

# Asset Liability Management: First Reading Affiliate Funds Recommendations

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# Today's Agenda

- Affiliates Asset Liability Management (ALM) Overview
- Trust-by-Trust Analyses and Recommendations
- Next Steps
- Appendix

# 2026 Asset Liability Management Timeline

← Stakeholder Engagement Throughout Cycle →

March 2026	April 2026	June 2026
<p>First Read: Affiliate Trusts ALM Recommendations First Read: PERF Policy Updates</p> <p><i>Closed Session: PERF Implementation Strategy</i></p>	<p>First Read: Affiliate Trusts ALM Actuarial Assumptions</p>	<p>First Read: Supplemental Income Plans ALM Board Vote: Affiliate Trusts ALM Recommendations &amp; Actuarial Assumptions Board Vote: PERF Policy Updates</p> <p><i>Closed Session: PERF Implementation Strategy</i></p>
July 1, 2026	September 2026	November 2026
<p><b>PERF ALM Effective Date</b></p>	<p>Board Vote: Supplemental Income Plans ALM</p>	<p>TBD</p>



(PERF) Public Employees' Retirement Fund. (ALM) Asset Liability Management. Affiliate Trusts: Legislators' Retirement System, Judges' Retirement System, Judges' Retirement System II, Public Employees' Health Care Fund, Public Employees' Long-Term Care Fund, California Employers' Pension Prefunding Trust, California Employers' Retiree Benefit Trust, Supplemental Income Plans.

# Affiliates ALM

## Fund Overviews, Capital Market Assumptions, Expected Returns, Candidate Portfolios and Management Recommendations

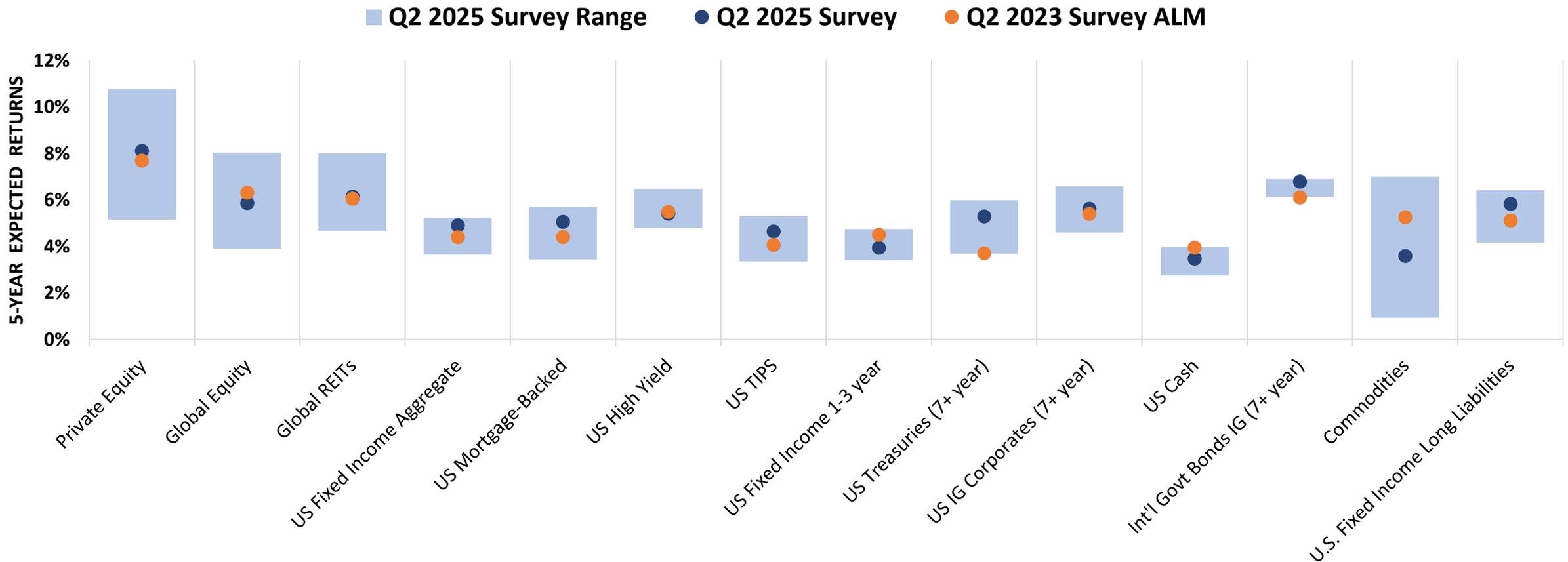
- Public Employees' Health Care Fund (HCF)
  - Legislators' Retirement System Fund (LRS)
  - Judges' Retirement System Fund (JRS)
  - Judges' Retirement System II Fund (JRS II)
- California Employers' Retiree Benefit Trust (CERBT)
  - California Employers' Pension Prefunding Trust (CEPPT)
  - Public Employees' Long-Term Care Fund (LTC)

# Summary of ALM Recommendations

1. Adopt the Capital Market Assumptions
2. Approve the recommended portfolio for each Affiliate Fund as the Policy Portfolio
  - HCF, JRS, JRS II, CERBT 1-3, CEPPT 1-2, & LTC: Current Portfolio
  - LRS: Candidate B (lower expected risk/return than Current Portfolio)
3. Approve the following benchmarks, as recommended by Wilshire:
  - Long-Term Care Fund: High Yield ex-CCC\* & EM Debt ex-CCC\*
4. Approve inclusion of Private Equity for JRS II as an incubated investment strategy, not to exceed 5%, and the associated Policy changes needed to allow for an incubated investment

# Capital Market Assumptions: 5-Year Returns

Modest increase across fixed income while equities have modestly decreased



5-year CMAs are used for HCF and CEPPT (details on page 23).

CMAs are based on our quarterly survey of 15 CMA providers, including institutional consultants and asset managers.

# Public Employees' Health Care Fund

## Fund Overview

Established in 1997 as a reserve fund for CalPERS' self-funded health programs.

Conservative risk profile and investment strategy of 100% cash equivalents.

