
June 18, 2018

Item Name: Affiliate Trust Asset Allocation Review: Health Care Fund Reserve and Long-Term Care Fund

Program: Trust Level Portfolio Management & Affiliate Investment Programs

Item Type: Action

Recommendation

Approve recommended strategic asset allocation for Health Care Fund and Long-Term Care Fund.

Executive Summary

CalPERS' Board of Administration (Board) is responsible for the administration and investment of several Affiliate Funds, which are independent of the Public Employees' Retirement Fund (PERF).

This item includes the recommendations of the recent strategic asset allocation analysis for the following Affiliate Funds:

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

The last strategic asset allocation reviews were conducted in 2016 for HCF Reserve and in 2015 for LTC. However, to be consistent with the current Total Fund Investment Policy, strategic asset allocation reviews for all Affiliate Funds will follow the same four-year cycle of the PERF asset liability management (ALM) process.

The strategic asset allocation process has considered the unique characteristics of each plan. To a significant degree, the recommendations have been guided by an attempt to keep the existing risk profile of each plan.

Overviews of the key inputs and analyses for the strategic asset allocation reviews for the HCF Reserve and the LTC are provided in Attachment 1. An opinion letter from Wilshire Associates is provided as Attachment 2.

Strategic Plan

This agenda item supports the CalPERS Strategic Plan goal of improving long-term pension and health benefit sustainability.

Investment Beliefs

This agenda item is consistent with the following CalPERS Investment Beliefs:

- Investment Belief 1: Liabilities must influence the asset structure. Plan characteristics that define its objective (HCF) Reserve or project future liabilities (LTC) are determinants of the recommended Policy Portfolio for each Affiliated Fund.
- Investment Belief 2: A long investment horizon is a responsibility and an advantage. The recommended Policy Portfolio for LTC is based on analyses of long-term demographic trends and projections.
- Investment Belief 6: Strategic asset allocation is the dominant determinant of portfolio risk and return. Strategic asset allocation is reviewed for all Affiliate Funds following the same four-year cycle as the PERF. Staff aims to diversity the overall portfolio across distinct risk drivers.
- Investment Belief 7: CalPERS will take risk only where we have a strong belief that we will be rewarded for it. Staff tried to maintain its existing risk profile for each Affiliate Fund.
- Investment Belief 9: Risk to CalPERS is multi-faceted and not fully captured through measures such as volatility or tracking error. Staff analyzed risk considerations such as funded status, duration of liabilities, cash outflows, and diversity of funding for LTC.

Background

Health Care Fund (HCF)

The Health Care Fund was established in 1989 to fund self-funded health benefit plans. The Health Care Fund Reserve was established in 1997 as a safeguard for case claims that are higher than anticipated or there are any cash shortfalls. Its investment objective is to provide stability of principal, enhance returns within prudent levels of risk, and maintain liquidity to meet cash needs. As of December 31, 2017, the HCF Reserve amounts to \$450 million.

The purposes of the HCF reserve for self-funded plans include:

- To pay for health care expenses that have been incurred, but not yet paid
- To provide funds to cover claims that exceed premiums
- To provide funds to cover catastrophic and unforeseen events

Long-Term Care (LTC)

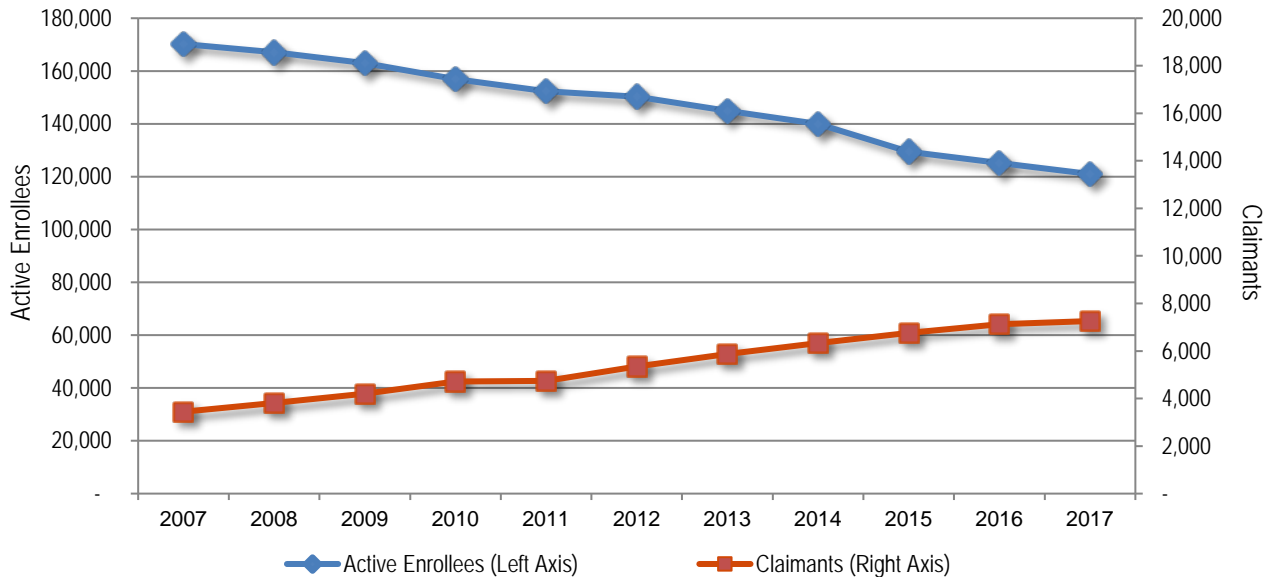
The Long-Term Care (LTC) Program was established in 1995 to administer long-term care for enrolled California public employees and retirees, as well as their spouses, parents, parents-in-law, adult children and adult siblings between the ages of 18 and 79.

As of December 31, 2017, the Long-Term Care Program has 128,276 active participants and received annual premiums of \$301 million. The Program paid out \$294 million in benefits to 7,259 active claims during fiscal year ending June 30, 2017.

In 2012, the Board approved the three-year Stabilization and Open Application Period Project (SOAPP) to increase the long-term sustainability of the LTC Program. Key components of SOAPP included a restructuring of the premiums and benefit packages, and a shift to a more conservative asset allocation strategy.

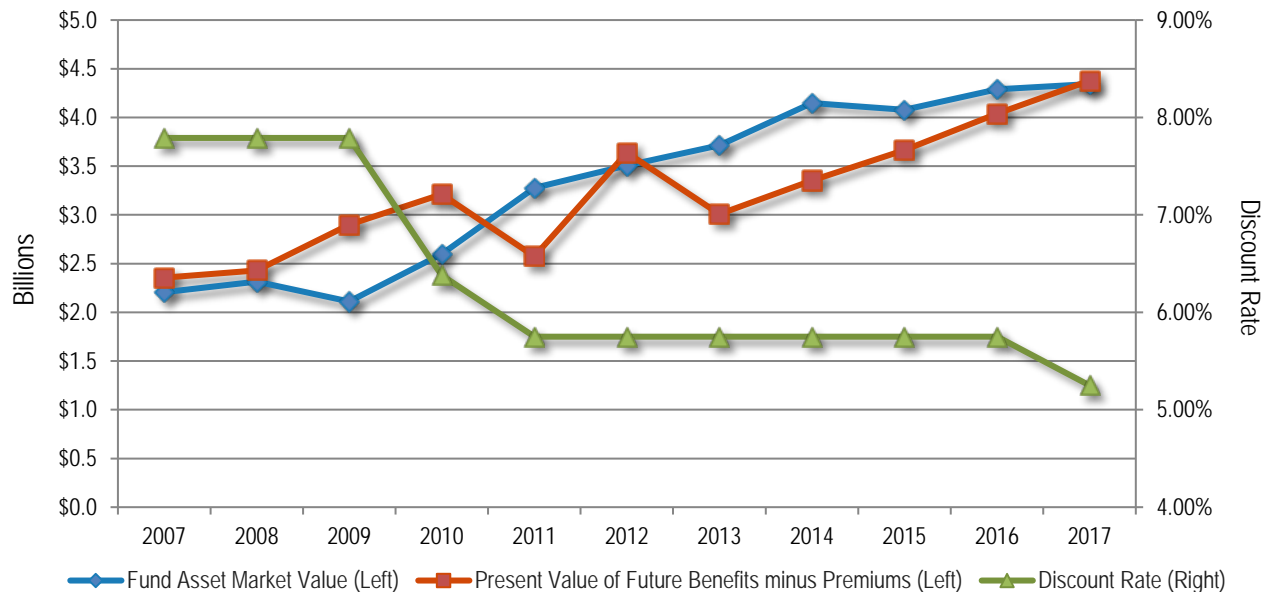
Since inception in 1995, the LTC Program experienced a peak of 176,314 active, premium-paying enrollees in fiscal year ending June 30, 2005. Enrollment has gradually declined to 128,276 as of Fiscal Year ending June 30, 2017. The number of claimants has steadily increased since inception and currently stands at 7,259 as of fiscal year ending June 30, 2017 (see Figure 1).

