

CalPERS Chief Investment Officer Total Fund Update

Appendix B: Portfolio Risk

Joe Dear, CIO

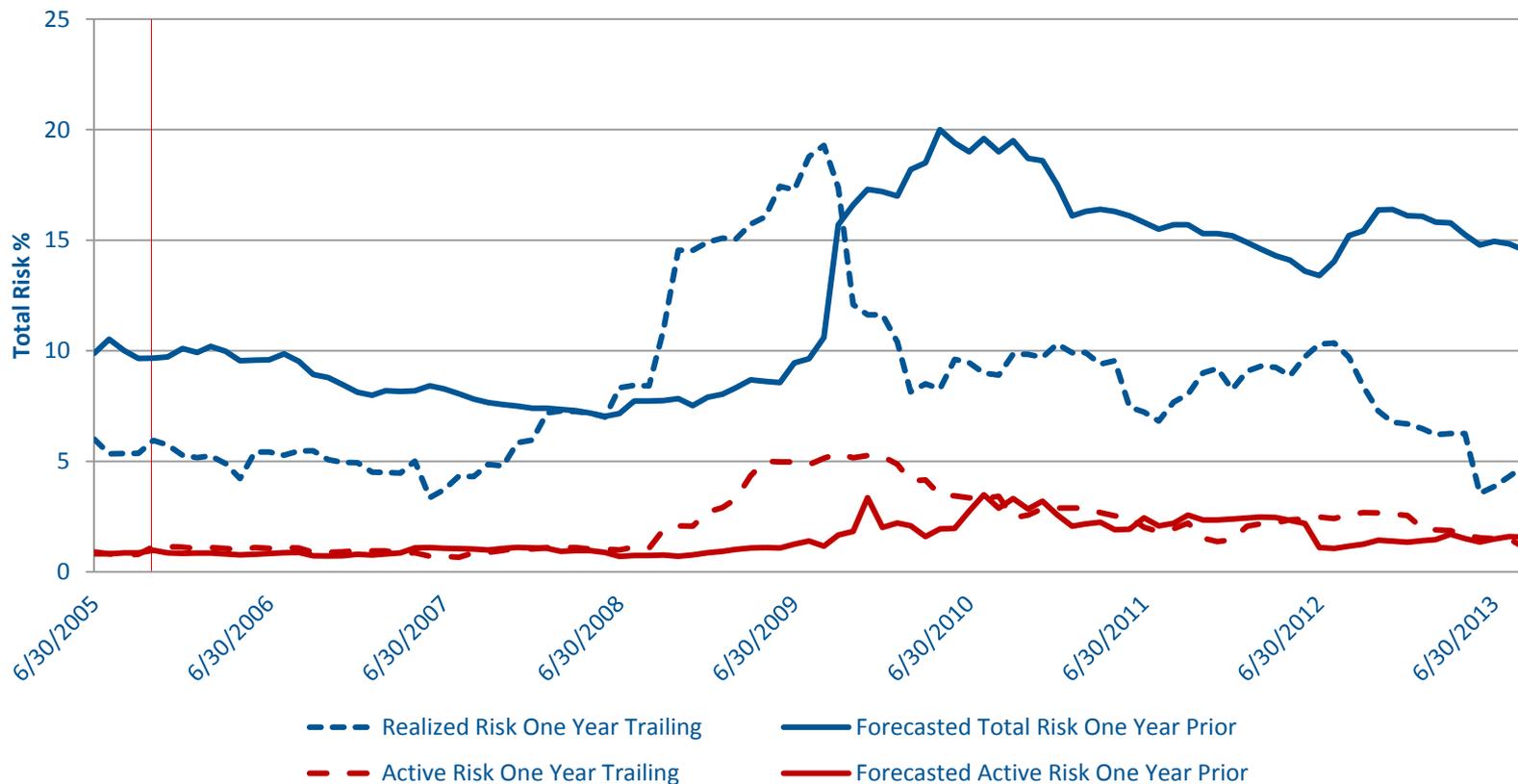
Investment Committee
November 2013

Topics

- Total Risk Time Series – Forecasted
- Active Risk Time Series – Forecasted
- CalPERS Leverage
- Derivative Counterparty Exposure Report
- Liquidity Analysis
- Scenario Analysis – Best and Worst
- Active Portfolio Allocation
- Active Risk Summary Table
- Top Equity Issuer Value at Risk

