



INVESTMENT ADVISORY SERVICES

Los Angeles • New York

Sacramento County Employees' Retirement System Quarterly Performance Review

June 17, 2020



Executive Summary

Absolute Return Portfolio Performance Summary – as of March 31, 2020

Growth Oriented Strategies

- The Growth Oriented Portfolio returned -15.51% in Q1 and -10.22% for the 1 year period ending March 31, 2020
 - Underperforming the HFRI FoF Index + 1% benchmark by 701 bps in Q1 and 574 bps for the 1 year period
 - Underperforming the T-bills + 5% long term objective by 617 bps (annualized) over the trailing 5 year period
- All funds and strategies produced negative results over the 1 yr period, with Lakewood trailing the most (-23.3%)

Diversifying Strategies

- The Diversifying Portfolio returned -6.37% in Q1 and -3.26% for the 1 year period ending March 31, 2020
 - Outperforming the HFRI Conservative FoF Index benchmark by 80 bps in Q1 and 106 bps for the 1 year period
 - Underperforming the T-bills + 2% long term objective by 362 bps (annualized) over the trailing 5 year period
- Large performance dispersion among funds over the 1 year period, ranging from +17.3 (Laurion) to -26.5% (AQR DELTA)
 - 4 funds produced positive returns while 5 produced negative returns over the 1 year period

Elevated volatility across asset classes during Q1 pushed some portfolio characteristics above their targeted values

- Growth Oriented Portfolio
 - Target standard deviation < 50% of global equities, with an equity beta < 0.5 and equity correlation < 0.8
 - Standard deviation of 7.07% compared to the ACWI standard deviation of 12.56% since December 2011 (56% ratio)
 - Portfolio equity beta of 0.47 with an equity correlation of 0.84
- Diversifying
 - Target standard deviation < 25% of global equities, with an equity beta < 0.1 and equity correlation < 0.1
 - Standard deviation of 3.24% compared to the ACWI standard deviation of 12.56% since December 2011 (26% ratio)
 - Portfolio equity beta of 0.10 with an equity correlation of 0.40

The March drawdown for each portfolio was nearly 3 times larger than the previous worst month since December 2011

- Growth Oriented portfolio returned -13.3% in March while the Diversifying portfolio returned -5.83%
 - Previous worst monthly performance was -4.8% for Growth Oriented and -1.9% for Diversifying

Growth Oriented Absolute Return Portfolio Performance – as of March 31, 2020

Fund	Market Value	Actual %	Returns								Std Dev	Sharpe Ratio	Incep Date
			Mar	QTD	YTD	FYTD	1 Year	3 Year	5 Year	Incep			
Growth-Oriented Portfolio													
Event Driven													
Third Point Partners Qualified L.P.	43,375,957	4.8%	-11.29%	-16.06%	-16.06%	-12.87%	-9.50%	-0.71%	1.18%	6.42%	9.21%	0.61	May-12
Event Driven - HF Total	43,375,957	4.8%	-11.29%	-16.06%	-16.06%	-13.11%	-10.18%	-2.41%	-0.56%	4.83%	9.22%	0.45	May-12
Equity Long/Short													
Lakewood Capital Partners, LP	33,779,486	3.7%	-22.96%	-31.13%	-31.13%	-24.52%	-23.33%	-7.80%	-1.81%	0.65%	13.34%	0.03	Jul-13
Equity Long/Short - HF Total	33,779,486	3.7%	-22.96%	-31.13%	-31.13%	-24.52%	-23.33%	-7.80%	-1.81%	0.65%	13.34%	0.03	Jul-13
Multi-Strategy													
Sculptor Domestic Partners II, L.P.	49,348,475	5.5%	-9.03%	-6.68%	-6.68%	-3.98%	-0.05%	4.25%	3.15%	6.22%	6.09%	0.86	Jan-12
Multi-Strategy - HF Total	49,348,475	5.5%	-9.03%	-6.68%	-6.68%	-3.98%	-0.05%	4.25%	3.15%	6.22%	6.09%	0.86	Jan-12
Fund of Funds													
Grosvenor SC Absolute Return Fund LLC (Growth)	108,305,745	12.0%	-12.63%	-12.88%	-12.88%	-10.49%	-9.22%	-0.36%	0.34%	3.79%	6.34%	0.46	Dec-11
Fund of Funds - HF Total	108,305,745	12.0%	-12.63%	-12.88%	-12.88%	-10.49%	-9.22%	-0.47%	0.29%	3.52%	6.73%	0.29	Sep-04
Growth-Oriented Portfolio Total	234,809,663	26.0%	-13.34%	-15.51%	-15.51%	-12.19%	-10.22%	-1.40%	0.02%	3.63%	7.16%	0.29	Sep-04
HFRI FoF Composite + 1%			-7.48%	-8.50%	-8.50%	-6.09%	-4.48%	0.96%	1.01%	3.48%	5.29%	0.35	Sep-04
3 Month T-Bills+5%			0.69%	1.79%	1.79%	5.32%	7.25%	6.83%	6.19%	6.42%	0.47%	-	Sep-04
Market Indices													
Libor3Month			0.12%	0.38%	0.38%	1.41%	2.03%	2.02%	1.47%	1.74%	0.48%	-	Sep-04
Bloomberg Barclays US Aggregate Bond Index			-0.59%	3.15%	3.15%	5.68%	8.95%	4.83%	3.37%	4.29%	3.18%	0.79	Sep-04
Bloomberg Barclays US High Yield Bond Index			-11.46%	-12.68%	-12.68%	-9.21%	-6.95%	0.76%	2.78%	6.40%	9.43%	0.52	Sep-04
S&P 500 TR			-12.35%	-19.60%	-19.60%	-10.82%	-6.98%	5.11%	6.73%	7.82%	14.18%	0.48	Sep-04
MSCI AC World Index Free - Net			-13.50%	-21.37%	-21.37%	-14.35%	-11.26%	1.50%	2.85%	5.88%	15.47%	0.34	Sep-04
MSCI EAFE - Net			-13.35%	-22.83%	-22.83%	-17.42%	-14.38%	-1.82%	-0.62%	4.05%	16.78%	0.22	Sep-04
MSCI EMF (Emerging Markets Free) - Net			-15.40%	-23.60%	-23.60%	-18.18%	-17.68%	-1.62%	-0.37%	6.82%	21.65%	0.34	Sep-04

