

## PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS



PERIOD ENDING: MARCH 31, 2024

Investment Performance Review for

**Imperial County Employees' Retirement System** 

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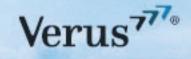
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## PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

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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 <u>verusinvestments.com/research</u>:
  - Market concentration & equal weighted indexing
  - Ten thoughts for 2024
  - What are continuation funds?

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# Recent Verus research

## Visit: verusinvestments.com/research

## **Topics of interest**

#### **TEN THOUGHTS FOR 2024**

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

## Other thought leadership

#### WHAT ARE CONTINUATION FUNDS?

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

#### MARKET CONCENTRATION & EQUAL-WEIGHTED INDEXING

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

## 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 hotterthan-expected inflation and jobs reports. Headline inflation increased from 3.3% to 3.5% year-over-year in March, while core CPI (ex-food & energy) declined slightly from 3.9% to 3.8%. It now seems more likely that inflation ends this year closer to, or above, 3% rather than 2%.

#### ASSET ALLOCATION ISSUES

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

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

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



# What drove the market in Q1?

#### "U.S. Consumer Prices Heat Up in March; Seen Delaying Fed Rate Cut"

#### FED FUNDS FUTURES IMPLIED RATES: END OF 2024

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

Article Source: Reuters, April 10th, 2024

#### "Resilient U.S. Boosts IMF Forecast for Global Economic Growth"

#### IMF WORLD ECONOMIC OUTLOOK 2024 GLOBAL GDP FORECAST

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

Article Source: U.S. News & World Report, January 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 27th, 2024

#### "Earnings, Big Tech Gave Investors Reasons to Buy U.S. Stocks"

S&P 500 YEAR-OVER-YEAR EARNINGS GROWTH (DECLINE)						
Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	
2.3%	-4.7%	-1.7%	-4.2%	4.9%	4.2%	

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

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



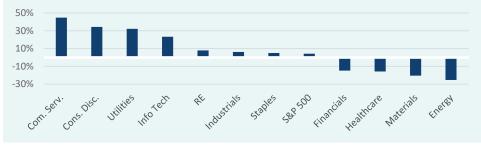
Source: BLS, as of 3/31/24

#### **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

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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.

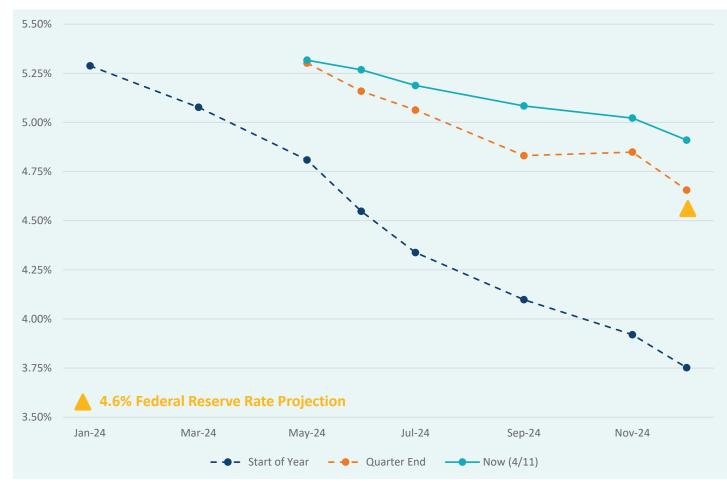
	Most Recent	12 Months Prior
Real GDP (YoY)	3.0% 3/31/24	1.7% 3/31/23
Inflation (CPI YoY, Core)	<b>3.8%</b> 3/31/24	5.6% 3/31/23
Expected Inflation (5yr-5yr forward)	<b>2.3%</b> 3/31/24	2.2% 3/31/23
Fed Funds Target Range	5.25–5.50% 3/31/24	4.75–5.00% <sub>3/31/23</sub>
10-Year Rate	<b>4.20%</b> 3/31/24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



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# 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

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## Inflation

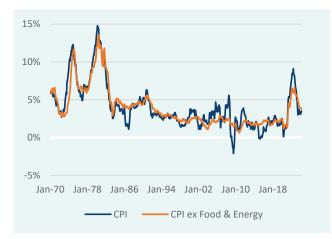
U.S. inflation increased in Q1, following a handful of hotterthan-expected inflation and jobs reports. Headline inflation increased from 3.3% to 3.5% year-over-year in March, while core CPI (ex-food & energy) declined slightly from 3.9% to 3.8%. It seems more likely that inflation ends this year closer 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)

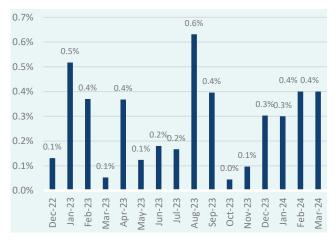


#### ZILLOW OBSERVED RENT VS. SHELTER CPI



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

#### MONTHLY PRICE MOVEMENT (CPI)



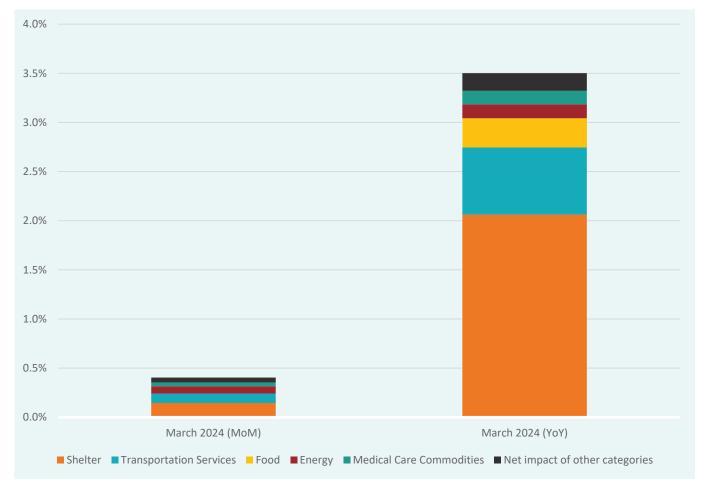
Source: BLS, as of 3/31/24

Investment Landscape 2nd Quarter 2024

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-overyear 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% quarterover-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**



#### U.S. REAL GDP COMPONENTS (QOQ)

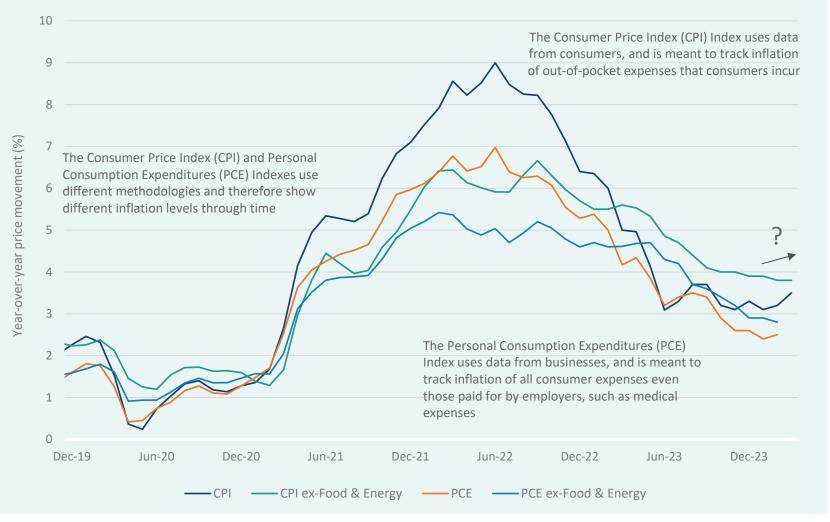


Source: FRED, as of 3/31/24

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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

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## 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%.

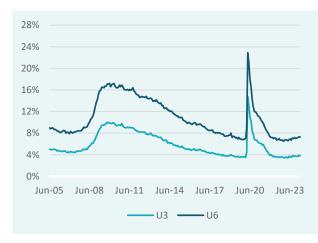
The U.S. job market has been incredibly resilient in the face of higher interest rates, and ongoing employment data releases continue to show outsized labor market gains. Some economists and investors have begun to partially attribute the record labor market gains to substantial immigration (both legal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

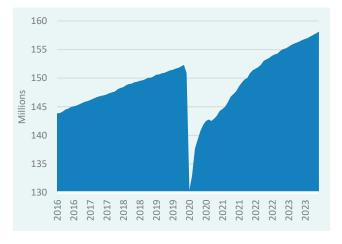
Rebalancing within the labor market continued. The mismatch between the number of *workers available* and the number of *available jobs* was greater than 6 million in early 2022. Nearly two-thirds of that gap has now closed, with steady improvement over the past year.

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

#### **U.S. UNEMPLOYMENT**



#### TOTAL U.S. EMPLOYMENT



#### WORKERS AVAILABLE VS. AVAILABLE JOBS



Source: FRED, as of 3/31/24

Source: FRED, as of 3/31/24

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

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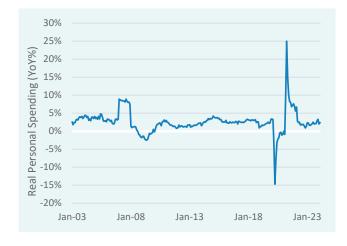
## The consumer

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.

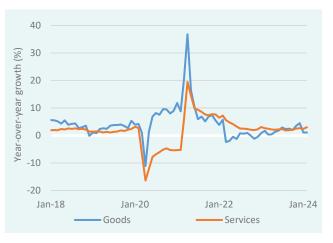
Personal savings rates had been improving through mid-2023

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.

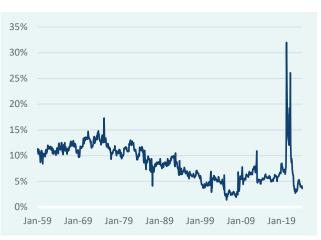
#### **REAL PERSONAL SPENDING**



#### **GOODS VS. SERVICES SPENDING (REAL)**



#### PERSONAL SAVINGS RATE



Source: FRED, as of 2/29/24

Source: FRED, as of 2/29/24

Source: FRED, as of 2/29/24

## Sentiment

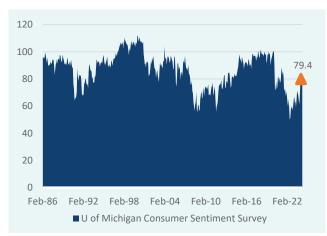
Consumer sentiment has seen significant improvement over the past year. The University of Michigan Consumer Sentiment survey bounced from 69.7 to 79.4 in Q1 on better financial positions of U.S. households, expectations that inflation will continue to ease, and impressions that the economy has achieved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

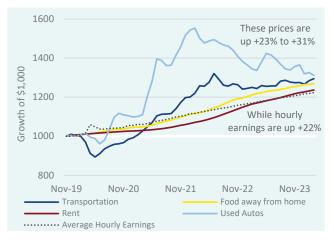
Consumer sentiment improved during Q1, while small business optimism dropped to the weakest level since 2012

#### 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 (%)**



**EXISTING HOME SALES** 



#### 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

> Investment Landscape 2nd Quarter 2024

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## 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-overyear 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%	3.5%	3.8%
	3/31/24	3/31/24	3/31/24
Eurozone	<b>0.1%</b> 12/31/23	<b>2.4%</b> 3/31/24	6.5% 2/29/24
Japan	<b>1.2%</b>	2.6%	<b>2.6%</b>
	12/31/23	3/31/24	2/29/24
BRICS Nations	5.3% 12/31/23	<b>1.7%</b> 3/31/24	<b>4.8%</b> 12/31/22
Brazil	<b>2.1%</b>	<b>3.9%</b>	<b>7.8%</b>
	12/31/23	3/31/24	2/29/24
Russia	<b>4.9%</b> 12/31/23	<b>7.7%</b> 3/31/24	<b>2.8%</b> 2/29/24
India	<b>8.4%</b>	<b>4.9%</b>	<b>7.6%</b>
	12/31/23	3/31/24	3/31/24
China	<b>5.3%</b>	<b>0.1%</b>	<b>5.2%</b>
	3/31/24	3/31/24	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.

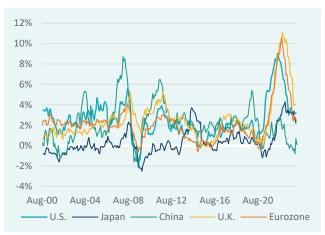
Going forward, we see material downside risks but also potential growth catalysts to the upside. Continuing and escalating conflicts in the Middle East and Eastern Europe have raised fears around energy market disruption, especially when considering that rising oil and natural gas prices were a major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



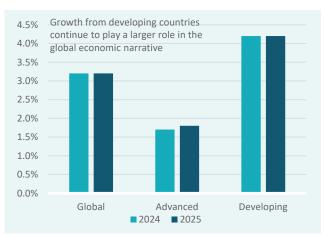
Source: Bloomberg, as of 12/31/23

#### 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

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# 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, durationsensitive 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 10year 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.

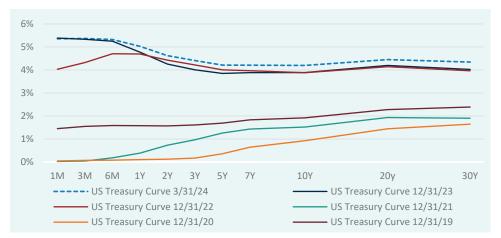
	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(0.8%)	1.7%
Core Plus Fixed Income (Bloomberg U.S. Universal)	(0.5%)	2.7%
U.S. Treasuries (Bloomberg U.S. Treasury)	(1.0%)	0.1%
U.S. Treasuries: Long (Bloomberg U.S. Treasury 20+)	(3.8%)	(7.3%)
U.S. High Yield (Bloomberg 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

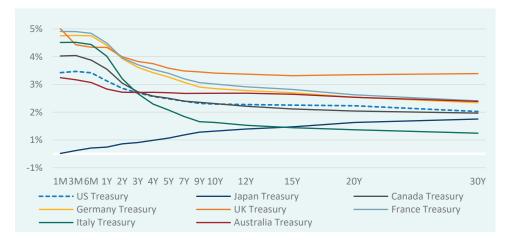


## Yield environment



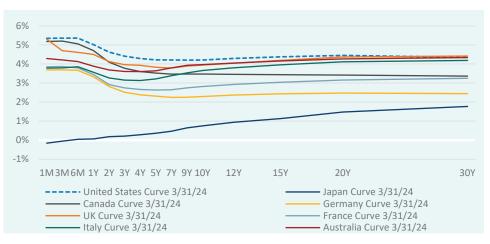


#### **YIELD CURVE CHANGES OVER LAST FIVE YEARS**

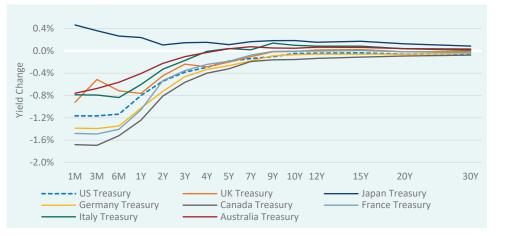


Source: Bloomberg, as of 3/31/24

#### **GLOBAL GOVERNMENT YIELD CURVES**



#### IMPLIED CHANGES OVER NEXT YEAR



Investment Landscape 2nd Quarter 2024

## Verus<sup>77</sup>

## 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.

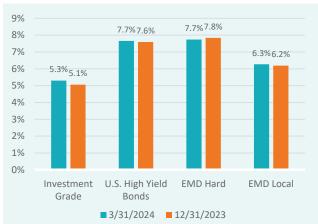
Returns across credit ratings were mixed during Q1. Higher-quality BBrated bonds returned +1.3% compared to +1.0% for B-rated and +1.3% for and CCC-rated bonds, respectively. Lower-quality bank loans experienced strong returns with CCC-rated loans rising by +6.0%, compared to +2.5% and +1.9% for BB- and B-rated loans, respectfully,

Credit spreads were slightly narrower during the quarter as strongerthan-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**



#### 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)

> Investment Landscape 2nd Quarter 2024

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

## 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).

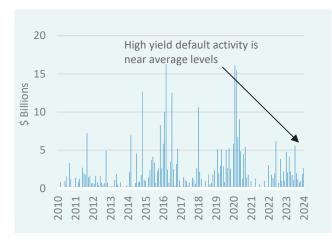
Year-to-date, the combined total of defaults and exchanges tracked slightly behind last year's pace by roughly -3.0%.

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)

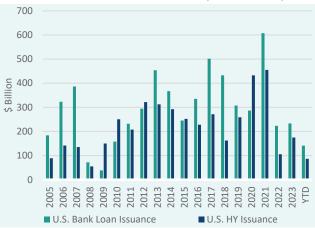


U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



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

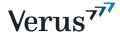
#### **DEVELOPED MARKET ISSUANCE (\$ BILLIONS)**



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

Investment Landscape 2nd Quarter 2024

## Source: BofA Merrill Lynch, 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 (%)**

## 

**3 YEAR ROLLING RETURN** 



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

#### 1 YEAR ROLLING RETURN



Source: Bloomberg, EurekaHedge, MPI







# 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 TOT	AL RETURN
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	10.	6%	29.	9%
U.S. Small Cap (Russell 2000)	5.2	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

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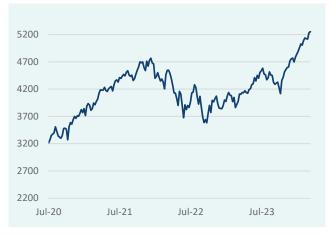
# Domestic equity

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.

