



UNIVERSITY OF CALIFORNIA

Office of the Chief Investment Officer

Endowment

Investment Review as of March 31, 2019

Growing Portfolios. Building Partnerships.

UC Investments



UC 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.



UC Investments

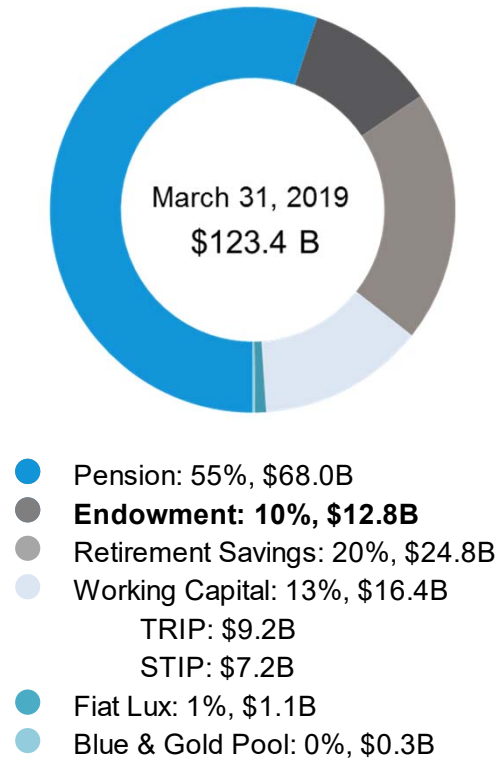
Mission

Growing Portfolios. Building Partnerships.
Delivering value through values.

Investment Products

- ▶ **Endowment** assets: \$12.8 billion (as of 3/31/19)
- ▶ Investing **Endowment** assets since 1933 (86 years)
- ▶ Investing **Pension** assets since 1961 (58 years)
- ▶ Investing **Retirement Savings** assets since 1967 (52 years)
- ▶ Investing **Working Capital** since 1976 (43 years)
- ▶ Investing **Captive Insurance** assets since 2016 (2 years)
- ▶ Investing in **Blue & Gold** assets since 2019 (0 Years)

\$123.4 billion across 7 products



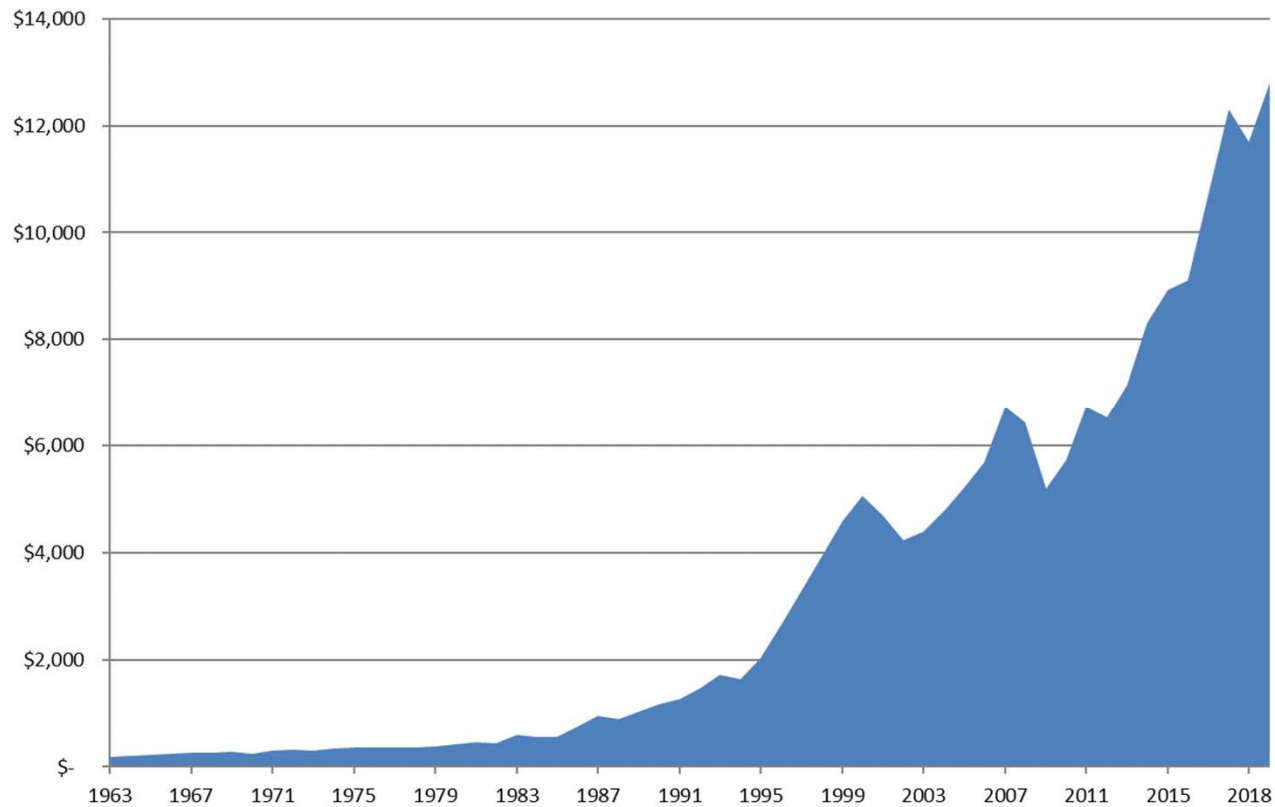
As of March 31, 2019



Endowment Asset Growth

GEP Assets 1963 - 2019

5 Year Growth



March 31, 2019
\$12.8 billion

1 Year Ago
\$11.9 billion

5 Years Ago
\$7.9 billion






Endowment Assets Under Management

December 31, 2018	\$11.7 billion
Market Gains	\$1.0 billion
Value Added	(\$0.1 billion)
Net Cash Flow	\$0.2 billion
March 31, 2019	\$12.8 billion



