



# UNIVERSITY OF CALIFORNIA

Office of the Chief Investment Officer

## Endowment

Investment Review as of June 30, 2018

**Growing Portfolios. Building Partnerships.**

**UC Investments**



# Endowment

1. Asset Allocation
2. Performance
3. Asset Classes
4. Risk

## Investment Objectives

- Maximize real, long-term total returns (income plus capital appreciation adjusted for inflation), while assuming the appropriate levels of risk.
- Maintain the liquidity necessary to meet the investment goals of the Endowment, which are to provide a stable and continuously growing stream of income, all while preserving the real (inflation-adjusted) purchasing power of assets.



# Office of the Chief Investment Officer

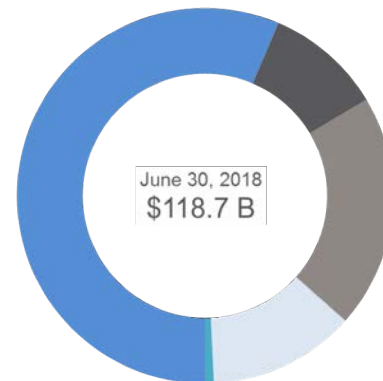
## Mission

Growing Portfolios. Building Partnerships.  
Delivering value through values.

## Investment Products

- ▶ **Endowment** assets: \$12.3 billion (as of 6/30/18)
- ▶ Investing **Endowment** assets since 1933 (85 years)
- ▶ Investing **Pension** assets since 1961 (57 years)
- ▶ Investing **Retirement Savings** assets since 1967 (51 years)
- ▶ Investing **Working Capital** since 1976 (42 years)
- ▶ Investing **Captive Insurance** assets since 2016 (2 years)

## \$118.7 billion across 6 products



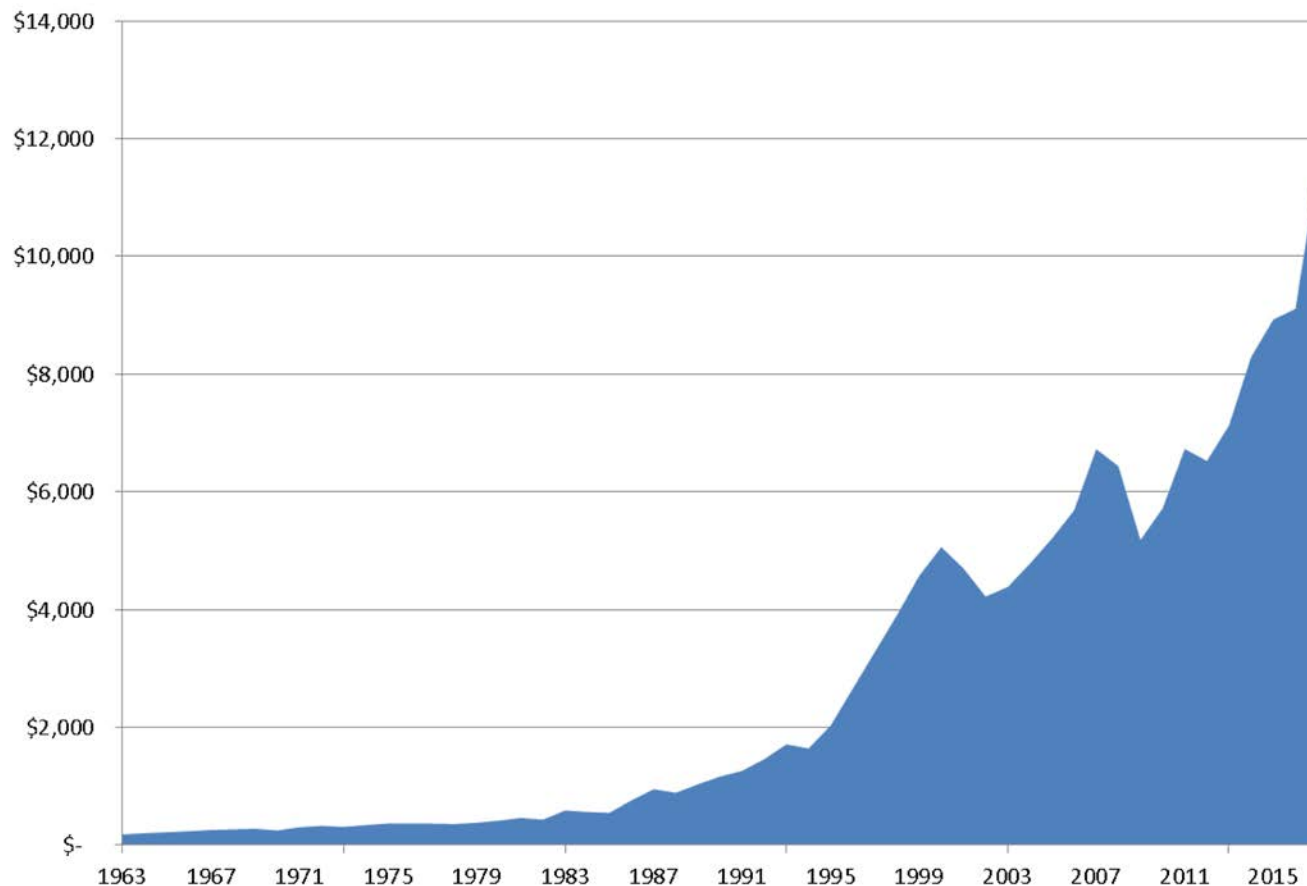
- Pension: 56%, \$66.8B
- **Endowment: 10%, \$12.3B**
- Retirement Savings: 20%, \$24.3B
- Working Capital: 12%, \$14.4B
- TRIP: \$9.3B
- STIP: \$5.1B
- Fiat Lux: 1%, \$0.9B