Figure 1: Historical Number of Active Enrollees and Claimants



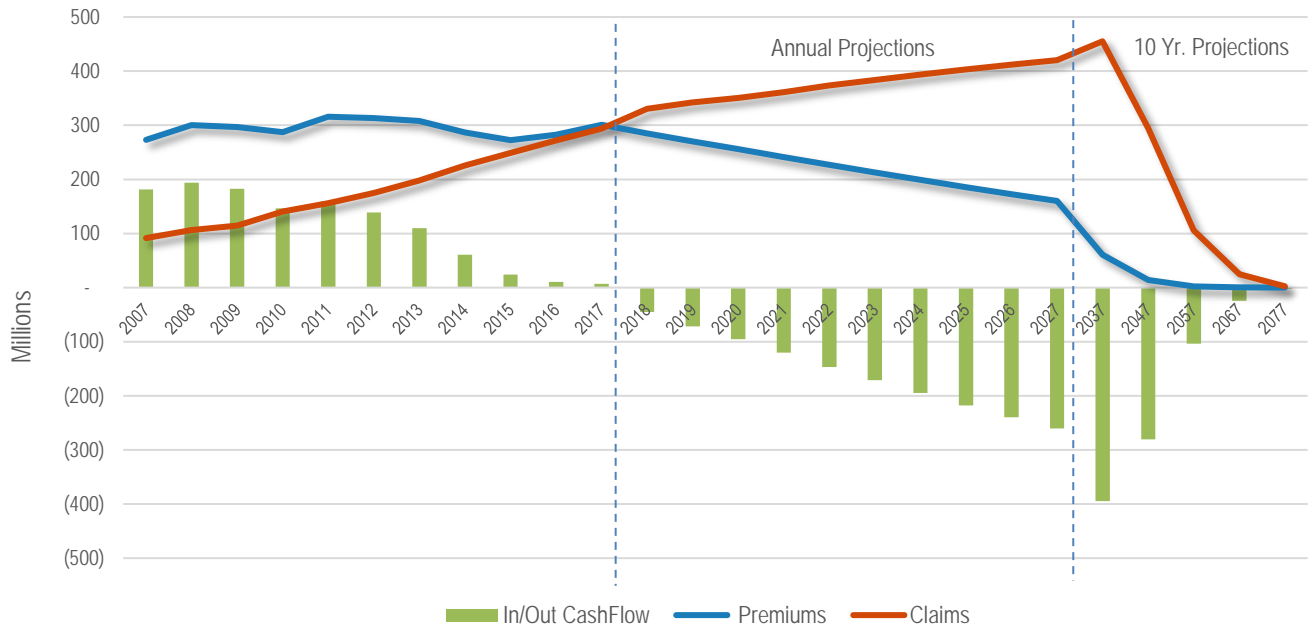
The LTC Fund Asset Market Value has increased to \$4.3 billion as of fiscal year ending June 30, 2017, while the Present Value of Future Benefits minus Premiums was estimated to be \$4.4 billion (see Figure 2).

Figure 2: Historical Assets and Liabilities



The LTC cash flow is nearing an inflection point for the fiscal year ending June 30, 2017. The LTC fund received annual premiums of \$306 million while paying out \$294 million in benefits to 7,259 active claimants. The fund is expected to meet its cash flow needs in the next sixty years solely based on the projections of current enrollees and all the accompanying assumptions. (see Figure 3)

Figure 3: Historical & Projected Cash Flows



Analysis

Health Care Fund (HCF)

Among other purposes, the HCF Reserve provides for any unforeseeable health care claims and/or for cash flow coverage in a plan-shutdown scenario. Accordingly, the HCF Reserve needs to be invested in an asset class that is liquid, has a relatively stable value and generates modest income during the holding period. Staff recommends maintaining the current 100% fixed income allocation.

Staff constructed the following three scenarios to examine the impact of possible changes in interest rates, over a twelve-month period, on the Bloomberg Barclays U.S. Aggregate Index bond fund:

1. A steepening of the yield curve by 1% at the 30-Year Maturity.
2. A twist of the yield curve with +1% on the 3-Month Maturity and -1% on the 30-Year Maturity.
3. A 1% upward parallel shift throughout all maturities.

The projected impacts of the three scenarios are summarized in Table 1.

Table 1 – Scenario Results

Forecasted Scenario Impacts	Scenario 1: Steepening	Scenario 2: Twist	Scenario 3: +100 bps Shift
Price Return	(4.6%)	3.9%	(5.5%)
Income Return (Yield)	3.9%	3.0%	4.3%
12 Month Total Return	(0.7%)	6.9%	(1.2%)

The instantaneous price effects on the second row are estimated using the Bloomberg Fixed Income Fundamental Factor Model. Based on the market value of the fund at the end of 2017, these effects are estimated to translate into investment losses of \$20.7 million and \$24.8 million for Scenario 1, and Scenario 3. However, it would also provide an investment gain of \$17.6 million for Scenario 2. If the impact is examined over a 12-month period, the stable income return component could alleviate the value reduction to 0.7% (\$3.2 million) for Scenario 1, and 1.2% (\$5.4 million) for Scenario 3. Respectively the value creation would amount to 6.9% (\$31.1 million) for Scenario 2.

Based on the BarraOne Risk Model, the Bloomberg Barclays U.S. Aggregate Bond Index is forecasted to maintain a low volatility of approximately 5%. Even throughout the Great Financial Crisis, the HCF Reserve retained a strong liquidity profile, and consistently generated positive cash flows. The current 100% allocation to the Bloomberg Barclays U.S. Aggregate Bond Index remains suitable for the HCF Reserve, given the need for liquidity to fund health care claims and the program's limited ability to absorb investment losses in the event that claims are substantially higher than expected.

Long-Term Care (LTC)

The process to obtain Policy Portfolio for LTC mirrors the one utilized in the PERF Asset Liability Management (ALM) workshop as illustrated on page 22, Attachment 1. CMAs for LTC are adopted from the 2017 PERF ALM process with the following exceptions:

1. Fixed Income and Treasury Inflation-Protected Securities (TIPS) reflect domestic securities only;
2. Global Real Estate Investment Trusts (REITs) are estimated using a Dividend Discount model.

Additionally, the asset categories of TIPS, Commodities and REITs have minimum exposure constraints applied in the Mean-Variance Optimization (MVO) process to maintain some degree of exposure to these inflation-sensitive assets despite their somewhat unattractive risk and return profiles. These constraints enforce additional diversification in the final Recommended Portfolio option.

One additional constraint unique to LTC is the maximum 15% exposure to Global Equity. This constraint was established in 2012 following Long-Term Care Market Study and detailed analysis jointly conducted by Wilshire Associates, United Health Actuarial Services, CalPERS Actuarial Office, and CalPERS Investment Office. The analysis still applies to the liability attributes of the LTC as summarized on page 24, Attachment 1.

Table 2 – Long-Term Care’s Liability Profile Influences Strategic Asset Allocation

Liability Attribute	Description	Current Position	Leads to:
Funded Status	If well funded, able to pay liabilities while incurring less risk.	The LTC Program is 99% funded.	Keep Existing Volatility Level
Duration of Liabilities	A plan can better absorb an investment loss if benefit payments are later.	LTC duration of liabilities has shortened as participant pool ages.	Keep Existing Volatility Level
Cash Outflows	Large claims reduce ability to recover from an investment loss.	Claims paid now larger than premiums collected.	Keep Existing Volatility Level
Diversity of Contributions	A plan should reduce risk if funding sources are concentrated.	LTC contributions consist entirely of member premiums; no sponsor contributions nor reinsurance.	Keep Existing Volatility Level

All the liability attributes of LTC indicate preference for a low risk portfolio. The LTC Program continues to have a high funded ratio, thus it is not desirable to increase the level of portfolio risk. At the same time, as the participant member pool ages, its liability duration has shortened. Consequently, the LTC program cash flow is forecasted to turn negative for fiscal year 2018 (claims paid would be larger than premiums received). The program would not have the opportunity to recover if sustaining an investment loss. Since the LTC Fund has neither sponsor contributions nor reinsurance against losses, future benefit payments are at risk should the portfolio suffer large investment losses.

Due to the above considerations, Staff recommends a Policy Portfolio that is very close to the existing one and is consistent with the 5.25% discount rate approved by the Board in February 2018.

