



# Global Investment Performance Standards Compliant Presentations

Period Ending June 30, 2018



July 24, 2018

California Public Employees' Retirement System  
400 Q Street  
Sacramento, CA 95811

### **Report of Independent Verification**

We are pleased to report that we examined whether California Public Employees' Retirement System ("CalPERS") has complied with all the composite construction requirements of the Global Investment Performance Standards (GIPS®) on a firm-wide basis for the period July 1, 2016 through June 30, 2018 and designed its policies and procedures to calculate and present performance in compliance with GIPS as of June 30, 2018. CalPERS' management is responsible for compliance with GIPS, the design of its policies and procedures, and for the performance presentations. Our responsibility is to express an opinion based on our examination.

Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

We greatly appreciate the opportunity to conduct this verification for you.

Sincerely,

The Spaulding Group, Inc.

*Where Performance Professionals Get Solutions to Their Problems*  
*Your Partner in Performance Measurement™*

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July 24, 2018

California Public Employees' Retirement System  
400 Q Street  
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### **Report of Independent Verification & Performance Examination**

We are pleased to report that we examined whether California Public Employees' Retirement System ("CalPERS") has complied with all the composite construction requirements of the Global Investment Performance Standards (GIPS®) on a firm-wide basis for the period July 1, 2016 through June 30, 2018 and designed its policies and procedures to calculate and present performance in compliance with GIPS as of June 30, 2018. CalPERS' management is responsible for compliance with GIPS, the design of its policies and procedures, and for the performance presentations. Our responsibility is to express an opinion based on our examination.

Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Public Employees' Retirement Fund Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

We greatly appreciate the opportunity to conduct this verification and performance examination for you.

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# Public Employees' Retirement Fund (PERF)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets <sup>2</sup><br>(\$MM) | Firm<br>Assets<br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|--|--------------------------|---|
| 30-Jun-18                  | 8.58               | 8.64                     | N/A                                 | N/A   | \$351,807                                  | \$358,575                | 98.11%                                  |
| 30-Jun-17                  | 11.19              | 11.34                    | N/A                                 | N/A   | \$323,541                                  | \$329,982                | 98.05%                                  |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

<sup>2</sup> Sub-advisors managed assets during the reported periods, and these assets are included in Firm assets.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The PERF composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal and external investment costs, and is also net of nonclaimable withholding taxes. Performance of external managers is reported to the firm net of advisory and management fees, as well as performance fees and carried interest, if applicable. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. Total internal management costs averaged 4 basis points for the entire period shown.

## Composite and Benchmark Description

The PERF is a single fund composite and includes all discretionary assets managed for the benefit of its members and beneficiaries. The investment objective is to earn an actuarial return target required to pay those benefits, which was 7.375% as of June 30, 2018. The return objective is pursued using both internal and external managers to invest in a broad range of asset classes and strategies. The asset allocation is updated on a 4-year asset liability management cycle with interim asset allocation changes occurring as required to realign levels of risk and liquidity.

The PERF utilizes derivatives for both investment and hedging purposes. The CalPERS Board authorizes investment staff to use derivatives across both internally and externally managed portfolios. Derivatives may include futures, options, swaps and other instruments or contracts intended to manage transaction or currency exchange risk in purchasing, selling, or holding investments. The PERF also has a securities lending program. Lending may not exceed 70% of the value of the program from which the securities are lent.

The PERF benchmark is based on policy weights and is rebalanced monthly. End-of-period allocation and benchmark weights are included in the following table. Historical information is available upon request.