<p><b>AUM</b> <b>\$79 mn</b> As of 12/31/25</p>	<p><b>Participants</b> <b>CalPERS</b> As of 6/30/25</p>	<p><b>Status</b> <b>Open</b></p>
<p><b>20-year</b> <b>Performance</b> <b>3.29%</b></p>	<p><b>5-year</b> <b>Performance</b> <b>(0.81)%</b></p>	

## Current Allocation

Asset Class	%
Global Equity	-
Fixed Income	-
TIPS	-
Global REITs	-
Commodities	-
Liquidity	100%
Expected Volatility	0.5%
<b>*Net Expected Return</b>	<b>3.5%</b>



(AUM) – assets under management

\*Expected returns are geometric, based on 5-year CMAs, and net of expenses of 0.03% for HCF.

# Public Employees' Health Care Fund

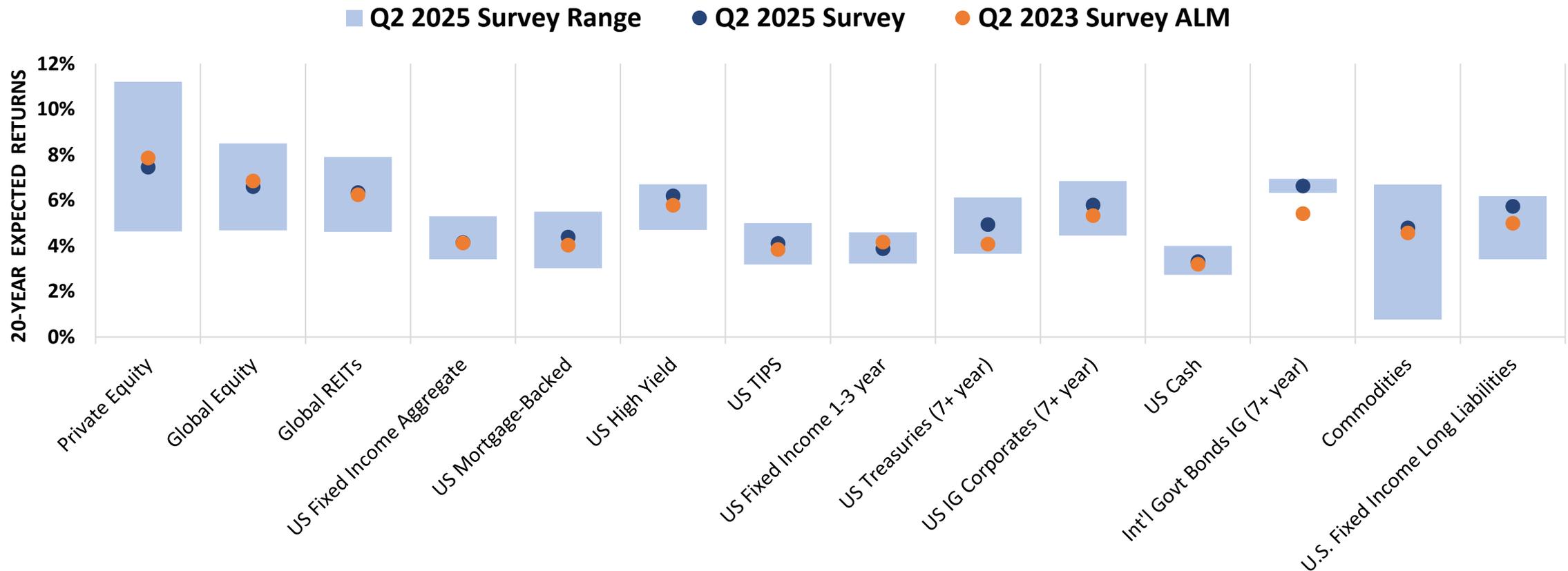
## Candidate Portfolios & Recommendation

**Recommendation: Current portfolio - provides principal protection and liquidity to pay obligations when claims exceed premiums.**

Asset Class	Current	
Global Equity	-	
Fixed Income	-	
TIPS	-	
Global REITs	-	
Commodities	-	
Liquidity	100%	<b>2024 Midcycle</b>
Expected Volatility	0.5%	0.4%
<b>*Net Expected Return</b>	<b>3.5%</b>	3.9%

# Capital Market Assumptions: 20-Year Returns

Modest increase across fixed income while equities have modestly decreased



20-year CMA's are used for LRS, JRS, JRS II, CERBT, & CEPPT (details on page 23).  
 CMA's are based on our quarterly survey of 15 CMA providers, including institutional consultants and asset managers.

# Legislators' Retirement System Fund

## Defined Benefit Fund Overview

Established in 1947 for members of the legislature elected prior to November 7, 1990, and elected constitutional and legislative statutory officers elected prior to December 31, 2012.

Conservative investment strategy and cash flow negative (~\$8mn per year)

<p><b>AUM</b> <b>\$91 mn</b> As of 12/31/25</p>	<p><b>Participants</b> <b>180</b> As of 6/30/25</p>	<p><b>Status</b> <b>Closed</b> 2013</p>
<p><b>Est. Funded Ratio</b> <b>96%</b> As of 6/30/25</p>	<p><b>Discount Rate</b> <b>4.50%</b></p>	<p><b>20-year Performance</b> <b>5.11%</b></p>

### Current Allocation

Asset Class	%
Global Equity	7%
Fixed Income	45%
TIPS	35%
Global REITs	10%
Commodities	3%
Liquidity	-
Expected Volatility	6.9%
<b>*Net Expected Return</b>	<b>5.2%</b>

# Legislators' Retirement System Fund

## Candidate Portfolios & Recommendation

**Recommendation: Option B – supports conservative investment strategy and discount rate while reducing risk.**

Asset Class	Current	Option A	Option B	Option C	Discount Rate
Global Equity	7%	-	-		4.50%
Fixed Income	45%	28%	40%	52%	
TIPS	35%	61%	49%	37%	
Global REITs	10%	8%	8%	8%	
Commodities	3%	3%	3%	3%	
Liquidity	-	-	-	-	<b>2024 Midcycle</b>
Expected Volatility	6.9%	6.2%	6.3%	6.5%	6.3%
<b>*Net Expected Return</b>	<b>5.2%</b>	<b>4.6%</b>	<b>4.8%</b>	<b>5.0%</b>	4.8%



\*Expected returns are geometric, based on 20-year CMAs, and net of expenses of 0.35%.

# Judges' Retirement System Fund

## Defined Benefit Fund Overview

Established in 1937, this retirement system for eligible judges closed in November 1994. Unfunded 'pay-as-you-go' system from state's general fund with 2-3 months' reserve for benefit payments. Short-term cash investment strategy required.

