

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

**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

**2ND QUARTER 2023
Investment Landscape**

Verus business update

Since our last Investment Landscape webinar:

- Verus hired three employees:
 - **Philip Schmitt**, Director | Public Markets
 - **Christian Reed**, Private Markets Performance Analyst
 - **Jonathan Powell**, Performance Analyst
- Three employees recently passed various levels of the CFA exam. Verus currently has a total of 34 CFA charterholders
- Jonathan Henderson, Director | Operations received the 2022 Verus North Star Award for championing client success
- Verus launched a newly designed website in February, making it easier to find our thought leadership and markets updates
- At the end of March, Verus met with 40 emerging or diverse managers at its Emerging & Diverse Manager Diligence Days event
- Recent research, found at verusinvestments.com/research
 - ***U.S. Equity Index Concentration (short video)***
 - ***2023 Active Management Environment***
 - ***Verus Viewpoints on SVB & Broad Market Stress***
 - ***2023: The Return of Simplicity***
 - ***The Importance of Emerging & Diverse Managers***

Recent Verus research

Visit: verusinvestments.com/research

Sound thinking

2023: THE RETURN OF SIMPLICITY

Each January, we assess the suggestions that we made the previous year to see what we called correctly and where we got things wrong. We also suggest topics that we believe should be on the agenda for the balance of the coming year:

1. Inflation: Down, bumpily
2. A landing: But what kind?
3. Rates: Lower but slower
4. Zero makes heroes: Funded foolishness failing
5. More office pain: The slow recognition of reality
6. International markets of mystery: Or opportunity?
7. Active opportunities: Decision-making matters
8. Private pain: A drag for a while
9. ESG: Louder not quieter
10. Simple beats complex: With a twist

Thought leadership

SVB & BROAD MARKET STRESS

Given recent events around Silicon Valley Bank's failure, heightened market volatility, and broad uncertainty in the banking sector, Verus shared our perspectives, focusing on asset-owner impacts.

U.S. EQUITY INDEX CONCENTRATION

Does the rising concentration of the U.S. equity market have implications for investors? In a short video, we examined the causes of index concentration, the levels of concentration relative to global markets, and how this environment affects the success of active managers. We answered the following questions:

- What causes index concentration?
- How concentrated has the U.S. equity market become? How does this index concentration compare to other equity markets?
- What are the implications of concentration for active managers?

Annual research

2023 ACTIVE MANAGEMENT ENVIRONMENT

Changing market conditions in recent years continue to suggest a more attractive environment for active managers to demonstrate skill and add value for investors.

- Greater economic uncertainty around the world, aggressive central bank actions, and rising bond yields have created an environment of greater dispersion in active manager performance.
- Higher dispersion is apparent in the most recent 3-year dataset within the document, which also reflects a larger proportion of active managers outperforming the benchmark relative to prior periods.
- Our analysis continues to illustrate stark differences regarding the relationship between risk and return across asset class universes. In many asset classes, there has been a negative relationship between risk-taking relative to the benchmark and total return. These characteristics may provide helpful context to investors when discussing active management.

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1st quarter summary

THE ECONOMIC CLIMATE

- Real GDP increased at a 2.7% rate in the fourth quarter (0.9% growth year-over-year). The U.S. economy was supported by mild but positive growth across most aspects of activity. **p. 9**
- Unemployment continued to suggest a strong labor market, unchanged at 3.5% in March. Widespread layoffs in the technology sector have captured headlines, though the sector makes up a rather small segment of overall jobs. The labor participation rate is showing positive signs as workers who had left the job market during the pandemic are once again seeking employment. **p. 12**

PORTFOLIO IMPACTS

- The U.S. inflation picture continued to improve. March headline CPI came in at 5.0% year-over-year—the lowest since Q2 2021. Core inflation remained stubbornly high at 5.6% year-over-year. Many of the goods and services that initially contributed to high inflation, such as used cars, food, and energy, have moderated in price. **p. 10**
- U.S. real (inflation-adjusted) personal consumption expenditures were modest in February at 2.5% growth year-over-year. Household purchases of services continued to climb, while goods purchases remained flat. During the pandemic, an unprecedented surge in spending on goods occurred to the detriment of services. It appears that trend has now normalized. **p. 13**

THE INVESTMENT CLIMATE

- U.S. yield curve inversion reached even more extreme levels during Q1. The 10-year 2-year yield spread (short-term interest rates being higher than long-term interest rates) reached ~107 bps on March 8th. Inversion has historically preceded recession. **p. 19**
- Silicon Valley Bank (SVB) failed and was transitioned to government ownership on March 10th. SVB is among the top 20 largest banks in the United States with approximately 1% of all U.S. domestic bank deposits. In the near-term, sentiment seems to have been shored up by backstops from the Federal Reserve, Treasury, and FDIC, though we are watching conditions closely. **p. 20 & 21**

ASSET ALLOCATION ISSUES

- Global equities delivered another strong quarter in Q1 (MSCI ACWI +7.3%). A variety of risks are stacking up that could weigh on additional gains, including potential recession in many markets, persistent inflation problems, and tightening credit conditions. **p. 26**
- U.S. growth stocks delivered strong outperformance in the first quarter (Russell 1000 Growth +14.4% vs. Russell 1000 Value +1.0%), effectively reversing value's rally in Q4 2022. This divergence in style behavior appears to be, once again, mostly a result of relative sector returns. Information technology led the index +21.8% over the quarter, while energy (-4.7%) and financials (-5.6%) were laggards. **p. 28**

Markets performed well in Q1, further recovering from the losses of 2022

Recession risk, banking stress, and stubborn inflation may create difficulties going forward

What drove the market in Q1?

“U.S. Inflation Eases but Stays High, Putting Fed in a Tough Spot”

HEADLINE CONSUMER PRICE INFLATION (YEAR-OVER-YEAR)

Oct	Nov	Dec	Jan	Feb	Mar
7.7%	7.1%	6.5%	6.4%	6.0%	5.0%

Article Source: AP, March 14th, 2023

“U.S. Bank Failures Pose Risk to Global Growth”

FDIC UNREALIZED GAINS (LOSSES) ON BANK’S INVESTMENT SECURITIES

Q3 21	Q4 21	Q1 22	Q2 22	Q3 22	Q4 22
\$29.4B	(\$7.9B)	(\$293.7B)	(\$469.7B)	(\$689.9B)	(\$620.4B)

Article Source: Wall Street Journal, March 26th, 2023

“Federal Reserve’s Path is Murkier After Bank Blowup”

FED FUNDS FUTURES PEAK IMPLIED RATE (MONTH END)

Oct	Nov	Dec	Jan	Feb	Mar
4.98%	4.92%	4.97%	4.92%	5.42%	4.95%

Article Source: The New York Times, March 13th, 2023

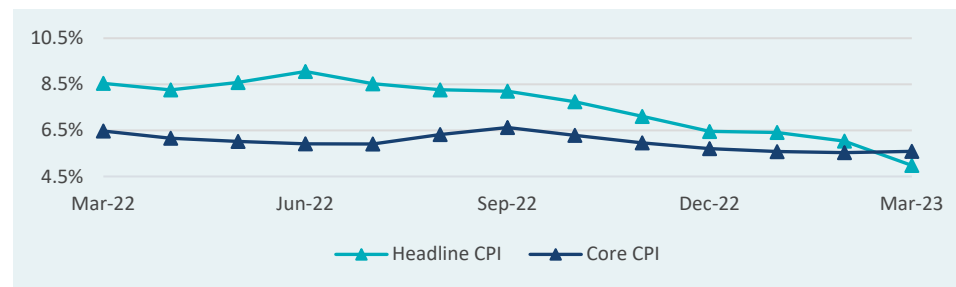
“Fed Hikes Interest Rates 25 Basis Points in March 2023”

FED FUNDS TARGET RATE – UPPER BOUND

Q4 21	Q1 22	Q2 22	Q3 22	Q4 22	Q1 23
0.25%	0.50%	1.75%	3.25%	4.50%	5.00%

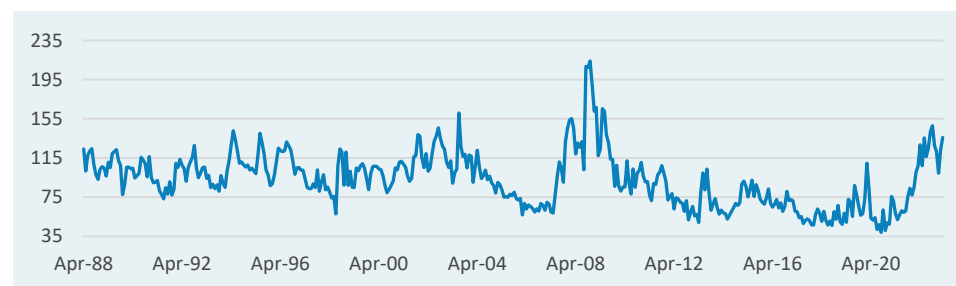
Article Source: Bloomberg, March 22nd, 2023

U.S. HEADLINE VS. CORE INFLATION (YEAR-OVER-YEAR)



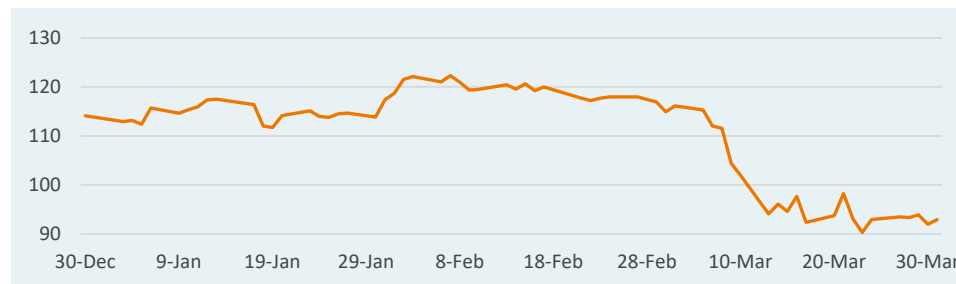
Source: BLS, as of 3/31/23

U.S. TREASURIES IMPLIED VOLATILITY (ICE BOFA MOVE INDEX)



Source: Bloomberg, as of 3/31/23

KBW REGIONAL BANKING INDEX



Source: Bloomberg, as of 3/31/23

Economic environment

U.S. economics summary

- Real GDP increased at a 2.7% rate in the fourth quarter (0.9% year-over-year). The U.S. economy in Q4 was supported by mild but positive growth across most aspects of activity. First quarter GDP is expected to come in at 2.2%, according to the Atlanta Fed GDPNow forecast, as of April 10th.
- The inflation picture improved further. March headline inflation came in at 5.0% year-over-year—the lowest since Q2 2021. Core inflation has remained stubbornly high at 5.6% year-over-year. Many of the goods and services prices that initially contributed to high inflation have moderated or fallen.
- U.S. real personal consumption expenditures were modest in February at 2.5% year-over-year. Household purchases of services continued to climb, while goods purchases were flat. Purchasing trends around goods and services appear to have normalized for the first time since the pandemic.
- Although hiring activity may be slowing and layoffs are occurring in places, the labor participation rate is rebounding as workers who had left the job market during the pandemic are once again seeking employment.
- Consumer sentiment remained weak in Q1. According to the University of Michigan, households increasingly expect a recession in the near-term, especially lower income and younger Americans. Inflation fears have reportedly subsided, with expectations for 3.6% inflation over the next year.
- The U.S. housing market has faced a harsh winter season, as high prices and a significant jump in mortgage interest rates severely crimped demand. Existing home sales are as weak as during the lows of 2009-2011 following the U.S. housing bubble.

	Most Recent	12 Months Prior
Real GDP (YoY)	0.9% 12/31/22	5.7% 12/31/21
Inflation (CPI YoY, Core)	5.6% 3/31/23	8.5% 3/31/22
Expected Inflation (5yr-5yr forward)	2.2% 3/31/23	2.4% 3/31/22
Fed Funds Target Range	4.75% – 5.00% 3/31/23	0.25% – 0.50% 3/31/22
10-Year Rate	3.47% 3/31/23	2.34% 3/31/22
U-3 Unemployment	3.5% 3/31/23	3.6% 3/31/22
U-6 Unemployment	6.7% 3/31/23	6.9% 3/31/22

GDP growth

Real GDP increased at a 2.7% rate in the fourth quarter (0.9% growth year-over-year). The U.S. economy was supported by mild but positive growth across most aspects of activity. First quarter GDP is expected to come in at 2.2%, according to the Atlanta Fed GDPNow forecast, as of April 10th.

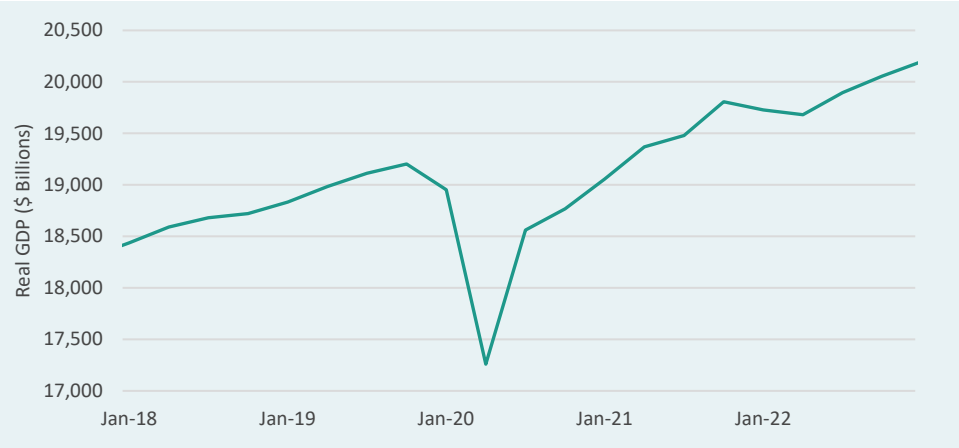
Consumer spending increased at a 2.1% annualized rate, boosted by spending on services but dragged lower by fewer goods purchases. Within services, healthcare and housing saw the largest gains. Private investment spending was fueled by manufacturing—primarily in traditional energy products, mining, utilities, and construction. With regard to government spending, increases were reportedly due to higher compensation of government employees

rather than on new projects or initiatives.

Investors remain undecided regarding whether the U.S. economy will enter recession in 2023. Economist forecasts suggest near-zero growth for most quarters this year, but with no recession. Either way, it is reasonable to assume very weak economic growth for the near-term. Furthermore, the failure of Silicon Valley Bank and ensuing stress on the financial sector has created new risks, as this stress will likely lead to a slowdown in traditional bank lending activity. If many banks reduce lending activity and increase lending standards, this may result in a material tightening of economic activity that compounds the existing effects of higher interest rates.

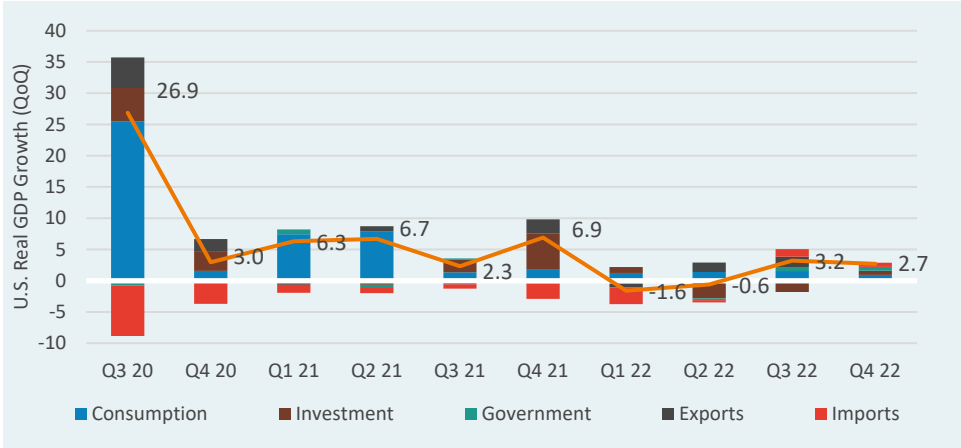
A tightening of bank lending raises the risks of an economic slowdown

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 12/31/22

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 12/31/22

Inflation

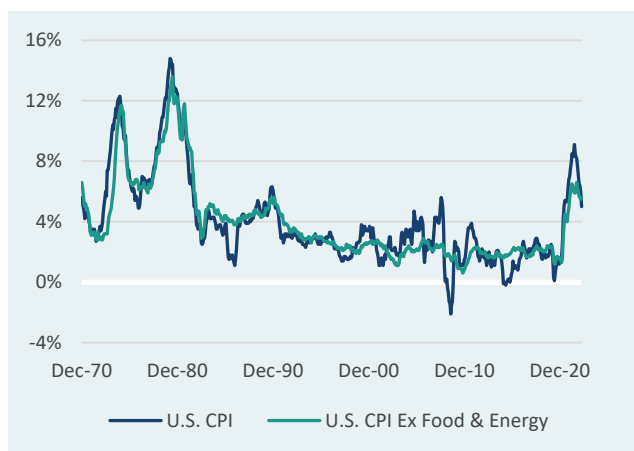
The inflation picture further improved in the United States, as both headline and core inflation figures declined further. March headline inflation came in at 5.0% year-over-year—the lowest since Q2 of 2021. Core inflation has remained stubbornly high at 5.6% year-over-year in March. Many of the goods and services that initially contributed to high inflation, such as used cars, food, and energy, have moderated or are falling in price. Shelter costs remain the largest single driver of inflation. Recent output cuts in oil production by OPEC+ members could reignite some inflation in energy and transportation costs—these effects will be important to watch in the coming months.

U.S. hourly wage gains continued to decelerate during the quarter—now at only a 4.2% year-over-year growth rate. The possibility of persistently high wage increases has been a risk to the inflation story, as accelerating wages can sustain higher spending and therefore higher ongoing inflation. Now that wage growth has slowed, this risk is subsiding.

Overall, inflation (CPI) is very likely to fall to around 4% in Q2, for the technical reasons illustrated below. However, certain persistent monthly price pressures suggest that inflation may stabilize at this level rather than at the 1-2% inflation experienced throughout much of the 2010s.

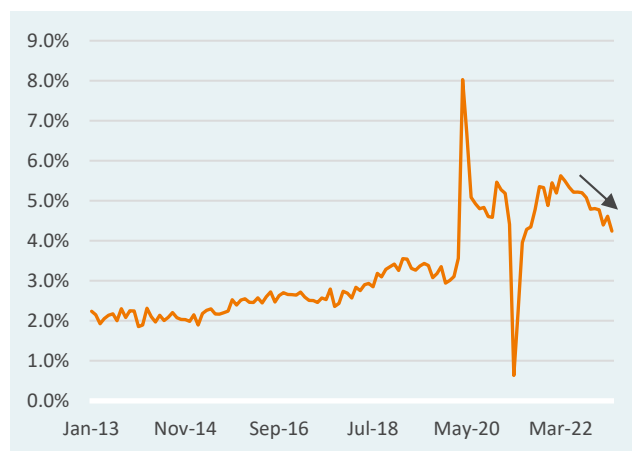
Persistent monthly Core CPI figures suggest inflation may stabilize at a level higher than the Fed's target

U.S. CPI (YOY)



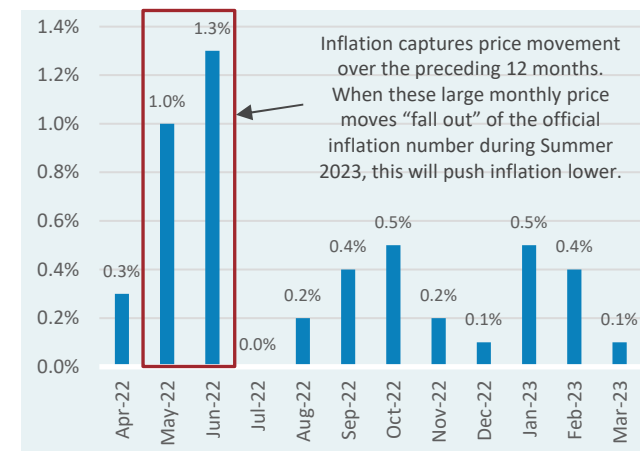
Source: BLS, as of 3/31/23

AVERAGE HOURLY EARNINGS



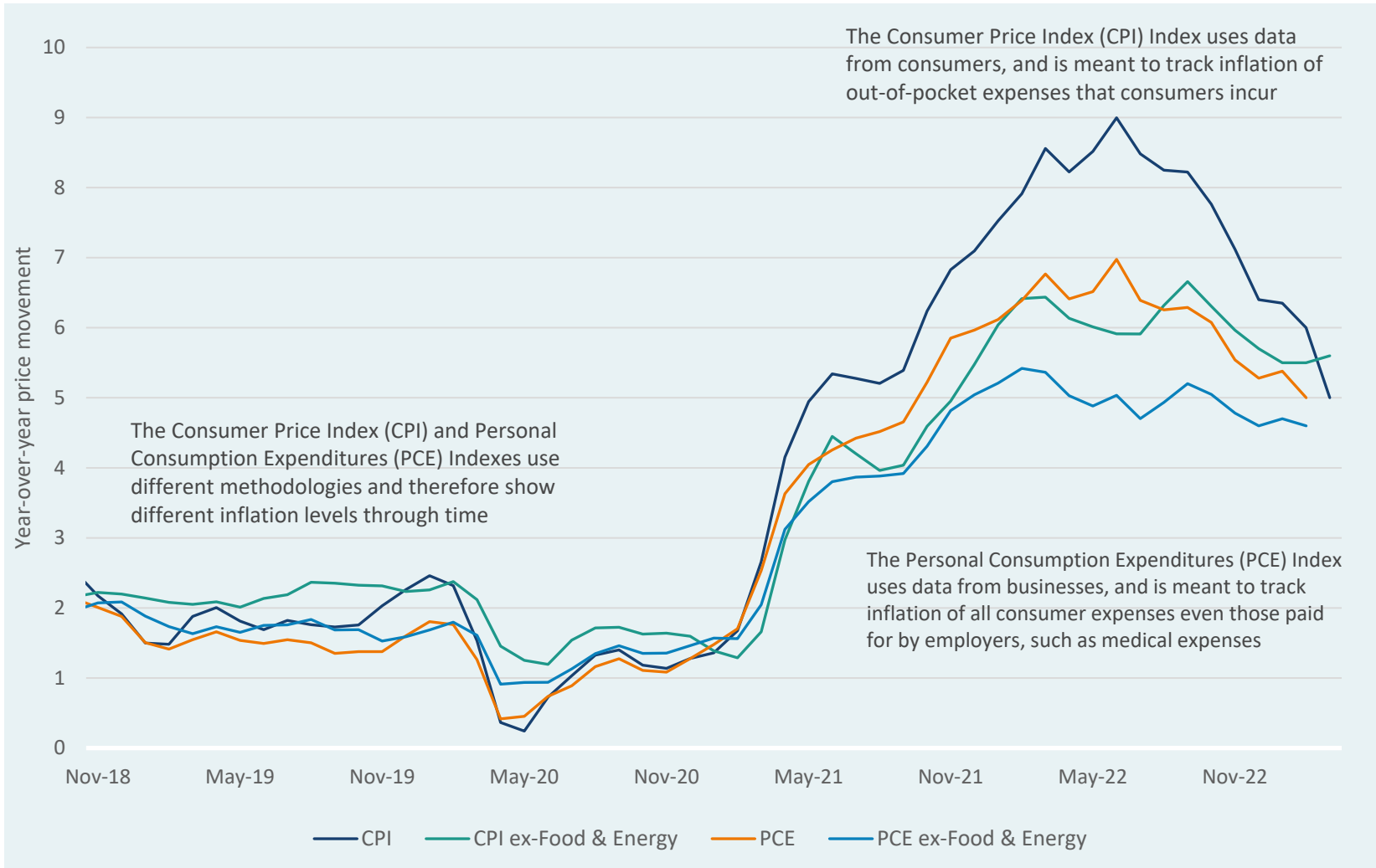
Source: BLS, as of 3/31/23

MONTHLY PRICE MOVEMENT



Source: BLS, as of 3/31/23

How are inflation conditions evolving?



Official inflation figures continue to fall, though persistent monthly Core CPI figures suggest inflation may stabilize at a level higher than the Fed's target

Source: FRED, Verus, PCE data as of 2/28/23, CPI data as of 3/31/23

Labor market

Unemployment continues to suggest a strong labor market, unchanged at 3.5% in March. Widespread layoffs in the technology sector have captured headlines in recent months, though it is important to remember that this sector makes up a rather small segment of overall jobs in the country, and the job market remains broadly strong by most measures.

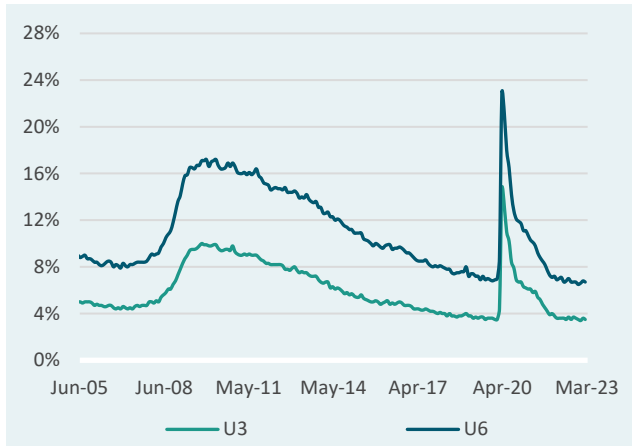
Although hiring activity may be slowing and layoffs are occurring in some places, the labor participation rate is now showing positive signs as workers who had left the job market during the pandemic are once again seeking

employment. Labor data suggests that this recovery has occurred mostly in the age 25 to 55-year cohort, and that older workers are not yet returning to the labor market.

A recovery in total workforce size is a good sign for future economic growth and may take some pressure off wages. This trend also helps relieve the historically large mismatch regarding the number of jobs available and the number of workers available to fill those jobs. An increase in total workforce size while the number of job postings are declining helps to rebalance the labor market.

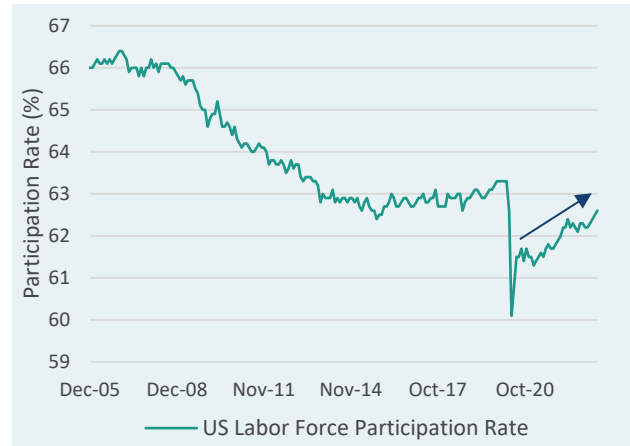
Workers that left the labor force during the pandemic are slowly returning to the job market

U.S. UNEMPLOYMENT



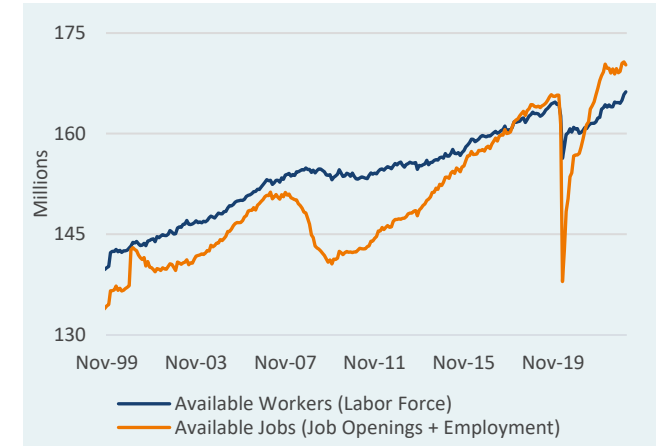
Source: FRED, as of 3/31/23

LABOR FORCE PARTICIPATION RATE



Source: FRED, as of 3/31/23

WORKERS AVAILABLE VS. AVAILABLE JOBS



Source: BLS, as of 2/28/23

The consumer

U.S. real (inflation-adjusted) personal consumption expenditure growth has been modest, at 2.5% year-over-year in February. Household purchases of services continued to climb, while goods purchases remained flat. During the pandemic, an unprecedented surge in spending on goods occurred, to the detriment of services. It appears that trend has now normalized.

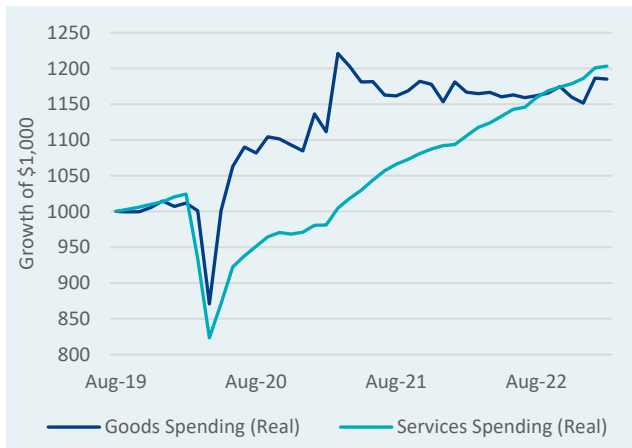
Personal savings rates have improved from extremely low levels. More household savings may be partly a reflection of consumer expectations for recession, as well as weaker job

prospects (these sentiments are discussed on the next slide).

Big ticket items such as automobiles and homes have seen slowing sales activity as higher interest rates make purchases less affordable and budgets come under strain. The average size of a car payment in America over time illustrates the significance of this effect, as monthly payments have outstripped the overall rate of inflation—by a significant margin in the case of used vehicles.

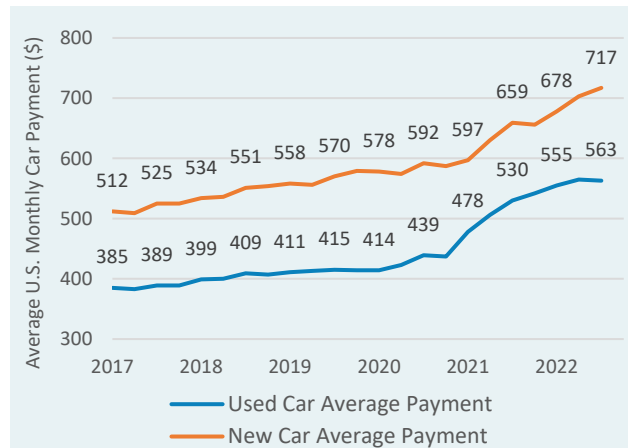
Much of the increase in consumer spending has been due to rising prices rather than more goods purchased

SPENDING TRENDS: GOODS VS. SERVICES



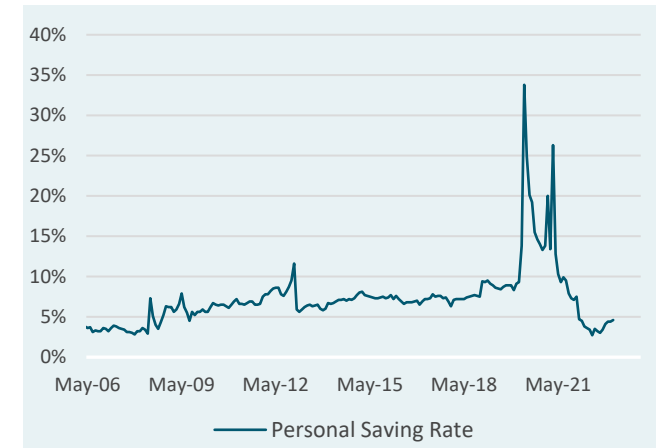
Source: FRED, as of 2/28/23

AVERAGE SIZE OF CAR PAYMENT



Source: Irina Ivanova, Edmunds, as of 9/30/22

PERSONAL SAVINGS RATE



Source: FRED, as of 2/28/23

Sentiment

Consumer sentiment was unchanged in the first quarter by most measures but remains depressed. According to the University of Michigan, households increasingly fear a recession in the near-term, especially among lower income and younger Americans. Inflation concerns have subsided, with households expecting 3.6% inflation over the next full year—only moderately higher than the 2.3-3.0% assumed rate of pre-pandemic times.

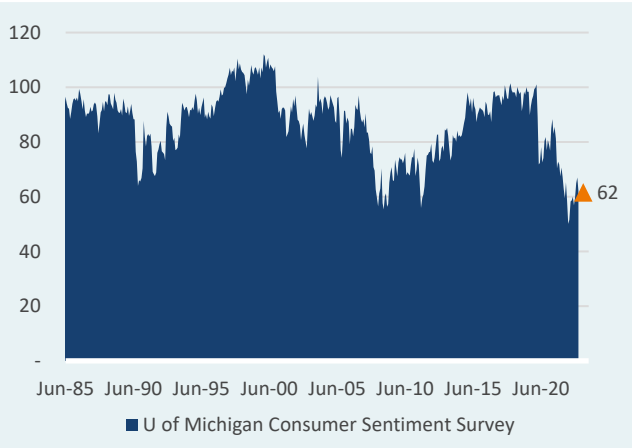
Consumer confidence measured by the Conference Board was also stable. According to the Conference Board survey,

available jobs are ‘not so plentiful’, discretionary spending plans have been cut back, but spending plans for items such as health care and home repairs increased.

The NFIB Small Business Optimism index remains very depressed, reflecting a poor business outlook. Fewer business owners reported inflation as their top concern for business operations, at twenty-four percent in March. During the quarter, a greater number of business owners expected inflation-adjusted sales to fall in the future.

Sentiment, by most measures, remains very poor

CONSUMER SENTIMENT



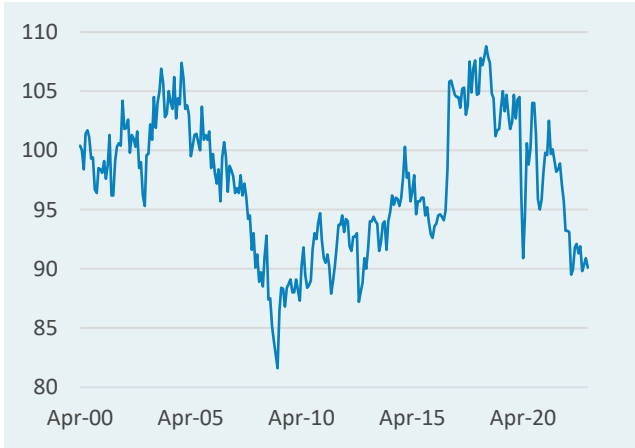
Source: University of Michigan, as of 3/31/23

CONFERENCE BOARD CONSUMER CONFIDENCE



Source: Conference Board, as of 3/31/23

NFIB SMALL BUSINESS SENTIMENT



Source: NFIB, as of 3/31/23

Housing

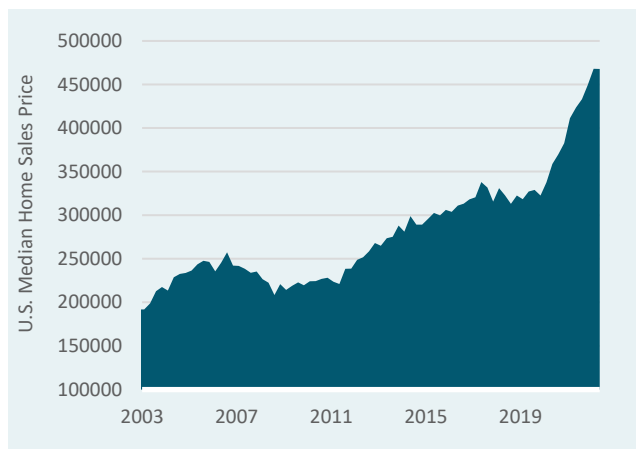
The U.S. housing market has faced a harsh winter season, as high prices and a significant jump in mortgage interest rates severely crimped demand. Existing home sales are as weak as during the lows of 2009-2011 following the housing bubble. However, monthly sales activity surged 14.5% in February, according to the National Association of Realtors, as potential buyers took advantage of a dip in mortgage rates.

By most measures available, average home prices appear to have plateaued over the latter half of 2022. Price movement has varied significantly by marketplace, with larger markets such as San Francisco experiencing double digit losses in home

values, while certain smaller markets—mostly in the southern U.S.—such as Sarasota, Florida seeing some of the largest gains in the nation.

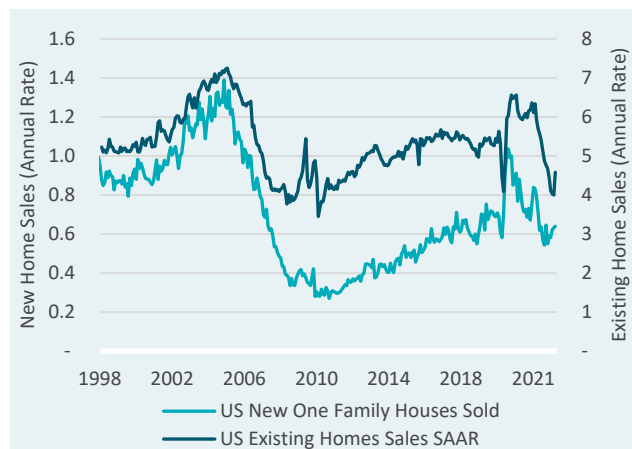
The monthly supply of homes remains high, due to a combination of depressed sales activity and modest increases in inventory levels over the past year. Inventories could stay soft as potential sellers wish to avoid listing their homes and giving up their existing low interest rate mortgage. Additionally, potential sellers who have recently seen the value of their home decline may not wish to sell at lower prices—especially those sellers who may be underwater on a loan.

U.S. MEDIAN HOME SALES PRICE



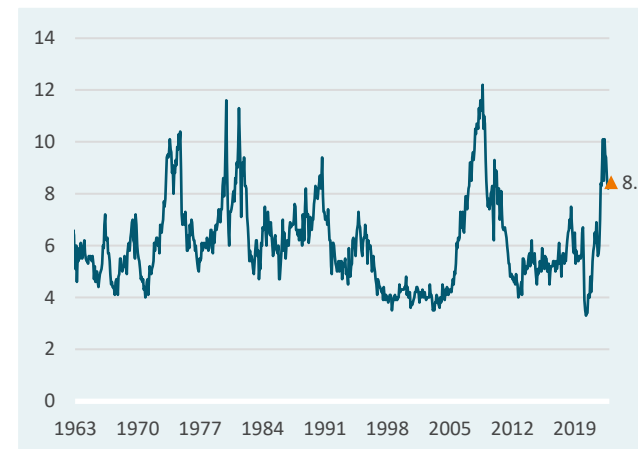
Source: FRED, as of 12/31/22

HOME SALES: NEW & EXISTING (MILLIONS)



Source: FRED, as of 2/28/23

MONTHLY SUPPLY OF HOMES



Source: FRED, as of 2/28/23

International economics summary

- Developed economies have experienced a sharp slowdown in growth. The IMF forecasts developed economy GDP to fall from 2.7% in 2022 to 1.3% in 2023. The deteriorating outlook was attributed to monetary tightening by central banks, as well as Russia’s invasion of Ukraine. Meanwhile, emerging market economic growth is expected to accelerate in 2023, rising from 3.9% to 4.0%.
- Inflation trends varied by country during the quarter but seem to suggest broad moderation. European nations continue to cope with very high inflation rates—much of which have been driven by surging energy costs. In many countries, higher energy prices are contributing to half of official inflation figures.
- Developed central banks, in response to inflation, have carried on with their tightening cycles. Both the European Central Bank and Bank of England raised rates in March, with the ECB increasing their Deposit Facility Rate by 50 bps to 3.00%, while the BOE implemented a 25 bps hike, bringing their policy rate to 4.25%.
- February 24th marked the one-year anniversary of Russia’s invasion of Ukraine. The war has created much uncertainty around Europe’s economic outlook, and led Finland to apply, and to be accepted as, a NATO member.
- China made progress on its reopening in Q1, as the country aims to ramp up economic activity following nearly three-years of lockdowns. Mobility data has picked up, while gauges of manufacturing and non-manufacturing activity have moved into expansionary territory. March non-manufacturing PMIs came in at 58.2—the highest level since 2011.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	0.9% 12/31/22	5.0% 3/31/23	3.5% 3/31/23
Eurozone	1.8% 12/31/22	6.9% 3/31/23	6.6% 2/28/23
Japan	0.4% 12/31/22	3.3% 3/31/23	2.5% 2/28/23
BRICS Nations	2.5% 12/31/22	2.9% 3/31/23	5.2% 12/31/21
Brazil	1.9% 12/31/22	4.7% 3/31/23	8.5% 3/31/23
Russia	(2.7%) 12/31/22	3.5% 3/31/23	3.5% 2/28/23
India	4.4% 12/31/22	5.7% 3/31/23	7.8% 3/31/23
China	2.9% 12/31/22	0.7% 3/31/23	5.6% 2/28/23

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

International economics

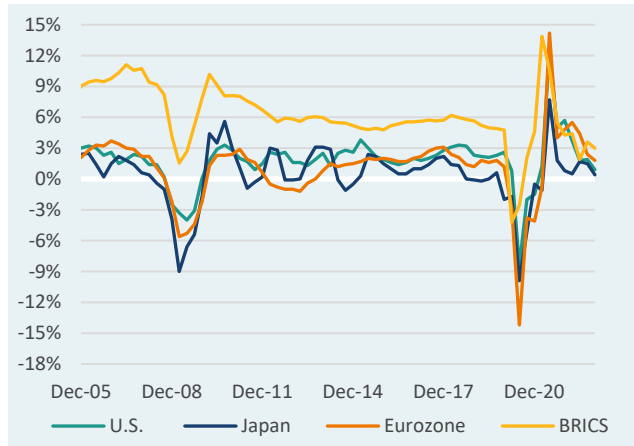
Many developed economies have experienced a sharp slowdown in growth, which is expected to continue in 2023. Near-zero growth or recession is likely in the near-term for the U.S. and many other developed markets. The IMF forecasts developed economy growth to fall from 2.7% in 2022 to 1.3% in 2023. The deteriorating outlook was partly attributed to monetary tightening of central banks, as well as Russia's invasion of Ukraine.