# Endowment Asset Growth

GEP Assets 1963 - 2018

5 Year Growth



**June 30, 2018**  
**\$12.3 billion**

**1 Year Ago**  
**\$10.8 billion**

**5 Years Ago**  
**\$7.2 billion**



# Assets Under Management

June 30, 2017	\$10.8 billion
Market Gains	\$0.6 billion
Value Added	\$0.1 billion
Net Cash Flow	\$0.8 billion
<b>June 30, 2018</b>	<b>\$12.3 billion</b>



# Endowment Asset Allocation

Relative Weight



	Market Value in \$ Billions	Percentage	Over/Underweight Relative to Policy	Policy Weight
<b>Public Equity</b>	<b>5.1</b>	<b>41.8%</b>	<b>0.8%</b>	<b>41.0%</b>
<b>Liquidity (Income)</b>	<b>2.6</b>	<b>21.0%</b>	<b>3.0%</b>	<b>18.0%</b>
Treasury	0.7	5.5%		
Opportunistic	1.0	8.0%		
Cash	0.9	7.5%		
<b>Other Investments</b>	<b>4.6</b>	<b>37.2%</b>	<b>(3.8%)</b>	<b>41.0%</b>
Absolute Return	2.4	19.6%	0.6%	19.0%
Private Equity	1.3	10.6%	(3.4%)	14.0%
Real Estate (Real Assets)	0.5	4.0%	(1.0%)	8.0%
Real Assets (Non-Real Estate)	0.4	3.0%		



# Endowment Performance

## Net Returns (%)

As of June 30, 2018

	3 Month	1 Year	3 Year	5 Year	7 Year	10 Year	20 Year	25 Year
UC Endowment	1.5	8.9	6.5	8.8	7.9	6.4	6.7	8.8
UC Endowment Benchmark	1.2	8.5	6.2	7.7	6.5	5.6	5.9	8.3
Value Added	0.3	0.4	0.3	1.1	1.4	0.8	0.8	0.5

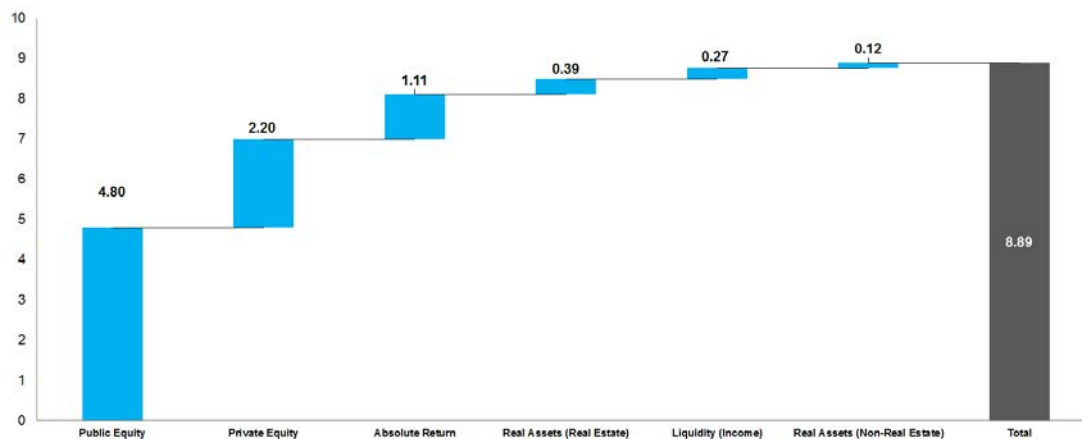
## Net Returns (%)

As of June 30, 2018

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
UC Endowment	8.9	15.1	(3.5)	6.1	19.0	12.0	(0.7)	20.2	11.3	(18.2)	(1.5)
UC Endowment Benchmark	8.5	12.5	(1.7)	3.7	16.6	10.1	(2.4)	17.9	9.1	(13.1)	0.1
Value Added	0.4	2.6	(1.8)	2.4	2.4	1.9	1.7	2.3	2.2	(5.1)	(1.6)

\*The UC Endowment Benchmark is a weighted average of investment policy targets.