| Allocations<br>30-Jun-2018  | Benchmark Weights  |
|---|--|
| Growth: 56.6%<br>Global Equity: 48.8%<br>Private Equity: 7.7%                       | 57.0%<br>49.0% FTSE CalPERS Global (net*)<br>8.0% (5.36% FTSE U.S. TMI (net*) lagged 1 qtr +<br>2.64% FTSE All World Ex-U.S. TMI (net*) lagged<br>1 qtr) + 3% per year |
| Income: 22.5%<br>Domestic Fixed Income: 20.7%<br>International Fixed Income: 1.8%   | 22.0%<br>19.8% Bloomberg Barclays Long Liability<br>2.2% Bloomberg Barclays International Fixed Income   |
| Real Assets: 10.8%<br>Real Estate: 9.0%<br>Infrastructure: 1.2%<br>Forestland: 0.6% | 12.0%<br>10.0% NCREIF ODCE (net) lagged 1 qtr<br>1.0% CPI lagged 1 qtr, +4% per year<br>1.0% NCREIF Timberland (gross) lagged 1 qtr                                    |
| Inflation: 5.9%   | 6.0%<br>3.0% Bloomberg Barclays Global ILBs<br>1.5% Bloomberg Barclays Universal Gov't ILB ex-U.S.<br>1.5% S&P GSCI Total Return                                       |
| Liquidity: 3.3%   | 3.0% 30-Day US Treasury Bill   |
| Trust Level: 0.9%   | n/a  |

Total may not amount to 100% due to rounding.

Asset allocation and corresponding benchmark changed during FY 17/18 per Board direction. Refer to CalPERS Total Fund Investment Policy for additional details.

\* Note: The FTSE benchmarks represent Board-directed restrictions as outlined in CalPERS Total Fund Investment Policy and is net of taxes at withholding rates applicable to CalPERS.

Growth consists of both global equity and private equity investments. Global Equity investments are typically stocks or other securities representing ownership interests in public companies. Global Equity consists of domestic and international securities and includes both active and passive strategies. Leverage is permitted provided it does not exceed 10% of net exposure of the Global Equity market value. Private equity strategies include buyouts, growth expansion, credit-related, venture capital and opportunistic investments. Some investments may use non-recourse debt. Additionally, subscription financing is allowed provided that total recourse debt allocated shall not exceed 15% of the lower of the current net asset value or the target net asset value of the program.

Income consists of domestic and international fixed income security holdings. International Fixed Income consists of non-U.S. dollar-denominated investment grade corporate bonds, high-yield bonds, securitized bonds, preferred stocks, international bonds, bank loans and other floating rate notes. Domestic Fixed Income generally consists of U.S. dollar-denominated investment grade corporate bonds, high-yield bonds, securitized bonds, preferred stocks, sovereign bonds, bank loans and other floating rate notes. Leverage is permitted provided it does not exceed 10% of the Income market value.

Real Assets consists of real estate, forestland and infrastructure. Real estate investments include residential, commercial, industrial and land investments. Forestland includes harvestable and renewable timberland. Infrastructure includes investments in public works such as communications, transportation, and energy. Leverage is permitted provided the loan-to-value ratio, inclusive of non-recourse and recourse debt, does not exceed 50% for real estate and forestland or 65% for infrastructure.

Inflation consists of commodities and inflation-linked bonds, both domestic and international.

Liquidity consists of cash, cash-equivalents and highly-liquid assets that can readily be converted to cash. Money market funds, Treasury Bills and mutual funds are considered liquid assets. Leverage is permitted provided it does not exceed 2% of the total fund value.

Trust Level includes absolute return strategies, multi-asset class portfolios and plan level transition portfolios.

#### Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

A complete list of composite descriptions, including terminated composites, is available upon request.

Private assets are valued quarterly and valuations are adjusted intra-quarter to reflect capital contributions and distributions as they occur. Controlling interests in real assets and directly-held private equity investments are valued annually by an independent third party. These investments are material as they represent more than 10% of the PERF market value.

During fiscal year 2017-18, the following key personnel left the employ of CalPERS: Wylie Tollette (Chief Operating Investment Officer) and Curtis Ishii (Managing Investment Director, Fixed Income).



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Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Judges' Retirement Fund Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

We greatly appreciate the opportunity to conduct this verification and performance examination for you.

Sincerely,

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# Judges' Retirement Fund (JRF)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets <sup>2</sup><br>(\$MM) | Firm<br>Assets <sup>2</sup><br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|--|---------------------------------------|---|
| 30-Jun-18                  | 1.49               | 1.36                     | N/A                                 | N/A   | \$40                                       | \$358,575                             | 0.01%                                   |
| 30-Jun-17                  | 0.74               | 0.49                     | N/A                                 | N/A   | \$44                                       | \$329,982                             | 0.01%                                   |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

<sup>2</sup> Sub-advisors managed assets during the reported periods, and these assets are included in Firm assets.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The JRF composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal and external investment costs, and is also net of nonclaimable withholding taxes. Performance of external managers is reported to the firm net of advisory and management fees, as well as performance fees, if applicable. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. Total internal management costs averaged less than 1 basis point for the entire period shown.

