

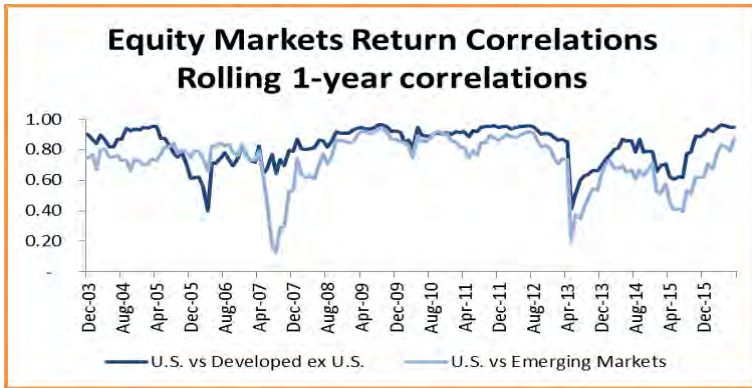
International Public Markets

Mike Rosborough, Investment Director
Simiso Nzima, Investment Manager

September 19, 2016

International Public Markets | The Case for International Investing

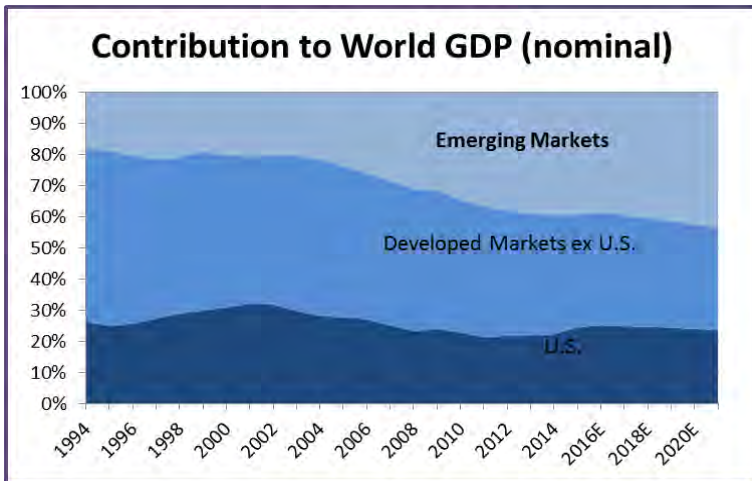
Diversification and Growth.