Fiscal Year Contribution to Return - Percentage (%)





# Endowment Attribution – FY 2017/18

As of June 30, 2018	Average Weight	Average Active Weight	Allocation Attribution	Selection Attribution	Total Attribution
<b>Public Equity</b>	43.7	2.7	0.3	(0.4)	(0.1)
<b>Liquidity</b>					
Treasury	4.4	(0.1)	0.1	0.0	0.1
Opportunistic	7.1	(1.9)	0.0	0.1	0.1
Cash	10.3	5.8	(0.6)	0.0	(0.6)
<b>Other Investments</b>					
Absolute Return	18.0	(1.0)	0.1	0.3	0.4
Private Equity	10.1	(3.9)	(0.2)	0.4	0.2
Real Estate	4.2	(1.5)	0.1	0.1	0.2
Real Assets	2.2	(0.1)	0.1	0.0	0.1
<b>Total GEP</b>	<b>100.0%</b>	<b>0.0%</b>	<b>(0.1%)</b>	<b>0.5%</b>	<b>0.4%</b>





# Endowment Policy Benchmark

Asset Class	Policy Benchmark Component	Target	Allowable Ranges	
			Min	Max
<b>Total Public Equity</b>	MSCI All Country World Index Net IMI Tobacco Free	41.0%	31.0%	73.5%
<b>Liquidity (Income)</b>	Barclays US Aggregate Bond Index	18.0%	8.0%	28.0%
<b>Total Other Investments</b>				
Absolute Return	HFRI Fund of Funds Composite	19.0%	9.0%	29.0%
Private Equity	Russell 3000 + 1.5%	14.0%	1.5%	24.0%
Real Estate	NCREIF ODCE Index	8.0%	0.0%	13.0%
Real Assets	Actual Real Assets Portfolio Return			

*\*As of July 1, 2017.*

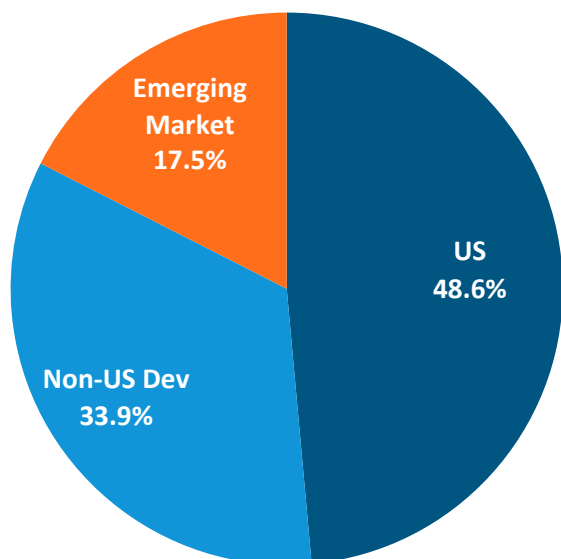


# Public Equity

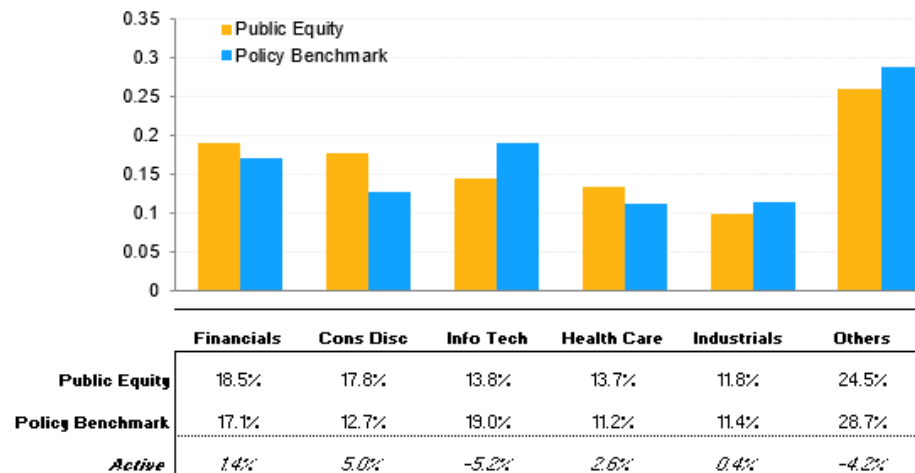
Net Returns (%) As of June 30, 2018	Ending Market Value		Annualized Returns						
	Market Value (\$ Million)	% Allocation	3 Month	1 Year	3 Year	5 Year	7 Year	10 Year	20 Year
Public Equity	5,146	100%	0.6	11.5	7.3	9.8	8.5	6.5	5.8
GEP Public Equity Policy Benchmark			0.8	11.6	8.5	9.6	8.1	6.3	4.7
Value Added			(0.2)	(0.1)	(1.2)	0.2	0.4	0.2	1.1

\*Total public equity benchmark is an aggregate of benchmarks for equity portfolios in the pool prior to Jul 1, 2017; thereafter MSCI ACWI IMI Tobacco Free.

