



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 16

MEETING DATE: June 21, 2023

SUBJECT: Quarterly Investment Performance Report—
Alternative Assets

SUBMITTED FOR: Consent Deliberation and Action Receive and File

RECOMMENDATION

Receive and file the Cliffwater Quarterly Performance Review presentation for the periods ending March 31, 2023 for the Absolute Return portfolio, and the periods ending December 31, 2022 for the Private Equity, Private Credit, and Real Assets 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 highlights notable manager performance, along with any recent alternative investments made by SCERS. The returns for the private market asset classes are shown in the table below, and provided within Cliffwater's reports, are lagged a quarter and reflect valuations as of December 31, 2022.

SCERS' alternative asset class returns are as follows:

SCERS ALTERNATIVE ASSETS PERFORMANCE SUMMARY
Quarter Reporting Periods Ending March 31, 2023

SCERS ASSET CLASS	Quarter*	1-Year*	3-Year*	5-Year*	Since Inception*	Since Inception Date*
SCERS Absolute Return	1.2%	0.9%	8.6%	3.7%	4.1%	Sep-04
HFRI FoF Conservative	1.0%	0.9%	7.7%	4.0%	3.6%	
HFRI FoF Composite + 1%	0.9%	-0.9%	8.2%	4.1%	4.2%	
SCERS Private Equity	-0.2%	-7.7%	21.0%	21.3%	16.9%	Feb-08
Cambridge Private Equity/Venture Capital	0.7%	-7.5%	18.6%	16.4%	14.3%	
SCERS Private Credit	2.2%	3.9%	8.4%	8.1%	8.3%	Oct-11
Credit Suisse Leveraged Loan + 2%	2.8%	0.9%	4.3%	5.2%	6.4%	
SCERS Real Assets	2.1%	13.9%	12.4%	11.1%	12.1%	Jan-13
(60%) Cambridge Private Infrastructure; (30%) Cambridge Private Energy; (10%) NCREIF Farmland	3.4%	13.6%	11.4%	8.2%	8.0%	
<p>*Note: Periods ending 12/31/22 for Private Equity, Private Credit, and Real Assets Periods ending 3/31/23 for Absolute Return All returns are net IRR except Absolute Return which is time-weighted</p>						

SCERS PORTFOLIO RESULTS

For the reporting quarter ended December 31, 2022:

- SCERS' Private Equity portfolio underperformed against its benchmark, -0.2% versus 0.7%. The underperformance was primarily in SCERS' venture capital strategies as the public markets remain subdued.
- SCERS' Private Credit portfolio underperformed against its benchmark return, 2.2% versus 2.8%, as a number of SCERS' direct lending strategies took mark-to-market downgrades due to rising interest rates and widening interest rate spreads.
- SCERS' Real Assets portfolio underperformed against its benchmark, 2.1% versus 3.4%. A number of SCERS' energy and power strategies pulled back due to the decline in oil and gas prices.

For the reporting quarter ended March 31, 2023, SCERS' Absolute Return portfolio outperformed the HFRI Fund of Funds Conservative Index return, +1.2% versus +1.0%, with the Diversifying Portfolio outperforming the index (+1.2% versus +1.0%), and the Growth-Oriented portfolio, which is being liquidated, underperforming (+0.5% versus +0.9%). The Diversifying Portfolio relative outperformance was due primarily to the Market Neutral strategies (+2.7% versus +1.0%).

Below are notable top and bottom performing funds among SCERS' alternative assets managers for the quarterly reporting period:

- Top performing funds:
 - Absolute Return:
 - Sculptor Domestic Partners (multi-strategy): +4.9%
 - Two Sigma Risk Premia Enhance Fund (market neutral): +3.9%
 - Aristeia Partners (market neutral): +3.8%
 - Private Equity portfolio:
 - Cortec Group Fund VII (buyout): +17.0%
 - RRJ Capital Master Fund III (buyout): +10.3%
 - Wayzata Opportunities Fund III (distressed debt): +9.7%
 - Davidson Kempner Long-Term Distressed Opportunities Fund IV (distressed debt): +7.5%
 - H.I.G. Capital Partners V (buyout): +7.3%
 - Private Credit portfolio:
 - Summit Partners Credit Fund I (direct lending): +26.9%
 - MCP Private Capital Fund IV (Feeder) (opportunistic lending): +6.1%
 - Summit Partners Credit Fund IV (direct lending): +5.2%
 - IFM U.S. Infrastructure Debt Fund (direct lending): +4.8%
 - Real Assets portfolio:
 - Tailwater Energy Fund IV (energy and power): +17.9%
 - ISQ Global Infrastructure Fund III (infrastructure): +16.3%
 - EnCap Flatrock Midstream III (energy and power): +11.8%
 - EnCap Energy Capital Fund IX (energy and power): +10.5%
 - NGP Royalty Partners (energy and power): +9.7%
- Bottom performing funds:
 - Absolute Return portfolio:
 - Graham Global Investment Fund II (macro systematic): -6.5%
 - PSquared US Feeder Fund (event driven): -1.3%

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- Private Equity portfolio:
 - OrbiMed Private Investments IC (venture capital): -29.7%
 - Threshold Ventures IV (venture capital): -21.5%
 - CRV Select Fund II (venture capital): -14.8%
 - Linden Capital Partners III (buyout): -14.5%
 - Waterland Private Equity Fund V (buyout): -13.9%

