

California Public Employees' Retirement System
Independent Verifier's Verification and Examination Report





July 23, 2021

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

Independent Verifier's Verification and Performance Examination Report

We are pleased to report that we have verified whether California Public Employees' Retirement System (the Asset Owner) has, for the periods July 1, 2016 through June 30, 2021, established policies and procedures for complying with the Global Investment Performance Standards (GIPS®) related to composite and total fund maintenance and the calculation, presentation, and distribution of performance that are designed in compliance with the GIPS standards, as well as whether these policies and procedures have been implemented on an asset owner-wide basis. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. We have also examined the Asset Owner's composites listed in Appendix A for the periods noted in Appendix A.

The Asset Owner's management is responsible for its claim of compliance with the GIPS standards, the design and implementation of its policies and procedures, and for the accompanying GIPS asset owner reports. Our responsibilities are to be independent from the Asset Owner and to express an opinion based on our verification and performance examination. We conducted this verification and performance examination in accordance with the required verification and performance examination procedures of the GIPS standards, which includes testing performed on a sample basis. We also conducted such other procedures as we considered necessary in the circumstances.

In our opinion, for the periods from July 1, 2016 through June 30, 2021, the Asset Owner's policies and procedures for complying with the GIPS standards related to composite and total fund maintenance, as well as the calculation, presentation, and distribution of performance, have been, in all material respects:

- Designed in compliance with the GIPS standards, and
- Implemented on an asset owner-wide basis.

Also, in our opinion, the Asset Owner has, in all material respects:

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- Constructed and calculated the performance for the composites listed in Appendix A for the periods noted in Appendix A in compliance with the GIPS standards, and
- Prepared and presented the accompanying GIPS asset owner reports for the composites listed in Appendix A for the periods noted in Appendix A in compliance with the GIPS standards.

We have not been engaged to examine, and did not examine, the Asset Owner's composites listed in Appendix A for any periods prior to the periods noted in Appendix A and, accordingly, we express no opinion on the GIPS asset owner report of the Asset Owner's composites for any periods prior to the periods noted in Appendix A.

This report does not relate to or provide assurance on any specific performance report of the Asset Owner other than the Asset Owner's accompanying GIPS asset owner reports, or on the operating effectiveness of the Asset Owner's controls or policies and procedures for complying with the GIPS standards.

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

Sincerely,



The Spaulding Group, Inc.

Appendix A

Composite	Period Reviewed
Health Care Fund (HCF)	July 1, 2016 through June 30, 2021
Judges' Retirement Fund (JRF)	July 1, 2016 through June 30, 2021
Judges' Retirement Fund II (JRF II)	July 1, 2016 through June 30, 2021
Legislators' Retirement Fund (LRF)	July 1, 2016 through June 30, 2021
Long Term Care Fund (LTCF)	July 1, 2016 through June 30, 2021
Public Employees' Retirement Fund (PERF)	July 1, 2016 through June 30, 2021
Terminated Agency Pool (TAP)	July 1, 2016 through June 30, 2021

GIPS Asset Owner Report:

Health Care Fund (HCF)



Creation Date: July 1, 2017 Inception Date: July 1, 2016

1-Year Period Ending	Net Return %	Benchmark Return %	3-Year Std Dev ¹ %	Benchmark 3-Yr Std Dev ¹ %	Composite Assets ² (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	(0.39)	(0.33)	3.49	3.49	\$518	\$478,083
30-Jun-20	8.82	8.74	3.26	3.27	\$520	\$396,683
30-Jun-19	7.87	7.87	3.02	3.03	\$478	\$377,529
30-Jun-18	(0.33)	(0.40)	N/A	N/A	\$443	\$358,575
30-Jun-17	(0.28)	(0.31)	N/A	N/A	\$445	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

² Sub-advisors managed assets during the reported periods, and these assets are included in Asset Owner 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, 2021. An asset owner that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the asset owner's policies and procedures related to total fund and composite maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on an asset owner-wide basis. The HCF has had a performance examination for the periods July 1, 2016 through June 30, 2021. The verification and performance examination reports are available upon request.

Asset Owner Definition

The "Asset Owner" 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 return. 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 Asset Owner 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 1.3 basis points annually for the entire period shown.

Composite and Benchmark Description

The HCF is a single fund composite and includes all discretionary assets managed to provide a reserve 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 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 actual allocation and benchmark weights for HCF are included in the following table. Historical information is available upon request.

Allocations 30-Jun-2021	Benchmark Weights
Domestic Fixed Income: 100%	100% Bloomberg Barclays U.S. Aggregate Bond Index

Domestic Fixed Income generally consists of investment grade US dollar-denominated Treasury bonds, corporate bonds, securitized bonds, agency bonds and sovereign bonds.