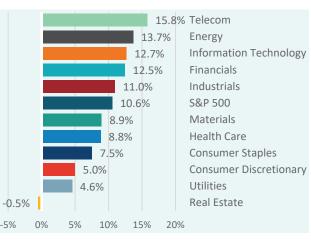
Large technology company performance has helped push the broader index higher, as the Magnificent Seven contributed around 37% of the S&P 500's total return in the first quarter, per Morningstar. A combination of Nvidia, Microsoft, Meta, and Amazon drove 47% of total returns. The Magnificent 7 stocks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

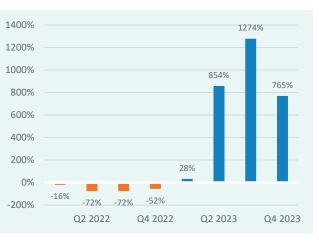
#### S&P 500 PRICE INDEX



#### Q1 2024 SECTOR PERFORMANCE



#### **NVIDIA EPS GROWTH (YEAR-OVER-YEAR)**



Source: Bloomberg, as of 3/31/24

Source: Morningstar, as of 3/31/24

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%.

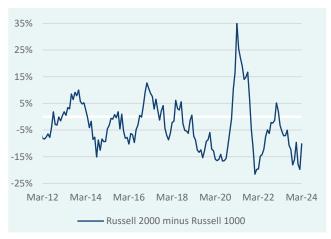
Mega cap companies continue to dominate large cap index performance. The "Magnificent 7" securities, including Amazon, Netflix, Google, Meta, Nvidia, Apple, and Tesla, drove the index into drawdown territory during 2022, contributed to a strong bounce back rally in 2023, then have pushed the index higher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



#### SMALL CAP VS LARGE CAP 1-YR ROLLING



#### **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

Source: FTSE, as of 3/31/24

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)

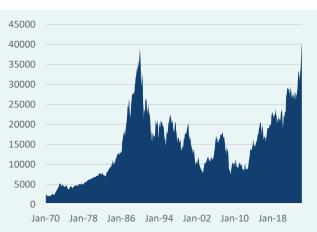
saw positive returns over the period.

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, equites 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



#### NIKKEI 225 INDEX



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

#### ECB RATE EXPECTATIONS



Source: Bloomberg, as of 3/31/24

Investment Landscape 2nd Quarter 2024

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



# Emerging market equity

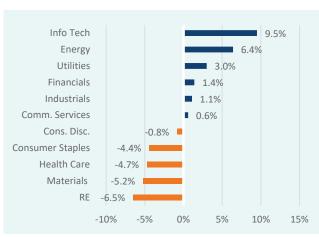
Emerging markets have delivered mild gains year-to-date, rising +2.4%, and are up +8.2% over the past year. Chinese equities have continued to act as a drag the index, down - 2.2% in 2024, and -17.1% over the past year.

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



#### MSCI EM Q1 2024 SECTOR RETURNS (USD)



#### ISHARES ETF MONTHLY FUND FLOWS (\$M USD)



Source: MSCI, as of 3/31/24

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

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

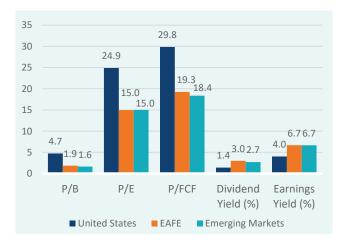
# Equity valuations

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)**

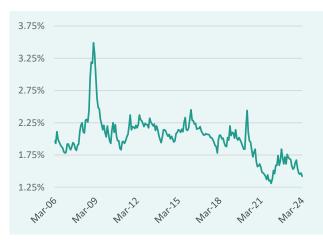


#### FORWARD PRICE/EARNINGS RATIO

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



#### **S&P 500 HISTORICAL DIVIDEND YIELD**



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

Investment Landscape 2nd Quarter 2024



Source: Bloomberg, as of 3/31/24

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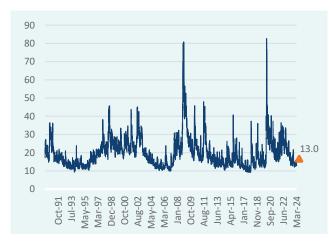
# Market volatility

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.

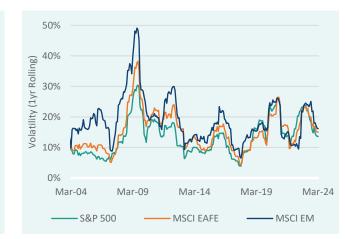
The realized past one-year volatility of global equity markets has moderated, with U.S. equity volatility at 13.6%—very close to current VIX implied volatility. The relative volatility of markets has moved back in line with historical behavior—U.S. equities showing the lowest volatility, followed closely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

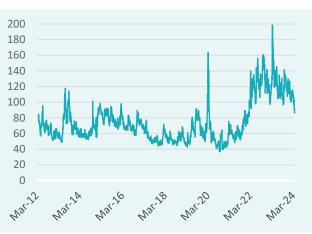
#### **U.S. IMPLIED VOLATILITY (VIX)**



#### **REALIZED VOLATILITY**



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



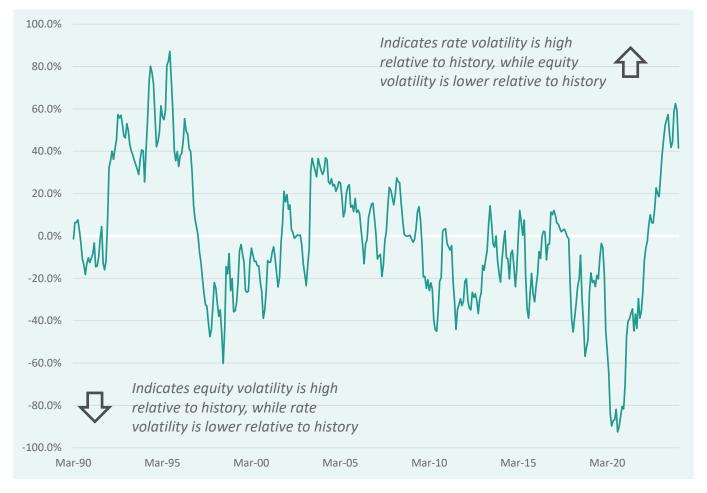
*Source: Cboe, as of 3/31/24* 

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

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







# Currency

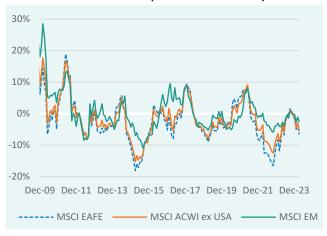
The U.S. dollar gained in value during the quarter, likely buoyed by the *higher for longer* interest rate narrative. A reassessment of the Federal Reserve policy path for 2024 has improved the outlook for the dollar, as currencies which offer higher interest rates, and relatively attractive prospects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

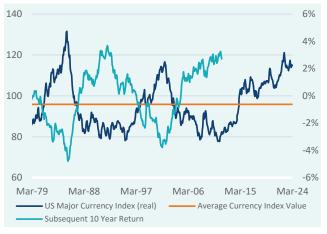
the past year, based on the EURO Stoxx 50 Index).

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)**



#### U.S. DOLLAR MAJOR CURRENCY INDEX



#### EMBEDDED CURRENCY VS CURRENCY FACTORS



Source: MSCI, as of 3/31/24

Source: Bloomberg, as of 3/31/24

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





# Periodic table of returns

3		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
2	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
,																								
2		Lar	ge Cap	Equity	/				Small(	Cap Gro	owth				Con	nmodit	ties							
5	Large Cap Value						Intern	ationa	Equity	,			Real Estate											
	Large Cap Growth						Emerging Markets Equity						Hedge Funds of Funds											
	Small Cap Equity					US Bonds 60% MSCI ACWI/40% Bloomberg Glo								rg Glob	al Bond									
		Sm	all Cap	Value					Cash															

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

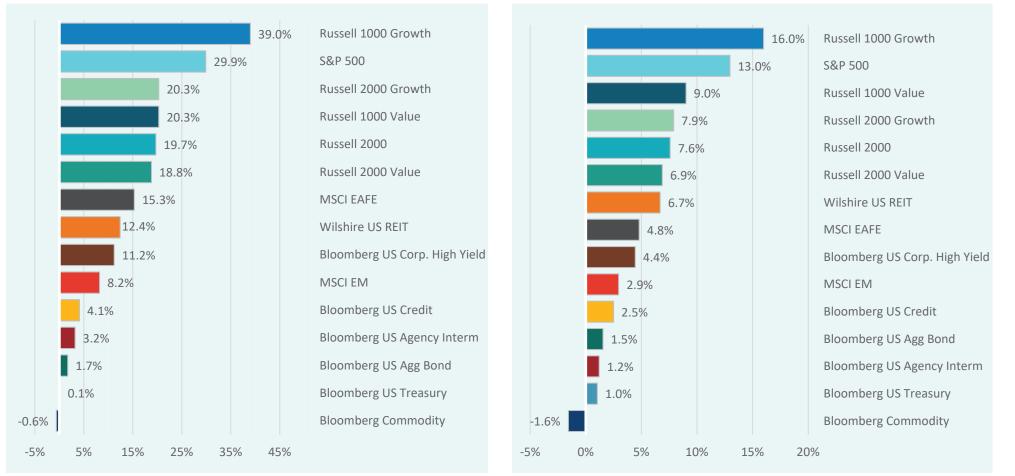


BEST

WORST

# Major asset class returns

#### ONE YEAR ENDING MARCH



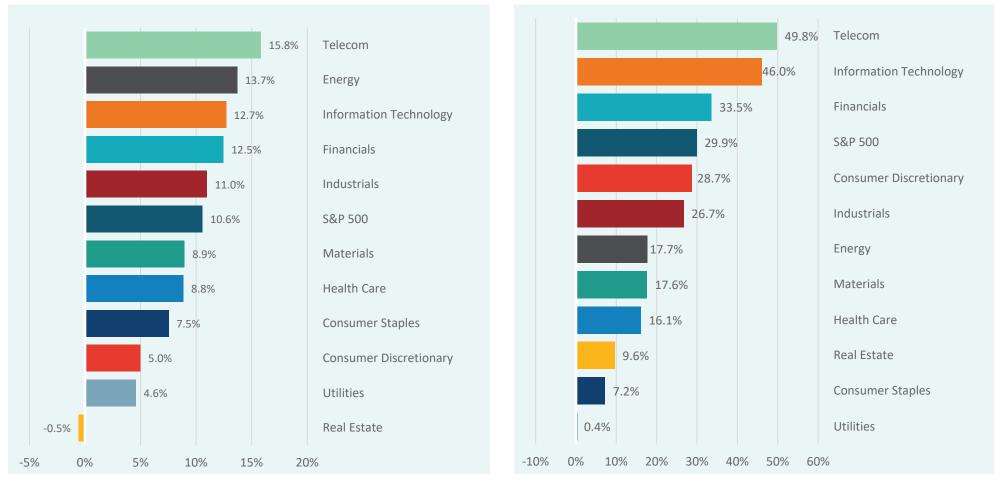
**TEN YEARS ENDING MARCH** 

\*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

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# S&P 500 sector returns

QTD



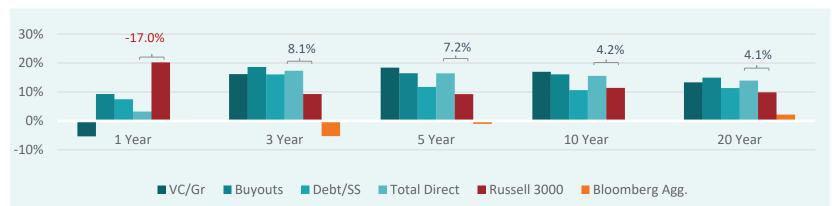
#### ONE YEAR ENDING MARCH

Source: Morningstar, as of 3/31/24

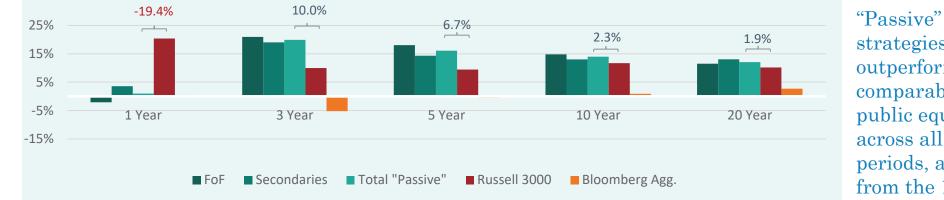
Source: Morningstar, as of 3/31/24

# Private equity vs. traditional assets performance

#### DIRECT PRIVATE EQUITY FUND INVESTMENTS



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



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.



**"PASSIVE" STRATEGIES** 

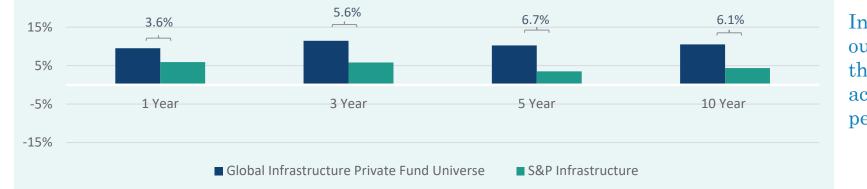
# Private vs. liquid real assets performance

#### **GLOBAL NATURAL RESOURCES FUNDS**

**GLOBAL INFRASTRUCTURE FUNDS** 



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



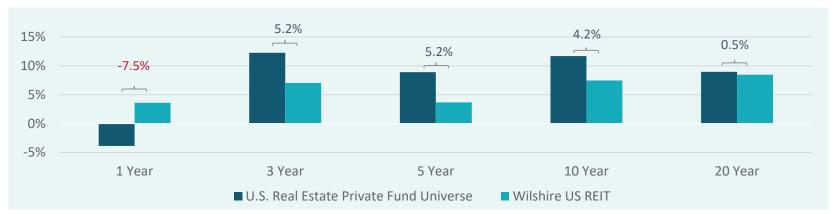
Infra. funds outperformed the S&P Infra. across all periods

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.

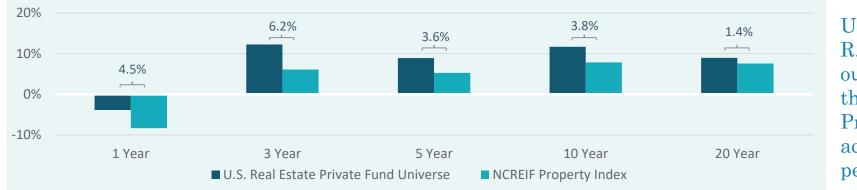


# Private vs. liquid and core real estate performance

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



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



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

Sources: Refinitiv PME: U.S. Real Estate universes as of September 30, 2023. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.