<p><b>AUM</b>  <b>\$56 mn</b>  <small>As of 12/31/25</small></p>	<p><b>Participants</b>  <b>1,573</b>  <small>As of 6/30/25</small></p>	<p><b>Status</b>  <b>Closed</b>  <small>1994</small></p>
<p><b>Est. Funded Ratio</b>  <b>3%</b>  <small>As of 6/30/25</small></p>	<p><b>Discount Rate</b>  <b>3.00%</b></p>	<p><b>20-year Performance</b>  <b>1.88%</b></p>

### Current Allocation

Asset Class	%
Global Equity	-
Fixed Income	-
TIPS	-
Global REITs	-
Commodities	-
Liquidity	100%
Expected Volatility	0.8%
<b>*Net Expected Return</b>	<b>3.3%</b>

# Judges' Retirement System Fund

## Candidate Portfolios & Recommendation

**Recommendation: Current portfolio - provides principal protection and liquidity to pay benefits.**

Asset Class	Current	Discount Rate 3.00%
Global Equity	-	
Fixed Income	-	
TIPS	-	
Global REITs	-	
Commodities	-	
Liquidity	100%	<b>2024 Midcycle</b>
Expected Volatility	0.8%	0.8%
<b>*Net Expected Return</b>	<b>3.3%</b>	3.2%

# Judges' Retirement System II Fund

## Defined Benefit Fund Overview

Established in 1994, this retirement system provides pre-funded retirement and ancillary benefits for eligible judges. Options include a defined benefit plan and a monetary credit plan. Open and cash flow positive (approx. +\$25m/year). Moderately aggressive investment strategy.

<p><b>AUM</b>  <b>\$3.2 bn</b>  <small>As of 12/31/25</small></p>	<p><b>Participants</b>  <b>2,430</b>  <small>As of 6/30/25</small></p>	<p><b>Status</b>  <b>Open</b>  <small>1994</small></p>
<p><b>Est. Funded Ratio</b>  <b>109%</b>  <small>As of 6/30/25</small></p>	<p><b>Discount Rate</b>  <b>6.00%</b></p>	<p><b>20-year Performance</b>  <b>6.65%</b></p>

### Current Allocation

Asset Class	%
Global Equity	43%
Fixed Income	29%
TIPS	5%
Global REITs	20%
Commodities	3%
Liquidity	-
<hr/>	
Expected Volatility	11.7%
<b>*Net Expected Return</b>	<b>6.4%</b>

# Judges' Retirement System II Fund

## Candidate Portfolios & Recommendation

### Recommendations:

- 1) Current portfolio - maintains a balanced allocation, supports long-term growth and the discount rate, and helps avoid portfolio turnover and associated costs;
- 2) Add private equity via incubation up to 5% (details on pages 16-18).

Asset Class	Current	Option A	Option B	Option C	Discount Rate 6.00%
Global Equity	43%	27%	38%	57%	
Fixed Income	29%	44%	33%	15%	
TIPS	5%	5%	5%	5%	
Global REITs	20%	20%	20%	20%	
Commodities	3%	4%	4%	3%	
Liquidity	-	-	-	-	<b>2024 Midcycle</b>
Expected Volatility	11.7%	10.1%	11.2%	13.4%	10.7%
<b>*Net Expected Return</b>	<b>6.4%</b>	<b>6.3%</b>	<b>6.4%</b>	<b>6.5%</b>	6.3%

# Judges' Retirement System II Fund

## Rationale for Adding Private Equity (PE)

PE exhibits a risk and return profile that is sufficiently different from existing public asset classes

**Risk:** Typically less liquid with higher idiosyncratic risk due to concentrated ownership and operational complexity

**Return:** Historically higher long-term returns than public equities, driven by active management, operational improvements, and access to unique growth opportunities

CMAAs (Q2 2025) show PE as the asset class with the highest expected return and Global Equity having the 2nd highest

Asset Class / Segment	5-Year Expected Return	20-Year Expected Return	20-Year Expected Volatility
Private Equity	8.1%	7.5%	22.7%
Global Equity	5.9%	6.6%	16.6%

Inclusion of PE can materially affect the expected risk and return of the total portfolio, potentially increasing long-term returns while reducing overall expected volatility through diversification

# Judges Retirement System II Fund

## Rationale for Adding Private Equity

### Diversification

New Exposures

### Return Enhancement

Illiquidity Premium

### Strategic Fit

Aligns with Fund Goals

### Other Considerations

Young & Open Fund  
Cash Flow Positive

# Judges Retirement System II Fund

## Private Equity Implementation via Incubation

When introducing a new asset class, incubation provides a flexible, controlled environment for innovation and risk management, as was done for Private Debt in the PERF.

### The Process



#### Program Establishment

Establish opportunistic & innovation program in policy, then complete planning, strategy selection, contracting, operating model, and execution.

#### Implementation

Launch PE investments within an incubation fund, setting objectives, guidelines, and allocation limit (up to 5%).

#### Track Record Building

Leverage internal expertise, build manager relationships, establish performance history; assess impact on risk, return, and liquidity; refine processes.

#### Formal Allocation in ALM

Upon successful incubation, propose PE as a dedicated asset class in the ALM with Board approval.

# California Employers' Retiree Benefit Trust

## CERBT Fund Overview

Section 115 trust established in 2007 for employers to voluntarily pre-fund non-pension other post-employment benefits (OPEB). Employers can select from three strategies, depending on risk tolerance.

### Current Allocation

Asset Class	Strategy 1 Moderately Aggressive	Strategy 2 Moderate	Strategy 3 Moderately Conservative
Global Equity	49%	34%	23%
Fixed Income	23%	41%	51%
TIPS	5%	5%	9%
Global REITs	20%	17%	14%
Commodities	3%	3%	3%
Liquidity	-	-	-
Expected Volatility	12.4%	10.4%	9.0%
<b>*Net Expected Return</b>	<b>6.6%</b>	<b>6.4%</b>	<b>6.2%</b>

Status  
**Open**  
Voluntary

**603**  
Employer  
Participants  
As of 6/30/25

#### Strategy 1

AUM  
**\$24 bn**  
As of 12/31/25

10-year  
Performance  
**8.03%**

#### Strategy 2

AUM  
**\$2.1 bn**  
As of 12/31/25

10-year  
Performance  
**6.51%**

#### Strategy 3

AUM  
**\$1.2 bn**  
As of 12/31/25

10-year  
Performance  
**5.28%**

# California Employers' Retiree Benefit Trust

## CERBT Strategy 1: Moderately Aggressive Candidate Portfolios & Recommendation

**Recommendation: Current Portfolio – maintains a balanced allocation, supports long-term growth, and helps avoid portfolio turnover and associated costs.**