Other Disclosures

Policies for valuing investments, calculating performance, and preparing GIPS Asset Owner Reports are available upon request.

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

GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein.

GIPS Asset Owner Report:

Judges' Retirement Fund (JRF)



Creation Date: July 1, 2017 Inception Date: July 1, 2016

1-Year Period Ending	Net Return %	Benchmark Return %	3-Year Std Dev ¹ %	Benchmark 3-Yr Std Dev ¹ %	Composite Assets ² (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	0.13	0.09	0.30	0.32	\$64	\$478,083
30-Jun-20	1.62	1.63	0.18	0.22	\$46	\$396,683
30-Jun-19	2.42	2.31	0.21	0.23	\$16	\$377,529
30-Jun-18	1.49	1.36	N/A	N/A	\$40	\$358,575
30-Jun-17	0.74	0.49	N/A	N/A	\$44	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

² Sub-advisors managed assets during the reported periods, and these assets are included in Asset Owner 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, 2021. An asset owner that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the asset owner's policies and procedures related to total fund and composite maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on an asset owner-wide basis. The JRF has had a performance examination for the periods July 1, 2016 through June 30, 2021. The verification and performance examination reports are available upon request.

Asset Owner Definition

The "Asset Owner" 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 return. 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 Asset Owner 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 1.3 basis points annually for the entire period shown.

Composite and Benchmark Description

The JRF is a single fund composite and includes all discretionary assets managed to maintain a liquid reserve 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 external investment management capabilities and employs passive strategies. The investment objective is to earn an actuarial return target to pay those benefits, which was 3.00% as of June 30, 2021. 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 actual allocation and benchmark weights for JRF are included in the following table. Historical information is available upon request.

Allocations 30-Jun-2021	Benchmark Weights
Liquidity: 100%	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, certificates of deposits, commercial paper, and time deposits are considered liquid assets.

Other Disclosures

Policies for valuing investments, calculating performance, and preparing GIPS Asset Owner Reports are available upon request.

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

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Judges' Retirement Fund II (JRF II)



Creation Date: July 1, 2017 Inception Date: July 1, 2016

1-Year Period Ending	Net Return %	Custom Benchmark Return %	3-Year Std Dev ¹ %	Custom Benchmark 3-Yr Std Dev ¹ %	Composite Assets ² (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	24.44	24.17	11.69	11.70	\$2,395	\$478,083
30-Jun-20	4.51	4.13	10.37	10.38	\$1,867	\$396,683
30-Jun-19	6.75	6.42	7.13	7.15	\$1,696	\$377,529
30-Jun-18	7.49	7.34	N/A	N/A	\$1,522	\$358,575
30-Jun-17	9.64	9.02	N/A	N/A	\$1,341	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

² Since June 2018, sub-advisors managed assets during the reported periods, and these assets are included in Asset Owner 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, 2021. An asset owner that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the asset owner's policies and procedures related to total fund and composite maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on an asset owner-wide basis. The JRF II has had a performance examination for the periods July 1, 2016 through June 30, 2021. The verification and performance examination reports are available upon request.

Asset Owner Definition

The "Asset Owner" 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 return. 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 Asset Owner 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 2.2 basis points annually 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 retirement 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, 2021. The return objective is pursued by investing in a broad range of asset classes and strategies leveraging internal and external 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 quarterly effective July 1, 2019. Prior to that date, the benchmark was rebalanced monthly. End-of-period actual allocation and benchmark weights are included in the following table. Historical information is available upon request.

Allocations 30-Jun-2021	Benchmark Weights
Global Equity: 51.9%	52.0% MSCI ACWI IMI (Net)
Domestic Fixed Income: 32.1%	32.0% Bloomberg Barclays Long Liability
U.S. Treasury Inflation-Protected Securities (TIPS): 5.0%	5.0% Bloomberg Barclays U.S. TIPS, Series L
Commodities: 3.1%	3.0% S&P GSCI Total Return Daily
Real Estate Investment Trusts (REITs): 7.9%	8.0% FTSE EPRA/NAREIT Developed (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 uses passive strategies.

Domestic Fixed Income generally consists of investment grade US dollar-denominated Treasury bonds, corporate bonds, securitized bonds, agency bonds and sovereign bonds.

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.

Other Disclosures

Policies for valuing investments, calculating performance, and preparing GIPS Asset Owner Reports are available upon request.

