

Wilshire

California Public Employees' Retirement System

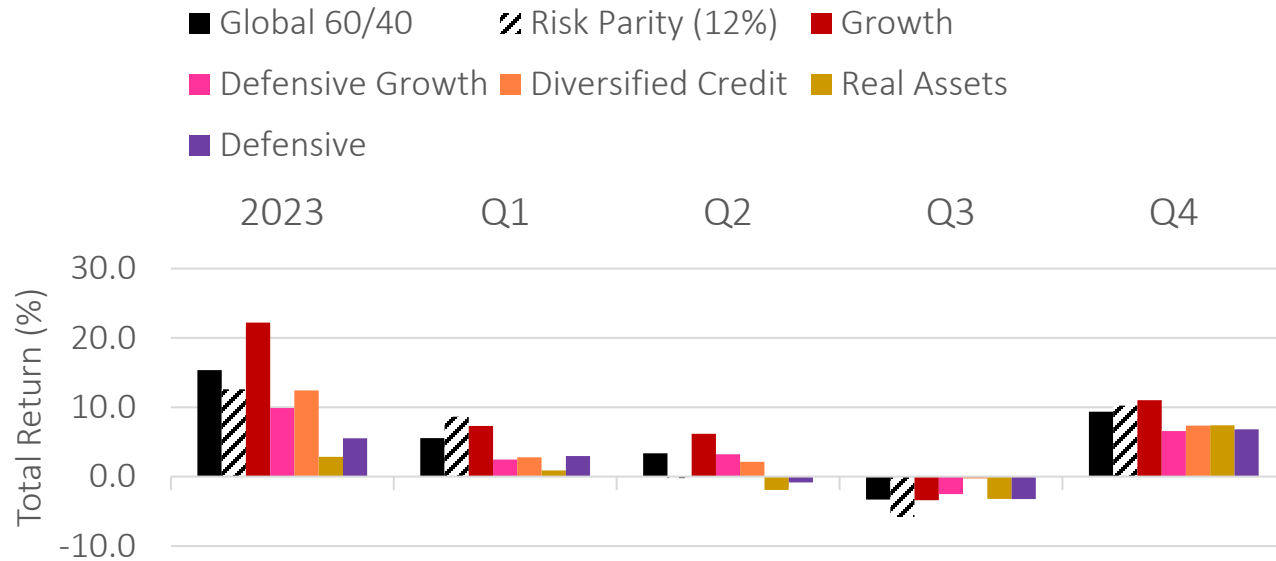
Performance Review

Fourth Quarter 2023

Economic Review/Market Activity

Thematic Return Stacks

Asset Allocation & Thematic Returns

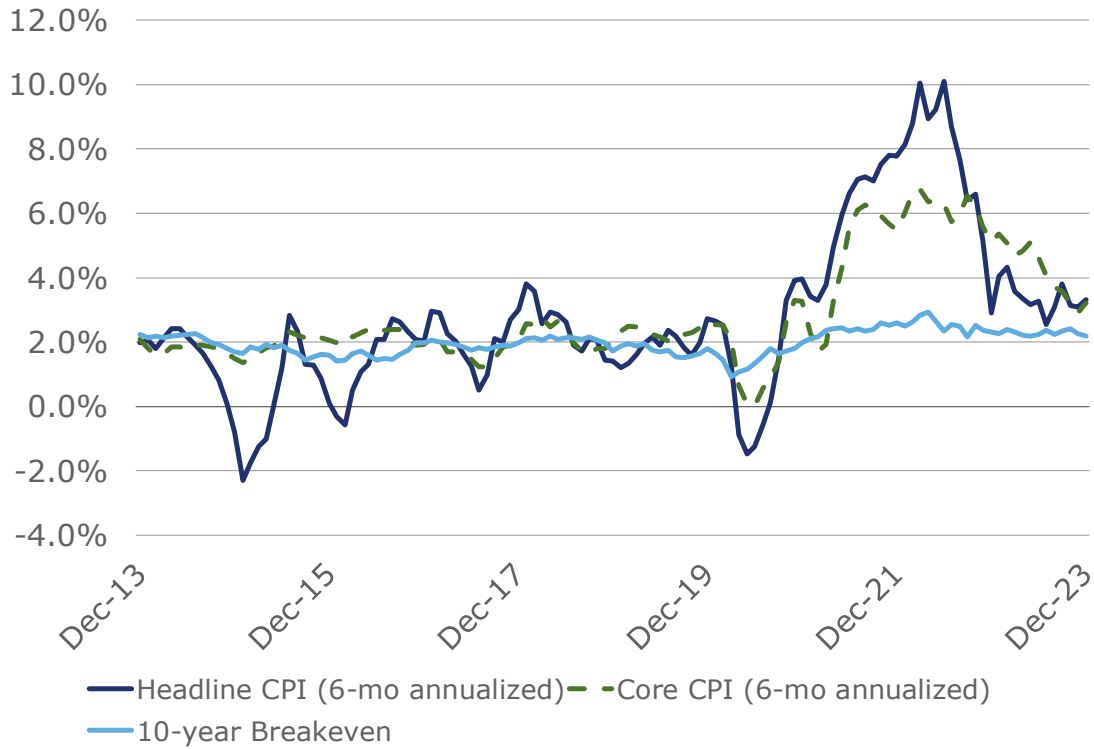


	2023	Q1	Q2	Q3	Q4
Global 60/40	15.36	5.56	3.36	(3.31)	9.36
Risk Parity (12%)	12.58	8.66	(0.20)	(5.82)	10.24
Growth	22.20	7.31	6.18	(3.40)	11.03
Defensive Growth	9.89	2.46	3.23	(2.51)	6.58
Diversified Credit	12.42	2.78	2.14	(0.26)	7.36
Real Assets	2.86	0.90	(1.92)	(3.22)	7.39
Defensive	5.53	2.96	(0.84)	(3.23)	6.82

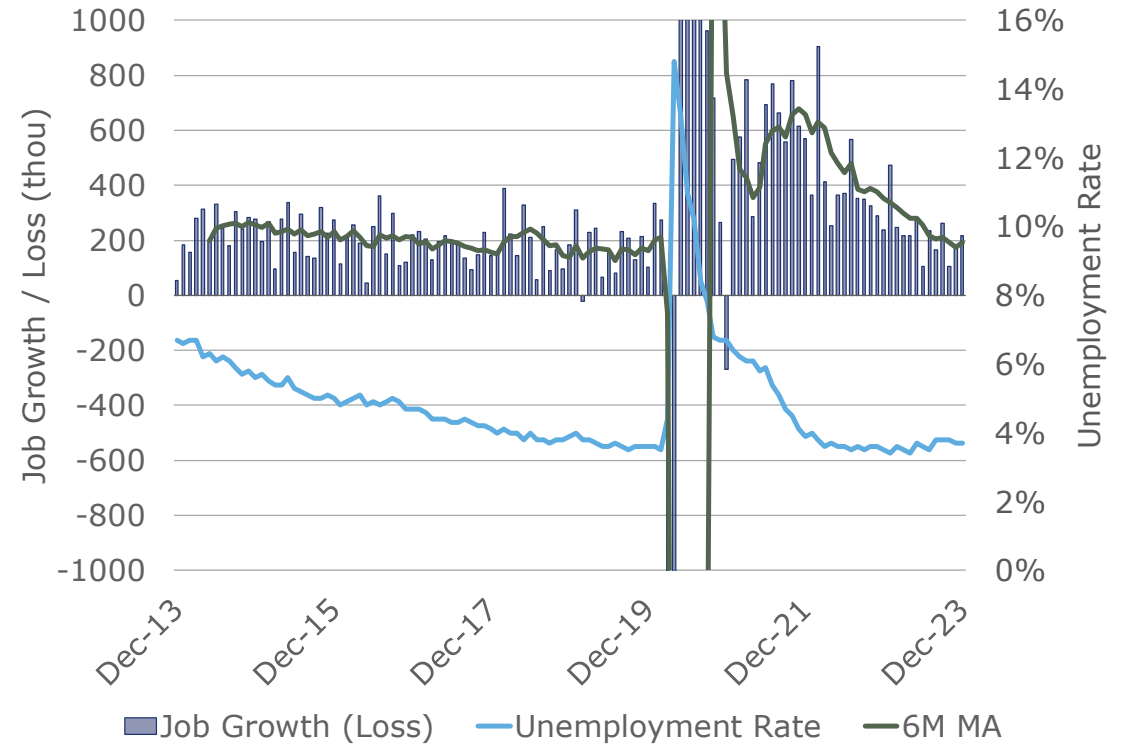
Data Source: Wilshire, Bloomberg

Inflation and Employment

Inflation: Actual & Expected

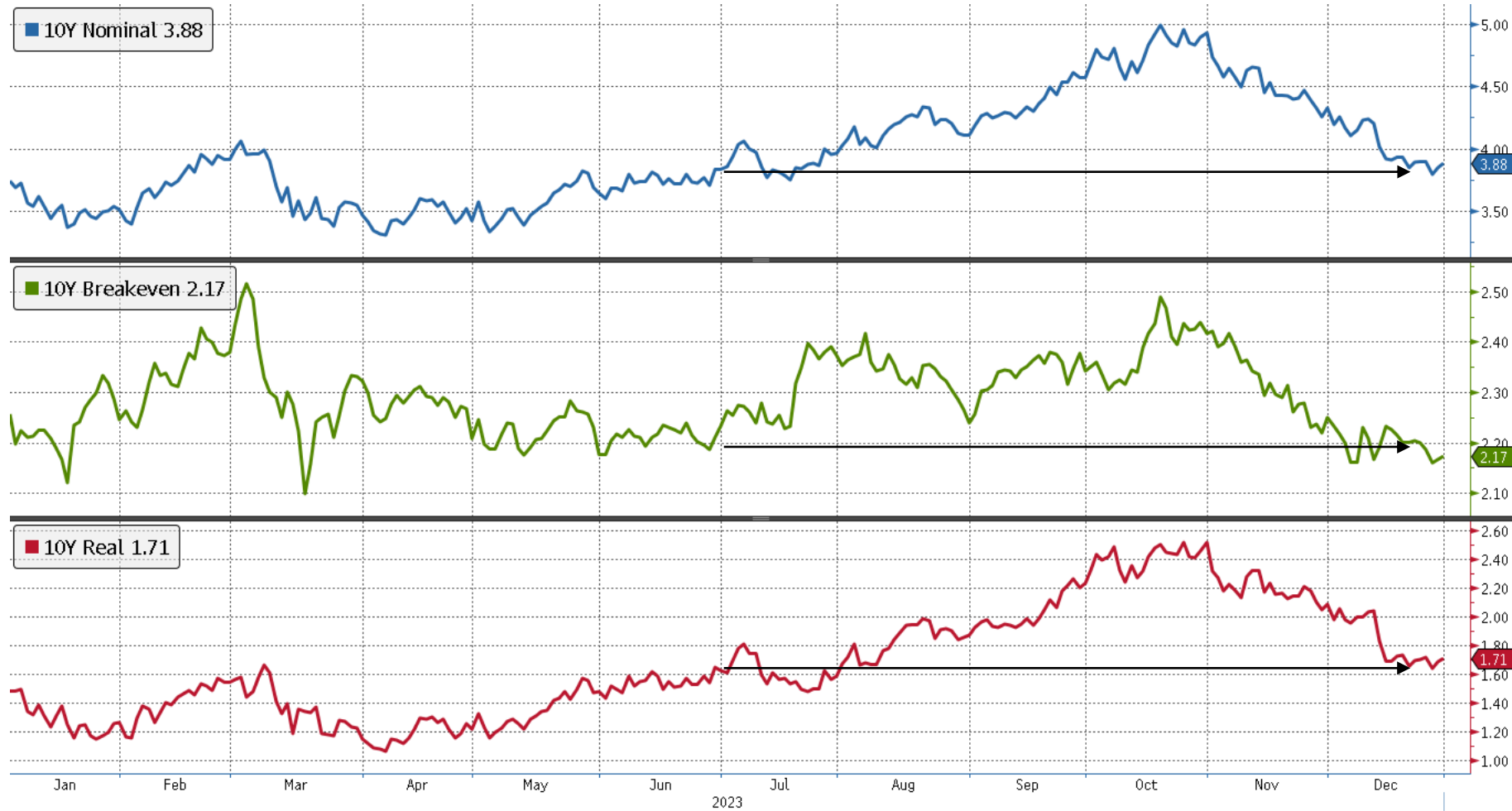


Employment Gains / Losses



Data Sources: Bloomberg

Yield Whiplash



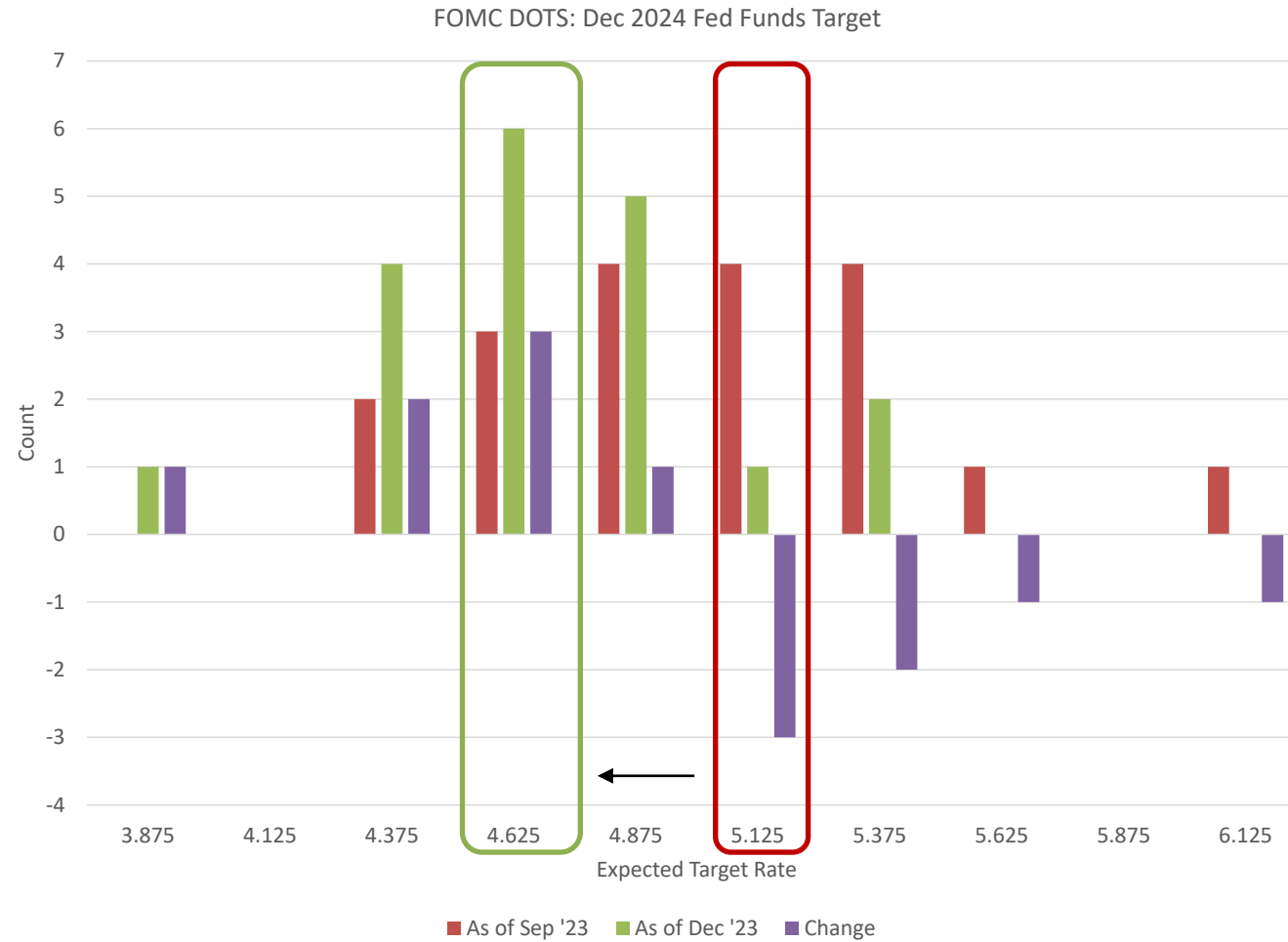
USGG10YR Index (US Generic Govt 10 Yr) 10yr Splits Daily 31DEC2022-29DEC2023

Copyright© 2024 Bloomberg Finance L.P.

05-Jan-2024 06:39:57

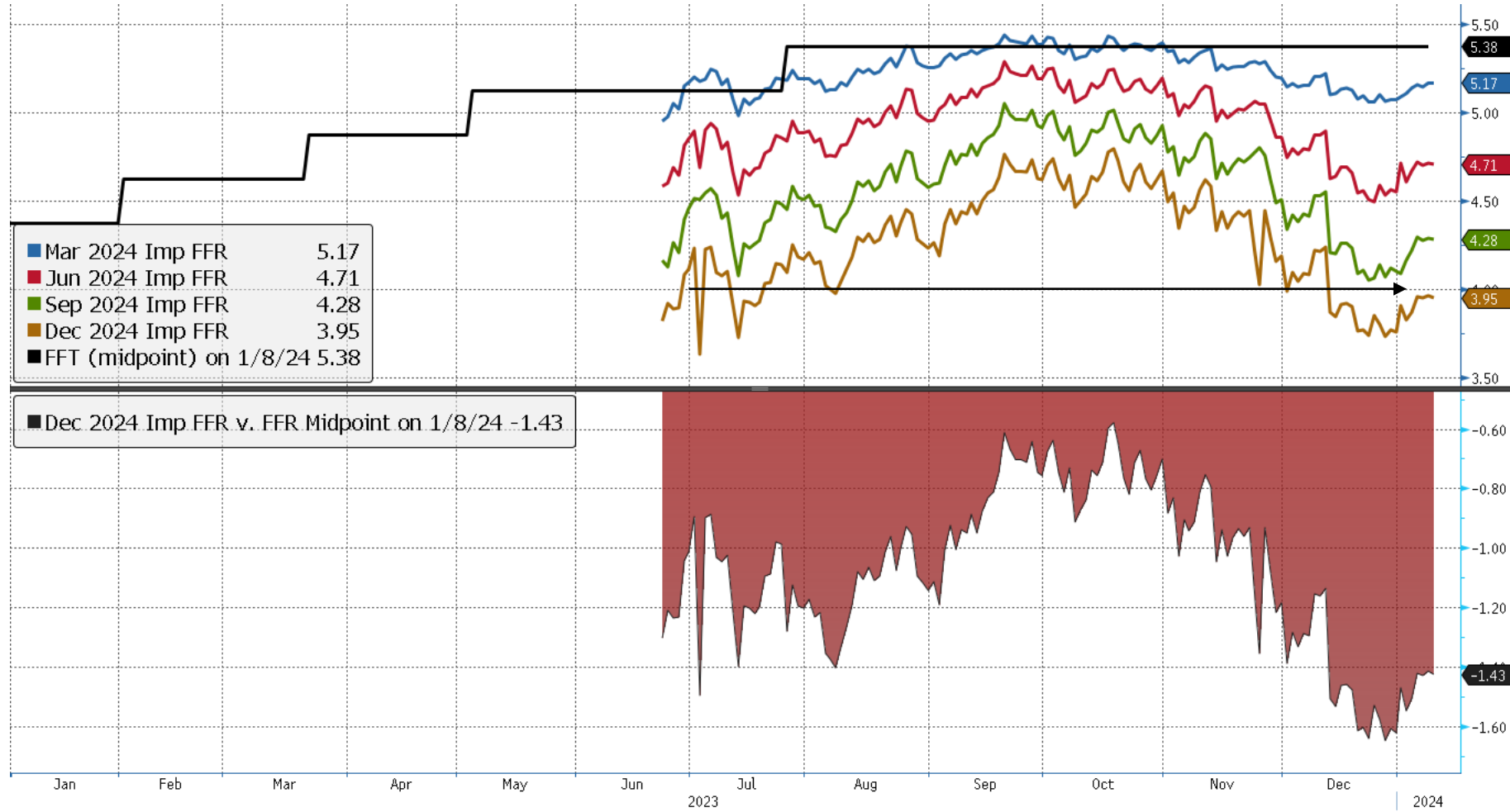
Data Source: Bloomberg

Fed Pivot: Hinting at “Mission Accomplished”



Data Source: Bloomberg

Markets Expect More in Rate Cuts



US0AFR MAR2024 Index (WIRP Implied Overnight Rate fo) FFR Implied Daily 30DEC2022-09JAN2024

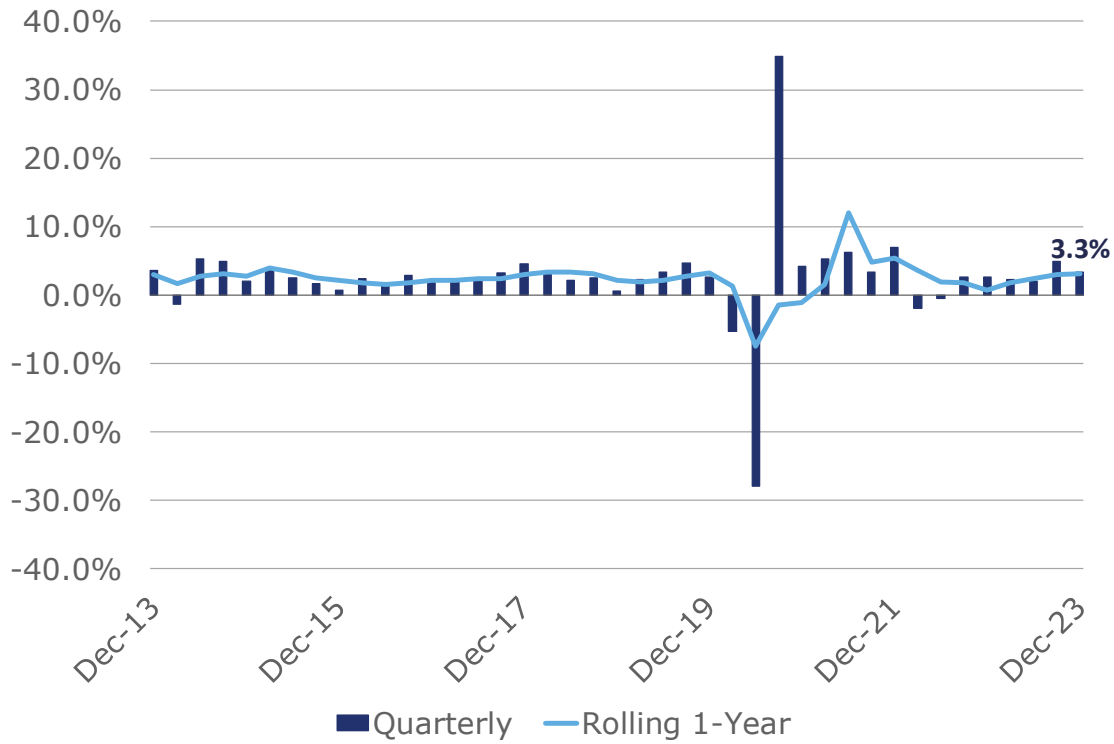
Copyright© 2024 Bloomberg Finance L.P.

