



# Federated Annual Fee Report - 2018

## Executive Summary

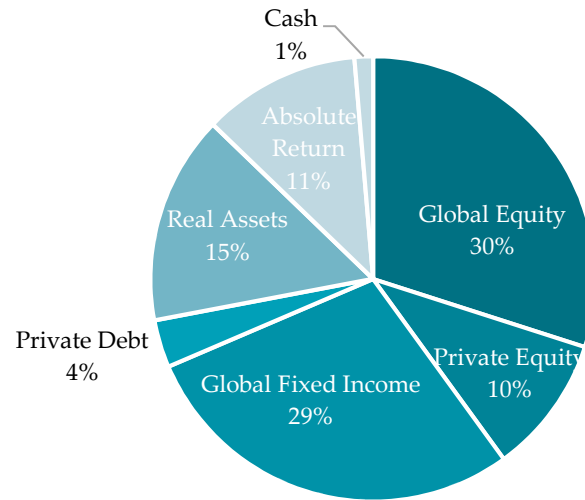
This report marks the fourth anniversary of our annual Fee Report for the Federated City Employees' Retirement System ("Federated", "Plan"). The goal of the report is to provide transparency and insight into the fees and expenses paid to investment managers along with the costs of operating the investment program. Pension plan fee data is generally underreported by peers, and typically represents only the portion of fees that are observable. This excludes often sizable embedded fees (such as incentive fees) that are deducted from account values of certain fund structures.

It is important to note that fees are a function of asset allocation and portfolio construction, which are byproducts of the Board's objectives, investment beliefs, and risk tolerance. Each year, the Board typically reviews the asset allocation considering updated capital market assumptions and the expected returns and volatility of the portfolio associated with those assumptions. The asset allocations in effect for the period covered by this report, as illustrated in tables 1 and 2.

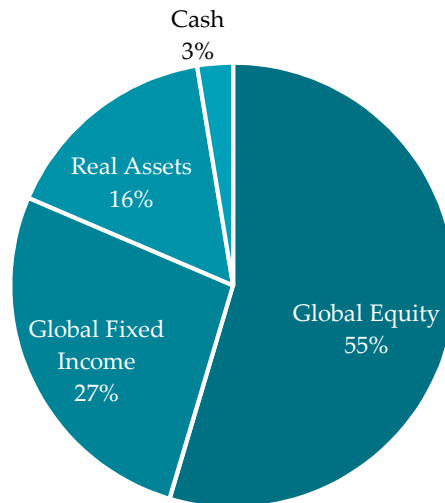
Asset allocation is typically one of the largest determinants of investment management fees at the portfolio level. Asset allocations that introduce alternative asset classes (Private Equity, Private Debt, Real Estate, Hedge Funds, etc.) will have higher levels of investment manager fees, because these asset classes or strategies have higher fee structures than traditional asset classes. In addition, asset class structuring can have a significant impact on fees. The use of active management versus passive management, as well as alternative strategies within traditional asset classes, will increase fees. When evaluating investment managers, staff places a significant emphasis on fees by negotiating for lower fees and analyzing that expected value or return is worth the expected cost.

**For calendar year 2018, management and incentive fees for the pension plan totaled \$22.2 million with a fee ratio of 1.02% as compared to \$24.2 million and 1.15% for 2017 and \$21.3 million and 1.07% for 2016. Fund operating expenses were \$3.2 million in 2018 for a fee ratio of 0.15% as compared to \$2.4 million and 0.11% for 2017. The health care trust management and incentive fees totaled \$0.9 million with a fee ratio of 0.29% as compared to \$0.7 million with a fee ratio of 0.32% in 2017 and \$0.6 million with a fee ratio of 0.36% in 2016. Other investment-related costs (staff, consultants, custodian bank, investment legal, etc.) for the pension plan in 2018 were \$2.0 million with a fee ratio of 0.09% as compared to \$1.9 million and 0.09% in 2017 and \$1.6 million and 0.08% in 2016. Other investment-related costs for the health care trust totaled \$0.2 million with a fee ratio of 0.08% as compared to \$0.2 million and 0.10% for 2017 and \$0.2 million and 0.12% for 2016.**

**Table 1 - Pension Average Asset Allocation for 2018**



**Table 2 - Health Care Trust Average Asset Allocation for 2018**



## Introduction

The fees in this report represent management fees, incentive fees, fund operating expenses, and other investment-related costs that were incurred during the calendar year. These amounts may include fees that were accrued for the year, but not paid out.

Management fees are fees charged by fund managers to invest and manage assets. Incentive fees are performance-based fees for exceeding a hurdle return and are only applicable to certain fund structures. It is important to note that incentive fees are a form of shared economics that are only paid if the manager has produced positive returns or exceeded a predetermined hurdle rate. In some situations, incentive fees can be negative, reflecting the complexity of fee agreements. Operating expenses include overhead related to managing a fund that are indirectly borne by investors, which may include professional, administration, research, tax, legal, custodial and audit expenses for a fund. Trading expenses such as broker commissions are excluded from this report. Other costs include salary and benefits compensation for investment staff (including a 50% allocation for the CEO), cost of consultants (general, absolute return, risk), custodian bank and other third party vendors utilized by the investment program, and investment staff travel.

Though best efforts have been made to capture all material fees and expenses, this report may not include all indirect expenses and charges that may be paid to managers' affiliates, consultants, or entities for services rendered to the managers, the funds or portfolio entities held by certain funds. Future iterations of this report will continue to grow in sophistication, benefiting from industry-wide initiatives to gain additional transparency, such as the increasing adoption of the Institutional Limited Partners Association ("ILPA") fee reporting template.

## Data Sources

Staff compiled this fee report using the best available information for each fund manager in order to develop a comprehensive view of fees. Fee amounts were reviewed for reasonableness and reconciled to fee schedules. Fees for all managers active at any point during the year are included in this report, including those that were initially funded or terminated mid-year.

Fees for mutual funds, short term investment funds (Cash), and certain public markets commingled funds that deduct fees directly from the funds were calculated by multiplying each funds' fee ratio by the funds' average monthly balance for the year. The average balances were sourced from the Plan custodian bank, State Street.

Absolute Return management and incentive fees were provided by managers with independent re-calculations and reconciliations completed by Plan consultant Albourne. Operating expenses were calculated by Albourne using audited financial statements for each fund. Fees for Private funds were gathered by asking managers to complete the ILPA fee reporting template. The ILPA template is intended to standardize and codify the presentation of fees, expenses, and carried interest information by fund managers to Limited Partners. The remaining manager fees were obtained by having the fund managers fill out a fee template designed by staff.

Within the Other Costs section, consultants, custodian banks, and other vendor costs were sourced from fee invoices from the vendors. Investment staff salary and benefits were allocated to each of the four San Jose plans by pro-rating the total costs by the average balance of each plan. Similarly, legal costs incurred by Federated were allocated between the pension plan and health care trust by pro-rating the total costs by the average monthly balance of each plan.