Endowment Asset Allocation

Relative Weight	As of March 31, 2019	Market Value (\$ Million)	Percentage	Over/Underweight Relative to Interim Policy	Interim Policy Weight	Long-Term Policy Weight
	Public Equity	5,036	39.4%	(1.4%)	40.8%	30.0%
	Liquidity (Income)	2,109	16.5%	2.6%	13.9%	10.0%
	Treasury	772	6.0%			
	Opportunistic	893	7.0%			
	Cash	444	3.5%			
	Other Investments	5,653	44.2%	(1.1%)	45.3%	60.0%
	Absolute Return	2,698	21.1%	(0.6%)	21.7%	25.0%
	Private Equity	1,602	12.5%	(0.8%)	13.3%	22.5%
	Real Estate	852	6.7%	0.3%	10.3%	12.5%
	Real Asset	501	3.9%			
	Total	12,798	100.0%	0.0%	100.0%	100.0%



Endowment Performance

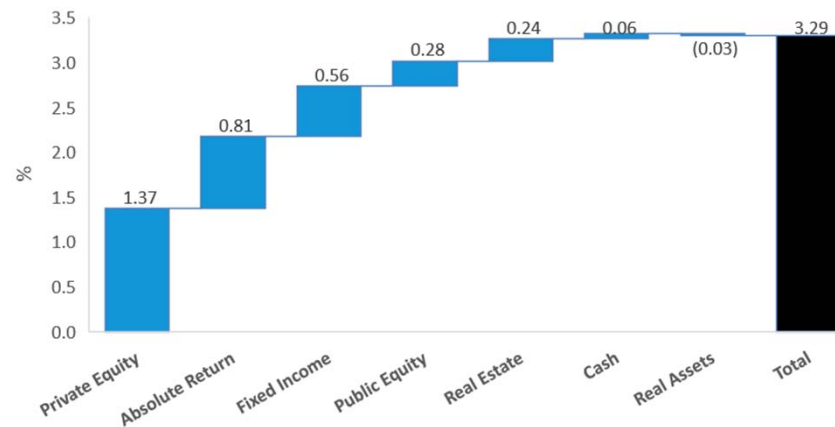
Net Returns (%) As of March 31, 2019	Market Value (\$ Million)	Annualized Returns							
		3 Month	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year
UC Endowment	12,798	7.3	3.3	4.8	9.4	6.9	9.9	6.4	9.0
Endowment Policy Benchmark*		8.4	2.5	3.7	8.3	5.7	8.6	5.5	8.3
Value Added**		(1.1)	0.8	1.1	1.1	1.2	1.3	0.9	0.7

Net Returns (%) As of June 30, 2018	One Year Returns										
	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)
Endowment Policy 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.

**Value add calculation may be slightly off due to rounding and the level of precision used for returns.

Fiscal YTD Contribution to Return





Endowment Attribution – FY 2018/19

As of March 31, 2019	Average Weight	Average Active Weight	Allocation Attribution	Selection Attribution	Total Attribution
Public Equity	41.2	0.4	0.0	0.0	0.0
Liquidity					
Treasury	6.2	0.8	0.1	(0.1)	0.0
Opportunistic	7.3	1.1	(0.1)	0.0	(0.1)
Cash	2.9	0.6	0.0	0.0	0.0
Other Investments					
Absolute Return	21.0	(0.7)	0.0	0.8	0.8
Private Equity	11.8	(1.5)	(0.2)	0.5	0.3
Real Estate (Real Assets)	5.9	(1.9)	0.0	(0.1)	(0.1)
Non-Real Estate (Real Assets)	3.7	1.2	(0.1)	0.0	(0.1)
Total	100.0%	0.0%	(0.3%)	1.1%	0.8%



Endowment Policy Benchmark

Asset Class	Policy Benchmark Component	Target	Allowable Ranges	
			Min	Max
Total Public Equity	MSCI All Country World Index Net IMI Tobacco Free	40.8%	31.0%	64.0%
Liquidity (Income)	Barclays US Aggregate Bond Index	13.9%	4.0%	22.0%
Total Other Investments				
Absolute Return	HFRI Fund of Funds Composite	21.7%	12.0%	29.0%
Private Equity	Russell 3000 + 1.5%	13.3%	1.0%	24.0%
Real Estate	NCREIF ODCE Index	10.3%	1.0%	16.0%
Real Assets	Actual Real Assets Portfolio Return			

As of March 31st, 2019.



