UNIVERSITY OF CALIFORNIA

Office of the Chief Investment Officer

UC Retirement Savings Program

Investment Performance and Program Review

as of June 30, 2019

Growing Portfolios Building Partnerships

UC Investments

Plan and People

UC Retirement Savings Program at a Glance

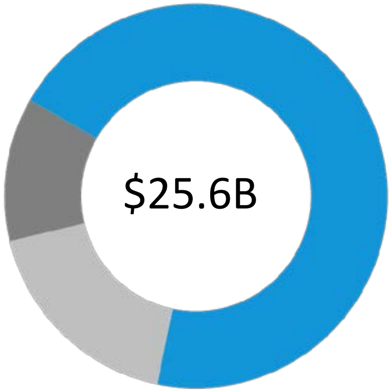
UC Retirement Savings Program

Deliver the best in class DC plan focused on participant outcomes through superior performance and cost management

UC Retirement Savings Program Facts

- **Established in 1967**
- Almost 320,000 Participants
- **$25.6 billion in assets**
- 3 Plans: 403(b), 457(b), DC Plan
- 2nd largest public DC plan in the US
- **Largest 403(b) plan in the US**
- Target Date Fund (Pathway) default since 2014
- **$9.8 billion in Target Date Funds**

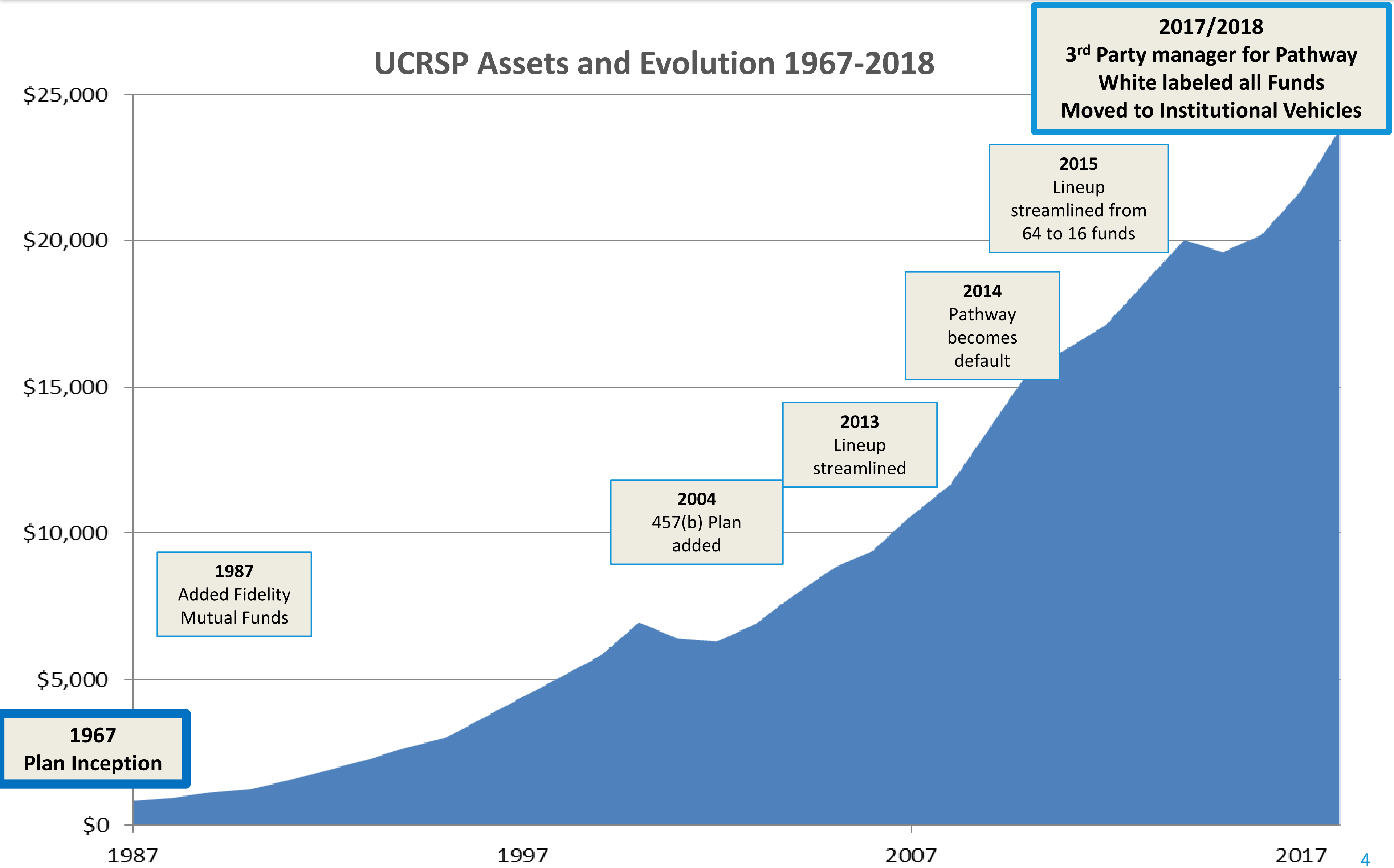
$25.6 billion across 3 plans



Tax Deferred 403(b) Plan: $17.9B	71%
457(b) Deferred Compensation Plan: $3.1B	11%
Defined Contribution Plan: $4.6B	18%

As of June 30, 2019

UC Retirement Savings Program Evolution



Investment Options at a Glance

TARGET DATE FUNDS - $9.8 billion
UC Pathway Funds

UC Pathway Income Fund UC Pathway Fund 2015 UC Pathway Fund 2020 UC Pathway Fund 2025	UC Pathway Fund 2030 UC Pathway Fund 2035 UC Pathway Fund 2040 UC Pathway Fund 2045	UC Pathway Fund 2050 UC Pathway Fund 2055 UC Pathway Fund 2060

CORE FUNDS - $14.1 billion
Bond and Stock Investments

Bond Investments	Domestic Stock	Foreign Stock
Short-Term UC Savings Fund *Intermediate-Term* UC Bond Fund *Inflation-Protected* UC Short Term TIPS Fund UC TIPS Fund	*Large Cap* UC Growth Company Fund *Small Cap* UC Domestic Small Cap Equity Fund *Broad Cap* UC Domestic Equity Index Fund	*Developed Markets* UC International Equity Index Fund UC Diversified International Fund *Emerging Markets* UC Emerging Markets Equity Fund Specialty Stock UC Real Estate Fund UC Social Equity Fund