## Composite and Benchmark Description

The JRF is a single fund composite and includes all discretionary assets managed to maintain liquidity to meet operational expenses and provide retirement benefits to judges elected prior to November 9, 1994. The State currently funds the system on a pay-as-you-go basis, and the fund is closed to new membership. The fund is managed using internal investment management capabilities and employs passive strategies. The investment objective is to earn an actuarial return target to pay those benefits, which was 3.25% as of June 30, 2018. The asset allocation is updated on a 4-year asset liability management cycle with interim asset allocation changes occurring as required to realign levels of risk and liquidity.



End-of-period allocation and benchmark weights for JRF are included in the following table. Historical information is available upon request.

| Allocations<br>30-Jun-2018 | Benchmark Weights              |
|----------------------------|--------------------------------|
| Liquidity: 100.0%          | 100% 91-Day U.S. Treasury Bill |

Liquidity consists of cash, cash-equivalents and highly-liquid assets that can readily be converted to cash. Money market funds, Treasury Bills and mutual funds are considered liquid assets.

Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. A complete list of composite descriptions, including terminated composites, is available upon request.



July 24, 2018

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Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Judges' Retirement Fund II Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

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# Judges' Retirement Fund II (JRF II)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets <sup>2</sup><br>(\$MM) | Firm<br>Assets<br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|--|--------------------------|---|
| 30-Jun-18                  | 7.49               | 7.32                     | N/A                                 | N/A   | \$1,522                                    | \$358,575                | 0.42%                                   |
| 30-Jun-17                  | 9.64               | 9.02                     | N/A                                 | N/A   | \$1,341                                    | \$329,982                | 0.41%                                   |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

<sup>2</sup> Since June 2018, sub-advisors managed assets during the reported periods, and these assets are included in Firm assets.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The JRF II composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal and external investment costs, and is also net of nonclaimable withholding taxes. Performance of external managers is reported to the firm net of advisory and management fees, as well as performance fees, if applicable. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. Total internal management costs averaged 3 basis points for the entire period shown.

## Composite and Benchmark Description

The JRF II is a single fund composite and includes all discretionary assets managed to provide benefits to the judges elected on or after November 9, 1994. The investment objective is to earn an actuarial return target required to pay those benefits, which was 6.5% as of June 30, 2018. The return objective is pursued by investing in a broad range of asset classes and strategies leveraging internal investment management capabilities. The asset allocation is updated on a 4-year asset liability management cycle with interim asset allocation changes occurring as required to realign levels of risk and liquidity.

The JRF II benchmark is based on policy weights and is rebalanced monthly. End-of-period allocation and benchmark weights are included in the following table. Historical information is available upon request.

| Allocations<br>30-Jun-2018                                | Benchmark Weights                         |
|---|---|
| Global Equity: 49.2%                                      | 50% FTSE CalPERS Global (net*)            |
| Domestic Fixed Income: 34.4%                              | 34% Bloomberg Barclays Long Liability     |
| U.S. Treasury Inflation-Protected Securities (TIPS): 5.0% | 5% Bloomberg Barclays U.S. TIPS, Series L |
| Commodities: 3.2%   | 3% S&P GSCI Total Return Daily            |
| Real Estate Investment Trusts (REITs): 8.2%               | 8% FTSE EPRA/NAREIT Developed (net)       |

Total may not amount to 100% due to rounding.

\* Note: The FTSE Global benchmarks represent Board-directed restrictions as outlined in the CalPERS Total Fund Investment Policy and is net of taxes at withholding rates applicable to CalPERS.

Global Equity investments are typically stocks or other securities representing ownership interests in public companies. Global Equity consists of domestic and international securities and use passive strategies.

Domestic Fixed Income generally consists of U.S. dollar-denominated investment grade corporate bonds, high-yield bonds, securitized bonds, preferred stocks, sovereign bonds, bank loans and other floating rate notes.

