



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 18

MEETING DATE: September 18, 2019

SUBJECT: Quarterly Investment Performance Report
Alternative Assets

SUBMITTED FOR: ___ Consent ___ Deliberation and Action X Receive and File

RECOMMENDATION

Staff recommends the Board receive and file the Cliffwater Quarterly Performance Review presentation for the period ending June 30, 2019 for the Absolute Return portfolio, and the period ending March 31, 2019 for the Private Equity, Private Credit, Real Assets, and Opportunities portfolios.

PURPOSE

This item complies with SCERS' investment policy statement reporting requirements and contributes to the effective management and oversight of investment activities.

SCERS ALTERNATIVE ASSETS PORTFOLIO RETURNS

This memorandum provides a summarized table of SCERS' Alternative Assets period returns, which complements Cliffwater's Quarterly Performance Review, and it highlights notable manager performance, along with any recent alternative investments made by SCERS.

SCERS' alternative asset class period returns are as follows:

SCERS ALTERNATIVE ASSETS PERFORMANCE SUMMARY
Quarter Reporting Periods Ending June 30, 2019

SCERS ASSET CLASS	Quarter*	1-Year*	3-Year*	5-Year*	Since Inception*	Since Inception Date*
SCERS Absolute Return	1.9%	0.0%	4.0%	1.9%	4.0%	Sep-04
HFRI FoF Conservative	1.7%	2.4%	3.9%	2.2%	3.3%	
HFRI FoF Composite + 1%	1.9%	2.4%	5.3%	3.2%	4.1%	
SCERS Private Equity	5.0%	23.2%	20.3%	17.0%	14.8%	Feb-08
Cambridge Private Equity/Venture Capital	4.6%	12.9%	15.7%	13.4%	12.9%	
SCERS Private Credit	3.3%	6.3%	8.6%	7.8%	8.1%	Oct-11
Credit Suisse Leveraged Loan + 2%	4.2%	5.3%	7.9%	5.8%	7.1%	
SCERS Real Assets	2.9%	12.9%	15.4%	15.0%	14.9%	Jan-13
(45%) Cambridge Private Infrastructure; (35%) Cambridge Private Energy; (20%) NCREIF Agriculture/Timber	2.1%	4.7%	9.9%	6.5%	7.2%	
SCERS Opportunities	-0.7%	5.5%	5.3%	7.6%	18.4%	Jan-08
SCERS Portfolio Actuarial Rate of Return	1.8%	7.0%	7.0%	7.0%	7.0%	
<i>*Note: Periods ending 3/31/19 for Private Equity, Private Credit, Real Assets, and Opportunities Periods ending 6/30/19 for Absolute Return All returns are net IRR, except Absolute Return which is time-weighted</i>						

SCERS PORTFOLIO RESULTS

For the reporting quarter ended June 30, 2019, SCERS' Private Equity portfolio generated a strong +5.0% return, outperforming its benchmark return of +4.6%. Portfolio outperformance was driven by the robust returns earned by the venture capital and buyout strategies. Also outperforming its benchmark was SCERS' Real Assets portfolio, +2.9% versus +2.1%, driven by the strong returns generated by the midstream energy and infrastructure strategies. The Real Assets portfolio is still maturing, with several funds working through the j-curve period.

Below are notable top and bottom performing funds among SCERS' Alternative Assets during the quarter ended June 30, 2019:

- Top performing funds:
 - Absolute Return:
 - Graham Global Investment Fund II (macro-systematic): +6.6%
 - OZ Domestic Partners II (multi-strategy): +4.1%
 - Third Point Partners Qualified (event driven): +3.8%

-
- Private Equity portfolio:
 - Trinity Ventures XII (venture capital): +20.6%
 - Khosla Ventures IV (venture capital): +14.2%
 - Thoma Bravo XI (buyout): +13.8%
 - Private Credit portfolio:
 - Summit Partners Credit Fund III (direct lending): +4.9%
 - Summit Partners Credit Fund II (direct lending): +4.4%
 - Benefit Street Partners Senior Secured Opportunities (direct lending): +3.8%
 - Real Assets portfolio:
 - EnCap Flatrock Midstream IV (midstream energy): +14.5%
 - EnCap Flatrock Midstream III (midstream energy): +7.7%
 - Atalaya Real Assets SMA (real assets): +6.5%
 - Bottom performing funds:
 - Absolute Return portfolio:
 - AQR Delta Fund II (multi-strategy): -4.1%
 - JANA Partners Qualified (event driven): -2.3%
 - Winton Diversified Futures Fund (macro-systematic): +0.0%
 - Private Equity portfolio:
 - Spectrum Equity VIII (venture capital): -4.5%
 - Waterland Private Equity Fund V (buyout): -3.4%
 - Summit Partners Europe Growth Equity Fund II (growth equity): -3.0%
 - Private Credit portfolio:
 - Summit Partners Credit Fund (direct lending): +0.5%
 - TCP Direct Lending Fund VIII-S (direct lending): +2.2%
 - Athyrium Opportunities Fund III (direct lending): +2.2%
 - Real Assets portfolio:
 - ACM Fund II (agriculture): -1.1%
 - Wastewater Opportunity Fund (water): -0.9%
 - Quantum Energy Partners VII (upstream energy): -0.2%

NEW INVESTMENTS

During the quarter ended June 30, 2019, SCERS made the following new investments:

- Brookfield Infrastructure Fund IV (Real Assets - Infrastructure) - \$40 million
- Davidson Kempner Institutional Partners (Absolute Return - Diversifying) - \$32 million

New investments made after the quarter:

- Accel-KKR Capital Partners VI (Private Equity - Buyout) - \$30 million
- New Enterprise Associates 17 (Private Equity - Venture Capital) - \$20 million
- Threshold Ventures III (Private Equity - Venture Capital) - \$20 million
- Gridiron Capital Fund IV (Private Equity - Buyout) - \$30 million
- Davidson Kempner Long-Term Distressed Opportunities Fund V (Private Equity – Distressed Debt) - \$30 million
- IFM U.S. Infrastructure Debt Fund (Private Credit - Direct Lending) - \$40 million

ATTACHMENT

Cliffwater’s Quarterly Performance Report for Alternative Assets for the Quarter ended June 30, 2019.