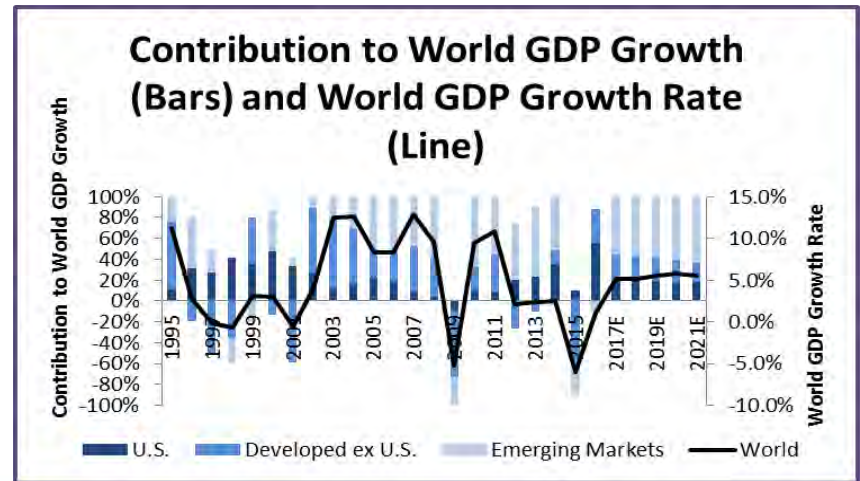
Source: FTSE Data



Source: FTSE Data



Source: IMF Data



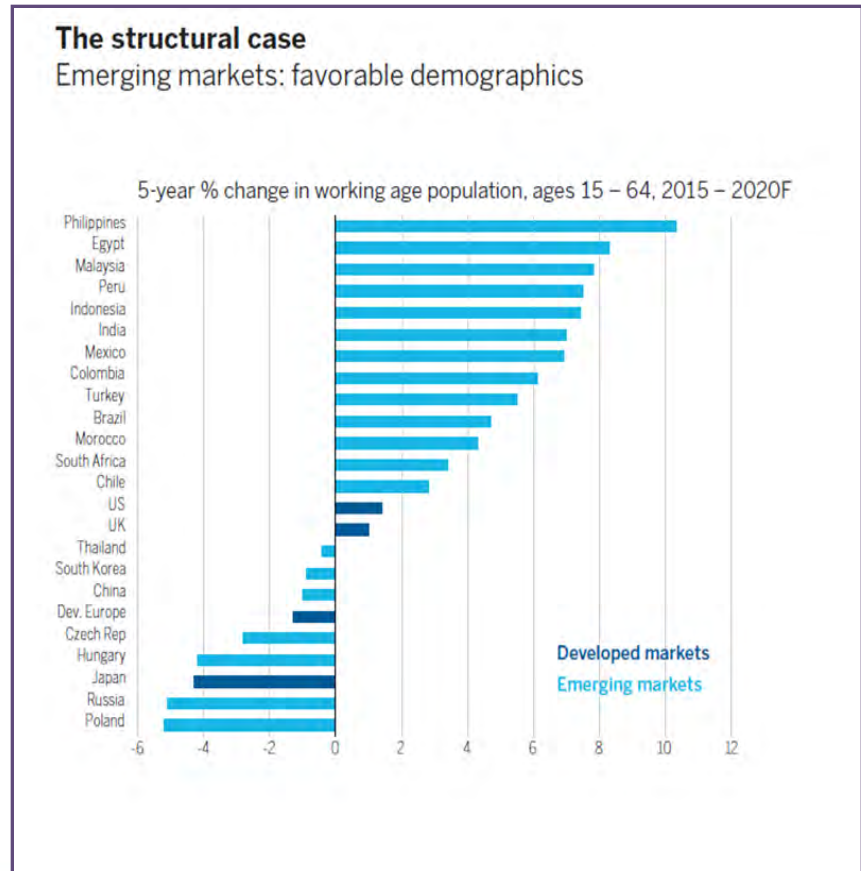
Source: IMF Data

International Public Markets | The