 - Private Credit portfolio:
 - Summit Partners Credit Fund III (direct lending): -3.3%
 - Summit Partners Credit Fund II (direct lending): -3.2%
 - Athyrium Opportunities Fund III (opportunistic): -1.2%

 - Real Assets portfolio:
 - Quantum Energy Partners VI (energy and power): -19.2%
 - ACM Fund II (agriculture): -17.3%
 - NGP Royalty Partners II (energy and power): -6.5%
 - Meridiam Sustainable Infrastructure Europe IV (infrastructure): -4.1%
 - BlackRock Global Energy & Power Infrastructure Fund II (energy and power): -2.9%

NEW INVESTMENTS

During the quarter ended March 31, 2023, SCERS made the following new investments:

- Khosla Ventures VIII (Private Equity – Venture Capital): \$30 million
- Accel-KKR Capital Partners VII (Private Equity – Buyout): \$35 million
- Cortec Group Fund VIII (Private Equity – Buyout): \$30 million
- NGP Royalty Partners II (Real Assets – Energy and Power): \$25 million additional commitment

After the quarter, SCERS made the following new investments:

- IFM U.S. Infrastructure Debt Fund (Real Assets – Infrastructure): \$35 million additional commitment

ATTACHMENT

- Board Order
- Cliffwater's Quarterly Performance Review for Alternative Assets for the Quarter ended March 31, 2023.

Prepared by:

/S/

JR Pearce
Senior Investment Officer

Reviewed by:

/S/

Steve Davis
Chief Investment Officer

/S/

Eric Stern
Chief Executive Officer



Retirement Board Order

Sacramento County Employees' Retirement System

Before the Board of Retirement
June 21, 2023

AGENDA ITEM:

Quarterly Investment Performance Report—Alternative Assets

THE BOARD OF RETIREMENT hereby approves Staff's recommendation to receive and file the Quarterly Investment Performance Review presentation for the periods ending March 31, 2023 for the Absolute Return portfolio, and the periods ending December 31, 2022 for the Private Equity, Private Credit, and Real Assets portfolios, as presented by Cliffwater, LLC.

I HEREBY CERTIFY that the above order was passed and adopted on June 21, 2023 by the following vote of the Board of Retirement, to wit:

AYES:

NOES:

ABSENT:

ABSTAIN:

ALTERNATES:
(Present but not voting)

Keith DeVore
Board President

Eric Stern
Chief Executive Officer and
Board Secretary



INVESTMENT ADVISORY SERVICES

Los Angeles • New York

Sacramento County Employees' Retirement System Quarterly Performance Review

June 21, 2023

Absolute Return Portfolio Performance Summary – as of March 31, 2023

Diversifying Strategies

- The Diversifying Portfolio returned 1.22% in Q1 and 0.93% for the one-year period ending March 31, 2023
 - Outperformed the HFRI Conservative FoF Index benchmark by 23 bps in Q1 and 2 bps for the one-year period
 - Slightly trailed the T-bills + 2% long term objective by 5 bps (annualized) over the trailing 5-year period
- Sculptor (+4.90%), Two Sigma (+3.91%), and Laurion (+3.76%) led performance in Q1
 - Graham Tactical Trend (-6.51%) and PSquared (-1.28%) saw declines during Q1
- LMR (+6.90%), MW Global Opps (+4.83%), and Aristeia (+4.13%) provided the best performance over the one-year period
 - Although SCERS fully redeemed from Eisler during the period, Eisler had a material negative impact on performance during the trailing one-year period; Sculptor (-4.71%) and Two Sigma (-1.06%) also reported negative returns for the one-year period

Growth Oriented Strategies

- The portfolio was significantly downsized in Q1 '22 following the 2021 decision to eliminate the Growth Oriented Portfolio
 - The only investments in the portfolio are the remaining holdings of the Grosvenor Growth portfolio
 - Grosvenor Growth will continue to wind-down as that portfolio's liquidity allows
 - The portfolio market value totaled \$8.7 million at March 31, 2023
- The Growth Oriented Portfolio returned 0.52% in Q1 and -1.63% for the one-year period ending March 31, 2023

Portfolio risk and market sensitivity are at expectations for the Diversifying portfolio

- Diversifying Portfolio
 - Target standard deviation < 25% of global equities, with an equity beta < 0.2 and equity correlation < 0.5
 - Standard deviation of 3.39% compared to the ACWI standard deviation of 14.19% since December 2011 (24% ratio)
 - Portfolio equity beta of 0.12 with an equity correlation of 0.48
- The Growth Oriented portfolio is being eliminated in connection with the 2021 asset liability study