Diversifying Absolute Return Portfolio Performance – as of March 31, 2020

Fund	Market Value	Actual %	Returns								Std Dev	Sharpe Ratio	Incep Date
			Mar	QTD	YTD	FYTD	1 Year	3 Year	5 Year	Incep			
Diversifying Portfolio													
Market Neutral													
Laurion Capital, Ltd.	55,067,053	6.1%	8.60%	15.36%	15.36%	13.48%	17.28%	10.45%	7.44%	7.73%	6.26%	1.03	Mar-14
LMR Fund Limited	34,252,987	3.8%	-24.40%	-25.37%	-25.37%	-	-	-	-	-23.88%	-	-	Nov-19
KLS Diversified Fund LP	33,468,257	3.7%	-17.34%	-16.82%	-16.82%	-17.87%	-16.88%	-	-	-13.29%	15.86%	-0.95	Jan-19
Two Sigma Risk Premia Enhanced Fund, LP	39,629,069	4.4%	-6.54%	-12.32%	-12.32%	-	-	-	-	-11.94%	10.57%	-	Sep-19
Market Neutral - HF Total	162,417,367	18.0%	-9.21%	-9.30%	-9.30%	-10.22%	-8.10%	1.72%	2.26%	3.45%	6.10%	0.38	Mar-14
Event Driven													
Blackrock Event Driven Equity Fund (BILPX)	42,724,458	4.7%	-5.06%	-	-	-	-	-	-	-5.06%	-	-	Mar-20
Elliott International Limited	59,052,120	6.5%	0.19%	2.30%	2.30%	4.36%	7.39%	5.50%	6.73%	7.17%	3.34%	1.77	Apr-12
Davidson Kempner Institutional Partners LP	42,874,121	4.7%	-6.45%	-6.06%	-6.06%	-3.55%	-	-	-	-3.14%	7.30%	-	May-19
Event Driven - HF Total	144,650,699	16.0%	-3.42%	-1.98%	-1.98%	0.22%	2.44%	3.85%	5.73%	6.54%	3.54%	1.51	Apr-12
Equity Long/Short													
Marshall Wace Funds LP - MW Global Opportunities (US) Fund	42,932,774	4.8%	-0.17%	0.73%	0.73%	4.77%	6.24%	-	-	5.82%	4.69%	0.78	Jan-19
Equity Long/Short - HF Total	42,932,774	4.8%	-0.17%	0.73%	0.73%	4.77%	6.24%	5.82%	5.82%	5.82%	4.69%	0.78	Apr-12
Macro-Systematic													
Graham Global Investment Fund II SPC Ltd. - Tactical Trend Segr	33,259,512	3.7%	-2.11%	-6.99%	-6.99%	-1.33%	5.20%	-0.26%	-	-1.60%	12.91%	-0.21	Feb-17
Winton Diversified Futures Fund L.P.	35,360,568	3.9%	-4.24%	-7.80%	-7.80%	-5.26%	-5.31%	0.03%	-	0.32%	8.15%	-0.16	Jan-17
Macro-Systematic - HF Total	68,620,080	7.6%	-3.22%	-7.41%	-7.41%	-3.40%	-0.49%	-0.11%	-	-0.73%	9.59%	-0.23	Jan-17
Multi-Strategy													
AQR DELTA Fund II, LP	34,434,822	3.8%	-13.61%	-20.30%	-20.30%	-23.30%	-26.47%	-14.38%	-6.93%	-3.43%	8.00%	-0.53	May-13
Multi-Strategy - HF Total	34,434,822	3.8%	-13.61%	-20.30%	-20.30%	-23.30%	-26.47%	-14.38%	-6.93%	-3.43%	8.00%	-0.53	May-13
Fund of Funds													
Grosvenor SC Absolute Return Fund LLC (Diversifying)	147,384,743	16.3%	-5.42%	-4.90%	-4.90%	-2.72%	-0.20%	-1.12%	-1.30%	1.06%	3.52%	0.03	Dec-11
Grosvenor SC Absolute Return Fund LLC Series B	67,766,599	7.5%	-4.94%	-4.50%	-4.50%	-2.50%	-0.07%	-1.61%	-2.14%	0.16%	3.21%	-0.27	Feb-13
Fund of Funds - HF Total	215,151,342	23.8%	-5.27%	-4.78%	-4.78%	-2.72%	-0.25%	-1.36%	-1.66%	0.92%	3.32%	-0.01	Dec-11
Diversifying Portfolio Total	668,207,084	74.0%	-5.83%	-6.37%	-6.37%	-4.95%	-3.26%	-1.29%	-0.43%	1.21%	3.24%	0.08	Dec-11
HFRI FOF: Conservative Index			-6.64%	-7.17%	-7.17%	-5.71%	-4.32%	0.21%	0.44%	2.23%	3.29%	0.38	Dec-11
3 Month T-Bills+2%			0.45%	1.06%	1.06%	3.10%	4.25%	3.83%	3.19%	2.74%	0.26%	-	Dec-11

