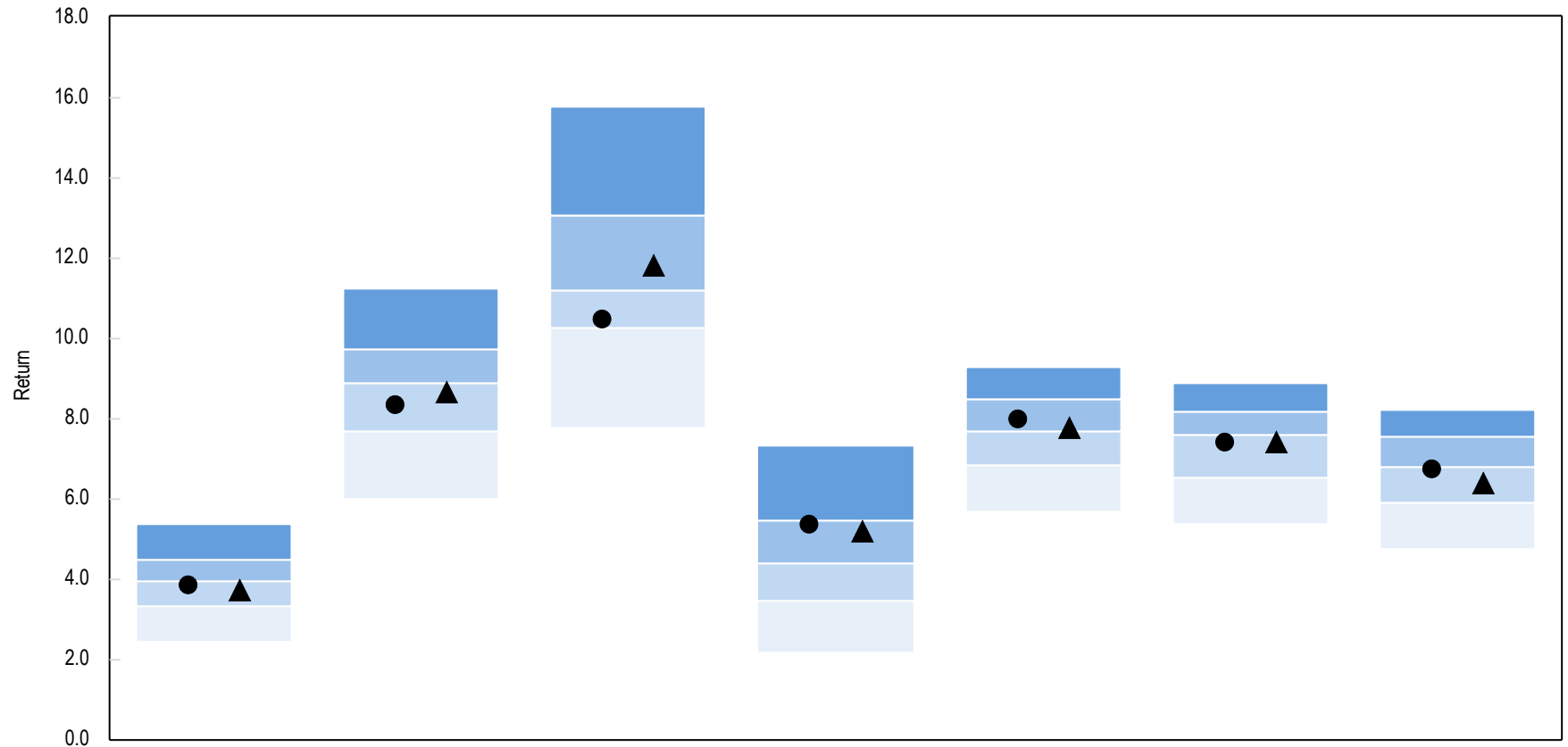
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Total Plan Allocation vs. InvMetrics Public DB > \$1B  
As of March 31, 2024



	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ Total Fund	33.9 (87)	23.5 (45)	9.9 (17)	4.5 (88)	8.9 (18)	7.3 (52)	0.5 (84)	11.4 (1)
5th Percentile	64.1	33.2	13.3	25.4	13.5	13.1	8.9	9.0
1st Quartile	54.1	27.0	7.5	16.3	6.2	10.0	3.5	3.4
Median	44.6	23.1	5.1	12.4	4.0	7.6	1.8	2.0
3rd Quartile	37.8	18.3	1.8	9.8	2.3	4.6	0.7	0.5
95th Percentile	21.0	11.4	0.0	1.0	0.6	1.0	0.1	0.2
Population	96	96	47	76	52	68	85	15