BROKERAGE WINDOW - $1.7 billion
Fidelity BROKERAGELINK®

As of June 30, 2019

Core Lineup Assets - Details

CORE FUNDS - $14,058

Bond and Stock Investments

Bond Investments - $5,489

Short-Term

UC Savings Fund - $3,944

Intermediate-Term

UC Bond Fund - $1,254

Inflation-Protected

UC Short Term TIPS Fund - $55

UC TIPS Fund - $236

Domestic Stock - $6,600

Large Cap

UC Growth Company Fund - $984

Small Cap

UC Domestic Small Cap Equity Fund - $502

Broad Cap

UC Domestic Equity Index Fund - $5,114

Foreign/Global Stock - $1,310

Developed Markets

UC International Equity Index Fund - $965

UC Diversified International Fund - $133

Emerging Markets

UC Emerging Markets Equity Fund - $212

Specialty Stock - $659

UC Real Estate Fund - $239

UC Social Equity Fund - $420

Market Value in $ Millions, as of June 30, 2019

Defined Contribution Team

Head of Defined Contribution

Marco Merz, CFA

- Joined University of California in 2016
- 10 year career at BlackRock
- Most recently Senior Strategist for Defined Contribution
- Focus on Target Date Fund & Core lineup implementation
- Frequent speaker at DC Industry conferences including P&I, II and IMCA

Chief Operating Officer

Arthur Guimaraes, CPA, CBV

- Joined University of California in 2014
- Led UC glide path review and fund rationalization in 2015
- 10 year career in pension management in the US and Canada
- Most recently, Vice President, Alberta Investment Management Co.
- Previously, senior member of Group Savings & Retirement team at Manulife