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

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Legislators' Retirement Fund (LRF)



Creation Date: July 1, 2017 Inception Date: July 1, 2016

1-Year Period Ending	Net Return %	Custom Benchmark Return %	3-Year Std Dev ¹ %	Custom Benchmark 3-Yr Std Dev ¹ %	Composite Assets ² (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	13.57	13.45	7.48	7.46	\$122	\$478,083
30-Jun-20	6.37	6.11	6.56	6.54	\$114	\$396,683
30-Jun-19	7.32	7.10	4.81	4.83	\$114	\$377,529
30-Jun-18	4.82	4.67	N/A	N/A	\$114	\$358,575
30-Jun-17	4.40	3.82	N/A	N/A	\$117	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

² Since June 2018, sub-advisors managed assets during the reported periods, and these assets are included in Asset Owner 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, 2021. An asset owner that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the asset owner's policies and procedures related to total fund and composite maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on an asset owner-wide basis. The LRF has had a performance examination for the periods July 1, 2016 through June 30, 2021. The verification and performance examination reports are available upon request.

Asset Owner Definition

The "Asset Owner" 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 return. 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 Asset Owner 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 2.4 basis points annually for the entire period shown.

Composite and Benchmark Description

The LRF is a single fund composite and includes all discretionary assets managed to provide retirement benefits for 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, 2021. The return objective is pursued by investing in a broad range of asset classes and strategies leveraging internal and external 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 quarterly effective July 1, 2019. Prior to that date, the benchmark was rebalanced monthly. End-of-period actual allocation and benchmark weights are included in the following table. Historical information is available upon request.

Allocations 30-Jun-2021	Benchmark Weights
Global Equity: 21.9%	22.0% MSCI ACWI IMI (Net)
Domestic Fixed Income: 49.1%	49.0% Bloomberg Barclays Long Liability
U.S. Treasury Inflation-Protected Securities (TIPS): 16.0%	16.0% Bloomberg Barclays U.S. TIPS, Series L
Commodities: 5.1%	5.0% S&P GSCI Total Return Daily
Real Estate Investment Trusts (REITs): 7.9%	8.0% FTSE EPRA/NAREIT Developed (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 uses passive strategies.

Domestic Fixed Income generally consists of investment grade US dollar-denominated Treasury bonds, corporate bonds, securitized bonds, agency bonds and sovereign bonds.

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.

Other Disclosures

Policies for valuing investments, calculating performance, and preparing GIPS Asset Owner Reports are available upon request.

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

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Long Term Care Fund (LTCF)



Creation Date: July 1, 2017 Inception Date: July 1, 2016

1-Year Period Ending	Net Return %	Custom Benchmark Return %	3-Year Std Dev ¹ %	Custom Benchmark 3-Yr Std Dev ¹ %	Composite Assets ² (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	12.97	12.33	7.77	7.43	\$5,476	\$478,083
30-Jun-20	4.68	5.06	6.88	6.53	\$4,910	\$396,683
30-Jun-19	7.15	7.23	5.05	5.00	\$4,770	\$377,529
30-Jun-18	4.03	3.96	N/A	N/A	\$4,515	\$358,575
30-Jun-17	1.56	1.51	N/A	N/A	\$4,376	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

² Sub-advisors managed assets during the reported periods, and these assets are included in Asset Owner 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, 2021. An asset owner that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the asset owner's policies and procedures related to total fund and composite maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on an asset owner-wide basis. The LTCF has had a performance examination for the periods July 1, 2016 through June 30, 2021. The verification and performance examination reports are available upon request.

Asset Owner Definition

The "Asset Owner" 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 return. 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 Asset Owner 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 1.3 basis points annually 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 coverage to participating members. The investment objective is to earn an actuarial rate of return target to pay those benefits, which was 4.75% as of June 30, 2021. The fund is invested in a conservative asset allocation strategy which intends to provide stability of principal while avoiding large losses. Investments take advantage of 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 quarterly effective July 1, 2019. Prior to that date, the benchmark was rebalanced monthly. End-of-period actual allocation and benchmark weights are included in the following table. Historical information is available upon request.

Allocations 30-Jun-2021	Benchmark Weights
Global Equity: 17.6%	15.0% MSCI ACWI IMI (Net)
Domestic Fixed Income: 57.4%	60.0% Bloomberg Barclays Long Liability
U.S. Treasury Inflation-Protected Securities (TIPS): 5.5%	6.0% Bloomberg Barclays US TIPS, Series L
Commodities: 8.9%	8.0% S&P GSCI Total Return Daily
Real Estate Investment Trusts (REITs): 10.6%	11.0% FTSE EPRA/NAREIT Developed (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 uses passive strategies.