A rosier outlook exists for emerging markets. The IMF forecasts economic growth of 4.0% in 2022 and 3.9% in 2023. Growth

expectations continue to suggest a widening divide between emerging and developed economies, with emerging markets exhibiting a 1.3% *growth premium* over developed markets in 2022, a 2.6% premium in 2023, and a 2.8% premium in 2024.

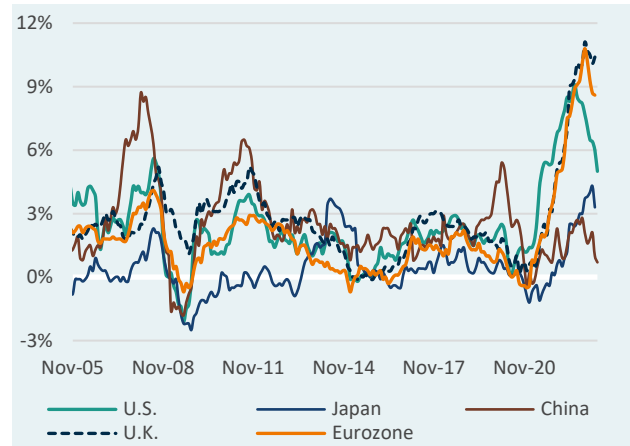
Inflation trends varied by country during the quarter but seem to suggest broad moderation. European countries continue to cope with higher inflation rates—much of which have been driven by surging energy costs. In many areas, higher energy prices are contributing as much as one half of official inflation figures.

REAL GDP GROWTH (YOY)



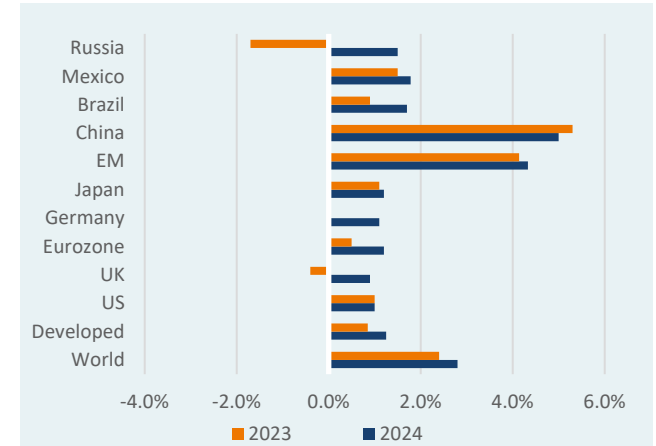
Source: Bloomberg, as of 12/31/22

INFLATION (CPI YOY)



Source: Bloomberg, as of 3/31/23 – or most recent release

ECONOMIC GROWTH FORECASTS



Source: Bloomberg, as of 3/31/23 – or most recent release

Fixed income rates & credit

Fixed income environment

- The 10-year U.S. Treasury yield fell during the quarter from 3.88% to 3.47%. It appears increasingly likely that the U.S. has already reached, and is beyond, *peak interest rates*. The looming possibility of recession, effects of banking stress, and implications from the Federal Reserve that only one interest rate hike may remain, suggests that bond yields may have more room to fall than to rise.
- Silicon Valley Bank (SVB) failed and was transitioned to government ownership on March 10th. SVB is among the top 20 largest banks in the United States, with approximately 1% of all U.S. domestic bank deposits. New York regulators closed Signature Bank shortly thereafter, and more failures may follow. Banking stress has implications for the future actions of the Federal Reserve and for the economy.
- During the first quarter, fixed income markets delivered strong positive returns despite concerns related to the banking sector and the potential for additional Fed rate hikes. High yield credit performance led the way at 3.6%, followed by 3.5% from investment grade credit and 3.3% from bank loans.
- U.S. yield curve inversion reached even more extreme levels during Q1. The 10-year 2-year yield spread (short-term interest rates being higher than long-term interest rates) reached ~107 bps on March 8th, suggesting an incoming recession.
- Uncertainty around the path of Federal Reserve rate hikes and whether inflation is under control has contributed to considerable volatility in bond markets. As indicated by the ICE BofA “MOVE” Index, which measures the volatility priced into U.S. Treasury bonds, domestic and international banking stress further added to fixed income market choppiness in the first quarter.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	3.0%	(4.8%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	2.9%	(4.6%)
U.S. Treasuries (Bloomberg U.S. Treasury)	3.0%	(4.5%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	3.6%	(3.3%)
Bank Loans (S&P/LSTA Leveraged Loan)	3.3%	2.5%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	5.2%	(0.7%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	1.9%	(6.9%)
Mortgage-Backed Securities (Bloomberg MBS)	2.5%	(4.9%)

Source: Bloomberg, as of 3/31/23

Banking stress

Markets saw significant volatility in March, largely driven by failures within the banking system. We believe these bank failures were widely due to two factors:

First, the bank depositor base was very concentrated in certain lines of business. Silvergate and Signature Bank were both involved in the crypto-currency space (although neither of these banks held crypto-currency directly on their balance sheet). This space came under significant pressure after the crypto-currency exchange FTX and some other smaller firms declared bankruptcy. Silicon Valley Bank had a large exposure to the technology and U.S. venture space, where clients had a greater need to withdraw their cash deposits due to slowing

venture capital deployment and tighter economic conditions.

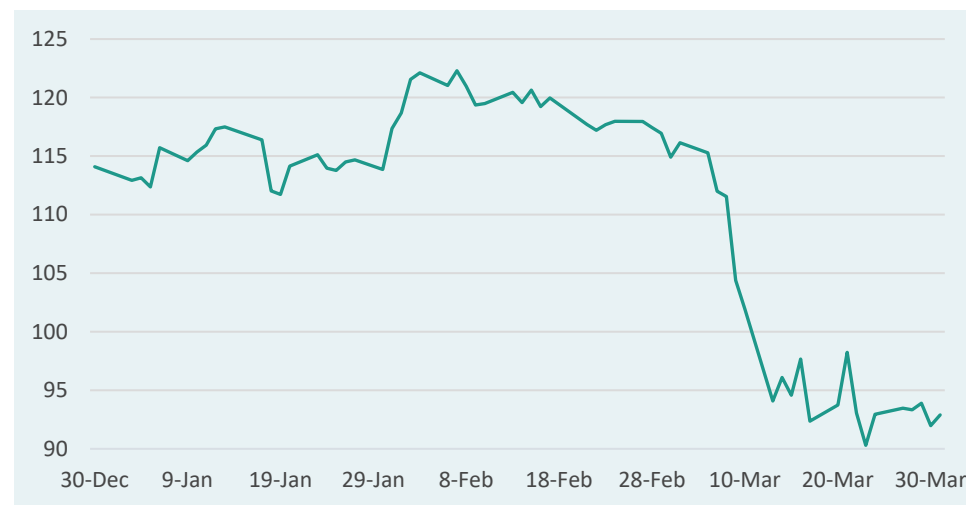
Second, bank assets were sharply devalued as interest rates rose quickly. The rapid rise in interest rates impacted assets such as Treasuries and mortgage-backed securities. In many cases, interest rate duration mismatch between bank assets and liabilities could arguably be attributed to a lack of risk management oversight. It is important to note that although these assets lost value very quickly, most assets are high quality with low default risk. This is a key differentiator from banking stress that occurred during the 2008-2009 Global Financial Crisis when banks held complex securitized assets—many of which turned out to be very low quality with high default risk.

TIMELINE

Date	Event
March 8 th	Silvergate Bank announces it will be winding down operations
March 10 th	Silicon Valley Bank falls into FDIC receivership after a failed attempt to raise equity following large losses associated with a substantial sale of its Available-For-Sale securities portfolio
March 12 th	Signature Bank fails. The bank had a similar deposit base to Silvergate Bank, who rapidly pulled cash after previous failures
March 16 th	Eleven large banks deposit \$30B at First Republic Bank to shore up liquidity and improve confidence. First Republic's shares had tanked as investors feared contagion risks spreading to First Republic
March 19 th	The Swiss government announced the acquisition of Credit Suisse by rival UBS. The acquisition was in order to prevent CS from collapsing

Source: Verus, Bloomberg, as of 3/31/23

KBW REGIONAL BANKING INDEX



Impacts outside the financial sector

Expectations for the Fed's hiking cycle has weakened dramatically alongside bond yields, as markets began to doubt the Federal Reserve's willingness to hike rates in the face of financial stress. Banking issues will likely translate to a lower risk tolerance for many banks, as well as the offloading of many existing loans, and reduced overall lending activity. These effects would create an additional tightening of financial conditions regardless of future Federal Reserve actions.

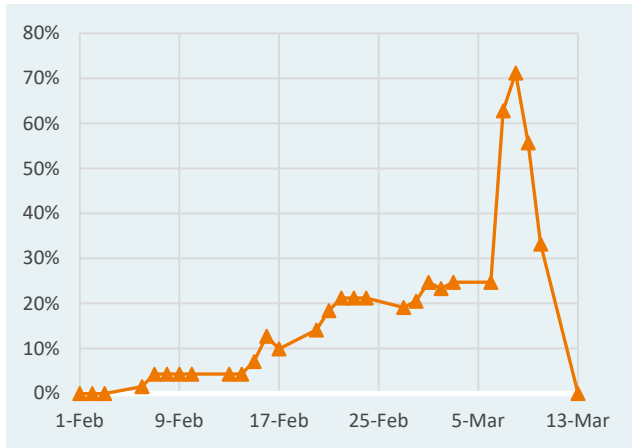
Money market funds have seen very large inflows, as cash is transferred from traditional bank deposits to much higher

yielding, and in many instances safer (if bank deposits were not FDIC insured), vehicles.

It will take time for all implications and effects to be clear. In the near term, sentiment seems to have been largely shored up by backstops from the Federal Reserve, Treasury, and the FDIC. In addition to the Federal Reserve's discount lending window, the Bank Term Funding Program (BTFP) was created to increase liquidity for banks which hold high quality assets. This has increased the Fed's balance sheet, counteracting recent efforts to reduce the size of the balance sheet.

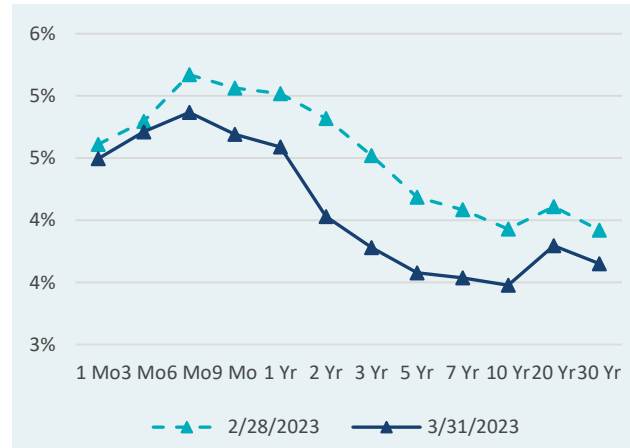
Repricing for a softer FOMC tightening cycle has arguably had the largest impact from a macroeconomic perspective

IMPLIED PROBABILITY: 50 BP RATE HIKE BY FED



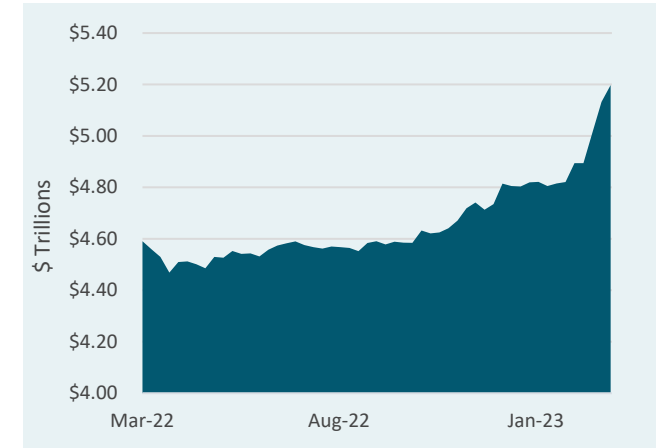
Source: Bloomberg, as of 3/13/23

U.S. YIELD CURVE



Source: Bloomberg, as of 3/31/23

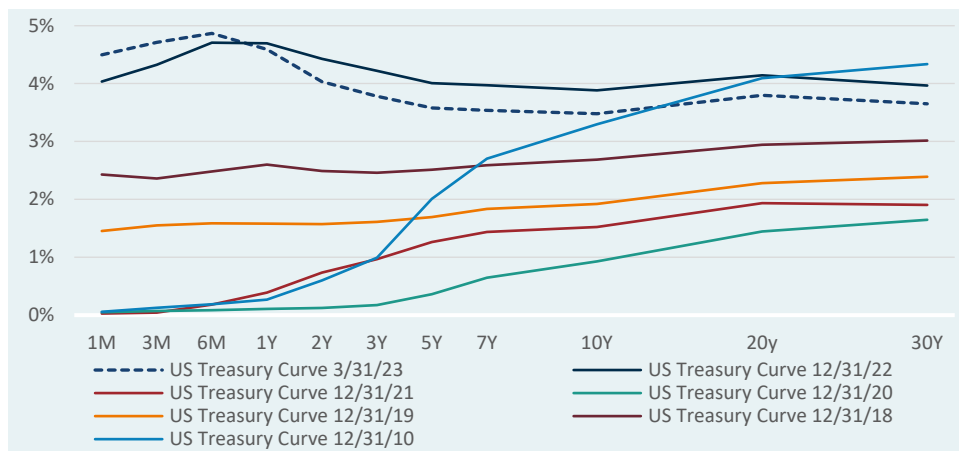
ICI MONEY MARKET FUNDS ASSETS



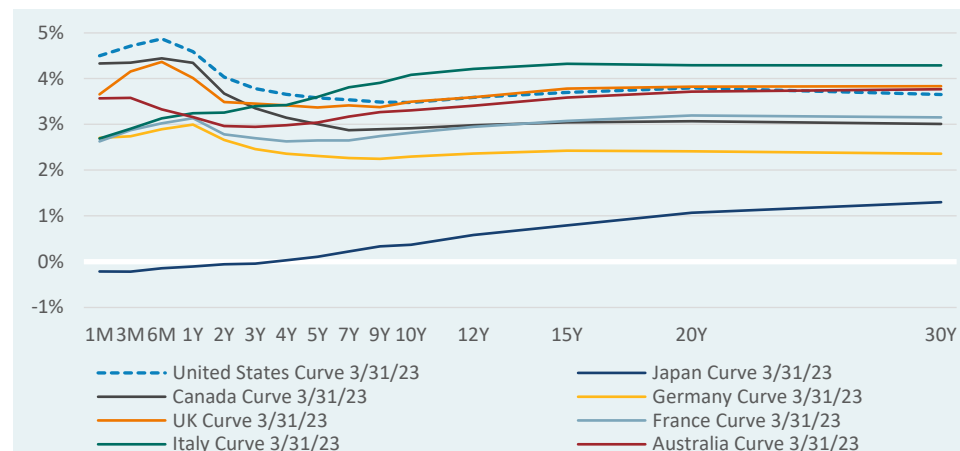
Source: ICI, Bloomberg, as of 3/29/23

Yield environment

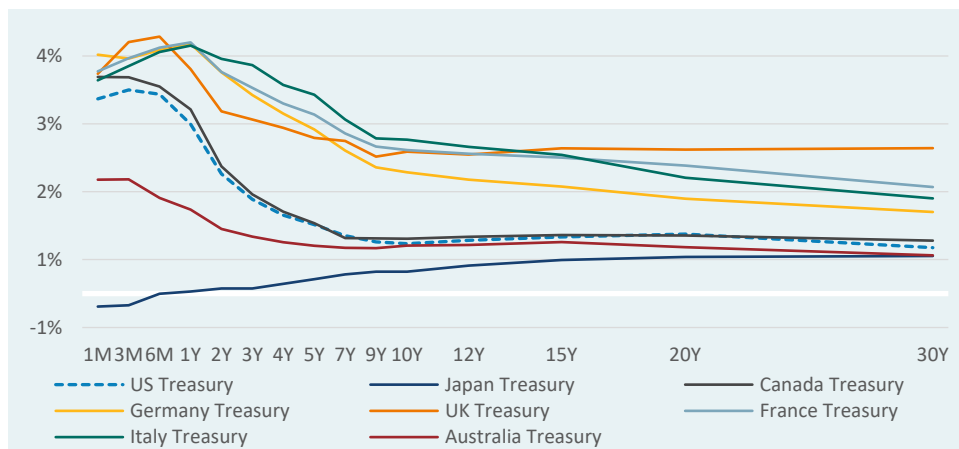
U.S. YIELD CURVE



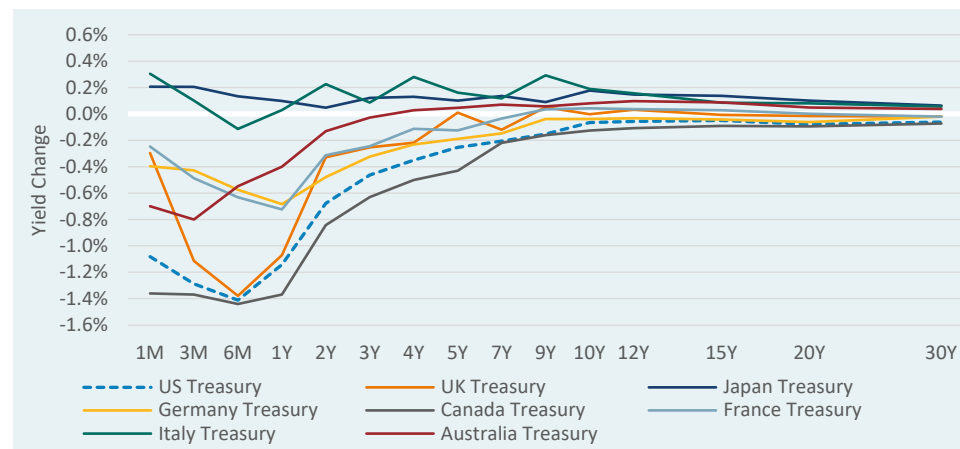
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/23

Credit environment

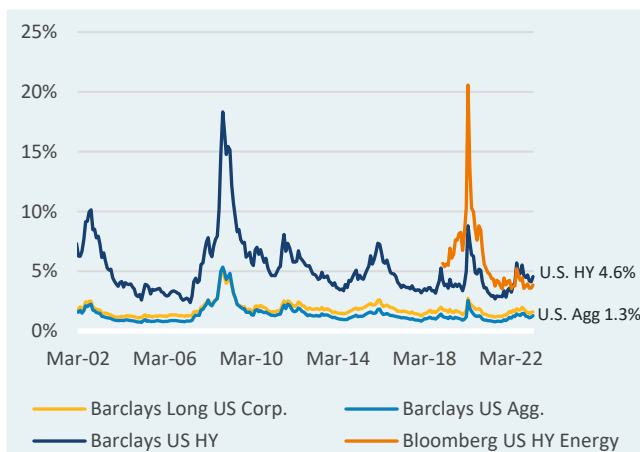
During the first quarter, fixed income markets delivered strong, positive returns despite concerns related to the banking sector and the potential for additional Fed rate hikes. High yield credit returns led the way with 3.6%, followed by 3.5% from investment grade credit and 3.3% from bank loans.

Within high yield bonds, unlike the performance witnessed during the fourth quarter where higher quality credit outperformed, performance was driven primarily by lower quality CCC-rated bonds. These bonds returned 5.1% during the quarter compared to 3.4% and 3.8% for B-rated and BB-rated bonds, respectively. Bank loan performance was

driven primarily by continued strong demand from CLOs.

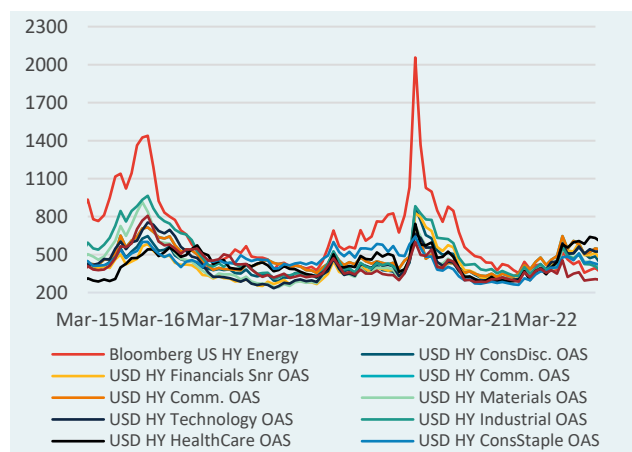
Credit spreads widened with investment grade spreads rising 0.10% to 1.4% while high yield spreads rose by 0.30% to 4.6%. Despite the jump, credit spreads remain below their long-term averages, which suggests that investors remain positive on the health of the market. However, should the economy begin to slow, credit spreads could move wider from here.

SPREADS



Source: Barclays, Bloomberg, as of 3/31/23

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/23

Market	Credit Spread (OAS)	
	3/31/23	3/31/22
Long U.S. Corp	1.6%	1.6%
U.S. Inv Grade Corp	1.4%	1.2%
U.S. High Yield	4.6%	3.3%
U.S. Bank Loans*	5.6%	4.3%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/23

*Discount margin (4-year life)

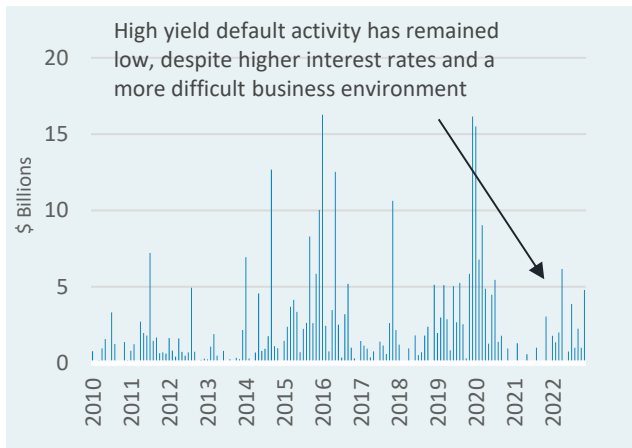
Default & issuance

Default activity remained below the long-term trend in Q1. During the quarter, 17 companies defaulted totaling \$20.6 billion, with large defaults concentrated in the Media, Technology, and Consumer-related sectors. Combined defaults during the quarter were the highest since the beginning of the pandemic in 2Q 2020.

Past twelve-month default rates for both high yield bonds and bank loans decreased to 1.9% and 2.2%, respectively. This compares favorably to the long-term average of roughly 3.2% for bonds and 3.1% for loans. High yield recovery rates ended the quarter at 47.4%, down roughly 7.9% from the end of last year. Similarly, the recovery rate of bank loans ended the quarter at roughly 45.7%, down from 51.8% in 2022.

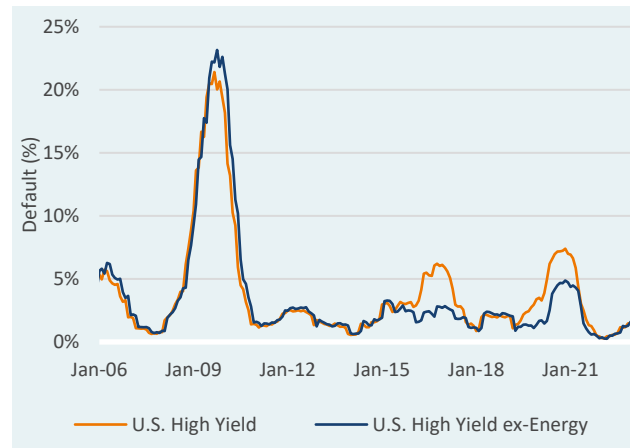
The pace of investment grade credit issuance accelerated in the first quarter with \$404.2 billion of issuance compared with \$200.2 billion in Q4 2022. The story was very different in levered credit which saw high yield bond and bank loan issuance decline to roughly \$40.2 and \$48.3 billion, respectively, during the period. For context, the level of high yield issuance ranked as the second lowest since the Global Financial Crisis in 2008-2009.

U.S. HY MONTHLY DEFAULTS (PAR WEIGHTED)



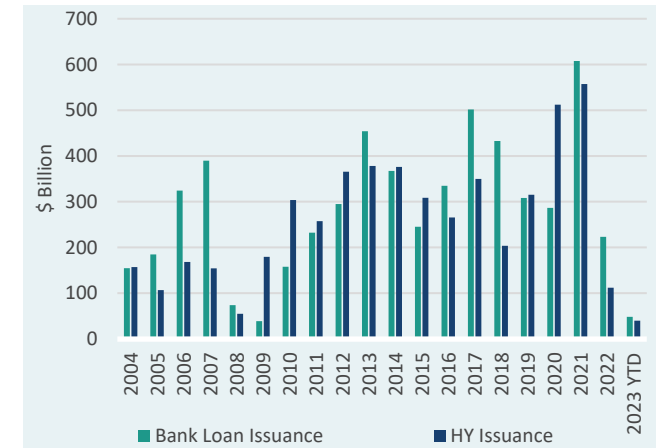
Source: BofA Merrill Lynch, as of 3/31/23

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



Source: BofA Merrill Lynch, as of 3/31/23 – par weighted

DEVELOPED MARKET ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, all developed markets, as of 3/31/23

Equity

Equity environment

- Global equities delivered another strong quarter in Q1 (MSCI ACWI +7.3%). A variety of risks are stacking up that could weigh on additional gains, including potential recession in many markets, persistent inflation problems, and tightening credit conditions.
- The outlook for domestic stocks remains challenged, especially against the backdrop of high inflation and expectations for slowing economic growth. Earnings growth has started to decline, with year-over-year S&P 500 earnings falling -4.9% in Q4 2022, the first decline seen since Q2 2020.
- The effects of currency volatility on portfolio performance was mixed during the first quarter. Over the past full year, currency movement led to a -8.5% loss for investors with unhedged exposure to international developed equity (MSCI EAFE unhedged -1.4%, MSCI EAFE hedged +7.1%), led by a -12.6% loss in Japanese equities (TOPIX unhedged -3.1%, TOPIX hedged +9.5%). We continue to believe that a thoughtful currency program may allow investors to reduce their total portfolio risk while also increasing long-term expected returns.
- Growth stocks delivered strong outperformance in the first quarter (Russell 1000 Growth +14.4% vs. Russell 1000 Value +1.0%), effectively reversing value's rally in Q4 2022. This divergence in style behavior appears to be, once again, mostly a result of relative sector returns.
- The Cboe VIX implied volatility index surged in March on the news of Silicon Valley Bank's failure, and the possibility of contagion across the financial sector, but ended the quarter at 18.7%—near the longer-term average.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	7.5%		(7.7%)	
U.S. Small Cap (Russell 2000)	2.7%		(11.6%)	
U.S. Equity (Russell 3000)	7.2%		(8.6%)	
U.S. Large Value (Russell 1000 Value)	1.0%		(5.9%)	
US Large Growth (Russell 1000 Growth)	14.4%		(10.9%)	
Global Equity (MSCI ACWI)	7.3%	7.3%	(7.4%)	(4.8%)
International Large (MSCI EAFE)	8.5%	8.3%	(1.4%)	7.1%
Eurozone (EURO STOXX 50)	16.2%	15.0%	10.8%	17.1%
U.K. (FTSE 100)	6.4%	3.8%	(1.1%)	6.9%
Japan (TOPIX)	5.8%	8.5%	(3.1%)	9.5%
Emerging Markets (MSCI Emerging Markets)	4.0%	3.8%	(10.7%)	(6.6%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/23

Domestic equity

U.S. equities finished the first quarter up 7.5%, marking another positive quarter as the S&P 500 recovers from the losses of 2022. Much volatility persisted through recent months, with shares moving higher in January, before falling sharply in line with expectations for a more hawkish Federal Reserve. The fallout in the banking system challenged the financial sector, but ultimately proved to be a significant tailwind to the broader index, as investor expectations for the Federal Reserve’s rate path were significantly cut down. This boosts equity market valuations because lower interest rates increase the present value of equities through the discounting of cash flows. Growth stocks tend to benefit the most from this effect, as businesses with larger earnings expected further into the future are more sensitive to interest rate changes.

Despite recent gains, the outlook for domestic stocks remains challenged, given the backdrop of high inflation and expectations for slowing economic growth. Corporate earnings have been weakening, with year-over-year S&P 500 earnings falling -4.9% in Q4 2022—the first decline seen since Q2 2020. Analysts believe this trend will continue—FactSet expects Q1 2023 earnings to slide -6.6%.

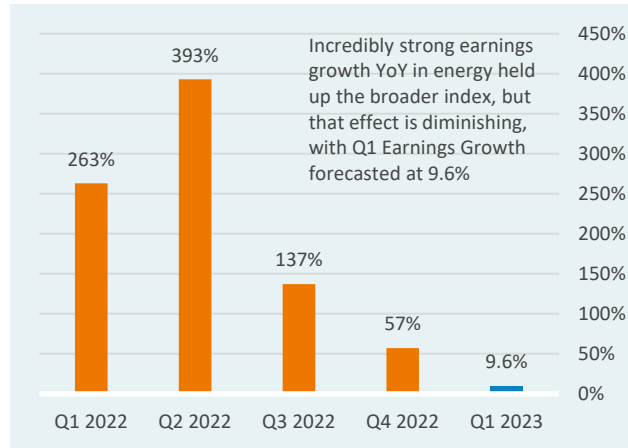
Domestic companies continue to face margin compression due to higher input prices and wages, although many companies are now implementing cost cutting measures—most visibly within the technology and financial sectors—to help retain earnings. The normalization of earnings growth within the energy sector, which had previously provided a large tailwind to broad earnings, has also been a drag.

S&P 500 PRICE INDEX



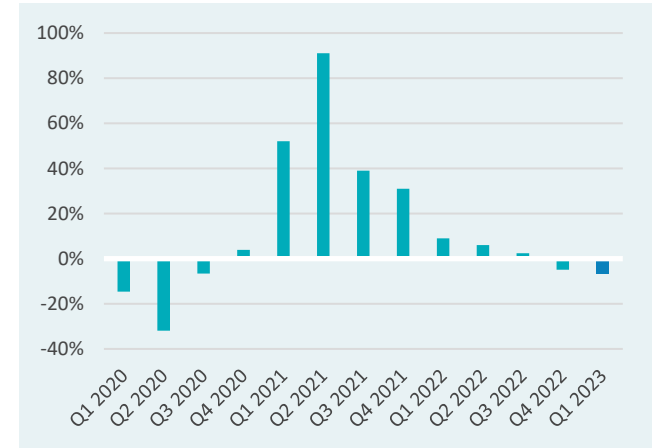
Source: Standard & Poor’s, as of 3/31/23

ENERGY EARNINGS GROWTH (YEAR-OVER-YEAR)



Source: FactSet, as of 3/31/23

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



Source: FactSet, as of 3/31/23

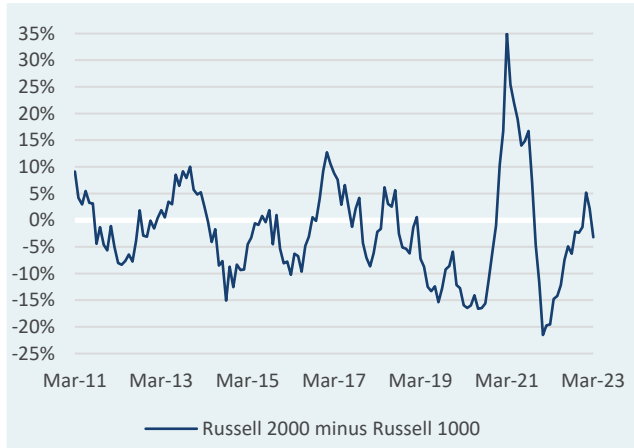
Domestic equity size & style

Growth stocks delivered strong outperformance in the first quarter (Russell 1000 Growth +14.4% vs. Russell 1000 Value +1.0%), effectively reversing the value rally of Q4 2022. This divergence in style behavior appears to be, once again, mostly a result of relative sector returns. Information technology led the index at +21.8% over the quarter, while energy (-4.7%) and financials (-5.6%) were laggards.

Small capitalization stocks underperformed large capitalization stocks during Q1 (Russell 2000 +2.7%, Russell 1000 +7.5%) and have also lagged over the past year (Russell 2000 -11.6%, Russell 1000 -8.4%).

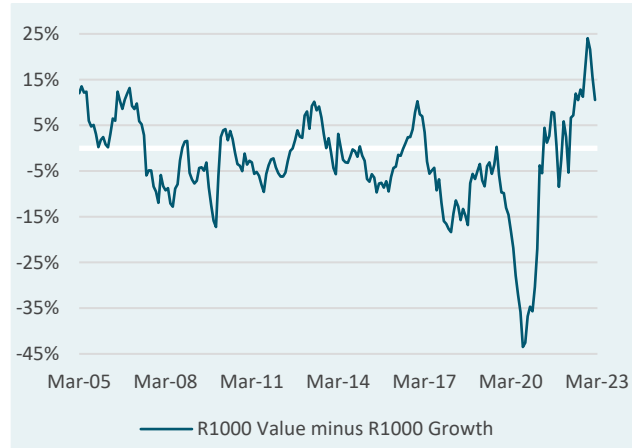
Large disparities in sector performance and the significant impact of this ongoing volatility on style factors supports our view that factor timing should rarely be pursued for most investors. There are occasions when market mispricing offers a compelling case to tilt into a style factor, though these occasions come along perhaps every few decades rather than every few years. We believe that style investing is most appropriately pursued in a strategic manner based on each individual investor's market beliefs and long-term goals.

SMALL CAP VS LARGE CAP (YOY)



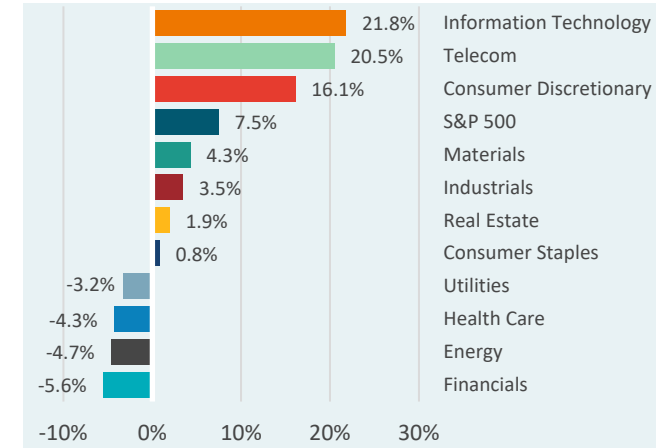
Source: FTSE, as of 3/31/23

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/23

Q1 2023 SECTOR PERFORMANCE



Source: Morningstar, as of 3/31/23

International developed equity

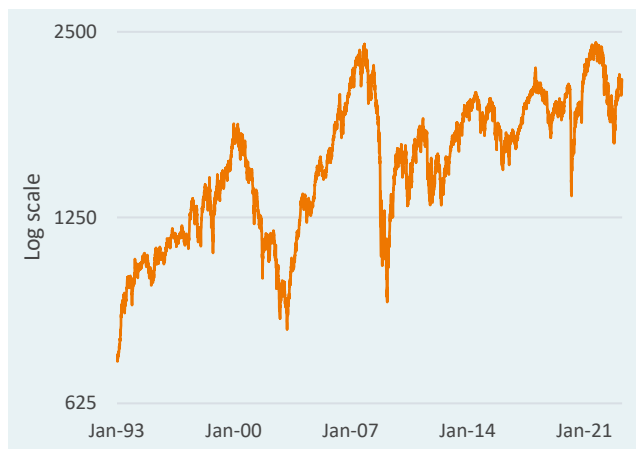
International developed equities outperformed global peers for a consecutive quarter, with the MSCI EAFE Index finishing up 8.3% in unhedged currency terms. Currency market movement was more muted, leading to a smaller 0.2% difference between currency hedged and unhedged index returns. This was likely a welcome change, given large and painful currency movements of the past year as the U.S. dollar appreciated.

European shares outperformed, due to larger European companies delivering positive earnings despite much economic uncertainty. The larger capitalization STOXX 50

Index returned 16.2%, compared to the broader STOXX 600 Index which finished the quarter up 10.3%. Japanese equities lagged most other markets in Q1.

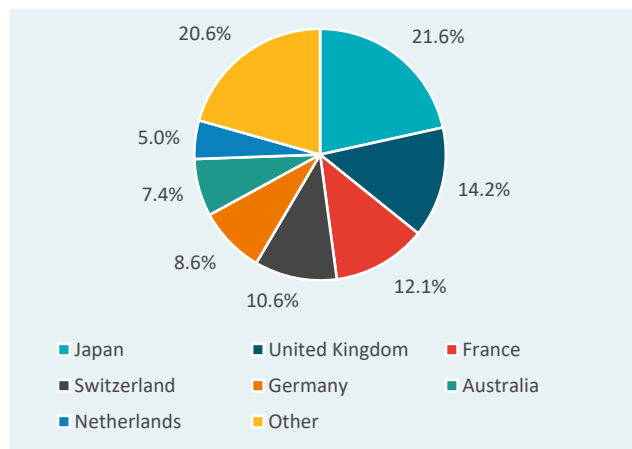
Inflation uncertainty has likely been a key contributor to the cheaper valuations of international developed equities, although inflation pressures have started to show some relief in the Eurozone, driven primarily by moderating energy prices. Despite these positive signs, both the European Central Bank and Bank of England have signaled that additional rate hikes are ahead. The drag presented by central bank hawkishness may be an ongoing theme of 2023.

INTERNATIONAL DEVELOPED EQUITY



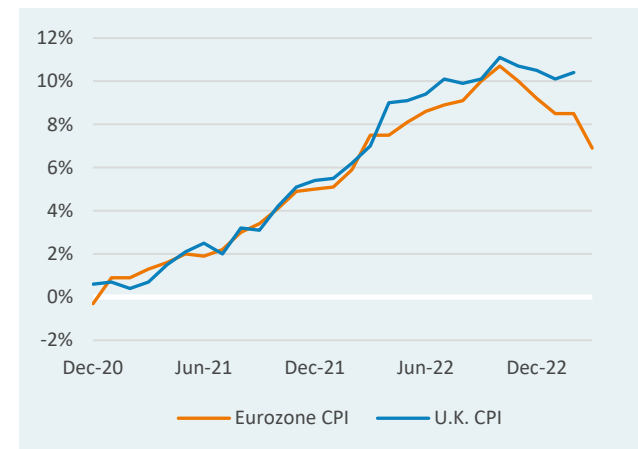
Source: MSCI, as of 3/31/23

MSCI EAFE INDEX COUNTRY DECOMPOSITION



Source: MSCI, as of 3/31/23

EUROPEAN INFLATION



Source: Bloomberg, as of 3/31/23. U.K. CPI as of 2/28/23

Emerging market equity

Emerging market equities lagged the global opportunity set during the quarter. The MSCI EM Index finished up 4.0%, relative to 8.5% from the MSCI EAFE Index and 7.5% from the S&P 500.

Chinese equities—the largest country weight in the index at thirty percent—saw a slowdown in economic momentum from the COVID-19 reopening, yet still finished the quarter +4.7%. China generated a drag on the overall emerging market index despite large gains from markets in Mexico, Taiwan, and South Korea.

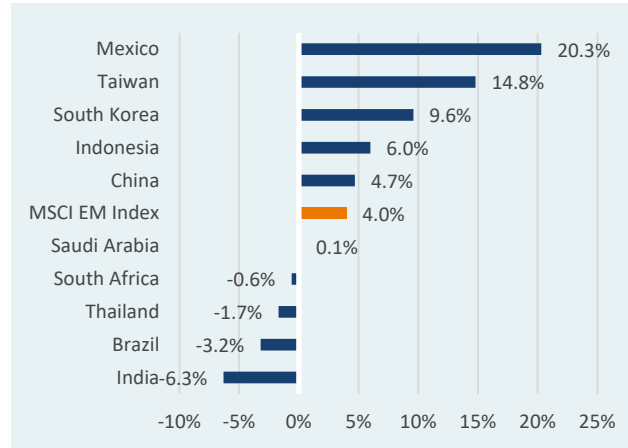
While slowing economic growth amongst developed economies provides a headwind to emerging markets, a lack of inflationary pressures amongst most emerging countries helps paint a more optimistic picture. Fewer inflation problems allows for looser central bank policies, which combined with a continuation of pandemic reopening in China, could allow for higher economic growth in the near-term. The IMF’s World Economic Outlook sees emerging & developing economy growth at 3.9% in 2023—much higher than the expected 1.3% for advanced economies.

