CalPERS Trust Level Review
RISK MANAGEMENT SUMMARY

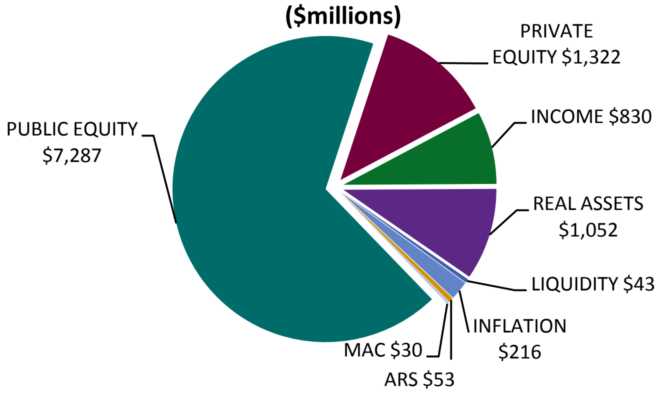
Period Ending May 31, 2014

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.*

Total Fund Volatility Trends (%)

	Policy Limit	Current 5/31/2014	Last Qtr 3/31/2014	Last Year 5/31/2013
Total Risk	n/a	9.84	10.16	12.18
Benchmark Risk	n/a	9.56	9.93	11.30
Active Risk	< 1.5%	0.78	0.76	1.26
Allocation Risk	< .75%	0.04	0.02	-0.02
Selection Risk	n/a	0.74	0.74	1.27

Value at Risk ($millions)



Comments:

1) Total Risk and Active Risk continue to trend down due to lower volatility within each asset class as well as a reduction in the correlations amongst the asset classes. Market volatilities across equity, interest rates, and FX have reached low levels compared to historical norms and this is being reflected in the risk model estimations.

2) The contribution to active risk from selection (active bets) vs. each asset class benchmark is contributing less to active risk while the contribution from allocation has continued to move from negative to positive. The change in allocation risk contribution experienced over the past year is primarily due to market value appreciation in equity markets resulting in an overweight to Global Equities and underweight to less risky assets in Global Fixed Income.

Asset Class	Market Value ($millions)	Total Risk (%)	% Contribution to Total Risk	Active Risk (%)	Correlation***	Value-at-Risk ($millions)*	Conditional VaR($millions)**
PUBLIC EQUITY	$ 159,494	14.0%	76.1%	0.21	0.99	$ 7,287	$ 8,965
PRIVATE EQUITY	$ 31,440	13.1%	13.3%	5.44	0.93	$ 1,322	$ 1,649
INCOME	$ 47,093	5.0%	1.4%	1.19	0.10	$ 830	$ 1,031
REAL ASSETS	$ 28,353	11.4%	8.4%	3.91	0.76	$ 1,052	$ 1,337
LIQUIDITY	$ 9,971	1.3%	-0.1%	0.24	(0.21)	$ 43	$ 53
INFLATION	$ 9,788	6.9%	1.28%	1.10	0.55	$ 216	$ 271
ARS	$ 4,588	3.7%	0.48%	3.79	0.83	$ 53	$ 67
MAC	$ 1,117	8.4%	0.28%	8.40	0.86	$ 30	$ 37
TOTAL FUND**	**$ 293,566**	**9.8%**	**100.0%**	**0.78**	**1.00**	**$ 9,252**	**$ 11,616**

*10 Day, 95% confidence Value at Risk (VaR)

** 10 Day, 95% confidence Value at Risk (Var) simulation. Conditional VaR measures the mean of the tail distribution beyond the 95% confidence level