08-Jan-2024 17:24:22

Data Source: Bloomberg

Economic Growth

Real GDP Growth

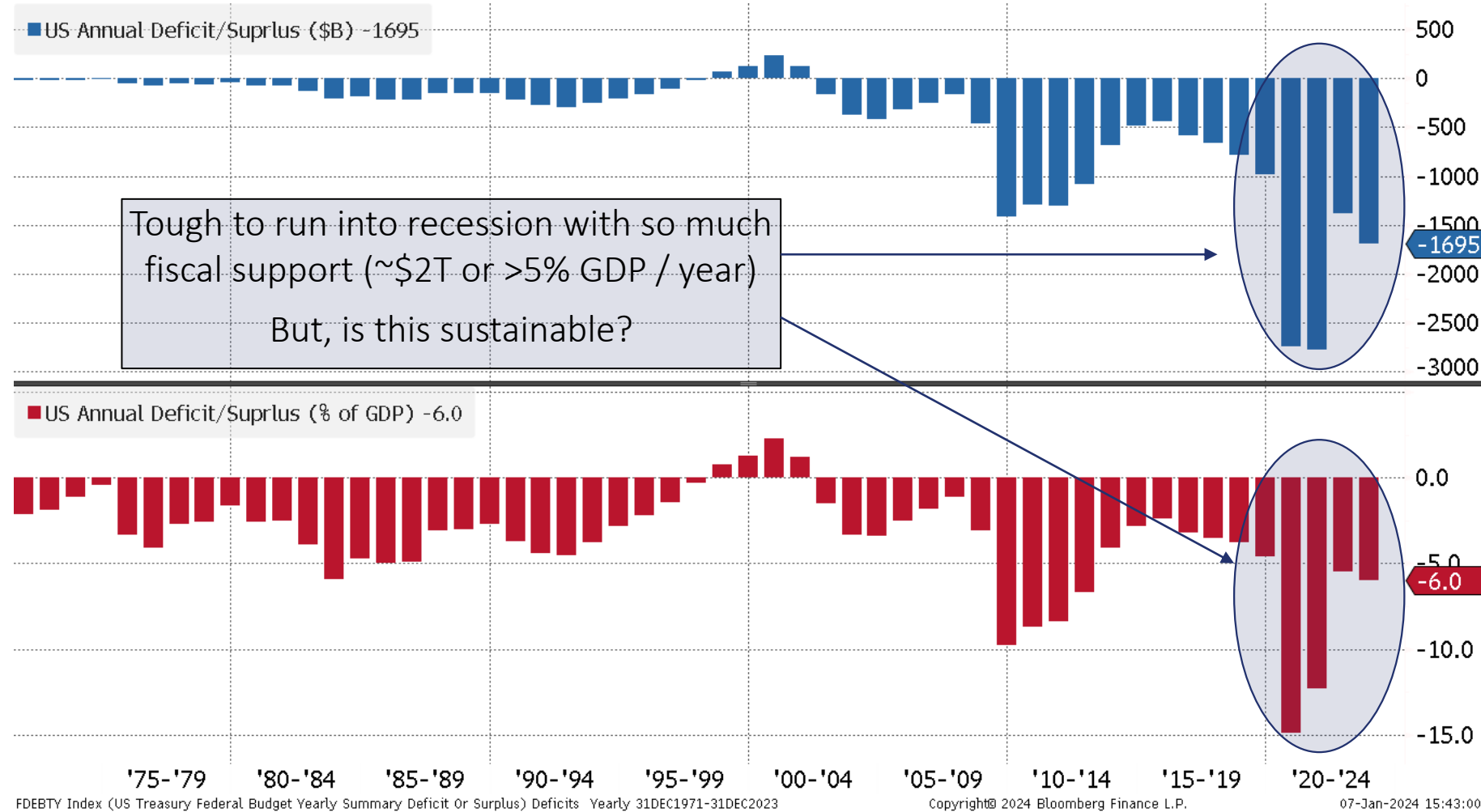


Chicago Fed. National Activity Index (3M MA)



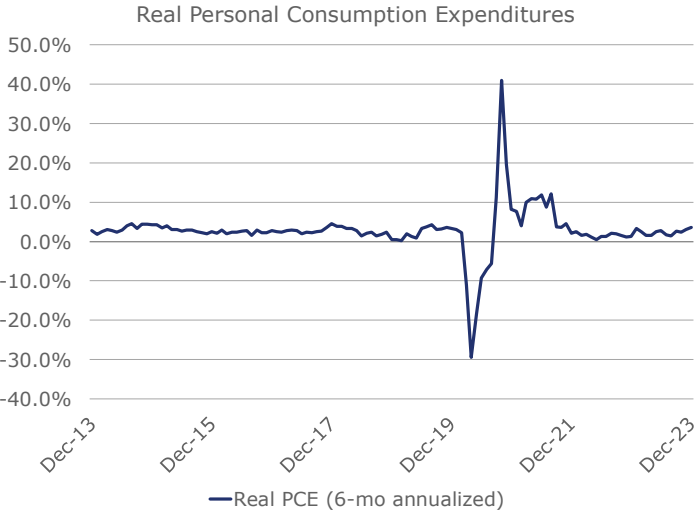
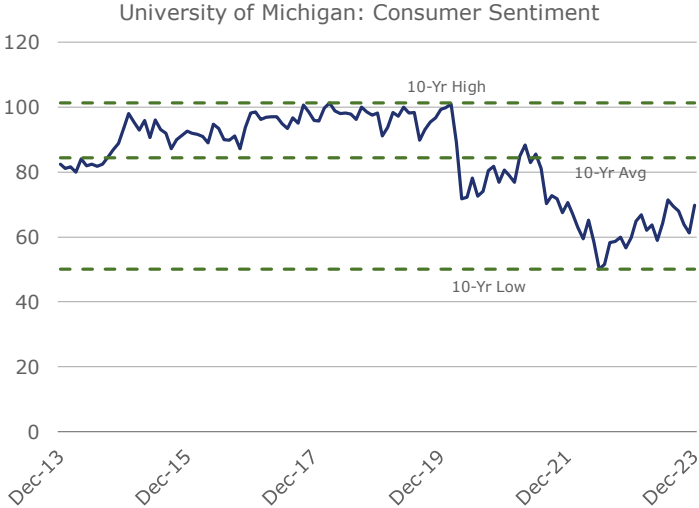
Data Sources: Bloomberg

Recession Risks: How Did We All Get It So Wrong?



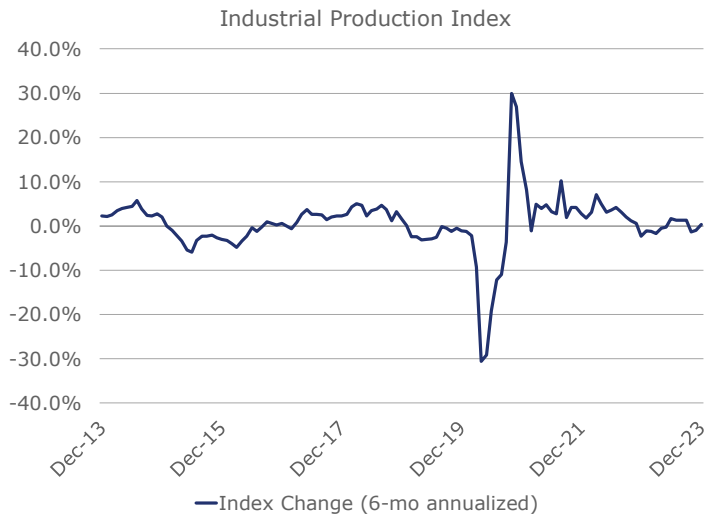
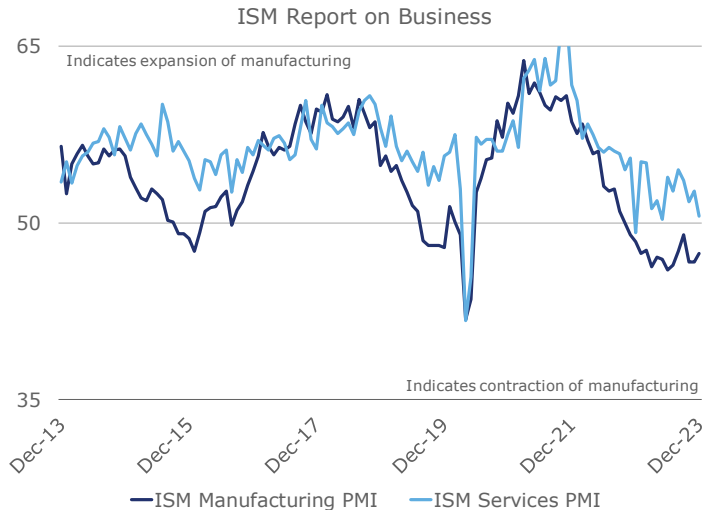
Data Source: Bloomberg

Consumer Activity



Data Sources: Bloomberg

Business Activity



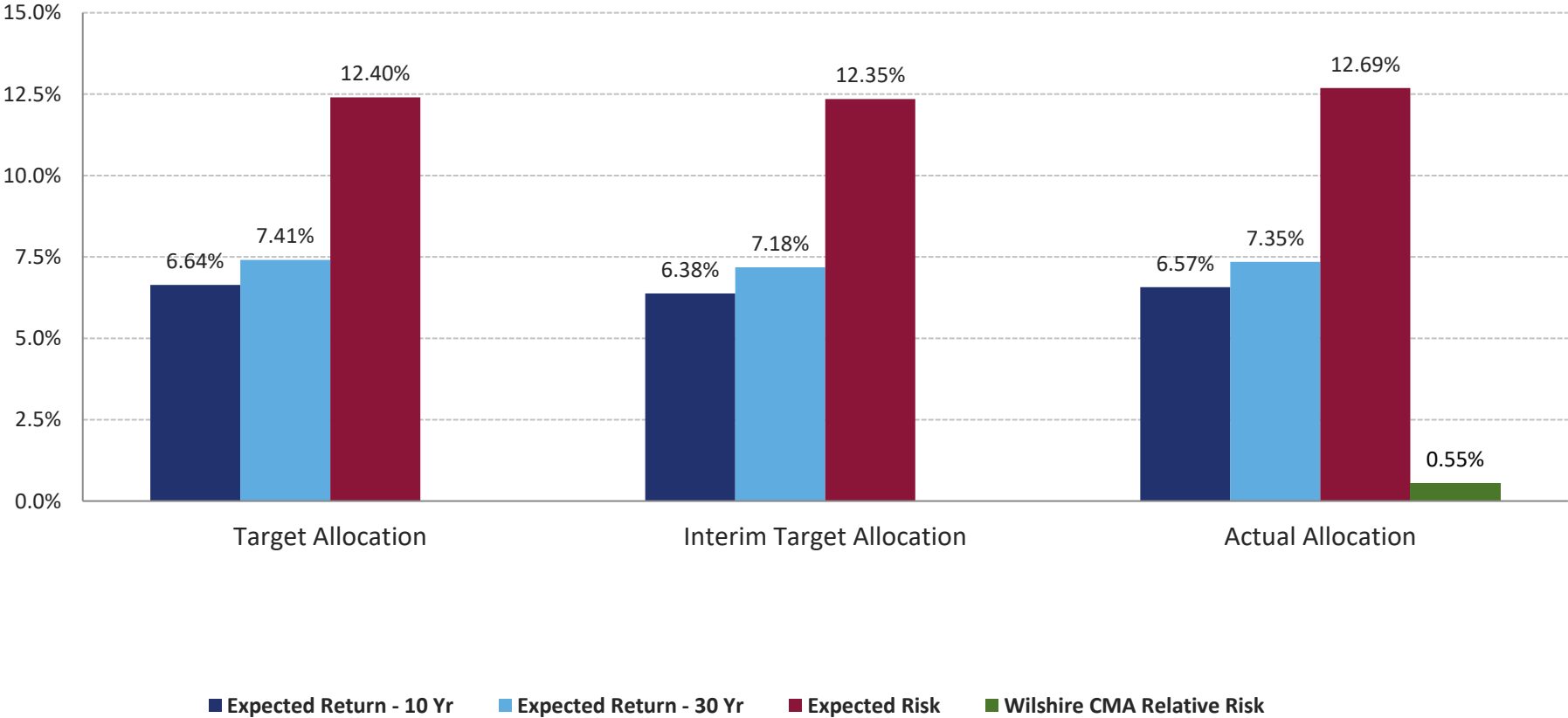
Data Sources: Bloomberg

December 2023 Asset Class Assumptions

	EQUITY						FIXED INCOME / CREDIT						REAL ASSETS						
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Private Credit	Dev ex-US Bond (Hdg)	Real Estate US RES	Global RES	Private RE	Comdty	Real Assets	US CPI
Compound Retrun (%)	5.00	6.00	6.25	6.35	5.60	8.65	3.80	4.75	4.70	4.15	5.90	8.40	2.85	5.60	5.75	6.30	6.05	6.90	2.25
Arithmetic Return (%)	6.35	7.50	9.20	8.00	6.95	12.35	3.80	4.85	5.15	4.30	6.35	9.15	2.95	7.00	7.00	7.20	7.20	7.65	2.25
Risk (%)	17.00	18.00	26.00	19.00	17.05	29.65	0.75	4.70	9.85	6.00	10.00	12.75	4.00	17.50	16.45	13.90	16.00	12.60	1.75
Cash Yield (%)	1.45	3.10	2.50	2.95	2.00	0.00	3.80	5.10	5.25	4.35	9.20	4.95	3.65	3.90	3.90	2.50	3.80	3.40	0.00
Growth Factor Exposure	8.00	8.00	8.00	8.00	8.00	14.00	0.00	-0.90	-2.40	-3.00	4.00	5.10	-1.00	6.00	6.00	3.50	0.00	2.70	0.00
Inflation Factor Exposure	-3.00	0.00	5.00	1.40	-1.35	-3.75	0.00	-2.55	-6.85	2.50	-1.00	-1.50	-3.00	1.00	1.80	1.00	12.00	5.25	1.00
CORRELATIONS																			
US Stock	1.00																		
Dev ex-US Stock (USD)	0.81	1.00																	
Emerging Mkt Stock	0.74	0.74	1.00																
Global ex-US Stock	0.84	0.95	0.89	1.00															
Global Stock	0.95	0.91	0.84	0.94	1.00														
Private Equity	0.72	0.63	0.61	0.67	0.73	1.00													
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.06	0.00	1.00												
Core Bond	0.28	0.13	0.00	0.08	0.20	0.30	0.18	1.00											
LT Core Bond	0.31	0.15	0.01	0.11	0.24	0.31	0.11	0.94	1.00										
TIPS	-0.05	0.00	0.15	0.06	-0.01	-0.03	0.20	0.60	0.48	1.00									
High Yield Bond	0.54	0.39	0.49	0.46	0.53	0.31	-0.10	0.24	0.32	0.05	1.00								
Private Credit	0.67	0.55	0.57	0.59	0.67	0.44	0.00	0.24	0.30	0.00	0.75	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.16	0.17	0.26	0.10	0.67	0.65	0.39	0.26	0.22	1.00						
US RE Securities	0.57	0.47	0.44	0.49	0.56	0.49	-0.05	0.17	0.22	0.10	0.56	0.61	0.05	1.00					
Global RE Securities	0.63	0.56	0.54	0.59	0.64	0.55	-0.05	0.17	0.21	0.11	0.60	0.67	0.04	0.97	1.00				
Private Real Estate	0.55	0.45	0.45	0.49	0.54	0.50	-0.05	0.19	0.25	0.09	0.57	0.62	0.05	0.78	0.77	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.28	0.00	-0.03	-0.03	0.25	0.29	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.61	0.62	0.66	0.68	0.66	0.56	-0.03	0.24	0.26	0.32	0.64	0.69	0.05	0.78	0.83	0.76	0.62	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	0.00	-0.08	0.05	0.04	0.05	0.44	0.21	1.00

CalPERS PERF Expected Return and Risk Estimates

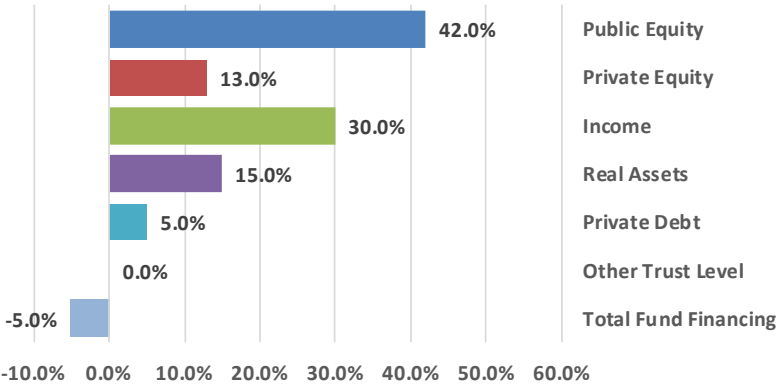
As of December 31, 2023



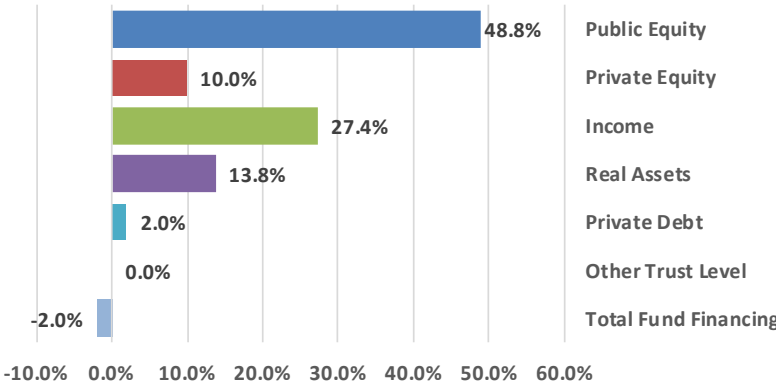
CalPERS PERF Assets and Risk Allocation

As of December 31, 2023

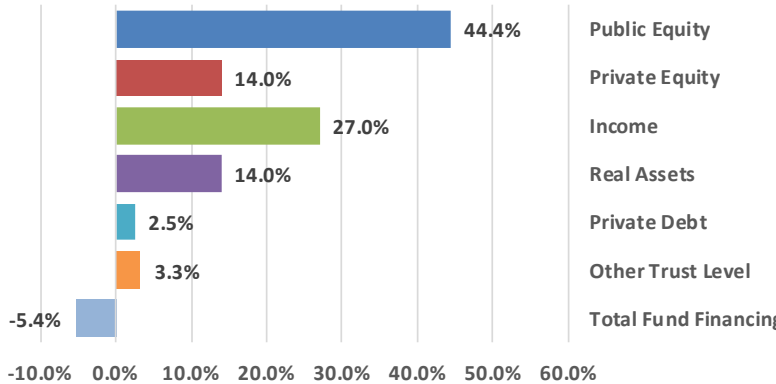
Target Asset Allocation



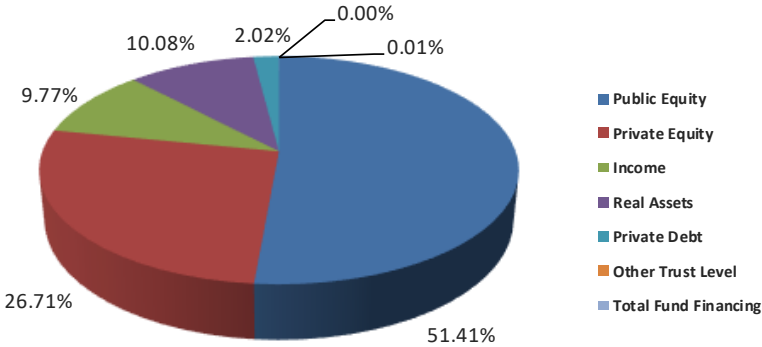
Interim Target Asset Allocation



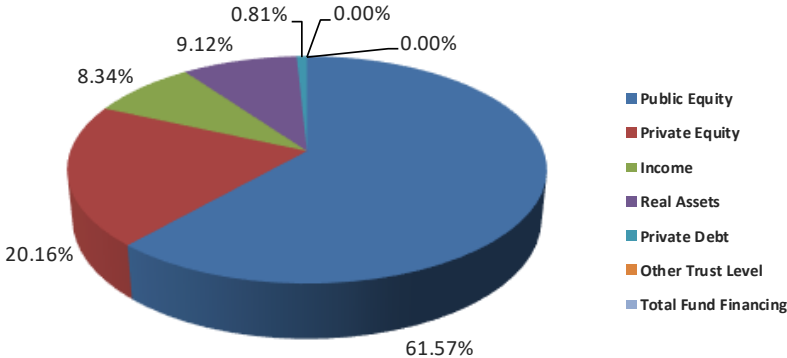
Actual Asset Allocation



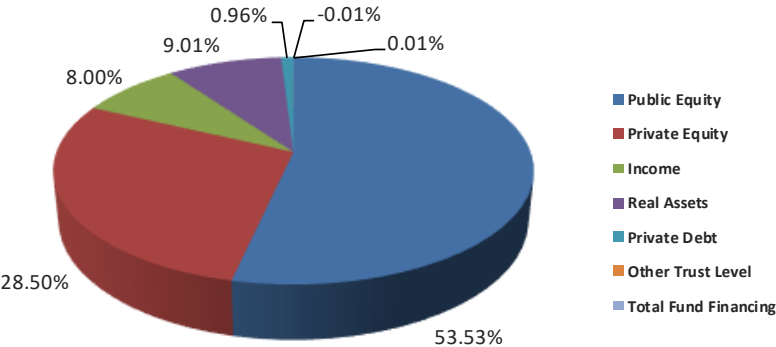
Contribution to Total Risk - Target Allocation



Contribution to Total Risk - Interim Target



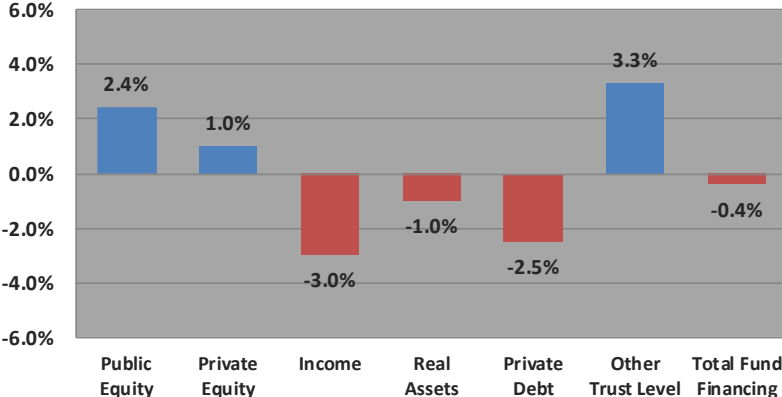
Contribution to Total Risk - Actual Allocation



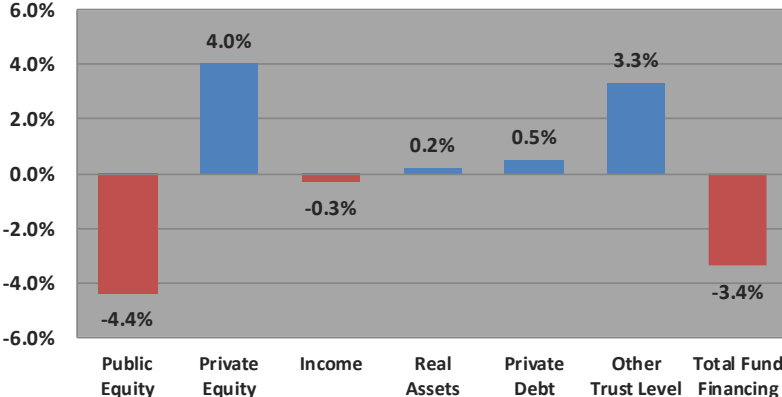
CalPERS PERF Drivers of Expected Excess Risk

As of December 31, 2023

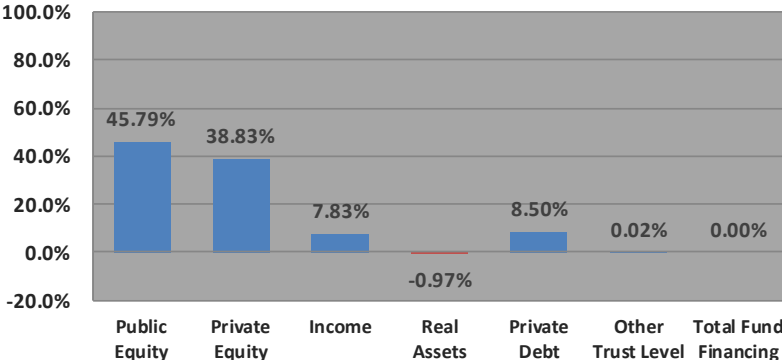
Allocation vs. Long-Term Strategic Targets



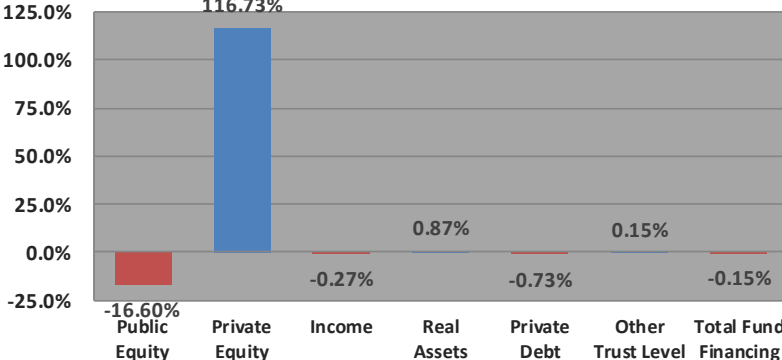
Allocation vs. Interim Targets



Contribution to Tracking Error vs. Long-Term Strategic Targets



Contribution to Tracking Error vs. Interim Targets



- This excess risk forecast is based on asset allocation variance only.
- Other sources of risk (structural within asset classes, manager/program specific source of tracking error, covariance, etc.) are not considered here.