EMERGING MARKET EQUITY



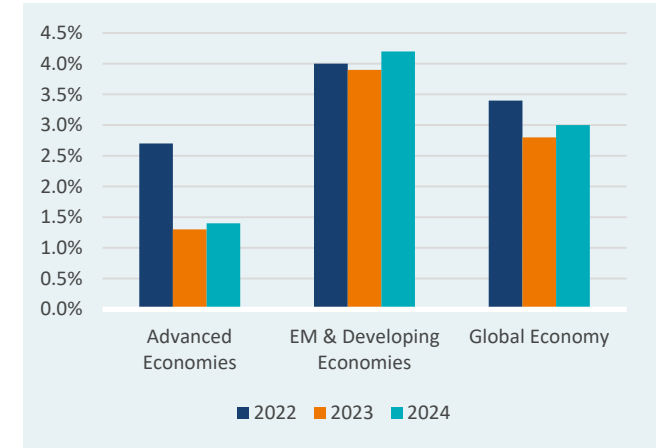
Source: MSCI, as of 3/31/23

Q1 2023 MSCI COUNTRY RETURNS (USD)



Source: Bloomberg, MSCI, as of 3/31/23

IMF’S APRIL REAL GDP GROWTH FORECASTS



Source: IMF April World Economic Outlook

Equity valuations

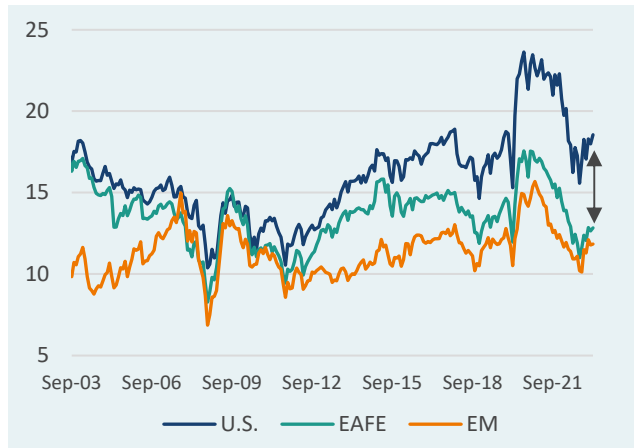
Equity valuations continued to move higher in the first quarter, as global equities advanced and corporate earnings remained relatively flat. Forward price-to-earnings in the U.S. ended March at 18.6x, sliding below the 5-year average, but still higher than the 10-year average of 17.8x. In contrast, international developed (12.8x) and emerging market (11.8x) valuations sit below or at their respective five- and ten-year averages.

U.S. equities led global markets over the past decade largely

due to a boom in corporate earnings and the success of technology-focused mega cap stocks. However, part of that outperformance was due to U.S. equity multiples rising to elevated levels. This is reflected in current U.S. valuations and the near-record divide between U.S. and non-U.S. markets. Lofty multiples may limit further upside of domestic equities without a rebound in earnings, especially given the possibility of U.S. recession, persistent inflation, and recent banking stress. However, an incoming global economic slowdown could support domestic equities as investors tend to prefer high quality markets during times of stress.

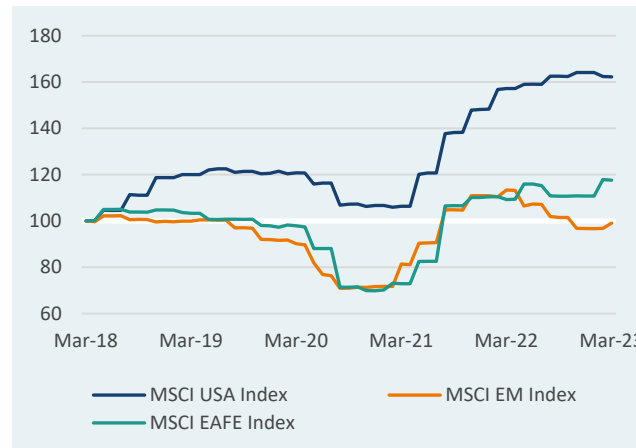
U.S. markets remain relatively expensive, despite potential recession, inflation, banking, and other risks

FORWARD P/E RATIOS



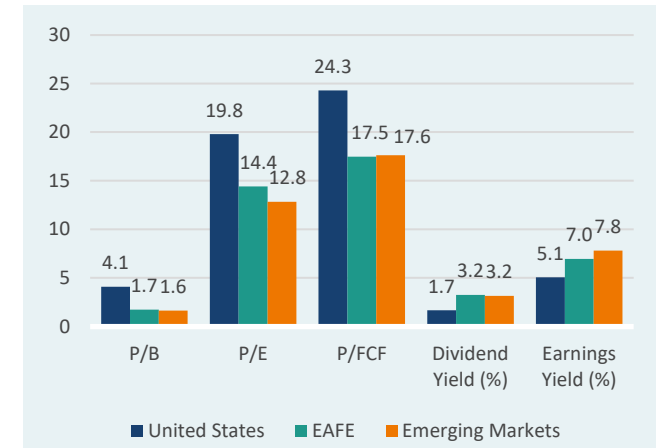
Source: MSCI, 12m forward P/E, as of 3/31/23

TRAILING 12M EPS (INDEX 100)



Source: Bloomberg, MSCI, as of 3/31/23

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI, as of 3/31/23 - trailing P/E

Equity volatility

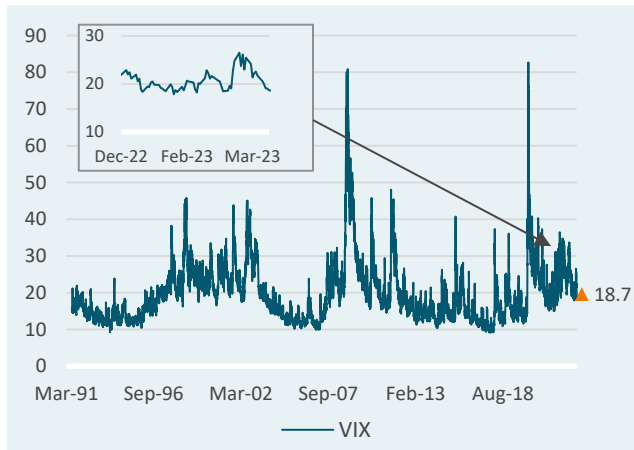
The Cboe VIX implied volatility index surged in March on the news of Silicon Valley Bank’s failure, and the possibility of contagion across the financial sector, but ended the quarter at 18.7%—near the longer-term average. Markets have faced an ongoing drumbeat of risks in recent years, from the global pandemic, to ensuing inflation shock and aggressive response from central banks, now to banking/credit stress and possible recession.

Realized volatility of global equity markets remains above average, while emerging market volatility continues to be in

line with developed markets—a trend that has been uncommon historically.

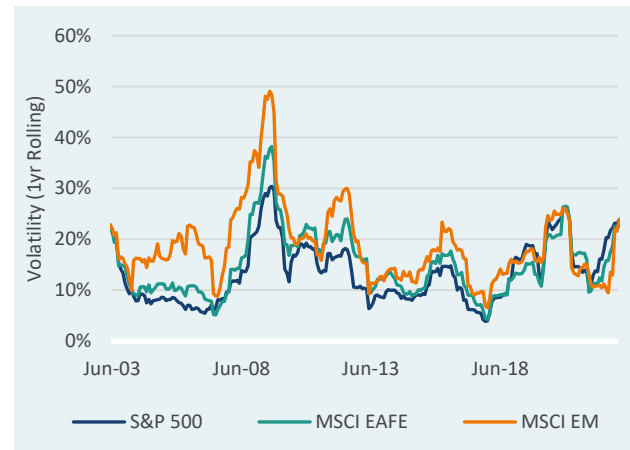
Many market stories of the past year have related to Federal Reserve tightening and the path of interest rates. These stories have contributed to considerable volatility in bond markets. As indicated by the ICE BofA “MOVE” Index, which measures the volatility priced into U.S. Treasury bonds, domestic and international banking stress in the first quarter further added to market choppiness.

U.S. IMPLIED VOLATILITY (VIX)



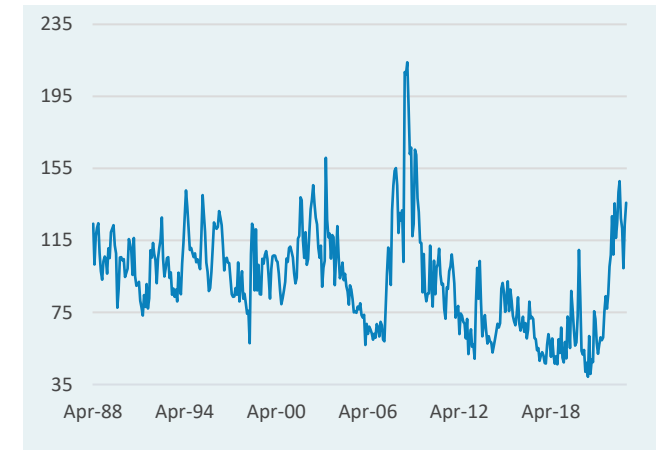
Source: Cboe, as of 3/31/23

REALIZED VOLATILITY



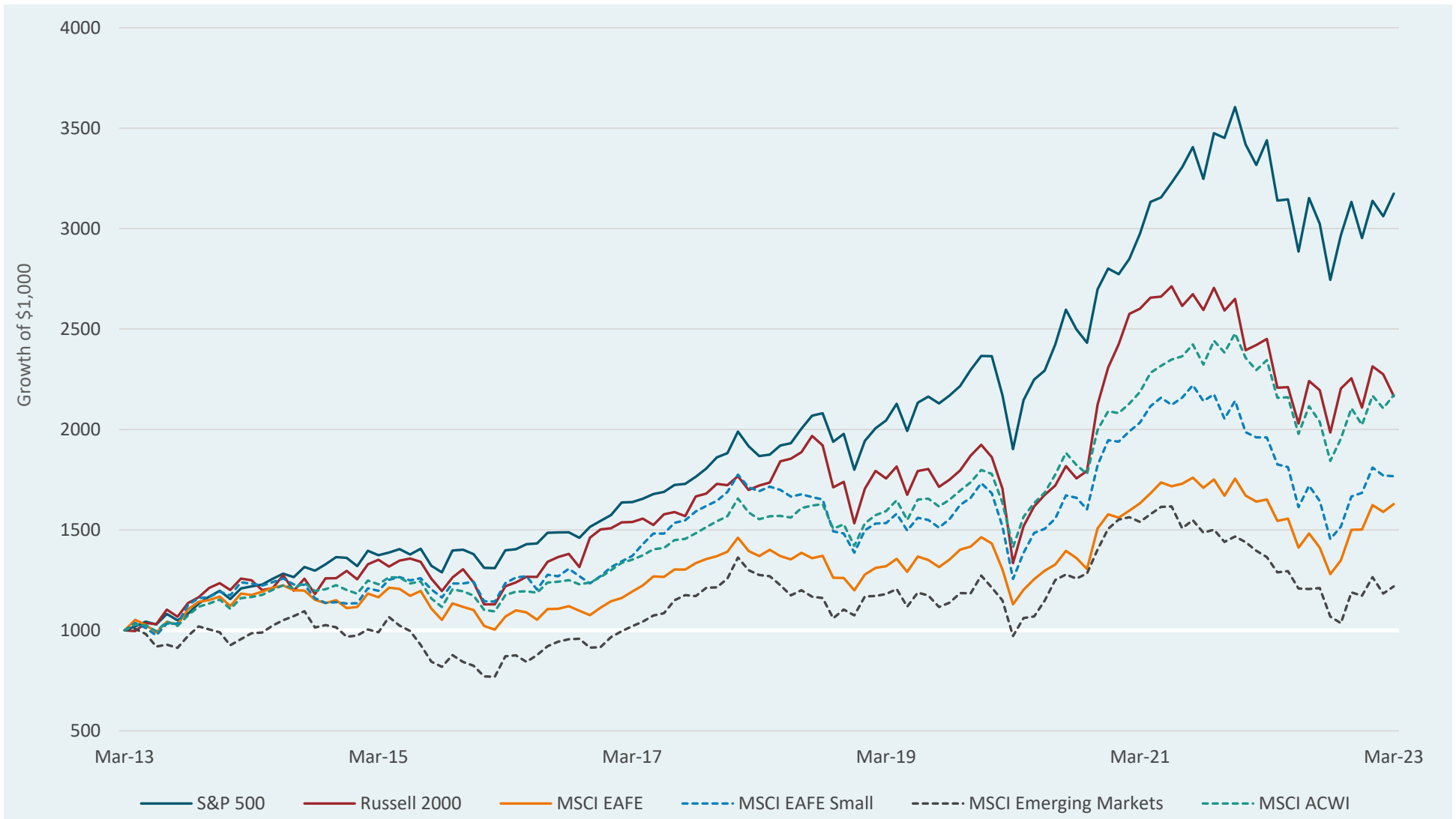
Source: S&P, MSCI, as of 3/31/23

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



Source: Bloomberg, as of 3/31/23

Long-term equity performance



Source: MPI, as of 3/31/23

Other assets

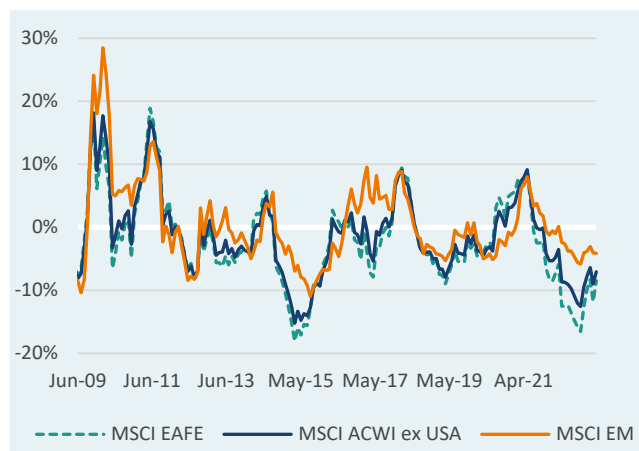
Currency

The effects of currency volatility on portfolio performance was mixed during the first quarter. Over the past full year, currency movement led to a -8.5% loss for investors with unhedged exposure to international developed equity (MSCI EAFE unhedged -1.4%, MSCI EAFE hedged +7.1%), fueled by a -12.6% currency loss from Japanese equities (TOPIX unhedged -3.1%, TOPIX hedged +9.5%). The U.S. dollar depreciated -1.6% during the quarter, according to the U.S. Trade Weighted Dollar Index, providing a tailwind to most unhedged international investments.

A thoughtful currency program may allow investors to reduce their total portfolio risk while also increasing long-term expected returns. The MSCI

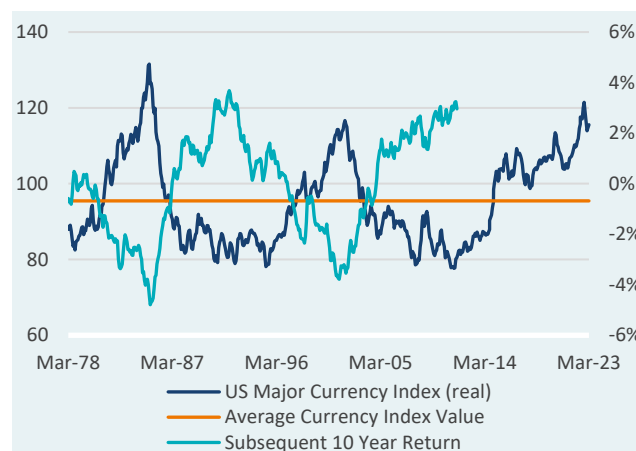
Currency Factor Mix Index—a representation of a passive investment in the currency market—has shown a positive one-year rolling return over most periods with very low volatility. This contrasts to the unhedged currency exposure (what we refer to as “embedded currency”) that most investors own, which has demonstrated high volatility and frequent losses. This currency program would have delivered cumulative outperformance of +22.5% over the past five years for an international developed equity portfolio, and +52.0% cumulative outperformance over the past ten years, while also reducing total risk in the portfolio.

EFFECT OF CURRENCY (1-YEAR ROLLING)



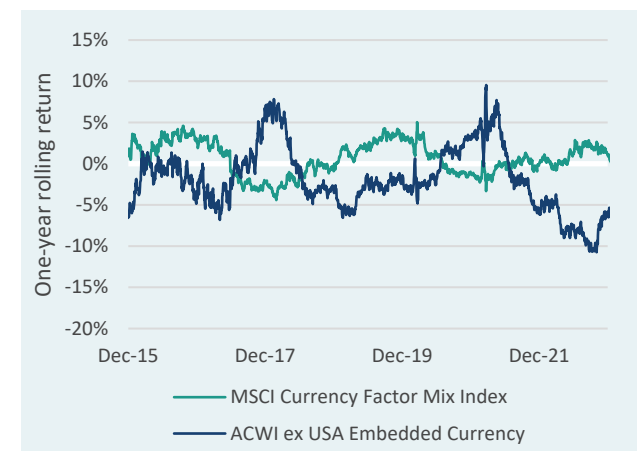
Source: MSCI, as of 3/31/23

BLOOMBERG DOLLAR SPOT INDEX



Source: Federal Reserve, as of 3/31/23

EMBEDDED CURRENCY VS CURRENCY FACTORS



Source: Bloomberg, MSCI, as of 3/31/23

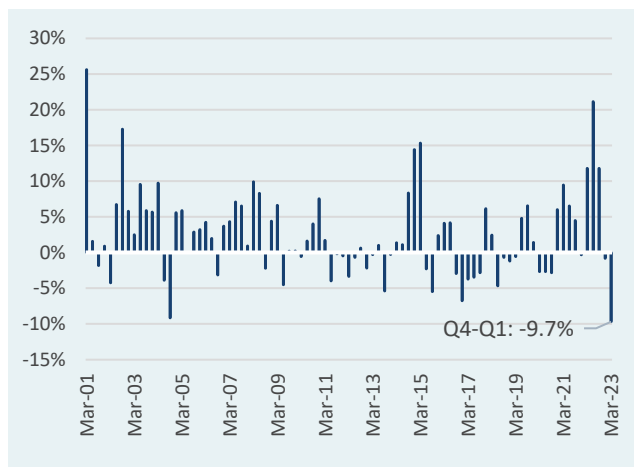
A reversal in CTA strategy performance

In 2021 and for most of 2022, systematic CTA strategies were the top performing hedge fund strategy. Trend following was paying off after several years of mediocre returns from 2016-2020. This periodicity is typical of trend following/CTA type strategies, and the end of 2022 and first quarter of 2023 served as examples of weak runs for these strategies. CTA strategies, as proxied by the SocGen CTA Index, had their worst ever consecutive quarters from Q4 '22 through Q1 '23, looking back to the year 2000.

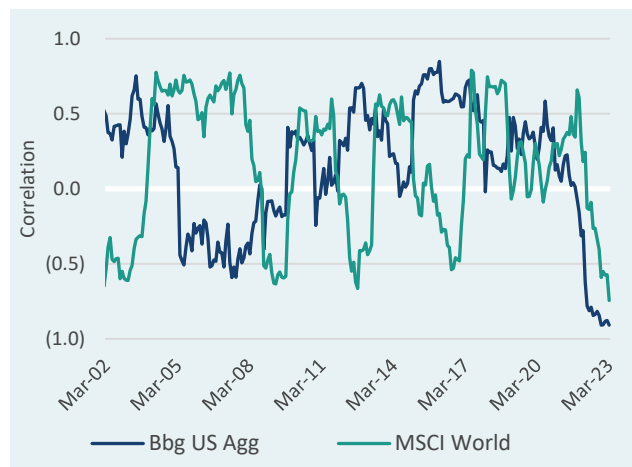
at their all time most-negative levels. Rolling 3-year performance of CTAs relative to other strategy types has reversed after COVID-19 drawdowns begin to roll off and as CTAs have suffered from the recent reversals in both stocks and bonds. As intermediate (6-12 month) trends in markets begin to flatten out and the first half of 2022 rolls off, we believe CTA positioning may level out and potentially support a rebound in performance.

A key driver of underperformance is apparent when examining one-year correlations of these strategies to stocks and bonds, which were recently

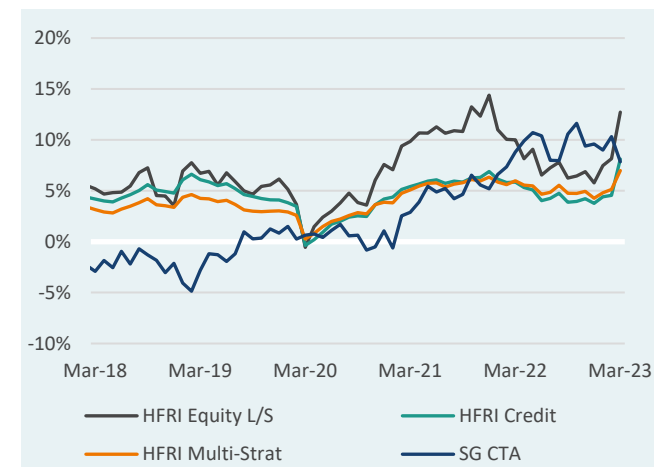
ROLLING 6-MONTH RETURNS FOR CTA INDEX



12-MONTH CORRELATION VS CTA INDEX



CUMULATIVE RETURN LAST 12 MONTHS



Source: HFR, MPI, Morningstar. SocGen, Data as of 3/31/23

Appendix

Periodic table of returns

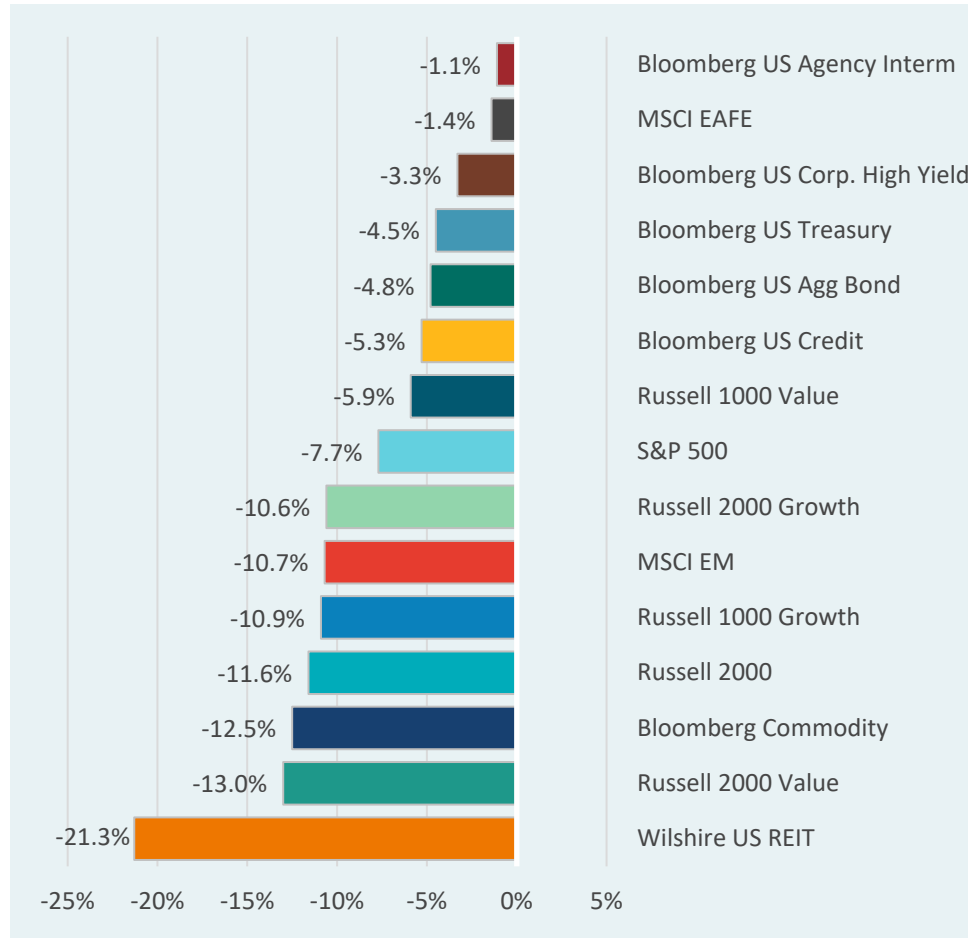
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	YTD	5-Year	10-Year
Large Cap Growth	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	28.3	16.1	14.4	13.7	14.6
International Equity	48.5	22.2	21.4	26.9	16.2	1.4	37.2	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	8.5	10.9	12.0
Large Cap Equity	47.3	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	7.5	7.5	9.1
Small Cap Growth	46.0	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	6.1	7.5	8.8
60/40 Global Portfolio	39.2	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	5.6	5.4	8.5
Emerging Markets Equity	30.0	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	4.0	4.7	8.0
US Bonds	29.9	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	3.0	4.5	7.2
Small Cap Equity	29.7	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	2.7	4.3	5.0
Hedge Funds of Funds	25.2	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	1.6	3.9	5.0
Cash	23.9	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	1.1	3.5	3.3
Large Cap Value	11.6	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	1.0	3.3	2.0
Real Estate	9.0	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	0.0	1.3	1.4
Small Cap Value	4.1	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	-0.7	0.9	0.8
Commodities	1.0	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	-5.4	-0.9	-1.7



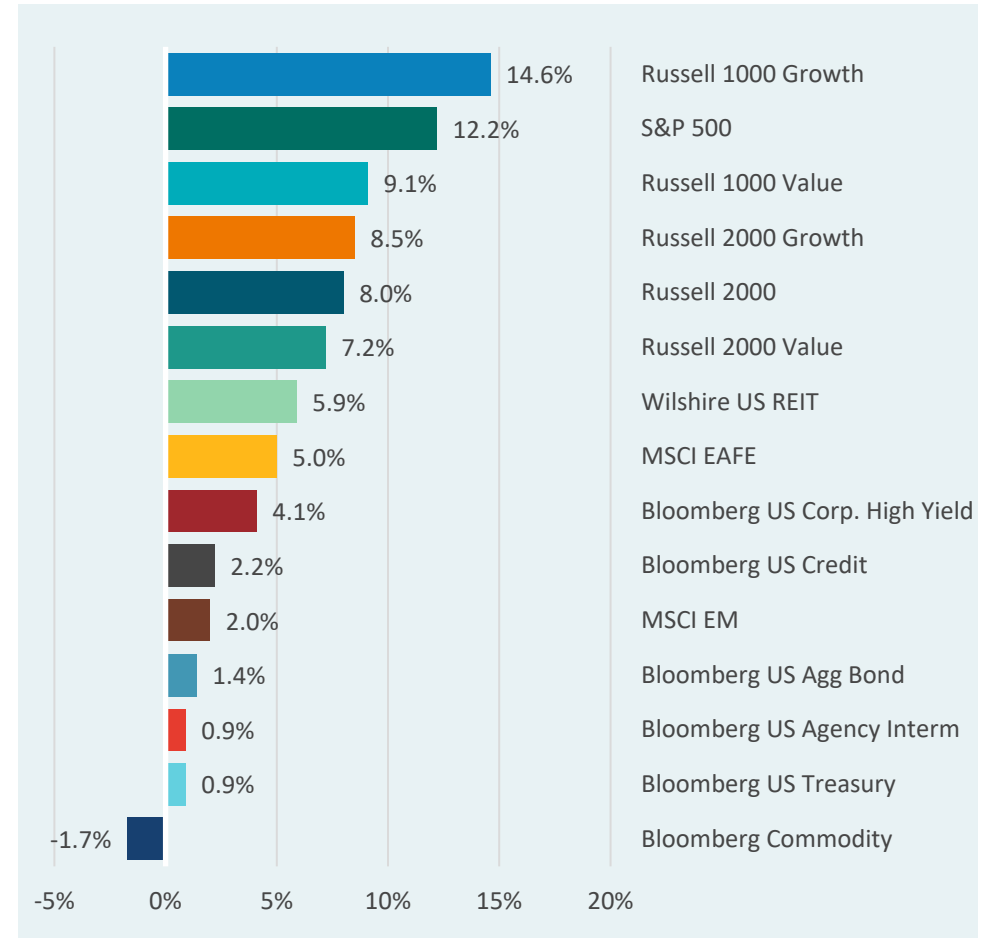
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 12/31/22.

Major asset class returns

ONE YEAR ENDING MARCH



TEN YEARS ENDING MARCH



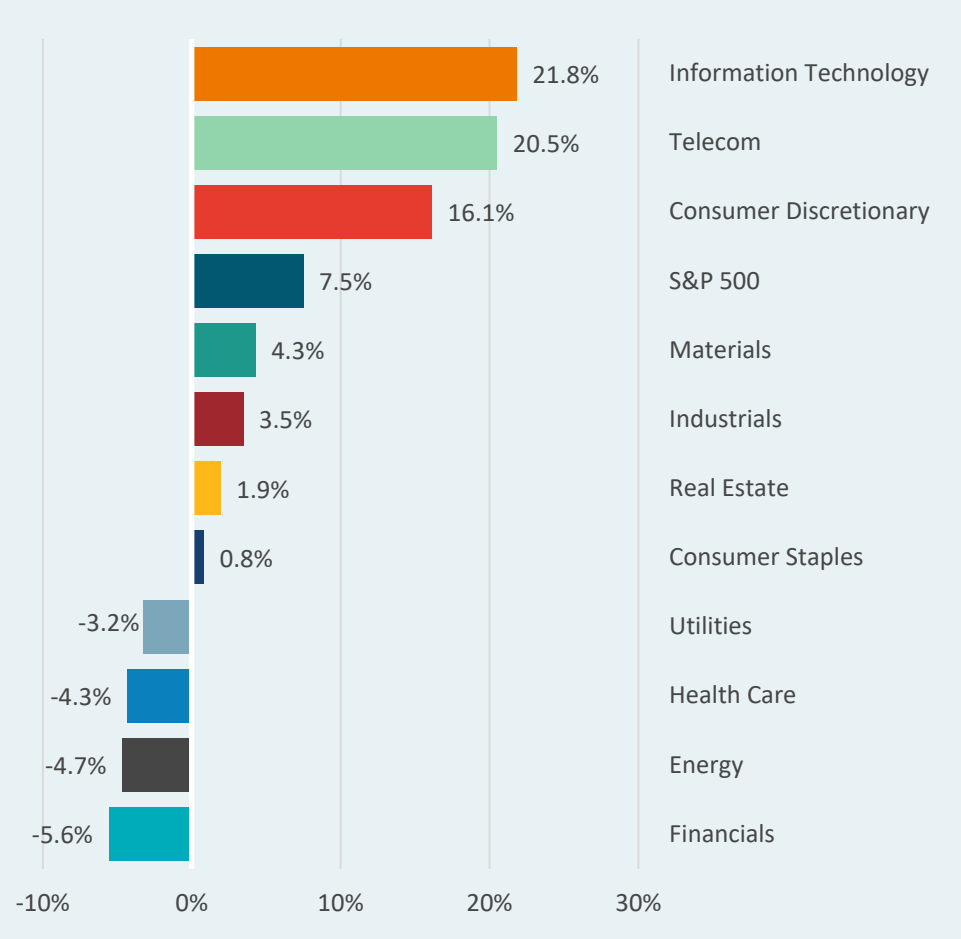
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 3/31/23

Source: Morningstar, as of 3/31/23

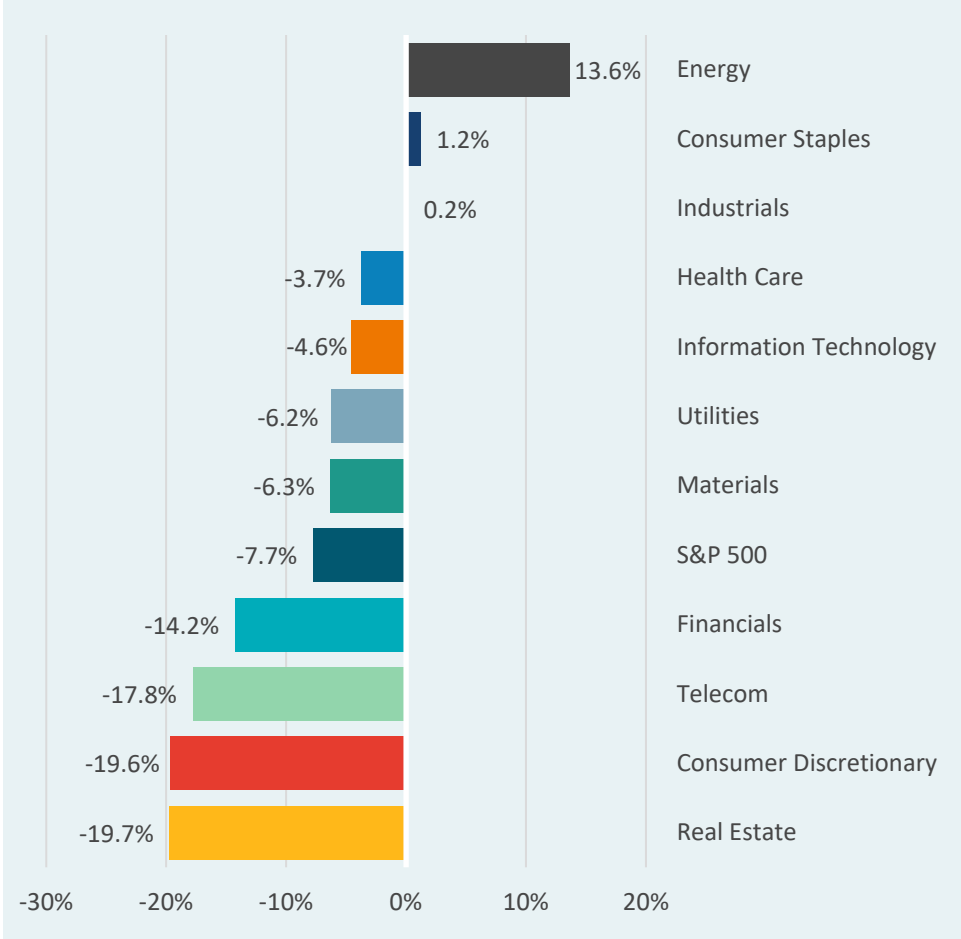
S&P 500 sector returns

QTD



Source: Morningstar, as of 3/31/23

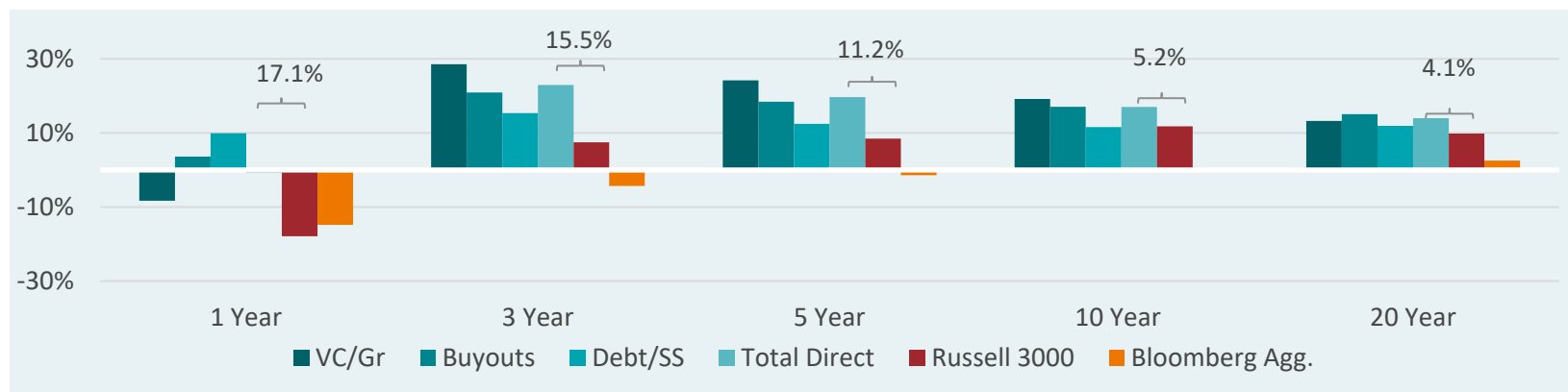
ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/23

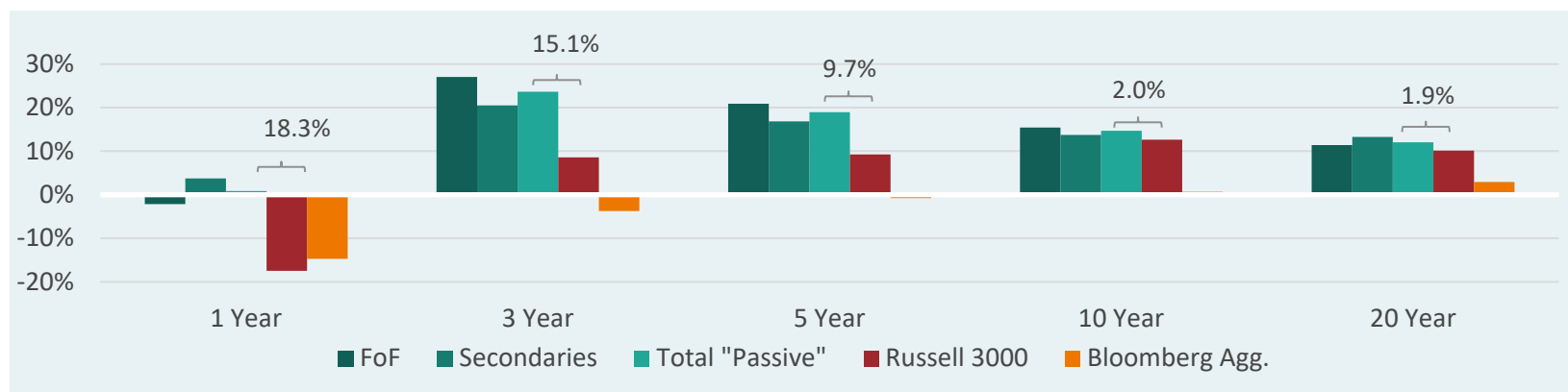
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equities across all time periods

“PASSIVE” STRATEGIES

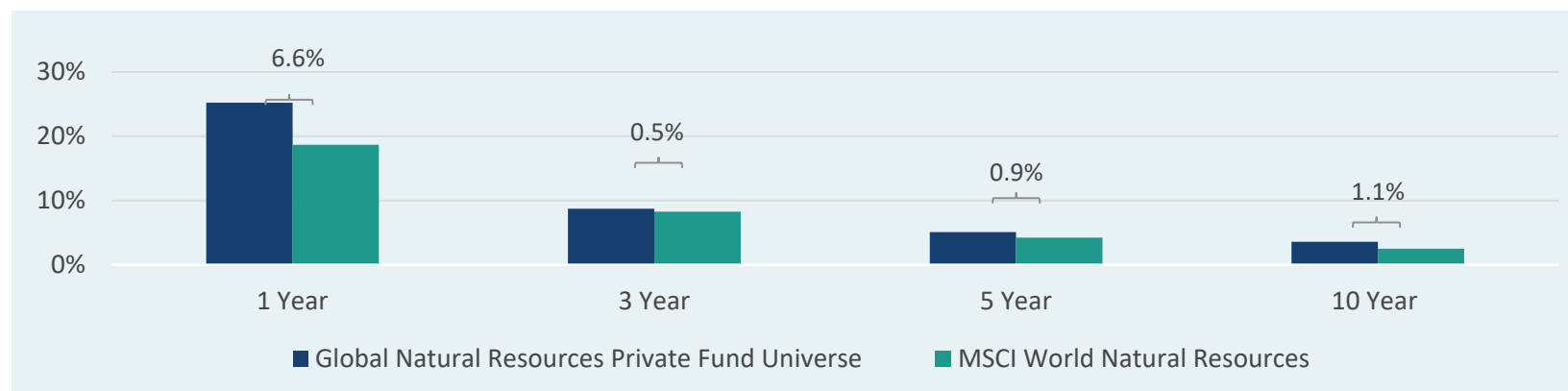


“Passive” strategies outperformed comparable public equities across all time periods

Sources: Refinitiv PME: U.S. Private Equity Funds sub asset classes as of September 30, 2022. Public Market Equivalent returns resulted from “Total Passive” and Total Direct’s identical cash flows invested into and distributed from respective traditional asset comparable.