Forecasted Risk Time Series

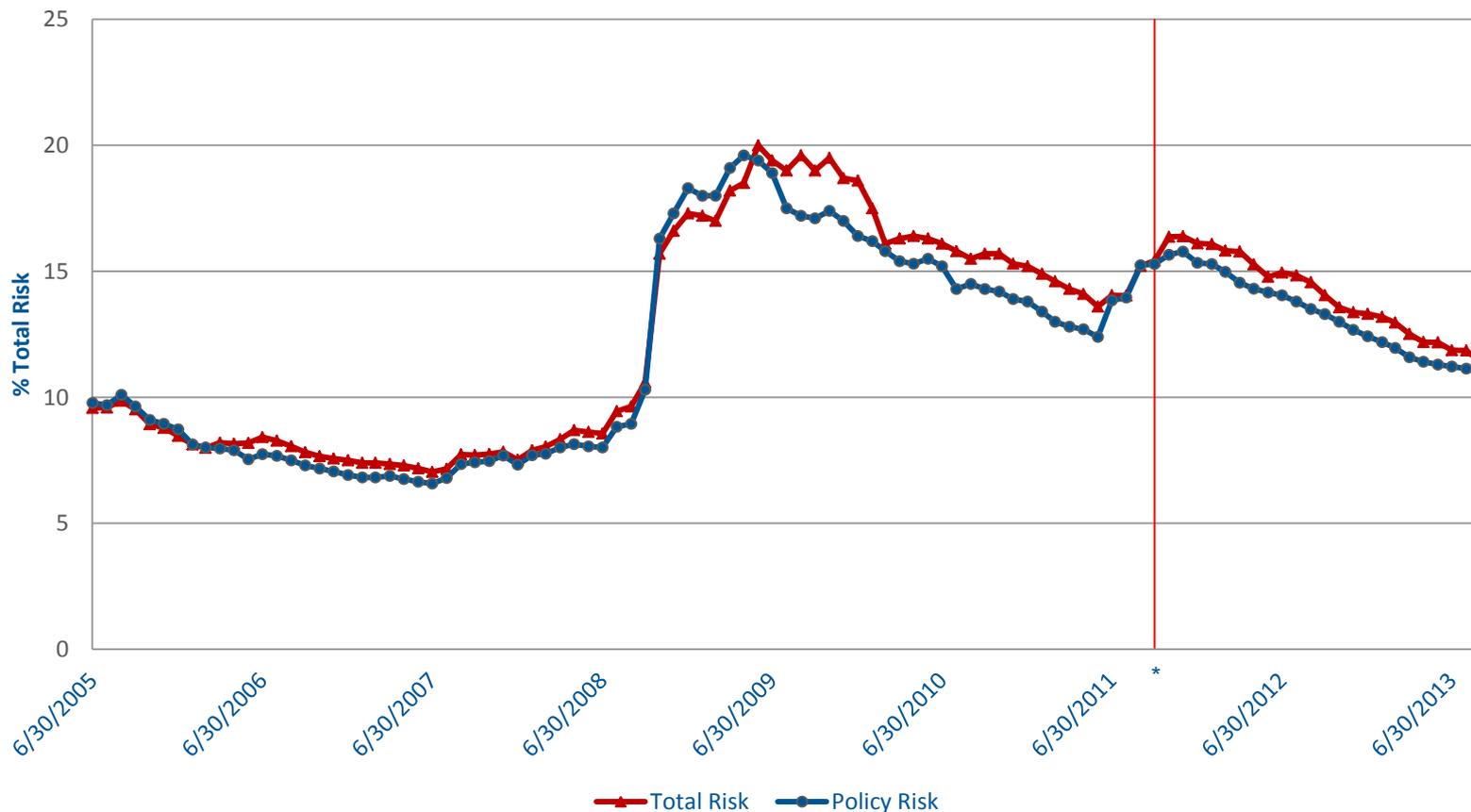
Total and Active Risk - Forecasted and Trailing One-Year Realized



