CalPERS Investment Office

Trust Level Review

As of December 31, 2023

Contents

Section I. PERF Summary

As of December 31, 2023

Public Employees' Retirement Fund (PERF) Metrics

$483.7bn Assets Under Management	**6.5%** 10-Yr Total Return	**10.3%** 1-Yr Total Return	**$6.9bn** 5-Yr Cumulative Value Added	**$(4.5)bn** 1-Yr Cumulative Value Added
13.6% Forecasted Volatility	**15 bps** Forecasted Actionable Tracking Error	**30.5%** Allocation to Private Assets	**2.0x** Tier 1 Liquidity Coverage	**54%** Allocation to Actively Managed Assets

Report Highlights

Capital Markets

- The Capital Markets Group made substantial efforts to increase active management within their portfolios
- Global Fixed Income transitioned the active management of 90% of the High Yield Segment to external managers
- The 2023 average allocation of 16% to active strategies in Global Public Equity nearly doubled that of 2022, aligning with the objective of an increased allocation to active public equity strategies for value-add

Private Markets

- All private assets have shown positive performance over periods of 5 years or longer, with Private Equity and Infrastructure surpassing 10% returns over the 10-Yr period
- Private Debt was the highest performing private asset segment with a 1-Yr return of 13.3%
- Private Equity currently surpasses the 13% allocation target set in the 2021 SAA, due to a blend of better-than-anticipated relative returns and accelerated success in scaling the lower-cost deployment strategy

Total Fund

- PERF allocation continued to shift in 2023 in line with strategic asset allocation and private market deployment goals:
    - Public equity weight decreased 3.1%
    - Private Equity weight increased 2.7%
    - Emerging Sovereign Bonds increased 1.9%
    - Strategic leverage increased to 2%
- Actionable tracking error increased to 15bps from 10bps in prior year due to deliberate increases in active share in public markets
- Total risk as measured by volatility stayed stable through these shifts at around 13.6%

Investment Operations

- The Sustainable Investments 2030 strategy launched in November 2023 to drive our path to net zero by 2050, move beyond engagement, and promote greater inclusion and representation in the financial industry and the global economy
- The Investment Office team launched five strategic initiatives spawning 18 workstreams and 12 completed deliverables:
    - People/Culture
    - Pension Resiliency
    - Operational Excellence
    - Stakeholder Engagement
    - Sustainable Investments

All performance reported net of investment expenses and annualized for periods greater than 1-Yr.

Section II. Highlights

Our Objectives

Our first and foremost objective is implementing the Board-approved Strategic Asset Allocation (SAA)

The SAA is the single most important Board investment decision, establishing a benchmark asset mix with reasonable probability of achieving the target discount rate over the long term. While one-year returns can fluctuate greatly from the discount rate, over ten-year or longer periods we expect returns to broadly track expectations.

PERF 10-Yr Performance versus Discount Rate

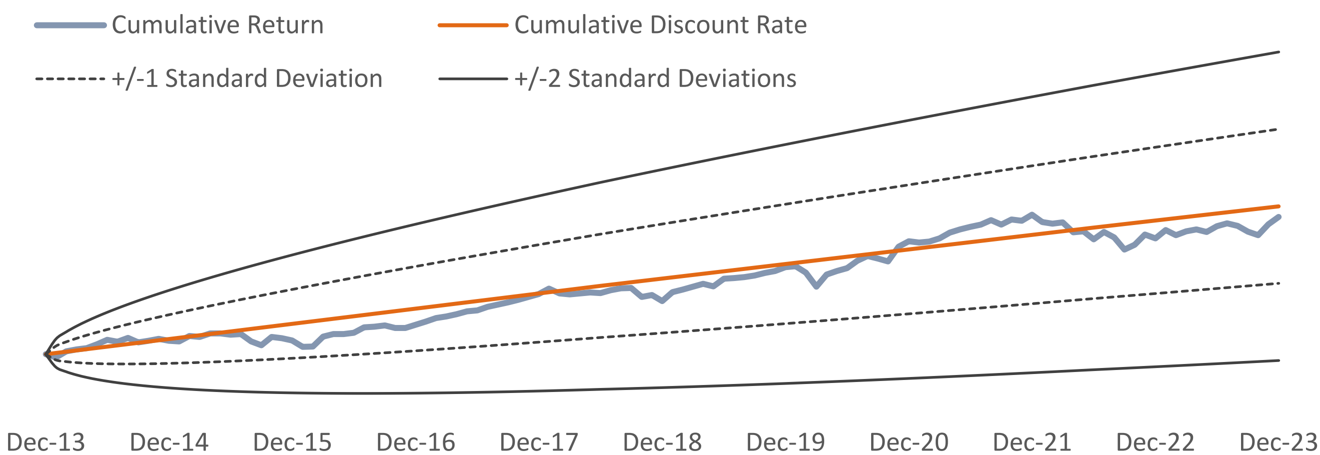


Exhibit 2.1

Our second objective is to implement active strategies that can add value relative to the SAA benchmark, while keeping total portfolio risk relatively stable

As seen below, CalPERS' active strategies contributed approximately $6.9bn over the past five years. We aim to broaden our active programs as we develop new capabilities, with a primary emphasis on augmenting our value add.

Rolling 5-Yr Cumulative Value Added

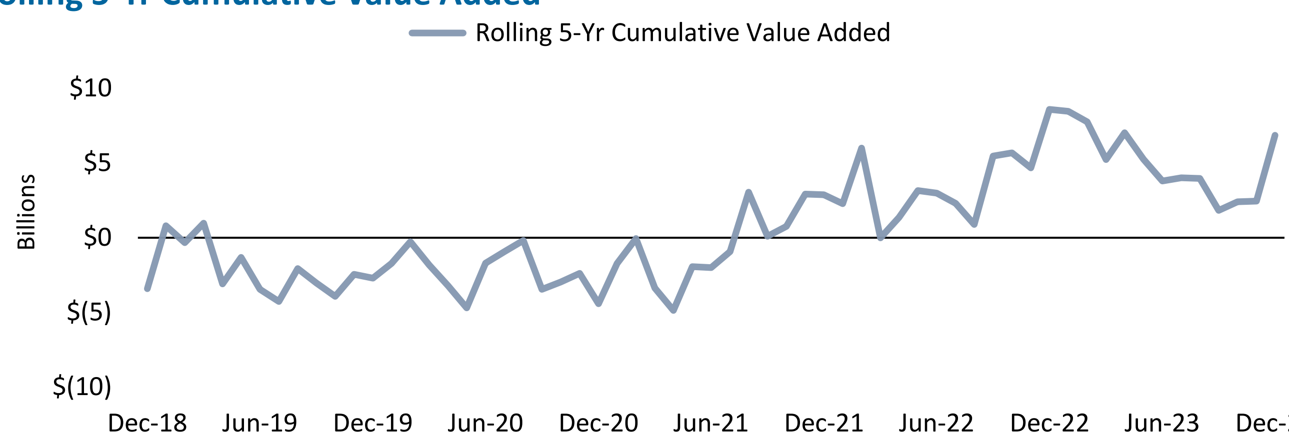


Exhibit 2.2

Section II. Highlights

As of December 31, 2023

Performance by Segment

Strong 2023 performance across most segments except Real Assets

- Public equity, in particular, showed strong returns in 2023 as realized economic outcomes surpassed low expectations at the beginning of the year
- Interest rates saw significant intra-year fluctuation but ended near their starting point, leading to low but positive Treasury returns
- The real asset portfolio deterioration was driven by a combination of factors, including notable write-downs in the office sector and also an environment of higher financing costs
- Over longer horizons approaching 10 years, all segments show positive returns

Segment Total Returns

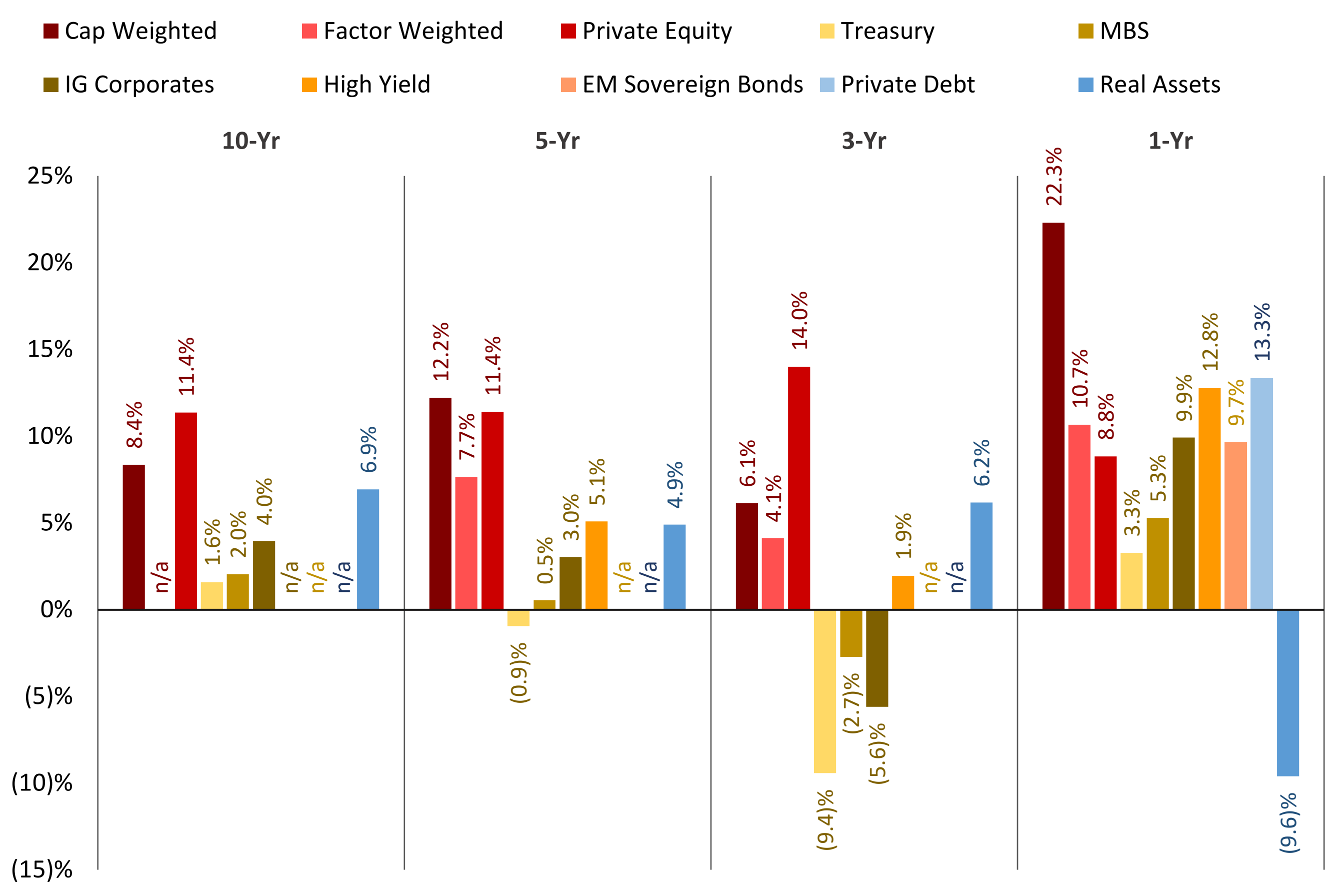


Exhibit 2.3
All performance reported net of investment expenses and annualized for periods greater than 1-Yr.

Section II. Highlights

Risk Highlights

Quantitative Risk Metrics

Total and Active risk metrics have been consistent with expectations

- The total risk of the portfolio, as measured by volatility, was 13.6% at the end of the calendar year vs. 13.7% last year. Total fund tracking error increased to 1.8% from 1.6% last year, due to a higher % weight of private assets
- Actionable tracking error, which quantifies divergence from the policy benchmark primarily in public markets, increased from 10 to 15 bps vs. prior year, in line with an increase in active management in both Income and Equity programs

Risk Drivers

PERF risk is dominated by equities and growth-related assets

- The dominating risk factor in the portfolio is equities, and more broadly growth-oriented factors, which also includes real estate and credit spreads
- The chart below is a "factor decomposition" of PERF risk from the total fund risk model. Factors map somewhat to asset classes but offer a cleaner decomposition across fundamental drivers. Per this model, equity market risk makes up 76% of total volatility, and the other material contributors (privates, spreads, and foreign exchange) also have highly correlated growth biases

Risk Factor Decomposition

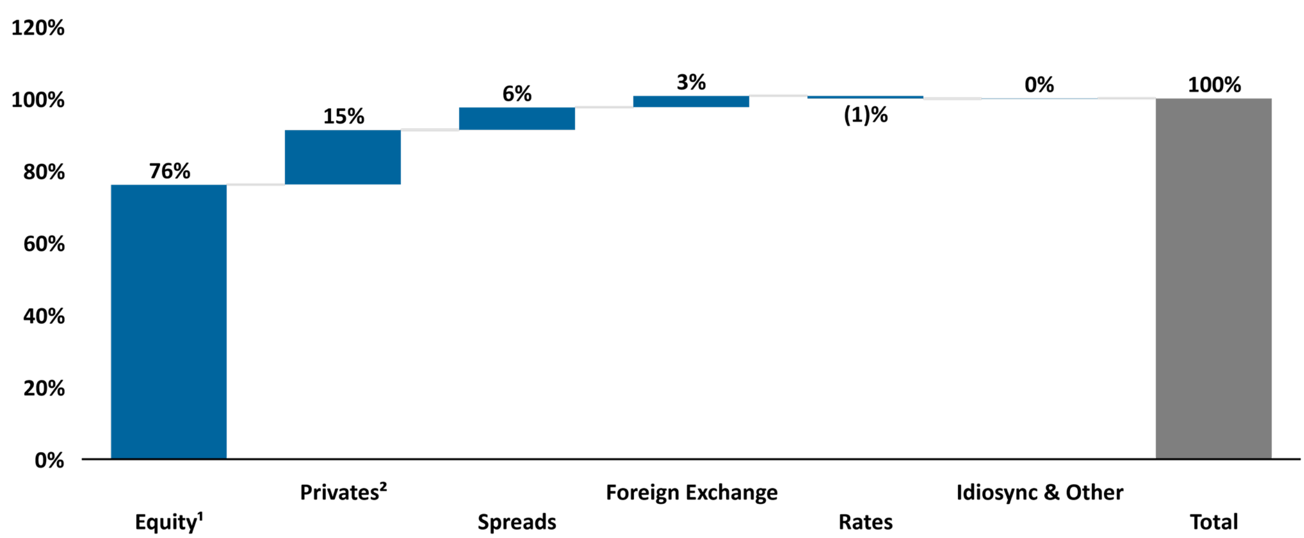


Exhibit 2.4

[1] "Equity" factor includes the portion of private equity risk explained by public equity factors
[2] "Privates" includes incremental risk contribution from private assets that is not explained by common public factors

Section II. Highlights

Risk Highlights (cont.)

Liquidity and Leverage

PERF maintains modest leverage; liquidity coverage remains adequate

- PERF total leverage was 7.1%, of which 2% was strategic leverage, a 1% increase from prior year as we move towards the 5% SAA target. Strategic leverage is a risk-reducing strategy, enabling higher allocations to diversifying, but lower-returning, assets (e.g. Income), while maintaining similar long term return expectations
- Total fund active leverage (incremental to the benchmark) was 5.1% and relatively stable compared to 5.3% one year prior. Active leverage is driven by slightly higher-than-benchmark leverage in core Real Estate, and our Low Liquidity Enhanced Return program
- Liquidity Coverage Ratio (LCR) in the 30-day Tier 1 stress scenario was 2.0x at calendar year-end. CalPERS manages its financing and cash holdings to maintain adequate coverage and the ability to dynamically adjust with financial conditions. The conservative process stress-tests the portfolio across a range of scenarios, while optimizing costs and taking advantage of tactical opportunities to provide liquidity when funding markets are inefficiently priced

Diversification

PERF’s size and broad range of assets reduces concentration risk

- The PERF holds over 10,000 individual securities and investments across a broad range of asset classes, limiting concentration to any single issuer. The largest issuers are the US Government, and its housing finance arms
- Non-US assets comprise 32% of the portfolio, primarily in developed markets and closely tracking global equity benchmarks. Non-US exposures in aggregate are expected to offer either diversification or return benefits as compensation for country-specific risk. Currency exposure is partially hedged, with the risk reduction benefits of hedging balanced against offsetting cashflow, operational, and timing considerations
- CalPERS’ industry exposures closely track global cap weighted equities. Global weighting helps further diversify industry exposure as different countries can be concentrated in certain sectors

Section III. Performance Tables

As of December 31, 2023

PERF Returns

The overall performance of the PERF was driven by strong performance of Public Equity

- PERF 1-Yr excess of (113) bps driven by Private Equity
- PERF 5-Yr total return was +7.9% driven primarily by Public Equity
- Private Equity was the top performing asset class for the longer periods of 5-Yr, 10-Yr, and 20-Yr
- Over the past 5 years, the PERF has generated +33 bps/yr. of excess performance, or +$6.9bn in value add above benchmark

	End Value (bn)	20-Yr	10-Yr	5-Yr	1-Yr	FYTD	1-Qtr
Total PERF	**$ 483.7**	**6.7%**	**6.5%**	**7.9%**	**10.3%**	**4.4%**	**7.0%**
Benchmark		7.1%	6.4%	7.6%	11.4%	4.0%	6.3%
Excess		(40) bps	5 bps	33 bps	(113) bps	34 bps	73 bps
Cumulative Value Added (bn)		$ (12.3)	$ 3.5	$ 6.9	$ (4.5)	$ 1.7	$ 3.3
Public Equity	**$ 215.0**	**7.6%**	**7.9%**	**11.1%**	**19.1%**	**6.9%**	**10.3%**
Benchmark		7.7%	7.9%	11.0%	19.2%	6.8%	10.4%
Excess		(13) bps	4 bps	11 bps	(10) bps	6 bps	(9) bps
Cumulative Value Added (bn)		$ (0.6)	$ 0.7	$ 1.0	$ (0.2)	$ 0.1	$ (0.2)
Private Equity	**$ 67.9**	**12.3%**	**11.4%**	**11.4%**	**8.8%**	**4.7%**	**2.4%**
Benchmark		12.7%	10.7%	8.3%	22.8%	3.5%	(2.9)%
Excess		(47) bps	66 bps	315 bps	(1,393) bps	114 bps	528 bps
Cumulative Value Added (bn)		$ (5.5)	$ 1.3	$ 3.9	$ (6.8)	$ 0.8	$ 3.6
Income	**$ 130.7**	**4.5%**	**2.8%**	**1.8%**	**8.3%**	**4.6%**	**9.6%**
Benchmark		4.0%	2.4%	1.7%	8.2%	4.6%	9.6%
Excess		56 bps	35 bps	19 bps	5 bps	(1) bps	1 bps
Cumulative Value Added (bn)		$ 5.1	$ 2.5	$ 1.1	$ 0.0	$ (0.0)	$ 0.0
Real Assets	**$ 67.8**	**5.3%**	**6.9%**	**4.9%**	**(9.6)%**	**(4.2)%**	**(2.6)%**
Benchmark		8.0%	6.9%	4.7%	(12.8)%	(4.9)%	(2.2)%
Excess		(271) bps	8 bps	25 bps	319 bps	68 bps	(39) bps
Cumulative Value Added (bn)		$ (13.3)	$ (0.9)	$ (0.6)	$ 2.3	$ 0.4	$ (0.3)
Private Debt	**$ 12.2**	**-**	**-**	**-**	**13.3%**	**8.4%**	**4.3%**
Benchmark		-	-	-	15.1%	7.2%	3.4%
Excess		-	-	-	(180) bps	118 bps	89 bps
Cumulative Value Added (bn)		-	-	-	$ (0.2)	$ 0.1	$ 0.1
Net Financing	**$ (26.0)**	**-**	**-**	**-**	**-**	**-**	**-**
Other Trust Level	**$ 16.1**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit 3.1
All performance reported net of investment expenses and annualized for periods greater than 1-Yr unless noted as cumulative.