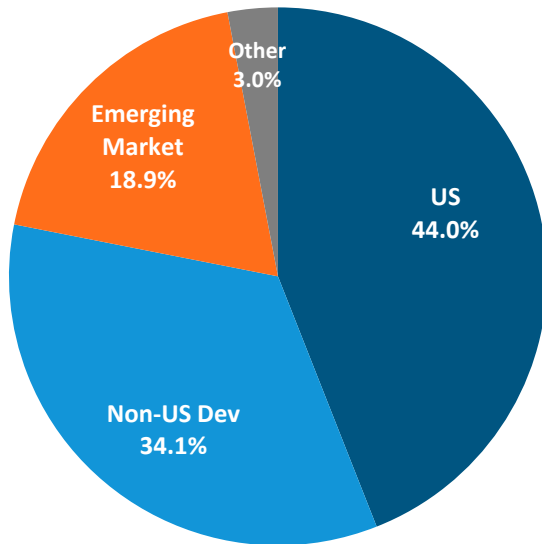
Public Equity

Net Returns (%) As of March 31, 2019	Market Value		Annualized Returns						
	(\$ Million)	% Allocation	3 Month	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	20 Year
Public Equity	5,036	100%	14.4	0.8	1.3	11.3	6.5	12.6	5.1
Endowment Policy Benchmark*			12.2	1.2	2.0	11.0	6.5	12.3	5.6
Value Added**			2.2	(0.4)	(0.7)	0.3	0.0	0.3	(0.5)

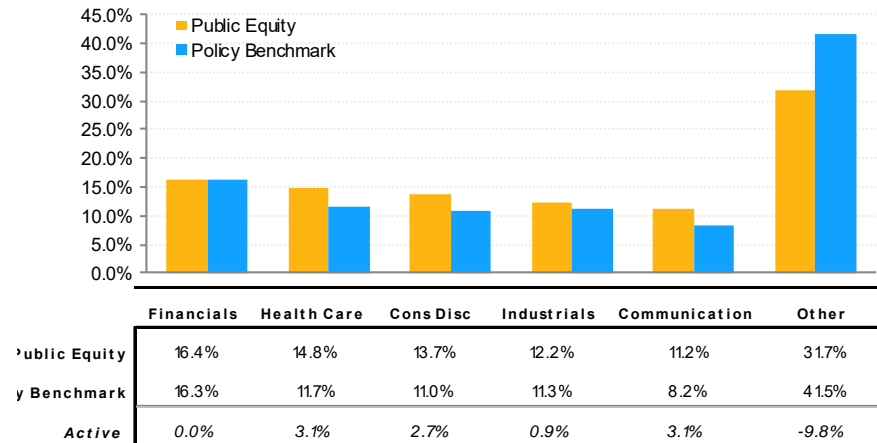
*Total public equity benchmark is an aggregate of benchmarks for equity portfolios in the pool prior to Jul 1, 2017; thereafter MSCI ACWI IMI Tobacco Free.

**Value add calculation may be off slightly due to rounding and the level of precision used for returns.

Regional Exposure



Sector Exposure





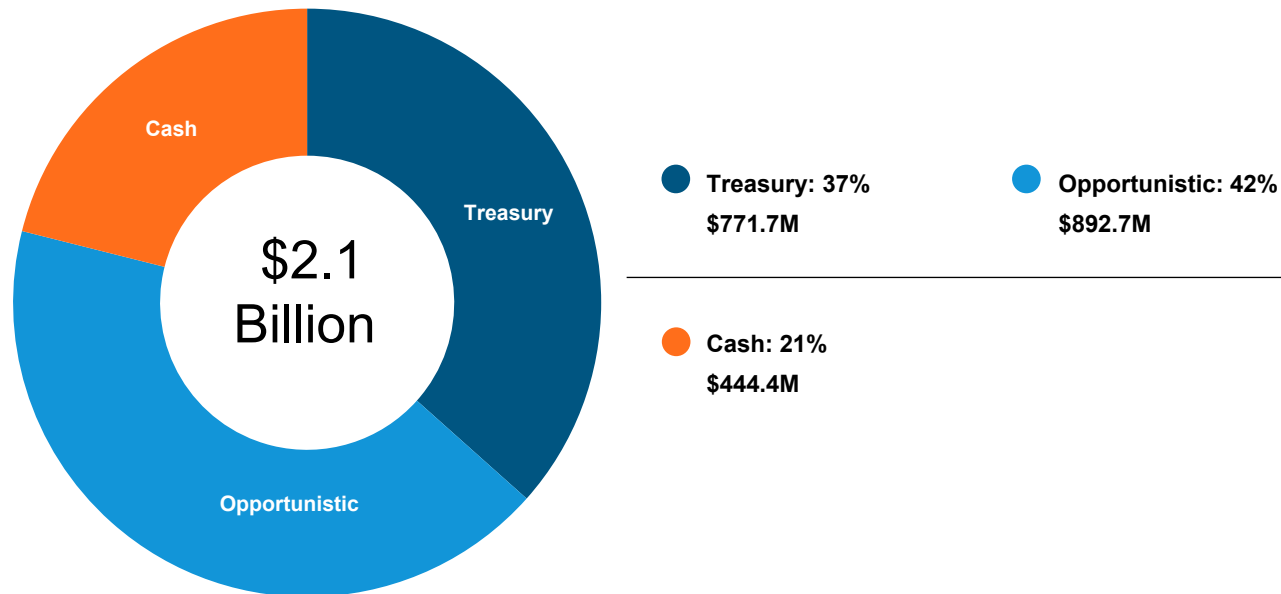
Liquidity (Income) and Cash

Net Returns (%) As of March 31, 2019	Market Value (\$ Million)	% Allocation	Annualized Returns						
			3 Month	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	20 Year
Liquidity (Income)	2,109	100%	3.1	4.2	4.2	3.0	2.5	5.1	5.5
Endowment Policy Benchmark*			2.9	4.6	4.5	3.4	3.2	5.5	5.6
Value Added**			0.1	(0.5)	(0.3)	(0.4)	(0.6)	(0.5)	(0.1)
Treasury	772	37%	2.3	3.8	3.9	1.8	2.2	3.7	4.9
Opportunistic	893	42%	4.0	4.7	3.5	6.1	4.2	8.9	-
Cash	444	21%	1.8	2.9	3.4	1.9	1.7	2.2	-

* 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.