## Regional Exposure



## Sector Exposure



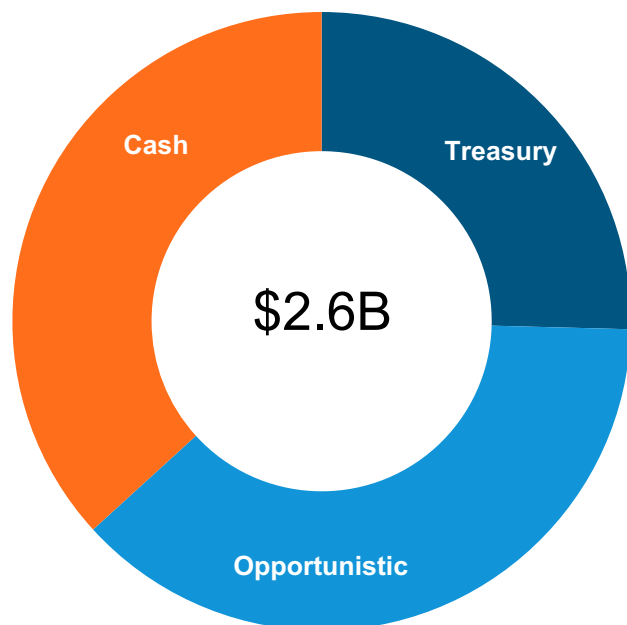


# Liquidity (Income) and Cash

Net Returns (%) As of June 30, 2018	Market Value (\$ Million)	% Allocation	3 Month	1 Year	3 Year	Annualized Returns			
						5 Year	7 Year	10 Year	20 Year
Liquidity (Income)	2,590	100%	0.0	1.3	1.9	2.5	3.2	4.4	5.4
Policy Benchmark			(0.2)	(0.4)	1.1	1.9	2.3	3.5	4.8
Value Added			0.2	1.7	0.8	0.6	0.9	0.9	0.6
Treasury	658	25%	0.2	0.5	1.3	1.9	2.4	3.4	4.8
Opportunistic	980	38%	(1.1)	1.6	4.6	4.6	5.2	6.9	-
Cash	952	37%	0.5	1.5	1.3	1.3	1.5	-	-

\* Starting July 1, 2017, the benchmark is the Barclay's US Aggregate Bond Index.

Policy benchmark for Liquidity (Income) prior to July 1, 2017 was a weighted average composite of the historical policy benchmarks and targets.



**Treasury: 25%**  
**\$0.7B**

**Opportunistic: 38%**  
**\$1.0B**

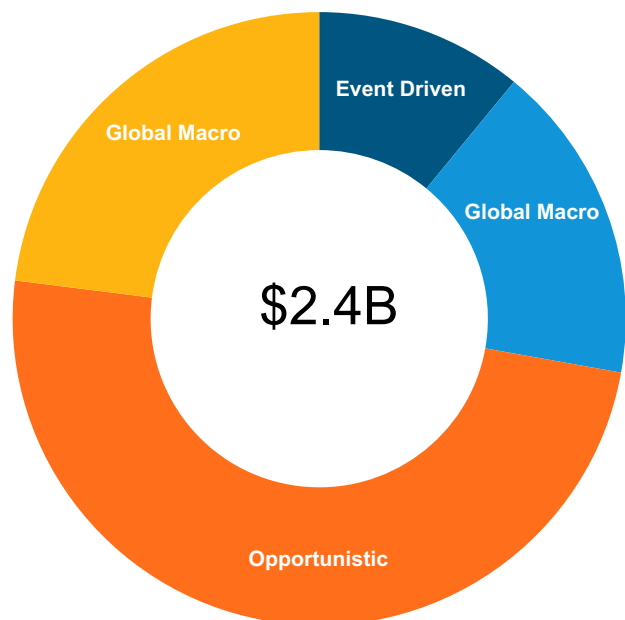
**Cash: 37%**  
**\$0.9B**



# Absolute Return

Net Returns (%) As of June 30, 2018	Market Value (\$ Million)	% Allocation	3 Month	1 Year	Annualized Returns			
					3 Year	5 Year	7 Year	10 Year
Absolute Return	2,418	100%	1.3	6.4	2.0	5.4	4.8	4.0
Absolute Return Index			0.8	5.5	(0.9)	1.3	0.3	1.7
Value Added			0.5	0.9	2.9	4.1	4.5	2.3
Event Driven	263	11%	1.6	9.9	2.9	5.7	6.1	6.0
Global Macro	406	17%	1.6	(0.4)	0.0	1.5	1.3	1.1
Opportunistic	1,183	49%	1.3	8.0	-	-	-	-
Relative Value	552	23%	1.2	11.4	8.0	7.4	6.9	6.9