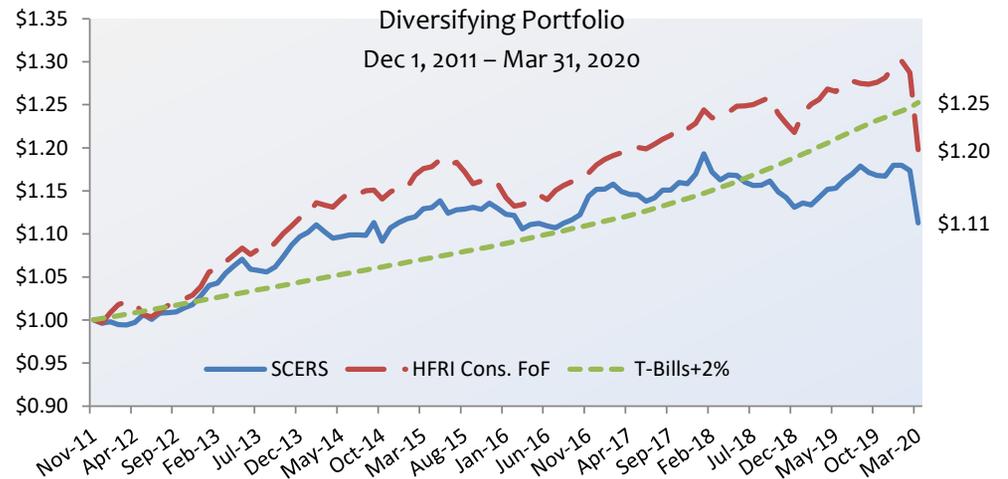
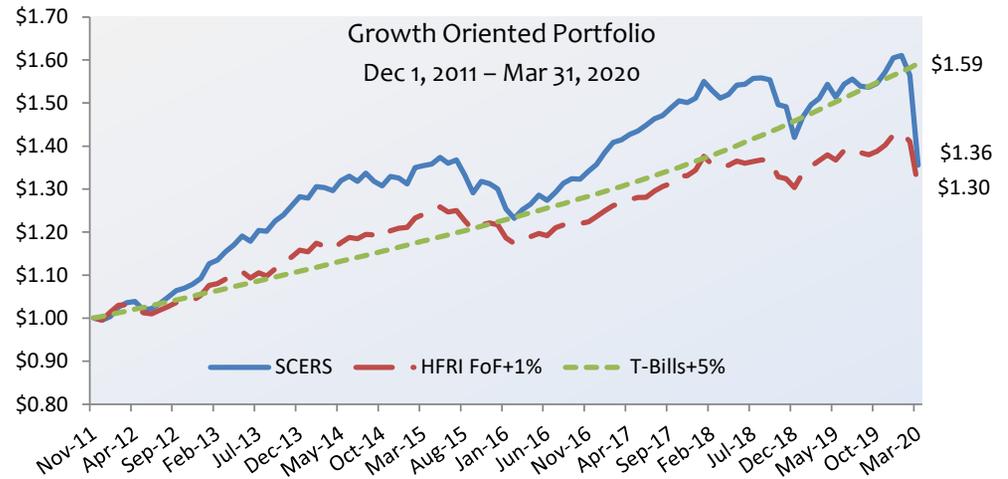
Absolute Return Portfolios Cumulative Performance – December 2011 to March 2020

The sharp downturn in Q1 pushed the Growth Oriented portfolio below the T-bills + 5% long term objective; the portfolio still remains slightly ahead of the Fund of Funds Index + 1% benchmark

The Diversifying portfolio is trailing both the T-bills + 2% long term objective and 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 December 31, 2019

The Private Equity portfolio's net IRR since inception is 15.36%, versus the Cambridge Associates benchmark IRR of 12.88%

- The long-term Policy objective (Russell 3000 + 3%) has a 15.93% IRR over this period

The private equity portfolio saw another quarter of solid gains as global equity markets rallied in Q4

- Gains were again broad-based with most of the funds producing single-digit gains in Q4
 - Thoma Bravo XI & XII, Marlin Heritage & Heritage Europe, Dyal III, and NEA 14 reported the largest gains
- Distributions slowed from the high volume seen in Q3, but still totaled \$49.1 million in Q4
 - Summit Europe Growth II, Thoma Bravo XI, RRJ III, Marlin Heritage, and Atalaya SOF VI led distributions during the quarter

Longer-term performance remains quite strong across most of the private equity funds

- Double-digit net IRRs for all vintage years prior to 2018, with several years >20%
- Spectrum VII (41.7%), Summit VC IV (39.2%), Accel-KKR IV (36.8%), and Marlin Heritage (36.5%) are leading performance

The fund of funds reported modest increases during the quarter

- Aggregate since inception net IRR decreased slightly to 11.36% from 11.44%, during the quarter
 - The aggregate total value (TVPI) remained at 1.65x
- The legacy fund of funds comprise only 11.9% of the current fair value of the Private Equity portfolio

Changes during the quarter

- SCERS committed \$30 million to Cortec VII (mid-market buyouts) and \$20 million to Threshold Ventures III (early stage venture capital) during Q4, and added \$5 million to an existing commitment with NEA 17 (diversified venture capital)
 - SCERS committed \$20 million to a mid-market buyout fund in Q1 2020
 - SCERS also committed €20 million to a European growth equity and buyout fund (reup with existing GP) in Q1 2020
- \$46.5 million in new contributions, \$49.1 million in distributions
- Total portfolio gain increased by \$41.3 million while the total portfolio IRR increased by 0.12%

Private Equity Portfolio Characteristics as of December 31, 2019

The SCERS Private Equity portfolio is diversified by strategy and geography

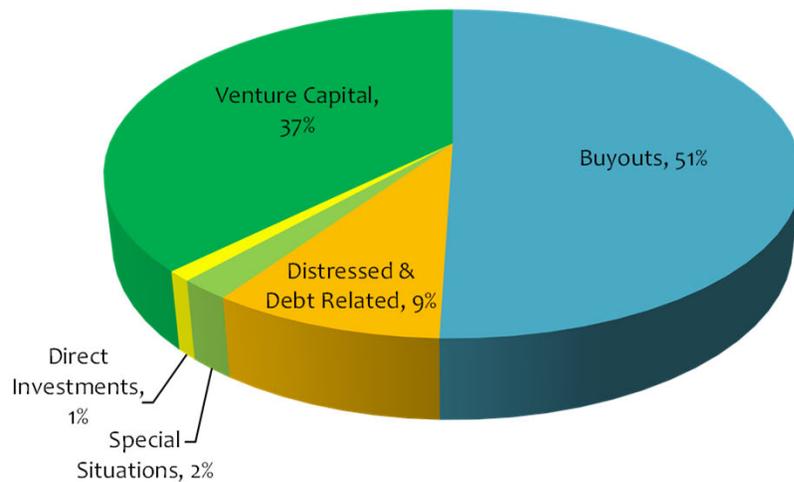
- Investments remain focused in North America, with meaningful exposure to Europe

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

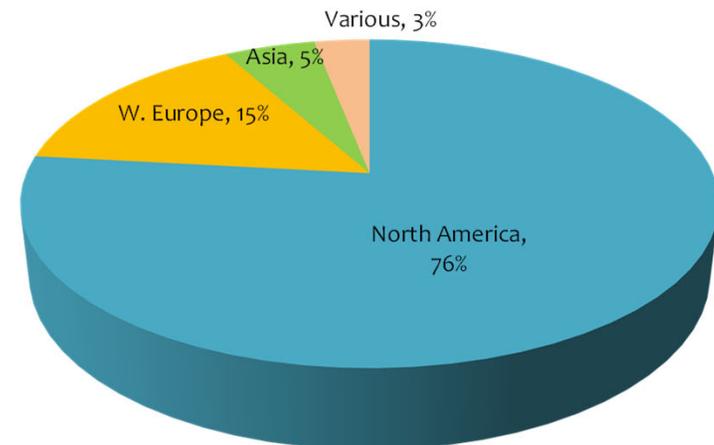
- Represents 12% of the total portfolio's value as of December 31, 2019

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

Market Value Strategy Exposure*



Market Value Geographic Exposure*



* Exposures are based on the market values of investments as of 12/31/19.