## Changes from 2017 Report

This year's report now breaks out yearly changes from four categories – weight changes, management fee ratio changes, incentive fee ratio changes and fund operating expense changes. The 2017 report attribution did not incorporate changes due to fund operating expenses as collection of the data only began in 2017.

## Total Portfolio Fee Summaries

The tables in this report present fees by asset class and management type. Fees by management type are presented by segregating investments into four “fund type” categories: passive, active, hedged, and private. Passive strategies are intended to generate a return that emulates an index. Active strategies include investment managers that attempt to outperform an index on a long only basis. Hedged strategies generally seek to achieve an absolute return (“alpha”) regardless of market direction (“beta”) by employing various strategies including long and short positions. Private strategies utilize a diverse set of approaches to invest in illiquid assets, such as equity of privately held companies or real estate.

## Year-over-Year Comparisons

The year-over-year comparison tables in this report present a time series of changes in average weights, fees, fee ratios, contribution to total plan fee ratios, and a year-over-year attribution. The year-over-year attribution uses the Brinson-Fachler methodology to decompose the change in contribution to total plan fee ratio into 1) impact due to weight changes, 2) impact due to management fee ratio changes, and 3) impact due to incentive fee ratio changes, and 4) impact due to fund operating expense ratio changes.

## California Government Code §7514.7 (AB 2833)

Assembly Bill 2833 (“AB 2833”) was approved on September 14, 2016 adding Section 7514.7 to California Government Code. The addition to the Code requires California public investment funds to make annual disclosures of fees for alternative investment vehicles at a public meeting.

Tables 15-18 of this report are intended to comply with the law.

*Note: Some values on the report may not sum due to rounding.*

**Table 3 - Pension Fees by Asset Class and Management Type**

Asset Class	Management				Mgmt, Incent, and Op Exp (\$ mm)	Average Balance (\$ mm)	Average Weight	Fee Ratio -				Fee Ratio - Mgmt, Incent, and Op Exp	% of Total Plan Fee Ratio	Contribution to Total Plan Fee Ratio
	Management Fees (\$ mm)	Incentive Fees (\$ mm)	Operating Expenses (\$ mm)	and Incentive Fees (\$ mm)				Management Fees	Incentive Fees	Operating Expenses	Fee Ratio - Mgmt and Incent Fees			
Global Equity	3.3	0.6	0.2	4.0	4.2	650	30.0%	0.51%	0.10%	0.03%	0.61%	0.64%	16.5%	0.19%
Passive	0.2	-	0.0	0.2	0.2	273	12.6%	0.06%	0.00%	0.02%	0.06%	0.08%	0.9%	0.01%
Active	2.1	-	0.1	2.1	2.1	314	14.5%	0.66%	0.00%	0.02%	0.66%	0.68%	8.4%	0.10%
Hedged	1.1	0.6	0.1	1.7	1.8	64	2.9%	1.70%	1.02%	0.16%	2.71%	2.87%	7.2%	0.08%
Private Equity	2.3	1.1	0.7	3.4	4.2	218	10.0%	1.07%	0.50%	0.33%	1.58%	1.91%	16.4%	0.19%
Passive	0.1	-	0.0	0.1	0.1	149	6.9%	0.04%	0.00%	0.00%	0.04%	0.04%	0.2%	0.00%
Private	2.3	1.1	0.7	3.4	4.1	69	3.2%	3.29%	1.58%	1.04%	4.88%	5.92%	16.2%	0.19%
Global Fixed Income	1.5	0.2	0.1	1.7	1.8	620	28.6%	0.24%	0.03%	0.01%	0.27%	0.29%	7.0%	0.08%
Passive	0.2	-	0.0	0.2	0.2	427	19.7%	0.04%	0.00%	0.00%	0.04%	0.04%	0.6%	0.01%
Active	0.7	-	0.0	0.7	0.8	153	7.0%	0.48%	0.00%	0.03%	0.48%	0.51%	3.1%	0.04%
Hedged	0.6	0.2	0.0	0.8	0.8	40	1.8%	1.51%	0.52%	0.07%	2.03%	2.09%	3.3%	0.04%
Private Debt	0.9	0.2	0.5	1.1	1.6	75	3.5%	1.16%	0.31%	0.69%	1.47%	2.16%	6.4%	0.07%
Private	0.9	0.2	0.5	1.1	1.6	75	3.5%	1.16%	0.31%	0.69%	1.47%	2.16%	6.4%	0.07%
Real Assets	4.1	1.3	0.8	5.5	6.3	330	15.2%	1.25%	0.41%	0.25%	1.66%	1.91%	24.8%	0.29%
Passive	0.0	-	-	0.0	0.0	62	2.9%	0.07%	0.00%	0.00%	0.07%	0.07%	0.2%	0.00%
Active	0.2	-	0.1	0.2	0.3	62	2.9%	0.39%	0.00%	0.10%	0.39%	0.49%	1.2%	0.01%
Hedged	1.0	0.7	0.2	1.7	1.9	39	1.8%	2.59%	1.81%	0.57%	4.40%	4.97%	7.6%	0.09%
Private	2.8	0.6	0.5	3.5	4.0	167	7.7%	1.70%	0.38%	0.33%	2.09%	2.42%	15.9%	0.19%
Absolute Return	3.7	2.8	0.8	6.5	7.3	249	11.5%	1.48%	1.13%	0.33%	2.61%	2.94%	28.8%	0.34%
Hedged	3.7	2.8	0.8	6.5	7.3	249	11.5%	1.48%	1.13%	0.33%	2.61%	2.94%	28.8%	0.34%
Cash	0.0	-	-	0.0	0.0	29	1.3%	0.12%	0.00%	0.00%	0.12%	0.12%	0.1%	0.00%
Passive	0.0	-	-	0.0	0.0	29	1.3%	0.12%	0.00%	0.00%	0.12%	0.12%	0.1%	0.00%
Total Plan	15.9	6.3	3.2	22.2	25.4	2,171	100.0%	0.73%	0.29%	0.15%	1.02%	1.17%	100.0%	1.17%

The table above illustrates that management, incentive, and operating expenses for the pension plan totaled \$25.4 million for 2018 which equated to a total plan fee ratio of 1.17%. The Absolute Return and Real Asset asset classes contributed the most to the total plan fee ratio at 0.34% and 0.29%, respectively. The Private Debt and Global Fixed Income asset classes contributed the least to the total plan fee ratio at 0.07% and 0.08%, respectively.