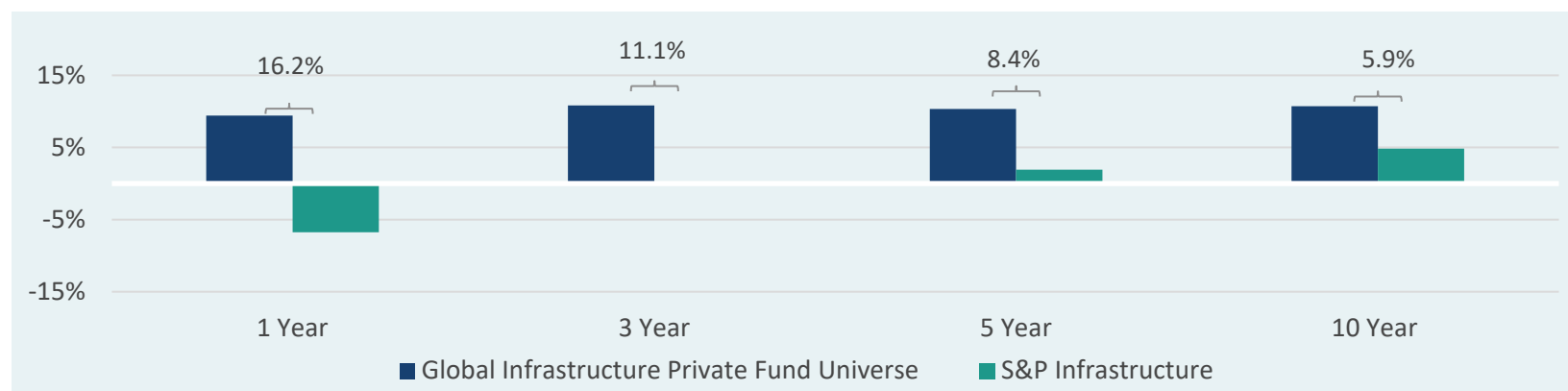
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS



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

GLOBAL INFRASTRUCTURE FUNDS

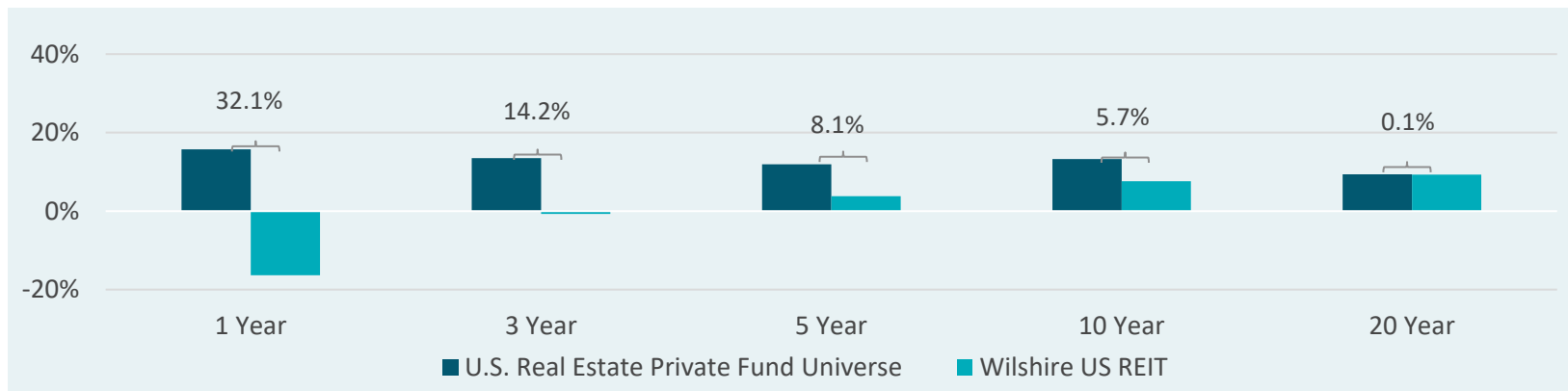


Infra. funds outperformed the S&P Infra. across all periods

Sources: Refinitiv PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2022. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

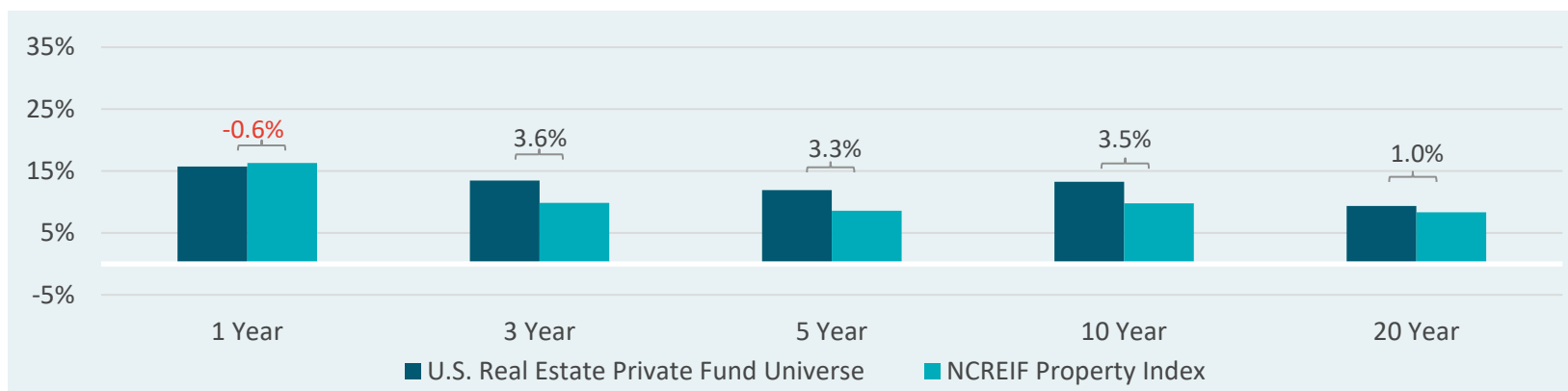
Private vs. liquid and core real estate performance

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



U.S. Private R.E. funds outperformed the Wilshire U.S. REIT Index across all time periods

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



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods, aside from the 1-year

Sources: Refinitiv PME: U.S. Real Estate universes as of September 30, 2022. 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	3.7	7.5	7.5	(7.7)	18.6	11.2	12.2
S&P 500 Equal Weighted	(0.9)	2.9	2.9	(6.3)	22.1	10.0	11.4
DJ Industrial Average	2.1	0.9	0.9	(2.0)	17.3	9.0	11.1
Russell Top 200	4.9	8.7	8.7	(8.3)	18.4	11.9	12.8
Russell 1000	3.2	7.5	7.5	(8.4)	18.6	10.9	12.0
Russell 2000	(4.8)	2.7	2.7	(11.6)	17.5	4.7	8.0
Russell 3000	2.7	7.2	7.2	(8.6)	18.5	10.5	11.7
Russell Mid Cap	(1.5)	4.1	4.1	(8.8)	19.2	8.1	10.1
Style Index							
Russell 1000 Growth	6.8	14.4	14.4	(10.9)	18.6	13.7	14.6
Russell 1000 Value	(0.5)	1.0	1.0	(5.9)	17.9	7.5	9.1
Russell 2000 Growth	(2.5)	6.1	6.1	(10.6)	13.4	4.3	8.5
Russell 2000 Value	(7.2)	(0.7)	(0.7)	(13.0)	21.0	4.5	7.2

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	3.1	7.3	7.3	(7.4)	15.4	6.9	8.1
MSCI ACWI ex US	2.4	6.9	6.9	(5.1)	11.8	2.5	4.2
MSCI EAFE	2.5	8.5	8.5	(1.4)	13.0	3.5	5.0
MSCI EM	3.0	4.0	4.0	(10.7)	7.8	(0.9)	2.0
MSCI EAFE Small Cap	(0.2)	4.9	4.9	(9.8)	12.1	0.9	5.9
Style Index							
MSCI EAFE Growth	5.3	11.1	11.1	(2.8)	10.9	4.9	6.0
MSCI EAFE Value	(0.3)	5.9	5.9	(0.3)	14.6	1.7	3.7
Regional Index							
MSCI UK	(0.6)	6.1	6.1	(0.8)	14.6	3.0	3.4
MSCI Japan	4.0	6.2	6.2	(5.2)	7.4	1.3	5.0
MSCI Euro	4.1	15.6	15.6	7.7	17.1	3.9	6.0
MSCI EM Asia	3.6	4.8	4.8	(9.4)	7.1	0.1	4.2
MSCI EM Latin American	0.8	3.9	3.9	(11.1)	18.1	(1.8)	(1.9)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	2.9	3.3	3.3	(6.1)	1.8	2.9	1.5
Bloomberg US Treasury Bills	0.4	1.1	1.1	2.5	0.8	1.4	0.9
Bloomberg US Agg Bond	2.5	3.0	3.0	(4.8)	(2.8)	0.9	1.4
Bloomberg US Universal	2.3	2.9	2.9	(4.6)	(2.0)	1.0	1.6
Duration							
Bloomberg US Treasury 1-3 Yr	1.6	1.6	1.6	0.2	(0.8)	1.1	0.8
Bloomberg US Treasury Long	4.7	6.2	6.2	(16.0)	(11.3)	(0.4)	1.5
Bloomberg US Treasury	2.9	3.0	3.0	(4.5)	(4.2)	0.7	0.9
Issuer							
Bloomberg US MBS	1.9	2.5	2.5	(4.9)	(3.3)	0.2	1.0
Bloomberg US Corp. High Yield	1.1	3.6	3.6	(3.3)	5.9	3.2	4.1
Bloomberg US Agency Interm	1.8	1.9	1.9	(1.1)	(1.6)	0.9	0.9
Bloomberg US Credit	2.7	3.5	3.5	(5.3)	(0.7)	1.5	2.2

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(0.2)	(5.4)	(5.4)	(12.5)	20.8	5.4	(1.7)
Wilshire US REIT	(2.6)	3.2	3.2	(21.3)	11.0	5.7	5.9
CS Leveraged Loans	(0.1)	3.1	3.1	2.1	8.4	3.5	3.9
S&P Global Infrastructure	2.4	3.9	3.9	(3.5)	15.6	5.9	6.4
Alerian MLP	(0.7)	3.4	3.4	13.9	46.3	6.9	0.6
Regional Index							
JPM EMBI Global Div	1.0	1.9	1.9	(6.9)	(0.0)	(0.6)	2.0
JPM GBI-EM Global Div	4.1	5.2	5.2	(0.7)	0.9	(2.4)	(1.5)
Hedge Funds							
HFRI Composite	(0.8)	1.2	1.2	(2.1)	10.5	4.7	4.4
HFRI FOF Composite	0.1	1.6	1.6	(1.1)	7.5	3.3	3.3
Currency (Spot)							
Euro	2.5	1.8	1.8	(2.4)	(0.3)	(2.5)	(1.7)
Pound Sterling	2.1	2.8	2.8	(6.1)	(0.1)	(2.5)	(2.0)
Yen	2.4	(0.9)	(0.9)	(8.8)	(6.7)	(4.4)	(3.4)

Source: Morningstar, HFRI, as of 3/31/23.

Definitions

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

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

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

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

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Imperial County Employees' Retirement System

Investment Performance Review

Period Ending: March 31, 2023



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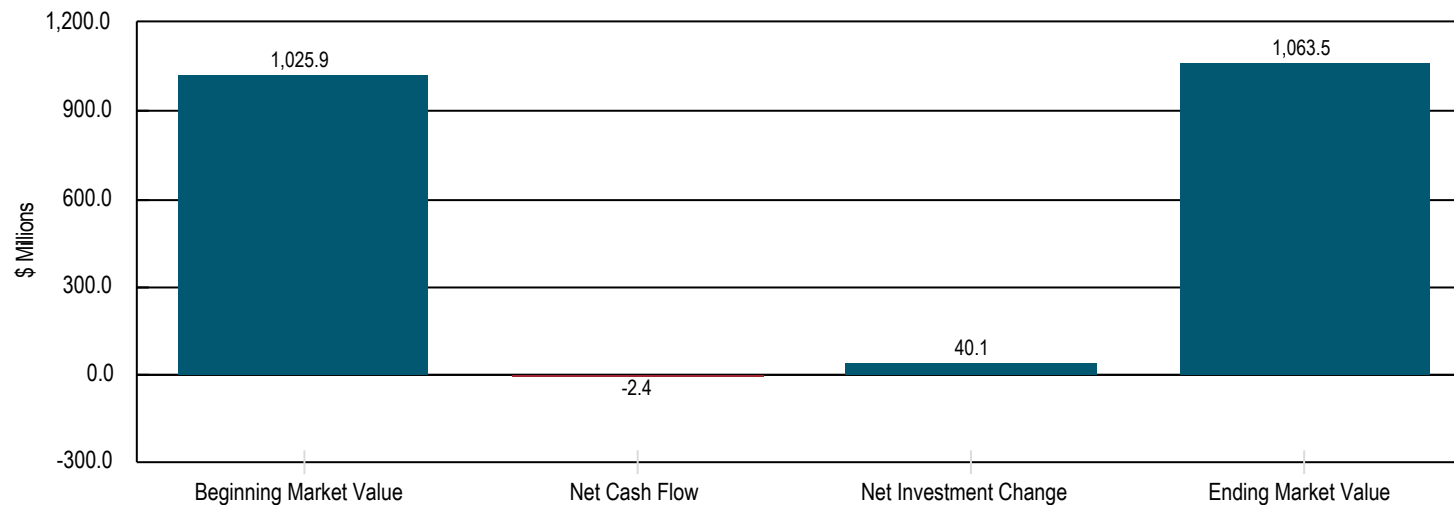
Total Fund
Portfolio Reconciliation

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Portfolio Reconciliation

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$1,025,885,583	\$1,031,485,668	\$1,138,599,317
Net Cash Flows	-\$2,427,452	-\$6,653,458	-\$13,011,764
Net Investment Change	\$40,076,415	\$38,702,335	-\$62,053,007
Ending Market Value	\$1,063,534,545	\$1,063,534,545	\$1,063,534,545

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)

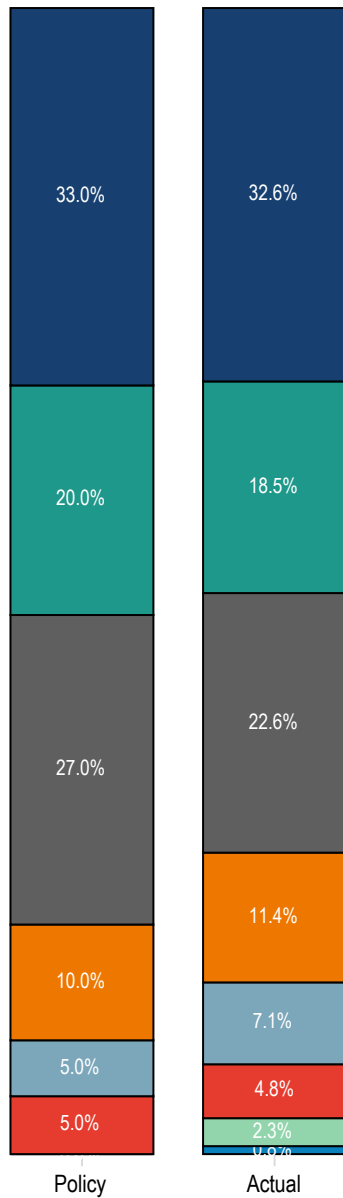
Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	Market Value	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	1,063,534,545	100.0	3.9	3.8	-5.7	10.6	6.2	6.7
<i>Policy Index</i>			4.5	4.9	-4.9	10.1	6.4	6.9
<i>InvMetrics Public DB Rank</i>			72	91	52	51	39	56
Total Domestic Equity	346,500,390	32.6	7.2	9.7	-8.6	18.5	10.5	11.5
<i>Russell 3000 Index</i>			7.2	9.7	-8.6	18.5	10.5	11.7
Total International Equity	196,447,097	18.5	7.4	12.3	-2.9	13.0	2.3	4.3
<i>MSCI AC World ex USA Index</i>			7.0	10.4	-4.6	12.3	3.0	4.7
Total Fixed Income	240,171,645	22.6	3.2	-0.1	-6.1	-1.0	1.5	1.8
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4
Total Real Estate	121,354,167	11.4	-3.9	-6.5	-2.3	7.5	7.0	8.6
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3
Total Private Equity	75,875,913	7.1	-0.4	-4.7	-4.7	22.7	19.8	17.9
<i>Private Equity Benchmark</i>			-0.4	-4.7	-4.7	22.7	19.8	19.1
Total Private Credit	50,691,872	4.8	1.2	3.0	3.3	8.6	8.5	N/A
<i>Private Credit Benchmark</i>			1.2	3.0	3.4	9.7	9.1	N/A
Total Opportunistic	24,239,083	2.3	1.3	-10.2	-8.1	7.6	7.3	8.4
<i>Assumption Rate + 1%</i>			2.1	6.3	8.5	8.5	8.5	N/A

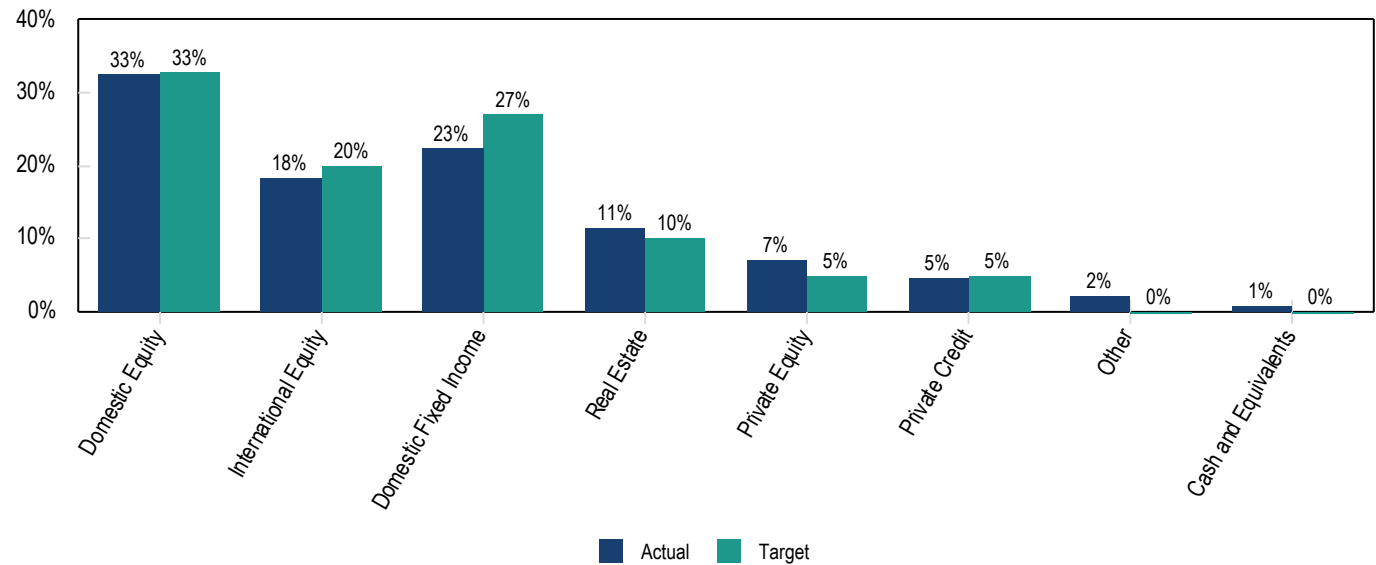
New Policy Index (as of 8/1/2020): 33% Russell 3000, 20% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 2% Bloomberg Aggregate, 5% Private Equity Benchmark, 3% Private Credit Benchmark. Prior quarter Private Equity returns, and index data are used. All returns are Net of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. As of 10/1/20 the SAA Target for equity changed to 33% Russell 3000 + 20% ACWI ex-US (see Exhibit B attached).

Total Fund
Asset Allocation vs. Policy

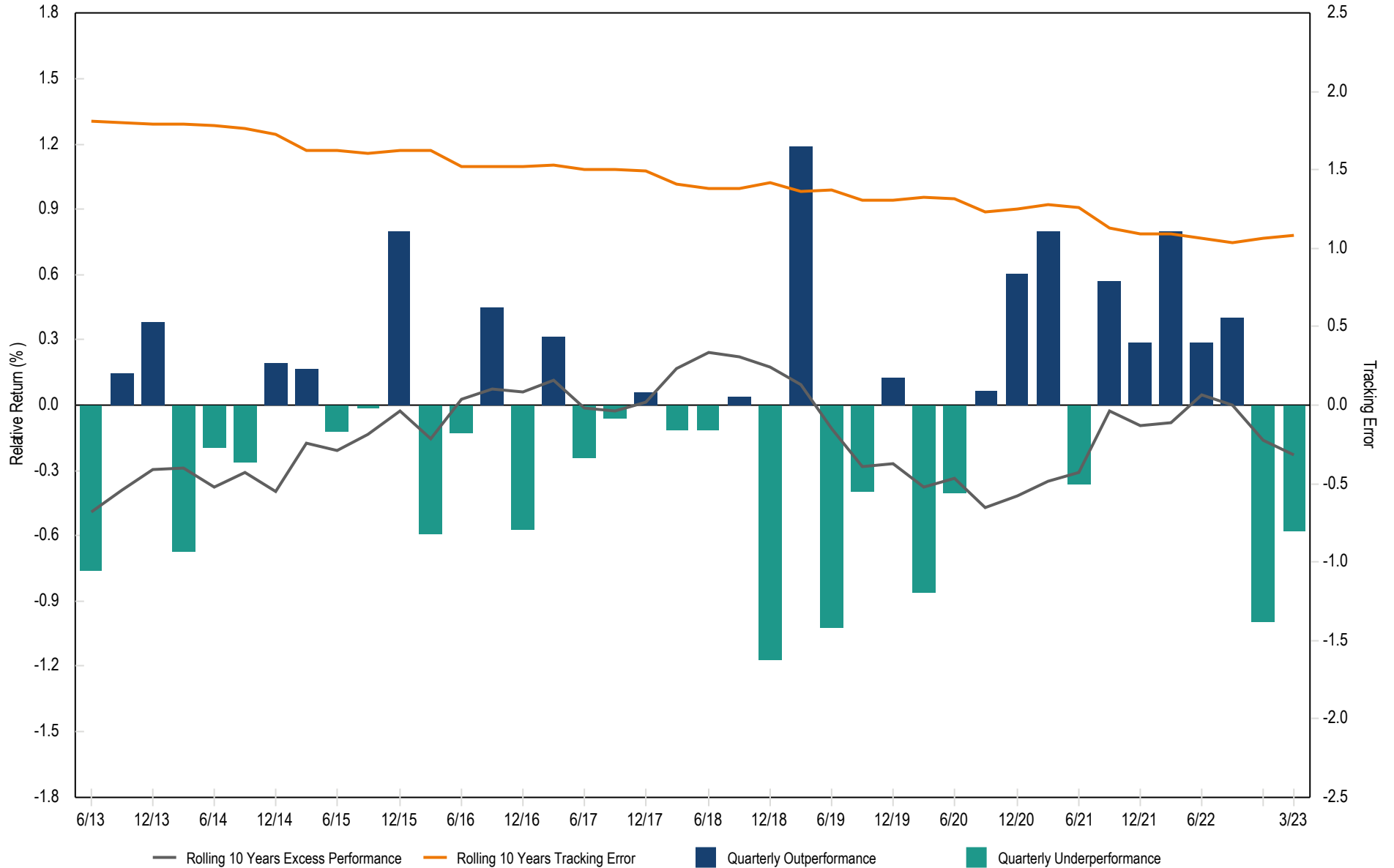
Imperial County Employees' Retirement System
Period Ending: March 31, 2023



	Current Balance (\$)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	346,500,390	32.6	33.0	-0.4	23.0 - 43.0	Yes
International Equity	196,447,097	18.5	20.0	-1.5	10.0 - 30.0	Yes
Domestic Fixed Income	240,171,645	22.6	27.0	-4.4	17.0 - 40.0	Yes
Real Estate	121,354,167	11.4	10.0	1.4	5.0 - 15.0	Yes
Private Equity	75,875,913	7.1	5.0	2.1	0.0 - 10.0	Yes
Private Credit	50,691,872	4.8	5.0	-0.2	0.0 - 10.0	Yes
Other	24,239,083	2.3	0.0	2.3	0.0 - 10.0	Yes
Cash and Equivalents	8,254,379	0.8	0.0	0.8	0.0 - 0.0	No
Total	1,063,534,545	100.0	100.0	0.0		



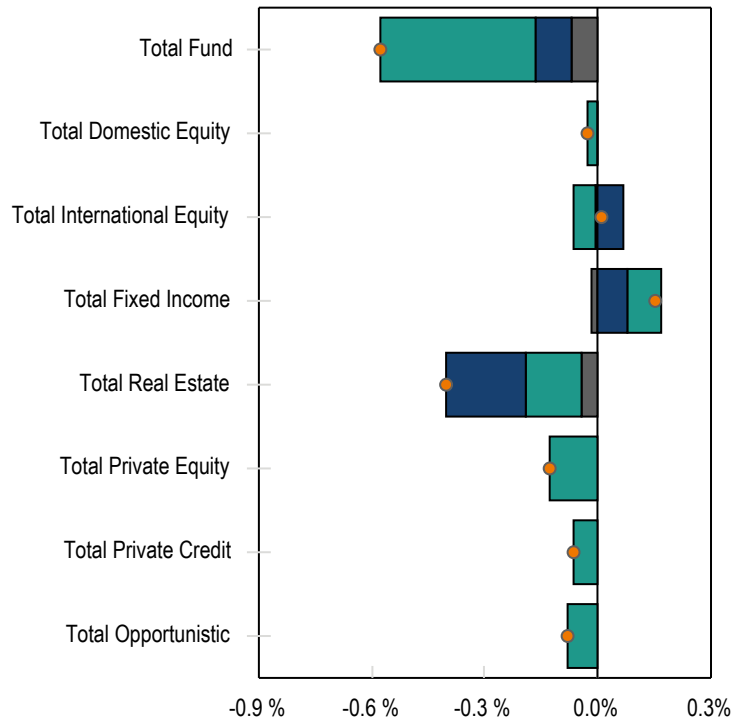
Rolling Annualized Excess Performance and Tracking Error



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

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023

Attribution Effects
 Last Three Months



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

Performance Attribution

	Quarter
Wtd. Actual Return	3.9
Wtd. Index Return	4.5
Excess Return	-0.6
Selection Effect	-0.1
Allocation Effect	-0.4
Interaction Effect	-0.1

Attribution Summary
 Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	7.2	7.2	0.0	0.0	0.0	0.0	0.0
Total International Equity	7.4	7.0	0.4	0.1	-0.1	0.0	0.0
Total Fixed Income	3.2	3.0	0.3	0.1	0.1	0.0	0.2
Total Real Estate	-3.9	-1.8	-2.1	-0.2	-0.1	0.0	-0.4
Total Private Equity	-0.4	-0.4	0.0	0.0	-0.1	0.0	-0.1
Total Private Credit	1.2	1.2	0.0	0.0	-0.1	0.0	-0.1
Total Opportunistic	1.3	2.1	-0.8	0.0	-0.1	0.0	-0.1
Total Fund	3.9	4.5	-0.6	-0.1	-0.4	-0.1	-0.6

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

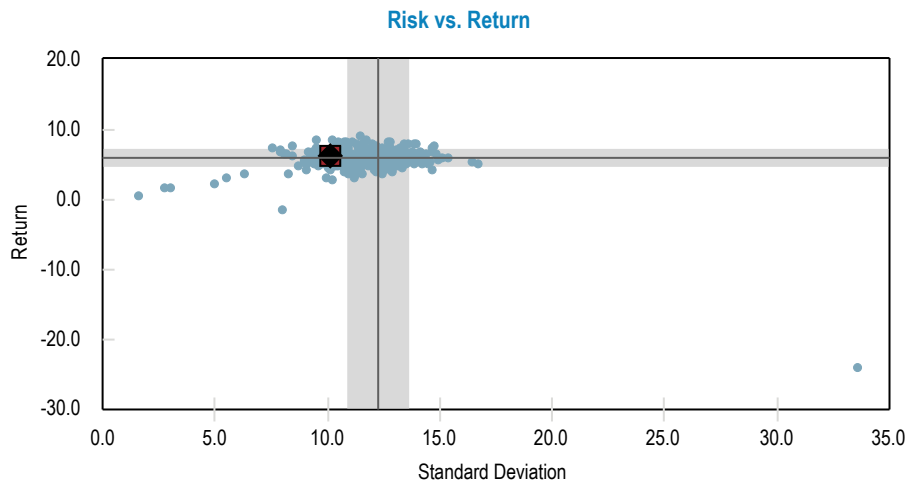
Total Fund

Risk Analysis - 5 Years (Net of Fees)

Imperial County Employees' Retirement System

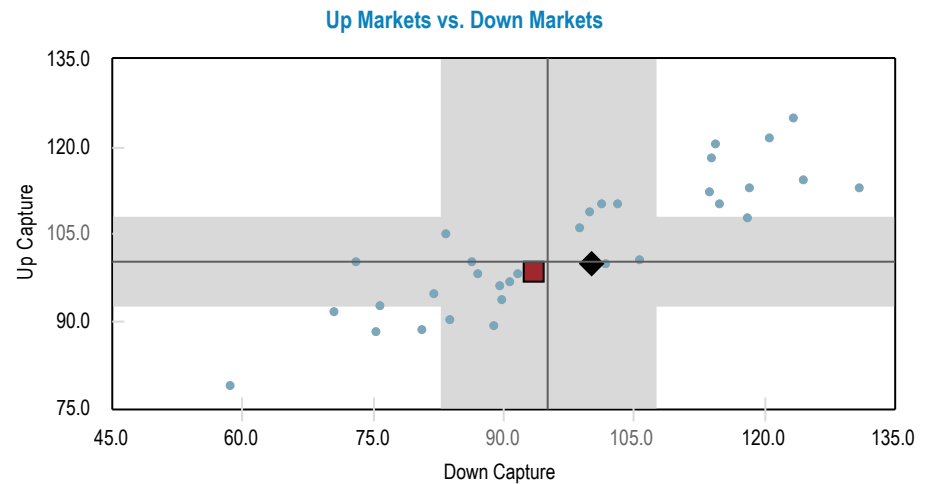
Period Ending: March 31, 2023

	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	6.19	5.14	10.09	-0.09	0.99	1.16	0.99	0.51	-0.16	98.78	99.68



● InvMetrics Public DB ■ Total Fund

	Return	Standard Deviation
■ Total Fund	6.19	10.09
◆ Policy Index	6.38	10.17
— Median	5.97	12.27
Population	474	474



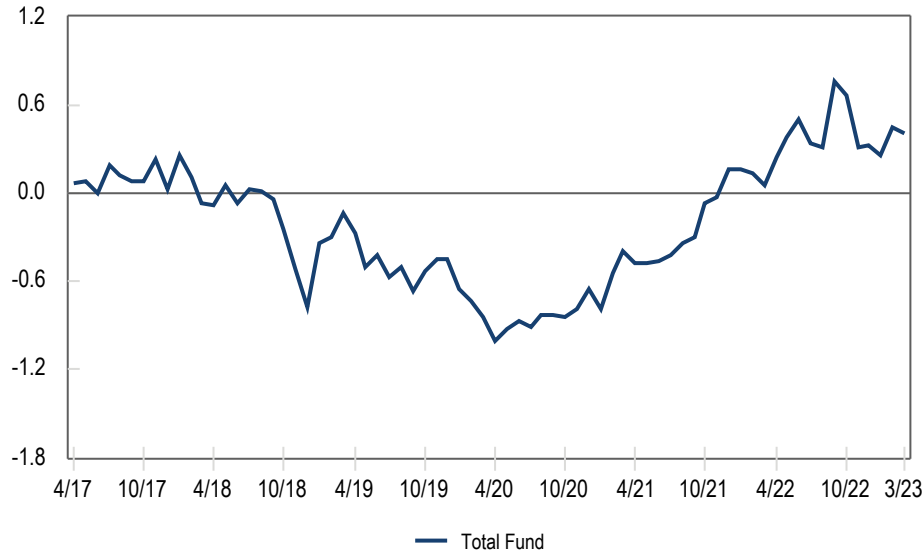
● InveMetrics Public DB ■ Total Fund

	Up Capture	Down Capture
■ Total Fund	98.79	93.38
◆ Policy Index	100.00	100.00
— Median	100.49	95.13
Population	32	32

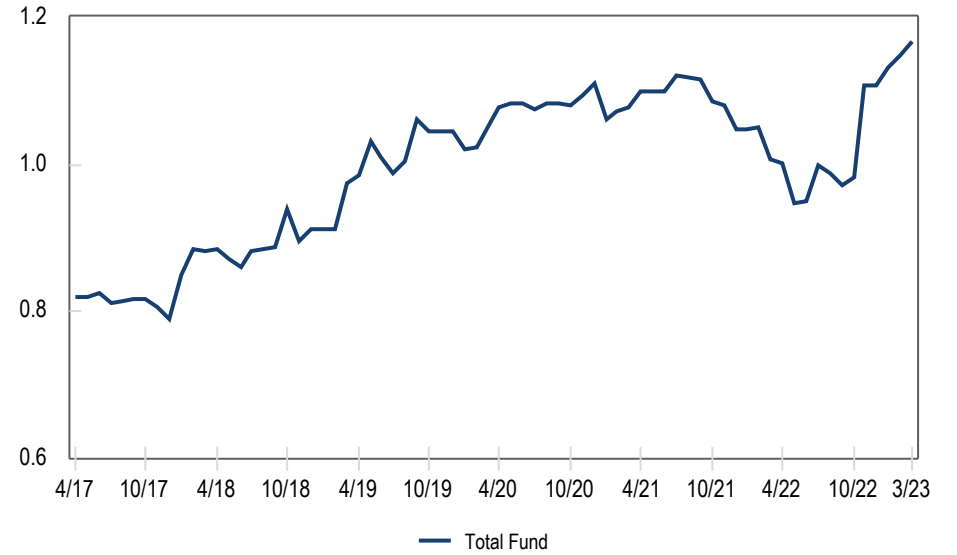
Total Fund
Rolling Risk Statistics

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

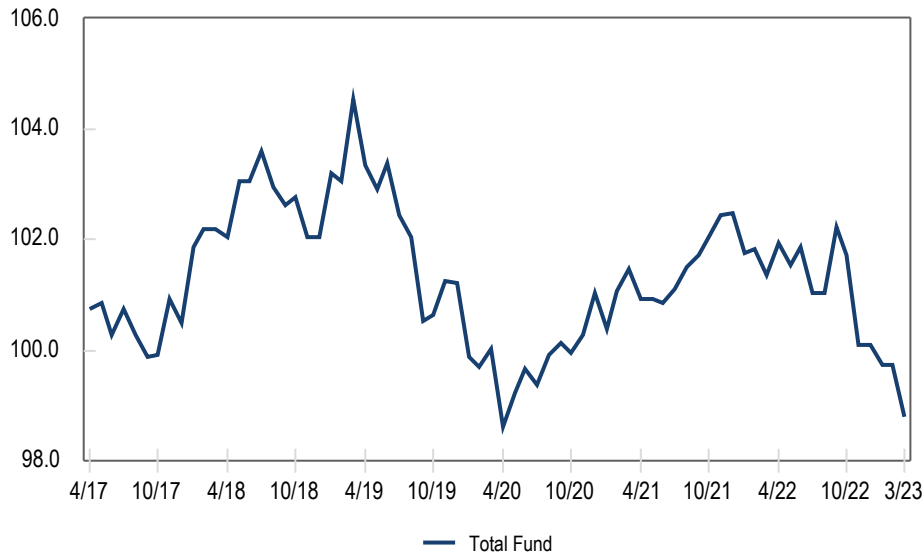
Rolling Information Ratio



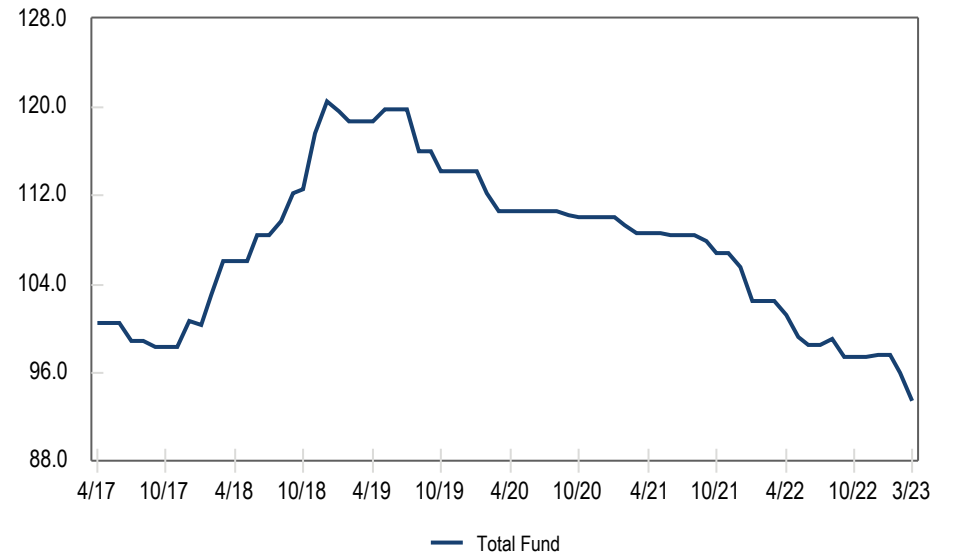
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



Total Fund
Executive Summary (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018	Inception	Inception Date
Total Fund	1,063,534,545	100.0	3.9	3.8	-5.7	10.6	6.2	6.7	-11.8	15.8	12.3	17.9	-4.1	8.5	Apr-89
<i>Policy Index</i>			4.5	4.9	-4.9	10.1	6.4	6.9	-12.4	14.4	13.2	18.0	-2.7	-	
<i>InvMetrics Public DB Rank</i>			72	91	52	51	39	56	24	21	63	75	40	30	
Total Domestic Equity	346,500,390	32.6	7.2	9.7	-8.6	18.5	10.5	11.5	-19.2	25.7	21.0	31.1	-5.2		Mar-89
<i>Russell 3000 Index</i>			7.2	9.7	-8.6	18.5	10.5	11.7	-19.2	25.7	20.9	31.0	-5.2		
BlackRock Russell 3000	346,500,390	32.6	7.2	9.7	-8.6	18.5	10.5	-	-19.2	25.7	21.0	31.1	-5.2	11.4	Dec-15
<i>Russell 3000 Index</i>			7.2	9.7	-8.6	18.5	10.5	-	-19.2	25.7	20.9	31.0	-5.2	11.2	
<i>eV US All Cap Core Equity Rank</i>			31	49	64	42	35	-	61	54	42	38	46	20	
Total International Equity	196,447,097	18.5	7.4	12.3	-2.9	13.0	2.3	4.3	-15.4	10.1	8.1	20.7	-14.3		Dec-94
<i>MSCI AC World ex USA Index</i>			7.0	10.4	-4.6	12.3	3.0	4.7	-15.6	8.3	11.1	22.1	-13.8		
BlackRock International Equity	152,359,540	14.3	8.6	15.6	-1.0	13.4	3.9	5.3	-14.1	11.6	8.1	22.4	-13.5	6.7	Jul-03
<i>MSCI EAFE (Net)</i>			8.5	15.4	-1.4	13.0	3.5	5.0	-14.5	11.3	7.8	22.0	-13.8	6.8	
<i>eV All EAFE Equity Rank</i>			38	25	35	50	29	52	35	52	52	50	29	57	
DFA Emerging Markets Value	24,766,359	2.3	3.7	3.2	-7.9	16.2	0.2	2.2	-10.7	12.4	2.7	9.6	-11.9	3.4	Jan-07
<i>MSCI Emerging Markets Value (Net)</i>			3.9	1.6	-9.4	10.0	-1.2	0.7	-15.8	4.0	5.5	12.0	-10.7	2.8	
<i>eV Emg Mkts All Cap Value Equity Rank</i>			85	83	80	31	78	93	36	19	82	93	35	87	
Harding Loevner Emerging Markets	19,321,198	1.8	3.1	1.6	-9.8	3.5	-5.0	-	-28.1	-4.3	12.4	24.0	-19.5	0.7	Aug-16
<i>MSCI Emerging Markets Growth Index</i>			4.1	0.4	-11.6	5.9	-0.6	-	-23.7	-8.2	31.6	25.4	-18.0	5.3	
<i>eV Emg Mkts All Cap Growth Equity Rank</i>			71	50	45	92	98	-	77	51	96	54	69	98	
Total Fixed Income	240,171,645	22.6	3.2	-0.1	-6.1	-1.0	1.5	1.8	-14.2	0.6	9.8	9.5	-0.8		Jun-94
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4	-13.0	-1.5	7.5	8.7	0.0		
Ducenta Squared	99,282,844	9.3	3.1	-0.6	-6.4	-2.0	1.1	2.0	-14.9	-0.6	9.1	9.9	-0.1	5.3	Mar-93
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4	-13.0	-1.5	7.5	8.7	0.0	4.5	
<i>eV US Core Plus Fixed Inc Rank</i>			58	97	92	84	78	43	90	53	38	43	26	31	
MacKay Shields Core Plus Opportunities	98,699,592	9.3	3.2	0.3	-5.7	-1.1	1.3	-	-14.5	-0.5	9.9	9.7	-1.0	1.3	Mar-15
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	-	-13.0	-1.5	7.5	8.7	0.0	1.1	
<i>eV US Core Plus Fixed Inc Rank</i>			51	70	82	64	61	-	86	51	22	52	76	77	
BlackRock US TIPS	42,189,208	4.0	3.5	0.1	-6.0	1.8	3.0	1.5	-11.9	5.9	11.2	8.5	-1.2	3.6	Apr-07
<i>Blmbg. U.S. TIPS</i>			3.3	0.0	-6.1	1.8	2.9	1.5	-11.8	6.0	11.0	8.4	-1.3	3.6	
<i>eV US TIPS / Inflation Fixed Inc Rank</i>			19	61	56	61	40	25	70	26	32	32	39	31	

Tortoise is now Ducenta Squared. TSSP Adjacent funded 4/16/2020. Portfolio Advisors, Crescent Direct Lending, Lone Star, and Portfolio Advisors market value as of 12/31/2022. Harbourvest 2017-2019 Global Fund market value as of 09/30/2022. PIMCO BRAVO liquidated 12/30/2022.