Prepared by:

/S/

JR Pearce
Investment Officer

Reviewed by:

/S/

Steve Davis
Chief Investment Officer

/S/

Eric Stern
Chief Executive Officer



INVESTMENT ADVISORY SERVICES

Los Angeles • New York

Sacramento County Employees' Retirement System Quarterly Performance Review

September 18, 2019



Executive Summary

Absolute Return Portfolio Performance Summary – as of June 30, 2019

Growth Oriented Strategies

- The Growth Oriented Portfolio returned 2.23% in Q2 and 0.02% for the 1 year period ending June 30, 2019
 - Outperforming the HFRI FoF Index + 1% benchmark by 32 bps in Q2 though trailing by 234 bps for the 1 year period
 - The portfolio is outperforming that benchmark by 128 bps (annualized) over the trailing 3 year period
 - Underperforming the T-bills + 5% long term objective by 284 bps (annualized) over the trailing 5 year period
- The portfolio's most recent outperformance was driven by Och-Ziff and Third Point

Diversifying Strategies

- The Diversifying Portfolio returned 1.80% in Q2 and 0.25% for the 1 year period ending June 30, 2019
 - Outperforming the HFRI Conservative FoF Index benchmark by 9 bps in Q2 though trailing by 210 bps for the 1 year period
 - Underperforming the T-bills + 2% long term objective by 172 bps (annualized) over the trailing 5 year period
- AQR DELTA has been the primary detractor from performance over these periods

Portfolio risk and market sensitivity remains within expectations for the Growth Oriented and Diversifying portfolios

- Growth Oriented
 - Portfolio standard deviation of 5.24% compared to the ACWI standard deviation of 11.50% since December 2011
 - Portfolio equity beta of 0.38 with an equity correlation of 0.84
 - Target standard deviation < 50% of global equities, with an equity beta < 0.5 and equity correlation < 0.8
- Diversifying
 - Portfolio standard deviation of 2.53% compared to the ACWI standard deviation of 11.50% since December 2011
 - Portfolio equity beta of 0.05 with an equity correlation of 0.21
 - Target standard deviation < 25% of global equities, with an equity beta < 0.1 and equity correlation < 0.1

Relative differences between the Growth Oriented and Diversifying portfolios reflect objectives and design

- Expect higher returns over the long-term from the Growth Oriented portfolio, though with more volatility
 - Both portfolios expected to provide diversification and risk reduction benefits for the overall SCERS portfolio
 - However, risk and correlations certainly increased with the broad market downturn seen in Q4 2018

Growth Oriented Absolute Return Portfolio Performance – as of June 30, 2019

Fund	Market Value	Actual %	Returns								Std Dev	Sharpe Ratio	Incep Date
			Jun	QTD	YTD	FYTD	1 Year	3 Year	5 Year	Incep			
Growth-Oriented Portfolio													
Event Driven													
JANA Partners Qualified, L.P.	4,050,323	0.4%	-2.28%	-2.28%	-0.16%	-12.04%	-12.04%	2.19%	-1.28%	1.24%	8.78%	0.06	Jul-13
Third Point Partners Qualified L.P.	49,759,972	5.4%	3.70%	3.82%	13.33%	-0.05%	-0.05%	7.33%	4.74%	9.19%	7.96%	1.03	May-12
Event Driven - HF Total	53,810,295	5.9%	3.22%	3.33%	11.02%	-2.13%	-2.13%	6.26%	2.60%	7.43%	8.02%	0.82	May-12
Equity Long/Short													
Lakewood Capital Partners, LP	44,755,348	4.9%	2.70%	1.58%	14.81%	3.12%	3.12%	5.71%	4.42%	5.57%	9.50%	0.51	Jul-13
Equity Long/Short - HF Total	44,755,348	4.9%	2.70%	1.58%	14.81%	3.12%	3.12%	5.71%	4.42%	5.57%	9.50%	0.51	Jul-13
Multi-Strategy													
OZ Domestic Partners II, L.P.	51,404,786	5.6%	2.30%	4.12%	12.49%	5.46%	5.46%	9.37%	5.50%	7.44%	5.13%	1.25	Jan-12
Multi-Strategy - HF Total	51,404,786	5.6%	2.30%	4.12%	12.49%	5.46%	5.46%	9.37%	5.50%	7.44%	5.13%	1.25	Jan-12
Fund of Funds													
Grosvenor SC Absolute Return Fund LLC (Growth)	148,617,864	16.2%	1.24%	1.39%	5.26%	-0.30%	-0.30%	6.95%	2.72%	5.70%	4.52%	1.04	Dec-11
Fund of Funds - HF Total	148,617,864	16.2%	1.24%	1.39%	5.26%	-0.30%	-0.30%	6.65%	2.74%	4.48%	5.97%	0.47	Sep-04
Growth-Oriented Portfolio Total	298,588,292	32.5%	1.99%	2.23%	8.69%	0.02%	0.02%	6.60%	3.03%	4.73%	6.32%	0.49	Sep-04
HFRI FoF Composite + 1%			1.80%	1.91%	6.80%	2.36%	2.36%	5.32%	3.23%	4.11%	4.99%	0.49	Sep-04
3 Month T-Bills+5%			0.61%	1.83%	3.68%	7.31%	7.31%	6.38%	5.87%	6.38%	0.48%	-	Sep-04
Market Indices													
Libor3Month			0.19%	0.61%	1.26%	2.54%	2.54%	1.78%	1.22%	1.73%	0.50%	-	Sep-04
Bloomberg Barclays US Aggregate Bond Index			1.26%	3.09%	6.12%	7.88%	7.88%	2.32%	2.95%	4.12%	3.14%	0.75	Sep-04
Bloomberg Barclays US High Yield Bond Index			2.28%	2.50%	9.93%	7.48%	7.48%	7.52%	4.70%	7.43%	9.12%	0.64	Sep-04
S&P 500 TR			7.05%	4.30%	18.54%	10.42%	10.42%	14.19%	10.71%	9.07%	13.87%	0.57	Sep-04
MSCI AC World Index Free - Net			6.55%	3.61%	16.23%	5.74%	5.74%	11.62%	6.16%	7.30%	15.19%	0.43	Sep-04
MSCI EAFE - Net			5.93%	3.68%	14.03%	1.08%	1.08%	9.11%	2.25%	5.61%	16.55%	0.31	Sep-04
MSCI EMF (Emerging Markets Free) - Net			6.24%	0.61%	10.59%	1.21%	1.21%	10.66%	2.49%	8.64%	21.53%	0.42	Sep-04