Section III. Performance Tables

As of December 31, 2023

PERF Capital Market Returns

Cap Weighted equities emerged as the top-performing public segment

- Cap Weighted was the highest performing Capital Markets segment across all time periods except 1-Qtr with total return exceeding +7% for all periods

	End Value (bn)	20-Yr	10-Yr	5-Yr	1-Yr	FYTD	1-Qtr
Cap Weighted	**$ 156.5**	**7.8%**	**8.4%**	**12.2%**	**22.3%**	**7.7%**	**11.1%**
Benchmark		8.0%	8.3%	12.1%	22.5%	7.6%	11.2%
Excess		(13) bps	4 bps	12 bps	(20) bps	4 bps	(16) bps
Cumulative Value Added (bn)		$ (0.9)	$ 0.4	$ 0.8	$ (0.3)	$ 0.0	$ (0.2)
Factor Weighted	**$ 58.5**	**-**	**-**	**7.7%**	**10.7%**	**4.9%**	**8.4%**
Benchmark		-	-	7.6%	10.5%	4.7%	8.3%
Excess		-	-	4 bps	15 bps	12 bps	9 bps
Cumulative Value Added (bn)		-	-	$ 0.1	$ 0.1	$ 0.1	$ 0.0
Treasury	**$ 25.1**	**-**	**1.6%**	**(0.9)%**	**3.3%**	**0.3%**	**10.6%**
Benchmark		-	1.6%	(0.9)%	3.3%	0.3%	10.6%
Excess		-	(1) bps	(8) bps	0 bps	0 bps	0 bps
Cumulative Value Added (bn)		-	$ (0.2)	$ (0.2)	$ 0.0	$ 0.0	$ 0.0
MBS	**$ 25.0**	**3.6%**	**2.0%**	**0.5%**	**5.3%**	**3.2%**	**7.3%**
Benchmark		3.0%	1.4%	0.4%	5.1%	3.2%	7.3%
Excess		63 bps	61 bps	18 bps	21 bps	0 bps	6 bps
Cumulative Value Added (bn)		$ 1.2	$ 0.7	$ 0.2	$ 0.0	$ 0.0	$ 0.0
IG Corporates	**$ 33.7**	**5.6%**	**4.0%**	**3.0%**	**9.9%**	**5.6%**	**12.4%**
Benchmark		5.0%	3.6%	2.8%	10.3%	5.7%	12.5%
Excess		56 bps	35 bps	24 bps	(42) bps	(14) bps	(10) bps
Cumulative Value Added (bn)		$ 0.3	$ 0.3	$ 0.3	$ (0.1)	$ (0.0)	$ (0.0)
High Yield	**$ 22.0**	**-**	**-**	**5.1%**	**12.8%**	**7.2%**	**7.1%**
Benchmark		-	-	5.0%	12.6%	7.2%	7.1%
Excess		-	-	11 bps	17 bps	(1) bps	(1) bps
Cumulative Value Added (bn)		-	-	$ 0.1	$ 0.0	$ (0.0)	$ (0.0)
EM Sovereign Bonds	**$ 25.0**	**-**	**-**	**-**	**9.7%**	**6.4%**	**9.4%**
Benchmark		-	-	-	9.3%	6.2%	9.3%
Excess		-	-	-	38 bps	19 bps	11 bps
Cumulative Value Added (bn)		-	-	-	$ 0.1	$ 0.0	$ 0.0

Exhibit 3.2
All performance reported net of investment expenses and annualized for periods greater than 1-Yr unless noted as cumulative.

Section III. Performance Tables

As of December 31, 2023

PERF Private Market Returns

All private assets had positive performance for periods 5-Yr and longer

- Note: performance of private assets and their benchmarks are reported with a 1 quarter lag. (12/31/2023 reported performance reflects outcomes through 9/30/2023)
- Private Equity and Private Debt returned a 1-Yr performance of 8.8% and 13.3% respectively
- Private Equity and Infrastructure exceeded 10% for the 10-Yr period

	End Value (bn)	20-Yr	10-Yr	5-Yr	1-Yr	FYTD	1-Qtr
Private Equity	**$ 67.9**	**12.3%**	**11.4%**	**11.4%**	**8.8%**	**4.7%**	**2.4%**
Benchmark		12.7%	10.7%	8.3%	22.8%	3.5%	(2.9)%
Excess		(47) bps	66 bps	315 bps	(1,393) bps	114 bps	528 bps
Cumulative Value Added (bn)		$ (5.5)	$ 1.3	$ 3.9	$ (6.8)	$ 0.8	$ 3.6
Private Debt	**$ 12.2**	**-**	**-**	**-**	**13.3%**	**8.4%**	**4.3%**
Benchmark		-	-	-	15.1%	7.2%	3.4%
Excess		-	-	-	(180) bps	118 bps	89 bps
Cumulative Value Added (bn)		-	-	-	$ (0.2)	$ 0.1	$ 0.1
Infrastructure	**$ 15.2**	**-**	**10.6%**	**6.9%**	**5.2%**	**1.4%**	**(1.5)%**
Benchmark		-	5.2%	4.7%	(12.8)%	(4.9)%	(2.2)%
Excess		-	539 bps	229 bps	1,798 bps	626 bps	66 bps
Cumulative Value Added (bn)		-	$ 2.5	$ 1.4	$ 2.6	$ 0.9	$ 0.1
Real Estate	**$ 52.3**	**4.9%**	**6.9%**	**4.5%**	**(13.1)%**	**(5.7)%**	**(2.9)%**
Benchmark		8.4%	7.2%	4.7%	(12.8)%	(4.9)%	(2.2)%
Excess		(352) bps	(26) bps	(18) bps	(34) bps	(82) bps	(71) bps
Cumulative Value Added (bn)		$ (15.0)	$ (2.5)	$ (1.8)	$ (0.4)	$ (0.5)	$ (0.4)
Forestland	**$ 0.3**	**-**	**0.2%**	**4.0%**	**9.5%**	**0.1%**	**1.4%**
Benchmark		-	5.5%	4.7%	(12.8)%	(4.9)%	(2.2)%
Excess		-	(532) bps	(68) bps	2,233 bps	497 bps	353 bps
Cumulative Value Added (bn)		-	$ (1.0)	$ (0.1)	$ 0.1	$ 0.0	$ 0.0

Exhibit 3.3
All performance reported net of investment expenses and annualized for periods greater than 1-Yr unless noted as cumulative.

Section III. Performance Tables

As of December 31, 2023

Affiliate Investment Program Returns

Affiliate returns were in line with respective asset allocations

- Affiliate funds are largely indexed strategies, with realized returns and volatility in line with the assigned asset allocation and benchmarks
- Positive excess return bias in many of the funds is driven by structural tax advantages of non-US equities vs their respective benchmarks

Defined Benefit, Health, and OPEB Plans	End Value (mm)	20-Yr	10-Yr	5-Yr	1-Yr	FYTD	1-Qtr
Judges' Retirement Fund	**$ 52.9**	**1.6%**	**1.4%**	**2.0%**	**5.4%**	**2.8%**	**1.4%**
Benchmark		1.5%	1.3%	1.9%	5.0%	2.7%	1.4%
Excess		14 bps	15 bps	15 bps	37 bps	12 bps	4 bps
Judges' Retirement System Fund II	**$ 2,489.3**	**6.4%**	**5.8%**	**7.8%**	**14.6%**	**6.5%**	**10.7%**
Benchmark		6.2%	5.6%	7.6%	14.3%	6.4%	10.7%
Excess		14 bps	24 bps	26 bps	35 bps	8 bps	2 bps
Legislators' Retirement System Fund	**$ 95.7**	**5.2%**	**4.0%**	**4.7%**	**8.7%**	**4.3%**	**9.1%**
Benchmark		5.1%	3.9%	4.6%	8.6%	4.4%	9.1%
Excess		11 bps	15 bps	8 bps	9 bps	(10) bps	(8) bps
Health Care Fund	**$ 159.0**	**3.2%**	**1.9%**	**1.1%**	**5.6%**	**3.3%**	**6.7%**
Benchmark		3.1%	1.8%	1.1%	5.5%	3.4%	6.8%
Excess		10 bps	6 bps	(4) bps	6 bps	(11) bps	(13) bps
Long-Term Care Fund	**$ 4,265.8**	**4.6%**	**3.6%**	**4.4%**	**9.2%**	**5.3%**	**9.7%**
Benchmark		4.5%	3.5%	4.4%	9.3%	5.6%	9.7%
Excess		13 bps	7 bps	1 bps	(9) bps	(30) bps	3 bps
CERBT Strategy 1 Fund	**$ 16,763.2**	**-**	**5.9%**	**8.0%**	**14.2%**	**6.4%**	**10.7%**
Benchmark		-	5.6%	7.8%	14.0%	6.3%	10.7%
Excess		-	29 bps	19 bps	28 bps	5 bps	1 bps
CERBT Strategy 2 Fund	**$ 1,942.8**	**-**	**4.9%**	**6.3%**	**11.7%**	**5.4%**	**10.3%**
Benchmark		-	4.6%	6.1%	11.5%	5.4%	10.3%
Excess		-	23 bps	11 bps	21 bps	(2) bps	(2) bps
CERBT Strategy 3 Fund	**$ 789.7**	**-**	**4.1%**	**4.9%**	**9.8%**	**4.7%**	**9.7%**
Benchmark		-	3.9%	4.8%	9.6%	4.7%	9.8%
Excess		-	20 bps	8 bps	17 bps	(3) bps	(3) bps
CEPPT Strategy 1 Fund	**$ 155.9**	**-**	**-**	**-**	**12.0%**	**5.5%**	**9.4%**
Benchmark		-	-	-	11.9%	5.5%	9.5%
Excess		-	-	-	17 bps	(1) bps	(6) bps
CEPPT Strategy 2 Fund	**$ 49.3**	**-**	**-**	**-**	**9.1%**	**4.5%**	**8.2%**
Benchmark		-	-	-	9.0%	4.6%	8.3%
Excess		-	-	-	11 bps	(3) bps	(7) bps

Exhibit 3.4

All performance reported net of investment expenses and annualized for periods greater than 1-Yr.

Section III. Performance Tables

Affiliate Investment Program Returns (cont.)

Returns of Target Date Funds were consistent with their corresponding asset allocations

- Longer dated funds outperformed, in line with more aggressive risk profiles (higher equity allocations)

Supplemental Income Plans (457/SCP Plan)	End Value (mm)	20-Yr	10-Yr	5-Yr	1-Yr	FYTD	1-Qtr
Target Income Fund	**$ 186.0**	**-**	**3.6%**	**5.2%**	**10.5%**	**4.6%**	**7.5%**
Benchmark		-	3.5%	5.1%	10.4%	4.6%	7.6%
Excess		-	11 bps	11 bps	12 bps	(7) bps	(5) bps
Target 2020 Fund	**$ 165.2**	**-**	**4.2%**	**6.7%**	**12.0%**	**4.9%**	**7.9%**
Benchmark		-	4.1%	6.6%	11.9%	4.9%	7.9%
Excess		-	12 bps	14 bps	12 bps	(7) bps	(5) bps
Target 2025 Fund	**$ 227.5**	**-**	**5.0%**	**8.0%**	**14.2%**	**5.4%**	**8.6%**
Benchmark		-	4.9%	7.8%	14.1%	5.5%	8.7%
Excess		-	14 bps	17 bps	12 bps	(7) bps	(4) bps
Target 2030 Fund	**$ 239.0**	**-**	**5.6%**	**9.1%**	**16.0%**	**5.9%**	**9.2%**
Benchmark		-	5.5%	9.0%	15.9%	6.0%	9.2%
Excess		-	11 bps	11 bps	13 bps	(8) bps	(3) bps
Target 2035 Fund	**$ 166.8**	**-**	**6.3%**	**10.3%**	**18.3%**	**6.4%**	**9.8%**
Benchmark		-	6.2%	10.2%	18.1%	6.4%	9.9%
Excess		-	12 bps	15 bps	12 bps	(8) bps	(2) bps
Target 2040 Fund	**$ 157.6**	**-**	**7.0%**	**11.2%**	**20.3%**	**6.9%**	**10.5%**
Benchmark		-	6.8%	11.1%	20.2%	6.9%	10.5%
Excess		-	13 bps	15 bps	12 bps	(8) bps	(1) bps
Target 2045 Fund	**$ 94.7**	**-**	**7.3%**	**11.3%**	**20.8%**	**7.1%**	**10.8%**
Benchmark		-	7.2%	11.2%	20.7%	7.2%	10.8%
Excess		-	13 bps	15 bps	13 bps	(8) bps	(0) bps
Target 2050 Fund	**$ 60.2**	**-**	**7.3%**	**11.3%**	**20.8%**	**7.1%**	**10.8%**
Benchmark		-	7.2%	11.2%	20.7%	7.2%	10.8%
Excess		-	13 bps	15 bps	13 bps	(8) bps	(0) bps
Target 2055 Fund	**$ 23.7**	**-**	**7.3%**	**11.3%**	**20.8%**	**7.1%**	**10.8%**
Benchmark		-	7.2%	11.2%	20.7%	7.2%	10.8%
Excess		-	14 bps	15 bps	13 bps	(8) bps	(0) bps
Target 2060 Fund	**$ 11.4**	**-**	**-**	**11.3%**	**20.8%**	**7.1%**	**10.8%**
Benchmark		-	-	11.2%	20.7%	7.2%	10.8%
Excess		-	-	13 bps	13 bps	(8) bps	(0) bps
Target 2065 Fund[1]	**$ 2.1**	**-**	**-**	**-**	**20.8%**	**7.1%**	**10.8%**
Benchmark		-	-	-	20.7%	7.2%	10.8%
Excess		-	-	-	13 bps	(8) bps	(0) bps

Exhibit 3.5
All performance reported net of investment expenses and annualized for periods greater than 1-Yr.
[1] *FYTD performance is not shown for the Target 2065 Fund, because it incepted Nov 2022.*

Section III. Performance Tables

Affiliate Investment Program Returns (cont.)

Returns of the Core Funds aligned with their benchmarks

- Core Funds closely track their respective benchmarks
- Positive excess returns in ex-US equities (Global All Cap) are driven by structural tax advantages vs its benchmark

Supplemental Income Plans (457/SCP Plan) (cont.)	End Value (mm)	20-Yr	10-Yr	5-Yr	1-Yr	FYTD	1-Qtr
SSgA STIF	**$ 120.0**	**-**	**1.4%**	**2.0%**	**5.4%**	**2.8%**	**1.4%**
Benchmark		-	1.3%	1.9%	5.0%	2.7%	1.4%
Excess		-	17 bps	17 bps	38 bps	12 bps	5 bps
SIP US Short Term Bond Core	**$ 38.3**	**-**	**1.2%**	**1.5%**	**4.7%**	**3.4%**	**2.7%**
Benchmark		-	1.3%	1.5%	4.6%	3.4%	2.7%
Excess		-	(9) bps	(4) bps	4 bps	(2) bps	(1) bps
SIP US Bond Core	**$ 54.1**	**-**	**1.8%**	**1.1%**	**5.6%**	**3.3%**	**6.7%**
Benchmark		-	1.8%	1.1%	5.5%	3.4%	6.8%
Excess		-	3 bps	(0) bps	7 bps	(10) bps	(10) bps
SIP Real Asset Core	**$ 18.0**	**-**	**3.8%**	**8.1%**	**1.0%**	**3.0%**	**3.7%**
Benchmark		-	3.8%	8.1%	1.1%	3.1%	3.7%
Excess		-	(3) bps	6 bps	(4) bps	(11) bps	(7) bps
SIP Russell All Cap Core	**$ 724.2**	**-**	**11.5%**	**15.2%**	**26.0%**	**8.5%**	**12.1%**
Benchmark		-	11.5%	15.2%	26.0%	8.4%	12.1%
Excess		-	3 bps	3 bps	1 bps	4 bps	1 bps
SIP Global All Cap EX-US	**$ 74.7**	**-**	**4.2%**	**7.4%**	**15.9%**	**5.7%**	**9.8%**
Benchmark		-	4.0%	7.2%	15.6%	6.0%	9.8%
Excess		-	23 bps	26 bps	29 bps	(26) bps	(2) bps

Exhibit 3.6
All performance reported net of investment expenses and annualized for periods greater than 1-Yr

Section IV. Markets and Economy

As of December 31, 2023

Asset Returns

Risk assets outperformed on a calendar year basis

Returns over the calendar year were robust, with most asset classes performing well (Fig 4.1). Risk assets moved higher in the first half of CY 2023, driving the calendar year performance. Equity markets, private debt, and credit markets reported a strong calendar year performance. By contrast, real estate returns weakened on a calendar year basis. The following discussion describes the primary drivers of these moves.

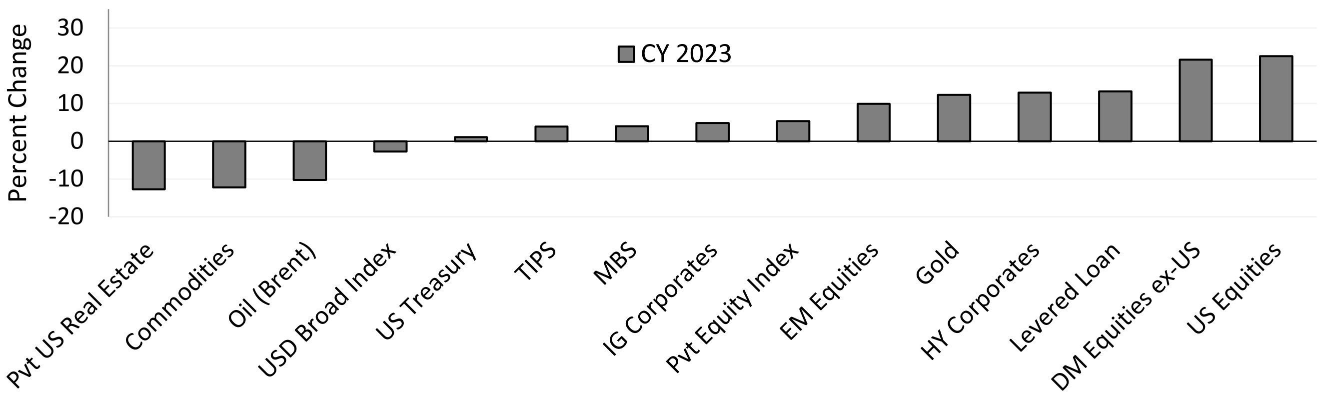


Exhibit 4.1 Sources: FactSet, Haver Analytics, CalPERS calculations. Total return, except gold, oil, commodities, US dollar.

Concerns around an economic slowdown were revised away

Over the calendar year, real economic activity surprised to the upside both in the US and in some countries abroad (e.g. Europe). Throughout 2023, officials and market participants anticipated softening GDP growth for a variety of reasons: the post-pandemic boost dissipating; the Russia/Ukraine conflict impacting food and energy prices; the Q1 banking sector stress in the US raising financial stress; and higher-for-longer interest rates acting as a headwind to activity. Instead, GDP growth expectations were revised higher throughout the year, supporting risk assets. The upward revisions were most notable in the US (Fig 4.2); consequently, companies reported positive earnings surprises. Together with gains in specific tech-related firms, cap-weighted public equity returned 22.3 percent.

