



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: JUNE 30, 2023

Investment Performance Review for

Western States Office and Professional Employees' International Union Pension Plan

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

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JUNE 2023
Capital Markets Update

Market commentary

U.S. ECONOMICS

- June offered a mixed bag of labor market data. Nonfarm payrolls increased by 209,000 and showed further signs of cooling. However, the number of persons employed part time for economic reasons (not enough work or worsening business conditions, etc.) rose by 452,000 to 4.2 million which could signal some weakness.
- Alternatively, private sector job employment as measured by ADP trounced expectations (220,000) and grew by 497,000 jobs, the highest monthly change in more than a year. The June figure shocked markets as it followed 350bps of rate hikes enacted by the Federal Reserve over the last twelve months.
- The ISM Manufacturing Index fell -0.9 to 46.0. All components of the index are now under 50, which suggests contracting business conditions. The Production and Employment indices – which were the only components above 50.0 in May – fell to 46.7 and 48.1, respectively.

U.S. EQUITIES

- U.S equities ended the quarter on a high note. The S&P 500 – which returned +8.7% for the quarter and +6.6% in June – was likely boosted by improved earnings projections through year end, greater optimism surrounding the economy, and the Fed’s rate pause.
- The Fed released results from its annual banking stress test. This year’s test was only applicable to the “too big to fail” classification of banks, but results helped ease lingering concerns of potential bank failures as all 23 banks passed. The stress test assumed a 10% unemployment rate, 40% decline in commercial real estate prices, a 38% decline in home prices and a minimum 4.5% capital ratio. Financials stocks gained +6.7%.

U.S. FIXED INCOME

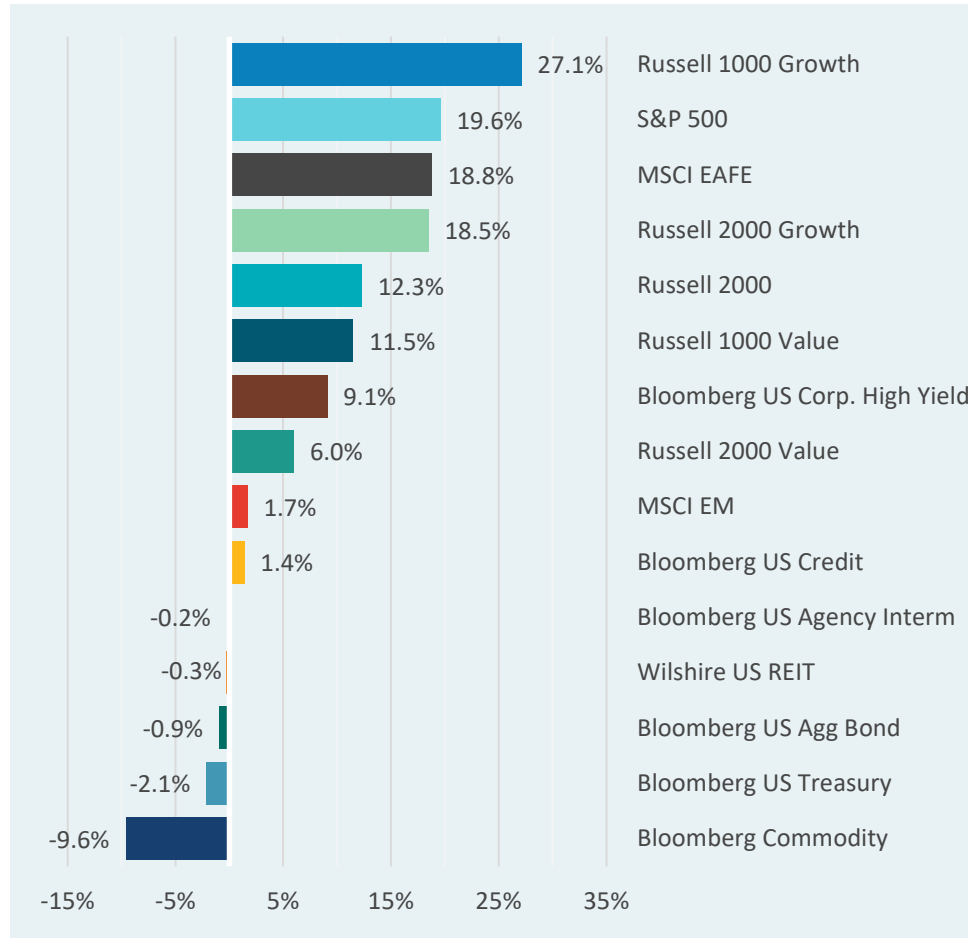
- The Fed held rates constant at a range of 5.00%-5.25%. This was referred to by many as a “hawkish pause”, after the Fed signaled that there would likely be more hikes later in the year. Minutes from the meeting show some officials would have supported another 25-bps hike. FOMC members noted the tight labor market, continued economic momentum, and questioned if the effects of prior hikes had yet been realized.
- Looking ahead, investors await the July 25th FOMC meeting for which a high probability of a +25bps increase is now priced in. Markets are assuming a peak rate of 5.6% in the fall of 2023.
- The U.S. yield curve ended the month mildly flatter as 3-month Treasuries declined by -9bps while the 10-year Treasury rose +17bps and the 30-year remained stable at 3.85%. Aside from a -3bps decline in March, the 3-month had been consistently moving higher since August 2021.

INTERNATIONAL MARKETS

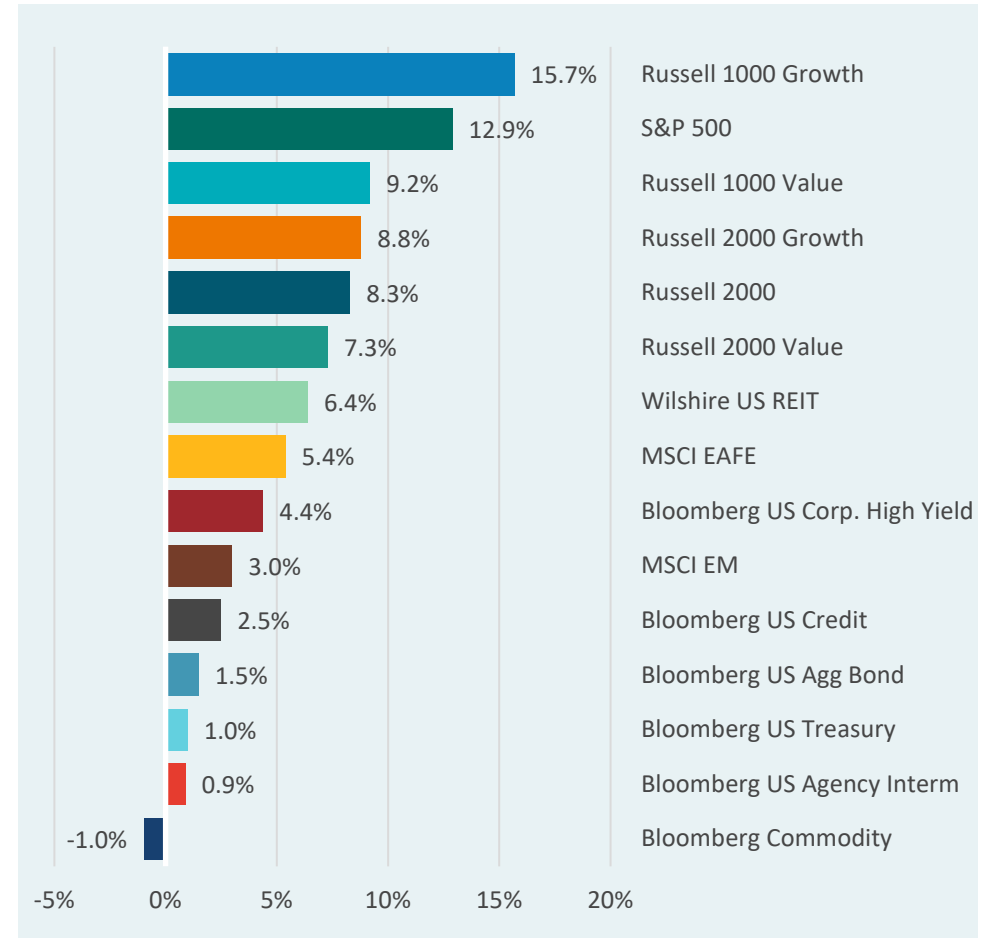
- Unlike the Fed, many central banks opted for more rate hikes amid similar backdrops of continued economic strength and persistent inflation. The Bank of England voted 7-2 for a +50bps increase while the European Central Bank and Bank of Canada hiked +25bps. The ECB also raised year-end core inflation projections to 5.4% and lowered GDP expectations to 0.9% for the year.
- On June 16th, the Bank of Japan announced that they would keep their low-rate policy unchanged. The dovish stance, including expectations for cooling inflation, was negative for the yen. Following the announcement, the yen fell and continued to fall through month-end to finish -2.5% lower against the dollar.

Major asset class returns

ONE YEAR ENDING JUNE



TEN YEARS ENDING JUNE



*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 6/30/23

Source: Morningstar, as of 6/30/23

U.S. large cap equities

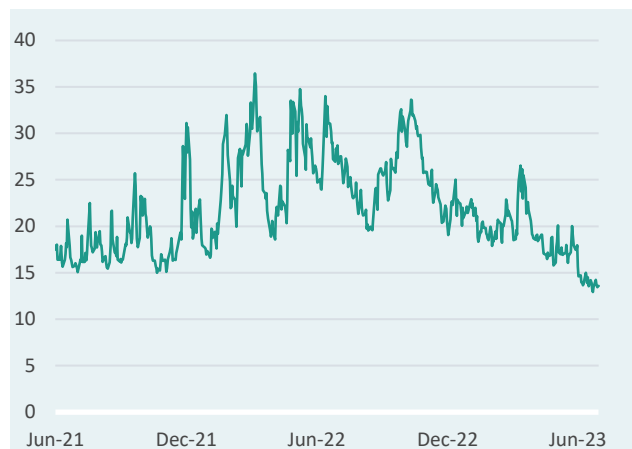
- The S&P 500 (+6.6%) jumped to a 13-month high intramonth as investors became increasingly hopeful of a *no recession* scenario and a nearing pivot in Fed policy. In contrast to prior months, moves were broadly positive across sectors and 90% of index constituents moved higher.
- Year-to-date gains continue to be dominated by a small number of names. In fact, the YTD S&P 500 return would be negative if the top 44 index members were removed. The S&P Top 50 Index has risen +27.6% in the first six months of the year, +10.7% higher than the broader index.
- All 11 sectors gained, led by Consumer Discretionary (+12.1%) and Industrials (+11.3%), while Telecom (+1.6%) and Utilities (+2.6%) rose the least. Cyclical sectors broadly outperformed defensive sectors, perhaps reflecting renewed expectations that the U.S. economy will remain strong.
- U.S. equity market volatility fell sharply following the Fed’s decision to pause rate hikes, and then remained markedly low as investor optimism saw continual improvement. The VIX fell -4.4 points to 13.6 in June and touched a 3-year low on June 22nd.

S&P 500 PRICE INDEX



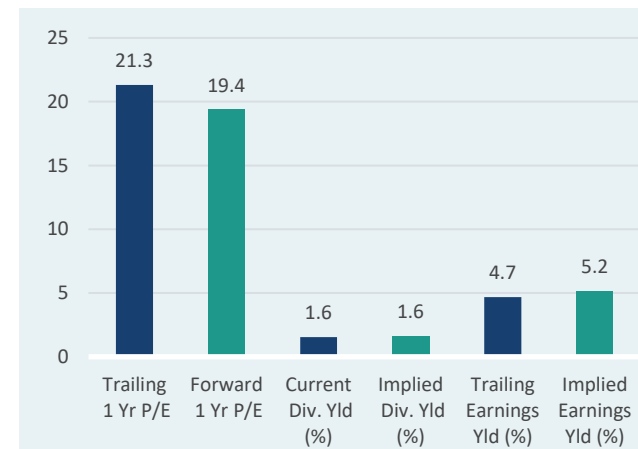
Source: Bloomberg, as of 6/30/23

IMPLIED VOLATILITY (VIX INDEX)



Source: Cboe, as of 6/30/23

S&P 500 VALUATION SNAPSHOT

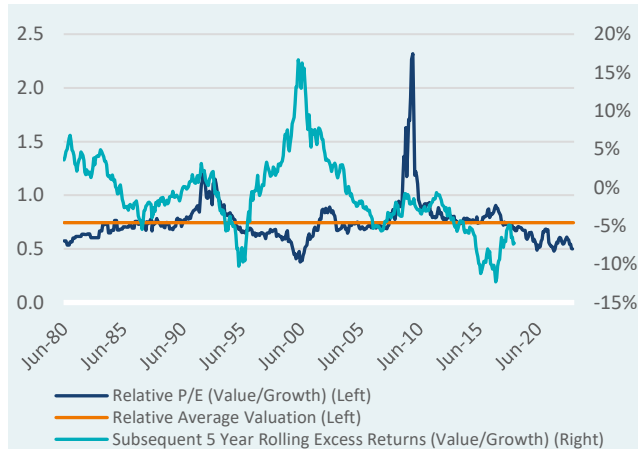


Source: Bloomberg, as of 6/30/23

Domestic equity size and style

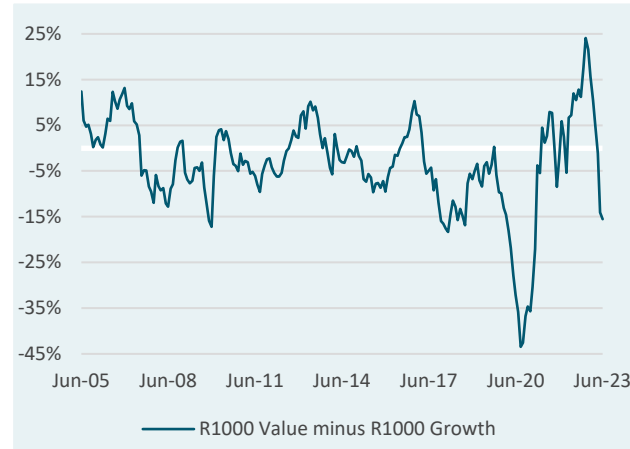
- Large-cap growth equities (+6.8%) were mostly in-line with value equities (+6.6%). Growth outperformed by a smaller margin than in recent months, as sector performance was less pronounced. Strength in cyclicals beyond tech and telecom helped level the playing field as well.
- Strong gains in mega-cap tech heavyweights continued to fuel overall growth index performance. Nvidia saw its valuation surpass \$1 trillion in June, and Apple – which now occupies 13.4% of the Russell 1000 Growth Index – rallied +9.4% and became the first \$3 trillion U.S. company.
- Small- (+8.1%) and mid-cap equities (+8.3%) beat large-caps (+6.8%) in a reversal of the recent trend. Small-cap Industrials, Energy, and Materials – which are highly sensitive to changes in expectations for the domestic economy – each posted double-digit gains.
- Small-cap Financials (+7.4%) saw a brief rally after three months of declines on regional banking stress. Smaller U.S. banks moved higher as deposits recovered slightly from April lows and the influx of negative headlines slowed. However, further efforts to increase deposits are expected to put pressure on Q2 earnings.

VALUE VS. GROWTH RELATIVE VALUATIONS



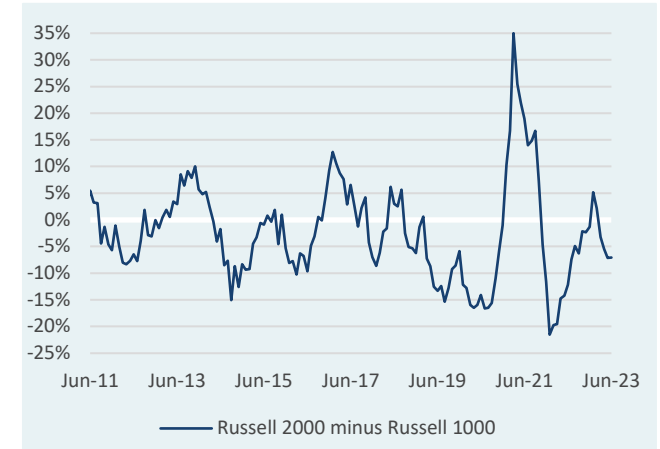
Source: FTSE, Bloomberg, as of 6/30/23

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 6/30/23

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

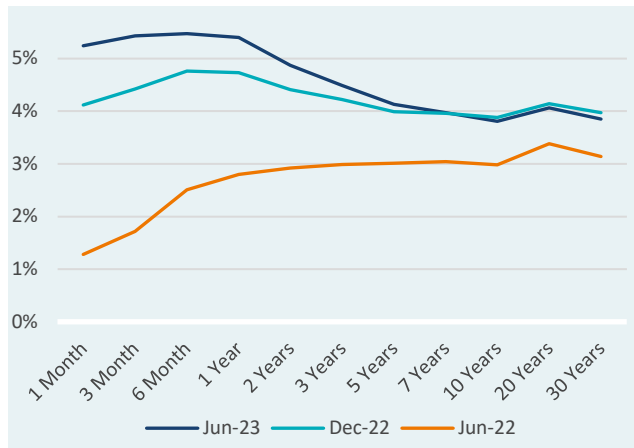


Source: FTSE, Bloomberg, as of 6/30/23

Fixed income

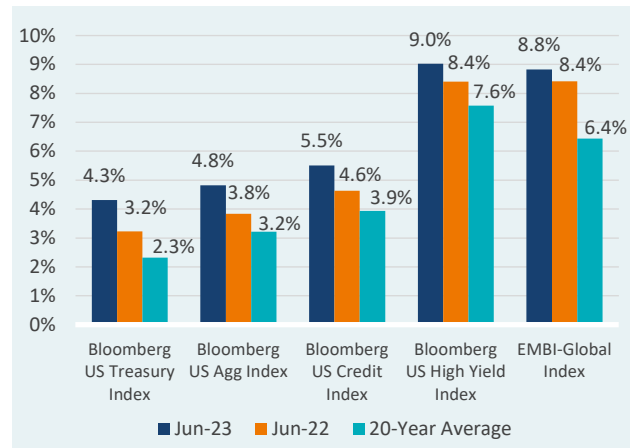
- Rate moves were mostly muted on the short- and long-end of the curve though June proved to be a tumultuous month for rates on intermediate-dated tenors. June yield curve movements largely reflected the Fed pause and mounting expectations of additional 2023 hikes. Yields on 2-year Treasuries climbed +47bps to 4.87%, their highest level since March.
- Longer-term interest rates remain anchored despite recent interest rate hikes. This has resulted in the most deeply inverted U.S. yield curve since the early 1980s at -1.06% (10-year Treasury yield minus 2-year Treasury yield).
- Bond market volatility fell after a cooler-than-expected May CPI print released early in the month solidified investor bets on the subsequent Fed pause. The MOVE Index – which measures the volatility of U.S. Treasury futures – retreated -25.4 points to 110.6 in a continuation of its descent from 15-year highs observed in March.
- High yield corporate credit (Bloomberg U.S. Corporate High Yield +1.7%) widely outperformed the domestic fixed income landscape. High yield spreads compressed dramatically, falling -64bps to end the month at 405 bps and near 1-year lows.

