

Affiliate Trust Asset Allocation Review Supplemental Income Plans

Trust Level Portfolio Management
Global Equity, Affiliate Investment Program
4/16/2018

Affiliate Trust Asset Allocation Review: Investment Committee (IC) Engagements in 2018

Monday, April 16th
Investment Committee

Asset Allocation Review:

- Supplemental Income Plans (SIP)

Monday, May 14th
Investment Committee

Asset Allocation Review

- Judges' Retirement Fund (JRS)
- Judges' Retirement Fund II (JRS II)
- Legislators' Retirement Fund (LRS)
- California Employers' Retiree Benefit Trust Fund (CERBT)

Monday, June 18th
Investment Committee

Asset Allocation Review:

- Health Care Fund (HCF)
- Long-Term Care Fund (LTC)

Agenda

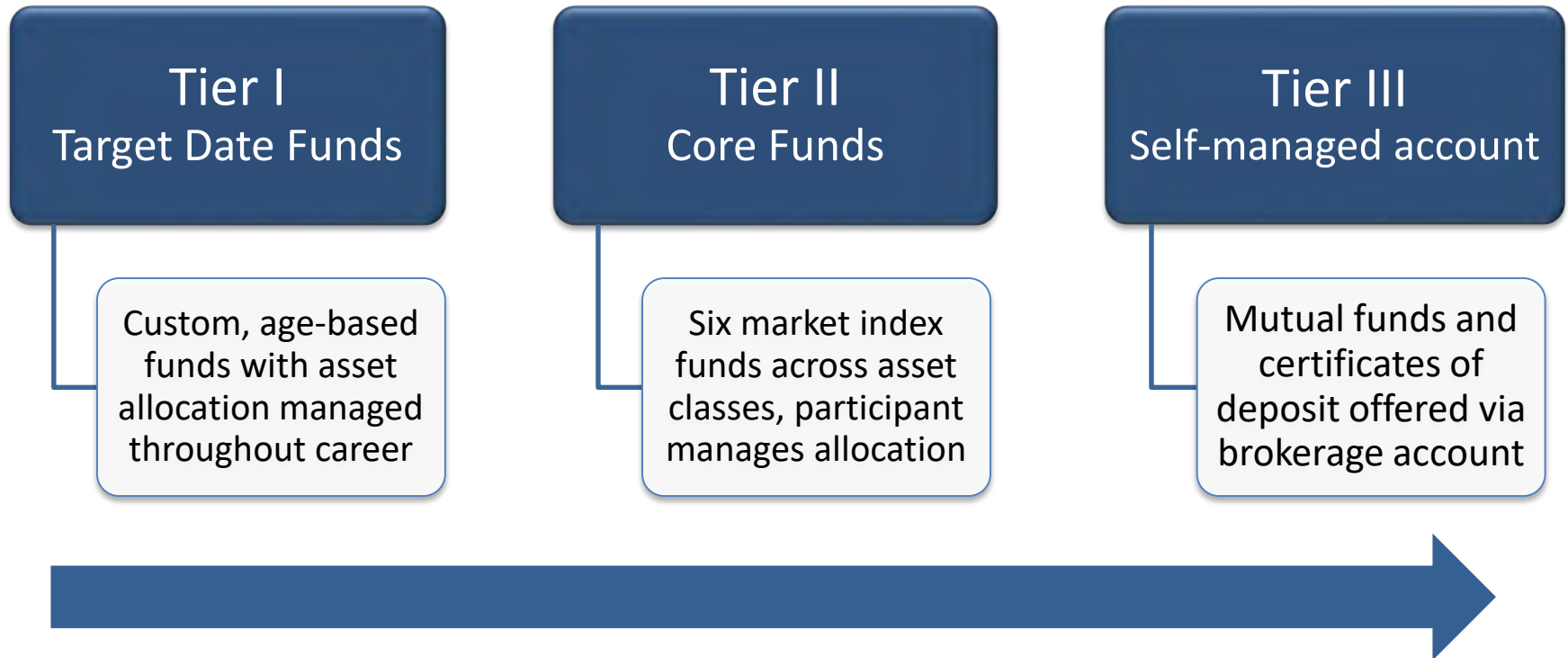
- Overview of CalPERS Supplemental Income Plans
- Introduction to Glide Path Design
- Review of CalPERS Glide Path Design
- Glide Path Recommendation
- Appendix