Table 3 – Proposed Policy Portfolio

Asset Classes	Recommended Policy Portfolio	Current Policy Portfolio	Change %
Public Equity	15.0%	15.0%	-
Fixed Income	60.0%	61.0%	-1.0%
TIPS	6.0%	6.0%	-
Commodities	8.0%	6.0%	+2.0%
REITs	11.0%	12.0%	-1.0%
Expected Compound Return (1-10 years)	4.36%	4.35%	+0.01%
Expected Compound Return (11-60 years)	6.71%	6.70%	+0.01%
Expected Blended Return (1-60 years)	5.43%	5.42%	+0.01%
Expected Volatility	7.35%	7.35%	-

Budget and Fiscal Impacts

Not Applicable

Benefits and Risks

Health Care Fund (HCF) Reserve

The proposed Strategic Asset Allocation maintains a low level of expected volatility for the HCF Reserve fund to minimize potential negative financial impact to the program, while generating modest income to offset health care premium costs and maintaining robust liquidity to fund health care claims.

The proposed recommendation carries risk that interest rates rise substantially at the same time as a drawdown occurs on the HCF Reserve fund, resulting in a realization of investment losses.

Long-Term Care (LTC)

The proposed Strategic Asset Allocation provides the following benefits:

- Maintain approximately the same level of expected volatility for the LTC Fund as determined in the previous Asset Allocation Review in May 2015
- Minimize potential negative financial impact to the Program should the Fund suffers loss due to market downturns

Under the proposed recommendation, LTC Fund still faces the following uncertainties:

- The current margin is negative at -1.45%
- The current cash flow projections assume that all projected premiums will be collected
- Adverse deviation occurs in demographic trends

Attachments

Attachment 1 – Affiliate Trust Asset Allocation Review: Health Care Fund Reserve & Long-Term Care Fund

Attachment 2 – Wilshire Associates Opinion Letter – Health Care Fund & Long-Term Care Fund

Daniel Bienvenue

Managing Investment Director
Global Equity

Eric Baggesen

Managing Investment Director
Trust Level Portfolio Management

Theodore Eliopoulos

Chief Investment Officer

Scott Terando

Chief Actuary

Affiliate Trust Asset Allocation Review: Health Care Fund Reserve & Long-Term Care Fund

Trust Level Portfolio Management
Global Equity, Affiliate Investment Program
June 18, 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

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

Monday, June 18th
Investment Committee

Asset Allocation Review:

- Health Care Fund (HCF) Reserve
- Long-term Care Fund (LTC)

Affiliate Trust Asset Allocation Review: Health Care Fund (HCF) Reserve & Long-term Care Fund (LTC)

Organizational groups connected to the Affiliate Trust Asset Allocation Review

<p>Investment Office</p>	<p>INVO Governance Committees (IMC, ISG, OC) Trust Level Portfolio Management (TLPM) - Affiliate Project Team Global Equity – Affiliate Investment Program (AIP) Global Fixed Income (GFI) Investment Compliance and Risk (ICOR) Investment Servicing Division (ISD) Investment Servicing Division Investment Finance Services (ISD - IFS) Investment Risk and Performance (IRP)</p> <p>Consultants: Wilshire (All Funds), RV Kuhns (SIP) Fund Managers: State Street Global Advisors (SSGA) Fund Administrators: LTCG (LTC), VOYA (SIP)</p>
<p>Enterprise</p>	<p>Asset Liability Management Advisory Committee (ALMAC) Actuarial Office (JRS, JRS II, LRS, HCF, & LTC) Financial Office Legal Office (LTC) Benefit Services Division: Internal Fund Administrators (JRS, JRS II, & LRS) Pension Contracts & Prefunding Programs (CERBT & SIP) Health Policy and Benefits Branch (HCF & LTC)</p>
<p>Board of Administration</p>	<p>Investment Committee (IC), Finance & Admin Committee (FAC), Pension & Health Benefits Committee</p>
<p>External Stakeholders</p>	<p>Affiliate Fund Members & Beneficiaries</p>

Agenda

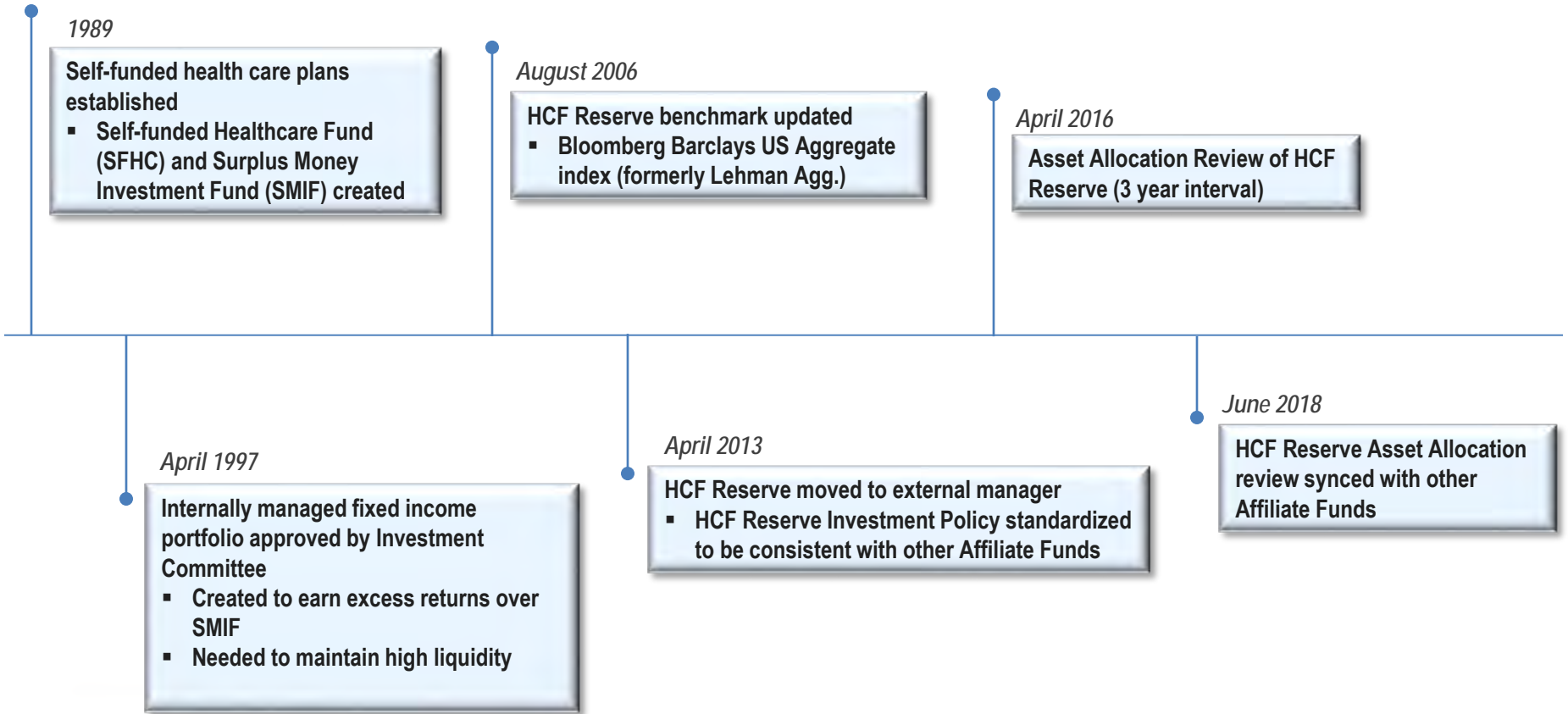
- Overview of Program Characteristics: Health Care Fund (HCF) Reserve
- Strategic Asset Allocation & Recommendations: Health Care Fund (HCF) Reserve
- Overview of Program Characteristics: Long-Term Care (LTC) Fund
- Strategic Asset Allocation & Recommendations - Long-Term Care (LTC) Fund
- Appendices