Asset Class	Current	Option A	Option B	
Global Equity	49%	38%	57%	
Fixed Income	23%	33%	15%	
TIPS	5%	5%	5%	
Global REITs	20%	20%	20%	
Commodities	3%	4%	3%	
Liquidity	-	-	-	<b>2024 Midcycle</b>
Expected Volatility	12.4%	11.2%	13.4%	11.5%
<b>*Net Expected Return</b>	<b>6.6%</b>	<b>6.5%</b>	<b>6.6%</b>	6.4%

# California Employers' Retiree Benefit Trust

## CERBT Strategy 2: Moderate Candidate Portfolios & Recommendation

**Recommendation: Current Portfolio – maintains a balanced allocation, supports strategy’s moderate growth investment objective, and helps avoid portfolio turnover and associated costs.**

Asset Class	Current	Option A	Option B	Option C	
Global Equity	34%	23%	27%	38%	
Fixed Income	41%	52%	44%	33%	
TIPS	5%	5%	5%	5%	
Global REITs	17%	16%	20%	20%	
Commodities	3%	4%	4%	4%	
Liquidity	-	-	-	-	<b>2024 Midcycle</b>
Expected Volatility	10.4%	9.3%	10.1%	11.2%	9.5%
<b>*Net Expected Return</b>	<b>6.4%</b>	<b>6.3%</b>	<b>6.4%</b>	<b>6.5%</b>	6.1%

# California Employers' Retiree Benefit Trust

## CERBT Strategy 3: Moderately Conservative Candidate Portfolios & Recommendation

**Recommendation: Current Portfolio – maintains a balanced allocation, supports strategy’s moderately conservative investment objective, and helps avoid portfolio turnover and associated costs.**

Asset Class	Current	Option A	Option B	Option C	
Global Equity	23%	9%	13%	23%	
Fixed Income	51%	66%	60%	52%	
TIPS	9%	5%	5%	5%	
Global REITs	14%	15%	17%	16%	
Commodities	3%	5%	5%	4%	
Liquidity	-	-	-	-	<b>2024 Midcycle</b>
Expected Volatility	9.0%	8.1%	8.6%	9.3%	8.1%
<b>*Net Expected Return</b>	<b>6.2%</b>	<b>6.1%</b>	<b>6.2%</b>	<b>6.3%</b>	5.8%

# California Employers' Pension Prefunding Trust

## CEPPT Fund Overview

Section 115 trust established in 2019 for employers to voluntarily pre-fund required pension contributions. Employers can select from two strategies, depending on risk tolerance.

Status  
**Open**  
Voluntary

**102**  
Employer  
Participants  
As of 6/30/25

**Strategy 1**  
  
AUM  
**\$260 mn**  
As of 12/31/25  
  
5-year  
Performance  
**4.37%**

**Strategy 2**  
  
AUM  
**\$91 mn**  
As of 12/31/25  
  
5-year  
Performance  
**2.33%**

### Current Allocation

Asset Class	Strategy 1 Moderately Conservative	Strategy 2 Conservative
Global Equity	37%	21%
Fixed Income	44%	61%
TIPS	5%	9%
Global REITs	14%	9%
Commodities	-	-
Liquidity	-	-
Expected Volatility	9.0%	6.4%
<b>*Net Expected Return</b>	<b>5.7%</b>	<b>5.3%</b>



\*Expected returns are geometric, based on 10-year returns (calculated from the surveyed 5-year and 20-year CMAs and compared to the 10-year survey returns for reasonability), and net of expenses of 0.25%. Expected volatility is the 10-year survey median.

# California Employers' Pension Prefunding Trust

## CEPPT Strategy 1: Moderately Conservative Candidate Portfolios & Recommendation

**Recommendation: Current Portfolio – maintains a balanced allocation, supports strategy’s moderately conservative investment objective, and helps avoid portfolio turnover and associated costs.**

Asset Class	Current	Option A	Option B	Option C	
Global Equity	37%	18%	24%	31%	
Fixed Income	44%	57%	51%	44%	
TIPS	5%	5%	5%	5%	
Global REITs	14%	20%	20%	20%	
Commodities	-	-	-	-	<b>2024 Midcycle</b>
Liquidity	-	-	-	-	
Expected Volatility	9.0%	7.4%	8.1%	9.0%	8.4%
<b>*Net Expected Return</b>	<b>5.7%</b>	<b>5.6%</b>	<b>5.7%</b>	<b>5.8%</b>	5.4%



\*Expected returns are geometric, based on 10-year returns (calculated from the surveyed 5-year and 20-year CMAs and compared to the 10-year survey returns for reasonability), and net of expenses of 0.25%. Expected volatility is the 10-year survey median.

# California Employers' Pension Prefunding Trust

## CEPPT Strategy 2: Conservative Candidate Portfolios & Recommendation

**Recommendation: maintains a balanced allocation, supports strategy's conservative investment objective, and helps avoid portfolio turnover and associated costs.**