*** Correlations are vs. the entire PERF portfolio

Due to reporting contraints, all risk statistics are as of May 31, 2014

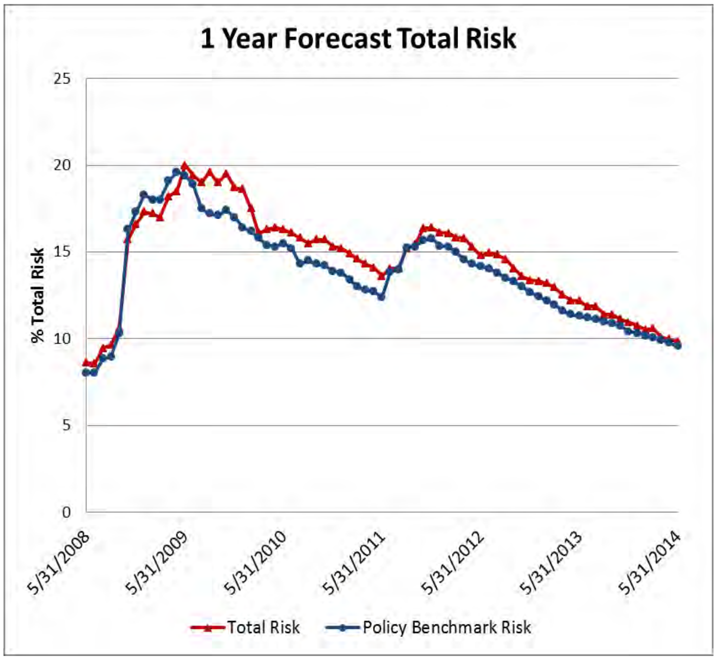
Source: BarraOne / CalPERS

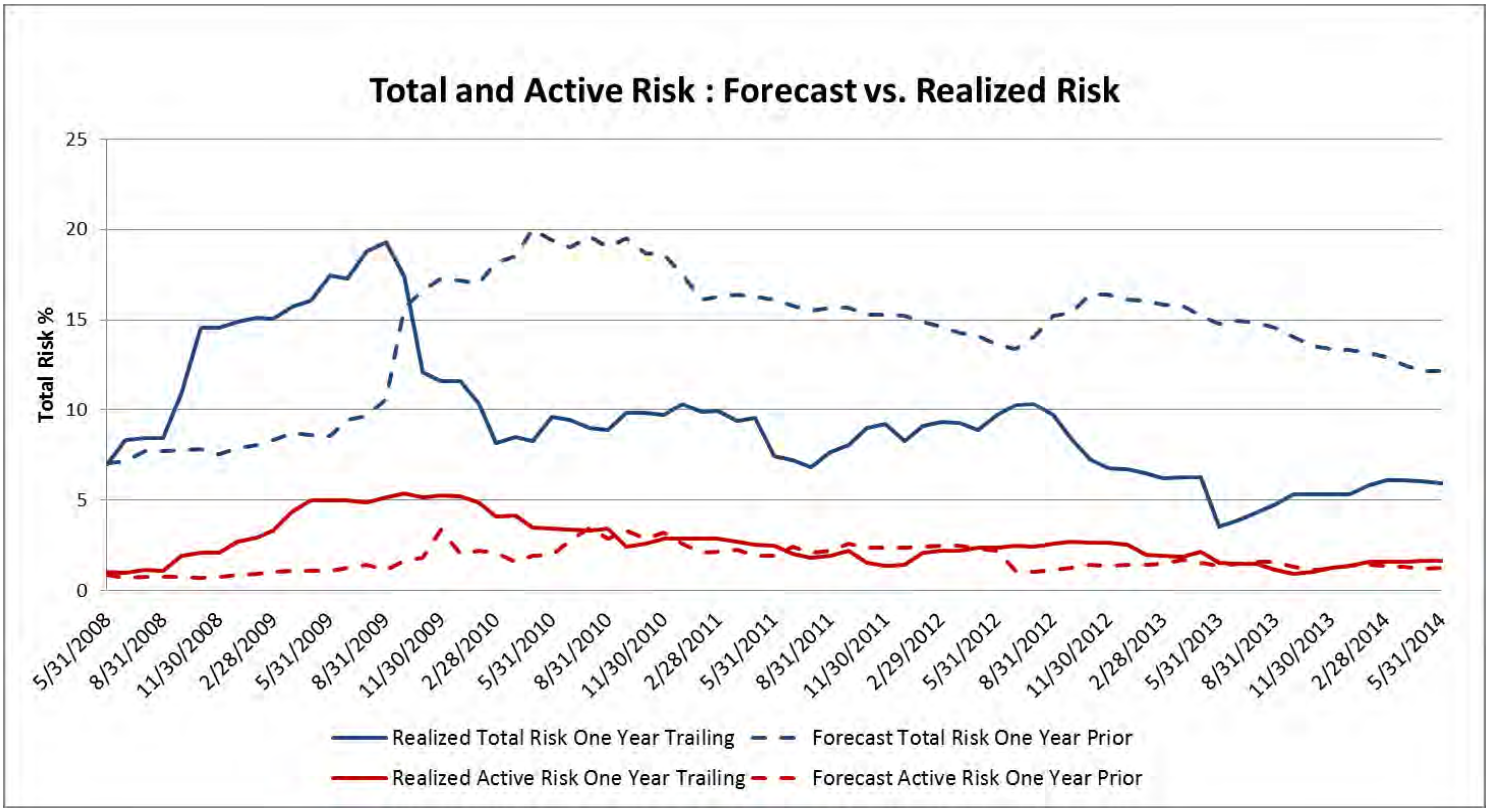
RISK MANAGEMENT TIME SERIES

Top Charts:
1 year Forecast Total Risk (Volatility) and Forecast Tracking Error (Active Risk) for the Total Fund are shown. The charts highlight the increased volatility from the 2008-2009 period.

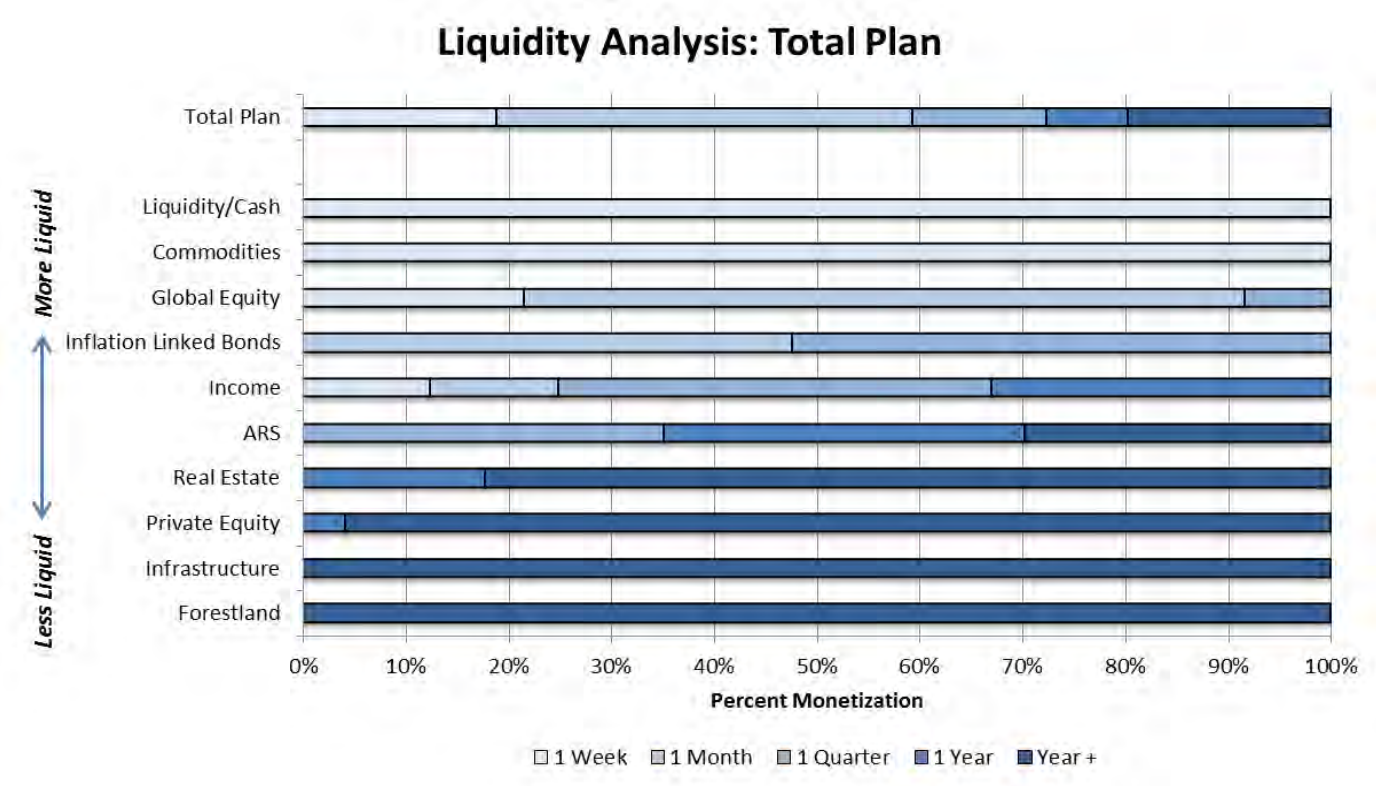
Bottom Chart:
The bottom chart plots the forecast Total and Active Risk for the Total Fund one year prior to each date vs. the Total and Active Risk realized for that date. The graph shows the lagged nature of long- term risk models that incorporate a larger backward estimation window which you can see from the realized volatility leading the forecast from the model and highlights the importance of looking at changes in realized risk that may indicate a deviation from capital markets assumptions.