CalPERS Total Fund Performance

CalPERS PERF – Performance

As of December 31, 2023

	Asset Value						VaR	5-Year Ratios	
	(\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year		(\$Billion)	Sharpe
CALPERS PERF	\$ 483.7	7.0%	10.3%	3.5%	7.9%	6.5%	\$ 66.6	0.6	0.2
<i>CalPERS PERF Policy Benchmark</i>		6.3%	11.4%	3.0%	7.6%	6.4%		0.6	0.0
<i>Actuarial Rate</i>		1.7%	6.8%	6.8%	7.0%	7.2%			
PUBLIC EQUITY*	\$ 215.0	10.3%	19.1%	5.7%	11.1%	7.9%	\$ 44.3	0.5	0.5
<i>Public Equity Policy Benchmark</i>		10.4%	19.2%	5.6%	11.0%	7.9%		0.5	0.0
PRIVATE EQUITY	\$ 67.9	2.4%	8.8%	14.0%	11.4%	11.4%	\$ 27.3	1.1	0.2
<i>Private Equity Policy Benchmark</i>		-2.9%	22.8%	9.1%	8.3%	10.7%		0.3	0.0
INCOME*	\$ 130.7	9.6%	8.3%	-4.6%	1.8%	2.8%	\$ 7.7	0.0	0.8
<i>Income Blended Benchmark</i>		9.6%	8.2%	-4.6%	1.7%	2.4%		0.0	0.0
REAL ASSETS	\$ 67.8	-2.6%	-9.6%	6.2%	4.9%	6.9%	\$ 9.8	0.7	0.0
<i>Real Assets Policy Benchmark</i>		-2.2%	-12.8%	6.2%	4.7%	6.9%		0.4	0.0
PRIVATE DEBT	\$ 12.2	4.3%	13.3%	-.%	-.%	-.%	\$ 1.0	N/A	N/A
<i>Private Debt Policy Benchmark</i>		3.4%	15.1%	-.%	-.%	-.%		N/A	N/A
OTHER TRUST LEVEL	\$ 16.1							N/A	N/A
TOTAL FUND FINANCING	\$ (26.0)							N/A	N/A
TERMINATED AGENCY POOL	\$ 0.2	7.1%	3.6%	-5.6%	1.7%	2.8%		N/A	N/A
CaIPERS PERF PLUS TAP	\$ 483.9	7.0%	10.3%	3.5%	7.9%	6.5%		N/A	N/A

* The CalPERS PERF asset values shown include derivative exposure.

CalPERS PERF – Attribution (Quarter)

As of December 31, 2023

Asset Class	Actual (%)		Benchmark (%)		Difference (%)		Total Fund Return Contribution (%)		
	Weight *	Return	Weight *	Return	Weight	Return	Actual Allocation	Active Management	Total
Public Equity	43.54	10.32	43.38	10.41	0.15	-0.09	0.01	-0.04	-0.03
Public Equity - Cap Weighted	31.50	11.06	31.32	11.23	0.18	-0.17	0.01	-0.05	-0.05
Public Equity - Factor Weighted	12.04	8.42	12.06	8.33	-0.03	0.09	0.00	0.01	0.01
Private Equity	14.25	2.40	14.25	-3.25	0.00	5.65	0.00	0.79	0.79
Income	26.53	9.61	26.72	9.60	-0.19	0.01	0.00	0.00	0.00
Treasury	5.08	10.60	5.12	10.60	-0.03	0.00	0.00	0.00	0.00
Mortgage-Backed Securities	5.12	7.34	5.15	7.28	-0.02	0.06	0.00	0.00	0.00
Investment Grade Credit	6.62	12.40	6.72	12.49	-0.10	-0.10	0.00	-0.01	-0.01
High Yield	4.56	7.12	4.57	7.13	-0.01	-0.01	0.00	0.00	0.00
EM Sovereign	5.15	9.44	5.17	9.33	-0.02	0.11	0.00	0.01	0.00
Real Assets	15.18	-2.55	15.17	-2.16	0.00	-0.39	0.00	-0.07	-0.07
Private Debt	2.47	4.29	2.47	3.40	0.00	0.89	0.00	0.02	0.02
Other Trust Level	3.49	-	0.00	-	3.49	-	-0.18	0.02	-0.15
LLER	2.66	2.19	0.00	1.37	2.66	0.82	-0.12	0.02	-0.10
Opportunistic Strategies	0.05	1.01	0.00	1.70	0.05	-0.69	0.00	0.00	0.00
Total Fund Income	0.48	1.97	0.00	1.50	0.48	0.48	-0.03	0.00	-0.03
Other PERF	0.04	-	0.00	-	0.04	-	0.00	0.00	0.00
TLPM	0.27	-	0.00	-	0.27	-	-0.02	0.00	-0.02
Total Fund Financing	-5.46	-	-2.00	-	-3.46	-	0.18	0.00	0.18
Monthly Linked Return	100.00	7.06	100.00	6.33		0.73	0.00	0.72	0.73
Residual		-0.02		-0.02		0.00			0.00
Total PERF		7.04		6.31		0.73			0.73

* Average period weight displayed.

CalPERS PERF – Attribution (Fiscal YTD)

As of December 31, 2023

Asset Class	Actual (%)		Benchmark (%)		Difference (%)		Total Fund Return Contribution (%)		
	Weight *	Return	Weight *	Return	Weight	Return	Actual Allocation	Active Management	Total
Public Equity	44.36	6.87	44.19	6.81	0.17	0.06	0.01	0.02	0.03
Public Equity - Cap Weighted	32.34	7.65	32.15	7.62	0.19	0.03	0.01	0.01	0.02
Public Equity - Factor Weighted	12.02	4.86	12.04	4.74	-0.01	0.12	0.00	0.01	0.01
Private Equity	13.67	4.68	13.65	2.78	0.02	1.90	0.00	0.13	0.13
Income	26.44	4.56	26.69	4.57	-0.25	-0.01	0.00	0.00	0.00
Treasury	4.81	0.27	5.09	0.27	-0.28	0.00	0.05	0.00	0.05
Mortgage-Backed Securities	5.10	3.20	5.14	3.20	-0.04	0.00	0.00	0.00	0.00
Investment Grade Credit	6.61	5.61	6.70	5.75	-0.09	-0.14	0.00	-0.01	-0.01
High Yield	4.56	7.20	4.58	7.21	-0.03	-0.01	0.00	0.00	0.00
EM Sovereign	5.14	6.36	5.17	6.17	-0.04	0.19	0.00	0.01	0.01
Real Assets	15.11	-4.18	15.12	-4.86	-0.01	0.68	0.00	0.10	0.10
Private Debt	2.35	8.35	2.35	7.17	0.00	-	0.00	0.02	0.02
Other Trust Level	3.37	-	0.00	-	3.37	-	-0.06	0.06	0.00
LLER	2.77	4.67	0.00	2.74	2.77	1.93	-0.02	0.05	0.03
Opportunistic Strategies	0.05	4.02	0.00	3.43	0.05	0.59	0.00	0.00	0.00
Total Fund Income	0.25	2.74	0.00	2.51	0.25	0.24	-0.03	0.00	-0.03
Other PERF	0.04	-	0.00	-	0.04	-	0.00	0.00	0.00
TLPM	0.26	-	0.00	-	0.26	-	-0.01	0.00	-0.01
Total Fund Financing	-5.31	-	-2.00	-	-3.31	-	0.06	-0.11	-0.05
Monthly Linked Return	100.00	4.28	100.00	4.04	-	0.24	0.01	0.23	0.24
Residual		0.08		-0.02		0.10			0.10
Total PERF		4.36		4.02		0.34			0.34

* Average period weight displayed.

CalPERS PERF – Attribution (Calendar YTD)

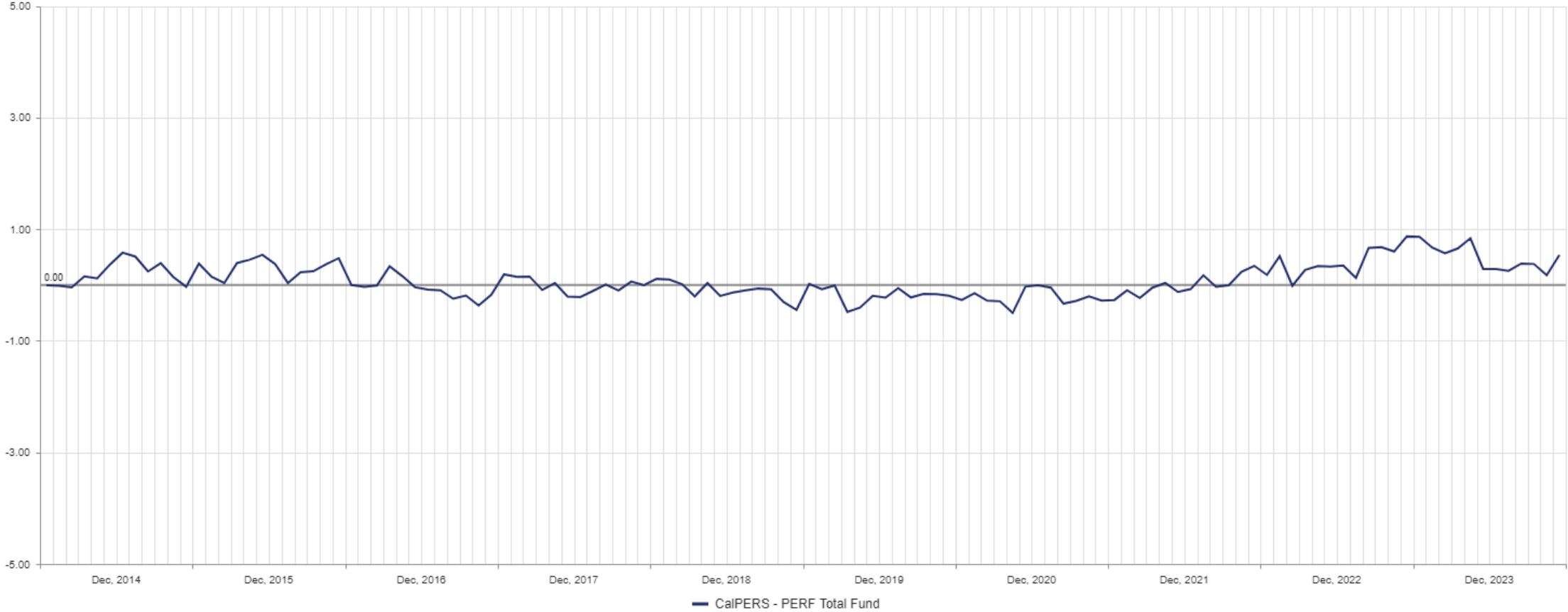
As of December 31, 2023

Asset Class	Actual (%)		Benchmark (%)		Difference (%)		Total Fund Return Contribution (%)		
	Weight *	Return	Weight *	Return	Weight	Return	Actual Allocation	Active Management	Total
Public Equity	45.27	19.15	45.23	19.24	0.04	-0.10	-0.01	-0.05	-0.06
Public Equity - Cap Weighted	33.25	22.30	33.21	22.51	0.04	-0.21	-0.01	-0.07	-0.07
Public Equity - Factor Weighted	12.02	10.66	12.02	10.51	0.00	0.15	0.00	0.02	0.02
Private Equity	12.82	8.84	12.74	20.98	0.08	-12.14	0.04	-1.65	-1.61
Income	26.06	8.28	26.23	8.24	-0.17	0.05	0.01	0.01	0.03
Treasury	4.15	3.29	5.01	3.29	-0.85	0.00	0.12	0.00	0.12
Mortgage-Backed Securities	5.15	5.29	5.20	5.08	-0.04	0.21	0.00	0.01	0.01
Investment Grade Credit	6.47	9.92	6.52	10.35	-0.05	-0.42	0.00	-0.03	-0.02
High Yield	4.57	12.77	4.59	12.60	-0.02	0.17	0.00	0.01	0.01
EM Sovereign	4.88	9.65	4.90	9.27	-0.03	0.38	0.00	0.02	0.02
Real Assets	15.55	-9.61	15.58	-12.80	-0.03	3.19	0.01	0.55	0.56
Private Debt	2.21	13.35	2.19	15.14	0.02	-1.80	0.00	-0.04	-0.04
Other Trust Level	3.53	-	0.00	-	3.53	-	-0.26	0.12	-0.14
LLER	2.96	9.07	0.00	5.26	2.96	3.81	-0.17	0.12	-0.06
Opportunistic Strategies	0.05	8.80	0.00	6.98	0.05	1.82	0.00	0.00	0.00
Total Fund Income	0.12	2.74	0.00	2.51	0.12	0.24	-0.03	0.00	-0.03
Other PERF	0.03	-	0.00	-	0.03	-	0.00	0.00	0.00
TLPM	0.36	-	0.00	-	0.36	-	-0.05	0.00	-0.05
Total Fund Financing	-5.43	-	-1.97	-	-3.47	-	0.24	-0.24	-0.01
Monthly Linked Return	100.00	10.13	100.00	11.40	-	-1.27	0.03	-1.30	-1.27
Residual		0.16		0.03		0.13			0.13
Total PERF		10.30		11.43		-1.13			-1.13

* Average period weight displayed.

CalPERS PERF – Rolling Excess Return

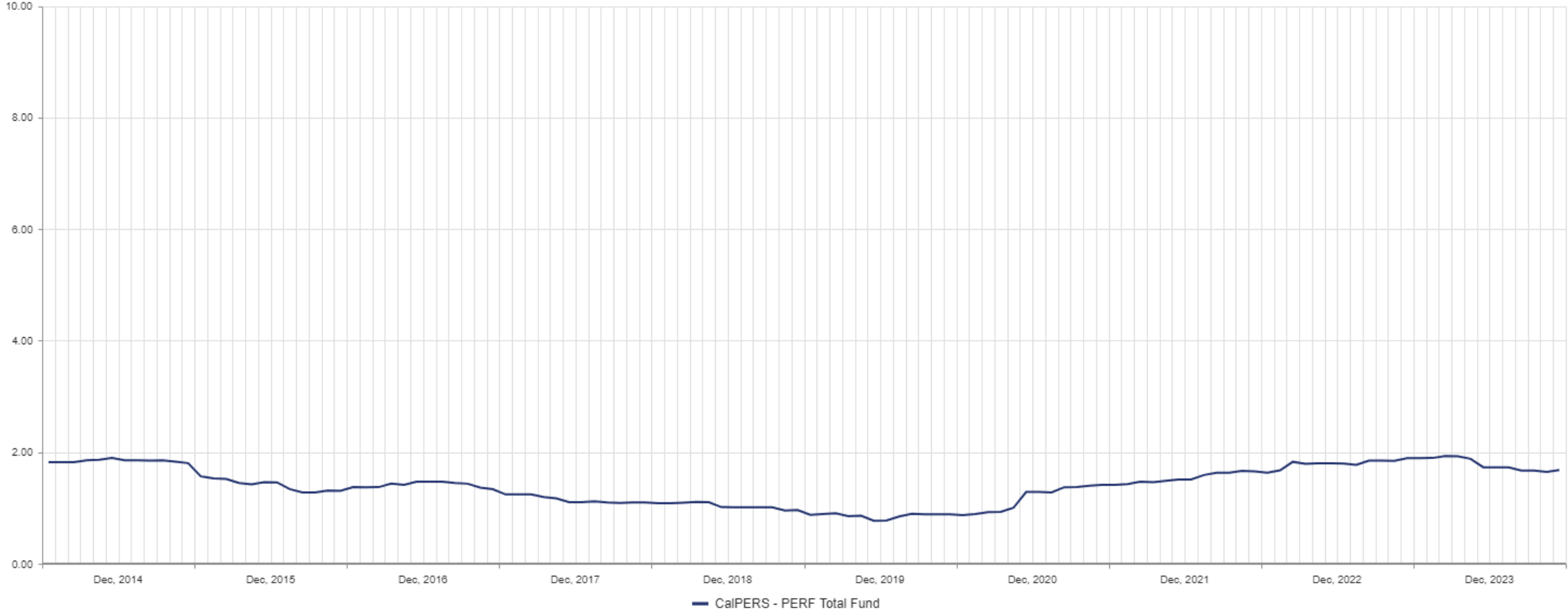
CalPERS - PERF Total Fund
36-Month Rolling Geometric Excess Return: December 31, 2013 - December 31, 2023
Benchmark: PERF Total Fund Policy Benchmark



* Monthly data; Net of Investment Management Fees

CalPERS PERF – Rolling Tracking Error

CalPERS - PERF Total Fund
36-Month Rolling Geometric Excess Standard Deviation of Return: December 31, 2013 - December 31, 2023
Benchmark: PERF Total Fund Policy Benchmark



* Monthly data; Net of Investment Management Fees

CalPERS Affiliate Investment Programs – Performance

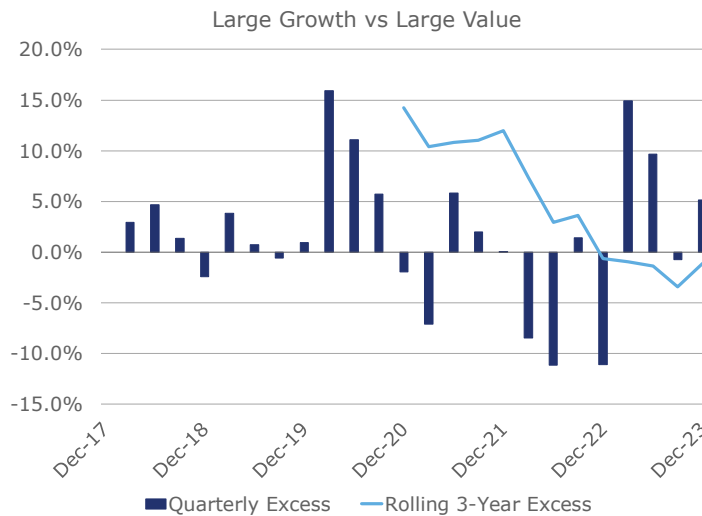
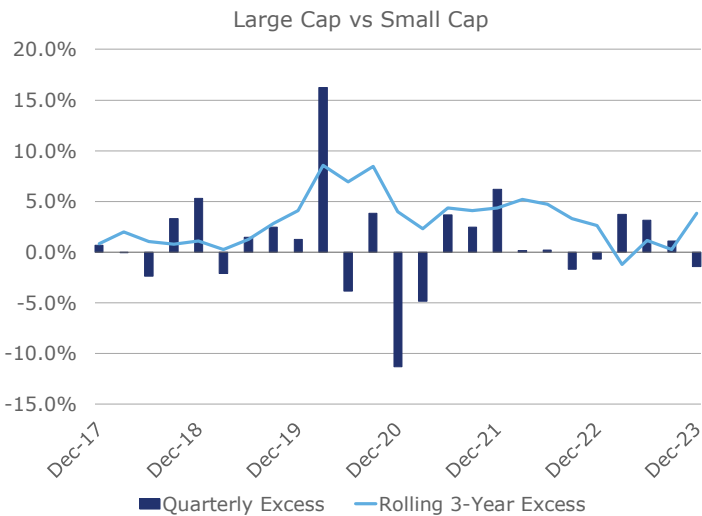
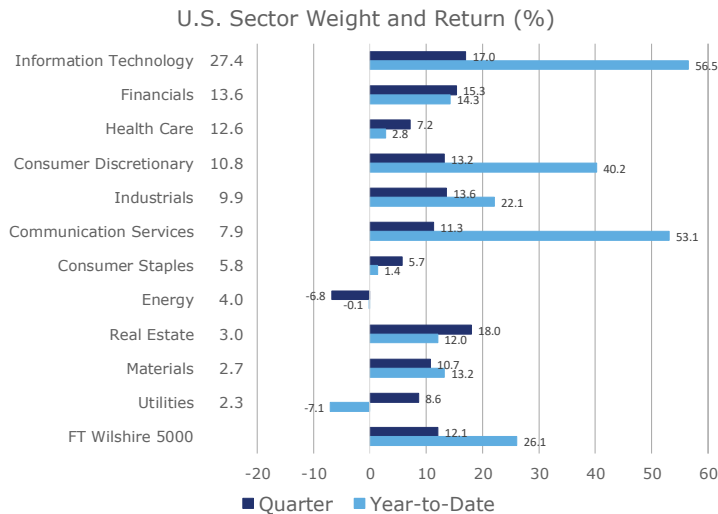
As of December 31, 2023

	Asset Value (\$Million)	Quarter	1-Year	3-Year	5-Year	10-Year
Judges I	\$ 52.9	1.4%	5.4%	2.4%	2.0%	1.4%
91-Day Treasury Bill		1.4%	5.0%	2.2%	1.9%	1.3%
Judges II	\$ 2,489.3	10.7%	14.6%	2.1%	7.8%	5.8%
Weighted Policy Benchmark		10.7%	14.3%	1.9%	7.6%	5.6%
Legislators' Retirement System	\$ 95.7	9.1%	8.7%	-0.8%	4.7%	4.0%
Weighted Policy Benchmark		9.1%	8.6%	-0.8%	4.6%	3.9%
Long-Term Care ("LTC")	\$ 4,265.8	9.7%	9.2%	-0.5%	4.4%	3.6%
Weighted Policy Benchmark		9.7%	9.3%	-0.6%	4.4%	3.5%
CERBT Strategy 1	\$ 16,763.2	10.7%	14.2%	2.2%	8.0%	5.9%
CERBT Strategy 1 Policy Benchmark		10.7%	14.0%	2.0%	7.8%	5.6%
CERBT Strategy 2	\$ 1,942.8	10.3%	11.7%	0.4%	6.3%	4.9%
CERBT Strategy 2 Policy Benchmark		10.3%	11.5%	0.3%	6.1%	4.6%
CERBT Strategy 3	\$ 789.7	9.7%	9.8%	-0.4%	4.9%	4.1%
CERBT Strategy 3 Policy Benchmark		9.8%	9.6%	-0.4%	4.8%	3.9%
CEPPT Strategy 1	\$ 155.9	9.4%	12.0%	0.8%	-.%	-.%
CEPPT Strategy 1 Policy Benchmark		9.5%	11.9%	0.7%	-.%	-.%
CEPPT Strategy 2	\$ 49.3	8.2%	9.1%	-1.0%	-.%	-.%
CEPPT Strategy 2 Policy Benchmark		8.3%	9.0%	-1.0%	-.%	-.%
Health Care Fund	\$ 159.0	6.7%	5.6%	-3.4%	1.1%	1.9%
Bloomberg U.S. Aggregate Bond Index		6.8%	5.5%	-3.3%	1.1%	1.8%
Supplemental Contribution Plan	\$ 111.2	NM	NM	NM	NM	NM
457 Program	\$ 2,252.3	NM	NM	NM	NM	NM