\* From April 1, 2003 to March 1, 2009, the portfolio benchmark was 1 Month T-Bill+4.5%; thereafter the benchmark changed to 50% HFRX Absolute Return/50% HFRX Market Directional until February 2016 when it became HFRX Absolute Return. As of July 1, 2017, the benchmark is HFRI Fund of Funds Composite.



● **Event Driven: 11%**  
**\$0.3B**

● **Global Macro: 17%**  
**\$0.4B**

● **Opportunistic: 49%**  
**\$1.2B**

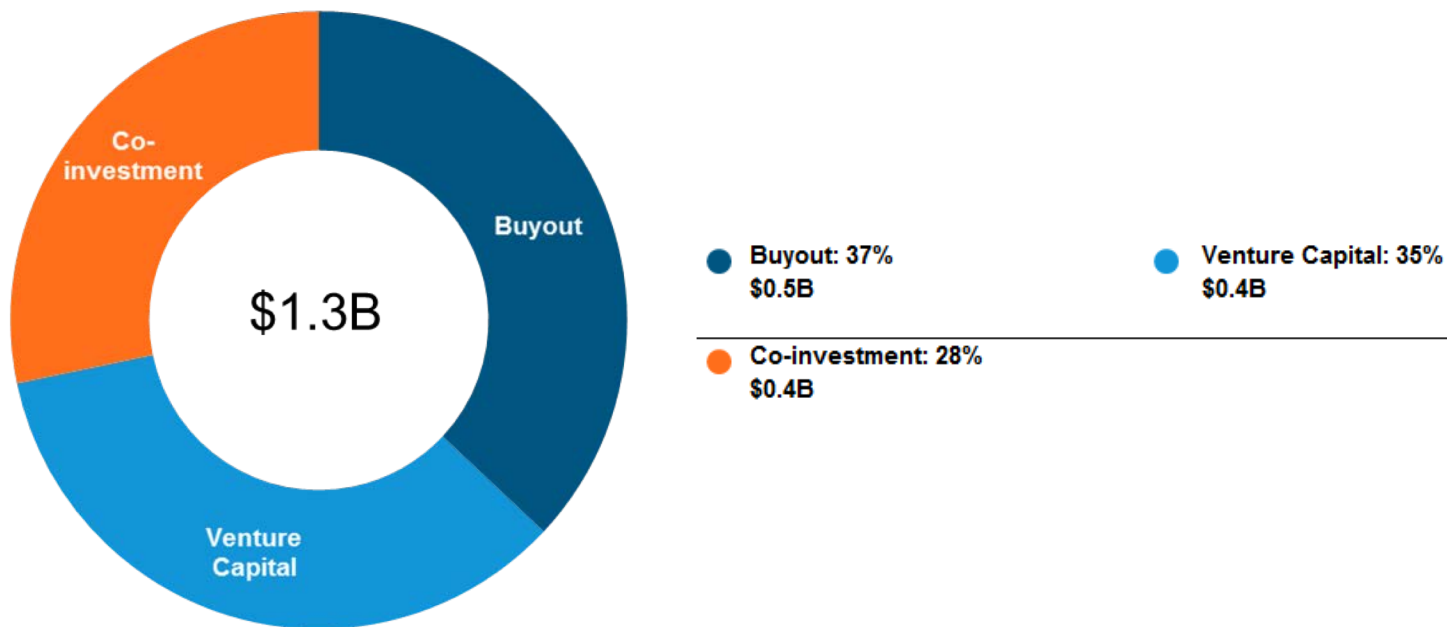
● **Relative Value: 23%**  
**\$0.6B**



# Private Equity

Net Returns (%) As of June 30, 2018	Market Value (\$ Million)	% Allocation	Annualized Returns						
			3 Month	1 Year	3 Year	5 Year	7 Year	10 Year	20 Year
Private Equity	1,304	100%	8.6	22.7	19.4	22.5	18.4	13.9	17.4
GEP Non-Lagged Private Eq Policy Index			4.1	16.3	17.2	21.2	17.5	13.3	9.8
Value Added			4.5	6.4	2.2	1.3	0.9	0.6	7.6
Buyout	482	37%	13.3	27.5	30.8	24.0	18.9	14.2	14.3
Venture Capital	453	35%	7.6	5.4	9.8	14.2	13.3	10.7	20.2
Co-investment	369	28%	4.5	34.6	18.4	33.8	31.8	-	-