FOMC Statement of Economic Projections GDP forecasts, and actual 2023 GDP

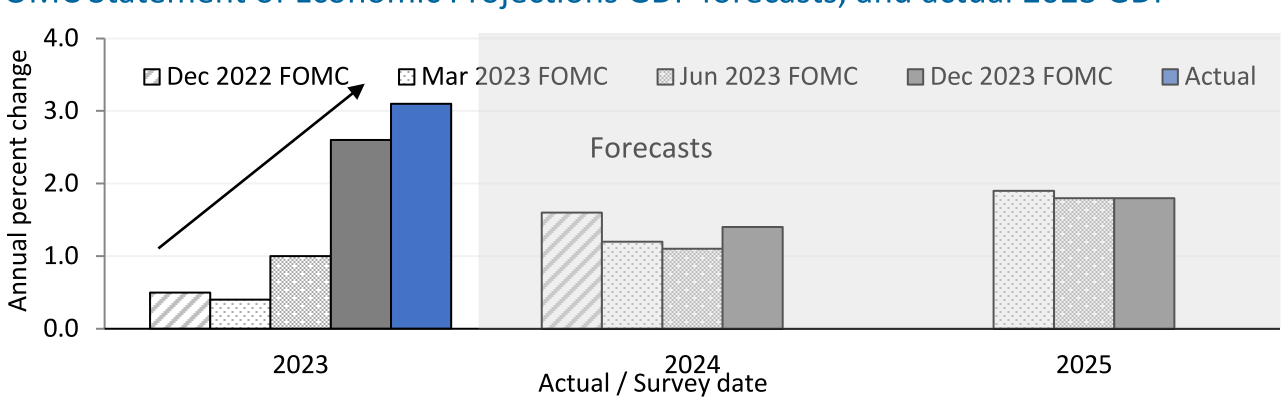


Exhibit 4.2 Sources: Federal Reserve Board, Haver Analytics. Data points are yoy for December years. FOMC is Federal Reserve Board members and Federal Reserve Bank presidents' economic projections.

Section IV. Markets and Economy

Macroeconomic Drivers of 2023 Returns

Policy support key to 2023 macroeconomic outcomes

US and global policymakers set the tone for the real economy and asset outcomes throughout the year. In the case of the US, official policy provided a cushion for firms and households via three channels: liquidity support to financial institutions in the wake of the regional banking crisis; fiscal support via Federal infrastructure investment legislation and State and Local government spending; and the pace of monetary policy tightening slowed compared to 2022. Importantly, monetary policy rhetoric swiveled from solely inflation-fighting to balancing inflation and growth prospects, resulting in modestly loose financial conditions.

Individual factors also drove US economic resilience in 2023. For example, sound household balance sheets, a strong labor market, and disinflation boosted real incomes and private consumption; and a pick-up in private investment underpinned growth in manufacturing construction. Consequently, equity and credit markets performed well. Higher interest rates boosted private debt returns but challenged some segments of real estate.

While economic outturns were better than expected, the outturns remained modest. Europe and the United Kingdom wrestled with low growth and high inflation, China's economy grappled with a contraction in residential property activity, and other emerging market economies encountered a strong US dollar, higher global interest rates, and weaker capital flows. The IMF estimates the global economy grew by 3.1% in 2023, below its historical average of 3.4%.

Continued disinflation progress is expected to slow

Inflation moderated over 2023. US inflation fell from 6.5% in December 2022 to 3.4%, as recorded in January 2024. The resumption of supply-chain linkages following the pandemic re-opening reduced goods inflation pressure, with food and energy prices further detracting from the headline figure in the second half of the calendar year (Fig 4.3).
Moving from current levels to the inflation target of 2% is anticipated to be slow, due to robust domestic demand and sticky services and shelter (housing) inflation. The consensus expectation is for headline inflation to ease back toward 2.5% by the end of 2024.

US Headline Consumers Price Index

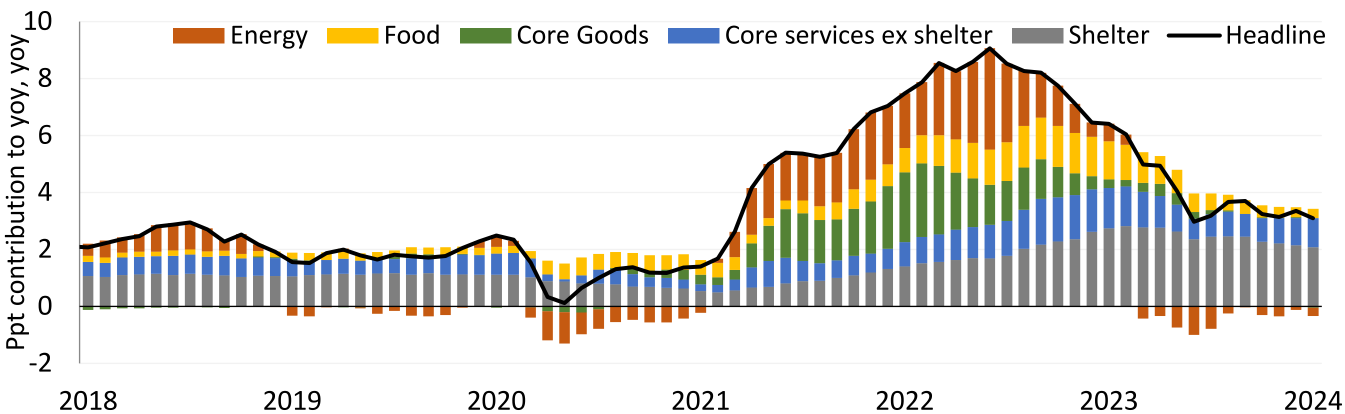


Exhibit 4.3 Source: Haver Analytics. CalPERS' calculations

Section IV. Markets and Economy

Macroeconomic Outlook

The US economic outlook contains upside and downside risks

Over the course of 2023, the global economy exhibited surprising resilience as interest rates normalized at its fastest pace in decades. In addition, China's re-opening supported global growth. Looking ahead, global activity is expected to slow to a slightly-below-trend rate of growth. Risks around the global outlook are broadly balanced.

The US economy is projected to ease back from its 3.1% yoy pace to a below-trend growth rate of 1.0% by the end of 2024, before rebounding to historical averages thereafter. A recession is no longer a consensus view. The risks to the US outlook are evenly balanced.

While US economic growth is receding from a strong end to the year, other developed market economies are growing at a more tepid rate. The outlook for Europe and the UK is soft, in part due to weak foreign demand and higher financing costs; Japan's economy has slowed as consumers reduce spending; and China's economy is challenged by property-related fragilities. When an economy grows slowly, it is vulnerable to negative shocks.

For many large economies, the strength in labor markets over the past three years has supported growth. The continued normalization of labor will have material implications for both growth and inflation going forward. The pace and extent of deviation in these paths compared to expectations are uncertain.

Asset returns over 2024 will be influenced by the degree of policy easing compared to expectations. Emerging economies began policy tightening ahead of its developed counterparts and have started the easing cycle, with more rate cuts expected. Many developed market economies are anticipated to start reducing interest rates this year.

Geopolitics is an ever-present risk for asset markets but turbulence in the geopolitical landscape has increased and fractures are a rising (Fig 4.4). A volatile geopolitical backdrop increases uncertainty for both growth and inflation.

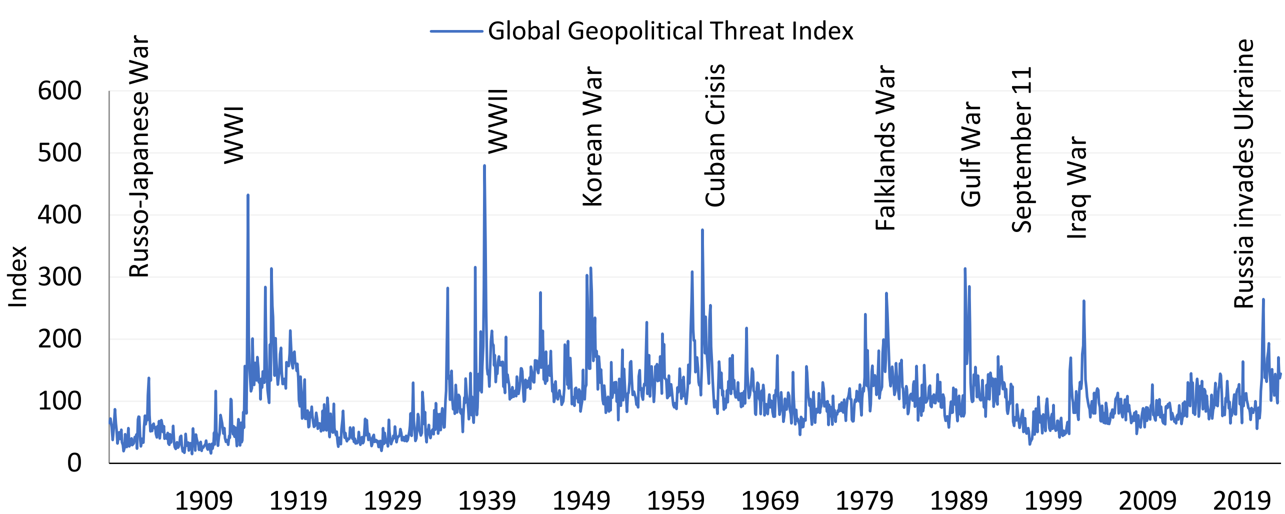


Exhibit 4.4 Source: EPU. Baker, Bloom, and Davis (2016); Caldara, Dario and Iacoviello (2021)

Section V. PERF Allocation

As of December 31, 2023

Strategic Asset Allocation

Current allocation reflects ongoing transition to more private assets and use of leverage to diversify from equities

Portfolio vs. Long-Term Strategic Asset Allocation (SAA)

- Public allocations are in line with SAA weights, adjusted for pacing of private asset and leverage transition
- Private allocations reflect the ongoing build-out of the Private Debt strategy and recent drawdown in Real Estate
- Private equity is currently ahead of the 13% allocation target established in the 2021 SAA, driven by a combination of success in expanding the deployment strategy in a fee-efficient manner, as well as relative outperformance of Private Equity over publics since the prior SAA targets were set

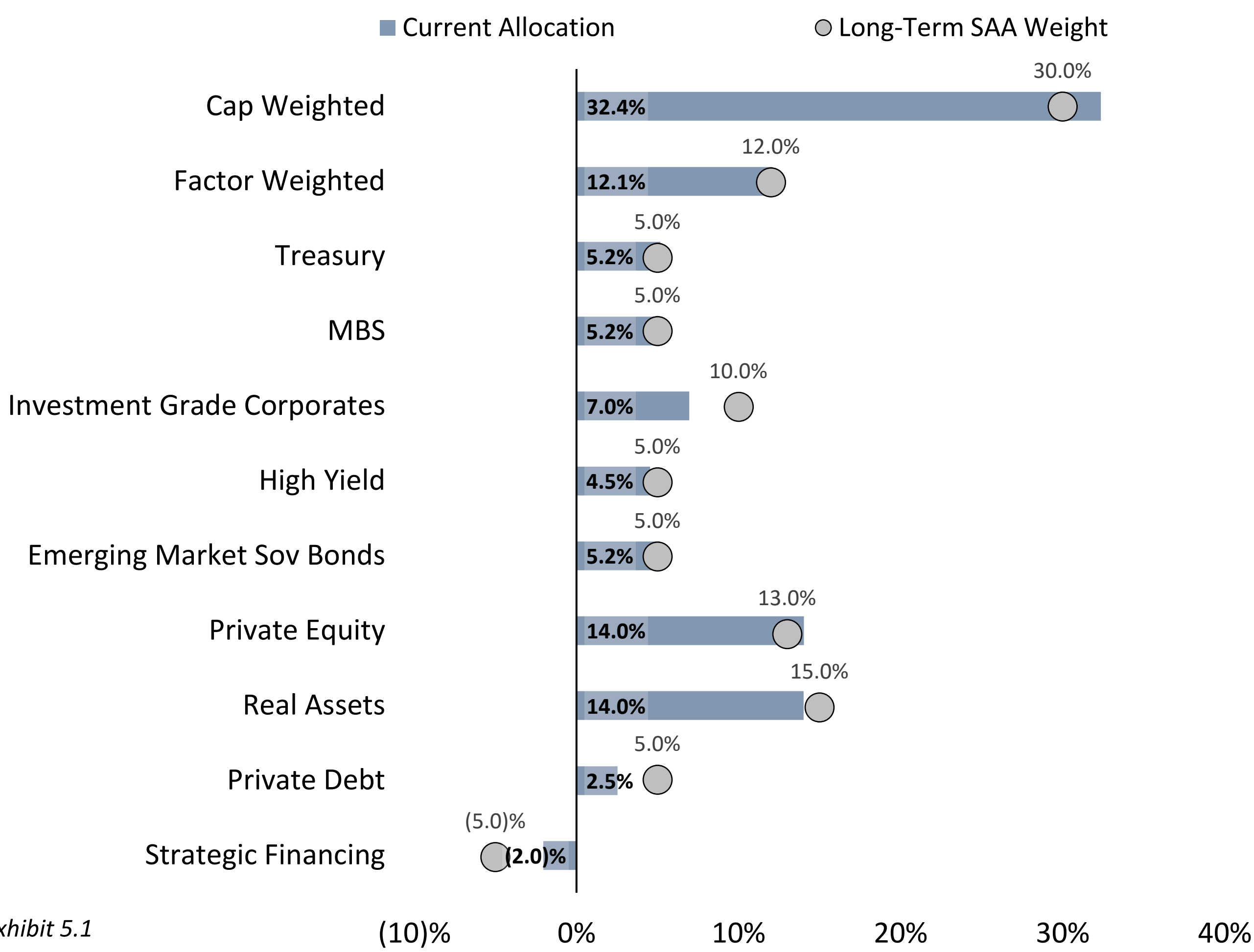


Exhibit 5.1

Section V. PERF Allocation

Strategic Asset Allocation

Changes in allocation during 2023 were propelled by strategic asset allocation transition trading, purposeful deployment into private assets, and market returns

Changes vs. Prior Year

- Early in 2023, PERF completed trading activity markets to implement the new SAA (seen below particularly in the changes in EM Sovereigns, IG Corporates, and leverage)
- In addition, increases in Private Debt and Private Equity reflect deliberate ongoing net flows into these assets
- Market returns drove the remainder of changes. Specifically, within Real Assets, weak returns for the year (9.6%) vs. positive returns in all other assets explain the bulk of the allocation change
- As private allocations change, public asset exposures are systematically adjusted to maintain a consistent overall risk profile for PERF

1-Yr Allocation Change

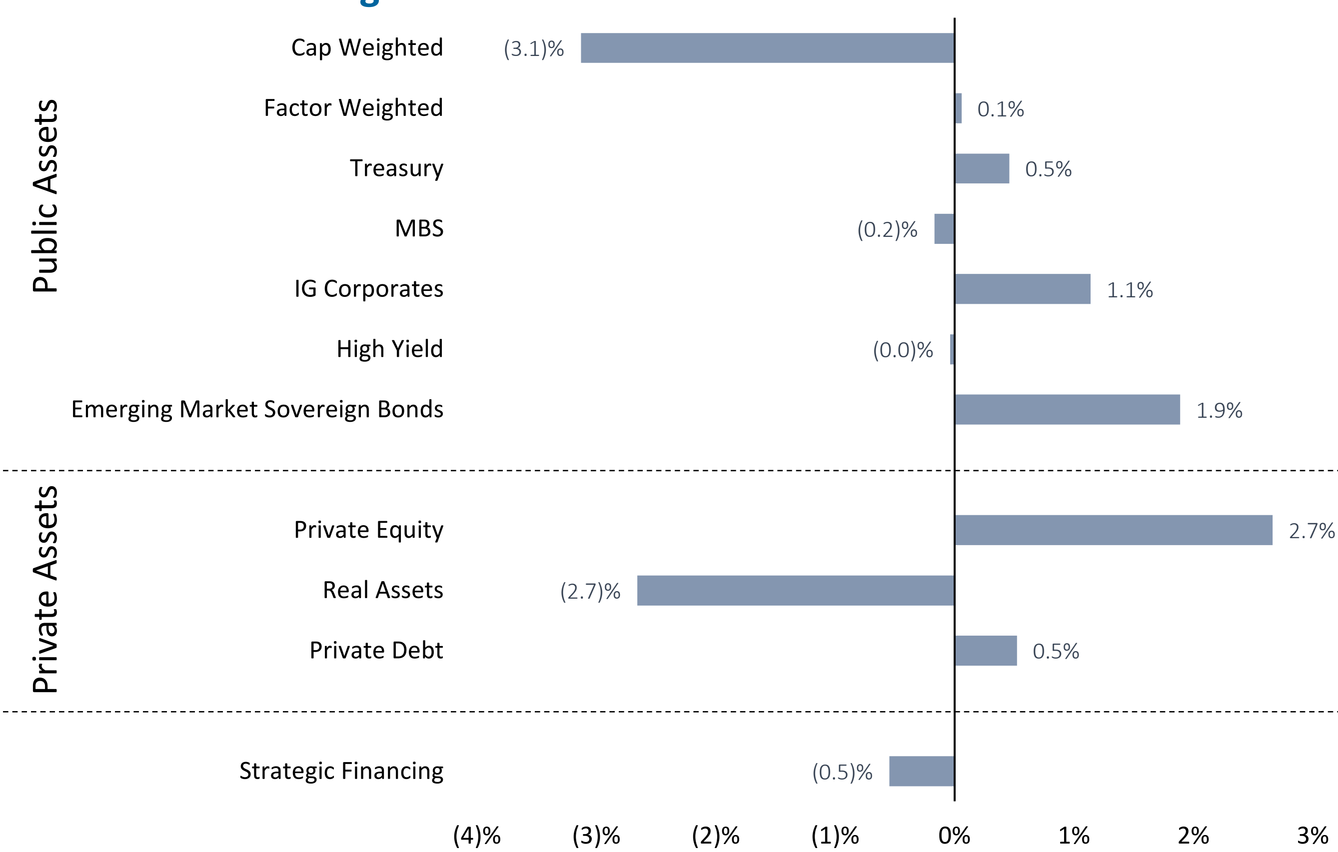


Exhibit 5.2

[1]Private Debt change includes the transfer of Private Debt assets out of Opportunistic Strategies at the beginning of the fiscal year.