Diversifying Absolute Return Portfolio Performance – as of March 31, 2023

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													
Aristeia Partners, L.P.	50,410,109	5.6%	0.54%	2.61%	2.61%	4.06%	4.13%	-	-	5.18%	4.66%	0.73	Jan-21
Laurion Capital, Ltd.	60,044,806	6.6%	0.26%	3.76%	3.76%	3.34%	3.73%	8.62%	9.39%	8.03%	9.88%	0.70	Mar-14
LMR Multi-Strategy Fund	54,338,377	6.0%	-0.23%	0.77%	0.77%	6.04%	6.90%	16.63%	-	5.67%	14.83%	0.36	Nov-19
Two Sigma Risk Premia Enhanced Fund, LP	49,492,977	5.5%	3.13%	3.91%	3.91%	0.27%	-1.06%	7.69%	-	2.69%	10.24%	0.17	Sep-19
Market Neutral - HF Total	214,286,269	23.6%	0.85%	2.75%	2.75%	3.45%	3.45%	9.66%	4.71%	5.46%	5.81%	0.72	Mar-14
Event Driven													
BlackRock Event Driven Equity Fund (BILPX)	54,116,706	6.0%	-0.31%	0.72%	0.72%	2.88%	0.70%	5.89%	-	3.96%	5.24%	0.50	Mar-20
Davidson Kempner Institutional Partners LP	59,020,131	6.5%	-0.74%	1.12%	1.12%	3.35%	0.43%	7.99%	-	5.20%	4.92%	0.74	May-19
Elliott International Limited - Class A & B	79,515,182	8.8%	1.20%	2.01%	2.01%	2.12%	1.98%	10.43%	8.08%	8.05%	3.29%	1.99	Apr-12
PSquared US Feeder Fund LP	53,810,754	5.9%	-0.59%	-1.28%	-1.28%	0.42%	3.08%	-	-	2.87%	4.86%	0.29	Aug-20
Event Driven - HF Total	246,462,773	27.1%	0.01%	0.78%	0.78%	2.20%	1.56%	7.52%	5.36%	6.81%	3.27%	1.66	Apr-12
Equity Long/Short													
Marshall Wace Funds LP - MW Global Opportunities (US) Fund	56,574,665	6.2%	5.02%	2.61%	2.61%	6.82%	4.83%	5.99%	-	5.94%	8.08%	0.56	Jan-19
Equity Long/Short - HF Total	56,574,665	6.2%	5.02%	2.61%	2.61%	6.82%	4.83%	5.99%	5.94%	5.94%	8.08%	0.56	Apr-12
Macro-Discretionary													
Tudor BVI Global Fund LP	50,089,429	5.5%	-1.60%	0.18%	0.18%	-	-	-	-	0.18%	-	-	Jan-23
Macro-Discretionary - HF Total	50,089,429	5.5%	-1.60%	0.18%	0.18%	-15.22%	-19.03%	-13.51%	-2.84%	-1.60%	5.03%	-0.51	May-12
Macro-Systematic													
Graham Global Investment Fund II SPC Ltd. - Tactical Trend Segregated Por	46,501,718	5.1%	-9.71%	-6.51%	-6.51%	-9.26%	0.86%	11.82%	6.89%	4.72%	13.69%	0.28	Feb-17
Macro-Systematic - HF Total	46,501,718	5.1%	-9.71%	-6.51%	-6.51%	-9.26%	0.86%	8.78%	4.85%	3.73%	11.94%	0.23	Jan-17
Multi-Strategy													
Sculptor Domestic Partners II, L.P.	61,237,792	6.7%	-0.09%	4.90%	4.90%	5.34%	-4.71%	7.46%	5.07%	6.55%	6.83%	0.80	Jan-12
Multi-Strategy - HF Total	61,237,792	6.7%	-0.09%	4.90%	4.90%	5.34%	-4.71%	7.46%	0.02%	3.79%	6.62%	0.43	May-13
Fund of Funds													
Grosvenor SC Absolute Return Fund LLC (Diversifying)	223,893,484	24.7%	0.39%	0.93%	0.93%	2.34%	1.98%	6.69%	3.60%	2.52%	3.59%	0.40	Dec-11
Fund of Funds - HF Total	223,893,484	24.7%	0.39%	0.93%	0.93%	2.34%	1.98%	6.65%	3.48%	2.40%	3.45%	0.38	Dec-11
Diversifying Portfolio Total	899,046,130	99.0%	-0.05%	1.22%	1.22%	1.66%	0.93%	7.24%	3.36%	3.35%	3.39%	0.65	Dec-11
HFRI FOF: Conservative Index			-0.47%	0.99%	0.99%	2.66%	0.91%	7.66%	3.95%	3.64%	3.35%	0.75	Dec-11
3 Month T-Bills+2%			0.59%	1.56%	1.56%	3.89%	4.50%	2.89%	3.41%	2.78%	0.31%	-	Dec-11

Growth Oriented Absolute Return Portfolio Performance – as of March 31, 2023

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													
Fund of Funds													
Grosvenor SC Absolute Return Fund LLC (Growth)	8,736,313	1.0%	-0.48%	0.52%	0.52%	0.61%	-1.63%	6.45%	1.92%	4.49%	6.44%	0.54	Dec-11
Fund of Funds - HF Total	8,736,313	1.0%	-0.48%	0.52%	0.52%	0.61%	-1.63%	6.45%	1.91%	3.99%	6.73%	0.37	Sep-04
Growth-Oriented Portfolio Total	8,736,313	1.0%	-0.48%	0.52%	0.52%	0.61%	-1.63%	10.89%	3.43%	4.55%	7.83%	0.39	Sep-04
HFRI FoF Composite + 1%			-0.59%	0.94%	0.94%	2.86%	-0.94%	8.17%	4.10%	4.22%	5.33%	0.49	Sep-04
3 Month T-Bills+5%			0.82%	2.27%	2.27%	6.10%	7.53%	5.90%	6.41%	6.33%	0.47%	-	Sep-04
Market Indices													
Libor3Month			0.43%	1.21%	1.21%	3.20%	3.64%	1.38%	1.73%	1.68%	0.49%	-	Sep-04
Bloomberg US Aggregate Bond Index			2.54%	2.96%	2.96%	-0.09%	-4.78%	-2.77%	0.91%	3.11%	3.90%	0.38	Sep-04
Bloomberg US High Yield Bond Index			1.07%	3.57%	3.57%	7.19%	-3.34%	5.91%	3.21%	6.32%	9.34%	0.52	Sep-04
S&P 500 TR			3.67%	7.50%	7.50%	9.98%	-7.73%	18.60%	11.19%	9.49%	15.10%	0.57	Sep-04
MSCI AC World Index Free - Net			3.08%	7.31%	7.31%	9.75%	-7.44%	15.36%	6.93%	7.35%	15.90%	0.42	Sep-04
MSCI EAFE - Net			2.48%	8.47%	8.47%	15.36%	-1.38%	12.99%	3.52%	5.44%	16.99%	0.30	Sep-04
MSCI EMF (Emerging Markets Free) - Net			3.03%	3.95%	3.95%	0.84%	-10.70%	7.83%	-0.91%	6.98%	21.18%	0.35	Sep-04