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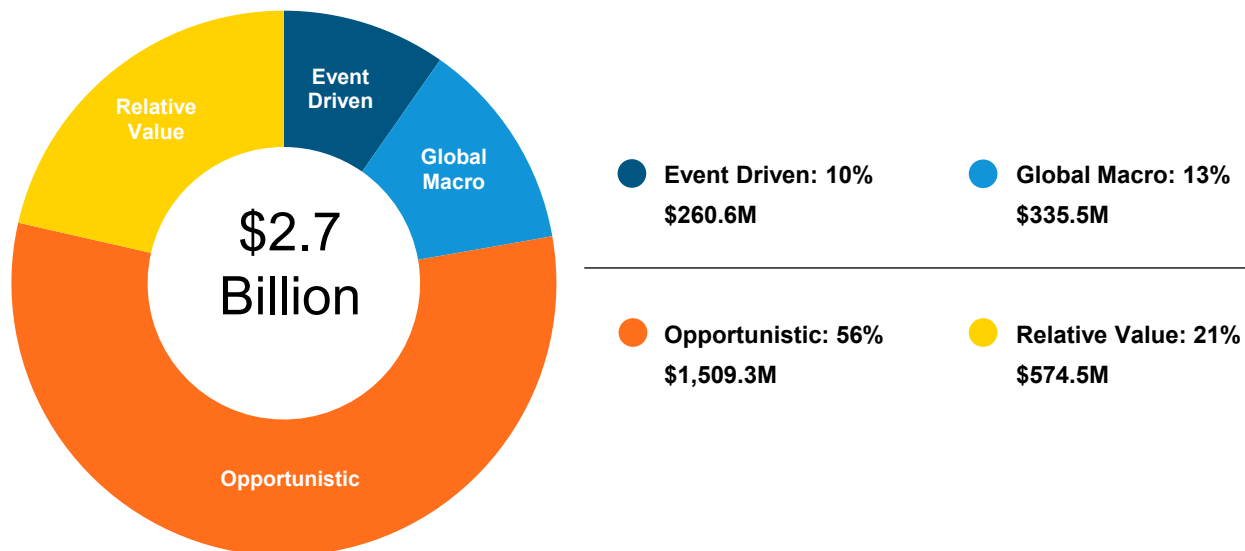


Absolute Return

Net Returns (%) As of March 31, 2019	Market Value		Annualized Returns						
	(\$ Million)	% Allocation	3 Month	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	
Absolute Return	2,698	100%	2.9	3.9	5.3	5.2	4.2	6.5	
Endowment Policy Benchmark*			4.6	(0.4)	0.4	2.4	0.1	1.3	
<i>Value Added**</i>			<i>(1.6)</i>	<i>4.2</i>	<i>4.9</i>	<i>2.8</i>	<i>4.1</i>	<i>5.2</i>	
Event Driven	261	10%	3.4	0.0	1.6	8.7	3.0	8.4	
Global Macro	335	12%	6.3	1.0	2.7	(2.2)	1.7	1.5	
Opportunistic	1,509	56%	2.9	5.4	6.7	-	-	-	
Relative Value	575	21%	0.2	4.1	5.3	8.3	6.8	9.1	

* 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.

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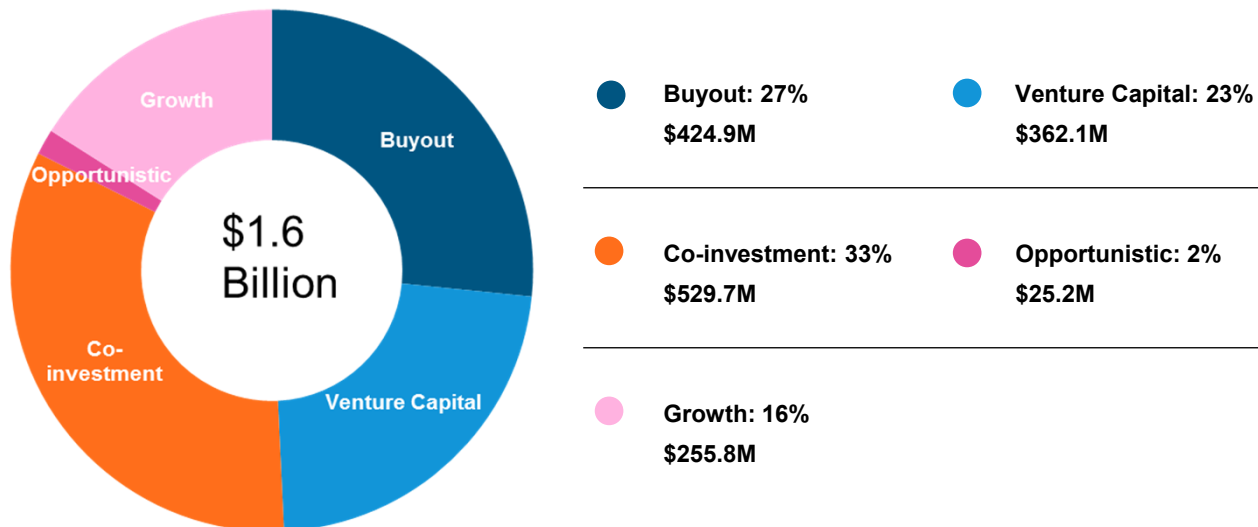