Total Fund
Executive Summary (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018	Inception	Inception Date
Total Real Estate	121,354,167	11.4	-3.9	-6.5	-2.3	7.5	7.0	8.6	8.5	18.4	2.1	5.7	7.5		Dec-06
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3	5.5	17.7	1.6	6.4	6.7		
<i>NCREIF ODCE Net</i>			-3.4	-8.1	-3.9	7.5	6.6	8.5	6.5	21.0	0.3	4.4	7.4		
ASB Real Estate	29,431,431	2.8	-5.5	-7.3	-3.1	6.1	5.5	7.6	10.7	14.2	1.5	3.0	6.6	7.6	Jan-13
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3	5.5	17.7	1.6	6.4	6.7	8.4	
<i>NCREIF ODCE Net</i>			-3.4	-8.1	-3.9	7.5	6.6	8.5	6.5	21.0	0.3	4.4	7.4	8.5	
Clarion Lion	32,475,274	3.1	-5.1	-9.4	-2.8	9.0	8.3	9.7	9.6	23.6	2.3	6.8	8.6	5.6	Jan-07
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3	5.5	17.7	1.6	6.4	6.7	6.9	
<i>NCREIF ODCE Net</i>			-3.4	-8.1	-3.9	7.5	6.6	8.5	6.5	21.0	0.3	4.4	7.4	5.5	
ARA American Strategic Value Realty	57,456,822	5.4	-2.4	-4.5	-1.9	7.7	7.7	-	6.8	18.6	2.4	7.8	-	7.8	Jan-18
<i>NCREIF Property Index +2%</i>			-1.3	-3.3	0.3	9.3	8.8	-	7.6	20.0	3.6	8.5	8.9	8.9	
<i>NCREIF ODCE Net</i>			-3.4	-8.1	-3.9	7.5	6.6	-	6.5	21.0	0.3	4.4	7.4	6.6	
1221 State St. Corp	1,990,640	0.2	0.0	0.0	0.0	0.0	1.5	2.4	0.0	0.0	0.0	7.9	0.0	1.3	Jun-08
Total Private Equity	75,875,913	7.1	-0.4	-4.7	-4.7	22.7	19.8	17.9	-0.8	57.3	23.0	13.3	21.3		Mar-10
Harbourvest Buyout IX	5,953,294	0.6	0.4	-7.2	-8.1	18.1	18.4	17.2	-6.0	49.6	21.3	17.6	23.6	-	Jun-11
Harbourvest Credit Ops IX	908,711	0.1	2.0	-1.9	7.3	13.5	12.0	12.6	11.0	32.1	0.3	8.0	14.4	-	Jun-11
Harbourvest International PE VI	1,832,377	0.2	6.2	11.8	1.1	11.5	11.6	13.2	-15.3	41.2	17.2	6.0	14.8	-	Mar-10
Harbourvest Venture IX	5,001,167	0.5	-8.1	-21.5	-27.3	29.4	27.2	21.7	-15.9	91.1	52.4	24.6	25.9	-	Jun-11
Harbourvest 2017 Global Fund	24,699,519	2.3	N/A	-8.3	-8.7	21.9	18.1	-	-1.3	61.6	18.8	8.8	20.9	19.6	Oct-17
Harbourvest 2018 Global Fund	20,723,928	1.9	N/A	6.4	9.7	20.6	-	-	9.7	37.0	16.0	14.3	-	17.6	Jan-19
Harbourvest 2019 Global Fund	16,756,917	1.6	N/A	-5.8	4.3	28.5	-	-	5.4	49.6	34.6	-	-	25.3	Dec-19
<i>Russell 3000 + 3%</i>			8.0	12.2	-5.8	22.0	-	-	-16.8	29.4	24.5	-	-	12.8	
Total Private Credit	50,691,872	4.8	1.2	3.0	3.3	8.6	8.5	-	5.9	16.1	4.8	9.4	6.7		Oct-17
Portfolio Advisors Credit Strategies Fund	11,967,171	1.1	N/A	0.7	4.6	10.9	10.1	-	7.8	26.8	3.9	8.2	6.6	9.5	Oct-17
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	2.1	4.4	-	-12.4	13.5	5.3	8.5	5.1	4.4	
Crescent Direct Lending Levered Fund II	2,611,513	0.2	N/A	1.2	3.2	8.8	8.1	-	5.0	11.5	6.0	12.4	-	8.0	Mar-18
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	2.1	4.4	-	-12.4	13.5	5.3	8.5	-	4.4	
Audax Direct Lending Fund A	4,661,263	0.4	2.4	8.8	11.6	15.8	-	-	15.5	23.1	10.1	16.3	-	18.0	Oct-18
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	2.1	-	-	-12.4	13.5	5.3	8.5	-	4.6	
Ares Capital Europe IV	6,896,335	0.6	2.3	7.0	7.9	8.8	-	-	7.0	11.8	8.2	13.1	-	9.9	Aug-18
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	2.1	-	-	-12.4	13.5	5.3	8.5	-	4.6	
Lone Star XI	5,345,425	0.5	N/A	7.8	12.1	65.1	-	-	13.7	538.0	-62.8	-	-	18.6	Jun-19
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	2.1	-	-	-12.4	13.5	5.3	-	-	4.0	

Tortoise is now Ducenta Squared. TSSP Adjacent funded 4/16/2020. Portfolio Advisors, Crescent Direct Lending, Lone Star, and Portfolio Advisors market value as of 12/31/2022. Harbourvest 2017-2019 Global Fund market value as of 09/30/2022. PIMCO BRAVO liquidated 12/30/2022.

Total Fund
Executive Summary (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018	Inception	Inception Date
Sixth Street Diversified Credit	14,112,259	1.3	1.8	-0.8	3.4	-	-	-	13.2	-1.4	-	-	-	4.0	May-20
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	-	-	-	-12.4	13.5	-	-	-	2.0	
Ascribe Opportunities Fund IV	5,097,906	0.5	2.1	3.2	3.2	-	-	-	2.8	-17.3	-	-	-	-195.9	Jul-20
<i>Bloomberg High Yield +2% (Lagged)</i>			4.7	-5.3	-9.4	-	-	-	-12.4	13.5	-	-	-	5.6	
Total Opportunistic	24,239,083	2.3	1.3	-10.2	-8.1	7.6	7.3	8.4	2.9	18.6	0.9	-10.7	32.0		Dec-07
KKR Mezzanine Partners	1,372,673	0.1	2.3	-34.1	-30.2	-13.3	-5.2	1.9	-31.0	10.5	-15.2	-4.2	25.3	3.9	Jun-11
TSSP Adjacent Opportunities Partners	22,866,410	2.2	1.2	-10.2	-7.9	13.8	-	-	5.0	26.1	-	-	-	13.8	Apr-20
Total Cash	8,254,379	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Sep-07
Cash Account	8,254,379	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	Sep-07
<i>90 Day U.S. Treasury Bill</i>			1.1	2.4	2.5	0.9	1.4	0.9	1.5	0.0	0.7	2.3	1.9	0.8	

Tortoise is now Ducenta Squared. TSSP Adjacent funded 4/16/2020. Portfolio Advisors, Crescent Direct Lending, Lone Star, and Portfolio Advisors market value as of 12/31/2022. Harbourvest 2017-2019 Global Fund market value as of 09/30/2022. PIMCO BRAVO liquidated 12/30/2022.

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

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	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	18.48	18.04	19.32	0.00	1.00	0.02	1.00	0.93	-0.03	100.00	100.01
BlackRock International Equity	13.37	13.31	17.95	0.31	1.00	0.34	1.00	0.74	1.03	101.28	100.34
DFA Emerging Markets Value	16.23	15.76	17.57	5.87	0.99	3.86	0.95	0.90	1.44	107.40	79.22
Harding Loevner Emerging Markets	3.47	4.51	19.98	-1.49	0.88	8.65	0.83	0.23	-0.28	89.32	96.07
Ducenta Squared	-2.04	-2.75	6.18	0.70	0.98	1.19	0.96	-0.45	0.63	105.99	96.55
Mackay Shields Core Plus Opportunities	-1.15	-1.79	7.06	2.03	1.11	1.61	0.96	-0.25	1.06	126.87	101.84
BlackRock US TIPS	1.82	1.17	7.03	0.06	1.01	0.17	1.00	0.17	0.42	101.15	100.57
ASB Real Estate	6.09	5.33	7.67	-1.44	1.08	3.25	0.82	0.68	-0.28	104.55	163.51
Clarion Lion	9.05	8.26	9.64	-1.14	1.44	3.72	0.94	0.84	0.54	142.62	191.37
ARA American Strategic Value Realty	7.72	6.79	6.74	-1.62	1.02	1.31	0.96	0.98	-1.10	88.32	107.97
Portfolio Advisors Credit Strategies Fund	10.95	9.98	9.30	10.52	0.31	11.49	0.13	1.07	0.71	70.93	-6.08
Crescent Direct Lending Levered Fund II	8.76	7.64	4.36	9.11	-0.09	12.65	0.05	1.70	0.46	38.40	-25.94
Audax Direct Lending Fund A	15.78	14.23	8.88	15.67	0.18	12.49	0.05	1.59	1.00	79.06	-32.60
Ares Capital Europe IV	8.81	7.75	5.86	8.79	0.07	11.75	0.02	1.31	0.51	49.88	-12.85
Lone Star XI	65.05	78.17	95.88	109.54	1.04	95.20	0.01	0.81	0.80	595.07	52.56

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

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	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	18.48	18.04	19.32	0.00	1.00	0.02	1.00	0.93	-0.03	100.00	100.01
BlackRock International Equity	13.37	13.31	17.95	0.31	1.00	0.34	1.00	0.74	1.03	101.28	100.34
DFA Emerging Markets Value	16.23	15.76	17.57	5.87	0.99	3.86	0.95	0.90	1.44	107.40	79.22
Harding Loevner Emerging Markets	3.47	4.51	19.98	-1.49	0.88	8.65	0.83	0.23	-0.28	89.32	96.07
Ducenta Squared	-2.04	-2.75	6.18	0.70	0.98	1.19	0.96	-0.45	0.63	105.99	96.55
Mackay Shields Core Plus Opportunities	-1.15	-1.79	7.06	2.03	1.11	1.61	0.96	-0.25	1.06	126.87	101.84
BlackRock US TIPS	1.82	1.17	7.03	0.06	1.01	0.17	1.00	0.17	0.42	101.15	100.57
ASB Real Estate	6.09	5.33	7.67	-1.44	1.08	3.25	0.82	0.68	-0.28	104.55	163.51
Clarion Lion	9.05	8.26	9.64	-1.14	1.44	3.72	0.94	0.84	0.54	142.62	191.37
Portfolio Advisors Credit Strategies Fund	10.95	9.98	9.30	10.52	0.31	11.49	0.13	1.07	0.71	70.93	-6.08

Private Equity
Non Marketable Securities Overview

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Vintage	Manager & Fund Name	Estimated 3/31/2023 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁴	IRR Date
2011	HarbourVest IX-Buyout	\$5,953,294	\$10,000,000	\$8,525,000	85%	\$1,475,000	\$12,708,132	\$6,960,146	149.1%	218.9%	18.7%	9/30/22
2011	HarbourVest IX-Credit	\$908,711	\$2,000,000	\$1,600,000	80%	\$400,000	\$1,806,721	\$1,021,875	112.9%	169.7%	13.4%	9/30/22
2008	HarbourVest Int'l VI ⁵	\$1,832,377	\$3,712,930	\$2,630,078	71%	\$1,082,852	\$4,030,213	\$1,764,298	153.2%	222.9%	15.0%	9/30/22
2011	HarbourVest IX-Venture	\$5,001,167	\$4,000,000	\$3,800,000	95%	\$200,000	\$311,167	\$5,831,234	8.2%	139.8%	26.1%	9/30/22
2017	HarbourVest 2017 Global	\$24,699,519	\$30,000,000	\$17,700,000	59%	\$12,300,000	\$10,665,967	\$26,731,432	60.3%	199.8%	23.0%	9/30/22
2018	HarbourVest 2018 Global	\$20,723,928	\$20,000,000	\$10,538,043	53%	\$9,461,957	\$3,345,431	\$21,391,933	31.7%	228.4%	28.6%	9/30/22
2019	HarbourVest 2019 Global	\$16,756,917	\$20,000,000	\$12,175,273	61%	\$7,824,727	\$2,487,529	\$16,384,549	20.4%	158.1%	34.3%	9/30/22
Total Illiquid Private Equity		\$75,875,913	\$89,712,930	\$56,968,394	64%	\$32,744,536	\$35,355,160	\$80,085,467	140.6%	202.6%		
% of Portfolio (Market Value)		7.1%										
								Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense⁶
								HarbourVest IX-Buyout	\$0	\$1,502	\$5,843	\$29,776
								HarbourVest IX-Credit	\$0	\$454	\$697	\$5,633
								HarbourVest Int'l VI	\$0	\$247	\$436	\$5,588
								HarbourVest IX-Venture	\$0	\$1,582	\$2,241	\$12,814
								HarbourVest 2017 Global ⁷	\$0	\$2,557	\$136,958	\$205,515
								HarbourVest 2018 Global ⁷	\$0	\$720	\$27,832	\$72,143
								HarbourVest 2019 Global ⁷	\$0	\$861	\$37,078	\$82,249
								\$194,710	\$0	\$7,923	\$211,085	\$413,718

¹(DPI) is equal to (capital returned / capital called)

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

³Last known market value + capital calls - distributions (preliminary MV's as of 3/31/2023)

⁴Net 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.

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

⁶All fees and expenses are for 4Q 2022

Private Credit
Non Marketable Securities Overview

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Vintage	Manager & Fund Name	Estimated 3/31/2023 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁴	IRR Date				
2013	Portfolio Advisors Credit Strategies Fund	\$11,967,171	\$11,250,000	\$11,250,000	100%	\$0	\$2,696,935	\$12,557,769	24.0%	130.3%	10.0%	12/31/22				
2017	Crescent Direct Lending Levered Fund II	\$2,611,513	\$7,000,000	\$5,707,507	82%	\$1,292,493	\$4,418,451	\$3,070,904	77.4%	123.2%	9.1%	12/31/22				
2017	Audax Direct Lending Fund A	\$4,661,263	\$7,000,000	\$5,249,502	75%	\$1,750,498	\$2,573,297	\$4,623,419	49.0%	137.8%	15.9%	12/31/22				
2018	Ares Capital Europe IV	\$6,896,335	\$8,000,000	\$6,762,884	85%	\$1,237,116	\$1,991,877	\$6,945,257	29.5%	131.4%	10.6%	6/30/22				
2019	Lone Star Fund XI	\$5,345,425	\$5,750,000	\$3,888,571	68%	\$1,861,429	\$273,952	\$3,506,089	7.0%	144.5%	24.8%	6/30/22				
2019	Ascribe Opportunities IV	\$5,097,906	\$6,000,000	\$4,920,467	82%	\$1,079,533	\$26,909	\$2,915,814	0.5%	104.2%	8.0%	12/31/22				
2020	Sixth Street Diversified Credit	\$14,112,259	\$50,000,000	\$15,798,447	32%	\$34,201,553	\$3,306,085	NA	20.9%	110.3%	NA	NA				
Total Illiquid Private Credit		\$50,691,872	\$95,000,000	\$53,577,377	56.4%	\$41,422,623	\$15,287,506	\$33,619,252	62.7%	91.3%						
% of Portfolio (Market Value)		4.8%														
										Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense⁵	
										Portfolio Advisors CSF	\$0	\$0	\$0	\$0	\$0	\$0
										Crescent Direct Lending II	\$42,318	\$0	\$4,762	\$0	\$0	\$47,080
										Audax Direct Lending A	\$30,962	\$0	\$0	\$0	\$124,642	\$155,604
										Ares Capital Europe IV	\$25,054	\$27,349	\$0	\$44,704	\$1,870	\$98,977
										Ascribe Opportunities IV	\$0	\$0	\$0	\$0	\$0	\$0
										Lone Star Fund XI	\$0	\$0	\$0	\$0	\$0	\$0
										Sixth Street Diversified Credit	\$0	\$0	\$0	\$0	\$0	\$0

¹(DPI) is equal to (capital returned / capital called)

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

³Last known market value + capital calls - distributions (preliminary MV's as of 3/31/2022)

⁴Net 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.

⁵All fees and expenses except Audax Direct Lending are for 4Q 2022

\$98,334 \$27,349 \$4,762 \$44,704 \$126,512 **\$301,661**

Portfolio Advisors first capital call issued 10/5/2017. Crescent Direct Lending first called 3/13/2018. Ares IV first called 8/13/2018. Audax Direct Lending first called 10/26/2018.

Opportunistic Non Marketable Securities Overview

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Vintage	Manager & Fund Name	Estimated 3/31/2023 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁵	IRR Date
2010	KKR Mezzanine ⁶	\$1,372,673	\$10,000,000	\$10,000,000	100%	\$0	\$14,153,380	\$1,407,379	141.5%	155.3%	5.5%	9/30/22
2020	TSSP Adjacent Opportunities Partners	\$22,866,410	\$40,000,000	\$22,237,343	56%	\$17,762,657	\$5,501,337	NA	24.7%	127.6%	NA	NA
Total Illiquid Opportunistic		\$24,239,083	\$50,000,000	\$32,237,343	64%	\$17,762,657	\$19,654,717	\$1,420,996	4.4%	65.4%		
% of Portfolio (Market Value)		2.3%										
							Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense⁶
							KKR Mezzanine	\$0	\$0	\$0	\$2,223	\$5,564
							TSSP Adjacent Opportunities Pa	\$0	\$0	\$0	\$0	\$0
							\$3,341	\$0	\$0	\$0	\$2,223	\$5,564

¹(DPI) is equal to (capital returned / capital called)

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

³Last known market value + capital calls - distributions (preliminary MV's as of 9/30/2022)

⁴Investment period ended, no further capital to be called.

⁵Net 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.

⁶All fees and expenses are for 4Q 2022

Total Fund
Cash Flow by Manager (Last Three Months)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

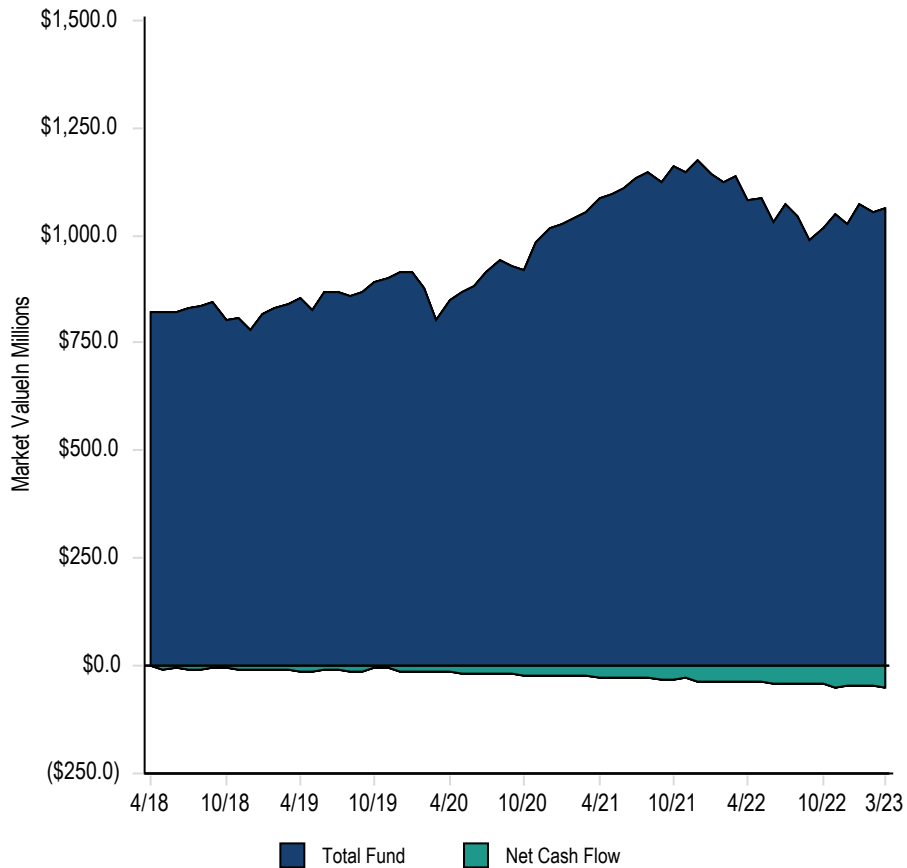
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flows	Capital Appreciation	Ending Market Value
BlackRock Russell 3000	\$323,242,289	\$0	\$0	\$0	\$23,258,100	\$346,500,390
BlackRock International Equity	\$140,312,070	\$0	\$0	\$0	\$12,047,470	\$152,359,540
DFA Emerging Markets Value	\$23,945,897	\$0	-\$72,181	-\$72,181	\$892,642	\$24,766,359
Harding Loevner Emerging Markets	\$18,685,400	\$0	\$0	\$0	\$635,798	\$19,321,198
Ducenta Squared	\$96,256,431	\$0	\$0	\$0	\$3,026,414	\$99,282,844
MacKay Shields Core Plus Opportunities	\$95,612,474	\$0	\$0	\$0	\$3,087,119	\$98,699,592
BlackRock US TIPS	\$40,747,531	\$0	\$0	\$0	\$1,441,677	\$42,189,208
ASB Real Estate	\$31,154,075	\$0	\$0	\$0	-\$1,722,644	\$29,431,431
Clarion Lion	\$34,307,174	\$197,147	-\$275,818	-\$78,671	-\$1,753,229	\$32,475,274
ARA American Strategic Value Realty	\$57,443,761	\$1,444,000	\$0	\$1,444,000	-\$1,430,939	\$57,456,822
1221 State St. Corp	\$1,973,407	\$24,353	-\$7,120	\$17,233	\$0	\$1,990,640
Harbourvest Buyout IX	\$6,343,281	\$0	-\$389,987	-\$389,987	\$0	\$5,953,294
Harbourvest Credit Ops IX	\$963,189	\$0	-\$54,478	-\$54,478	\$0	\$908,711
Harbourvest International PE VI	\$1,792,538	\$0	-\$71,239	-\$71,239	\$111,078	\$1,832,377
Harbourvest Venture IX	\$5,553,519	\$0	-\$103,374	-\$103,374	-\$448,978	\$5,001,167
Harbourvest 2017 Global Fund	\$24,826,789	\$0	-\$127,270	-\$127,270	\$0	\$24,699,519
Harbourvest 2018 Global Fund	\$20,723,928	\$0	\$0	\$0	\$0	\$20,723,928
Harbourvest 2019 Global Fund	\$16,756,917	\$0	\$0	\$0	\$0	\$16,756,917
Portfolio Advisors Credit Strategies Fund	\$12,185,338	\$0	-\$218,167	-\$218,167	\$0	\$11,967,171
Crescent Direct Lending Levered Fund II	\$2,761,754	\$0	-\$150,241	-\$150,241	\$0	\$2,611,513
Audax Direct Lending Fund A	\$4,779,520	\$0	-\$231,105	-\$231,105	\$112,848	\$4,661,263
Ares Capital Europe IV	\$6,867,020	\$0	-\$125,800	-\$125,800	\$155,115	\$6,896,335
Lone Star XI	\$5,423,443	\$10,927	-\$88,945	-\$78,018	\$0	\$5,345,425
Sixth Street Diversified Credit	\$13,232,331	\$645,235	\$0	\$645,235	\$234,693	\$14,112,259
Ascribe Opportunities Fund IV	\$4,990,875	\$0	\$0	\$0	\$107,031	\$5,097,906
KKR Mezzanine Partners	\$1,341,790	\$0	\$0	\$0	\$30,883	\$1,372,673
TSSP Adjacent Opportunities Partners	\$24,156,745	\$0	-\$1,581,672	-\$1,581,672	\$291,337	\$22,866,410
Cash Account	\$9,506,096	\$151,470	-\$1,403,188	-\$1,251,718	\$0	\$8,254,379
Total Fund	\$1,025,885,583	\$2,473,132	-\$4,900,584	-\$2,427,452	\$40,076,415	\$1,063,534,545

Harbourvest and KKR Mezzanine market values as of 12/31/2022 +/- 4Q22 and 1Q23 calls/distributions. Portfolio Advisors, Crescent Direct Lending, Audax Direct Lending, Ares Capital, Lone Star Fund, Sixth Street Diversified Credit, Ascribe, and Sixth Street TAO Partners market values as of 12/31/2022 +/- 1Q23 calls/distributions.

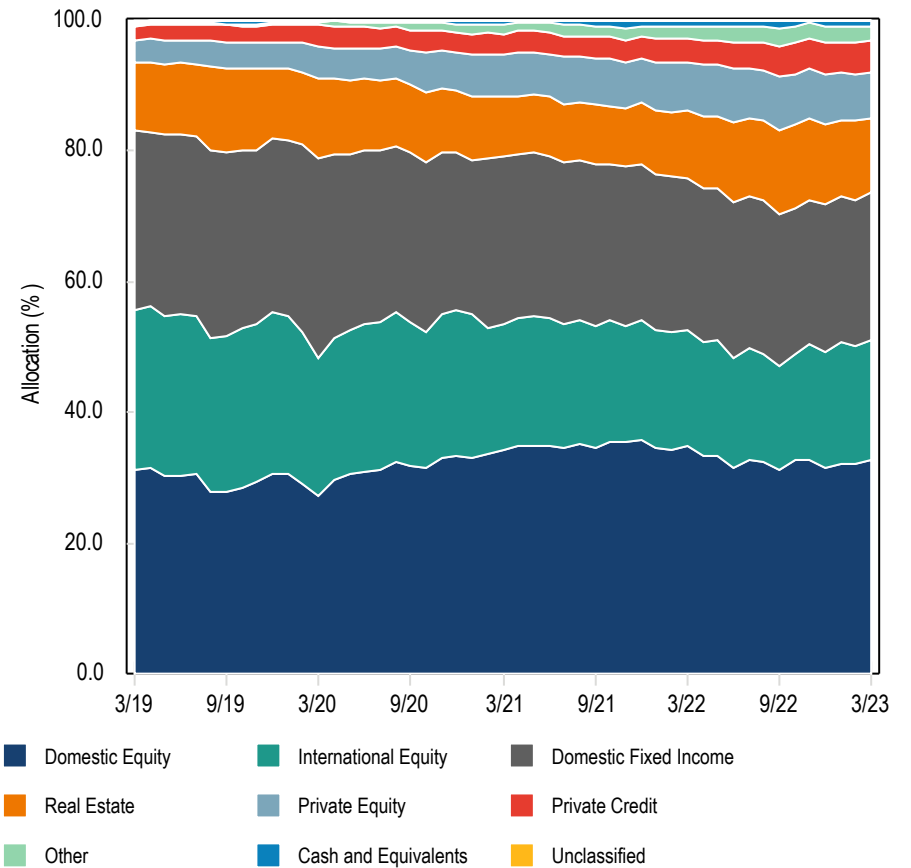
Total Fund
Asset Allocation History

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Market Value History

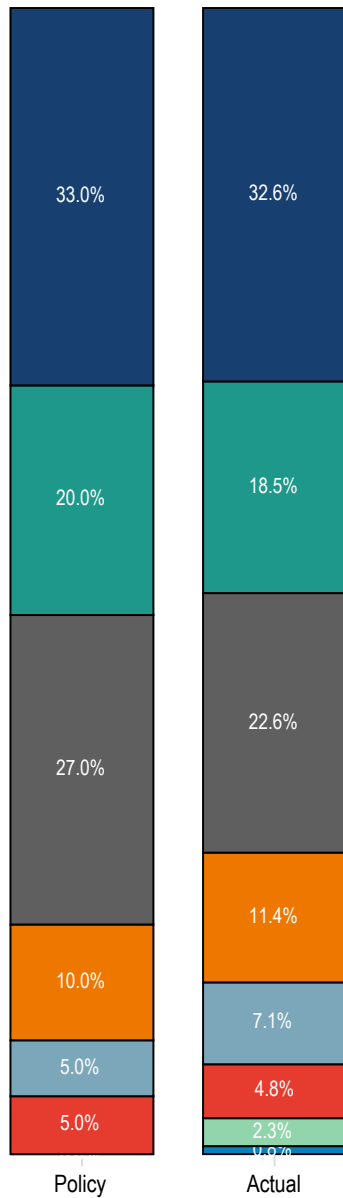


Asset Allocation History

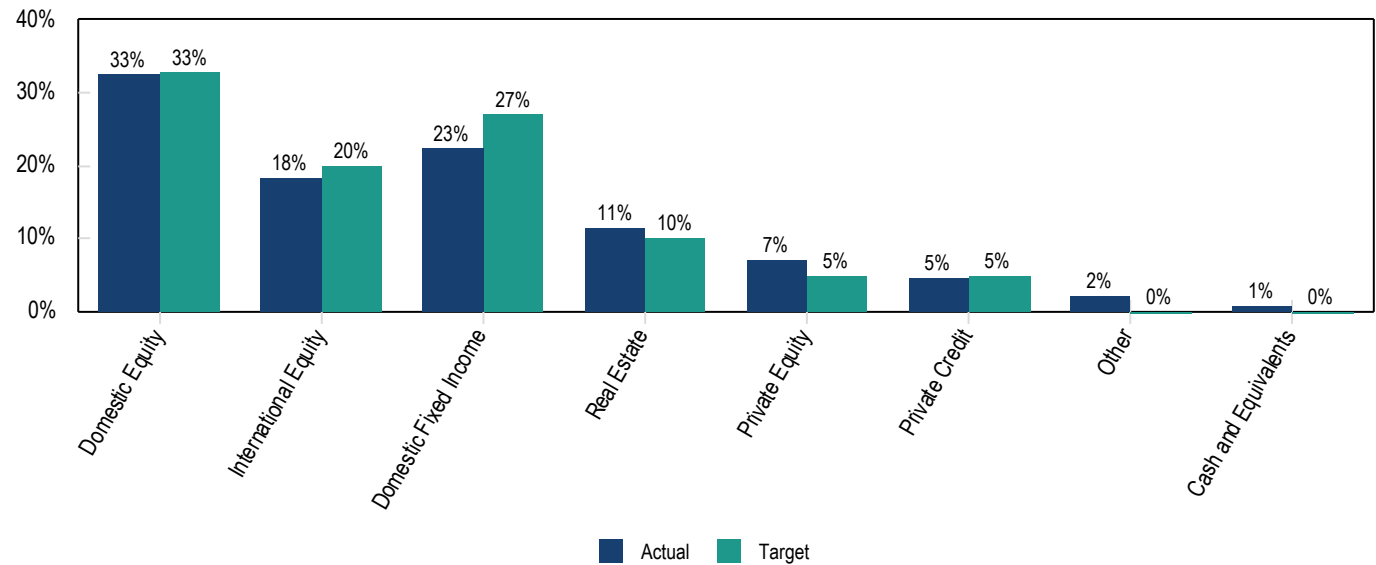


Total Fund
Asset Allocation vs. Policy

Imperial County Employees' Retirement System
Period Ending: March 31, 2023



	Current Balance (\$)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	346,500,390	32.6	33.0	-0.4	23.0 - 43.0	Yes
International Equity	196,447,097	18.5	20.0	-1.5	10.0 - 30.0	Yes
Domestic Fixed Income	240,171,645	22.6	27.0	-4.4	17.0 - 40.0	Yes
Real Estate	121,354,167	11.4	10.0	1.4	5.0 - 15.0	Yes
Private Equity	75,875,913	7.1	5.0	2.1	0.0 - 10.0	Yes
Private Credit	50,691,872	4.8	5.0	-0.2	0.0 - 10.0	Yes
Other	24,239,083	2.3	0.0	2.3	0.0 - 10.0	Yes
Cash and Equivalents	8,254,379	0.8	0.0	0.8	0.0 - 0.0	No
Total	1,063,534,545	100.0	100.0	0.0		



Total Fund Investment Fund Fee Analysis

Imperial County Employees' Retirement System Period Ending: March 31, 2023

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	57,456,822	5.40	654,568	1.14
Ares Capital Europe IV	1.38 % of Assets	6,896,335	0.65	95,169	1.38
ASB Real Estate	1.25 % of First \$5 M 1.00 % of Next \$10 M 0.75 % Thereafter	29,431,431	2.77	270,736	0.92
Ascribe Opportunities Fund IV	1.50 % of Assets	5,097,906	0.48	76,469	1.50
Audax Direct Lending Fund A	0.85 % of Assets	4,661,263	0.44	39,621	0.85
BlackRock International Equity	0.15 % of First \$50 M 0.10 % of Next \$50 M 0.00 % Thereafter	152,359,540	14.33	125,000	0.08
BlackRock Russell 3000	0.03 % of Assets	346,500,390	32.58	103,950	0.03
BlackRock US TIPS	0.07 % of Assets	42,189,208	3.97	29,532	0.07
Cash Account		8,254,379	0.78	-	-
Clarion Lion	1.25 % of First \$10 M 1.00 % of Next \$15 M 0.85 % Thereafter	32,475,274	3.05	338,540	1.04
Crescent Direct Lending Levered Fund II	Minimum Fee: \$25,280	2,611,513	0.25	25,280	0.97
DFA Emerging Markets Value	0.41 % of Assets	24,766,359	2.33	101,542	0.41
Ducenta Squared	0.29 % of First \$100 M 0.25 % of Next \$100 M 0.00 % Thereafter	99,282,844	9.34	282,956	0.29
Harbourvest 2017 Global Fund	Minimum Fee: \$262,500	24,699,519	2.32	262,500	1.06
Harbourvest 2018 Global Fund	Minimum Fee: \$138,000	20,723,928	1.95	138,000	0.67
Harbourvest 2019 Global Fund	0.45 % of Assets	16,756,917	1.58	75,406	0.45
Harbourvest Buyout IX	Minimum Fee: \$100,000	5,953,294	0.56	100,000	1.68
Harbourvest Credit Ops IX	Minimum Fee: \$20,000	908,711	0.09	20,000	2.20
Harbourvest International PE VI	Minimum Fee: \$35,000	1,832,377	0.17	35,000	1.91
Harbourvest Venture IX	Minimum Fee: \$40,000	5,001,167	0.47	40,000	0.80
Harding Loevner Emerging Markets	1.05 % of Assets	19,321,198	1.82	202,873	1.05
KKR Mezzanine Partners	Minimum Fee: \$150,000	1,372,673	0.13	150,000	10.93
Lone Star XI	0.71 % of Assets	5,345,425	0.50	37,899	0.71
MacKay Shields Core Plus Opportunities	0.35 % of Assets	98,699,592	9.28	345,449	0.35
Portfolio Advisors Credit Strategies Fund	Minimum Fee: \$180,000	11,967,171	1.13	180,000	1.50
Sixth Street Diversified Credit	1.35 % of Assets	14,112,259	1.33	190,516	1.35

*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 Fund
Investment Fund Fee Analysis

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Account	Fee Schedule	Market Value	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
TSSP Adjacent Opportunities Partners		22,866,410	2.15	-	-
Investment Management Fee		1,063,534,545	100.00	3,921,005	0.37

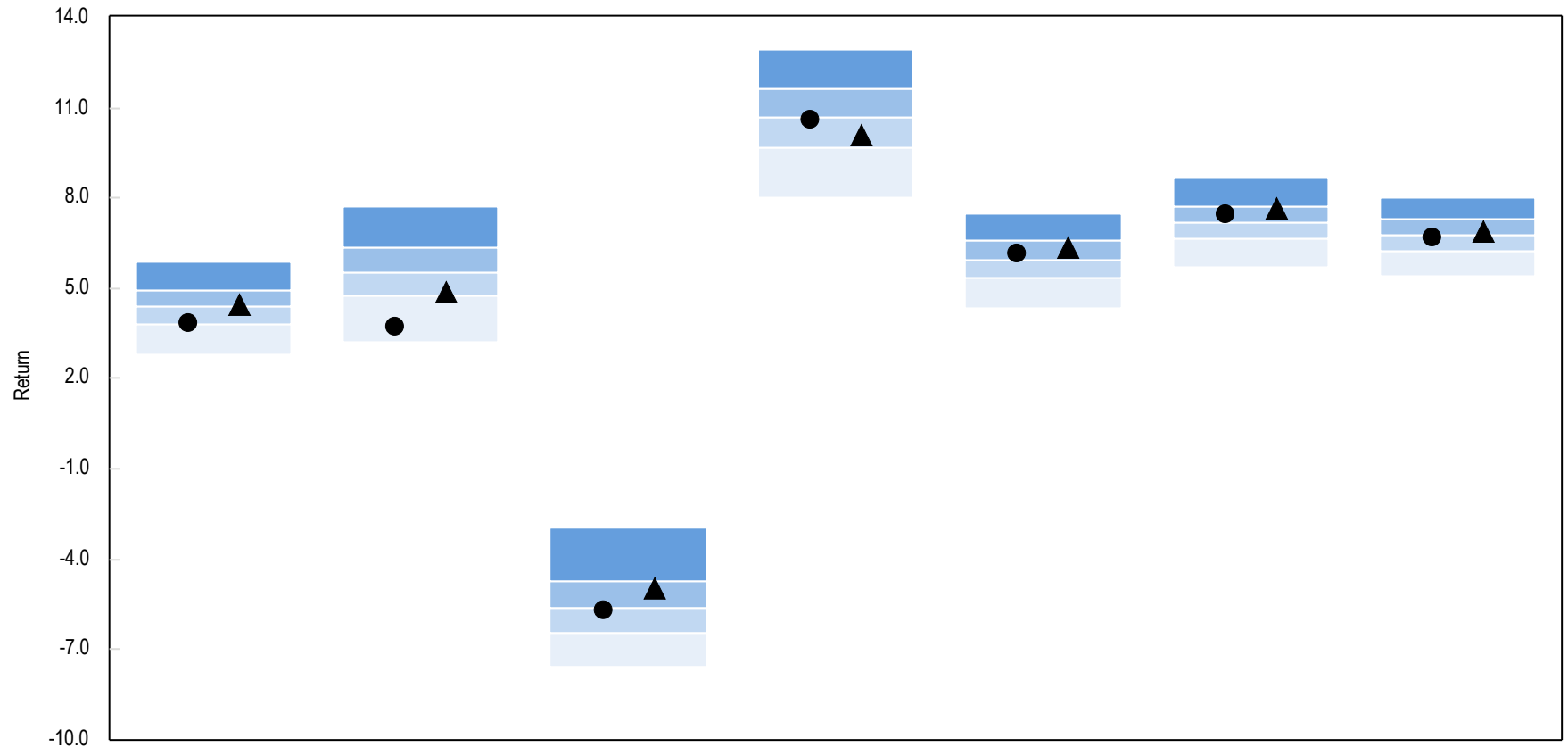
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*Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

Total Fund vs. InvMetrics Public DB Net

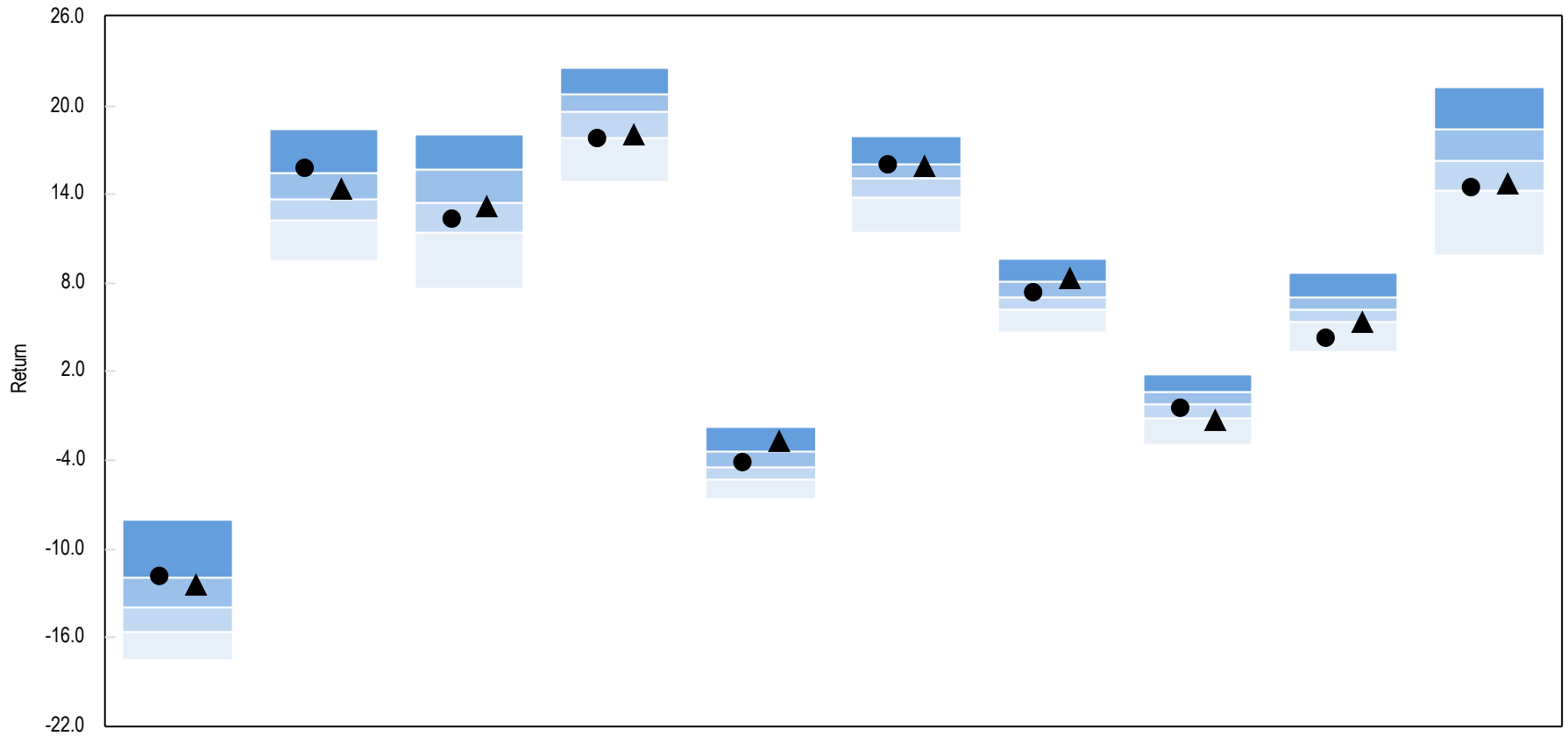


	Quarter	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
● Total Fund	3.90 (72)	3.76 (91)	-5.67 (52)	10.64 (51)	6.19 (39)	7.50 (37)	6.68 (56)
▲ Policy Index	4.48 (48)	4.89 (72)	-4.95 (32)	10.06 (67)	6.38 (32)	7.68 (29)	6.91 (43)
5th Percentile	5.91	7.70	-2.98	12.94	7.47	8.66	8.04
1st Quartile	4.96	6.33	-4.71	11.63	6.58	7.73	7.31
Median	4.43	5.51	-5.62	10.66	5.97	7.19	6.78
3rd Quartile	3.81	4.73	-6.44	9.70	5.33	6.65	6.23
95th Percentile	2.77	3.24	-7.56	7.99	4.33	5.69	5.40
Population	513	508	502	490	474	454	396