Section V. PERF Allocation

Strategic Asset Allocation

Allocation remains within policy bands; private equity expansion is ahead of schedule

Interim Targets and Policy Bands

- The Board's General Pension Consultant, in consultation with the Investment Committee and staff, establishes Interim Allocation Targets to roughly reflect expected pacing towards the long-term SAA
- The charts below show current positioning versus interim targets
- The private equity overweight is due to a combination of higher-than-expected relative returns and faster than expected success in scaling the deployment strategy
- Private allocations cannot be explicitly targeted and are expected to fluctuate significantly due to relative valuation changes and the inherent imprecision of capital contributions and distributions. The policy bands exist in part to allow for a reasonable level of variation over time

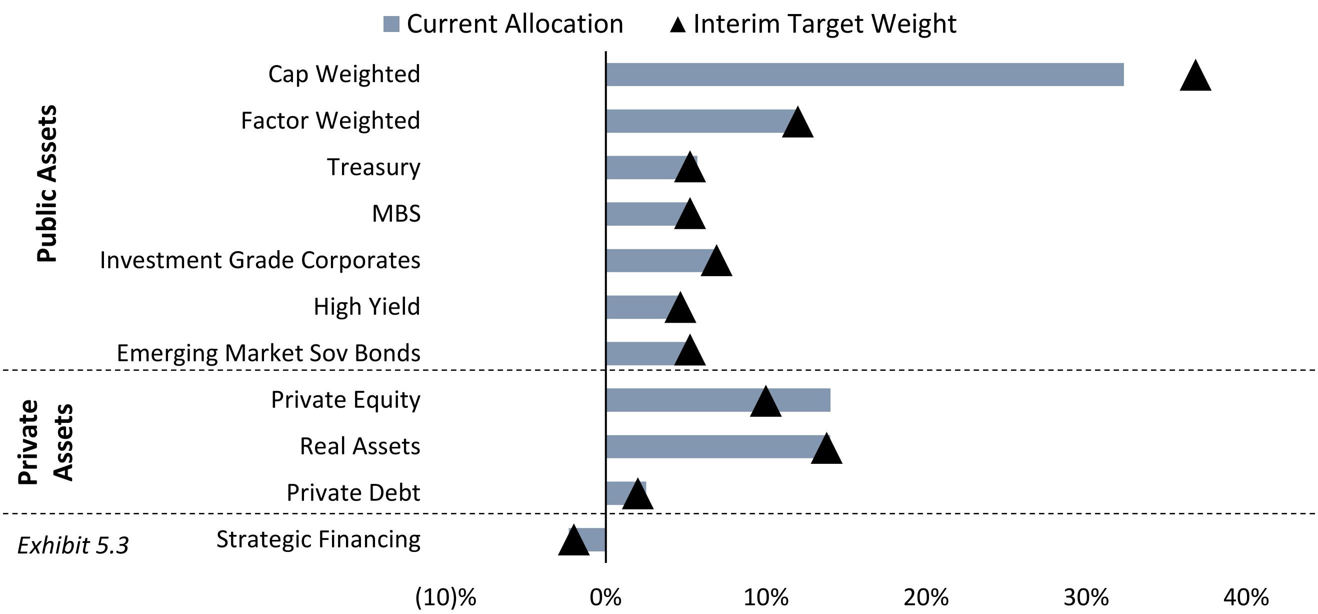


Exhibit 5.3

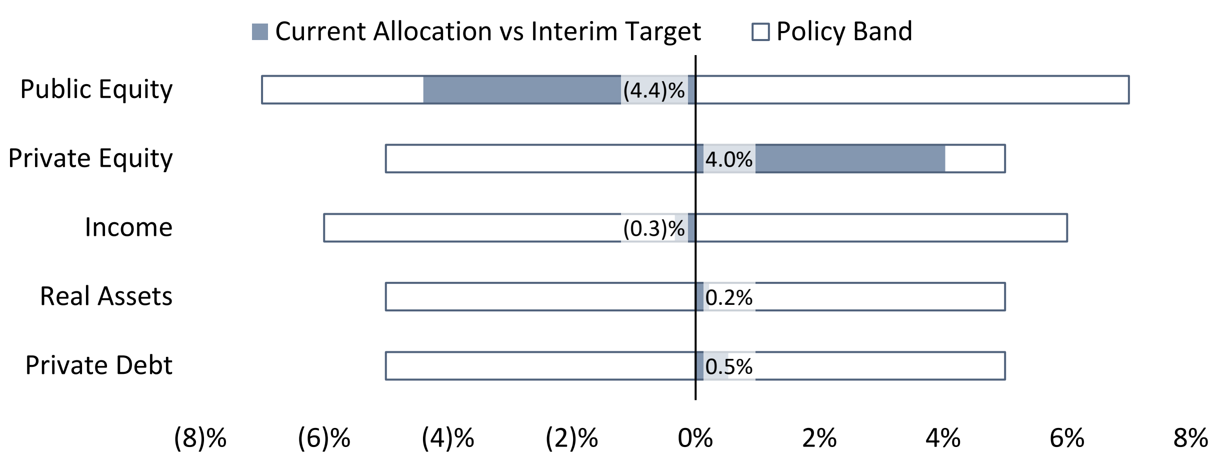


Exhibit 5.4

Section V. PERF Allocation

Private Assets Pacing

CalPERS deployed $30.3bn into private market programs in 2023

- Net capital deployed (i.e., contributions minus distributions) was $16.2bn
- The net total change in private program investments, also factoring in valuation changes, was $15.4bn

Drivers of One Year Change in Net Asset Value

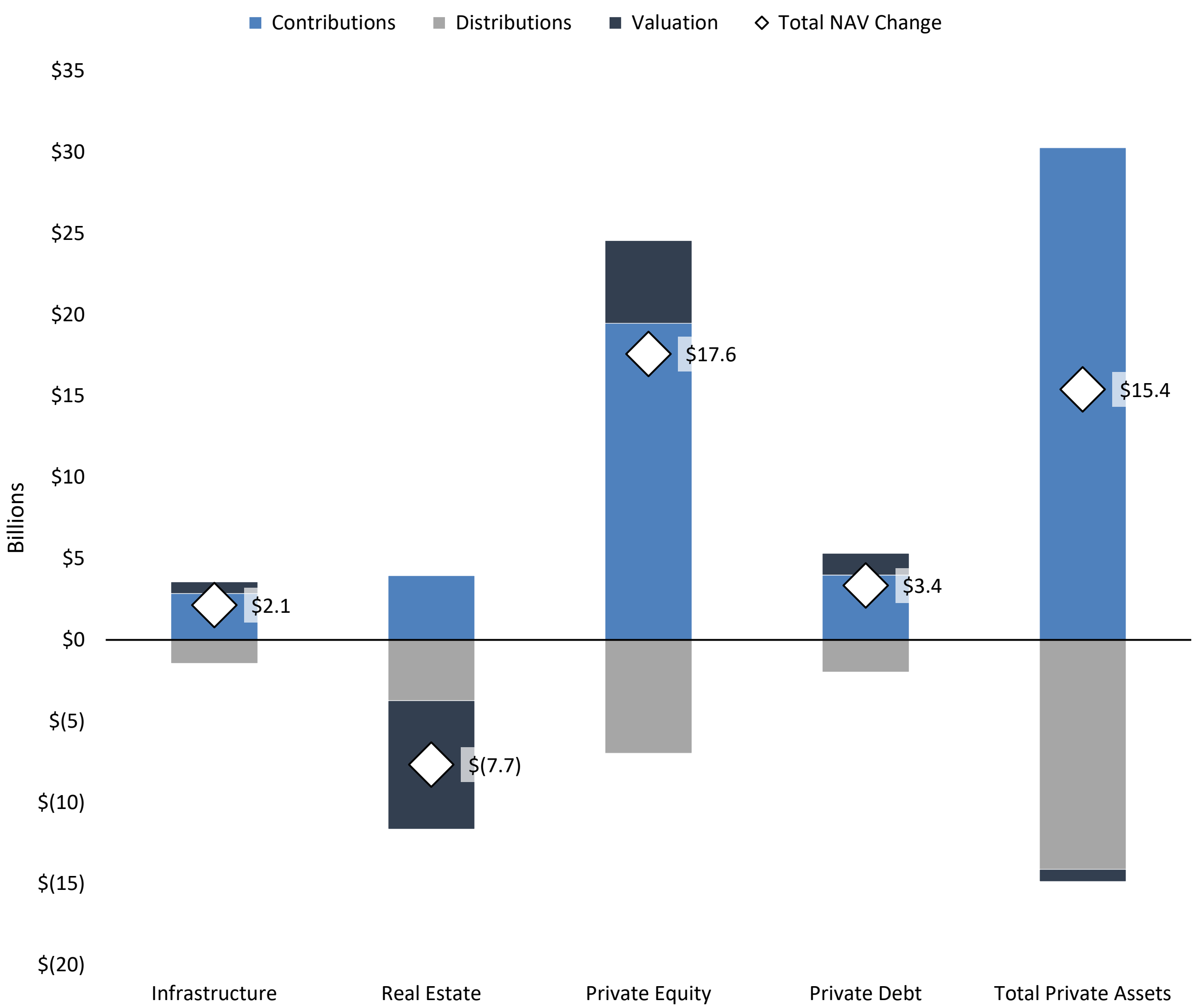


Exhibit 5.5

Section V. PERF Allocation

Private Assets Pacing

Contractual unfunded commitments at $44.8bn

- Total contractual unfunded commitments to private assets at calendar year-end were $44.8bn, an increase of $3.1bn from the fiscal year end value
- Unfunded commitments shown here are primarily due to obligations of PERF as a Limited Partner in externally managed funds. These commitments represent a potential future draw on PERF liquidity which CalPERS has little or no ability to influence
- Liquidity to fund these outstanding commitments is maintained by retaining sufficient capacity in certain public asset classes, which are systematically sold down as commitments are called
- Contractual unfunded commitments are a subset of potential future capital deployments. For some asset classes, e.g. Real Estate, CalPERS deploys capital through annual revocable allocations to separately managed accounts. In others, co-investment capital, where deployment is controlled by CalPERS, can represent a meaningful share of investments

Asset Class	Net Asset Value ($mm)	Contractual Unfunded Commitments ($mm)
Private Equity	67,884	28,929
Real Estate	52,300	303
Infrastructure	15,198	2,298
Private Debt	12,227	13,319
Total Private Asset Classes	147,609	44,850

Exhibit 5.6

Sources: Aladdin, AREIS, PEARS

Section V. PERF Allocation

Internal vs. External Management

External management increased slightly in prior year

- PERF share of assets managed externally increased to 34% from 29% the prior year. This change was related to increased in active management in publics assets (next page) and increased deployment into private assets
- In private assets, the preponderance of external management offers opportunities for cost reduction through greater direct or co-invest share
- Conversely, in public markets, there may be opportunity to make greater use of external partnerships to complement internal skillsets and generate value add in excess of fees

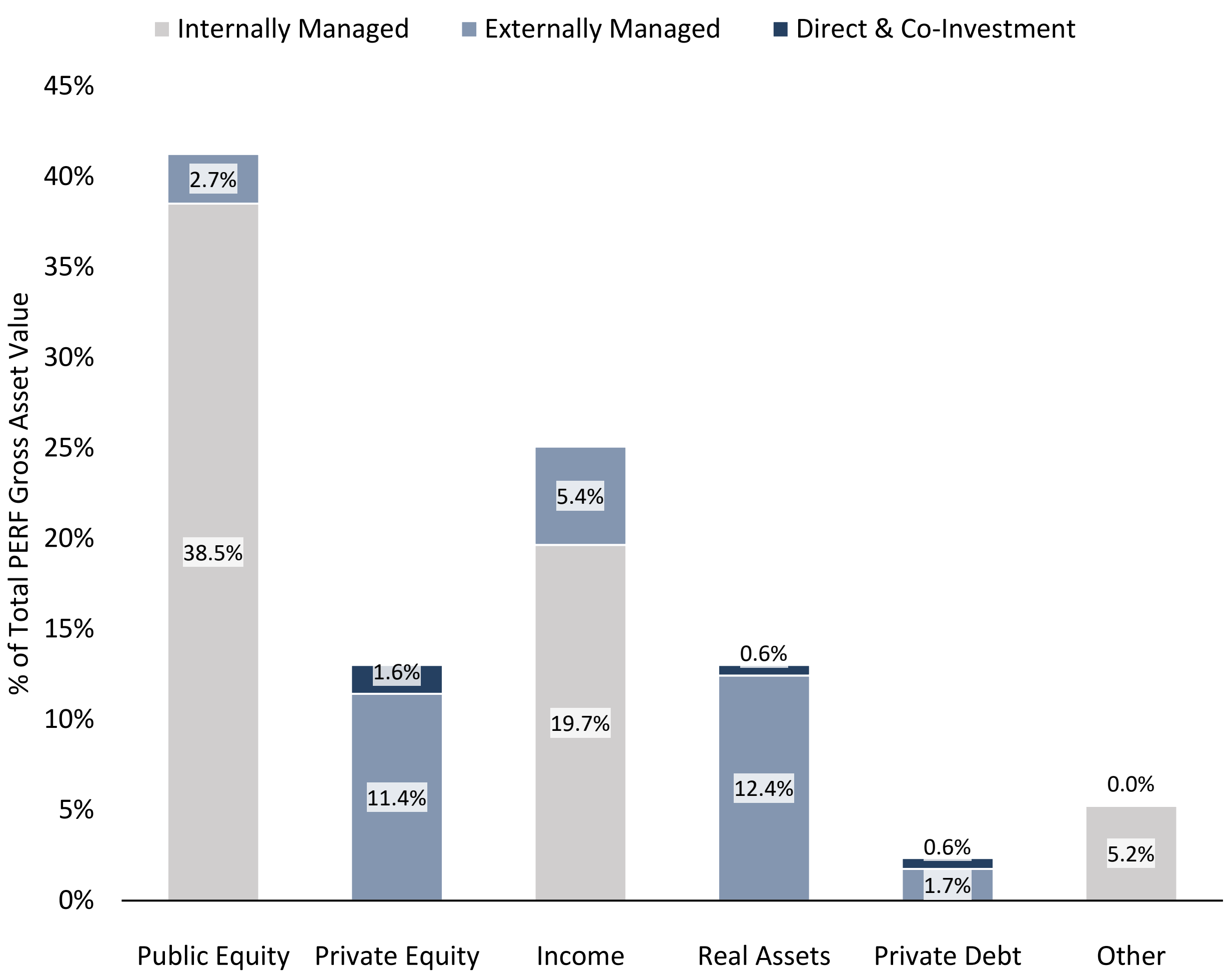


Exhibit 5.7

Section V. PERF Allocation

Active vs. Indexed Management

Active share of PERF assets increased to 54%

- Actively managed assets in PERF increased by 2% from the prior year level of 52%. This change is due to deliberate increases in public market active strategies and increased deployment into Private Equity, offset by decreases in Real Assets AUM due to performance
- Indexed management remains the dominant approach to accessing public equity risk premiums for PERF, in part reflecting the size of the asset class that makes material departures from market weighting difficult or expensive
- Indexed strategies do not imply “passive” investing. The Factor Weighted segment is a deliberate departure from cap weighting that is managed in an indexed fashion. Within the Cap Weighted segment, indexing offers opportunities to optimize the trade off between costs and tracking error
- CalPERS’ corporate governance activities are enabled regardless of management style

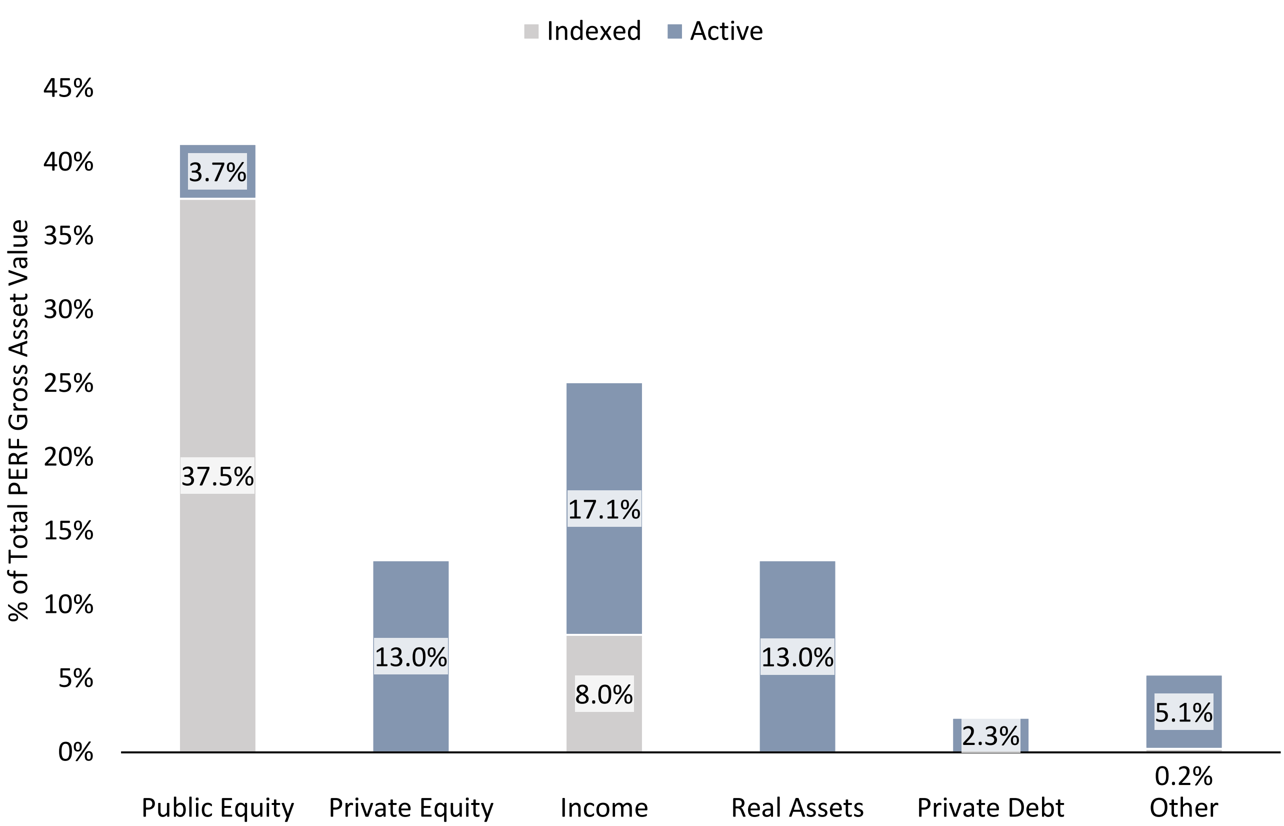


Exhibit 5.8

Section VI. PERF Performance Detail

As of December 31, 2023

Realized Outcomes vs Expectations

Despite volatility, returns are within long-term expectations

- The PERF Strategic Asset Allocation (SAA) has long term expected annualized return of 6.8%, with a volatility of roughly 12% (based on Capital market assumptions approved in 2021)
- An annualized volatility of around 12%, means 7 out of 10 years the PERF is expected to generate a return between (5.2)% and 18.8%. The other 3 years the PERF is expected to generate a return below (5.2)% or above 18.8%
- This range of outcomes accounts for uncertainty in markets over short time periods and assumes returns will average out over time
- This volatility is reflected in actual PERF returns. Over shorter 1-Yr periods, we see returns ranging from (31.1)% to 29.6% while long-term returns (10-Yr) remain relatively stable in the range of 4.3% to 9.7%
- Outcomes for the first 12-months of the current ALM cycle (July 2022 to June 2023) are within the range of expectations