Private Equity

Net Returns (%) As of March 31, 2019	Market Value		Annualized Returns					
	(\$ Million)	% Allocation	3 Month	Fiscal YTD	1 Year	3 Year	5 Year	10 Year
Private Equity	1,602	100%	2.7	12.2	21.8	20.4	20.0	17.2
Endowment Policy Benchmark*			14.5	5.9	10.2	16.0	17.3	15.9
Value Added**			(11.8)	6.3	11.6	4.4	2.7	1.3
Buyout	425	27%	(2.8)	3.3	17.7	25.6	20.8	16.6
Venture Capital	362	23%	5.3	16.4	25.7	14.9	15.9	14.3
Co-investment	530	33%	5.9	18.5	23.8	24.6	27.0	-
Opportunistic	25	2%	8.4	11.2	21.3	8.4	(0.2)	17.4
Growth	256	16%	1.5	11.9	24.9	7.8	6.4	14.5

* As of July 1, 2017, the Private Equity policy benchmark is the Russell 3000 +1.5%. From March 2005 to June 2017, the Private Equity benchmark was the actual private equity return. 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.

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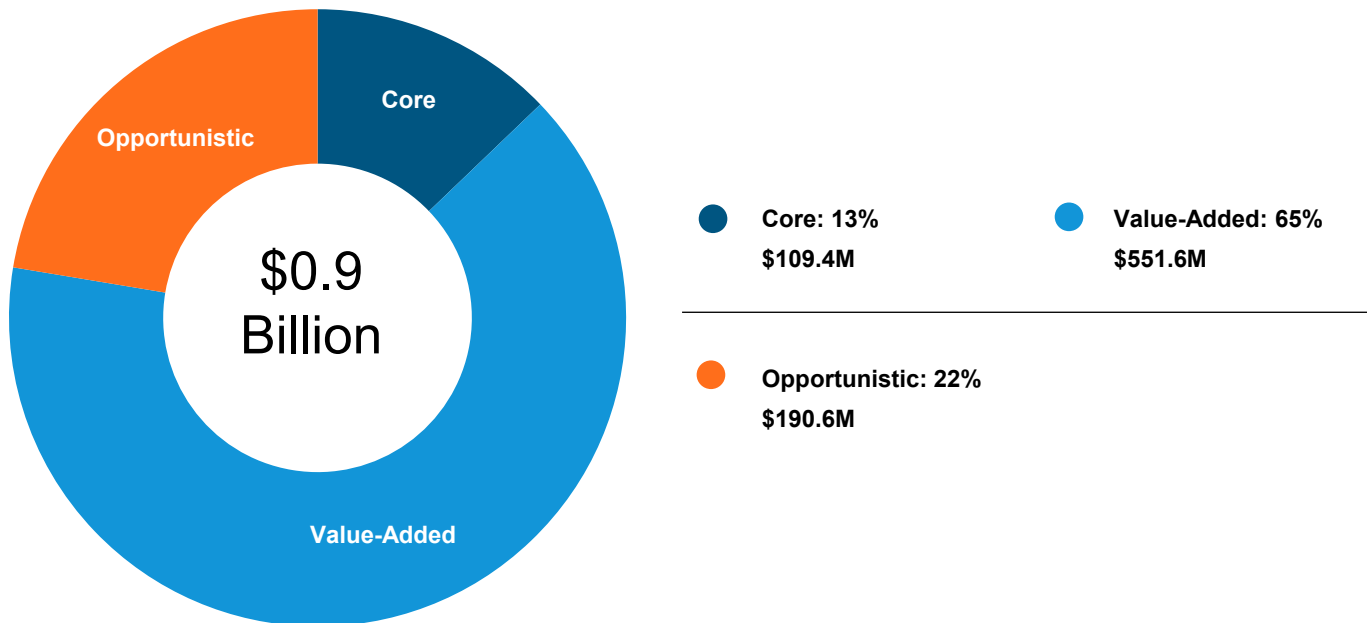




Real Estate

Net Returns (%) As of March 31, 2019	Market Value		Annualized Returns						
	(\$ Million)	% Allocation	3 Month	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	
Real Estate	852	100%	3.9	3.9	8.5	9.3	10.7	5.9	
Endowment Policy Benchmark*			1.5	5.3	7.4	7.3	9.5	5.9	
Value Added**			2.3	(1.4)	1.1	2.0	1.2	0.0	
Core	109	13%	2.9	5.6	10.5	8.2	10.5	11.6	
Value-Added	552	65%	3.5	2.5	7.6	7.4	10.2	5.1	
Opportunistic	191	22%	5.4	5.8	9.7	8.0	9.1	4.1	