Domestic Fixed Income generally consists of investment grade US dollar-denominated Treasury bonds, corporate bonds, securitized bonds, agency bonds and sovereign bonds.

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.

Other Disclosures

Policies for valuing investments, calculating performance, and preparing GIPS Asset Owner Reports are available upon request.

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

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GIPS Asset Owner Report:

Public Employees' Retirement Fund (PERF)

Creation Date: July 1, 2017 Inception Date: July 1, 2016



1-Year Period Ending	Net Return %	Custom Benchmark Return %	3-Year Std Dev ¹ %	Custom Benchmark 3-Yr Std Dev ¹ %	Composite Assets ² (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	21.32	21.74	8.99	8.79	\$469,305	\$478,083
30-Jun-20	4.70	4.33	7.89	7.80	\$389,037	\$396,683
30-Jun-19	6.68	7.10	5.64	5.49	\$370,287	\$377,529
30-Jun-18	8.58	8.64	N/A	N/A	\$351,807	\$358,575
30-Jun-17	11.19	11.34	N/A	N/A	\$323,541	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

² Sub-advisors managed assets during the reported periods, and these assets are included in Asset Owner assets.

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

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Asset Owner Definition

The "Asset Owner" 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 return. 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 Asset Owner 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 3.9 basis points annually 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 7.00% as of June 30, 2021. 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 with guidelines available in the CalPERS Total Fund Investment Policy .

The PERF benchmark is based on policy weights and is rebalanced quarterly effective January 1, 2020. Prior to that date, the benchmark was rebalanced monthly. End-of-period actual allocation and benchmark weights are included in the following table. Historical information is available upon request.

Allocations	Benchmark Weights
30-Jun-2021	
Public Equity: 51.5%	51.4%
Cap Weighted: 36.4%	36.4% CalPERS Custom FTSE Global Benchmark*
Factor Weighted: 15.1%	15.0% MSCI ACWI Select Factor Weighted Index (Net)*
Private Equity: 8.3%	8.3% FTSE Global All-Cap Custom* (Net), Quarter Lag + 8% 150bps hurdle
Income: 29.3%	29.6%
Long Spread: 14.8%	15.0% Custom Bloomberg Barclays Long Spread
Long Treasury: 10.0%	11.6% Custom Bloomberg Barclays Long Government
High Yield: 3.0%	3.0% Custom Bloomberg Barclays High Yield
Total Fund Income: 1.5%	
Real Assets: 9.7%	9.7% MSCI/PREA U.S. ACOE Quarterly Property Fund Index (Unfrozen)
Total Fund: 2.5%	
Opportunistic: 0.5%	
LLER: 2.0%	
Other PERF: 0.0%	
Total TLPM: 0.0%	
Financing & Liquidity: -1.3%	1.0% 30-Day US Treasury Bill
Trust Level Financing: -2.6%	
Liquidity: 1.3%	

Total may not amount to 100% due to rounding.

Asset allocation and corresponding benchmark changed during FY17/18 with Board approval. During FY18/19, the benchmark was modified to reflect Board approved changes to the asset allocation. Changes included the introduction of a second segment within Public Equity reflected by the MSCI ACWI Select Factor Weighted Index. Fixed income was grouped into three distinct segments reflected by the Bloomberg Custom Capital Global Long Spread, 1-Month US Treasury Bill and BBG Barclays US High Yield BB/B Liquid indices. Additionally, the Private Equity benchmark changed to the FTSE Global All-Cap Custom (Net)+150 and the Real Assets benchmark changed to the MSCI/PREA U.S. ACOE Quarterly Property Fund Index (Unfrozen). The Inflation benchmark was removed as the program defunded. During FY19/20, rebalancing was changed from monthly to quarterly. Additionally, weights for the private asset classes are adjusted to reflect actual portfolio weights with offsetting adjustments applied systematically to a combination of public market asset segments having similar long-term expected returns. During FY20/21, the Public Equity Cap Weighted benchmark changed to CalPERS Custom Global Policy Composite (Narrowed + Transition) Index effective 04/01/2021.

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

Public Equity investments are typically stocks or other securities representing ownership interests in public companies. Public Equity consists of domestic and international securities and includes active and passive cap weighted and factor weighted strategies.

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 spread, treasury, high yield, and total fund income strategies. Spread consists of U.S. dollar-denominated investment grade corporate bonds, high yield bonds, securitized bonds, agency debt, preferred stocks, sovereign bonds, bank loans, other floating rate notes, non-U.S. dollar-denominated investment grade corporate bonds, and international bonds. Treasury consists of U.S. Treasury bonds and U.S. Treasury Inflation-Protected Securities (TIPS). High Yield primarily consists of BB/B high yield bonds. Total Fund Income is benchmarked against treasuries and can opportunistically invest in credit when spreads widen.