Overview of CalPERS Supplemental Income Plans

Program Overview as of 12/31/17

Program	Purpose	Assets	Participants	Employers
Public Employees' Deferred Compensation	Pre-tax retirement savings	\$1.5B	27,483	791
Placer County 401(k)	Pre-tax retirement savings	\$42M	1,434	1
Supplemental Contributions Program	After-tax retirement savings, tax deferred	\$115M	7,455	1
Program Totals		\$1.66B	36,672	793

Investment Menu Design

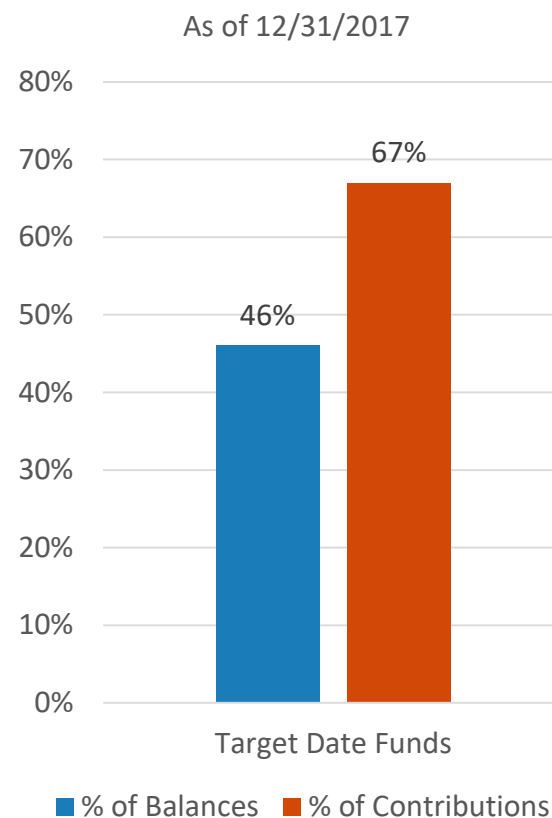


Investment Fund Lineup

	Asset Class	Investment Funds
Tier 1	Age-based asset allocation	Target Retirement Date Funds Ten funds: 2055 – Income Fund
Tier 2	U.S. Equity	Russell All Cap Equity Index Fund
	International Equity	Global All Cap Equity Index Fund
	U.S. Fixed Income	U.S. Bond Index Fund
	U.S. Fixed Income	U.S. Short-Term Govt/Credit Bond Index Fund
	Real Assets	Real Asset Fund
	Capital Preservation	Short-Term Investment Fund
Tier 3	Various	Self-Managed Account: Mutual Funds, Certificates of Deposit

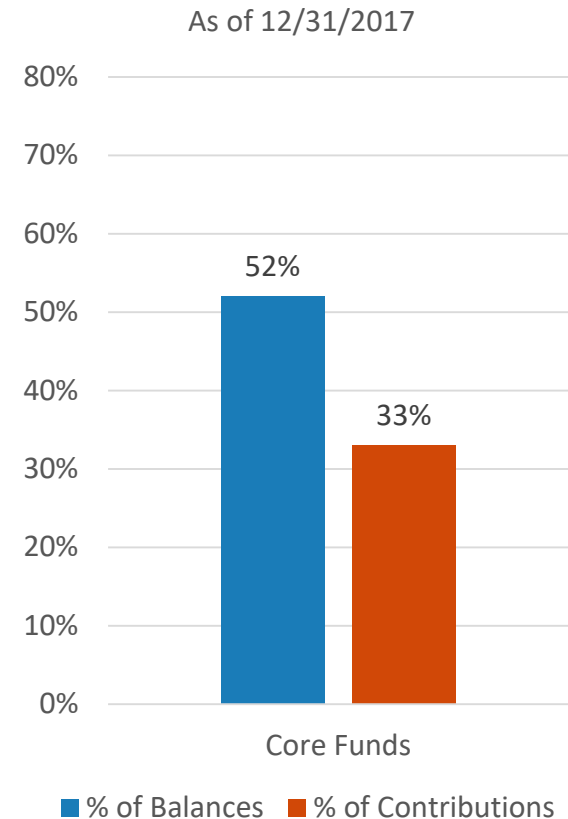
Tier I: Target Retirement Date Funds (TDFs)