Rolling 10-Yr Annualized Total Return vs Rolling 1-Yr Total Return

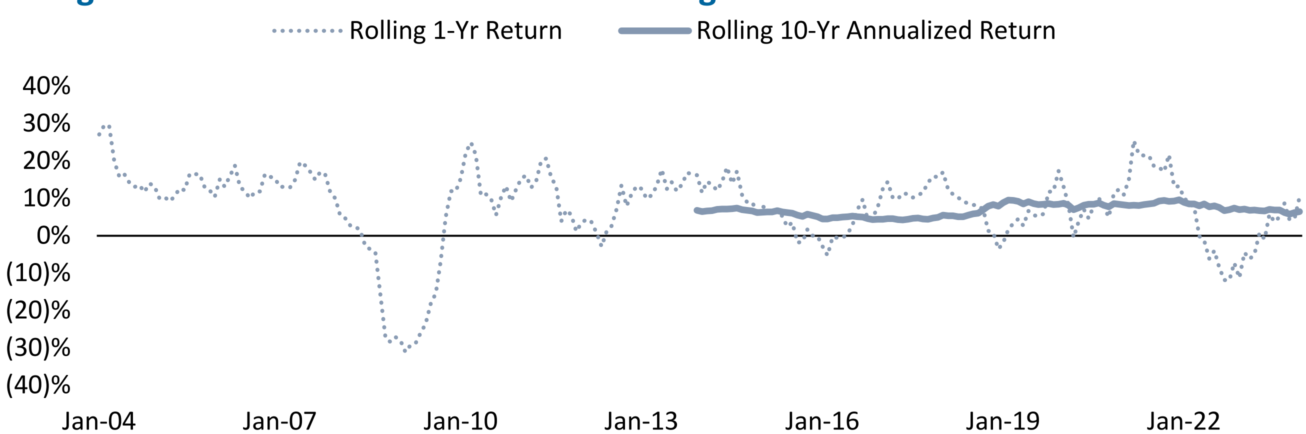


Exhibit 6.1

Current ALM Cycle: Realized Outcome vs 2021 ALM Expectations

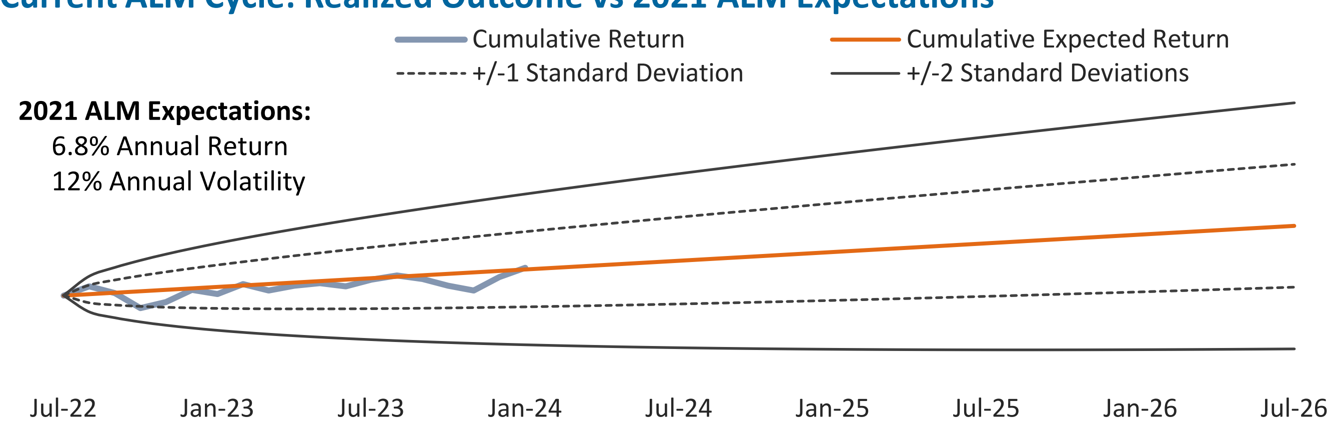


Exhibit 6.2

All performance reported net of investment expenses and annualized for periods greater than 1-Yr unless noted as cumulative

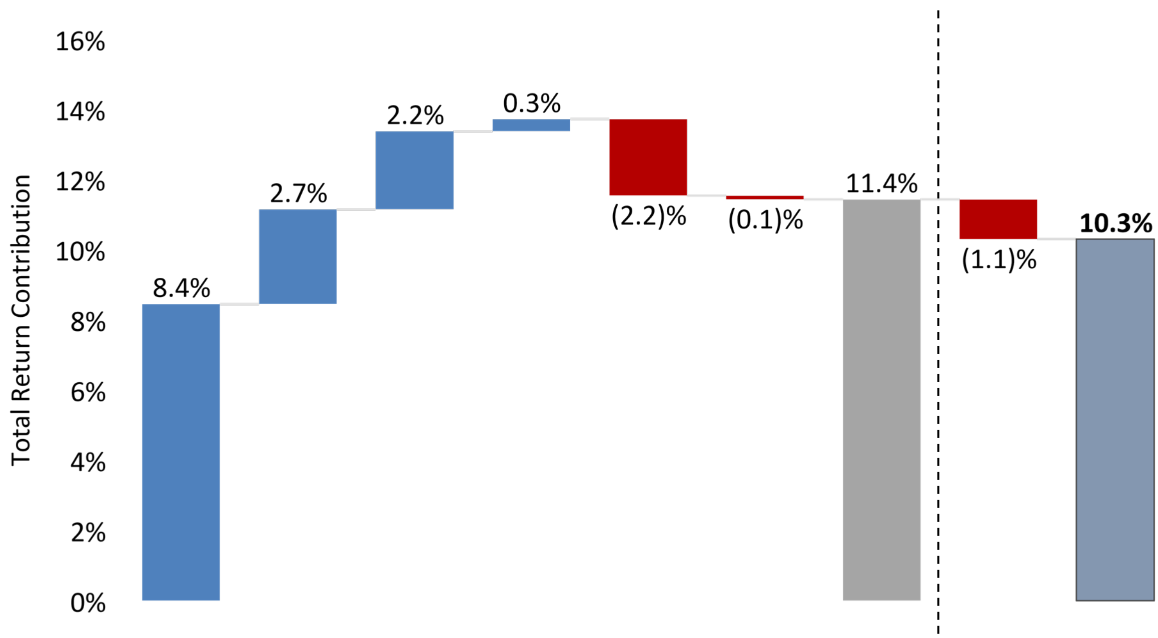
Section VI. PERF Performance Detail

Sources of PERF NAV Change and Total Return

Public Equity drove calendar year return

- PERF NAV increased by more than $40bn during 2023, most of which was driven by public equities, which returned 19.2%
- Growth assets contributed more than $48bn in NAV growth in 2023

1-Yr Total Return Contribution



	Contribution from Policy Benchmark Components								
	Public Equity	Private Equity	Income	Private Debt[1]	Real Assets	Other[2]	Total Policy BM	Value Added	Total Fund
Average Weight	45.1%	12.9%	26.4%	2.2%	15.4%	(2.0)%	100%	-	**-**
Return	19.2%	22.8%	8.2%	13.3%	(9.6)%	-	11.4%	-	**10.3%**
Cumul Dollar Return (bn)	$36.6	$11.8	$9.6	$1.5	$(9.5)	$(0.5)	$49.5	$(4.5)	**$45.0**

Exhibit 6.3

All performance reported net of investment expenses

[1] Private Debt was part of the Opportunistic Strategies Program prior to 7/1/2022

[2] Other includes strategic leverage and impact from historical Policy Benchmark allocations that are not part of the current Policy Benchmark

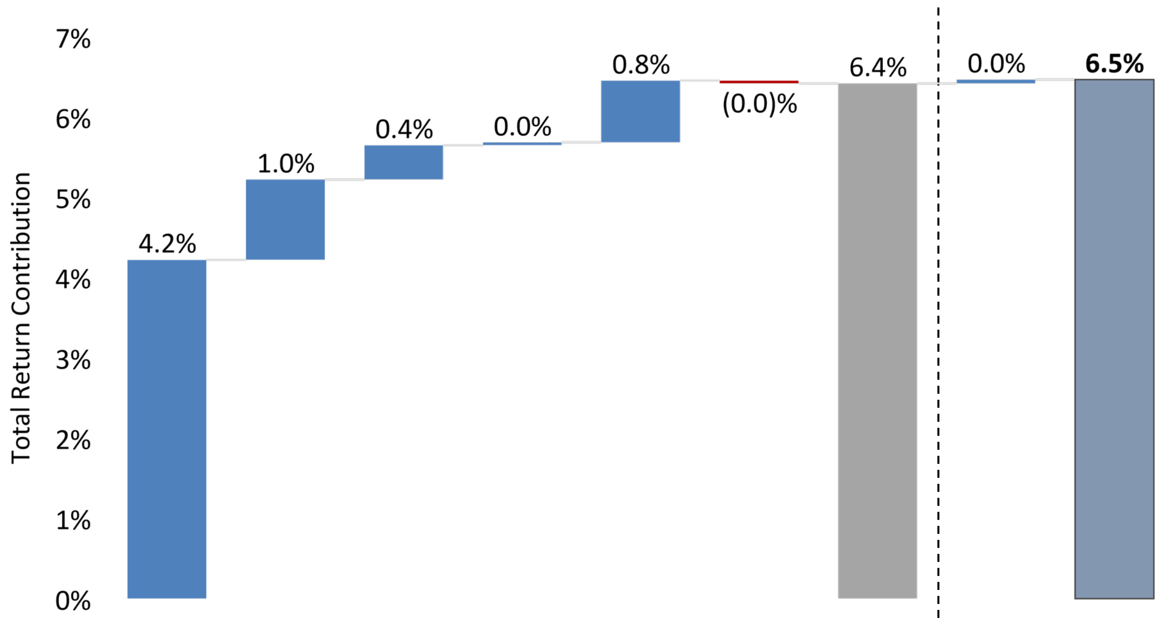
Section VI. PERF Performance Detail

Sources of PERF NAV Change and Total Return

Growth assets drove 10-Yr return

- Over the past 10 years, investment returns have increased PERF NAV by nearly $230bn
- Over longer periods, all programs generated positive returns
- PERF returns are typically driven by "growth" assets (e.g., public and private equity). Looking at 10-Yr performance, we see Public and Private Equity account for 5.2% (or about 80%) of the PERF Total return of 6.5%

10-Yr Total Return Contribution



	Contribution from Policy Benchmark Components								
	Public Equity	**Private Equity**	**Income**	**Private Debt[1]**	**Real Assets**	**Other[2]**	**Total Policy BM**	**Value Added**	**Total Fund**
Average Weight	49.0%	9.4%	23.6%	0.3%	12.5%	5.2%	100%	-	**-**
Return	7.9%	10.7%	2.4%	-	6.9%	-	6.4%	-	**6.5%**
Cumul Dollar Return (bn)	$147.7	$35.8	$15.2	$1.2	$27.5	$(1.4)	$226.0	$3.5	**$229.5**

Exhibit 6.4

All performance reported net of investment expenses and annualized unless noted as cumulative

[1] Private Debt was part of the Opportunistic Strategies Program prior to 7/1/2022

[2] Other includes impact from benchmark leverage and historical Policy Benchmark allocations that are not part of the current Policy Benchmark

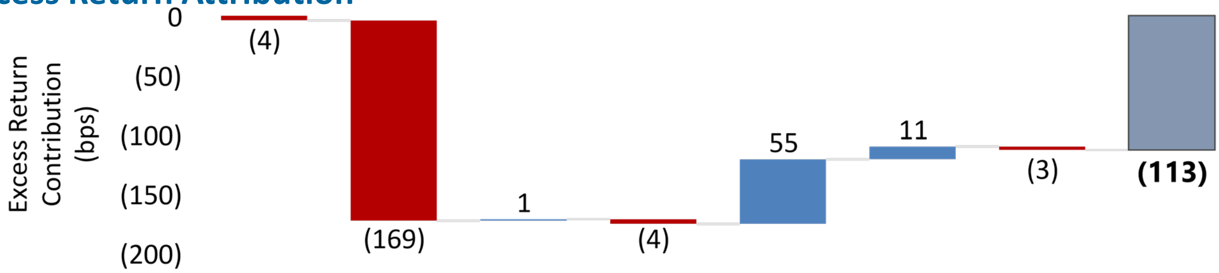
Section VI. PERF Performance Detail

Attribution of PERF Excess Return

Private Equity dominates PERF Excess Return

- Although Private Assets comprised about 20-30% of PERF NAV, those programs account for the majority of the 1-Yr excess return and over 50% of the 5-Yr excess return
- Private Equity is the largest driver of excess returns for 1-Yr and 5-Yr periods, with the 5-Yr period being significantly impacted by Private Equity's more recent underperformance
- Periods of 5 years (or longer) are more appropriate for evaluating excess performance, particularly for private assets where differences in valuation methodologies between assets and their benchmarks can dominate over shorter periods

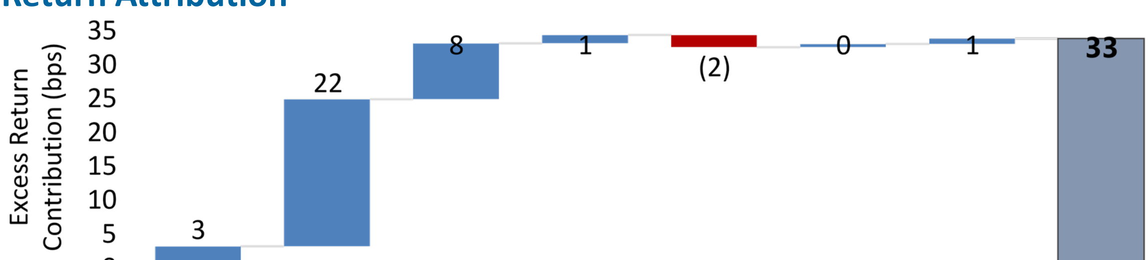
1-Yr Excess Return Attribution



	Public Equity	Private Equity	Income	Private Debt[1]	Real Assets	LLER	Allocation & Other[2]	Total Fund
Average Weight	45.1%	12.9%	26.4%	2.2%	15.4%	3.0%	-	**100%**
Return	19.1%	8.8%	8.3%	13.3%	(9.6)%	9.1%	-	**10.3%**
Benchmark Return	19.2%	22.8%	8.2%	15.1%	(12.8)%	5.3%	-	**11.4%**
Excess Return (bps)	(7)	(1,393)	5	(180)	319	381	-	**(113)**
Cumul Value Added (bn)	$(0.2)	$(6.8)	$0.0	$(0.2)	$2.3	$0.5	$(0.5)	**$(4.5)**

Exhibit 6.5

5-Yr Excess Return Attribution



	Public Equity	Private Equity	Income	Private Debt[1]	Real Assets	LLER	Allocation & Other[2]	Total Fund
Average Weight	49.0%	9.4%	23.6%	0.3%	12.5%	2.8%	-	**100%**
Return	11.1%	11.4%	1.8%	-	4.9%	3.5%	-	**7.9%**
Benchmark Return	11.0%	8.3%	1.7%	-	4.7%	2.0%	-	**7.6%**
Excess Return (bps)	11	315	19	-	25	153	-	**33**
Cumul Value Added (bn)	$1.0	$3.9	$1.1	$0.2	$(0.6)	$0.9	$0.4	**$6.9**

Exhibit 6.6

All performance reported net of investment expenses and annualized for periods greater than 1-Yr unless noted as cumulative

[1] Private Debt was part of the Opportunistic Strategies Program prior to 7/1/2022

[2] Other includes impact from strategic financing and investments in Non-SAA segments

Section VII. PERF Risk Detail

As of December 31, 2023

Volatility

Forecast volatility has remained stable, consistent with total fund management objectives; slight increase in active risk taking

Current Levels

- PERF's asset allocation is managed to maintain an overall risk profile roughly consistent with the Board-approved targets. The plan is regularly rebalanced, and private asset weight fluctuations are offset by offsetting adjustments in public assets
- For this reason, we expect Forecast Total volatility to remain relatively stable, adjusting for small fluctuations in positioning and potentially bigger changes driven by modeling assumptions. Total Volatility in the past year exhibited the expected consistency
- Actionable Tracking Error (essentially, volatility of controllable public asset exposures vs. benchmark) remains well below the Policy Limit of 100 bps, but increased slightly to 15bps, consistent with intentional increases in active management

	Policy Limit	Current 12/31/2023	Last Qtr. 9/30/2023	Last Year 12/31/2022
Total Fund Volatility (%)	-	13.6	13.5	13.7
Policy Benchmark Volatility (%)	-	12.3	12.3	12.6
Tracking Error (%)				
Actionable	< 1.00	0.15	0.16	0.10
Total Fund	-	1.83	1.81	1.59
Allocation	-	0.02	0.04	0.00

Exhibit 7.1

Trends

- Forecasted and realized volatility metrics indicate that active strategies in the portfolio have generally not materially increased overall volatility relative to the benchmark
- Fluctuations in forecasted volatility are only partly driven by changes in the portfolio. Most of the variation visible below is the result of changing market conditions and changes in risk measurement methodology
- Similarly, comparison of forecasted vs. realized volatility is also challenging, as realized volatility is lagged and biased downwards due to smoothed valuations in private assets

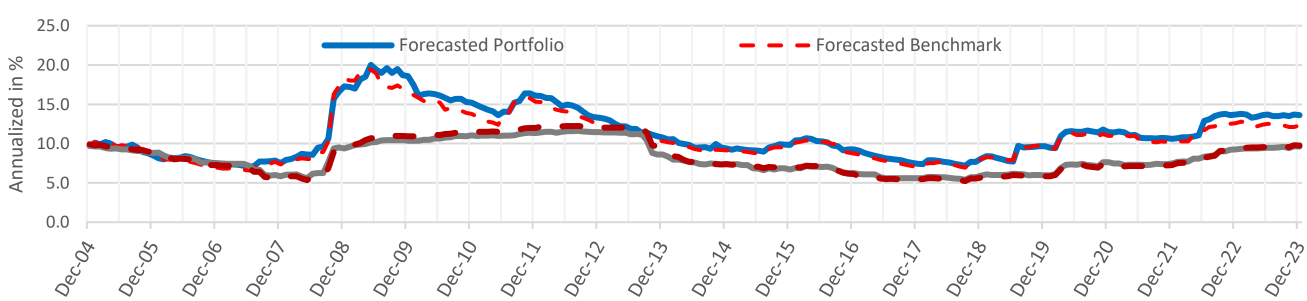


Exhibit 7.2

Section VII. PERF Risk Detail

Historical Simulation

Significant PERF drawdowns should be expected in stress scenarios

Historical Stress Scenarios

- Historical stress testing is a complementary way to model the level of risk in a portfolio. It can provide a more intuitive understanding than the statistical metric of standard deviation (volatility), while also exploring tail events
- The current PERF portfolio would have incurred significant drawdowns in recent market stress events, most notably the Global Financial Crisis of 2008. This result is in line with expectations given the portfolio's growth-sensitive composition
- Stress testing also reveals the portfolio could experience higher than benchmark losses in some extreme market scenarios

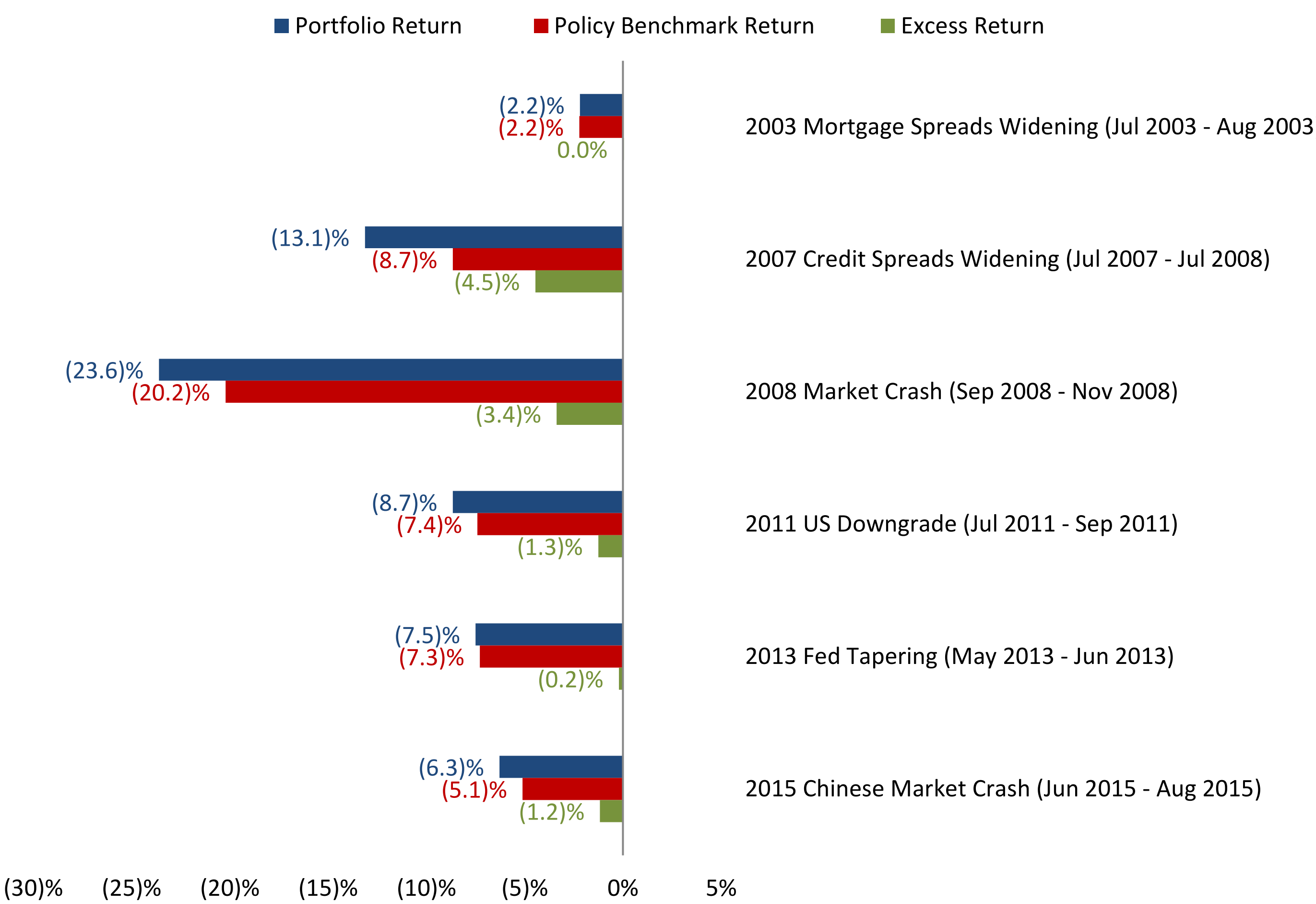


Exhibit 7.3

Section VII. PERF Risk Detail

Historical Simulation (cont.)