Note: All risk statistics as of August 31, 2013

Total Risk Time Series - Forecasted

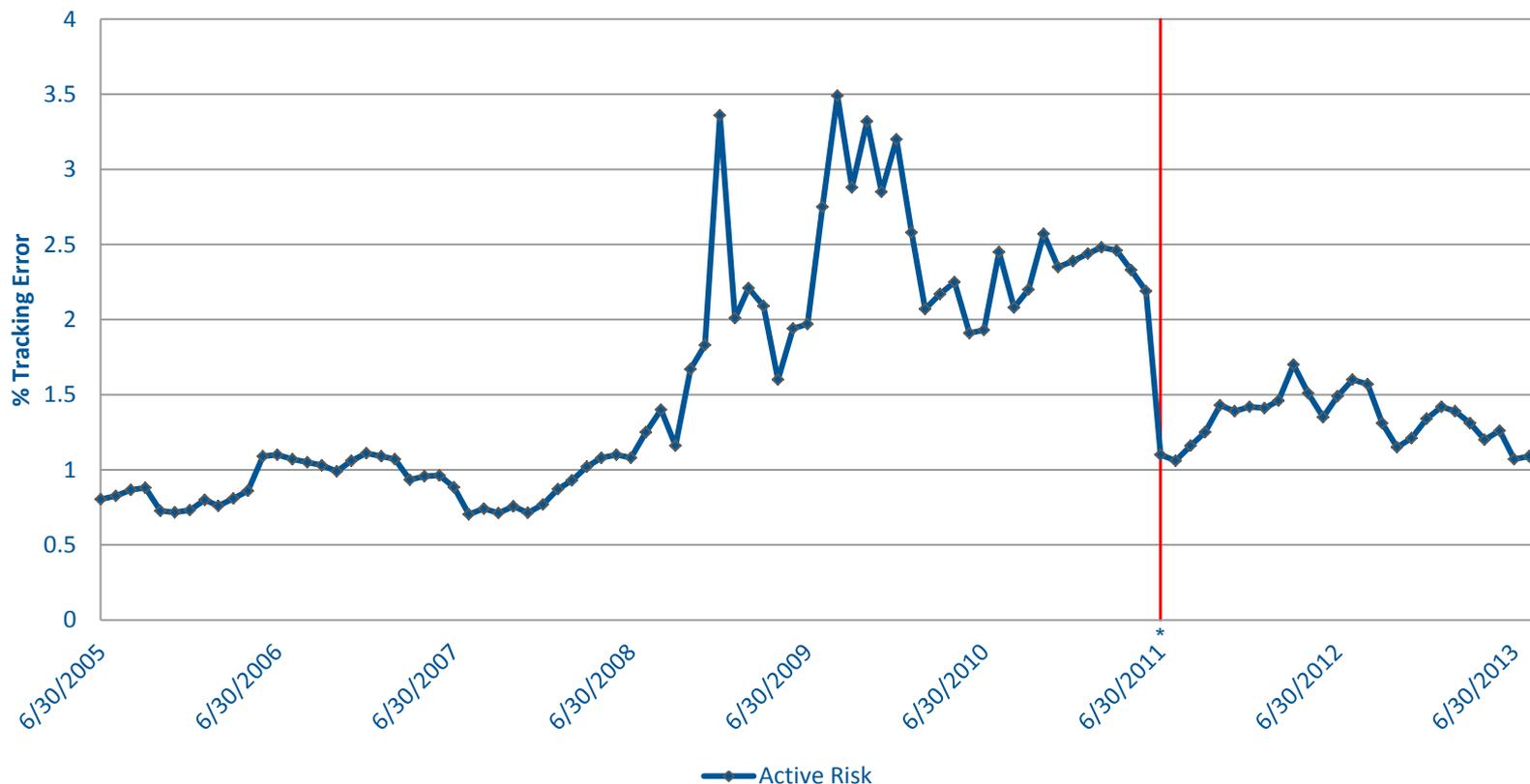
History of 1 Year Forecasted Total Risk



* The red line denotes the cutover to BarraOne and the new BIM 301 model for 6/30/12 month end. The BIM 301 model introduced several changes including a new Real Estate model, new currency model, and more frequent observations in building the covariance matrix.