- Participant selects fund nearest retirement date, allocation managed throughout career
 - Investments utilize broad market index funds
 - Glide path customized based on demographics
 - Rebalanced using disciplined process
- Participant usage trending upward
 - 60% invested 100% in TDFs
 - 46% balances
 - 67% contributions
- Qualified Default Investment Alternative
- 2060 TDF can be added



Tier II: Core Funds

- Participant selects individual fund(s) and manages allocation
 - Investments utilize broad market index funds
 - No glide path
 - Participant rebalances
- Participant usage trending downward
 - 52% balances
 - 33% contributions



Tier III: Brokerage Account

- Employers may choose to contract for this option
- Participant selects individual fund(s) and manages allocation
 - Investments utilize mutual funds & certificates of deposit
 - Higher fees for mutual funds
 - Participant rebalances
- Participant usage in line with industry
 - 2% balances
 - 0% contributions

SIP Plan Investment Review

2013 Results

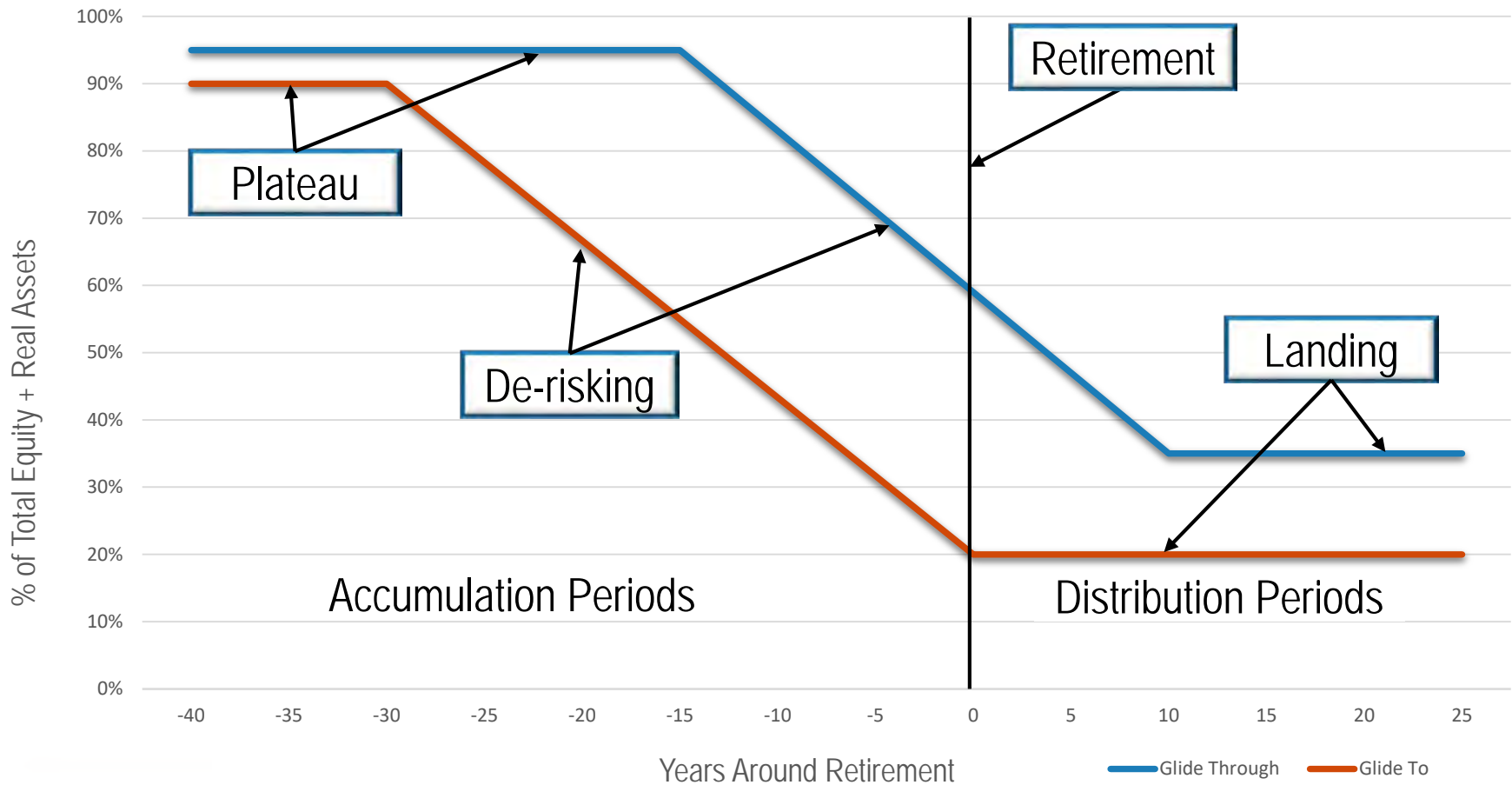
Simplified lineup, reduced funds from 24 to 16
Moved from active to index, closed balanced funds
Updated glide path based on participant demographics
Opened 2055 Target Retirement Date Fund