Appendix: Asset Class Performance Detail

U.S. Equity Market

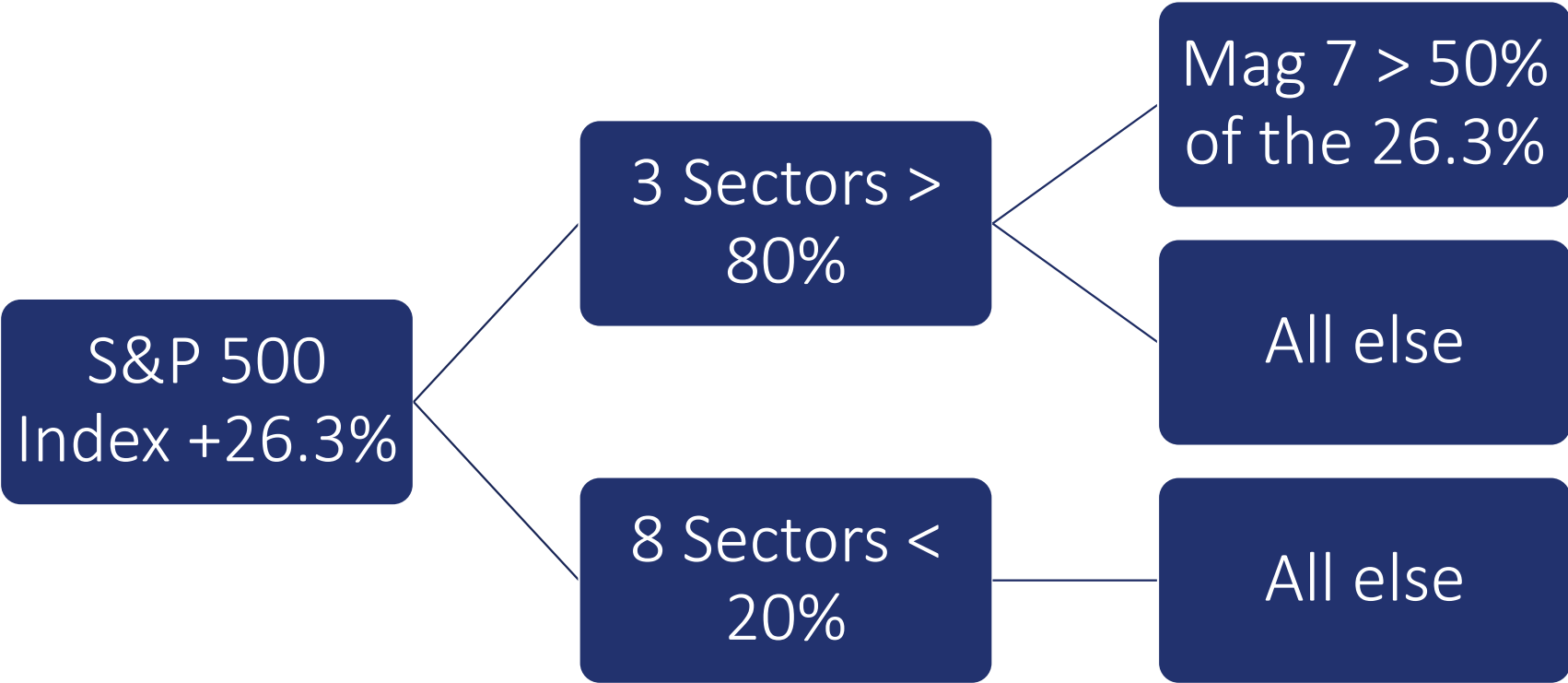
As of 12/31/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
FT Wilshire 5000	12.1	26.1	26.1	9.0	15.4	11.7
Wilshire U.S. Large Cap	11.9	27.3	27.3	9.5	15.9	12.2
Wilshire U.S. Small Cap	13.5	19.5	19.5	5.5	12.0	8.7
Wilshire U.S. Large Growth	14.7	46.1	46.1	8.7	19.2	n/a
Wilshire U.S. Large Value	9.1	11.1	11.1	10.0	12.2	n/a
Wilshire U.S. Small Growth	12.9	21.8	21.8	0.6	11.6	n/a
Wilshire U.S. Small Value	14.2	17.2	17.2	10.3	12.1	n/a
Wilshire REIT Index	16.3	16.1	16.1	7.5	7.6	7.7
MSCI USA Min. Vol. Index	7.8	9.8	9.8	6.5	10.3	10.4
FTSE RAFI U.S. 1000 Index	11.2	16.1	16.1	12.3	14.3	10.4



Data Sources: Bloomberg, Wilshire Atlas

Magnificent Seven – Contribution to Return

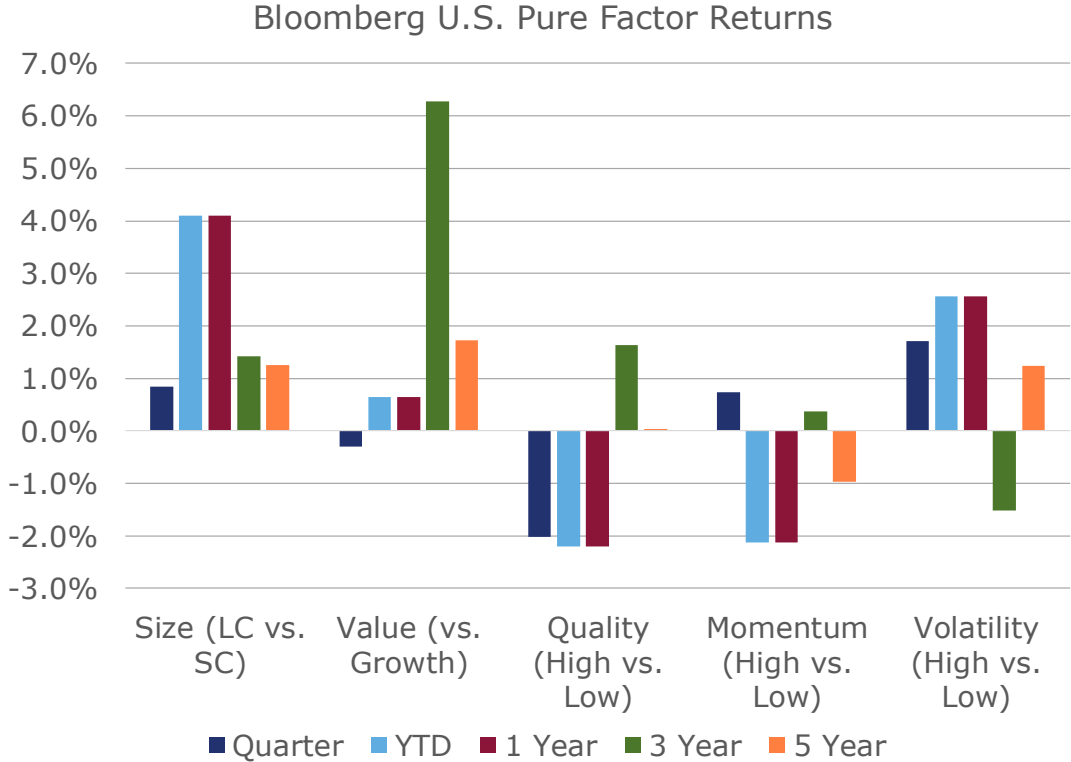
- Three sectors stand out on the previous slide as having outsized gains last year and driving the bulk of the U.S. equity market return – Information Technology, Communication Services and Consumer Discretionary
- Just 7 stocks are actually behind that divergence – Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia and Tesla (contributing approximately +15%)



Data Sources: Wilshire Atlas

U.S. Factor Returns

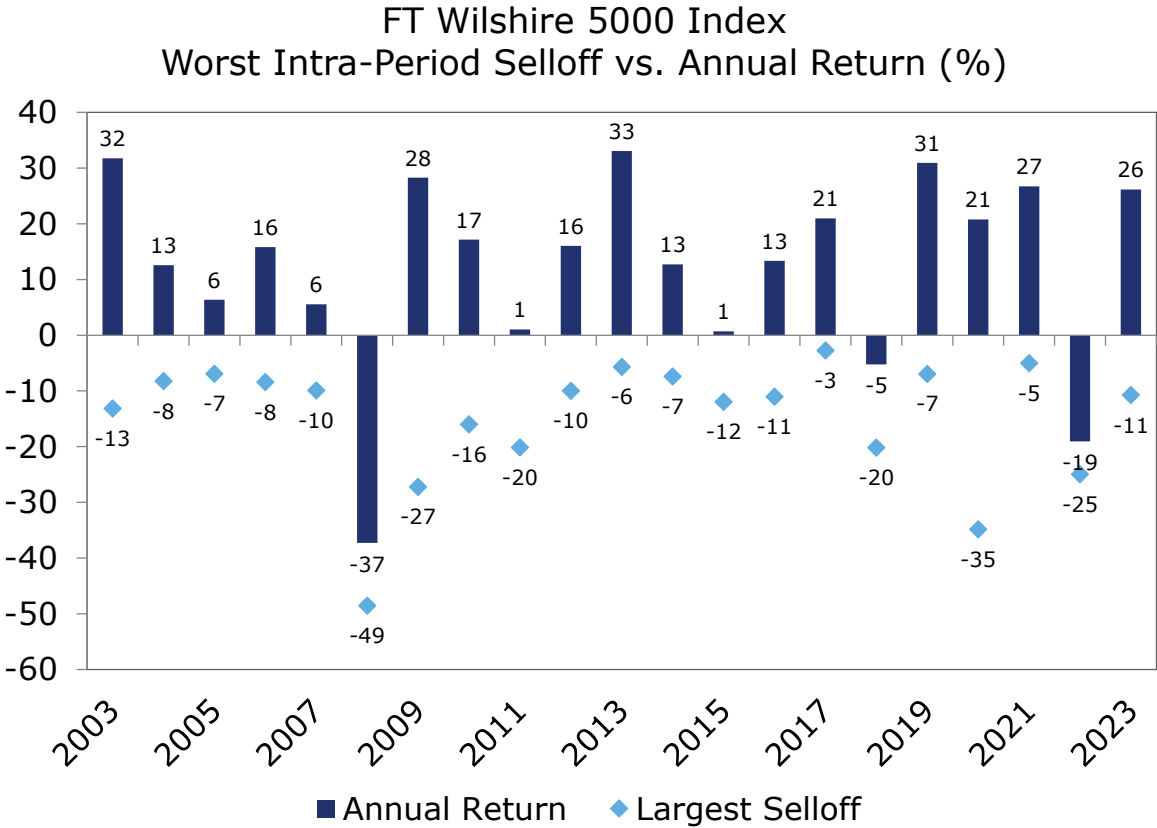
- Factor returns represent the contribution from large cap, value, etc. stocks within Bloomberg’s Portfolio & Risk Analytics module
- Large cap and high volatility have mostly outperformed this year



Data Sources: Bloomberg

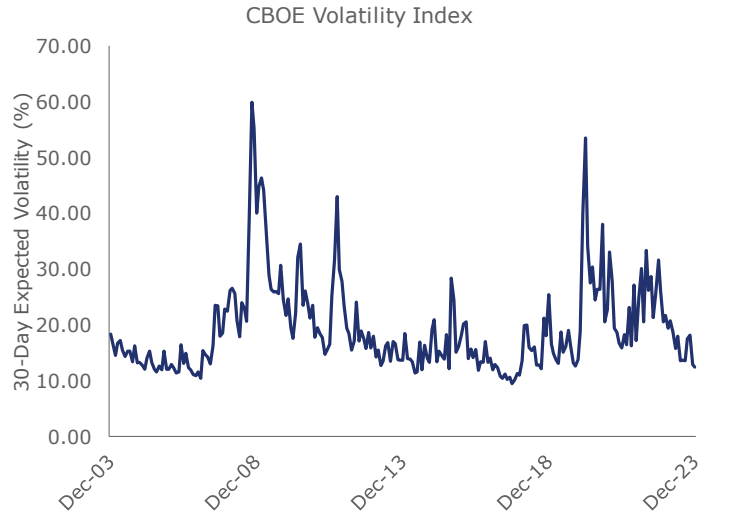
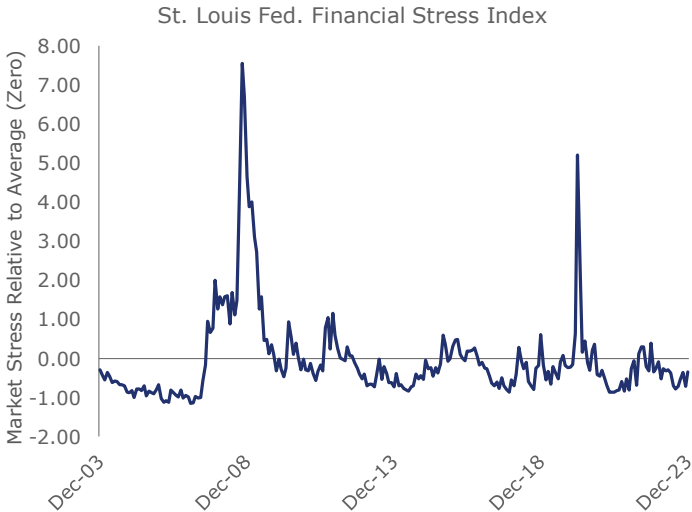
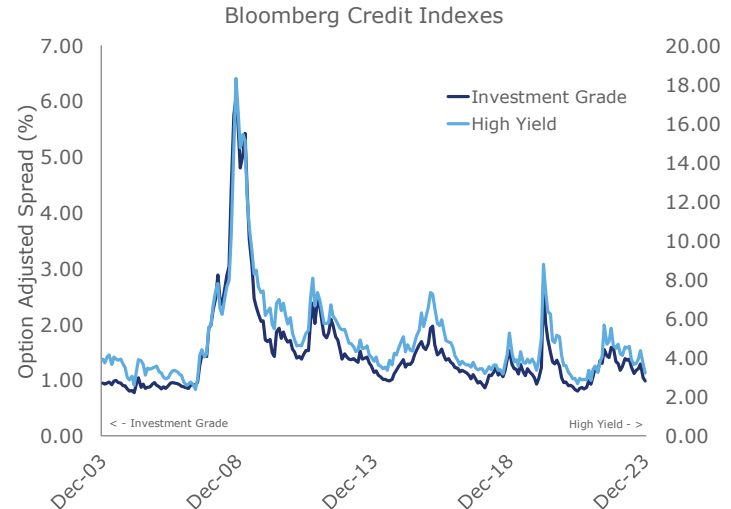
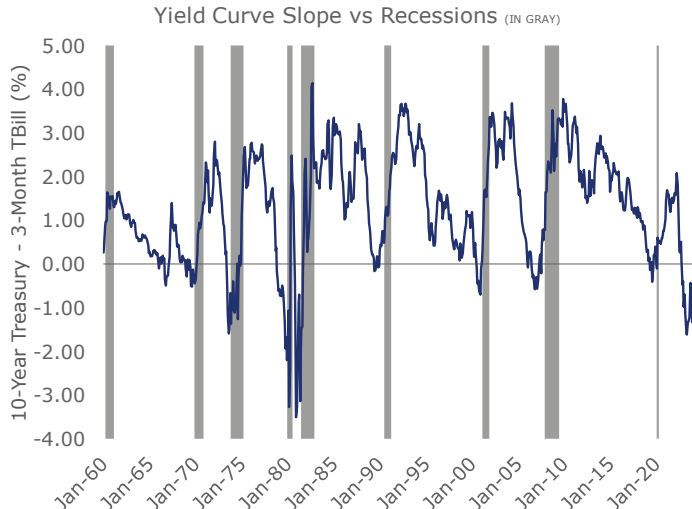
Annual Equity Market Selloffs

U.S. equity suffered a meaningful selloff in Feb.-Mar. but generally rebounded strongly from 2022



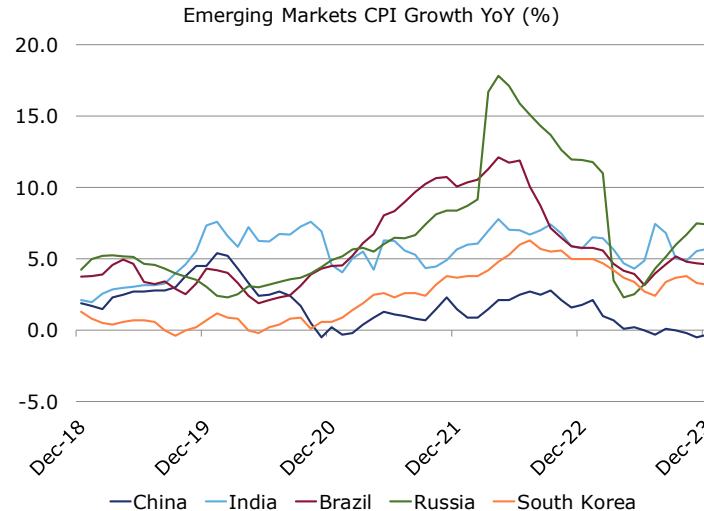
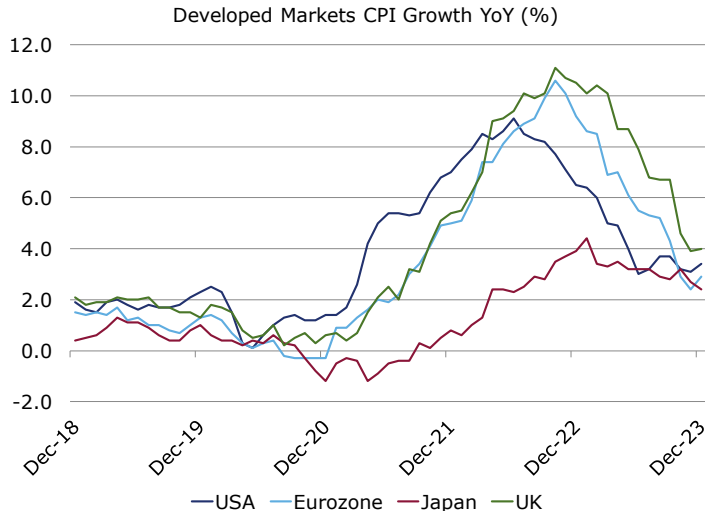
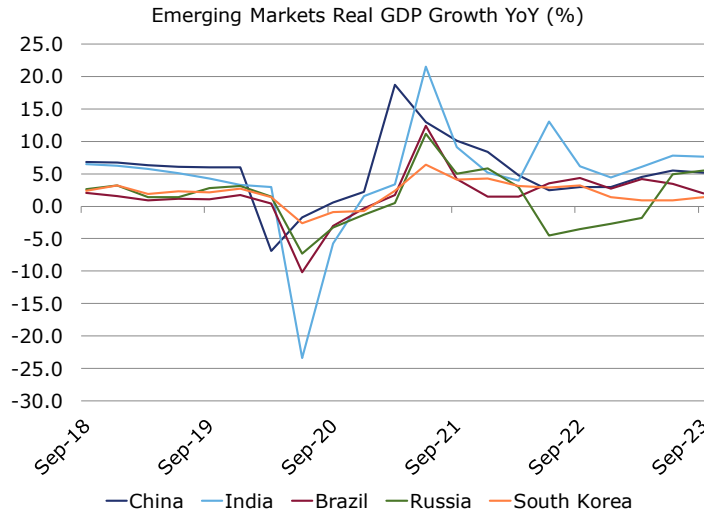
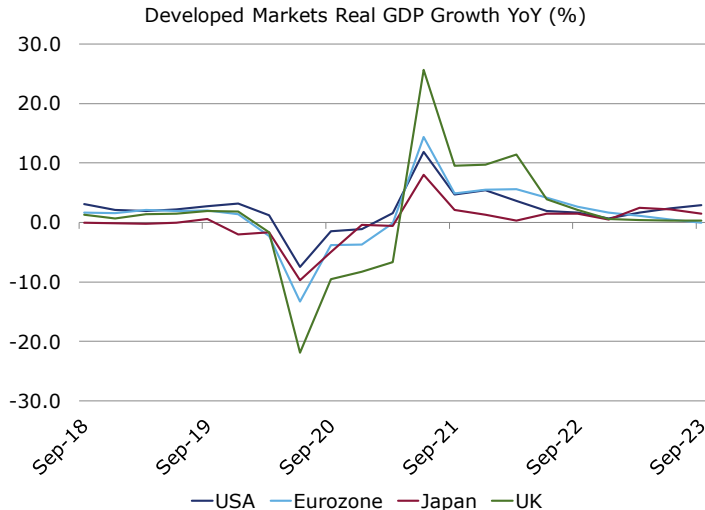
Data Sources: Wilshire Web, Bloomberg

Risk Monitor



Data Sources: Bloomberg

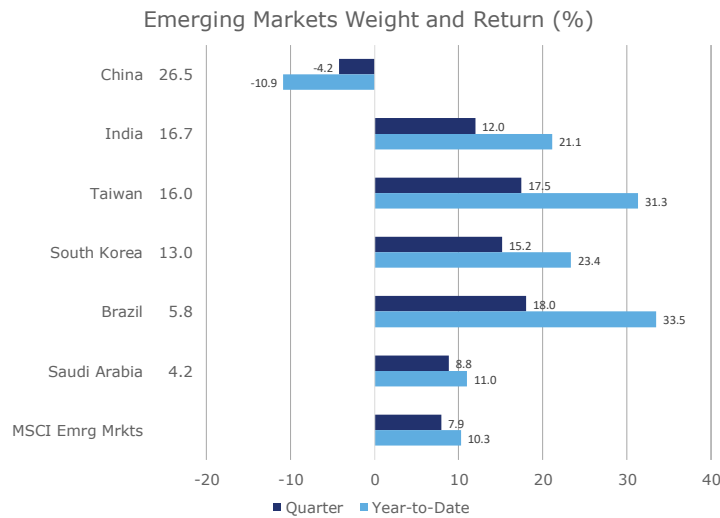
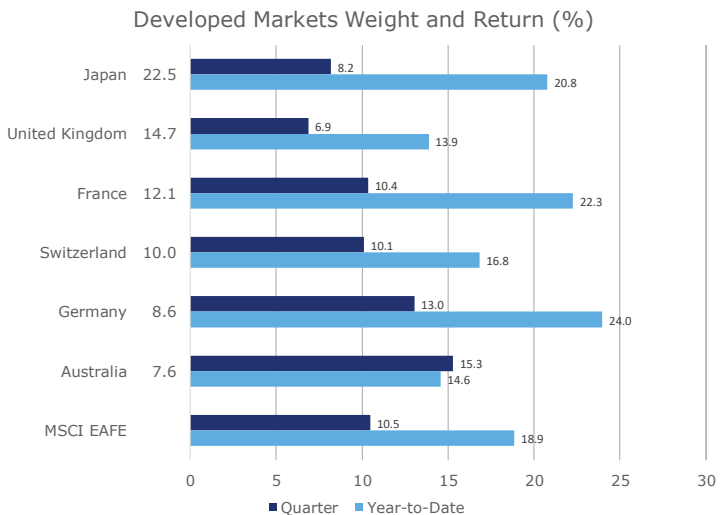
Non-U.S. Growth and Inflation



Data Sources: Bloomberg

Non-U.S. Equity Market

As of 12/31/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
MSCI ACWI ex-US (\$G)	9.8	16.2	16.2	2.0	7.6	4.3
MSCI EAFE (\$G)	10.5	18.9	18.9	4.5	8.7	4.8
MSCI Emerging Markets (\$G)	7.9	10.3	10.3	-4.7	4.1	3.0
MSCI Frontier Markets (\$G)	7.6	12.5	12.5	-1.1	1.6	0.9
MSCI ACWI ex-US Growth (\$G)	11.2	14.4	14.4	-2.4	7.8	4.9
MSCI ACWI ex-US Value (\$G)	8.7	18.1	18.1	6.4	7.2	3.8
MSCI ACWI ex-US Small (\$G)	10.2	16.2	16.2	2.0	8.4	5.3
MSCI ACWI Minimum Volatility	6.6	8.4	8.4	3.8	7.1	7.5
MSCI EAFE Minimum Volatility	7.3	12.4	12.4	1.1	4.1	4.7
FTSE RAFI Developed ex-US	9.5	19.0	19.0	7.7	8.8	4.5
MSCI EAFE LC (G)	5.0	16.8	16.8	9.2	10.0	7.1
MSCI Emerging Markets LC (G)	5.6	10.3	10.3	-2.1	5.8	5.6