Diversifying Absolute Return Portfolio Performance – as of June 30, 2019

Fund	Market Value	Actual %	Returns								Std Dev	Sharpe Ratio	Incep Date
			Jun	QTD	YTD	FYTD	1 Year	3 Year	5 Year	Incep			
Diversifying Portfolio													
Market Neutral													
Laurion Capital, Ltd.	48,538,292	5.3%	-2.09%	3.37%	4.80%	5.88%	5.88%	6.19%	7.09%	6.32%	5.16%	0.99	Mar-14
KLS Diversified Fund LP	40,751,928	4.4%	0.70%	1.21%	1.88%	-	-	-	-	1.88%	3.12%	-	Jan-19
Market Neutral - HF Total	89,290,220	9.7%	-0.84%	2.37%	3.45%	4.51%	4.51%	5.73%	6.81%	6.06%	4.87%	1.00	Mar-14
Event Driven													
Elliott International Limited	56,586,010	6.2%	2.60%	2.91%	4.34%	3.61%	3.61%	7.59%	6.29%	7.31%	3.42%	1.80	Apr-12
Davidson Kempner Institutional Partners LP	32,801,246	3.6%	0.69%	-	-	-	-	-	-	0.39%	-	-	May-19
Event Driven - HF Total	89,387,256	9.7%	1.89%	2.19%	3.62%	2.89%	2.89%	7.34%	6.14%	7.21%	3.37%	1.79	Apr-12
Equity Long/Short													
Marshall Wace Funds LP - MW Global Opportunities (US)	40,978,660	4.5%	0.06%	1.40%	2.45%	-	-	-	-	2.45%	4.12%	-	Jan-19
Equity Long/Short - HF Total	40,978,660	4.5%	0.06%	1.40%	2.45%	2.45%	4.95%	4.95%	4.95%	4.95%	4.12%	0.59	Apr-12
Macro-Systematic													
Graham Global Investment Fund II SPC Ltd. - Tactical Treas	33,707,719	3.7%	4.61%	6.62%	11.02%	3.44%	3.44%	-	-	-1.54%	12.66%	-0.22	Feb-17
Winton Diversified Futures Fund L.P.	37,324,134	4.1%	-0.28%	-0.05%	1.17%	-0.39%	-0.39%	-	-	2.61%	7.36%	0.12	Jan-17
Macro-Systematic - HF Total	71,031,854	7.7%	1.98%	3.01%	5.62%	1.39%	1.39%	-	-	0.43%	9.03%	-0.12	Jan-17
Multi-Strategy													
AQR DELTA Fund II, LP	57,543,951	6.3%	-0.42%	-4.14%	-5.89%	-12.19%	-12.19%	-4.56%	0.27%	0.39%	5.89%	-0.08	May-13
Multi-Strategy - HF Total	57,543,951	6.3%	-0.42%	-4.14%	-5.89%	-12.19%	-12.19%	-4.56%	0.27%	0.39%	5.89%	-0.08	May-13
Fund of Funds													
Grosvenor SC Absolute Return Fund LLC (Diversifying)	123,689,072	13.5%	1.06%	2.59%	3.41%	1.05%	1.05%	0.74%	-0.34%	1.53%	3.06%	0.21	Dec-11
Grosvenor SC Absolute Return Fund LLC Series B	148,700,366	16.2%	1.33%	2.59%	4.16%	1.32%	1.32%	-0.67%	-0.92%	0.59%	2.71%	-0.14	Feb-13
Fund of Funds - HF Total	272,389,438	29.6%	1.20%	2.59%	3.83%	1.19%	1.19%	0.18%	-0.57%	1.38%	2.84%	0.17	Dec-11
Diversifying Portfolio Total	620,621,378	67.5%	0.86%	1.80%	2.85%	0.25%	0.25%	1.59%	1.15%	2.01%	2.53%	0.43	Dec-11
HFRI FOF: Conservative Index			0.95%	1.71%	4.95%	2.35%	2.35%	3.89%	2.17%	3.29%	2.30%	1.01	Dec-11
3 Month T-Bills+2%			0.38%	1.12%	2.22%	4.31%	4.31%	3.38%	2.87%	2.60%	0.23%	-	Dec-11
SCERS Absolute Return Portfolio	919,209,671	100.0%	1.23%	1.94%	4.73%	-0.01%	-0.01%	3.96%	1.91%	3.95%	5.66%	0.41	Sep-04
3 Month T-Bills+5%			0.61%	1.83%	3.68%	7.31%	7.31%	6.38%	5.87%	6.38%	0.48%	-	Sep-04
HFRI Fund of Funds Composite Index			1.74%	1.69%	6.38%	1.36%	1.36%	4.32%	2.23%	3.11%	5.03%	0.29	Sep-04

* Included the SCERS Total Absolute Return Portfolio performance for reference

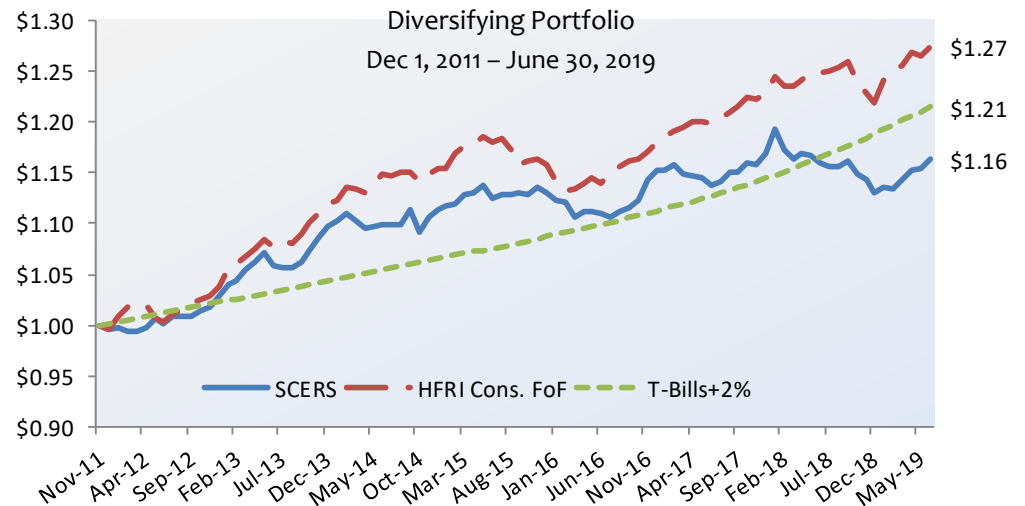
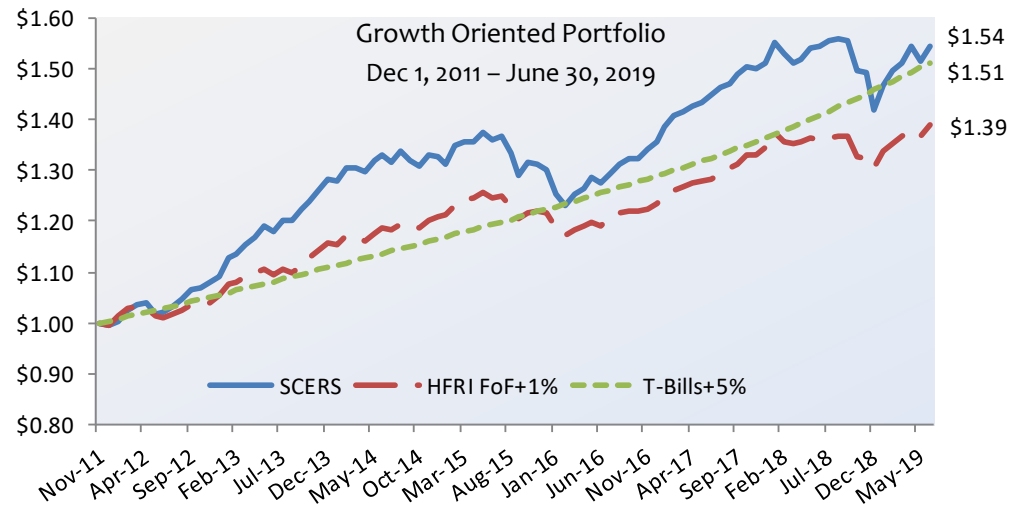
Absolute Return Portfolios Cumulative Performance – Dec 2011 to June 2019