5 Year Review

Changes over last 5 Years

Plan Enhancement Initiatives

- Streamlined fund choices from 74 to 13
- Reduced average management fee from 14 bps to 6 bps
- Saved participants $25 million over 5 years

	AUM ex Brokerage ($bln)	Number of Funds	Management Fee $ (mln)	Management Fee (bps)
2015	$18.9	74	$25.9	14
2016	$18.9	16	$18.2	10
2017	$20.9	15	$20.8	10
2018	**$22.6**	**13**	**$13.0**	**6**

Plan Design Enhancements

Top 30 Investment Consultants suggest enhancements in 2018
that we incorporated in this fiscal year

Review Target Date Fund	Reviewed Pathway and hired 3rd party via RFP
Evaluate Investment Fees	Completed fee analysis and reduced fees by over $6 million annually by moving to institutional fund vehicles
Evaluate How Plan Costs Are Paid	Updated approach to management fees
Evaluate Administrative Fees	Moved to flat per participant fee in line with consultant recommendations
Simplify Core Lineup	White labeled 3 funds for a more intuitive naming convention and eliminated 2 redundant investments

Optimal Investment Structure

UC Lineup now follows industry best practice

A Active P Passive H Hybrid

	Tier 1: Default Option		Tier 2: Core Lineup	
UC	Custom Target Date Fund	H	Capital Preservation: 1 Fund	A
			Fixed Income: 1 Fund	A
			Equity: 8 Funds	A A A P P P P P
			Inflation Protection: 2 Funds	P P
Optimal	Custom Target Date Fund	H	Capital Preservation: 1 Fund	A
			Fixed Income: 2 Funds	A P
			Equity: 6 Funds	A A A P P P
			Inflation Protection: 1 Fund	P

Fiscal Year 2018/2019 Project Plan

	Overview of Changes	Implementation Date
I.	Transition 3 Vanguard mutual funds to separate accounts at SSgA	9/30/2018
II.	Implement High Yield active manager in Pathway	3/31/2019
III.	Transition Diversified International Fund to Class 2 Fund	6/30/2019
IV.	**Transition Pathway 2015 vintage into Pathway Income**	**12/31/2019**
V.	**Launch Pathway 2065**	**12/31/2019**

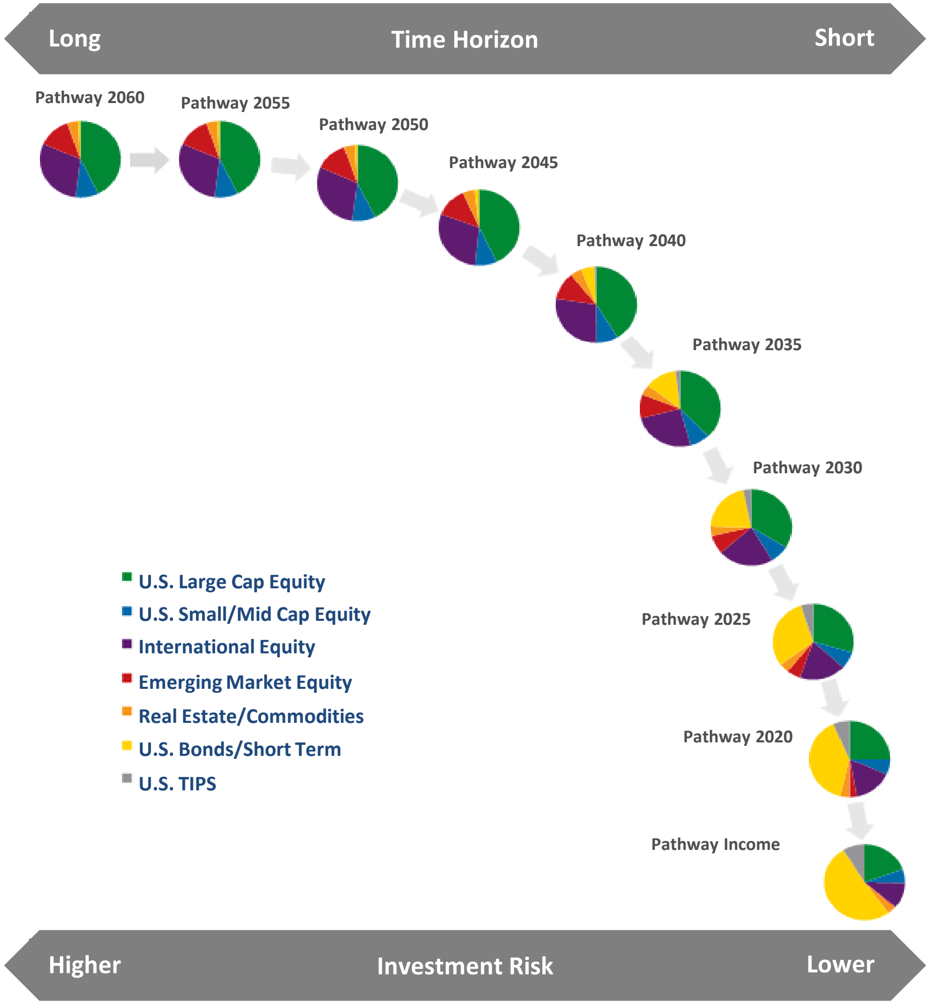
Lineup changes will:

- Reduce fees by over $1.1 million annually
- Increase expected return through active implementation of Pathway's High Yield component
- Streamline line up by consolidating Pathway 2015 into Pathway Income which will have same allocations on 12/31/19
- Maintain existing Pathway vintage structure by launching Pathway 2065

Target Date Fund - Pathway

Pathway – Our Target Date Fund

Designed to support participants' spending throughout retirement



Pathway Key Features

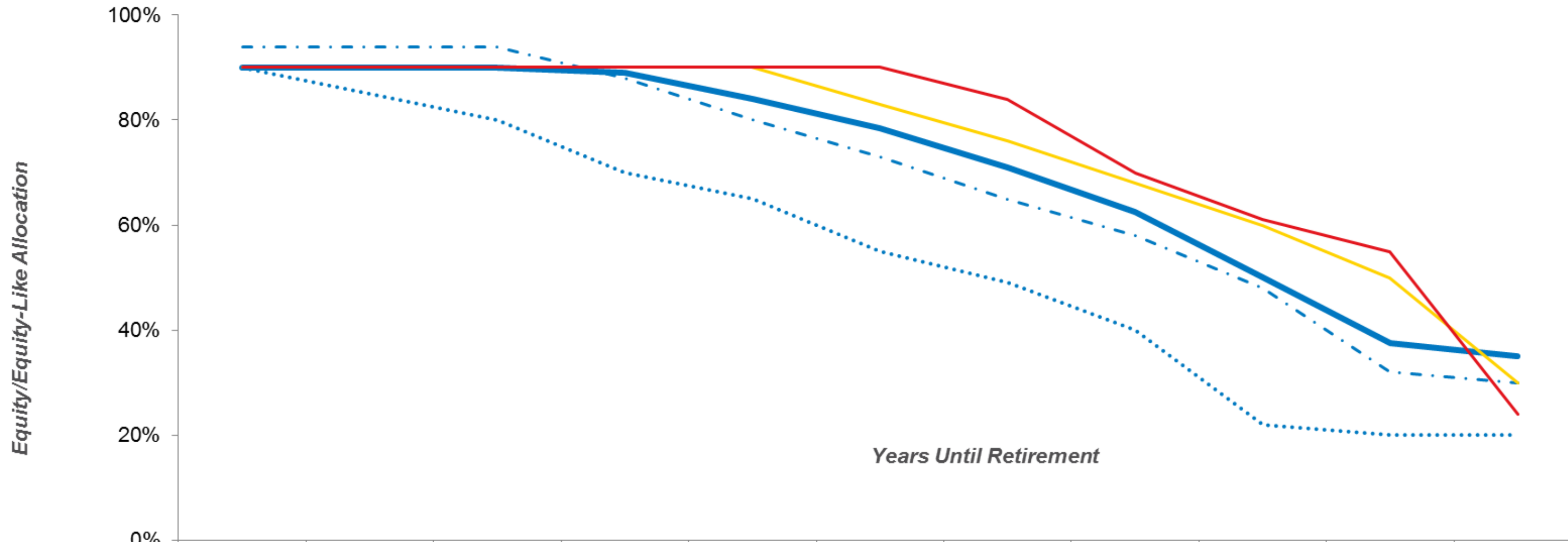
- An **equity landing point of 30%** with static allocations at and through retirement
- **Focus on diversification** with **broad asset class** exposures
- Utilizes a **strategic glidepath** to help mitigate the risks associated with market timing