U.S. TREASURY YIELD CURVE



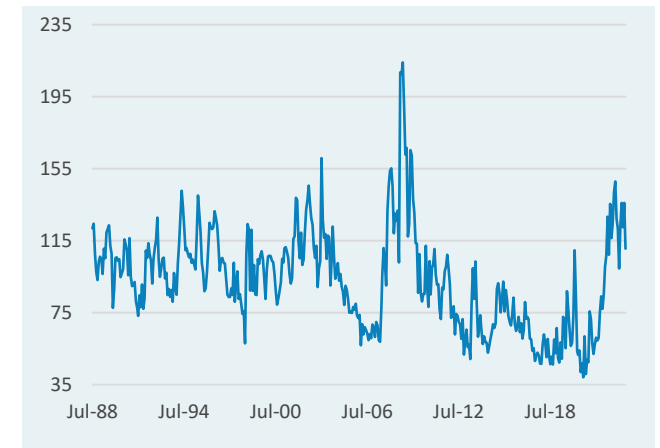
Source: Bloomberg, as of 6/30/23

NOMINAL YIELDS



Source: Morningstar, as of 6/30/23

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

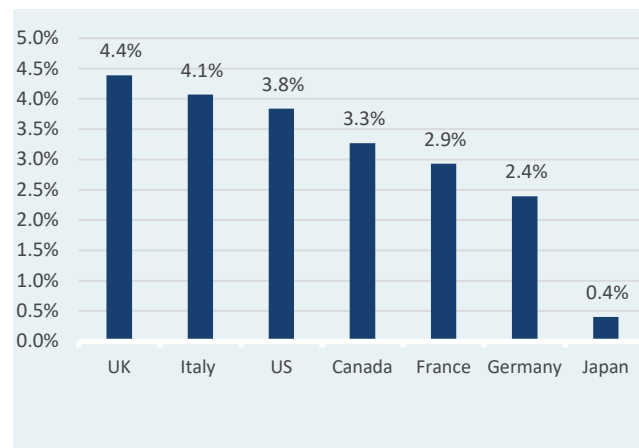


Source: Bloomberg, as of 6/30/23

Global markets

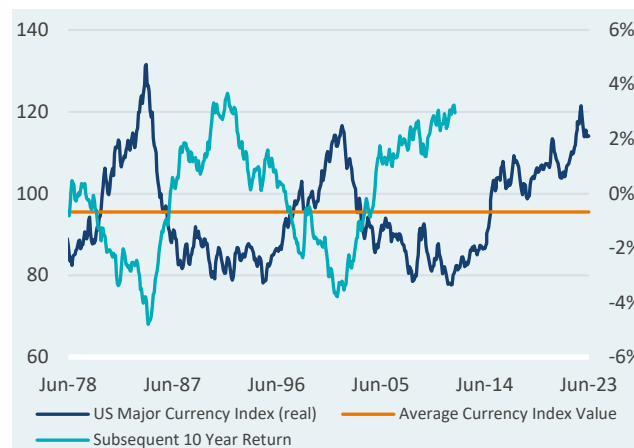
- International equities partially rebounded from May declines (MSCI ACWI ex USA +4.4%) but trailed domestic equities. Strong performance in Euro countries (+6.4%) drove international stocks, although gains were widespread across both developing and emerging markets.
- Japanese equities (MSCI Japan +4.1%) rose on commentary from BOJ governor Ueda which suggested interest-rates would remain in negative territory. Japan has been the top performing major market year-to-date in local currency terms as the TOPIX closed June +22.7% higher than the prior year end.
- The MSCI EM Latin America Index (+12.0%) was one of the best performing regional indices as all constituents displayed signs of improved political stability and economic outlook. Additionally, Brazil was propped up by commodities, including a surge in soybean and soybean oil prices of which it is one of the top exporters in the world.
- Global bonds (Bloomberg Global Aggregate ex US +0.3%) narrowly outperformed domestic bonds as dollar weakness offset slight increases in yields across most developed markets. EM debt continued to outperform in both hard and local denominations.

GLOBAL SOVEREIGN 10-YEAR YIELDS



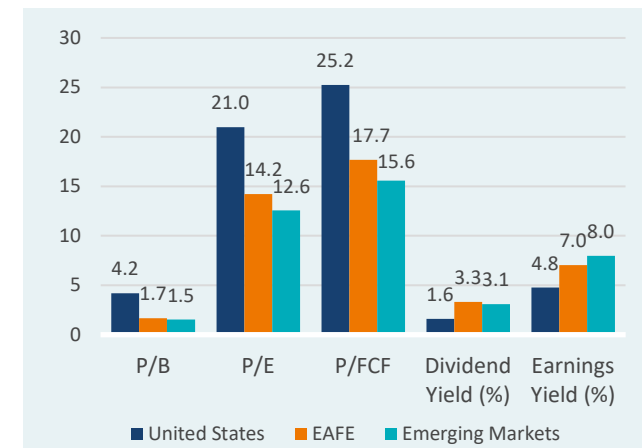
Source: Bloomberg, as of 6/30/23

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 6/30/23

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 6/30/23

Commodities

- The Bloomberg Commodity Index was up +4.0% on the month but still ended down -2.6% for the quarter. Most sub-sectors finished broadly negative for the quarter with only livestock (+9.7%) and softs (+2.4%) posting positive returns.
- The month-end USDA Acreage report helped boost soybean (+10.9%) and soybean oil (+33.5%) prices but contributed to a sharp decline in corn prices (-17.8%). Total corn acres planted increased 6% YoY while soybean planted area decreased 5% YoY. The estimated 94.1 million acres of corn planted represents the third highest planted acreage in the U.S. since 1944.

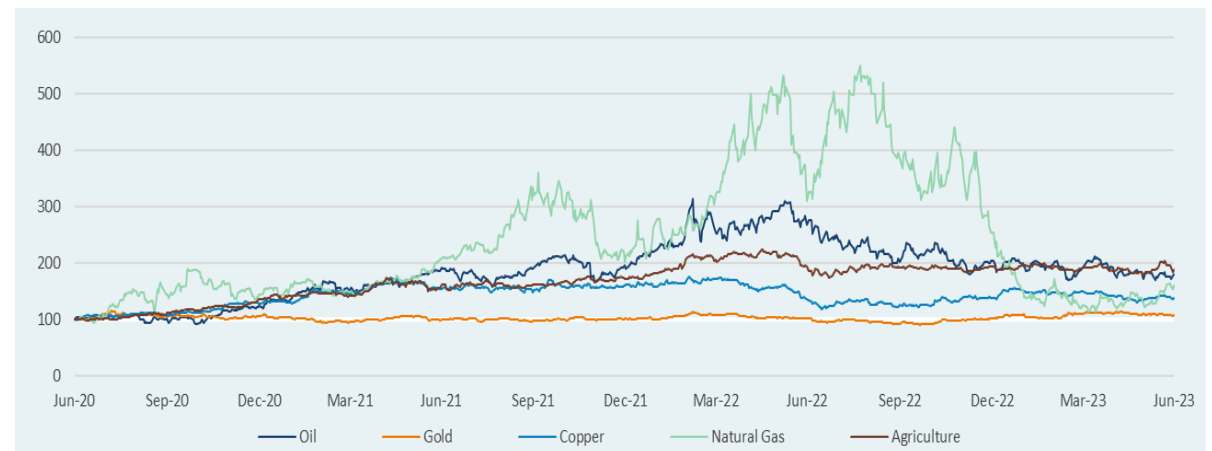
- Industrial metals (+1.1%) performance was mixed. Zinc (+6.5%) delivered a light rally on news of mine disruptions and shrinkage in concentrate inventories. Conversely, aluminum (-5.4%) struggled amid increasing supply due in part to weaker industrial consumption in China and softer demand in sectors like autos and construction.
- Energy and grains – which make up 52% of the commodity index – helped buoy performance for the month. All sub-indices within energy were in the green but natural gas spiked 23.5% on slowing production and warmer weather forecasts as well as the subsequent expected increases in demand for the summer season.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	4.0	(2.6)	(7.8)	(9.6)	17.8	4.7	(1.0)
Bloomberg Agriculture	5.1	(1.0)	(1.0)	1.2	25.3	10.2	(0.1)
Bloomberg Energy	8.4	(1.6)	(20.0)	(31.1)	20.9	(3.8)	(8.5)
Bloomberg Grains	6.2	(3.7)	(6.0)	(4.5)	22.5	9.1	(2.0)
Bloomberg Industrial Metals	1.1	(10.5)	(12.4)	(5.4)	12.3	3.4	2.1
Bloomberg Livestock	9.8	9.7	5.0	16.8	12.6	(1.8)	(2.3)
Bloomberg Petroleum	5.6	(3.1)	(8.9)	(18.9)	37.0	3.3	(4.1)
Bloomberg Precious Metals	(2.4)	(3.1)	3.0	7.8	2.2	7.4	3.0
Bloomberg Softs	(6.6)	2.4	11.9	4.6	24.1	8.0	(0.5)

Source: Morningstar, as of 6/30/23

COMMODITY PERFORMANCE



Source: Bloomberg, as of 6/30/23

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	29.0	15.1	15.7
Large Cap 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	16.7	11.9	12.6
Small Cap Growth	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	13.6	8.1	9.2
International Equity	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	11.7	6.7	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	8.8	4.7	8.3
Small Cap 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	8.1	4.6	8.3
Large Cap Value	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	5.1	4.4	7.3
Emerging Markets 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	4.9	4.2	5.5
Small Cap Value	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	2.5	4.2	5.4
Hedge Funds of Funds	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	2.3	3.5	3.4
Cash	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	2.3	3.3	3.0
US Bonds	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	2.1	1.5	1.5
Real Estate	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	-1.8	0.9	0.9
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	-7.8	0.8	-1.0

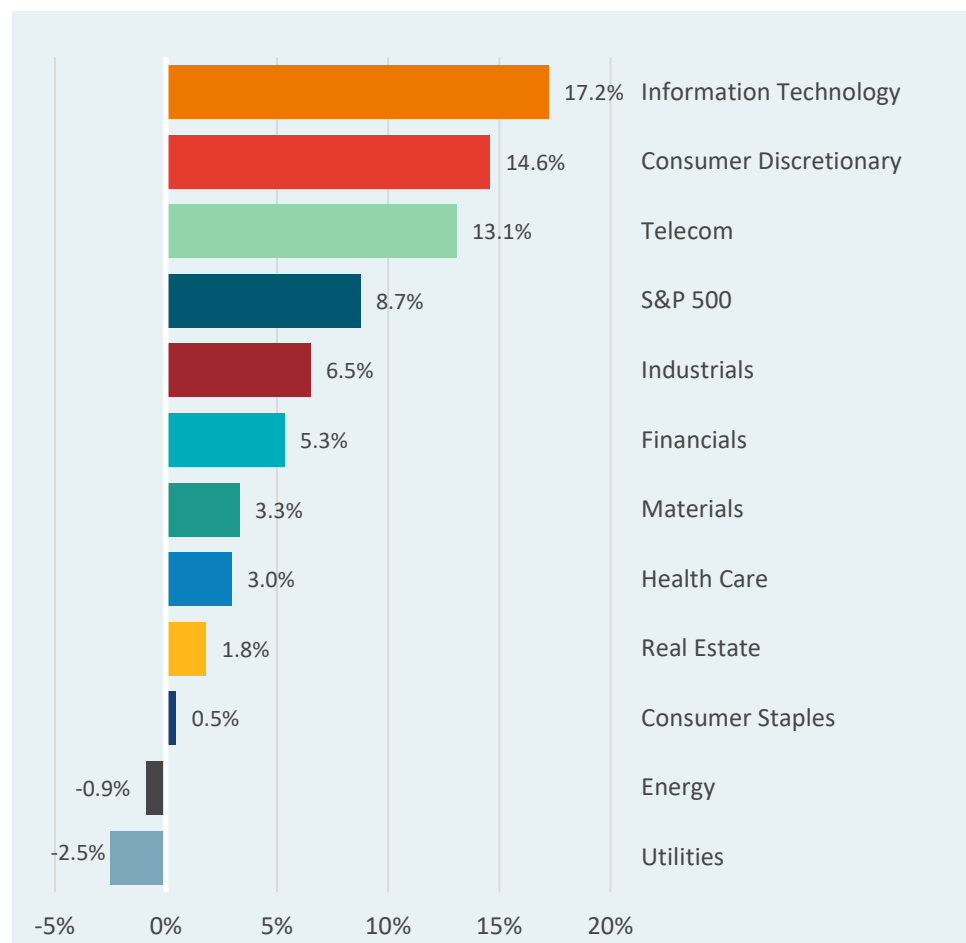
BEST
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WORST
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- Large Cap Equity
- Small Cap Growth
- Commodities
- Large Cap Value
- International Equity
- Real Estate
- Large Cap Growth
- Emerging Markets Equity
- Hedge Funds of Funds
- US Bonds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

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 3/31/23.

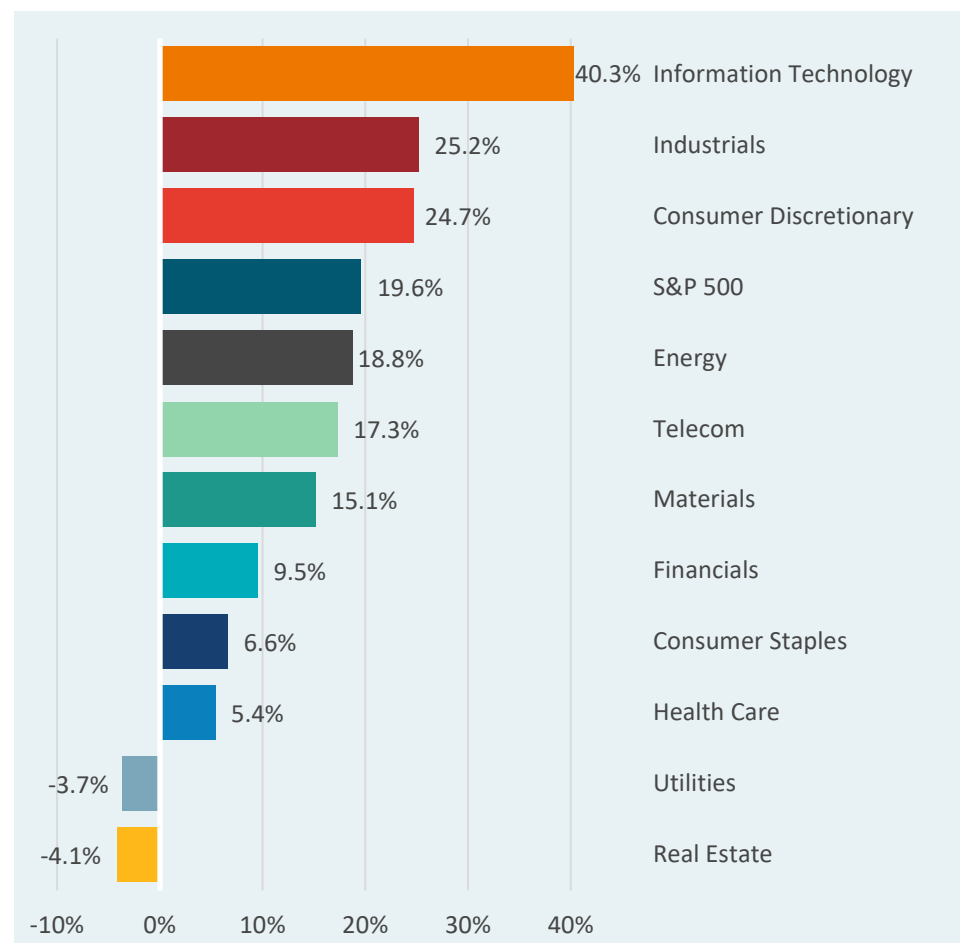
S&P 500 sector returns

QTD



Source: Morningstar, as of 6/30/23

ONE YEAR ENDING JUNE



Source: Morningstar, as of 6/30/23

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	6.6	8.7	16.9	19.6	14.6	12.3	12.9
S&P 500 Equal Weighted	7.7	4.0	7.0	13.8	15.8	10.2	11.5
DJ Industrial Average	4.7	4.0	4.9	14.2	12.3	9.6	11.3
Russell Top 200	6.2	9.9	19.4	20.9	14.6	13.2	13.5
Russell 1000	6.8	8.6	16.7	19.4	14.1	11.9	12.6
Russell 2000	8.1	5.2	8.1	12.3	10.8	4.2	8.3
Russell 3000	6.8	8.4	16.2	19.0	13.9	11.4	12.3
Russell Mid Cap	8.3	4.8	9.0	14.9	12.5	8.5	10.3
Style Index							
Russell 1000 Growth	6.8	12.8	29.0	27.1	13.7	15.1	15.7
Russell 1000 Value	6.6	4.1	5.1	11.5	14.3	8.1	9.2
Russell 2000 Growth	8.3	7.1	13.6	18.5	6.1	4.2	8.8
Russell 2000 Value	7.9	3.2	2.5	6.0	15.4	3.5	7.3