Data Sources: Bloomberg

CalPERS PERF Public Equity – Performance

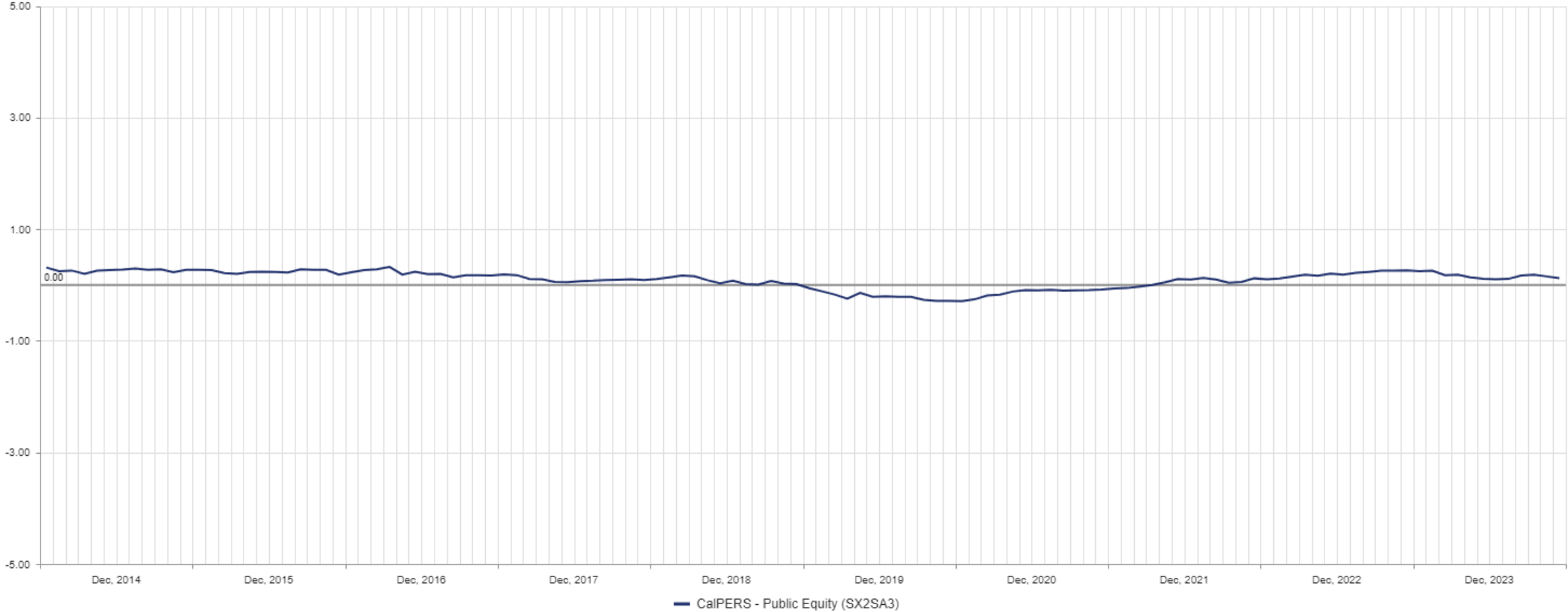
As of December 31, 2023

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
PUBLIC EQUITY* <i>Public Equity Policy Benchmark</i>	\$ 215.0	10.3% 10.4%	19.1% 19.2%	5.7% 5.6%	11.1% 11.0%	7.9% 7.9%	\$ 44.3	0.5 0.5	0.5 0.0
Public Equity - Cap Weighted* <i>CalPERS Custom FTSE Global Benchmark</i>	\$ 156.5	11.1% 11.2%	22.3% 22.5%	6.1% 6.0%	12.2% 12.1%	8.4% 8.3%	\$ 35.1	0.6 0.6	0.4 0.0
Public Equity - Factor Weighted <i>CalPERS Custom FTSE Factor Weighted Bmrk</i>	\$ 58.5	8.4% 8.3%	10.7% 10.5%	4.1% 4.1%	7.7% 7.6%	--% --%	\$ 9.7	0.4 0.4	0.3 0.0

* The CalPERS asset values shown include derivative exposure.

CalPERS PERF Public Equity – Rolling Excess Return

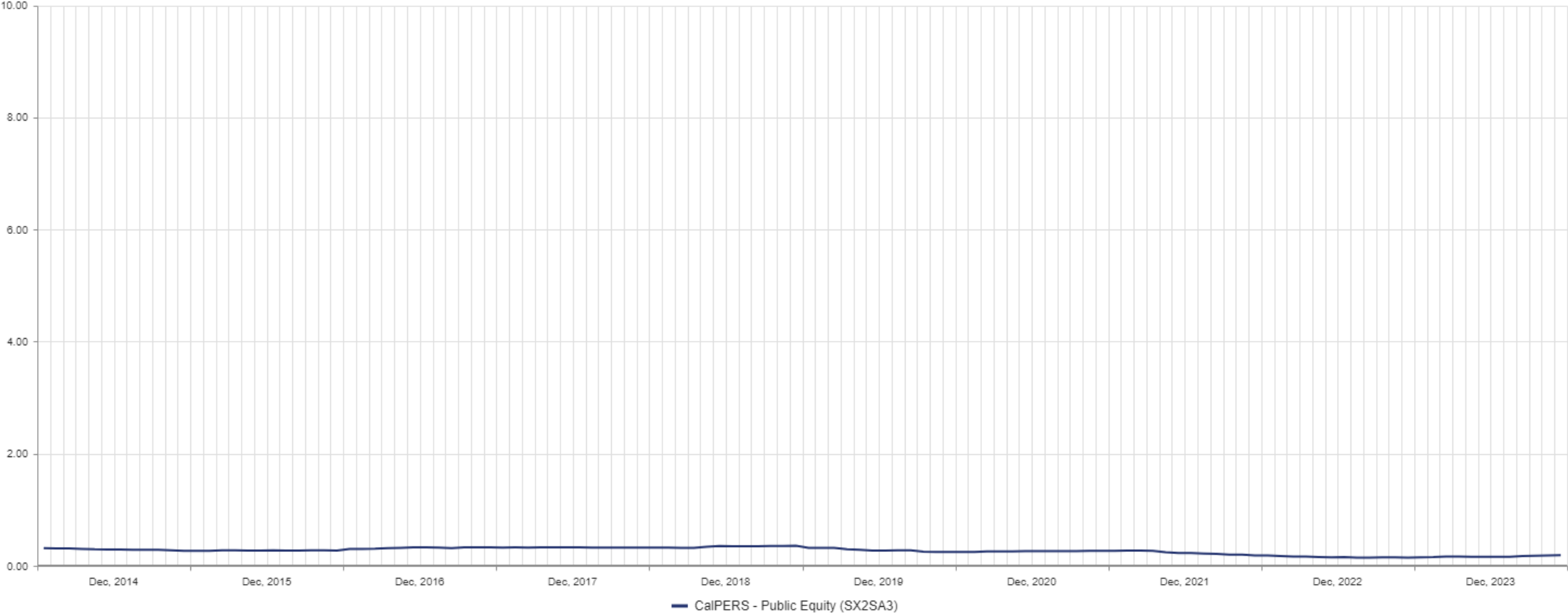
CalPERS - Public Equity (SX2SA3)
36-Month Rolling Geometric Excess Return: December 31, 2013 - December 31, 2023
Benchmark: Public Equity Policy Benchmark



* Monthly data; Net of Investment Management Fees

CalPERS PERF Public Equity – Rolling Tracking Error

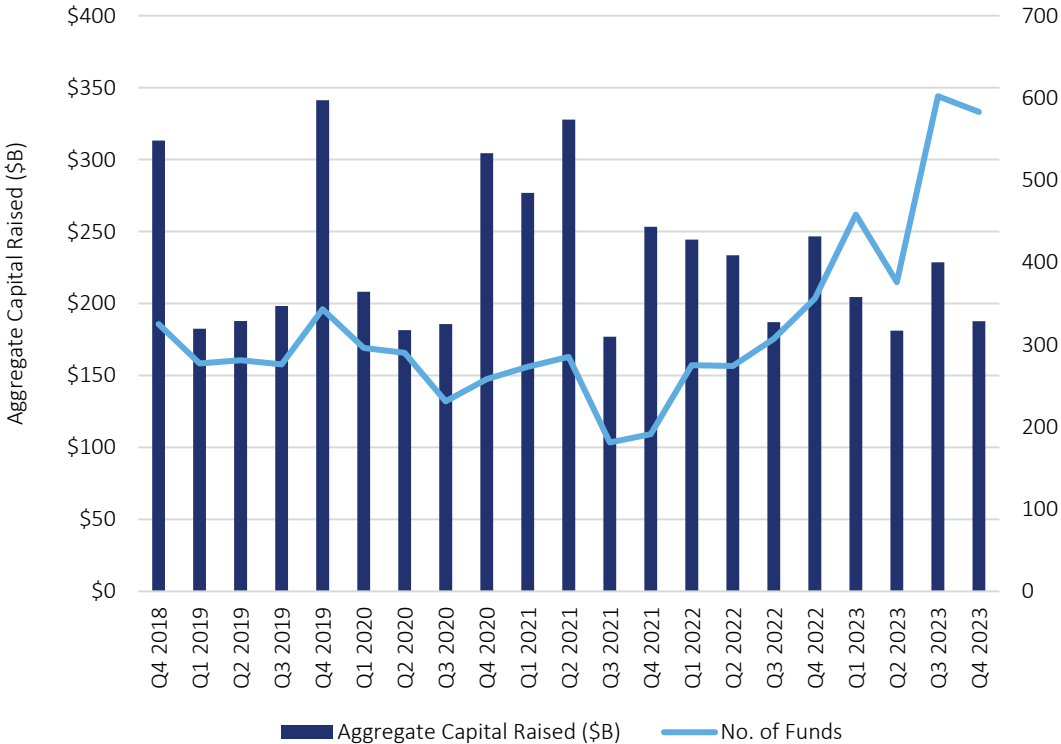
CalPERS - Public Equity (SX2SA3)
36-Month Rolling Geometric Excess Standard Deviation of Return: December 31, 2013 - December 31, 2023
Benchmark: Public Equity Policy Benchmark



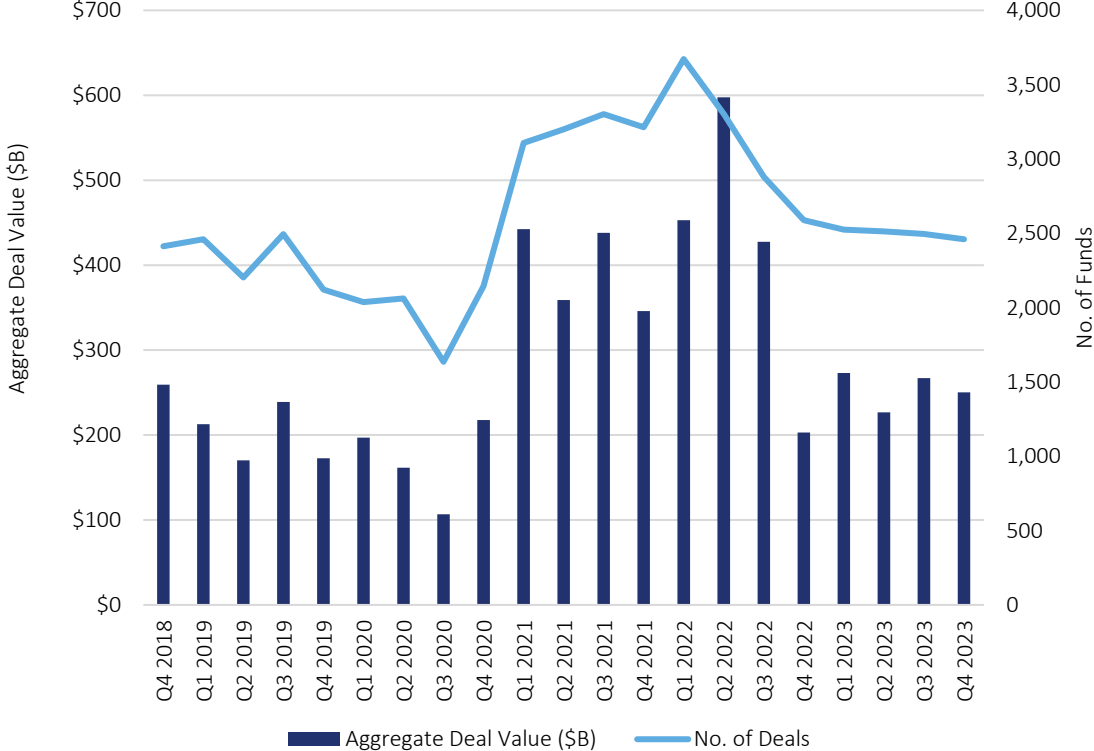
* Monthly data; Net of Investment Management Fees

Private Equity – Fundraising & Investment Activity

Global Private Equity Fundraising, by Quarter



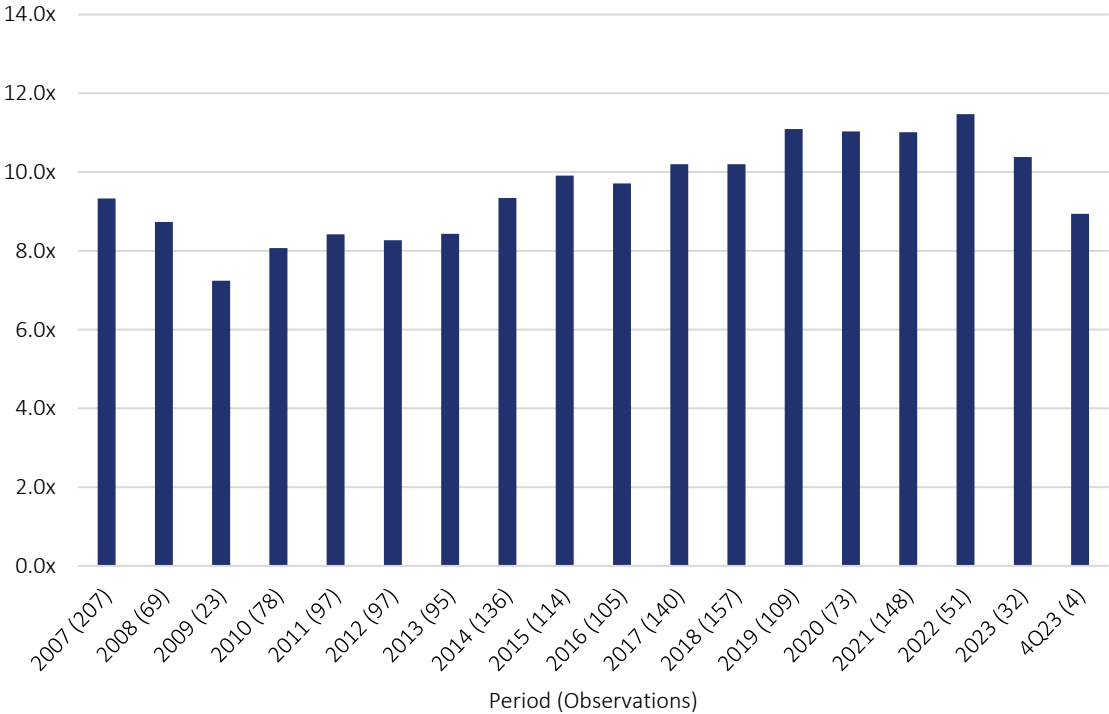
Global Private Equity-Backed Deals, by Quarter



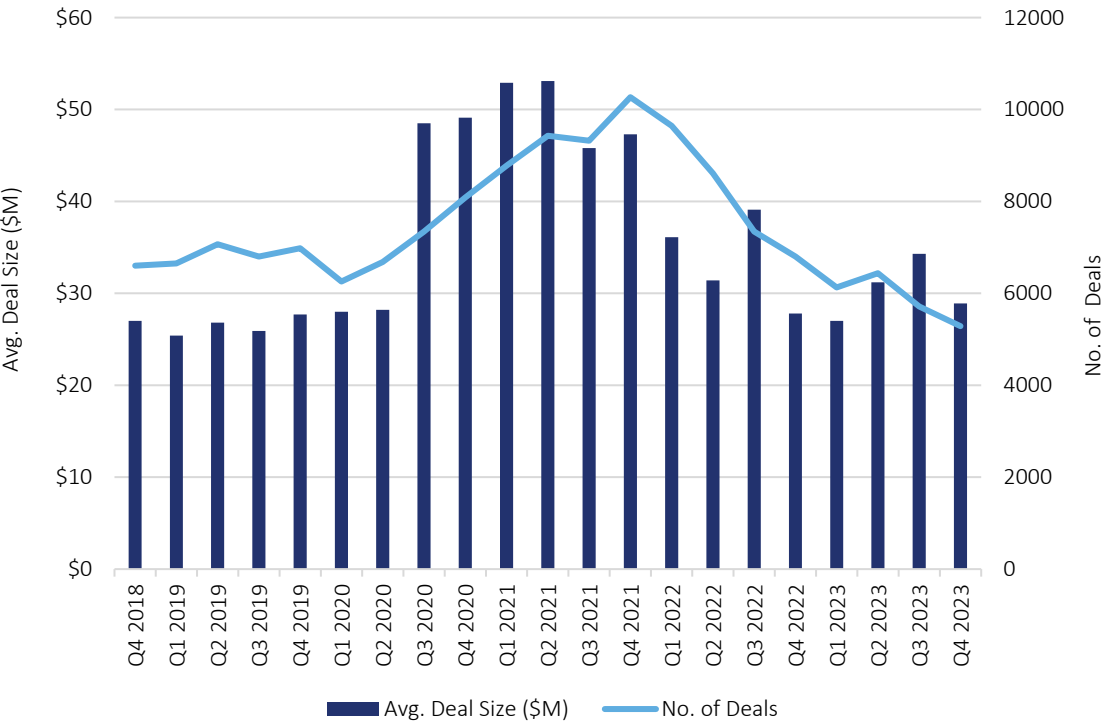
Source: Preqin as of January 26, 2024.

Private Equity – Pricing & Valuations

LBO Purchase Price Multiples



Global Venture Capital Deals, by Quarter

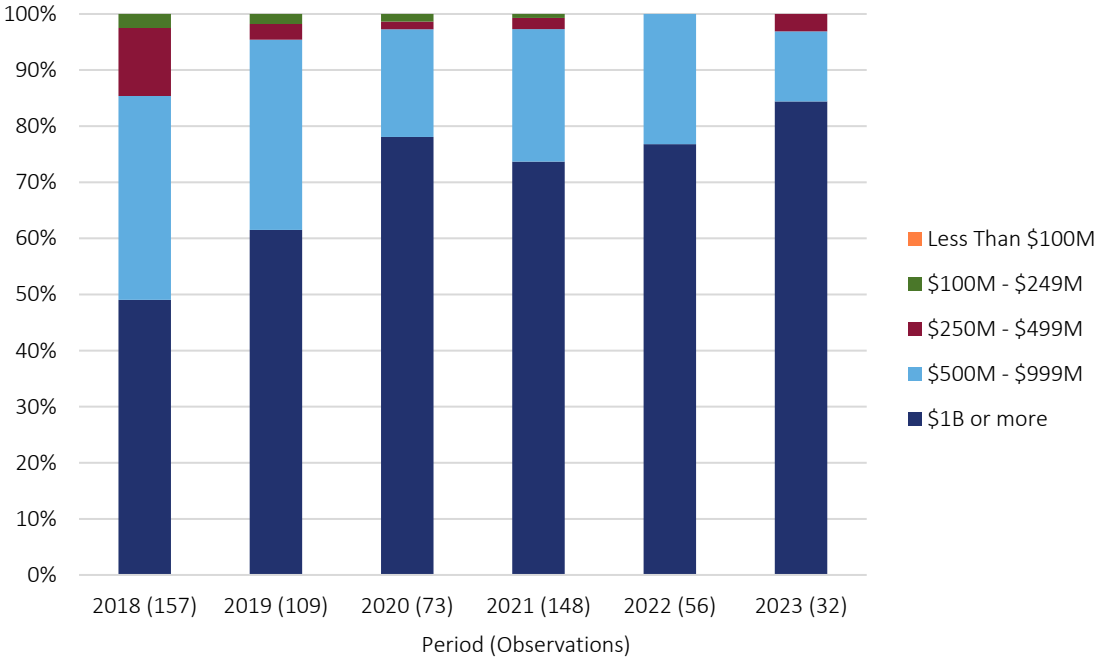


Source: S&P LCD Q4 2023 Report; Prequin as of January 26, 2024.

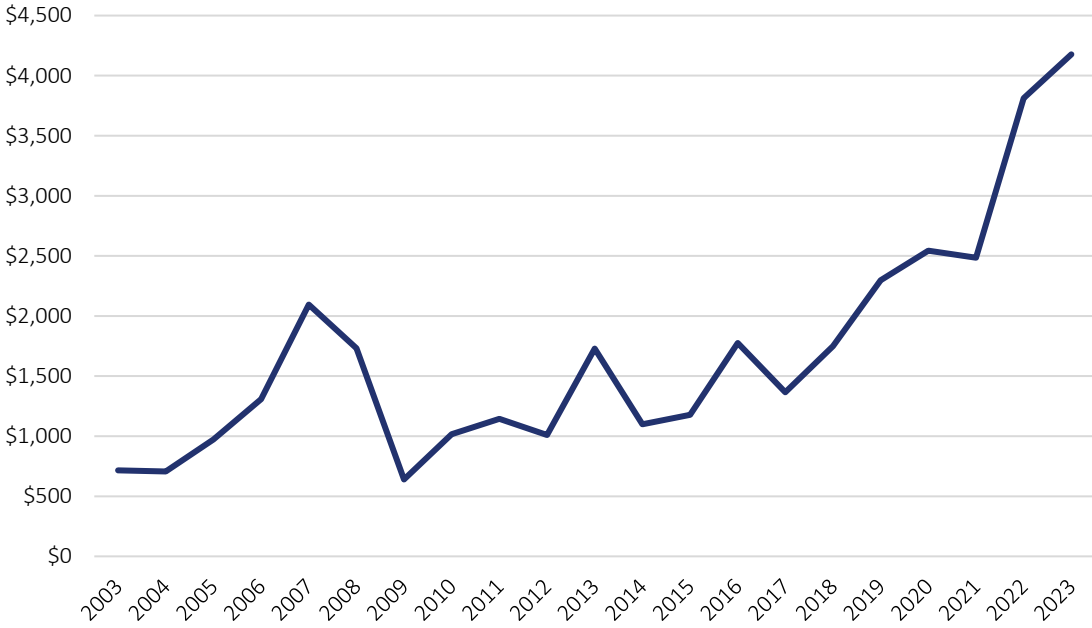
U.S. Investment Activity by Deal Size

- Deal volume continued to move downwards as deals have shifted into the upper, large cap market.
- During 2023, large cap deals compose the highest percent of total deals since 2005.