Case for International Investing *(cont.)*

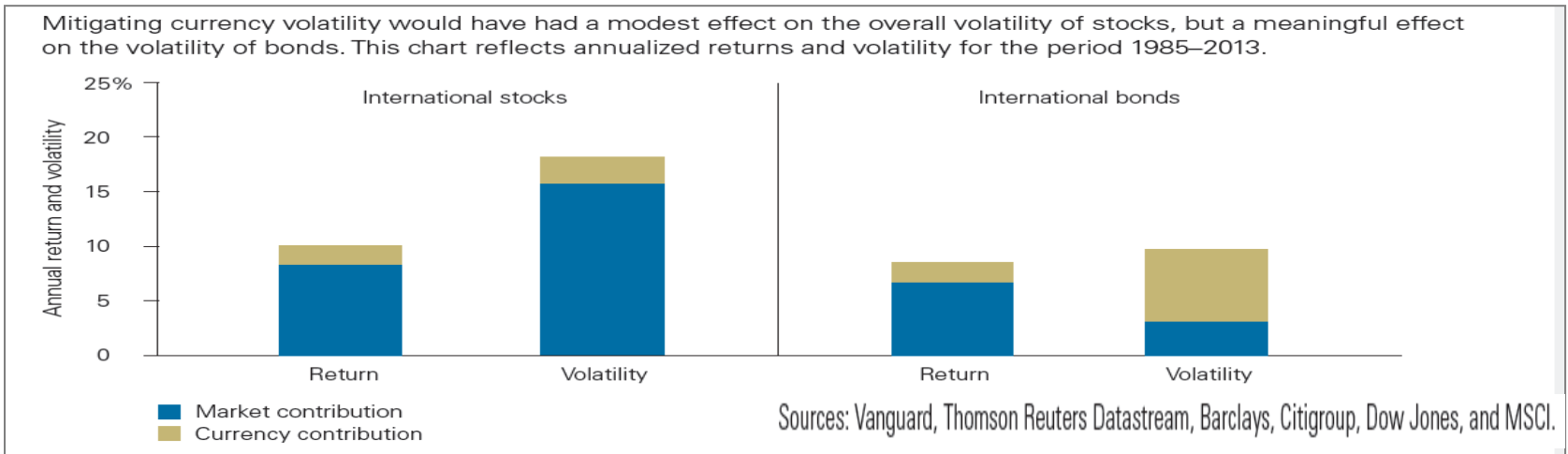
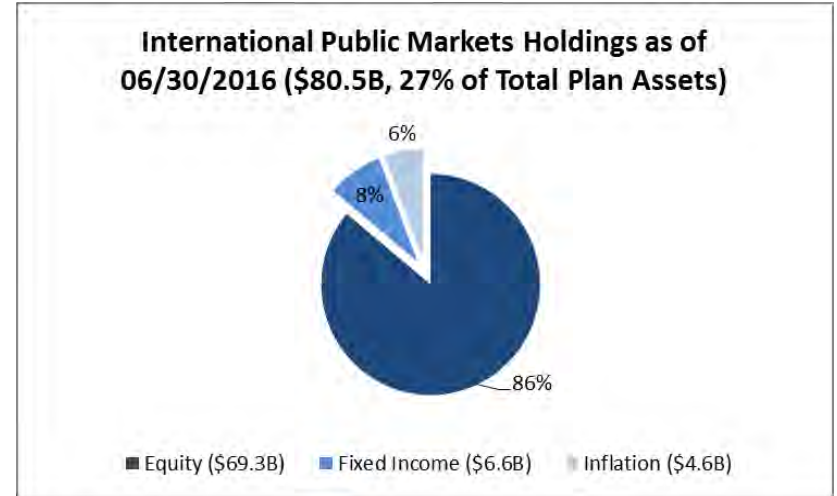
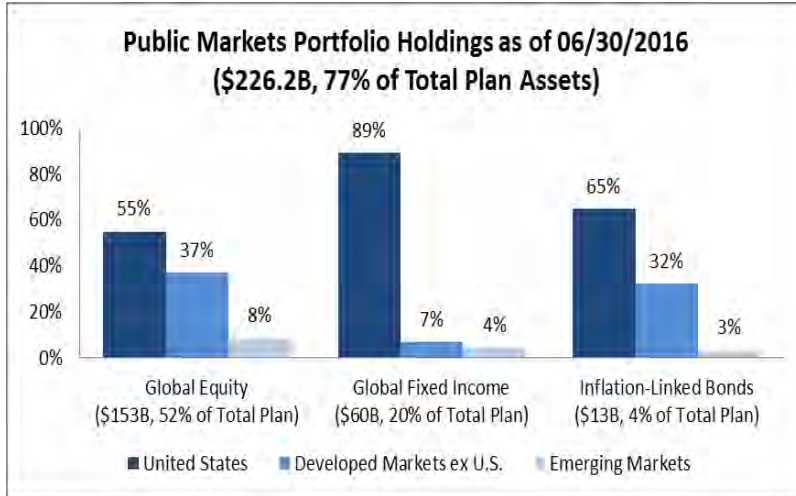
Diversification and Growth.