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	5.8	6.2	13.9	16.5	11.0	8.1	8.8
MSCI ACWI ex US	4.5	2.4	9.5	12.7	7.2	3.5	4.7
MSCI EAFE	4.6	3.0	11.7	18.8	8.9	4.4	5.4
MSCI EM	3.8	0.9	4.9	1.7	2.3	0.9	3.0
MSCI EAFE Small Cap	2.9	0.6	5.5	10.2	5.7	1.3	6.2
Style Index							
MSCI EAFE Growth	3.5	2.8	14.2	20.2	6.3	5.4	6.4
MSCI EAFE Value	5.6	3.2	9.3	17.4	11.3	2.9	4.1
Regional Index							
MSCI UK	3.9	2.2	8.4	13.2	12.6	2.8	3.9
MSCI Japan	4.1	6.4	13.0	18.1	5.7	3.1	5.2
MSCI Euro	6.4	3.8	19.9	32.7	11.7	5.2	6.2
MSCI EM Asia	2.7	(0.8)	4.0	(0.9)	1.2	1.2	4.7
MSCI EM Latin American	12.0	14.0	18.5	29.8	16.4	4.8	1.1

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(0.3)	(1.4)	1.9	(1.4)	(0.1)	2.5	2.1
Bloomberg US Treasury Bills	0.4	1.2	2.3	3.6	1.2	1.5	1.0
Bloomberg US Agg Bond	(0.4)	(0.8)	2.1	(0.9)	(4.0)	0.8	1.5
Bloomberg US Universal	(0.2)	(0.6)	2.3	(0.0)	(3.4)	1.0	1.8
Duration							
Bloomberg US Treasury 1-3 Yr	(0.5)	(0.6)	1.0	0.1	(1.1)	0.9	0.8
Bloomberg US Treasury Long	(0.0)	(2.3)	3.7	(6.8)	(12.1)	(0.9)	1.8
Bloomberg US Treasury	(0.8)	(1.4)	1.6	(2.1)	(4.8)	0.4	1.0
Issuer							
Bloomberg US MBS	(0.4)	(0.6)	1.9	(1.5)	(3.7)	0.0	1.1
Bloomberg US Corp. High Yield	1.7	1.7	5.4	9.1	3.1	3.4	4.4
Bloomberg US Agency Interm	(0.5)	(0.4)	1.5	(0.2)	(2.0)	0.7	0.9
Bloomberg US Credit	0.3	(0.3)	3.1	1.4	(3.4)	1.7	2.5
OTHER							
Index							
Bloomberg Commodity	4.0	(2.6)	(7.8)	(9.6)	17.8	4.7	(1.0)
Wilshire US REIT	5.4	3.3	6.7	(0.3)	8.6	4.4	6.4
CS Leveraged Loans	2.2	3.1	6.3	10.1	6.2	4.0	4.1
S&P Global Infrastructure	3.0	(0.1)	3.8	4.2	10.6	5.3	6.7
Alerian MLP	4.5	6.2	9.8	31.5	31.2	5.9	0.8
Regional Index							
JPM EMBI Global Div	2.2	2.2	4.1	7.4	(3.1)	0.6	2.8
JPM GBI-EM Global Div	3.3	2.5	7.8	11.4	(1.4)	0.3	(0.6)
Hedge Funds							
HFRI Composite	2.2	2.2	3.5	5.1	8.2	5.0	4.7
HFRI FOF Composite	1.2	1.5	2.3	3.7	5.0	3.3	3.4
Currency (Spot)							
Euro	2.3	0.4	2.2	4.4	(1.0)	(1.4)	(1.7)
Pound Sterling	2.6	2.8	5.7	4.7	1.0	(0.8)	(1.8)
Yen	(3.3)	(7.9)	(8.7)	(6.0)	(9.3)	(5.2)	(3.7)

Source: Morningstar, HFRI, as of 6/30/23.

Detailed private market returns

Comparison to public market index returns

Private Equity Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Private Equity FoFs & Secondary Funds	(8.7)	19.7	16.2	13.8
Global Private Equity Direct Funds *	(9.4)	19.2	17.3	15.9
U.S. Private Equity Direct Funds *	(9.1)	21.8	19.5	17.6
Europe Private Equity Direct Funds *	(9.4)	16.8	15.6	14.0
Asia Private Equity Direct Funds *	(8.3)	11.3	10.3	12.8

Public Index Time-weighted Returns				
MSCI World	(18.1)	4.9	6.1	8.9
S&P 500	(18.1)	7.7	9.4	12.6
MSCI Europe	(15.1)	1.3	1.9	4.6
MSCI AC Asia Pacific	(17.2)	(0.8)	0.2	4.3

Private Real Estate Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Real Estate	5.8	12.0	10.9	12.7

Public Index Time-weighted Returns				
FTSE NAREIT Equity REIT	(24.4)	(0.1)	3.7	6.5

Private Credit Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Debt **	5.3	15.3	12.3	11.3

Public Index Time-weighted Returns				
S&P / LSTA U.S. Leveraged Loan 100 Index	(0.6)	1.9	3.1	3.2

Private Real Assets Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Nature Resources ***	20.8	10.9	5.0	3.6
Global Infrastructure	8.1	11.2	10.4	10.9

Public Index Time-weighted Returns				
S&P Global Natural Resources	10.3	11.6	7.3	4.9
S&P Global Infrastructure	(0.2)	1.7	3.9	6.5

Source: Pooled IRRs are from Thompson Reuters CJA and Time-weighted Returns are from Investment Metrics, as of December 31st, 2022. All returns in U.S. dollars.

* Includes Buyout, Growth Equity and Venture Capital.

** Includes Control-Oriented Distressed, Credit Opportunities, Senior Debt and Subordinated Capital.

*** Includes Private Equity Energy, Timber and Upstream Energy & Royalties.

Notices & disclosures

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Western States Office & Professional Employees Pension Fund

Investment Performance Review

Period Ending: June 30, 2023



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2nd quarter summary

THE ECONOMIC CLIMATE

- Real GDP increased at a 2.0% rate in Q1 (1.8% growth year-over-year). The slowdown from the prior quarter reflected weaker inventory buildups and slower business investment. An upturn in consumer spending was the greatest support to economic growth, as consumption has ticked along at a steady rate.
- The unemployment rate remained very tight at 3.6% in June. The workforce appears to be experiencing a healthy, and possibly low pain, rebalancing of resources. Many workers are returning to the workforce while fewer job openings are being posted. Both of these effects reduce the mismatch between *workers available* and *available jobs*.

PORTFOLIO IMPACTS

- The U.S. consumer has shown resiliency. Household budgets have been strained by high inflation and a jump in interest rates; however, the boom in wealth over the past decade, fueled by a substantial bull market in stocks and in residential real estate, may provide a cushion in the next downturn. It remains unclear whether the U.S. will face recession in the near-term.
- The Cboe VIX implied volatility index fell to a surprisingly low level, despite broad expectations of recession, regional bank risks, and other not-yet-known consequences of liquidity withdrawal from the financial system. The index fell from 18.7% to 13.6% during the second quarter.

THE INVESTMENT CLIMATE

- The Fed implemented an additional rate hike to a new range of 5.00–5.25%, but longer-term U.S. interest rates remain anchored. This has resulted in the most deeply inverted U.S. yield curve since the early 1980s at -1.06% (defined as 10-year UST yield minus 2-year UST yield).
- Inflation fell further in the U.S., with June CPI coming in at a surprisingly low 3% year-over-year and Core CPI at 4.8%. Weakening energy prices have had a big impact on overall inflation levels, though prices appear to also be softening across many other types of goods and services, suggesting milder inflation is not solely an energy story.

ASSET ALLOCATION ISSUES

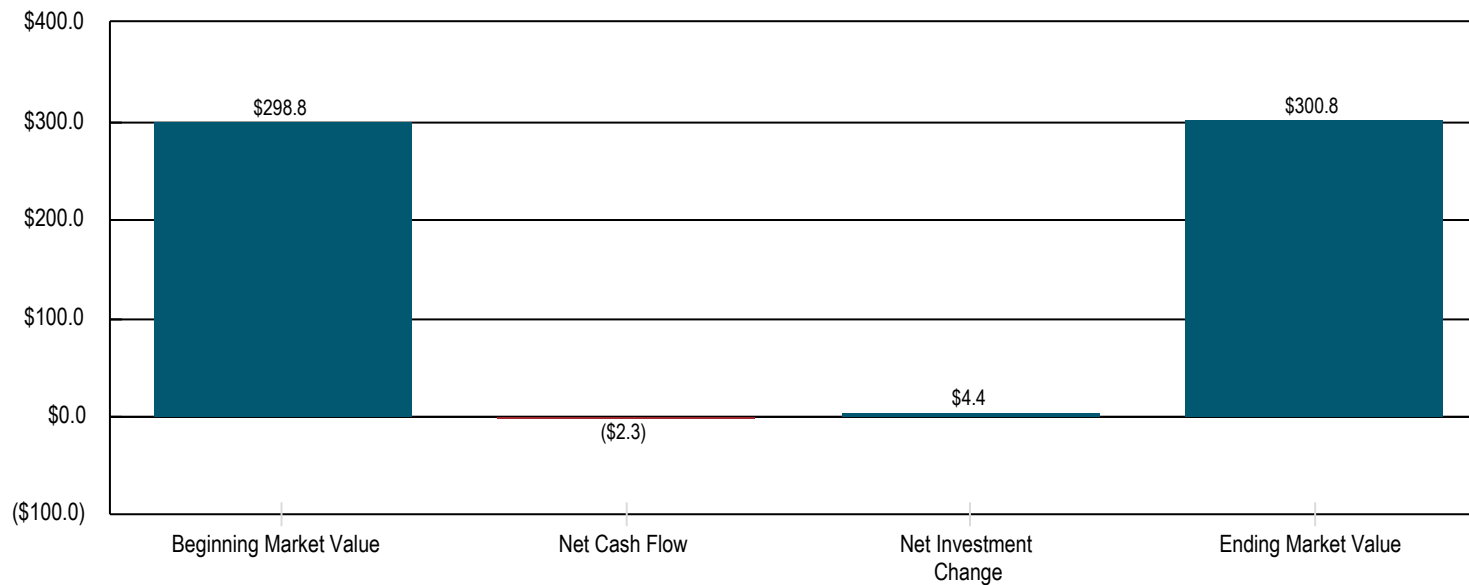
- Global equities persisted in their upward trajectory during Q2 (MSCI ACWI +6.2%). International developed markets underperformed domestic equities (S&P 500 +8.7%, MSCI EAFE +3.0%), as did emerging markets (MSCI EM +0.9%). U.S. equities rallied for a third consecutive quarter. A surge in AI-focused hype helped drive an expansion in the valuations of large tech firms.
- Growth stocks (+12.8%) outpaced value (+4.1%) once again, bringing the year-to-date performance differential to +23.9%. Sector-specific drivers, including product launches and upward adjustments to company guidance among Information Technology (+18.6%) mega-caps, drove growth stocks higher. Over recent years, certain style factors have exhibited some of the wildest swings in history.

Equity & credit markets performed strongly during Q2

A variety of risks hang overhead, though markets appear to be expecting a “soft landing”

Portfolio Reconciliation

	Last Three Months	Year-To-Date
Beginning Market Value	\$298,764,090	\$294,945,042
Net Cash Flow	-\$2,342,638	-\$10,745,931
Net Investment Change	\$4,397,686	\$16,620,027
Ending Market Value	\$300,819,138	\$300,819,138



Contributions and withdrawals may include intra-account transfers between managers/funds. Total Fund does not include SFA Funds.

Total Fund
Cash Flow by Manager - Last Three Months

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Beginning Market Value	Contributions	Distributions	Net Transfers	Net Cash Flows	Net Investment Change	Ending Market Value
BlackRock Equity Index NL	\$27,091,299	\$0	\$0	\$0	\$0	\$2,368,784	\$29,460,083
INTECH US Adaptive Volatility	\$27,933,477	\$0	\$0	\$0	\$0	\$1,366,750	\$29,300,227
Vanguard Small Cap Index Ins	\$8,404,742	\$0	\$0	\$0	\$0	\$448,447	\$8,853,189
WCM Focused International Growth Fund, L.P.	\$29,240,193	\$0	\$0	\$0	\$0	\$1,095,316	\$30,335,509
Causeway International Value Ins	\$30,306,620	\$0	\$0	\$0	\$0	\$1,533,658	\$31,840,278
Loomis Sayles Core Plus	\$54,575,083	\$0	\$0	\$0	\$0	-\$403,513	\$54,171,570
ASB Allegiance Real Estate	\$25,741,148	\$0	\$0	\$0	\$0	-\$1,658,309	\$24,082,839
JPMorgan Special Situation Property	\$16,969,665	\$0	-\$75,717	-\$278,407	-\$354,124	-\$535,777	\$16,079,765
IFM Global Infrastructure (US) LP	\$12,689,413	\$0	\$0	\$0	\$0	\$320,487	\$13,009,900
JPMorgan IIF ERISA LP	\$7,286,675	\$0	\$0	-\$81,593	-\$81,593	\$0	\$7,205,082
Invesco Balanced-Risk Allocation	\$50,052,281	\$0	\$0	\$0	\$0	-\$151,158	\$49,901,123
US Bank Checking Account	\$2,254,041	\$3,022,062	-\$7,541,961	\$7,500,000	\$2,980,100	\$0	\$5,234,141
US Bank Clearing Account	\$3,726,106	\$6,399,008	-\$9,646,028	\$0	-\$3,247,021	\$0	\$479,085
IFM Cash	\$301,438	\$0	\$0	\$0	\$0	\$3,644	\$305,082
JPMorgan IIF Erisa Cash	\$418,992	\$0	\$0	\$33,634	\$33,634	\$4,485	\$457,111
JPMorgan Special Situation Cash	\$245,614	\$0	-\$500,000	\$326,366	-\$173,634	\$1,474	\$73,454
WCM Cash	\$1,527,305	\$0	\$0	-\$1,500,000	-\$1,500,000	\$3,397	\$30,702
PBGC Cash	\$0	\$294,717,463	-\$162	-\$6,000,000	\$288,717,300	\$1,502,641	\$290,219,941
Total Fund	\$298,764,090	\$304,138,532	-\$17,763,869	\$0	\$286,374,663	\$5,900,327	\$591,039,079

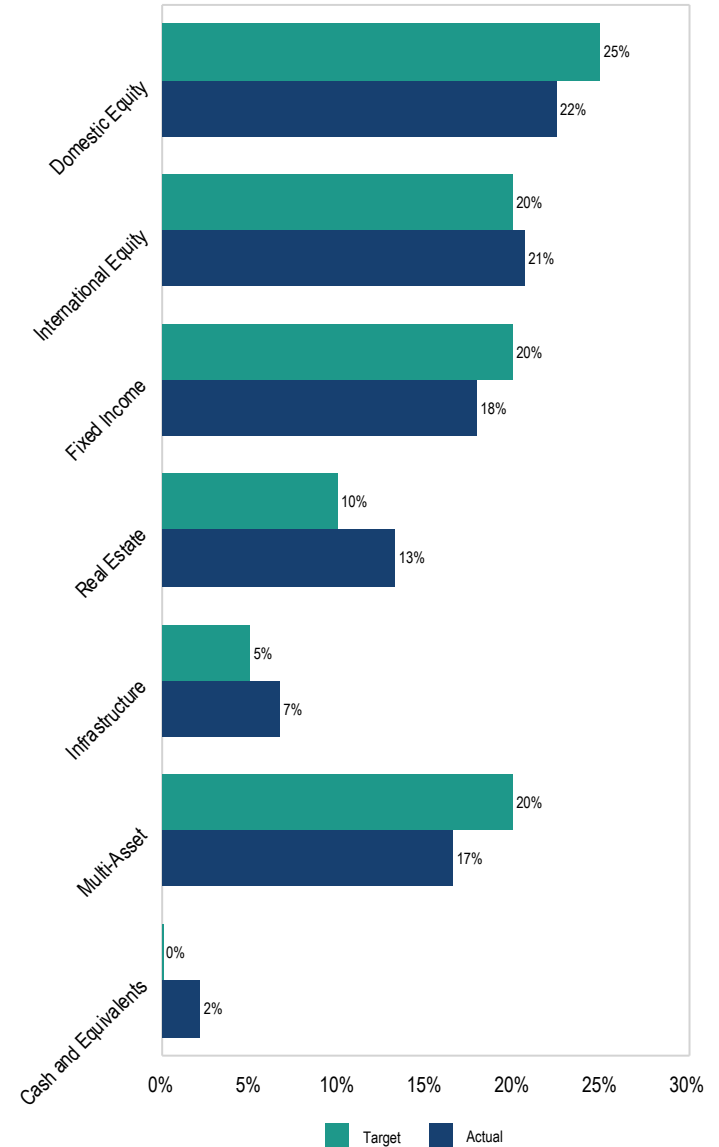
Loomis Sayles Full Discretion liquidated 3/21/2017. Loomis Sayles Core Plus funded 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. Grosvenor Institutional liquidated 4/30/2018. Brandes International Small Cap Equity liquidated 8/31/2019. Invesco Real Estate II liquidated 9/1/2019. Vanguard Small Cap Index Ins replaced PanAgora US Small Cap Core Stock Selector on 4/14/2021.

Total Fund
Executive Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	300,819,138	100.0	1.4	5.6	5.6	6.4	5.8	6.5
<i>Total Fund Policy Index</i>			3.2	8.3	8.6	6.1	6.0	6.6
<i>Target Asset Allocation Policy Index</i>			3.5	8.5	8.9	7.1	6.8	7.3
Total Domestic Equity	67,613,499	22.5	6.6	12.9	16.0	12.1	8.8	11.0
<i>Dow Jones U.S. Total Stock Market Index</i>			8.4	16.2	18.9	13.7	11.3	12.2
Total International Equity	62,175,787	20.7	4.4	17.1	24.6	11.1	8.1	7.0
<i>Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)</i>			2.4	9.1	12.5	7.3	3.4	4.9
Total Fixed Income	54,171,570	18.0	-0.8	3.1	0.9	-2.5	1.8	2.6
<i>Total Fixed Income Benchmark (Bloomberg Aggregate)</i>			-0.8	2.1	-0.9	-4.0	0.8	1.5
Total Real Estate	40,162,604	13.4	-5.3	-10.6	-15.9	3.5	3.6	6.5
<i>NCREIF ODCE Net</i>			-2.9	-6.2	-10.7	7.0	5.6	7.8
Total Infrastructure	20,214,981	6.7	1.6	4.3	9.3	10.0	9.0	7.9
<i>CPI + 5%</i>			2.3	5.3	8.1	11.1	9.1	7.8
Total Multi-Asset	49,901,123	16.6	-0.4	2.5	-1.2	4.2	3.5	4.8
<i>60% MSCI ACWI Net/40% FTSE WGBI</i>			3.0	8.9	8.7	3.9	4.3	5.2
Total Cash	6,579,575	2.2	0.2	0.5	0.7	0.2	0.1	-0.6

Actual vs. Target Allocation (%)



Policy Index: 45% MSCI World, 25% Bloomberg Aggregate, 10% NCREIF-ODCE net, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% Bloomberg Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Data prior to 3Q 2015 is from previous consultant. Total Fund does not include SFA Funds.