2018 Focus

Evaluate capital preservation and fixed income options
Review and refresh the glide path
Add 2060 Target Retirement Date Fund

Introduction to Glide Path Design

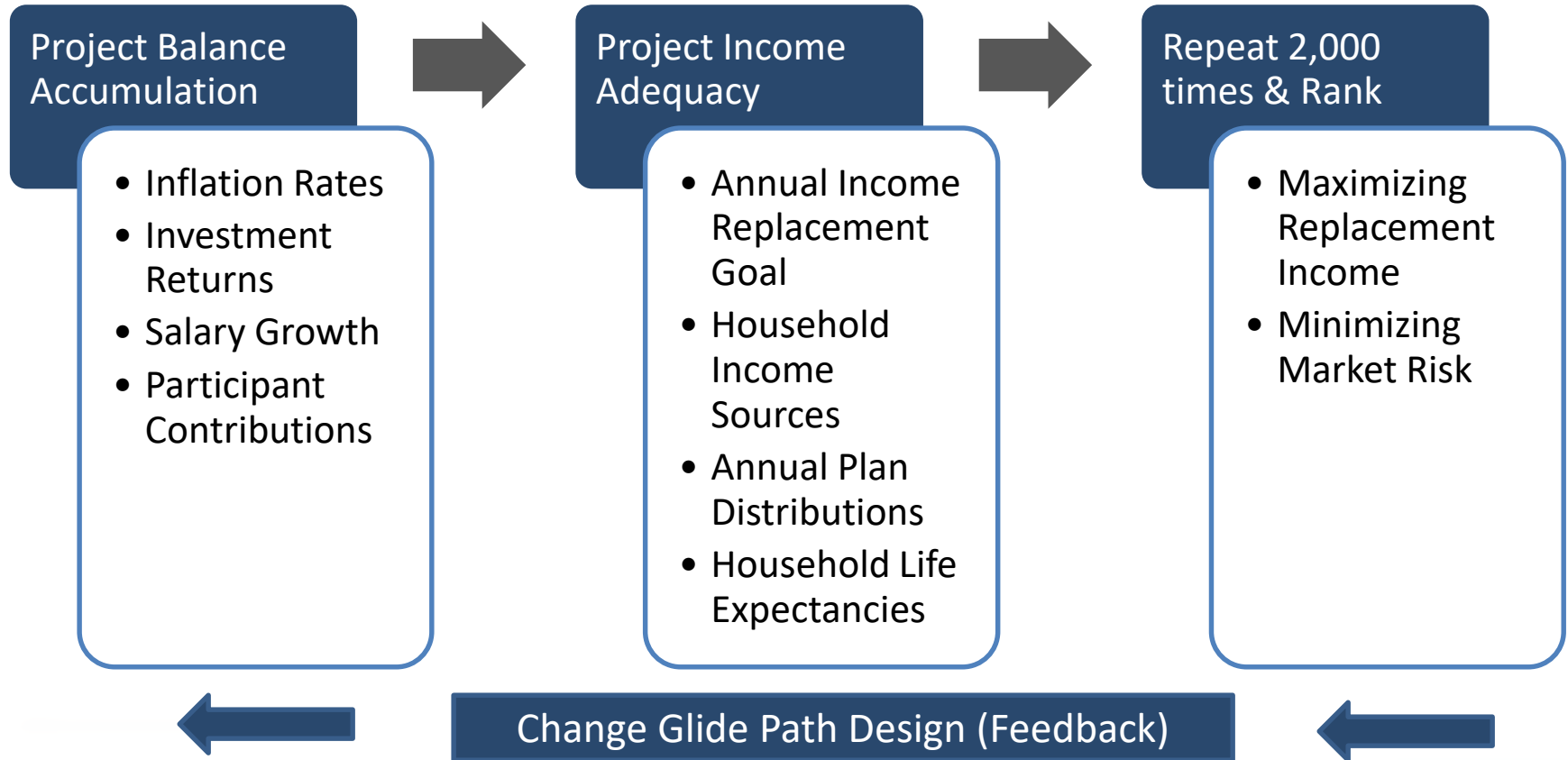
Basic Elements of A Glide Path



Utility of a Glide Path Design

- Affords a disciplined approach to adjust asset allocation as the plan participant goes through his/her life cycle
- Accruing wealth during the accumulation (Plateau followed by De-risking) years while maximizing the opportunity for income during distribution years, all within a risk-controlled framework
- Efficient portfolios built on risk/return trade-off of the whole accumulation plus distribution period, instead of any static point of time