Source: BarraOne , SSB, CalPERS





LIQUIDITY



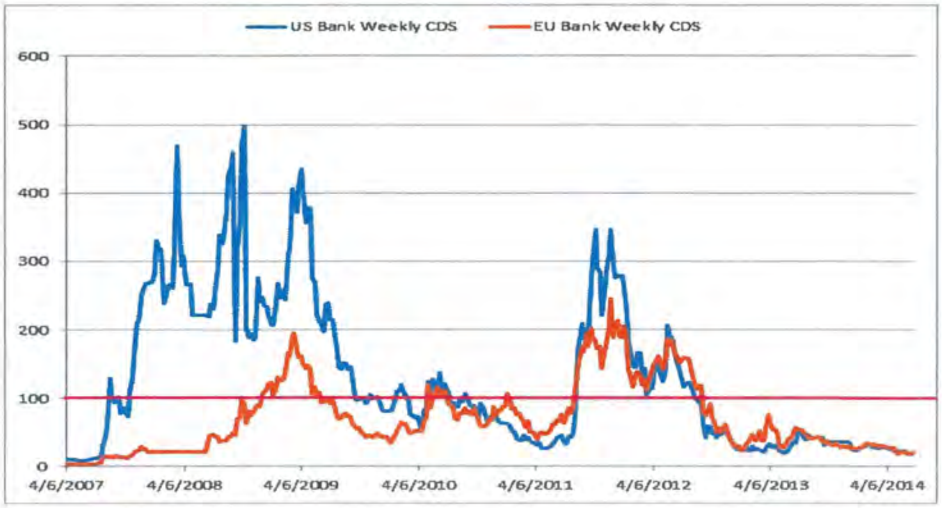
Transactional liquidity is estimated for each asset class /strategy based on the current market environment while also accounting for legal structures or other factors that may impact lliquidity. *Source: SSB, CalPERS*

PERF TACTICAL LIQUIDITY SNAPSHOT As of July 1, 2014		
	Period Starting: Period Ending:	July 1, 2014 July 31, 2014
	Overnight	**2 days - EOM**
Sources Total (cash flow in)	-	3,365,526,000
Uses Total (cash flow out)	-	(4,114,568,000)
Sources in Excess (Deficit) of Uses		(749,042,000)
Contingency Use*		(940,901,668)
Total Cash and Cash Equivalents	7,688,631,695	6,939,589,695
Liquidity Coverage Ratio		**219%**

* Contingency Use is based on a 10 Day, 99% confidence VaR of derivatives positions as an estimate of potential variation margin requirements

The Tactical Liquidity snapshot is built from estimates of future cash inflows and outflows over a 1- year horizon. For this report the 1 month forward period is being shown along with a Liquidity Coverage ratio which can be interpreted as how many times (in this case 2.19 times) our available liquid cash /cash equivalents could cover our projected cash needs over a 1 month forward period assuming normal market conditions. *Source: BarraOne, SSB, CalPERS*

COUNTERPARTY RISK



Current credit default swap (CDS) spreads are tracked for CalPERS counterparties. If the average of the CDS spreads rises above 100bps an internal meeting is held to discuss the change in trend and potential credit risk mitigating actions that might be taken.