Private Equity Portfolio Performance Details – as of December 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%	53,332	9,336	62,668	26,855	10.79%	8.35%	1.75x
HarbourVest Partners VIII - Mezzanine and Distressed Debt Fund L.P.	Fund of Funds	5,000	200	4,800	96%	6,023	592	6,615	1,815	7.30%	8.35%	1.38x
HarbourVest Partners VIII - Venture Fund L.P.	Fund of Funds	7,500	150	7,350	98%	10,404	3,760	14,164	6,814	10.78%	8.35%	1.93x
Vintage Year 2006 Total		50,000	2,038	47,963	96%	69,759	13,687	83,446	35,484	10.52%	7.25%	1.74x
Vintage Year 2008												
Abbott Capital Private Equity Fund VI, L.P.	Fund of Funds	75,000	938	74,063	99%	78,859	45,263	124,122	50,059	12.19%	14.12%	1.68x
Goldman Sachs Private Equity Partners X, L.P.	Fund of Funds	75,000	13,231	68,958	82%	92,998	23,211	116,209	47,251	11.43%	14.12%	1.69x
HarbourVest International Private Equity Partners VI-Partnership Fund L.P.	Fund of Funds	36,130	1,807	37,980	95%	27,730	34,718	62,448	24,468	11.74%	8.03%	1.64x
Vintage Year 2008 Total		186,130	15,975	181,000	91%	199,587	103,192	302,779	121,779	11.78%	8.26%	1.67x
Vintage Year 2011												
Waterland Private Equity Fund V C.V.	Buyout	17,953	3,489	15,729	81%	28,975	11,918	40,893	25,164	35.65%	12.11%	2.60x
Khosla Ventures IV, L.P.	Venture Capital	10,000	190	9,810	98%	13,292	15,624	28,915	19,105	22.18%	16.21%	2.95x
Vintage Year 2011 Total		27,953	3,679	25,539	87%	42,267	27,541	69,808	44,270	28.95%	12.74%	2.73x
Vintage Year 2012												
Garrison Opportunity Fund III A LLC	Distressed Debt	20,000	0	20,000	100%	7,660	13,650	21,311	1,311	1.25%	12.16%	1.07x
New Enterprise Associates 14, L.P.	Venture Capital	25,000	1,125	23,875	96%	22,637	31,249	53,886	30,011	17.74%	15.69%	2.26x
Summit Partners Venture Capital III-A, LP	Venture Capital	16,350	1,796	19,363	89%	20,806	16,041	36,847	17,484	17.31%	15.69%	1.90x
Vintage Year 2012 Total		61,350	2,921	63,238	95%	51,104	60,941	112,045	48,806	12.75%	13.31%	1.77x
Vintage Year 2013												
Accel-KKR Capital Partners IV, L.P.	Buyout	15,000	710	14,290	95%	23,026	13,710	36,736	22,446	36.82%	14.73%	2.57x
H.I.G. Capital Partners V, L.P.	Buyout	14,000	2,761	11,239	80%	3,685	15,461	19,146	7,907	24.61%	14.73%	1.70x
Marlin Equity IV, L.P.	Buyout	20,000	108	19,892	99%	9,877	15,309	25,187	5,295	8.00%	14.73%	1.27x
RRJ Capital Master Fund II, L.P.	Buyout	35,000	4,683	35,067	87%	30,592	16,243	46,835	11,768	9.53%	15.18%	1.34x
H.I.G. Bayside Loan Opportunity Fund III (Europe-US\$), L.P.	Distressed Debt	30,000	5,769	24,231	81%	21,952	11,343	33,296	9,065	9.34%	7.69%	1.37x
Wayzata Opportunities Fund III, L.P.	Distressed Debt	30,000	22,835	14,718	24%	8,556	5,248	13,804	-914	-2.06%	8.41%	0.94x