RVK Glide Path Design



Review of CalPERS Glide Path Design

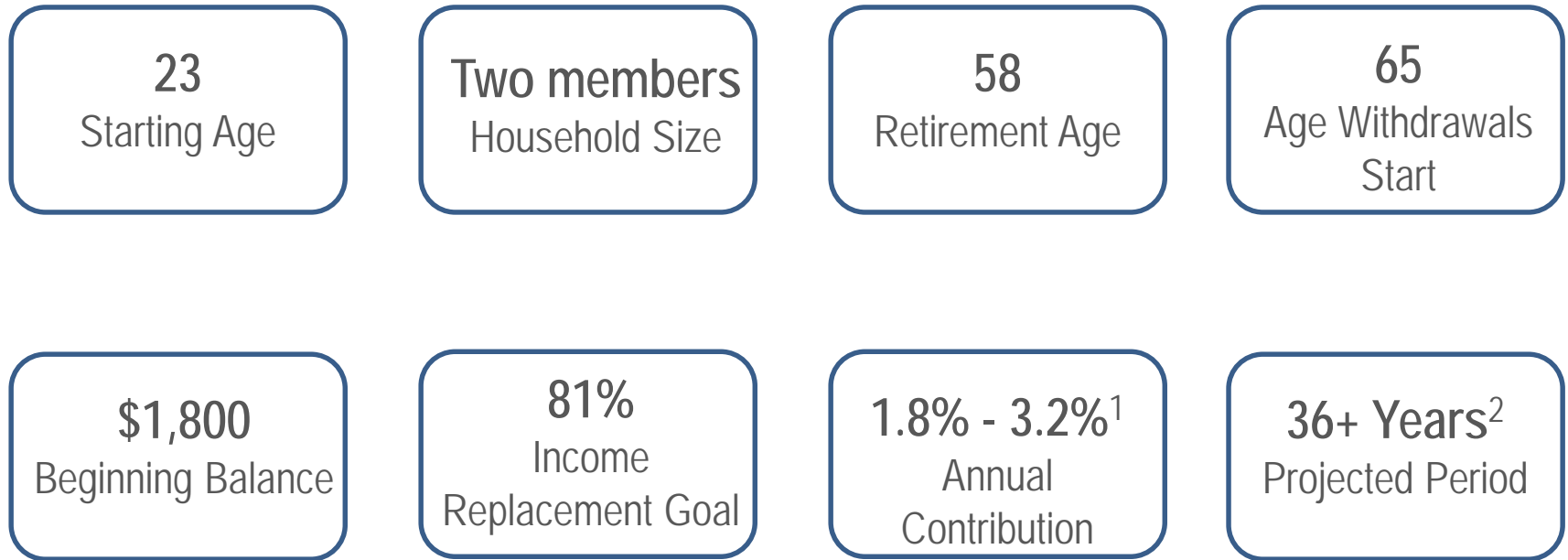
Distribution in Retirement Phase

Distribution Type		Age Group						
		50-55	55-60	60-65	65-70	70-75	>=75	>=65
A	No Distributions ¹	95%	94%	89%	85%	56%	14%	69%
B	Partial Distributions	2%	3%	5%	7%	35%	80%	23%
A+B	Participants Remaining in Plan	97%	97%	94%	93%	91%	94%	92%
C	Rollover ²	1%	2%	3%	5%	5%	1%	4%
D	Full Cash Distribution	1%	2%	2%	3%	3%	5%	3%
A+B+C	Participants Fully Invested	99%	98%	98%	97%	97%	95%	97%
C+D	Fully Depleted Participants ³	3%	3%	6%	7%	9%	6%	8%

During 2016:

1. The majority of plan participants make **no distributions before age 70**; however, 31% of plan participants are making distributions after age 65.
2. A high percentage of all depletions was due to account rollovers. Research shows that median equity allocation of traditional rollover IRAs is greater than 50%.
3. Only a small percentage of participants take a full distribution at retirement, suggesting a **“through” glide path is appropriate**.