# Detailed index returns

DOMESTIC EQUITY												
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year					
Core Index												
S&P 500	3.2	10.6	10.6	29.9	11.5	15.1	13.0					
S&P 500 Equal Weighted	4.5	7.9	7.9	19.4	8.2	12.4	10.9					
DJ Industrial Average	2.2	6.1	6.1	22.2	8.7	11.3	11.8					
Russell Top 200	2.9	10.8	10.8	32.4	12.0	16.1	13.7					
Russell 1000	3.2	10.3	10.3	29.9	10.5	14.8	12.7					
Russell 2000	3.6	5.2	5.2	19.7	(0.1)	8.1	7.6					
Russell 3000	3.2	10.0	10.0	29.3	9.8	14.3	12.3					
Russell Mid Cap	4.3	8.6	8.6	22.3	6.1	11.1	9.9					
Style Index												
Russell 1000 Growth	1.8	11.4	11.4	39.0	12.5	18.5	16.0					
Russell 1000 Value	5.0	9.0	9.0	20.3	8.1	10.3	9.0					
Russell 2000 Growth	2.8	7.6	7.6	20.3	(2.7)	7.4	7.9					
Russell 2000 Value	4.4	2.9	2.9	18.8	2.2	8.2	6.9					

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

FIXED INCOME							
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Yea
Broad Index							
Bloomberg US TIPS	0.8	(0.1)	(0.1)	0.5	(0.5)	2.5	2.2
Bloomberg US Treasury Bills	0.5	1.3	1.3	5.3	2.6	2.0	1.4
Bloomberg US Agg Bond	0.9	(0.8)	(0.8)	1.7	(2.5)	0.4	1.5
Bloomberg US Universal	1.0	(0.5)	(0.5)	2.7	(2.1)	0.7	1.8
Duration							
Bloomberg US Treasury 1-3 Yr	0.4	0.3	0.3	2.9	0.0	1.1	1.1
Bloomberg US Treasury Long	1.2	(3.3)	(3.3)	(6.1)	(8.0)	(2.8)	1.2
Bloomberg US Treasury	0.6	(1.0)	(1.0)	0.1	(2.7)	(0.1)	1.0
Issuer							
Bloomberg US MBS	1.1	(1.0)	(1.0)	1.4	(2.8)	(0.4)	1.1
Bloomberg US Corp. High Yield	1.2	1.5	1.5	11.2	2.2	4.2	4.4
Bloomberg US Agency Interm	0.4	0.2	0.2	3.2	(0.6)	0.8	1.2
Bloomberg US Credit	1.2	(0.4)	(0.4)	4.1	(1.9)	1.4	2.5
OTHER Index							
Bloomberg Commodity	3.3	2.2	2.2	(0.6)	9.1	6.4	(1.6)
Wilshire US REIT	1.5	(0.0)	(0.0)	12.4	4.5	4.4	6.7
CS Leveraged Loans	0.8	2.5	2.5	12.4	5.8	5.3	4.6
S&P Global Infrastructure	4.6	1.3	1.3	4.1	5.5	4.9	5.2
Alerian MLP	4.9	14.7	14.7	37.3	29.2	10.4	2.9
Regional Index							
JPM EMBI Global Div	2.1	2.0	2.0	11.3	(1.4)	0.7	3.0
JPM GBI-EM Global Div	(0.0)	(2.1)	(2.1)	4.9	(1.6)	0.1	(0.3)
Hedge Funds							
HFRI Composite	2.5	4.9	4.9	12.1	4.3	7.0	5.0
HFRI FOF Composite	1.3	3.9	3.9	9.4	2.8	5.0	3.6
Currency (Spot)							
Euro	(0.2)	(2.2)	(2.2)	(0.6)	(2.8)	(0.8)	(2.4)
Pound Sterling	(0.1)	(0.9)	(0.9)	2.2	(2.9)	(0.6)	(2.7)
Yen	(1.1)	(6.9)	(6.9)	(12.1)	(10.0)	(6.1)	(3.8)

EIVED INCOME

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

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# Definitions

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

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

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

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

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## **Imperial County Employees' Retirement System**

Investment Performance Review Period Ending: March 31, 2024



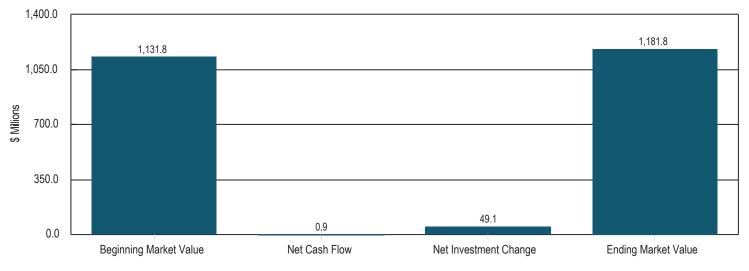
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#### Total Fund Portfolio Reconciliation

Portfolio Reconciliation														
Last Three Fiscal Year-To-Date One Year Months														
Beginning Market Value	\$1,131,753,444	\$1,095,987,714	\$1,066,299,325											
Net Cash Flows	\$884,363	-\$11,137,697	-\$14,278,293											
Net Investment Change	\$49,119,404	\$96,907,195	\$129,736,180											
Ending Market Value	\$1,181,757,212	\$1,181,757,212	\$1,181,757,212											

#### Change in Market Value Last Three Months



Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.



## Total Fund Executive Summary (Net of Fees)

#### Imperial County Employees' Retirement System

#### Period Ending: March 31, 2024

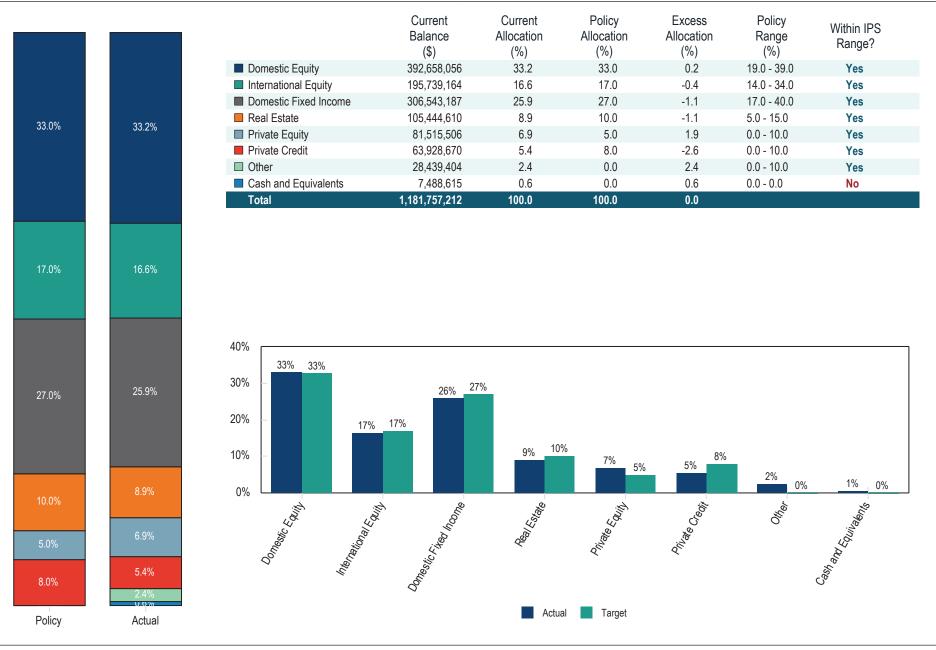
	Market Value	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	1,181,757,212	100.0	4.3	8.9	12.3	4.9	8.0	6.8
Policy Index			4.1	9.0	12.4	4.9	8.3	7.0
InvMetrics Public DB Rank			72	79	77	28	44	52
Total Domestic Equity	392,658,056	33.2	10.0	19.3	29.3	9.8	14.4	12.1
Russell 3000 Index			10.0	19.3	29.3	9.8	14.3	12.3
Total International Equity	195,739,164	16.6	4.8	10.5	14.0	3.0	6.2	4.4
MSCI AC World ex USA Index			4.8	10.9	13.8	2.4	6.5	4.7
Total Fixed Income	306,543,187	25.9	-0.1	3.6	2.7	-1.9	1.3	2.1
Blmbg. U.S. Aggregate Index			-0.8	2.6	1.7	-2.5	0.4	1.5
Total Real Estate	105,444,610	8.9	-2.3	-9.1	-12.9	1.7	2.7	5.9
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4
Total Private Equity	81,515,506	6.9	2.9	4.2	6.1	13.1	18.6	17.0
Private Equity Benchmark			2.9	4.2	6.1	13.1	18.6	17.7
Total Private Credit	63,928,670	5.4	1.6	7.7	10.9	11.8	9.7	N/A
Private Credit Benchmark			1.6	7.7	10.9	11.8	10.3	N/A
Total Opportunistic	28,439,404	2.4	1.5	7.4	13.3	9.7	7.9	8.5
Assumption Rate + 1%			2.1	6.3	8.5	8.5	8.5	N/A

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#### Total Fund Asset Allocation vs. Policy

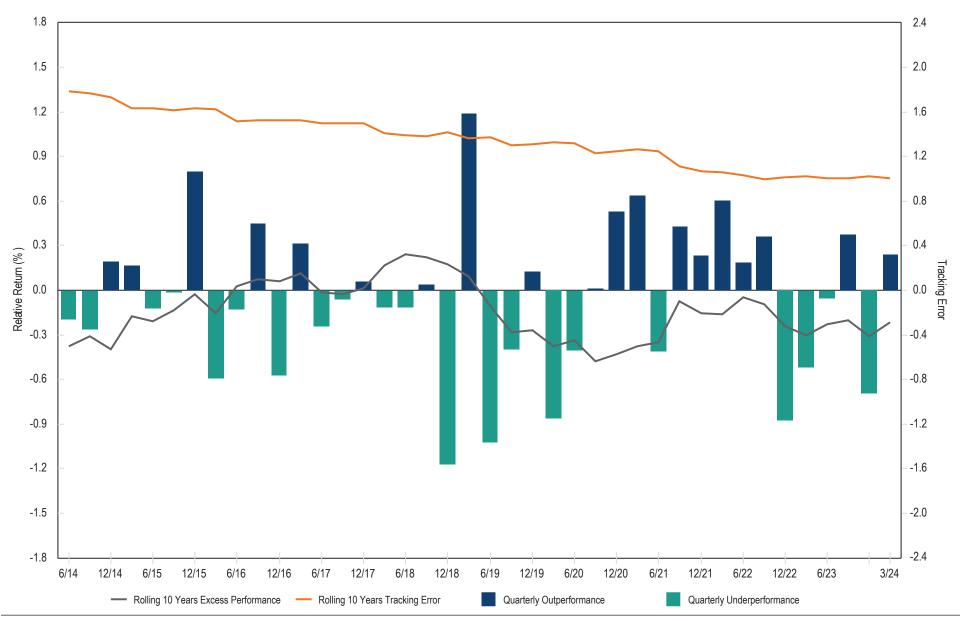
## Imperial County Employees' Retirement System

Period Ending: March 31, 2024



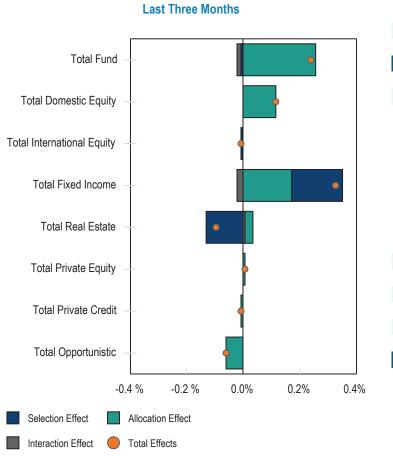


#### Total Fund Relative Performance and Rolling Statistics Chart



Rolling Annualized Excess Performance and Tracking Error





**Attribution Effects** 

	Quarter	YTD
Wtd. Actual Return	4.3	4.3
Wtd. Index Return	4.1	4.1
Excess Return	0.2	0.2
Selection Effect	0.0	0.0
Allocation Effect	0.3	0.3
Interaction Effect	0.0	0.0

**Performance Attribution** 

	Attribution Summary Last Three Months														
	Wtd. Actual Wtd. Index Excess Selection Allocation Interaction Total Return Return Return Effect Effect Effects Effects														
Total Domestic Equity         10.0         10.0         0.0         0.1         0.0         0.1															
Total International Equity         4.8         4.8         0.0         0.0         0.0         0.0															
Total Fixed Income	-0.1	-0.8	0.6	0.2	0.2	0.0	0.3								
Total Real Estate	-2.3	-1.0	-1.3	-0.1	0.0	0.0	-0.1								
Total Private Equity	2.9	2.9	0.0	0.0	0.0	0.0	0.0								
Total Private Credit	1.6	1.6	0.0	0.0	0.0	0.0	0.0								
Total Opportunistic	1.5	2.1	-0.6	0.0	-0.1	0.0	-0.1								
Total Fund															

Weighted returns shown in attribution analysis may differ from actual returns.

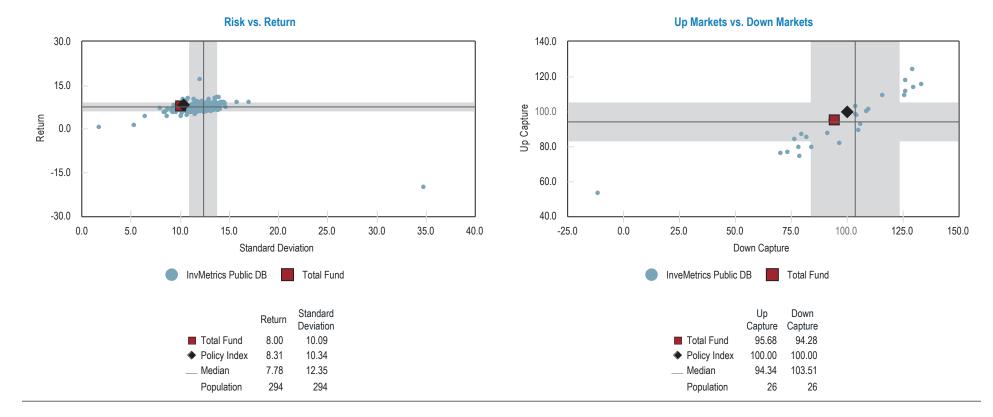


#### Total Fund Risk Analysis - 5 Years (Net of Fees)

## Imperial County Employees' Retirement System

#### Period Ending: March 31, 2024

	Annualized Return	Annualized Excess Return	Annualized Standard Deviation	Annualized Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
Total Fund	8.00	6.23	10.09	-0.07	0.97	1.02	0.99	0.61	-0.31	97.32	98.11





#### Total Fund Rolling Risk Statistics

#### Imperial County Employees' Retirement System Period Ending: March 31, 2024



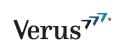
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## Total Fund Manager Summary (Net of Fees)

#### Imperial County Employees' Retirement System

Period Ending: March 31, 2024

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Total Fund	1,181,757,212	100.0	4.3	8.9	12.3	4.9	8.0	6.8	11.9	-11.6	15.8	12.3	17.9		
Policy Index			4.1	9.0	12.4	4.9	8.3	7.0	12.8	-11.9	14.8	13.3	18.0		
InvMetrics Public DB Rank			72	79	77	28	44	52	70	20	20	65	77		
Total Domestic Equity	392,658,056	33.2	10.0	19.3	29.3	9.8	14.4	12.1	26.0	-19.2	25.7	21.0	31.1		
Russell 3000 Index			10.0	19.3	29.3	9.8	14.3	12.3	26.0	-19.2	25.7	20.9	31.0		
BlackRock Russell 3000	392,658,056	33.2	10.0	19.3	29.3	9.8	14.4	-	26.0	-19.2	25.7	21.0	31.1	13.4	Dec-15
Russell 3000 Index			10.0	19.3	29.3	9.8	14.3	-	26.0	-19.2	25.7	20.9	31.0	13.3	
eV US All Cap Core Equity Rank			47	46	36	40	30	-	26	58	54	41	38		
Total International Equity	195,739,164	16.6	4.8	10.5	14.0	3.0	6.2	4.4	16.9	-15.4	10.1	8.1	20.7		
MSCI AC World ex USA Index			4.8	10.9	13.8	2.4	6.5	4.7	16.2	-15.6	8.3	11.1	22.1		
BlackRock International Equity	152,770,748	12.9	5.8	12.0	15.5	5.1	7.6	5.1	18.6	-14.1	11.6	8.1	22.4	7.1	Jul-03
MSCI EAFE (Net)			5.8	12.0	15.3	4.8	7.3	4.8	18.2	-14.5	11.3	7.8	22.0	7.2	
eV All EAFE Equity Rank			40	39	33	26	37	42	31	37	52	52	50		
DFA Emerging Markets Value	23,258,675	2.0	2.7	10.2	15.3	3.5	4.8	4.1	16.5	-10.7	12.4	2.7	9.6	4.1	Jan-07
MSCI Emerging Markets Value (Net)			1.3	8.6	11.4	-0.9	2.1	2.2	14.2	-15.8	4.0	5.5	12.0	3.3	
eV Emg Mkts All Cap Value Equity Rank			56	45	40	29	64	79	43	38	19	82	94		
Harding Loevner Emerging Markets	19,709,741	1.7	-0.6	-0.7	0.9	-10.9	-2.5	-	4.8	-28.1	-4.3	12.4	24.0	0.7	Aug-16
MSCI Emerging Markets Growth Index			3.4	6.0	5.4	-8.6	2.5	-	6.1	-23.7	-8.2	31.6	25.4	5.3	
eV Emg Mkts All Cap Growth Equity Rank			87	90	83	89	99	-	75	75	54	98	52		
Total Fixed Income	306,543,187	25.9	-0.1	3.6	2.7	-1.9	1.3	2.1	6.2	-14.2	0.6	9.8	9.5		
Blmbg. U.S. Aggregate Index			-0.8	2.6	1.7	-2.5	0.4	1.5	5.5	-13.0	-1.5	7.5	8.7		
Income Research & Management	131,450,941	11.1	-0.6	-	-	-	-	-	-	-	-	-	-	4.4	Sep-23
Blmbg. U.S. Aggregate Index			-0.8	-	-	-	-	-	-	-	-	-	-	3.3	
eV US Core Plus Fixed Inc Rank			82	-	-	-	-	-	-	-	-	-	-		
MacKay Shields Core Plus Opportunities	132,695,712	11.2	0.2	4.5	3.7	-2.1	1.2	-	6.7	-14.5	-0.5	9.9	9.7	1.5	Mar-15
Blmbg. U.S. Aggregate Index			-0.8	2.6	1.7	-2.5	0.4	-	5.5	-13.0	-1.5	7.5	8.7	1.1	
eV US Core Plus Fixed Inc Rank			18	17	30	50	50	-	44	86	51	21	52		
BlackRock US TIPS	42,396,534	3.6	0.0	1.9	0.4	-0.5	2.5	2.3	3.9	-11.9	5.9	11.2	8.5	3.4	Apr-07
Blmbg. U.S. TIPS Index			-0.1	1.9	0.5	-0.5	2.5	2.2	3.9	-11.8	6.0	11.0	8.4	3.4	
eV US TIPS / Inflation Fixed Inc Rank			58	60	53	62	53	23	44	68	28	31	33		



TSSP Adjacent funded 4/16/2020. Portfolio Advisors, Ascribe Opportunities IV, and Crescent Direct Lending market value as of 9/30/2023. PIMCO BRAVO liquidated 12/30/2022. Income Research & Management replaced Duenta 9/2023. Harbourvest 2023 funded 12/28/2023. ARA American Strategic Value Realty, Portfolio Advisors, KKR, Sixth Street Diversified Credit, Ares, Lone Star, TSSP, Crescent, Audax, Ascribe, and Harbourvest funds MVs as of 12/31/2023.