Active Risk Time Series - Forecasted

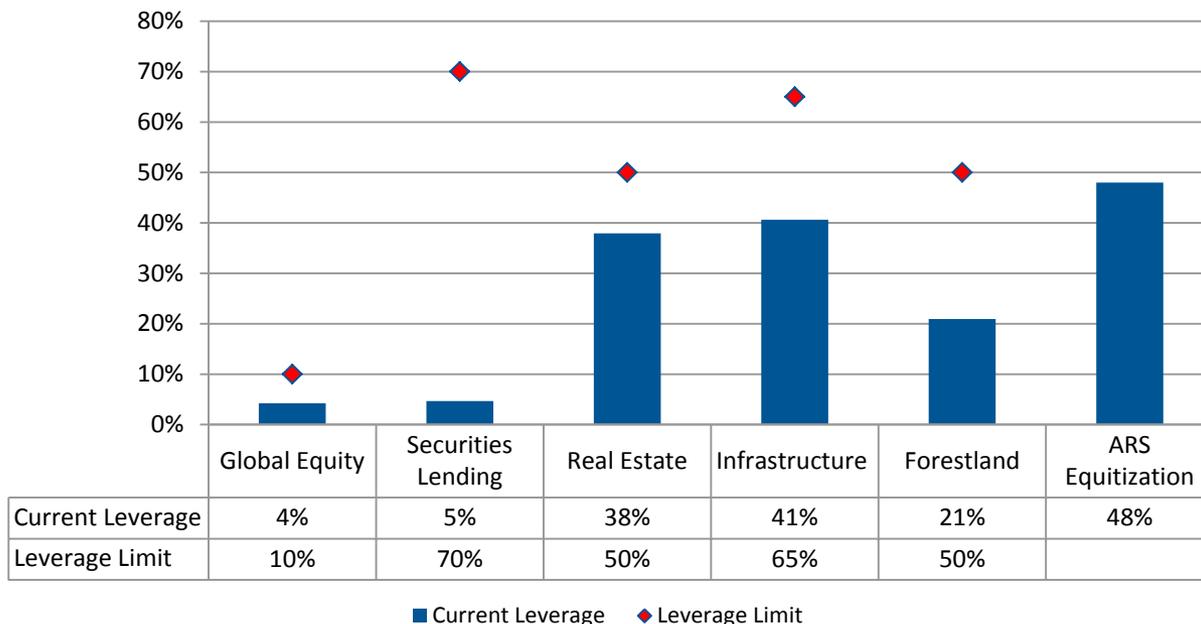
History of 1 Year Forecasted Tracking Error



* The red line denotes the cutover to BarraOne and the new BIM 301 model for 6/30/12 month end as well as the change to the new risk based asset allocation framework. Both asset class and policy benchmark changes for the new allocation framework were incorporated for the 6/30/12 reporting period resulting in a recasting of active risk vs. this new information set.

CalPERS Leverage*

As of August 31, 2013



*Leverage Definitions

Global Equity, Real Estate, Infrastructure, Forestland: $(\text{Market Exposure} / \text{Equity Capital}) - 1$

Securities Lending: $\text{Reinvestment Pool with Maturity} > 90 \text{ Days} / \text{Total Reinvestment Pool}$

ARS: $\text{Equity Beta Futures Overlay Notional Value} / \text{ARS Fair Market Value}$