Inputs to SIP Glide Path Design

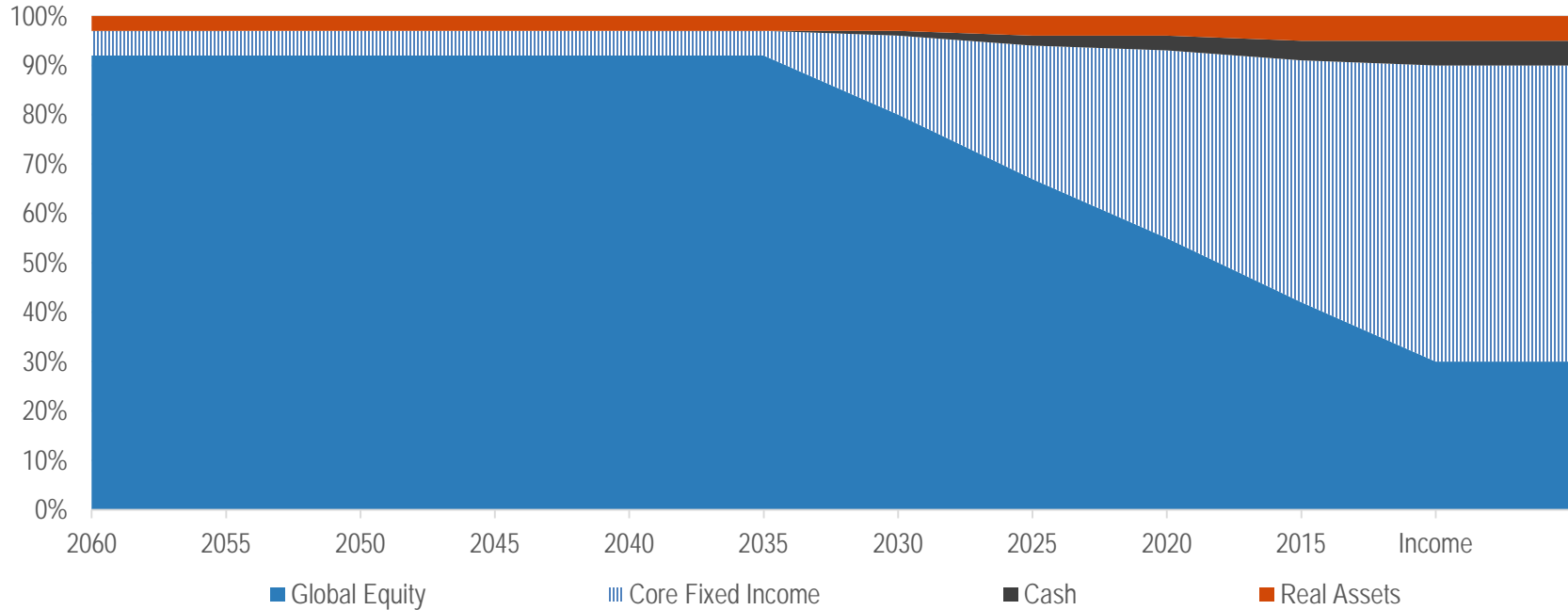


¹ Contribution rates used are consistent with median age group contribution rates for CalPERS 457 Plan working participants in CY 2016. Data sourced from Voya.

² The projection period starts at age 23 to retirement at age 58, afterwards projected years in retirement are based on the projected household mortality.