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

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Total Fund vs. InvMetrics Public DB Net

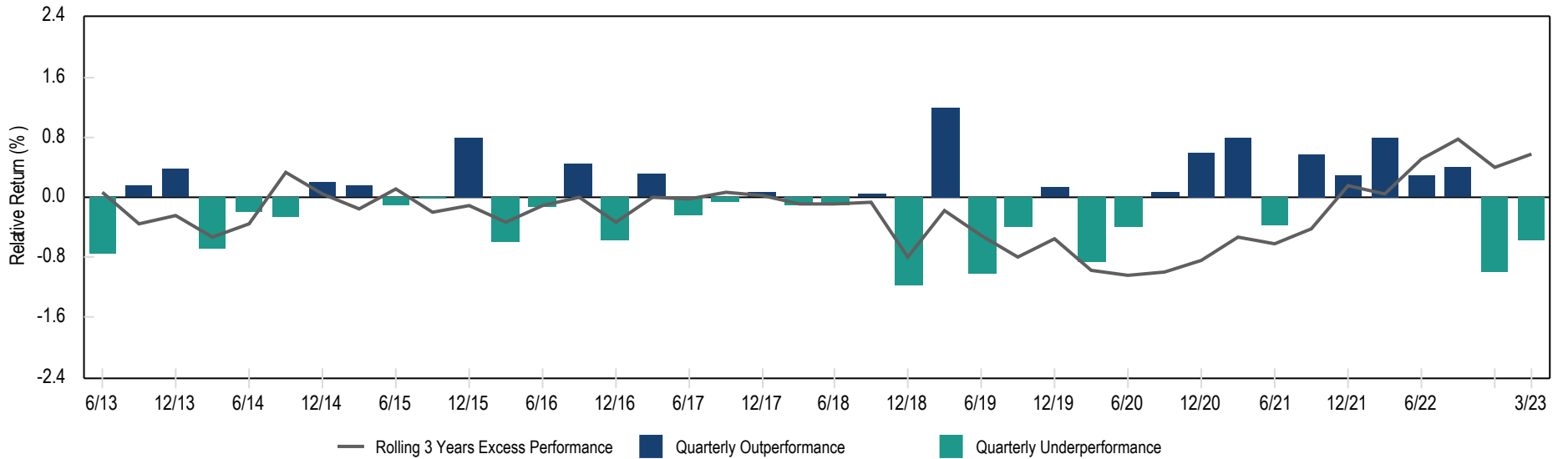


	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● Total Fund	-11.84 (24)	15.84 (21)	12.33 (63)	17.85 (75)	-4.12 (40)	16.02 (27)	7.45 (40)	-0.41 (58)	4.37 (89)	14.48 (74)
▲ Policy Index	-12.38 (30)	14.38 (39)	13.15 (54)	18.03 (73)	-2.73 (13)	15.93 (29)	8.36 (20)	-1.22 (77)	5.33 (76)	14.71 (72)
5th Percentile	-8.02	18.43	18.10	22.61	-1.68	17.89	9.70	1.83	8.64	21.21
1st Quartile	-11.94	15.48	15.65	20.84	-3.42	16.09	8.06	0.64	7.09	18.45
Median	-13.92	13.73	13.42	19.62	-4.47	15.07	7.06	-0.19	6.20	16.32
3rd Quartile	-15.62	12.31	11.37	17.81	-5.27	13.77	6.16	-1.11	5.33	14.32
95th Percentile	-17.46	9.52	7.61	14.86	-6.55	11.40	4.67	-2.92	3.32	9.86
Population	775	969	1,021	930	882	880	865	807	766	735

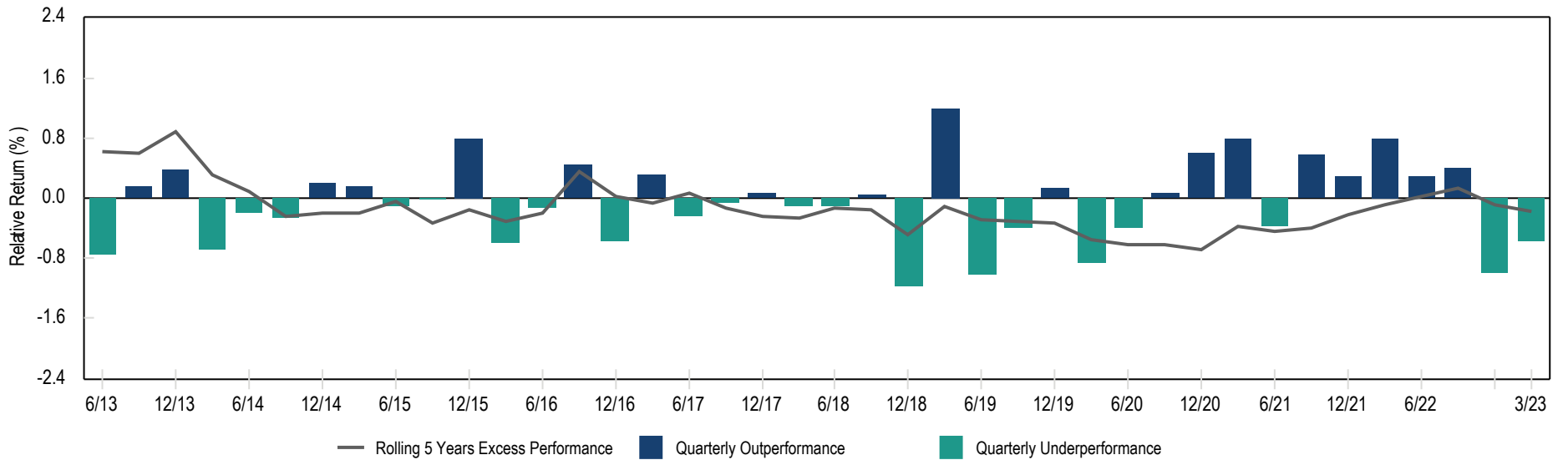
Total Fund
Rolling Return Analysis (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

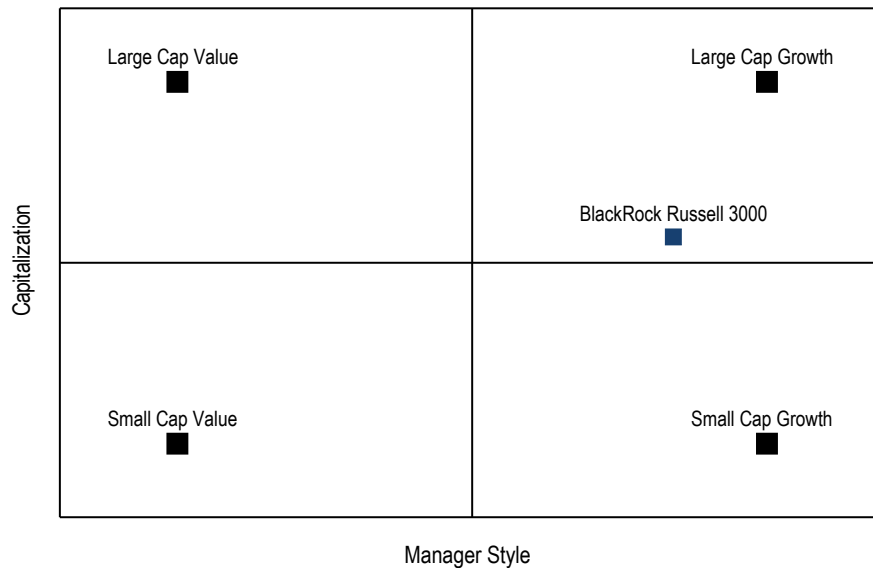


Total Domestic Equity
Asset Class Overview (Net of Fees)

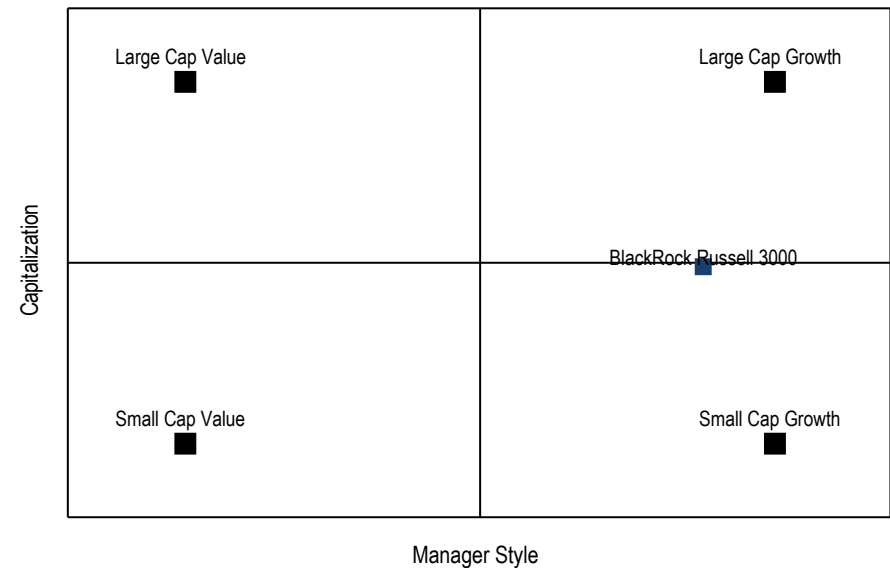
Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Domestic Equity	346,500,390	100.0	7.2	9.7	-8.6	18.5	10.5	11.5	-19.2	25.7	21.0	31.1	-5.2
<i>Russell 3000 Index</i>			7.2	9.7	-8.6	18.5	10.5	11.7	-19.2	25.7	20.9	31.0	-5.2
BlackRock Russell 3000	346,500,390	100.0	7.2	9.7	-8.6	18.5	10.5	-	-19.2	25.7	21.0	31.1	-5.2
<i>Russell 3000 Index</i>			7.2	9.7	-8.6	18.5	10.5	-	-19.2	25.7	20.9	31.0	-5.2
<i>eV US All Cap Core Equity Rank</i>			31	49	64	42	35	-	61	54	42	38	46

U.S. Effective Style Map
3 Years Ending: March 31, 2023



U.S. Effective Style Map
5 Years Ending: March 31, 2023



Total International Equity Asset Class Overview (Net of Fees)

Imperial County Employees' Retirement System Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total International Equity	196,447,097	100.0	7.4	12.3	-2.9	13.0	2.3	4.3	-15.4	10.1	8.1	20.7	-14.3
<i>MSCI AC World ex USA Index</i>			7.0	10.4	-4.6	12.3	3.0	4.7	-15.6	8.3	11.1	22.1	-13.8
BlackRock International Equity	152,359,540	77.6	8.6	15.6	-1.0	13.4	3.9	5.3	-14.1	11.6	8.1	22.4	-13.5
<i>MSCI EAFE (Net)</i>			8.5	15.4	-1.4	13.0	3.5	5.0	-14.5	11.3	7.8	22.0	-13.8
<i>eV All EAFE Equity Rank</i>			38	25	35	50	29	52	35	52	52	50	29
DFA Emerging Markets Value	24,766,359	12.6	3.7	3.2	-7.9	16.2	0.2	2.2	-10.7	12.4	2.7	9.6	-11.9
<i>MSCI Emerging Markets Value (Net)</i>			3.9	1.6	-9.4	10.0	-1.2	0.7	-15.8	4.0	5.5	12.0	-10.7
<i>eV Emg Mkts All Cap Value Equity Rank</i>			85	83	80	31	78	93	36	19	82	93	35
Harding Loevner Emerging Markets	19,321,198	9.8	3.1	1.6	-9.8	3.5	-5.0	-	-28.1	-4.3	12.4	24.0	-19.5
<i>MSCI Emerging Markets Growth Index</i>			4.1	0.4	-11.6	5.9	-0.6	-	-23.7	-8.2	31.6	25.4	-18.0
<i>eV Emg Mkts All Cap Growth Equity Rank</i>			71	50	45	92	98	-	77	51	96	54	69

MSCI Effective Style Map
3 Years Ending: March 31, 2023



- BlackRock International Equity
- DFA Emerging Markets Value
- Harding Loevner Emerging Markets
- Total International Equity

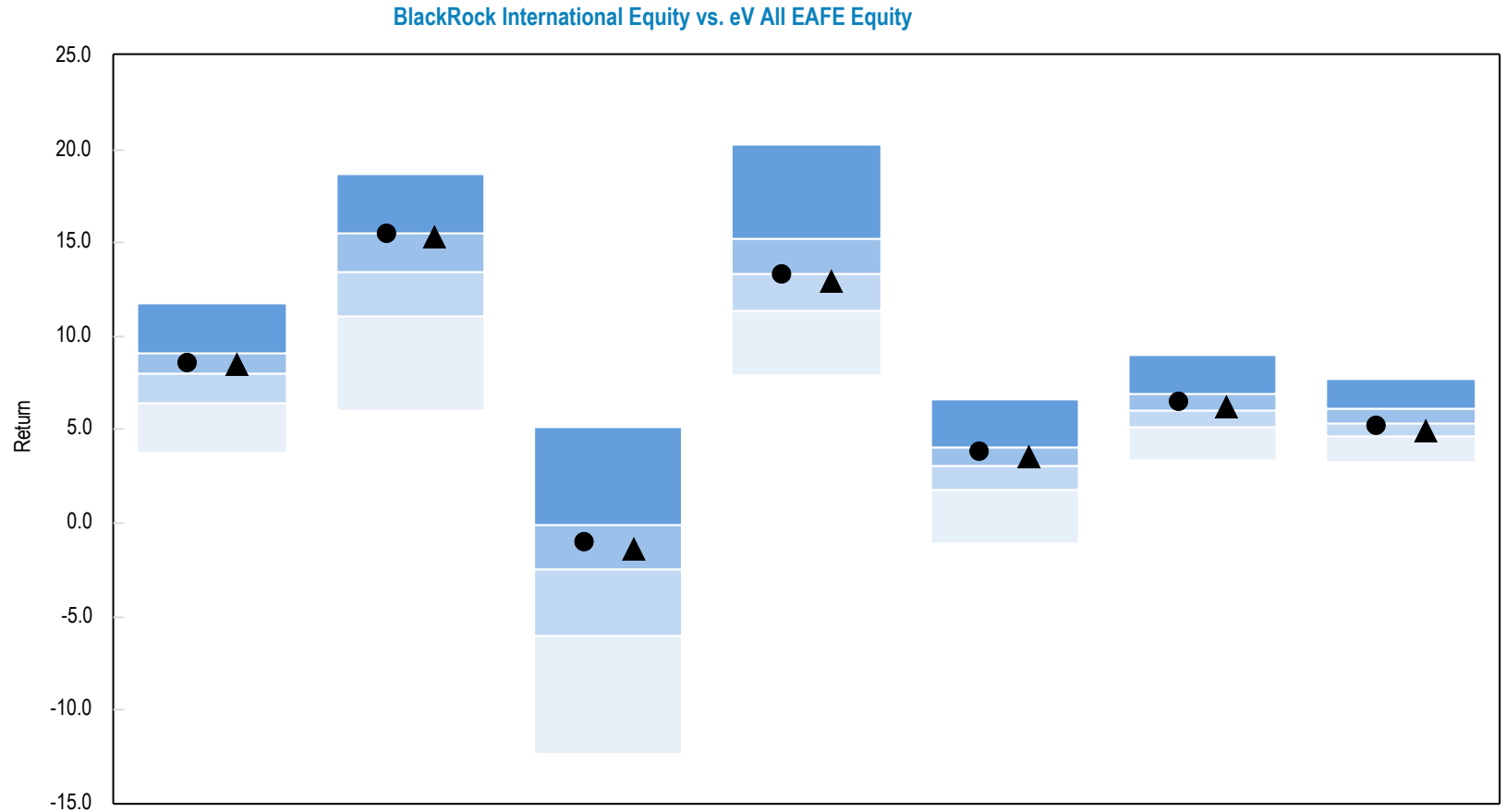
MSCI Effective Style Map
5 Years Ending: March 31, 2023



- BlackRock International Equity
- DFA Emerging Markets Value
- Harding Loevner Emerging Markets
- Total International Equity

BlackRock International Equity
 Cumulative Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023

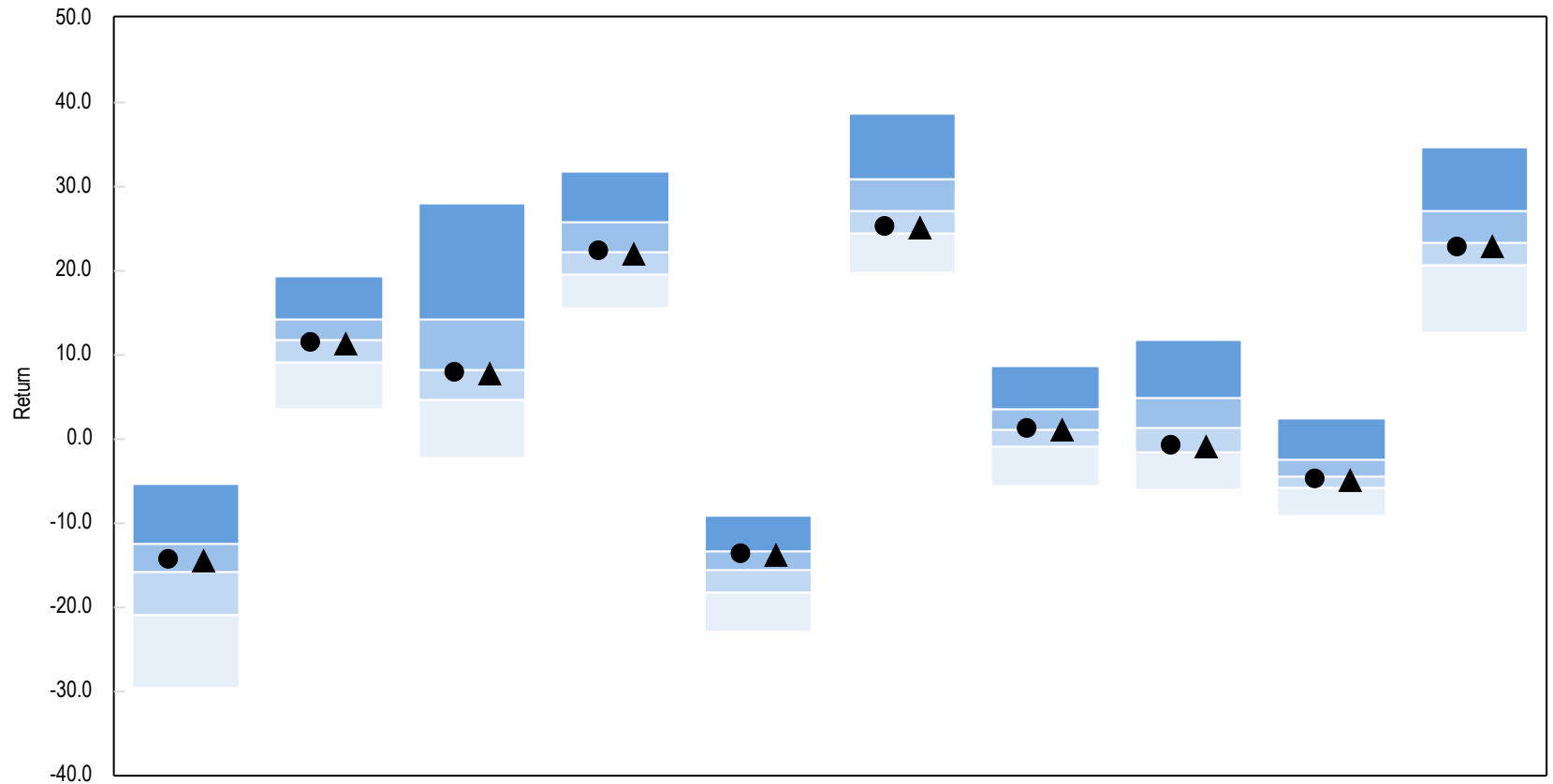


	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● BlackRock International Equity	8.56 (38)	15.55 (25)	-1.01 (35)	13.37 (50)	3.89 (29)	6.55 (33)	5.29 (52)
▲ MSCI EAFE (Net)	8.47 (41)	15.36 (27)	-1.38 (41)	12.99 (57)	3.52 (40)	6.21 (46)	5.00 (64)
5th Percentile	11.77	18.66	5.16	20.29	6.68	8.95	7.75
1st Quartile	9.10	15.53	-0.11	15.19	4.10	6.97	6.12
Median	8.00	13.48	-2.44	13.32	3.12	6.03	5.32
3rd Quartile	6.47	11.06	-6.05	11.41	1.76	5.13	4.64
95th Percentile	3.81	6.04	-12.38	7.91	-1.04	3.34	3.24
Population	406	404	403	386	363	329	263

BlackRock International Equity
Consecutive Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

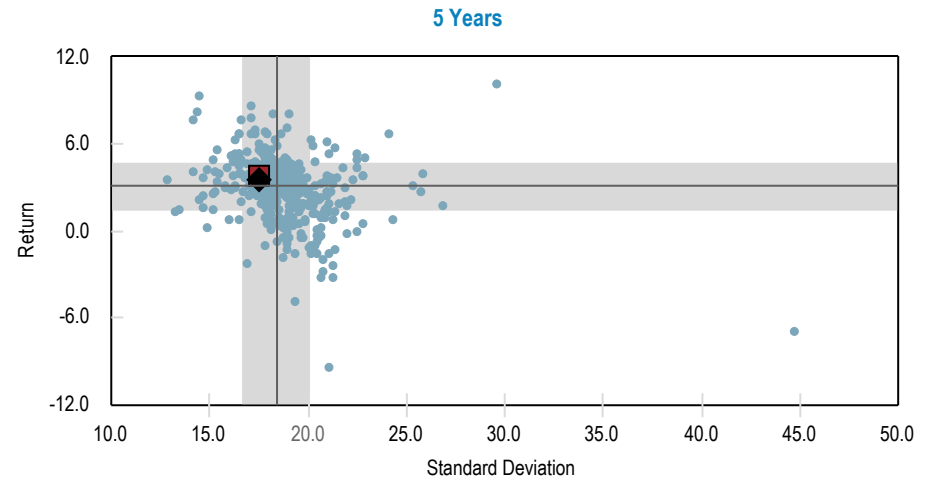
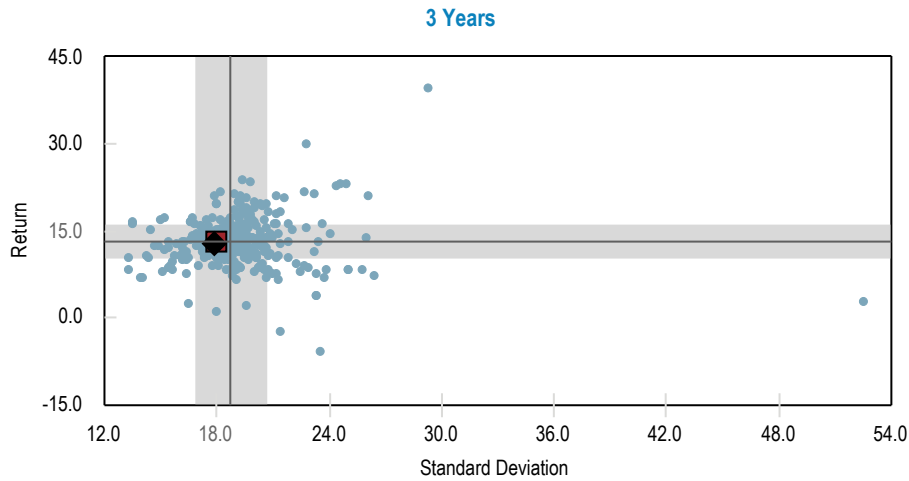
BlackRock International Equity vs. eV All EAFE Equity



	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● BlackRock International Equity	-14.12 (35)	11.62 (52)	8.07 (52)	22.40 (50)	-13.52 (29)	25.42 (64)	1.34 (46)	-0.63 (65)	-4.77 (57)	22.94 (55)
▲ MSCI EAFE (Net)	-14.45 (40)	11.26 (58)	7.82 (56)	22.01 (54)	-13.79 (35)	25.03 (68)	1.00 (52)	-0.81 (68)	-4.90 (61)	22.78 (56)
5th Percentile	-5.27	19.43	28.07	31.73	-9.06	38.56	8.73	11.71	2.50	34.57
1st Quartile	-12.47	14.15	14.12	25.88	-13.27	30.82	3.46	4.97	-2.39	27.09
Median	-15.83	11.77	8.19	22.26	-15.65	27.00	1.07	1.24	-4.41	23.38
3rd Quartile	-20.81	9.08	4.57	19.66	-18.23	24.42	-0.99	-1.52	-5.82	20.58
95th Percentile	-29.57	3.67	-2.29	15.63	-22.92	19.71	-5.45	-5.99	-9.10	12.58
Population	432	446	456	465	473	467	453	442	434	402

BlackRock International Equity
 Risk vs Return Three & Five Year (Net of Fees)

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023



eV All EAFE Equity

	Return	Standard Deviation
■ BlackRock International Equity	13.37	17.95
◆ MSCI EAFE (Net)	12.99	17.90
— Median	13.32	18.75
Population	386	386

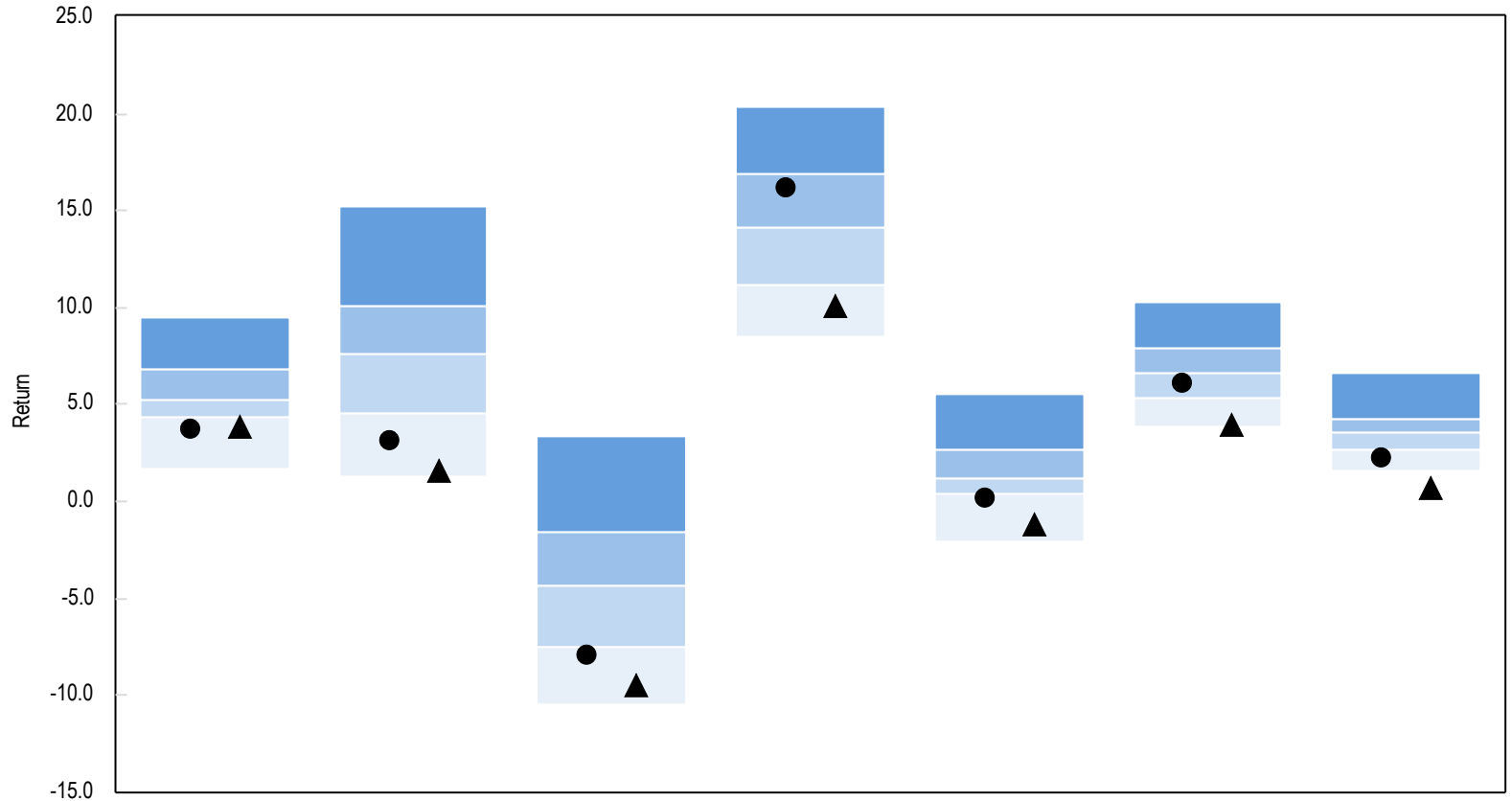
eV All EAFE Equity

	Return	Standard Deviation
■ BlackRock International Equity	3.89	17.53
◆ MSCI EAFE (Net)	3.52	17.49
— Median	3.12	18.41
Population	363	363

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

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

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

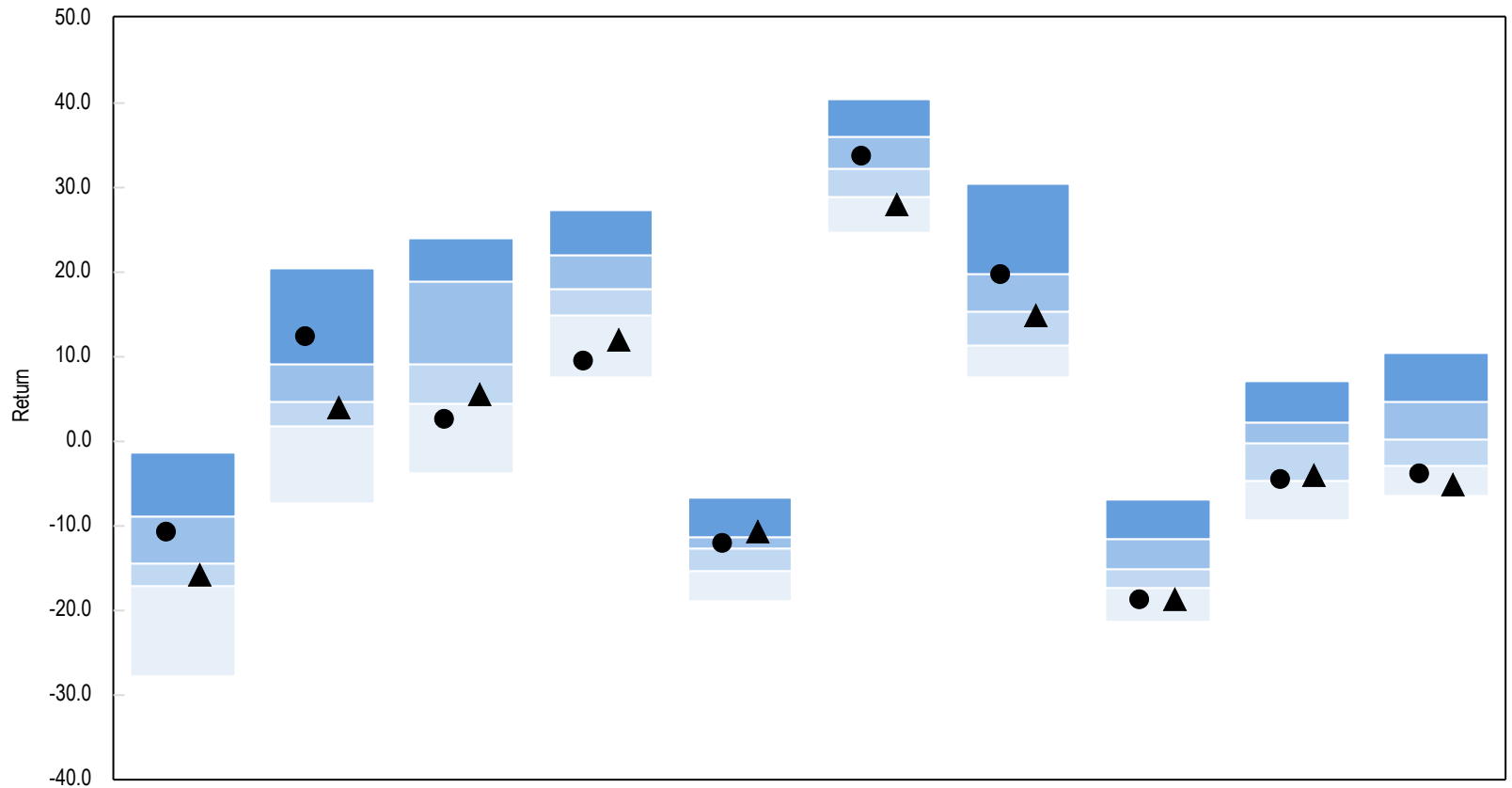


	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● DFA Emerging Markets Value	3.74 (85)	3.18 (83)	-7.88 (80)	16.23 (31)	0.20 (78)	6.17 (63)	2.24 (93)
▲ MSCI Emerging Markets Value (Net)	3.91 (83)	1.56 (95)	-9.44 (89)	10.04 (84)	-1.15 (94)	3.92 (95)	0.69 (100)
5th Percentile	9.49	15.24	3.39	20.32	5.55	10.24	6.61
1st Quartile	6.83	10.11	-1.60	16.88	2.66	7.89	4.22
Median	5.21	7.61	-4.29	14.11	1.22	6.65	3.55
3rd Quartile	4.36	4.53	-7.45	11.19	0.36	5.38	2.73
95th Percentile	1.68	1.34	-10.49	8.52	-2.06	3.90	1.62
Population	52	52	52	48	43	33	27

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

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

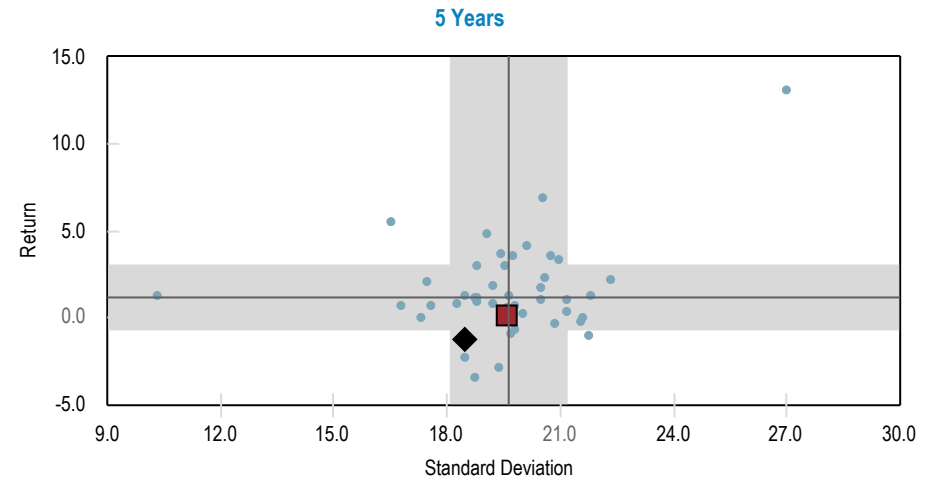
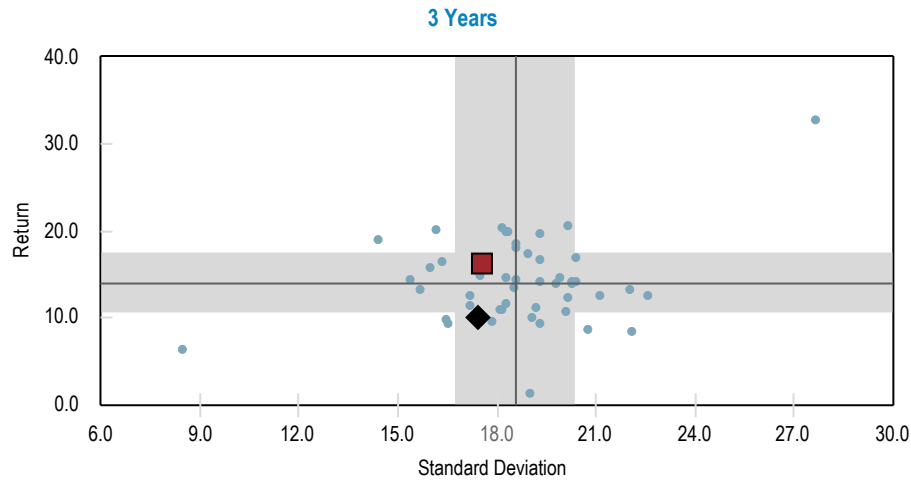
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity



	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● DFA Emerging Markets Value	-10.74 (36)	12.41 (19)	2.73 (82)	9.64 (93)	-11.93 (35)	33.76 (38)	19.84 (23)	-18.77 (88)	-4.41 (73)	-3.80 (80)
▲ MSCI Emerging Markets Value (Net)	-15.83 (57)	4.00 (62)	5.48 (72)	11.96 (91)	-10.74 (22)	28.07 (83)	14.90 (55)	-18.57 (87)	-4.08 (71)	-5.11 (89)
5th Percentile	-1.44	20.49	23.96	27.28	-6.62	40.45	30.40	-6.79	7.13	10.34
1st Quartile	-8.83	9.17	18.92	22.09	-11.31	36.02	19.67	-11.61	2.27	4.58
Median	-14.40	4.72	9.16	18.00	-12.73	32.24	15.44	-15.20	-0.27	0.32
3rd Quartile	-17.13	1.86	4.47	14.93	-15.24	28.82	11.37	-17.31	-4.75	-2.82
95th Percentile	-27.86	-7.27	-3.71	7.66	-18.81	24.59	7.46	-21.33	-9.41	-6.41
Population	57	55	58	59	56	52	48	46	50	50

DFA Emerging Markets Value
Risk vs Return Three & Five Year (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023



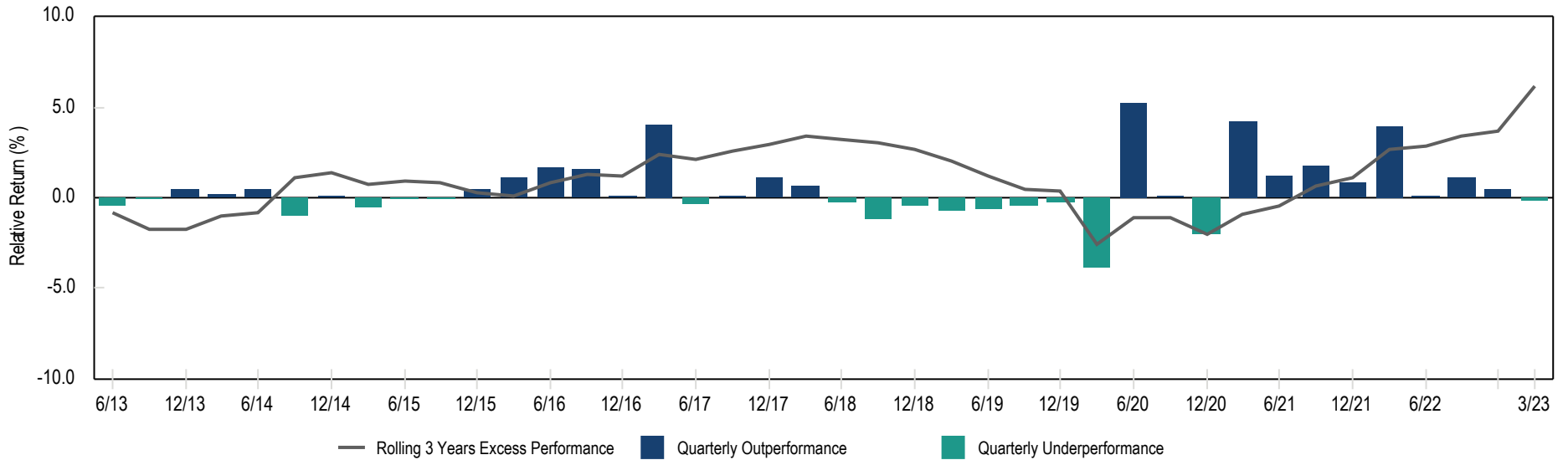
eV Emg Mkts All Cap Value Equity

	Return	Standard Deviation
■ DFA Emerging Markets Value	16.23	17.57
◆ MSCI Emerging Markets Value (Net)	10.04	17.40
— Median	14.11	18.56
Population	48	48