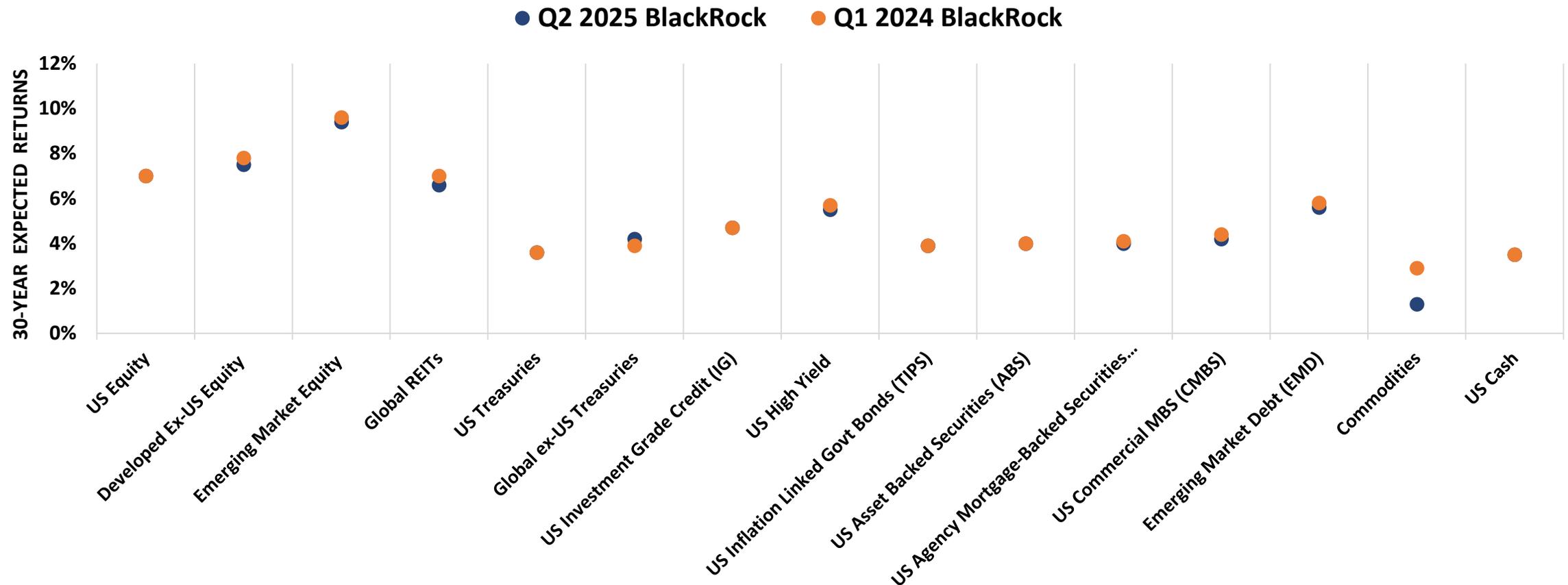
Asset Class	Current	Option A	Option B	Option C	
Global Equity	21%	-	2%	7%	
Fixed Income	61%	77%	73%	68%	
TIPS	9%	5%	5%	5%	
Global REITs	9%	18%	20%	20%	
Commodities	-	-	-	-	
Liquidity	-	-	-	-	
Expected Volatility	6.4%	5.5%	5.9%	6.3%	<b>2024 Midcycle</b> 5.9%
<b>*Net Expected Return</b>	<b>5.3%</b>	<b>5.2%</b>	<b>5.3%</b>	<b>5.4%</b>	4.9%



\*Expected returns are geometric, based on 10-year returns (calculated from the surveyed 5-year and 20-year CMAs and compared to the 10-year survey returns for reasonability), and net of expenses of 0.25%. Expected volatility is the 10-year survey median.

# Capital Market Assumptions: 30-Year Returns

Fixed income and equities remain at similar levels



# Public Employees' Long-Term Care Fund

## Fund Overview

Established in 1992, this fund provides participants with coverage for long-term care expenses. Currently paused for new enrollments, cash flow negative (approx. ~\$115 million per year). Conservative investment strategy.

<b>AUM</b> <b>\$4.9 bn</b> <small>As of 12/31/25</small>	<b>Participants</b> <b>75,769</b> <small>As of 6/30/25</small>	<b>Status</b> <b>Paused</b> <small>2020</small>
<b>Est. Funded Ratio</b> <b>97%</b> <small>As of 6/30/25</small>	<b>Discount Rate</b> <b>4.75%</b>	<b>20-year Performance</b> <b>4.73%</b>

## Current Allocation

Asset Class	%
Global Equity	28%
Fixed Income	69%
TIPS	-
Global REITs	3%
Commodities	-
Liquidity	-
Expected Volatility	6.4%
<b>*Expected Return</b>	<b>5.6%</b>

# Public Employees’ Long-Term Care Fund

## Candidate Portfolios & Recommendation

### Recommendations:

- 1) Current portfolio – maintains a balanced allocation, supports the discount rate, and helps avoid portfolio turnover and associated costs;
- 2) modify two benchmarks to better align with the investment strategy (details on page 36).

Asset Class	Current	Option A	Option B	Option C	Discount Rate 4.75%
Global Equity	28%	24%	27%	29%	
Fixed Income	69%	73%	70%	68%	
TIPS	-	-	-	-	
Global REITs	3%	3%	3%	3%	
Commodities	-	-	-	-	2024 Midcycle
Liquidity	-	-	-	-	
Expected Volatility	6.4%	5.9%	6.2%	6.5%	6.4%
<b>*Expected Return</b>	<b>5.6%</b>	<b>5.5%</b>	<b>5.6%</b>	<b>5.7%</b>	5.5%

# Summary of ALM Recommendations

1. Adopt the Capital Market Assumptions
2. Approve the recommended portfolio for each Affiliate Fund as the Policy Portfolio
  - HCF, JRS, JRS II, CERBT 1-3, CEPPT 1-2, & LTC: Current Portfolio
  - LRS: Candidate B (lower expected risk/return than Current Portfolio)
3. Approve the following benchmarks, as recommended by Wilshire:
  - Long-Term Care Fund: High Yield ex-CCC\* & EM Debt ex-CCC\*
4. Approve inclusion of Private Equity for JRS II as an incubated investment strategy, not to exceed 5%, and the associated Policy changes needed to allow for an incubated investment

# Next Steps

- Take Board Feedback From Today
- Second Reading at June Investment Committee
- Upon Adoption, Update Investment Policies with:
  - Allocation and Benchmark Changes
  - Private Equity Incubation Strategy
- First Reading of Supplemental Income Plan at June Investment Committee and Second Reading in September

# 2026 Asset Liability Management Timeline

← Stakeholder Engagement Throughout Cycle →

March 2026	April 2026	June 2026
First Read: Affiliate Trusts ALM Recommendations First Read: PERF Policy Updates  <i>Closed Session: PERF Implementation Strategy</i>	First Read: Affiliate Trusts ALM Actuarial Assumptions	First Read: Supplemental Income Plans ALM Board Vote: Affiliate Trusts ALM Recommendations & Actuarial Assumptions Board Vote: PERF Policy Updates  <i>Closed Session: PERF Implementation Strategy</i>
July 1, 2026	September 2026	November 2026
<b>PERF ALM Effective Date</b>	Board Vote: Supplemental Income Plans ALM	TBD



# Appendix

# Asset Classes - Constraints

## Importance of Constraints:

- Constraints play a crucial role in portfolio design by helping to construct a balanced and diversified portfolio.
- Setting constraints assists in avoiding the risks associated with excessive concentration in a single asset class.
- There have been no changes to constraints since the 2024 ALM mid-cycle review.