The Growth Oriented portfolio has outperformed the Fund of Funds Index + 1% benchmark and the T-bills + 5% long term objective

The Diversifying portfolio was tracking the T-bills + 2% long term objective until the Q4 downturn; the portfolio has underperformed the HFRI Fund of Funds Conservative Index over this period

Showing cumulative performance (growth of \$1) for each portfolio since the initial restructuring of the Absolute Return portfolio in December 2011

- The prior exposure of the Absolute Return portfolio was only Equity Long/Short fund of funds investments



Private Equity Portfolio – as of March 31, 2019

The Private Equity portfolio's net IRR since inception is 14.83%, versus the Cambridge Associates benchmark IRR of 12.89%

- The long-term Policy objective (Russell 3000 + 3%) has a 15.11% IRR over this period

The private equity portfolio continued to generate meaningful gains during a quarter where global equities rebounded sharply

- Many of the funds generated quarterly returns greater than 10% in Q1
 - Trinity Ventures XI & XII, Khosla Ventures IV, Thoma Bravo XI & XII, Linden III and Marlin Heritage reported the largest gains
- Distributions remained steady among the direct fund investments (\$29.0 million) and fund of funds (\$8.8 million)
 - Summit VC III & IV, Waterland V, AKKR Growth II, HIG Bayside Loan III, and Marlin IV led distributions within directs

Continued strong longer-term performance across most of the private equity funds

- Double-digit net IRRs for all vintage years prior to 2017
- Trinity Ventures XII (45.2%), Summit VC IV (43.4%), Waterland V (36.7%) & Marlin Heritage (36.7%) are leading performance

The legacy fund of funds reported modest declines during the quarter

- Aggregate since inception net IRR fell slightly, to 11.41% from 11.49%, during the quarter
 - The aggregate total value (TVPI) remained at 1.63x
- The legacy fund of funds comprise only 14.5% of the current fair value of the Private Equity portfolio

Changes during the quarter

- SCERS made no new commitments to Private Equity funds during Q1
 - SCERS committed \$30 million to a specialty buyout fund and \$20 million to a diversified VC fund in Q2 2019
 - Both Q2 commitments were reups with existing portfolio General Partners
- \$32.5 million in new contributions, \$37.8 million in distributions
- Total portfolio gain increased by \$42.7 million while the total portfolio IRR increased by 0.27%

Private Equity Portfolio Characteristics as of March 31, 2019

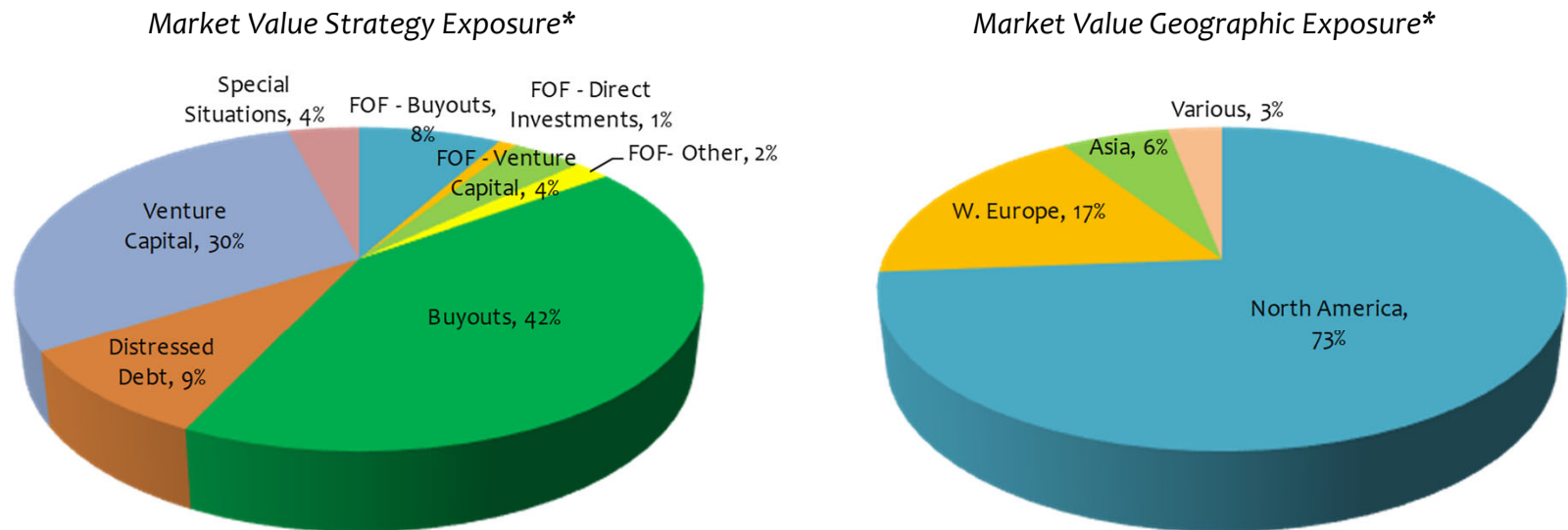
The SCERS Private Equity portfolio is diversified by strategy and geography

- Investments remain focused in North America, with meaningful exposure to Europe

The legacy fund of funds exposure remains relatively small as a percentage of the total portfolio's value

- Represents 14.5% of the total portfolio's value as of March 31, 2019

Portfolio strategy and geographic allocations, based on fair market value of invested capital, shown below



* Exposures are based on the market values of investments as of 3/31/19.