TIPS are Treasury securities that adjust their principal values in line with the rate of inflation.

Commodities offer exposure to energy and metals as well as agricultural and livestock products. This exposure is usually obtained through futures contracts or swaps.

REITs own or finance income-producing real estate, which are intended to provide regular income streams, diversification and long-term capital appreciation. REIT sectors generally include office, industrial, retail, lodging, residential, health care, and self-storage.

Liquidity consists of cash, cash-equivalents and highly-liquid assets that can readily be converted to cash. Money market funds, Treasury Bills and mutual funds are considered liquid assets.

## Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

A complete list of composite descriptions, including terminated composites, is available upon request.



July 24, 2018

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- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Legislators' Retirement Fund Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

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# Legislators' Retirement Fund (LRF)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets <sup>2</sup><br>(\$MM) | Firm<br>Assets<br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|--|--------------------------|---|
| 30-Jun-18                  | 4.82               | 4.67                     | N/A                                 | N/A   | \$114                                      | \$358,575                | 0.03%                                   |
| 30-Jun-17                  | 4.40               | 3.82                     | N/A                                 | N/A   | \$117                                      | \$329,982                | 0.04%                                   |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

<sup>2</sup> Since June 2018, sub-advisors managed assets during the reported periods, and these assets are included in Firm assets.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The LRF composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal and external investment costs, and is also net of nonclaimable withholding taxes. Performance of external managers is reported to the firm net of advisory and management fees, as well as performance fees, if applicable. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. Total internal management costs averaged 3 basis points for the entire period.

## Composite and Benchmark Description

The LRF is a single fund composite and includes all discretionary assets managed for the benefit of Senators and Members of the Assembly (first elected prior to November 7, 1990), Constitutional Officers (first elected prior to December 31, 2012) and Legislative Statutory Officers (first appointed prior to December 31, 2012). This fund is closed to new membership.

The investment objective is to earn an actuarial return target required to pay those benefits, which was 5.0% as of June 30, 2018. The return objective is pursued by investing in a broad range of asset classes and strategies leveraging internal investment management capabilities. The asset allocation is updated on a 4-year asset liability management cycle with interim asset allocation changes occurring as required to realign levels of risk and liquidity.

The LRF benchmark is based on policy weights and is rebalanced monthly. End-of-period allocation and benchmark weights are included in the following table. Historical information is available upon request.

| Allocations<br>30-Jun-2018                                 | Benchmark Weights                          |
|--|--|
| Global Equity: 24.1%                                       | 24% FTSE CalPERS Global (net*)             |
| Domestic Fixed Income: 38.7%                               | 39% Bloomberg Barclays Long Liability      |
| U.S. Treasury Inflation-Protected Securities (TIPS): 26.1% | 26% Bloomberg Barclays U.S. TIPS, Series L |
| Commodities: 3.0%  | 3% S&P GSCI Total Return Daily             |
| Real Estate Investment Trusts (REITs): 8.1%                | 8% FTSE EPRA/NAREIT Developed (net)        |

Total may not amount to 100% due to rounding.

\* Note: The FTSE Global benchmarks represent Board-directed restrictions as outlined in the CalPERS Total Fund Investment Policy and is net of taxes at withholding rates applicable to CalPERS.

Global Equity investments are typically stocks or other securities representing ownership interests in public companies. Global Equity consists of domestic and international securities and use passive strategies.

Domestic Fixed Income generally consists of U.S. dollar-denominated investment grade corporate bonds, high-yield bonds, securitized bonds, preferred stocks, sovereign bonds, bank loans and other floating rate notes.

TIPS are Treasury securities that adjust their principal values in line with the rate of inflation.

Commodities offer exposure to energy and metals as well as agricultural and livestock products. This exposure is usually obtained through futures contracts or swaps.

REITs own or finance income-producing real estate, which are intended to provide regular income streams, diversification and long-term capital appreciation. REIT sectors generally include office, industrial, retail, lodging, residential, health care, and self-storage.

Liquidity consists of cash, cash-equivalents and highly-liquid assets that can readily be converted to cash. Money market funds, Treasury Bills and mutual funds are considered liquid assets.

#### Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. A complete list of composite descriptions, including terminated composites, is available upon request.