Health Care Fund (HCF) Reserve

Overview of Characteristics

Strategic Asset Allocation and Recommendations

History of Health Care Fund



Health Care Fund Reserve Purpose

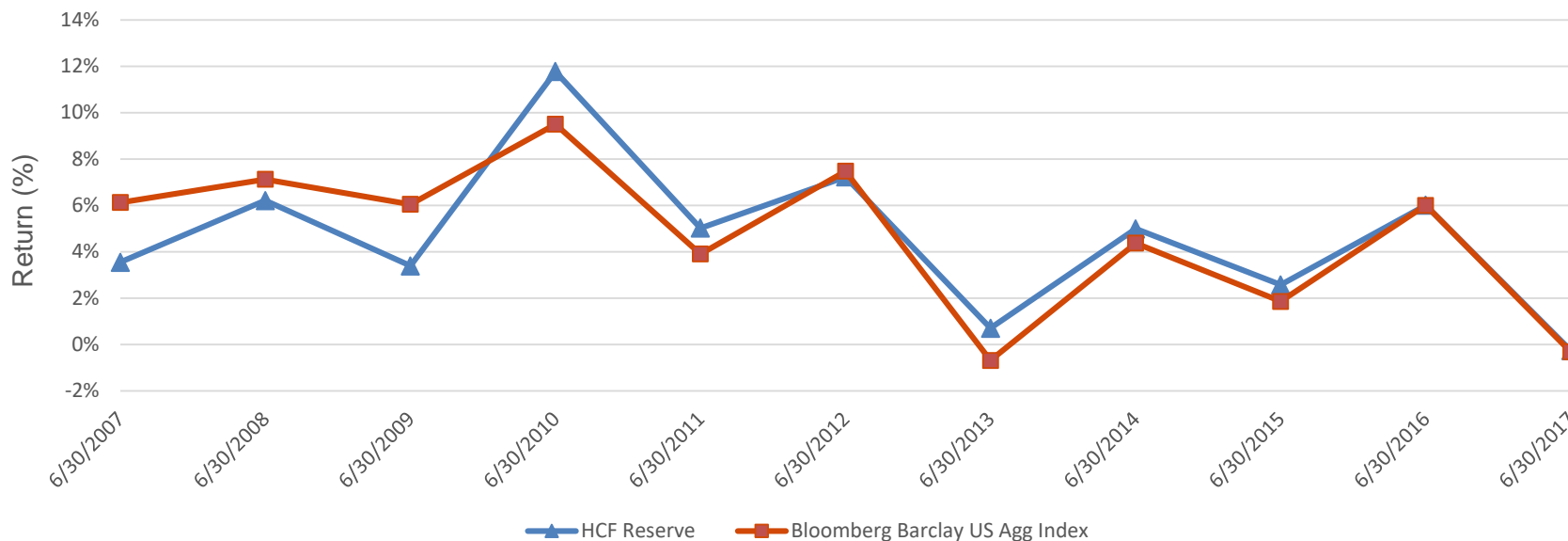
- To pay for health care expenses that have been incurred, but not yet paid
- To provide funds to cover claims that exceed premiums
- To provide funds to cover catastrophic and unforeseen events

Health Care Fund Reserve Investment Objectives

- Provide stability of principal
- Enhance returns within prudent levels of risk
- Maintain liquidity to meet needs of health care program

Health Care Fund Reserve Investment Performance

Fiscal Year Returns



HCF Reserve Investment Performance (as of 12/31/2017)

	FYTD	1 Year	3 Year	5 Year	10 Year
Net Return of HCF Reserve Fund	1.23%	3.60%	2.30%	2.48%	4.25%
Excess Return to Benchmark	(0.01%)	0.06%	0.06%	0.38%	0.24%

Health Care Fund (HCF) Reserve

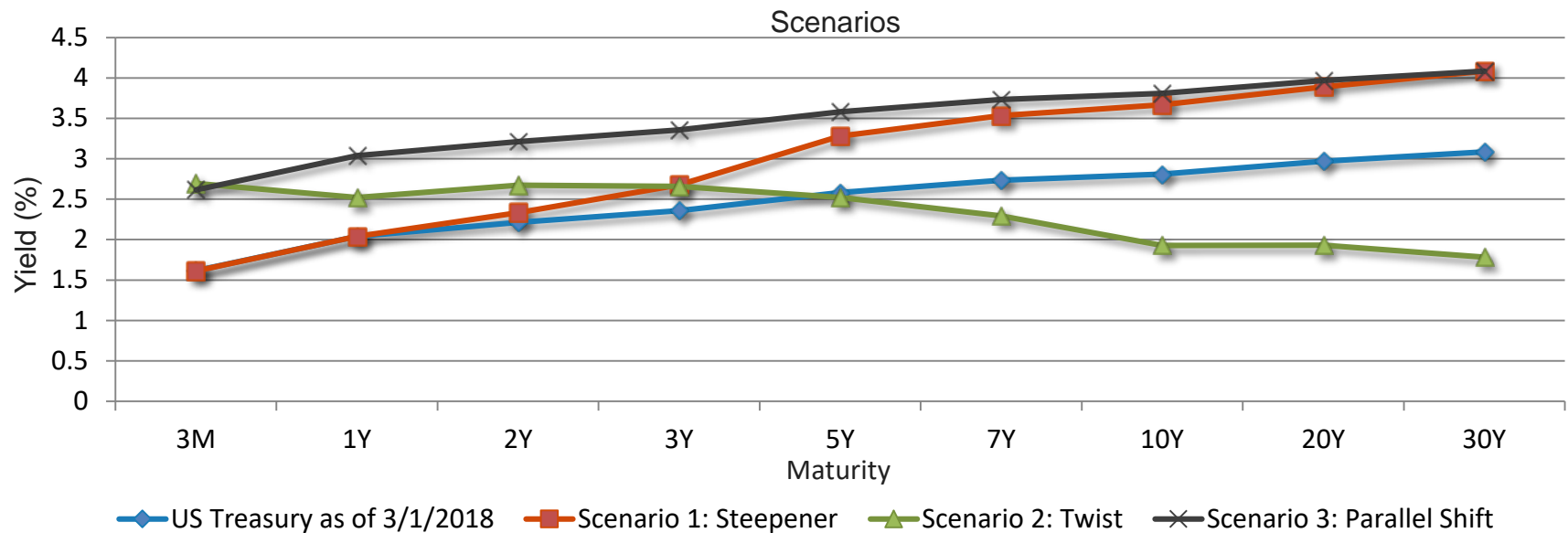
Overview of Characteristics

Strategic Asset Allocation and Recommendation

Health Care Fund Reserve Strategic Allocation Recommendation

- Maintain current 100% fixed income allocation
 - Consistent with the objective and purpose of HCF Reserve
 - The HCF Reserve can withstand the modest amount of volatility that this allocation represents
 - A more volatile mix of assets would not be consistent with the objective and purpose of the fund

Health Care Fund Reserve Yield Curve Scenarios Analysis



Forecasted Scenario Impacts	Scenario 1: Steepening	Scenario 2: Twist	Scenario 3: +100 bps Shift
Price Return	(4.6%)	3.9%	(5.5%)
Income Return (Yield)	3.9%	3.0%	4.3%
12 Month Total Return	(0.7%)	6.9%	(1.2%)

Long-Term Care (LTC)

Overview of Program Characteristics

Strategic Asset Allocation and Recommendations

Long-Term Care Program Objective

The CalPERS Long-Term Care (LTC) program helps to provide financial protection from the high cost of care caused by chronic illness, injury or old age. LTC reimburses the cost for covered personal care services.

History of Long-Term Care Program

- 1991 Authorized by legislature
- 1995 Launched by CalPERS
- 2008 Program closed to new applicants

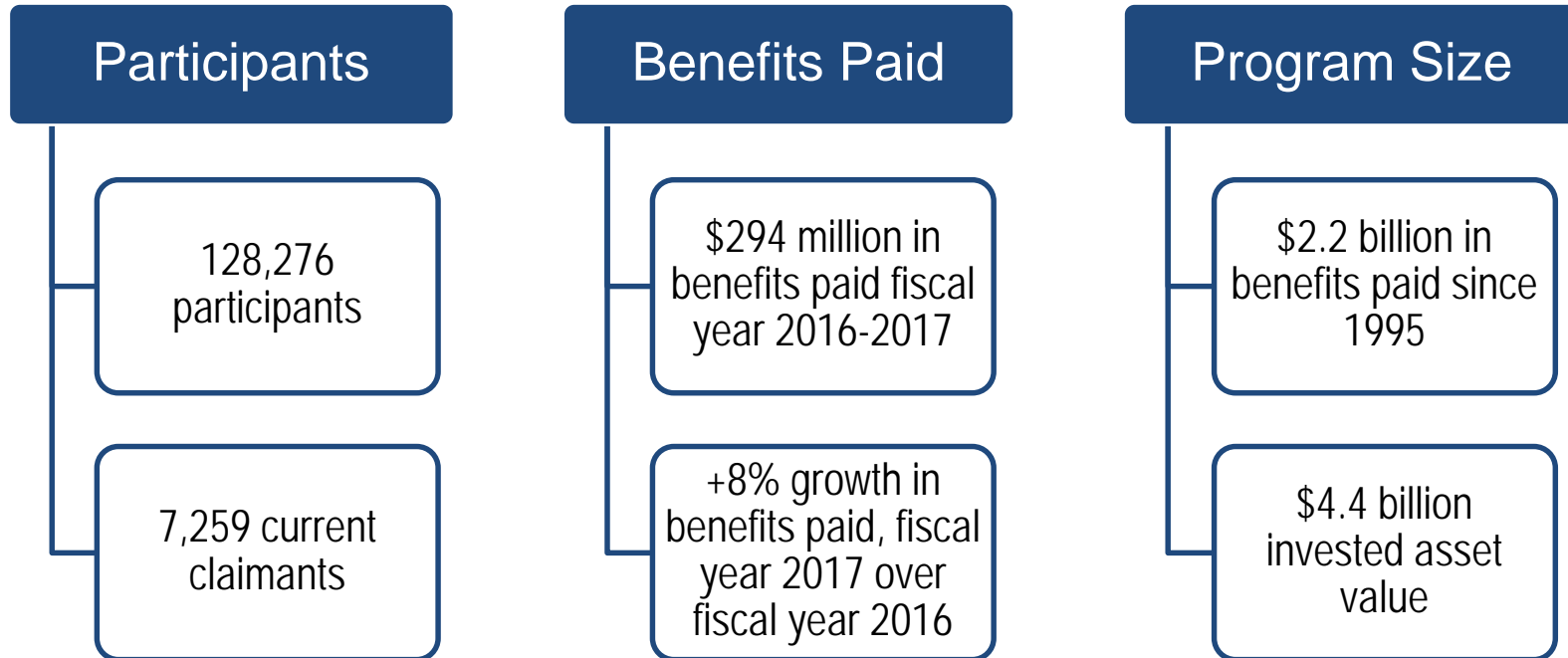
2010 - 2012

Stabilization Plan initiated to adjust:

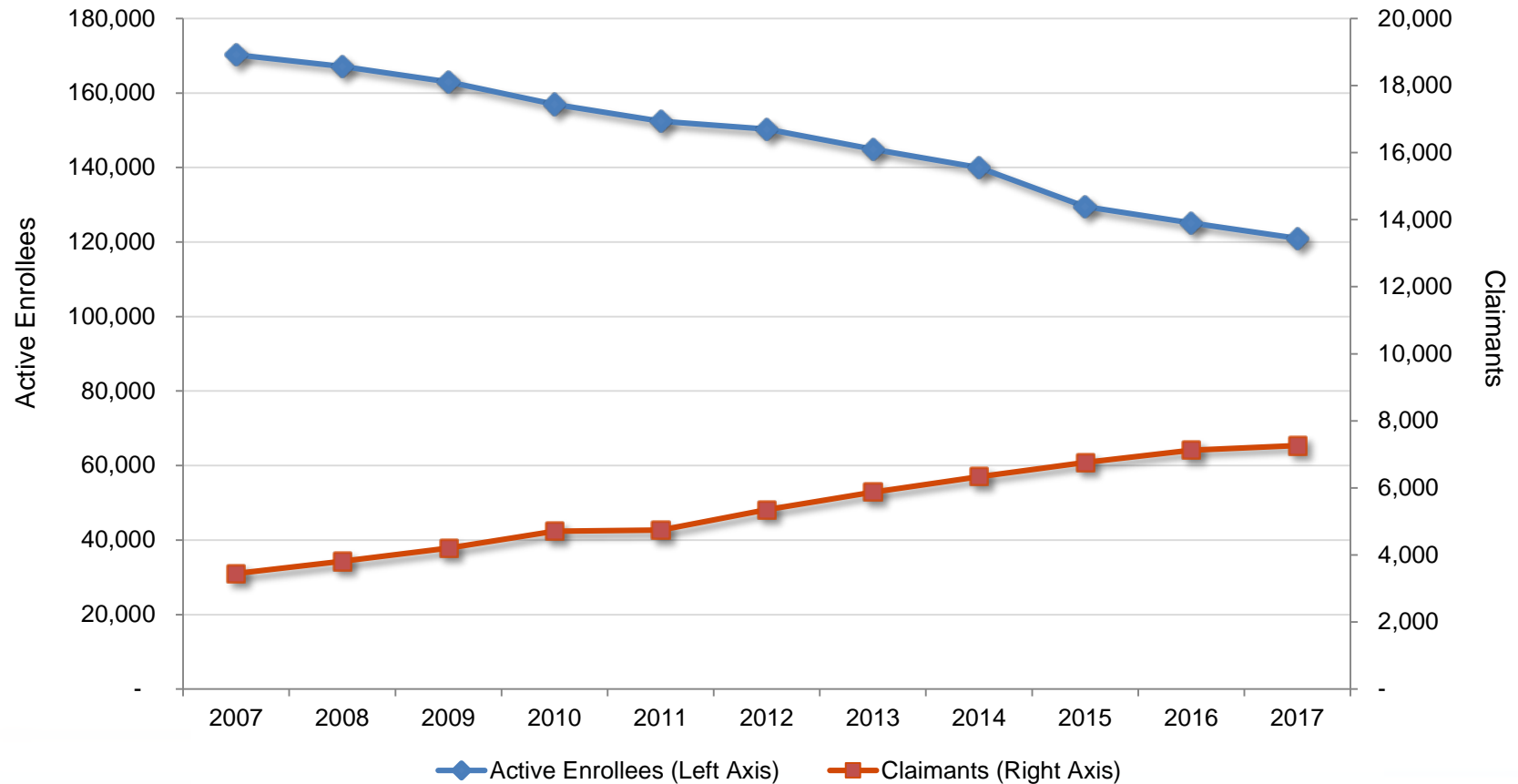
- *Margins*
- *Discount rates*
- *Premiums*
- *Conversion options*
- *Benefits*
- *Asset Allocations*