Private Equity Portfolio Performance Details – as of March 31, 2019

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
Vintage Year 2006												
HarbourVest Partners VIII - Buyout Fund L.P.	Fund of Funds	37,500	1,688	35,813	96%	50,540	11,692	62,233	26,420	10.88%	7.49%	1.74x
HarbourVest Partners VIII - Mezzanine and Distressed Debt Fund L.P.	Fund of Funds	5,000	200	4,800	96%	5,865	756	6,621	1,821	7.42%	7.49%	1.38x
HarbourVest Partners VIII - Venture Fund L.P.	Fund of Funds	7,500	150	7,350	98%	9,660	4,199	13,859	6,509	10.79%	7.49%	1.89x
Vintage Year 2006 Total		50,000	2,038	47,963	96%	66,065	16,648	82,713	34,750	10.60%	7.22%	1.72x
Vintage Year 2008												
Abbott Capital Private Equity Fund VI, L.P.	Fund of Funds	75,000	1,125	73,875	99%	68,251	50,799	119,050	45,175	12.08%	12.55%	1.61x
Goldman Sachs Private Equity Partners X, L.P.	Fund of Funds	75,000	13,144	68,958	82%	88,290	26,556	114,846	45,888	11.52%	12.55%	1.67x
HarbourVest International Private Equity Partners VI-Partnership Fund L.P.	Fund of Funds	36,135	2,168	37,619	94%	22,837	36,490	59,327	21,708	11.83%	8.98%	1.58x
Vintage Year 2008 Total		186,135	16,437	180,452	91%	179,378	113,846	293,223	112,772	11.79%	8.18%	1.62x
Vintage Year 2011												
Waterland Private Equity Fund V C.V.	Buyout	17,955	3,716	15,501	79%	28,274	11,868	40,142	24,641	36.73%	12.95%	2.59x
Khosla Ventures IV, L.P.	Venture Capital	10,000	190	9,810	98%	6,955	19,655	26,610	16,800	22.46%	17.09%	2.71x
Vintage Year 2011 Total		27,955	3,906	25,311	86%	35,229	31,523	66,752	41,441	29.85%	13.54%	2.64x
Vintage Year 2012												
Garrison Opportunity Fund III A LLC	Distressed Debt	20,000	0	20,000	100%	7,660	13,568	21,228	1,228	1.30%	9.74%	1.06x
New Enterprise Associates 14, L.P.	Venture Capital	25,000	1,500	23,500	94%	16,985	31,593	48,578	25,078	17.18%	14.33%	2.07x
Summit Partners Venture Capital III-A, LP	Venture Capital	16,350	2,122	18,995	87%	20,439	14,511	34,949	15,954	17.53%	14.33%	1.84x
Vintage Year 2012 Total		61,350	3,622	62,495	94%	45,084	59,672	104,756	42,260	12.49%	13.37%	1.68x
Vintage Year 2013												
Accel-KKR Capital Partners IV, L.P.	Buyout	15,000	849	14,151	94%	18,211	14,647	32,858	18,707	36.37%	15.74%	2.32x
H.I.G. Capital Partners V, L.P.	Buyout	14,000	3,595	10,405	74%	3,317	12,236	15,553	5,149	23.24%	15.74%	1.49x
Marlin Equity IV, L.P.	Buyout	20,000	234	19,766	99%	9,877	14,324	24,201	4,436	8.00%	15.74%	1.22x
RRJ Capital Master Fund II, L.P.	Buyout	35,000	4,683	35,067	87%	27,972	20,532	48,503	13,436	11.55%	14.95%	1.38x
H.I.G. Bayside Loan Opportunity Fund III (Europe-US\$), L.P.	Distressed Debt	30,000	5,769	24,231	81%	15,229	18,126	33,356	9,125	10.25%	8.04%	1.38x
Wayzata Opportunities Fund III, L.P.	Distressed Debt	30,000	22,835	14,718	24%	7,911	6,415	14,325	-393	-0.95%	8.52%	0.97x

¹Benchmarks:

Private Equity Investments: Cambridge Associates median return for the respective strategies and vintage years

Vintage Year Comparison: Cambridge Associates Global Private Equity & Venture Capital median return for the respective vintage years

Private Equity Portfolio: Cambridge Associates Global Private Equity & Venture Capital pooled internal rate of return

Private Equity Portfolio Performance Details – as of March 31, 2019 (continued)

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
Trinity Ventures XI, L.P.	Venture Capital	25,000	3,375	21,625	87%	4,242	36,918	41,160	19,535	18.08%	14.02%	1.90x
Vintage Year 2013 Total		169,000	41,342	139,662	76%	86,759	123,198	209,958	69,995	14.24%	13.55%	1.50x
Vintage Year 2014												
Dyal Capital Partners II	Buyout	35,000	12,318	24,015	65%	3,613	14,976	18,589	-5,426	-14.52%	18.10%	0.77x
H.I.G. Europe Capital Partners II, L.P.	Buyout	15,711	5,335	10,899	66%	2,499	8,597	11,096	197	1.26%	13.03%	1.02x
Marlin Heritage Fund	Buyout	10,000	760	9,359	92%	9,137	10,566	19,703	10,343	36.73%	18.10%	2.11x
Thoma Bravo XI	Buyout	30,000	3,430	32,305	89%	22,256	46,375	68,631	36,326	25.74%	18.10%	2.12x
TPG Opportunities Partners III	Distressed Debt	40,000	18,417	39,854	54%	22,977	24,299	47,275	7,421	10.48%	8.49%	1.19x
Khosla Ventures V	Venture Capital	20,000	2,640	17,360	87%	1,013	21,954	22,967	5,607	11.68%	14.45%	1.32x
Spectrum Equity Investors VII, L.P.	Venture Capital	25,000	2,375	22,625	91%	15,998	31,924	47,922	25,297	34.90%	14.45%	2.12x
Vintage Year 2014 Total		175,711	45,275	156,417	74%	77,492	158,691	236,183	79,766	19.31%	15.24%	1.51x
Vintage Year 2015												
* WPEF VI Overflow Fund C.V.	Buyout	6,733	6,723	10	0%	0	0	0	-10	0.00%	12.78%	0.00x
RRJ Capital Master Fund III, LP	Buyout	40,000	10,943	30,114	73%	3,276	34,764	38,039	7,925	16.36%	12.78%	1.26x
WPEF VI Feeder, L.P.	Buyout	26,933	10,754	16,183	60%	0	22,933	22,933	6,750	22.10%	12.78%	1.42x
Accel-KKR Growth Capital Partners II	Mezzanine	15,000	4,219	10,781	72%	4,142	8,905	13,046	2,266	12.45%	10.41%	1.21x
New Enterprise Associates 15, L.P.	Venture Capital	35,000	4,725	30,279	87%	3,994	46,133	50,126	19,847	22.31%	13.19%	1.66x
Summit Partners Venture Capital Fund IV-A, L.P.	Venture Capital	35,000	35,132	18,786	0%	18,917	12,830	31,747	12,962	43.39%	13.19%	1.69x
Vintage Year 2015 Total		158,666	72,496	106,153	54%	30,328	125,564	155,892	49,739	23.00%	14.47%	1.47x
Vintage Year 2016												
Accel-KKR Capital Partners V, L.P.	Buyout	25,000	14,266	10,734	43%	256	10,998	11,254	520	4.58%	9.41%	1.05x
Dyal III Pension Investors LP	Buyout	35,000	22,964	16,115	34%	3,702	17,928	21,630	5,515	19.54%	9.41%	1.34x
Linden Capital Partners III	Buyout	35,000	4,613	32,853	87%	3,512	51,978	55,490	22,637	30.89%	9.41%	1.69x
Marlin Heritage Europe, L.P.	Buyout	14,589	9,770	5,098	33%	0	6,148	6,148	1,050	N/M	N/M	1.21x
Thoma Bravo Fund XII, L.P.	Buyout	30,000	2,083	35,366	93%	7,451	34,320	41,771	6,405	14.10%	9.41%	1.18x
TSG7 A L.P.	Buyout	16,000	5,449	10,551	66%	80	11,982	12,063	1,512	9.08%	9.41%	1.14x
TSG7 B L.P.	Buyout	4,000	2,653	1,347	34%	6	1,098	1,104	-244	-14.51%	9.41%	0.82x

¹Benchmarks:

Private Equity Investments: Cambridge Associates median return for the respective strategies and vintage years

Vintage Year Comparison: Cambridge Associates Global Private Equity & Venture Capital median return for the respective vintage years