Asset Class	LTC		LRS		JRSII, CERBT		CEPPT	
	Min	Max	Min	Max	Min	Max	Min	Max
Global Equity	0%	100%	0%	100%	0%	100%	0%	100%
Global REITs	3%	100%	8%	100%	8%	20%	8%	20%
Fixed Income	0%	100%	0%	100%	0%	100%	0%	100%
U.S. TIPS	0%	100%	5%	100%	5%	15%	5%	20%
Commodities	0%	100%	3%	100%	3%	5%	0%	0%

# Portfolios - Current & Recommended: HCF, LRS, JRS, & JRS II

Trust Name	HCF	LRS			JRS	JRS II
Asset Class Allocation	Current & Recommended	Current	Recommended	Delta	Current & Recommended	Current & Recommended
Global Equity	-	7%	-	-7%	-	43%
Fixed Income	-	45%	40%	-5%	-	29%
TIPS	-	35%	49%	14%	-	5%
Global REITs	-	10%	8%	-2%	-	20%
Commodities	-	3%	3%	-	-	3%
Liquidity	100%	-	-	-	100%	-
Gross Expected Return	3.5%	5.6%	5.2%	-0.4%	3.3%	6.6%
Expected Volatility	0.5%	6.9%	6.3%	-0.6%	0.8%	11.7%
Expenses	0.03%	0.35%	0.35%	-	0.01%	0.15%
Net Expected Return	3.5%	5.2%	4.8%	-0.4%	3.3%	6.4%

# Portfolios – Current & Recommended: CERBT, CEPPT, & LTC

Trust Name	CERBT 1	CERBT 2	CERBT 3	CEPPT 1	CEPPT 2	LTC
Asset Class Allocation	Current & Recommended					
Global Equity	49%	34%	23%	37%	21%	28%
Fixed Income	23%	41%	51%	44%	61%	69%
TIPS	5%	5%	9%	5%	9%	-
Global REITs	20%	17%	14%	14%	9%	3%
Commodities	3%	3%	3%	-	-	-
Gross Expected Return	6.7%	6.5%	6.3%	6.0%	5.6%	5.6%
Expected Volatility	12.4%	10.4%	9.0%	9.0%	6.4%	6.4%
Expenses	0.085%	0.085%	0.085%	0.25%	0.25%	0.00%
Net Expected Return	6.6%	6.4%	6.2%	5.7%	5.3%	5.6%

# Changes from Prior ALM

## Asset Class Changes

Trust	Asset Class or Sub-Asset Class	Change	Rationale
JRS II	Private Equity	Addition via incubation	Private Equity was evaluated and deemed appropriate for JRS II. For this ALM cycle, Private Equity will not have a direct allocation but instead will be incubated via an Opportunistic & Innovation program.

## Policy Changes

Trust	Asset Class or Sub-Asset Class	Change	Rationale
JRS II	Opportunistic & Innovation program	Addition to Policy to allow for incubating PE	In order to incubate Private Equity, the JRS II Investment Policy will need to include an Opportunistic & Innovation program, similar to the PERF.

## Benchmark Changes

Trust	Fixed Income Sub-Asset Class	Current	Proposed	Rationale
LTC	US High Yield	Bloomberg US Corp High Yield 2% Issuer Capped Index	Bloomberg US Corp High Yield 2% Issuer Capped Index ex-CCC	Removes lower credit quality bonds (CCC and below) from the benchmark, which aligns with the portfolio implementation and reduces benchmark misfit.
LTC	EM Bonds (USD denominated)	JP Morgan EMBI Global Diversified Index	JP Morgan EMBI Global Diversified Index ex-CCC	

# CMAs: Expected Returns and Volatility

Asset Class/Segment	Benchmark Index	5-Year Expected Return	20-Year Expected Return	20-Year Expected Volatility
Private Equity	Cambridge Associates Optica Private Equity Benchmark	8.1%	7.5%	22.7%
Global Equity	MSCI ACWI IMI (Net)	5.9%	6.6%	16.6%
Global REITs	FTSE EPRA/NAREIT Developed Index	6.2%	6.3%	17.5%
US Treasuries (7+yr)	Bloomberg AIP LGOV7+	5.3%	4.9%	10.2%
Global ex-US Treasuries (7+yr)	Bloomberg AIP Long Liability Sovereign	6.8%	6.6%	12.7%
US Investment Grade Credit (7+yr)	Bloomberg AIP Long Liability Corp ex Sov	5.6%	5.8%	9.0%
US High Yield	Bloomberg AIP Long Liability HY Cash Pay	5.4%	6.2%	8.9%
US Inflation Linked Govt Bonds (TIPS)	Bloomberg U.S. TIPS Index, Series L	4.7%	4.1%	5.7%
US Mortgage-Backed Securities	Bloomberg AIP Long Liability MBS	5.1%	4.4%	4.3%
US Fixed Income Long Liabilities	Bloomberg U.S. Long Liability Index (custom)	5.8%	5.7%	7.2%
US Fixed Income Aggregate	Bloomberg U.S. Aggregate Bond Index	4.9%	4.2%	4.5%
US Fixed Income – Short Term Bond	Bloomberg U.S. 1-3 Year Govt/Credit Index	4.0%	3.9%	1.5%
Commodities	S&P GSCI Total Return Daily	3.6%	4.8%	18.2%
US Cash	91-day Treasury Bill	3.5%	3.3%	0.7%

