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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS



PERIOD ENDING: SEPTEMBER 30, 2022

Investment Performance Review for

Western States Office and Professional Employees' International Union Pension Plan

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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

OCTOBER 2022 Capital Markets Update

Market commentary

U.S. ECONOMICS

- U.S. GDP grew at a quarterly annualized rate of +2.6% in Q3, higher than expectations (+2.4%) and the -0.6% decline registered in Q2. Net exports, which contributed +2.8% to the headline figure, drove Q3 growth. Changes in consumer spending remained positive (+1.4%) but decelerated compared to Q2.
- The October jobs report showed continued labor market strength as U.S. nonfarm payrolls increased by 261,000 and exceeded expectations. The unemployment rate moved +0.2% higher to 3.7%, and the labor force participation rate (62.2%) declined by just -0.1%.
- Consumer Price Index measures for headline and core inflation each came in -0.2% below expectations. Headline CPI increased +0.4% for the month and +7.7% year-over-year while core CPI, which excludes more volatile energy and food components, climbed +0.3% on the month and +6.3% year-over-year.

U.S. EQUITIES

- The Dow Jones Industrial Average (+14.1%) led major U.S. equity indices and posted its largest October gain on record. The S&P 500 index notched an +8.1% gain with support from widespread Q3 earnings beats.
- Record bottom-line results in the Energy sector continued to drive S&P 500 earnings. Through month end, three energy sub-industries had reported triple-digit year-over-year EPS increases. Gains were led by Oil & Gas Refining & Marketing whose Q3 blended earnings increased +269.0%.
- As of 11/1, the blended Q3 earnings growth rate for the S&P totaled +2.2%, compared to -5.1% when measured on an ex-Energy basis, per FactSet.

U.S. FIXED INCOME

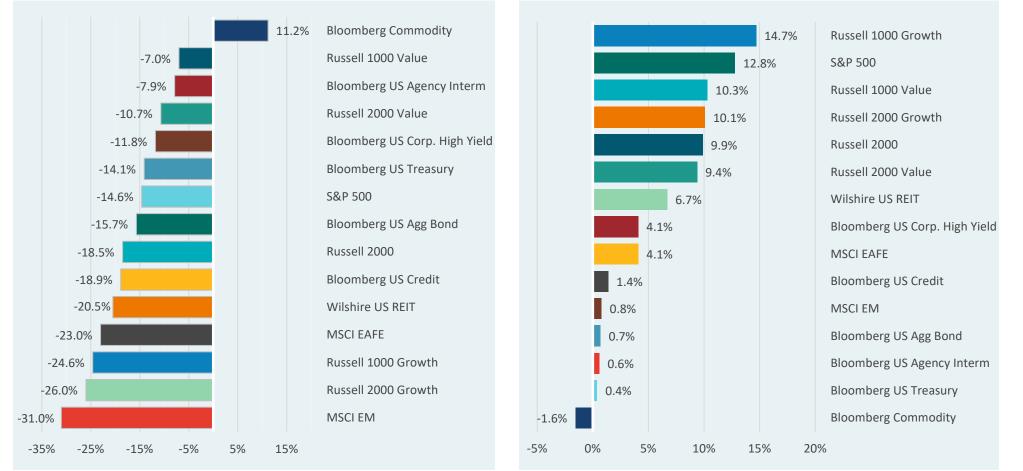
- Minutes from the September FOMC meeting highlighted Fed officials' reiteration that tighter monetary policy will be necessary to contain inflation in the wake of strong economic data. Meeting participants suggested that a restrictive policy rate may need to be maintained to avoid the costs of a premature reversal in its current policy objectives.
- In response to the recent Fed speak, investors fully priced in an additional 75-basis point hike for the November Fed meeting along with subsequent hikes of 50 bps and 25 bps in December and January.
- The Bloomberg U.S. Aggregate Index dropped -1.3% and extended its year-to-date decline to -15.7%. Yields continued to rise, and all Treasury instruments finished the month above 4.0% aside from the 1-month T-bill.

INTERNATIONAL MARKETS

- The ECB delivered a second consecutive set of 75-basis point hikes to its three key interest rates. Members of the Governing Council alluded to additional rate increases in future meetings as the bank attempts to lower eurozone inflation which rose to +10.7%.
- Sovereign bond yield movement was mostly flat in developed markets outside the U.S. and Canada. U.K. gilt yields saw a drastic reversal compared to the prior month, with 10-year gilts falling -60 bps, the largest decline among developed peers.
- Continued volatility in the Japanese Yen (-2.6%) prompted further intervention from the BOJ. The bank purchased 6.3 trillion Yen near month end after the currency sunk to its lowest level against the U.S. Dollar since 1990.

Major asset class returns

ONE YEAR ENDING SEPTEMBER



*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 10/31/22

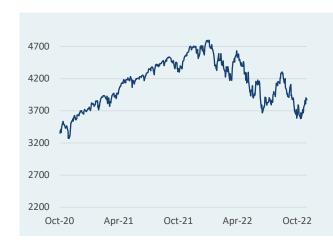
Source: Morningstar, as of 10/31/22

TEN YEARS ENDING SEPTEMBER

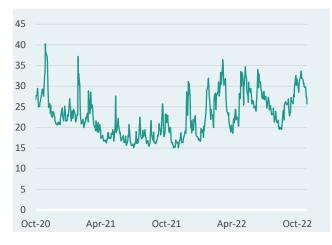


U.S. large cap equities

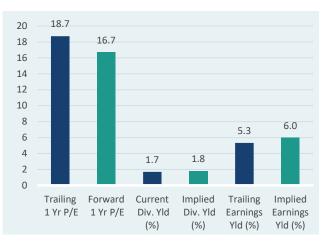
- The S&P 500 Index reversed course and rallied +8.1% despite hotter-than-expected September CPI and PPI prints. Positive investor sentiment was likely a product of earnings beats among index members. At month end, 276 constituents had reported Q3 results, 69.2% of which exceeded bottom-line expectations.
- All 11 S&P 500 GICS sectors gained in October. Energy (+25.0%) increased the most alongside triple-digit blended Q3 earnings growth. Industrials (+13.9%) and Financials (+12.0%) were the next biggest gainers while Real Estate (+2.0%), Consumer Discretionary (+0.2%), and Communications (+0.1%) gained the least.
- The Dow Jones Industrial Average soared +14.1% and posted its largest monthly gain since January 1976. Of the 30 index members, 28 gained, each by an average of +14.7%. Monthly losses were limited to Verizon (-1.6%) and Microsoft (-0.3%). The Dow has fallen -8.4% year-to-date compared to a -17.7% decline in the S&P.
- The Cboe Index of Implied Volatility retreated -5.7 points to 25.9%, below its year-to-date daily average of 26.3%. Despite the fall, the index remains elevated above its 1-year (25.3%), 3-year (22.7%), and 5-year (24.4%) daily averages.



IMPLIED VOLATILITY (VIX INDEX)



S&P 500 VALUATION SNAPSHOT



Source: Bloomberg, as of 10/31/22

S&P 500 PRICE INDEX

Source: Cboe, as of 10/31/22

Source: Bloomberg, as of 10/31/22



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Domestic equity size and style

- In a continuation of recent trends, small-cap equities (Russell 2000 Index +11.0%) largely outperformed large-cap equities (Russell 1000 Index +8.0%). Small company overperformance was driven by outsized gains in the Industrials, Basic Materials, and Consumer Discretionary sectors.
- Value stocks (Russell 1000 Value +10.3%) across equity sizes continued to outperform growth stocks (Russell 1000 Growth +5.8%). On a 1-year relative basis, value outperformed growth by +17.3%, its greatest margin of 1-year overperformance since June 2002.
- Gains were wide-spanning across the S&P 500 as 84.9% of index members moved higher. Index breadth was also visible in the S&P 500 Equal Weighted Index which jumped +9.8% and delivered its highest monthly outperformance of the cap-weighted index since April.
- 12-month trailing profit margins for value companies held up better than growth companies on a year-overyear basis. As of Q3, the profit margin for the Russell 1000 Value Index declined to 9.4% from 10.0%, while the Russell 1000 Growth Index profit margin fell to 10.7% from 14.5%.



VALUE VS. GROWTH RELATIVE VALUATIONS

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 10/31/22

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 10/31/22

Capital Markets Update October 2022

Source: FTSE, Bloomberg, as of 10/31/22

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Fixed income

- U.S. Treasury yields rose across the curve alongside a hot September CPI print and expectations of another 75-basis point rate hike at the Fed's November meeting. Yields on all tenors notched fresh highs on the year with help from a hawkish Fed and new market expectations that the fed funds rate may peak near 5.0%.
- Spreads on U.S. high yield debt narrowed by -80 bps to end the month at 4.6%. High yield spreads have now fallen -136 bps from their year-to-date peaks observed in July. The Bloomberg U.S. Corp High Yield Index (+2.6%) moved higher in a reversal of the prior twomonth trend.
- The Bloomberg U.S. Long Treasury Index (-5.5%) declined for a third consecutive month as yields on long-dated Treasuries climbed to levels not seen in more than a decade. 10-year and 30-year yields surpassed 4.0% for the first time since 2008 and 2010, respectively.
- The average U.S. 30-year fixed mortgage rate continued its ascent and closed at 7.1%, the highest since 2002. Similarly, the 15-year hit 6.4%, the highest level since 2007. Amplified rate hike expectations and waning mortgage demand likely pushed rates higher. The Bloomberg MBS Index has declined -14.9% year-to-date.