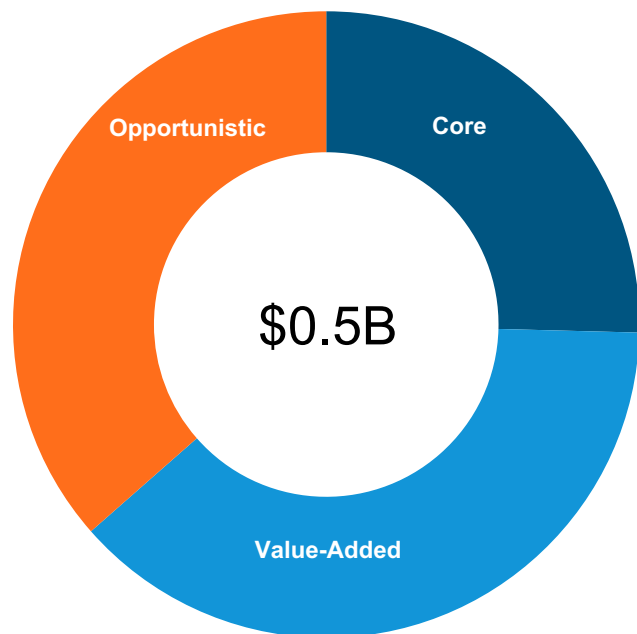
\* From January 2001 to February 2005, the Private Equity benchmark was Russell 3000 + 3% lagged one quarter. Prior to that, it was the S&P 500 + 5% lagged by a quarter.  
As of July 1, 2017, the Private Equity policy benchmark is the Russell 3000 + 1.5%.





# Real Estate

Net Returns (%) As of June 30, 2018	Market Value (\$ Million)	% Allocation	Annualized Returns					
			3 Month	1 Year	3 Year	5 Year	7 Year	10 Year
Real Estate	492	100%	4.4	9.7	9.7	12.2	12.0	1.6
NCREIF Funds Index-Open End Diversified Core Equity Index (lagged 3 months)			2.0	7.1	9.0	10.5	10.8	2.1
Value Added			2.4	2.6	0.7	1.7	1.2	(0.5)
Core	123	25%	2.5	8.0	9.0	11.0	11.7	6.9
Value-Added	187	38%	0.8	2.9	7.1	9.3	10.4	0.2
Opportunistic	182	37%	3.2	15.1	10.0	13.6	12.3	1.9

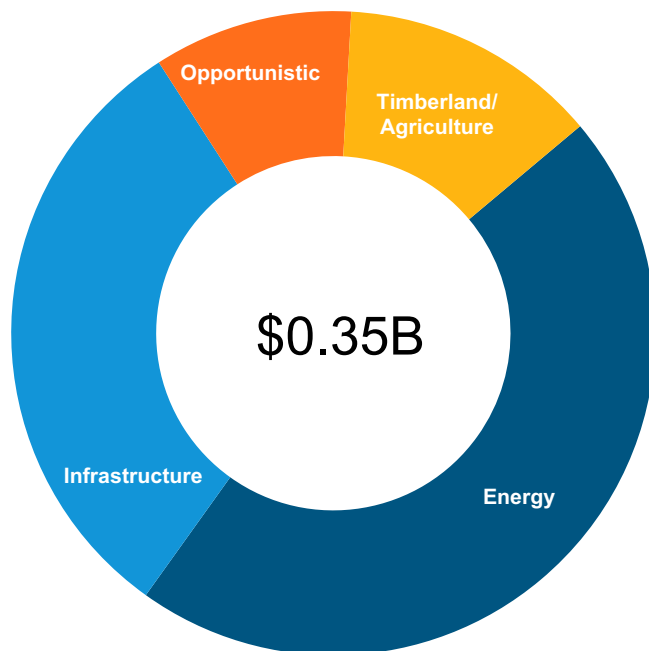




# Real Assets

Net Returns (%) As of June 30, 2018	Market Value (\$ Million)	% Allocation	Annualized Returns				
			3 Month	1 Year	3 Year	5 Year	7 Year
<b>Real Assets</b>	<b>353</b>	<b>100%</b>	<b>1.9</b>	<b>5.6</b>	<b>(1.2)</b>	<b>0.2</b>	<b>0.6</b>
Opportunistic	162	46%	1.5	4.0	4.3	4.9	-
Infrastructure	110	31%	(0.4)	16.2	8.6	11.3	9.9
Energy	36	10%	19.4	20.8	(9.7)	(10.1)	(6.4)
Timberland/Agriculture	45	13%	(4.4)	(8.3)	(3.7)	1.1	1.1

\* Inception date for Real Assets is April 1, 2010.