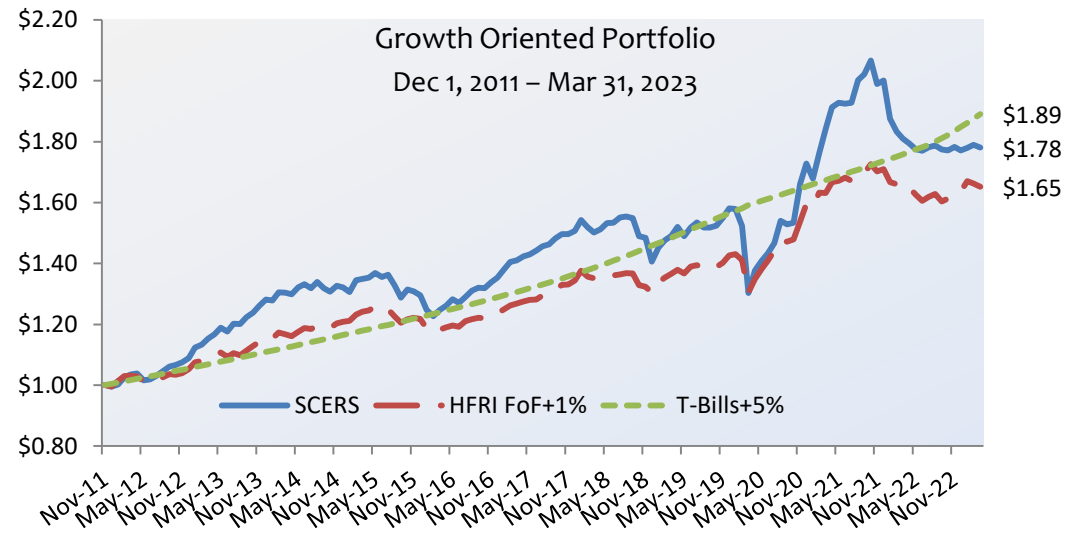
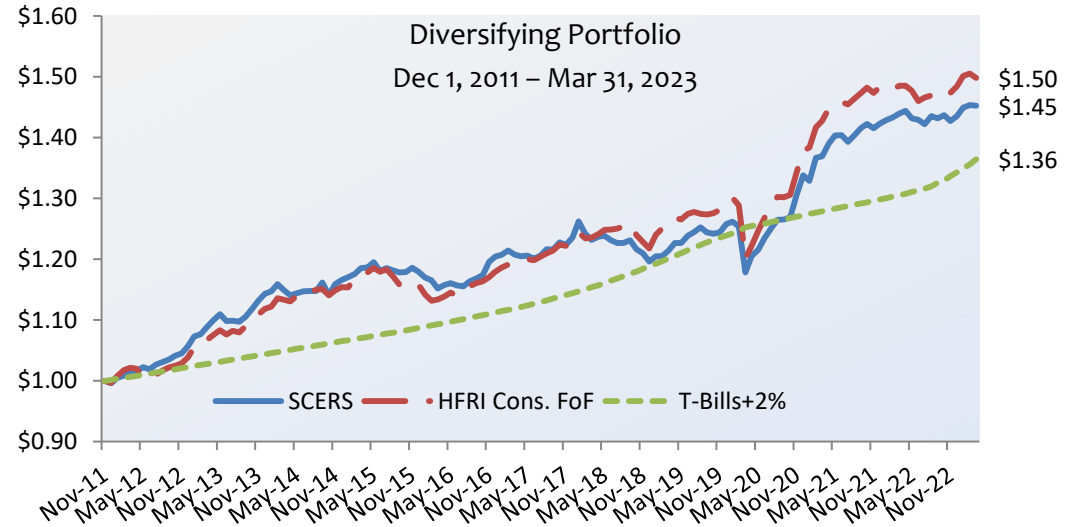
Absolute Return Portfolios Cumulative Performance – December 2011 to March 2023

The Diversifying portfolio is above its T-bills + 2% long term objective though trails the HFRI Fund of Funds Conservative Index over this period

Despite sharp declines in Q1 2020 and 2022, the Growth Oriented portfolio continued to meet the T-bills + 5% long term objective and remained ahead of the Fund of Funds Index + 1% benchmark into the portfolio's wind-down

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, 2022

The Private Equity portfolio's net IRR since inception is 16.85%, versus the Cambridge Associates benchmark IRR of 14.27%

- The long-term Policy objective (Russell 3000 + 3%) has a 14.60% IRR over this period

The portfolio returned -0.2% in Q4 while public equity markets rebounded sharply during the quarter (ACWI +9.8%)