**Table 4 - Pension Fees by Management Type**

Fund Type	Management Fees (\$ mm)	Incentive Fees (\$ mm)	Operating Expenses (\$ mm)	Management and Incentive Fees (\$ mm)		Average Balance (\$ mm)	Average Weight	Fee Ratio - Management Fees		Fee Ratio - Incentive Fees	Fee Ratio - Operating Expenses	Fee Ratio - Mgmt and Incent Fees		% of Total Plan Fee Ratio	Contribution to Total Plan Fee Ratio
					Mgmt, Incent, and Op Exp (\$ mm)								Mgmt, Incent, and Op Exp		
Passive	0.5	-	0.1	0.5	0.5	940	43.3%	0.05%	0.00%	0.01%	0.05%	0.05%	0.05%	2.0%	0.02%
Active	3.1	-	0.2	3.1	3.2	529	24.4%	0.58%	0.00%	0.03%	0.58%	0.61%	0.61%	12.7%	0.15%
Hedged	6.4	4.4	1.2	10.7	11.9	391	18.0%	1.63%	1.12%	0.30%	2.74%	3.04%	3.04%	46.8%	0.55%
Private	6.0	2.0	1.8	8.0	9.8	311	14.3%	1.93%	0.63%	0.57%	2.56%	3.14%	3.14%	38.4%	0.45%
Total Plan	15.9	6.3	3.2	22.2	25.4	2,171	100.0%	0.73%	0.29%	0.15%	1.02%	1.17%	1.17%	100.0%	1.17%

For the total pension plan, hedged management strategies accounted for 0.55% of the total plan fee ratio and represented about 18% of average plan assets. Private management strategies were the next largest contributor to the total plan fee ratio accounting for 0.45% of the total plan fee ratio and represented 14% of average plan assets. Passive and active management strategies accounted for 0.02% and 0.15% of the total plan fee ratio and represented 43% and 24% of plan assets, respectively.

**Table 5 - Pension Other Investment Costs**

Investment Staff Salary and Benefits (\$ mm)			Other Vendors and Travel (\$ mm)	Total Other Costs (\$ mm)	Other Costs Fee Ratio
0.6			0.4	2.0	0.09%

Other investment costs for the pension plan equated to a total fee ratio of 0.09%. As previously discussed, other costs include salary and benefits compensation for investment staff, cost of consultants, custodian, third party vendors utilized by the investment program, and investment staff travel.



**Table 6 - Health Care Fees by Asset Class and Management Type**

Asset Class	Management				Mgmt, Incent, and Op Exp (\$ mm)	Average Balance (\$ mm)	Average Weight	Fee Ratio - Management Fees	Fee Ratio - Incentive Fees	Fee Ratio - Operating Expenses	Fee Ratio - Mgmt and Incent Fees	Fee Ratio - Mgmt, Incent, and Op Exp	% of Total Plan Fee Ratio	Contribution to Total Plan Fee Ratio
	Management Fees (\$ mm)	Incentive Fees (\$ mm)	Operating Expenses (\$ mm)	and Incentive Fees (\$ mm)										
Global Equity	0.46	-	0.01	0.46	0.47	161	54.6%	0.28%	0.00%	0.01%	0.28%	0.29%	49.4%	0.16%
Passive	0.05	-	0.01	0.05	0.06	122	41.3%	0.04%	0.00%	0.01%	0.04%	0.05%	6.6%	0.02%
Active	0.41	-	-	0.41	0.41	39	13.3%	1.04%	0.00%	0.00%	1.04%	1.04%	42.8%	0.14%
Global Fixed Income	0.02	-	0.01	0.02	0.03	79	26.8%	0.03%	0.00%	0.01%	0.03%	0.03%	2.9%	0.01%
Passive	0.02	-	0.01	0.02	0.03	79	26.8%	0.03%	0.00%	0.01%	0.03%	0.03%	2.9%	0.01%
Real Assets	0.33	0.05	0.06	0.38	0.45	47	16.0%	0.70%	0.11%	0.14%	0.81%	0.95%	46.7%	0.15%
Passive	0.01	-	-	0.01	0.01	12	4.0%	0.06%	0.00%	0.00%	0.06%	0.06%	0.7%	0.00%
Active	0.05	-	0.01	0.05	0.06	12	4.1%	0.39%	0.00%	0.11%	0.39%	0.51%	6.4%	0.02%
Hedged	0.08	0.05	0.02	0.13	0.14	3	1.0%	2.59%	1.81%	0.57%	4.40%	4.97%	15.1%	0.05%
Private	0.20	-	0.03	0.20	0.23	20	6.9%	0.98%	0.00%	0.17%	0.98%	1.15%	24.6%	0.08%
Cash	0.01	-	-	0.01	0.01	8	2.6%	0.12%	0.00%	0.00%	0.12%	0.12%	1.0%	0.00%
Passive	0.01	-	-	0.01	0.01	8	2.6%	0.12%	0.00%	0.00%	0.12%	0.12%	1.0%	0.00%
Total Plan	0.82	0.05	0.08	0.87	0.95	295	100.0%	0.28%	0.02%	0.03%	0.29%	0.32%	100.0%	0.32%

The table above illustrates that management, incentive, and operating expenses for the health care trust totaled \$1.0 million for 2018 which equated to a total plan fee ratio of 0.32%. The Global Equity asset class contributed the most to the total plan fee ratio at 0.16%. The Global Fixed Income asset class contributed the least to the total plan fee ratio at 0.01%.

**Table 7 - Health Care Fees by Management Type**

Fund Type	Management				Mgmt, Incent, and Op Exp (\$ mm)	Average Balance (\$ mm)	Average Weight	Fee Ratio - Management Fees	Fee Ratio - Incentive Fees	Fee Ratio - Operating Expenses	Fee Ratio - Mgmt and Incent Fees	Fee Ratio - Mgmt, Incent, and Op Exp	% of Total Plan Fee Ratio	Contribution to Total Plan Fee Ratio
	Management Fees (\$ mm)	Incentive Fees (\$ mm)	Operating Expenses (\$ mm)	and Incentive Fees (\$ mm)										
Passive	0.09	-	0.02	0.09	0.11	220	74.7%	0.04%	0.00%	0.01%	0.04%	0.05%	11.2%	0.04%
Active	0.46	-	0.01	0.46	0.47	51	17.4%	0.89%	0.00%	0.03%	0.89%	0.91%	49.2%	0.16%
Hedged	0.08	0.05	0.02	0.13	0.14	3	1.0%	2.59%	1.81%	0.57%	4.40%	4.97%	15.1%	0.05%
Private	0.20	-	0.03	0.20	0.23	20	6.9%	0.98%	0.00%	0.17%	0.98%	1.15%	24.6%	0.08%
Total Plan	0.82	0.05	0.08	0.87	0.95	295	100.0%	0.28%	0.02%	0.03%	0.29%	0.32%	100.0%	0.32%

For the total health care trust, active management strategies accounted for 0.16% of the total plan fee ratio and represented 17% of average plan assets. Passive strategies accounted for 0.04% of the total plan fee ratio and represented 75% of plan assets.