Derivative Counterparty Exposure Report

As of August 31, 2013

Counterparty	FORWARD (\$)	OPTION (\$)	SWAP (\$)	CalPERS Exposure (\$)	Counter Party Exposure(\$)	Total (\$)	Collateral Posted (\$)*	Net Exposure (\$)	CDS Spread	Credit Rating	Above Average	ISDA Compliance
Bank of America	13,684,663.00	(2,775,303.00)	4,530,541.00	55,014,685.00	(39,574,784)	15,439,901	(9,900,000.00)	5,539,901	38	A	Yes	Yes
BPS	13,759,929.00		5,052,299.00	19,847,003.00	(1,034,775)	18,812,228	(9,500,000.00)	9,312,228	24	A+	No	Yes
Barclays PLC	178,422.00		500.00	959,114.00	(780,192)	178,922		178,922		A	No	Yes
Commonwealth Bank of Australia	7,766,382.00			18,508,421.00	(10,742,039)	7,766,382		7,766,382	30		Yes	Yes
Citigroup	(9,019,526.00)			18,800,907.00	(27,820,433)	(9,019,526)	4,250,000.00	(4,769,526)	28	A	No	Yes
Credit Suisse	82,022.00			82,022.00		82,022		82,022		A	No	Yes
Credit Suisse International	(4,629,954.00)		9,064,647.00	15,351,195.00	(10,916,502)	4,434,693	(5,500,000.00)	(1,065,307)	21		Yes	Yes
Deutsche Bank	(136,129.00)	(1,602,310.00)	10,531,826.00	12,461,736.00	(3,668,349)	8,793,387		8,793,387	48	A+	No	Yes
Goldman Sachs Intl.	13,027,470.00	9,252,090.00	16,114,686.00	68,249,737.00	(29,855,491)	38,394,246	(12,900,000.00)	25,494,246	NA	A	No	Yes
HSBC	(2,827,324.00)			13,062,805.00	(15,890,129)	(2,827,324)		(2,827,324)	32	AA-	No	Yes
JPMorgan	(389,304.00)	5,040,689.00	38,629,171.00	64,770,239.00	(21,489,683)	43,280,556	(21,650,000.00)	21,630,556		A+	No	Yes
Macquarie			7,861,268.00	7,861,268.00		7,861,268	(10,250,000.00)	(2,388,732)	53		Yes	Yes
Morgan Stanley Capital Service	(2,152,266.00)			71,389.00	(2,223,655)	(2,152,266)		(2,152,266)	17	A	Yes	Yes
RBS	8,645,171.00	(63,875.00)		13,455,608.00	(4,874,312)	8,581,296		8,581,296	116	A	Yes	Yes
Standard Chartered Bank	(1,669,139.00)			603,030.00	(2,272,169)	(1,669,139)		(1,669,139)	63	AA-	Yes	Yes
Societe Generale	4,844,035.00			5,701,121.00	(857,086)	4,844,035		4,844,035	NA	A	Yes	Yes
State Street	(304,445.00)			42,103.00	(346,548)	(304,445)		(304,445)	80	A+	No	Yes
UBS	(9,600,824.00)			764,912.00	(10,365,736)	(9,600,824)		(9,600,824)	NA	A	No	Yes
WestPac Bank	1,956.00			1,956.00		1,956		1,956	44	AA-	No	Yes
Grand Total	31,261,139.00	9,851,291.00	91,784,938.00	315,609,251.00	(182,711,883)	132,897,368	(65,450,000.00)	67,447,368				

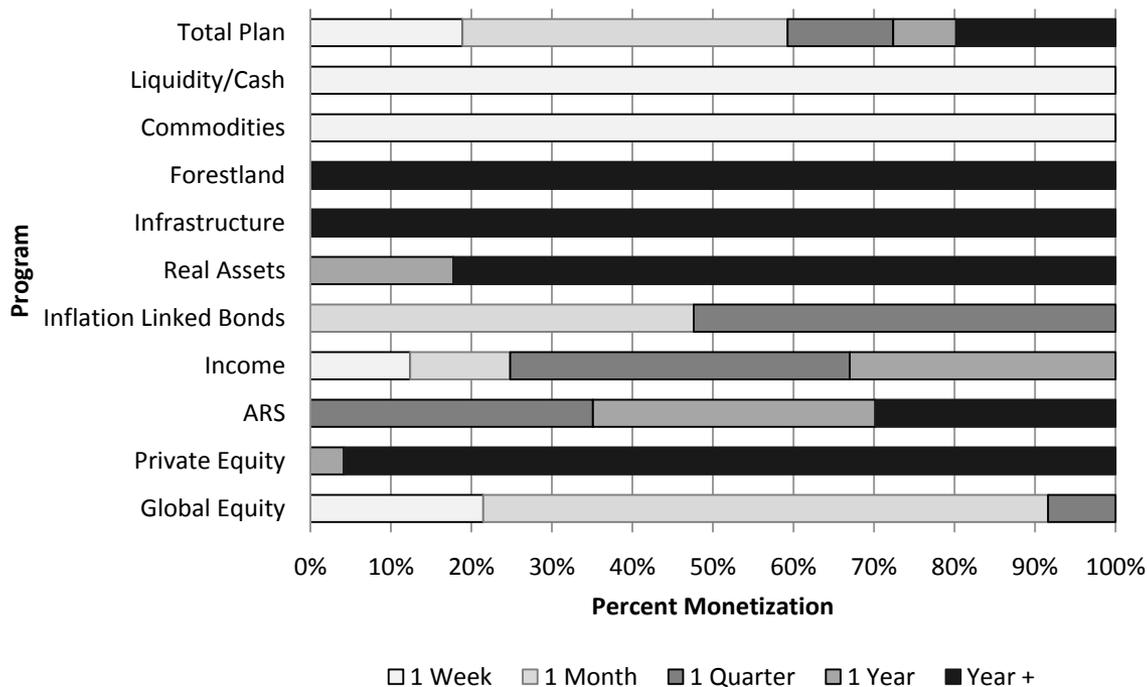
*As of 8/31 Counterparties posted 70mm to CalPERS