Total Fund
Risk Analysis - 3 & 5 Year (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

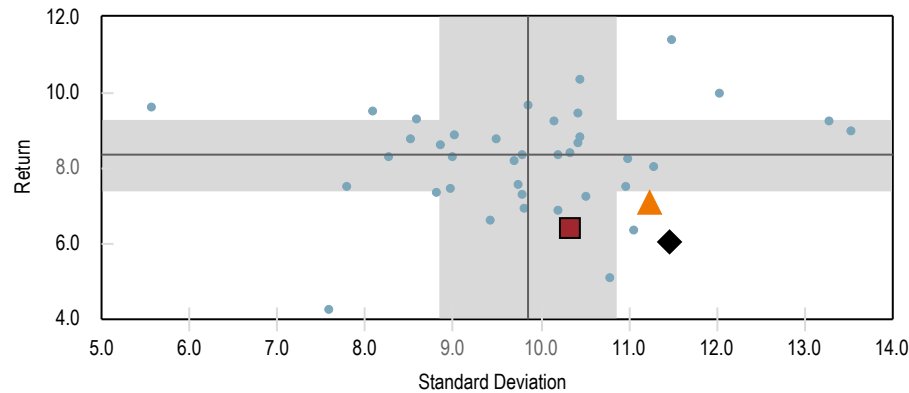
3 Year

	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	10.3	5.5	0.9	0.9	1.0	92.3	87.3	0.1	1.8	0.5
Total Fund Policy Index	11.5	5.3	0.0	1.0	1.0	100.0	100.0	-	0.0	0.5
Target Asset Allocation Policy Index	11.2	6.3	1.1	1.0	1.0	100.6	94.0	1.2	0.8	0.6

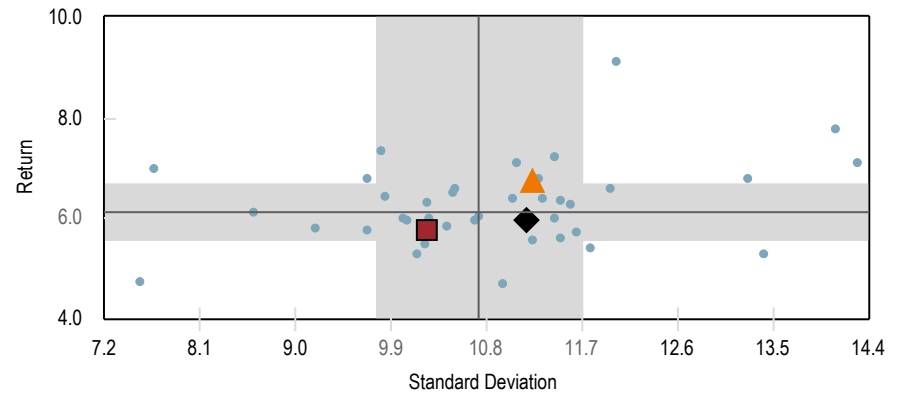
5 Year

	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	10.2	4.6	0.3	0.9	1.0	91.2	88.9	-0.2	1.8	0.4
Total Fund Policy Index	11.2	4.9	0.0	1.0	1.0	100.0	100.0	-	0.0	0.4
Target Asset Allocation Policy Index	11.2	5.7	0.8	1.0	1.0	102.6	98.0	1.0	0.8	0.5

3 Year



5 Year



InvMetrics Taft Hartley DB \$250mm- \$1B Net

	Return	Standard Deviation
Total Fund	6.40	10.32
Total Fund Policy Index	6.07	11.46
Target Asset Allocation Policy Index	7.11	11.23
Median	8.35	9.85
Population	39	39

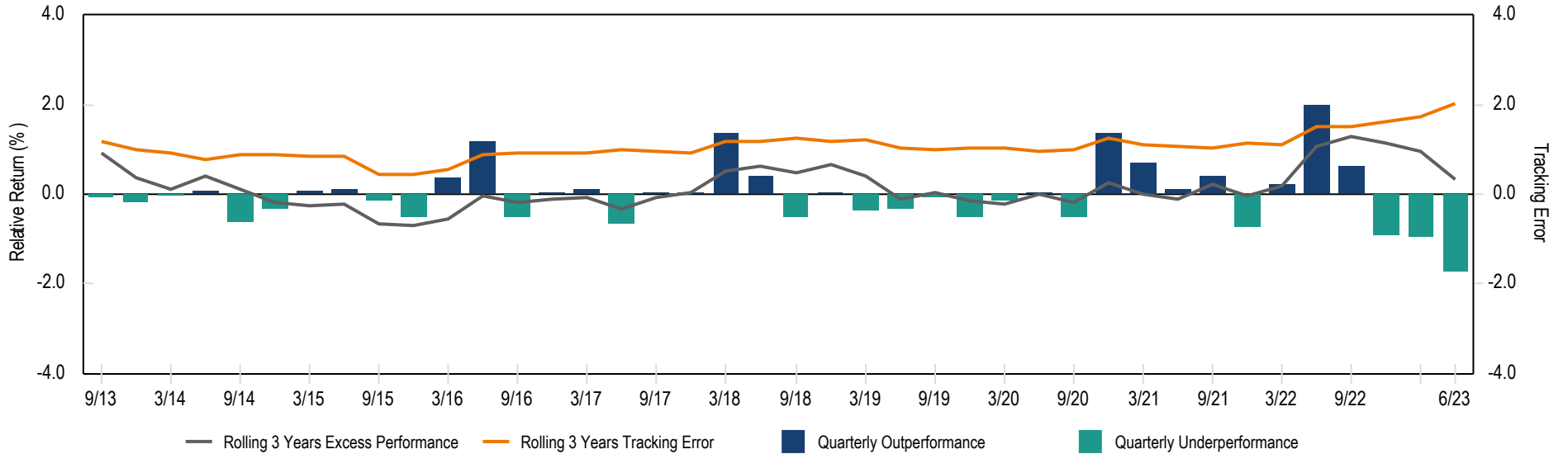
InvMetrics Taft Hartley DB \$250mm- \$1B Net

	Return	Standard Deviation
Total Fund	5.78	10.23
Total Fund Policy Index	5.97	11.18
Target Asset Allocation Policy Index	6.78	11.24
Median	6.12	10.73
Population	39	39

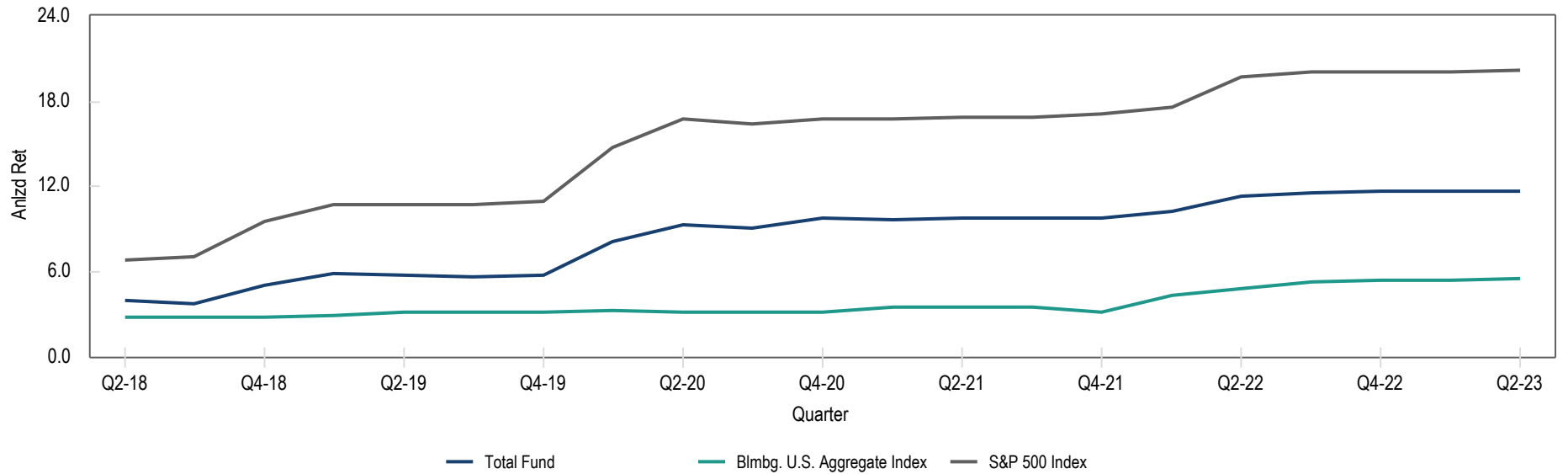
Total Fund
 Rolling Performance Relative to Policy (Net of Fees)

Western States Office & Professional Employees Pension Fund
 Period Ending: June 30, 2023

Rolling Annualized Excess Performance and Tracking Error



Rolling 5 Year Annualized Standard Deviation



Total Fund
Executive Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018	Inception	Inception Date
Total Fund	300,819,138		1.4	5.6	5.6	6.4	5.8	6.5	-12.4	13.4	13.3	17.1	-3.3	7.3	Jan-90
<i>Total Fund Policy Index</i>			3.2	8.3	8.6	6.1	6.0	6.6	-14.3	12.8	12.6	18.6	-4.5	6.6	
<i>Target Asset Allocation Policy Index</i>			3.5	8.5	8.9	7.1	6.8	7.3	-13.5	13.9	13.9	19.1	-3.2	-	
Domestic Equity	67,613,499														
BlackRock Equity Index NL	29,460,083		8.7	16.9	19.6	14.6	12.3	12.8	-18.1	28.7	18.4	31.5	-4.4	12.7	May-10
<i>S&P 500 Index</i>			8.7	16.9	19.6	14.6	12.3	12.9	-18.1	28.7	18.4	31.5	-4.4	12.7	
<i>eV US Large Cap Core Equity Rank</i>			24	21	26	28	23	17	65	31	38	30	40	19	
INTECH US Adaptive Volatility	29,300,227		4.9	9.8	12.3	8.7	7.2	-	-16.2	19.4	14.0	23.4	-5.8	6.3	Sep-18
<i>Russell 1000</i>			8.6	16.7	19.4	14.1	11.9	12.6	-19.1	26.5	21.0	31.4	-4.8	10.8	
<i>eV US Large Cap Core Equity Rank</i>			79	71	78	94	97	-	47	92	61	91	58	96	
Vanguard Small Cap Index Ins	8,853,189		5.3	9.3	14.9	12.5	6.6	9.5	-17.6	17.7	19.1	27.4	-9.3	-3.6	May-21
<i>Vanguard Spliced Small Cap Index</i>			5.3	9.2	14.8	12.5	6.6	9.4	-17.6	17.7	19.1	27.3	-9.3	-3.6	
<i>eV US Small Cap Core Equity Rank</i>			32	47	44	72	50	49	57	84	36	27	30	68	
International Equity	62,175,787														
WCM Focused International Growth Fund, L.P.	30,335,509		3.7	14.6	19.5	7.1	9.4	-	-28.6	17.6	33.1	35.7	-7.4	10.9	Jul-16
<i>MSCI AC World ex USA (Net)</i>			2.4	9.5	12.7	7.2	3.5	4.7	-16.0	7.8	10.7	21.5	-14.2	6.3	
<i>eV ACWI ex-US All Cap Growth Eq Rank</i>			21	36	25	22	1	-	57	3	34	12	1	13	
Causeway International Value Ins	31,840,278		5.1	19.9	30.1	16.2	5.9	-	-6.8	9.1	5.4	20.1	-18.6	7.4	Jul-16
<i>MSCI EAFE (Net)</i>			3.0	11.7	18.8	8.9	4.4	5.4	-14.5	11.3	7.8	22.0	-13.8	6.9	
<i>Foreign Large Value Rank</i>			3	2	2	8	9	-	28	84	23	35	91	15	
Fixed Income	54,171,570														
Loomis Sayles Core Plus	54,171,570		-0.8	3.1	0.9	-2.5	1.8	-	-12.7	-1.1	11.3	9.4	-0.4	1.8	Apr-17
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.1	-0.9	-4.0	0.8	1.5	-13.0	-1.5	7.5	8.7	0.0	0.8	
<i>eV US Core Plus Fixed Inc Rank</i>			77	13	24	27	15	-	22	77	10	60	40	14	

Policy Index: 45% MSCI World, 25% Bloomberg Aggregate, 10% NCREIF-ODCE net, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% Bloomberg Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). August 2018 INTECH moved from managed to adaptive volatility product. Vanguard Small Cap Index Ins replaced PanAgora US Small Cap Core Stock Selector on 4/14/2021. Data prior to 3Q 2015 is from previous consultant. Total Fund does not include SFA Funds.

Total Fund
Executive Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018	Inception	Inception Date
Real Estate	40,162,604														
ASB Allegiance Real Estate	24,082,839		-6.4	-11.8	-13.9	3.5	3.4	-	9.6	13.8	1.4	3.1	6.0	4.9	Apr-15
<i>NCREIF ODCE Net</i>			-2.9	-6.2	-10.7	7.0	5.6	7.8	6.5	21.0	0.3	4.4	7.4	6.9	
JPMorgan Special Situation Property	16,079,765		-3.6	-8.8	-18.6	3.6	4.0	-	-2.6	22.4	2.0	5.0	9.6	7.0	Jan-15
<i>NCREIF ODCE Net</i>			-2.9	-6.2	-10.7	7.0	5.6	7.8	6.5	21.0	0.3	4.4	7.4	7.0	
Infrastructure	20,214,981														
IFM Global Infrastructure (US) LP	13,009,900		2.5	5.2	9.6	12.4	11.2	9.8	8.2	17.4	3.1	14.6	15.8	9.8	Feb-09
<i>CPI + 5%</i>			2.3	5.3	8.1	11.1	9.1	7.8	11.8	12.4	6.4	7.4	7.0	7.7	
JPMorgan IIF ERISA LP	7,205,082		0.0	2.7	8.9	6.6	6.0	5.6	4.0	4.0	8.4	8.0	4.2	5.6	Oct-10
<i>CPI + 5%</i>			2.3	5.3	8.1	11.1	9.1	7.8	11.8	12.4	6.4	7.4	7.0	7.8	
Multi-Asset	49,901,123														
Invesco Balanced-Risk Allocation	49,901,123		-0.4	2.5	-1.2	4.2	3.5	4.8	-13.7	10.9	10.8	15.7	-5.8	6.4	Feb-10
<i>60% MSCI ACWI Net/40% FTSE WGBI</i>			3.0	8.9	8.7	3.9	4.3	5.2	-18.1	7.8	14.5	18.2	-5.8	5.5	
<i>FTSE 3-Month T-bill +6%</i>			2.7	5.4	10.0	7.4	7.7	7.0	7.6	6.0	6.6	8.4	8.0	6.8	
<i>eV Global Balanced Rank</i>			90	98	99	59	65	60	38	53	55	73	32	37	
Cash and Equivalents	6,579,575														

Policy Index: 45% MSCI World, 25% Bloomberg Aggregate, 10% NCREIF-ODCE net, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% Bloomberg Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). August 2018 INTECH moved from managed to adaptive volatility product. Vanguard Small Cap Index Ins replaced PanAgora US Small Cap Core Stock Selector on 4/14/2021. Data prior to 3Q 2015 is from previous consultant. Total Fund does not include SFA Funds.