July 24, 2018

California Public Employees' Retirement System  
400 Q Street  
Sacramento, CA 95811

### **Report of Independent Verification & Performance Examination**

We are pleased to report that we examined whether California Public Employees' Retirement System ("CalPERS") has complied with all the composite construction requirements of the Global Investment Performance Standards (GIPS®) on a firm-wide basis for the period July 1, 2016 through June 30, 2018 and designed its policies and procedures to calculate and present performance in compliance with GIPS as of June 30, 2018. CalPERS' management is responsible for compliance with GIPS, the design of its policies and procedures, and for the performance presentations. Our responsibility is to express an opinion based on our examination.

Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Health Care Fund Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

We greatly appreciate the opportunity to conduct this verification and performance examination for you.

Sincerely,

*The Spaulding Group, Inc.*

The Spaulding Group, Inc.

*Where Performance Professionals Get Solutions to Their Problems  
Your Partner in Performance Measurement™*

33 Clyde Road • Suite 103 • Somerset, NJ 08873 • (732) 873-5700 • Fax (732) 873-3997 • [www.SpauldingGrp.com](http://www.SpauldingGrp.com)

# Health Care Fund (HCF)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets <sup>2</sup><br>(\$MM) | Firm<br>Assets<br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|--|--------------------------|---|
| 30-Jun-18                  | (0.33)             | (0.40)                   | N/A                                 | N/A   | \$443                                      | \$358,575                | 0.12%                                   |
| 30-Jun-17                  | (0.28)             | (0.31)                   | N/A                                 | N/A   | \$445                                      | \$329,982                | 0.13%                                   |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

<sup>2</sup> Sub-advisors managed assets during the reported periods, and these assets are included in Firm assets.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The HCF composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal and external investment costs, and is also net of nonclaimable withholding taxes. Performance of external managers is reported to the firm net of advisory and management fees. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. Total internal management costs averaged less than 1 basis points for the entire period shown.

## Composite and Benchmark Description

The HCF is a single fund composite and includes all discretionary assets managed to provide for the self-funded benefit plans administered by CalPERS. The Fund seeks to provide stability of principal, while avoiding large losses, enhance returns within prudent levels of risk, and maintain liquidity to meet cash needs. Investments take advantage of both internal and external investment management capabilities and employ passive strategies. The asset allocation is updated on a 4-year asset liability management cycle with interim asset allocation changes occurring as required to realign levels of risk and liquidity.

End-of-period allocation and benchmark weights for HCF are included in the following table. Historical information is available upon request.

| Allocations<br>30-Jun-2018    | Benchmark Weights                                 |
|-------------------------------|---|
| Domestic Fixed Income: 100.0% | 100% Bloomberg Barclays U.S. Aggregate Bond Index |

Domestic Fixed Income generally consists of U.S. dollar-denominated investment grade corporate bonds, high-yield bonds, securitized bonds, preferred stocks, sovereign bonds, bank loans and other floating rate notes.

#### Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

A complete list of composite descriptions, including terminated composites, is available upon request.



July 24, 2018

California Public Employees' Retirement System  
400 Q Street  
Sacramento, CA 95811

### **Report of Independent Verification & Performance Examination**

We are pleased to report that we examined whether California Public Employees' Retirement System ("CalPERS") has complied with all the composite construction requirements of the Global Investment Performance Standards (GIPS®) on a firm-wide basis for the period July 1, 2016 through June 30, 2018 and designed its policies and procedures to calculate and present performance in compliance with GIPS as of June 30, 2018. CalPERS' management is responsible for compliance with GIPS, the design of its policies and procedures, and for the performance presentations. Our responsibility is to express an opinion based on our examination.

Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Long Term Care Fund Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

We greatly appreciate the opportunity to conduct this verification and performance examination for you.

Sincerely,

*The Spaulding Group, Inc.*

The Spaulding Group, Inc.