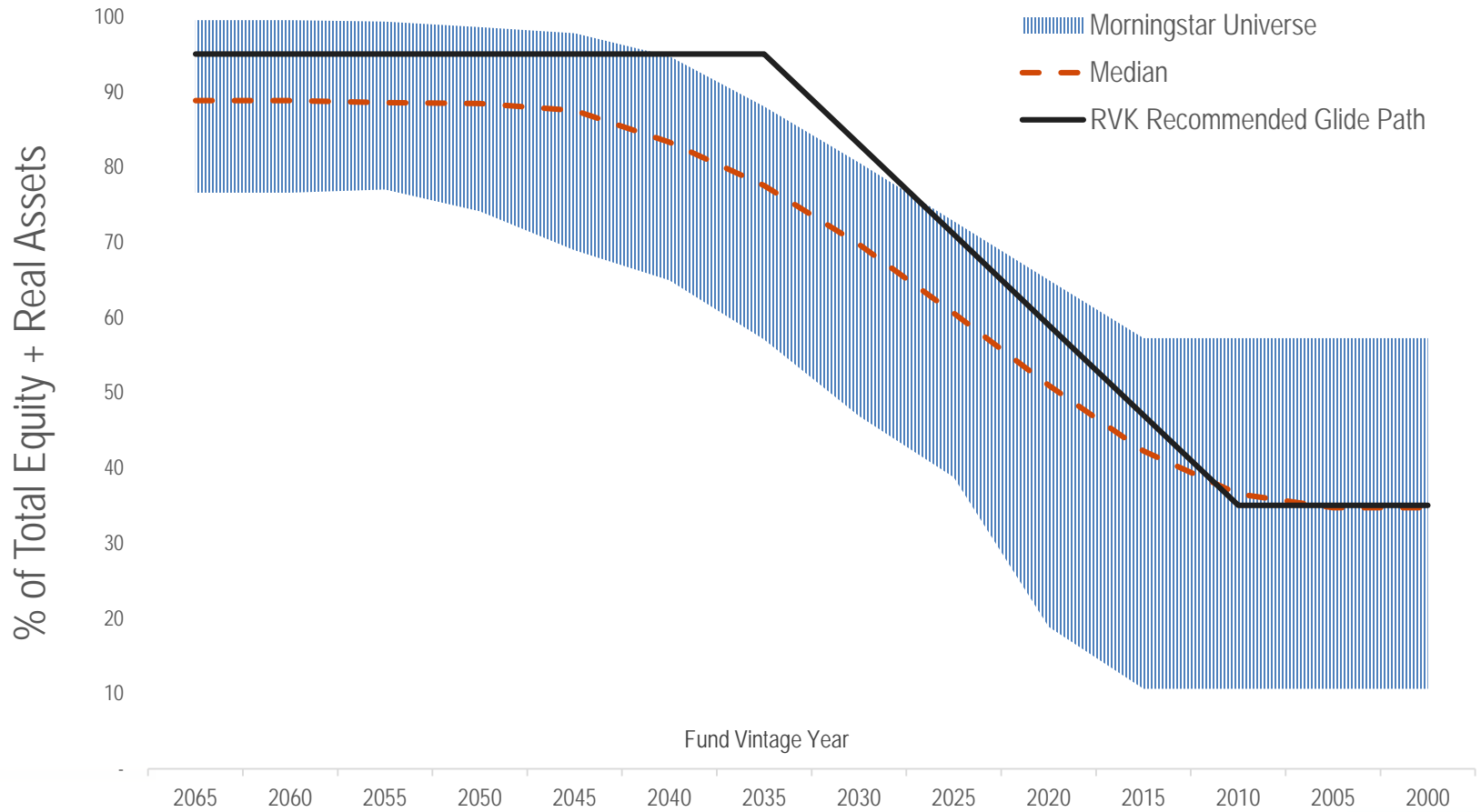
Glide Path Recommendation

SIP Recommended Asset Allocation



	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	Income
Global Equity	92%	92%	92%	92%	92%	92%	80%	67%	55%	42%	30%
Real assets	3%	3%	3%	3%	3%	3%	3%	4%	4%	5%	5%
Core fixed income	5%	5%	5%	5%	5%	5%	16%	27%	38%	49%	60%
Cash	0%	0%	0%	0%	0%	0%	1%	2%	3%	4%	5%

Morningstar Universe and SIP Recommended Glide Path



SIP Recommended Glide Path Median Income Projections¹

<p>6.0% Annualized Return Before Distribution</p>	<p>13.6% Annualized Volatility Before Distribution</p>
<p>\$285,970 Ending Balance</p>	<p>76% Replacement Rate</p>
<p>71% Probability of Shortfall</p>	<p>14 Years Before Drawdown²</p>
<p>1.5% Additional Contribution (50% probability of shortfall)</p>	<p>5.8% 457 Replacement Rate</p>

SIP Current Glide Path Median Income Projections¹