NOMINAL YIELDS



BREAKEVEN INFLATION RATES



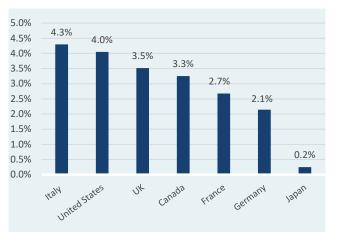
Source: Bloomberg, as of 10/31/22

Source: Morningstar, as of 10/31/22

Source: Bloomberg, as of 10/31/22

Global markets

- International equities (MSCI ACWI ex US +3.0%) increased moderately but lagged U.S. counterparts. Gains in developed market equities (MSCI EAFE +5.4%) were offset by declines in emerging Asian equities (MSCI EM Asia -3.9%) which pulled the broader EM index lower (MSCI EM -3.1%).
- Chinese equities (MSCI China Index -16.8%) fell sharply amid fears of slowing economic growth and tightened political control. These factors likely contributed to high volatility and a record single-session sell-off in the Nasdaq Golden Dragon China Index (-14.4%), which closed the month at its lowest level since 2013.
- The MSCI U.K. Index jumped +6.0%, the largest monthly gain for U.K. equities since December. Sentiment turned positive following the termination of Exchequer Chancellor Kwasi Kwarteng and the subsequent resignation of Prime Minister Liz Truss, advocates for the country's short-lived September mini-budget.
- The MSCI EM Latin American Index rallied +9.7% and led regional indices for a third consecutive month.
 Brazilian stocks, which constitute 60.1% of the index, rose +8.6% alongside the election of former President Lula da Silva while Mexican stocks soared +13.9% on peso strength and outsized Financials performance.



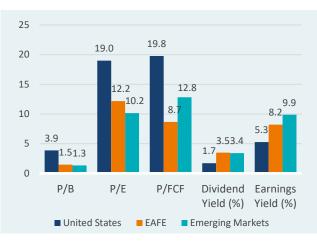
GLOBAL SOVEREIGN 10-YEAR YIELDS

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 10/31/22

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 10/31/22

Capital Markets Update October 2022

Source: Bloomberg, as of 10/31/22



Commodities

- The Bloomberg Commodity Index (+2.0%) increased marginally as swelling energy prices (Bloomberg Energy Sub-Index +4.4%) were moderated by declines in precious metals (Bloomberg Precious Metals Sub-Index -1.0%) and narrow gains in agriculture (Bloomberg Agriculture Sub-Index +1.1%).
- The Organization of the Petroleum Exporting Countries (OPEC) announced plans to curtail oil output by 2 million barrels per day. The move adds further pressure to global energy prices which have skyrocketed year-to-date as a result of tight supply. The Bloomberg Petroleum Sub-Index gained +13.0%.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	2.0	2.0	15.8	11.2	13.4	6.9	(1.6)
Bloomberg Agriculture	1.1	1.1	14.0	17.7	21.0	8.6	(1.7)
Bloomberg Energy	4.4	4.4	56.4	33.3	12.4	7.2	(5.6)
Bloomberg Grains	1.1	1.1	19.7	23.1	20.8	9.5	(3.0)
Bloomberg Industrial Metals	(0.6)	(0.6)	(16.6)	(13.4)	7.4	2.6	0.5
Bloomberg Livestock	6.3	6.3	5.3	9.2	(4.5)	(5.4)	(3.2)
Bloomberg Petroleum	13.0	13.0	52.9	43.9	18.5	11.9	(2.6)
Bloomberg Precious Metals	(1.0)	(1.0)	(12.6)	(11.5)	1.0	3.4	(2.6)
Bloomberg Softs	(9.8)	(9.8)	(10.4)	(7.1)	14.5	2.3	(3.6)

- The Bloomberg Softs Sub-Index (-9.3%) fell on steep downward movement in coffee prices (-19.8%) which declined amid expectations of an increased shift toward at-home consumption due to high inflation. Cotton prices (-15.6%) also contributed to the downturn and sunk after reductions in forward-looking consumption estimates.
- Industrials metals prices (Bloomberg Industrial Metals Sub-Index -0.6%) declined as global recession fears and lower trading volumes on major exchanges hurt prices. Copper prices fell -1.1%, and zinc – which is often used in conjunction with steel – dropped -9.7% largely due to the release of weaker-than-expected Chinese factory data.





Source: Morningstar, as of 10/31/22

Source: Bloomberg, as of 10/31/22



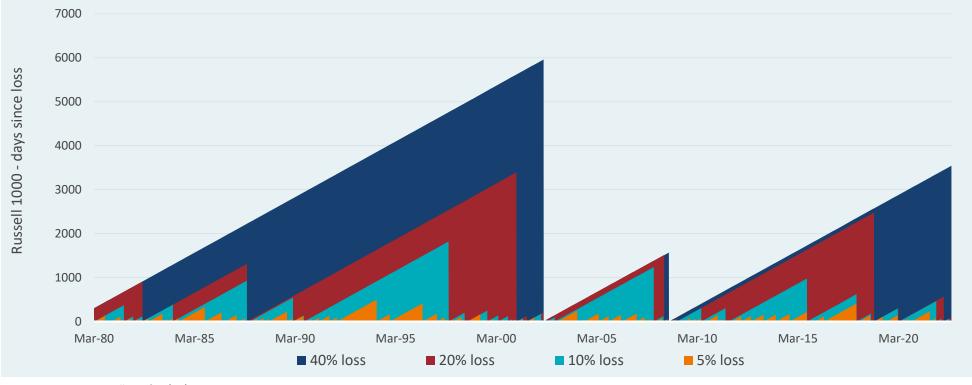




Navigating volatile equity markets

Throughout the year markets have moved sharply in reaction to inflation fears, central bank efforts to fight that inflation, and ongoing risks of recession.

As markets continue to assess these risks and watch for *light at the end of the tunnel*, we feel it is appropriate to remind ourselves, as investors, that equity market drawdowns occur rather frequently. This is evident in the chart below, which tracks the number of days since the last loss of a particular magnitude: our recent nearly 20% loss is clearly not unusual.



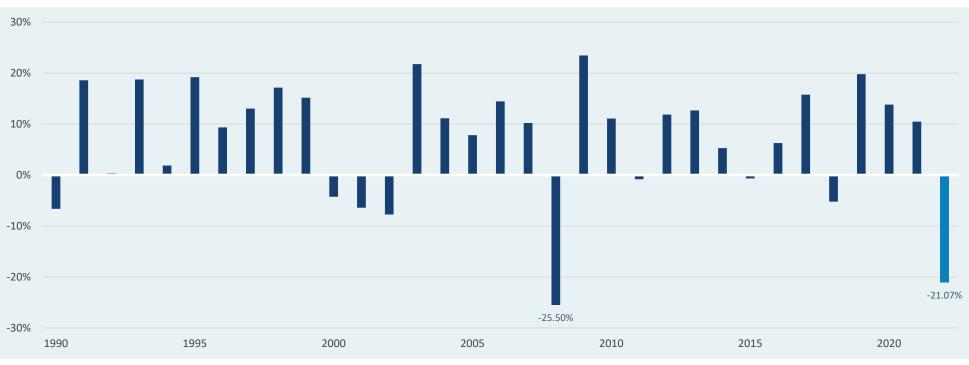
Source: Verus, FTSE Russell, as of 10/27/22



Historical returns of a blended portfolio

Efforts to shrink balance sheets have been combined with rate rises in a global move towards tighter monetary policy. The result has been unusually negative behavior for a balanced portfolio (we use 60% global equity 40% domestic fixed income for illustration here).

This year has been one of the worst years among the last 50 for such a portfolio – both asset classes have dropped in value. The diversification benefit we might normally expect from fixed income has not materialized as it relies primarily on the expectation that weak equities will result in lower, not higher, interest rates.



60/40 PORTFOLIO ANNUAL RETURNS

Source: Verus, based on a 60% allocation to the MSCI ACWI Index & 40% allocation to the U.S. Aggregate Index, as of 9/30/22



Does pain follow pain?

The bottom left chart demonstrates that there are plenty of instances where the equity market produced poor returns in a year but then recovered much of those poor returns by the end of the subsequent year. There are reassuringly few instances where the first year of negative outcomes was followed by a second year of similar results

The second thing to scrutinize is the question of fixed income allocations, and the pain that has been suffered there through rate rises. Is this likely to continue, and is diversification still dead?