- Negative performance came primarily from the portfolio's Venture Capital and Growth Equity funds
 - Linden III, CRV Select, Trinity XII, RRJ II, Marlin Heritage, and Khosla Ventures IV reported the largest declines in Q4
 - However, a number of the portfolio's funds did show gains for the quarter, largely offsetting these declines
- Distributions slowed during the quarter, reflecting a general slowdown in private equity exits in the second half of 2022
 - \$42.8 million in distributions, led by Marlin Heritage Europe, Thoma Bravo XII, TOP IV, Trinity Ventures XI, and NEA 15
- For the calendar year 2022, the portfolio returned -7.7% while public equities saw significant declines (ACWI -18.4%)

Despite the recent performance slowdown, longer-term performance remains quite strong across most of the funds

- Double-digit net IRRs for all vintage years prior to 2020, with most vintage years exceeding peer universes
- Summit Europe II (77.2%), Summit VC IV (41.0%), AKKR IV (39.0%), Spectrum VII (38.7%), Waterland V (35.1%), Spectrum VIII (33.5%), and Trinity Ventures XII (31.2%) are leading performance among SCERS' more mature funds

The legacy fund of funds, comprising 4.5% of the Private Equity portfolio, were mostly down 5 – 6% during the quarter

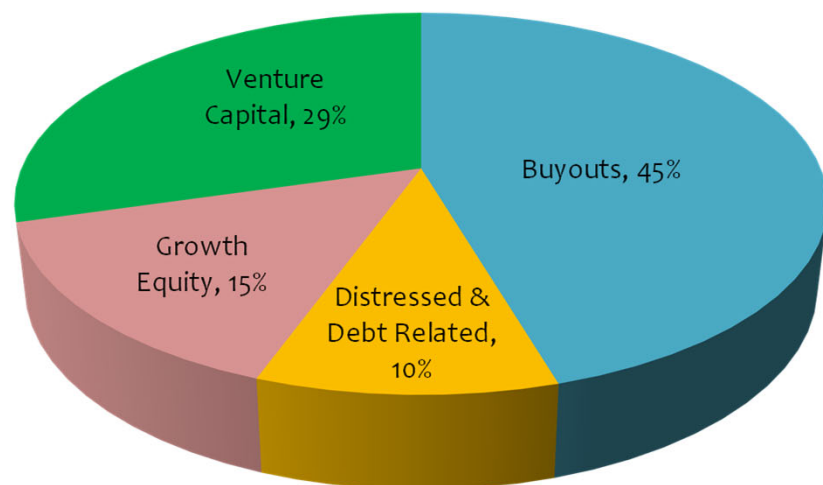
- The legacy fund of funds distributed \$5.3 million during the quarter

Changes during the quarter

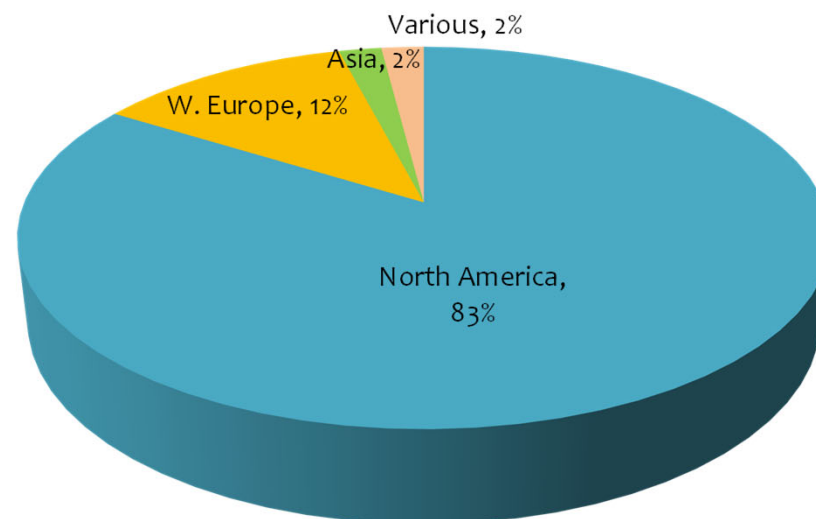
- SCERS committed \$100 million to a co-investment fund managed by Ardian during Q4
 - SCERS also committed \$30 million each to a venture capital fund and a buyout fund (both re-ups) in Q1 2023
- \$53.8 million in new contributions, \$42.8 million in distributions
- Total portfolio gain decreased by \$3.4 million while the total portfolio IRR decreased by 0.45%

Private Equity Portfolio Exposures as of December 31, 2022

Private Equity Portfolio Strategy Exposure*



Private Equity Portfolio Geographic Exposure*



Portfolio Strategy Totals	(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	TVPI Bench.
Buyout	971,589	374,701	707,941	61%	607,761	649,447	1,257,208	549,267	21.84%		1.78x	
Distressed Debt	330,000	100,423	285,667	70%	220,781	146,810	367,591	81,924	8.66%		1.29x	
Fund of Funds	309,520	33,158	291,631	89%	365,411	149,721	515,132	223,502	11.99%		1.77x	
Growth Equity	303,272	106,006	238,347	65%	240,887	247,540	488,428	250,080	31.31%		2.05x	
Opportunistic Credit	50,000	36,632	16,645	27%	3,271	14,086	17,357	712	5.16%		1.04x	
Venture Capital	450,000	137,942	312,076	69%	149,646	445,601	595,247	283,171	17.82%		1.91x	
Portfolio Total :	2,414,381	788,863	1,852,308	67%	1,587,758	1,653,206	3,240,964	1,388,656	16.85%	14.27%	1.75x	

* Exposures are based on the market values of investments as of 12/31/22.