## Total Fund Manager Summary (Net of Fees)

#### Imperial County Employees' Retirement System

Period Ending: March 31, 2024

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Total Real Estate	105,444,610	8.9	-2.3	-9.1	-12.9	1.7	2.7	5.9	-14.3	8.5	18.4	2.1	5.7		
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4		
NCREIF ODCE Net			-2.6	-9.4	-12.0	2.5	2.6	5.8	-12.7	6.5	21.0	0.3	4.4		
ASB Real Estate	22,788,968	1.9	-6.9	-17.5	-22.6	-3.3	-1.0	3.6	-21.5	10.7	14.2	1.5	3.0	4.5	Jan-13
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4	6.9	
NCREIF ODCE Net			-2.6	-9.4	-12.0	2.5	2.6	5.8	-12.7	6.5	21.0	0.3	4.4	6.5	
Clarion Lion	27,817,460	2.4	-2.7	-7.9	-13.4	2.9	3.6	6.9	-15.5	9.6	23.6	2.3	6.8	4.4	Jan-07
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4	6.0	
NCREIF ODCE Net			-2.6	-9.4	-12.0	2.5	2.6	5.8	-12.7	6.5	21.0	0.3	4.4	4.4	
ARA American Strategic Value Realty	52,811,082	4.5	N/A	-6.0	-8.1	3.6	4.2	-	-10.3	6.8	18.6	2.4	7.8	5.1	Jan-18
NCREIF Property Index +2%			-0.5	-3.9	-5.3	5.7	5.8	-	-6.1	7.6	20.0	3.6	8.5	6.5	
NCREIF ODCE Net			-2.6	-9.4	-12.0	2.5	2.6	-	-12.7	6.5	21.0	0.3	4.4	3.4	
1221 State St. Corp	2,027,100	0.2	0.0	0.0	0.0	0.0	1.5	2.4	0.0	0.0	0.0	0.0	7.9	1.3	Jun-08
Total Private Equity	81,515,506	6.9	2.9	4.2	6.1	13.1	18.6	17.0	3.9	-0.8	57.3	23.0	13.3		
Harbourvest Buyout IX	5,117,810	0.4	0.7	1.9	6.2	9.4	16.3	16.5	5.9	-6.0	49.6	21.3	17.6		
Russell 3000 + 3%			10.8	22.0	33.2	13.1	17.8	15.7	29.7	-16.8	29.4	24.5	34.9		
Harbourvest Credit Ops IX	827,540	0.1	-0.6	0.6	2.2	13.0	10.8	11.3	5.0	11.0	32.1	0.3	8.0		
Russell 3000 + 3%			10.8	22.0	33.2	13.1	17.8	15.7	29.7	-16.8	29.4	24.5	34.9		
Harbourvest International PE VI	1,386,902	0.1	1.3	1.0	2.2	1.5	9.3	11.3	3.9	-16.7	41.2	17.2	6.0		
Russell 3000 + 3%			10.8	22.0	33.2	13.1	17.8	15.7	29.7	-16.8	29.4	24.5	34.9		
Harbourvest Venture IX	4,564,187	0.4	3.6	1.4	1.9	5.6	22.2	19.7	-9.5	-15.9	91.1	52.4	24.6		
Russell 3000 + 3%			10.8	22.0	33.2	13.1	17.8	15.7	29.7	-16.8	29.4	24.5	34.9		
Harbourvest 2017 Global Fund	27,233,724	2.3	6.8	9.3	11.6	14.2	19.0	-	4.6	-1.3	61.6	18.8	8.8	18.4	Oct-17
Russell 3000 + 3%			10.8	22.0	33.2	13.1	17.8	-	29.7	-16.8	29.4	24.5	34.9	16.6	
Harbourvest 2018 Global Fund	21,509,424	1.8	1.6	1.7	3.5	13.3	17.5	-	4.0	9.7	37.0	16.0	14.3	15.2	Jan-19
Russell 3000 + 3%			10.8	22.0	33.2	13.1	17.8	-	29.7	-16.8	29.4	24.5	34.9	20.0	
Harbourvest 2019 Global Fund	19,272,379	1.6	N/A	2.2	3.3	16.2	-	-	6.1	5.4	49.6	34.6	-	20.6	Dec-19
Russell 3000 + 3%			10.8	22.0	33.2	13.1	-	-	29.7	-16.8	29.4	24.5	-	17.2	
Harbourvest 2023 Global Fund	1,603,540	0.1	N/A	-	-	-	-	-	-	-	-	-	-		
Russell 3000 + 3%			10.8	-	-	-	-	-	-	-	-	-	-		
Total Private Credit	63,928,670	5.4	1.6	7.7	10.9	11.8	9.7		11.1	8.1	16.1	4.8	9.4		
Portfolio Advisors Credit Strategies Fund	11,579,640	1.0	N/A	1.8	3.5	9.6	9.4	-	4.0	7.7	26.8	3.9	8.2	8.6	Oct-17
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	7.5	-	12.5	-12.4	13.5	5.3	8.5	6.1	
Crescent Direct Lending Levered Fund II	2,959,269	0.3	N/A	6.9	10.3	9.5	9.5	-	9.3	10.9	11.5	6.0	12.4	9.2	Mar-18
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	7.5	-	12.5	-12.4	13.5	5.3	8.5	6.2	

TSSP Adjacent funded 4/16/2020. Portfolio Advisors, Ascribe Opportunities IV, and Crescent Direct Lending market value as of 9/30/2023. PIMCO BRAVO liquidated 12/30/2022. Income Research & Management replaced Duenta 9/2023. Harbourvest 2023 funded 12/28/2023. ARA American Strategic Value Realty, Portfolio Advisors, KKR, Sixth Street Diversified Credit, Ares, Lone Star, TSSP, Crescent, Audax, Ascribe, and Harbourvest funds MVs as of 12/31/2023.

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## Total Fund Manager Summary (Net of Fees)

## Imperial County Employees' Retirement System

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019	Inception	Inception Date
Audax Direct Lending Fund A	5,214,129	0.4	2.8	8.2	11.0	16.3	14.7	-	10.4	15.5	23.1	10.1	16.3	16.7	Oct-18
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	7.5	-	12.5	-12.4	13.5	5.3	8.5	6.5	
Ares Capital Europe IV	5,760,622	0.5	1.2	4.1	6.7	8.3	9.2	-	7.8	7.0	11.8	8.2	13.1	9.3	Aug-18
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	7.5	-	12.5	-12.4	13.5	5.3	8.5	6.5	
Lone Star XI	4,106,606	0.3	N/A	8.7	13.9	88.9	-	-	16.2	13.7	538.0	-62.8	-	18.1	Jun-19
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	-	-	12.5	-12.4	13.5	5.3	-	6.3	
Sixth Street Diversified Credit	29,328,800	2.5	3.1	11.5	17.6	10.3	-	-	16.1	13.2	-1.4	-	-	7.3	May-20
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	-	-	12.5	-12.4	13.5	-	-	5.4	
Ascribe Opportunities Fund IV	4,979,605	0.4	N/A	5.4	5.8	8.1	-	-	11.0	5.6	-17.3	-	-	-200.0	Jul-20
Bloomberg High Yield +2% (Lagged)			7.7	11.2	15.7	4.0	-	-	12.5	-12.4	13.5	-	-	8.3	
Total Opportunistic	28,439,404	2.4	1.5	7.4	13.3	9.7	7.9	8.5	13.0	10.4	18.6	0.9	-10.7		
KKR Mezzanine Partners	1,698,617	0.1	3.3	6.2	23.7	-1.4	-3.9	2.1	22.5	-31.0	10.5	-15.2	-4.2	5.3	Jun-11
TSSP Adjacent Opportunities Partners	26,740,787	2.3	1.4	7.5	12.6	12.7	-	-	12.4	16.2	26.1	-	-	16.4	Apr-20
Total Cash	7,488,615	0.6	1.0	1.0	1.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0		-
Invesco Treasury Portfolio	7,488,615	0.6	0.9	-	-	-	-	-	-	-	-	-	-	0.9	Jan-24
FTSE 3 Month T-Bill			1.4	-	-	-	-	-	-	-	-	-	-	1.4	



TSSP Adjacent funded 4/16/2020. Portfolio Advisors, Ascribe Opportunities IV, and Crescent Direct Lending market value as of 9/30/2023. PIMCO BRAVO liquidated 12/30/2022. Income Research & Management replaced Duenta 9/2023. Harbourvest 2023 funded 12/28/2023. ARA American Strategic Value Realty, Portfolio Advisors, KKR, Sixth Street Diversified Credit, Ares, Lone Star, TSSP, Crescent, Audax, Ascribe, and Harbourvest funds MVs as of 12/31/2023.

#### Investment Manager Risk Analysis by Manager - 3 Years (Net of Fees)

## Imperial County Employees' Retirement System

## Period Ending: March 31, 2024

	Annualized Return	Annualized Excess Return	Annualized Standard Deviation	Annualized Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
BlackRock Russell 3000	9.78	8.37	17.58	0.00	1.00	0.02	1.00	0.48	0.26	100.01	99.99
BlackRock International Equity	5.09	3.80	16.63	0.29	1.00	0.33	1.00	0.23	0.88	101.13	100.06
DFA Emerging Markets Value	3.46	2.06	15.60	4.36	0.97	2.46	0.98	0.13	1.73	102.80	82.88
Harding Loevner Emerging Markets	-10.93	-12.32	18.76	-3.29	0.90	7.23	0.86	-0.66	-0.36	91.94	102.53
MacKay Shields Core Plus Opportunities	-2.07	-4.35	7.63	0.56	1.06	1.18	0.98	-0.58	0.36	104.92	99.88
BlackRock US TIPS	-0.54	-2.85	7.04	-0.01	1.00	0.21	1.00	-0.40	-0.05	100.27	100.37
ASB Real Estate	-3.30	-5.33	10.65	-7.54	1.32	5.83	0.74	-0.48	-1.13	107.94	271.25
Clarion Lion	2.91	0.88	10.74	-2.19	1.48	4.51	0.92	0.08	-0.08	143.40	191.46
ARA American Strategic Value Realty	3.57	1.23	7.47	-2.29	1.05	1.53	0.96	0.16	-1.31	88.05	121.92
Portfolio Advisors Credit Strategies Fund	9.58	6.82	6.18	9.51	0.06	9.91	0.01	1.06	0.51	59.54	-20.74
Crescent Direct Lending Levered Fund II	9.53	6.71	5.06	10.21	-0.11	10.45	0.04	1.33	0.48	44.15	-42.64
Audax Direct Lending Fund A	16.27	12.92	7.92	16.01	0.12	10.67	0.02	1.59	1.05	83.90	-55.90
Ares Capital Europe IV	8.26	5.56	5.68	8.02	0.09	9.38	0.02	0.96	0.41	48.56	-22.50
Lone Star XI	88.87	87.90	92.82	135.54	0.39	92.90	0.00	0.95	0.93	662.37	-68.33



## Investment Manager Risk Analysis by Manager - 5 Years (Net of Fees)

#### Imperial County Employees' Retirement System

## Period Ending: March 31, 2024

	Annualized Return	Annualized Excess Return	Annualized Standard Deviation	Annualized Alpha	Annualized Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Capture	Down Capture
BlackRock Russell 3000	9.78	8.37	17.58	0.00	1.00	0.02	1.00	0.48	0.26	100.01	99.99
BlackRock International Equity	5.09	3.80	16.63	0.29	1.00	0.33	1.00	0.23	0.88	101.13	100.06
DFA Emerging Markets Value	3.46	2.06	15.60	4.36	0.97	2.46	0.98	0.13	1.73	102.80	82.88
Harding Loevner Emerging Markets	-10.93	-12.32	18.76	-3.29	0.90	7.23	0.86	-0.66	-0.36	91.94	102.53
MacKay Shields Core Plus Opportunities	-2.07	-4.35	7.63	0.56	1.06	1.18	0.98	-0.58	0.36	104.92	99.88
BlackRock US TIPS	-0.54	-2.85	7.04	-0.01	1.00	0.21	1.00	-0.40	-0.05	100.27	100.37
ASB Real Estate	-3.30	-5.33	10.65	-7.54	1.32	5.83	0.74	-0.48	-1.13	107.94	271.25
Clarion Lion	2.91	0.88	10.74	-2.19	1.48	4.51	0.92	0.08	-0.08	143.40	191.46
ARA American Strategic Value Realty	3.57	1.23	7.47	-2.29	1.05	1.53	0.96	0.16	-1.31	88.05	121.92
Portfolio Advisors Credit Strategies Fund	9.58	6.82	6.18	9.51	0.06	9.91	0.01	1.06	0.51	59.54	-20.74
Crescent Direct Lending Levered Fund II	9.53	6.71	5.06	10.21	-0.11	10.45	0.04	1.33	0.48	44.15	-42.64
Audax Direct Lending Fund A	16.27	12.92	7.92	16.01	0.12	10.67	0.02	1.59	1.05	83.90	-55.90
Ares Capital Europe IV	8.26	5.56	5.68	8.02	0.09	9.38	0.02	0.96	0.41	48.56	-22.50
Lone Star XI	88.87	87.90	92.82	135.54	0.39	92.90	0.00	0.95	0.93	662.37	-68.33



#### Private Equity Non Marketable Securities Overview

#### Imperial County Employees' Retirement System Period Ending: March 31, 2024

Vintage	Manager & Fund Name	Estimated 3/31/2024 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>4</sup>	IRR Date
2011	HarbourVest IX-Buyout	\$5,117,810	\$10,000,000	\$8,525,000	85%	\$1,475,000	\$13,913,583	\$5,953,294	163.2%	223.2%	17.9%	12/31/23
2011	HarbourVest IX-Credit	\$827,540	\$2,000,000	\$1,641,541	82%	\$358,459	\$1,950,233	\$963,189	118.8%	169.2%	12.6%	12/31/23
2008	HarbourVest Int'l VI <sup>5</sup>	\$1,386,902	\$3,712,930	\$2,630,078	71%	\$1,082,852	\$4,413,988	\$1,792,538	167.8%	220.6%	14.0%	12/31/23
2011	HarbourVest IX-Venture	\$4,564,187	\$4,000,000	\$3,800,000	95%	\$200,000	\$836,637	\$5,553,519	22.0%	142.1%	21.2%	12/31/23
2017	HarbourVest 2017 Global	\$27,233,724	\$30,000,000	\$19,364,051	65%	\$10,635,949	\$12,719,257	\$24,826,789	65.7%	206.3%	20.2%	12/31/23
2018	HarbourVest 2018 Global	\$21,509,424	\$20,000,000	\$10,938,043	55%	\$9,061,957	\$4,142,916	\$21,172,519	37.9%	234.5%	20.7%	12/31/23
2019	HarbourVest 2019 Global	\$19,272,379	\$20,000,000	\$13,975,273	70%	\$6,024,727	\$2,809,888	\$16,756,917	20.1%	158.0%	23.7%	9/30/23
2023	HarbourVest 2023 Global	\$1,603,540	\$10,000,000	\$1,603,540	16%	\$8,396,460	\$0	NA	0.0%	100.0%	NA	NA
	Total Illiquid Private Equity	\$81,515,506	\$99,712,930	\$62,477,526	63%	\$37,235,404	\$40,786,502	\$77,018,765	65.3%	195.8%		
	% of Portfolio (Market Value)	6.90%						Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense <sup>6</sup>
						HarbourVest IX-Buyout		\$20,189	\$0	\$3,926	\$4,679	\$28,794
						Llarbour (act IV Cradit		¢4.025	¢O	¢740	¢200	¢E 100

<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>Last known market value + capital calls - distributions (preliminary MV's as of 3/31/2024)

<sup>4</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 figure is provided by its HarbourVest.

<sup>5</sup>HarbourVest International Private Equity Partners VI-Partnership Fund L.P. values are originally presented in euros and are calculated to dollars using XE<sup>™</sup>.