**Table 8 - Health Care Other Investment Costs**

<b>Investment Staff Salary and Benefits (\$ mm)</b>	<b>Consultants (\$ mm)</b>	<b>Custodian (\$ mm)</b>	<b>Other Vendors and Travel (\$ mm)</b>	<b>Total Other Costs (\$ mm)</b>	<b>Other Costs Fee Ratio</b>
0.08	0.05	0.05	0.03	0.22	0.08%

Other investment costs for the health care trust equated to a total fee ratio of 0.08%.

Table 9 - Pension Year-over-Year Comparison by Asset Class and Management Type

	Average Weight			Management Fees			Incentive Fees			Operating Expense			Total Fees (Mgt/Incent/Opex)			Fee Ratio (Mgt/Incent/Opex)			Contrib to Total Plan Fee Ratio			YoY Attribution			
Asset Class	2017	2018	Change	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017	2018	Change	2017	2018	Change	Due to Weight	Due to Mgmt Fee Ratio	Due to Incent Fee Ratio	Due to Opex
Global Equity	29.7%	30.0%	0.2%	4.1	3.3	-0.8	2.3	0.6	-1.6	0.2	0.2	0.0	6.6	4.2	-2.4	1.06%	0.64%	-0.42%	0.31%	0.19%	-0.12%	0.00%	-0.04%	-0.08%	0.00%
Passive	10.5%	12.6%	2.1%	0.1	0.2	0.1	-	-	-	0.0	0.0	0.0	0.1	0.2	0.1	0.07%	0.08%	0.01%	0.01%	0.01%	0.00%	-0.02%	0.00%	0.00%	0.00%
Active	14.9%	14.5%	-0.4%	2.2	2.1	-0.1	-	-	-	0.0	0.1	0.0	2.2	2.1	-0.1	0.71%	0.68%	-0.02%	0.10%	0.10%	-0.01%	0.00%	0.00%	0.00%	0.00%
Hedged	4.4%	2.9%	-1.5%	1.8	1.1	-0.8	2.3	0.6	-1.6	0.1	0.1	-0.0	4.3	1.8	-2.4	4.62%	2.87%	-1.75%	0.20%	0.08%	-0.12%	-0.05%	-0.01%	-0.04%	0.00%
Private Equity	2.8%	10.0%	7.2%	1.6	2.3	0.7	1.1	1.1	0.0	0.5	0.7	0.3	3.2	4.2	1.0	5.35%	1.91%	-3.44%	0.15%	0.19%	0.04%	0.29%	-0.17%	-0.13%	-0.05%
Passive	0.0%	6.9%	6.9%	-	0.1	0.1	-	-	-	-	0.0	0.0	-	0.1	0.1	0.00%	0.04%	0.04%	0.00%	0.00%	0.00%	-0.09%	0.00%	0.00%	0.00%
Private	2.8%	3.2%	0.4%	1.6	2.3	0.6	1.1	1.1	0.0	0.5	0.7	0.3	3.2	4.1	0.9	5.35%	5.92%	0.57%	0.15%	0.19%	0.04%	0.01%	0.02%	-0.01%	0.01%
Global Fixed Income	20.1%	28.6%	8.4%	1.3	1.5	0.2	0.6	0.2	-0.4	0.1	0.1	-0.0	2.0	1.8	-0.2	0.46%	0.29%	-0.18%	0.09%	0.08%	-0.01%	-0.07%	-0.02%	-0.03%	0.00%
Passive	12.5%	19.7%	7.2%	0.1	0.2	0.0	-	-	-	0.0	0.0	0.0	0.1	0.2	0.0	0.05%	0.04%	-0.01%	0.01%	0.01%	0.00%	-0.09%	0.00%	0.00%	0.00%
Active	5.6%	7.0%	1.4%	0.6	0.7	0.1	-	-	-	0.0	0.0	0.0	0.6	0.8	0.2	0.53%	0.51%	-0.01%	0.03%	0.04%	0.01%	-0.01%	0.00%	0.00%	0.00%
Hedged	2.0%	1.8%	-0.1%	0.6	0.6	0.0	0.6	0.2	-0.4	0.1	0.0	-0.0	1.2	0.8	-0.4	2.97%	2.09%	-0.87%	0.06%	0.04%	-0.02%	0.00%	0.00%	-0.02%	0.00%
Private Debt	3.8%	3.5%	-0.4%	1.0	0.9	-0.1	-0.8	0.2	1.0	0.1	0.5	0.4	0.4	1.6	1.3	0.45%	2.16%	1.72%	0.02%	0.07%	0.06%	0.00%	0.00%	0.04%	0.02%
Private	3.8%	3.5%	-0.4%	1.0	0.9	-0.1	-0.8	0.2	1.0	0.1	0.5	0.4	0.4	1.6	1.3	0.45%	2.16%	1.72%	0.02%	0.07%	0.06%	0.00%	0.00%	0.04%	0.02%
Real Assets	22.4%	15.2%	-7.2%	3.7	4.1	0.4	1.0	1.3	0.4	0.6	0.8	0.2	5.2	6.3	1.1	1.12%	1.91%	0.79%	0.25%	0.29%	0.04%	0.01%	0.07%	0.03%	0.02%
Passive	10.3%	2.9%	-7.5%	0.2	0.0	-0.1	-	-	-	-	-	-	0.2	0.0	-0.1	0.07%	0.07%	0.00%	0.01%	0.00%	-0.01%	0.09%	0.00%	0.00%	0.00%
Active	4.5%	2.9%	-1.6%	0.4	0.2	-0.1	-	-	-	0.1	0.1	-0.0	0.5	0.3	-0.2	0.49%	0.49%	0.00%	0.02%	0.01%	-0.01%	0.01%	0.00%	0.00%	0.00%
Hedged	1.7%	1.8%	0.1%	1.0	1.0	0.0	0.2	0.7	0.5	0.2	0.2	0.0	1.4	1.9	0.5	3.79%	4.97%	1.18%	0.07%	0.09%	0.02%	0.00%	0.00%	0.02%	0.00%
Private	5.8%	7.7%	1.9%	2.2	2.8	0.6	0.8	0.6	-0.1	0.3	0.5	0.3	3.3	4.0	0.8	2.67%	2.42%	-0.25%	0.15%	0.19%	0.03%	0.03%	-0.01%	-0.02%	0.01%
Absolute Return	13.0%	11.5%	-1.6%	4.3	3.7	-0.6	3.9	2.8	-1.1	0.9	0.8	-0.0	9.0	7.3	-1.7	3.29%	2.94%	-0.35%	0.43%	0.34%	-0.09%	-0.03%	-0.01%	-0.03%	0.00%
Hedged	13.0%	11.5%	-1.6%	4.3	3.7	-0.6	3.9	2.8	-1.1	0.9	0.8	-0.0	9.0	7.3	-1.7	3.29%	2.94%	-0.35%	0.43%	0.34%	-0.09%	-0.03%	-0.01%	-0.03%	0.00%
Cash	8.1%	1.3%	-6.8%	0.2	0.0	-0.2	-	-	-	-	-	-	0.2	0.0	-0.2	0.12%	0.12%	0.00%	0.01%	0.00%	-0.01%	0.08%	0.00%	0.00%	0.00%
Passive	8.1%	1.3%	-6.8%	0.2	0.0	-0.2	-	-	-	-	-	-	0.2	0.0	-0.2	0.12%	0.12%	0.00%	0.01%	0.00%	-0.01%	0.08%	0.00%	0.00%	0.00%
Total Plan	100.0%	100.0%	0.0%	16.2	15.9	-0.3	8.0	6.3	-1.7	2.4	3.2	0.8	26.6	25.4	-1.2	1.26%	1.17%	-0.09%	1.26%	1.17%	-0.09%	0.29%	-0.17%	-0.20%	-0.01%