Source: IMF Data



International Public Markets | Positioning

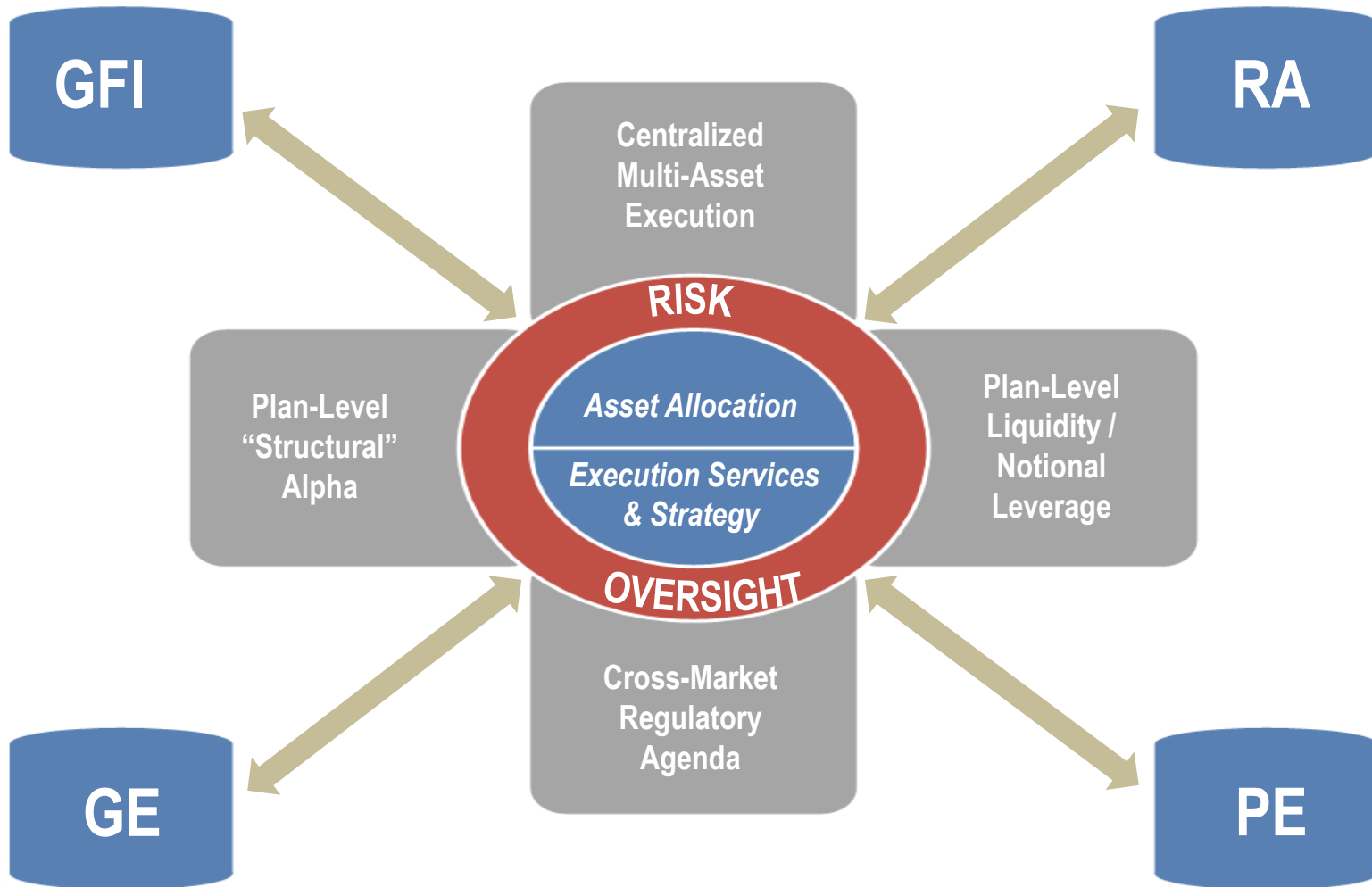


Execution Services & Strategy (ESS)

Don Pontes, Investment Director
Brian Leu, Investment Manager

September 19, 2016

Execution Services & Strategy | Vision



Execution Services & Strategy | Milestones

- **Accomplishments**

- Integrated the Securities Lending & Risk Oversight functions into ESS
- Completed the transition of cross-asset currency execution responsibilities to ESS
- Assisted in the collaborative development of a borrowed liquidity structure
- Initiated the implementation of enhanced Risk Performance & Exposure Reporting

- **Objectives**

- Develop a Derivatives Management “Future State” (Governance & Technology platform)
- Further collaboration with Asset Allocation/Risk on prioritized joint initiatives
- Continue the cross-INVO collaboration, exploring “structural alpha” opportunities
- Fully integrate the financial markets regulatory effort into ESS, identify key synergies

Commodities

Andrew Karsh, Investment Manager

September 19, 2016

Commodities | Program Review

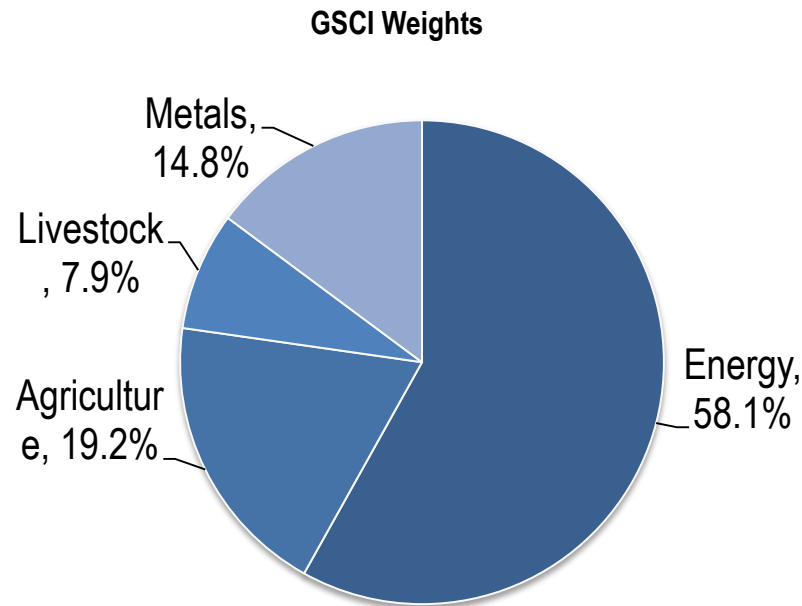
- **Role of Commodities** – CalPERS Commodities program was approved by the Board in 2008 and was established to provide a direct hedge against the impact of inflation on our long-term liabilities.
- **Inflation Hedge** – Direct exposure to Commodities markets has been shown to provide one of the most effective tools to hedge inflation risks
 - This is due to the clear flow of Commodities prices into the U.S. Consumer Price Index (CPI) calculation through the consumption of Gasoline, Foods and Industrial Metals in our daily lives
 - Correlations to inflation over the past 30 years have been above 0.70 using a year-over-year methodology