It does seem that the market expects further rate rises from central banks: these are likely to move the shorter end of the curve, but less likely (based on recent experience) to be felt as much throughout the longer-end of the curve.

The higher interest rate levels we have today do provide some support for the possibility that duration will once again be beneficial to investors when the economy next runs into formidable circumstances.

At the same time, these tighter economic conditions seem likely to produce an increase in bond default rates, reducing investor returns from credit-exposed portfolios. Greater concerns over credit conditions may also push credit spreads upward, providing further headwinds for fixed income portfolios.

However, as with equity markets, fixed income portfolios have tended to rebound the next year following a significant drawdown.

On balance, then, it may be reasonable to expect fixed income to regain some diversification characteristics in the future. It may also be reasonable to expect 2023 to be more cheerful than 2022. However, neither outcome is guaranteed.

40% 30% Year Return 20% Following 10% 0% -10% -20% -10% -40% -20% 10% 20% 30% -30% -10% 0% 40% Year One Return

BLOOMBERG U.S. AGGREGATE ANNUAL RETURNS



Source: Bloomberg, Verus, as of 10/31/2022. Start date of data service: 1977

MSCI ACWI ANNUAL RETURNS

40%

30%

20%

Following Year Return %00 %0 -00% -20% -30%

-30%

-40%

-50%

-50%

Source: Verus, as of 12/31/21. Red dots represent 2000 and 2001. Start date 1988



Notices & disclosures

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Western States Office & Professional Employees Pension Fund

Investment Performance Review Period Ending: September 30, 2022



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3rd quarter summary

THE ECONOMIC CLIMATE

- U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year).
 Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.
- The U.S. dollar delivered an impressive rally year-to-date, appreciating approximately 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices.

PORTFOLIO IMPACTS

- September inflation figures conveyed two stories: first, U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year.
- Credit performance was mixed during Q3, with lower duration exposures faring better than higher duration.
 Fears of a looming recession remained as the Fed's 75 basis point rate hikes in both July and September reinforced its intention to fight inflation until the "job is done."

THE INVESTMENT CLIMATE

- The Russia Ukraine war may be taking a turn, as Ukraine's counteroffensive gains steam. In a rare admission, Russia's Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: "With numerically superior tank units in the direction of Zolata Balka and Oleksandrivka, the enemy managed to forge deep into our defenses."
- The broad market selloff increased in intensity as global central banks hiked interest rates, effectively withdrawing liquidity from the financial system. Higher interest rates and central bank balance sheet winddowns mark a major change from the liquidity-driven environment of the past decade.

ASSET ALLOCATION ISSUES

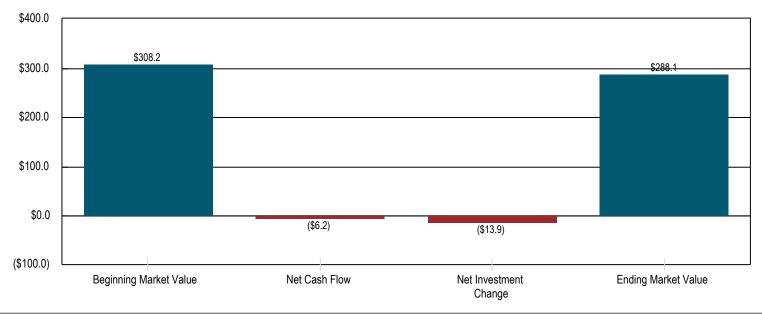
- Markets year-to-date have delivered sharp losses across nearly every asset class, including double digit losses of core fixed income (Bloomberg US Aggregate Bond -10.8%). Historically speaking, these moves have been highly unusual and reflect an environment where diversification has not served investors well.
- Growth stocks outperformed value stocks during the quarter (Russell 1000 Growth -3.6% vs Russell 1000 Value -5.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%).

The broad market selloff has increased in severity, as central banks remove liquidity from the global financial system



Investment Landscape 4th Quarter 2022

Portfolio Reconciliation											
	Last Three Months	Year-To-Date									
Beginning Market Value	\$308,184,618	\$365,296,061									
Net Cash Flow	-\$6,201,726	-\$18,870,243									
Net Investment Change	-\$13,863,085	-\$58,244,970									
Ending Market Value	\$288,119,808	\$288,119,808									



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



Total Fund Cash Flow by Manager - Last Three Months

Western States Office & Professional Employees Pension Fund

Period Ending: September 30, 2022

	Beginning Market Value	Contributions	Distributions	Net Transfers	Net Cash Flows	Net Investment Change	Ending Market Value
BlackRock Equity Index NL	\$27,942,056	\$0	\$0	-\$1,000,000	-\$1,000,000	-\$1,272,674	\$25,669,382
INTECH US Adaptive Volatility	\$29,213,780	\$0	\$0	\$0	\$0	-\$1,401,272	\$27,812,508
Vanguard Small Cap Index Ins	\$10,500,982	\$0	\$0	\$0	\$0	-\$272,550	\$10,228,432
WCM Focused International Growth Fund, L.P.	\$31,464,706	\$0	\$0	-\$3,000,000	-\$3,000,000	-\$1,990,154	\$26,474,552
Causeway International Value Ins	\$24,469,286	\$0	\$0	\$0	\$0	-\$2,833,427	\$21,635,859
Loomis Sayles Core Plus	\$56,120,823	\$0	\$0	\$0	\$0	-\$2,325,156	\$53,795,667
ASB Allegiance Real Estate	\$27,963,068	\$0	\$0	\$0	\$0	\$558,414	\$28,521,482
JPMorgan Special Situation Property	\$20,620,638	\$0	-\$77,560	\$0	-\$77,560	-\$700,043	\$19,843,035
IFM Global Infrastructure (US) LP	\$12,009,972	\$0	-\$34,172	\$0	-\$34,172	\$21,846	\$11,997,646
JPMorgan IIF ERISA LP	\$7,022,299	\$0	-\$119,535	\$0	-\$119,535	-\$126,316	\$6,776,448
Invesco Balanced-Risk Allocation	\$56,517,176	\$0	\$0	-\$2,300,000	-\$2,300,000	-\$3,521,752	\$50,695,424
US Bank Checking Account	\$1,656,264	\$3,014,614	-\$8,968,208	\$6,300,000	\$346,407	\$0	\$2,002,671
US Bank Clearing Account	\$2,683,568	\$7,576,083	-\$7,592,949	\$0	-\$16,866	\$0	\$2,666,702
Total Fund	\$308,184,618	\$10,590,697	-\$16,792,423	\$0	-\$6,201,726	-\$13,863,085	\$288,119,808



Total Fund Executive Summary (Net of Fees)

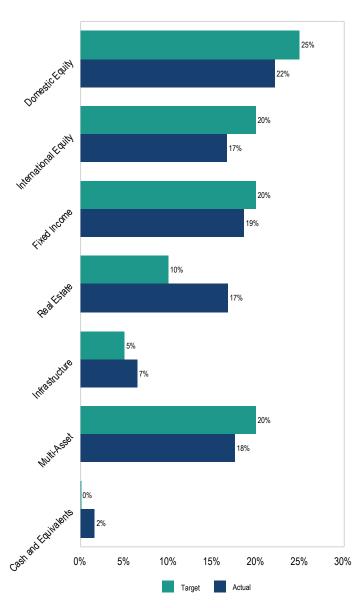
Western States Office & Professional Employees Pension Fund Pariod Ending: Sontombor 20, 2022

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	288,119,808	100.0	-4.6	-16.4	-12.9	3.9	4.7	6.0
Total Fund Policy Index			-5.3	-19.0	-15.0	2.6	3.7	5.7
Target Asset Allocation Policy Index			-4.6	-17.8	-13.6	3.9	4.9	6.5
Total Domestic Equity	63,710,323	22.1	-4.5	-23.1	-16.5	5.4	6.7	10.3
Dow Jones U.S. Total Stock Market Index			-4.6	-24.9	-18.1	7.5	8.5	11.3
Total International Equity	48,110,411	16.7	-9.1	-31.7	-29.1	1.7	2.1	4.3
Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)			-9.7	-26.9	-25.7	-1.3	-0.8	3.2
Total Fixed Income	53,795,667	18.7	-4.2	-14.5	-14.7	-1.8	0.7	2.1
Total Fixed Income Benchmark (Bloomberg Aggregate)			-4.8	-14.6	-14.6	-3.3	-0.3	0.9
Total Real Estate	48,364,516	16.8	-0.5	10.4	16.1	10.0	8.3	9.2
NCREIF ODCE Net			0.3	12.4	21.0	11.4	9.3	9.9
Total Infrastructure	18,774,094	6.5	0.1	1.7	4.5	7.9	8.8	7.4
CPI + 5%			1.4	10.4	13.6	10.2	8.9	7.6
Total Multi-Asset	50,695,424	17.6	-6.8	-16.5	-14.6	1.9	3.3	4.3
60% MSCI ACWI Net/40% FTSE WGBI			-7.1	-23.8	-21.1	-0.4	1.7	3.8
Total Cash	4,669,373	1.6	0.0	0.0	0.0	0.0	0.0	-0.9