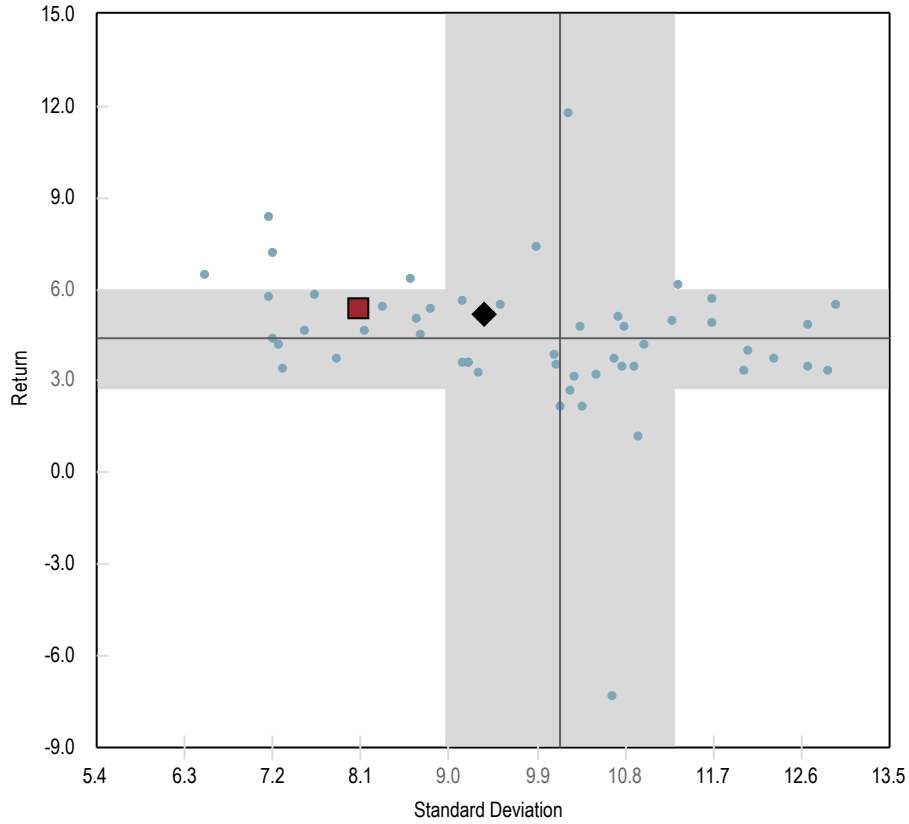
Total Fund vs. InvMetrics Public DB > \$1B



	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Total Fund	3.9 (52)	8.4 (56)	10.5 (69)	5.4 (29)	8.0 (36)	7.4 (56)	6.8 (51)
▲ Policy Index	3.7 (63)	8.6 (53)	11.8 (42)	5.2 (30)	7.8 (48)	7.4 (56)	6.4 (61)
5th Percentile	5.4	11.3	15.8	7.3	9.3	8.9	8.2
1st Quartile	4.5	9.8	13.1	5.5	8.5	8.2	7.5
Median	3.9	8.9	11.2	4.4	7.7	7.6	6.8
3rd Quartile	3.3	7.7	10.3	3.5	6.8	6.5	5.9
95th Percentile	2.4	6.0	7.8	2.2	5.7	5.4	4.8
Population	98	63	55	51	51	50	47