# Long Term Care Fund (LTCF)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets <sup>2</sup><br>(\$MM) | Firm<br>Assets<br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|--|--------------------------|---|
| 30-Jun-18                  | 4.03               | 3.96                     | N/A                                 | N/A   | \$4,515                                    | \$358,575                | 1.26%                                   |
| 30-Jun-17                  | 1.56               | 1.51                     | N/A                                 | N/A   | \$4,376                                    | \$329,982                | 1.33%                                   |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

<sup>2</sup> Sub-advisors managed assets during the reported periods, and these assets are included in Firm assets.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The LTCF composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal and external investment costs, and is also net of nonclaimable withholding taxes. Performance of external managers is reported to the firm net of advisory and management fees. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. Total internal management costs averaged less than 1 basis point for the entire period shown.

## Composite and Benchmark Description

The LTCF is a single fund composite and includes all discretionary assets managed to provide voluntary long-term care insurance to participating members. The investment objective is to earn an actuarial rate of return target to pay those benefits, which was 5.25% as of June 30, 2018. The fund is invested in a conservative asset allocation strategy which provides stability of principal while avoiding large losses. Investments take advantage of internal and external investment management capabilities and employ passive strategies. The Fund invests in a broad range of asset classes. The asset allocation is updated on a 4-year asset liability management cycle with interim asset allocation changes occurring as required to realign levels of risk and liquidity.

The LTCF benchmark is based on policy weights and is rebalanced monthly. End-of-period allocation and benchmark weights are included in the following table. Historical information is available upon request.

| Allocations<br>30-Jun-2018                                | Benchmark Weights                           |
|---|---|
| Global Equity: 17.1%                                      | 15% MSCI ACWI IMI (net)                     |
| Domestic Fixed Income: 58.7%                              | 61% Bloomberg Barclays Long Liability       |
| U.S. Treasury Inflation-Protected Securities (TIPS): 5.7% | 6% Bloomberg Barclays US TIPS, Series L     |
| Commodities: 6.1%   | 6% S&P GSCI Total Return Daily              |
| Real Estate Investment Trusts (REITs): 12.4%              | 12% FTSE EPRA/NAREIT Developed Liquid (net) |

Total may not amount to 100% due to rounding.

Global Equity investments are typically stocks or other securities representing ownership interests in public companies. Global Equity consists of domestic and international securities and use passive strategies.

Domestic Fixed Income generally consists of U.S. dollar-denominated investment grade corporate bonds, high-yield bonds, securitized bonds, preferred stocks, sovereign bonds, bank loans and other floating rate notes.

TIPS are Treasury securities that adjust their principal values in line with the rate of inflation.

Commodities offer exposure to energy and metals as well as agricultural and livestock products. This exposure is usually obtained through futures contracts or swaps.

REITs own or finance income-producing real estate, which are intended to provide regular income streams, diversification and long-term capital appreciation. REIT sectors generally include office, industrial, retail, lodging, residential, health care, and self-storage.

Liquidity consists of cash, cash-equivalents and highly-liquid assets that can readily be converted to cash. Money market funds, Treasury Bills and mutual funds are considered liquid assets.

## Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

A complete list of composite descriptions, including terminated composites, is available upon request.



July 24, 2018

California Public Employees' Retirement System  
400 Q Street  
Sacramento, CA 95811

### **Report of Independent Verification & Performance Examination**

We are pleased to report that we examined whether California Public Employees' Retirement System ("CalPERS") has complied with all the composite construction requirements of the Global Investment Performance Standards (GIPS®) on a firm-wide basis for the period July 1, 2016 through June 30, 2018 and designed its policies and procedures to calculate and present performance in compliance with GIPS as of June 30, 2018. CalPERS' management is responsible for compliance with GIPS, the design of its policies and procedures, and for the performance presentations. Our responsibility is to express an opinion based on our examination.

Our examination was conducted in accordance with the guidelines provided by GIPS, including the *Guidance Statement for Verification*. The verification included examining, on a sampling basis, evidence about CalPERS' compliance with the GIPS requirements, evaluating the design of CalPERS' policies and procedures, and performing the procedures for a verification set forth by GIPS, as well as other procedures we considered necessary. Verification does not ensure the accuracy of any specific composite presentation. We believe that our examination provides a reasonable basis for our opinion, which is that California Public Employees' Retirement System has, in all material respects:

- Complied with all composite construction requirements of the Global Investment Performance Standards on a firm-wide basis for the period July 1, 2016 through June 30, 2018, and
- Designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards as of June 30, 2018.