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Actual vs. Target Allocation (%)



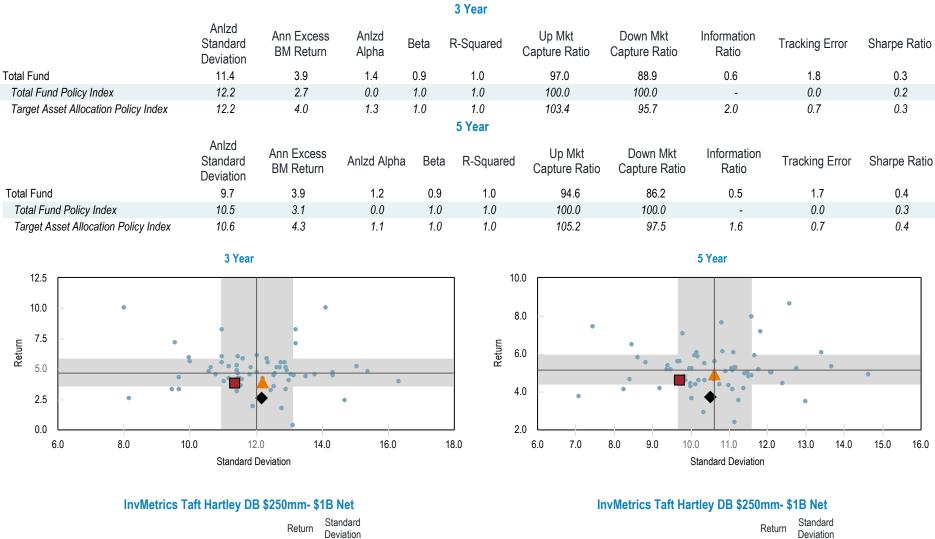


Policy Index: 45% MSCI World, 25% Bloomberg Aggregate, 10% NCREIF-ODCE net, 20%(60% MSCI ACWI Net/40% CITI WGBI). Target Asset Allocation Policy Index: 25% Dow Jones US Total Stock, 20% MSCI ACWI ex US IMI, 20% Bloomberg Aggregate, 10% NCREIF-ODCE, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Data prior to 3Q 2015 is from previous consultant.

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

Western States Office & Professional Employees Pension Fund

Period Ending: September 30, 2022



	Return	Deviation
Total Fund	4.65	9.70
Total Fund Policy Index	3.75	10.51
Target Asset Allocation Policy Index	4.94	10.62
Median	5.16	10.62
Population	63	63

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Total Fund

____ Median

Population

Total Fund Policy Index

Target Asset Allocation Policy Index

3.89

2.59

3.94

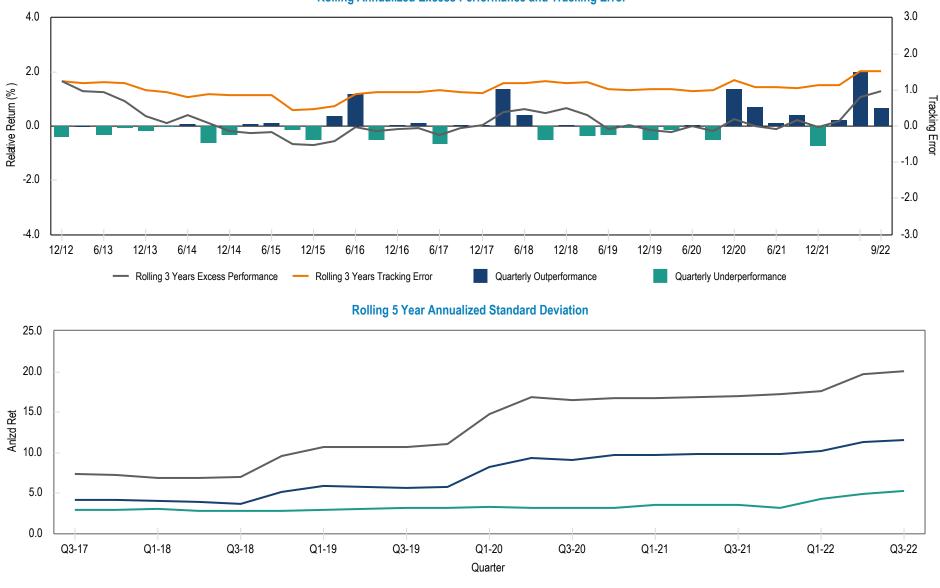
4.71 63 11.36

12.17

12.20

12.03

Total FundWestern States Office & Professional Employees Pension FundRolling Performance Relative to Policy (Net of Fees)Period Ending: September 30, 2022



Blmbg. U.S. Aggregate Index

----- S&P 500 Index

— Total Fund

Rolling Annualized Excess Performance and Tracking Error



Total Fund Executive Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Fund	288,119,808	100.0	-4.6	-16.4	-12.9	3.9	4.7	6.0	13.4	13.3	17.1	-3.3	12.9	7.1	Jan-90
Total Fund Policy Index			-5.3	-19.0	-15.0	2.6	3.7	5.7	12.8	12.6	18.6	-4.5	13.5	6.3	
Target Asset Allocation Policy Index			-4.6	-17.8	-13.6	3.9	4.9	6.5	13.9	13.9	19.1	-3.2	13.7	-	
Domestic Equity	63,710,323	22.1													
BlackRock Equity Index NL	25,669,382	8.9	-4.9	-23.9	-15.5	8.1	9.2	11.7	28.7	18.4	31.5	-4.4	21.8	11.5	May-10
S&P 500 Index			-4.9	-23.9	-15.5	8.2	9.2	11.7	28.7	18.4	31.5	-4.4	21.8	11.5	
eV US Large Cap Core Equity Rank			43	59	49	25	27	18	30	38	31	39	43	21	
INTECH US Adaptive Volatility	27,812,508	9.7	-4.8	-22.0	-15.4	2.7	5.1	-	19.4	14.0	23.4	-5.8	21.4	3.3	Sep-18
Russell 1000			-4.6	-24.6	-17.2	7.9	9.0	11.6	26.5	21.0	31.4	-4.8	21.7	6.9	
eV US Large Cap Core Equity Rank			39	37	48	95	95	-	92	60	91	57	49	93	
Vanguard Small Cap Index Ins	10,228,432	3.6	-2.6	-23.7	-20.8	5.0	5.4	9.6	17.7	19.1	27.4	-9.3	16.2	-15.8	May-21
Vanguard Spliced Small Cap Index			-2.6	-23.7	-20.8	5.0	5.4	9.5	17.7	19.1	27.3	-9.3	16.2	-15.8	
eV US Small Cap Core Equity Rank			37	45	61	66	47	44	85	35	28	30	32	67	
International Equity	48,110,411	16.7													
WCM Focused International Growth Fund, L.P.	26,474,552	9.2	-7.3	-36.5	-33.1	2.9	5.6	-	17.6	33.1	35.7	-7.4	31.1	7.8	Jul-16
MSCI AC World ex USA (Net)			-9.9	-26.5	-25.2	-1.5	-0.8	3.0	7.8	10.7	21.5	-14.2	27.2	3.3	
eV ACWI ex-US All Cap Growth Eq Rank			18	57	38	21	7	-	3	37	12	1	68	11	
Causeway International Value Ins	21,635,859	7.5	-11.6	-24.0	-23.3	-0.9	-2.1	-	9.1	5.4	20.1	-18.6	27.2	1.9	Jul-16
MSCI EAFE (Net)			-9.4	-27.1	-25.1	-1.8	-0.8	3.7	11.3	7.8	22.0	-13.8	25.0	3.2	
Foreign Large Value Rank			60	54	68	38	57	-	83	24	34	90	17	68	
Fixed Income	53,795,667	18.7													
Loomis Sayles Core Plus	53,795,667	18.7	-4.2	-14.5	-14.7	-1.8	0.7	-	-1.1	11.3	9.4	-0.4	-	1.1	Apr-17
Blmbg. U.S. Aggregate Index			-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-1.5	7.5	8.7	0.0	3.5	0.2	
eV US Core Plus Fixed Inc Rank			40	28	36	19	18	-	77	11	60	41	-	19	

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.