Distribution of U.S. LBO Transactions, by Deal Size



Average Transaction Size of U.S. LBOs

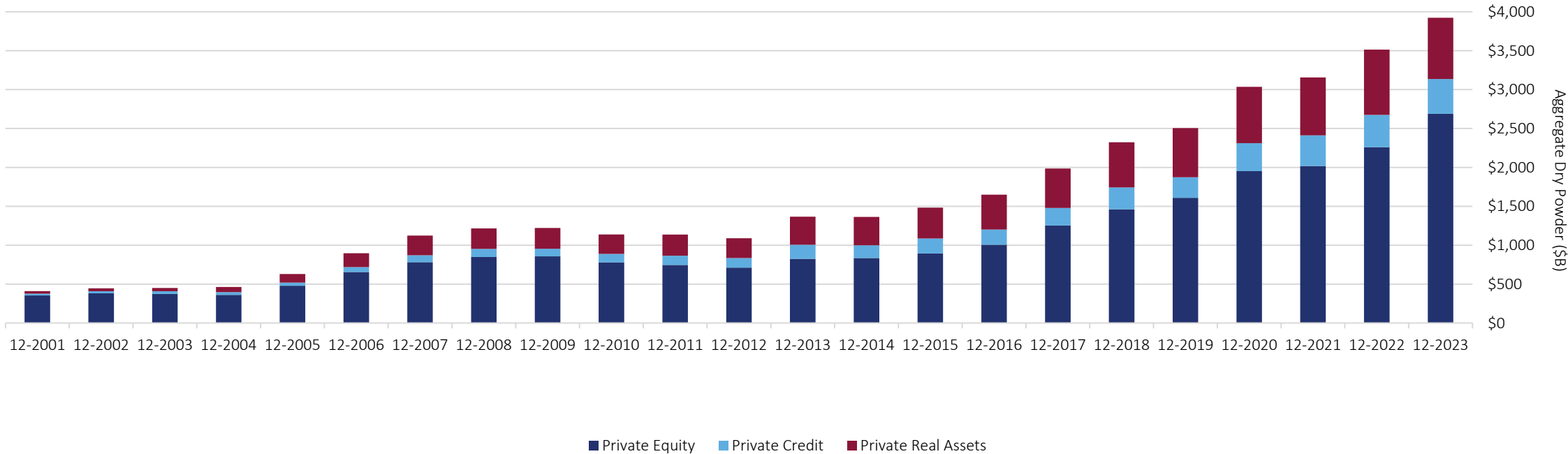


Source: S&P LCD Q4 2023 Report.

Private Capital Dry Powder

- Global private capital dry powder remains elevated, with all asset classes near record high levels of dry powder.
- Private equity comprises approximately 70% of total dry powder as of December 2023, and continues to drive heightened levels of dry powder.

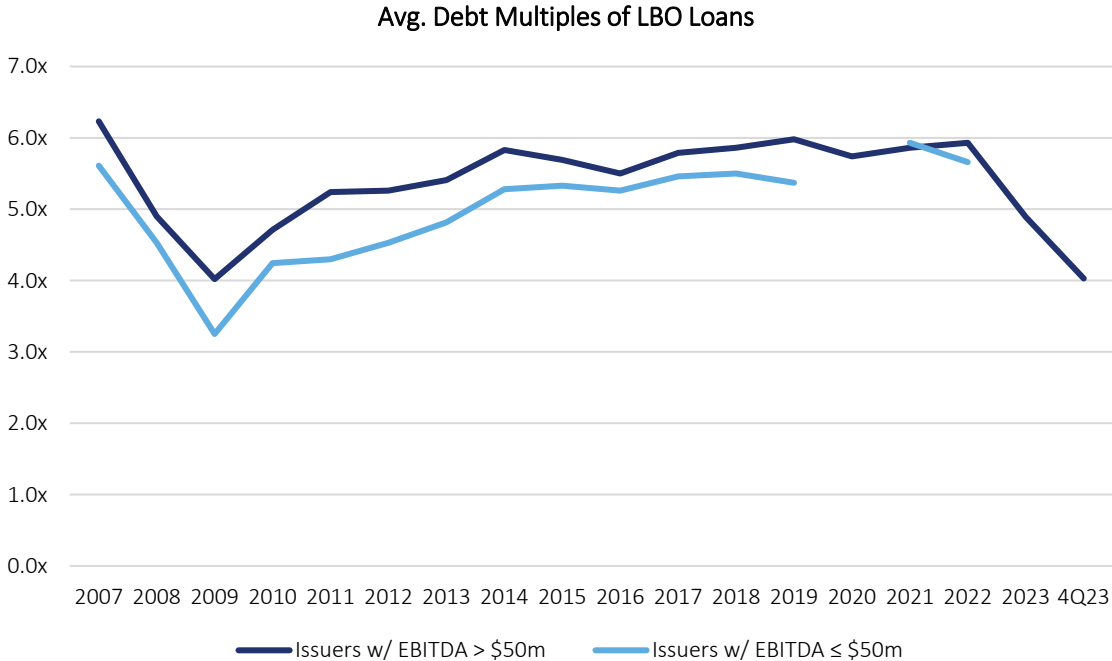
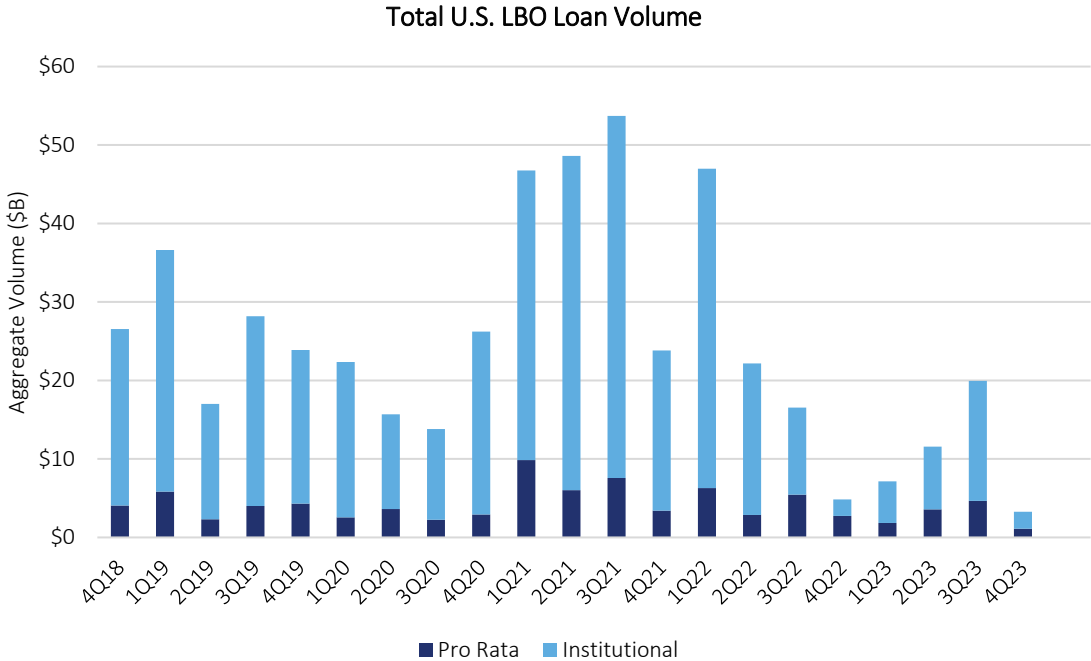
Global Private Capital Dry Powder, at Month



Source: Preqin as of January 26, 2024.

Private Equity – U.S. Debt Markets

- Q4 2023 saw ~\$3 billion in supporting loan issuance, a decrease from the rising trend of past quarters and to a new record low.
- Debt multiples of sponsor-backed, large corporate loan continues to drop materially into the fourth quarter of 2023 to 4.0x, compared to just under 6.0x in recent years.

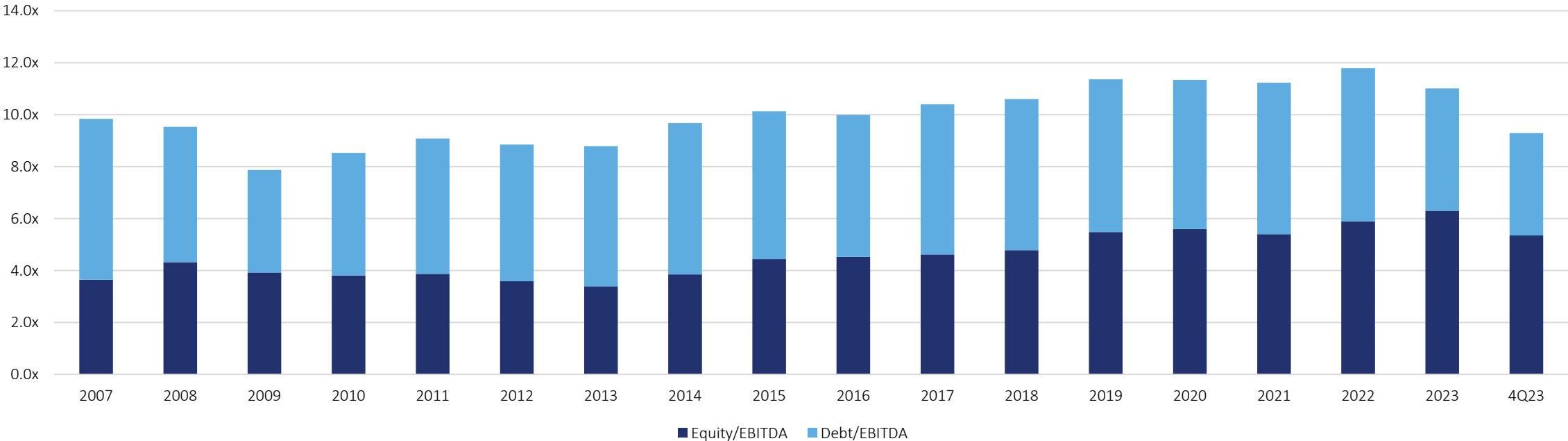


Source: S&P LCD Q4 2023 Report.

Private Equity – U.S. LBO Purchase Price Multiples

- All in purchase price multiples continue to shrink into Q4 2023 relative to 2023 as a whole, with equity continuing to contribute a majority of capital.
- Relative to the 2023 in total, debt contributions are consistent at 42% of the purchase price multiple.

LBO Purchase Price Multiples



Source: S&P LCD Q4 2023 Report.

CalPERS PERF Private Equity – Performance

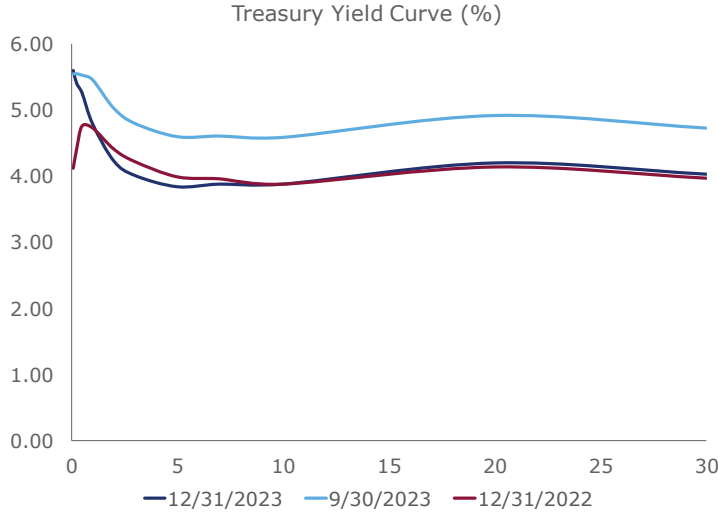
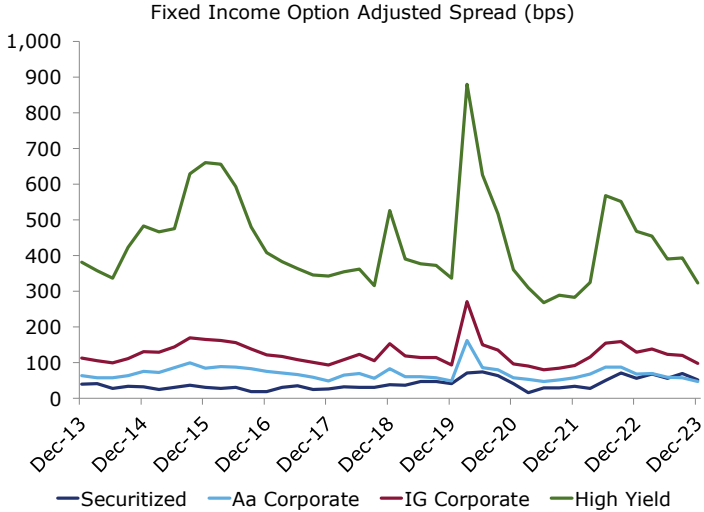
As of December 31, 2023

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios	
								Sharpe	Info
PRIVATE EQUITY	\$ 67.9	2.4%	8.8%	14.0%	11.4%	11.4%	\$ 27.3	1.1	0.2
<i>Private Equity Policy Benchmark</i>		-2.9%	22.8%	9.1%	8.3%	10.7%		0.3	0.0
Private Equity Partnership Investments	\$ 67.9	2.4%	8.9%	14.1%	11.5%	11.4%		N/A	N/A
Private Equity Distribution Stock	\$ 0.0	-10.9%	-33.1%	-44.4%	-28.9%	-21.9%		N/A	N/A

U.S. Fixed Income

As of 12/31/2023	YTW	DUR.	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg Aggregate	4.5	6.2	6.8	5.5	5.5	-3.3	1.1	1.8
Bloomberg Treasury	4.1	6.2	5.7	4.1	4.1	-3.8	0.5	1.3
Bloomberg Gov't-Rel.	4.6	5.3	5.5	5.8	5.8	-2.4	1.4	2.0
Bloomberg Securitized	4.7	5.8	7.3	5.1	5.1	-2.8	0.4	1.4
Bloomberg Corporate	5.1	7.1	8.5	8.5	8.5	-3.3	2.6	3.0
Bloomberg LT Gov't/Credit	4.7	14.3	13.2	7.1	7.1	-8.7	1.1	3.2
Bloomberg LT Treasury	4.1	15.7	12.7	3.1	3.1	-11.4	-1.2	2.3
Bloomberg LT Gov't-Rel.	5.2	11.8	11.2	8.9	8.9	-6.1	1.5	3.5
Bloomberg LT Corporate	5.2	13.1	14.0	10.9	10.9	-6.6	2.9	3.9
Bloomberg U.S. TIPS *	3.9	7.3	4.7	3.9	3.9	-1.0	3.2	2.4
Bloomberg High Yield	7.6	3.2	7.2	13.4	13.4	2.0	5.4	4.6
S&P/LSTA Leveraged Loan	9.4	0.3	2.9	13.3	13.3	5.8	5.8	4.4
Treasury Bills	5.2	0.3	1.4	5.1	5.1	2.1	1.9	1.3

* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

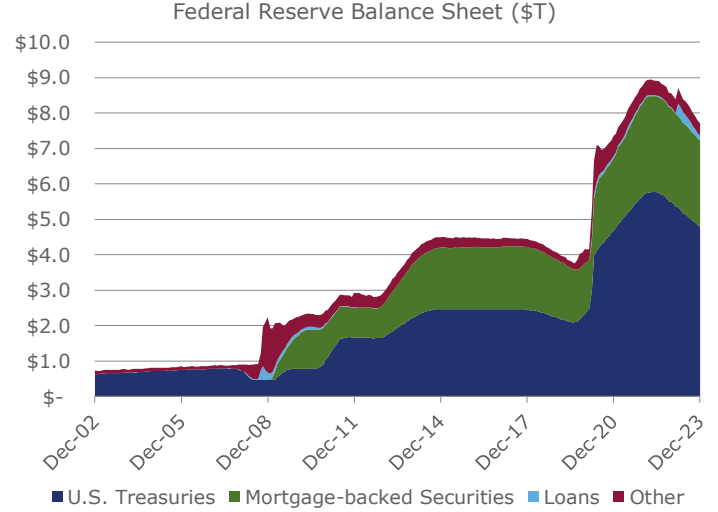
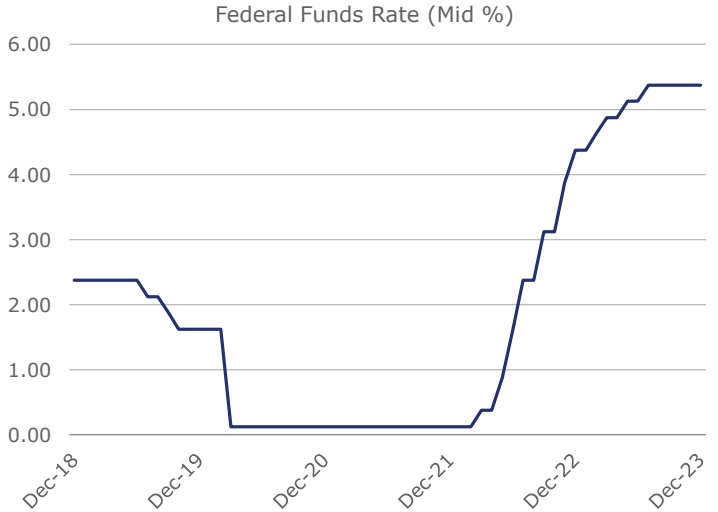


Data Sources: Bloomberg

Federal Reserve

- The Federal Open Market Committee has left their overnight rate unchanged since July of 2023
- QE4 was larger than the 3 phases of quantitative easing – combined – following the global financial crisis
- The Fed’s balance sheet has begun to shrink again during the past nine months

	Announced	Closed	Amount (bil)
QE1	11/25/2008	3/31/2010	\$1,403
QE2	11/3/2010	6/29/2012	\$568
QE3	9/13/2012	10/29/2014	\$1,674
QE4	3/23/2020	3/15/2022	\$4,779

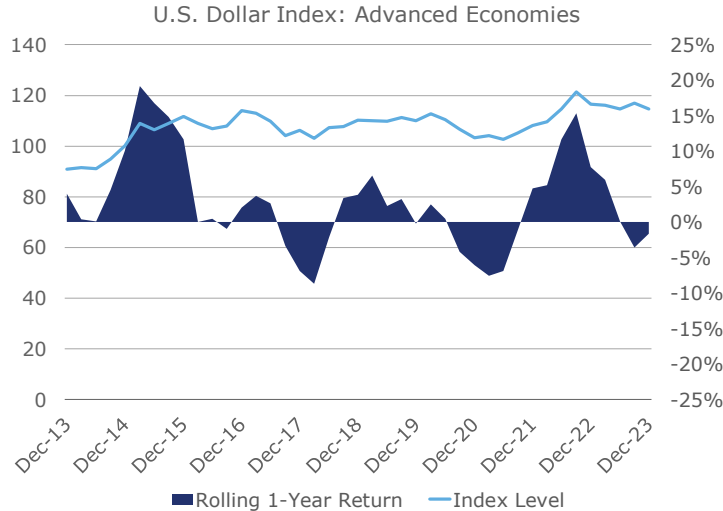
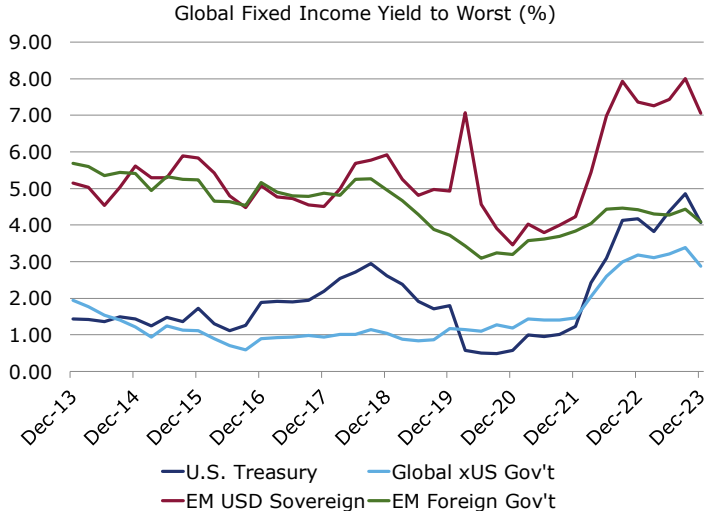


Data Sources: Bloomberg

Non-U.S. Fixed Income

As of 12/31/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Developed Markets						
Bloomberg Global Aggregate xUS	9.2	5.7	5.7	-7.2	-1.6	-0.8
Bloomberg Global Aggregate xUS *	5.4	8.3	8.3	-1.2	1.5	2.8
Bloomberg Global Inflation Linked xUS	11.9	7.4	7.4	-8.7	-1.4	-0.2
Bloomberg Global Inflation Linked xUS *	7.6	5.3	5.3	-4.5	0.4	3.3
Emerging Markets (Hard Currency)						
Bloomberg EM USD Aggregate	8.1	9.1	9.1	-3.1	1.8	3.0
Emerging Markets (Foreign Currency)						
Bloomberg EM Local Currency Gov't	7.0	6.9	6.9	-1.2	2.1	1.3
Bloomberg EM Local Currency Gov't *	3.9	8.6	8.6	1.4	3.1	3.0
Euro vs. Dollar	4.4	3.1	3.1	-3.3	-0.8	-2.2
Yen vs. Dollar	5.9	-7.0	-7.0	-9.9	-4.9	-2.9
Pound vs. Dollar	4.4	5.4	5.4	-2.3	0.0	-2.6

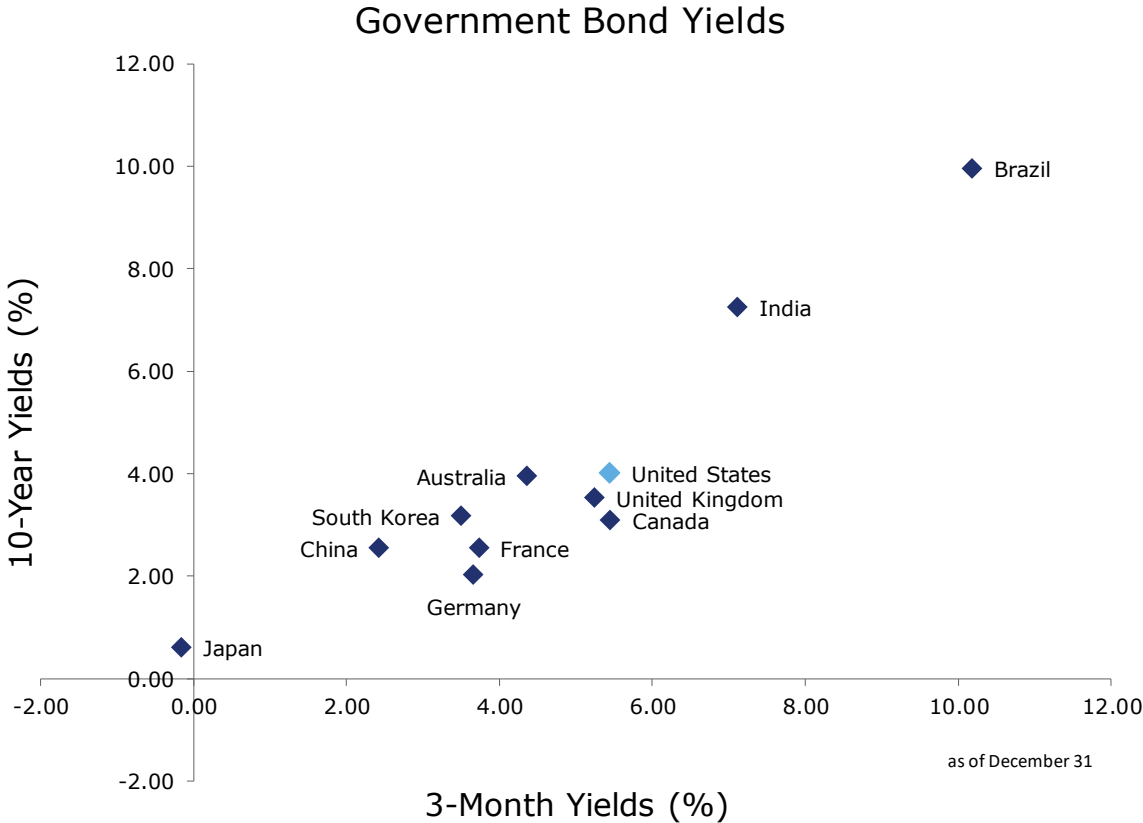
* Returns are reported in terms of local market investors, which removes currency effects.