Counterparty	FORWARD ($millions)	OPTION ($millions)	SWAP ($millions)	CalPERS Exposure ($millions)	Counter Party Exposure ($millions)	Total ($millions)	Collateral Posted ($millions)*	Net Exposure ($millions)
Bank of Montreal	(7.54)			1.95	(9.49)	(7.54)	6.75	(0.79)
Bank of America	(10.86)	(0.01)	23.21	31.66	(19.32)	12.33	(8.30)	4.03
BNP Paribas	(1.16)	0.52	4.63	13.62	(9.63)	3.99		3.99
Barclays PLC	(12.23)		2.16	12.92	(22.99)	(10.07)	1.25	(8.82)
CommonWealth Bank of Australia	(1.05)			6.52	(7.57)	(1.05)		(1.05)
Citigroup	(4.30)	(0.01)	1.21	2.38	(5.47)	(3.09)		(3.09)
Credit Suisse	(0.02)			0.04	(0.06)	(0.02)		(0.02)
Credit Suisse International	(18.75)		10.78	13.99	(21.96)	(7.98)		(7.98)
Deutsche Bank	(1.23)	(0.00)	15.98	17.05	(2.31)	14.75		14.75
Goldman Sachs Bank			0.23	0.28	(0.05)	0.23		0.23
Goldman Sachs Intl.	1.84		22.16	37.85	(13.85)	24.00	(13.15)	10.85
HSBC	(6.33)		2.35	9.37	(13.35)	(3.98)	4.70	0.72
HSBC Holdings PLC	(0.12)				(0.12)	(0.12)		(0.12)
JPMorgan	11.09		11.74	30.10	(7.27)	22.83		22.83
Macquarie			0.82	0.82		0.82	(2.00)	(1.18)
Morgan Stanley Capital Service	4.02	0.25		6.41	(2.14)	4.27		4.27
RBC Capital Markets	(1.04)			0.10	(1.14)	(1.04)		(1.04)
Standard Chartered Bank	(1.93)			0.55	(2.49)	(1.93)		(1.93)
Societe Generale	(10.09)	0.10	(0.16)	9.17	(19.32)	(10.15)		(10.15)
State Street	(0.48)			0.12	(0.59)	(0.48)		(0.48)
Toronto Dominion	8.58			8.58		8.58	(7.05)	1.53
UBS	(0.76)			0.46	(1.22)	(0.76)		(0.76)
WestPac Bank	(0.46)			0.70	(1.16)	(0.46)	0.15	(0.31)
Grand Total	(52.83)	0.85	95.11	204.64	(161.51)	43.13	(17.65)	25.48

**As of 6/27 Counterparties posted 31mm to CalPERS*

Above: Total uncollateralized and collateralized exposures are monitored for all of our over-the-counter (OTC) positions. The green check box in the OTC exposure table indicates that the uncollateralized exposure is within our procedural tolerances.

Source: Blackrock, CalPERS

Below: Futures commission merchant (FCM) exposures are monitored for how much initial margin collateral we have posted with each FCM in addition to reviewing key metrics that provide some insight on the FCMs risk profile such as Excess Net Capital (amount of additional capital the FCM has to support the business) and customer assets . Large changes in these metrics could be an indicator of potential credit or operational issues with the FCM and would trigger

FUTURES CLEARING MERCHANT EXPOSURE

Futures Commission Merchant	Collateral Posted	Procedure Check	Excess Net Capital	Procedure Check	Customers' Assets	Procedure Check
CITIGROUP GLOBAL MARKETS INC	10,200,000.00		5,037,040,774		5,235,415,609	
CREDIT SUISSE SECURITIES (USA) LLC	87,118,000.00		6,646,826,621		9,181,927,607	
GOLDMAN SACHS & CO	283,000,000.00		15,344,857,130		20,127,925,991	

**As of June 27, 2014*

LEVERAGE

Total Fund Leverage Report

as of 5/31/14

		Leverage Sources ($Billions)								
		CalPERS controlled leverage deployment							Leverage embedded in company structure or investment vehicle	
Asset Class	Net Market Value ($Billions)	Notional Exposure	Non Recourse Debt	Recourse Debt[5]	Contingent Claim	Policy Leverage Calc %[11]	Policy Limit	Embedded Leverage Sources[4,6]	Total Gross Exposure[9] ($Billions)
Public Equity[3]	$ 159.5	5.3	-	-	-	3%	10%	53.9	$ 218.7
Private Equity[6]	31.4	-	-	-	-	-	-	12.5	43.9
Income	47.1	1.5	-	-	-	3%	10%		48.6
Liquidity	10.0	-	-	-	-	-	-		10.0
Real Estate	24.5	-	13.7	0.2	-	36%	50%		38.5
Infrastructure	1.6	-	1.3	0.3	-	44%	65%		2.9
Forestland	2.2	-	0.6	-	-	21%	50%		2.8
Inflation Linked	9.3	-	-	-	-	-	-		9.3
ARS (incl. MAC)[10]	5.7	-	-	-	-	-	-		5.7
Transition + Overlay	1.7	-	-	-	-	-	-		1.7
Total Fund	$ 293.6	6.8	15.6	0.6	-	-	-	66.4	$ 382.0