● Energy: 46%  
\$0.03B

● Infrastructure: 31%  
\$0.11B

● Opportunistic: 10%  
\$0.04B

● Timberland/Agriculture: 13%  
\$0.05B



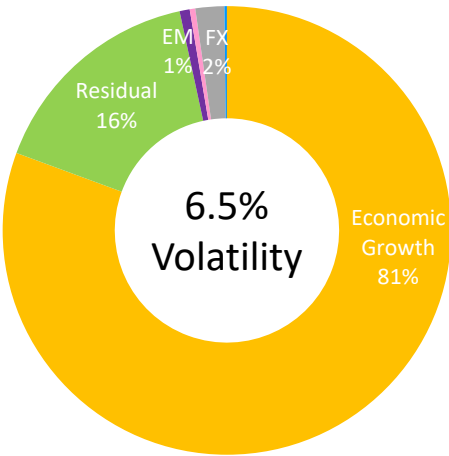
# Endowment Risk Measurement

Name	Beta vs Benchmark	Portfolio Risk (%)		Benchmark Risk (%)		Active Risk (%)	
	Current	Standalone Volatility	QoQ Change	Standalone Volatility	QoQ Change	Tracking Error	QoQ Change
<b>GEP Total</b>		<b>6.5</b>	<i>(0.2)</i>	<b>6.5</b>	<i>(0.2)</i>	<b>1.4</b>	<i>(0.2)</i>
Public Equity	0.97	10.1	<i>(0.5)</i>	10.1	<i>(0.2)</i>	2.1	<i>(0.1)</i>
Liquidity	0.41	1.5	<i>0.1</i>	3.1	<i>0.1</i>	2.0	<i>0.0</i>
Absolute Return	0.64	2.6	<i>(0.1)</i>	3.0	<i>(0.1)</i>	1.6	<i>(0.7)</i>
Private Equity	1.34	18.0	<i>(0.6)</i>	10.9	<i>0.2</i>	11.1	<i>(0.9)</i>
Real Assets	1.16	10.4	<i>(0.6)</i>	8.6	<i>(0.7)</i>	3.1	<i>0.0</i>





# High Level Macroeconomic Risk Factors



Portfolio Standalone Risk Factor Decomposition

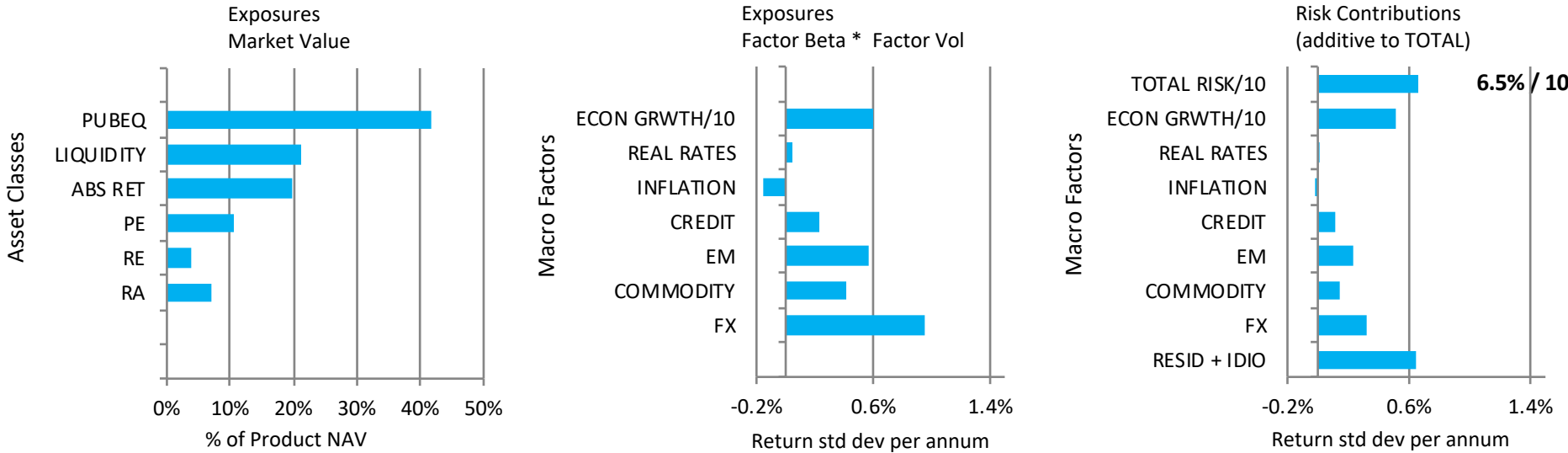
Factor Name	Factor Description
Economic Growth	Proxied by broad, developed market equity index returns
Real Rates	Inflation-linked bond returns
Inflation	Return of long nominal bonds, short inflation-linked bonds portfolio
Credit	Return of long corporate bonds, short nominal bonds portfolio
Commodity	Weighted GSCI Commodity index returns
Emerging Markets (EM)	Equally weighted basket of EM Assets

\* "Residual Risk" is any risk which does not load on to the high level macro factors. This risk often corresponds to non-strategic, non-tactical level risk decisions, e.g. individual public equity manager sector tilts and stock selection decisions. This finer scale risk is captured separately, with more granular risk models.