Correlation to CPI

YoY	GSCI	GSCI EN	GSCI IN	GSCI AL	GSCI PM	REIT	US TIPS	Global Linkers	S&P500
1970-2015	0.37	0.64	0.15	0.39	0.41				-0.17
1986-2015	0.71	0.65	0.46	0.45	0.07	0.18			0.02
1996-2015	0.75	0.69	0.38	0.46	0.36	0.21	0.32	0.38	0.09
2005-2015	0.81	0.80	0.41	0.51	0.47	0.21	0.32	0.53	0.16

Commodities | Benchmark Overview *(cont.)*

- **GSCI as the Benchmark** – A high composition of energy within the benchmark GSCI Index provides one of the greatest available correlations to CPI and CalPERS liabilities

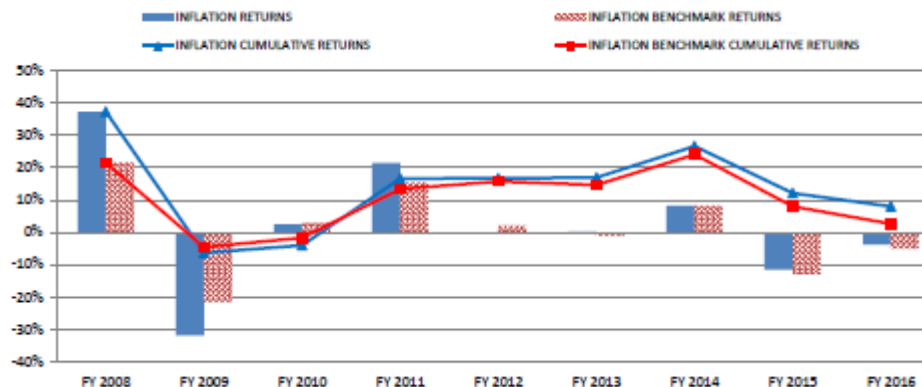


Commodities | Management Structure *(cont.)*

- **Program Structure** – The Commodities program falls under CalPERS Inflation Assets allocation, with our actual position on June 30, 2016 as follows:

Inflation Linked Bonds	\$ 13.1	74%
Commodities	\$ 4.7	26%
Total Inflation Assets	\$ 17.8	

- The Commodities portfolios are actively managed to generate performance above the GSCI Index Benchmark
- **Inflation Performance** – CalPERS Commodities Portfolio Management team produced the majority of Inflation Assets’ excess performance for FY 2015-16 through active management and tactical allocation decisions across the program



Commodities | Summary

- CalPERS Commodities investments provide a partial hedge against the Inflation risk inherent in future pension liabilities
 - CalPERS current GSCI Commodities benchmark has been shown to produce an extremely high correlation versus U.S. CPI over a long-term view
 - Investments in Commodities futures and swaps are highly liquid, which provides a flexibility for portfolio management and asset allocation
 - The Commodities portfolio is actively managed by an experienced team that has produced significant outperformance for the Inflation Asset program

Affiliates

Christine Reese, Investment Manager

September 19, 2016

Affiliates | Investment Program Review

Defined Benefit

- Legislators' Retirement System Fund (LRS)
- Judges' Retirement System Fund (JRS)
- Judges' Retirement System II Fund (JRS II)

Other Post-Employment Benefit

- California Employers' Retiree Benefit Trust Fund (CERBT)