# CMA: Asset Class Correlations

Asset Classes/ Sub-Asset Classes	Private Equity	Global Equity	Global REITs	US Treasuries (7+yr)	Global ex-US Treasuries (7+yr)	US Investment Grade Credit (7+yr)	US High Yield	US Inflation Linked Bonds (TIPS)	US Mortgage- Backed Securities	US Fixed Income Aggregate	US Fixed Income – Short Term Bond	Commodities	US Cash
Private Equity	1.00	0.82	0.65	-0.11	0.45	0.33	0.66	0.19	0.00	0.03	0.00	0.35	0.00
Global Equity	0.82	1.00	0.79	-0.08	0.50	0.43	0.75	0.25	0.22	0.17	0.12	0.41	0.00
Global REITs	0.65	0.79	1.00	0.09	0.59	0.53	0.71	0.38	0.28	0.28	0.21	0.39	-0.04
US Treasuries (7+yr)	-0.11	-0.08	0.09	1.00	0.39	0.68	0.04	0.62	0.81	0.88	0.70	-0.20	0.03
Global ex-US Treasuries (7+yr)	0.45	0.50	0.59	0.39	1.00	0.72	0.62	0.57	0.37	0.61	0.37	0.19	0.03
US Investment Grade Credit (7+yr)	0.33	0.43	0.53	0.68	0.72	1.00	0.62	0.64	0.70	0.82	0.59	0.12	0.02
US High Yield	0.66	0.75	0.71	0.04	0.62	0.62	1.00	0.46	0.27	0.35	0.26	0.38	-0.04
US Inflation Linked Bonds (TIPS)	0.19	0.25	0.38	0.62	0.57	0.64	0.46	1.00	0.69	0.77	0.64	0.16	0.04
US Mortgage-Backed Securities	0.00	0.22	0.28	0.81	0.37	0.70	0.27	0.69	1.00	0.92	0.80	-0.14	0.13
US Fixed Income Aggregate	0.03	0.17	0.28	0.88	0.61	0.82	0.35	0.77	0.92	1.00	0.82	-0.11	0.11
US Fixed Income–Short Term Bond	0.00	0.12	0.21	0.70	0.37	0.59	0.26	0.64	0.80	0.82	1.00	-0.04	0.37
Commodities	0.35	0.41	0.39	-0.20	0.19	0.12	0.38	0.16	-0.14	-0.11	-0.04	1.00	-0.01
US Cash	0.00	0.00	-0.04	0.03	0.03	0.02	-0.04	0.04	0.13	0.11	0.37	-0.01	1.00

# CMAs: Expected Returns and Volatility - LTC

Asset Class/Segment	Benchmark Index	30-Year Expected Return	30-Year Expected Volatility
US Equity	MSCI Developed – US Total Return Index Gross	7.0%	18.4%
Developed Ex-US Equity	MSCI World ex-US Hedged Index Net	7.5%	14.4%
Emerging Market Equity	MSCI Emerging Market Index Net	9.4%	20.7%
Global REITs	FTSE EPRA/NAREIT Developed 100% Hedged to USD Net Index	6.6%	19.0%
US Treasuries	Bloomberg Government Index	3.6%	5.0%
Global ex-US Treasuries	Bloomberg Global Aggregate Treasury Index ex-US Hedged	4.2%	3.4%
US Investment Grade Credit (IG)	Bloomberg US Credit Index	4.7%	5.9%
US High Yield	Bloomberg US Corp High Yield 2% Issuer Capped Index	5.5%	6.7%
US Inflation Linked Govt Bonds (TIPS)	Bloomberg US Treasury Inflation Index	3.9%	5.6%
US Asset Backed Securities (ABS)	Bloomberg ABS Index	4.0%	3.7%
US Agency Mortgage-Backed Securities (MBS)	Bloomberg MBS Index	4.0%	5.7%
US Commercial MBS (CMBS)	Bloomberg CMBS, Eligible for US Aggregate Index	4.2%	5.4%
Emerging Market Debt (EMD)	JP Morgan EMBI Global Diversified Index	5.6%	8.6%
Commodities	Bloomberg Commodity Index Total Return	1.3%	16.1%
US Cash	Bloomberg T-bill 1-3 Month Index	3.5%	1.0%

Affiliates ALM First Read

# CMA: Asset Class Correlations - LTC

Asset Classes/ Sub-Asset Classes	US Equity	Developed ex-US Equity	Emerging Market Equity	Global REITs	US Treasuries	Global ex-US Treasuries	US IG Credit	US High Yield	US TIPS	US ABS	US MBS	US CMBS	EMD	Commodities	US Cash
US Equity	1.00	0.84	0.74	0.73	-0.16	0.01	0.29	0.63	0.20	0.08	-0.03	0.12	0.45	0.30	0.05
Developed ex-US Equity	0.84	1.00	0.76	0.67	-0.23	-0.04	0.24	0.58	0.13	0.05	-0.09	0.04	0.43	0.30	0.07
Emerging Market Equity	0.74	0.76	1.00	0.65	-0.11	0.01	0.35	0.60	0.28	0.18	0.01	0.17	0.51	0.42	0.05
Global REITs	0.73	0.67	0.65	1.00	0.05	0.21	0.46	0.67	0.39	0.17	0.18	0.28	0.57	0.37	0.05
US Treasuries	-0.16	-0.23	-0.11	0.05	1.00	0.72	0.73	0.02	0.70	0.48	0.90	0.61	0.38	-0.09	0.19
Global ex-US Treasuries	0.01	-0.04	0.01	0.21	0.72	1.00	0.63	0.17	0.53	0.33	0.68	0.46	0.40	-0.13	0.28
US IG Credit	0.29	0.24	0.35	0.46	0.73	0.63	1.00	0.55	0.76	0.62	0.78	0.70	0.71	0.15	0.16
US High Yield	0.63	0.58	0.60	0.67	0.02	0.17	0.55	1.00	0.41	0.31	0.17	0.50	0.57	0.33	0.14
US TIPS	0.20	0.13	0.28	0.39	0.70	0.53	0.76	0.41	1.00	0.60	0.73	0.65	0.58	0.26	0.17
US ABS	0.08	0.05	0.18	0.17	0.48	0.33	0.62	0.31	0.60	1.00	0.51	0.53	0.44	0.16	0.26
US MBS	-0.03	-0.09	0.01	0.18	0.90	0.68	0.78	0.17	0.73	0.51	1.00	0.60	0.50	-0.03	0.17
US CMBS	0.12	0.04	0.17	0.28	0.61	0.46	0.70	0.50	0.65	0.53	0.60	1.00	0.44	0.05	0.18
EMD	0.45	0.43	0.51	0.57	0.38	0.40	0.71	0.57	0.58	0.44	0.50	0.44	1.00	0.28	0.10
Commodities	0.30	0.30	0.42	0.37	-0.09	-0.13	0.15	0.33	0.26	0.16	-0.03	0.05	0.28	1.00	0.06
US Cash	0.05	0.07	0.05	0.05	0.19	0.28	0.16	0.14	0.17	0.26	0.17	0.18	0.10	0.06	1.00



30-year CMAs are used for LTC are provided by the external manager, BlackRock, and are compared to our quarterly survey for reasonability.