Note: YoY attribution effects of fund types within assets classes may not sum to the asset class value

Table 10 - Pension Year-over-Year Comparison by Management Type

	Average Weight			Management Fees			Incentive Fees			Operating Expense			Total Fees (Mgt/Incent/Opex)			Fee Ratio (Mgt/Incent/Opex)			Contrib to Total Plan Fee Ratio			YoY Attribution			
Type	2017	2018	Change	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017	2018	Change	2017	2018	Change	Due to Weight	Due to Mgmt Fee Ratio	Due to Incent Fee Ratio	Due to Opex
Passive	41.4%	43.3%	1.9%	0.6	0.5	-0.1	-	-	-	0.0	0.1	0.0	0.6	0.5	-0.2	0.07%	0.05%	-0.02%	0.03%	0.02%	-0.01%	-0.02%	-0.01%	0.00%	0.00%
Active	25.0%	24.4%	-0.6%	3.1	3.1	-0.1	-	-	-	0.2	0.2	0.0	3.3	3.1	-0.2	0.63%	0.61%	-0.02%	0.16%	0.15%	-0.01%	0.00%	0.00%	0.00%	0.00%
Hedged	21.1%	18.0%	-3.1%	7.6	6.4	-1.3	7.0	4.4	-2.6	1.2	1.2	-0.1	15.9	10.7	-5.1	3.58%	3.04%	-0.54%	0.75%	0.55%	-0.21%	-0.07%	-0.02%	-0.08%	0.00%
Private	12.5%	14.3%	1.9%	4.9	6.0	1.1	1.0	2.0	0.9	0.9	1.8	0.9	6.8	8.0	1.2	2.60%	3.14%	0.54%	0.32%	0.45%	0.13%	0.02%	0.01%	0.03%	0.03%
Total Plan	100.0%	100.0%	0.0%	16.2	15.9	-0.3	8.0	6.3	-1.7	2.4	3.2	0.8	26.6	25.4	-1.2	1.26%	1.17%	-0.09%	1.26%	1.17%	-0.09%	-0.07%	-0.02%	-0.05%	0.04%

Table 11 - Pension Year-over-Year Comparison of Other Costs

	Inv Staff Salary and Benefits (\$ mm)	Consultants (\$ mm)	Custodian (\$ mm)	Other Vendors and Travel (\$ mm)	Total Other Costs (\$ mm)	Other Costs Fee Ratio
2017	0.5	0.6	0.3	0.4	1.9	0.09%
2018	0.6	0.6	0.3	0.4	2.0	0.09%
Change	0.1	-0.0	0.1	-0.0	0.1	0.00%

Table 12 - Health Care Year-over-Year Comparison by Asset Class and Management Type

Asset Class	Average Weight			Management Fees			Incentive Fees			Operating Expense			Total Fees (Mgt/Incent/Opex)			Fee Ratio (Mgt/Incent/Opex)			Contrib to Total Plan Fee Ratio			YoY Attribution			
	2017	2018	Change	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017	2018	Change	2017	2018	Change	Due to Weight	Due to Mgmt Fee Ratio	Due to Incent Fee Ratio	Due to Opex
Global Equity	38.9%	54.6%	15.7%	0.42	0.46	0.04	-	-	-	0.01	0.01	0.01	0.42	0.47	0.05	0.48%	0.29%	-0.18%	0.19%	0.16%	-0.03%	0.02%	-0.10%	0.00%	0.00%
Passive	22.5%	41.3%	18.8%	0.03	0.05	0.02	-	-	-	0.01	0.01	0.01	0.03	0.06	0.03	0.06%	0.05%	-0.01%	0.01%	0.02%	0.01%	-0.05%	0.00%	0.00%	0.00%
Active	16.5%	13.3%	-3.1%	0.39	0.41	0.02	-	-	-	-	-	-	0.39	0.41	0.02	1.04%	1.04%	0.00%	0.17%	0.14%	-0.03%	-0.02%	0.00%	0.00%	0.00%
Global Fixed Income	27.3%	26.8%	-0.5%	0.02	0.02	0.00	-	-	-	0.00	0.01	0.00	0.02	0.03	0.00	0.04%	0.03%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Passive	27.3%	26.8%	-0.5%	0.02	0.02	0.00	-	-	-	0.00	0.01	0.00	0.02	0.03	0.00	0.04%	0.03%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Real Assets	18.9%	16.0%	-2.9%	0.24	0.33	0.09	0.02	0.05	0.04	0.04	0.06	0.03	0.29	0.45	0.15	0.69%	0.95%	0.26%	0.13%	0.15%	0.02%	-0.01%	0.02%	0.01%	0.01%
Passive	8.8%	4.0%	-4.8%	0.01	0.01	-0.01	-	-	-	-	-	-	0.01	0.01	-0.01	0.07%	0.06%	-0.02%	0.01%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%
Active	4.1%	4.1%	0.0%	0.04	0.05	0.01	-	-	-	0.01	0.01	0.00	0.05	0.06	0.02	0.49%	0.51%	0.02%	0.02%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%
Hedged	1.2%	1.0%	-0.2%	0.07	0.08	0.00	0.02	0.05	0.04	0.01	0.02	0.00	0.10	0.14	0.04	3.79%	4.97%	1.18%	0.05%	0.05%	0.00%	-0.01%	0.00%	0.01%	0.00%
Private	4.8%	6.9%	2.1%	0.12	0.20	0.08	-	-	-	0.01	0.03	0.02	0.13	0.23	0.10	1.20%	1.15%	-0.05%	0.06%	0.08%	0.02%	0.02%	-0.01%	0.00%	0.00%
Cash	14.9%	2.6%	-12.3%	0.04	0.01	-0.03	-	-	-	-	-	-	0.04	0.01	-0.03	0.12%	0.12%	0.00%	0.02%	0.00%	-0.01%	0.03%	0.00%	0.00%	0.00%
Passive	14.9%	2.6%	-12.3%	0.04	0.01	-0.03	-	-	-	-	-	-	0.04	0.01	-0.03	0.12%	0.12%	0.00%	0.02%	0.00%	-0.01%	0.03%	0.00%	0.00%	0.00%
Total Plan	100.0%	100.0%	0.0%	0.72	0.82	0.10	0.02	0.05	0.04	0.05	0.08	0.04	0.78	0.95	0.17	0.34%	0.32%	-0.02%	0.34%	0.32%	-0.02%	0.04%	-0.08%	0.01%	0.01%