Private Equity Portfolio: Cambridge Associates Global Private Equity & Venture Capital pooled internal rate of return

Private Equity Portfolio Performance Details – as of March 31, 2019 (continued)

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
Atalaya Special Opportunities Fund VI, L.P.	Distressed Debt	25,000	2,454	28,940	90%	12,251	22,230	34,481	5,541	10.71%	10.44%	1.19x
Trinity Ventures XII, L.P.	Venture Capital	30,000	11,250	18,750	63%	0	33,192	33,192	14,442	45.15%	14.31%	1.77x
Vintage Year 2016 Total		214,589	75,502	159,754	65%	27,257	189,875	217,133	57,379	21.31%	12.01%	1.36x
Vintage Year 2017												
Marlin Heritage II	Buyout	10,000	5,455	4,546	45%	0	4,300	4,300	-246	NM	NM	0.95x
Summit Partners Europe Growth Equity Fund II, SCSP	Remaining	33,666	30,935	11,628	8%	8,626	7,992	16,618	4,991	NM	NM	1.43x
New Enterprise Associates 16, L.P.	Venture Capital	35,000	20,125	14,875	43%	0	16,890	16,890	2,015	NM	NM	1.14x
Vintage Year 2017 Total		78,666	56,514	31,048	28%	8,626	29,181	37,807	6,759	NM	NM	1.22x
Vintage Year 2018												
Linden Capital Partners IV LP	Buyout	44,330	42,531	1,886	4%	1,907	797	2,704	817	NM	NM	1.43x
Marlin Equity V	Buyout	25,000	19,986	5,014	20%	375	5,138	5,513	499	NM	NM	1.10x
TSG8 L.P.	Buyout	45,000	44,632	368	1%	0	-24	-24	-392	NM	NM	-0.07x
Davidson Kempner Long-Term Distressed Opportunities Fund IV LP	Distressed Debt	35,000	15,750	19,250	55%	0	20,467	20,467	1,217	NM	NM	1.06x
TSSP Opportunities Partners IV (A), L.P.	Distressed Debt	35,000	33,202	1,856	5%	57	1,888	1,945	89	NM	NM	1.05x
RCP Fund XIII	Fund of Funds	50,000	49,500	500	1%	0	41	41	-459	NM	NM	0.08x
RCPDirect III	Fund of Funds	25,000	21,250	3,750	15%	0	3,904	3,904	154	NM	NM	1.04x
Accel-KKR Growth Capital Partners III	Mezzanine	33,320	33,320	0	0%	0	0	0	0	NM	NM	N/A
Khosla Ventures VI, L.P.	Venture Capital	35,000	27,020	7,980	23%	0	7,730	7,730	-250	NM	NM	0.97x
Spectrum Equity VIII, L.P.	Venture Capital	25,000	20,938	4,063	16%	0	3,381	3,381	-682	NM	NM	0.83x
Vintage Year 2018 Total		352,650	308,129	44,666	13%	2,339	43,322	45,661	995	NM	NM	1.02x
Vintage Year 2019												
Thoma Bravo Fund XIII, LP	Buyout	45,000	38,523	6,477	14%	0	6,378	6,378	-99	NM	NM	0.98x
Vintage Year 2019 Total		45,000	38,523	6,477	14%	0	6,378	6,378	-99	NM	NM	0.98x
Portfolio Total :		1,519,722	663,784	960,697	56%	558,558	897,898	1,456,456	495,759	14.83%	12.89%	1.52x

¹Benchmarks:

Private Equity Investments: Cambridge Associates median return for the respective strategies and vintage years

Vintage Year Comparison: Cambridge Associates Global Private Equity & Venture Capital median return for the respective vintage years

Private Equity Portfolio: Cambridge Associates Global Private Equity & Venture Capital pooled internal rate of return

Private Credit Portfolio – as of March 31, 2019

The Private Credit portfolio's net IRR since inception is 8.11%, versus the benchmark return of 7.09%

- The benchmark is the Credit Suisse Leveraged Loan Index + 2%

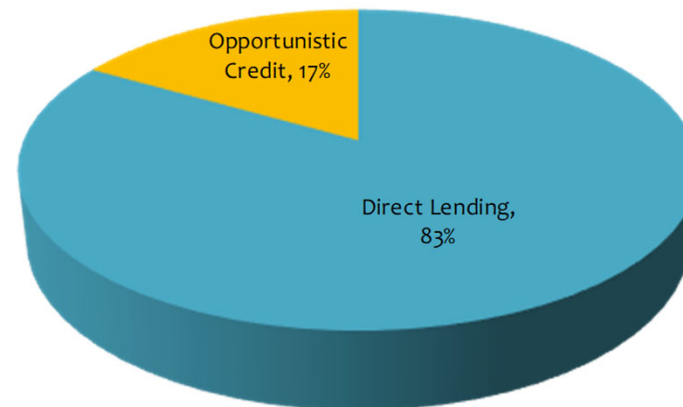
The Private Credit funds reported solidly positive returns during Q1

- The portfolio returned 3.3% in Q1 and 6.3% for the trailing 1 year period ending March 31, 2019
 - Positive performance from each of the private credit funds in Q1
- Longer term performance remains steady, with annualized returns of more than 7% over multi-year periods
 - 8.6% net IRR for the 3 year period and 7.8% net IRR for the 5 year period

Changes during the quarter

- SCERS made no new commitments to Private Credit funds during Q1
 - SCERS committed \$35 million to a healthcare focused lending/royalties fund in Q2 2019
- \$26.0 million in new contributions, \$5.5 million in distributions
- Portfolio IRR increased by 0.66% while the total portfolio gain increased by \$4.8 million

*Market Value Strategy Exposure
(based on fair value of investments)
as of March 31, 2019*