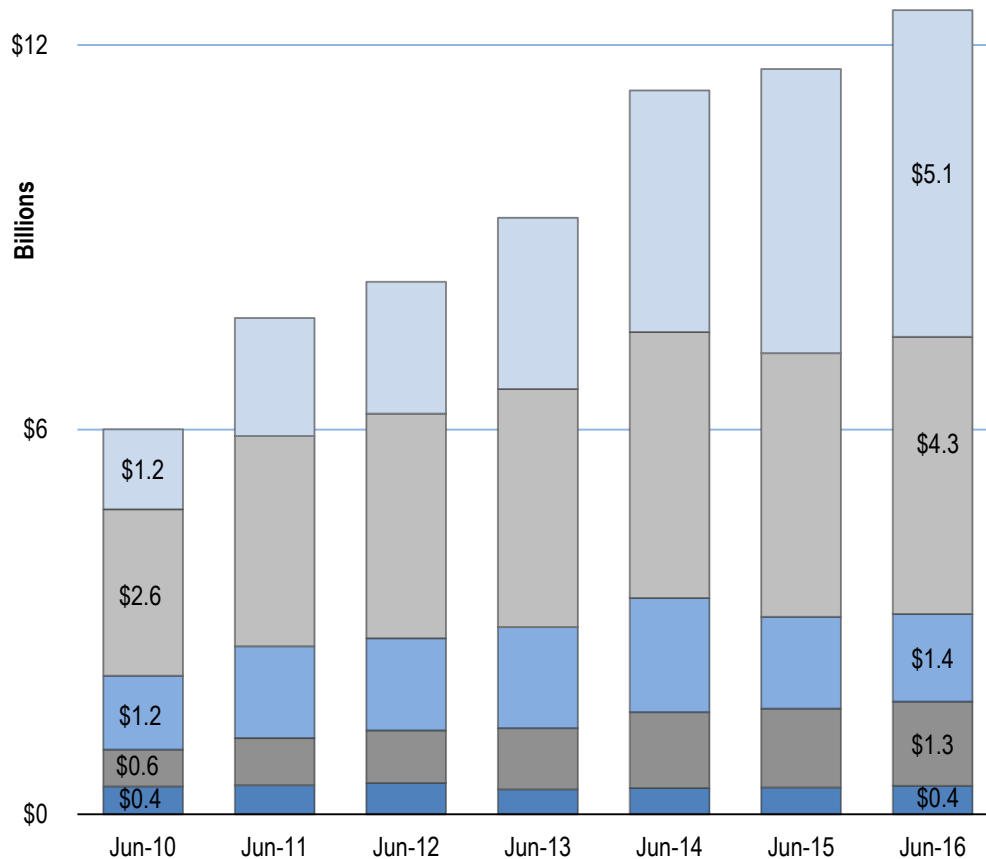
Health and Welfare

- Public Employees' Long-Term Care Fund (LTC)
- Public Employees' Health Care Fund (HCF)

Defined Contribution

- Public Employees' Deferred Compensation Fund (457)
- Supplemental Contributions Program (SCP)