Note: YoY attribution effects of fund types within assets classes may not sum to the asset class value

Table 13 - Health Care Year-over-Year Comparison by Management Type

Type	Average Weight			Management Fees			Incentive Fees			Operating Expense			Total Fees (Mgt/Incent/Opex)			Fee Ratio			Contrib to Total Plan Fee Ratio			YoY Attribution			
	2017	2018	Change	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2018 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017 (\$ mm)	2018 (\$ mm)	Change (\$ mm)	2017	2018	Change	2017	2018	Change	Due to Weight	Due to Mgmt Fee Ratio	Due to Incent Fee Ratio	Due to Incent Fee Ratio
Passive	73.4%	74.7%	1.2%	0.10	0.09	-0.01	-	-	-	0.01	0.02	0.01	0.11	0.11	-0.00	0.07%	0.05%	-0.02%	0.05%	0.04%	-0.01%	0.00%	-0.02%	0.00%	0.00%
Active	20.6%	17.4%	-3.1%	0.43	0.46	0.03	-	-	-	0.01	0.01	0.00	0.44	0.47	0.03	0.93%	0.91%	-0.02%	0.19%	0.16%	-0.03%	-0.02%	0.00%	0.00%	0.00%
Hedged	1.2%	1.0%	-0.2%	0.07	0.08	0.00	0.02	0.05	0.04	0.01	0.02	0.00	0.10	0.14	0.04	3.79%	4.97%	1.18%	0.05%	0.05%	0.00%	-0.01%	0.00%	0.01%	0.00%
Private	4.8%	6.9%	2.1%	0.12	0.20	0.08	-	-	-	0.01	0.03	0.02	0.13	0.23	0.10	1.20%	1.15%	-0.05%	0.06%	0.08%	0.02%	0.02%	-0.01%	0.00%	0.00%
Total Plan	100.0%	100.0%	0.0%	0.72	0.82	0.10	0.02	0.05	0.04	0.05	0.08	0.04	0.78	0.95	0.17	0.34%	0.32%	-0.02%	0.34%	0.32%	-0.02%	-0.01%	-0.03%	0.01%	0.01%

Table 14 - Health Care Year-over-Year Comparison of Other Costs

	Other					
	Inv Staff Salary and Benefits (\$ mm)	Consultants (\$ mm)	Custodian (\$ mm)	Other Vendors and Travel (\$ mm)	Total Other Costs (\$ mm)	Other Costs Fee Ratio
2017	0.05	0.04	0.10	0.03	0.23	0.10%
2018	0.08	0.05	0.05	0.03	0.22	0.08%
Change	0.03	0.01	-0.05	0.00	-0.01	-0.03%

## Analysis of Pension Year-over-Year Changes by Asset Class

As presented in Table 9, the pension total plan fee ratio decreased by -9 bps from 1.26% in 2017 to 1.17% in 2018.

The largest drivers of the decrease from an asset class perspective were Global Fixed Income (-12 bps contribution), Global Equity (-12 bps contribution), and Absolute Return (-7 bps), partially offset by Real Assets (+13 bps) and Cash (+8 bps).

Asset class weight changes contributed +29 bps to the year-over-year change in total plan fee ratio. Private Equity was the largest contributor (+29bps) while Global Fixed Income was the largest detractor (-7bps).

Changes in management fee ratios detracted -17 bps to the year-over-year change in total plan fee ratio. The largest detractor was in Private Equity (-17 bps) which was partially offset by Real Assets (+7bps).

Changes in incentive fee ratios detracted -20 bps to the year-over-year change in total plan fee ratio. Private Equity (-13 bps), and Global Equity (-8 bps) were the largest detractors, partially offset by an increase in Private Debt (+4 bps) and Real Assets (+3 bps).

## Analysis of Pension Year-over-Year Changes by Management Type and Other Costs

As shown in the Table 10 contribution to total plan fee ratio change column, the largest driver of the -9 bps total plan fee ratio decrease was hedge funds (-17 bps change in contribution). The hedge fund decrease can be attributed to lower incentive fee ratios (-8 bps) as well as a smaller allocation in 2018 (-7bps).

As displayed in Table 11, **Other Costs** remained relatively constant (0.09%) in 2018.

## Analysis of Health Care Year-over-Year Changes by Asset Class, Management Type and Other Costs

As seen in Tables 12 and 13, the Health Care total plan fee ratio declined from 0.34% in 2017 to 0.32% in 2018 due to a reduction in weighting toward active funds (-2 bps) and reduction in management fee ratio for passive funds (-2 bp).

As displayed in Table 14, **Other Costs** decreased from 0.10% to 0.08% in 2018.