Key Benefits for Participants

- Constructed to **navigate the major sources of uncertainty** participants face
- Seeks to reduce volatility in an effort to keep participants **saving and investing across market cycles**
- **Continuous research** to anticipate, assess and adapt ahead of evolving conditions to help meet participant needs **now and in the future**

Pathway Glidepath

Pathway GlidePath Evolution vs. TDF providers



	45	40	35	30	25	20	15	10	5	Ret.	Terminal*
Pathway Today	90%	90%	90%	89%	84%	79%	71%	63%	50%	38%	35%
Pathway 2016	94%	94%	94%	88%	80%	73%	65%	58%	48%	32%	30%
Pathway 2014	90%	85%	80%	70%	65%	55%	49%	40%	22%	20%	20%
Vanguard	90%	90%	90%	90%	90%	83%	76%	68%	60%	50%	30%
Fidelity	90%	90%	90%	90%	90%	90%	84%	70%	61%	55%	24%

As of June 30, 2019

Pathway Performance – Quarter and 1 Year

Q2 2019 performance relative to policy benchmarks

Net of fee returns (%)

	Pathway Income	Pathway 2015	Pathway 2020	Pathway 2025	Pathway 2030	Pathway 2035	Pathway 2040	Pathway 2045	Pathway 2050	Pathway 2055	Pathway 2060
Fund Return	2.32	2.43	2.98	3.40	3.62	3.66	3.66	3.66	3.66	3.66	3.66
Policy Benchmark Return	2.35	2.45	2.97	3.39	3.62	3.66	3.66	3.64	3.64	3.64	3.64
Value Added	**-0.03**	**-0.02**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.02**	**0.02**

One year performance relative to policy benchmarks

Net of fee returns (%) - 6/30/2018-6/30/2019

	Pathway Income	Pathway 2015	Pathway 2020	Pathway 2025	Pathway 2030	Pathway 2035	Pathway 2040	Pathway 2045	Pathway 2050	Pathway 2055	Pathway 2060
Fund Return	5.22	5.40	6.20	6.40	6.32	6.06	5.74	5.40	5.31	5.30	5.30
Policy Benchmark Return	5.37	5.53	6.13	6.36	6.31	6.03	5.70	5.35	5.25	5.25	5.25
Value Added	**-0.15**	**-0.13**	**0.07**	**0.04**	**0.01**	**0.03**	**0.04**	**0.05**	**0.06**	**0.05**	**0.05**

As of June 30, 2019

Pathway Performance – 3 Year and 5 Year

3 year performance relative to policy benchmarks

Net of fee returns (%)

	Pathway Income	Pathway 2015	Pathway 2020	Pathway 2025	Pathway 2030	Pathway 2035	Pathway 2040	Pathway 2045	Pathway 2050	Pathway 2055	Pathway 2060
Fund Return	5.22	5.27	6.75	7.55	8.32	8.97	9.61	10.27	10.91	11.13	11.12
Policy Benchmark Return	5.17	5.23	6.68	7.57	8.38	9.05	9.74	10.44	11.11	11.28	11.28
Value Added	**0.05**	**0.04**	**0.07**	**-0.02**	**-0.06**	**-0.08**	**-0.13**	**-0.17**	**-0.20**	**-0.15**	**-0.16**

5 year performance relative to policy benchmarks

Net of fee returns (%)

	Pathway Income	Pathway 2015	Pathway 2020	Pathway 2025	Pathway 2030	Pathway 2035	Pathway 2040	Pathway 2045	Pathway 2050	Pathway 2055	Pathway 2060
Fund Return	3.53	3.61	4.63	4.92	5.24	5.49	5.72	5.94	6.18	6.30	6.30
Policy Benchmark Return	3.37	3.47	4.48	4.83	5.17	5.43	5.68	5.92	6.16	6.25	6.25
Value Added	**0.16**	**0.14**	**0.15**	**0.09**	**0.07**	**0.06**	**0.04**	**0.02**	**0.02**	**0.05**	**0.05**