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 December 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	2,438	22,563	90%	4,835	38,505	43,341	20,778	16.05%	14.51%	1.92x
Vintage Year 2013 Total		169,000	39,305	141,999	77%	102,524	115,820	218,345	76,346	13.48%	12.58%	1.54x
Vintage Year 2014												
Dyal Capital Partners II	Buyout	35,000	9,633	28,150	72%	5,063	17,544	22,608	-5,543	-10.65%	16.70%	0.80x
H.I.G. Europe Capital Partners II, L.P.	Buyout	15,709	5,335	10,899	66%	2,624	9,371	11,995	1,096	4.81%	15.50%	1.10x
Marlin Heritage Fund	Buyout	10,000	0	10,418	100%	13,439	9,794	23,233	12,815	36.52%	16.70%	2.23x
Thoma Bravo XI	Buyout	30,000	3,088	32,647	90%	36,579	53,005	89,584	56,937	30.21%	16.70%	2.74x
TPG Opportunities Partners III	Distressed Debt	40,000	16,726	45,976	58%	32,576	22,366	54,942	8,966	10.30%	7.30%	1.20x
Khosla Ventures V	Venture Capital	20,000	1,100	18,900	95%	1,013	25,525	26,538	7,638	11.75%	17.15%	1.40x
Spectrum Equity Investors VII, L.P.	Venture Capital	25,000	2,375	22,625	91%	29,634	35,218	64,852	42,227	41.71%	17.15%	2.87x
Vintage Year 2014 Total		175,709	38,257	169,616	78%	120,929	172,824	293,753	124,137	22.55%	14.78%	1.73x
Vintage Year 2015												
* WPEF VI Overflow Fund C.V.	Buyout	6,732	6,722	10	0%	0	0	0	-10	0.00%	14.71%	0.00x
RRJ Capital Master Fund III, LP	Buyout	40,000	12,583	30,256	69%	25,458	14,929	40,387	10,131	15.47%	14.71%	1.33x
WPEF VI Feeder, L.P.	Buyout	26,929	11,148	18,957	59%	6,092	20,325	26,417	7,460	16.82%	14.71%	1.39x
Accel-KKR Growth Capital Partners II	Mezzanine	15,000	1,879	13,121	87%	9,537	9,278	18,814	5,694	20.87%	9.40%	1.43x
New Enterprise Associates 15, L.P.	Venture Capital	35,000	3,325	31,679	91%	7,456	49,735	57,191	25,512	21.29%	15.77%	1.81x
Summit Partners Venture Capital Fund IV-A, L.P.	Venture Capital	35,000	32,778	22,272	6%	20,050	16,978	37,028	14,756	39.22%	15.77%	1.66x
Vintage Year 2015 Total		158,661	68,435	116,295	57%	68,594	111,244	179,838	63,543	21.64%	15.39%	1.55x
Vintage Year 2016												
Accel-KKR Capital Partners V, L.P.	Buyout	25,000	12,152	12,848	51%	7,343	11,108	18,451	5,604	27.25%	12.07%	1.44x
Dyal III Pension Investors LP	Buyout	35,000	21,143	19,079	40%	5,401	21,909	27,310	8,231	19.70%	12.07%	1.43x
Linden Capital Partners III	Buyout	35,000	4,613	32,853	87%	25,982	41,389	67,371	34,518	33.30%	12.07%	2.05x
Marlin Heritage Europe, L.P.	Buyout	14,587	4,539	10,263	69%	0	13,936	13,936	3,673	26.10%	8.66%	1.36x
Thoma Bravo Fund XII, L.P.	Buyout	30,000	2,231	35,800	93%	8,033	41,983	50,017	14,216	19.29%	12.07%	1.40x
TSG7 A L.P.	Buyout	16,000	4,075	11,925	75%	165	14,747	14,911	2,986	11.21%	12.07%	1.25x
TSG7 B L.P.	Buyout	4,000	1,611	2,389	60%	6	1,993	1,999	-391	-13.25%	12.07%	0.84x

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 December 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%	19,437	16,801	36,238	7,298	10.95%	8.65%	1.25x
Trinity Ventures XII, L.P.	Venture Capital	30,000	6,825	23,175	77%	0	40,017	40,017	16,842	32.03%	17.43%	1.73x
Vintage Year 2016 Total		214,587	59,643	177,272	72%	66,367	203,883	270,250	92,978	22.92%	13.86%	1.52x
Vintage Year 2017												
Marlin Heritage II	Buyout	10,000	4,375	5,625	56%	0	5,922	5,922	297	3.99%	13.50%	1.05x
Summit Partners Europe Growth Equity Fund II, SCSP	Buyout	33,661	30,439	20,078	10%	16,601	13,804	30,406	10,327	N/M	N/M	1.51x
New Enterprise Associates 16, L.P.	Venture Capital	35,000	13,913	21,088	60%	627	23,993	24,620	3,532	12.61%	11.47%	1.17x
Vintage Year 2017 Total		78,661	48,726	46,791	38%	17,228	43,719	60,947	14,156	30.64%	12.25%	1.30x
Vintage Year 2018												
Linden Capital Partners IV LP	Buyout	44,330	34,388	11,563	22%	1,907	9,838	11,744	181	N/M	N/M	1.02x
Marlin Equity V	Buyout	25,000	16,317	8,830	35%	521	10,479	11,001	2,171	N/M	N/M	1.25x
TSG8 L.P.	Buyout	45,000	43,821	1,179	3%	0	-111	-111	-1,291	N/M	N/M	-0.09x
Davidson Kempner Long-Term Distressed Opportunities Fund IV LP	Distressed Debt	35,000	10,850	24,150	69%	0	27,261	27,261	3,111	N/M	N/M	1.13x
TSSP Opportunities Partners IV (A), L.P.	Distressed Debt	35,000	29,302	7,511	16%	1,856	5,963	7,818	307	N/M	N/M	1.04x
RCP Fund XIII	Fund of Funds	50,000	44,500	5,500	11%	0	4,258	4,258	-1,242	N/M	N/M	0.77x
RCPDirect III	Fund of Funds	25,000	17,364	7,636	31%	386	8,125	8,511	875	N/M	N/M	1.11x
Accel-KKR Growth Capital Partners III	Mezzanine	33,320	29,133	4,187	13%	0	3,642	3,642	-545	N/M	N/M	0.87x
Khosla Ventures VI, L.P.	Venture Capital	35,000	21,770	13,230	38%	0	13,067	13,067	-163	N/M	N/M	0.99x
Spectrum Equity VIII, L.P.	Venture Capital	25,000	8,188	16,813	67%	0	15,638	15,638	-1,175	N/M	N/M	0.93x
Vintage Year 2018 Total		352,650	255,632	100,599	28%	4,670	98,158	102,828	2,230	N/M	N/M	1.02x
Vintage Year 2019												
Cortec Group Fund VII, L.P.	Buyout	30,000	21,328	8,672	29%	0	8,591	8,591	-80	N/M	N/M	0.99x
Gridiron Capital Fund IV, L.P.	Buyout	30,000	30,000	0	0%	0	-528	-528	-528	N/M	N/M	N/A
Thoma Bravo Fund XIII, LP	Buyout	45,000	28,753	16,246	36%	0	17,510	17,510	1,263	N/M	N/M	1.08x
New Enterprise Associates 17, L.P.	Venture Capital	25,000	22,700	2,300	9%	0	2,308	2,308	8	N/M	N/M	1.00x
Threshold Ventures III, L.P.	Venture Capital	20,000	17,800	2,200	11%	0	2,013	2,013	-187	N/M	N/M	0.92x
Vintage Year 2019 Total		150,000	120,582	29,418	20%	0	29,894	29,894	476	N/M	N/M	1.02x