- 2013 Program reopened to new applicants
- 2015 Reaffirmed asset allocation

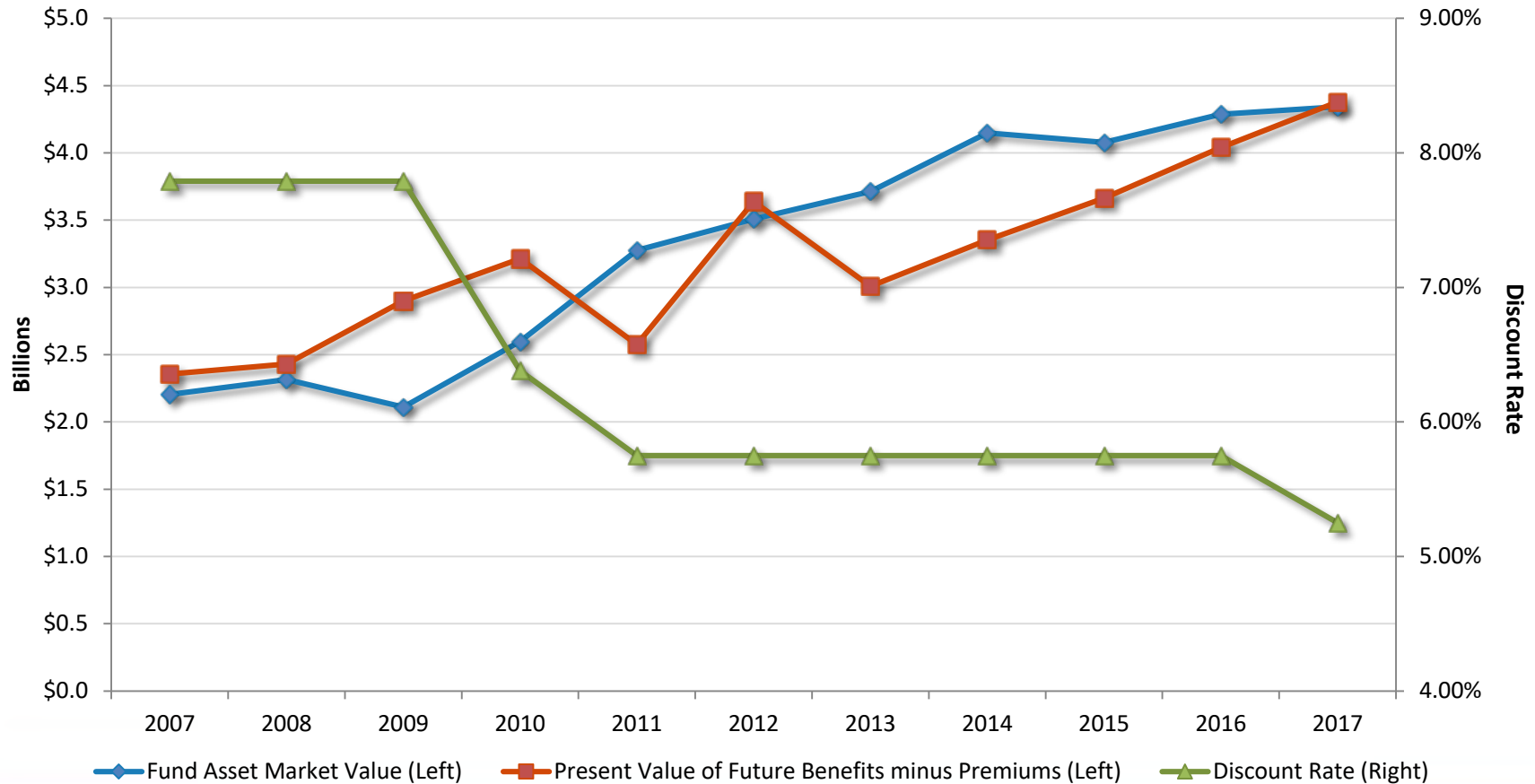
Long-Term Care Key Statistics



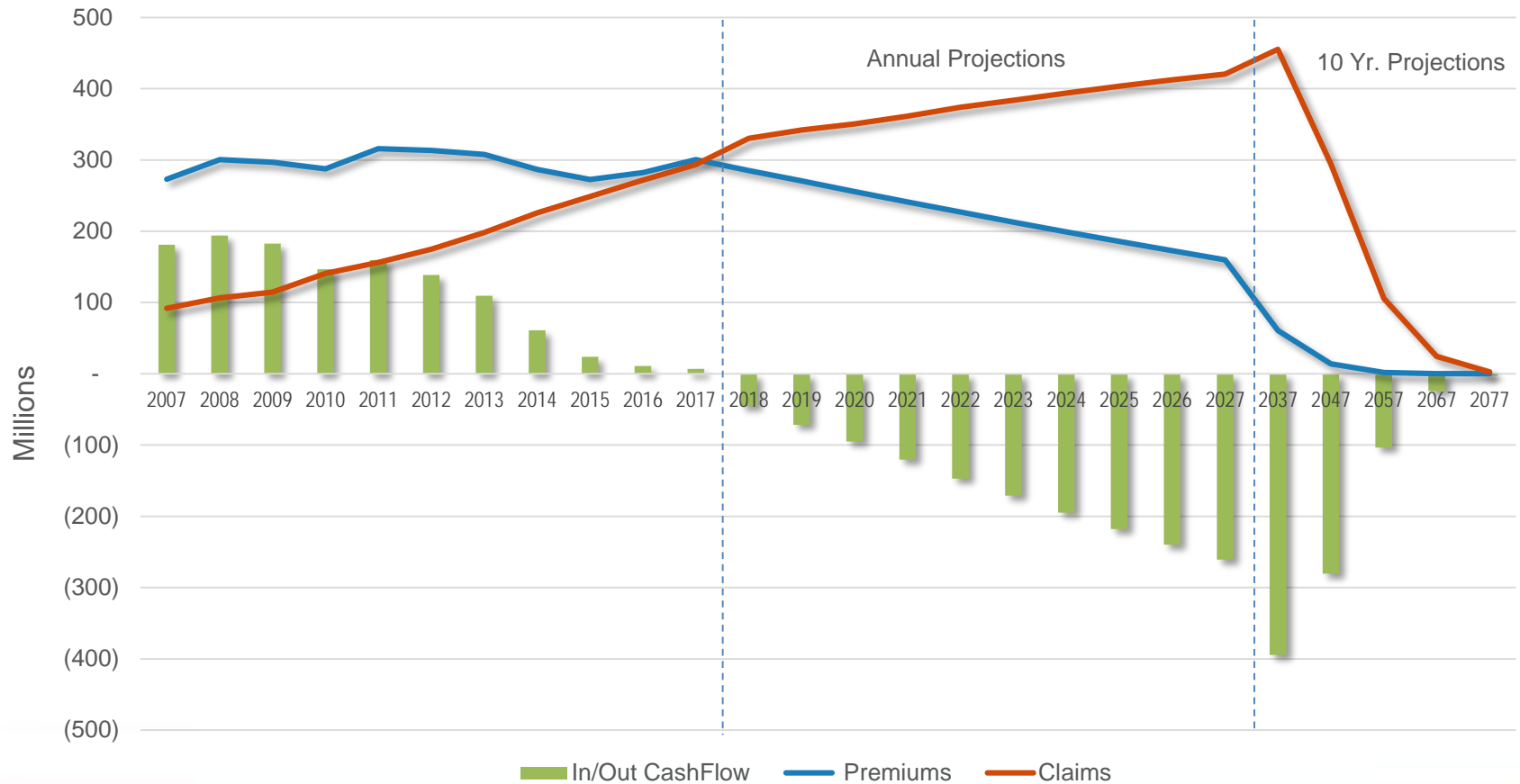
Long-Term Care Historical Number of Active Enrollees & Claimants



Long-Term Care Historical Assets & Liabilities



Long-Term Care Historical & Projected Premiums, vs. Claims, and Net Flows

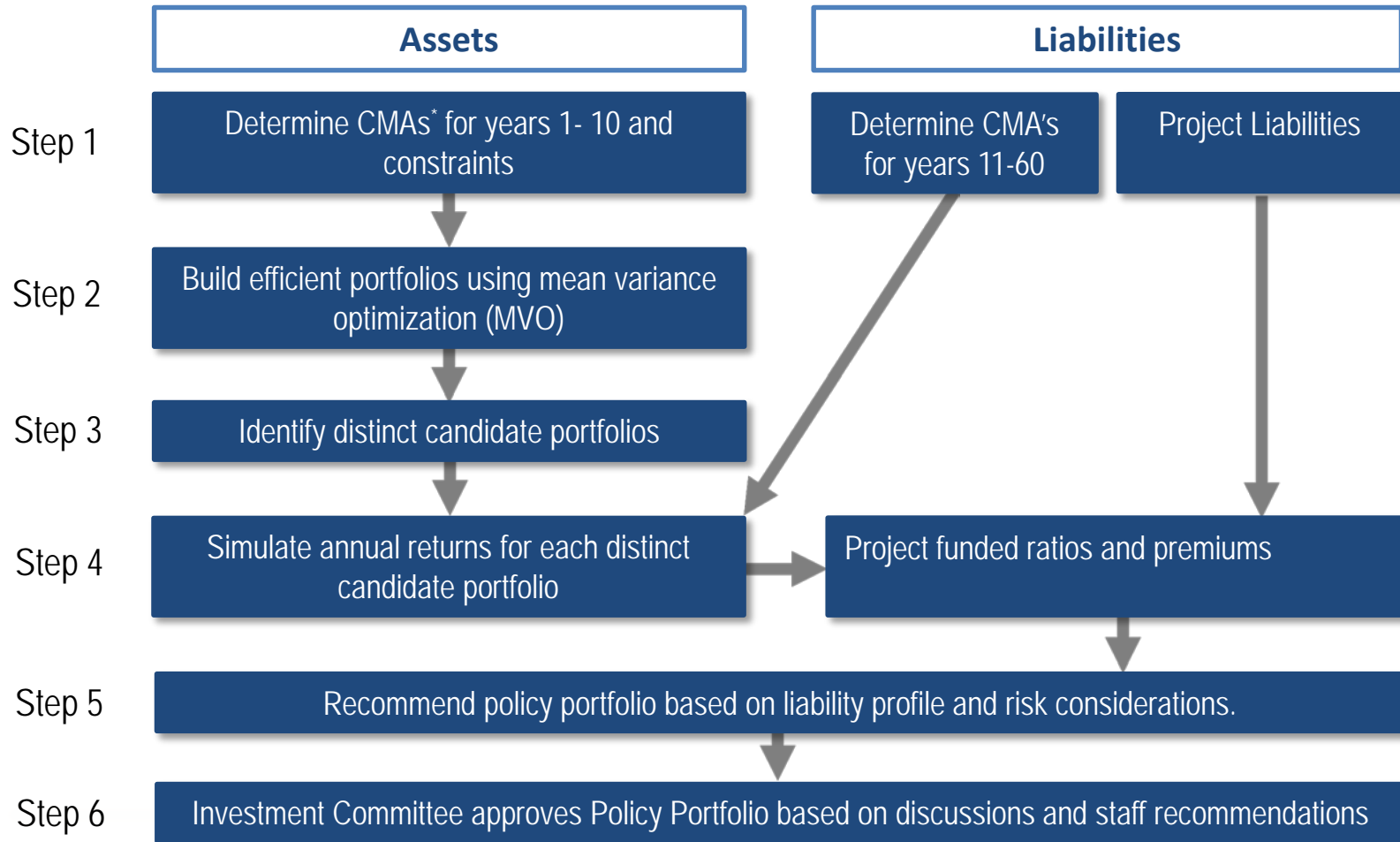


Long-Term Care (LTC)

