Monthly Update- Performance & Risk

PUBLIC EMPLOYEES' RETIREMENT FUND (PERF)

CalPERS

October 31, 2015

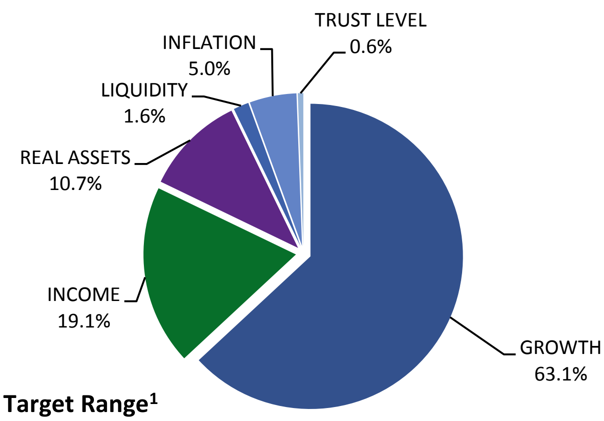
STRATEGIC ASSET ALLOCATION

Investment Belief 6: *Strategic asset allocation is the dominant determinant of portfolio risk and return. CalPERS strategic asset allocation process transforms the fund's targeted rate of return to the market exposures that staff will manage. CalPERS will aim to diversify its overall portfolio across distinct risk factors and return drivers.*

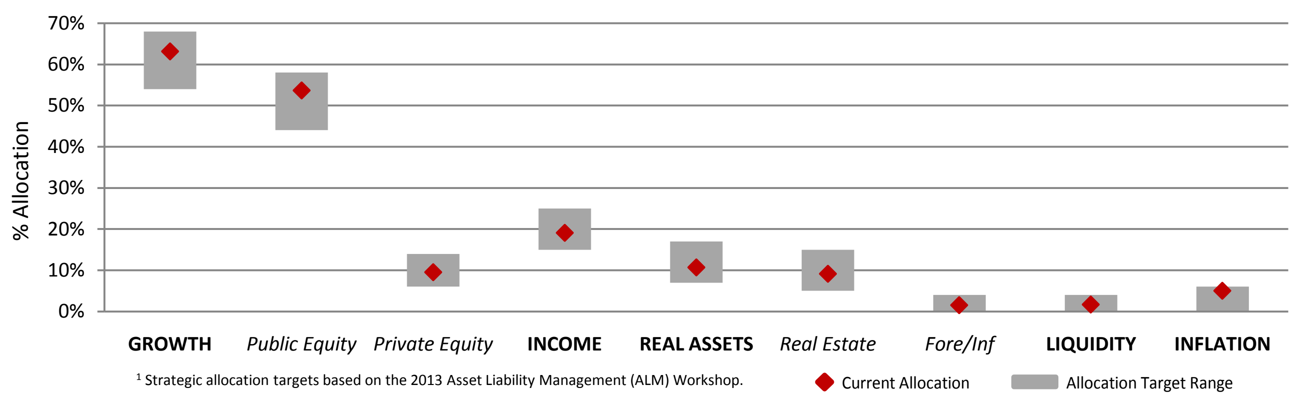
Total Fund Objective

CalPERS' general investment goals are broad in nature. The overall objective of CalPERS' investment program is to provide members and beneficiaries with benefits as required by law. This will be accomplished through a carefully planned and executed long-term investment program that efficiently and effectively allocates and manages the assets of CalPERS. CalPERS' investment policies have been designed to allow CalPERS to achieve a long-term total return. As such, prudent risk-taking is appropriate within the context of overall diversification to meet CalPERS' long-term investment objectives. The assets of CalPERS will be broadly diversified to minimize the effect of short-term losses within any investment program.

Actual Capital Allocation



Strategic Allocation Target Range[1]



[1] Strategic allocation targets based on the 2013 Asset Liability Management (ALM) Workshop.