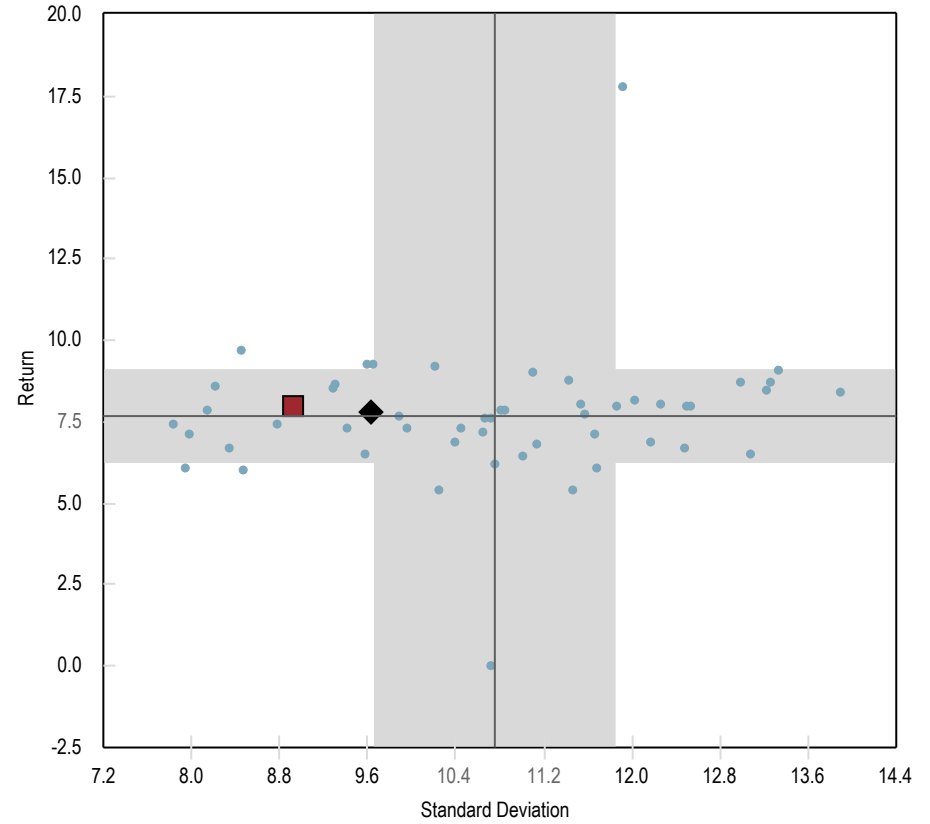


Annualized Return vs. Annualized Standard Deviation  
3 Years Ending March 31, 2024



	Return	Standard Deviation
Total Fund	5.39	8.06
Policy Index	5.21	9.36
Median	4.39	10.14
Population	51	51

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending March 31, 2024



	Return	Standard Deviation
Total Fund	7.98	8.92
Policy Index	7.77	9.64
Median	7.67	10.76
Population	51	51

Other

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Total Fund  
Quarterly Historical Returns (Net of Fees)

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

	2024 Q1	2023 Q4	2023 Q3	2023 Q2	2023 Q1	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2021 Q3	2021 Q2
<b>Total Fund</b>	<b>3.8</b>	<b>5.1</b>	<b>-0.8</b>	<b>1.9</b>	<b>3.2</b>	<b>4.5</b>	<b>-3.1</b>	<b>-7.5</b>	<b>-0.8</b>	<b>3.6</b>	<b>0.5</b>	<b>5.5</b>
<i>Policy Index</i>	3.7	6.2	-1.4	2.9	3.8	5.5	-3.8	-8.9	-1.3	3.3	0.7	5.7

	2021 Q1	2020 Q4	2020 Q3	2020 Q2	2020 Q1	2019 Q4	2019 Q3	2019 Q2	2019 Q1	2018 Q4	2018 Q3	2018 Q2
<b>Total Fund</b>	<b>3.5</b>	<b>8.8</b>	<b>4.4</b>	<b>10.7</b>	<b>-11.3</b>	<b>4.6</b>	<b>0.2</b>	<b>3.1</b>	<b>6.8</b>	<b>-6.4</b>	<b>2.3</b>	<b>0.3</b>
<i>Policy Index</i>	3.3	8.8	4.5	10.1	-11.1	4.6	0.8	3.0	7.0	-5.5	2.2	0.7

	2018 Q1	2017 Q4	2017 Q3	2017 Q2	2017 Q1	2016 Q4	2016 Q3	2016 Q2	2016 Q1	2015 Q4	2015 Q3	2015 Q2
<b>Total Fund</b>	<b>-0.1</b>	<b>3.0</b>	<b>3.2</b>	<b>2.7</b>	<b>4.2</b>	<b>0.8</b>	<b>3.5</b>	<b>1.9</b>	<b>1.1</b>	<b>2.2</b>	<b>-5.4</b>	<b>0.7</b>
<i>Policy Index</i>	-0.1	3.2	3.1	2.8	3.5	0.5	2.9	2.2	1.8	1.4	-4.9	0.4

# Total Fund Data Sources and Methodology

# Kern County Employees' Retirement Association Period Ending: March 31, 2024

## Performance Return Calculations

Performance is calculated using a Time Weighted Rates of Return (TWRR) methodology. Monthly returns are linked geometrically and annualized for periods longer than one year.