As of June 30, 2019

Detailed Performance

Core Lineup Performance - Details

US Large Equity	Market Value ($M)	% of Program	3 Months	One Year	Three Year	Five Year	Ten Year
					Annualized Total Return (%)		
UC Domestic Equity Index Fund	$5,114	19.98%	4.25	9.41	14.45	10.38	14.79
Russell 3000 TF Index			4.24	9.09	14.24	10.22	14.66
Value Added			*0.01*	*0.32*	*0.21*	*0.16*	*0.13*
UC Social Index Fund	$420	1.64%	4.58	11.39	16.07	11.56	15.60
Spliced Social Index			4.59	11.37	16.14	11.66	15.72
Value Added			*-0.01*	*0.02*	*-0.07*	*-0.10*	*-0.12*
US Small/Mid Cap Equity							
UC Domestic Small Cap Index Fund	$502	1.96%	2.18	-2.01	10.80	6.83	14.33
Small Cap Spliced Index			2.09	-2.21	10.70	6.74	14.25
Value Added			*0.09*	*0.20*	*0.10*	*0.09*	*0.08*
Global/World ex-US Equity							
UC International Equity Index Fund	$965	3.77%	3.91	1.01	9.49	2.30	7.01
MSCI World ex-US TF Index			3.69	0.43	9.07	1.97	6.64
Value Added			*0.22*	*0.58*	*0.42*	*0.33*	*0.37*

As of June 30, 2019

Core Lineup Performance - Details

Capital Preservation	Market Value ($M)	% of Program	3 Months	One Year	Three Year	Five Year	Ten Year
					Annualized Total Return (%)		
UC Savings Fund	$3,944	15.41%	0.43	1.71	1.48	1.36	1.50
Two-Year U.S. Treasury Notes Income Return			0.56	2.56	1.77	1.32	0.89
Value Added			*-0.13*	*-0.85*	*-0.29*	*0.04*	*0.61*
Inflation Sensitive							
UC Short Term TIPS Fund	$55	0.22%	1.26	2.65	1.70	0.97	
Barclays 1-3 Year U.S. TIPS Index			1.46	2.83	1.52	0.67	
Value Added			*-0.20*	*-0.18*	*0.18*	*0.30*	-
UC TIPS Fund	$236	0.92%	2.80	4.86	2.40	2.04	3.93
Barclays US TIPS Index			2.86	4.84	2.08	1.76	3.64
Value Added			*-0.06*	*0.02*	*0.32*	*0.28*	*0.29*
Diversified Fixed Income							
UC Bond Fund	$1,254	4.90%	3.05	8.17	2.73	3.21	4.37
Barclays Aggregate Fixed Income Benchmark			3.08	7.87	2.31	2.95	3.90
Value Added			*-0.03*	*0.30*	*0.42*	*0.26*	*0.47*
New Large Equity							
UC Growth Company Fund	$984	3.85%	2.38	5.41	21.61	14.71	18.08
Russell 3000 Growth			4.50	10.60	17.81	13.02	16.14
Value Added			*-2.12*	*-5.19*	*3.80*	*1.69*	*1.94*
World ex-US Equity							
UC Diversified Intl. Fund	$133	0.52%	5.85	2.44	8.76	3.46	7.79
MSCI EAFE			3.68	1.08	9.19	2.36	7.03
Value Added			*2.17*	*1.36*	*-0.43*	*1.10*	*0.76*
UC Emerging Markets Fund	$212	0.83%	1.04	1.80	9.55	2.27	6.10
MSCI Emerging Markets Index			0.61	1.21	10.66	2.49	5.81
Value Added			*0.43*	*0.59*	*-1.11*	*-0.22*	*0.29*
Real Estate							
UC Real Estate Fund	$239	0.93%	1.27	10.66	3.55	7.41	15.31
REIT Spliced Index			0.99	9.35	3.23	7.25	15.25
Value Added			*0.28*	*1.31*	*0.32*	*0.16*	*0.06*