**Value add calculation may be slightly off due to rounding and the level of precision used for returns.

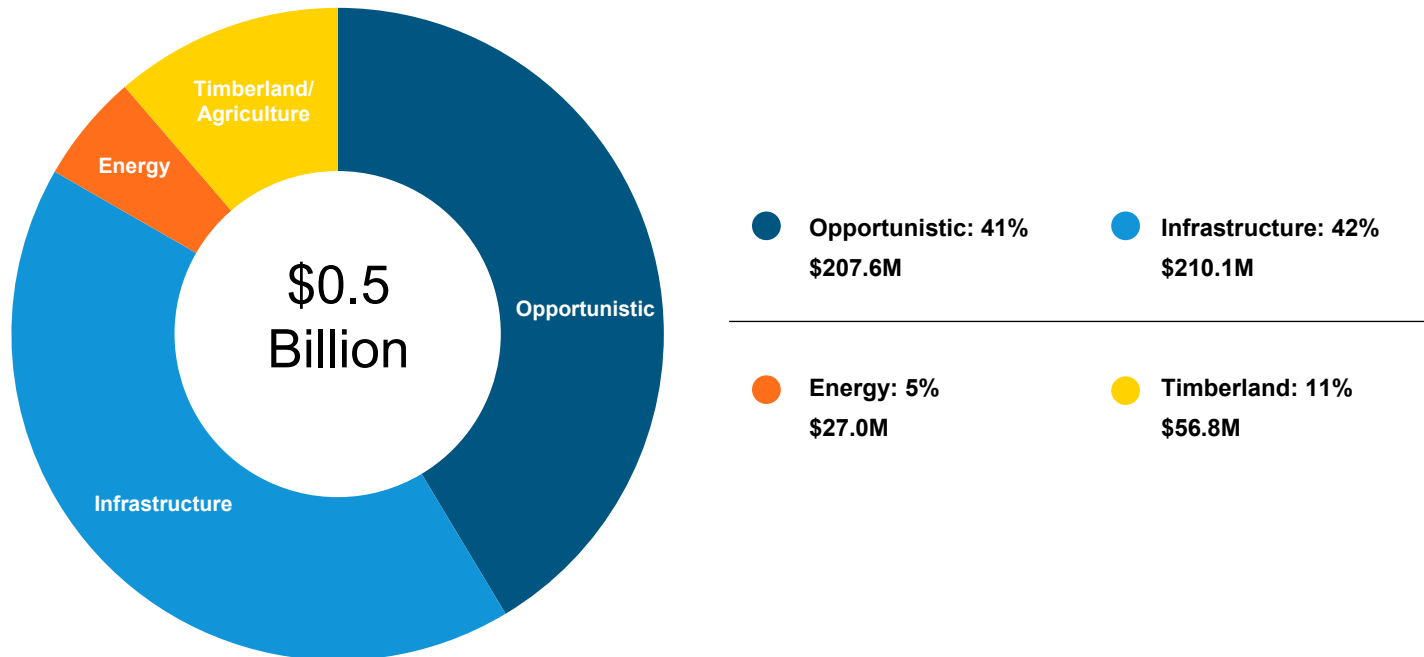




Real Assets

Net Returns (%) As of March 31, 2019	Market Value		Annualized Returns				
	(\$ Million)	% Allocation	3 Month	Fiscal YTD	1 Year	3 Year	5 Year
Real Assets	501	100%	0.3	(0.7)	1.2	3.1	(1.2)
Opportunistic	208	41%	(0.8)	0.5	2.0	4.1	4.3
Infrastructure	210	42%	3.0	2.0	1.6	8.7	9.4
Energy	27	5%	(10.2)	(23.3)	(8.4)	(1.7)	(16.4)
Timberland/Agriculture	57	11%	0.5	(0.2)	(4.7)	(3.2)	1.3

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



Risk 1.0 : Risk Measurement

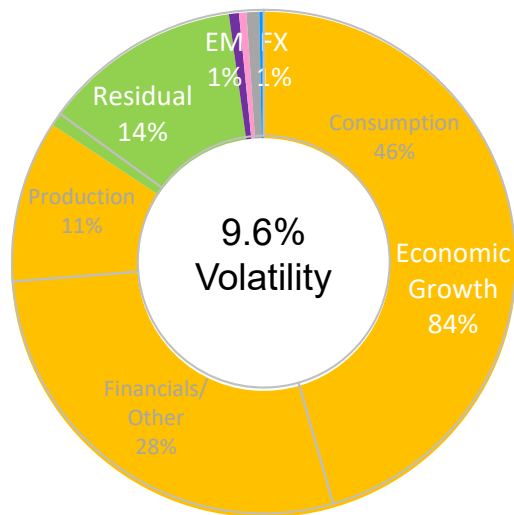
*Portfolio volatility drops slightly, quarter on quarter, after a spike in Q4 2018
Tracking error unchanged.*

Name	Benchmark	Weight (%)	Portfolio Risk (%)		Benchmark Risk (%)		Active Risk (%)	
			Standalone Volatility	QoQ Change	Standalone Volatility	QoQ Change	Tracking Error	QoQ Change
GEP Total	Policy (Blend)	100	9.6	↓ (0.6)	8.7	(0.4)	2.0	0.0
Public Equity	MSCI ACWI ex Tobacco	39	13.3	↓ (0.4)	13.1	(0.7)	2.6	0.4
Liquidity	Barclay's Aggregate	16	1.4	↓ (0.4)	2.6	0.0	1.9	(0.1)
Absolute Return	HFRI FOF	21	4.0	↓ (0.2)	2.9	(0.2)	2.4	0.2
Private Equity	Russell 3000	13	23.2	↓ (1.8)	15.4	(1.1)	11.8	(0.2)
Real Estate	NFI-ODCE	7	12.9	↑ 0.4	9.9	0.4	8.9	(2.4)
Real Assets	Real Assets	4	17.6	↑ 6.6	17.6	6.6	0.0	0.0

Macroeconomic Risk Factors

Portfolio systematic risk generally dominated by “Economic Growth” risk.
Within Economic Growth, “Consumption” dominates.