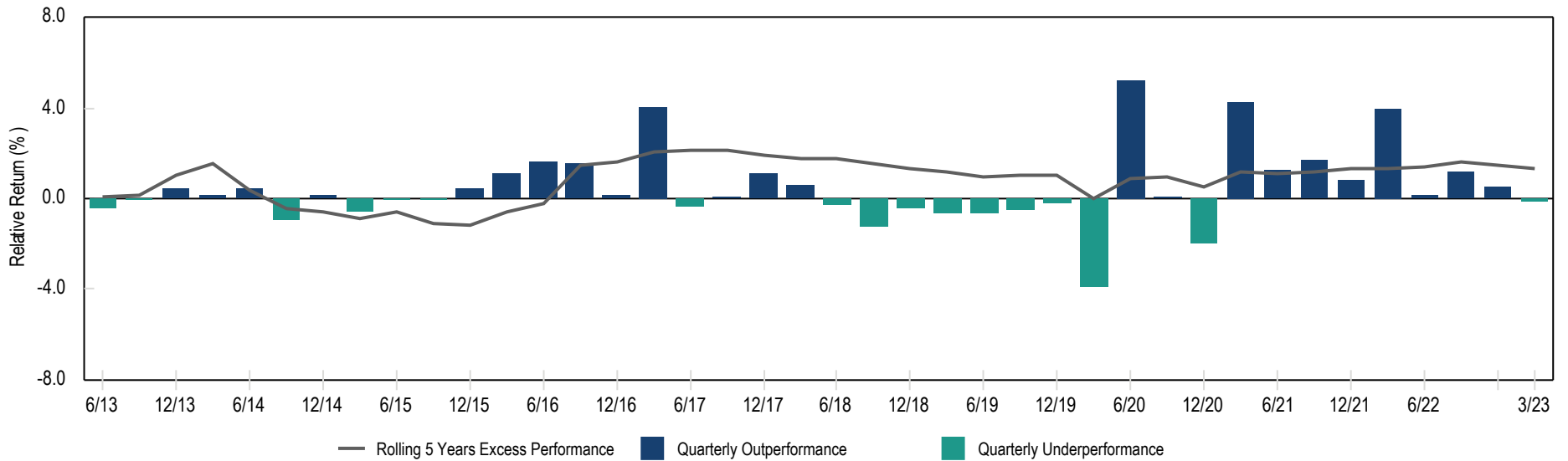
eV Emg Mkts All Cap Value Equity

	Return	Standard Deviation
■ DFA Emerging Markets Value	0.20	19.58
◆ MSCI Emerging Markets Value (Net)	-1.15	18.48
— Median	1.22	19.62
Population	43	43

Rolling 3 Year Annualized Excess Performance



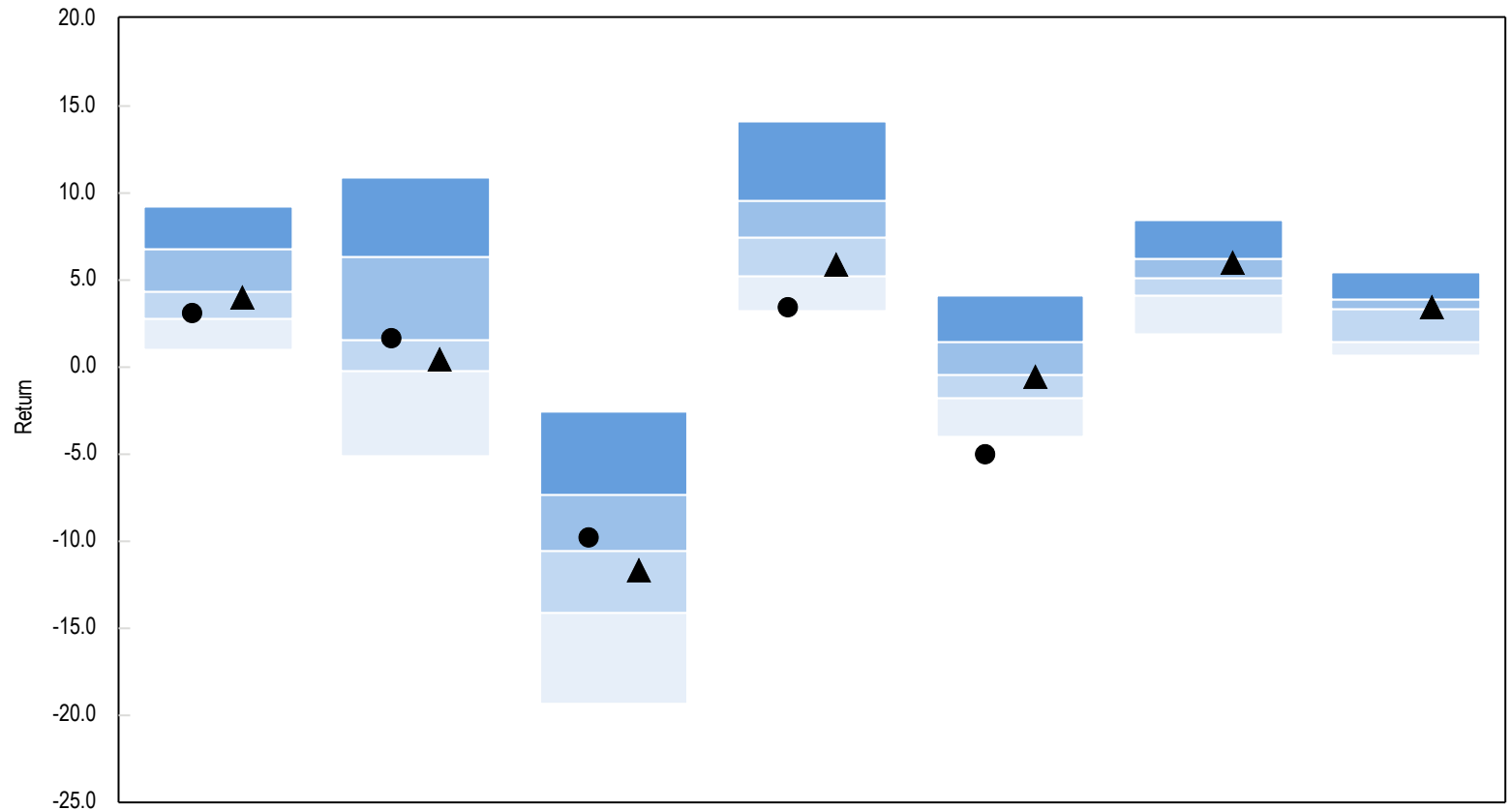
Rolling 5 Year Annualized Excess Performance



Harding Loevner Emerging Markets
Cumulative Performance Comparison (Net of Fees)

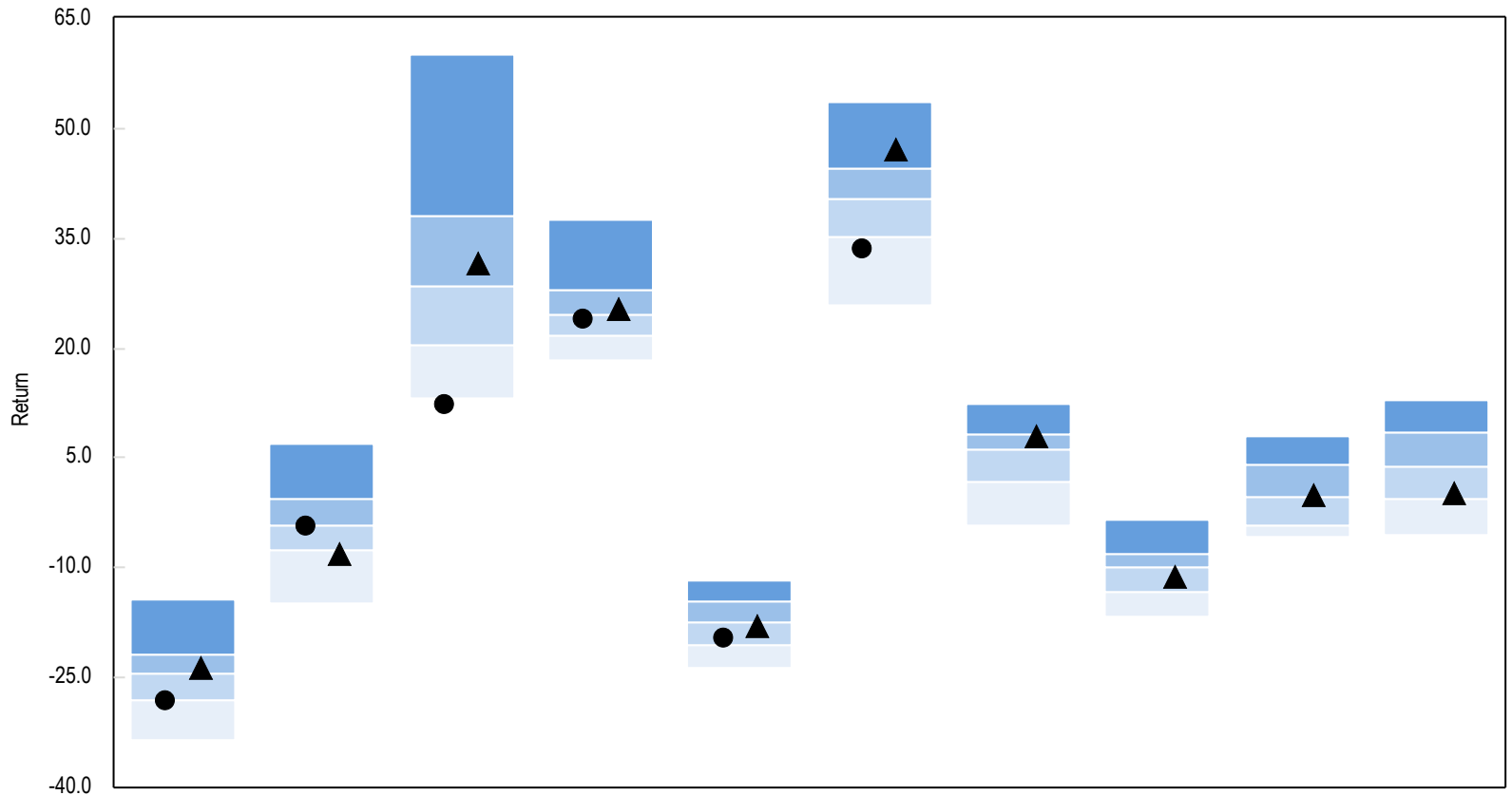
Imperial County Employees' Retirement System
Period Ending: March 31, 2023

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



	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Harding Loevner Emerging Markets	3.13 (71)	1.63 (50)	-9.80 (45)	3.47 (92)	-4.99 (98)	-	-
▲ MSCI Emerging Markets Growth Index	4.05 (53)	0.40 (65)	-11.62 (62)	5.89 (69)	-0.55 (55)	6.04 (36)	3.43 (37)
5th Percentile	9.28	10.90	-2.57	14.09	4.07	8.41	5.49
1st Quartile	6.76	6.35	-7.30	9.52	1.44	6.25	3.90
Median	4.35	1.58	-10.51	7.47	-0.46	5.11	3.28
3rd Quartile	2.77	-0.18	-14.07	5.23	-1.74	4.11	1.42
95th Percentile	1.03	-5.06	-19.35	3.19	-3.97	1.94	0.71
Population	60	60	60	55	48	41	32

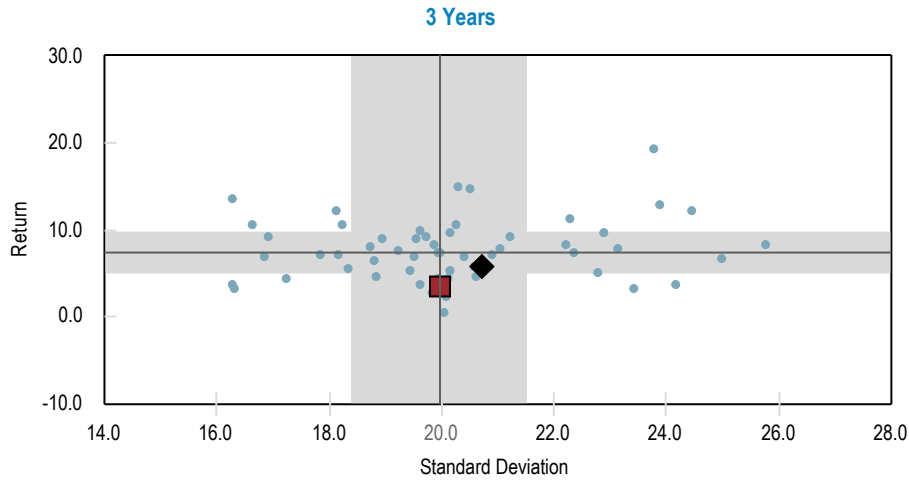
Harding Loevner Emerging Markets vs. eV Emg Mkts All Cap Growth Equity



	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● Harding Loevner Emerging Markets	-28.07 (77)	-4.27 (51)	12.36 (96)	24.04 (54)	-19.48 (69)	33.62 (85)	-	-	-	-
▲ MSCI Emerging Markets Growth Index	-23.74 (45)	-8.24 (79)	31.58 (38)	25.44 (40)	-18.04 (59)	47.12 (13)	7.87 (32)	-11.12 (60)	-0.09 (46)	0.07 (72)
5th Percentile	-14.33	6.93	59.96	37.40	-11.71	53.65	12.44	-3.54	7.86	12.88
1st Quartile	-21.79	-0.64	37.92	28.03	-14.62	44.46	8.23	-8.13	4.03	8.44
Median	-24.41	-4.27	28.43	24.49	-17.39	40.41	6.22	-9.92	-0.31	3.80
3rd Quartile	-27.95	-7.69	20.48	21.62	-20.57	35.26	1.77	-13.18	-4.32	-0.64
95th Percentile	-33.40	-14.94	13.10	18.34	-23.70	25.86	-4.22	-16.74	-5.74	-5.59
Population	61	62	61	61	58	58	58	58	48	45

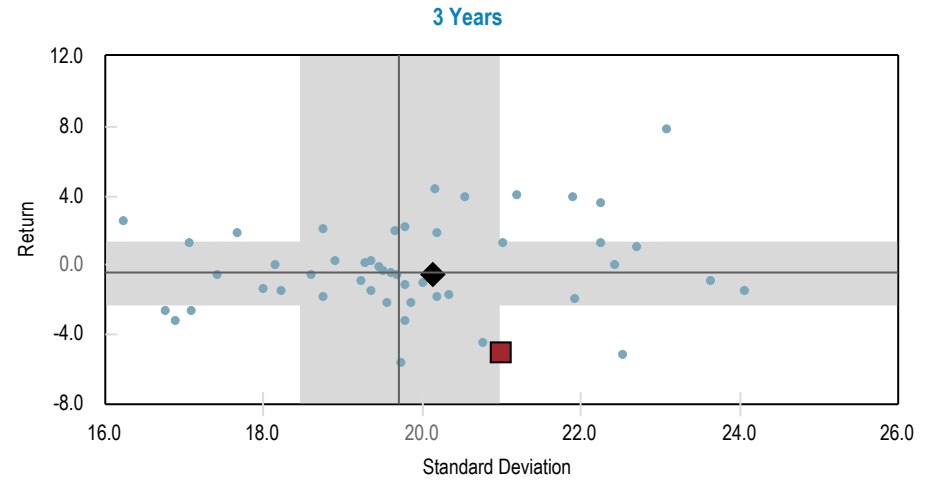
Harding Loevner Emerging Markets
Risk vs Return Three & Five Year (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023



eV Emg Mkts All Cap Growth Equity

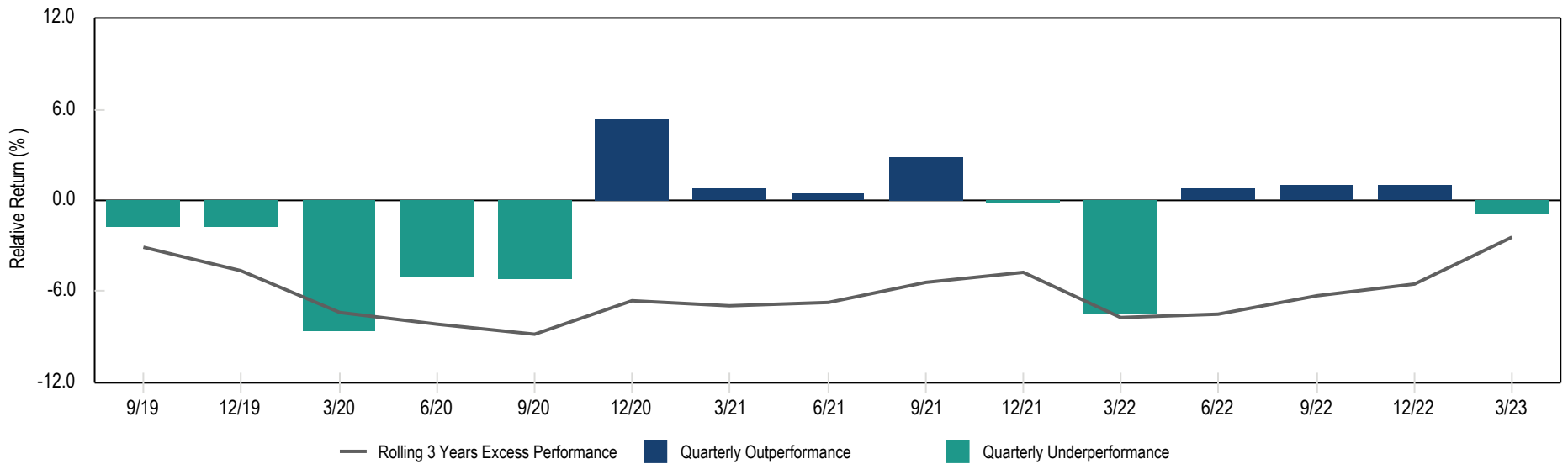
	Return	Standard Deviation
■ Harding Loevner Emerging Markets	3.47	19.98
◆ MSCI Emerging Markets Growth Index	5.89	20.72
— Median	7.47	19.95
Population	55	55



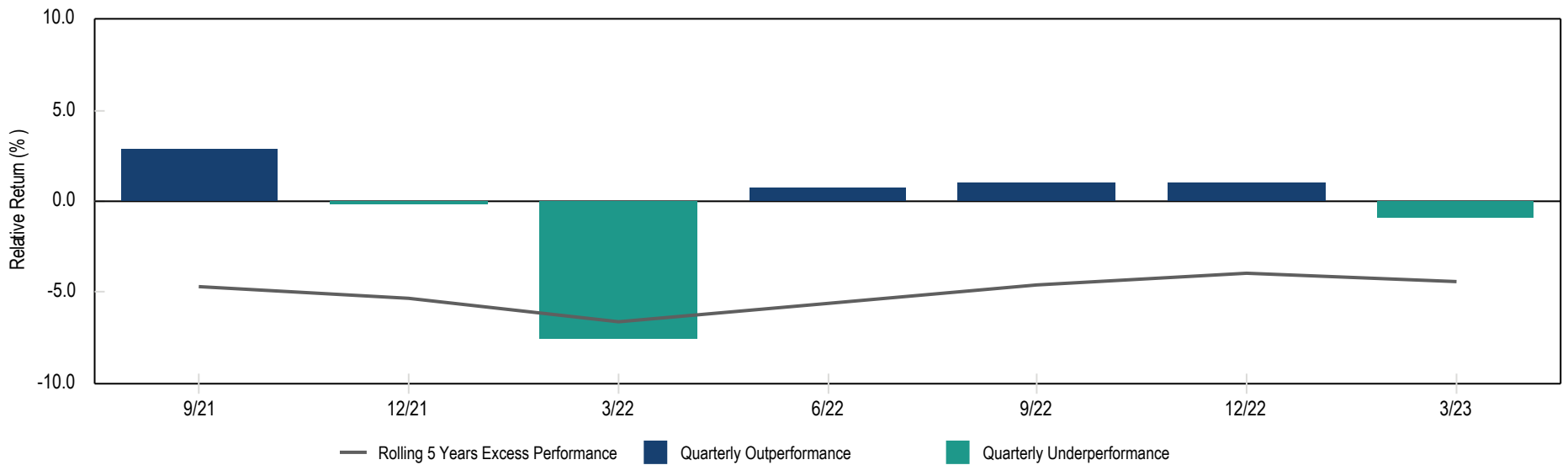
eV Emg Mkts All Cap Growth Equity

	Return	Standard Deviation
■ Harding Loevner Emerging Markets	-4.99	20.98
◆ MSCI Emerging Markets Growth Index	-0.55	20.14
— Median	-0.46	19.71
Population	48	48

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

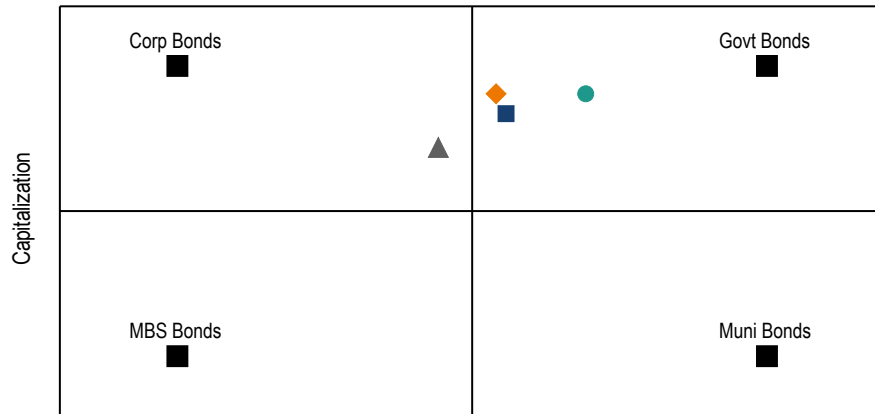


Total Fixed Income Asset Class Overview (Net of Fees)

Imperial County Employees' Retirement System Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2013
Total Fixed Income	240,171,645	100.0	3.2	-0.1	-6.1	-1.0	1.5	1.8	-14.2	0.6	9.8	9.5	-2.0
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4	-13.0	-1.5	7.5	8.7	-2.0
Ducenta Squared	99,282,844	41.3	3.1	-0.6	-6.4	-2.0	1.1	2.0	-14.9	-0.6	9.1	9.9	-0.8
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4	-13.0	-1.5	7.5	8.7	-2.0
<i>eV US Core Plus Fixed Inc Rank</i>			58	97	92	84	78	43	90	53	38	43	54
MacKay Shields Core Plus Opportunities	98,699,592	41.1	3.2	0.3	-5.7	-1.1	1.3	-	-14.5	-0.5	9.9	9.7	-
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	-	-13.0	-1.5	7.5	8.7	-
<i>eV US Core Plus Fixed Inc Rank</i>			51	70	82	64	61	-	86	51	22	52	-
BlackRock US TIPS	42,189,208	17.6	3.5	0.1	-6.0	1.8	3.0	1.5	-11.9	5.9	11.2	8.5	-8.6
<i>Blmbg. U.S. TIPS</i>			3.3	0.0	-6.1	1.8	2.9	1.5	-11.8	6.0	11.0	8.4	-8.6
<i>eV US TIPS / Inflation Fixed Inc Rank</i>			19	61	56	61	40	25	70	26	32	32	55

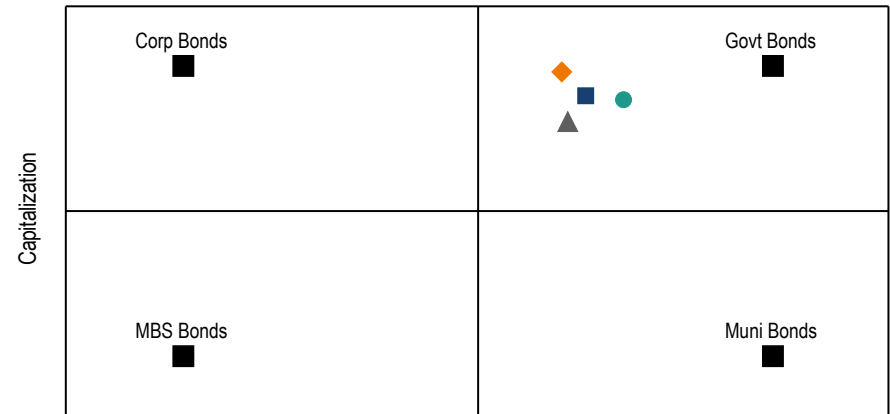
**Fixed Income Style Map
3 Years Ending March 31, 2023**



Manager Style

- Total Fixed Income
- Ducenta Squared
- MacKay Shields Core Plus Opportunities
- BlackRock US TIPS

**Fixed Income Style Map
5 Years Ending March 31, 2023**



Manager Style

- Total Fixed Income
- Ducenta Squared
- MacKay Shields Core Plus Opportunities
- BlackRock US TIPS

Total Fixed Income
Asset Class Overview (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

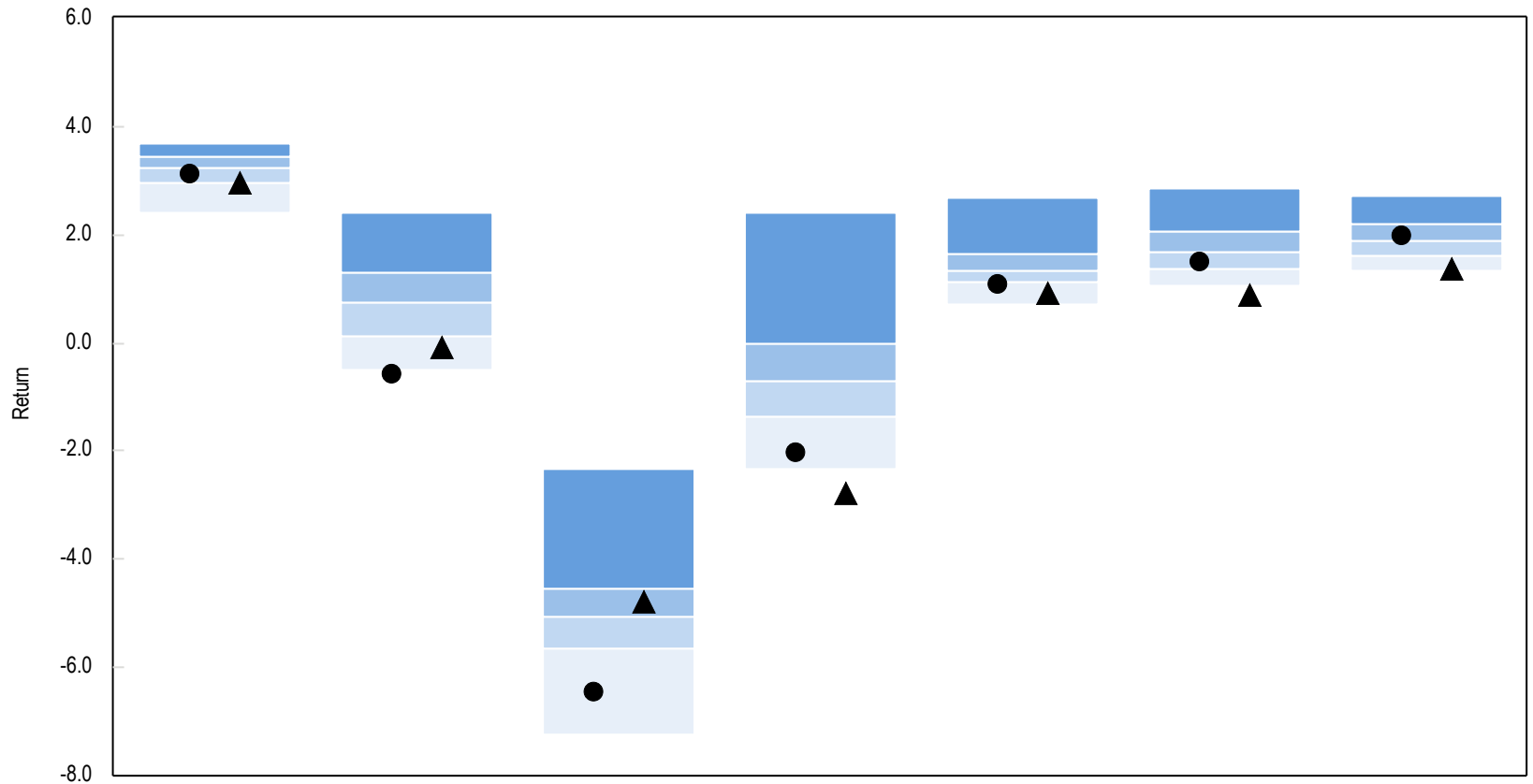
	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Fixed Income	240,171,645	100.0	3.2	-0.1	-6.1	-1.0	1.5	1.8	-14.2	0.6	9.8	9.5	-0.8
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4	-13.0	-1.5	7.5	8.7	0.0
Ducenta Squared	99,282,844	41.3	3.1	-0.6	-6.4	-2.0	1.1	2.0	-14.9	-0.6	9.1	9.9	-0.1
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	1.4	-13.0	-1.5	7.5	8.7	0.0
MacKay Shields Core Plus Opportunities	98,699,592	41.1	3.2	0.3	-5.7	-1.1	1.3	-	-14.5	-0.5	9.9	9.7	-1.0
<i>Blmbg. U.S. Aggregate Index</i>			3.0	-0.1	-4.8	-2.8	0.9	-	-13.0	-1.5	7.5	8.7	0.0
BlackRock US TIPS	42,189,208	17.6	3.5	0.1	-6.0	1.8	3.0	1.5	-11.9	5.9	11.2	8.5	-1.2
<i>Blmbg. U.S. TIPS</i>			3.3	0.0	-6.1	1.8	2.9	1.5	-11.8	6.0	11.0	8.4	-1.3

	Total Fixed Income	Ducenta Squared	MacKay Shields Core Plus Opportunities	BlackRock US TIPS	Blmbg. U.S. Aggregate Index
Total Fixed Income	1.00				
Ducenta Squared	0.99	1.00			
MacKay Shields Core Plus Opportunities	0.99	0.99	1.00		
BlackRock US TIPS	0.91	0.84	0.87	1.00	
Blmbg. U.S. Aggregate Index	0.96	0.97	0.95	0.83	1.00

Ducenta Squared
Cumulative Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

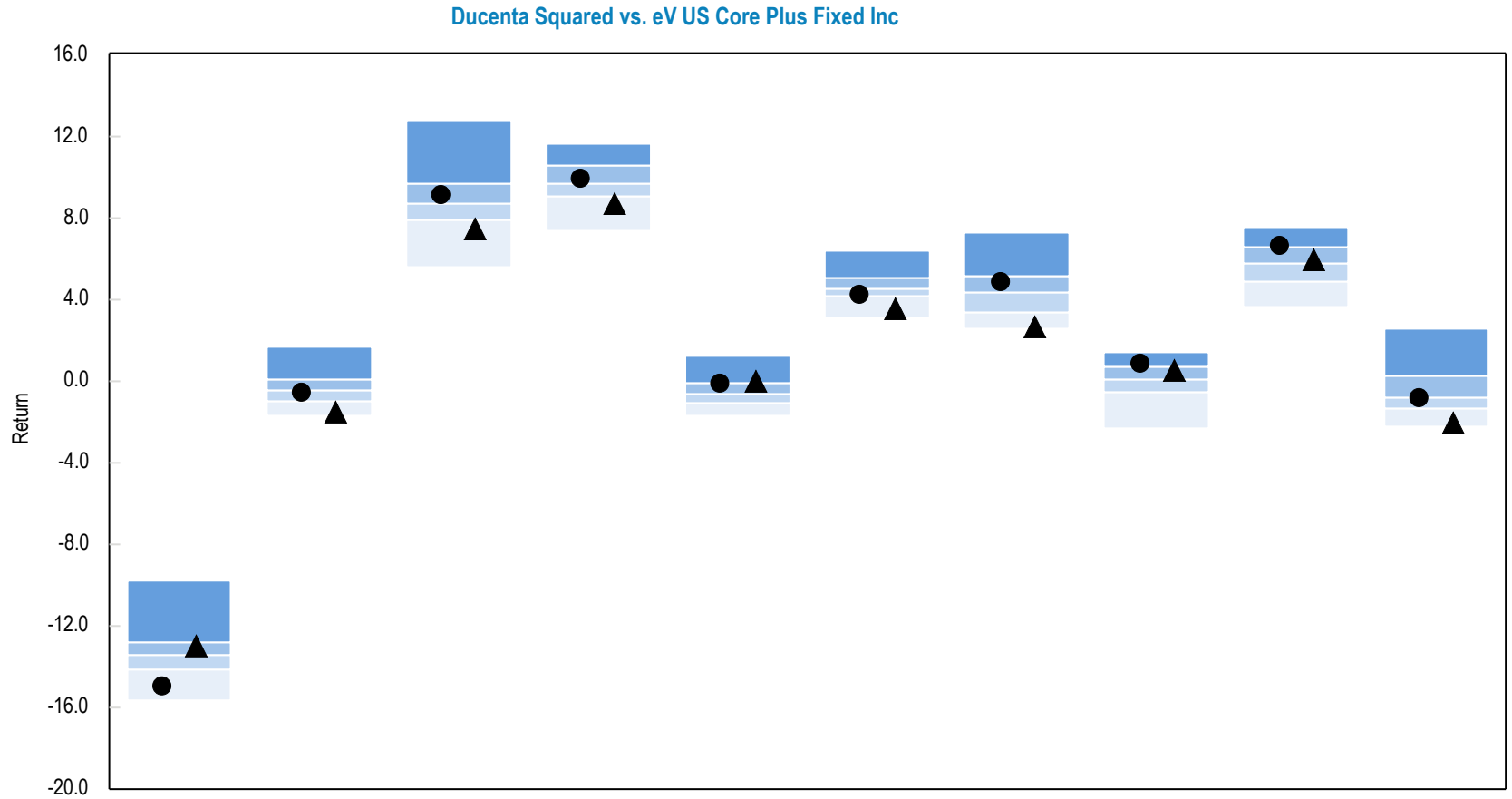
Ducenta Squared vs. eV US Core Plus Fixed Inc



	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Ducenta Squared	3.14 (58)	-0.57 (97)	-6.44 (92)	-2.04 (84)	1.08 (78)	1.50 (63)	1.98 (43)
▲ Blmbg. U.S. Aggregate Index	2.96 (75)	-0.09 (82)	-4.78 (35)	-2.77 (100)	0.90 (87)	0.88 (100)	1.36 (93)
5th Percentile	3.70	2.42	-2.32	2.39	2.68	2.86	2.71
1st Quartile	3.44	1.31	-4.56	-0.01	1.64	2.08	2.20
Median	3.24	0.74	-5.07	-0.71	1.33	1.68	1.89
3rd Quartile	2.96	0.13	-5.65	-1.36	1.11	1.37	1.62
95th Percentile	2.40	-0.51	-7.23	-2.34	0.72	1.05	1.34
Population	130	130	129	124	116	111	101

Ducenta Squared
Consecutive Performance Comparison (Net of Fees)

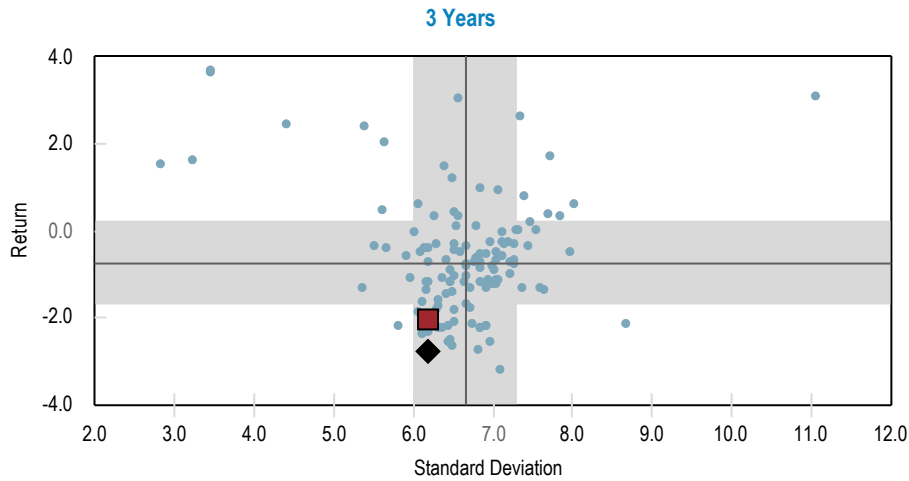
Imperial County Employees' Retirement System
Period Ending: March 31, 2023



	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● Ducenta Squared	-14.94 (90)	-0.57 (53)	9.11 (38)	9.91 (43)	-0.13 (26)	4.25 (67)	4.85 (32)	0.89 (17)	6.67 (24)	-0.83 (54)
▲ Blmbg. U.S. Aggregate Index	-13.01 (36)	-1.55 (92)	7.51 (82)	8.72 (81)	0.01 (25)	3.54 (91)	2.65 (93)	0.55 (30)	5.97 (42)	-2.02 (92)
5th Percentile	-9.76	1.71	12.82	11.63	1.24	6.44	7.28	1.44	7.54	2.53
1st Quartile	-12.76	0.09	9.65	10.61	-0.10	5.11	5.16	0.67	6.56	0.29
Median	-13.46	-0.43	8.71	9.73	-0.60	4.57	4.35	0.12	5.80	-0.77
3rd Quartile	-14.13	-1.02	7.89	9.03	-1.03	4.14	3.39	-0.51	4.87	-1.38
95th Percentile	-15.65	-1.70	5.64	7.39	-1.66	3.14	2.58	-2.27	3.68	-2.25
Population	139	141	144	145	143	145	142	141	139	137

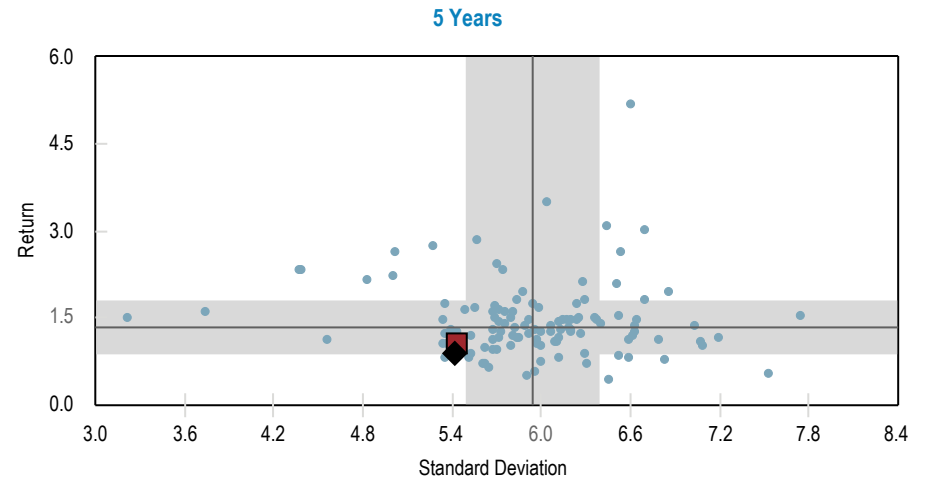
Ducenta Squared
 Risk vs Return Three & Five Year (Net of Fees)

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023



eV US Core Plus Fixed Inc

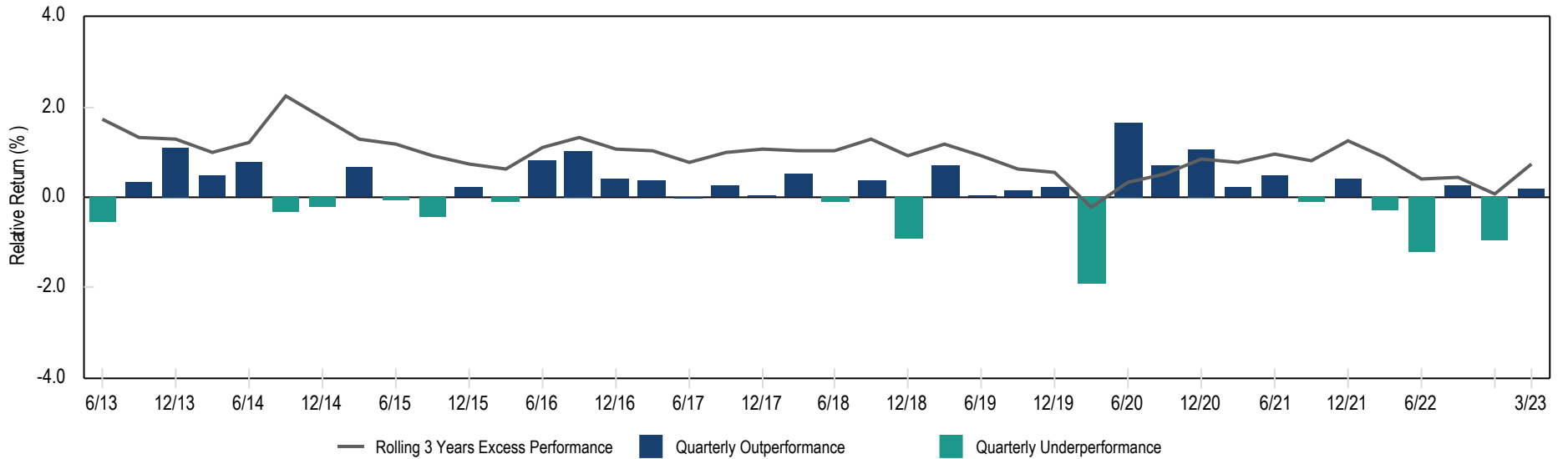
	Return	Standard Deviation
■ Ducenta Squared	-2.04	6.18
◆ Blmbg. U.S. Aggregate Index	-2.77	6.20
— Median	-0.71	6.66
Population	124	124