Programs	Net Market Value ($Billions)	Notional Exposure	Non Recourse Debt	Recourse Debt	Contingent Claim	Policy Leverage Calc %	Policy Limit	Embedded Leverage Sources	Total Gross Exposure[9] ($Billions)
Credit Enhancement[7]	-	-	-	-	1.3	-	-	-	1.3
Asset Based Lending[8]	-	-	-	-	0.2	-	-	-	0.2
Currency Overlay[1]	-	15.5	-	-	-	-	-	-	15.5
Securities Lending[2]	-	1.2	-	-	-	6%	70%	-	0.8
Total- Unfunded Programs/Overlays		16.7			1.5	-	-	-	$ 17.7
Total Asset Class + Programs	$ 293.6	23.5	15.6	0.6	1.5	-	-	66.4	$ 399.7

1. Currency Overlay - Overlay has been unwound and will no longer appear on future reports.
2. Securities Lending notional exposure is the dollar amount of reinvested capital with maturity greater than 90 days. Policy Leverage % for Securities Lending is calculated as the notional exposure divided by the total size of the program. The size of the Securities Lending program as of 5-31 was $19.4 Billion.
3. Public Equity Notional Exposure is the net notional value of derivatives that are not backed by cash like instruments.
4. Embedded leverage represented for Public Equity is non-recourse debt. This amount is estimated using the average LT Debt/Capital ratio (currently at 33.8%) of the underlying holdings.
5. Recourse Debt in Real Estate decreased by $.21 Billion from prior quarter and increased by $.21 Billion in Infrastructure, resulting in no net change at the Total Plan.
6. Embedded leverage for Private Equity is non-recourse debt exposure at the investment company level or within commingled funds. This is estimated using the average Net Debt/Enterprise Value ratio (currently estimated at 40%) for all PE holdings.
7. Credit Enhancement - exposure is contingent upon default of underlying obligation being insured + estimated recovery ratio on the security.
8. Asset Based Lending - exposure is contingent upon default of underlying obligation + estimated sale of recoverable assets.
9. Total Gross Exposure is the sum of Net Market Value + Leverage Sources (within CalPERS direct control for implementation as well as embedded leverage).
10. For ARS and other strategies where limited transparency is available, net exposure is measured as the estimated global equity beta. The current estimated beta of ARS to global equity is .2.
11. Policy Calculations - limits for leverage are typically set on leverage source(s) within an asset class/program where deployment is controlled or influenced by internal staff. The below table summarizes the specific policy limits shown in the table above and which leverage source they are specified against.

Asset Class / Program	Leverage Type	Policy Limit
Public Equity	Notional Leverage	10%
Income	Notional Leverage	10%
Real Estate	Non-Recourse + Recourse	50%
Infrastructure	Non-Recourse + Recourse	65%
Forestland	Non-Recourse + Recourse	50%
Securities Lending	Notional Leverage	70%