Note: As of 8/31 Mortgage TBA Exposure was 5mm in negative market to market value, i.e. Counterparties had exposure to CalPERS

Liquidity Analysis

As of August 31, 2013

Liquidity Analysis: Total Plan

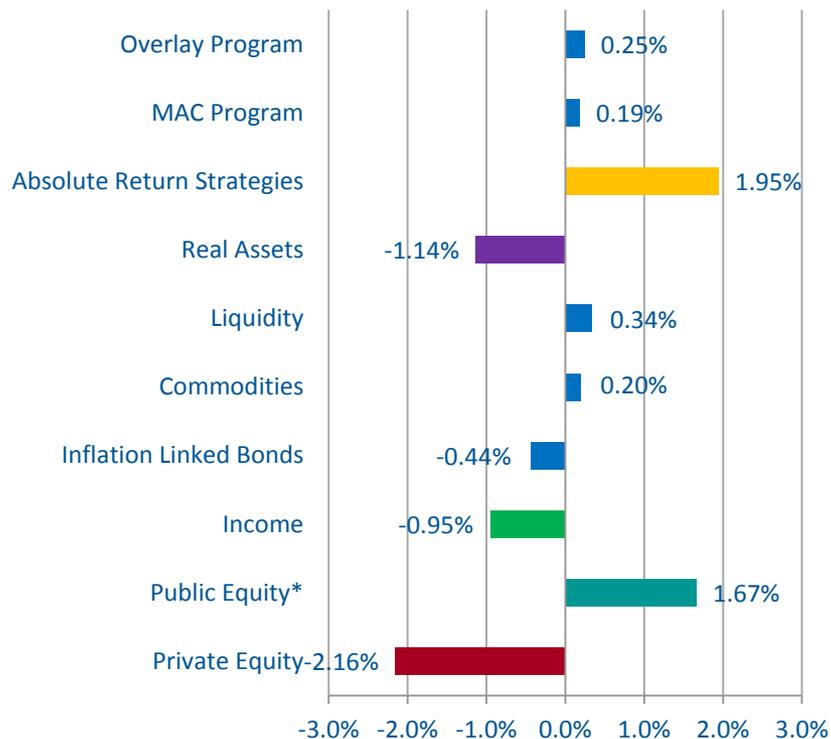


	1-Week	1-Month	1-Quarter	1-Year	Year +
Total Fund by Time Bucket	19%	40%	13%	8%	20%
Total Fund Cumulative	19%	59%	72%	80%	100%