Affiliates | Investment Asset Growth



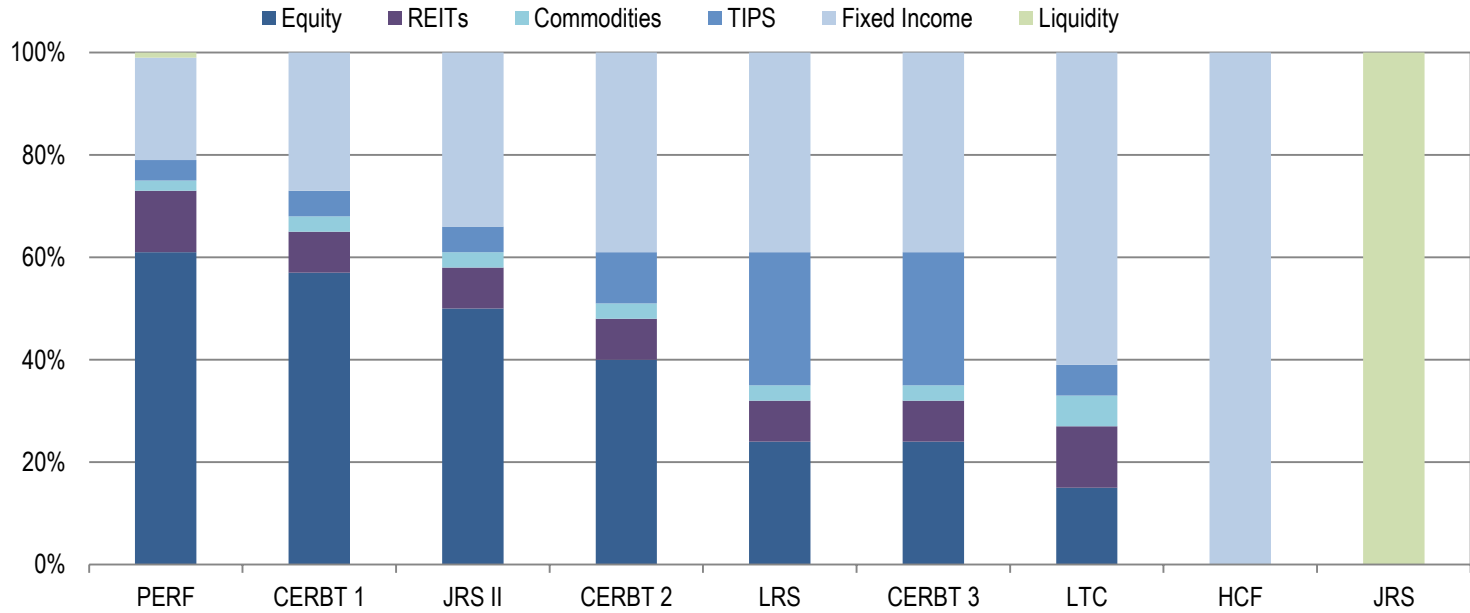
Assets at 06/30/16:
\$12.5B

Growth 2010 – 2016:

Total Affiliates	108%
CERBT	325%
Long-Term Care	65%
Defined Contribution	17%
Defined Benefit	117%
Health Care	0%

Affiliates | Asset Allocation & Investment Results

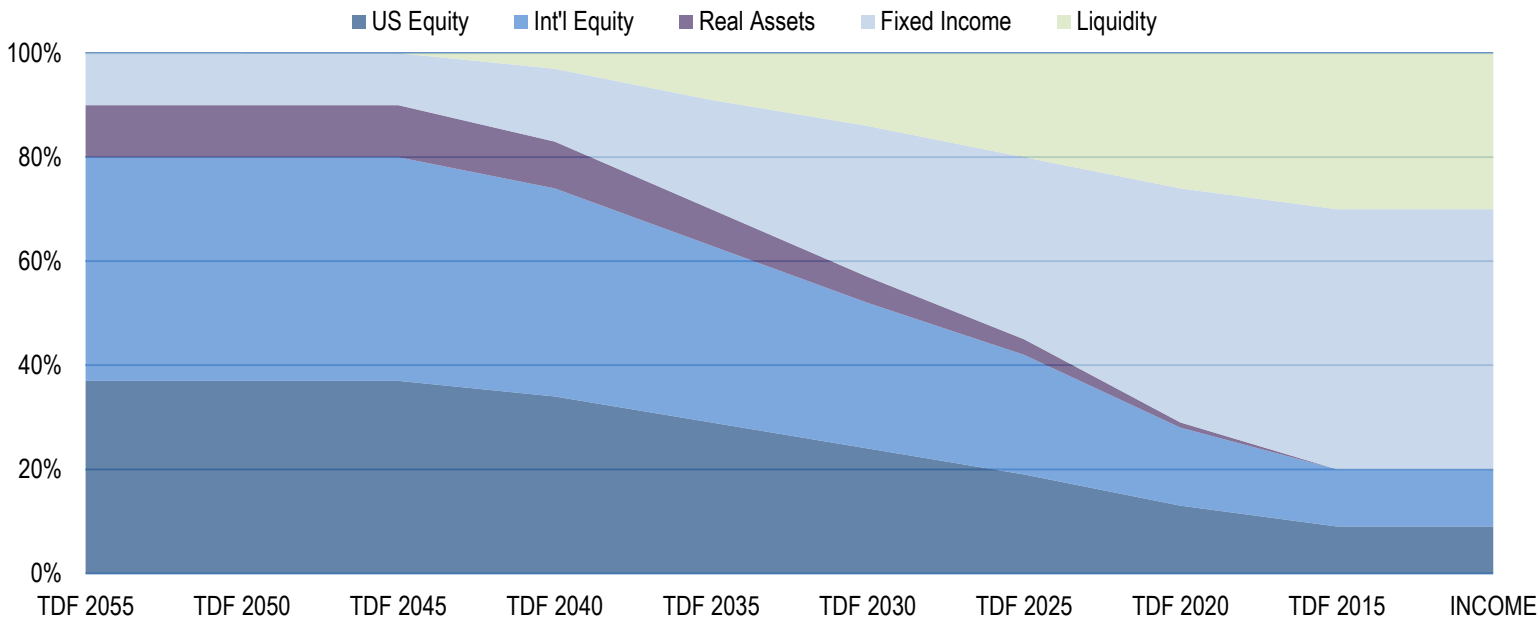
Defined Benefit, Other Post-Employment Benefit, & Health/Welfare Funds