# Custom Benchmark Composition - LTC

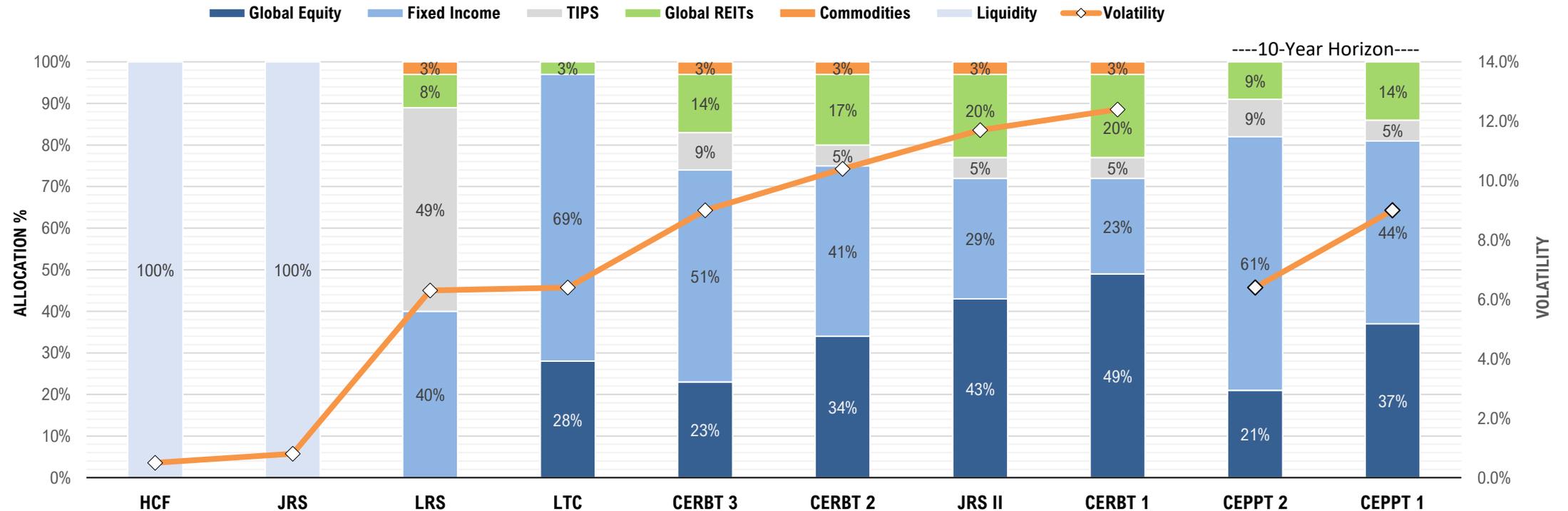
Asset Classes/Components	Benchmark	Current Portfolio	Candidate A	Candidate B	Candidate C
<b>Total Portfolio</b>	<b>Custom Weighted Benchmark Based on Asset Class Weights</b>				
<b>Global Equity</b>	<b>Custom Weighted Benchmark Based on Target Weights</b>	<b>28%</b>	<b>24%</b>	<b>27%</b>	<b>29%</b>
US Large Cap Equity	MSCI Developed – US Total Return Index Gross	14.0%	12.0%	14.0%	15.0%
Developed Ex-US Equity	MSCI World ex-US Hedged Index Net	8.0%	6.0%	7.0%	7.0%
Emerging Market Equity	MSCI Emerging Market Index Net	6.0%	6.0%	6.0%	7.0%
<b>Global REITs (Real Estate Inv. Trusts)</b>	<b>FTSE EPRA/NAREIT Developed 100% Hedged to USD Net Index</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>
<b>Fixed Income</b>	<b>Custom Weighted Benchmark Based on Target Weights</b>	<b>69%</b>	<b>73%</b>	<b>70%</b>	<b>68%</b>
US Cash	Bloomberg T-bill 1-3 Month Index	0%	0%	0%	0%
US Treasuries	Bloomberg Government Index	22.2%	28.9%	28.9%	27.6%
Global ex-US Treasuries	Bloomberg Global Aggregate Treasury Index ex-US Hedged	11.1%	14.4%	14.4%	13.7%
US Investment Grade Credit	Bloomberg US Credit Index	10.1%	10.0%	10.0%	10.0%
US High Yield	Bloomberg US Corp High Yield 2% Issuer Capped Index ex-CCC	8.9%	8.9%	8.9%	8.9%
US Inflation Linked Government Bonds	Bloomberg US Treasury Inflation Index	5.0%	5.0%	5.0%	5.0%
US Asset Backed Securities	Bloomberg ABS Index	3.0%	1.0%	0%	0%
US Agency Mortgage-Backed Securities	Bloomberg MBS Index	3.4%	1.0%	0%	0%
US Commercial MBS	Bloomberg CMBS, Eligible for US Aggregate Index	2.5%	1.0%	0%	0%
EM Bonds (USD denominated)	JP Morgan EMBI Global Diversified Index ex-CCC	2.8%	2.8%	2.8%	2.8%

# Portfolio Depletion Probability Analysis: LTC

Each portfolio was evaluated using 5,000 possible investment return paths over a 30-year time horizon. All candidate portfolios have between a 28%-30% chance of depletion starting in 16 years.

Portfolio	Probability of Fund Depletion (without future course correction)	First Year Occurrence of Possible Depletion	Average Present Value of Liabilities at Depletion
Current Portfolio – 5.6%	29%	16	\$745M
Candidate A - 5.5%	30%	16	\$720M
Candidate B - 5.6%	29%	16	\$741M
Candidate C - 5.7%	28%	16	\$763M

# Recommended Policy Portfolios: Allocation, Returns, Risk



Expected Return (gross)	3.5%	3.3%	5.2%	5.6%	6.3%	6.5%	6.6%	6.7%	5.6%	6.0%
Expected Volatility	0.5%	0.8%	6.3%	6.4%	9.0%	10.4%	11.7%	12.4%	6.4%	9.0%
Administrative Expenses	0.03%	0.01%	0.35%	0.0%	0.09%	0.09%	0.15%	0.09%	0.25%	0.25%
Expected Return (net)	3.5%	3.3%	4.8%	5.6%	6.2%	6.4%	6.4%	6.6%	5.3%	5.7%

Portfolio allocation % represented by bar charts (left axis).  
 Portfolio expected volatility represented by diamonds connected by orange lines (right axis).

# Recommended Portfolios: Stress/Scenario Tests