**Table 15 – California Government Code §7514.7 Disclosure, Private Equity**

Fund Name	Address	Vintage Year	Commitment Amount (\$)	Contributions Since Inception (\$)	Remaining Value (\$)	Distributions for Calendar year 2018 (\$)	2018 Distributions + Remaining Value of Partnership (\$)	Cash Profit Distributed for Calendar Year 2018 (\$)	Net IRR Since Incept (%)	Investment Multiple Since Incept	Fees and expenses paid directly to GP and related parties 2018 (\$)	Fees and expenses paid from the Fund to GP and related parties 2018 (\$)					Fees and expenses paid by all portfolio companies 2018 (\$)	Carried Interest Paid 2018 (\$)
												Management Fees	Partnership Expenses	Offsets	Other Expenses	Incentive/Carried Interest Allocation		
Pathway Private Equity Fund VIII	2211 Michelson Drive, Ninth Floor Irvine, CA 92612	2004	40,000,000	39,713,457	5,051,203		5,051,203		6.8%	1.5	-	73,618	79,843	-	-	-	-	-
Pantheon Global Secondary Fund III 'B'	600 Montgomery Street, 23rd Floor San Francisco, CA 94111	2006	40,000,000	37,840,000	5,030,496	1,200,000	6,230,496		2.1%	1.1	-	234,801	11,798	-	-	-	-	-
Pantheon USA Fund VII	600 Montgomery Street, 23rd Floor San Francisco, CA 94111	2006	40,000,000	36,960,000	23,780,070	2,680,001	26,460,071	1,256,835	10.0%	1.7	-	243,000	6,718	-	-	23,388	-	-
Great Hill Equity Partners IV	One Liberty Square Boston, Massachusetts 02109	2008	5,000,000	4,983,750	3,460,060		3,460,060		24.1%	2.5	-	37,097	12,546	-	-	525,552	-	803,488
Partners Group Secondary 2008	1660 17th Street, Suite 201 Denver, CO 80202	2008	10,443,016	9,200,259	1,764,255		1,764,255		9.00%	1.5	-	70,649	13,128	-	-	7,924	-	29,329
Partners Group Secondary 2011, L.P.	1660 17th Street, Suite 201 Denver, CO 80202	2011	20,000,000	12,680,419	11,664,941		11,664,941		17.90%	1.7	-	225,000	(7,140)	-	-	55,480	-	-
SJFED Private Equity Strategic Partnership, L.P.	325 N. Saint Paul St., Ste. 4900 Dallas, TX 75201	2017	225,600,000	32,625,000	41,500,000		41,500,000		18.8%	1.1	-	1,262,957	171,076		-	485,170	-	
Crestline Portfolio Financing	201 Main St, #1900 Fort Worth, TX 76102	2018	15,000,000	4,970,014	3,708,602	1,525,572	5,234,174		NM	1.1	-	27,149	2,430					
Innovation Endeavors III	1845 El Camino Real Palo Alto, CA 94306	2018	4,800,000	729,603	634,037	39	634,076		NM	0.9	-	112,533	19,294			-		

Source: Fund managers, Meketa Investment Group

**Table 16 – California Government Code §7514.7 Disclosure, Private Debt**

Fund Name	Address	Vintage Year	Commitment Amount (\$)	Contributions Since Inception (\$)	Remaining Value (\$)	Distributions for Calendar year 2018 (\$)	2018 Distributions + Remaining Value of Partnership (\$)	Cash Profit Distributed for Calendar Year 2018 (\$)	Net IRR Since Incept (%)	Investment Multiple Since Incept	Fees and expenses paid directly to GP and related parties 2018 (\$)	Fees and expenses paid from the Fund to GP and related parties 2018 (\$)					Fees and expenses paid by all portfolio companies 2018 (\$)	Carried Interest Paid 2018 (\$)
												Management Fees	Partnership Expenses	Offsets	Other Expenses	Incentive/Carried Interest Allocation		
Octagon CLO Opportunity Fund III, L.P.	250 Park Ave., 15th Floor, New York, NY 10177, USA	2018	25,000,000	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-	-	-
GSO SJ Partners	345 Park Avenue New York, NY 10154	2010	50,000,000	42,615,807	8,481,265	4,645,589	13,126,854	3,965,089	7.6%	1.3	-	183,215	87,764	-	-	15,535	-	-
Medley Opportunity Fund II, L.P.	280 Park Avenue, 6th Floor East New York, NY 10017	2010	50,000,000	51,718,681	25,063,110	2,581,655	27,644,765	2,581,655	3.7%	1.2	-	356,910	351,461	(51,134)	-	2,760	-	-
White Oak Direct Lending	3 Embarcadero Center, 5th Floor San Francisco, CA 94111	2010	50,000,000	88,171,628	10,847,682	7,570,661	18,418,343		2.1%	1.0	-	240,026	59,135	-	-	-	-	-
Cross Ocean USD ESS Fund II, L.P.	11 Charles II St. London, SW1Y4QU	2016	15,000,000	10,507,402	11,380,114	390,879	11,770,993		9.4%	1.1	-	91,589	69,906	-	-	121,522	-	-
Arrowmark Co-Investment	100 Fillmore Street, Suite 325, Denver, CO 80206	2017	5,000,000	5,000,000	5,152,555	489,889	5,642,444		12.92%	1.13	-	-	-	-	-	97,736	-	-

Source: Fund managers, Meketa Investment Group



**Table 17 – California Government Code §7514.7 Disclosure, Private Real Assets**

Fund Name	Address	Vintage Year	Commitment Amount (\$)	Contributions Since Inception (\$)	Remaining Value (\$)	Distributions for Calendar year 2018 (\$)	2018 Distributions + Remaining Value of Partnership (\$)	Cash Profit Distributed for Calendar Year 2018 (\$)	Net IRR Since Incept (%)	Investment Multiple Since Incept	Fees and expenses paid directly to GP and related parties 2018 (\$)	Fees and expenses paid from the Fund to GP and related parties 2018 (\$)					Fees and expenses paid by all portfolio companies 2018 (\$)	Carried Interest Paid 2018 (\$)
												Management Fees	Partnership Expenses	Offsets	Other Expenses	Incentive/Carried Interest Allocation		
European Property Investors Special Opportunities 5, L.P.	Berkeley Square House (8th Floor) Berkeley Square, London W1J6DB, UK	2018	12,600,000	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-	-	-
Lime Rock Partners VIII, L.P.	1111 Bagby St, Suite 4600 Houston, TX 77002	2018	3,200,000	1,809,115	1,639,911		1,639,911	-	NM	0.9	-	104,240	6,957	(2,118)	2,931			
Torchlight Debt Opportunity Fund VI, L.P.	280 Park Avenue New York, NY 10017	2018	30,000,000	2,309,115	1,680,099	470,535	2,150,634		NM	0.9	-	450,122	105,911					
DRA Growth and Income Fund V	220 East 42nd Street, 27th Floor New York, NY 10017	2005	20,000,000	30,475,996	-	161,140	161,140	161,140	5.3%	1.3	-	-	-	-	-	-	-	-
DRA Growth and Income Fund VI	220 East 42nd Street, 27th Floor New York, NY 10017	2007	9,709,422	10,556,217	1,179,813	375,505	1,555,318	168,171	10.7%	1.7	-	12,682	1,198	-	-	(30,023)	-	41,891
DRA Growth and Income Fund VII, LLC	220 East 42nd Street, 27th Floor New York, NY 10017	2011	15,000,000	16,209,101	8,591,663	5,228,476	13,820,139	3,485,492	20.7%	2.0	-	151,420	24,504	-	-	582,750	-	721,917
DRA Growth and Income Fund VIII, LLC	220 East 42nd Street, 27th Floor New York, NY 10017	2014	15,000,000	17,799,668	12,487,076	2,908,198	15,395,274	1,567,412	11.6%	1.3	-	243,571	19,881	-	-	88,898	-	-
European Property Investors Special Opportunities 4, L.P.	Berkeley Square House (8th Floor) Berkeley Square, London W1J6DB, UK	2015	14,306,285	10,300,964	11,085,601	20,044	11,105,645		10.7%	1.1	-	161,852	94,501	-	-	-	-	-
DRA Growth and Income Fund IX, LLC	220 East 42nd Street, 27th Floor New York, NY 10017	2016	20,000,000	10,780,445	9,949,319	1,835,679	11,784,998	861,034	17.6%	1.2	-	208,418	44,472	-	-	-	-	-
Global Infrastructure Partners III, L.P.	1345 Avenue of the Americas, 30th Floor, New York, NY 10105	2016	25,000,000	18,590,068	17,532,961	40,416	17,573,377	5,038	-1.0%	1.0	80,381	339,923	37,130	-	-	-	-	-
GEM Realty Fund VI, L.P.	900 North Michigan Avenue #1450, Chicago, IL 60611	2017	10,000,000	1,150,000	592,442	600,000	1,192,442	252,300	6.2%	1.0	-	129,375	13,064	-		-	1,538	-