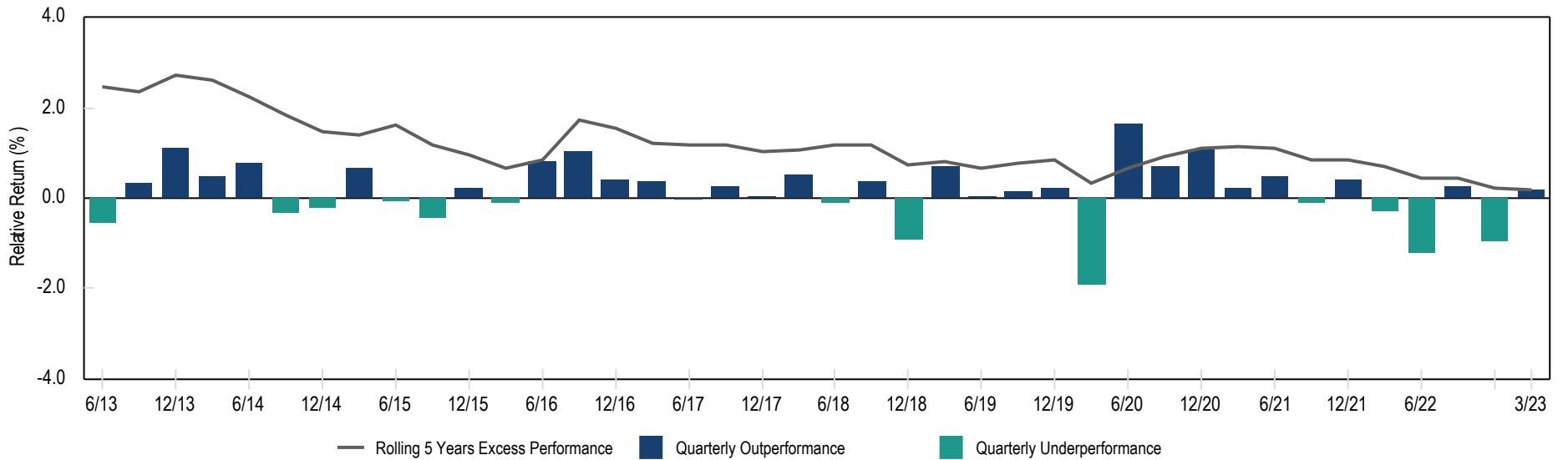
eV US Core Plus Fixed Inc

	Return	Standard Deviation
■ Ducenta Squared	1.08	5.43
◆ Blmbg. U.S. Aggregate Index	0.90	5.42
— Median	1.33	5.95
Population	116	116

Rolling 3 Year Annualized Excess Performance

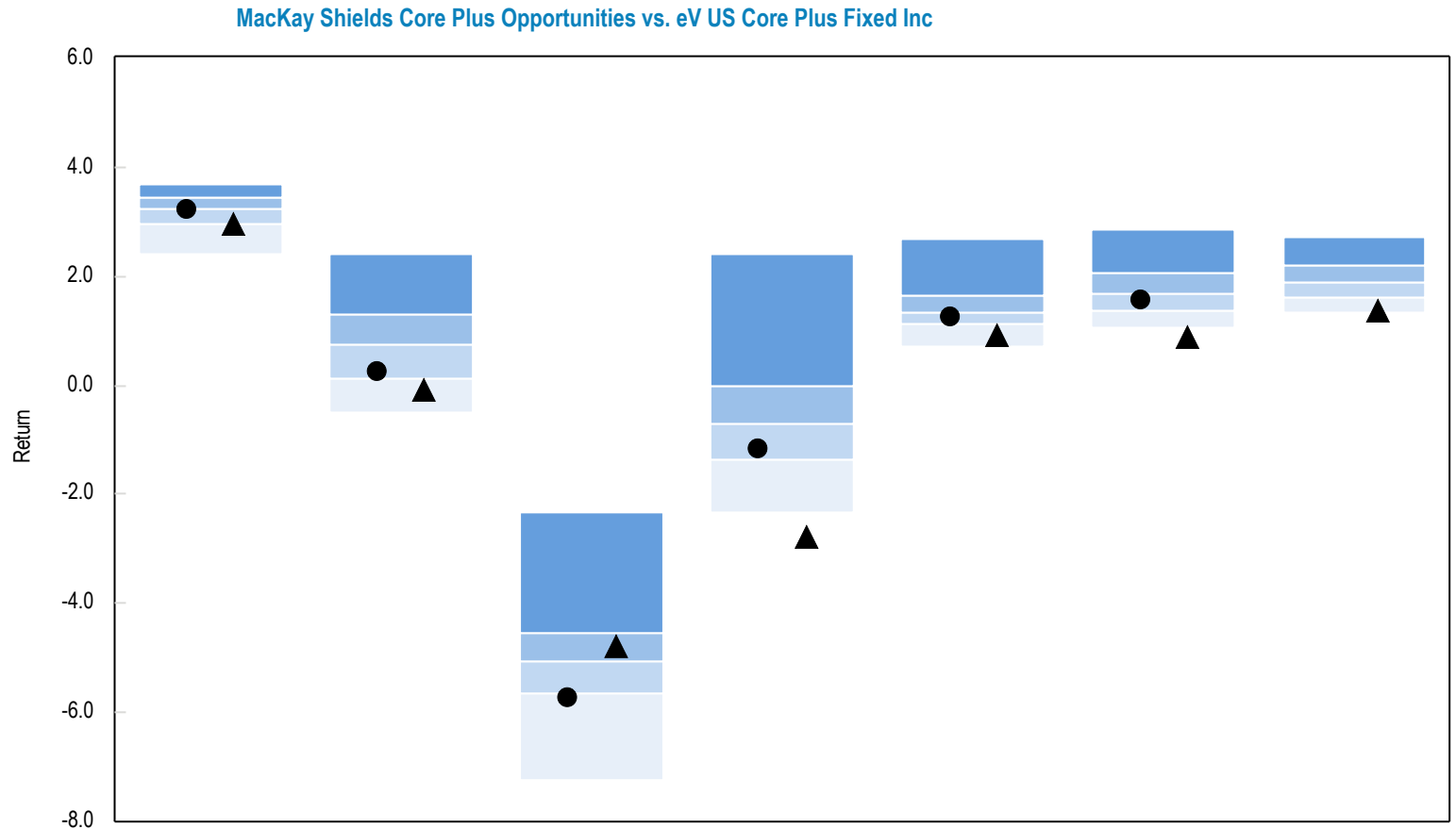


Rolling 5 Year Annualized Excess Performance



MacKay Shields Core Plus Opportunities
 Cumulative Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023

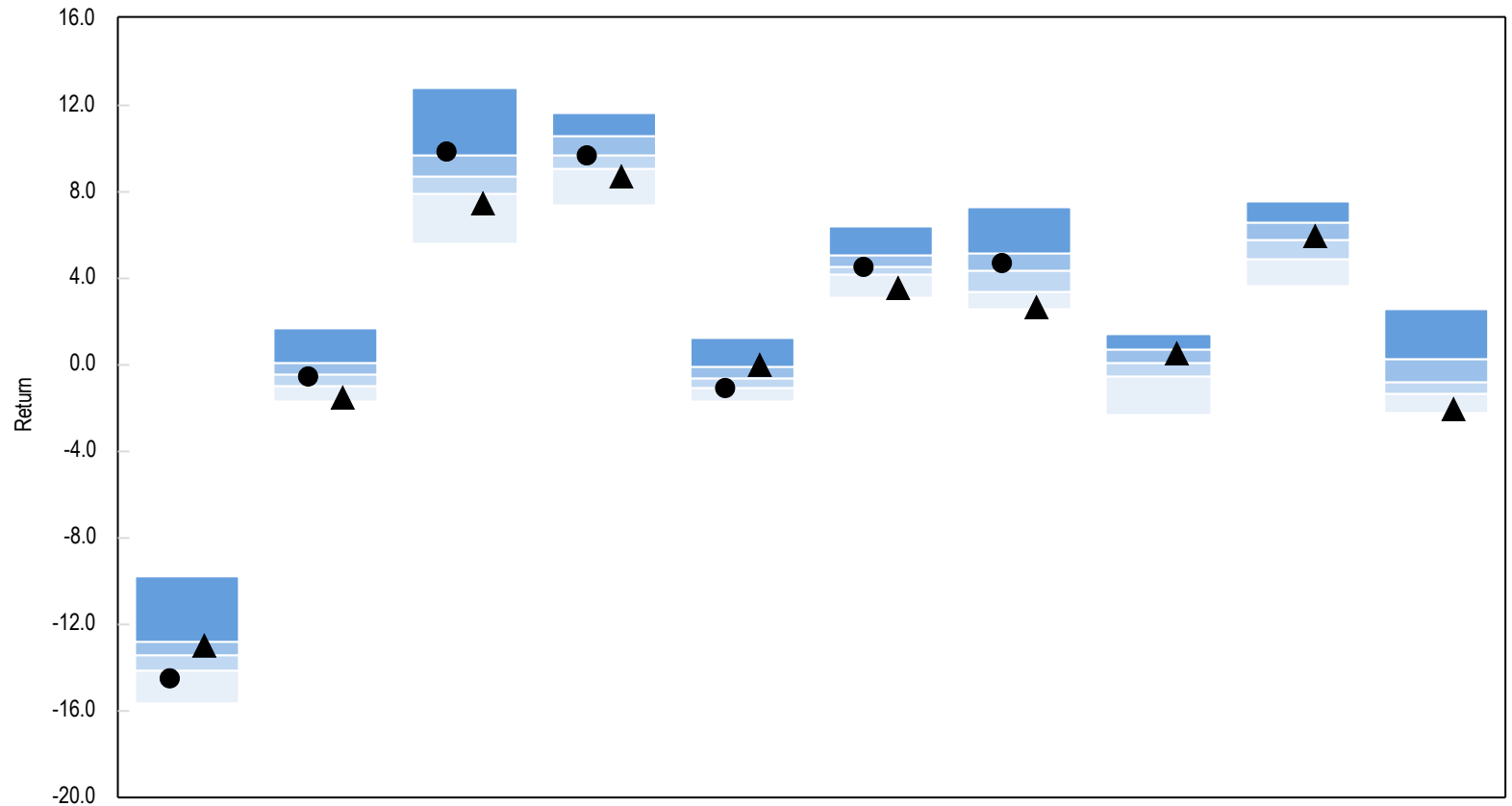


	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● MacKay Shields Core Plus Opportunities	3.23 (51)	0.27 (70)	-5.73 (82)	-1.15 (64)	1.25 (61)	1.57 (58)	-
▲ Blmbg. U.S. Aggregate Index	2.96 (75)	-0.09 (82)	-4.78 (35)	-2.77 (100)	0.90 (87)	0.88 (100)	1.36 (93)
5th Percentile	3.70	2.42	-2.32	2.39	2.68	2.86	2.71
1st Quartile	3.44	1.31	-4.56	-0.01	1.64	2.08	2.20
Median	3.24	0.74	-5.07	-0.71	1.33	1.68	1.89
3rd Quartile	2.96	0.13	-5.65	-1.36	1.11	1.37	1.62
95th Percentile	2.40	-0.51	-7.23	-2.34	0.72	1.05	1.34
Population	130	130	129	124	116	111	101

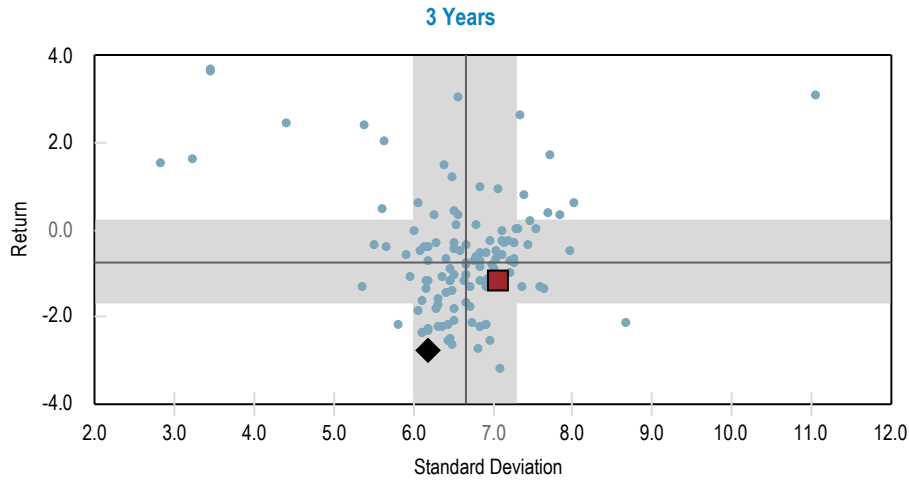
MacKay Shields Core Plus Opportunities
 Consecutive Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023

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

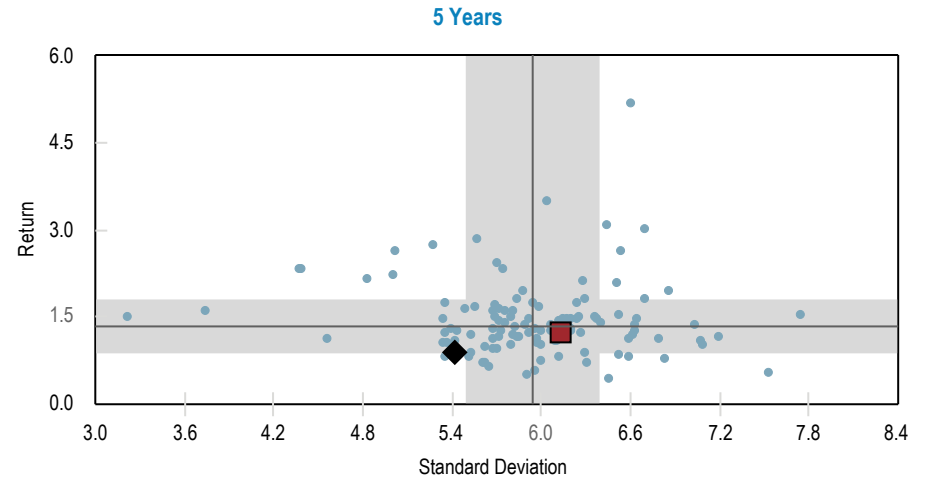


	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● MacKay Shields Core Plus Opportunities	-14.51 (86)	-0.49 (51)	9.91 (22)	9.67 (52)	-1.03 (76)	4.53 (52)	4.69 (38)	-	-	-
▲ Blmbg. U.S. Aggregate Index	-13.01 (36)	-1.55 (92)	7.51 (82)	8.72 (81)	0.01 (25)	3.54 (91)	2.65 (93)	0.55 (30)	5.97 (42)	-2.02 (92)
5th Percentile	-9.76	1.71	12.82	11.63	1.24	6.44	7.28	1.44	7.54	2.53
1st Quartile	-12.76	0.09	9.65	10.61	-0.10	5.11	5.16	0.67	6.56	0.29
Median	-13.46	-0.43	8.71	9.73	-0.60	4.57	4.35	0.12	5.80	-0.77
3rd Quartile	-14.13	-1.02	7.89	9.03	-1.03	4.14	3.39	-0.51	4.87	-1.38
95th Percentile	-15.65	-1.70	5.64	7.39	-1.66	3.14	2.58	-2.27	3.68	-2.25
Population	139	141	144	145	143	145	142	141	139	137



eV US Core Plus Fixed Inc

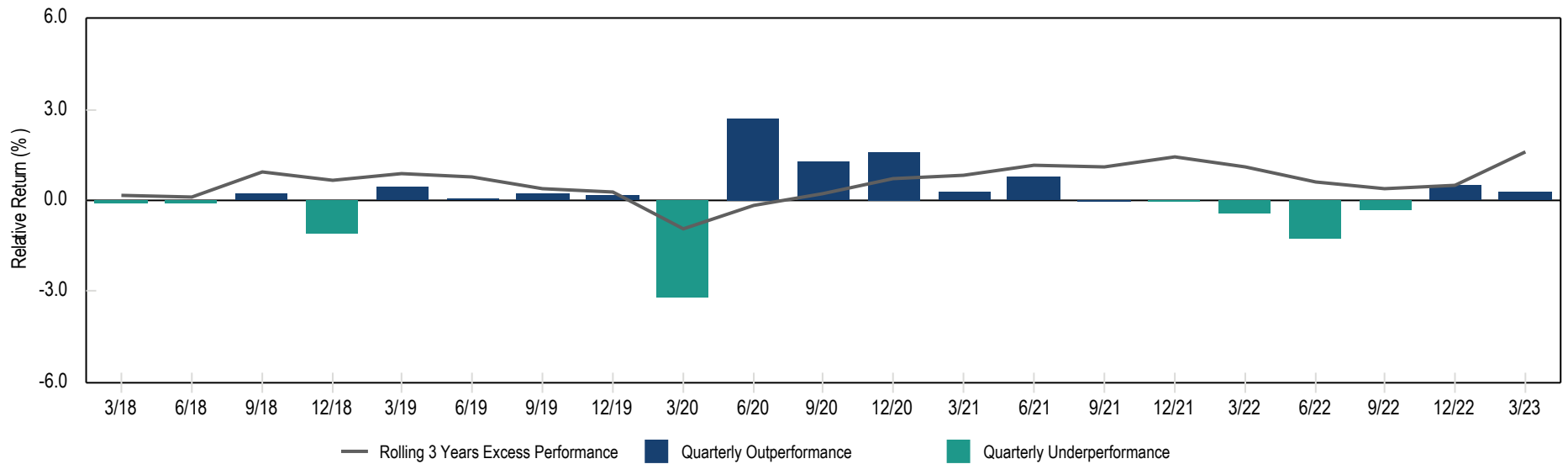
	Return	Standard Deviation
MacKay Shields Core Plus Opportunities	-1.15	7.06
Blmbg. U.S. Aggregate Index	-2.77	6.20
Median	-0.71	6.66
Population	124	124



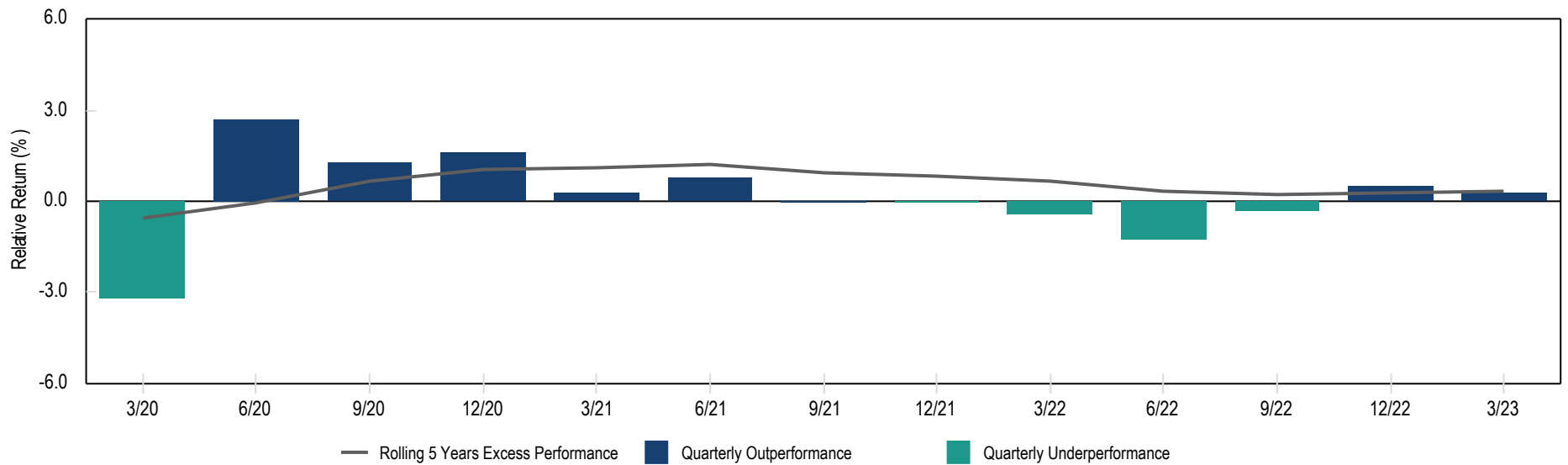
eV US Core Plus Fixed Inc

	Return	Standard Deviation
MacKay Shields Core Plus Opportunities	1.25	6.13
Blmbg. U.S. Aggregate Index	0.90	5.42
Median	1.33	5.95
Population	116	116

Rolling 3 Year Annualized Excess Performance



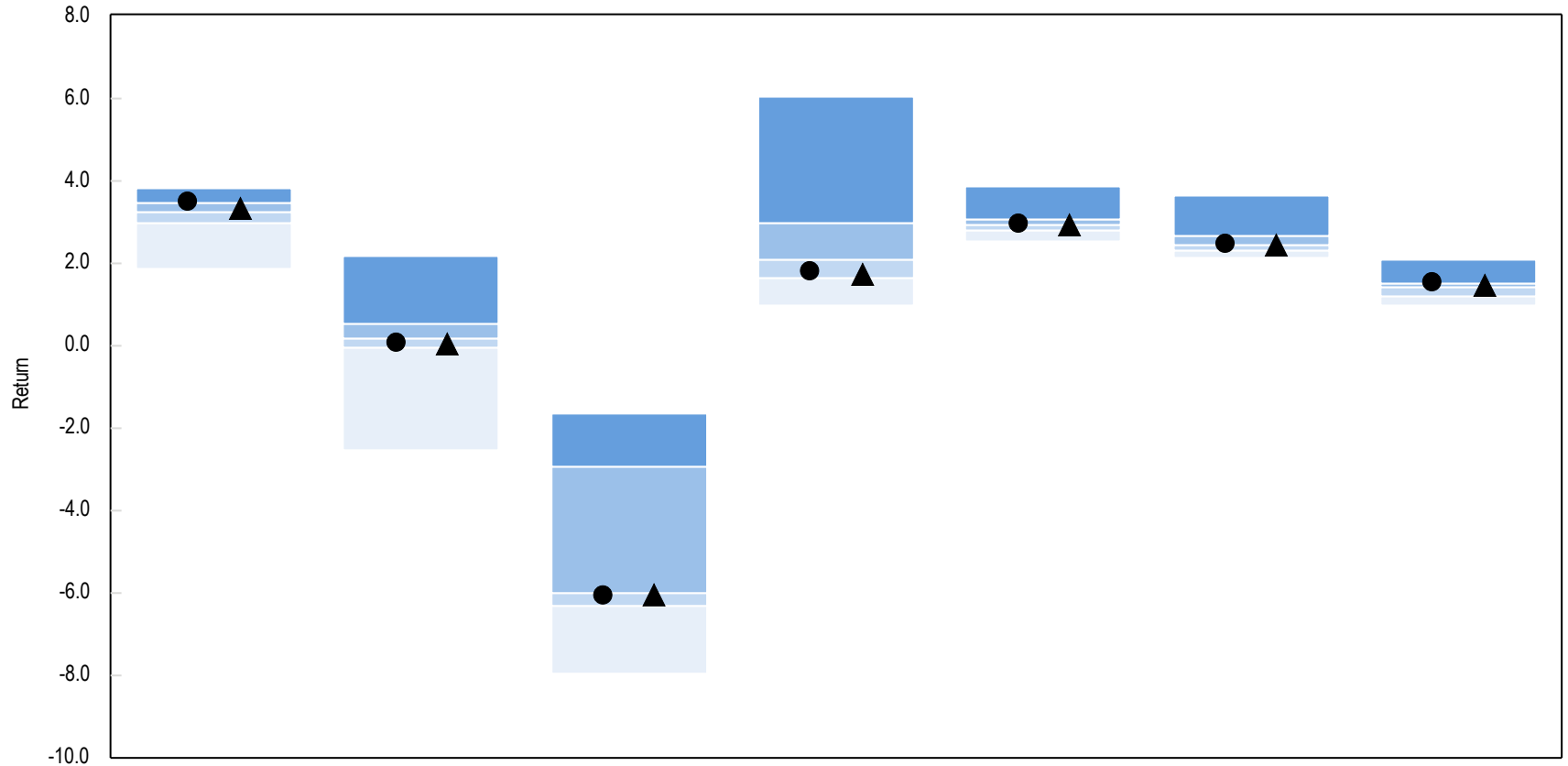
Rolling 5 Year Annualized Excess Performance



BlackRock US TIPS
 Cumulative Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
 Period Ending: March 31, 2023

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

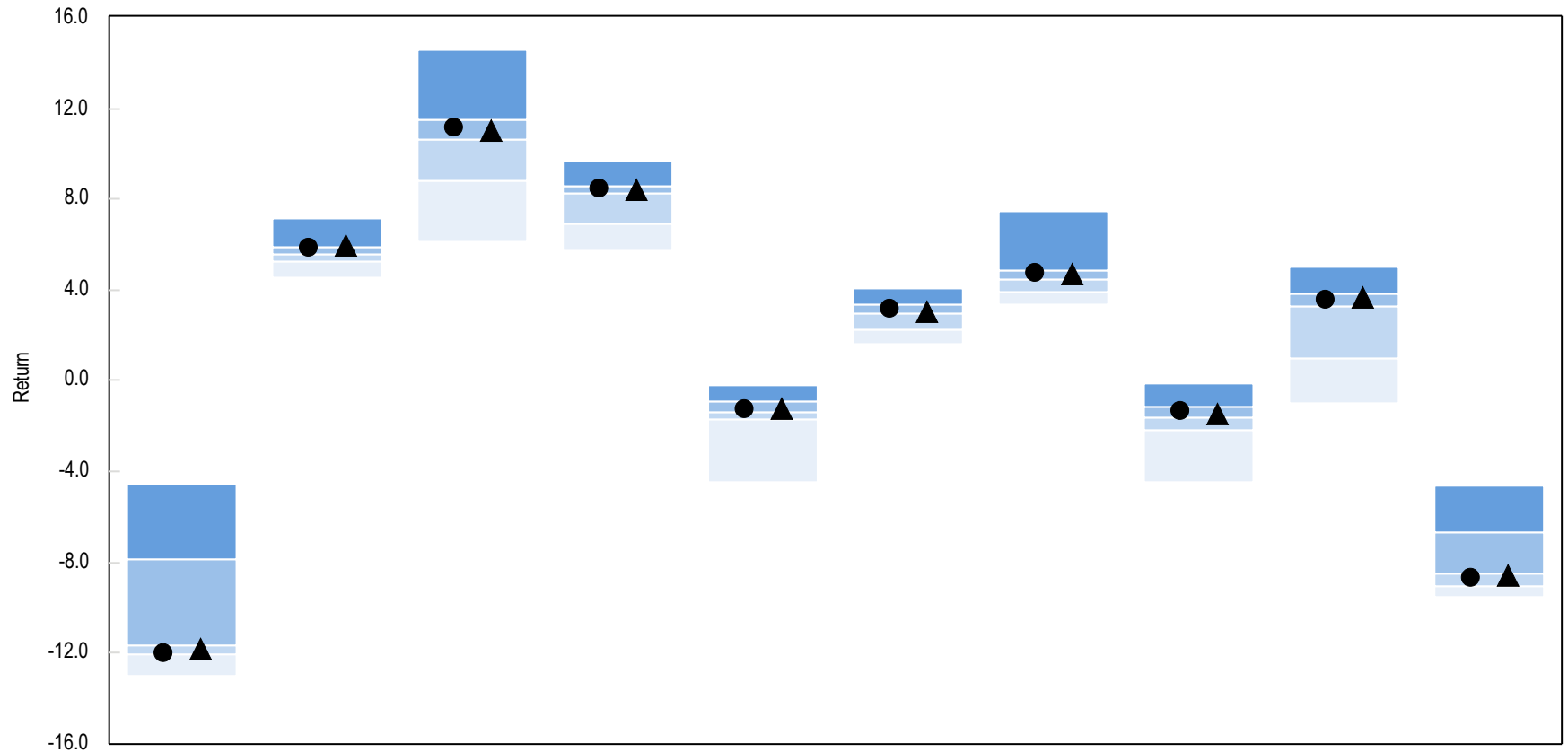


	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● BlackRock US TIPS	3.52 (19)	0.08 (61)	-6.04 (56)	1.82 (61)	2.98 (40)	2.51 (33)	1.54 (25)
▲ Blmbg. U.S. TIPS	3.34 (44)	0.02 (67)	-6.06 (59)	1.75 (65)	2.94 (48)	2.44 (51)	1.49 (37)
5th Percentile	3.81	2.17	-1.63	6.03	3.86	3.64	2.07
1st Quartile	3.45	0.55	-2.91	2.96	3.08	2.66	1.53
Median	3.24	0.18	-6.00	2.07	2.94	2.45	1.42
3rd Quartile	2.96	-0.04	-6.30	1.66	2.78	2.29	1.22
95th Percentile	1.87	-2.53	-7.94	0.96	2.55	2.15	0.97
Population	41	41	41	38	37	36	33

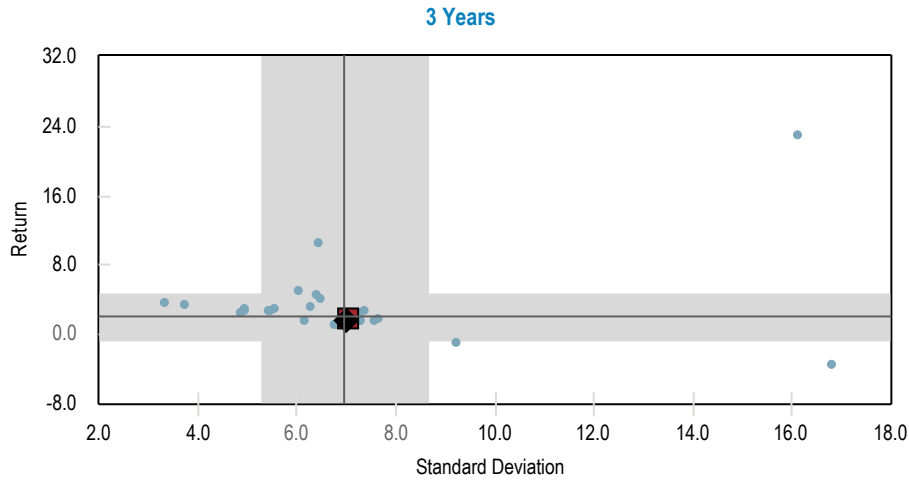
BlackRock US TIPS
Consecutive Performance Comparison (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

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

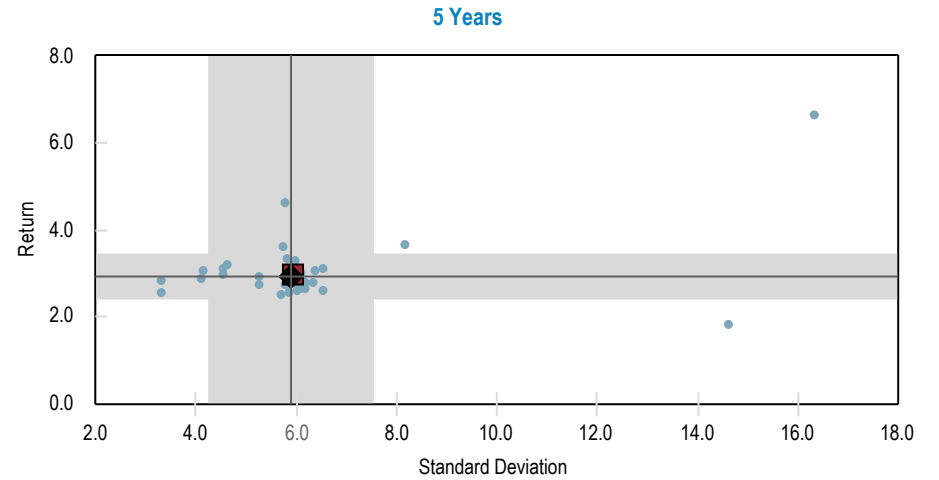


	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
● BlackRock US TIPS	-11.94 (70)	5.86 (26)	11.15 (32)	8.46 (32)	-1.19 (39)	3.17 (38)	4.77 (31)	-1.31 (34)	3.56 (37)	-8.61 (55)
▲ Blmbg. U.S. TIPS	-11.85 (63)	5.96 (19)	10.99 (37)	8.43 (33)	-1.26 (43)	3.01 (50)	4.68 (36)	-1.44 (37)	3.64 (32)	-8.61 (55)
5th Percentile	-4.55	7.18	14.56	9.64	-0.22	4.06	7.47	-0.10	5.01	-4.61
1st Quartile	-7.88	5.86	11.53	8.55	-0.91	3.40	4.89	-1.15	3.80	-6.68
Median	-11.67	5.58	10.60	8.30	-1.35	3.00	4.43	-1.61	3.26	-8.51
3rd Quartile	-12.04	5.25	8.80	6.90	-1.68	2.28	3.95	-2.15	0.98	-9.02
95th Percentile	-12.96	4.52	6.15	5.76	-4.43	1.65	3.35	-4.50	-0.95	-9.54
Population	43	45	45	47	52	54	57	59	62	64



eV US TIPS / Inflation Fixed Inc

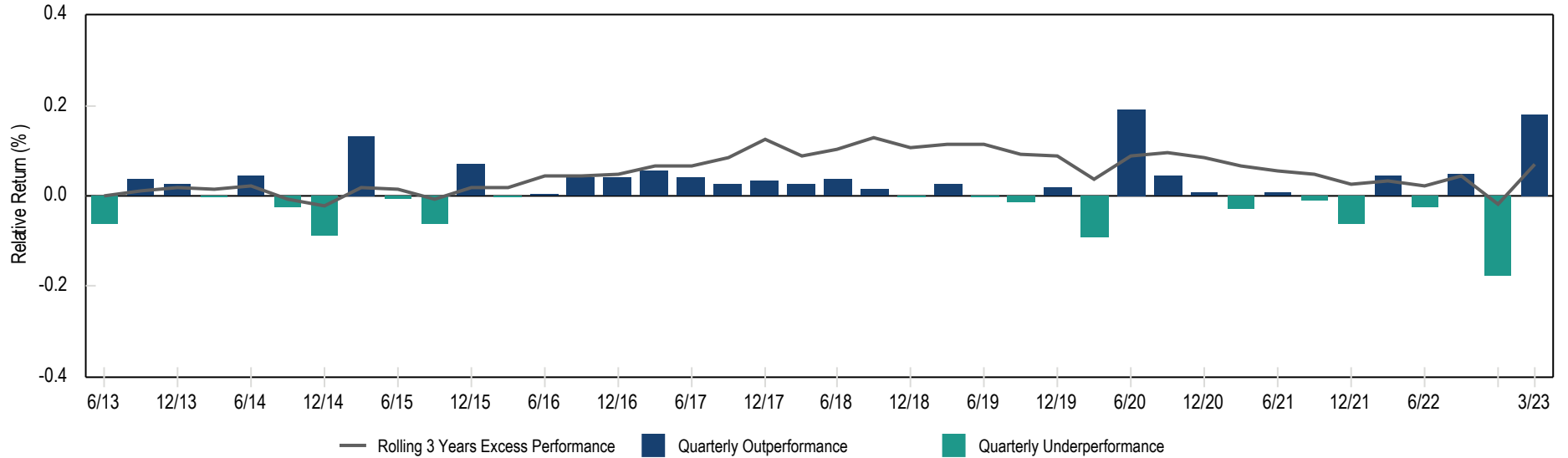
	Return	Standard Deviation
■ BlackRock US TIPS	1.82	7.03
◆ Blmbg. U.S. TIPS	1.75	7.00
— Median	2.07	6.97
Population	38	38



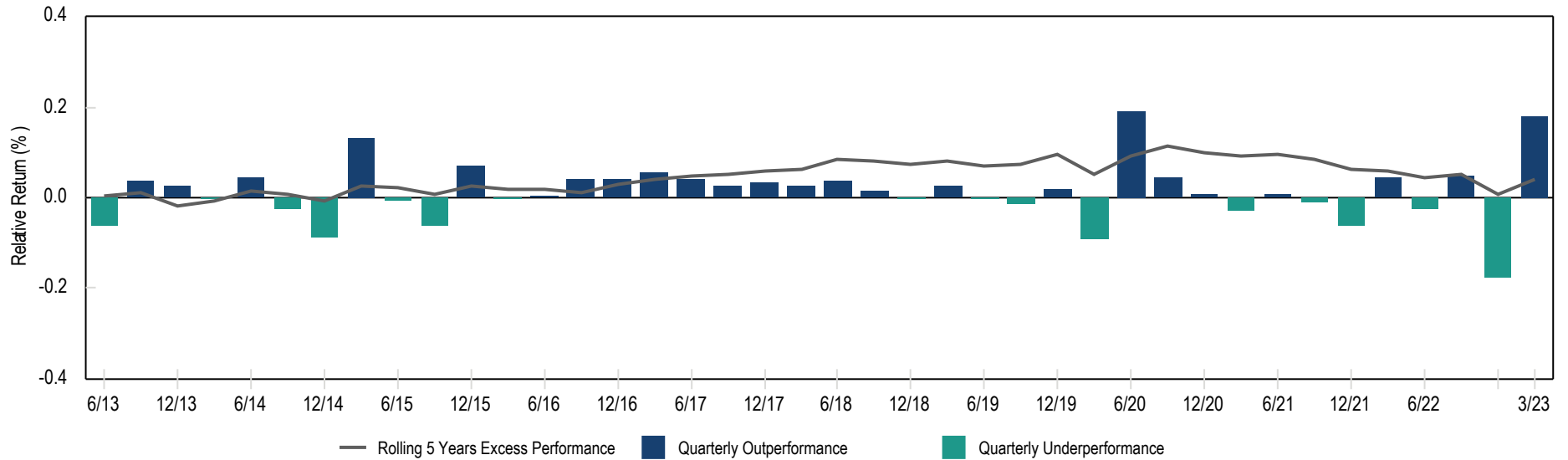
eV US TIPS / Inflation Fixed Inc

	Return	Standard Deviation
■ BlackRock US TIPS	2.98	5.94
◆ Blmbg. U.S. TIPS	2.94	5.91
— Median	2.94	5.91
Population	37	37

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance



Total Real Estate
Asset Class Overview (Net of Fees)

Imperial County Employees' Retirement System
Period Ending: March 31, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Real Estate	121,354,167	100.0	-3.9	-6.5	-2.3	7.5	7.0	8.6	8.5	18.4	2.1	5.7	7.5
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3	5.5	17.7	1.6	6.4	6.7
<i>NCREIF ODCE</i>			-3.2	-7.5	-3.1	8.4	7.4	8.7	7.5	22.2	1.2	5.3	7.1
ASB Real Estate	29,431,431	24.3	-5.5	-7.3	-3.1	6.1	5.5	7.6	10.7	14.2	1.5	3.0	6.6
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3	5.5	17.7	1.6	6.4	6.7
<i>NCREIF ODCE</i>			-3.2	-7.5	-3.1	8.4	7.4	8.7	7.5	22.2	1.2	5.3	7.1
Clarion Lion	32,475,274	26.8	-5.1	-9.4	-2.8	9.0	8.3	9.7	9.6	23.6	2.3	6.8	8.6
<i>NCREIF Property Index</i>			-1.8	-4.7	-1.6	7.2	6.7	8.3	5.5	17.7	1.6	6.4	6.7
<i>NCREIF ODCE</i>			-3.2	-7.5	-3.1	8.4	7.4	8.7	7.5	22.2	1.2	5.3	7.1
ARA American Strategic Value Realty	57,456,822	47.3	-2.4	-4.5	-1.9	7.7	7.7	-	6.8	18.6	2.4	7.8	-
<i>NCREIF Property Index +2%</i>			-1.3	-3.3	0.3	9.3	8.8	-	7.6	20.0	3.6	8.5	8.9
<i>NCREIF ODCE +2%</i>			-2.7	-6.1	-1.1	10.6	9.4	-	9.6	24.6	3.2	7.4	8.9
1221 State St. Corp	1,990,640	1.6	0.0	0.0	0.0	0.0	1.5	2.4	0.0	0.0	0.0	7.9	0.0

Data Sources & Methodology

Performance Return Calculations

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

Data Source

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

Illiquid Alternatives

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

Manager Line Up

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 3000	12/10/2015	J.P. Morgan	1221 State Street Corp	9/30/2008	ICERS/Union Bank
BlackRock International Equity	7/3/2003	J.P. Morgan	Cash	-	J.P. Morgan
DFA Emerging Markets Value	1/11/2007	J.P. Morgan	HarbourVest IX-Buyout	2011 ¹	HarbourVest
Harding Loevner	7/5/2016	Harding Loevner	HarbourVest IX-Credit	2011 ¹	HarbourVest
Bradford & Marzec Fixed (Tortoise Capital)	12/1/1992	J.P. Morgan	HarbourVest International VI	2008 ¹	HarbourVest
MackKay Shields Core Plus Ops	3/2/2015	CITCO	Harbourvest IX-Venture	2011 ¹	HarbourVest
BlackRock US TIPS	4/11/2007	J.P. Morgan	Harbourvest 2017 Global	2017 ¹	HarbourVest
ASB Real Estate	12/31/2012	ASB Real Estate	Harbourvest 2018 Global	2018 ¹	HarbourVest
Clarion Lion	12/31/2006	Clarion Lion	Harbourvest 2019 Global	2019 ¹	HarbourVest
Portfolio Advisors	10/31/2017	Portfolio Advisors	KKR Mezzanine	2010 ¹	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			

¹Represents fund vintage year.

Policy & Custom Index Composition

Policy Index (8/1/2020- Current)	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).
Policy Index (7/1/2014-9/30/2016)	29% Russell 3000, 25% MSCI ACWI ex-US (Gross), 30% Barclays U.S. Aggregate, 6% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000 +3% (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: $\text{Portfolio Return} - [\text{Risk free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk free Rate})]$.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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