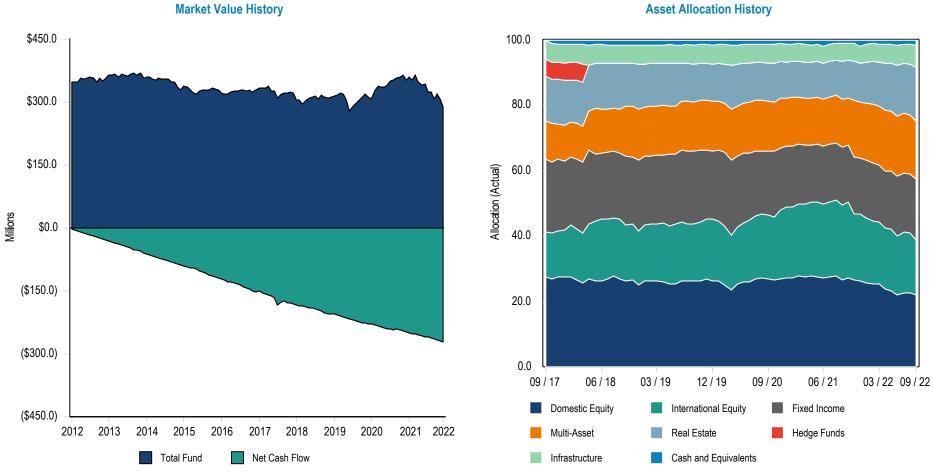
Total Fund Executive Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Real Estate	48,364,516	16.8													
ASB Allegiance Real Estate	28,521,482	9.9	2.0	14.5	18.8	10.1	8.0	-	13.8	1.4	3.1	6.0	2.9	7.9	Apr-15
NCREIF ODCE Net			0.3	12.4	21.0	11.4	9.3	9.9	21.0	0.3	4.4	7.4	6.7	9.3	
JPMorgan Special Situation Property	19,843,035	6.9	-3.8	5.1	12.6	9.9	8.9	-	22.4	2.0	5.0	9.6	7.9	10.1	Jan-15
NCREIF ODCE Net			0.3	12.4	21.0	11.4	9.3	9.9	21.0	0.3	4.4	7.4	6.7	9.4	
Infrastructure	18,774,094	6.5													
IFM Global Infrastructure (US) LP	11,997,646	4.2	0.2	4.0	7.8	9.8	11.8	9.5	17.4	3.1	14.6	15.8	21.1	9.6	Feb-09
CPI + 5%			1.4	10.4	13.6	10.2	8.9	7.6	12.4	6.4	7.4	7.0	7.2	7.6	
JPMorgan IIF ERISA LP	6,776,448	2.4	-1.8	-3.7	-2.3	4.2	4.7	4.7	4.0	8.4	8.0	4.2	14.2	5.0	Oct-10
CPI + 5%			1.4	10.4	13.6	10.2	8.9	7.6	12.4	6.4	7.4	7.0	7.2	7.7	
Multi-Asset	50,695,424	17.6													
Invesco Balanced-Risk Allocation	50,695,424	17.6	-6.8	-16.5	-14.6	1.9	3.3	3.8	10.9	10.8	15.7	-5.8	10.5	6.3	Feb-10
60% MSCI ACWI Net/40% FTSE WGBI			-7.1	-23.8	-21.1	-0.4	1.7	3.8	7.8	14.5	18.2	-5.8	17.1	4.6	
FTSE 3-Month T-bill +6%			1.9	5.1	6.7	6.6	7.2	6.7	6.0	6.6	8.4	8.0	6.9	6.6	
eV Global Balanced Rank			72	27	36	46	28	52	47	56	75	29	86	13	
Cash and Equivalents	4,669,373	1.6													
US Bank Checking Account	2,002,671	0.7													
US Bank Clearing Account	2,666,702	0.9													

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.

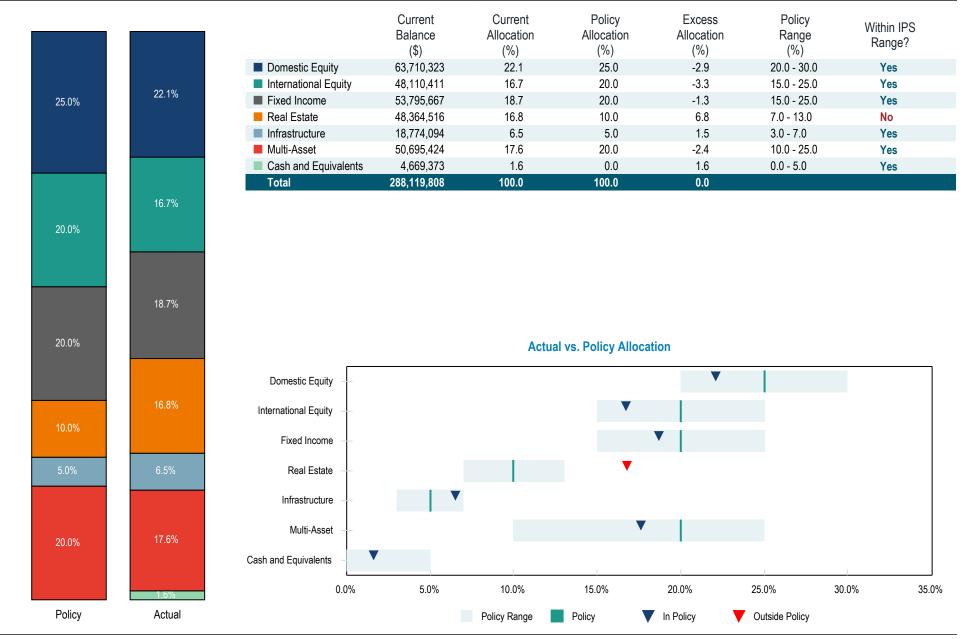


Asset Allocation History



Total Fund Asset Allocation vs. Policy

Western States Office & Professional Employees Pension Fund Period Ending: September 30, 2022



Verus⁷⁷

Total Fund Investment Fund Fee Analysis

Western States Office & Professional Employees Pension Fund Period Ending: September 30, 2022

Name	Asset Class	Fee Schedule	Market Value	% of Portfolio	Estimated Fee Value	Estimated Fee (%)
BlackRock Equity Index NL	Domestic Equity	0.03 % of Assets	\$25,669,382	8.9	\$7,701	0.0
INTECH US Adaptive Volatility	Domestic Equity	0.40 % of Assets	\$27,812,508	9.65	\$111,250	0.40
Vanguard Small Cap Index Ins	Domestic Equity	0.04 % of Assets	\$10,228,432	3.6	\$4,091	0.0
WCM Focused International Growth Fund, L.P.	International Equity	0.75 % of Assets	\$26,474,552	9.19	\$198,559	0.75
Causeway International Value Ins	International Equity	0.85 % of Assets	\$21,635,859	7.51	\$183,905	0.85
Loomis Sayles Core Plus	Fixed Income	0.35 % of First \$20 M 0.25 % Thereafter	\$53,795,667	18.67	\$154,489	0.29
ASB Allegiance Real Estate	Real Estate	1.00 % of Assets	\$28,521,482	9.90	\$285,215	1.00
JPMorgan Special Situation Property	Real Estate	1.60 % of Assets	\$19,843,035	6.89	\$317,489	1.60
IFM Global Infrastructure (US) LP	Infrastructure	0.77 % of Assets	\$11,997,646	4.16	\$92,382	0.77
JPMorgan IIF ERISA LP	Infrastructure	1.25 % of First \$50 M 1.15 % of Next \$50 M 1.05 % Thereafter	\$6,776,448	2.35	\$84,706	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	\$50,695,424	17.60	\$190,108	0.38
US Bank Checking Account	Cash and Equivalents		\$2,002,671	0.70	-	-
US Bank Clearing Account	Cash and Equivalents		\$2,666,702	0.93	-	-
Total Fund			\$288,119,808	100.00	\$1,629,894	0.57



Total Fund Watch List (Net of Fees)

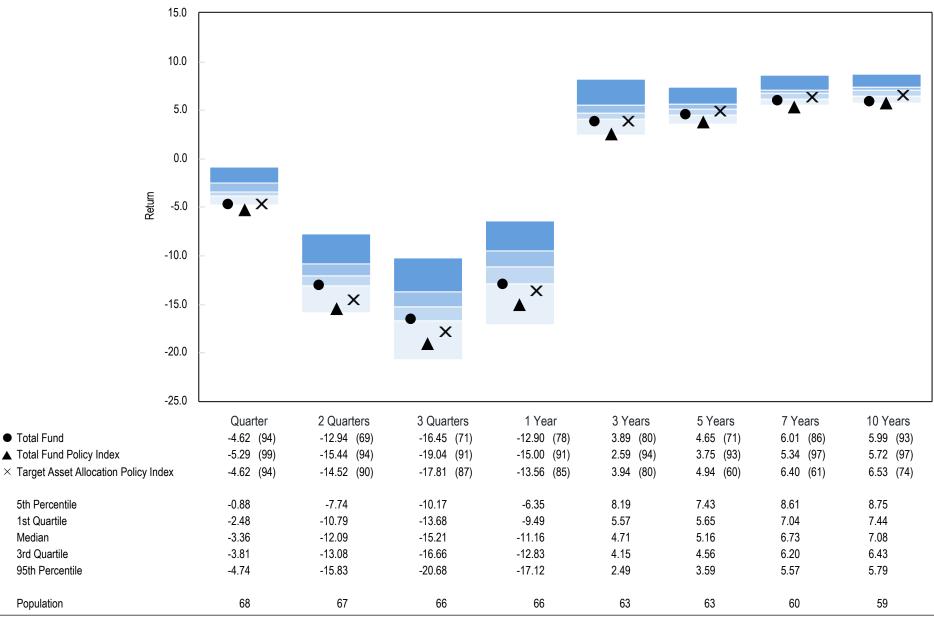
Fund Name	Asset Class	Overall Status	Outperformed Index (3yrs)	Outperformed Median Rank (3yrs)	Outperformed Index (5yrs)	Outperformed Median Rank (5 yrs)	Concern	Index Fund Tracking Error exeeds .25% of Benchmark (1 yr)
BlackRock Equity Index NL	Domestic Equity		-	-	-	-	-	 ✓
INTECH US Adaptive Volatility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