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 December 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
Vintage Year 2020												
Accel-KKR Capital Partners VI, LP	Buyout	30,000	30,000	0	0%	0	0	0	0	N/M	N/M	N/A
Davidson Kempner Long-Term Distressed Opportunities Fund V LP	Distressed Debt	30,000	30,000	0	0%	0	0	0	0	N/M	N/M	N/A
Vintage Year 2020 Total		60,000	60,000	0	0%	0	0	0	0	N/M	N/M	N/A
Portfolio Total :		1,684,701	715,193	1,099,730	58%	743,029	980,905	1,723,934	624,204	15.36%	12.88%	1.57x
Portfolio Strategy Totals												
Buyout		718,901	350,045	424,905	51%	251,372	410,180	661,552	236,647	21.82%		1.56x
Distressed Debt		245,000	117,937	165,526	52%	92,038	102,632	194,670	29,143	6.59%		1.18x
Fund of Funds		311,130	79,877	242,099	74%	269,733	129,261	398,994	156,895	11.36%		1.65x
Mezzanine		48,320	31,013	17,307	36%	9,537	12,920	22,457	5,149	18.49%		1.30x
Venture Capital		361,350	136,322	249,892	62%	120,351	325,911	446,262	196,370	21.27%		1.79x
Portfolio Total :		1,684,701	715,193	1,099,730	58%	743,029	980,905	1,723,934	624,204	15.36%	12.88%	1.57x
Portfolio Geography Totals												
US		1,428,000	628,679	896,259	56%	583,003	834,318	1,417,320	521,062	15.33%		1.58x
Non-US		256,701	86,514	203,471	66%	160,026	146,587	306,613	103,143	15.49%		1.51x
Portfolio Total		1,684,701	715,193	1,099,730	58%	743,029	980,905	1,723,934	624,204	15.36%	12.88%	1.57x

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 December 31, 2019

The Private Credit portfolio's net IRR since inception is 8.14%, versus the benchmark return of 7.14%

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

The Private Credit funds reported another quarter of steady gains in Q4

- The portfolio returned 2.2% in Q4 and 9.5% for the trailing 1 year period ending December 31, 2019
 - OrbiMed Royalty III reported a negative return in Q4 (recently started investing), all other funds were up 2% - 8%
- Longer term performance remains steady, with annualized returns of 7% - 8% over multi-year periods
 - 7.6% net IRR for the 3 year period and 7.9% net IRR for the 5 year period

Changes during the quarter

- SCERS committed €31.6 million to MCP Private Capital IV (European opportunistic credit) and \$50 million to BSP Senior Secured II (direct lending, reup with existing GP) during Q4
- \$22.0 million in new contributions, \$10.5 million in distributions
- Portfolio IRR increased 0.08% while the total portfolio gain increased by \$4.3 million

Private Credit Portfolio Details – as of December 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%	26,198	620	26,818	6,122	8.96%	N/A	1.30x
Vintage Year 2011 Total		20,000	2,125	20,697	89%	26,198	620	26,818	6,122	8.96%	12.74%	1.30x
Vintage Year 2014												
Summit Partners Credit Fund II, L.P.	Direct Lending	35,000	4,888	47,209	86%	26,392	29,320	55,712	8,503	8.87%	3.97%	1.18x
Vintage Year 2014 Total		35,000	4,888	47,209	86%	26,392	29,320	55,712	8,503	8.87%	14.78%	1.18x
Vintage Year 2015												
Athyrium Opportunities Fund II	Opportunistic Credit	32,000	4,627	40,149	86%	32,057	15,299	47,355	7,206	9.44%	9.40%	1.18x
Vintage Year 2015 Total		32,000	4,627	40,149	86%	32,057	15,299	47,355	7,206	9.44%	15.39%	1.18x
Vintage Year 2017												
Athyrium Opportunities Fund III	Opportunistic Credit	25,000	9,872	20,516	61%	5,352	16,011	21,363	847	3.70%	8.56%	1.04x
Vintage Year 2017 Total		25,000	9,872	20,516	61%	5,352	16,011	21,363	847	3.70%	12.25%	1.04x
Vintage Year 2018												
Benefit Street Partners Senior Secured Opportunities Fund L.P.	Direct Lending	50,000	5,587	50,953	89%	7,264	48,289	55,553	4,600	6.01%	4.47%	1.09x
Summit Partners Credit Fund III, L.P.	Direct Lending	50,000	30,895	23,440	38%	4,335	22,419	26,753	3,313	N/M	N/M	1.14x
TCP Direct Lending Fund VIII-S, LLC	Direct Lending	100,000	33,366	66,634	67%	5,599	66,374	71,973	5,339	N/M	N/M	1.08x
Vintage Year 2018 Total		200,000	69,848	141,026	65%	17,198	137,082	154,279	13,253	8.11%	3.42%	1.09x
Vintage Year 2019												
BSP Levered US SOF II (Senior Secured Opportunities) Fund L.P.	Direct Lending	50,000	47,532	2,468	5%	0	1,114	1,114	-1,354	N/M	N/M	0.45x
OrbiMed Royalty & Credit Opportunities III, LP	Opportunistic Credit	35,000	33,250	1,750	5%	0	1,563	1,563	-187	N/M	N/M	0.89x
Vintage Year 2019 Total		85,000	80,782	4,218	5%	0	2,677	2,677	-1,541	N/M	N/M	0.63x
Vintage Year 2020												
MCP Private Capital Fund IV (Feeder) SCSp	Opp. Credit	35,457	35,457	0	0%	0	0	0	0	N/M	N/M	N/A
Vintage Year 2020 Total		35,457	35,457	0	0%	0	0	0	0	N/M	N/M	N/A
Portfolio Total :		432,457	207,598	273,815	52%	107,197	201,008	308,205	34,391	8.14%	7.14%	1.13x

¹Benchmarks:

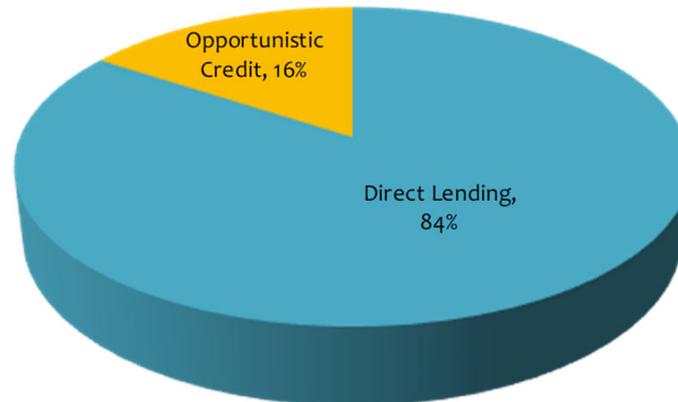
Private Credit Investments: Cambridge Associates median return for the respective debt strategies and vintage years

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

Private Credit Portfolio Details – as of December 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
Portfolio Strategy Totals												
Direct Lending		305,000	124,393	211,400	59%	69,788	168,136	237,924	26,524	8.18%		1.13x
Opportunistic Credit		127,457	83,205	62,415	35%	37,409	32,873	70,281	7,867	8.01%		1.13x
Portfolio Total :		432,457	207,598	273,815	52%	107,197	201,008	308,205	34,391	8.14%	7.14%	1.13x
Portfolio Geography Totals												
US		397,000	172,141	273,815	57%	107,197	201,008	308,205	34,391	8.14%		1.13x
Non-US		35,457	35,457	0	0%	0	0	0	0	N/M		0.00x
Portfolio Total		432,457	207,598	273,815	52%	107,197	201,008	308,205	34,391	8.14%	7.14%	1.13x

Market Value Strategy Exposure*



* Exposures are based on the market values of investments as of 12/31/19.

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 December 31, 2019

The Real Assets portfolio's net IRR since inception is 11.87%, versus the blended benchmark return of 6.32%

- 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 Infrastructure and Energy partnerships

- Both Infrastructure and Energy partnerships have performed well since inception, although recent downturns in Energy continue to erode performance
 - Since inception net IRRs of 13.4% for Infrastructure and 11.7% for Energy
- The Real Asset Debt separate account has also performed well with a 10.6% since inception net IRR
 - That separate account market value remains small at \$17.7 million, with very few new investments

The portfolio generated a modest 0.3% net return in Q4

- The portfolio's largest Q4 gains came primarily from the Infrastructure funds
 - EQT IV, Wastewater, IFM, Tailwater Energy III, ISQ II, and Brookfield III led performance
- Most of the energy funds declined, with Quantum VI, EnCap IX, and Flatrock III declining 6 – 9% in Q4

Changes during the quarter

- SCERS committed \$35 million to Tailwater Energy Fund IV (small midstream energy, reup with existing GP) during Q4
- \$56.9 million in new contributions, \$15.1 million in distributions
- Portfolio IRR declined by 1.11% while the total portfolio gain increased by \$1.8 million

Real Assets Portfolio Performance Details – as of December 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	2,030	37,245	94%	28,174	16,960	45,134	7,889	8.06%	4.03%	1.21x
Vintage Year 2013 Total		33,000	2,030	37,245	94%	28,174	16,960	45,134	7,889	8.06%		1.21x
Vintage Year 2014												
Carlyle Power Partners II, L.P.	Energy	40,000	14,139	33,565	65%	7,547	29,743	37,290	3,725	5.71%	7.92%	1.11x
EnCap Flatrock Midstream III	Energy	20,000	2,142	22,097	89%	9,210	16,787	25,997	3,900	11.71%	7.92%	1.18x
Global Energy & Power Infrastructure Fund II	Energy	35,000	2,896	35,532	92%	26,357	23,079	49,436	13,904	27.83%	7.92%	1.39x
Quantum Energy Partners VI, LP	Energy	35,000	9,572	31,268	73%	18,740	32,475	51,216	19,948	28.90%	7.92%	1.64x
Pantheon SCERS SIRF MM, LLC	Infrastructure	100,000	33,968	70,332	66%	15,100	85,918	101,018	30,687	13.58%	13.82%	1.44x
Wastewater Opportunity Fund	Infrastructure	25,000	2,733	22,274	89%	1,998	20,705	22,703	429	1.25%	13.82%	1.02x
Vintage Year 2014 Total		255,000	65,451	215,068	74%	78,953	208,708	287,661	72,593	15.19%		1.34x
Vintage Year 2015												
ArcLight Energy Partners Fund VI	Energy	40,000	5,563	42,665	86%	15,767	35,263	51,030	8,365	8.00%	8.22%	1.20x
EnCap Energy Capital Fund X, L.P.	Energy	40,000	6,644	35,999	83%	7,450	35,493	42,943	6,945	8.40%	8.22%	1.19x
Atalaya Real Assets SMA	Real Asset Debt	100,000	84,789	36,169	15%	25,769	17,729	43,498	7,329	10.55%	N/A	1.20x
Vintage Year 2015 Total		180,000	96,996	114,833	46%	48,986	88,485	137,471	22,639	8.83%		1.20x
Vintage Year 2016												
ACM Fund II, LLC	Agriculture	25,000	5,586	23,561	78%	4,581	16,406	20,987	-2,573	-8.09%	6.21%	0.89x
Brookfield Infrastructure Fund III, L.P.	Infrastructure	40,000	9,702	30,288	76%	6,410	31,442	37,851	7,564	12.90%	N/A	1.25x
IFM Global Infrastructure Fund	Infrastructure	125,053	0	125,053	100%	33,389	130,268	163,657	38,604	15.95%	N/A	1.31x
Vintage Year 2016 Total		190,053	15,287	178,901	92%	44,380	178,116	222,496	43,595	13.12%		1.24x
Vintage Year 2017												
Quantum Energy Partners VII, LP	Energy	40,000	20,560	21,797	49%	2,415	19,060	21,475	-322	-1.16%	7.15%	0.99x
Meridiam Infrastructure North America Fund III	Infrastructure	50,000	47,749	2,251	5%	1	521	522	-1,729	-79.45%	N/A	0.23x
Vintage Year 2017 Total		90,000	68,309	24,049	24%	2,416	19,581	21,997	-2,052	-6.83%		0.91x
Vintage Year 2018												
Paine Schwartz Food Chain Fund V, LP	Agriculture	40,000	40,000	0	0%	0	-874	-874	-874	N/M	N/M	N/A

¹Benchmarks:

Real Assets Portfolio: 45% Cambridge Infrastructure, 35% Cambridge Energy, 10% NCREIF Timberland, 10% NCREIF Farland
 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 December 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
EnCap Flatrock Midstream IV, L.P.	Energy	22,500	15,205	7,880	32%	588	8,492	9,080	1,200	N/M	N/M	1.15x
Tailwater Energy Fund III, LP	Energy	32,000	9,772	24,283	69%	1,662	24,091	25,753	1,470	N/M	N/M	1.06x
ISQ Global Infrastructure Fund II	Infrastructure	50,000	29,826	23,872	40%	3,697	22,857	26,554	2,682	N/M	N/M	1.11x
Vintage Year 2018 Total		144,500	94,803	56,035	34%	5,947	54,566	60,513	4,478	N/M		1.08x
Vintage Year 2019												
Tailwater Energy Fund IV, LP	Energy	35,000	29,074	5,926	17%	0	5,656	5,656	-271	N/M	N/M	0.95x
Brookfield Infrastructure Fund IV	Infrastructure	40,000	28,135	11,865	30%	0	11,638	11,638	-227	N/M	N/M	0.98x
EQT Infrastructure IV (No.2) USD SCSp	Infrastructure	35,000	28,673	6,977	18%	48	6,821	6,869	-108	N/M	N/M	0.98x
Vintage Year 2019 Total		110,000	85,882	24,768	22%	48	24,114	24,162	-606	N/M		0.98x
Portfolio Total :		1,002,553	428,758	650,898	57%	208,904	590,531	799,435	148,536	11.87%	6.32%	1.23x
Portfolio Strategy Totals												
Agriculture		65,000	45,586	23,561	30%	4,581	15,532	20,113	-3,447	-11.07%		0.85x
Energy		372,500	117,597	298,257	68%	117,910	247,100	365,010	66,753	11.73%		1.22x
Infrastructure		465,053	180,786	292,911	61%	60,643	310,170	370,813	77,901	13.38%		1.27x
Real Asset Debt		100,000	84,789	36,169	15%	25,769	17,729	43,498	7,329	10.55%		1.20x
Portfolio Total :		1,002,553	428,758	650,898	57%	208,904	590,531	799,435	148,536	11.87%	6.32%	1.23x
Portfolio Geography Totals												
US		712,500	332,422	452,844	53%	165,360	387,506	552,865	100,021	10.82%		1.22x
Non-US		290,053	96,336	198,054	67%	43,544	203,025	246,569	48,515	15.14%		1.24x
Portfolio Total		1,002,553	428,758	650,898	57%	208,904	590,531	799,435	148,536	11.87%	6.32%	1.23x

¹Benchmarks:

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 Characteristics as of December 31, 2019

The SCERS Real Assets portfolio is primarily Infrastructure and Energy

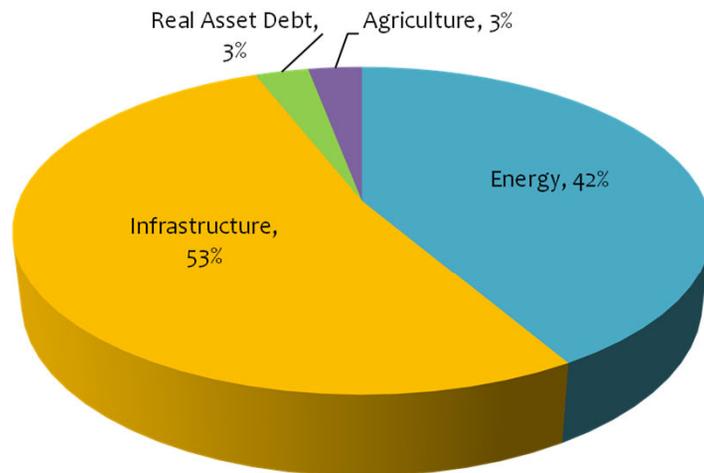
- Other strategies such as Agriculture represent much smaller allocations in the portfolio

The portfolio is focused on North America, though is diversified globally

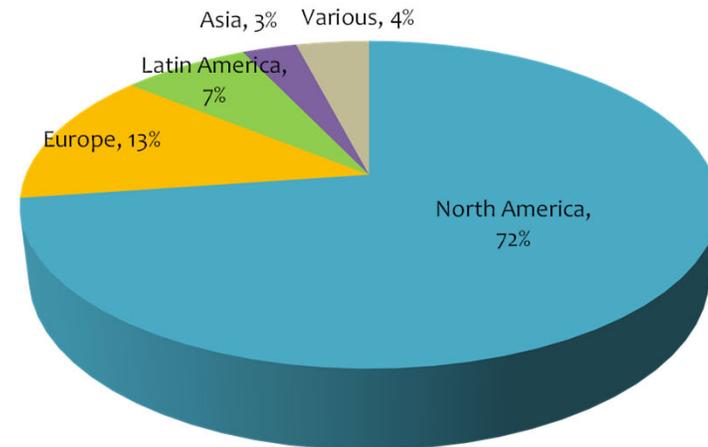
- The portfolio has exposure to Europe, Latin America, and Asia

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

Market Value Strategy Exposure*



Market Value Geographic Exposure*



* Exposures are based on the market values of investments as of 12/31/19.

Opportunities Portfolio – as of December 31, 2019

The Opportunities portfolio's net IRR since inception is 18.36%

- 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
 - 5.73% portfolio IRR v 9.56% 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 3 year comparison, for example, reflects only the performance of 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 7.99% net IRR since inception

Changes during the quarter

- SCERS made no new commitments categorized as Opportunities funds during Q4 2019
- No new contributions, \$0.3 million in distributions
- Portfolio IRR decreased 0.01%, total portfolio gain increased slightly

As mentioned, the Opportunities portfolio only includes certain distressed debt fund(s)

- 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 December 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%	9.84%	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%	12.22%	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%	14.45%	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%	14.45%	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%	24,140	7,061	31,201	6,326	7.99%	8.41%	1.25x
Vintage Year 2013 Total		25,000	1,117	24,875	96%	24,140	7,061	31,201	6,326	7.99%		1.25x
Portfolio Total :		100,000	1,117	100,123	99%	153,488	7,061	160,549	60,426	18.36%	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

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