Overview of Program Characteristics

Strategic Asset Allocation and Recommendation

Steps to Obtain Policy Portfolio



2018 CMAs and Constraints for Affiliate Funds

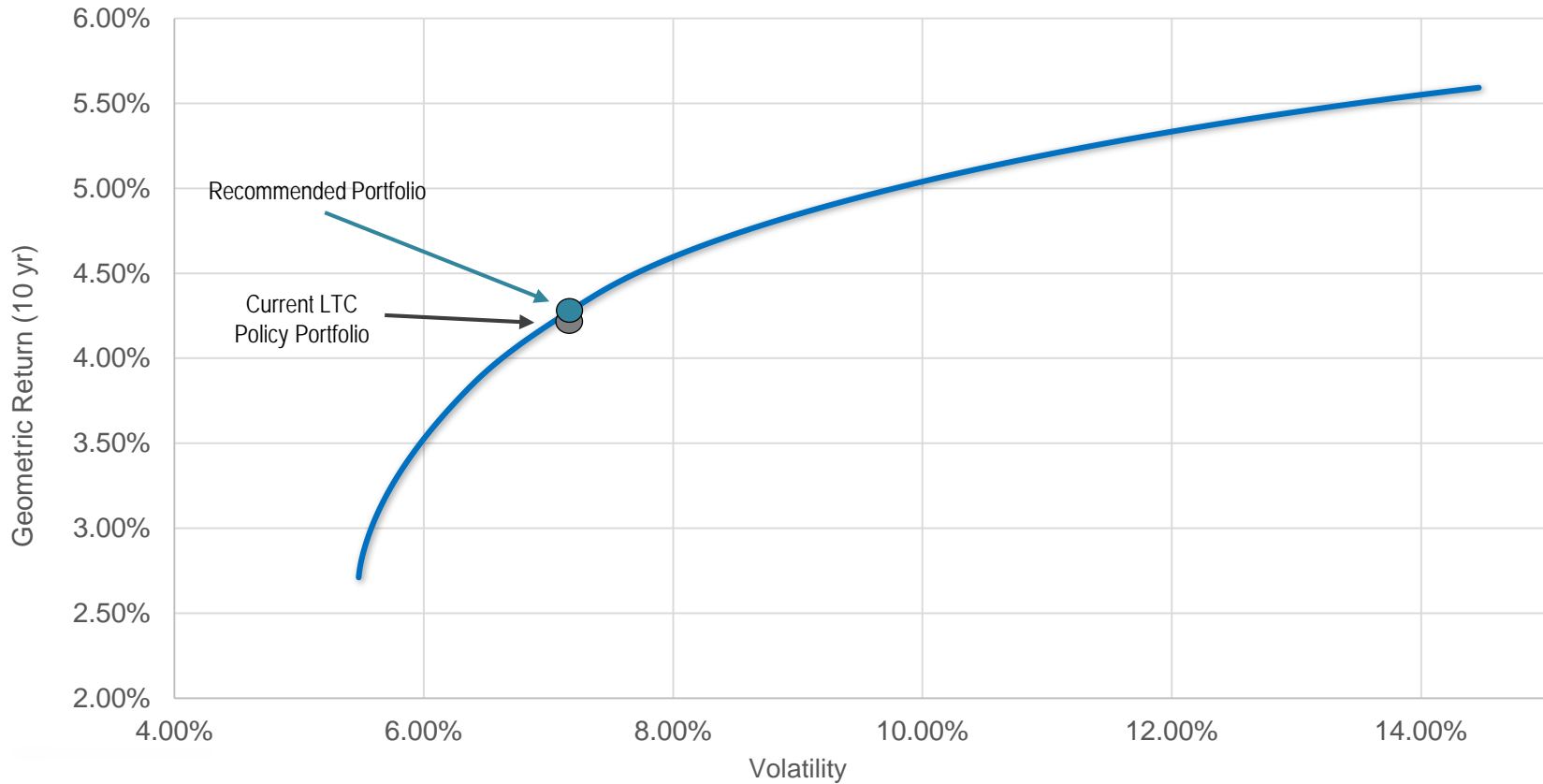
- Global Equity and Commodities CMAs are carried over from the Public Employees' Retirement System 2017-18 Asset Liability Management process.
- Fixed Income and TIPS¹ CMAs are updated to reflect only domestic securities.
- REITs² expected returns are estimated using a Dividend Discount Model.
- Floors were placed on TIPS, Commodities, REITs; Cap assigned to Global Equity

2018 CMAs	Compound Return	Volatility	Arithmetic Return	Constraint	
				Floor	Cap
Global Equity	6.80%	17.00%	8.14%	0.0%	15%
Fixed Income	3.10%	7.83%	3.40%	0.0%	100%
TIPS¹	2.25%	5.46%	2.40%	5.0%	100%
Commodities	3.50%	21.50%	5.71%	3.0%	100%
REITs²	5.50%	17.28%	6.90%	8.0%	100%

Long-Term Care’s Liability Profile Influences Strategic Asset Allocation*

Liability Attribute	Description	Current Position	Leads to:
Funded Status	If well funded, able to pay liabilities while incurring less risk.	The LTC Program is 99% funded.	Keep Existing Volatility Level
Duration of Liabilities	A plan can better absorb an investment loss if benefit payments are later.	LTC duration of liabilities has shortened as participant pool ages.	Keep Existing Volatility Level
Cash Outflows	Large claims reduce ability to recover from an investment loss.	Claims paid now larger than premiums collected.	Keep Existing Volatility Level
Diversity of Contributions	A plan should reduce risk if funding sources are concentrated.	LTC contributions consist entirely of member premiums; no sponsor contributions nor reinsurance.	Keep Existing Volatility Level

Long-Term Care Efficient Frontier*



Long-Term Care Proposed Policy Portfolio

Asset Classes	Proposed Policy Portfolio	Current Policy Portfolio	Change %
Public Equity	15.0%	15.0%	-
Fixed Income	60.0%	61.0%	-1.0%
TIPS	6.0%	6.0%	-
Commodities	8.0%	6.0%	+2.0%
REITs	11.0%	12.0%	-1.0%
Expected Compound Return (1-10 years)	4.36%	4.35%	+0.01%
Expected Compound Return (11-60 years)	6.71%	6.70%	+0.01%
Expected Blended Return (1-60 years)*	5.43%	5.42%	+0.01%
Expected Volatility	7.35%	7.35%	-

Long-Term Care Proposed Asset Class Ranges

Asset Class	Existing
Global Equity	+/- 4%
Fixed Income	+/- 5%
TIPS	+/- 2%
Commodities	+/- 2%
REITs	+/- 4%

Objectives:

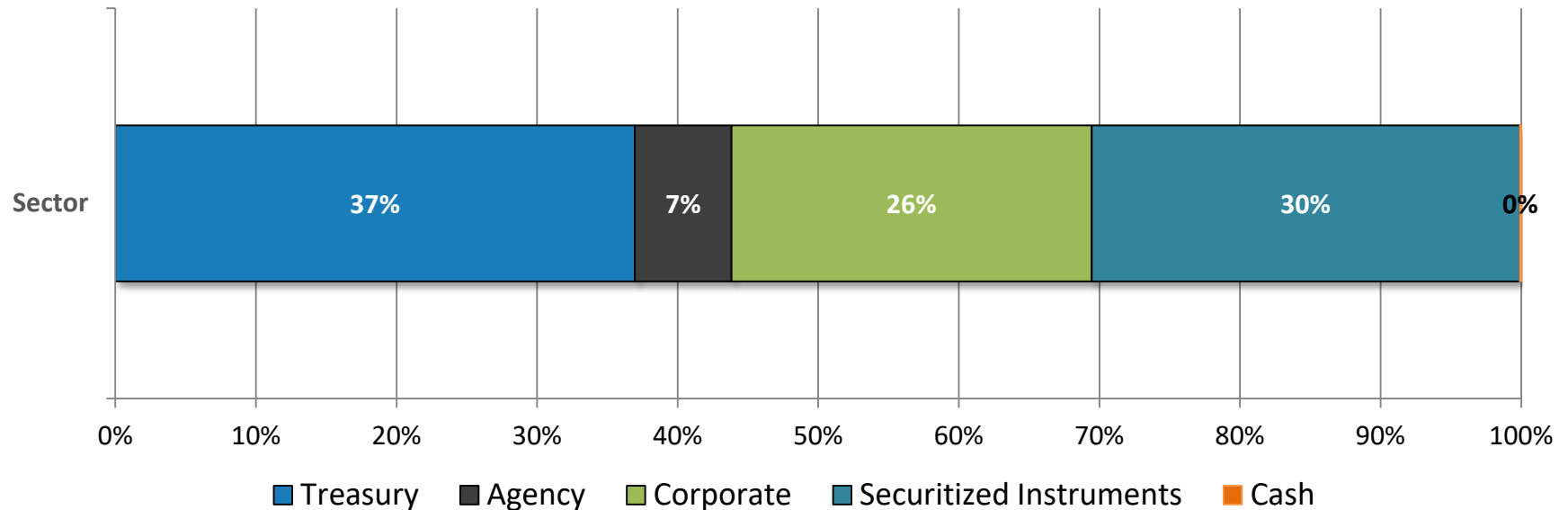
- Provide flexibility for changing market conditions
- Reduce rebalancing friction costs
- Facilitate cash flows
- Maintain current implementation

Appendix

Health Care Fund Reserve Current Asset Allocation

- 100% Fixed Income Securities¹
- Benchmark: Bloomberg Barclays US Aggregate Total Return Index