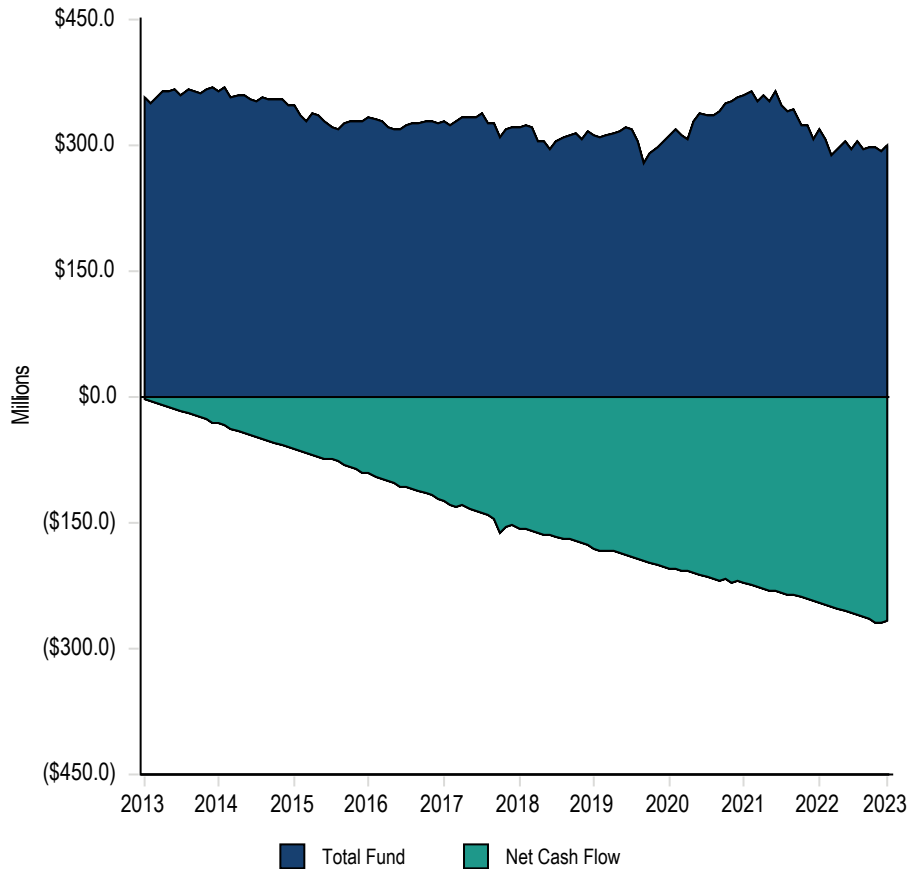
SFA Funds
Executive Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

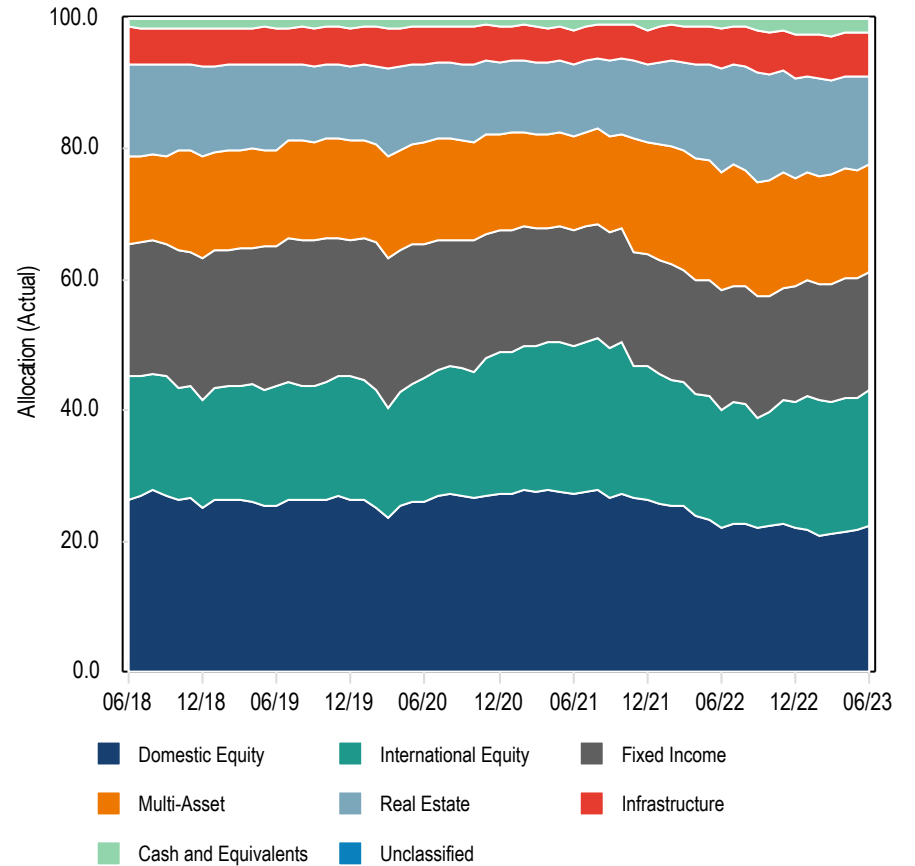
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018	Inception	Inception Date
PBGC	290,219,941		-	-	-	-	-	-	-	-	-	-	-	0.9	May-23
PBGC Cash	290,219,941		-	-	-	-	-	-	-	-	-	-	-	0.9	May-23
<i>90 Day U.S. Treasury Bill</i>			1.2	2.3	3.6	1.3	1.6	1.0	1.5	0.0	0.7	2.3	1.9	0.9	

PBGC funded 5/24/2023

Market Value History

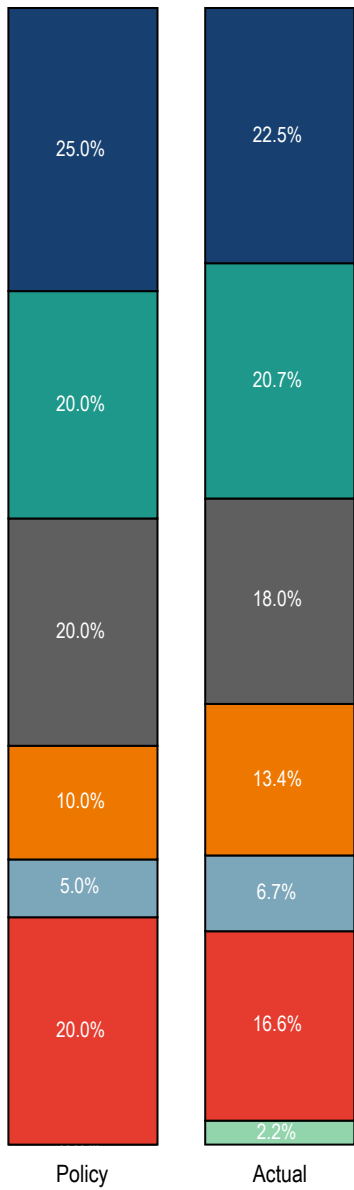


Asset Allocation History

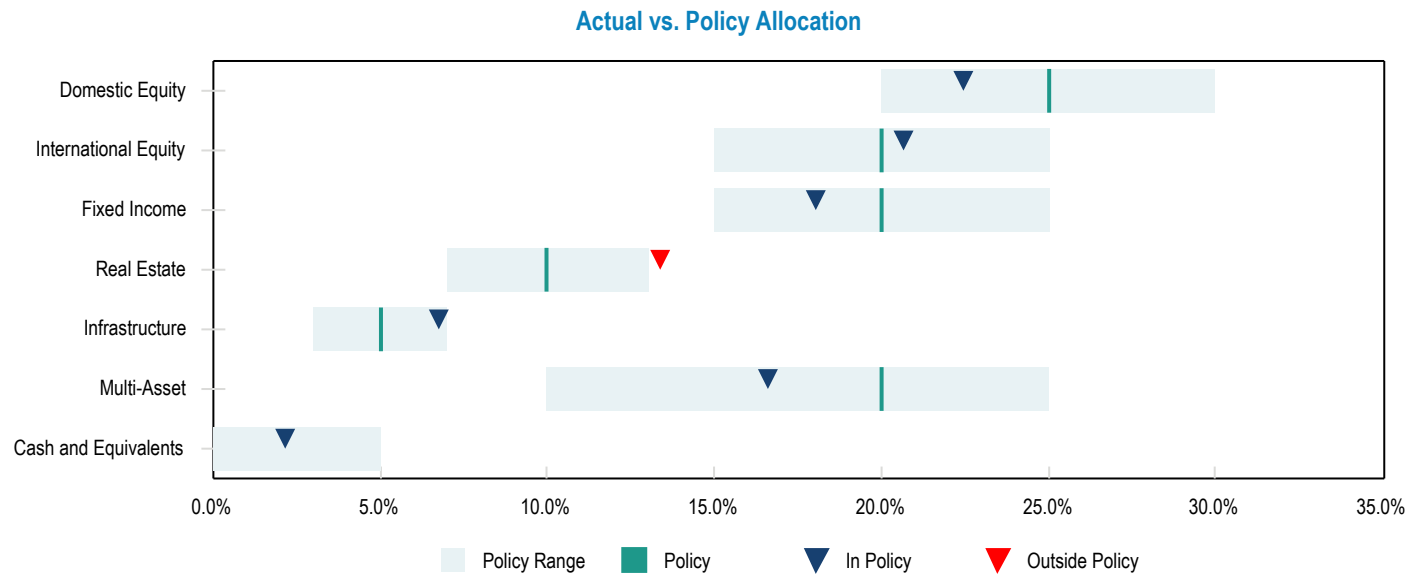


Total Fund
Asset Allocation vs. Policy

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023



	Current Balance (\$)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	67,613,499	22.5	25.0	-2.5	20.0 - 30.0	Yes
International Equity	62,175,787	20.7	20.0	0.7	15.0 - 25.0	Yes
Fixed Income	54,171,570	18.0	20.0	-2.0	15.0 - 25.0	Yes
Real Estate	40,162,604	13.4	10.0	3.4	7.0 - 13.0	No
Infrastructure	20,214,981	6.7	5.0	1.7	3.0 - 7.0	Yes
Multi-Asset	49,901,123	16.6	20.0	-3.4	10.0 - 25.0	Yes
Cash and Equivalents	6,506,121	2.2	0.0	2.2	0.0 - 5.0	Yes
Total	300,745,684	100.0	100.0	0.0		



Total Fund does not include SFA Funds.

Total Fund
Investment Fund Fee Analysis

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

Name	Asset Class	Fee Schedule	Market Value	% of Portfolio	Estimated Fee Value	Estimated Fee (%)
BlackRock Equity Index NL	Domestic Equity	0.03 % of Assets	\$29,460,083	5.0	\$8,838	0.0
INTECH US Adaptive Volatility	Domestic Equity	0.40 % of Assets	\$29,300,227	4.96	\$117,201	0.40
Vanguard Small Cap Index Ins	Domestic Equity	0.04 % of Assets	\$8,853,189	1.5	\$3,541	0.0
WCM Focused International Growth Fund, L.P.	International Equity	0.75 % of Assets	\$30,335,509	5.13	\$227,516	0.75
Causeway International Value Ins	International Equity	0.88 % of Assets	\$31,840,278	5.39	\$280,194	0.88
Loomis Sayles Core Plus	Fixed Income	0.35 % of First \$20 M 0.25 % Thereafter	\$54,171,570	9.17	\$155,429	0.29
ASB Allegiance Real Estate	Real Estate	1.00 % of Assets	\$24,082,839	4.07	\$240,828	1.00
JPMorgan Special Situation Property	Real Estate	1.60 % of Assets	\$16,079,765	2.72	\$257,276	1.60
IFM Global Infrastructure (US) LP	Infrastructure	0.77 % of Assets	\$13,009,900	2.20	\$100,176	0.77
JPMorgan IIF ERISA LP	Infrastructure	1.25 % of First \$50 M 1.15 % of Next \$50 M 1.05 % Thereafter	\$7,205,082	1.22	\$90,064	1.25
Invesco Balanced-Risk Allocation	Multi-Asset	0.38 % of First \$250 M 0.35 % of Next \$500 M 0.33 % of Next \$250 M 0.30 % Thereafter	\$49,901,123	8.44	\$187,129	0.38
PBGC Cash	Cash and Equivalents		\$290,219,941	49.10	\$580,440	0.20
Total Fund			\$591,039,079	100.00	\$2,248,633	0.38

Total Fund includes cash amount of \$6,579,574.73

Total Fund
Watch List (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

Fund Name	Asset Class	Overall Status	Outperformed Index (3yrs)	Outperformed Median Rank (3yrs)	Outperformed Index (5yrs)	Outperformed Median Rank (5 yrs)	Concern	Index Fund Tracking Error exceeds .25% of Benchmark (1 yr)
BlackRock Equity Index NL	Domestic Equity	■	-	-	-	-	-	✓
INTECH US Adaptive Volatility	Domestic Equity	■	R	R	R	R	-	-
Vanguard Small Cap Index Ins	Domestic Equity	■	-	-	-	-	-	✓
WCM Focused International Growth Fund, L.P.	International Equity	■	R	✓	✓	✓	-	-
Causeway International Value Ins	International Equity	■	✓	✓	✓	✓	-	-
Loomis Sayles Core Plus	Fixed Income	■	✓	✓	✓	✓	-	-
ASB Allegiance Real Estate	Real Estate	■	R	-	R	-	-	-
JPMorgan Special Situation Property	Real Estate	■	R	-	R	-	-	-
IFM Global Infrastructure (US) LP	Infrastructure	■	✓	-	✓	-	-	-
JPMorgan IIF ERISA LP	Infrastructure	■	R	-	R	-	-	-
Invesco Balanced-Risk Allocation	Multi-Asset	■	✓	R	R	R	-	-

Legend For Overall Status

No Issues	■
Watch	■
Terminate	■

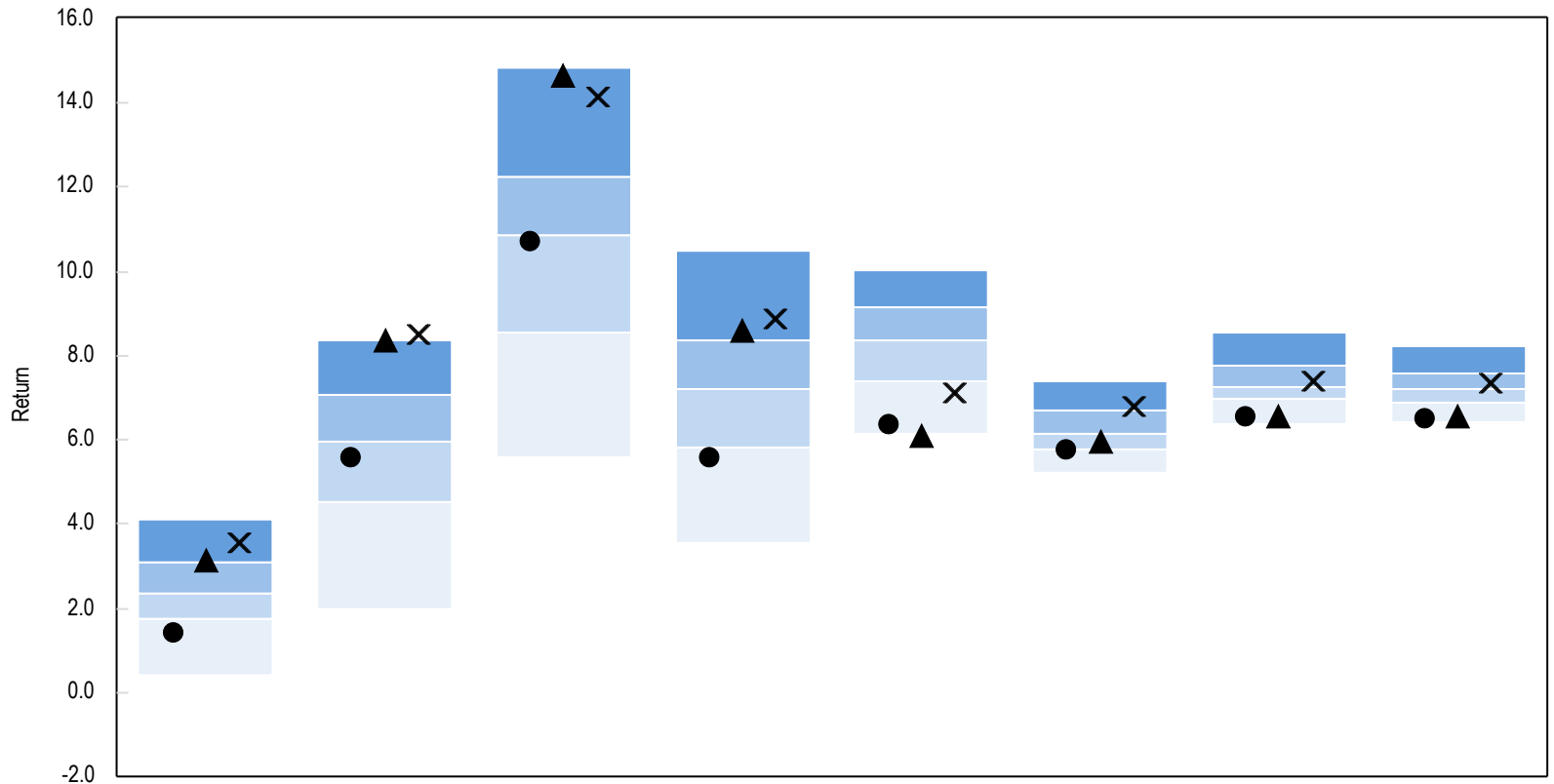
Legend for Standards

Pass	✓
Fail	R

Legend for Concern

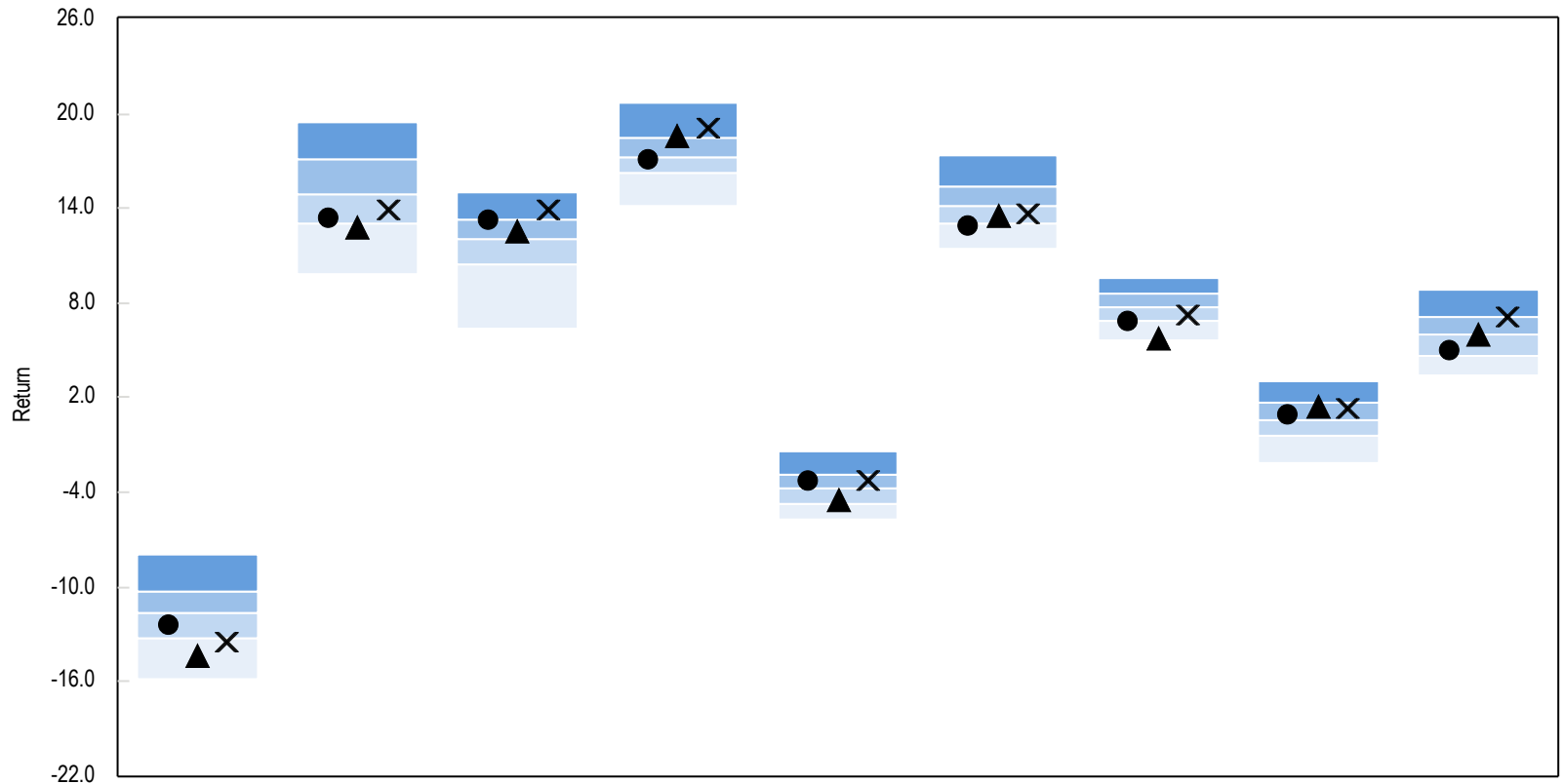
Provisional	P
Restricted	R
No Issues	--

Total Fund vs. InvMetrics Taft Hartley DB \$250mm -\$1B Net



	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	7 Years	10 Years
● Total Fund	1.43 (84)	5.57 (55)	10.74 (53)	5.58 (80)	6.40 (92)	5.78 (74)	6.57 (93)	6.53 (91)
▲ Total Fund Policy Index	3.15 (24)	8.34 (6)	14.65 (6)	8.59 (19)	6.07 (96)	5.97 (63)	6.58 (93)	6.55 (91)
× Target Asset Allocation Policy Index	3.53 (15)	8.49 (5)	14.14 (8)	8.86 (18)	7.11 (83)	6.78 (24)	7.39 (43)	7.33 (42)
5th Percentile	4.10	8.36	14.84	10.50	10.04	7.39	8.56	8.21
1st Quartile	3.11	7.07	12.27	8.38	9.13	6.70	7.77	7.60
Median	2.33	5.98	10.88	7.21	8.35	6.12	7.25	7.22
3rd Quartile	1.74	4.52	8.56	5.81	7.40	5.75	6.97	6.86
95th Percentile	0.41	1.99	5.57	3.55	6.14	5.23	6.38	6.43
Population	43	43	43	42	39	39	36	36