In addition to the firm-wide GIPS verification, we have completed a performance examination of the Terminated Agency Pool Composite maintained by CalPERS for the period July 1, 2016 through June 30, 2018. We completed this performance examination in accordance with the procedures set forth in the *GIPS Performance Examination Guidance Statement*. It is our opinion that the performance of this composite is presented, in all material respects, in conformance with the GIPS standards.

We greatly appreciate the opportunity to conduct this verification and performance examination for you.

Sincerely,

*The Spaulding Group, Inc.*

The Spaulding Group, Inc.

*Where Performance Professionals Get Solutions to Their Problems  
Your Partner in Performance Measurement™*

33 Clyde Road • Suite 103 • Somerset, NJ 08873 • (732) 873-5700 • Fax (732) 873-3997 • [www.SpauldingGrp.com](http://www.SpauldingGrp.com)



# Terminated Agency Pool (TAP)



Creation Date: July 1, 2017

| 1-Year<br>Period<br>Ending | Net<br>Return<br>% | Benchmark<br>Return<br>% | 3-Year<br>Std Dev<br>% <sup>1</sup> | Benchmark<br>3-Yr Std Dev<br>% <sup>1</sup> | Composite<br>Assets<br>(\$MM) | Firm<br>Assets<br>(\$MM) | Composite<br>Assets % of<br>Firm Assets |
|----------------------------|--------------------|--------------------------|-------------------------------------|---|-------------------------------|--------------------------|---|
| 30-Jun-18                  | 2.25               | N/A                      | N/A                                 | N/A   | \$134                         | \$358,575                | 0.04%                                   |
| 30-Jun-17                  | (2.01)             | N/A                      | N/A                                 | N/A   | \$119                         | \$329,982                | 0.04%                                   |

<sup>1</sup> The three-year annualized standard deviation is not presented because the composite history is shorter than 36 months.

Note 1: Valuations are computed and performance is reported in USD.

Note 2: This composite contains a single fund; therefore, it does not have internal dispersion and the information is not presented.

California Public Employees' Retirement System ("CalPERS") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. CalPERS has been independently verified for the periods July 1, 2016 through June 30, 2018. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The TAP composite has been examined for the periods July 1, 2016 through June 30, 2018. The verification and performance examination reports are available upon request.

## Firm Definition

The "Firm" is defined as the California Public Employees' Retirement System ("CalPERS") which manages assets as directed by the CalPERS Board of Administration for the purpose of funding retirement benefit, long term care and health care payments for members and beneficiaries.

## Performance Calculations

Performance is calculated monthly using time-weighted rates of returns. Performance presented is net of actual internal investment costs, and is also net of nonclaimable withholding taxes. Internal investment management related expenses include personnel, investment research services, trading, custodian services, portfolio accounting services, performance measurement services, and technology services. There were no internal management costs allocated to TAP during the most recent fiscal year.

## Composite and Benchmark Description

The TAP is a single fund composite and includes all discretionary assets managed for the benefit of members of agencies which are no longer contracted with CalPERS. The investment objective is to manage investments in a manner which closely matches the projected future benefit payments, while minimizing the likelihood of the program becoming underfunded. The return objective is pursued by investing in U.S Treasury STRIPS, U.S. Treasury TIPS, and cash/cash equivalents.

The TAP is designed to match income and principle payments from U.S. Government Securities with the specific timing of benefit cash flows. No benchmark is presented as we believe a benchmark does not exist that reflects this strategy.

| Allocations<br>30-Jun-2018  | Benchmark Weights |
|---|-------------------|
| U.S. Treasury Inflation-Protected Securities (TIPS): 58.9%                          | N/A               |
| Separate Trading of Registered Interest and Principal of Securities (STRIPS): 33.3% |                   |
| Liquidity: 7.8%   |                   |

TIPS are Treasury securities that adjust their principal values in line with the rate of inflation.

STRIPS are securities that are created through the process of bifurcating a Treasury bond's principal and interest.

Liquidity consists of cash, cash-equivalents and highly-liquid assets that can readily be converted to cash. Money market funds, Treasury Bills and mutual funds are considered liquid assets.

#### Other Disclosures

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

A complete list of composite descriptions, including terminated composites, is available upon request.