PERF risk profile closely tracks the equity market, though with lower overall risk

Simulated Drawdowns of PERF Strategic Allocation vs. S&P 500

- Longer-term historical simulation underscores a strong relationship between PERF's allocation and the stock market. That said, the level of drawdowns is generally lower than equity markets, reflecting the impact of diversification and a lower absolute risk level
- The analytical technique employed here provides a broader historical perspective than the stress tests shown on the prior page. However, it employs a less robust proxy-based methodology and only simulates the policy benchmark, not active positions

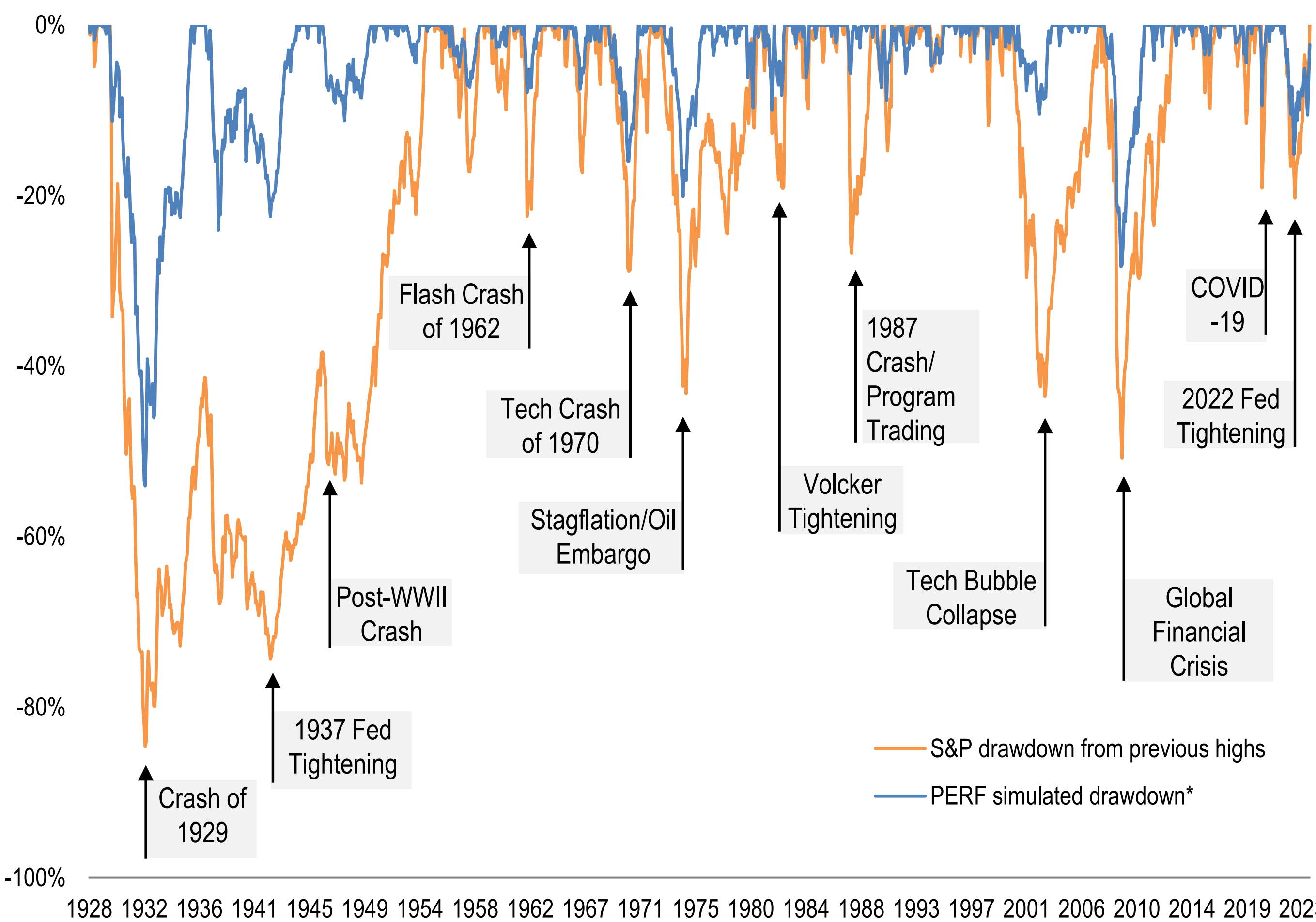


Exhibit 7.4

** Simulated performance of PERF asset allocation rebalanced quarterly to the current policy targets assuming historical returns for current benchmarks. For historical periods when performance data is not available for some asset classes, risk-comparable proxies are used.*

Section VII. PERF Risk Detail

Risk Decomposition

Growth oriented asset classes dominate overall volatility

Total Portfolio Volatility Decomposition

- Growth-oriented assets dominate Total Fund Volatility: public and private equities contribute approximately 80% and the remaining asset classes have also significant growth component. For Income, diversification benefits offset much of the inherent volatility

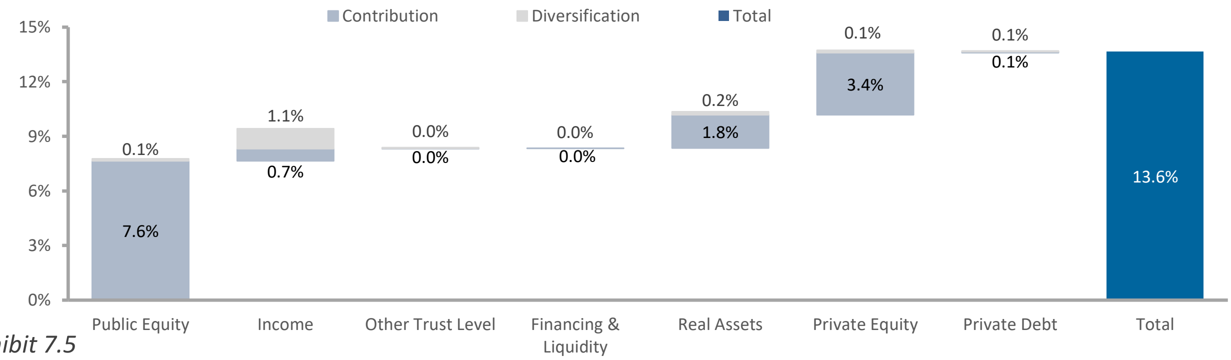


Exhibit 7.5

Contribution to Total Fund Volatility

Asset Class	Market Value[1] ($ Millions)	Total Forecasted Volatility (%)	% Contribution to Total Volatility	5-Year Realized Volatility (%)
Public Asset Classes				
Public Equity	**214,596**	**17.5**	**56.0**	**16.7**
Cap Weighted	156,129	18.7	43.5	18.2
Factor Weighted	58,468	14.4	12.5	13.6
Income	**130,730**	**6.6**	**4.9**	**9.1**
IG Corp	33,649	9.9	1.5	13.1
Treasury	25,081	11.0	(0.2)	12.4
MBS	25,015	5.4	0.3	6.1
EM Sov Debt	24,982	8.0	2.0	-
High Yield	22,002	5.8	1.4	9.4
Other Trust Level	**15,994**	**2.7**	**0.2**	**-**
LLER	11,862	2.3	0.2	3.1
Opportunistic	239	2.8	0.0	-
Total Fund Income	2,555	1.3	0.0	-
Other	1,338	4.6	0.0	-
Financing & Liquidity	**(27,059)**	**-**	**0.0**	**-**
Liquidity	10,462	0.0	0.0	0.0
Trust Level Financing	(37,521)	-	0.0	-
Private Asset Classes				
Private Equity	**67,884**	**25.2**	**25.0**	**10.7**
Real Assets	**67,816**	**14.3**	**13.5**	**5.9**
Private Debt	**12,227**	**4.2**	**0.4**	**-**
TOTAL PERF	**482,188**	**13.6**	**100.0**	**9.6**

Exhibit 7.6

[1]*Data source: Aladdin risk system; some differences with custodial data primarily due to timing of recording some cash flows*

Section VII. PERF Risk Detail

Risk Decomposition (cont.)

Active equities and LLER are the largest contributors to Actionable TE

% Contribution to Actionable Tracking Error

- Total Fund Actionable Tracking Error (TE) is at 15 bps vs. a policy limit of 100 bps
- The primary contributors are external public equity managers and the Low Liquidity Enhanced Return (LLER) program, which is an active strategy that makes use of leverage to take advantage of excess liquidity

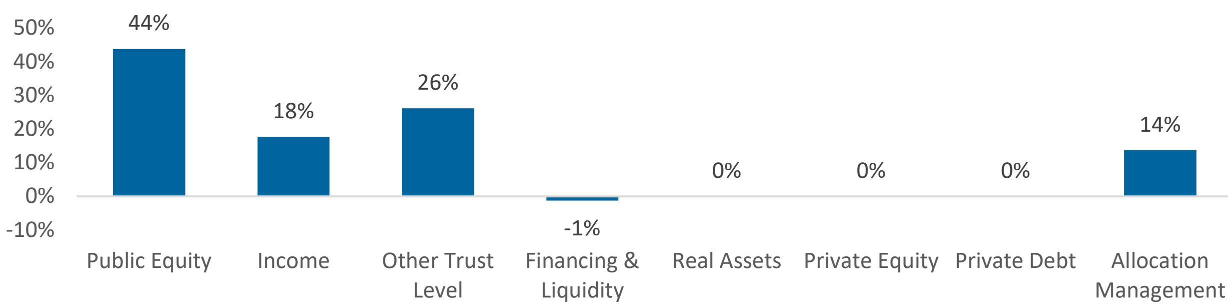


Exhibit 7.7

Asset Class	Forecasted Tracking Error (bps)	% Contribution to Actionable TE	5-Year Realized TE (bps)
Public Equity	**22**	**44**	**19**
Cap Weighted	31	45	26
Factor Weighted	4	(1)	11
Income	**27**	**18**	**23**
IG Corp	42	7	44
Treasury	20	1	37
MBS	34	3	32
EM Sov Debt	47	7	-
High Yield	26	0	30
Other Trust Level	**266**	**26**	**-**
LLER	226	24	299
Opportunistic	280	1	-
Total Fund Income	137	2	-
Other	457	0	-
Financing & Liquidity	**-**	**(1)**	**-**
Liquidity	18	0	-
Trust Level Financing	-	(1)	-
Allocation Management	-	**14**	-
TOTAL PERF Actionable	**15**	**100**	**19**
Private Equity	**951**		**1,415**
Real Assets	**487**		**258**
Private Debt	**142**		**-**
TOTAL PERF	**183**		**167**

Exhibit 7.8

Section VII. PERF Risk Detail

Diversification Characteristics

PERF is mainly invested in the United States

Regional Exposures

- Non-US portfolio holdings are approximately 32% and widely diversified across regions and countries
- Lower portfolio weight in US relative to Policy Benchmark is primarily due to international investments in Real Estate and Infrastructure

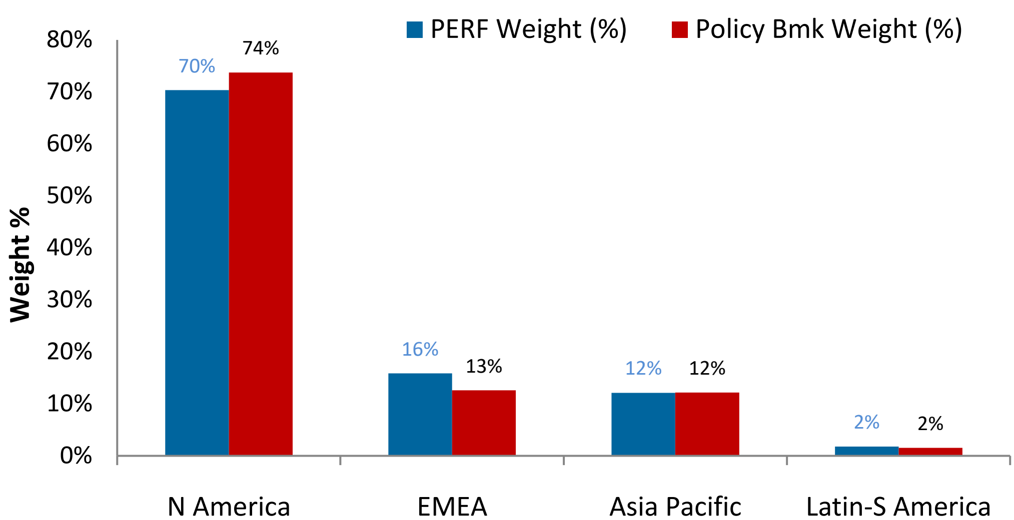


Exhibit 7.9

Top 10 Countries	PERF Weight (%)	Policy Benchmark Weight (%)	Active Weight (%)
United States	67.8	69.9	(2.1)
Japan	3.8	4.3	(0.5)
United Kingdom	3.4	2.1	1.3
China[1]	2.1	2.2	(0.1)
Canada	2.1	2.2	(0.1)
Germany	1.7	1.2	0.5
Switzerland	1.4	1.7	(0.3)
France	1.3	1.4	(0.1)
India	1.2	1.2	0.0
Taiwan	1.2	1.1	0.1

Exhibit 7.10

[1] Including Hong Kong

Section VII. PERF Risk Detail

Diversification Characteristics (cont.)

23% foreign currency exposure

Foreign Currency Exposures

- PERF non-USD exposure is 22.8% versus 23.6% in the Policy Benchmark. Foreign currency exposure in the Policy Benchmark comes entirely from the public and private equity segments, which are global capitalization weighted
- PERF non-USD active exposure is small and primarily reflects foreign unhedged holdings in Real Assets and differences between portfolio and benchmark country allocations in Private Equity

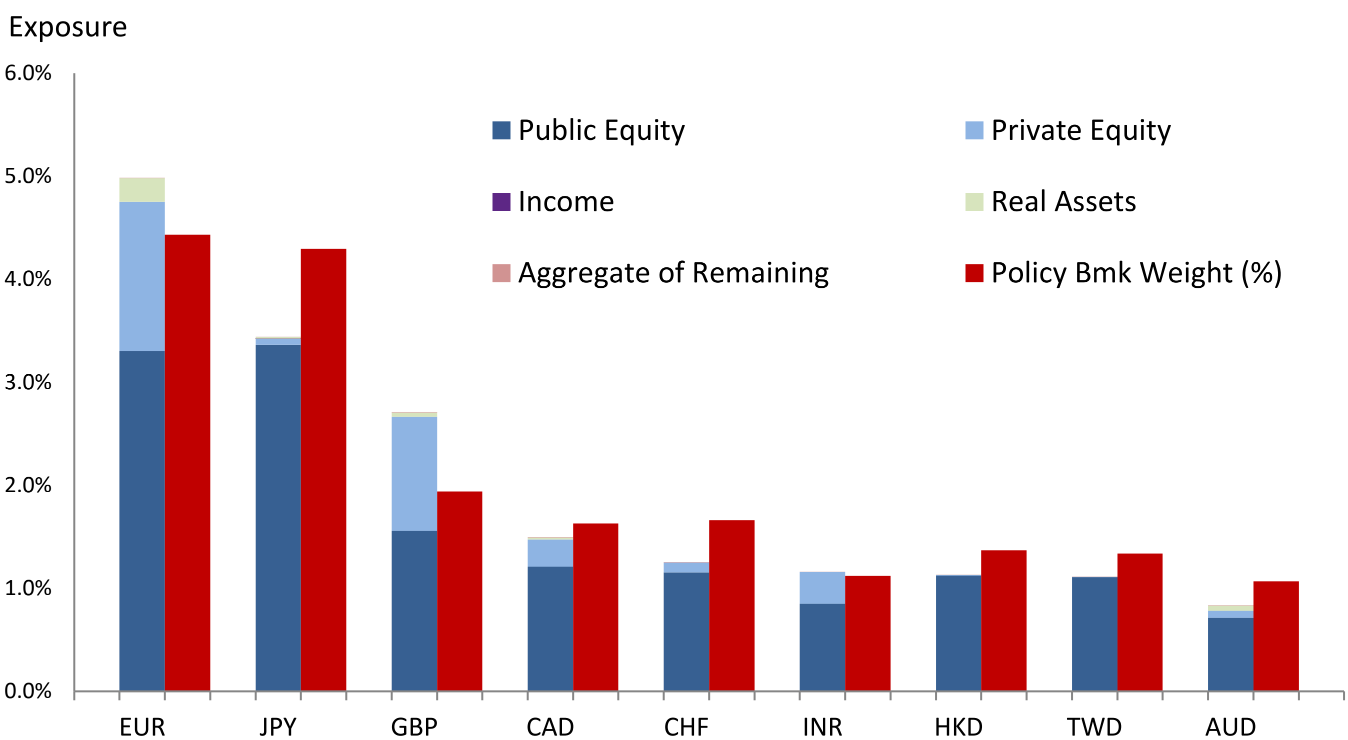


Exhibit 7.11

Section VII. PERF Risk Detail

Diversification Characteristics (cont.)