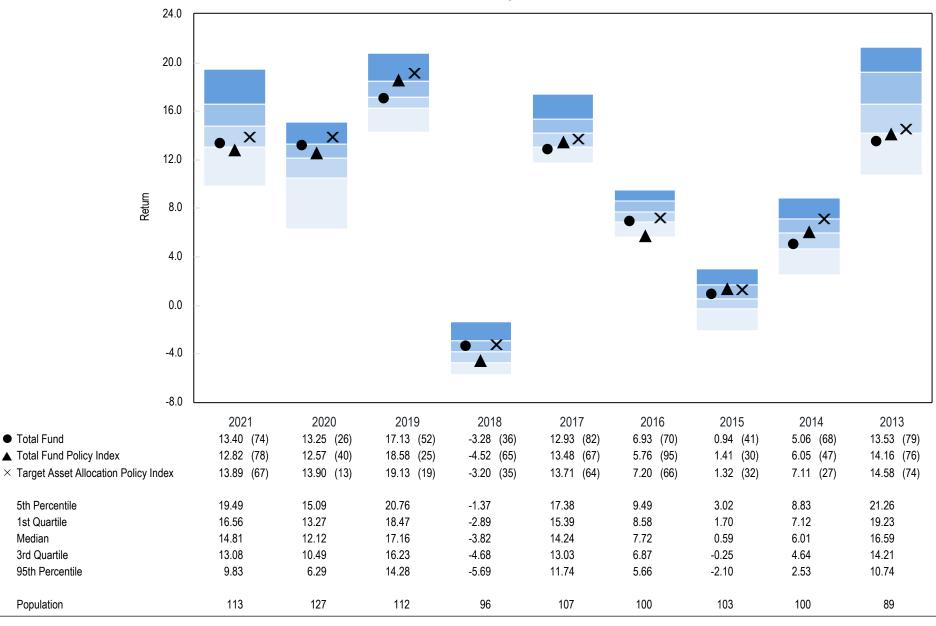
Total FundWestern States Office & Professional Employees Pension FundPeer Universe Comparison: Cumulative Perf (Net of Fees)Period Ending: September 30, 2022

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



Total FundWestern States Office & Professional Employees Pension FundPeer Universe Comparison: Consecutive Periods (Net of Fees)Period Ending: September 30, 2022

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



Verus⁷⁷

Total Domestic Equity

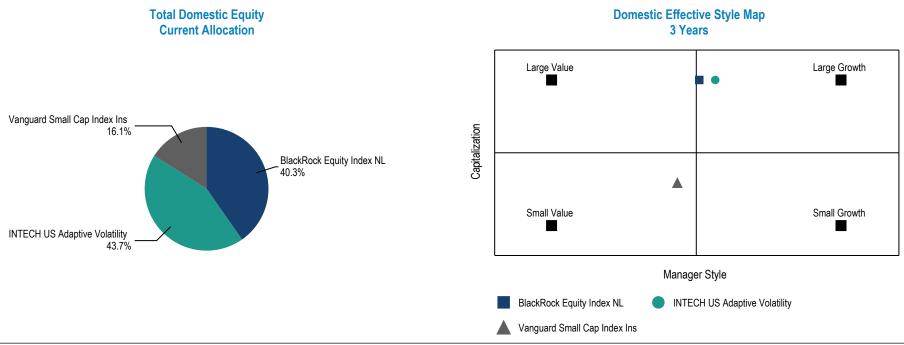
Total Domestic Equity

Western States Office & Professional Employees Pension Fund

Performance Summary (Net of Fees)

Period Ending: September 30, 2022

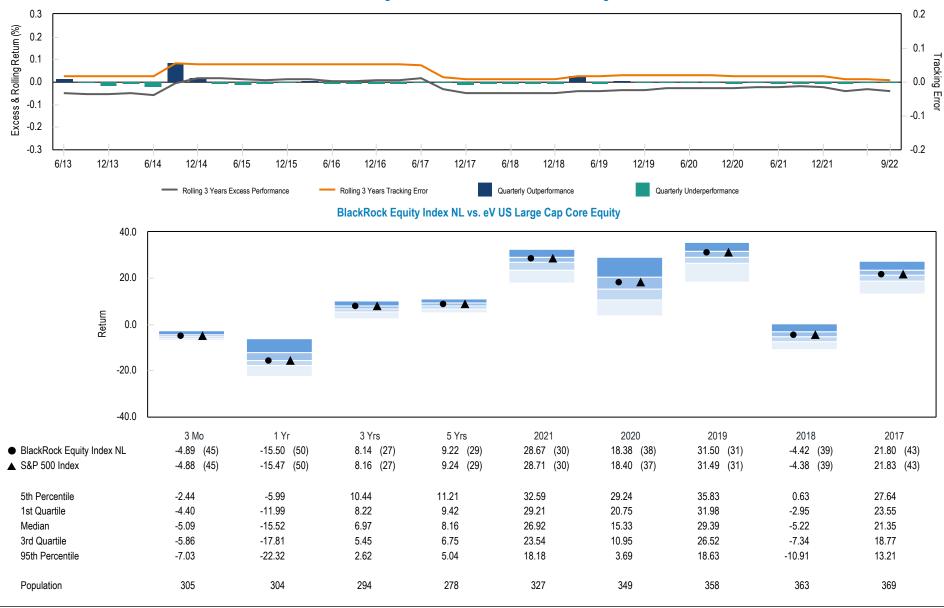
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Domestic Equity	63,710,323	100.0	-4.5	-23.1	-16.5	5.4	6.7	10.3	23.6	15.9	27.2	-5.9	19.4
Dow Jones U.S. Total Stock Market Index			-4.6	-24.9	-18.1	7.5	8.5	11.3	25.7	20.8	30.9	-5.3	21.2
Domestic Equity	63,710,323	100.0											
BlackRock Equity Index NL	25,669,382	40.3	-4.9	-23.9	-15.5	8.1	9.2	11.7	28.7	18.4	31.5	-4.4	21.8
S&P 500 Index			-4.9	-23.9	-15.5	8.2	9.2	11.7	28.7	18.4	31.5	-4.4	21.8
eV US Large Cap Core Equity Rank			43	59	49	25	27	18	30	38	31	39	43
INTECH US Adaptive Volatility	27,812,508	43.7	-4.8	-22.0	-15.4	2.7	5.1	-	19.4	14.0	23.4	-5.8	21.4
Russell 1000			-4.6	-24.6	-17.2	7.9	9.0	11.6	26.5	21.0	31.4	-4.8	21.7
eV US Large Cap Core Equity Rank			39	37	48	95	95	-	92	60	91	57	49
Vanguard Small Cap Index Ins	10,228,432	16.1	-2.6	-23.7	-20.8	5.0	5.4	9.6	17.7	19.1	27.4	-9.3	16.2
Vanguard Spliced Small Cap Index			-2.6	-23.7	-20.8	5.0	5.4	9.5	17.7	19.1	27.3	-9.3	16.2
eV US Small Cap Core Equity Rank			37	52	64	75	57	70	85	38	36	35	37