HISTORICAL SCENARIOS

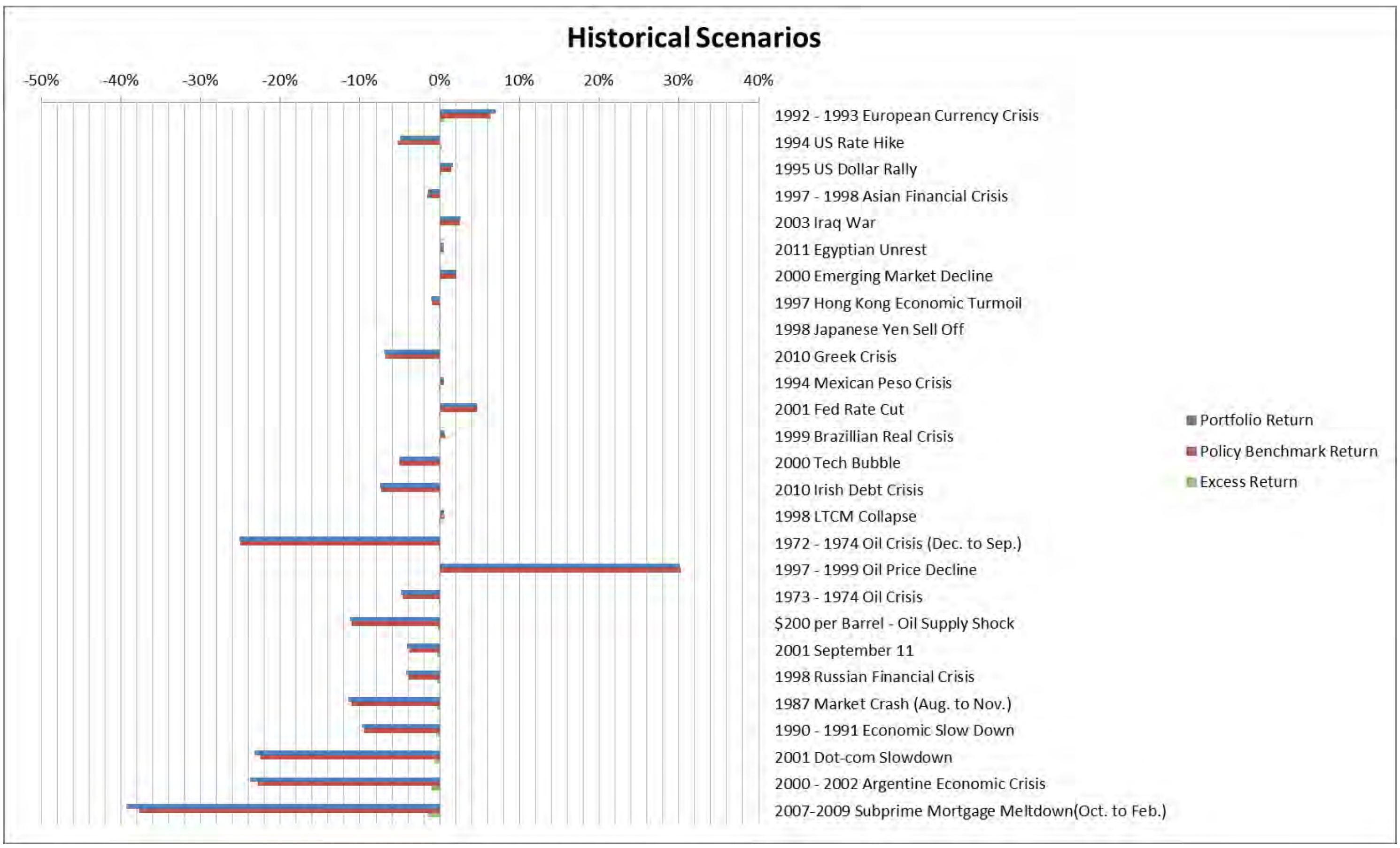
Historical scenarios highlight the sensitivity of the portfolio to past economic regimes or specific events . The scenarios can be used as a "what if" gauge of current portfolio positioning to understand the potential impact if a similar event or regime were to repeat.

Best and Worst Scenarios - Excess Return

Scenario	Portfolio Return	Policy Benchmark Return	Excess Return
1992 - 1993 European Currency Crisis	6.98%	6.41%	0.58%
1994 US Rate Hike	-4.98%	-5.25%	0.27%
1995 US Dollar Rally	1.65%	1.44%	0.22%
2001 Dot-com Slowdown	-23.21%	-22.54%	-0.68%
2000 - 2002 Argentine Economic Crisis	-23.80%	-22.76%	-1.04%
2007-2009 Subprime Mortgage Meltdown(Oct. to Feb.)	-39.28%	-37.76%	-1.52%

Best and Worst Scenarios - Portfolio Return

Scenario	Portfolio Return	Policy Benchmark Return	Excess Return
1997 - 1999 Oil Price Decline	30.12%	30.26%	-0.15%
1992 - 1993 European Currency Crisis	6.98%	6.41%	0.58%
2001 Fed Rate Cut	4.68%	4.76%	-0.08%
2000 - 2002 Argentine Economic Crisis	-23.80%	-22.76%	-1.04%
1972 - 1974 Oil Crisis (Dec. to Sep.)	-25.14%	-25.02%	-0.12%
2007-2009 Subprime Mortgage Meltdown(Oct. to Feb.)	-39.28%	-37.76%	-1.52%



Source: BarraOne / CalPERS