<sup>6</sup>fees and expenses are for 4Q 2023

<sup>7</sup>fees and expenses are for 3Q 2023



	Fee	Fee	Expense	Expense	Expense <sup>6</sup>
HarbourVest IX-Buyout	\$20,189	\$0	\$3,926	\$4,679	\$28,794
HarbourVest IX-Credit	\$4,035	\$0	\$749	\$322	\$5,106
HarbourVest Int'l VI	\$2,017	\$0	\$277	\$305	\$2,599
HarbourVest IX-Venture	\$8,092	\$0	\$3,161	\$3,325	\$14,578
HarbourVest 2017 Global	\$66,000	\$0	\$1,861	\$56,217	\$124,078
HarbourVest 2018 Global	\$43,635	\$0	\$266	\$44,950	\$88,851
HarbourVest 2019 Global <sup>7</sup>	\$44,364	\$0	\$2,156	\$38,054	\$84,574
HarbourVest 2023 Global	NA	NA	NA	NA	NA
	\$188,332	\$0	\$12,396	\$147,852	\$348,580

#### Private Credit Non Marketable Securities Overview

Vintage	Manager & Fund Name	Estimated 3/31/2024 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>4</sup>	IRR Date
2013	Portfolio Advisors Credit Strategies Fund	\$11,579,640	\$11,250,000	\$11,250,000	100%	\$0	\$3,528,047	\$12,166,621	31.4%	134.3%	11.0%	12/31/23
2017	Crescent Direct Lending Levered Fund II	\$2,959,269	\$7,000,000	\$5,707,507	82%	\$1,292,493	\$4,512,352	\$2,770,407	79.1%	130.9%	9.4%	9/30/23
2017	Audax Direct Lending Fund A	\$5,214,129	\$7,000,000	\$5,791,026	83%	\$1,208,974	\$3,107,309	\$5,227,810	53.7%	143.7%	14.9%	12/31/23
2018	Ares Capital Europe IV	\$5,760,622	\$8,000,000	\$6,762,884	85%	\$1,237,116	\$3,574,399	\$6,896,335	52.9%	138.0%	8.2%	12/31/23
2019	Lone Star Fund XI	\$4,106,606	\$5,750,000	\$4,621,277	80%	\$1,128,723	\$3,075,207	\$3,611,793	66.5%	155.4%	32.8%	12/31/23
2019	Ascribe Opportunities IV	\$4,979,605	\$6,000,000	\$5,207,450	87%	\$792,550	\$970,342	\$5,351,462	18.6%	114.3%	9.9%	12/31/23
2020	Sixth Street Diversified Credit	\$29,328,800	\$50,000,000	\$27,089,220	54%	\$22,910,780	\$3,542,097	\$18,961,608	13.1%	121.3%	21.5%	12/31/23
	Total Illiquid Private Credit % of Portfolio (Market Value)	\$63,928,670	\$95,000,000	\$66,429,364	69.9%	\$28,570,636	\$22,309,753 Management Fee	\$54,986,036 Accrued Carried Interest	33.6% Admin Fee	129.8% Interest Expense	Other Expense	Total Expense⁵
										·		
					Portfolio Adv	visors CSF	\$0	\$0	\$0	\$0	\$0	\$0
					Crescent Dir	rect Lending II	\$46,700	\$5,520	\$9,846	\$0	\$0	\$62,066
					Audax Direc	t Lending A	\$29,055	\$0	\$0	\$0	\$46,277	\$75,332
					Ares Capital	Europe IV	\$25,789	\$14,093	\$0	\$78,753	\$955	\$119,590
					Ascribe Opp	ortunities IV	96,636	\$0	\$0	\$0	\$0	\$96,636
					Lone Star Fu	und XI	\$0	\$0	\$0	\$0	\$0	\$0
				_	Sixth Street	Diversified Credit	\$0	\$0	\$0	\$0	\$0	\$0
<sup>1</sup> (DPI) is e	equal to (capital returned / capital called)			-			\$198,180	\$19,613	\$9,846	\$78,753	\$47,232	\$353,624

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

<sup>3</sup>Last known market value + capital calls - distributions (preliminary MV's as of 3/31/2024)

<sup>4</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 figure is provided by its respective manager.

<sup>5</sup>All fees and expenses are for 4Q 2023



#### Opportunistic Non Marketable Securities Overview

#### Imperial County Employees' Retirement System Period Ending: March 31, 2024

Vintage	Manager & Fund Name	Estimated 3/31/2024 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>5</sup>	IRR Date
2010	KKR Mezzanine <sup>6</sup>	\$1,698,617	\$10,000,000	\$10,000,000	100%	\$0	\$14,153,380	\$1,372,673	141.5%	158.5%	5.9%	12/31/23
2020	TSSP Adjacent Opportunities Partners	\$26,740,787	\$40,000,000	\$23,900,375	60%	\$16,099,625	\$6,182,047	NA	25.9%	137.8%	NA	NA
	Total Illiquid Opportunistic	\$28,439,404	\$50,000,000	\$33,900,375	68%	\$16,099,625	\$20,335,427	\$1,386,290	4.1%	64.1%		
	% of Portfolio (Market Value)	2.41%					Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense <sup>6</sup>
	% of Portfolio (Market Value)	2.41%			KKR Mezzanir	ne	•					
	% of Portfolio (Market Value)	2.41%				ne nt Opportunities P	Fee	Carried Interest	Fee	Expense	Expense	Expense <sup>6</sup>

<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>Last known market value + capital calls - distributions (preliminary MV's as of 3/31/2024)

<sup>4</sup>Investment period ended, no further capital to be called.

<sup>5</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 figure is provided by its respective manager.

<sup>6</sup>All fees and expenses are for 4Q 2023



## Total Fund Cash Flow by Manager (Last Three Months)

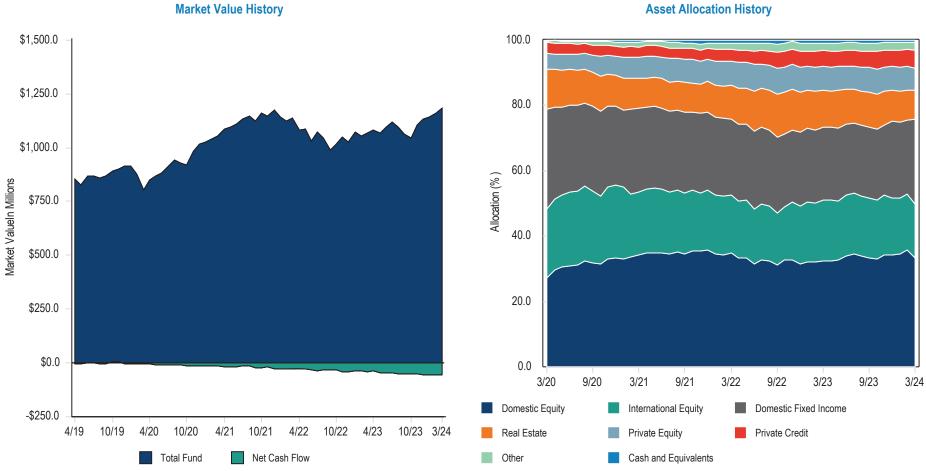
#### Imperial County Employees' Retirement System

#### Period Ending: March 31, 2024

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flows	Capital Appreciation	Ending Market Value
BlackRock Russell 3000	\$389,036,742	\$0	-\$35,000,000	-\$35,000,000	\$38,621,313	\$392,658,056
BlackRock International Equity	\$153,848,987	\$0	-\$10,000,000	-\$10,000,000	\$8,921,761	\$152,770,748
DFA Emerging Markets Value	\$22,654,433	\$0	\$0	\$0	\$604,242	\$23,258,675
Harding Loevner Emerging Markets	\$19,780,385	\$0	\$0	\$0	-\$70,644	\$19,709,741
Income Research & Management	\$111,944,668	\$20,083,625	\$0	\$20,083,625	-\$577,352	\$131,450,941
MacKay Shields Core Plus Opportunities	\$112,387,312	\$20,000,000	\$0	\$20,000,000	\$308,400	\$132,695,712
BlackRock US TIPS	\$42,383,393	\$0	\$0	\$0	\$13,141	\$42,396,534
ASB Real Estate	\$24,456,935	\$0	\$0	\$0	-\$1,667,966	\$22,788,968
Clarion Lion	\$28,657,803	\$180,516	-\$254,662	-\$74,146	-\$766,197	\$27,817,460
ARA American Strategic Value Realty	\$52,811,082	\$0	\$0	\$0	\$0	\$52,811,082
1221 State St. Corp	\$2,020,401	\$12,121	-\$5,677	\$6,444	\$255	\$2,027,100
Harbourvest Buyout IX	\$5,696,999	\$0	-\$619,201	-\$619,201	\$40,012	\$5,117,810
Harbourvest Credit Ops IX	\$868,461	\$0	-\$35,370	-\$35,370	-\$5,551	\$827,540
Harbourvest International PE VI	\$1,494,946	\$0	-\$127,285	-\$127,285	\$19,241	\$1,386,902
Harbourvest Venture IX	\$4,545,690	\$0	-\$143,297	-\$143,297	\$161,794	\$4,564,187
Harbourvest 2017 Global Fund	\$26,137,368	\$0	-\$678,774	-\$678,774	\$1,775,130	\$27,233,724
Harbourvest 2018 Global Fund	\$21,164,339	\$0	\$0	\$0	\$345,085	\$21,509,424
Harbourvest 2019 Global Fund	\$19,272,379	\$0	\$0	\$0	\$0	\$19,272,379
Harbourvest 2023 Global Fund	\$953,540	\$650,000	\$0	\$650,000	\$0	\$1,603,540
Portfolio Advisors Credit Strategies Fund	\$11,785,769	\$0	-\$206,129	-\$206,129	\$0	\$11,579,640
Crescent Direct Lending Levered Fund II	\$2,959,269	\$0	\$0	\$0	\$0	\$2,959,269
Audax Direct Lending Fund A	\$5,220,166	\$0	-\$154,038	-\$154,038	\$148,001	\$5,214,129
Ares Capital Europe IV	\$6,442,289	\$0	-\$761,428	-\$761,428	\$79,761	\$5,760,622
Lone Star XI	\$4,091,502	\$15,103	\$0	\$15,103	\$0	\$4,106,606
Sixth Street Diversified Credit	\$22,465,439	\$6,169,603	\$0	\$6,169,603	\$693,758	\$29,328,800
Ascribe Opportunities Fund IV	\$4,979,605	\$0	\$0	\$0	\$0	\$4,979,605
KKR Mezzanine Partners	\$1,644,233	\$0	\$0	\$0	\$54,384	\$1,698,617
TSSP Adjacent Opportunities Partners	\$25,039,333	\$1,508,245	-\$154,620	\$1,353,625	\$347,829	\$26,740,787
Cash Account	\$7,009,976	\$60,878,611	-\$67,888,587	-\$7,009,976	\$0	\$0
Invesco Treasury Portfolio	\$0	\$21,405,584	-\$13,989,976	\$7,415,608	\$73,007	\$7,488,615
Total Fund	\$1,131,753,444	\$130,903,407	-\$130,019,044	\$884,363	\$49,119,404	\$1,181,757,212

Harbourvest, KKR Mezzanine, Portfolio Advisors, Crescent Direct Lending, Audax Direct Lending, Ares Capital, Sixth Street Diversified Credit, Ascribe, and Sixth Street TAO Partners market values as of 09/30/2023 +/- 4Q23 calls/distributions.





#### **Asset Allocation History**



#### Total Fund Investment Fund Fee Analysis

Verus<sup>77</sup>

#### Imperial County Employees' Retirement System

#### Period Ending: March 31, 2024

Account	Fee Schedule	Market Value	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
ARA American Strategic Value Realty	1.25 % of First \$10 M 1.20 % of Next \$15 M 1.10 % of Next \$25 M 1.00 % Thereafter	52,811,082	4.47	608,111	1.15
Ares Capital Europe IV	1.38 % of Assets	5,760,622	0.49	79,497	1.38
ASB Real Estate	1.25 % of First \$5 M 1.00 % of Next \$10 M 0.75 % Thereafter	22,788,968	1.93	220,917	0.97
Ascribe Opportunities Fund IV	1.50 % of Assets	4,979,605	0.42	74,694	1.50
Audax Direct Lending Fund A	0.85 % of Assets	5,214,129	0.44	44,320	0.85
BlackRock International Equity	0.15 % of First \$50 M 0.10 % of Next \$50 M 0.00 % Thereafter	152,770,748	12.93	125,000	0.08
BlackRock Russell 3000	0.03 % of Assets	392,658,056	33.23	117,797	0.03
BlackRock US TIPS	0.07 % of Assets	42,396,534	3.59	29,678	0.07
Clarion Lion	1.25 % of First \$10 M 1.00 % of Next \$15 M 0.85 % Thereafter	27,817,460	2.35	298,948	1.07
Crescent Direct Lending Levered Fund II	Minimum Fee: \$25,280	2,959,269	0.25	25,280	0.85
DFA Emerging Markets Value	0.44 % of Assets	23,258,675	1.97	102,338	0.44
Income Research & Management	0.20 % of First \$100 M 0.17 % Thereafter	131,450,941	11.12	253,467	0.19
Harbourvest 2017 Global Fund	Minimum Fee: \$262,500	27,233,724	2.30	262,500	0.96
Harbourvest 2018 Global Fund	Minimum Fee: \$138,000	21,509,424	1.82	138,000	0.64
Harbourvest 2019 Global Fund	0.45 % of Assets	19,272,379	1.63	86,726	0.45
Harbourvest 2023 Global Fund	0.50 % of Assets	1,603,540	0.14	8,018	0.50
Harbourvest Buyout IX	Minimum Fee: \$100,000	5,117,810	0.43	100,000	1.95
Harbourvest Credit Ops IX	Minimum Fee: \$20,000	827,540	0.07	20,000	2.42
Harbourvest International PE VI	Minimum Fee: \$35,000	1,386,902	0.12	35,000	2.52
Harbourvest Venture IX	Minimum Fee: \$40,000	4,564,187	0.39	40,000	0.88
Harding Loevner Emerging Markets	1.05 % of Assets	19,709,741	1.67	206,952	1.05
Invesco Treasury Portfolio		7,488,615	0.63	-	-
KKR Mezzanine Partners	Minimum Fee: \$150,000	1,698,617	0.14	150,000	8.83
Lone Star XI	0.71 % of Assets	4,106,606	0.35	29,116	0.71
MacKay Shields Core Plus Opportunities	0.30 % of Assets	132,695,712	11.23	398,087	0.30

\*HarbourVest and KKR fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund. \*HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates. \*Verus advisory fee shown for disclosure purposes only and is not included in total investment management fee calculations. \*Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

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#### Total Fund Investment Fund Fee Analysis

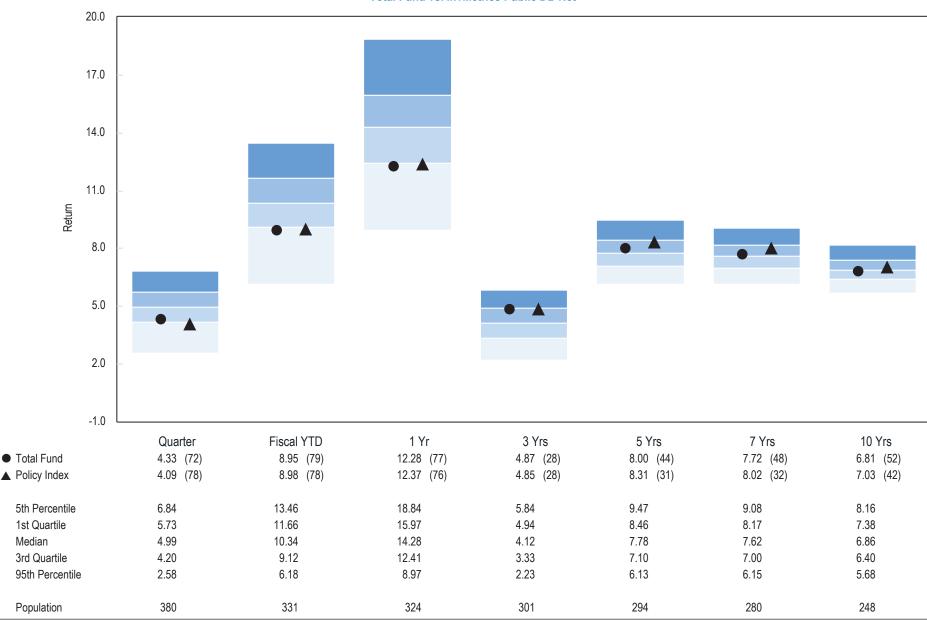
#### Imperial County Employees' Retirement System Period Ending: March 31, 2024

Account	Fee Schedule	Market Value	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Portfolio Advisors Credit Strategies Fund	Minimum Fee: \$180,000	11,579,640	0.98	180,000	1.55
Sixth Street Diversified Credit	1.35 % of Assets	29,328,800	2.48	395,939	1.35
TSSP Adjacent Opportunities Partners		26,740,787	2.26	-	-
Investment Management Fee		1,181,757,212	100.00	4,030,384	0.34



\*HarbourVest and KKR fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund. \*HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates. \*Verus advisory fee shown for disclosure purposes only and is not included in total investment management fee calculations. \*Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

# Total FundImperial County Employees' Retirement SystemPeer Universe Comparison: Cumulative Performance (Net of Fees)Period Ending: March 31, 2024