Private Equity Portfolio Performance Details – as of December 31, 2022

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	TVPI Bench.
Vintage Year 2006													
HarbourVest Partners VIII - Buyout Fund L.P.	Fund of Funds	37,500	1,125	36,375	97%	63,098	3,165	66,262	29,887	10.97%	7.77%	1.82x	1.78x
HarbourVest Partners VIII - Mezzanine and Distressed Debt Fund L.P.	Fund of Funds	5,000	200	4,800	96%	6,272	235	6,507	1,707	6.83%	7.77%	1.36x	1.78x
HarbourVest Partners VIII - Venture Fund L.P.	Fund of Funds	7,500	150	7,350	98%	13,526	2,394	15,920	8,570	11.34%	7.77%	2.17x	1.78x
Vintage Year 2006 Total		50,000	1,475	48,525	97%	82,896	5,794	88,690	40,165	10.74%	7.11%	1.83x	1.50x
Vintage Year 2008													
Abbott Capital Private Equity Fund VI, L.P.	Fund of Funds	75,000	375	74,625	100%	115,644	28,963	144,607	69,982	13.00%	17.05%	1.94x	2.82x
Goldman Sachs Private Equity Partners X, L.P.	Fund of Funds	75,000	13,447	69,136	82%	104,686	18,045	122,731	53,595	11.30%	17.05%	1.78x	2.82x
HarbourVest International Private Equity Partners VI-Partnership Fund L.P.	Fund of Funds	34,520	1,726	37,980	95%	48,739	21,535	70,274	32,294	11.21%	8.88%	1.85x	1.67x
Vintage Year 2008 Total		184,520	15,548	181,741	92%	269,069	68,544	337,612	155,871	11.96%	8.54%	1.86x	1.51x
Vintage Year 2011													
Waterland Private Equity Fund V C.V.	Buyout	17,153	2,811	16,235	84%	47,236	1,205	48,441	32,206	35.08%	10.92%	2.98x	1.61x
Khosla Ventures IV, L.P.	Venture Capital	10,000	190	9,810	98%	27,958	14,859	42,816	33,006	24.15%	16.25%	4.36x	2.72x
Vintage Year 2011 Total		27,153	3,001	26,045	89%	75,193	16,064	91,257	65,212	29.31%	12.43%	3.50x	1.85x
Vintage Year 2012													
Garrison Opportunity Fund III A LLC	Distressed Debt	20,000	0	20,000	100%	23,321	2,304	25,625	5,625	3.70%	15.62%	1.28x	1.67x
Summit Partners Venture Capital III-A, LP	Growth Equity	16,350	1,849	19,764	89%	38,234	3,069	41,303	21,539	17.47%	13.88%	2.09x	2.05x
New Enterprise Associates 14, L.P.	Venture Capital	25,000	875	24,125	97%	25,788	37,876	63,663	39,538	15.95%	16.05%	2.64x	2.38x
Vintage Year 2012 Total		61,350	2,724	63,889	96%	87,343	43,249	130,591	66,703	12.58%	12.29%	2.04x	1.82x
Vintage Year 2013													
Accel-KKR Capital Partners IV, L.P.	Buyout	15,000	311	15,509	98%	55,448	0	55,448	39,939	38.96%	17.07%	3.58x	2.04x
H.I.G. Capital Partners V, L.P.	Buyout	14,000	348	13,652	98%	18,791	12,691	31,482	17,829	23.84%	17.07%	2.31x	2.04x
Marlin Equity IV, L.P.	Buyout	20,000	0	20,081	100%	17,841	10,431	28,272	8,191	8.00%	17.07%	1.41x	2.04x
RRJ Capital Master Fund II, L.P.	Buyout	35,000	3,824	35,989	89%	43,944	5,847	49,790	13,801	9.03%	11.93%	1.38x	1.69x