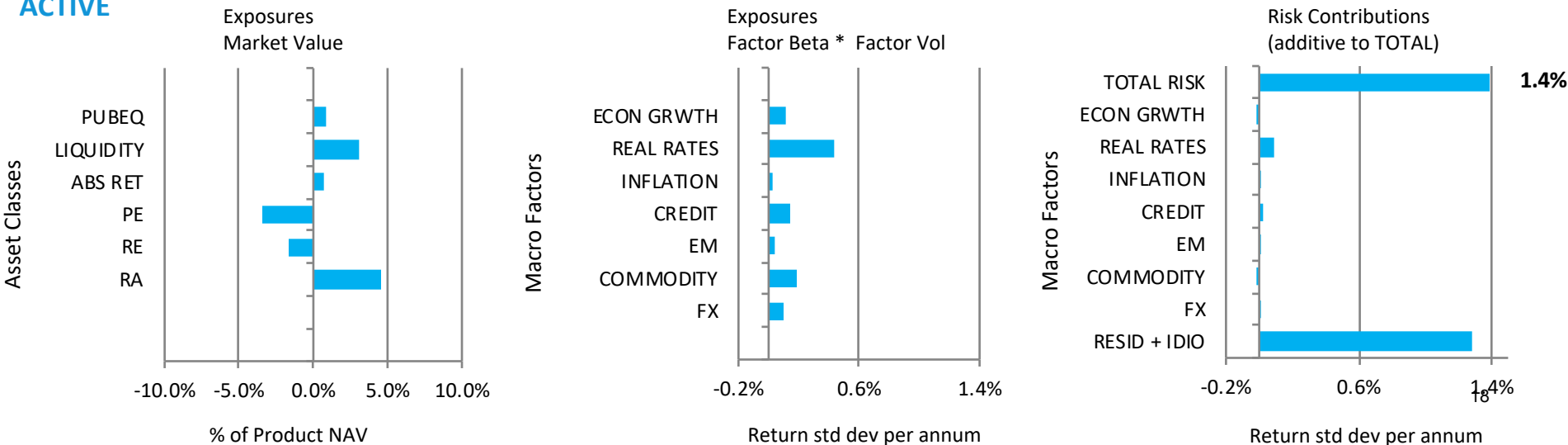


# Asset Classes versus Macroeconomic Risk Factors

## PORTFOLIO



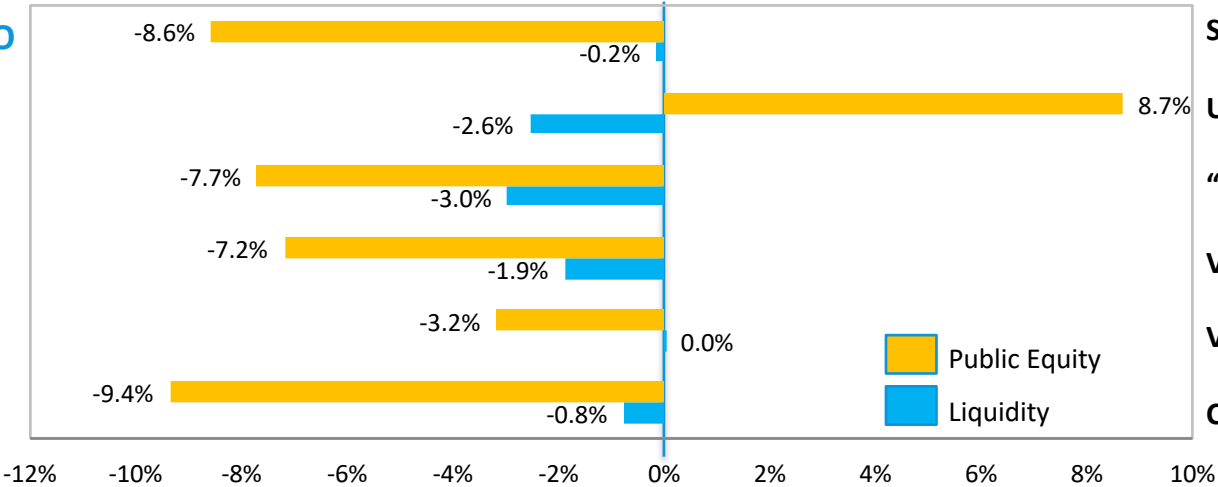
## ACTIVE





# Stress Tests and Scenario Analysis

## PORTFOLIO



## ACTIVE