*Source: Fund managers, Meketa Investment Group*

**Table 18 – California Government Code §7514.7 Disclosure, Hedge Funds**

Fund Name	Address	Vintage Year	Commitment Amount (\$)	Contributions Since Inception (\$)	Remaining Value (\$)	Distributions for Calendar year 2018 (\$)	2018 Distributions + Remaining Value of Partnership (\$)	Cash Profit Distributed for Calendar Year 2018 (\$)	Net IRR Since Incept (%)	Investment Multiple Since Incept	Fees and expenses paid directly to GP and related parties 2018 (\$)	Fees and expenses paid from the Fund to GP and related parties 2018 (\$)					Fees and expenses paid by all portfolio companies 2018 (\$)	Carried Interest Paid 2018 (\$)
												Management Fees	Partnership Expenses	Offsets	Other Expenses	Incentive/Carried Interest Allocation		
Claren Road Credit Master Fund Ltd	51 Astor Place, 12th Floor New York, NY 10003	N/A	N/A	50,000,000	-	243,190	243,190	N/A	0.27%	1.01	-	-	908	-	-	-	-	-
Davidson Kempner Institutional Partners, L.P.	520 Madison Avenue, 30th Floor New York, NY 10022	N/A	N/A	30,000,000	-	40,276,398	40,276,398	N/A	5.13%	1.34	-	600,854	26,022	-	-	207,034	-	207,034
DE Shaw Composite International Fund	1166 Avenue of the Americas, 9th Floor New York, NY 10036	N/A	N/A	30,000,000	40,168,443	403,534	40,571,978	N/A	10.64%	1.79	-	1,051,685	48,280	-	-	1,514,558	-	1,514,558
Dymon Asia Macro	1 Temasek Avenue #11-01 Millenia Tower, Singapore 039192	N/A	N/A	25,000,000	15,637,141	10,000,000	25,637,141	N/A	0.64%	1.02	-	364,044	29,922	-	-	-	-	-
Hudson Bay Cap Structure Arbitrage Enhanced Fund	777 Third Ave, 30th Floor, New York, NY 10017	N/A	N/A	30,000,000	24,915,410	7,200,000	32,115,410	N/A	4.76%	1.07	-	294,353	161,935	-	-	745,799	-	745,799
Kepos Alpha Fund	620 8th Ave., 44th Floor, New York, NY 10018	N/A	N/A	18,000,000	11,838,437	4,106,251	15,944,688	N/A	-2.20%	0.88	-	201,003	37,163	-	-	-	-	-
Keynes Leveraged Quantitative Strategies Fund	9th Floor Orion House, 5 Upper St Martin's Lane London WC2H 9EA	N/A	N/A	20,000,000	9,596,425	10,000,000	19,596,425	N/A	-0.13%	1.00	-	132,269	52,884	-	-	-	-	-
Man AHL Evolution Frontier	100 St. Paul Street, Suite 800, Denver, CO 80206	N/A	N/A	13,000,000	10,339,709	4,500,000	14,839,709	N/A	5.64%	1.15	-	299,395	136,202	-	-	-	-	-
MW Eureka Fund Ltd	350 Park Avenue, 18th Floor New York, NY 10022	N/A	N/A	25,000,000	21,716,087	-	21,716,087	N/A	6.71%	1.36	-	457,416	13,655	-	-	319,174	-	467,444
Pharo Macro Fund, Ltd	1370 Avenue of the Americas, 26th Floor New York, NY 10019	N/A	N/A	30,000,000	32,955,885	-	32,955,885	N/A	9.31%	1.28	-	671,782	33,133	-	-	173,597	-	173,597
Pine River Fund Ltd	580 California Street, San Francisco, CA 94104	N/A	N/A	30,000,000	6,540,230	4,362,882	2,148,541	N/A	1.63%	1.10	-	27,435	37,067	-	-	-	-	-
Pine River Volatility Arbitrage Fund	580 California Street, San Francisco, CA 94104	N/A	N/A	25,000,000	23,994,848	-	23,994,848	N/A	-2.31%	0.96	-	121,386	9,868	-	-	-	-	-
Pinnacle Natural Resources Fund (Federated Pension investment)	712 Fifth Avenue, 29th Floor New York, NY 10019	N/A	N/A	40,000,000	-	37,341,496	37,341,496	N/A	-0.77%	0.98	-	1,000,944	219,908	-	-	698,303	-	220,957
Pinnacle Natural Resources Fund (Federated Health Care investment)	712 Fifth Avenue, 29th Floor New York, NY 10019	N/A	N/A	3,000,000	-	2,800,612	2,800,612	N/A	-0.77%	0.98	-	75,071	16,493	-	-	52,373	-	16,572
Sandler Plus Fund	711 5th Ave #15, New York, NY 10022	N/A	N/A	20,000,000	19,850,041	-	19,850,041	N/A	8.52%	1.59	-	378,130	64,871	-	-	397,017	-	397,017
Senator Global Opportunity Offshore Fund Ltd	510 Madison Ave # 28, New York, NY 10022	N/A	N/A	31,200,000	18,766,874	4,890,250	23,657,124	N/A	4.34%	1.28	-	242,936	23,951	-	-	-	-	47,323
Systematica Alternative Markets Master Fund	650 Fifth Ave New York, NY 10019	N/A	N/A	5,000,000	1,911,729	3,500,000	5,411,729	N/A	6.87%	1.10	-	95,368	9,622	-	-	-	-	-
Systematica Trend Following Fund	650 Fifth Ave New York, NY 10019	N/A	N/A	20,000,000	6,984,678	13,000,000	19,984,678	N/A	1.60%	1.02	-	89,920	104,517	-	-	-	-	-
Tempo Volatility Fund	1 Greenwich Plaza, Greenwich, CT 06830	N/A	N/A	20,000,000	14,177,145	8,700,000	22,877,145	N/A	6.11%	1.14	-	330,721	165,121	-	-	372,076	-	372,076

Source: Fund managers, Albourne, State Street, ORS