Endowment



Portfolio Standalone
Risk Factor Decomposition

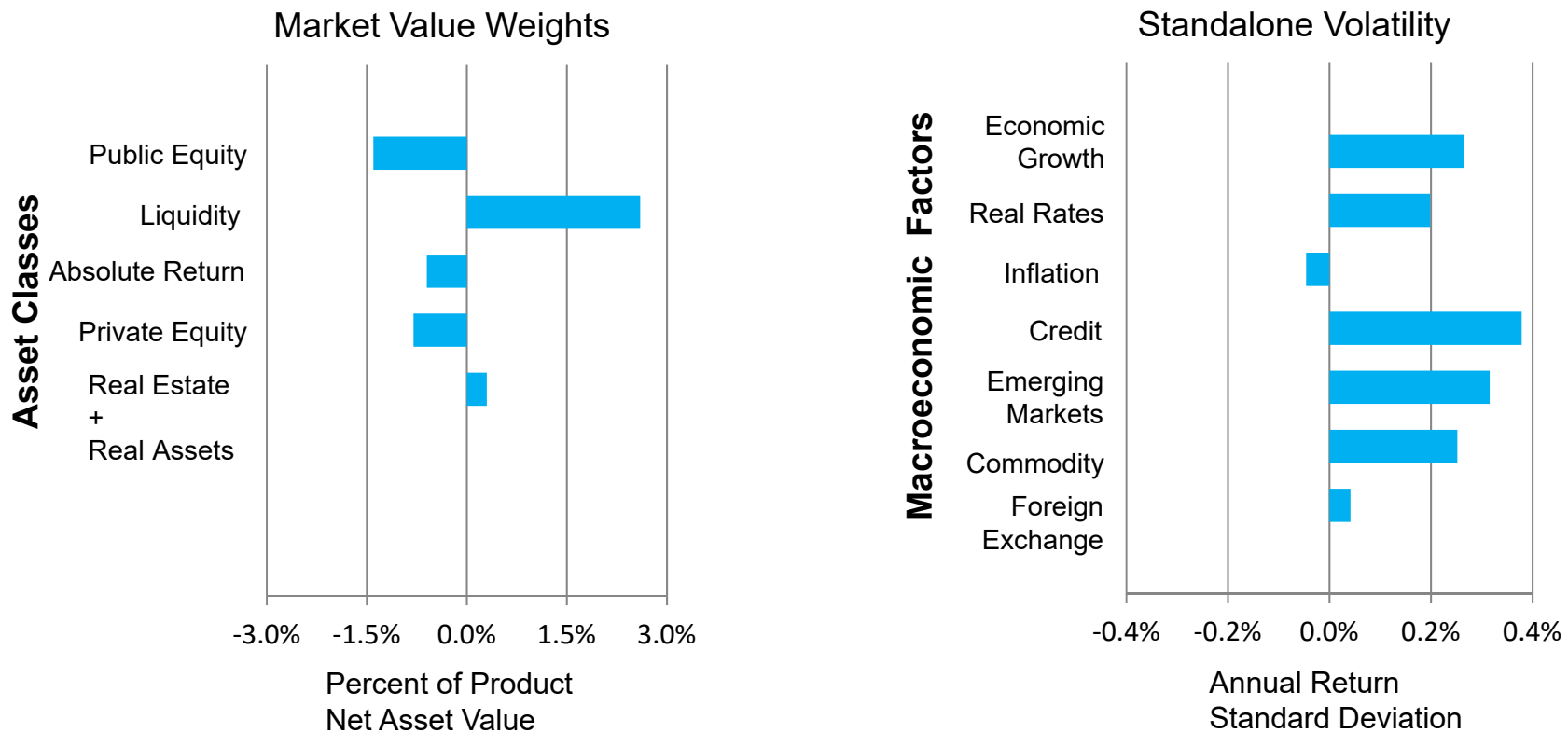
Factor Name	Factor Description
Economic Growth	Proxied by broad, developed market equity index returns
Real Rates	Inflation-linked bond returns
Inflation	Return of long nominal bonds, short inflation-linked bonds portfolio
Credit	Return of long corporate bonds, short nominal bonds portfolio
Commodity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

Risk 1.0 : Two Views of Risk

Asset Classes versus Macroeconomic Factors

Portfolio slightly overweight Economic Growth, despite active underweight to Public /Private Equities