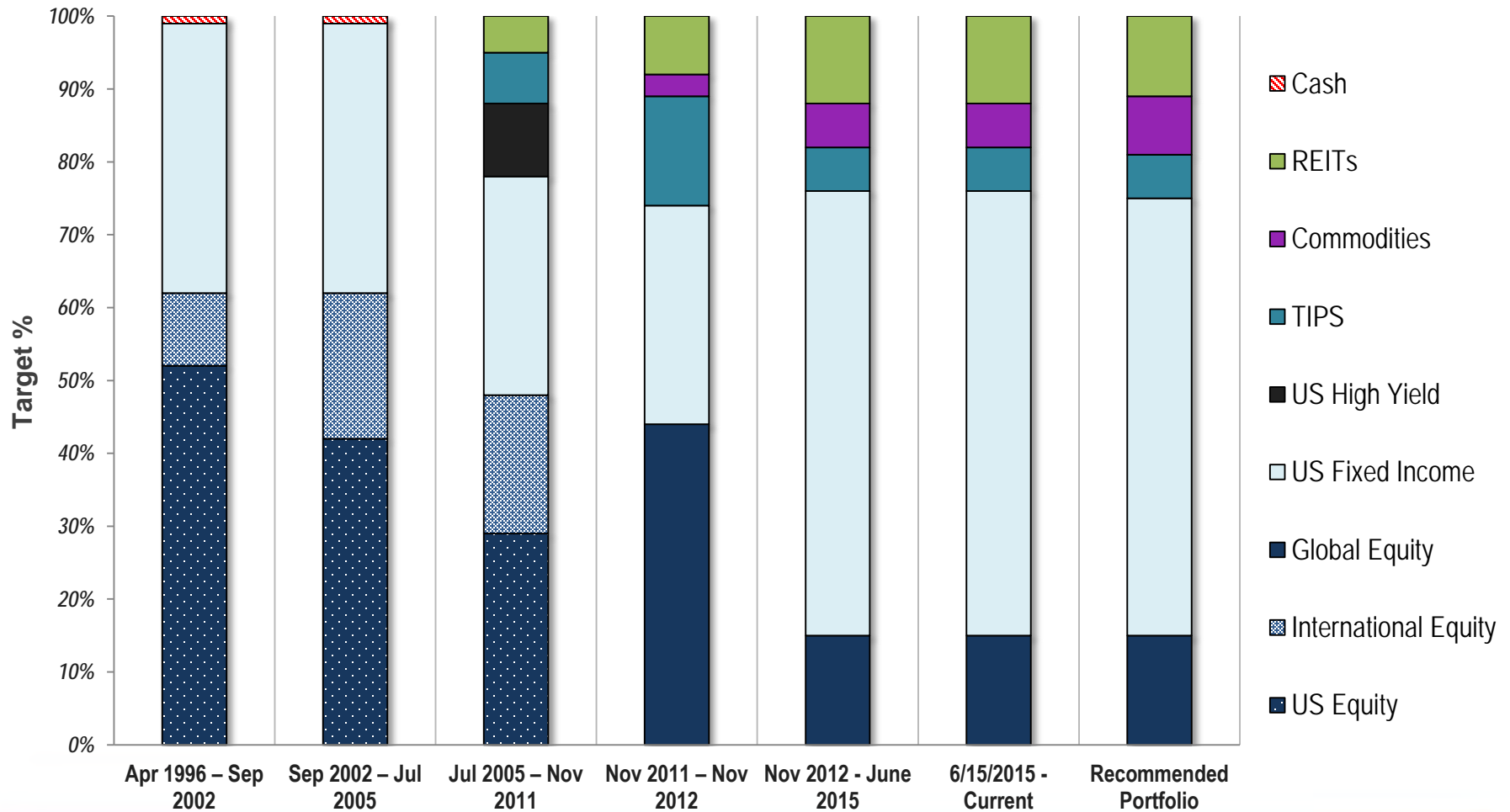
HCF Reserve Fund by Sector (as of 12/31/2017)²



¹ Externally Managed, State Street Global Advisors U.S. Aggregate Bond Index Strategy

² Source: State Street Global Advisors

Long-Term Care: Historical Asset Allocation



Long-Term Care: Benchmarks

Asset Class	Long-Term Care Fund
Global Equity	MSCI ACWI IMI (Net)
US Fixed Income	Bloomberg Barclays Long Liability Index
TIPS	Bloomberg Barclays U.S. Treasury Inflation Protected Securities (TIPS) Index
Commodities	S&P GSCI Total Return Daily
REITs	FTSE EPRA / NAREIT Developed Liquid (Net)

Affiliate Trust Asset Allocation Review: Health Care Fund (HCF) Reserve & Long-term Care Fund (LTC)

Capital Market Assumptions

Asset Class	Arithmetic Return	Compound Return	Volatility (Std. Dev)	Correlation					Constraints	
				Global Equity	Fixed Income	REITs	TIPS	Commodities	Floor	Cap
Global Equity	8.10%	6.80%	17.00%	1	0	0.87	0.1	0.38	-	15%
Fixed Income	3.40%	3.10%	7.80%	0	1	0.11	0.77	0	-	-
REITs	6.90%	5.50%	17.30%	0.87	0.11	1	0.19	0.31	8%	-
TIPS	2.40%	2.30%	5.50%	0.1	0.77	0.19	1	0.15	5%	-
Commodities	5.70%	3.50%	21.50%	0.38	0	0.31	0.15	1	3%	-
U.S. Inflation Assumption: 2.00%										



Steven J. Foresti
Chief Investment Officer, Wilshire Consulting

Thomas Toth
Managing Director, Wilshire Consulting

May 22, 2018

Mr. Henry Jones
Chair of the Investment Committee
California Public Employees' Retirement System
400 Q Street
Sacramento, CA 95814

Re: Affiliate Trust Asset Allocation Review

Dear Mr. Jones:

You requested Wilshire's opinion as it relates to Staff's asset allocation recommendations for the Long-Term Care (LTC) Fund and Health Care Fund (HCF). Collectively, these two Affiliate Funds hold approximately \$5 billion in assets (LTC ~\$4.4B, HCF ~\$0.5B). Below, we discuss Staff's recommendation for each fund separately.

Long-term Care (LTC) Fund

As was the case for the recent asset allocation reviews of the LRS, JRS, JRS II and the three CERBT strategies, Wilshire believes that the methods, inputs and data used to perform the LTC's asset allocation study are appropriate and reasonable. The asset class assumptions used in the process were consistent with those approved and utilized within the PERF's recent ALM review with the modifications that Fixed Income and TIPS assumptions reflect only domestic issues and REITs provide real estate exposure due to liquidity requirements. Minimum constraints were included for TIPS, Commodities, and REITs to ensure a certain level of diversification into the alternative portfolios that might be underappreciated in a pure optimized framework. A maximum constraint of 15% to the Global Equity asset class was also applied to prevent the portfolio from taking on significant growth risk. Wilshire is comfortable with these constraints given the instability of the underlying optimization assumptions, particularly as they relate to the



inherent limitations of correlation estimates. This viewpoint also is consistent with Investment Belief 9 (i.e. Risk to CalPERS is multi-faceted and not fully captured through measures such as volatility or tracking error).

In evaluating the optimal candidate policy portfolios, Staff primarily focused on achieving a median expected rate of return consistent with the LTC Fund's 5.25% actuarial discount rate. This approach in combination with Staff's desire to avoid implementation costs that might be incurred by unnecessarily deviating from the current allocation (i.e. in pursuit of insignificant gains in portfolio efficiency) led to Staff's proposed asset allocation, which calls for very minor adjustments in policy weights versus the current asset mix. Wilshire supports Staff's recommendation, which along with being projected to meet the Fund's discount rate, reflects an appropriately modest level of risk given the LTC Fund's funding level and liquidity needs.

Health Care Fund (HCF)

The HCF's funding role (e.g. covering previously incurred health care expenses, providing funding claims that exceed premiums for CalPERS self-funded PPO plans, etc.) drives its primary investment objective of principal stability. The goal of enhancing returns must be confined within prudent levels of risk, while maintaining ample liquidity to meet program needs.

Wilshire believes that Staff's recommendation to maintain a 100% fixed income allocation is consistent with the HCF's investment objectives noted above. The primary potential risks to a 100% fixed income portfolio stem from default and interest rate risk. However, by continuing with its allocation to U.S core bonds the portfolio has very modest exposure to default risk and, as can be seen on slide 13 of Staff's presentation (attachment 1 of this agenda item), exhibits reasonable levels of downside risk against various short-term shifts in interest rates.

Should you require anything further or have any questions, please do not hesitate to contact us.

Best regards,

Handwritten signature of Steven J. Foresti in black ink.

Steven J. Foresti

Handwritten signature of Thomas Toth in black ink.

Thomas Toth

Wilshire Associates

370 Interlocken Boulevard Suite 620 Broomfield, CO 80021 TEL 303.626.7444 FAX 303.466.1537
www.wilshire.com