PERF is diversified to individual issuers and industries

Issuer Concentration

- PERF is diversified across individual issuers
- The largest issuers are the United States Government (US Treasuries) and its housing finance arms (Government Sponsored Enterprises)

Top 20 Issuers

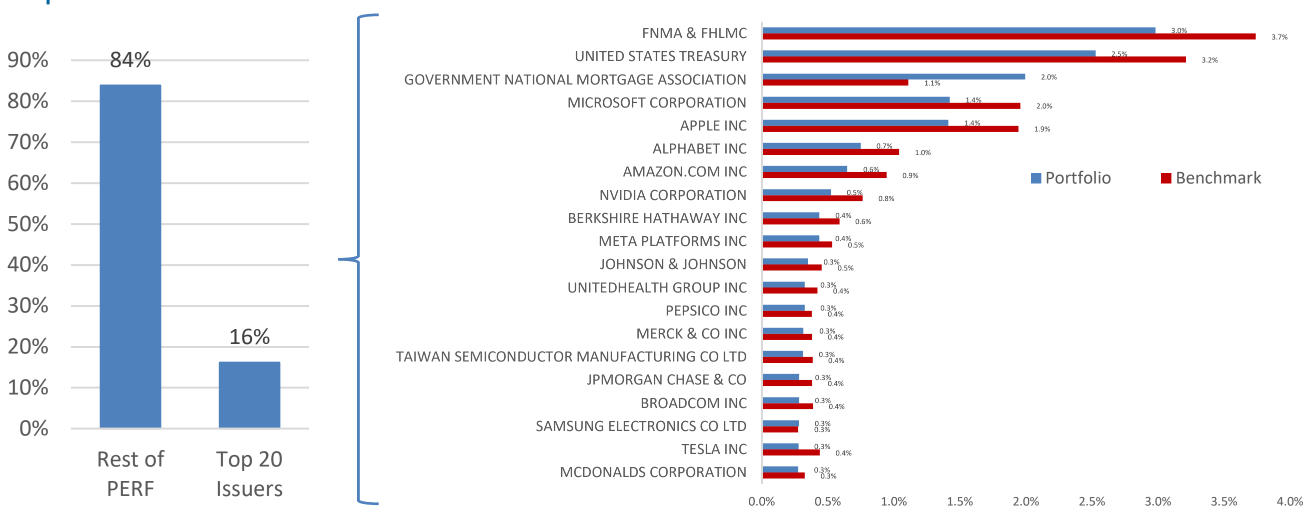


Exhibit 7.12

Industry Concentration* – Top 10

- PERF is diversified across industries with the largest deviations from benchmark in private assets

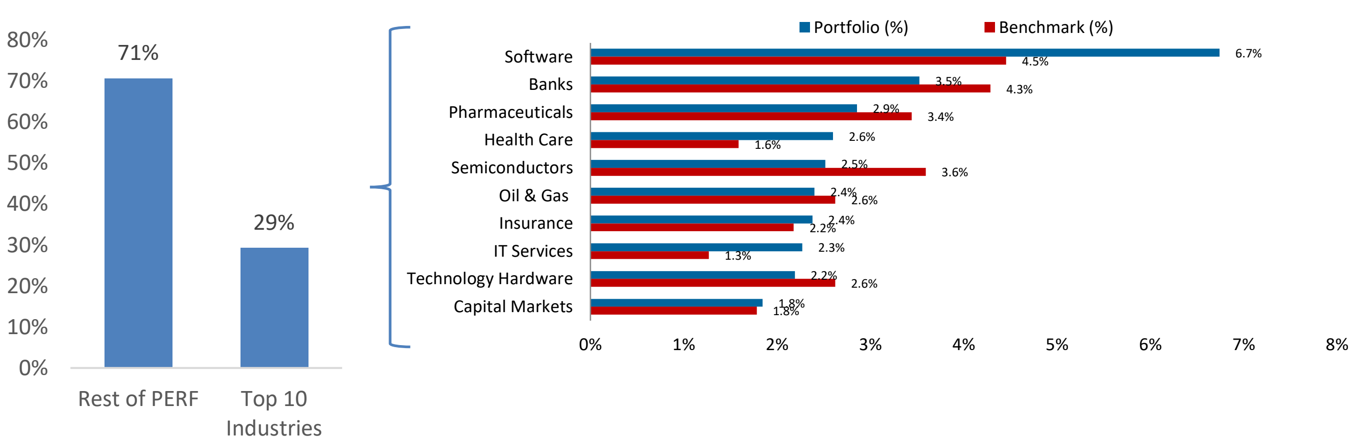


Exhibit 7.13

** Industry Concentration report covers Public Equities, IG Corp, High Yield and Private Equity segments*

Section VII. PERF Risk Detail

Leverage

PERF maintains modest leverage

Policy Leverage

- As of December 31, 2023, PERF total leverage was 7.1%, of which 5.1% was active leverage incremental to the benchmark
- Strategic leverage is on path towards the 5% target established in the November 2021 Strategic Asset Allocation
- Active leverage remains within the 15% policy limit and primarily supports the Low Liquidity Enhanced Return Program (LLER)

PERF Leverage Breakdown[1,2]	Value ($mm)	Share of PERF NAV (%)
Fund Level		
LLER	11,862	2.5%
Opportunistic Strategies	239	0.0%
Forward Sale of Private Equity Holdings	1,173	0.2%
Other Trust Level	164	0.0%
Total Fund Income	2,555	0.5%
Strategic Leverage - Portfolio	11,065	2.3%
Total - Fund Level	27,059	5.6%
Program Level vs Benchmark		
Public Equity	43	0.0%
Private Equity[3]	N/A	N/A
Income	(919)	(0.2%)
Real Assets (Incremental to Benchmark)	7,628	1.6%
Private Debt[3]	N/A	N/A
Other Trust Level (Forward Settlements)	304	0.1%
Total - Program Level	7,056	1.5%
Total - PERF	**34,115**	**7.1%**
Strategic Leverage – Benchmark	**9,644**	**2.0%**
Active Leverage	**24,471**	**5.1%**

Exhibit 7.14

[1] FX Forwards used for hedging are not counted as leverage. Options are included based on delta adjusted notional value
[2] All leverage in this exhibit is recourse to CalPERS, except for Real Assets
[3] Leverage in Private Equity and Private Debt is implemented at the individual fund- or portfolio company-level and is non-recourse

Sources: Aladdin, AREIS. Strategic leverage reported here may differ slightly from aggregate allocation reporting due to minor cashflow timing mismatches between systems

Section VII. PERF Risk Detail

Leverage (cont.)

Implicit Leverage

- The prior page describes leverage managed and measured explicitly as part of implementation of the PERF portfolio, in line with the Total Fund Leverage Policy. In general, this leverage reflects deliberate investment choices made by CalPERS staff or its agents
- There is additional leverage in the portfolio that is an implicit characteristic of many of the assets we hold. For example, most private and public companies in the portfolio use leverage on their balance sheets
- This type of leverage is not a direct lever of day to day portfolio management. Rather, it informs our understanding of the risk profile of these asset classes, which in turn influences portfolio construction decisions. For example, the leverage embedded in equities is one of the drivers of their relatively higher return and risk expectations, and Private Debt managers typically embed leverage at the fund level. These forms of leverage, and their resulting risks, are embedded in the Capital Market Assumptions which form the basis of our asset allocation decisions

Asset Class	Embedded Leverage[1,2]
Public Equity	~ 1.6 x
Private Equity	1.7 – 2.2 x
Private Debt	1.75 – 2.75 x
Real Estate (Benchmark)	~ 1.3 x

Exhibit 7.15

[1] Embedded leverage shown represents Enterprise Value to Equity Ratio. Embedded leverage for Public Equity, Private Equity, Private Debt is estimated based on industry research.

[2] Public Equity, Private Equity, and Real Estate (Benchmark) are estimates at the company/property level and Private Debt is an estimate at the fund level.

- Subscription financing, which allows managers to deploy capital in funds without immediately calling capital, is monitored separately and shown below

Asset Class	Subscription Financing ($mm)[3]
Private Equity	3,072
Private Debt	3,265

Exhibit 7.16

[3] As of September 30, 2023. Subscription financing is a loan to a fund, where the banks base credit on the committed capital to be contributed from the limited partners

Sources: FactSet, MSCI, PEARS, CFA Institute, Cliffwater

Section VII. PERF Risk Detail

Liquidity

PERF remains highly liquid

30-Day Operating Liquidity Coverage

- Liquidity ratios shown below are designed to measure PERF's ability to maintain operation of all current and planned investment strategies under extreme stress scenarios without forced selling of assets. This is a higher bar than ratios typically employed in the financial sector to measure solvency

Stress (Current Regime)[1]

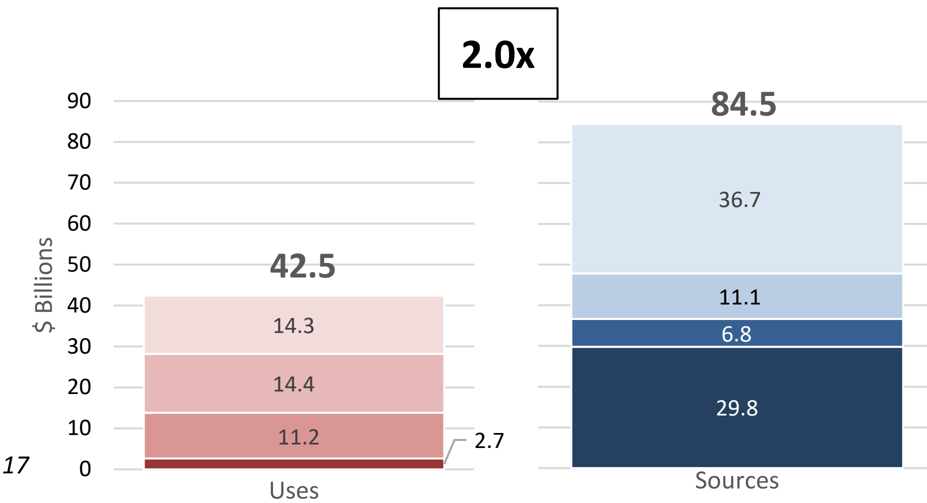


Exhibit 7.17

Historical Worst[2]

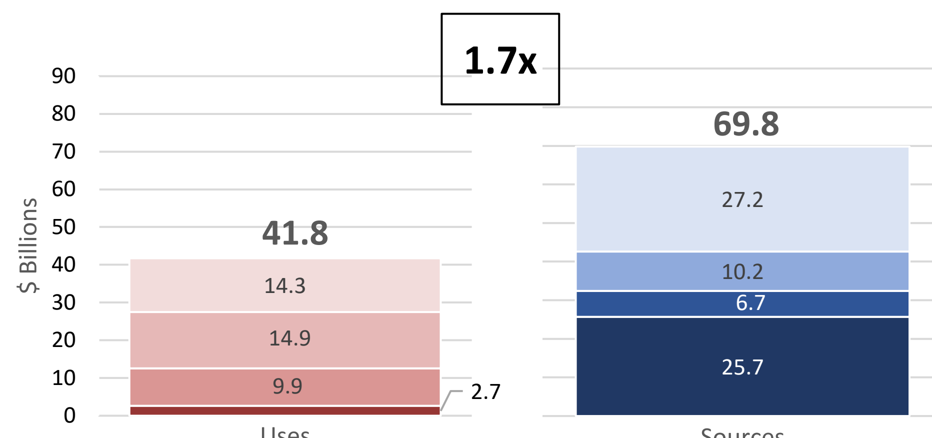


Exhibit 7.18

Maturing Derivatives/Repos & Others
Contingent
Private Asset Funding
Pension Benefits

Liquidity on Demand
Internal Funding
Pension Contribution & Other Inflows
Cash Equivalents

[1] ***Stress (Current Regime)*** *- Regime-dependent scenario to capture a "worst contemplated" outcome across liquidity uses and sources given current market conditions*

[2] ***Historical Worst*** *- Historical experience for the 30-day period: 9/27/08-10/27/08 (the worst 30-day equity drawdown in the past 20 years) applied to current portfolio*

Sources: Aladdin, Sec Lending

Section VII. PERF Risk Detail

Liquidity *(cont.)*

30-Day Liquidity by Asset Class

- The estimates below indicate the monetization capacity per asset class within a 30-day period under current markets and stress scenarios
- The chart illustrates both the relatively large amount of liquidity at CalPERS' disposal as well as the relative liquidity of the various asset segments

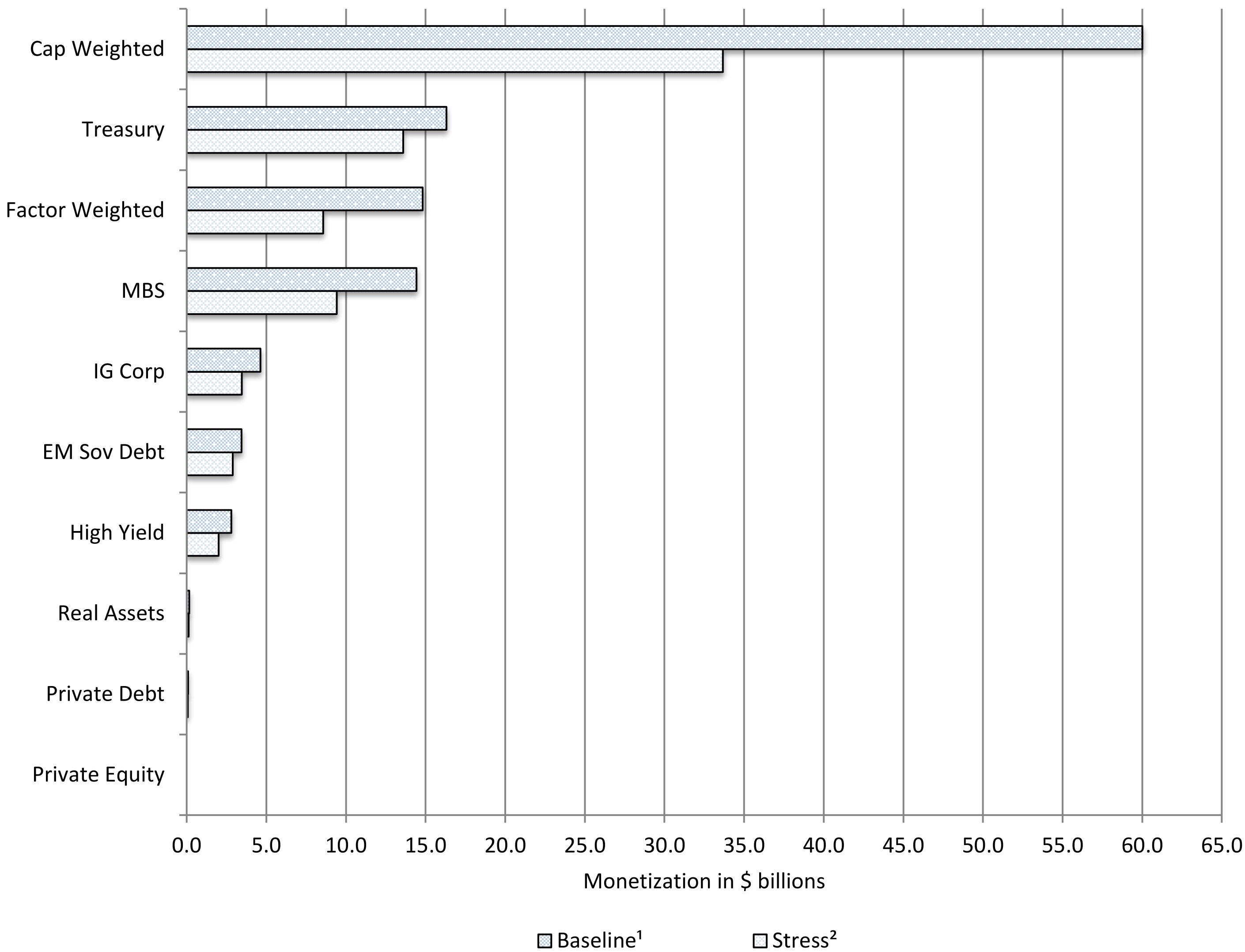


Exhibit 7.19

[1] **Baseline** - *Aladdin Liquidity Model with Average Daily Volume set at 2.5%.*
[2] **Stress -** *Baseline settings with COVID-19 stress scenario applied*

Source: Aladdin

Section VII. PERF Risk Detail

Counterparty Risk

Counterparty risk is managed via monitoring and collateralization

- Counterparty risk is the risk that, in the event a counterparty fails, CalPERS does not receive the value owed to us by the counterparty, for example, outstanding P&L on a derivatives contract
- CalPERS holds positions in swaps, options, futures, rights and warrants, forward foreign currency exchange, repurchase and reverse repurchase, and forward purchase and securities lending contracts -- all of which may create counterparty exposure
- CalPERS seeks to control this risk through two primary channels: active collateralization of exposures (typically daily) and a comprehensive regime of monitoring and review. The latter includes counterparty credit evaluations and approvals, counterparty credit limits, monitoring procedures, and use of market accepted standard agreements
- This report describes exposures directly contracted by CalPERS, and not by the external investment managers. External investment managers are required to have strict guidelines to manage and control counterparty risk

Current aggregate financial conditions are moderate

- Most counterparty risk management takes place at the individual counterparty level. However, aggregate market risks are also monitored, with additional oversight measures implemented during crisis periods

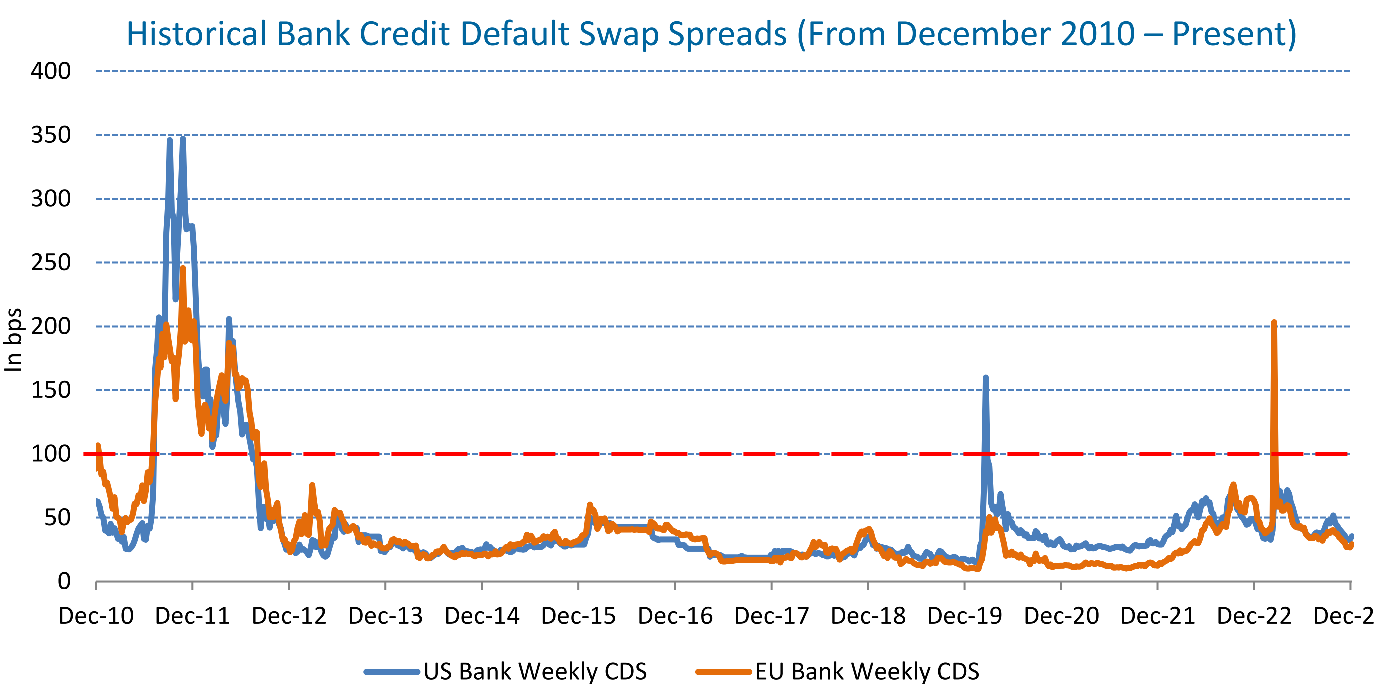


Exhibit 7.20

Source: Bloomberg

Section VII. PERF Risk Detail

Counterparty Risk *(cont.)*

Majority of counterparty exposure is collateralized

- The tables that follow show a snapshot of counterparty exposures across the various types of contracts CalPERS uses that can create counterparty exposure
- In general, money owed to or by CalPERS is collateralized daily, resulting in little net exposure