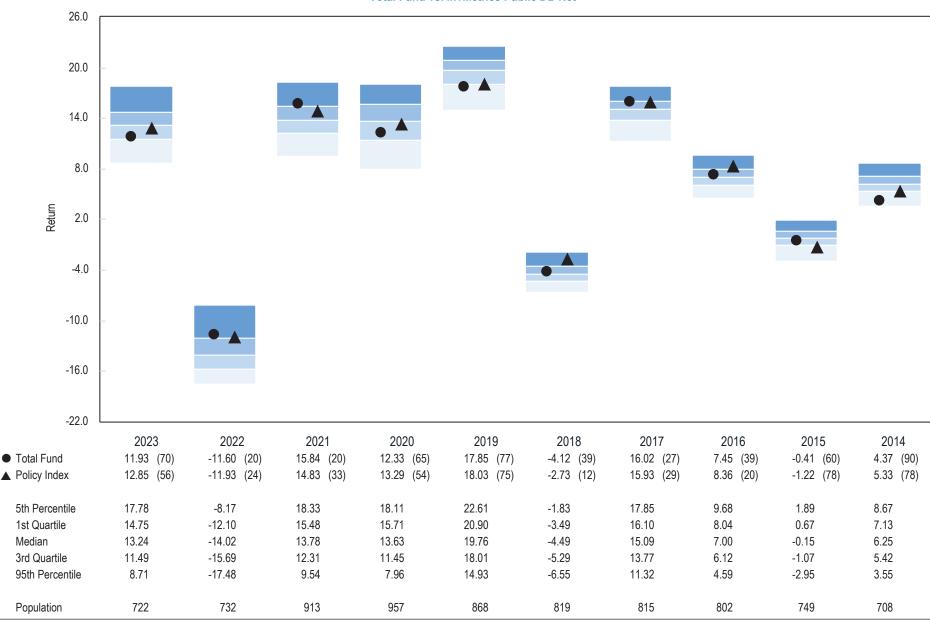
Total Fund vs. InvMetrics Public DB Net



## Total FundImPeer Universe Comparison: Consecutive Periods (Net of Fees)

#### Imperial County Employees' Retirement System

Period Ending: March 31, 2024

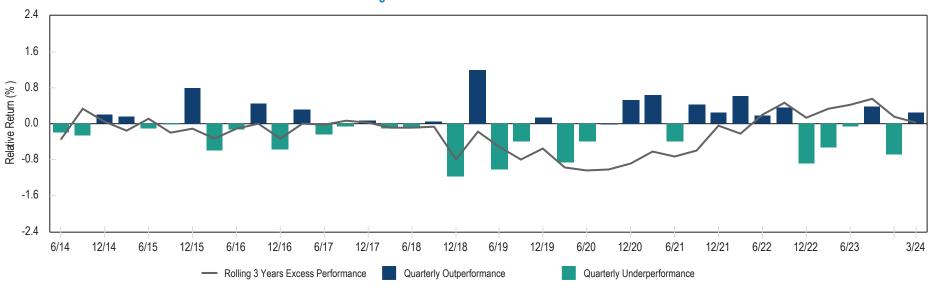


Total Fund vs. InvMetrics Public DB Net

Verus<sup>77</sup>

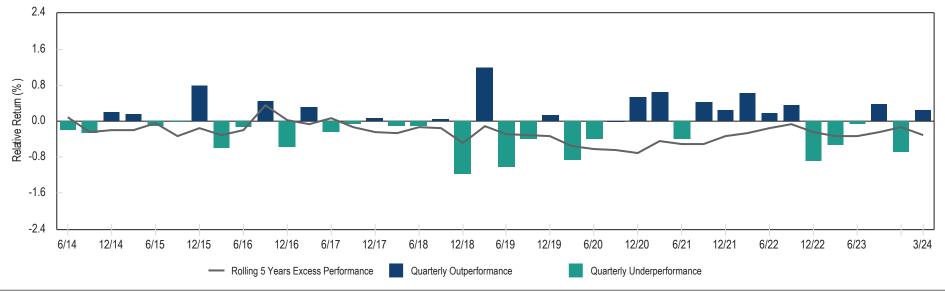
#### Total Fund Rolling Return Analysis (Net of Fees)

#### Imperial County Employees' Retirement System Period Ending: March 31, 2024



**Rolling 3 Year Annualized Excess Performance** 







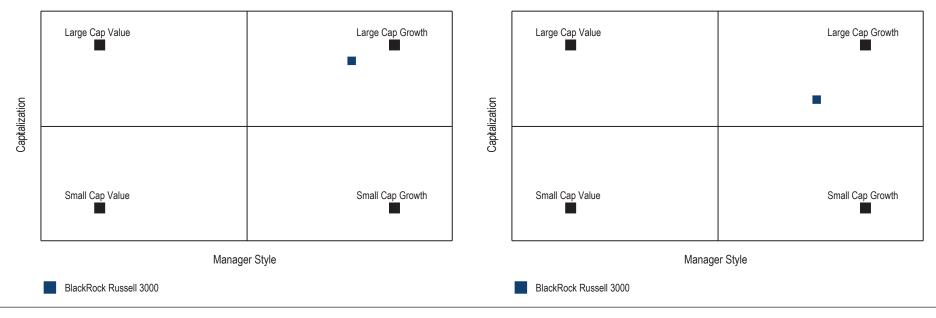
#### Total Domestic Equity Asset Class Overview (Net of Fees)

Period Ending: March 31, 2024

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
Total Domestic Equity	392,658,056	100.0	10.0	19.3	29.3	9.8	14.4	12.1	26.0	-19.2	25.7	21.0	31.1
Russell 3000 Index			10.0	19.3	29.3	9.8	14.3	12.3	26.0	-19.2	25.7	20.9	31.0
BlackRock Russell 3000	392,658,056	100.0	10.0	19.3	29.3	9.8	14.4	-	26.0	-19.2	25.7	21.0	31.1
Russell 3000 Index			10.0	19.3	29.3	9.8	14.3	-	26.0	-19.2	25.7	20.9	31.0
eV US All Cap Core Equity Rank			47	46	36	40	30	-	26	58	54	41	38

U.S. Effective Style Map 3 Years Ending: March 31, 2024

U.S Effective Style Map 5 Years Ending: March 31, 2024



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## Total International Equity Asset Class Overview (Net of Fees)

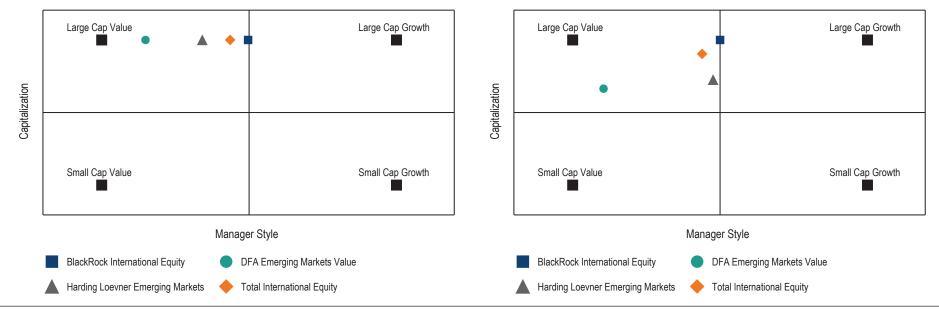
## Imperial County Employees' Retirement System

Period Ending: March 31, 2024

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
Total International Equity	195,739,164	100.0	4.8	10.5	14.0	3.0	6.2	4.4	16.9	-15.4	10.1	8.1	20.7
MSCI AC World ex USA Index			4.8	10.9	13.8	2.4	6.5	4.7	16.2	-15.6	8.3	11.1	22.1
BlackRock International Equity	152,770,748	78.0	5.8	12.0	15.5	5.1	7.6	5.1	18.6	-14.1	11.6	8.1	22.4
MSCI EAFE (Net)			5.8	12.0	15.3	4.8	7.3	4.8	18.2	-14.5	11.3	7.8	22.0
eV All EAFE Equity Rank			40	39	33	26	37	42	31	37	52	52	50
DFA Emerging Markets Value	23,258,675	11.9	2.7	10.2	15.3	3.5	4.8	4.1	16.5	-10.7	12.4	2.7	9.6
MSCI Emerging Markets Value (Net)			1.3	8.6	11.4	-0.9	2.1	2.2	14.2	-15.8	4.0	5.5	12.0
eV Emg Mkts All Cap Value Equity Rank			56	45	40	29	64	79	43	38	19	82	94
Harding Loevner Emerging Markets	19,709,741	10.1	-0.6	-0.7	0.9	-10.9	-2.5	-	4.8	-28.1	-4.3	12.4	24.0
MSCI Emerging Markets Growth Index			3.4	6.0	5.4	-8.6	2.5	-	6.1	-23.7	-8.2	31.6	25.4
eV Emg Mkts All Cap Growth Equity Rank			87	90	83	89	99	-	75	75	54	98	52

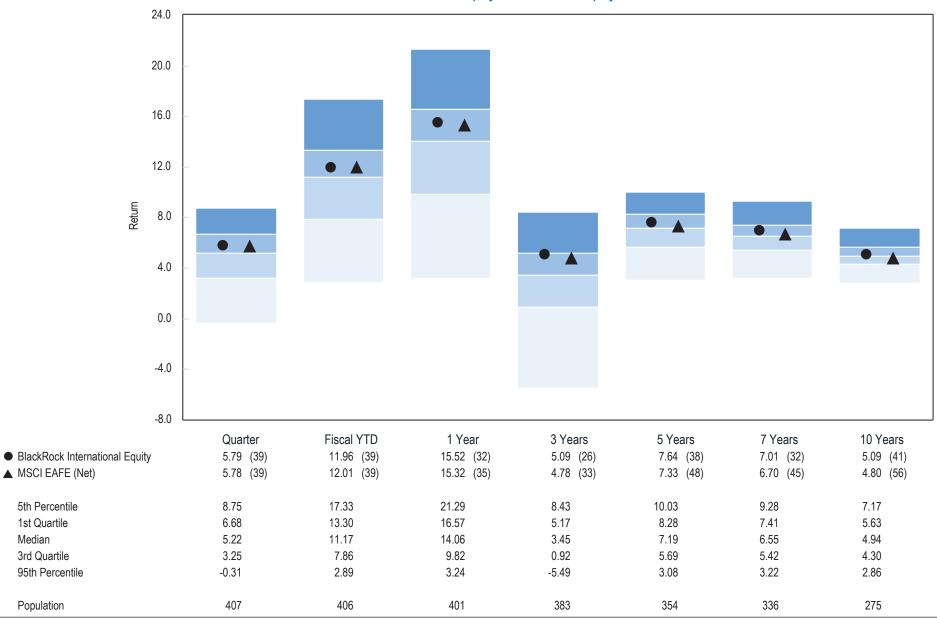






## BlackRock International Equity Cumulative Performance Comparison (Net of Fees)

BlackRock International Equity vs. eV All EAFE Equity

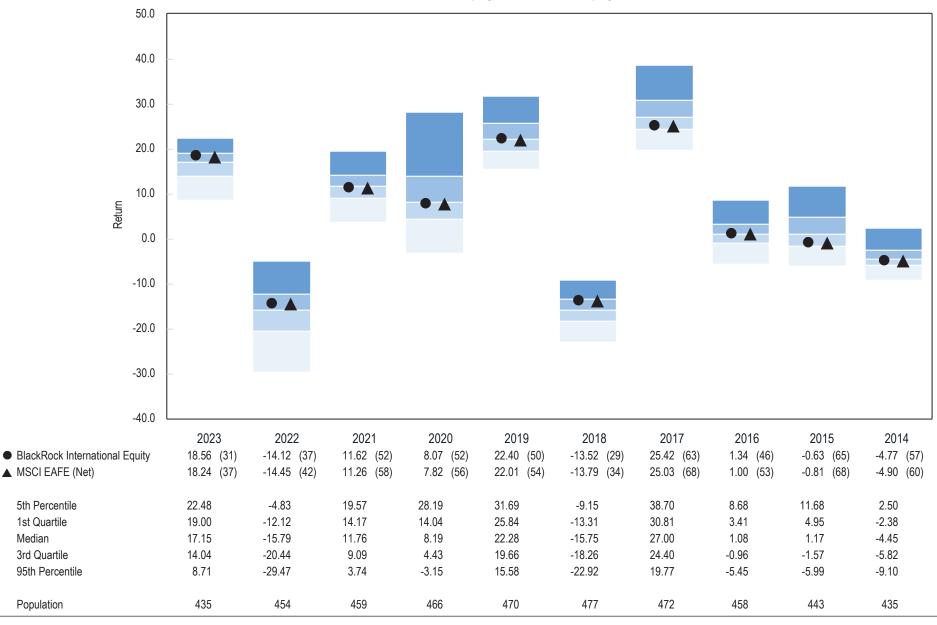




Median

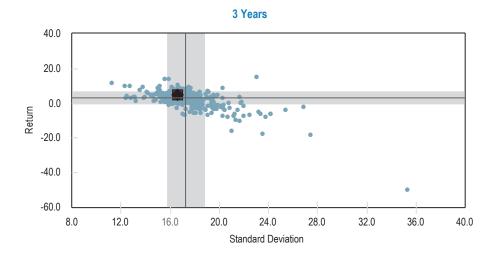
## BlackRock International Equity Consecutive Performance Comparison (Net of Fees)

BlackRock International Equity vs. eV All EAFE Equity



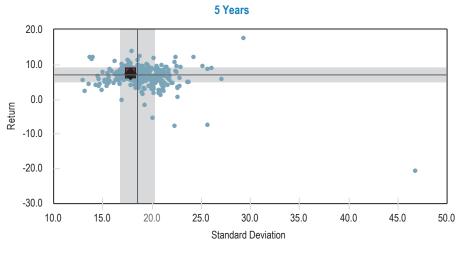
Verus<sup>77</sup>

Median



#### eV All EAFE Equity

	Return	Standard Deviation
BlackRock International Equity	5.09	16.63
<ul> <li>MSCI EAFE (Net)</li> </ul>	4.78	16.62
Median	3.45	17.27
Population	383	383



#### eV All EAFE Equity

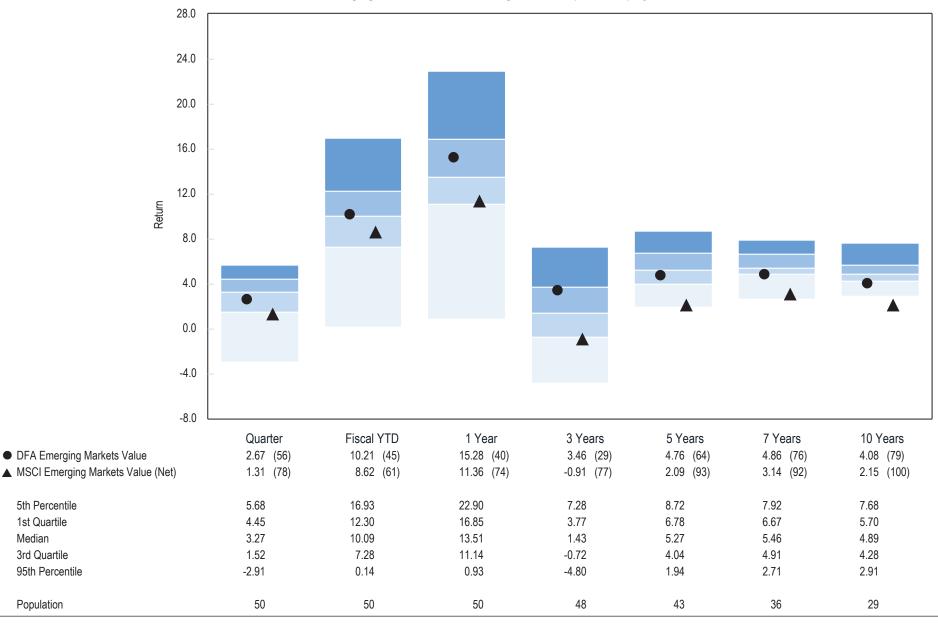
	Return	Standard Deviation
BlackRock International Equity	7.64	17.79
<ul> <li>MSCI EAFE (Net)</li> </ul>	7.33	17.77
Median	7.19	18.51
Population	354	354



## DFA Emerging Markets Value Cumulative Performance Comparison (Net of Fees)

## Imperial County Employees' Retirement System Period Ending: March 31, 2024

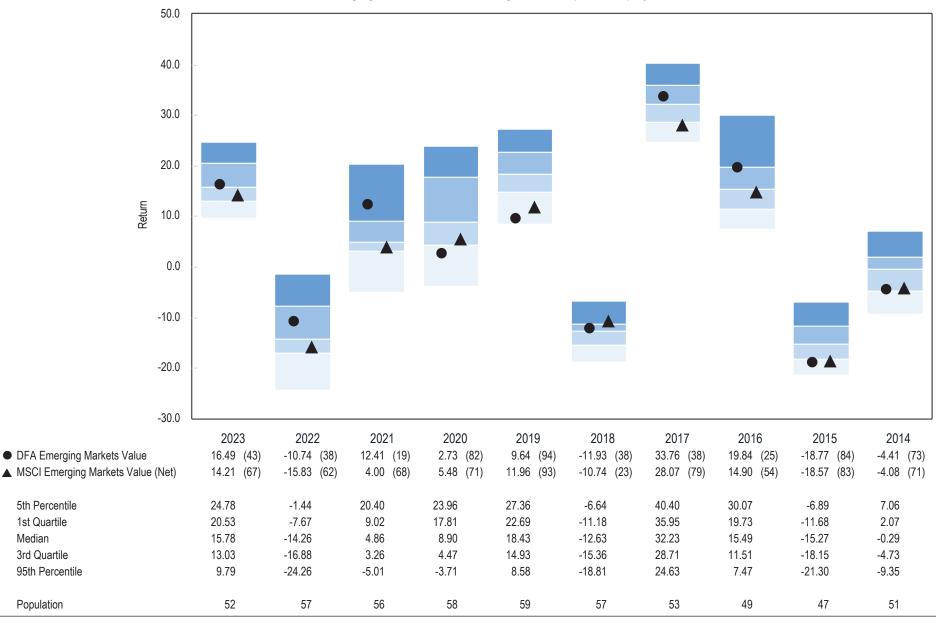
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity