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



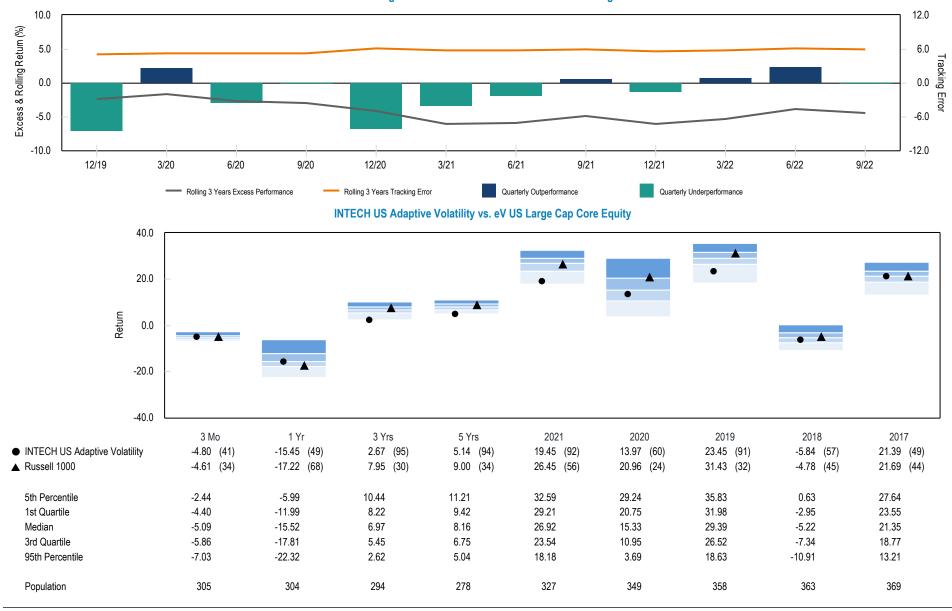
BlackRock Equity Index NLWestern States Office & Professional Employees Pension FundManager Performance Comparisons (Net of Fees)Period Ending: September 30, 2022



3 Years Rolling Annualized Excess Performance and Tracking Error



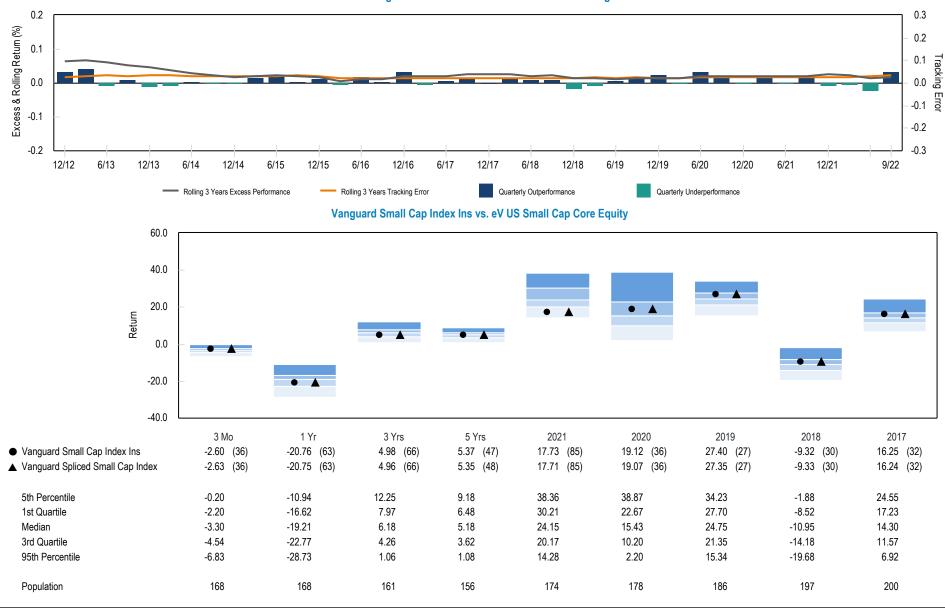
INTECH US Adaptive VolatilityWestern States Office & Professional Employees Pension FundManager Performance Comparisons (Net of Fees)Period Ending: September 30, 2022



3 Years Rolling Annualized Excess Performance and Tracking Error



Vanguard Small Cap Index InsWestern States Office & Professional Employees Pension FundManager Performance Comparisons (Net of Fees)Period Ending: September 30, 2022



3 Years Rolling Annualized Excess Performance and Tracking Error



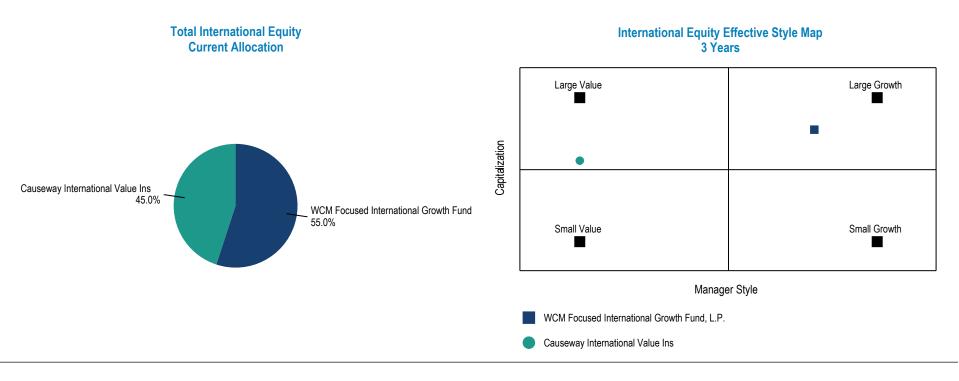
International Equity

Total International Equity Performance Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund

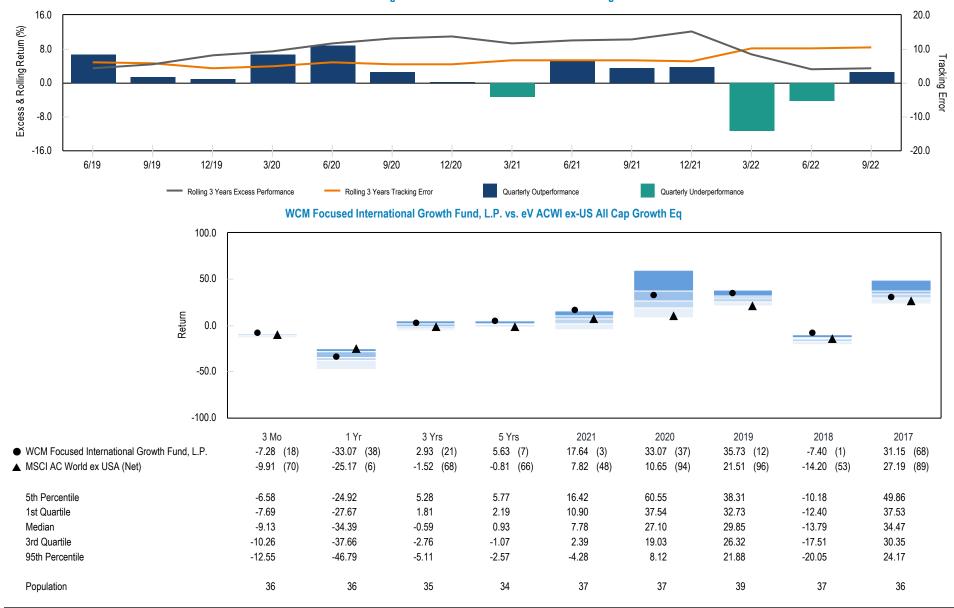
Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total International Equity	48,110,411	100.0	-9.1	-31.7	-29.1	1.7	2.1	4.3	14.6	21.7	27.8	-13.0	26.6
Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)			-9.7	-26.9	-25.7	-1.3	-0.8	3.2	8.5	11.1	21.6	-14.8	27.8
International Equity	48,110,411	100.0											
WCM Focused International Growth Fund, L.P.	26,474,552	55.0	-7.3	-36.5	-33.1	2.9	5.6	-	17.6	33.1	35.7	-7.4	31.1
MSCI AC World ex USA (Net)			-9.9	-26.5	-25.2	-1.5	-0.8	3.0	7.8	10.7	21.5	-14.2	27.2
eV ACWI ex-US All Cap Growth Eq Rank			18	57	38	21	7	-	3	37	12	1	68
Causeway International Value Ins	21,635,859	45.0	-11.6	-24.0	-23.3	-0.9	-2.1	-	9.1	5.4	20.1	-18.6	27.2
MSCI EAFE (Net)			-9.4	-27.1	-25.1	-1.8	-0.8	3.7	11.3	7.8	22.0	-13.8	25.0
Foreign Large Value Rank			60	54	68	38	57	-	83	24	34	90	17