International Swaps and Derivatives Association (ISDA) Master Agreement
Includes FX forwards, equity swaps, interest rate swaps, cross-currency swaps, total return swaps, and options

Counterparty	Net MTM Total ($mm) (+) = CalPERS is due money (-) = CalPERS owes money	Collateral Posted ($mm) (+) = CalPERS has posted (-) = Counterparty has posted	Net Exposure ($mm) (+) = CalPERS exposed to Counterparty
Bank of Montreal	0.0	(0.1)	(0.0)
Bank of America N.A.	(56.2)	56.2	0.0
BNP Paribas	(30.2)	30.2	0.0
Barclays Bank PLC	(103.0)	105.2	2.3
Citigroup N.A.	82.2	(82.5)	(0.3)
Canadian Imperial Bank of Commerce	(0.0)	0.0	0.0
Deustche Bank AG	(44.2)	44.2	0.0
Goldman Sachs Bank	(238.3)	240.0	1.7
Goldman Sachs Intl	200.7	(200.7)	(0.0)
HSBC Bank USA	(8.7)	8.8	0.0
JP Morgan Chase	(4.4)	4.4	0.0
Morgan Stanley Capital Services Inc.	10.2	(10.1)	0.2
Royal Bank of Canada	6.1	(6.1)	(0.0)
Standard Chartered Bank	(0.3)	0.3	(0.0)
Societe Generale	3.6	(3.4)	0.2
State Street Bank & Trust	(6.8)	6.7	(0.1)
Toronto Dominion Bank	1.3	(1.1)	0.2
UBS AG	(67.3)	67.3	0.0
Wells Fargo Bank	(50.6)	50.6	0.0
Total	**(305.9)**	**309.9**	**4.0**

Exhibit 7.21

Source: Aladdin

Section VII. PERF Risk Detail

Counterparty Risk *(cont.)*

Master Repurchase Agreement (MRA)
Includes repurchase and reverse purchase agreements

Counterparty	Net MTM Total ($mm) (+) = CalPERS is due money (-) = CalPERS owes money	Collateral Posted ($mm) (+) = CalPERS has posted (-) = Counterparty has posted	Net Exposure ($mm) (+) = CalPERS exposed to Counterparty
Bank of America Securities Inc.	(2,820.6)	2,785.9	(34.7)
Bank of Montreal	(84.3)	84.3	(0.0)
Bank of Nova Scotia	(388.0)	387.9	(0.0)
BNP Paribas SA	(485.3)	484.3	(1.1)
Barclays Capital Inc.	50.0	(51.0)	(1.0)
Credit Agricole	(2,124.4)	2,124.4	(0.0)
Citigroup Global Markets Inc.	(350.1)	345.6	(4.5)
Canadian Imperial Bank of Commerce	(1,172.6)	1,166.7	(5.9)
Deustche Bank Securities Inc.	201.2	(206.2)	(5.0)
Daiwa Capital Markets	(770.7)	763.7	(7.0)
Goldman Sachs Bank	(536.4)	536.0	(0.4)
Goldman Sachs & Co.	(741.6)	736.4	(5.2)
HSBC Bank	(201.6)	200.6	(1.0)
JP Morgan Securities LLC	(2,476.4)	2,470.7	(5.7)
MUFG Securities	(2,292.8)	2,290.1	(2.7)
NATIXIS	(1,013.0)	1,011.3	(1.8)
Nomura	(234.4)	234.1	(0.3)
Royal Bank of Canada	(3,685.3)	3,658.5	(26.8)
Santander US Capital Markets	(122.9)	122.7	(0.1)
Standard Chartered	86.1	(107.7)	(21.6)
SMBC	933.4	(954.2)	(20.8)
State Street Bank	250.0	(255.0)	(5.0)
Toronto Dominion	(2,194.8)	2,185.3	(9.5)
UBS Securities	(48.8)	48.8	(0.0)
Wells Fargo Securities, LLC.	(304.2)	299.8	(4.4)
Total	**(20,527.6)**	**20,363.1**	**(164.5)**

Exhibit 7.22
Source: Aladdin

Section VII. PERF Risk Detail

Counterparty Risk *(cont.)*

Securities Lending Agreement (SLA)
Includes collateralized loan of securities

Counterparty	Market Value of Securities Out on Loan ($mm) (+) = CalPERS lent securities	Collateral Posted ($mm) (Cash or Securities) (+) = CalPERS has posted (-) = Counterparty has posted	Net Exposure ($mm) (+) = CalPERS exposed to Counterparty
ABN AMRO Group N.V.	0.0	(0.0)	(0.0)
Banco Santander SA	9.3	(9.6)	(0.4)
Bank of Montreal	63.5	(65.4)	(1.9)
Bank of New York Mellon	32.3	(33.0)	(0.7)
Bank of Nova Scotia	7,033.1	(7,407.9)	(374.7)
BankAmerica	301.4	(308.7)	(7.2)
Barclays Group	10,915.6	(11,539.2)	(623.7)
BNP Paribas Group	275.2	(290.4)	(15.1)
Canadian Imperial Bank of Commerce	362.1	(377.4)	(15.3)
Citigroup	190.9	(200.8)	(9.9)
Deutsche Bank Group	0.2	(0.3)	(0.1)
Goldman Sachs Group	12,545.2	(12,856.4)	(311.2)
Healthcare of Ontario Pension Plan	1,088.4	(1,164.1)	(75.7)
HSBC Group	14.0	(15.3)	(1.3)
ING Group	415.9	(431.8)	(15.8)
J.P. Morgan Group	2,200.0	(2,276.2)	(76.2)
Macquarie Bank Group	5.2	(5.6)	(0.4)
Mitsubishi UFJ Financial Group	323.7	(346.6)	(22.9)
Mizuho Financial Group Inc.	32.0	(32.7)	(0.6)
Morgan Stanley Group	2,483.8	(2,582.3)	(98.6)
National Bank of Canada	746.4	(793.7)	(47.3)
NATIXIS group	2,705.5	(3,125.8)	(420.4)
Nomura Holdings, Inc.	187.2	(191.0)	(3.8)
Royal Bank of Canada	727.5	(816.2)	(88.7)
Societe Generale Group	633.0	(675.9)	(42.9)
Sumitomo Mitsui Banking Corporation	407.4	(440.0)	(32.6)
TD Securities	61.6	(63.9)	(2.3)
UBS Group	1,313.7	(1,426.5)	(112.8)
Wells Fargo & Co.	0.9	(0.9)	(0.0)
Total	**45,075.0**	**(47,477.7)**	**(2,402.7)**

Exhibit 7.23
Source: Sec Lending

Section VII. PERF Risk Detail

Counterparty Risk *(cont.)*

Master Securities Forward Transaction Agreement (MSFTA)
Includes forward purchase/sale of mortgage bonds and TBAs

Counterparty	Net MTM Total ($mm) (+) = CalPERS is due money (-) = CalPERS owes money	Collateral Posted ($mm) (+) = CalPERS has posted (-) = Counterparty has posted	Net Exposure ($mm) (+) = CalPERS exposed to Counterparty
BNP Paribas Securities Corp	5.2	(5.2)	0.0
Barclays Capital Inc.	1.6	(1.6)	0.0
Citigroup Global Markets, Inc.	(7.5)	7.5	0.0
Daiwa Capital Markets America Inc.	0.9	(0.9)	(0.0)
Goldman Sachs & Co.	41.9	(42.4)	(0.5)
JP Morgan Securities Inc.	(7.0)	7.2	0.2
Merrill Lynch, Pierce, Fenner, Smith Inc.	(9.0)	9.1	0.1
Mizuho Securities	(8.5)	9.2	0.6
Morgan Stanley & Co	(31.8)	31.9	0.1
Nomura Securities Intrntl. Inc.	0.9	(0.9)	(0.0)
Wells Fargo Securities, LLC	(3.5)	3.5	0.0
Total	**(16.9)**	**17.5**	**0.6**

Exhibit 7.24

- Custodial risk is the risk that, in the event a depository institution or counterparty fails, CalPERS would not be able to recover the value of its deposits, investments, or collateral securities. This risk arises in exchange traded derivatives, where CalPERS posts margin to engage in exchange traded derivatives via a Futures Commission Merchant (FCM)
- FCMs are highly regulated financial entities that accept orders for exchange traded contracts in Central Clearing Counterparties (CCPs). Collateral posted at the FCM is mostly used to meet the margin requirements at the CCPs
- The collateral below has been provided to the FCM to post at the CCPs on behalf of CalPERS and bridging operational, timing and processing gaps in collateral transfer

Futures Commission Merchant (FCM) Exposure
Includes exchange traded futures

Counterparty	Collateral Posted ($mm)
Citigroup Global Markets Inc.	375.7
BOFA Securities Inc.	164.9
Goldman Sachs	47.3
Total	**587.9**

Exhibit 7.25

- CalPERS has pledged $2.4 billion in Regulatory Initial Margin (UMR IM), and each counterparty (for non-cleared SWAPS) has pledged to CalPERS the same. Eligible collateral (IM) is pledged to a segregated third-party custodian. Each secured party has security interest, lien, and right of set-off against the non-secured party in the event of default and liquidation

Source: Aladdin

Appendix 1: PERF Benchmarks

Asset Class	**Policy Benchmark**
Public Equity – Cap Weighted	CalPERS Custom FTSE All World, All Cap Equity Benchmark
Public Equity – Factor Weighted	CalPERS Custom FTSE Factor Weighted Index
Private Equity	CalPERS Custom FTSE Global Benchmark +150 bps, Quarter Lage
Income - Treasury	Custom Bloomberg Government
Income - MBS	Custom Bloomberg Mortgage
Income - IG Corporates	Custom Bloomberg Corporate ex Sov
Income - High Yield	Custom Bloomberg High Yield
Income - EM Sovereign Bonds	Custom JP Morgan EMBIG Diversified
Real Assets	MSCI/PREA U.S. ACOE Quarterly Property Fund index (Unfrozen), Quarter Lag
Private Debt	S&P/ LSTA U.S. Leveraged Loan 100 Index +125 bps, Quarter Lag
Strategic Leverage	ICE BofA US 3-Month Treasury Bill Index +50 bps

Appendix 2: Definitions

Term	Definition
10 Year U.S. Treasury	The 10-Yr Treasury note (bond) is a debt obligation issued by the United States government with a maturity of 10 years upon initial issuance. A 10-Yr Treasury note pays interest at a fixed rate once every six months and pays the face value to the holder at maturity. The “10-Yr” is viewed as a sign of investor sentiment about the economy. A rising yield for the 10-Yr indicates falling demand for Treasury bonds, which means investors prefer higher-risk, higher-reward investments. A falling yield suggests the opposite.
Annual average percent change (aapc)	The change in a variable between one entire year and the prior entire year. This differs to an annual percent change, which looks at one point in time compared with the same point in time a year earlier.
Actionable Tracking Error	Investment Policy definition of the Total Fund tracking error that excludes the effect of active exposure from private asset classes arising from the modeling challenges and the non-investible nature of their benchmarks.
Active Leverage	The portion of Total Fund leverage that is controlled by staff and used to fund exposures incremental to the Strategic Asset Allocation.
Alpha	The measure of the return of an investment relative to an appropriate benchmark.
Basis Point (BP)	1 basis point is 1/100 of a percent or 0.01%
Beta	A statistical measure of investment or portfolio return sensitivity to the market where the market is typically defined by a market index. A beta of 1.0 means the investment moves in synch with the market. A beta of 0.5 means the investment moves 50% as much as the market. A beta of 1.5 means the investment moves 150% as much as the market. For example, a portfolio with a beta of 0.8 is expected to have an 8% return when the market returns 10%.
Benchmark	A collection of assets to compare against the portfolio’s assets. These are typically market indices (e.g., SP500 or Bloomberg Barclays Global Aggregate). Benchmarks can be a useful tool to evaluate performance and risk.
Central Banks	The principal monetary authority of a nation, a central bank performs several key functions, including issuing currency and regulating the supply of credit in the economy. The Federal Reserve is the central bank of the United States.

Term	Definition
Consensus Economics	Consensus Economics is a global macroeconomic survey firm that polls more than 700 economists monthly for their forecasts for over 2,000 macroeconomic indicators in 115 countries. The company is headquartered in London, United Kingdom.
Consumer Prices Index (CPI)	An index which measures changes in the prices of a (weighted average) basket of goods and services. This basket is representative of aggregate U.S. consumer spending and is a common reference point for inflation.
Counterparty	The legal entity that holds the other side of a contract or financial transaction.
Economic Activity	Any action that involves producing, distributing, or consuming products or services is an economic activity. Used synonymously with real GDP growth.
Event Risk	Refers to any future potential occurrence that can cause losses for investors or other stakeholders in a company or investment.
Excess Return	The portfolio return minus the portfolio benchmark return. Time-weighted excess return is not affected by the amount of capital invested.
Federal Reserve Open Market Committee (FOMC)	A twelve-member committee made up of the seven members of the Board of Governors; the president of the Federal Reserve Bank of New York; and, on a rotating basis, the presidents of four other Reserve Banks. The FOMC meets eight times a year to set Federal Reserve guidelines regarding the purchase and sale of government securities in the open market and the policy (overnight) interest rate as a means of influencing the volume of bank credit and money in the economy.
Financial Market Pricing	Current price at which an asset or service can be bought or sold. The market price of an asset or service is determined by the forces of supply and demand and, when traded in real time on global financial markets, can be influenced by (unrealized) expectations around the future.
Future Commission Merchant (FCM)	Highly regulated entities that accept orders for exchange traded contracts in Central Counterparty Clearing House (CCPs). Collateral posted at the FCM is mostly used to meet the margin requirements at the CCPs. The collateral in the counterparty section has been provided to the FCM to post at the CCPs on behalf of CalPERS and bridging operational timing and processing gaps in collateral transfer.
High Yield (HY)	Compared to Investment Grade, these bonds have a lower credit rating meaning they have a relatively higher risk of default. Due to their higher probability of default, they pay a higher yield to compensate investors for the additional risk.

Term	Definition
Inflation	A rate of increase in the general price level of goods and services. The general term 'inflation' usually refers to the change in the CPI index over one year.
International Monetary Fund (IMF)	An international organization with 146 members, including the United States. The main functions of the IMF are to lend funds to member nations to finance temporary balance of payments problems, to facilitate the expansion and balanced growth of international trade, and to promote international monetary cooperation among nations. The IMF also creates special drawing rights (SDR's), which provide member nations with a source of additional reserves. Member nations are required to subscribe to a Fund quota, paid mainly in their own currency. The IMF grew out of the Bretton Woods Conference of 1944.
International Swaps and Derivatives Association (ISDA)	A trade organization of market participants that facilitates standardization of contractual agreements to trade over-the-counter derivative contacts. CalPERS enters into ISDA agreements to trade derivatives; for example, FX forwards, total return and interest rate swaps.
Investment Grade (IG)	Bonds with a higher credit rating meaning they have a relatively low risk of default.
Liquidity Coverage Ratio	Metric refers to the proportion of liquid assets to meet short term obligations under a stress scenario (within 30 days). The ratio divides Sources of Liquidity by Uses of Liquidity.
Liquidity (sources of)	Includes: Cash Equivalents, Pension Contributions & Other Inflows, Internal Funding and Liquidity on Demand.
Liquidity (uses of)	Includes: Pension Benefits, Private Asset Funding, Contingent uses and Maturing Derivatives/Repos & Others.
Macroeconomics	A branch of economics that studies how an overall economy (markets, businesses, consumers, and governments) behave. Macroeconomics examines economy-wide phenomena such as inflation, price levels, rate of economic growth, national income, gross domestic product (GDP), and changes in unemployment.
Master Repurchase Agreement (MRA)	The bilateral agreement that governs the collateralized loans of securities. CalPERS uses this contract to enter into forward purchase/repurchase of US Treasuries and Mortgage securities and to post/receive collateral in return (also known as Repo and Reverse Repo).

Term	Definition
Master Securities Forward Transaction Agreement (MSFTA)	The bilateral agreement that CalPERS uses to enter into forward purchase or sale of mortgage bonds and "TBA" instruments.
Net Asset Value (NAV)	The value of an investment fund's assets less its liabilities.
Net Return	Performance net of internal and external investment office management expenses. CalPERS' performance uses a daily Modified-Dietz methodology which is geometrically linked to produce time-weighted returns for longer periods. Daily Rate of Return Formula • 6/30/2016 & Prior: Dollar Value Added / (Beginning Market Value + Net Cash Flows) • 7/1/2016 to Present: Dollar Value Added / Beginning Market Value • Dollar Value Added = Gains/losses due to price appreciation and income Daily returns are geometrically linked to produce longer period returns.
Oil (Brent)	A crude oil blend commonly referred to as Brent Blend, London Brent, or Brent petroleum. It is the main global benchmark for oil prices.
Oil (WTI)	West Texas Intermediate is also crude oil blend. It serves as the main US benchmark for oil prices.
Over the Counter (OTC)	A decentralized market where participants trade stocks, bonds, currencies, or derivatives without a centralized exchange or broker.
Public Employee's Retirement Fund (PERF)	An investment fund created under California state statute and exclusively controlled by the CalPERS Board. The fund is managed with the expressed purpose of paying retirement benefits to participating members.
Policy Rate	The policy interest rate is that at which the central bank will pay or charge commercial banks for their deposits or loans. This rate affects the interest rate that commercial banks apply with their customers, both borrowers and depositors, and more generally, impacts on the general price (rate) of credit in the economy.

Term	**Definition**
Portfolio Market Value	The sum of the underlying investment values +/- any open receivables or payables (uninvested assets), consistent with the Net Asset Value or Total Net Assets reported in accounting. • Public Asset Market Values are calculated as units held x price per unit + accrued income. • Private Asset Market Values represent an opinion of value as of a certain date as stated by either the investment advisor or independent appraiser. Market value differs from amount funded or net investment in that the value includes unrealized gains or losses during the holding period.
Real Gross Domestic Product (GDP)	Measures the total economic output of a country over a specified period (often a year) adjusted for changes in price. The total economic output refers to the volume of all goods and services produced by an economy. It is often referred to as constant-price GDP or constant dollar GDP.
SLA/Sec Lending	Refers to the Securities Lending Agreement ("SLA") under which CalPERS lends securities and receives either cash or other securities as collateral.
Supply-Chain	A network of individuals and companies who are involved in creating a product and delivering it to the consumer. Links on the chain begin with the producers of the raw materials and end when the finished product is delivered to the end user.
Supplemental Income Plans (SIP)	Refers to the combined program for the Public Employees' Deferred Compensation Fund and the Supplemental Contributions Program.
Tracking Error	Standard deviation of the differential return between the portfolio and an equal investment in the benchmark.
Uncertainty	The range of possible values or paths. These are unknown.
Unfunded Commitments	A legally binding commitment to a private asset investment fund/vehicle for which the capital has not yet been drawn.
Value Added	The incremental gain or loss in dollars resulting from portfolio implementation, active management, and imperfectly investible benchmarks. Over shorter time horizons, the benchmark component can create significant variability in outcomes. Unlike a time-weighted excess return which does not account for the size of the investment, value added will vary with the amount of capital invested. Also referred to as “Dollar Value Added”.
Volatility	A measure of the distribution of portfolio returns (or a given security). It is typically defined as the statistical standard deviation of returns, annualized.

Term	**Definition**
Wage Growth	Wages are the compensation paid to employees for the work or services they perform over a specified period. In the US it is often described as average hourly earnings. Wage growth typically refers to the annual change in wages.
Yield Curve	A yield curve is a line that plots yields (interest rates) of bonds having equal credit quality but differing maturity dates. The slope of the yield curve gives an idea of future interest rate changes and economic activity. There are three main yield curve shapes: normal (upward sloping curve), inverted (downward sloping curve), and flat.