Total Fund vs. InvMetrics Taft Hartley DB \$250mm -\$1B Net



	2022	2021	2020	2019	2018	2017	2016	2015	2014
● Total Fund	-12.39 (65)	13.41 (73)	13.25 (27)	17.13 (53)	-3.28 (39)	12.93 (80)	6.93 (71)	0.94 (40)	5.06 (69)
▲ Total Fund Policy Index	-14.32 (84)	12.82 (78)	12.57 (40)	18.58 (25)	-4.52 (68)	13.48 (65)	5.76 (94)	1.41 (30)	6.05 (49)
× Target Asset Allocation Policy Index	-13.53 (79)	13.89 (67)	13.90 (15)	19.13 (17)	-3.20 (37)	13.71 (60)	7.20 (67)	1.32 (32)	7.11 (27)
5th Percentile	-7.96	19.47	15.07	20.72	-1.37	17.38	9.61	3.01	8.81
1st Quartile	-10.22	17.07	13.30	18.45	-2.89	15.38	8.55	1.70	7.12
Median	-11.65	14.87	12.04	17.19	-3.75	14.09	7.71	0.62	6.03
3rd Quartile	-13.23	13.09	10.39	16.22	-4.67	13.01	6.88	-0.38	4.67
95th Percentile	-15.86	9.83	6.33	14.19	-5.68	11.50	5.66	-2.09	3.40
Population	115	123	137	122	104	115	107	107	104

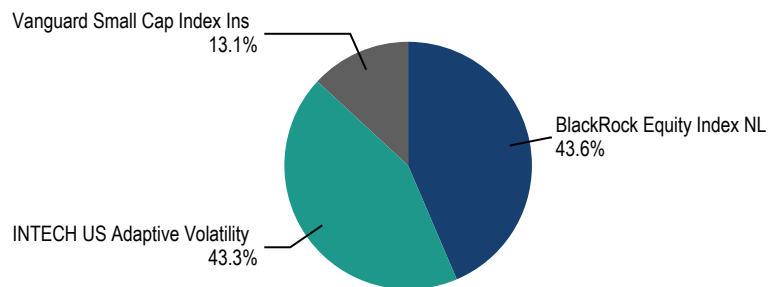
Total Domestic Equity

Total Domestic Equity Performance Summary (Net of Fees)

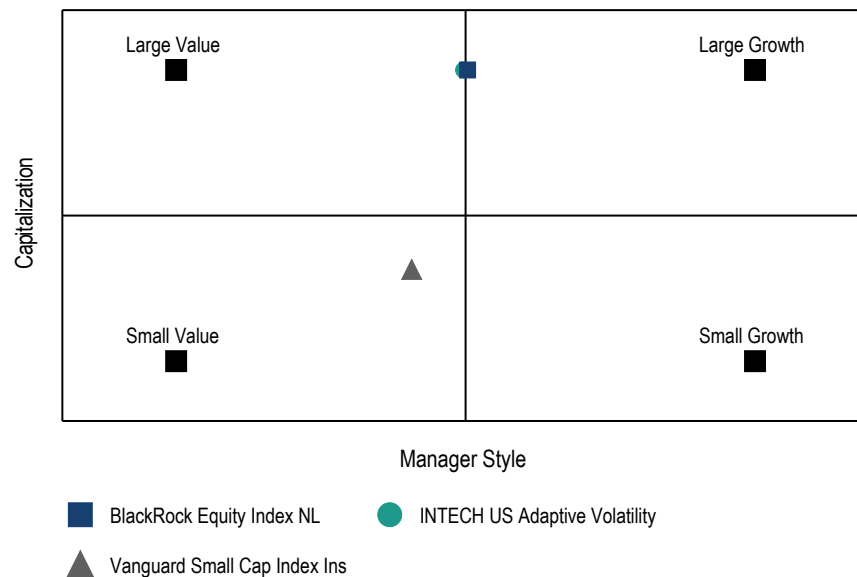
Western States Office & Professional Employees Pension Fund Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Domestic Equity	67,613,499	100.0	6.6	12.9	16.0	12.1	8.8	11.0	-17.3	23.6	15.9	27.2	-5.9
<i>Dow Jones U.S. Total Stock Market Index</i>			8.4	16.2	18.9	13.7	11.3	12.2	-19.5	25.7	20.8	30.9	-5.3
Domestic Equity	67,613,499	100.0											
BlackRock Equity Index NL	29,460,083	43.6	8.7	16.9	19.6	14.6	12.3	12.8	-18.1	28.7	18.4	31.5	-4.4
<i>S&P 500 Index</i>			8.7	16.9	19.6	14.6	12.3	12.9	-18.1	28.7	18.4	31.5	-4.4
<i>eV US Large Cap Core Equity Rank</i>			24	21	26	28	23	17	65	31	38	30	40
INTECH US Adaptive Volatility	29,300,227	43.3	4.9	9.8	12.3	8.7	-	-	-16.2	19.4	14.0	23.4	-5.8
<i>Russell 1000</i>			8.6	16.7	19.4	14.1	11.9	12.6	-19.1	26.5	21.0	31.4	-4.8
<i>eV US Large Cap Core Equity Rank</i>			79	71	78	94	-	-	47	92	61	91	58
Vanguard Small Cap Index Ins	8,853,189	13.1	5.3	9.3	14.9	12.5	6.6	9.5	-17.6	17.7	19.1	27.4	-9.3
<i>Vanguard Spliced Small Cap Index</i>			5.3	9.2	14.8	12.5	6.6	9.4	-17.6	17.7	19.1	27.3	-9.3
<i>eV US Small Cap Core Equity Rank</i>			39	47	47	80	65	73	58	85	39	36	35

**Total Domestic Equity
Current Allocation**

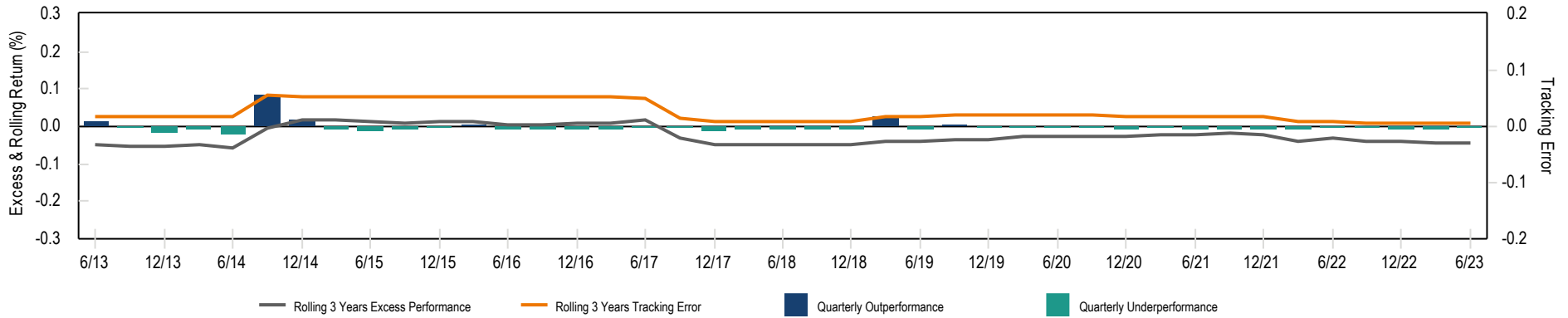


**Domestic Effective Style Map
3 Years**

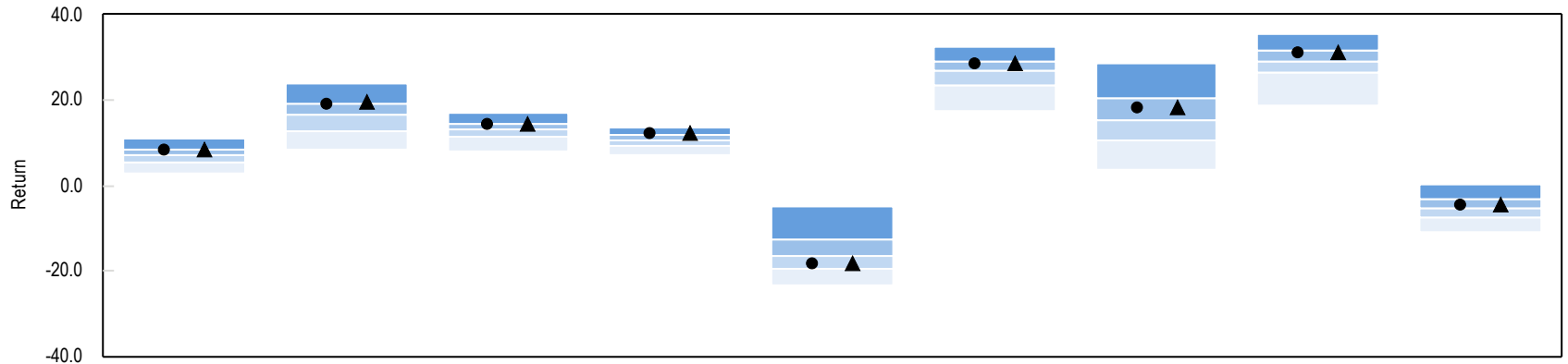


Managers need 3 years of history to be included in the style map.

3 Years Rolling Annualized Excess Performance and Tracking Error

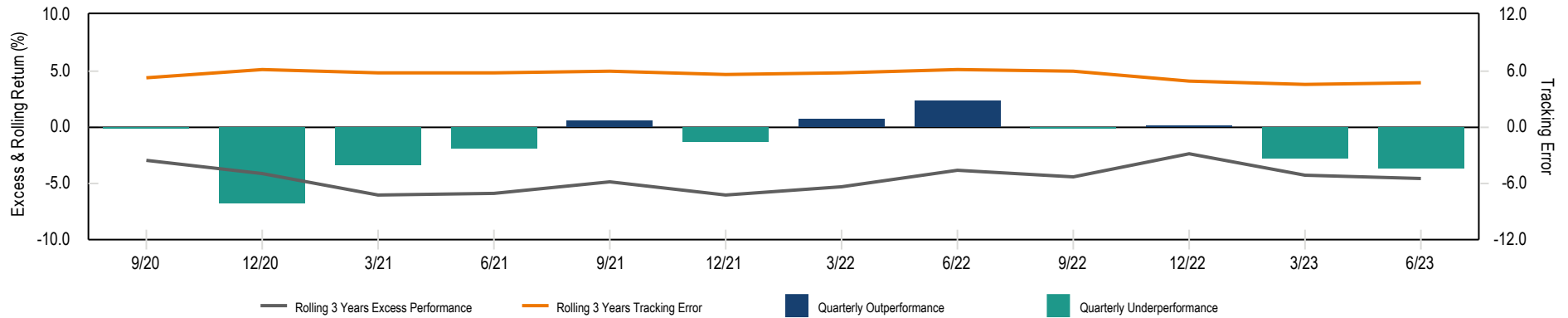


BlackRock Equity Index NL vs. eV US Large Cap Core Equity

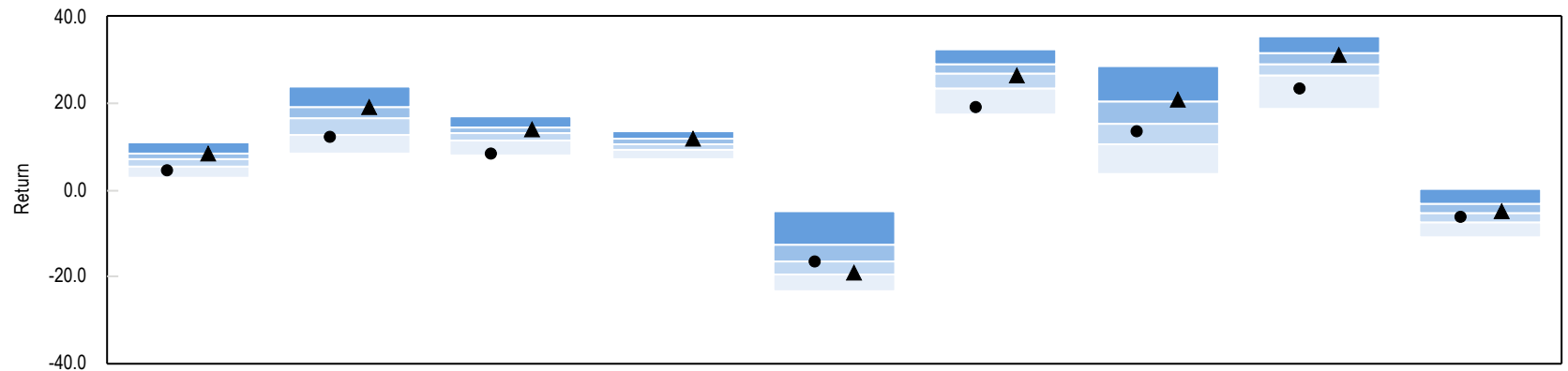


	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● BlackRock Equity Index NL	8.74 (24)	19.56 (26)	14.57 (28)	12.29 (23)	-18.13 (65)	28.67 (31)	18.38 (38)	31.50 (30)	-4.42 (40)
▲ S&P 500 Index	8.74 (23)	19.59 (25)	14.60 (28)	12.31 (22)	-18.11 (65)	28.71 (31)	18.40 (37)	31.49 (30)	-4.38 (39)
5th Percentile	11.05	24.25	17.35	13.68	-4.92	32.60	29.02	35.88	0.49
1st Quartile	8.55	19.56	14.71	12.11	-12.31	29.23	20.57	31.89	-2.87
Median	7.31	16.73	13.42	10.94	-16.48	26.94	15.55	29.45	-5.18
3rd Quartile	5.39	12.85	11.79	9.50	-19.15	23.49	10.93	26.59	-7.37
95th Percentile	2.84	8.60	8.25	7.51	-23.17	17.76	3.82	19.11	-10.90
Population	322	320	311	294	348	362	379	386	390