TOTAL FUND ASSET ALLOCATION	Current Allocation(%)	Interim Strategic Target (%)[1]	Variance(%)	Current Allocation (billions)	Interim Strategic Target (billions)	Variance (billions)
GROWTH	63.1%	61%	2.1%	$ 186.6	$ 180.4	$ 6.2
PUBLIC EQUITY	*53.6%*	*51%*	*2.6%*	$ 158.5	*$ 150.8*	*$ 7.7*
PRIVATE EQUITY	*9.5%*	*10%*	*(0.5%)*	$ 28.1	*$ 29.6*	*$ (1.5)*
INCOME	19.1%	20%	(0.9%)	$ 56.4	$ 59.2	$ (2.8)
REAL ASSETS	10.7%	12%	(1.3%)	$ 31.5	$ 35.5	$ (4.0)
REAL ESTATE	*9.1%*	*10%*	*(0.9%)*	$ 27.0	*$ 29.6*	*$ (2.6)*
FORESTLAND	*0.7%*	*1%*	*(0.3%)*	$ 2.2	*$ 3.0*	*$ (0.7)*
INFRASTRUCTURE	*0.8%*	*1%*	*(0.2%)*	$ 2.3	*$ 3.0*	*$ (0.7)*
LIQUIDITY	1.6%	1%	0.6%	$ 4.8	$ 3.0	$ 1.9
INFLATION	5.0%	6%	(1.0%)	$ 14.7	$ 17.7	$ (3.0)
TRUST LEVEL	0.6%	-	0.6%	$ 1.7	-	$ 1.7
ARS	0.2%	-	*0.2%*	$ 0.5	-	*$ 0.5*
MULTI-ASSET CLASS (MAC)	0.4%	-	*0.4%*	$ 1.2	-	*$ 1.2*
OVERLAY+TRANS+PLAN	*0.0%*	-	*0.0%*	$ 0.0	-	*$ 0.0*
TOTAL FUND	100.0%	100.0%	0.0%	$ 295.8	$ 295.8	$ -

[1] Interim strategic targets adopted by the Investment Committee at the June 2015 Investment Committee meeting.

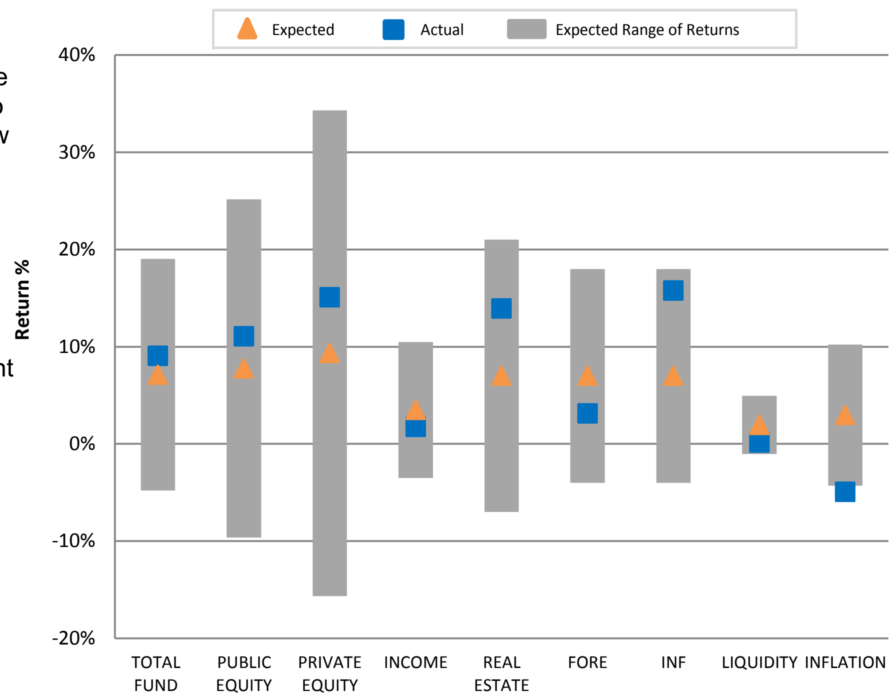
ASSET LIABILITY MANAGEMENT EXPECTATIONS VS. ACTUAL RESULTS

***Investment Belief 7**: CalPERS will take risk only where we have a strong belief we will be rewarded for it. An expectation of a return premium is required to take risk; CalPERS aims to maximize return for the risk taken.*