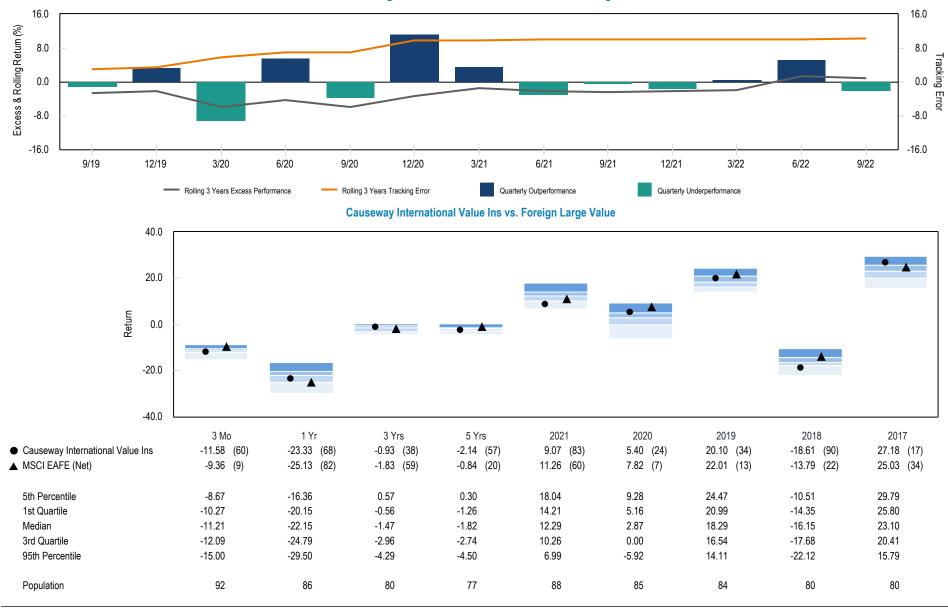


WCM Focused International GrowthWestern States Office & Professional Employees Pension FundManager Performance Comparisons (Net of Fees)Period Ending: September 30, 2022





Causeway International Value InsWestern States Office & Professional Employees Pension FundManager Performance Comparisons (Net of Fees)Period Ending: September 30, 2022





Domestic Fixed Income

Total Fixed Income Performance Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Fixed Income	53,795,667	100.0	-4.2	-14.5	-14.7	-1.8	0.7	2.1	-1.1	11.3	9.4	-0.4	5.6
Total Fixed Income Benchmark (Bloomberg Aggregate)			-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-1.5	7.5	8.7	0.0	3.5
Loomis Sayles Core Plus	53,795,667	100.0	-4.2	-14.5	-14.7	-1.8	0.7	-	-1.1	11.3	9.4	-0.4	-
Blmbg. U.S. Aggregate Index			-4.8	-14.6	-14.6	-3.3	-0.3	-	-1.5	7.5	8.7	0.0	-
eV US Core Plus Fixed Inc Rank			40	28	36	19	18	-	77	11	60	41	-

Fixed Income Effective Style Map



Loomis Sayles Core Plus



Loomis Sayles Core Plus Wes Manager Performance Comparisons (Net of Fees)

Western States Office & Professional Employees Pension Fund Period Ending: September 30, 2022





Alternatives

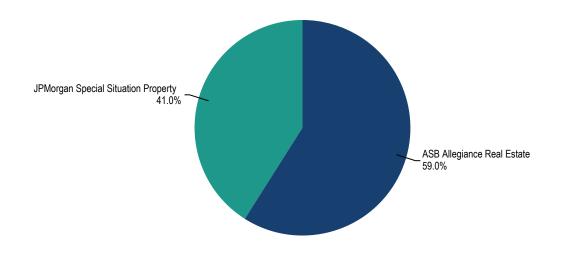
Total Real Estate Performance Summary (Net of Fees)

Western States Office & Professional Employees Pension Fund

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Real Estate	48,364,516	100.0	-0.5	10.4	16.1	10.0	8.3	9.2	17.3	1.7	4.0	7.1	4.2
NCREIF ODCE			0.3	12.4	21.0	11.4	9.3	9.9	21.0	0.3	4.4	7.4	6.7
ASB Allegiance Real Estate	28,521,482	59.0	2.0	14.5	18.8	10.1	8.0	-	13.8	1.4	3.1	6.0	2.9
NCREIF ODCE			0.3	12.4	21.0	11.4	9.3	-	21.0	0.3	4.4	7.4	6.7
JPMorgan Special Situation Property	19,843,035	41.0	-3.8	5.1	12.6	9.9	8.9	-	22.4	2.0	5.0	9.6	7.9
NCREIF ODCE			0.3	12.4	21.0	11.4	9.3	-	21.0	0.3	4.4	7.4	6.7

Total Domestic Equity Current Allocation





Total Infrastructure

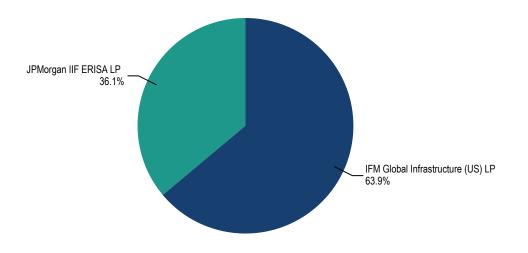
Western States Office & Professional Employees Pension Fund

Performance Summary (Net of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Infrastructure	18,774,094	100.0	0.1	1.7	4.5	7.9	8.8	7.4	11.7	5.4	11.5	10.2	17.9
CPI + 5%			1.4	10.4	13.6	10.2	8.9	7.6	12.4	6.4	7.4	7.0	7.2
IFM Global Infrastructure (US) LP	11,997,646	63.9	0.2	4.0	7.8	9.8	11.8	9.5	17.4	3.1	14.6	15.8	21.1
CPI + 5%			1.4	10.4	13.6	10.2	8.9	7.6	12.4	6.4	7.4	7.0	7.2
JPMorgan IIF ERISA LP	6,776,448	36.1	-1.8	-3.7	-2.3	4.2	4.7	4.7	4.0	8.4	8.0	4.2	14.2
CPI + 5%			1.4	10.4	13.6	10.2	8.9	7.6	12.4	6.4	7.4	7.0	7.2

Total Domestic Equity Current Allocation





Total Multi-Asset

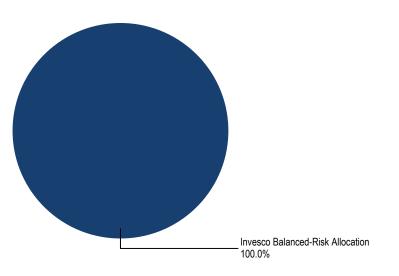
Western States Office & Professional Employees Pension Fund

Performance Summary (Net of Fees)

Period Ending: September 30, 2022

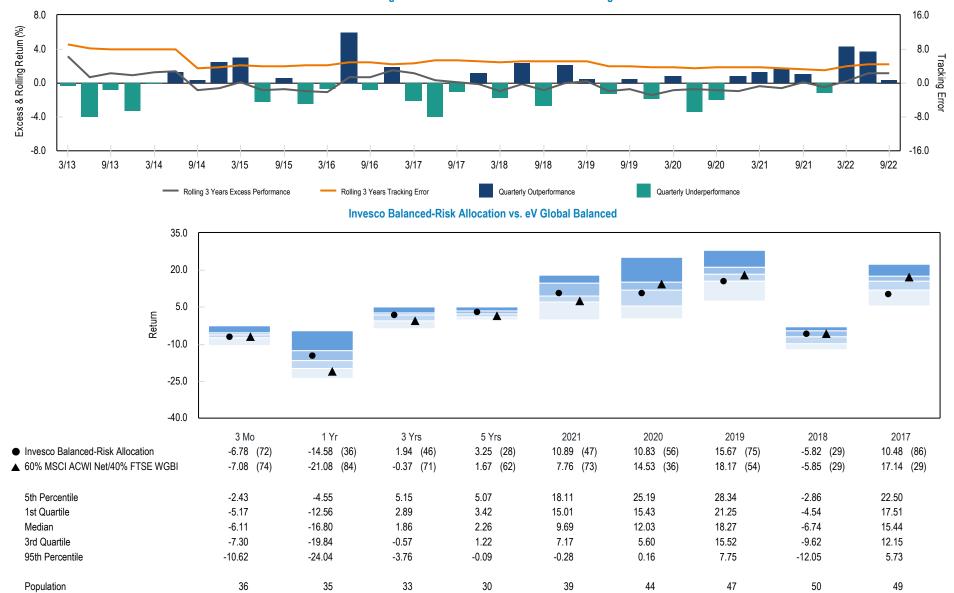
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Multi-Asset	50,695,424	100.0	-6.8	-16.5	-14.6	1.9	3.3	4.3	10.9	10.8	15.7	-5.8	10.6
60% MSCI ACWI Net/40% FTSE WGBI			-7.1	-23.8	-21.1	-0.4	1.7	3.8	7.8	14.5	18.2	-5.8	17.1
eV Global Balanced Rank			71	27	36	46	28	38	47	56	75	29	86
Invesco Balanced-Risk Allocation	50,695,424	100.0	-6.8	-16.5	-14.6	1.9	3.3	3.8	10.9	10.8	15.7	-5.8	10.5
60% MSCI ACWI Net/40% FTSE WGBI			-7.1	-23.8	-21.1	-0.4	1.7	3.8	7.8	14.5	18.2	-5.8	17.1
eV Global Balanced Rank			72	27	36	46	28	52	47	56	75	29	86

Total Domestic Equity Current Allocation





Invesco Balanced-Risk AllocationWestern States Office & Professional Employees Pension FundManager Performance Comparisons (Net of Fees)Period Ending: September 30, 2022





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	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
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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Western States Office & Professional Employees Pension Fund

Investment Performance Review Period Ending: October 31, 2022



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