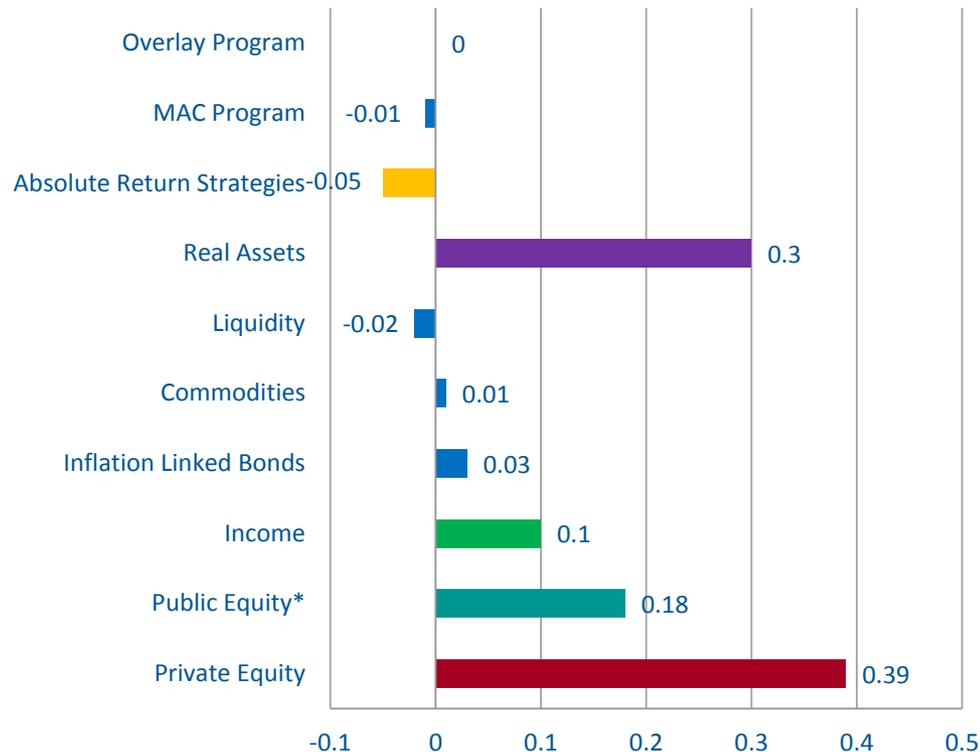
Active Portfolio Allocation

As of August 31, 2013

Active Weight (%)



Active Risk Contribution



*Public Equity does not include the ARS equitization

Active Risk Summary Table

Asset Class	Market Value (\$millions)	Total Risk (%)	%Contribution to Total Risk	Active Risk	Correlation	Value-at-Risk (\$millions)	Conditional Value-at-Risk (\$millions)*
Private Equity	31,412	15.08	14.84	5.73	.95	1,500	1,941
Public Equity	137,053	16.22	72.93	.32	.99	7,151	9,071
Income	42,242	5.76	.93	.74	.12	808	1,016
Commodities	3,180	20.61	1.05	1.22	.48	208	264
Inflation-Linked Bonds	6,793	5.93	.58	1.24	.43	126	158
Real Assets	26,140	13.25	9.32	4.44	.82	1,111	1,425
Liquidity	11,515	1.66	-.015	.30	-.24	63	78
Absolute Return	5,210	3.56	.48	3.69	.79	54	68
MAC Program	511	4.83	.03	4.83	.35	8	10
Beta Overlay**	618	63.75	1.28	47.76	.98	126	162
Currency Overlay***	58	-	-1.26	-	-.41	302	380
CalPERS PERF	264,896	11.39	100	.91	1.00	9,753	12,349

*10 day, 95% confidence Monte Carlo Value-at-Risk (VaR) simulation

** Beta Overlay market value is collateral held in the portfolio

*** Currency Overlay market value is the net mark to market on the derivatives in the portfolio

Note: All risk statistics are as of August 31, 2013

Top Equity* Issuer Value-at-Risk (VaR)

Asset Name	Value-At-Risk(\$ mm)**	Market Value (\$mm)	Weight (%)
APPLE INC	130	1,330	0.51%
EXXON MOBIL CORP	82	1,224	0.47%
MICROSOFT CORP	74	836	0.32%
SAMSUNG ELECTRONICS	66	519	0.20%
BANK OF AMERICA CORPORATION	60	553	0.21%
HSBC HOLDINGS	58	615	0.24%
JPMORGAN CHASE & CO	55	658	0.25%
GENERAL ELECTRIC CO	54	711	0.27%
WELLS FARGO & CO	54	714	0.27%
CHEVRON CORP	54	748	0.29%
CITIGROUP INC	53	513	0.20%
GOOGLE INC	53	706	0.27%

*Public Equity including listed equity held via Private Equity partnerships

**10 day, 95% confidence Monte Carlo VaR simulation

Note: All risk statistics as of August 31, 2013