Private Credit Portfolio Details – as of March 31, 2019

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
Vintage Year 2011												
Summit Partners Credit Fund, LP	Direct Lending	20,000	2,125	20,697	89%	23,848	2,751	26,600	5,903	8.91%	N/A	1.29x
Vintage Year 2011 Total		20,000	2,125	20,697	89%	23,848	2,751	26,600	5,903	8.91%	13.54%	1.29x
Vintage Year 2014												
Summit Partners Credit Fund II, L.P.	Direct Lending	35,000	9,755	42,342	72%	24,054	25,126	49,180	6,838	9.05%	3.69%	1.16x
Vintage Year 2014 Total		35,000	9,755	42,342	72%	24,054	25,126	49,180	6,838	9.05%	15.24%	1.16x
Vintage Year 2015												
Athyrium Opportunities Fund II	Opportunistic Credit	32,000	7,332	37,717	77%	28,430	14,781	43,211	5,493	8.47%	10.41%	1.15x
Vintage Year 2015 Total		32,000	7,332	37,717	77%	28,430	14,781	43,211	5,493	8.47%	14.47%	1.15x
Vintage Year 2017												
Athyrium Opportunities Fund III	Opportunistic Credit	25,000	12,814	15,502	49%	3,280	12,359	15,639	138	N/M	N/M	1.01x
Vintage Year 2017 Total		25,000	12,814	15,502	49%	3,280	12,359	15,639	138	N/M	N/M	1.01x
Vintage Year 2018												
Benefit Street Partners Senior Secured Opportunities Fund L.P.	Direct Lending	50,000	8,977	43,213	82%	4,081	41,649	45,730	2,518	N/M	N/M	1.06x
Summit Partners Credit Fund III, L.P.	Direct Lending	50,000	29,011	20,989	42%	0	21,863	21,863	874	N/M	N/M	1.04x
TCP Direct Lending Fund VIII-S, LLC	Direct Lending	100,000	56,364	43,636	44%	1,800	43,678	45,477	1,841	N/M	N/M	1.04x
Vintage Year 2018 Total		200,000	94,352	107,838	53%	5,881	107,189	113,071	5,233	N/M	N/M	1.05x
Portfolio Total :		312,000	126,378	224,095	59%	85,494	162,207	247,701	23,605	8.11%	7.09%	1.11x
Portfolio Strategy Totals												
Direct Lending		255,000	106,232	170,876	58%	53,784	135,067	188,851	17,974	8.39%		1.11x
Opportunistic Credit		57,000	20,146	53,219	65%	31,710	27,140	58,850	5,631	7.33%		1.11x
Portfolio Total :		312,000	126,378	224,095	59%	85,494	162,207	247,701	23,605	8.11%	7.09%	1.11x

¹Benchmarks:

Private Credit Investments: Cambridge Associates median return for the respective debt strategies and vintage years

Private Credit Portfolio: Credit Suisse Leveraged Loan Index + 2%

Real Assets Portfolio – as of March 31, 2019

The Real Assets portfolio's net IRR since inception is 14.86%, versus the blended benchmark return of 7.22%

- The Real Assets portfolio includes private Infrastructure, Energy, and Agriculture, Timber and Other
- Real Assets is part of the broader Real Return asset category

The Real Assets portfolio is primarily Energy and Infrastructure partnerships

- Both Energy and Infrastructure partnerships have performed well since inception
 - Since inception net IRRs of 16.6% for Energy and 14.5% for Infrastructure
- The Real Asset Debt separate account has also performed well with an 11.3% since inception net IRR
 - That separate account market value remains small at \$17.8 million, with very few new investments

The portfolio generated a 2.9% net return during a quarter that saw a strong rebound in the Energy sector

- The EnCap Flatrock funds, Real Asset Debt SMA, and Brookfield Infrastructure III reported the largest gains in Q1
 - Good performance was seen across all major strategies during the quarter
- ACM Fund II (agriculture), Wastewater, and the Quantum funds were the laggards during the quarter

Changes during the quarter

- SCERS committed \$35 million to EQT Infrastructure IV (global infrastructure) during Q1
- \$12.9 million in new contributions, \$4.2 million in distributions
- Portfolio IRR declined by 0.31% while the total portfolio gain increased by \$13.8 million

Real Assets Portfolio Performance Details – as of March 31, 2019

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
Vintage Year 2013												
EnCap Energy Capital Fund IX, L.P.	Energy	33,000	2,082	36,802	94%	25,752	23,784	49,535	12,733	13.32%	3.92%	1.35x
Vintage Year 2013 Total		33,000	2,082	36,802	94%	25,752	23,784	49,535	12,733	13.32%		1.35x
Vintage Year 2014												
Carlyle Power Partners II, L.P.	Energy	40,000	24,601	20,767	38%	5,210	17,389	22,599	1,832	3.78%	10.75%	1.09x
EnCap Flatrock Midstream III	Energy	20,000	4,501	19,267	77%	8,454	15,549	24,003	4,736	19.53%	10.75%	1.25x
Global Energy & Power Infrastructure Fund II	Energy	35,000	8,556	29,823	76%	18,021	23,815	41,835	12,012	33.62%	10.75%	1.40x
Quantum Energy Partners VI, LP	Energy	35,000	11,516	28,593	67%	13,947	34,094	48,041	19,448	36.79%	10.75%	1.68x
Pantheon SCERS SIRF MM, LLC	Infrastructure	100,000	35,368	68,932	65%	8,100	89,407	97,507	28,576	16.72%	9.82%	1.41x
Wastewater Opportunity Fund	Infrastructure	25,000	6,838	18,169	73%	1,998	15,738	17,736	-433	-2.09%	9.82%	0.98x
Vintage Year 2014 Total		255,000	91,380	185,552	64%	55,731	195,992	251,723	66,171	18.72%		1.36x
Vintage Year 2015												
ArcLight Energy Partners Fund VI	Energy	40,000	6,269	40,516	84%	12,253	39,668	51,920	11,404	13.46%	13.54%	1.28x
EnCap Energy Capital Fund X, L.P.	Energy	40,000	9,137	33,363	77%	6,427	34,319	40,747	7,384	12.30%	13.54%	1.22x
Atalaya Real Assets SMA	Real Asset Debt	100,000	84,669	36,169	15%	24,910	17,754	42,664	6,495	11.26%	N/A	1.18x
Vintage Year 2015 Total		180,000	100,075	110,047	44%	43,590	91,740	135,331	25,283	12.49%		1.23x
Vintage Year 2016												
ACM Fund II, LLC	Agriculture	25,000	11,148	17,998	55%	4,513	12,552	17,065	-933	-4.39%	6.37%	0.95x
Brookfield Infrastructure Fund III, L.P.	Infrastructure	40,000	12,225	27,764	69%	3,812	27,769	31,581	3,818	10.69%	N/A	1.14x
IFM Global Infrastructure Fund	Infrastructure	125,053	25,000	100,053	80%	32,529	93,753	126,282	26,229	N/M	N/M	1.26x
Vintage Year 2016 Total		190,053	48,374	145,815	75%	40,854	134,074	174,928	29,113	13.04%		1.20x
Vintage Year 2017												
Quantum Energy Partners VII, LP	Energy	40,000	25,346	17,011	37%	2,415	15,447	17,862	851	N/M	N/M	1.05x
Meridiam Infrastructure North America Fund III	Infrastructure	50,000	48,426	1,574	3%	1	311	312	-1,262	N/M	N/M	0.20x
Vintage Year 2017 Total		90,000	73,772	18,586	18%	2,416	15,758	18,174	-412	N/M		0.98x
Vintage Year 2018												
Paine Schwartz Food Chain Fund V, LP	Agriculture	40,000	40,000	0	0%	0	-374	-374	-374	N/M	N/M	N/A