3-Year Standard Deviation		PERF	CERBT 1	JRS II	CERBT 2	LRS	CERBT 3	LTC	HCF	JRS
3-Year Standard Deviation		6.6%	8.2%	7.7%	6.6%	5.3%	5.3%	5.0%	2.7%	0.1%
Net Return	1 Yr	0.6%	1.0%	1.7%	2.9%	4.0%	4.1%	5.5%	6.0%	0.3%
	3 Yr	6.8%	6.0%	6.4%	5.7%	5.6%	5.4%	4.9%	4.5%	0.2%
	5 Yr	6.7%	5.9%	6.6%	-	5.8%	-	4.3%	4.3%	0.1%
	10 Yr	5.0%	-	5.6%	-	6.1%	-	5.0%	5.1%	1.2%

Affiliates | Asset Allocation & Investment Results

Deferred Compensation Fund (457): Target Retirement Date Fund (TDF) Glidepath



3-Year Standard Deviation*		TDF 2055	TDF 2050	TDF 2045	TDF 2040	TDF 2035	TDF 2030	TDF 2025	TDF 2020	TDF 2015	INCOME
3-Year Standard Deviation*		-	10.2%	10.2%	9.7%	8.4%	7.1%	5.9%	4.5%	3.4%	2.9%
Net Return*	1 Yr	-2.8%	-2.8%	-2.8%	-2.5%	-1.6%	-0.7%	0.1%	1.1%	2.1%	2.1%
	3 Yr	-	5.1%	5.1%	5.1%	5.0%	4.7%	4.5%	4.2%	3.9%	3.3%
	5 Yr	-	5.3%	5.3%	5.3%	5.2%	5.0%	4.6%	4.4%	4.2%	3.6%

Affiliates | Program Attributes

	Program/Fund	Year Established	Program Status	Program Structure	Investment Assets 06/30/16 (in millions)	Asset Allocation Strategy	Investment Manager & Asset Classes
Defined Benefit	Legislators' Retirement System Fund (LRS)	1947	Closed 2013	Pre-funded pension plan	\$119	Conservative	CalPERS Public Asset Classes
	Judges' Retirement System Fund (JRS)	1937	Closed 1994	Pay-as-you-go pension plan	\$35	Conservative	CalPERS Cash Equivalents
	Judges' Retirement System II Fund (JRS II)	1994	Open	Pre-funded pension plan	\$1,157	Moderately Aggressive	CalPERS Public Asset Classes
Other Post-Employment Benefit	California Employers' Retiree Benefit Trust Fund (CERBT) CERBT Strategy 1	2007	Open	Voluntary pre-funding for other post-employment benefits (OPEB)	\$4,181	Moderately Aggressive	CalPERS & SSGA Public Asset Classes
	CERBT Strategy 2	2011			\$735	Moderate	
	CERBT Strategy 3	2011			\$180	Conservative	
Health & Welfare	Public Employees' Health Care Fund (HCF)	1997	Open	Reserves for CalPERS self-funded health plans	\$446	Conservative	SSGA U.S. Bonds
	Public Employees' Long-Term Care Fund (LTC)	1995	Open	Voluntary self-funded long-term care	\$4,321	Conservative	SSGA Public Asset Classes
Defined Contribution	Public Employees' Deferred Compensation Fund (457)	1990	Open	Voluntary tax-deferred employee savings	\$1,249	Participant directed Core and Target Retirement Date Funds	CalPERS - Target Retirement Date Funds Allocation SSGA - Core Investments in Public Asset Classes
	Supplemental Contributions Program (SCP)	1994	Open	Voluntary after-tax employee savings with earnings tax deferred	\$118	Participant directed Core and Target Retirement Date Funds	CalPERS - Target Retirement Date Funds Allocation SSGA - Core Investments in Public Asset Classes

Affiliates | Business Update

- Fiscal Year 2015-2016 Major Accomplishments
 - Artemis Implementation and Upgrades
 - Hired Investment Officer III
 - Investment Policy Review Initiative
 - Strategic Asset Allocation: Health Care Fund
- Fiscal Year 2016-2017 Major Initiatives
 - Artemis Expansion to Global Equity
 - Defined Contribution Product Review
 - Strategic Asset Allocation Reviews