<p>5.1% Annualized Return Before Distribution</p>	<p>10.4% Annualized Volatility Before Distribution</p>
<p>\$212,765 Ending Balance</p>	<p>73% Replacement Rate</p>
<p>83% Probability of Shortfall</p>	<p>13 Years Before Drawdown²</p>
<p>3.6% Additional Contribution (50% probability of shortfall)</p>	<p>4.3% 457 Replacement Rate</p>

Implementation Steps

Update Investment Policy

Participant & Employer Communications

Open 2060 Fund

New Glide Path effective October 1st, 2018

Appendix

SIP Capital Market Assumptions

Asset Class	SIP Benchmark	Arithmetic Return	Geometric Return	Volatility	Correlations			
					Global Equity	Real Assets	Fixed Income	Liquidity
Global Equity	Global Equity Composite ¹	8.1	6.8	17.0	1.0	0.8	0.0	0.0
Real Assets	Real Asset Composite ²	5.5	4.7	12.8	0.8	1.0	0.1	-0.05
Fixed Income	Barclays U.S. Aggregate	2.6	2.5	5.0	0.0	0.1	1.0	0.4
Liquidity	BofA Merrill Lynch 3-Month US Treasury Bill	2.0	2.0	1.0	0.0	-0.05	0.4	1.0