Data Sources: Bloomberg

Global Interest Rates

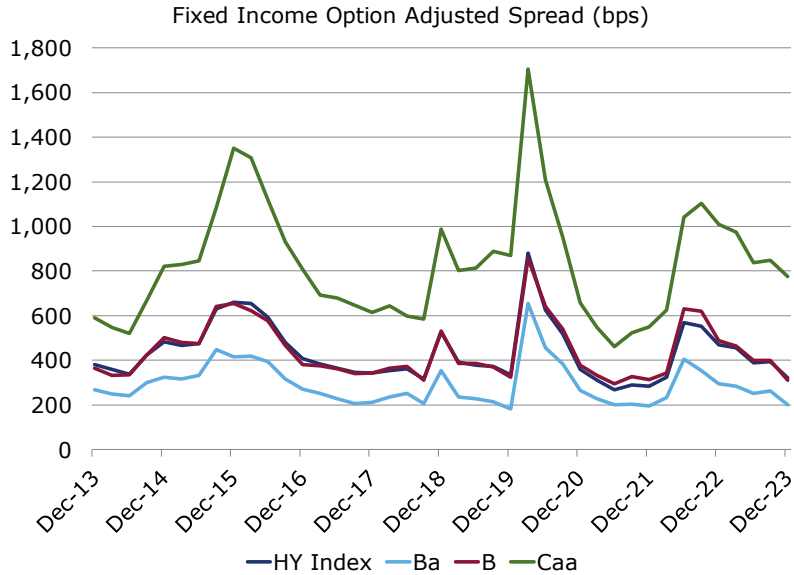
Short-term rates have turned positive in most larger countries; longer-term rates near 4.0% in the U.K. and Australia



Data Sources: Bloomberg

High Yield Bond Market

As of 12/31/2023	YTW	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg High Yield	7.6	7.2	13.4	13.4	2.0	5.4	4.6
S&P LSTA Leveraged Loan	9.4	3.2	13.2	13.2	5.2	5.8	4.0
High Yield Quality Distribution	Weight						
Ba U.S. High Yield	46.1%	6.3	7.4	11.6	11.6	1.4	5.8
B U.S. High Yield	41.1%	7.5	7.0	13.8	13.8	2.3	5.1
Caa U.S. High Yield	11.7%	12.1	6.9	19.8	19.8	2.9	4.1
Ca to D U.S. High Yield	1.1%	15.3	5.1	16.4	16.4	5.5	-4.0



Data Sources: Bloomberg

CalPERS PERF Income – Performance

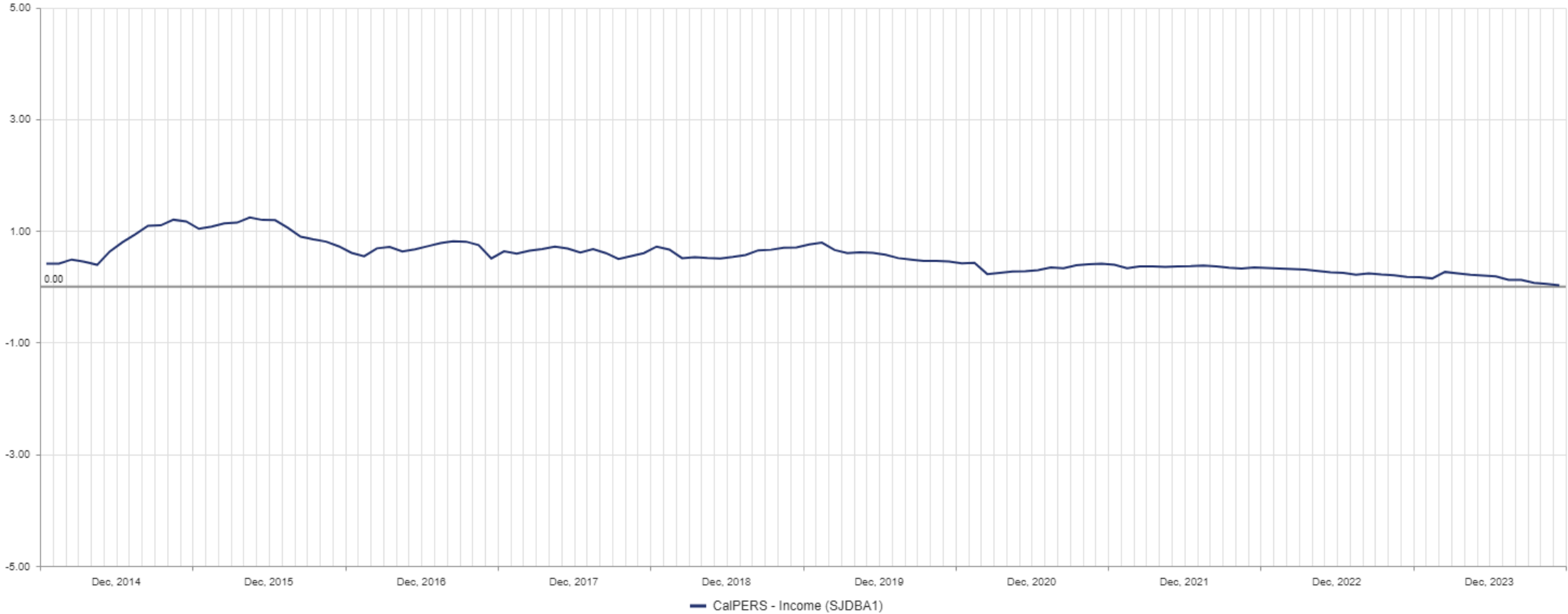
As of December 31, 2023

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
INCOME*	\$ 130.7	9.6%	8.3%	-4.6%	1.8%	2.8%	\$ 7.7	0.0	0.8
<i>Income Policy Benchmark</i>		9.6%	8.2%	-4.6%	1.7%	2.4%		0.0	0.0
Treasury*	\$ 25.1	10.6%	3.3%	-9.4%	-0.9%	1.6%	\$ 3.5	-0.2	-0.2
<i>Custom Bloomberg Government</i>		10.6%	3.3%	-9.4%	-0.9%	1.6%		-0.2	0.0
Mortgage-Backed Securities	\$ 25.0	7.3%	5.3%	-2.7%	0.5%	2.0%	\$ 0.2	-0.2	0.6
<i>Custom Bloomberg Mortgage</i>		7.3%	5.1%	-2.8%	0.4%	1.4%		-0.3	0.0
Investment Grade Credit	\$ 33.7	12.4%	9.9%	-5.6%	3.0%	4.0%	\$ 3.5	0.1	0.5
<i>Custom Bloomberg Corp ex Sov</i>		12.5%	10.3%	-5.5%	2.8%	3.6%		0.1	0.0
High Yield	\$ 22.0	7.1%	12.8%	1.9%	5.1%	--%	\$ 2.3	0.3	0.4
<i>Custom Bloomberg High Yield</i>		7.1%	12.6%	1.9%	5.0%	--%		0.3	0.0
EM Sovereign	\$ 25.0	9.4%	9.7%	--%	--%	--%	\$ 1.4	N/A	N/A
<i>Custom JPM EMBIG Diversified</i>		9.3%	9.3%	--%	--%	--%		N/A	N/A

* The CalPERS asset values shown include derivative exposure.

CalPERS PERF Income – Rolling Excess Return

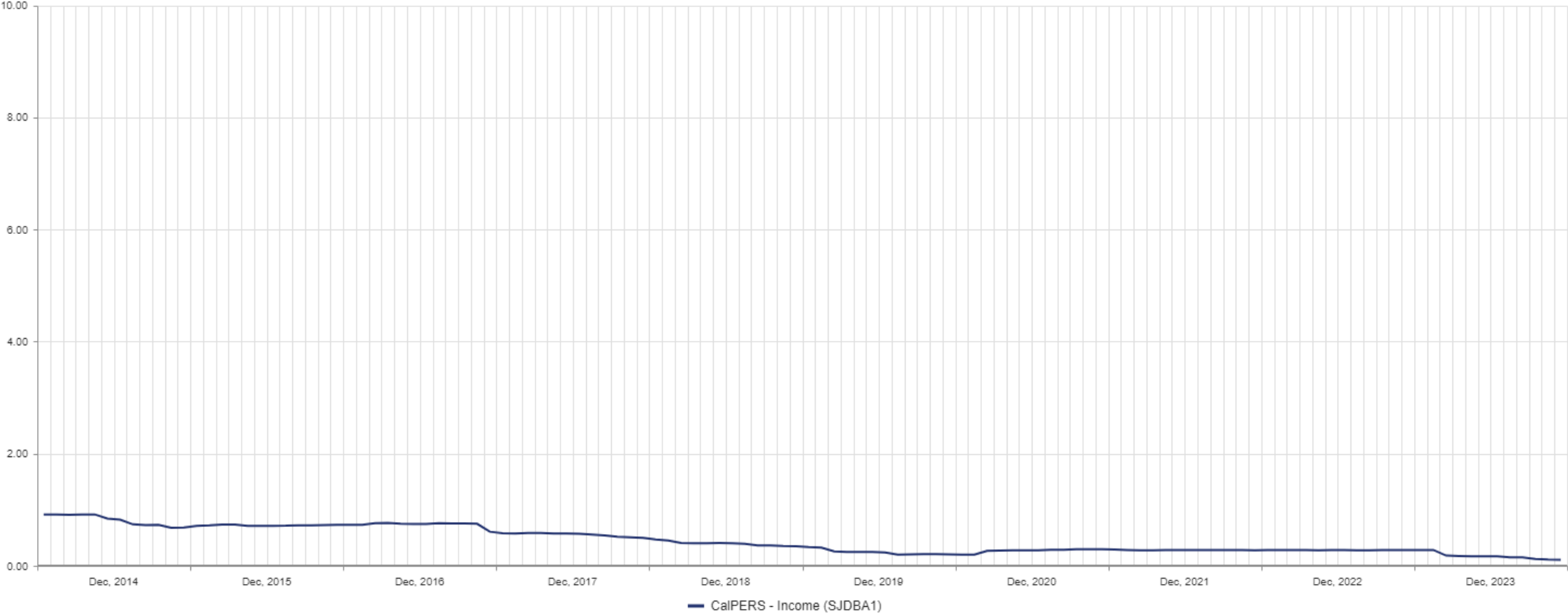
CalPERS - Income (SJDBA1)
36-Month Rolling Geometric Excess Return: December 31, 2013 - December 31, 2023
Benchmark: Income Policy Benchmark



* Monthly data; Net of Investment Management Fees

CalPERS PERF Income – Rolling Tracking Error

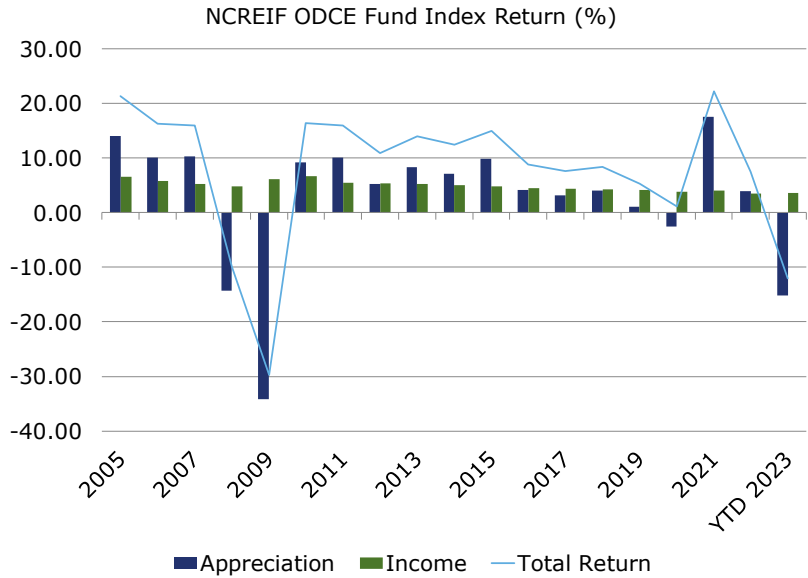
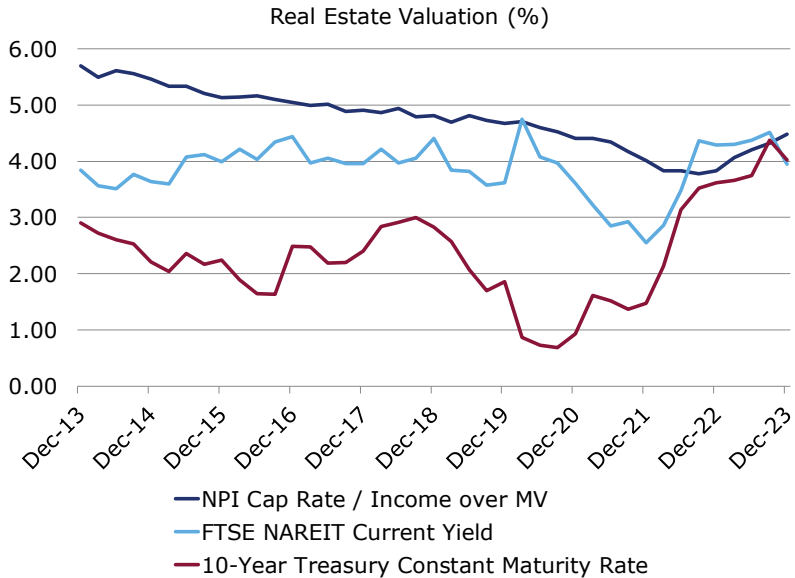
CalPERS - Income (SJDBA1)
36-Month Rolling Geometric Excess Standard Deviation of Return: December 31, 2013 - December 31, 2023
Benchmark: Income Policy Benchmark



* Monthly data; Net of Investment Management Fees

Real Assets

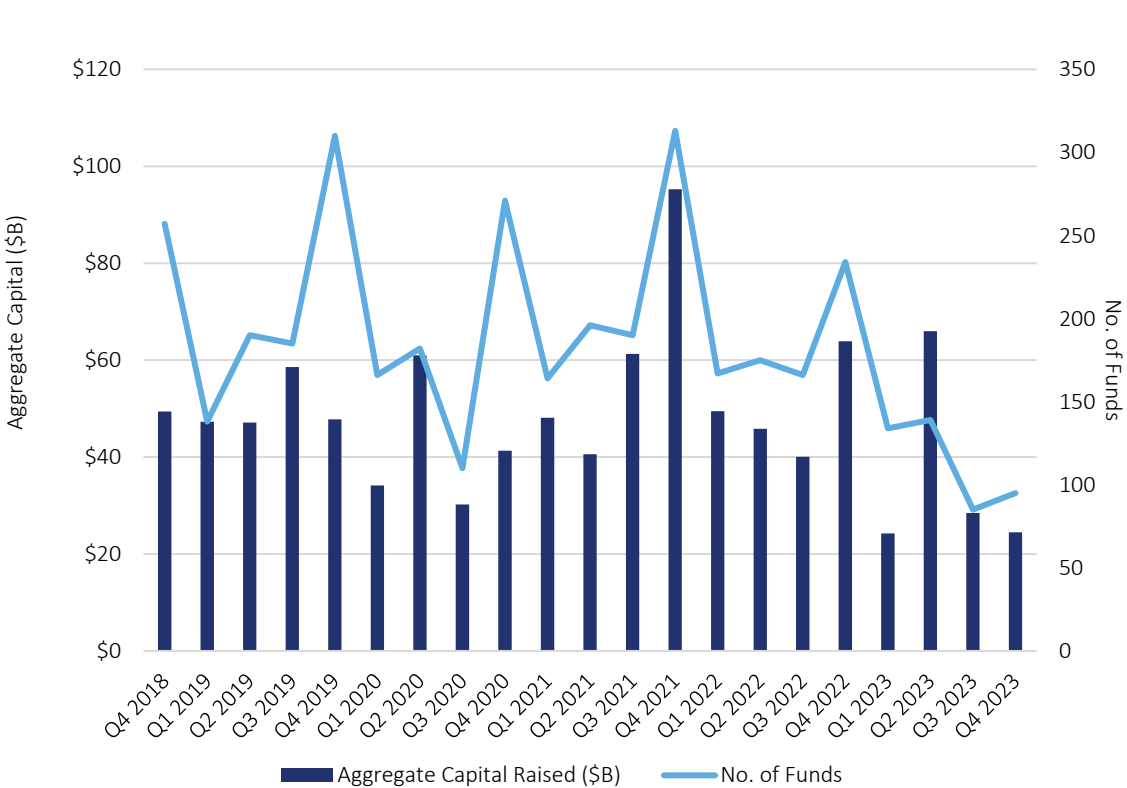
As of 12/31/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg U.S. TIPS	4.7	3.9	3.9	-1.0	3.2	2.4
Bloomberg Commodity Index	4.7	-1.3	-1.3	16.2	6.1	-0.7
Bloomberg Gold Index	11.4	12.8	12.8	2.3	8.9	4.7
Wilshire Global RESI Index	16.3	14.9	14.9	5.0	5.6	5.9
NCREIF ODCE Fund Index	-4.8	-12.0	-12.0	4.9	4.3	7.3
NCREIF Timberland Index	4.3	9.5	9.5	10.5	6.6	5.8
FTSE Global Core Infrastructure 50/50	11.1	3.1	3.1	4.6	6.9	6.8
Alerian Midstream Energy	6.4	14.0	14.0	24.2	12.8	4.2
Bitcoin	57.0	157.0	157.0	13.6	63.2	49.8



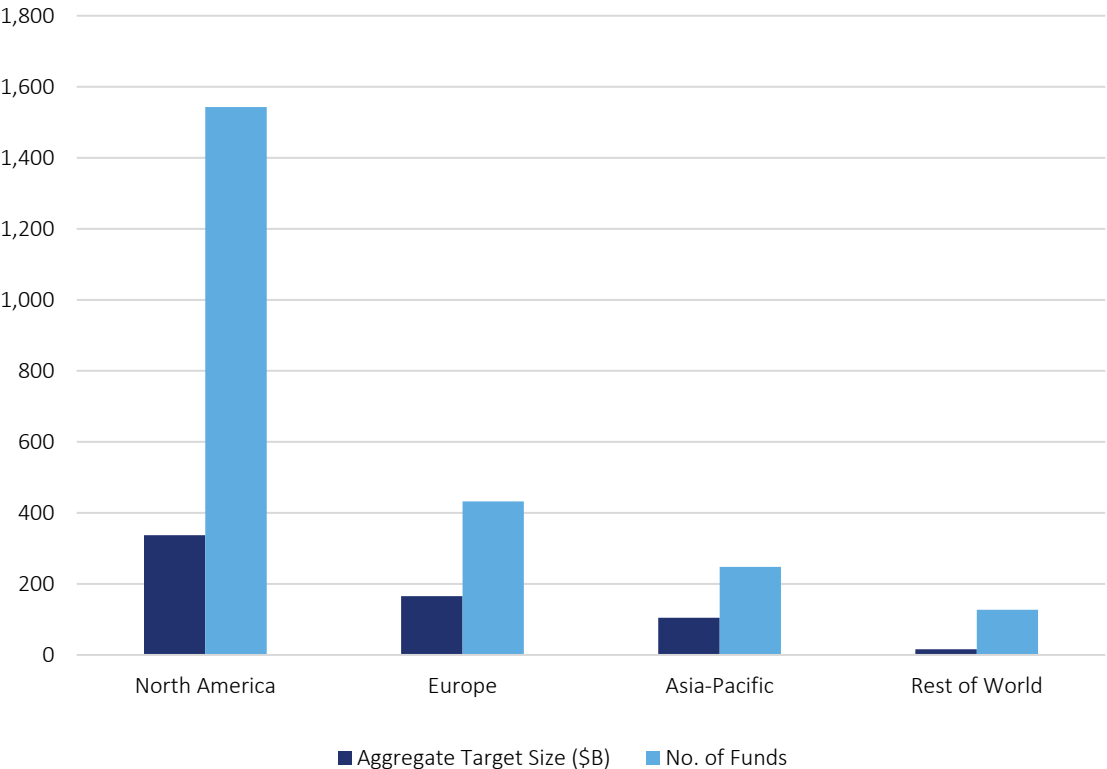
Data Sources: Bloomberg, National Council of Real Estate Investment Fiduciaries

Private Real Assets – Real Estate Fundraising Activity

Global Real Estate Fundraising



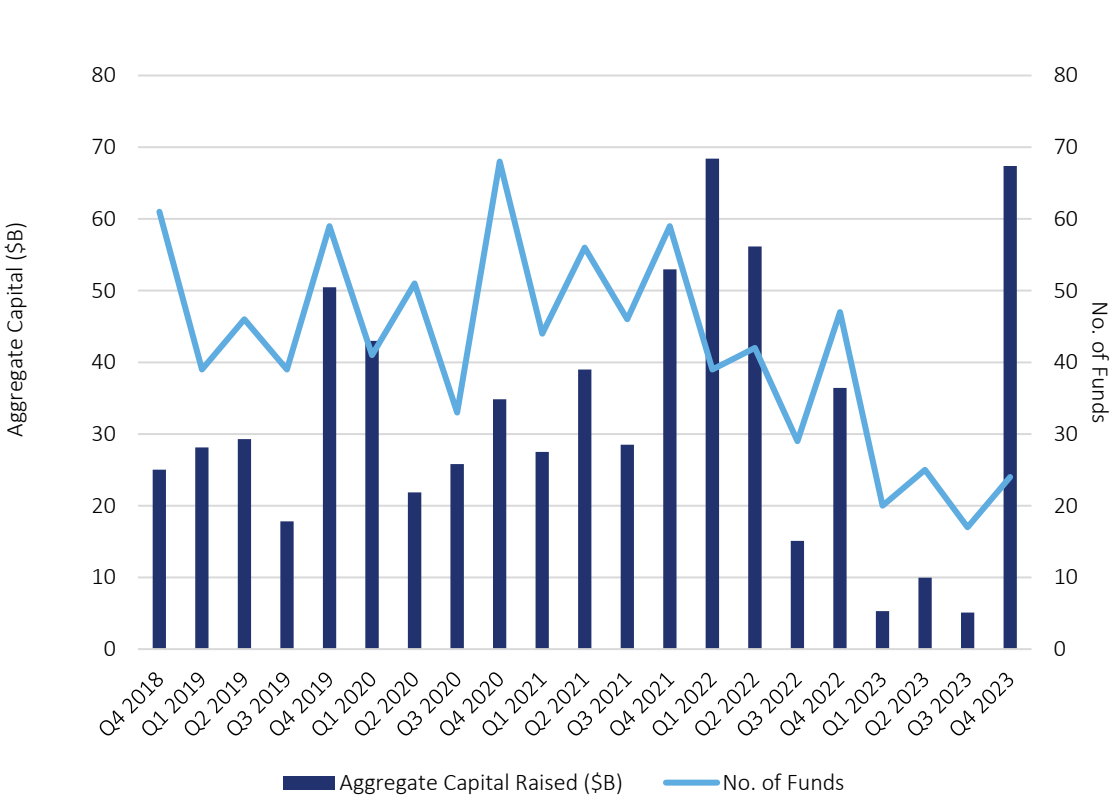
Private Real Estate Funds in Market



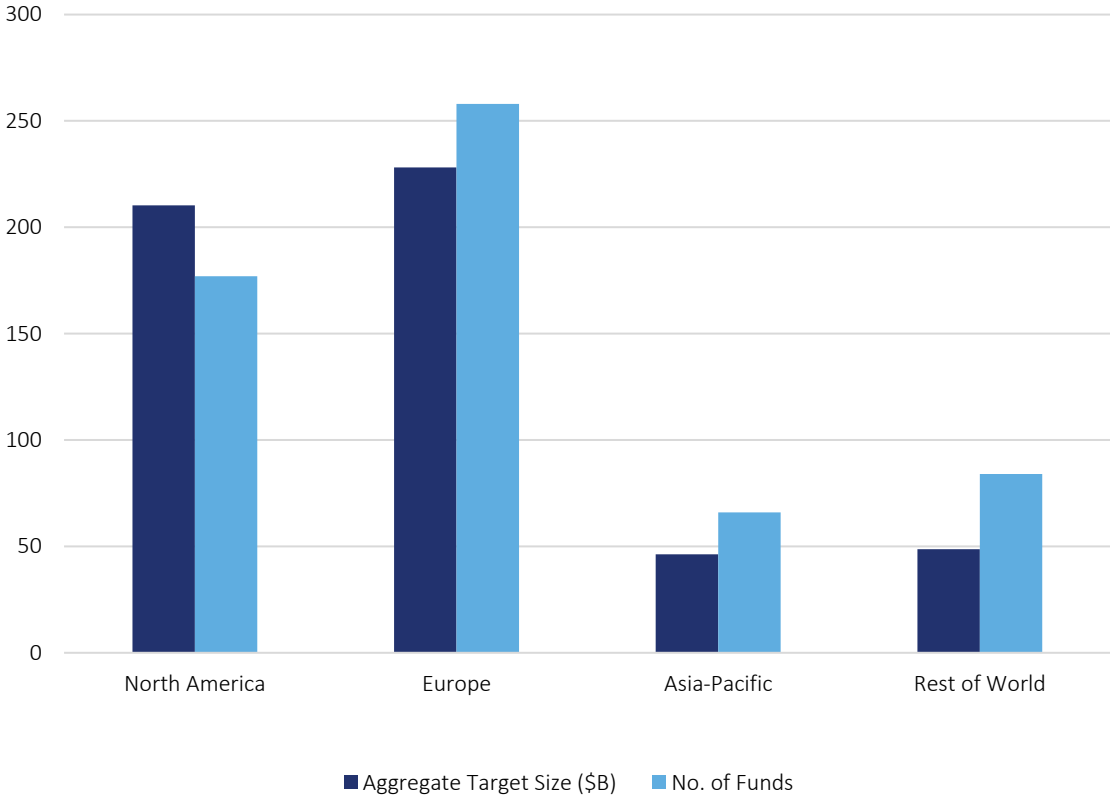
Source: Preqin as of January 26, 2024.