Verus<sup>77</sup>

## DFA Emerging Markets Value Consecutive Performance Comparison (Net of Fees)

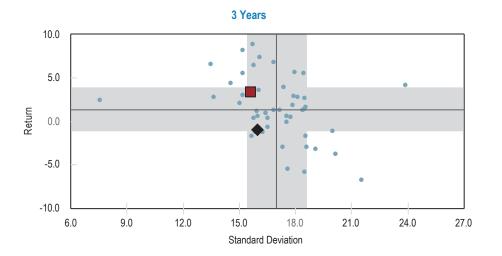
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity



Verus<sup>77</sup>

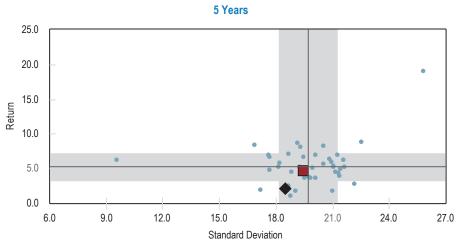
Population

Median



### eV Emg Mkts All Cap Value Equity

	Return	Standard Deviation
DFA Emerging Markets Value	3.46	15.60
<ul> <li>MSCI Emerging Markets Value (Net)</li> </ul>	-0.91	15.97
Median	1.43	16.99
Population	48	48

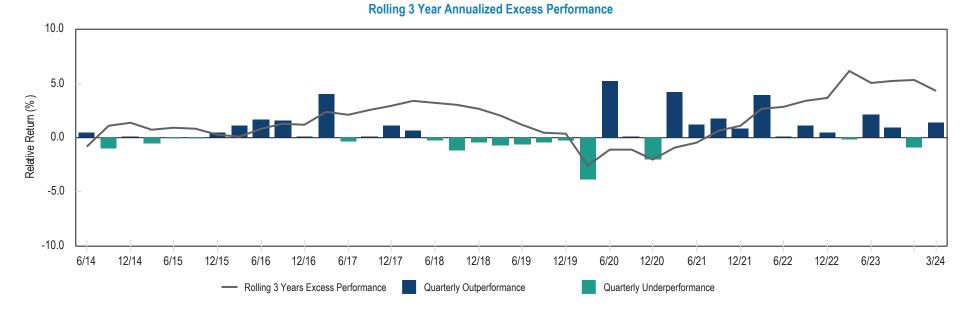


### eV Emg Mkts All Cap Value Equity

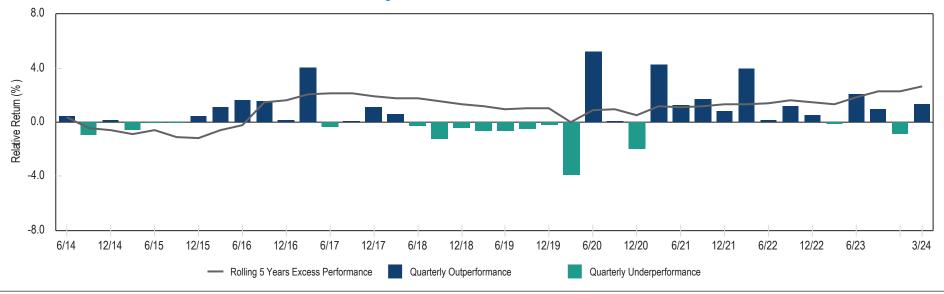
	Return	Standard Deviation
DFA Emerging Markets Value	4.76	19.44
<ul> <li>MSCI Emerging Markets Value (Net)</li> </ul>	2.09	18.51
Median	5.27	19.69
Population	43	43



## DFA Emerging Markets Value Rolling Return Analysis (Net of Fees)

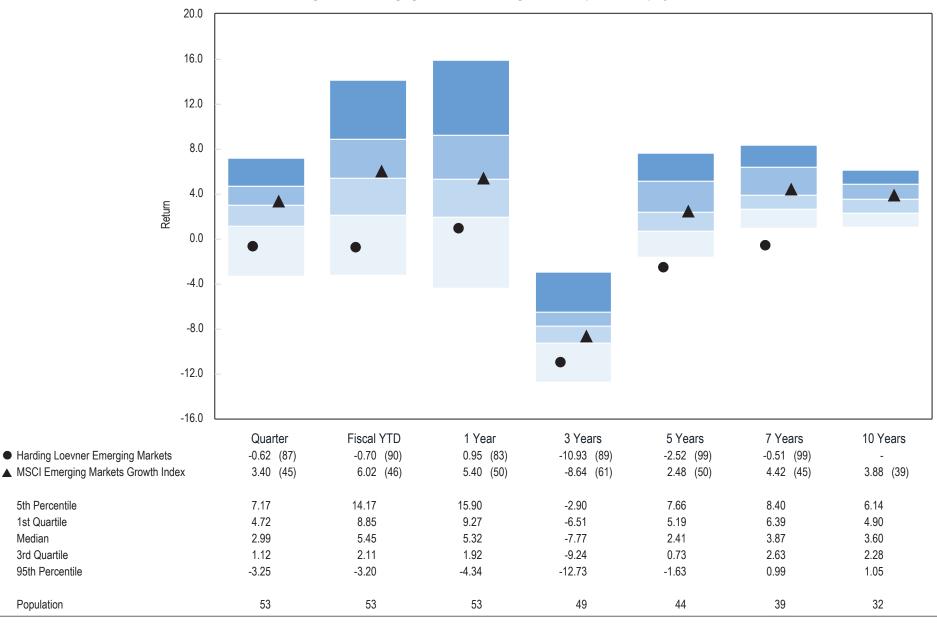


**Rolling 5 Year Annualized Excess Performance** 





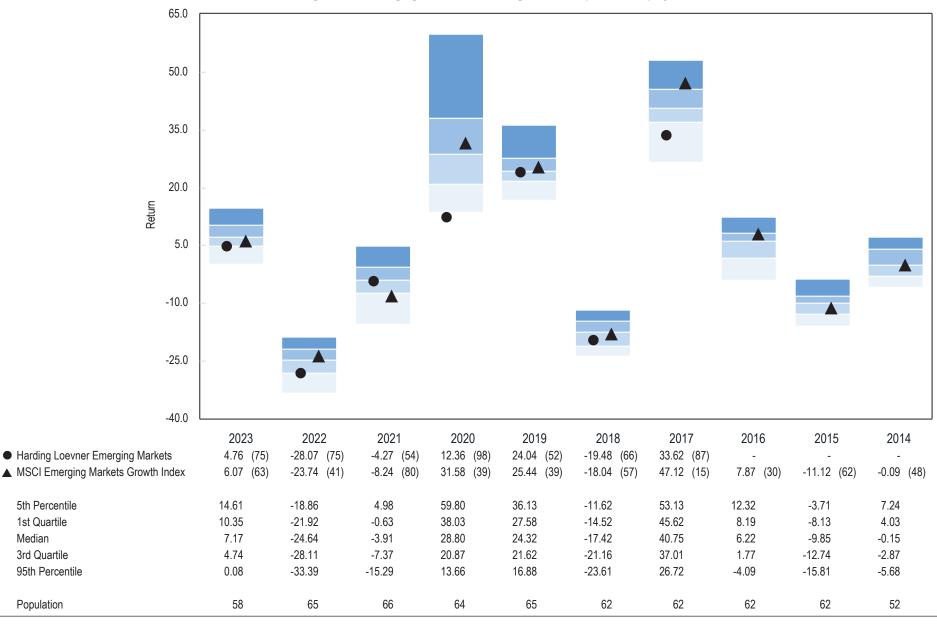
Harding Loevner Emerging Markets vs. eV Emg Mkts All Cap Growth Equity



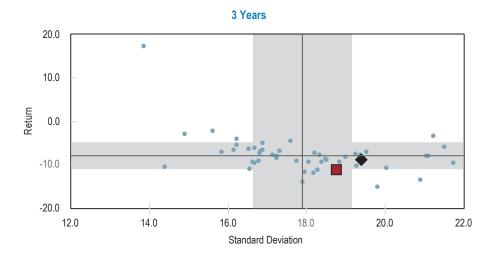
Verus<sup>77</sup>

Median

Harding Loevner Emerging Markets vs. eV Emg Mkts All Cap Growth Equity

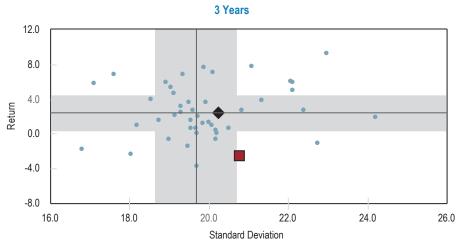


Median



### eV Emg Mkts All Cap Growth Equity

	Return	Standard Deviation
Harding Loevner Emerging Markets	-10.93	18.76
MSCI Emerging Markets Growth Index	-8.64	19.38
Median	-7.77	17.89
Population	49	49

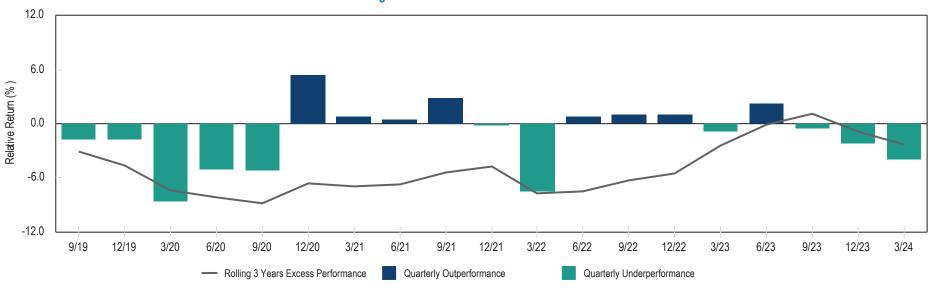


### eV Emg Mkts All Cap Growth Equity

	Return	Standard Deviation
Harding Loevner Emerging Markets	-2.52	20.75
<ul> <li>MSCI Emerging Markets Growth Index</li> </ul>	2.48	20.24
Median	2.41	19.67
Population	44	44

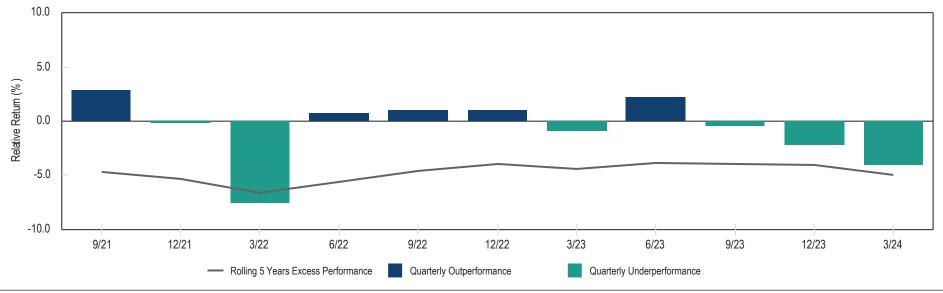


## Harding Loevner Emerging Markets Rolling Return Analysis (Net of Fees)



**Rolling 3 Year Annualized Excess Performance** 







## Total Fixed Income Asset Class Overview (Net of Fees)

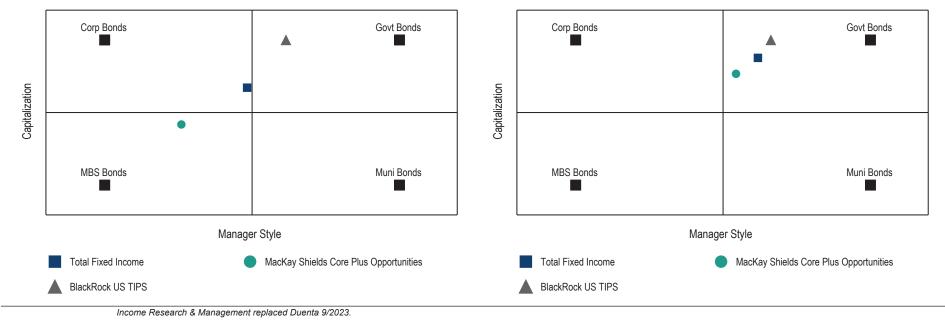
### Imperial County Employees' Retirement System

Period Ending: March 31, 2024

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
Total Fixed Income	306,543,187	100.0	-0.1	3.6	2.7	-1.9	1.3	2.1	6.2	-14.2	0.6	9.8	9.5
Blmbg. U.S. Aggregate Index			-0.8	2.6	1.7	-2.5	0.4	1.5	5.5	-13.0	-1.5	7.5	8.7
Income Research & Management	131,450,941	42.9	-0.6	-	-	-	-	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index			-0.8	-	-	-	-	-	-	-	-	-	-
eV US Core Plus Fixed Inc Rank			82	-	-	-	-	-	-	-	-	-	-
MacKay Shields Core Plus Opportunities	132,695,712	43.3	0.2	4.5	3.7	-2.1	1.2	-	6.7	-14.5	-0.5	9.9	9.7
Blmbg. U.S. Aggregate Index			-0.8	2.6	1.7	-2.5	0.4	-	5.5	-13.0	-1.5	7.5	8.7
eV US Core Plus Fixed Inc Rank			18	17	30	50	50	-	44	86	51	21	52
BlackRock US TIPS	42,396,534	13.8	0.0	1.9	0.4	-0.5	2.5	2.3	3.9	-11.9	5.9	11.2	8.5
Blmbg. U.S. TIPS Index			-0.1	1.9	0.5	-0.5	2.5	2.2	3.9	-11.8	6.0	11.0	8.4
eV US TIPS / Inflation Fixed Inc Rank			58	60	53	62	53	23	44	68	28	31	33

#### Fixed Income Style Map 3 Years Ending March 31, 2024





Verus<sup>77</sup>

## Total Fixed Income Asset Class Overview (Net of Fees)

# Imperial County Employees' Retirement System

## Period Ending: March 31, 2024

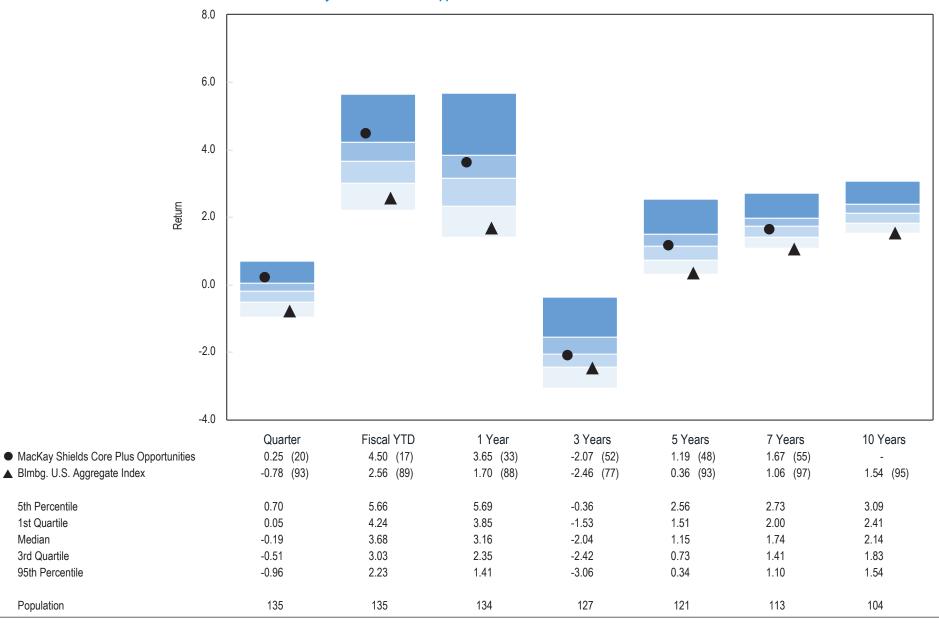
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Income Research & Management	131,450,941	42.9	-0.6	-	-	-	-	-	-	-	-	-	-
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Blmbg. U.S. Aggregate Index			-0.8	2.6	1.7	-2.5	0.4	-	5.5	-13.0	-1.5	7.5	8.7
BlackRock US TIPS	42,396,534	13.8	0.0	1.9	0.4	-0.5	2.5	2.3	3.9	-11.9	5.9	11.2	8.5
Blmbg. U.S. TIPS Index			-0.1	1.9	0.5	-0.5	2.5	2.2	3.9	-11.8	6.0	11.0	8.4

	Total Fixed Income	MacKay Shields Core Plus Opportunities	BlackRock US TIPS	Blmbg. U.S. Aggregate Index
Total Fixed Income	1.00			
MacKay Shields Core Plus Opportunities	0.99	1.00		
BlackRock US TIPS	0.91	0.87	1.00	
Blmbg. U.S. Aggregate Index	0.97	0.96	0.85	1.00

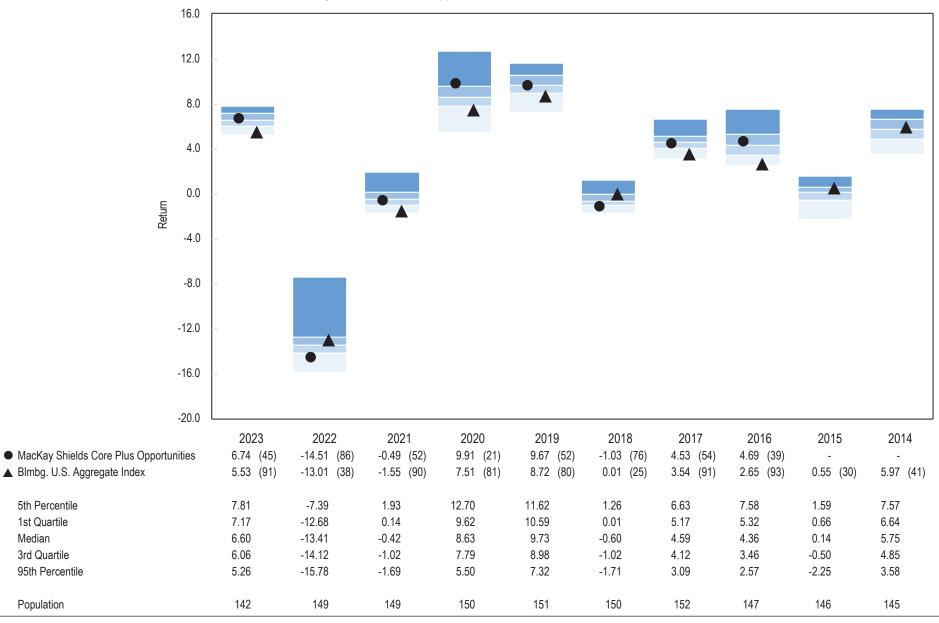
Income Research & Management replaced Duenta 9/2023. Managers need 5 years of history to appear on the Correlation Matrix.