Target Date Funds Performance - Details

Target Date Funds	Market Value ($M)	% of Program	3 Months	One Year	Three Year	Five Year	Ten Year
					Annualized Total Return (%)		
UC Pathway Income Fund	$1,030	4.02%	2.32	5.22	5.22	3.53	4.55
Policy Benchmark			2.35	5.37	5.17	3.37	4.08
Value Added			*-0.03*	*-0.15*	*0.05*	*0.16*	*0.47*
UC Pathway Fund 2015	$742	2.90%	2.43	5.40	5.27	3.61	5.74
Policy Benchmark			2.45	5.53	5.23	3.47	5.41
Value Added			*-0.02*	*-0.13*	*0.04*	*0.14*	*0.33*
UC Pathway Fund 2020	$1,561	6.10%	2.98	6.20	6.75	4.63	6.84
Policy Benchmark			2.97	6.13	6.68	4.48	6.61
Value Added			*0.01*	*0.07*	*0.07*	*0.15*	*0.23*
UC Pathway Fund 2025	$1,529	5.98%	3.40	6.40	7.55	4.92	7.36
Policy Benchmark			3.39	6.36	7.57	4.83	7.15
Value Added			*0.01*	*0.04*	*-0.02*	*0.09*	*0.21*
UC Pathway Fund 2030	$1,461	5.71%	3.62	6.32	8.32	5.24	7.81
Policy Benchmark			3.62	6.31	8.38	5.17	7.64
Value Added			*0.00*	*0.01*	*-0.06*	*0.07*	*0.17*
UC Pathway Fund 2035	$1,020	3.98%	3.66	6.06	8.97	5.49	8.26
Policy Benchmark			3.66	6.03	9.05	5.43	8.07
Value Added			*0.00*	*0.03*	*-0.08*	*0.06*	*0.19*

As of June 30, 2019

Target Date Funds Performance - Details

					Annualized Total Return (%)		
Target Date Funds	Market Value ($M)	% of Program	3 Months	One Year	Three Year	Five Year	Ten Year
UC Pathway Fund 2040	$893	3.49%	3.66	5.74	9.61	5.72	8.59
Policy Benchmark			3.66	5.70	9.74	5.68	8.43
Value Added			*0.00*	*0.04*	*-0.13*	*0.04*	*0.16*
UC Pathway Fund 2045	$631	2.46%	3.66	5.40	10.27	5.94	8.97
Policy Benchmark			3.64	5.35	10.44	5.92	8.82
Value Added			*0.02*	*0.05*	*-0.17*	*0.02*	*0.15*
UC Pathway Fund 2050	$497	1.94%	3.66	5.31	10.91	6.18	9.46
Policy Benchmark			3.64	5.25	11.11	6.16	9.34
Value Added			*0.02*	*0.06*	*-0.20*	*0.02*	*0.12*
UC Pathway Fund 2055	$236	0.92%	3.66	5.30	11.13	6.30	9.90
Policy Benchmark			3.64	5.25	11.28	6.25	9.74
Value Added			*0.02*	*0.05*	*-0.15*	*0.05*	*0.16*
UC Pathway Fund 2060	$240	0.94%	3.66	5.30	11.12	6.30	10.19
Policy Benchmark			3.64	5.25	11.28	6.25	10.04
Value Added			*0.02*	*0.05*	*-0.16*	*0.05*	*0.15*

As of June 30, 2019

Appendix

Last Fiscal Year lineup changes

	Overview of Changes	Implementation Date
I.	Repackaged Fidelity and DFA funds to institutional funds	10/02/2017
II.	Renamed 3 Vanguard funds to easier naming convention	10/02/2017
III.	Eliminated the UC Balanced Growth and UC Global funds	10/02/2017
IV.	Implemented 3rd party manager for Pathway	12/31/2017

Lineup changes highlights:

Transitioned $9.4 billion into new funds (38% of UCRSP plan assets);
Completed a multi-stage communication campaign that reached over 300,000 participants;
Reduced fees by over $7 million annually;
Reduced operational complexity and risk;
Allow participants to better understand their risk exposure; and
Implement an easy to understand and consistent naming convention for all funds.