## Data Source

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

## Illiquid Alternatives

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

## Manager Line Up

<u>Investment Fund or Strategy</u>	<u>Fund Incepted</u>	<u>Data Source</u>	<u>Investment Fund or Strategy</u>	<u>Fund Incepted</u>	<u>Data Source</u>
AB US Small Cap Value Equity	7/7/2015	Northern Trust	Linden Capital Partners V LP	7/19/2022	Linden
Abbott Capital PE VI	3/31/2008	Abbott Capital	Linden Co-Investment V LP	6/30/2022	Linden
American Century Non-US Small Cap	12/15/2020	American Century	Long Wharf Real Estate	6/27/2019	Long Wharf
Ares Pathfinder	10/1/2023	Ares	Magnetar Constellation	11/14/2018	Magnetar
Aristeia International Limited	5/1/2014	Northern Trust	Mellon Aggregate Bond Index Fund	1/14/2011	Mellon
ASB Real Estate	9/30/2013	ASB	Mellon EB DV Stock Index	10/18/2017	Mellon
Barclays Capital Aggregate Rebalancing Overlay	6/15/2022	Parametric	Mellon EB DV World ex-US Index	8/1/2018	Mellon
BlackRock Short Duration Fund	9/8/2021	BlackRock	Merit Hill Self Storage	11/3/2023	Merit
Blue Torch Credit Opportunities	7/24/2020	Blue Torch	Myriad Opportunities Offshore	5/19/2016	Northern Trust
Brevan Howard	11/1/2013	Northern Trust	Oak Hill Advisors	12/22/2023	Oak Hill
Brighton Private Equity	3/28/2021	Brighton	OrbiMed Private Investments IV, LP	11/4/2022	OrbiMed
Brighton Park Capital Fund II, L.P.	9/30/2022	Brighton	OrbiMed Royalty & Credit Opportunities	9/12/2022	OrbiMed
Brookfield Real Estate Finance Fund V	12/18/2017	Northern Trust	Pantheon Global III	6/30/2000	Pantheon
Cerberus Business Finance V	8/25/2023	Cerberus	Pantheon USA V	6/30/2005	Pantheon
Cevian Capital II	12/30/2014	Northern Trust	Pantheon USA VI	3/31/2005	Pantheon
Covenant Apartment Fund X	10/29/2020	Covenant	Pantheon USA VII	3/31/2005	Pantheon
Crown Global Secondaries V Master S.C.Sp	2/1/2021	Crown	Parametric Overlay/ Cap Efficiency Program	7/31/2020	Parametric
Crown Global Secondaries Fund VI	2/1/2021	Crown	Peak Rock Capital Fund III	7/13/2021	Peak Rock
Dalton Japan Long Only	10/31/2023	Dalton	PIMCO Core Plus	1/21/2011	Northern Trust
DC Value Recovery fund IV	12/28/2015	Colony	PIMCO Commodity Alpha	5/4/2016	PIMCO
D.E. Shaw	6/30/2013	Northern Trust	PIMCO EMD	2/29/2020	Northern Trust
DFA Emerging Markets Value I	3/7/2014	Northern Trust	PIMCO Midstream	10/9/2020	PIMCO
Fortress Credit Opportunities	12/17/2020	Fortress	PIMCO StocksPLUS	7/14/2003	PIMCO
Fortress Lending Fund II	3/15/2021	Fortress	Fidelity Non-US Small Cap Equity	6/10/2008	Northern Trust
Garda Fixed Income Relative Value Opp	9/30/2021	Garda	River Birch	8/3/2015	Northern Trust
Geneva Capital Small Cap Growth	7/22/2015	Geneva	Rubicon Technology Partners IV LP	11/30/2022	Rubicon
Gresham MTAP Commodity	9/3/2013	Gresham	Silver Point Specialty Credit Fund III, L.P.	10/4/2023	Singerman
Harvest Midstream	9/28/2020	Harvest Midstream	Singerman Real Estate Opportunity Fund IV	10/27/2021	Sculptor
HBK Fund II	11/1/2013	Northern Trust	Sculptor Enhanced Domestic Partners	3/26/2019	Northern Trust
Henderson Smallcap Growth	7/22/2015	Northern Trust	Short Term Cash Account	12/31/2000	Northern Trust
H.I.G Bayside Loan Opportunities Fund V	7/24/2019	H.I.G. Capital	Short Term Investment Funds	6/30/2000	Stone Harbor
Hudson Bay	6/7/2019	Northern Trust	Stone Harbor Emerging Markets Debt	8/8/2012	TPG Sixth Street
Hudson Bay Special Opportunities Fund	2/20/2024	Hudson Bay	TAO Contingent	4/16/2020	TCW
Indus Pacific Opportunities	6/30/2014	Northern Trust	TCW Securitized Opportunities	2/3/2016	Northern Trust
Invesco Real Estate III	6/30/2013	Invesco	Transition Equity	9/30/2010	Northern Trust
Invesco Real Estate IV	12/18/2015	Invesco	Transition Fixed Income	9/30/2010	TPG Sixth Street
J.P. Morgan Strategic Property	7/2/2014	J.P. Morgan	TSSP Adjacent Opportunities Partners	11/17/2017	Vista Equity
Juniper Capital IV, L.P.	4/26/2023	Juniper	Vista Equity Partners	7/24/2020	Warren
KSL Capital Partners VI	4/26/2023	KSL Capital	Warren Equity III	4/1/2021	Warren
Landmark Real Estate Partners VIII	4/29/2018	Landmark	Warren Equity IV	1/1/2023	Wellington
Lazard Japanese Equity	11/1/2023	Lazard	Wellington Alternative Investments	2/9/2023	Wellington
LBA Logistics Value Fund IX, L.P.	2/22/2022	LBA	WEP IV TS Co-Investment, L.P.	8/14/2023	Northern Trust
Level Equity Growth Partners V	11/1/2021	Level Equity	Western Asset Core Plus	5/31/2004	Northern Trust
Level Equity Opportunities Fund 2021	11/1/2021	Level Equity	Western Asset High Yield Fixed income	5/31/2005	
LGT Crown	2/1/2021	LGT			