3 Years Rolling Annualized Excess Performance and Tracking Error

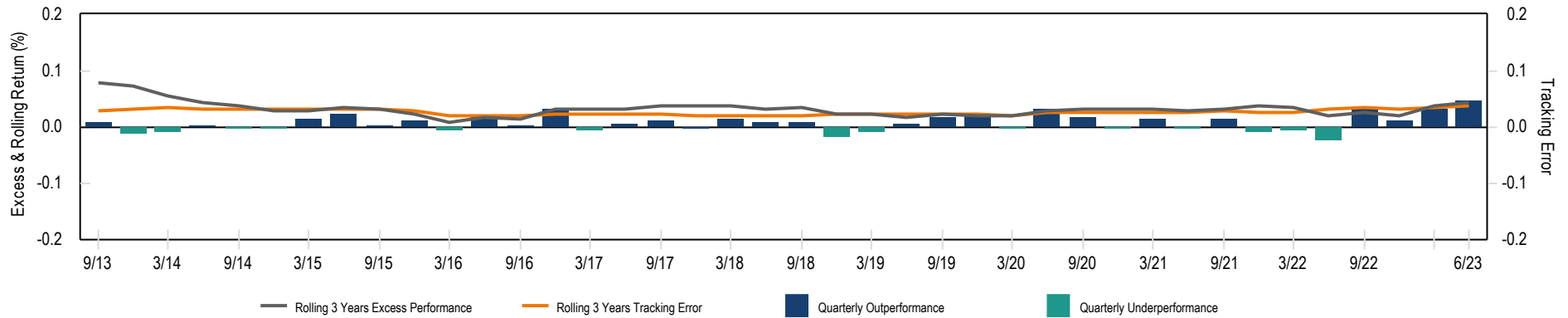


INTECH US Adaptive Volatility vs. eV US Large Cap Core Equity

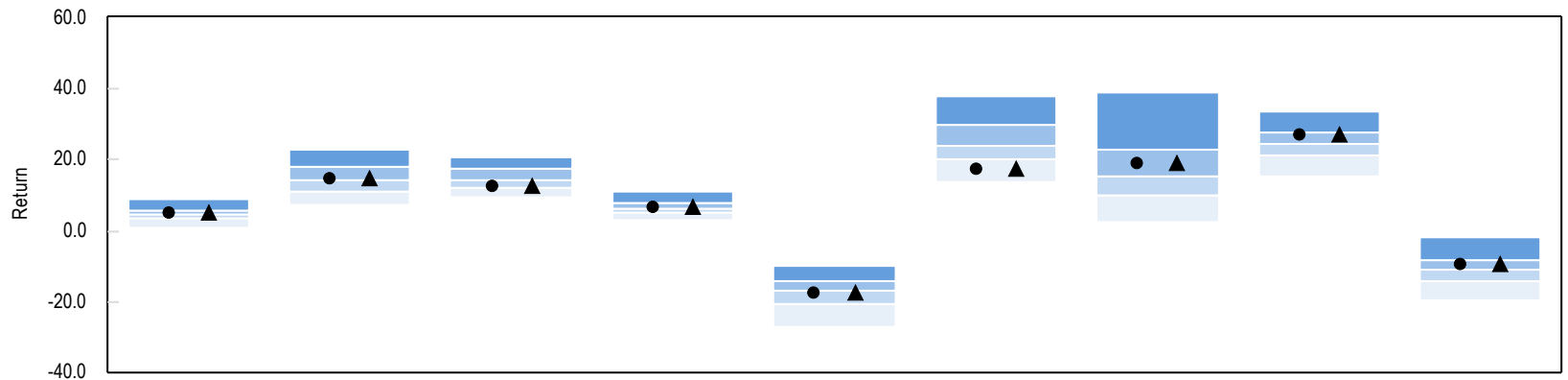


	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● INTECH US Adaptive Volatility	4.89 (79)	12.30 (78)	8.70 (94)	-	-16.22 (47)	19.45 (92)	13.97 (61)	23.45 (91)	-5.84 (58)
▲ Russell 1000	8.58 (25)	19.36 (27)	14.09 (38)	11.92 (30)	-19.13 (75)	26.45 (57)	20.96 (24)	31.43 (31)	-4.78 (45)
5th Percentile	11.05	24.25	17.35	13.68	-4.92	32.60	29.02	35.88	0.49
1st Quartile	8.55	19.56	14.71	12.11	-12.31	29.23	20.57	31.89	-2.87
Median	7.31	16.73	13.42	10.94	-16.48	26.94	15.55	29.45	-5.18
3rd Quartile	5.39	12.85	11.79	9.50	-19.15	23.49	10.93	26.59	-7.37
95th Percentile	2.84	8.60	8.25	7.51	-23.17	17.76	3.82	19.11	-10.90
Population	322	320	311	294	348	362	379	386	390

3 Years Rolling Annualized Excess Performance and Tracking Error



Vanguard Small Cap Index Ins vs. eV US Small Cap Core Equity



	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● Vanguard Small Cap Index Ins	5.34 (32)	14.92 (44)	12.53 (72)	6.59 (50)	-17.63 (57)	17.73 (84)	19.12 (36)	27.40 (27)	-9.32 (30)
▲ Vanguard Spliced Small Cap Index	5.29 (33)	14.78 (46)	12.49 (72)	6.55 (50)	-17.64 (57)	17.71 (84)	19.07 (36)	27.35 (28)	-9.33 (30)
5th Percentile	9.17	22.69	20.79	10.83	-9.77	38.12	38.88	33.81	-1.84
1st Quartile	5.68	17.82	17.60	7.73	-14.08	29.82	22.97	27.74	-8.54
Median	4.65	14.18	14.22	6.49	-16.73	24.24	15.37	24.66	-11.09
3rd Quartile	3.29	10.92	12.05	5.08	-20.51	20.13	10.10	21.16	-14.16
95th Percentile	1.10	7.11	9.33	3.27	-27.21	13.83	2.42	15.47	-19.39
Population	176	174	169	158	186	194	197	204	213

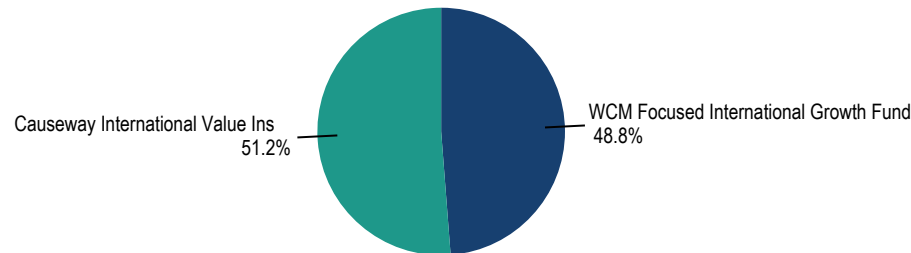
International Equity

Total International Equity
Performance Summary (Net of Fees)

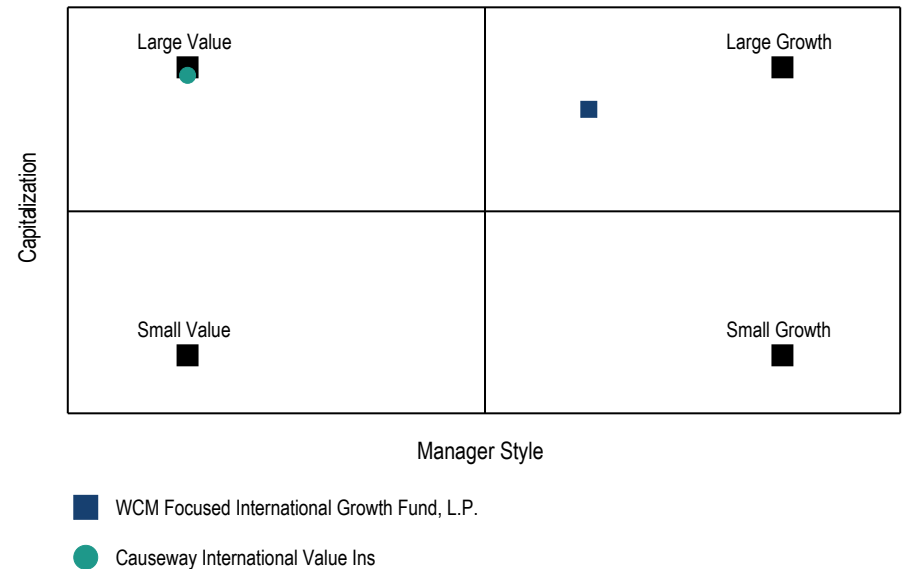
Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total International Equity	62,175,787	100.0	4.4	17.1	24.6	11.1	8.1	7.0	-20.0	14.6	21.7	27.8	-13.0
<i>Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)</i>			2.4	9.1	12.5	7.3	3.4	4.9	-16.6	8.5	11.1	21.6	-14.8
International Equity	62,175,787	100.0											
WCM Focused International Growth Fund, L.P.	30,335,509	48.8	3.7	14.6	19.5	7.1	9.4	-	-28.6	17.6	33.1	35.7	-7.4
<i>MSCI AC World ex USA (Net)</i>			2.4	9.5	12.7	7.2	3.5	4.7	-16.0	7.8	10.7	21.5	-14.2
<i>eV ACWI ex-US All Cap Growth Eq Rank</i>			21	36	25	22	1	-	57	3	34	12	1
Causeway International Value Ins	31,840,278	51.2	5.1	19.9	30.1	16.2	5.9	-	-6.8	9.1	5.4	20.1	-18.6
<i>MSCI EAFE (Net)</i>			3.0	11.7	18.8	8.9	4.4	5.4	-14.5	11.3	7.8	22.0	-13.8
<i>Foreign Large Value Rank</i>			3	2	2	8	9	-	28	84	23	35	91

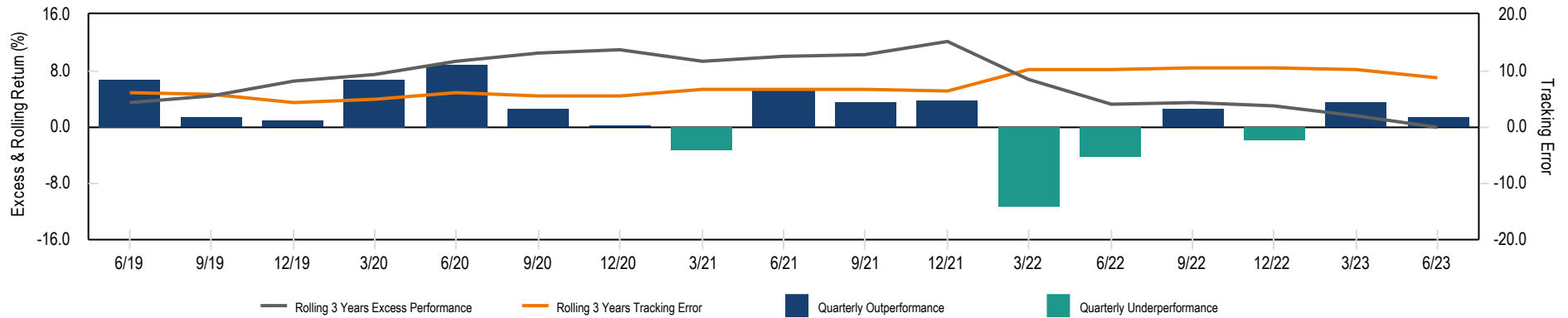
Total International Equity
Current Allocation



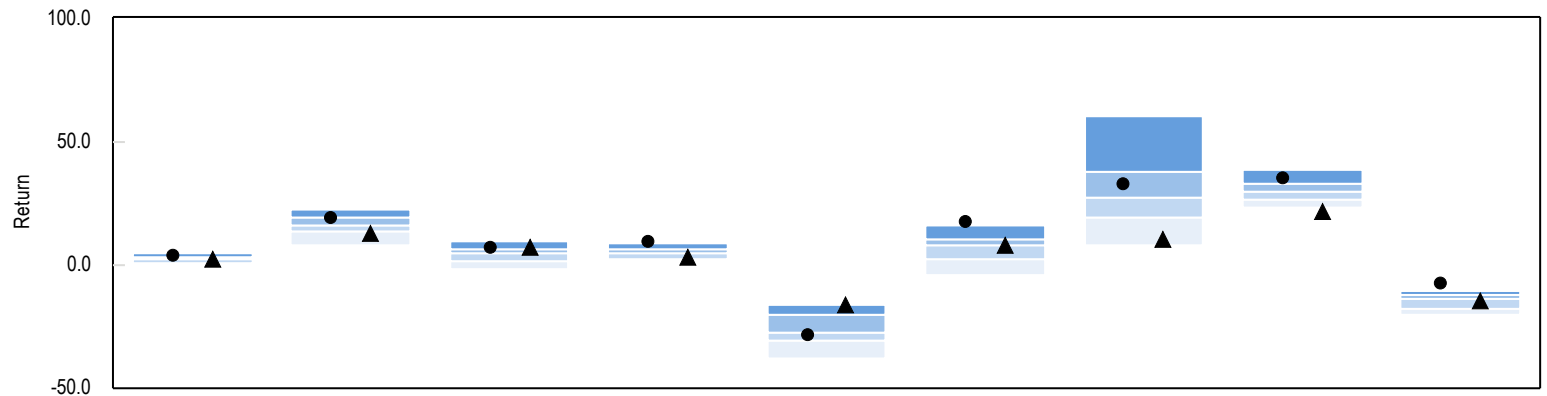
International Equity Effective Style Map
3 Years



3 Years Rolling Annualized Excess Performance and Tracking Error

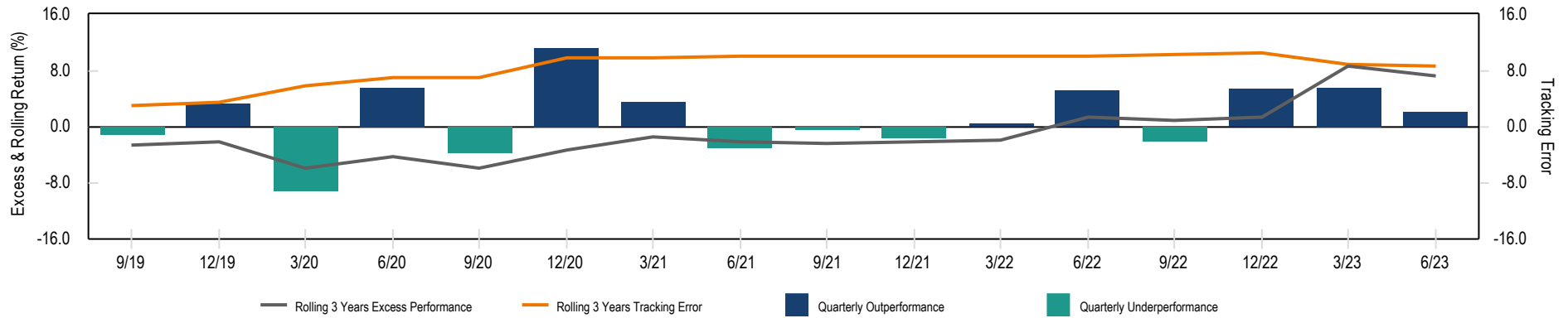


WCM Focused International Growth Fund, L.P. vs. eV ACWI ex-US All Cap Growth Eq

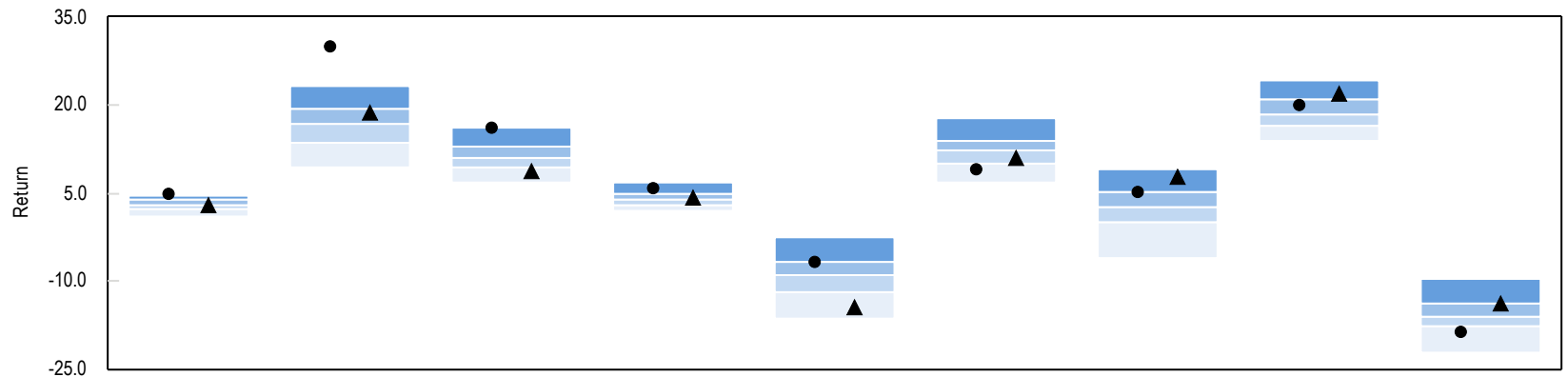


	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● WCM Focused International Growth Fund, L.P.	3.75 (21)	19.51 (25)	7.08 (22)	9.45 (1)	-28.60 (57)	17.64 (3)	33.07 (34)	35.73 (12)	-7.40 (1)
▲ MSCI AC World ex USA (Net)	2.44 (50)	12.72 (80)	7.22 (18)	3.52 (67)	-16.00 (5)	7.82 (49)	10.65 (94)	21.51 (98)	-14.20 (52)
5th Percentile	4.60	22.44	9.59	8.70	-16.43	16.37	60.55	38.32	-10.47
1st Quartile	3.51	19.51	6.83	6.46	-20.54	10.86	37.54	33.03	-12.47
Median	2.34	16.42	4.52	4.66	-27.70	7.78	27.06	29.88	-13.95
3rd Quartile	0.84	13.83	1.81	2.81	-30.90	2.39	19.03	26.57	-17.52
95th Percentile	0.23	7.77	-1.60	1.66	-37.80	-4.28	8.12	23.00	-20.06
Population	31	31	30	29	35	37	37	38	36

3 Years Rolling Annualized Excess Performance and Tracking Error



Causeway International Value Ins vs. Foreign Large Value



	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● Causeway International Value Ins	5.06 (3)	30.12 (2)	16.18 (8)	5.91 (9)	-6.76 (28)	9.07 (84)	5.40 (23)	20.10 (35)	-18.61 (91)
▲ MSCI EAFE (Net)	2.95 (57)	18.77 (36)	8.93 (83)	4.39 (37)	-14.45 (89)	11.26 (62)	7.82 (7)	22.01 (14)	-13.79 (25)
5th Percentile	4.70	23.42	16.36	6.91	-2.29	18.00	9.27	24.46	-9.54
1st Quartile	3.93	19.51	13.07	4.91	-6.53	14.09	5.17	21.17	-13.82
Median	3.13	17.06	11.14	3.95	-8.96	12.35	2.86	18.48	-15.92
3rd Quartile	2.44	13.62	9.60	3.00	-11.74	10.27	0.11	16.67	-17.67
95th Percentile	1.01	9.47	6.86	2.05	-16.26	6.99	-5.90	14.11	-21.96
Population	94	94	84	79	91	91	88	87	83

Domestic Fixed Income

Total Fixed Income
Performance Summary (Net of Fees)