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, 2022 (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	TVPI Bench.
Atalaya Special Opportunities Fund V, L.P.	Distressed Debt	25,000	1,117	24,875	96%	31,012	999	32,012	7,137	7.84%	8.25%	1.29x	1.37x
H.I.G. Bayside Loan Opportunity Fund III (Europe-US\$), L.P.	Distressed Debt	30,000	5,400	24,600	82%	28,963	3,994	32,957	8,357	7.65%	4.60%	1.34x	1.25x
Wayzata Opportunities Fund III, L.P.	Distressed Debt	30,000	26,129	14,718	13%	10,875	4,257	15,132	414	0.64%	8.25%	1.03x	1.37x
Trinity Ventures XI, L.P.	Venture Capital	25,000	375	24,625	99%	7,189	45,408	52,597	27,972	12.09%	17.16%	2.14x	2.50x
Vintage Year 2013 Total		194,000	37,504	174,049	81%	214,063	83,626	297,689	123,640	12.79%	13.42%	1.71x	1.76x
Vintage Year 2014													
Dyal Capital Partners II	Buyout	35,000	8,906	35,449	75%	15,697	34,614	50,311	14,862	9.04%	18.88%	1.42x	2.02x
H.I.G. Europe Capital Partners II, L.P.	Buyout	15,009	3,269	15,054	78%	11,627	9,987	21,614	6,559	11.14%	15.59%	1.44x	1.78x
Marlin Heritage Fund	Buyout	10,000	2,205	10,519	78%	20,295	4,236	24,531	14,013	31.14%	18.88%	2.33x	2.02x
Thoma Bravo XI	Buyout	30,000	3,203	32,591	89%	67,139	35,942	103,081	70,489	26.56%	18.88%	3.16x	2.02x
TPG Opportunities Partners III	Distressed Debt	40,000	11,486	50,431	71%	52,477	9,432	61,908	11,478	9.10%	8.70%	1.25x	1.43x
Spectrum Equity Investors VII, L.P.	Growth Equity	25,000	1,612	23,388	94%	56,845	37,242	94,086	70,699	38.73%	19.57%	4.02x	2.12x
Khosla Ventures V	Venture Capital	20,000	700	19,300	97%	25,133	38,028	63,161	43,861	23.68%	18.88%	3.27x	2.55x
Vintage Year 2014 Total		175,009	31,381	186,732	82%	249,213	169,480	418,693	231,961	22.77%	16.61%	2.24x	2.02x
Vintage Year 2015													
* WPEF VI Overflow Fund C.V.	Buyout	6,432	6,423	10	0%	0	0	0	-10	0.00%	15.09%	0.00x	1.68x
RRJ Capital Master Fund III, LP	Buyout	40,000	2,699	40,762	93%	36,439	9,895	46,335	5,573	6.62%	15.09%	1.14x	1.68x
WPEF VI Feeder, L.P.	Buyout	25,729	15,168	25,158	41%	30,972	20,918	51,890	26,731	23.97%	15.09%	2.06x	1.68x
Accel-KKR Growth Capital Partners II	Growth Equity	15,000	220	16,148	99%	24,284	12,105	36,389	20,241	30.56%	19.89%	2.25x	2.20x
Summit Partners Venture Capital Fund IV-A, L.P.	Growth Equity	35,000	12,102	40,398	65%	38,912	52,484	91,396	50,998	41.02%	19.89%	2.26x	2.20x
New Enterprise Associates 15, L.P.	Venture Capital	35,000	1,925	33,079	95%	29,640	32,199	61,840	28,760	13.13%	18.13%	1.87x	2.22x
Vintage Year 2015 Total		157,161	38,537	155,556	75%	160,247	127,601	287,849	132,293	21.01%	16.49%	1.85x	1.96x
Vintage Year 2016													
Accel-KKR Capital Partners V, L.P.	Buyout	25,000	0	25,271	100%	19,743	30,047	49,790	24,519	30.34%	22.54%	1.97x	1.95x
Dyal III Pension Investors LP	Buyout	35,000	21,644	22,899	38%	20,653	27,282	47,935	25,036	23.04%	22.54%	2.09x	1.95x
Linden Capital Partners III	Buyout	35,000	2,157	39,843	94%	64,427	31,585	96,011	56,168	29.94%	22.54%	2.41x	1.95x

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, 2022 (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	TVPI Bench.
Marlin Heritage Europe, L.P.	Buyout	13,937	283	14,432	98%	16,130	20,921	37,051	22,619	30.00%	13.77%	2.57x	1.65x
Thoma Bravo Fund XII, L.P.	Buyout	30,000	7,381	40,884	75%	42,132	30,790	72,922	32,038	16.58%	22.54%	1.78x	1.95x
TSG7 A L.P.	Buyout	16,000	3,036	12,964	81%	11,448	19,164	30,612	17,648	20.89%	22.54%	2.36x	1.95x
TSG7 B L.P.	Buyout	4,000	118	4,056	97%	1,525	4,381	5,906	1,850	13.11%	22.54%	1.46x	1.95x
Atalaya Special Opportunities Fund VI, L.P.	Distressed Debt	25,000	2,454	28,940	90%	39,735	2,735	42,469	13,529	13.75%	8.71%	1.47x	1.32x
Trinity Ventures XII, L.P.	Venture Capital	30,000	4,275	25,725	86%	27,145	53,452	80,597	54,872	31.18%	21.74%	3.13x	2.10x
Vintage Year 2016 Total		213,937	41,348	215,015	81%	242,936	220,357	463,294	248,279	24.02%	16.81%	2.15x	1.81x
Vintage Year 2017													
Marlin Heritage II	Buyout	10,000	9	10,228	100%	2,117	13,869	15,986	5,758	15.06%	23.91%	1.56x	1.96x
Summit Partners Europe Growth Equity Fund II, SCSP	Growth Equity	32,161	10,999	37,708	66%	58,077	40,194	98,271	60,562	77.21%	13.12%	2.61x	1.41x
New Enterprise Associates 16, L.P.	Venture Capital	35,000	3,150	31,850	91%	4,566	38,313	42,879	11,029	9.05%	26.89%	1.35x	2.17x
Vintage Year 2017 Total		77,161	14,158	79,787	82%	64,760	92,376	157,136	77,349	30.90%	20.39%	1.97x	1.86x
Vintage Year 2018													
Linden Capital Partners IV LP	Buyout	44,330	3,923	44,729	91%	18,712	47,163	65,875	21,146	23.29%	21.64%	1.47x	1.59x
Marlin Equity V	Buyout	25,000	1,416	23,731	94%	8,217	30,480	38,696	14,966	24.19%	21.64%	1.63x	1.59x
TSG8 L.P.	Buyout	45,000	12,636	32,477	72%	319	32,007	32,325	-152	-0.27%	21.64%	1.00x	1.59x
Davidson Kempner Long-Term Distressed Opportunities Fund IV LP	Distressed Debt	35,000	2,400	33,198	93%	14,270	43,997	58,267	25,070	17.62%	13.91%	1.76x	1.38x
TSSP Opportunities Partners IV (A), L.P.	Distressed Debt	35,000	6,047	43,346	83%	19,172	30,890	50,062	6,716	11.00%	13.91%	1.15x	1.38x
RCP Fund XIII	Fund of Funds	50,000	13,397	39,103	73%	6,114	45,974	52,088	12,984	19.05%	N/A	1.33x	N/A
RCPDirect III	Fund of Funds	25,000	2,739	22,261	89%	7,333	29,409	36,742	14,482	23.34%	16.60%	1.65x	1.43x
Accel-KKR Growth Capital Partners III	Growth Equity	33,320	4,736	28,584	86%	2,036	32,950	34,986	6,402	11.56%	22.25%	1.22x	1.70x
Spectrum Equity VIII, L.P.	Growth Equity	25,000	2,500	22,500	90%	22,500	23,225	45,725	23,225	33.54%	22.25%	2.03x	1.70x
Khosla Ventures VI, L.P.	Venture Capital	35,000	1,750	33,250	95%	0	60,841	60,841	27,591	24.15%	23.78%	1.83x	1.86x
Vintage Year 2018 Total		352,650	51,544	323,179	85%	98,672	376,935	475,607	152,429	19.74%	20.22%	1.47x	1.60x
Vintage Year 2019													
Cortec Group Fund VII, L.P.	Buyout	30,000	3,587	33,038	88%	6,629	41,396	48,025	14,987	31.69%	22.53%	1.45x	1.41x