MacKay Shields Core Plus Opportunities vs. eV US Core Plus Fixed Inc



MacKay Shields Core Plus Opportunities vs. eV US Core Plus Fixed Inc

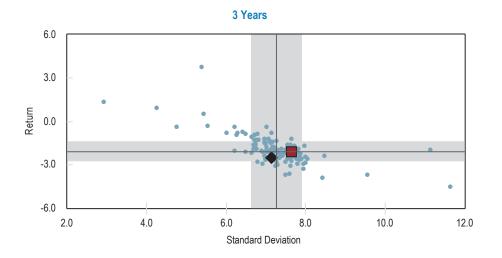




1st Quartile Median

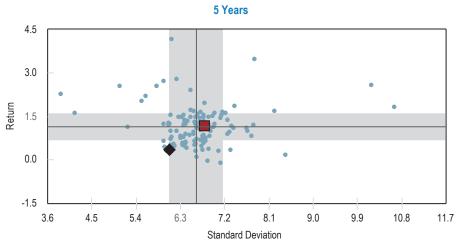
3rd Quartile

Population



### eV US Core Plus Fixed Inc

	Return	Standard Deviation
MacKay Shields Core Plus Opportunities	-2.07	7.63
<ul> <li>Blmbg. U.S. Aggregate Index</li> </ul>	-2.46	7.14
Median	-2.04	7.26
Population	127	127

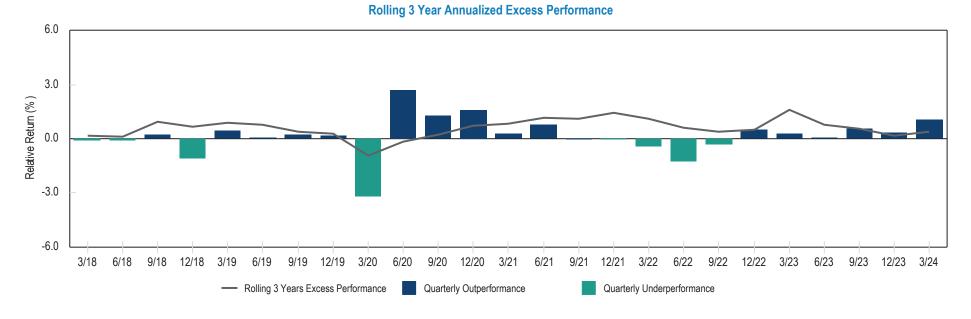


#### eV US Core Plus Fixed Inc

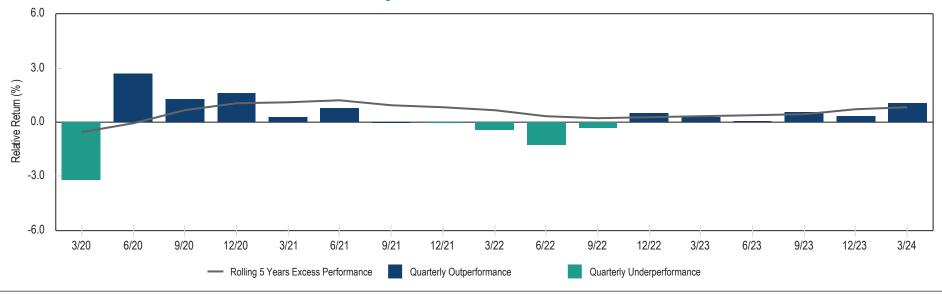
	Return	Standard Deviation
MacKay Shields Core Plus Opportunities	1.19	6.78
<ul> <li>BImbg. U.S. Aggregate Index</li> </ul>	0.36	6.08
Median	1.15	6.62
Population	121	121



## MacKay Shields Core Plus Opportunities Rolling Return Analysis (Net of Fees)



**Rolling 5 Year Annualized Excess Performance** 

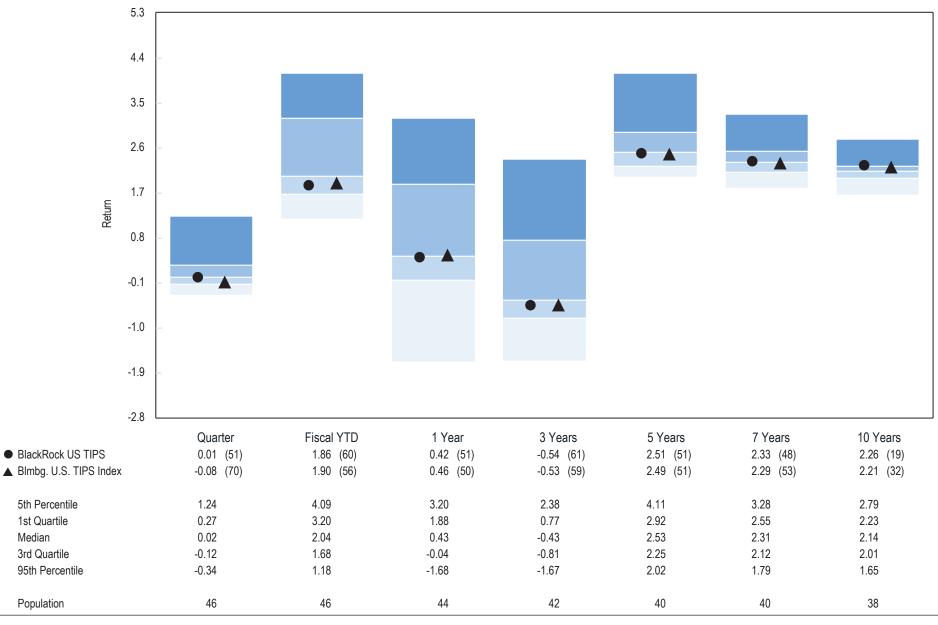


# Verus<sup>77</sup>

## BlackRock US TIPS Cumulative Performance Comparison (Net of Fees)

## Imperial County Employees' Retirement System Period Ending: March 31, 2024

BlackRock US TIPS vs. eV US TIPS / Inflation Fixed Inc





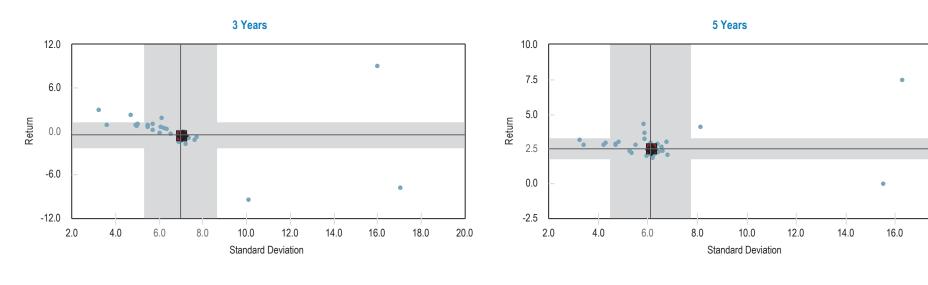
# BlackRock US TIPS Consecutive Performance Comparison (Net of Fees)

## Imperial County Employees' Retirement System Period Ending: March 31, 2024

16.0 12.0 8.0 4.0 Return 0.0 -4.0 -8.0 -12.0 -16.0 2023 2022 2020 2019 2017 2015 2014 2021 2018 2016 3.94 (44) -11.94 (68) 5.86 (28) 11.15 (31) 8.46 (33) -1.19 (39) 3.17 (39) 4.77 (32) -1.31 (33) 3.56 (36) BlackRock US TIPS ▲ Blmbg. U.S. TIPS Index 8.43 (34) 4.68 (37) -1.44 (36) 3.64 (32) 3.90 (49) -11.85 (62) 5.96 (20) 10.99 (36) -1.26 (42) 3.01 (49) 5th Percentile 5.90 -4.60 7.16 14.52 9.59 -0.23 4.22 7.72 -0.10 5.00 1st Quartile 4.47 -7.63 5.86 11.53 8.57 -0.91 3.42 4.87 -1.17 3.80 Median 3.89 -11.63 5.59 10.58 8.30 -1.36 2.98 4.43 -1.62 3.23 3rd Quartile 3.47 -12.04 5.25 8.43 6.91 -1.70 2.32 3.95 -2.16 1.05 95th Percentile 0.59 -12.95 4.53 5.92 -4.42 3.40 -5.03 -0.95 5.78 1.65 Population 46 47 46 46 48 53 55 58 60 63

BlackRock US TIPS vs. eV US TIPS / Inflation Fixed Inc





### eV US TIPS / Inflation Fixed Inc

	Return	Standard Deviation
BlackRock US TIPS	-0.54	7.04
Blmbg. U.S. TIPS Index	-0.53	7.05
Median	-0.43	6.98
Population	42	42

#### eV US TIPS / Inflation Fixed Inc

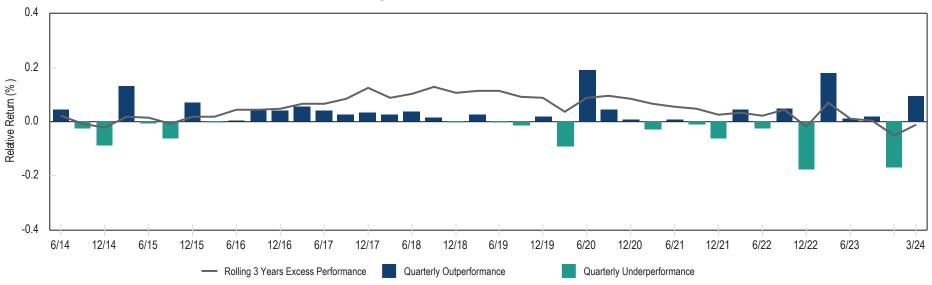
	Return	Standard Deviation
BlackRock US TIPS	2.51	6.16
Blmbg. U.S. TIPS Index	2.49	6.14
Median	2.53	6.13
Population	40	40



18.0

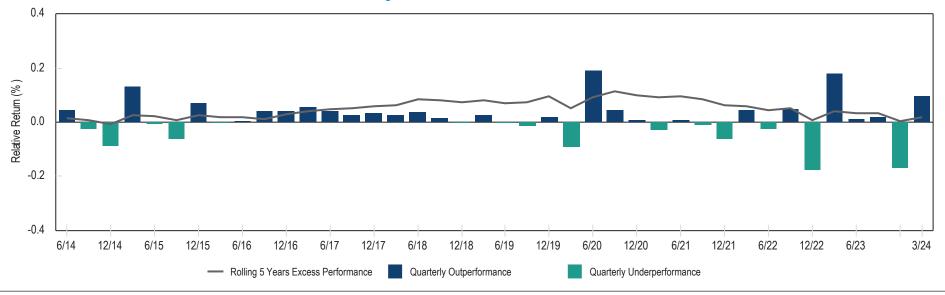
## BlackRock US TIPS Rolling Return Analysis (Net of Fees)

## Imperial County Employees' Retirement System Period Ending: March 31, 2024



**Rolling 3 Year Annualized Excess Performance** 







# Total Real Estate Asset Class Overview (Net of Fees)

## Imperial County Employees' Retirement System

Period Ending: March 31, 2024

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2023	2022	2021	2020	2019
Total Real Estate	105,444,610	100.0	-2.3	-9.1	-12.9	1.7	2.7	5.9	-14.3	8.5	18.4	2.1	5.7
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4
NCREIF ODCE			-2.4	-8.8	-11.3	3.4	3.5	6.3	-12.0	7.5	22.2	1.2	5.3
ASB Real Estate	22,788,968	21.6	-6.9	-17.5	-22.6	-3.3	-1.0	3.6	-21.5	10.7	14.2	1.5	3.0
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4
NCREIF ODCE			-2.4	-8.8	-11.3	3.4	3.5	6.3	-12.0	7.5	22.2	1.2	5.3
Clarion Lion	27,817,460	26.4	-2.7	-7.9	-13.4	2.9	3.6	6.9	-15.5	9.6	23.6	2.3	6.8
NCREIF Property Index			-1.0	-5.3	-7.2	3.6	3.8	6.4	-7.9	5.5	17.7	1.6	6.4
NCREIF ODCE			-2.4	-8.8	-11.3	3.4	3.5	6.3	-12.0	7.5	22.2	1.2	5.3
ARA American Strategic Value Realty	52,811,082	50.1	0.0	-6.0	-8.1	3.6	4.2	-	-10.3	6.8	18.6	2.4	7.8
NCREIF Property Index +2%			-0.5	-3.9	-5.3	5.7	5.8	-	-6.1	7.6	20.0	3.6	8.5
NCREIF ODCE +2%			-1.9	-7.5	-9.5	5.4	5.5	-	-10.3	9.6	24.6	3.2	7.4
1221 State St. Corp	2,027,100	1.9	0.0	0.0	0.0	0.0	1.5	2.4	0.0	0.0	0.0	0.0	7.9
	2,027,100	1.9											



#### Performance Return Calculations

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

#### Data Source

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

#### Illiquid Alternatives

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

Manager Line Up					
Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 3000	12/10/2015	J.P. Morgan	Cash	-	J.P. Morgan
BlackRock International Equity	7/3/2003	J.P. Morgan	HarbourVest IX-Buyout	2011 <sup>1</sup>	HarbourVest
DFA Emerging Markets Value	1/11/2007	J.P. Morgan	HarbourVest IX-Credit	2011 <sup>1</sup>	HarbourVest
Harding Loevner	7/5/2016	Harding Loevner	HarbourVest International VI	2008 <sup>1</sup>	HarbourVest
Bradford & Marzec Fixed (Tortoise Capital)	12/1/1992	J.P. Morgan	Harbourvest IX-Venture	2011 <sup>1</sup>	HarbourVest
MacKay Shields Core Plus Ops	3/2/2015	CITCO	Harbourvest 2017 Global	2017 <sup>1</sup>	HarbourVest
BlackRock US TIPS	4/11/2007	J.P. Morgan	Harbourvest 2018 Global	2018 <sup>1</sup>	HarbourVest
ASB Real Estate	12/31/2012	ASB Real Estate	Harbourvest 2019 Global	2019 <sup>1</sup>	HarbourVest
Clarion Lion	12/31/2006	Clarion Lion	Harbourvest 2023 Global	2023 <sup>1</sup>	HarbourVest
Portfolio Advisors	10/31/2017	Portfolio Advisors	KKR Mezzanine	2010 <sup>1</sup>	KKR
TSSP Adjacent Opportunities Partners	4/16/2020	Sixth Street	ARA American Strategic Value Realty	01/04/2018	ARA
Sixth Street Diversified Credit	5/29/2020	Sixth Street	Income Research & Management	9/1/2023	IR&M
1221 State Street Corp	9/30/2008	ICERS/Union Bank	-		

<sup>1</sup>Represents fund vintage year.

#### Policy & Custom Index Composition

Policy Index (12/1/2023-Present)	33% Russell 3000, 17% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 5% Private Equity Benchmark, 8% Private Credit Benchmark.
Policy Index (8/1/2020- 11/30/2023)	33% Russell 3000, 20% MSCI ACWI ex USA Gross, 29% Bloomberg Aggregate, 10% NCREIF Property, 5% Private Equity Benchmark, 3% Private Credit Benchmark.
Policy Index (1/1/2020-7/31/2020)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property,1% Russell 3000, 2% Bloomberg Aggregate, 4% Private Equity Benchmark, 3% Private Credit Benchmark.
Policy Index (10/1/2018-12/31/2019)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 5% Russell 3000 +3% (Lagged), 5% Bloomberg High Yield +2% (Lagged).
Policy Index (10/1/2016-9/30/2018)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 +3% (Lagged), 5% Bloomberg High Yield +2% (Lagged).

Private Equity Benchmark and Private Credit Benchmarks are equal to the actual private equity and private credit returns, respectively.



### Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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