Asset Liability Assumptions

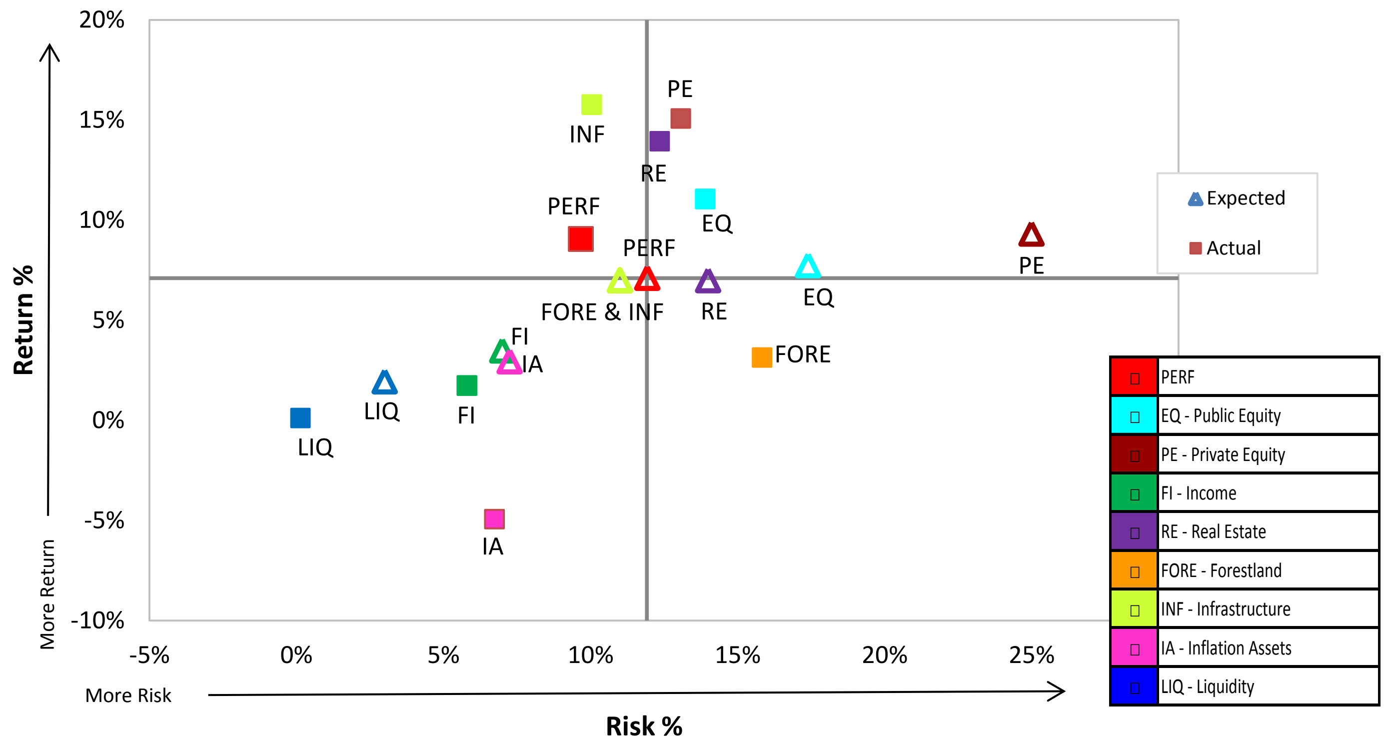
As part of the Strategic Asset Allocation process, a comprehensive strategy analysis shall be completed at least once every four years and will be presented to the Investment Committee (IC) for review and approval of policy target asset class allocations and ranges. Staff may recommend a more frequent analysis of asset class allocations and ranges if expected returns, risks or liability values have substantially changed since the prior analysis. Additionally, the strategy shall be reviewed by staff at the mid-point of the four year cycle or as needed to ensure that all assumptions used in establishing the strategy continue to be reasonable. Staff may also recommend to the IC changes in the policy targets and ranges. The strategy shall reflect analyses that consider the current and expected financial condition of CalPERS including projected CalPERS liabilities. Analyses shall also encompass the expected long-term capital markets outlook, expected inflation, and CalPERS risk tolerance.