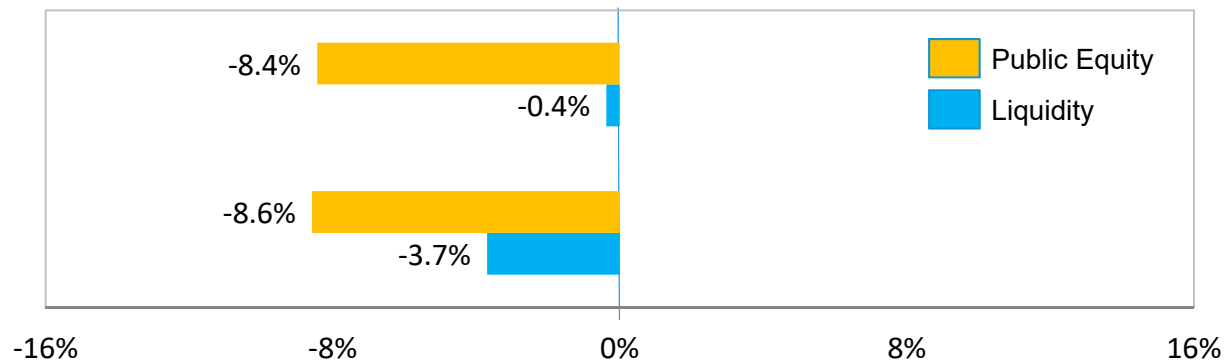
Endowment Active Exposures



Risk 2.0 : Stress Tests

Endowment indicative stressed P&L for public markets investments

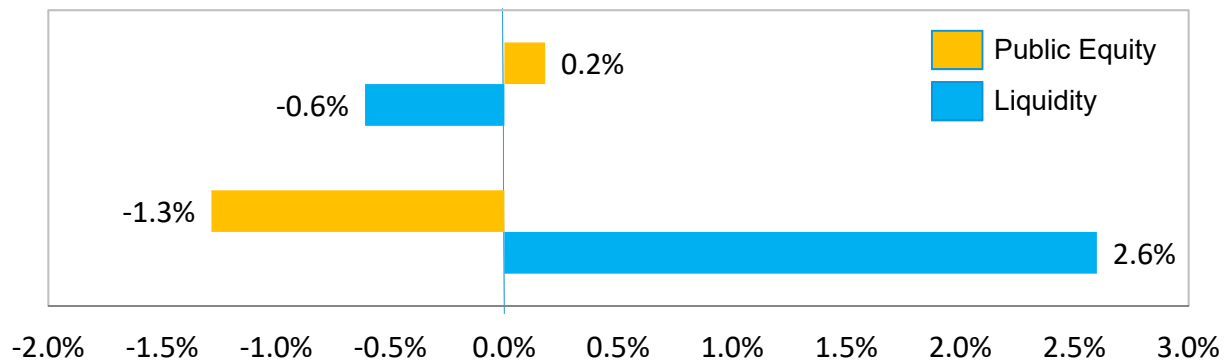
PORTFOLIO



S&P -10%

**US Interest Rates
+100bps**

ACTIVE



S&P -10%

**US Interest Rates
+100bps**

Risk 3.0 : Scenario Analysis

src : BlackRock



US Scenarios

- Federal Reserve Rate Regimes
- Fiscal Policy Stance
- Tax Reform

Global Scenarios

- Central Bank Policy
- Peak Oil
- Gulf Tensions

European Scenarios

- Brexit Negotiations
- Europe Fragmentation/Breakup
- Eurozone Populist Elections

Interest Rate Scenarios

- US Rates Paradigm Shift
- Reflation - Deflation
- Rising Inflation – Global Rate Hikes

Emerging Markets /Asia Scenarios

- US-China Trade Relations
- Abenomics- Helicopter Money
- North Korea Tensions

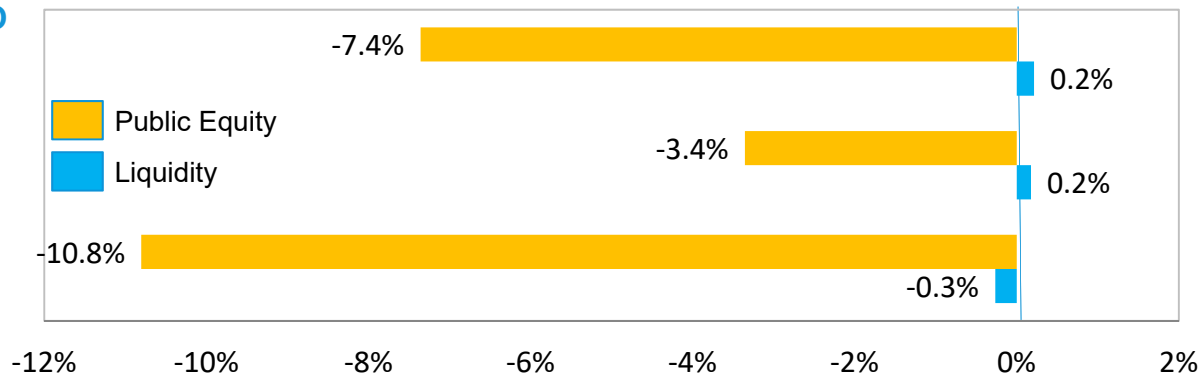
Market Technical Scenarios

- Volatility Regime Change
- Tech Calamity
- Value Reversal

Risk 3.0 : Scenario Analysis

Endowment indicative stressed P&L for public markets investments

PORTFOLIO

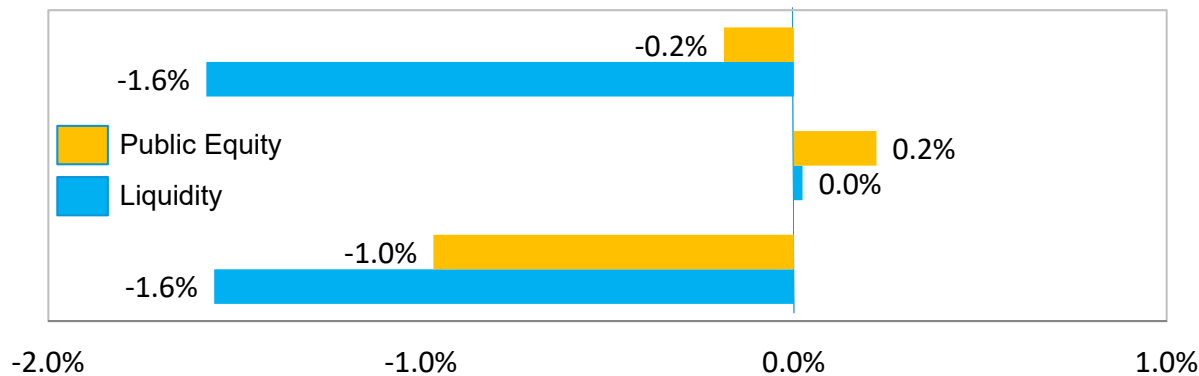


**US Fed Rate Pause :
Growth Concerns**

Brexit : No Deal

**US-China Trade :
Global Protectionism**

ACTIVE



**US Fed Rate Pause :
Growth Concerns**

Brexit : No Deal

**US-China Trade :
Global Protectionism**

Reference scale: volatility = 9.6%, tracking error 2.0%