Private Real Assets – Infrastructure Fundraising

Global Infrastructure Fundraising



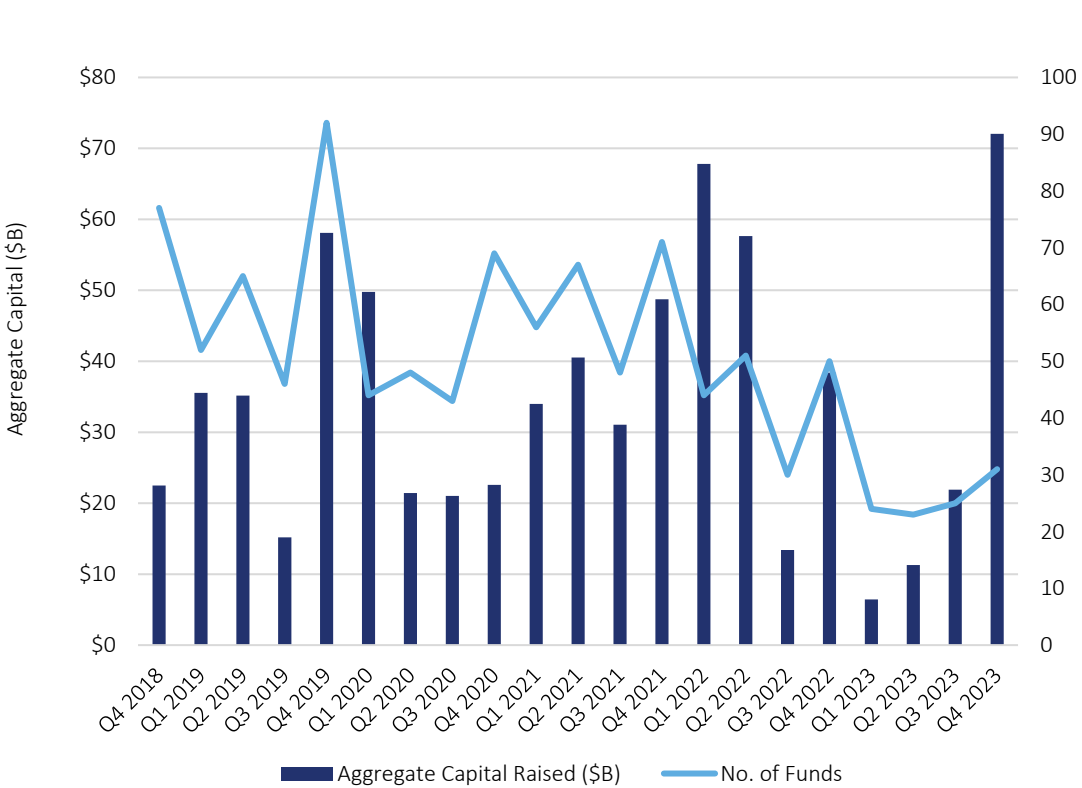
Private Infrastructure Funds in Market



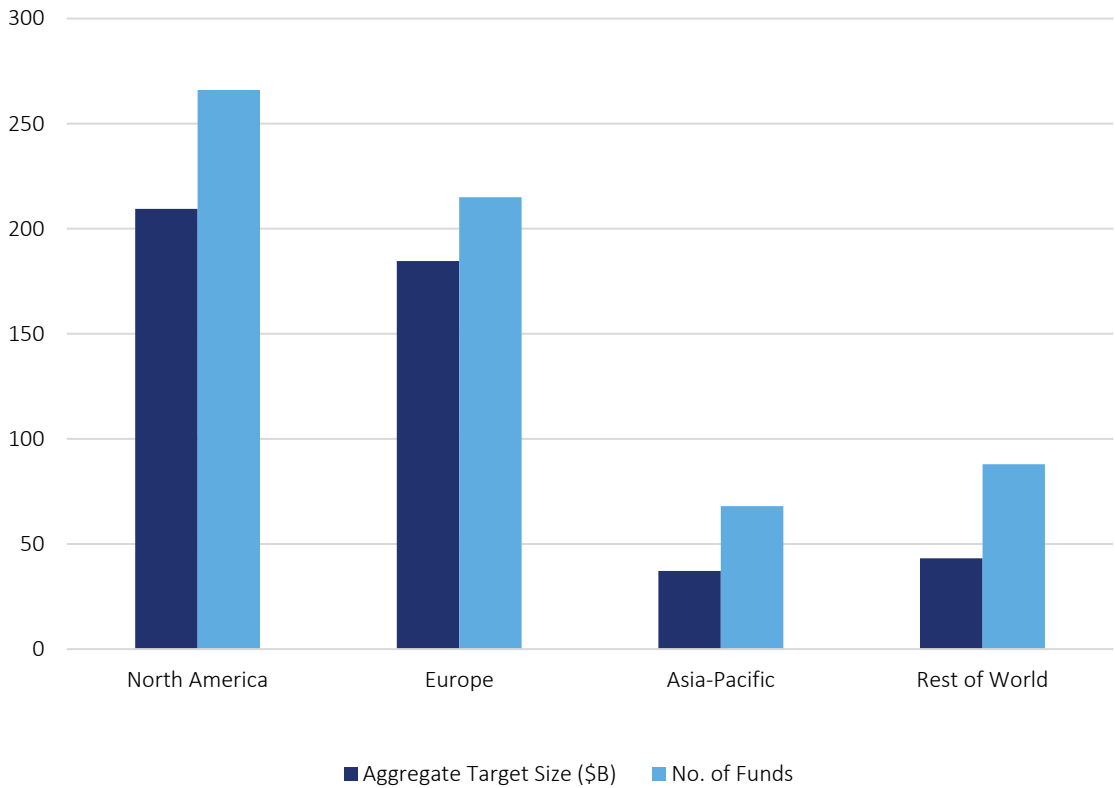
Source: Preqin as of January 26, 2024.

Private Real Assets – Natural Resources Fundraising

Global Natural Resources Fundraising



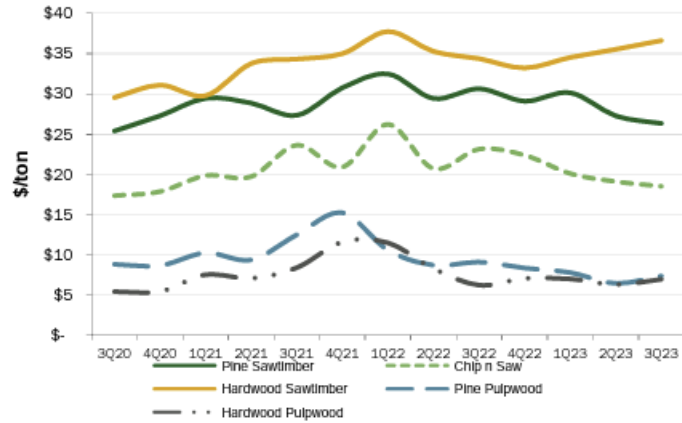
Private Natural Resources Funds in Market



Source: Preqin as of January 26, 2024.

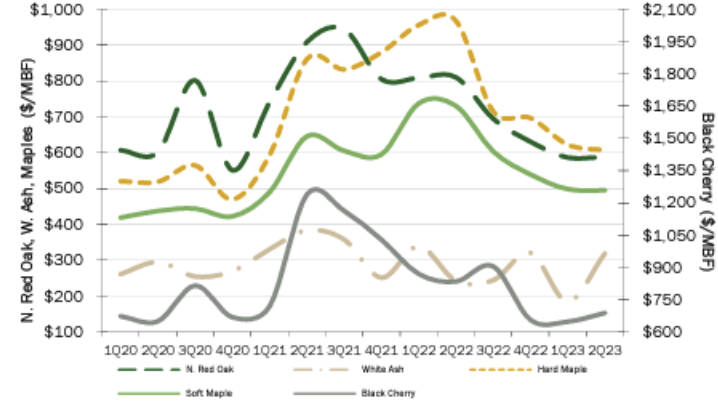
Timber Investments

Southeastern Timber Prices



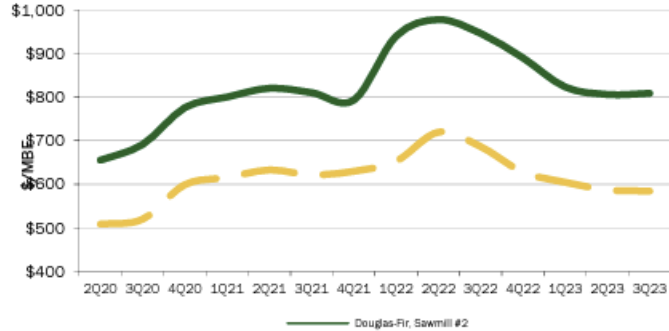
Source: Forest2Market®

Northeastern Hardwood Timber Prices



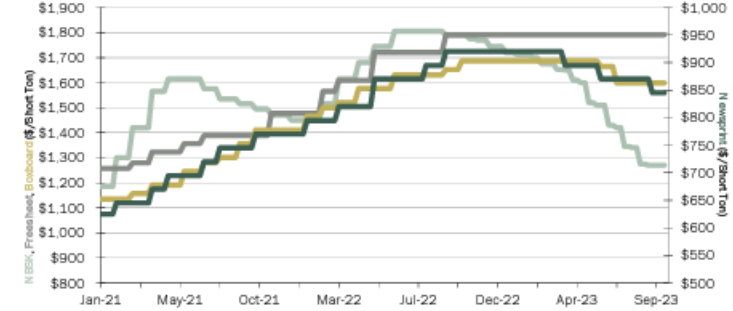
Source: Pennsylvania Woodlands Timber Market Report - Northwest Region

Pacific Northwest Timber Prices



Source: Fastmarkets RISI - Log Lines®

Pulp and Paper



Source: Fastmarkets RISI

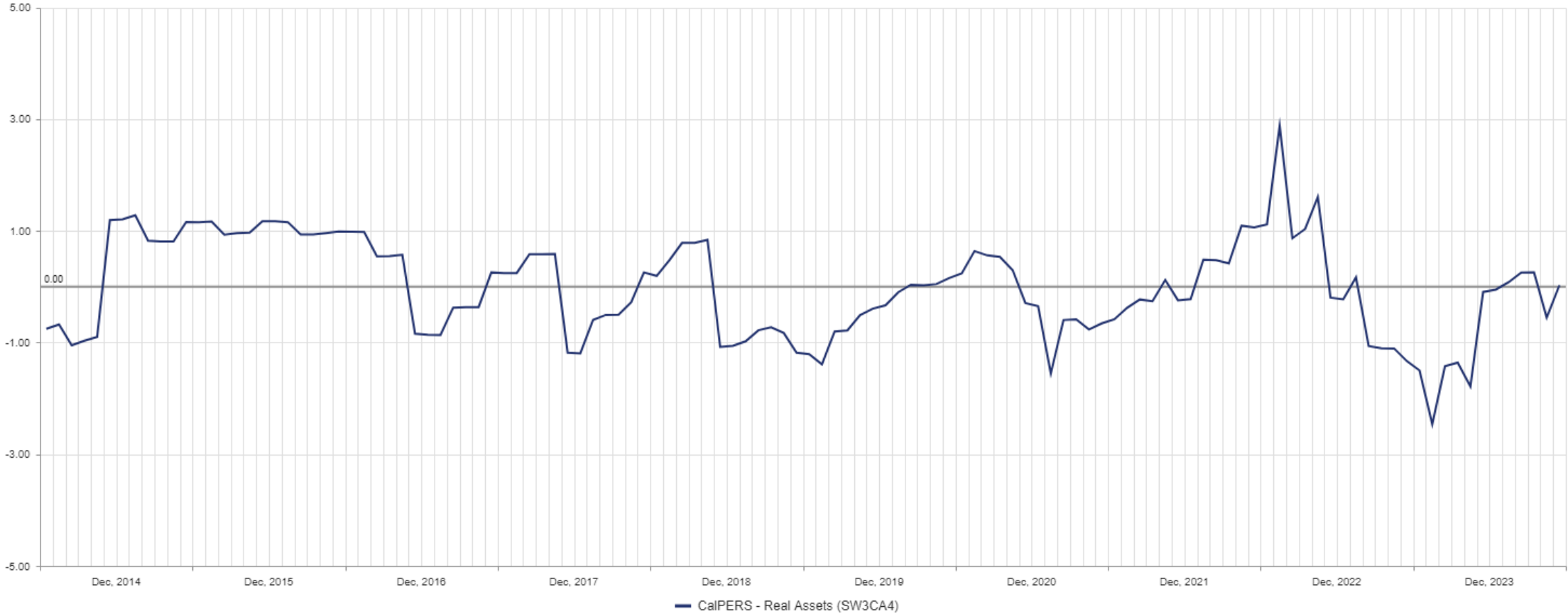
CalPERS PERF Real Assets – Performance

As of December 31, 2023

	Asset Value						VaR	5-Year Ratios	
	(\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	(\$Billion)	Sharpe	Info
REAL ASSETS	\$ 67.8	-2.6%	-9.6%	6.2%	4.9%	6.9%	\$ 9.8	0.7	0.0
<i>Real Assets Policy Benchmark</i>		-2.2%	-12.8%	6.2%	4.7%	6.9%		0.4	0.0
Real Estate	\$ 52.3	-2.9%	-13.1%	5.4%	4.5%	6.9%	\$ 7.5	0.5	0.0
<i>CalPERS Custom Real Estate Benchmark</i>		-2.2%	-12.8%	6.2%	4.7%	7.2%		0.4	0.0
Infrastructure	\$ 15.2	-1.5%	5.2%	9.4%	6.9%	10.6%	\$ 2.2	0.9	0.3
<i>CalPERS Custom Infrastructure Benchmark</i>		-2.2%	-12.8%	6.2%	4.7%	5.2%		0.4	0.0
Forestland	\$ 0.3	1.4%	9.5%	5.8%	4.0%	0.2%	\$ 0.0	0.4	-0.1
<i>CalPERS Custom Forestland Benchmark</i>		-2.2%	-12.8%	6.2%	4.7%	5.5%		0.4	0.0

CalPERS PERF Real Assets – Rolling Excess Return

CalPERS - Real Assets (SW3CA4)
36-Month Rolling Geometric Excess Return: December 31, 2013 - December 31, 2023
Benchmark: Real Assets Policy Benchmark



* Monthly data; Net of Investment Management Fees

CalPERS PERF Real Assets – Rolling Tracking Error

CalPERS - Real Assets (SW3CA4)
36-Month Rolling Geometric Excess Standard Deviation of Return: December 31, 2013 - December 31, 2023
Benchmark: Real Assets Policy Benchmark



* Monthly data; Net of Investment Management Fees

CalPERS PERF Private Debt, Other Trust Level – Performance

As of December 31, 2023

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios		
								Sharpe	Info	
PRIVATE DEBT	\$ 12.2	4.3%	13.3%	-.-%	-.-%	-.-%	\$ 1.0	N/A	N/A	
<i>Private Debt Policy Benchmark</i>		3.4%	15.1%	-.-%	-.-%	-.-%		N/A	N/A	
OTHER TRUST LEVEL										
LLER	\$ 11.9	2.2%	9.1%	3.7%	3.5%	-.-%	\$ (0.0)	0.4	0.4	
<i>LIBOR 1 Month with GBLSE Holiday</i>		1.4%	5.3%	2.4%	2.0%	-.-%		0.2	0.0	
Opportunistic Strategies	\$ 0.2	1.0%	8.8%	6.8%	-.-%	-.-%	\$ 0.0	N/A	N/A	
<i>Custom Opportunistic Strategies Benchmark</i>		1.7%	7.0%	7.0%	-.-%	-.-%		N/A	N/A	
Total Fund Income	\$ 2.6	2.0%	4.2%	-9.3%	-.-%	-.-%	\$ 0.4	N/A	N/A	
<i>Custom Total Fund Income Benchmark</i>		1.5%	3.9%	-9.3%	-.-%	-.-%		N/A	N/A	
Trust Level Portfolio Management	\$ 1.2	NM	NM	NM	NM	NM		N/A	N/A	
Other Perf	\$ 0.2	NM	NM	NM	NM	NM		N/A	N/A	

CalPERS PERF Total Fund Financing – Performance

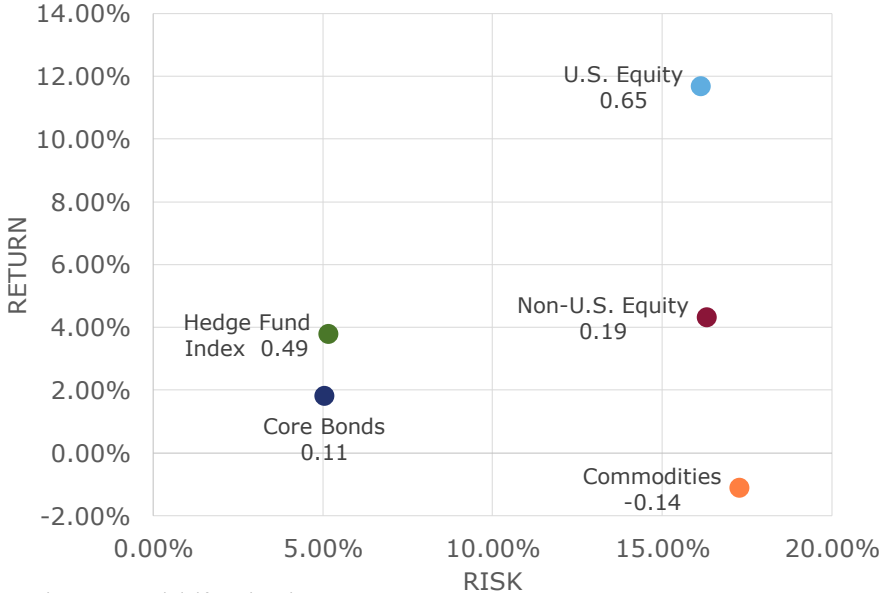
As of December 31, 2023

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
TOTAL FUND FINANCING	\$ (26.0)	--%	--%	--%	--%	--%		N/A	N/A
Strategic	\$ (9.9)	--%	--%	--%	--%	--%		N/A	N/A
Active	\$ (16.1)	--%	--%	--%	--%	--%		N/A	N/A

Hedge Fund Performance

As of 12/31/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Credit Suisse Hedge Fund Index	1.3	5.1	5.1	4.8	6.0	3.8
Event Driven	0.8	6.6	6.6	3.9	5.4	2.6
Global Macro	-0.4	-6.5	-6.5	5.9	6.9	4.3
Long/Short Equity	3.3	10.0	10.0	3.9	6.3	4.5
Multi-Strategy	0.3	8.9	8.9	5.7	6.0	5.0
FT Wilshire 5000	12.1	26.1	26.1	9.0	15.4	11.7
MSCI ACWI ex-US (\$G)	9.8	16.2	16.2	2.0	7.6	4.3
Bloomberg Aggregate	6.8	5.5	5.5	-3.3	1.1	1.8
Bloomberg Commodity Index	-4.6	-7.9	-7.9	10.8	7.2	-1.1

10-Year Risk / Return



Note: Sharpe Ratio is included for each market segment

Data Sources: Bloomberg

Asset Class Performance

Asset Class Returns - Best to Worst						Annualized 5-Year as of 12/23
2018	2019	2020	2021	2022	2023 YTD	
T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	REITs 46.2%	Commodities 16.1%	U.S. Equity 26.1%	U.S. Equity 15.4%
Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Commodities 27.1%	T-Bills 1.3%	Developed 18.9%	Developed 8.7%
U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	U.S. Equity 26.7%	High Yield -11.2%	REITs 16.1%	REITs 7.6%
High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 11.8%	U.S. TIPS -11.8%	High Yield 13.4%	Commodities 6.1%
REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 6.0%	Core Bond -13.0%	Emrg Mrkts 10.3%	High Yield 5.4%
U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	High Yield 5.3%	Developed -14.0%	Core Bond 5.5%	Emrg Mrkts 4.1%
Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	T-Bills 0.0%	U.S. Equity -19.0%	T-Bills 5.1%	U.S. TIPS 3.2%
Developed -13.4%	Commodities 7.7%	Commodities -3.1%	Core Bond -1.5%	Emrg Mrkts -19.7%	U.S. TIPS 3.9%	T-Bills 1.9%
Emrg Mrkts -14.2%	T-Bills 2.3%	REITs -7.9%	Emrg Mrkts -2.2%	REITs -26.8%	Commodities -1.3%	Core Bond 1.1%

Data Sources: Bloomberg Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

Important Information

Wilshire is a global financial services firm providing diverse services to various types of investors and intermediaries. Wilshire's products, services, investment approach and advice may differ between clients and all of Wilshire's products and services may not be available to all clients. For more information regarding Wilshire's services, please see Wilshire's ADV Part 2 available at www.wilshire.com/ADV.

Wilshire believes that the information obtained from third party sources contained herein is reliable, but has not undertaken to verify such information. Wilshire gives no representations or warranties as to the accuracy of such information, and accepts no responsibility or liability (including for indirect, consequential or incidental damages) for any error, omission or inaccuracy in such information and for results obtained from its use.

This material may include estimates, projections, assumptions and other "forward-looking statements." Forward-looking statements represent Wilshire's current beliefs and opinions in respect of potential future events. These statements are not guarantees of future performance and undue reliance should not be placed on them. Such forward-looking statements necessarily involve known and unknown risks and uncertainties, which may cause actual events, performance and financial results to differ materially from any projections. Forward-looking statements speak only as of the date on which they are made and are subject to change without notice. Wilshire undertakes no obligation to update or revise any forward-looking statements.

Wilshire Advisors, LLC (Wilshire) is an investment advisor registered with the SEC. Wilshire® is a registered service mark.

Copyright © 2024 Wilshire. All rights reserved.