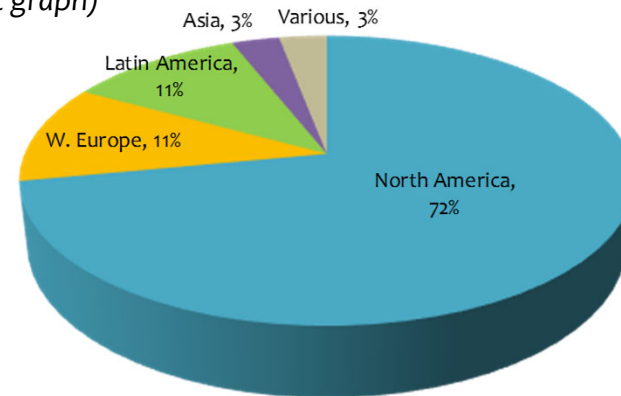
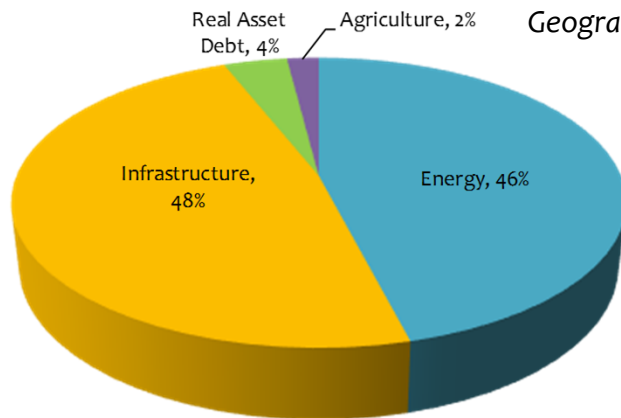
¹ Benchmarks:

Real Assets Portfolio: 45% Cambridge Infrastructure, 35% Cambridge Energy, 10% NCREIF Timberland, 10% NCREIF Farmland
 Energy Investments: Cambridge Associates median return for the respective vintage years.
 Infrastructure Investments: Cambridge Associates median return for the respective vintage years.

Real Assets Portfolio Performance Details – as of March 31, 2019 (continued)

Partnership Name	Strategy	(A) Committ. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
EnCap Flatrock Midstream IV, L.P.	Energy	22,500	15,965	6,535	29%	0	7,099	7,099	564	N/M	N/M	1.09x
Tailwater Energy Fund III, LP	Energy	32,000	13,001	21,054	59%	1,662	20,084	21,745	691	N/M	N/M	1.03x
ISQ Global Infrastructure Fund II	Infrastructure	50,000	37,283	13,452	25%	1,119	13,285	14,403	952	N/M	N/M	1.07x
Vintage Year 2018 Total		144,500	106,249	41,041	26%	2,781	40,093	42,873	1,833	N/M		1.04x
Vintage Year 2019												
EQT Infrastructure IV (No.2) USD SCSp	Infrastructure	35,000	35,000	0	0%	0	-202	-202	-202	N/M	N/M	N/A
Vintage Year 2019 Total		35,000	35,000	0	0%	0	-202	-202	-202	N/M		N/A
Portfolio Total :		927,553	456,932	537,842	51%	171,123	501,238	672,362	134,520	14.86%	7.22%	1.25x
Portfolio Strategy Totals												
Agriculture		65,000	51,148	17,998	21%	4,513	12,178	16,691	-1,307	-6.20%		0.93x
Energy		337,500	120,974	253,731	64%	94,141	231,246	325,388	71,656	16.55%		1.28x
Infrastructure		425,053	200,141	229,943	53%	47,559	240,061	287,620	57,676	14.54%		1.25x
Real Asset Debt		100,000	84,669	36,169	15%	24,910	17,754	42,664	6,495	11.26%		1.18x

Portfolio Exposures*
Strategy Exposure (left graph)
Geographic Exposure (right graph)



* Exposures are based on the market values of investments as of 3/31/19

¹ Benchmarks:

Real Assets Portfolio: 45% Cambridge Infrastructure, 35% Cambridge Energy, 10% NCREIF Timberland, 10% NCREIF Farmland

Energy Investments: Cambridge Associates median return for the respective vintage years.

Infrastructure Investments: Cambridge Associates median return for the respective vintage years.

Opportunities Portfolio – as of March 31, 2019

The Opportunities portfolio's net IRR since inception is 18.38%

- The long-term benchmark is SCERS' 7.00% total portfolio actuarial return objective
- Also tracking the portfolio's 3 year IRR versus an intermediate-term benchmark
 - 5.31% portfolio IRR v 8.93% IRR for the SCERS' total portfolio policy weighted benchmark over the last 3 years
- The portfolio only includes legacy distressed debt funds (fully liquidated) and one post-2009 distressed fund (Atalaya V)

The legacy distressed funds performed very well, the current fund is performing at expectations

- SCERS' earlier vintage distressed debt funds are liquidated and have distributed significant capital back to SCERS
 - Stone Tower, MetWest TALF, and PIMCO have distributed \$129.3 million
- Atalaya SOF V, a vintage 2013 fund, has produced a 7.74% net IRR since inception

Changes during the quarter

- SCERS made no new commitments categorized as Opportunities funds during Q1 2019
- No new contributions, \$0.8 million in distributions
- Portfolio IRR decreased 0.04%, total portfolio gain decreased slightly

As mentioned, the Opportunities portfolio only includes certain distressed debt funds

- SCERS has additional distressed debt investments within its Private Equity portfolio
- Categorizations were made at the time of each investment

Opportunities Portfolio Performance Details – as of March 31, 2019

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Bench.	TVPI
Vintage Year 2007												
* PIMCO Distressed Mortgage Fund, LP	Distressed Debt	18,000	0	18,000	100%	25,384	0	25,384	7,384	8.96%	9.28%	1.41x
Vintage Year 2007 Total		18,000	0	18,000	100%	25,384	0	25,384	7,384	8.96%		1.41x
Vintage Year 2008												
* PIMCO Distressed Mortgage Fund II, L.P.	Distressed Debt	12,000	0	12,000	100%	35,277	0	35,277	23,277	34.39%	12.23%	2.94x
Vintage Year 2008 Total		12,000	0	12,000	100%	35,277	0	35,277	23,277	34.39%		2.94x
Vintage Year 2009												
* MetWest Enhanced TALF Strategy Fund LP	Distressed Debt	20,000	0	20,000	100%	25,304	0	25,304	5,304	11.21%	14.89%	1.27x
* Stone Tower Structured Credit Recovery Fund LP	Distressed Debt	25,000	0	25,248	100%	43,383	0	43,383	18,135	25.30%	14.89%	1.72x
Vintage Year 2009 Total		45,000	0	45,248	100%	68,687	0	68,687	23,439	19.71%		1.52x
Vintage Year 2013												
Atalaya Special Opportunities Fund V, L.P.	Distressed Debt	25,000	1,117	24,875	96%	22,412	8,120	30,532	5,657	7.74%	8.52%	1.23x
Vintage Year 2013 Total		25,000	1,117	24,875	96%	22,412	8,120	30,532	5,657	7.74%		1.23x
Portfolio Total :		100,000	1,117	100,123	99%	151,760	8,120	159,880	59,757	18.38%	7.00%	1.60x

* Liquidated partnership

¹ Benchmarks:

Opportunities Investments: Cambridge Associates median return for the respective strategies and vintage years
Opportunities Portfolio: 7.00% actuarial return objective

Important Notice

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