Expected Return vs. 3-Year Actual Return



Note: The expected range of returns is based on the expected volatility of returns (standard deviation) from the 2013 ALM Workshop.

Expected Risk and Return* vs. Total Projected Risk and Actual Return



*Expected risk and return is based on the 2013 ALM Workshop and uses the short-term (1-10year) expected return from capital market assumptions.

PERFORMANCE SUMMARY

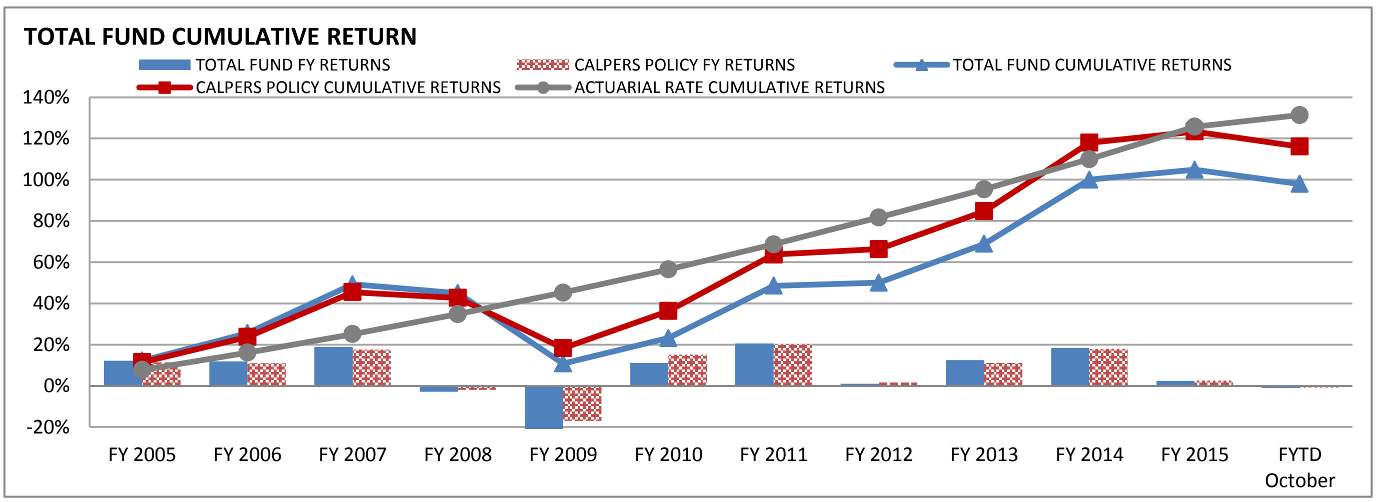
Investment Belief 5: *CalPERS must articulate its investments goals and performance measures and ensure clear accountability for their execution.*