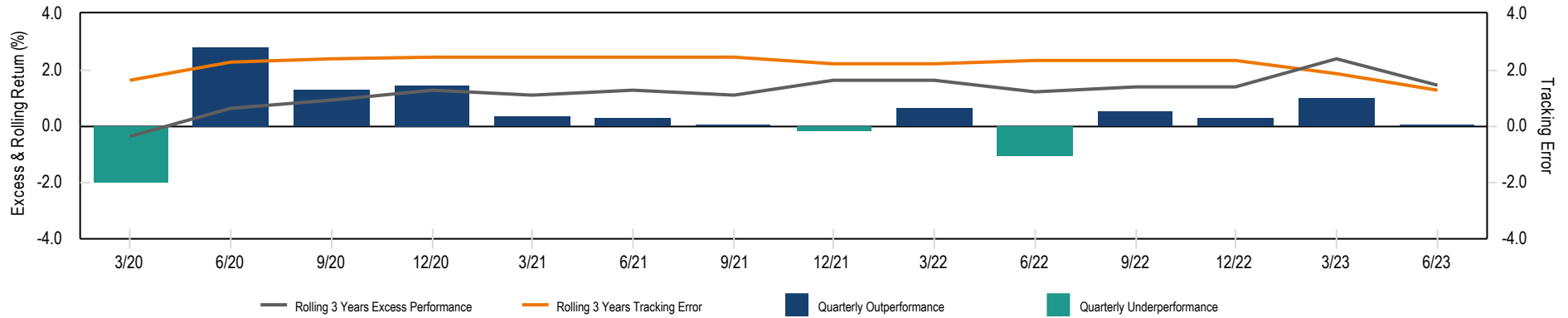
Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Fixed Income	54,171,570	100.0	-0.8	3.1	0.9	-2.5	1.8	2.6	-12.7	-1.1	11.3	9.4	-0.4
<i>Total Fixed Income Benchmark (Bloomberg Aggregate)</i>			-0.8	2.1	-0.9	-4.0	0.8	1.5	-13.0	-1.5	7.5	8.7	0.0
Loomis Sayles Core Plus	54,171,570	100.0	-0.8	3.1	0.9	-2.5	1.8	-	-12.7	-1.1	11.3	9.4	-0.4
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.1	-0.9	-4.0	0.8	-	-13.0	-1.5	7.5	8.7	0.0
<i>eV US Core Plus Fixed Inc Rank</i>			77	13	24	27	15	-	22	77	10	60	40

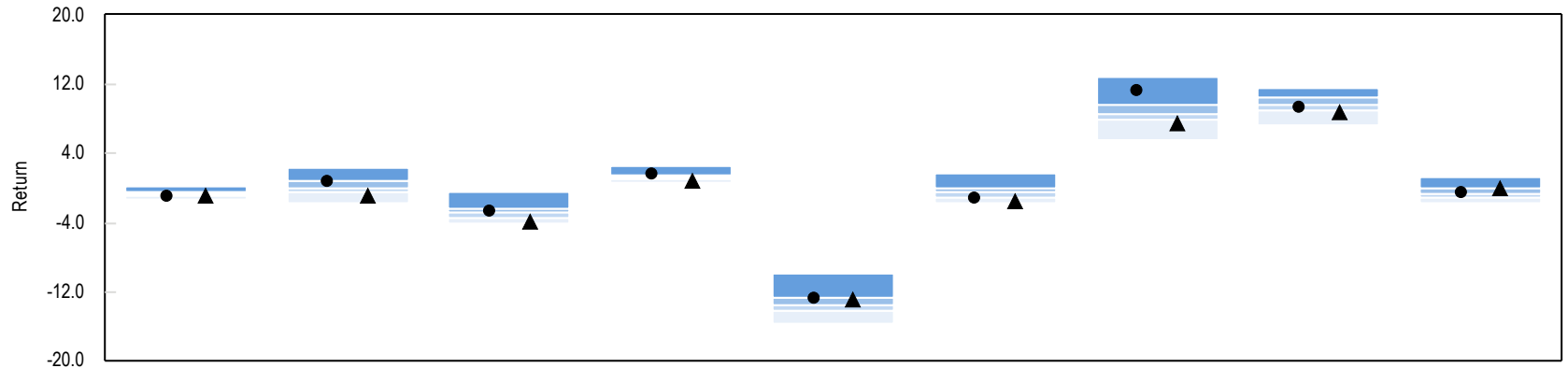
Fixed Income Effective Style Map



3 Years Rolling Annualized Excess Performance and Tracking Error



Loomis Sayles Core Plus vs. eV US Core Plus Fixed Inc



	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● Loomis Sayles Core Plus	-0.81 (77)	0.89 (24)	-2.48 (27)	1.76 (15)	-12.66 (22)	-1.06 (77)	11.29 (10)	9.43 (60)	-0.42 (40)
▲ Blmbg. U.S. Aggregate Index	-0.84 (79)	-0.94 (83)	-3.97 (95)	0.77 (89)	-13.01 (35)	-1.55 (92)	7.51 (82)	8.72 (81)	0.01 (25)
5th Percentile	0.12	2.29	-0.48	2.66	-9.80	1.71	12.82	11.63	1.24
1st Quartile	-0.34	0.83	-2.42	1.56	-12.77	0.09	9.65	10.61	-0.07
Median	-0.54	0.08	-2.87	1.23	-13.47	-0.43	8.71	9.73	-0.60
3rd Quartile	-0.79	-0.53	-3.40	1.00	-14.13	-1.02	7.89	9.03	-1.03
95th Percentile	-1.21	-1.69	-4.00	0.64	-15.64	-1.70	5.64	7.39	-1.66
Population	130	130	123	117	140	141	144	145	143

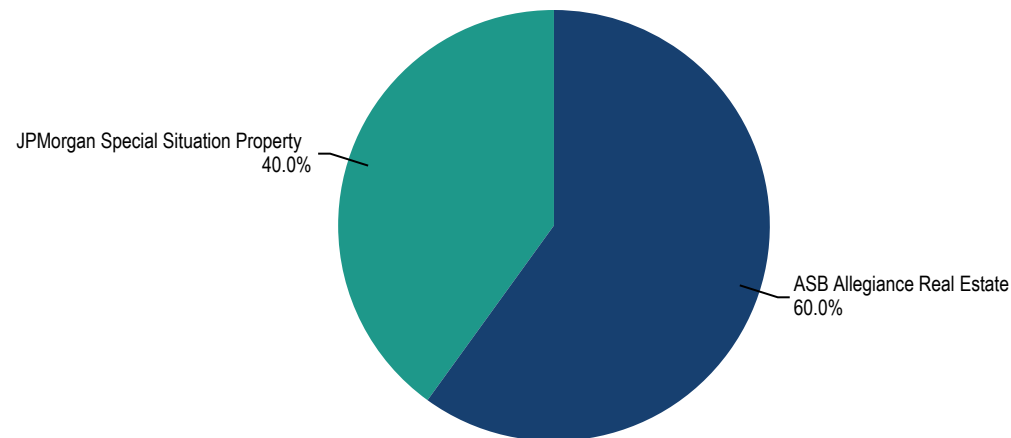
Alternatives

Total Real Estate
Performance Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Real Estate	40,162,604	100.0	-5.3	-10.6	-15.9	3.5	3.6	6.5	4.4	17.3	1.7	4.0	7.1
<i>NCREIF ODCE</i>			-2.9	-6.2	-10.7	7.0	5.6	7.8	6.5	21.0	0.3	4.4	7.4
ASB Allegiance Real Estate	24,082,839	60.0	-6.4	-11.8	-13.9	3.5	3.4	-	9.6	13.8	1.4	3.1	6.0
<i>NCREIF ODCE</i>			-2.9	-6.2	-10.7	7.0	5.6	-	6.5	21.0	0.3	4.4	7.4
JPMorgan Special Situation Property	16,079,765	40.0	-3.6	-8.8	-18.6	3.6	4.0	-	-2.6	22.4	2.0	5.0	9.6
<i>NCREIF ODCE</i>			-2.9	-6.2	-10.7	7.0	5.6	-	6.5	21.0	0.3	4.4	7.4

Total Domestic Equity
Current Allocation

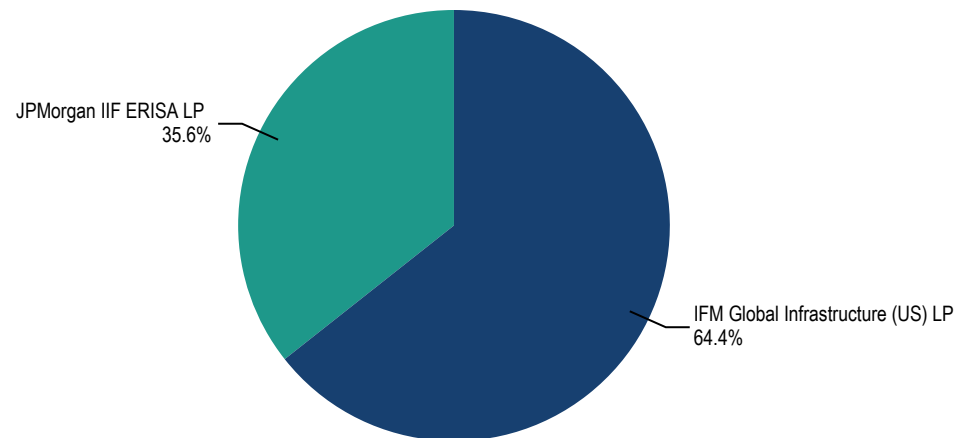


Total Infrastructure
Performance Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Infrastructure	20,214,981	100.0	1.6	4.3	9.3	10.0	9.0	7.9	6.5	11.7	5.4	11.5	10.2
<i>CPI + 5%</i>			2.3	5.3	8.1	11.1	9.1	7.8	11.8	12.4	6.4	7.4	7.0
IFM Global Infrastructure (US) LP	13,009,900	64.4	2.5	5.2	9.6	12.4	11.2	9.8	8.2	17.4	3.1	14.6	15.8
<i>CPI + 5%</i>			2.3	5.3	8.1	11.1	9.1	7.8	11.8	12.4	6.4	7.4	7.0
JPMorgan IIF ERISA LP	7,205,082	35.6	0.0	2.7	8.9	6.6	6.0	5.6	4.0	4.0	8.4	8.0	4.2
<i>CPI + 5%</i>			2.3	5.3	8.1	11.1	9.1	7.8	11.8	12.4	6.4	7.4	7.0

Total Domestic Equity
Current Allocation

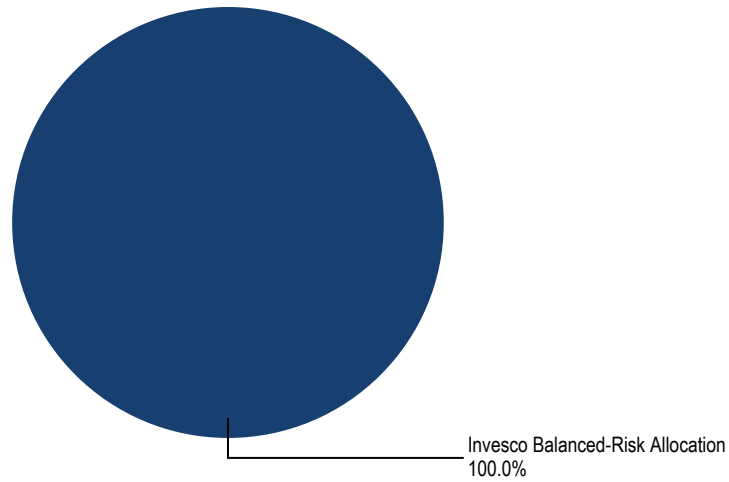


Total Multi-Asset
Performance Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund
Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2022	2021	2020	2019	2018
Total Multi-Asset	49,901,123	100.0	-0.4	2.5	-1.2	4.2	3.5	4.8	-13.7	10.9	10.8	15.7	-5.8
60% MSCI ACWI Net/40% FTSE WGBI			3.0	8.9	8.7	3.9	4.3	5.2	-18.1	7.8	14.5	18.2	-5.8
eV Global Balanced Rank			90	98	99	59	65	59	38	53	55	73	32
Invesco Balanced-Risk Allocation	49,901,123	100.0	-0.4	2.5	-1.2	4.2	3.5	4.8	-13.7	10.9	10.8	15.7	-5.8
60% MSCI ACWI Net/40% FTSE WGBI			3.0	8.9	8.7	3.9	4.3	5.2	-18.1	7.8	14.5	18.2	-5.8
eV Global Balanced Rank			90	98	99	59	65	60	38	53	55	73	32

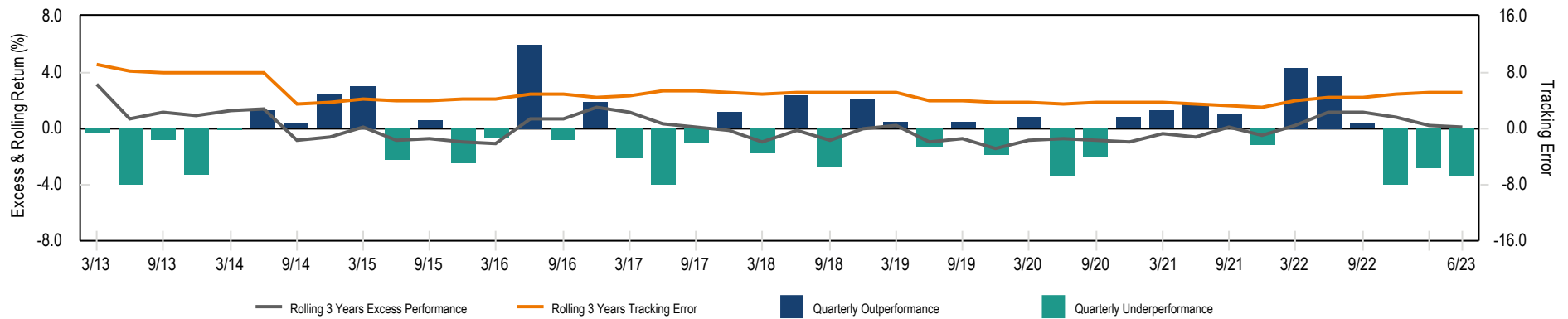
Total Domestic Equity
Current Allocation



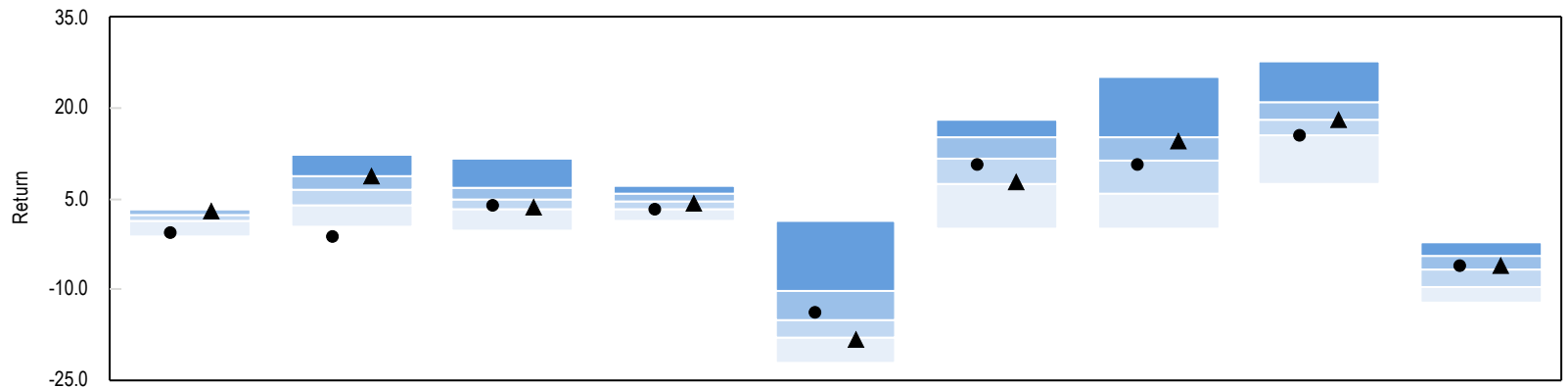
Invesco Balanced-Risk Allocation
 Manager Performance Comparisons (Net of Fees)

Western States Office & Professional Employees Pension Fund
 Period Ending: June 30, 2023

3 Years Rolling Annualized Excess Performance and Tracking Error



Invesco Balanced-Risk Allocation vs. eV Global Balanced



	3 Mo	1 Yr	3 Yrs	5 Yrs	2022	2021	2020	2019	2018
● Invesco Balanced-Risk Allocation	-0.40 (90)	-1.16 (99)	4.19 (59)	3.46 (65)	-13.70 (38)	10.89 (53)	10.83 (55)	15.67 (73)	-5.82 (32)
▲ 60% MSCI ACWI Net/40% FTSE WGBI	2.96 (31)	8.73 (26)	3.86 (63)	4.25 (60)	-18.14 (78)	7.76 (75)	14.53 (36)	18.17 (54)	-5.85 (32)
5th Percentile	3.71	12.32	11.62	7.22	1.57	18.18	25.37	28.06	-2.19
1st Quartile	3.31	8.77	7.00	5.84	-10.26	15.30	15.46	21.22	-4.32
Median	2.45	6.74	4.88	4.70	-14.97	11.89	11.55	18.27	-6.65
3rd Quartile	1.48	3.89	3.35	3.26	-18.01	7.66	5.82	15.53	-9.58
95th Percentile	-1.29	0.37	-0.10	1.35	-22.26	0.15	0.25	7.70	-12.00
Population	48	46	40	38	46	46	50	52	55

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

<u>Manager</u>	<u>Fund Incepted</u>	<u>Data Source</u>	<u>Manager</u>	<u>Fund Incepted</u>	<u>Data Source</u>
BlackRock Equity Index NL	4/30/2010	BlackRock	JPMorgan SSP	12/31/2014	JP Morgan
INTECH US Adaptive Volatility	8/3/2018	INTECH	IFM Global Infrastructure (US) LP	1/31/2009	IFM
Vanguard Small Cap Index Ins	4/14/2021	US Bank	JPMorgan IIF ERISA LP	9/30/2010	JP Morgan
WCM Focused International Growth	7/1/2016	WCM	Invesco Balanced-Risk Allocation	1/31/2010	Invesco
Causeway International Value	7/27/2016	US Bank	US Bank Checking Account	N/A	US Bank
Loomis Sayles Core Plus	3/21/2017	Loomis Sayles	US Bank Clearing Account	N/A	US Bank
ASB Allegiance Real Estate	3/31/2015	ASB			

Policy & Custom Index Composition

Policy Index: 45% MSCI World, 25% Bloomberg Aggregate, 10% NCREIF-ODCE Net, 20% (60%MSCI ACWI Net/40% CITI WGBI)

Target Asset Allocation Policy: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% Bloomberg Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60%MSCI ACWI Net/40% CITI WGBI).

Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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