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.

The Opportunistic Program invests outside the mandate of traditional asset classes. Strategies may include middle market direct lending, specialty lending, public market dislocation, liquidity financing, structured products and whole loans, real estate financing, bank loans and CLO.

Low Liquidity Enhanced Return (LLER) investments include AAA/AA collateralized loan obligations (CLOs) and other structured products, with the goal to add value to the total fund using instruments with a remote probability of capital loss.

Trust Level includes absolute return strategies, multi-asset class portfolios and plan level transition portfolios. Leverage is managed and monitored at the Total Fund level. Aggregate leverage where staff exercise direct control of the exposure will not exceed 20% of the Total Fund.

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. Trust Level Financing reflects derivatives financing and repo borrowing in trust level Synthetic Cap Weighted and Synthetic Treasury portfolios.

Other Disclosures

Policies for valuing investments, calculating performance, and preparing GIPS Asset Owner Reports are available upon request.

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

Private assets valued quarterly and valuations are adjusted intra-quarter to reflect capital contributions and distributions as they occur. Controlling interests in real assets are valued quarterly by an independent third party. Prior to July 1, 2019, they were independently valued on an annual basis. Financial statements for directly-held private equity investments are audited annually. As of June 30, 2021, weights of private assets in PERF was 18%.

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).

During fiscal year 2018-19, the following key personnel left the employ of CalPERS: Ted Eliopoulos (Chief Investment Officer) and Elisabeth Bourqui (Chief Operating Investment Officer).

During fiscal year 2018-19, Yu (Ben) Meng joined CalPERS as Chief Investment Officer.

During fiscal year 2019-20, CalPERS had several key personnel changes. Dan Bienvenue was appointed Deputy Chief Investment Officer (DCIO). Arnie Phillips was appointed Managing Investment Director, Global Fixed Income. Beth Richtman was appointed Managing Investment Director, Sustainable Investments, but subsequently departed. Anne Simpson was appointed Interim Managing Investment Director, Board Governance & Sustainability. Paul Mouchakka left his position of Managing Investment Director, Real Assets. Sarah Corr was appointed Managing Investment Director, Real Assets. Jean Hsu was appointed Managing Investment Director, Opportunistic Strategies.

During fiscal year 2020-21, CalPERS had key personal changes. Ben Meng departed as CIO, with Dan Bienvenue being appointed as Interim CIO. Arnie Phillips became Interim DCIO, while remaining the MID of Global Fixed Income. Eric Baggesen retired as MID of TLPM with Sterling Gunn named MID to replace Eric. Kevin Winter passed away, which lead to Sterling Gunn being appointed Interim MID of Research and Strategy, while continuing as the MID of the Trust Level Portfolio Management & Implementation. Anne Simpson was promoted from Interim MID to the permanent MID of Board Governance and Sustainability.

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GIPS Asset Owner Report:

Terminated Agency Pool (TAP)



Creation Date: July 1, 2017 Inception Date: July 1, 2016

1-Year Period Ending	Net Return %	Benchmark Return %	3-Year Std Dev ¹ %	Benchmark 3-Yr Std Dev ¹ %	Composite Assets (\$MM)	Asset Owner Assets (\$MM)
30-Jun-21	1.57	N/A	7.18	N/A	\$202	\$478,083
30-Jun-20	16.13	N/A	6.41	N/A	\$188	\$396,683
30-Jun-19	7.01	N/A	4.88	N/A	\$168	\$377,529
30-Jun-18	2.25	N/A	N/A	N/A	\$134	\$358,575
30-Jun-17	(2.01)	N/A	N/A	N/A	\$119	\$329,982

¹ The 3-year standard deviation presented is the annualized standard deviation of monthly returns. The composite standard deviation is calculated using net returns.

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, 2021. An asset owner that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the asset owner's policies and procedures related to total fund and composite maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on an asset owner-wide basis. The TAP has had a performance examination for the periods July 1, 2016 through June 30, 2021. The verification and performance examination reports are available upon request.

Asset Owner Definition

The "Asset Owner" 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 return. 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		Benchmark Weights
30-Jun-2021		
U.S. Treasury Inflation-Protected Securities (TIPS):	60.5%	N/A
Separate Trading of Registered Interest and Principal of Securities (STRIPS):	26.9%	
Liquidity:	12.5%	

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, certificates of deposits, commercial paper, and time deposits are considered liquid assets.

Other Disclosures

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

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