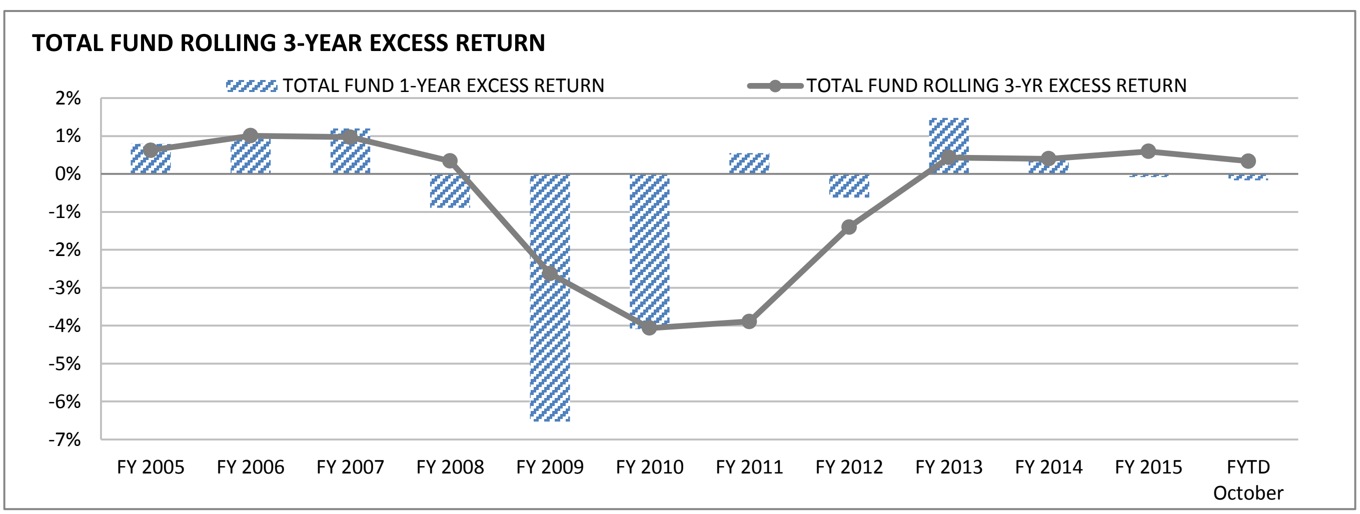
As of October 31, 2015	FYTD		3-YR		5-YR		10-YR		20-YR	
	Net Return	Excess BPS	Net Return	Excess BPS	Net Return	Excess BPS	Net Return	Excess BPS	Net Return	Excess BPS
GROWTH	(2.0%)	6	11.6%	(62)	9.6%	(40)	6.6%	(103)	8.1%	22
PUBLIC EQUITY	(2.9%)	4	11.1%	30	8.4%	23	5.8%	(37)	7.6%	41
PRIVATE EQUITY	2.9%	72	15.1%	(356)	14.5%	(197)	11.4%	(298)	12.2%	112
INCOME	1.0%	(34)	1.7%	86	4.6%	69	6.4%	70	6.8%	59
REAL ASSETS	3.2%	1	13.2%	178	12.6%	80	1.5%	(699)	7.6%	(231)
REAL ESTATE	3.4%	(22)	13.9%	176	14.0%	92	1.0%	(822)	7.3%	(295)
FORESTLAND	0.5%	1	3.1%	(663)	(1.1%)	(718)	N/A	N/A	N/A	N/A
INFRASTRUCTURE	4.6%	217	15.8%	1,035	19.0%	1,279	N/A	N/A	N/A	N/A
LIQUIDITY	(0.1%)	(9)	0.1%	(52)	1.1%	(45)	2.0%	(19)	3.1%	6
INFLATION	(6.0%)	20	(4.9%)	76	0.2%	121	N/A	N/A	N/A	N/A
TRUST LEVEL										
TOTAL FUND	(1.0%)	(16)	9.1%	34	8.4%	20	5.8%	(107)	7.4%	(11)

TOTAL FUND SINCE INCEPTION DATE NET RATE OF RETURN (07/01/1988) 8.48%

	FYTD		3-YR		5-YR		10-YR		20-YR	
	Net Return	Excess BPS	Net Return	Excess BPS	Net Return	Excess BPS	Net Return	Excess BPS	Net Return	Excess BPS
TOTAL FUND (TF)	(1.0%)	(16)	9.1%	34	8.4%	20	5.8%	(107)	7.4%	(11)
TAP[1]	1.3%	-		-	-	-		-		-
TF PLUS TAP	**(1.0%)**	-	**9.1%**	**-**	**8.4%**	**-**	**5.8%**	**-**	**7.4%**	**-**

[1] Terminated Agency Pool (TAP) funded in July 2013 and exists to provide benefit payments to members who are employees of agencies that have terminated their contract with CalPERS.