Policy & Custom Index Composition	
Policy Index: 10/31/2023 - Present	33% MSCI ACWI IMI (Net), 15% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +3%, 2.5% MSCI ACWI (Net), 8% 90 Day T-Bill + 3%, 5% Alerian Midstream Energy Index, 5% NCREIF-ODCE Gross Monthly, 5% actual time-weighted Private Equity Returns*, 8% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 0% Assumed Rate of Return +3%, -8% 90 Day T-bill.
Policy Index: 4/1/2022-9/30/23	37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual time-weighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill.
Policy Index: 7/1/2021-4/1/2022	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 1/1/2021-6/30/2021	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 7/1/2020-12/31/2020	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 5% Bloomberg US Aggregate, 1% Alerian Midstream, 4% Bloomberg US Aggregate
Policy Index: 4/1/2020-6/30/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 1/1/2020-3/31/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2019-12/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2019-9/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 4/1/2019-6/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 1/1/2019-3/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2018-12/31/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2018-9/30/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 3% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 2% MSCI ACWI*, 7% Bloomberg US Aggregate*.
Policy Index: 1/1/2017- 6/30/2018	19% Russell 3000 Index, 18% MSCI ACWI ex US, 29% Bloomberg US Aggregate, 10% NCREIF-ODCE, 4% Bloomberg Commodity Index, 7.5% 91-day T-bills + 400bps, 2.5% MSCI ACWI, 5% Russell 3000 Index + 300 bps, 5% ICE BofA ML High Yield + 200 bps.
Policy Index: 4/1/2014-12/31/2016	23% Russell 3000 Index, 29% Bloomberg US Aggregate, 22% MSCI ACWI ex US,

**Other Disclosures**

\*Private Asset actual weights, rounded to 1%, and actual time-weighted returns of Private Equity, Private Credit, Private Real Estate used in policy with the difference in weight versus target allocated to private markets public market "equivalent". Private Equity to Global Equity, Private Credit and Private Real Estate to Core Plus.

All data prior to 2Q 2011 has been provided by the investment managers.

# Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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