TOTAL FUND RISK

Investment Belief 9: *Risk to CalPERS is multi-faceted and not fully captured through measures such as volatility or tracking error. CalPERS shall develop a broad set of investment and actuarial risk measures and clear processes for managing risk. The path of returns matters, because highly volatile returns can have unexpected impacts on contribution rates and funding status.*

Overview

Risk management is central to managing the assets of CalPERS and to achieving the strategic objectives. A framework for risk management is established through the adoption of investment policies for total fund strategic asset allocation, individual asset classes and portfolios with appropriate benchmarks and reasonable risk limits for the implementation of the risk program. The level of risk assumed will be monitored and reported using selected risk metrics as required in the Risk Management Policy.

Risk Measure	9/30/2015	6/30/2015	Explanation of Risk Measures:
Forecast Total Risk			
Portfolio	9.7%	9.1%	The total (gross) risk of the Total Fund expressed in the standard deviation (1 yr) of the funds total return distribution, expressed in percent. The forecast expected return of the Total Fund from the current ALM process is 7.1%. There is two-thirds probability that the Total Fund return over the next year will be between -2.6% and 16.8%, and a 95% probability that the fund will return between -12.2% and 26.5%.
Benchmark	9.5%	8.8%	
Forecast Tracking Error			
Portfolio	0.7%	0.7%	Forecast tracking error is the difference in risk between a managed portfolio and benchmark, measured as the standard deviation (1-yr) of the differential return between the portfolio and an equal investment in the benchmark. There is a two-thirds probability that the Total Fund excess return will fall within 0.7% above or below the policy benchmark return, and 95% probability the return of the Total Fund will fall within 1.4% above or below the policy benchmark return.
Value at Risk (10 day, 95%)			
Portfolio	$9.0 B	$9.1 B	Value at Risk (VaR) characterizes the potential loss in a portfolio over a given period for a chosen probability level. There is a 1 in 20 chance that the Total Fund will experience a drawdown greater than the specified amount over a 10-day period.
Expected Shortfall (10 day, 95%)			
Portfolio	$11.2 B	$11.5 B	Expected shortfall measures the magnitude of loss in an event outside of a specified VaR confidence level and mathematically it is the mean of the tail distribution. The expected shortfall of the portfolio over a 10-day horizon and 95% confidence level is the specified amount.

Risk and Return Summary

	Portfolio Risk			Active Risk			
Asset Class	3-Year Realized Return(%)[1]	3-Year Realized Risk(%)	1-Year Projected Total Risk(%)	3-Year Active Return(%)	3-Year Active Risk(%)	Projected Active Risk(%)	3-Year Realized Info Ratio
GROWTH	9.3%	8.4%	13.6%	-0.6%	1.8%	1.0%	-0.3
Public Equity	8.2%	10.1%	13.9%	0.4%	0.3%	0.2%	1.3
Private Equity	15.3%	3.3%	13.1%	-3.5%	8.6%	5.9%	-0.4
INCOME	1.8%	4.9%	5.8%	0.9%	0.7%	0.4%	1.3
REAL ASSETS	15.7%	9.0%	11.8%	4.3%	7.4%	3.8%	0.6
Real Estate	16.7%	10.0%	12.4%	4.5%	8.4%	3.7%	0.5
Forestland	3.5%	5.0%	15.8%	-6.3%	4.0%	8.7%	-1.6
Infrastructure	18.7%	9.6%	10.0%	13.3%	9.3%	10.0%	1.4
LIQUIDITY	0.2%	1.3%	0.1%	-0.4%	0.7%	1.2%	-0.5
INFLATION	-5.4%	6.3%	6.7%	0.7%	0.9%	1.6%	0.8
ARS	6.7%	3.1%	3.7%	1.4%	3.1%	3.8%	0.4
TOTAL FUND	7.8%	5.6%	9.7%	0.6%	1.4%	0.7%	0.4

NOTE: Due to reporting contraints, all risk statistics are as of September 30, 2015

[1]Gross returns include the offsetting impact of management fees incurred by Private Equity fund investments