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, 2022 (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	TVPI Bench.
Gridiron Capital Fund IV, L.P.	Buyout	30,000	2,909	30,034	90%	3,059	51,579	54,638	24,604	41.61%	22.53%	1.82x	1.41x
Thoma Bravo Fund XIII, LP	Buyout	45,000	3,743	54,899	92%	27,084	65,653	92,737	37,839	30.94%	22.53%	1.69x	1.41x
New Enterprise Associates 17, L.P.	Venture Capital	25,000	6,500	18,514	74%	2,227	19,093	21,320	2,806	7.93%	21.99%	1.15x	1.45x
Threshold Ventures III, L.P.	Venture Capital	20,000	3,860	16,140	81%	0	27,676	27,676	11,536	30.56%	21.99%	1.71x	1.45x
Vintage Year 2019 Total		150,000	20,599	152,625	86%	38,999	205,397	244,396	91,771	30.29%	19.36%	1.60x	1.40x
Vintage Year 2020													
Accel-KKR Capital Partners VI, LP	Buyout	30,000	15,326	14,674	49%	0	14,674	14,674	0	N/M	N/M	1.00x	1.27x
Wynnchurch Capital Partners V	Buyout	20,000	9,431	10,609	53%	135	13,429	13,564	2,955	22.97%	18.94%	1.28x	1.27x
Davidson Kempner Long-Term Distressed Opportunities Fund V LP	Distressed Debt	30,000	3,904	26,367	87%	274	29,441	29,715	3,348	8.02%	12.29%	1.13x	1.18x
Spectrum Equity IX-A, L.P.	Growth Equity	25,000	4,563	20,438	82%	0	18,512	18,512	-1,926	-10.08%	11.62%	0.91x	1.23x
Summit Partners Europe Growth Equity Fund III, SCSp	Growth Equity	21,441	9,686	12,158	55%	0	11,189	11,189	-969	N/M	N/M	0.92x	1.06x
Summit Partners Venture Capital Fund V-A, L.P.	Growth Equity	20,000	9,616	10,384	52%	0	10,303	10,303	-81	N/M	N/M	0.99x	1.23x
Shamrock Capital Content Fund II, L.P.	Opportunistic Credit	20,000	6,790	16,487	66%	3,271	14,083	17,354	867	6.25%	11.78%	1.05x	1.18x
Canvas Ventures 3, L.P.	Venture Capital	20,000	8,936	11,064	55%	0	12,520	12,520	1,456	11.12%	15.51%	1.13x	1.21x
OrbiMed Private Investments VIII, LP	Venture Capital	15,000	7,313	7,688	51%	0	8,134	8,134	446	4.16%	15.51%	1.06x	1.21x
Vintage Year 2020 Total		201,441	75,563	129,868	62%	3,681	132,285	135,965	6,097	4.17%	15.17%	1.05x	1.21x
Vintage Year 2021													
Linden Capital Partners V LP	Buyout	30,000	22,502	7,498	25%	0	7,297	7,297	-201	N/M	N/M	0.97x	1.06x
Shamrock Capital Growth Fund V, L.P.	Buyout	20,000	10,508	9,492	47%	3	8,528	8,531	-961	N/M	N/M	0.90x	1.06x
Strategic Value Special Situations Fund V, L.P.	Distressed Debt	30,000	18,000	12,000	40%	0	12,932	12,932	932	N/M	N/M	1.08x	1.14x
CRV Select Fund I, LP	Venture Capital	20,000	2,250	17,750	89%	0	17,119	17,119	-631	N/M	N/M	0.96x	0.99x
CRV XVIII, LP	Venture Capital	20,000	3,850	16,150	81%	0	17,548	17,548	1,398	N/M	N/M	1.09x	0.99x
Khosla Ventures VII, L.P.	Venture Capital	20,000	7,800	12,200	61%	0	13,659	13,659	1,459	N/M	N/M	1.12x	0.99x
Vintage Year 2021 Total		140,000	64,910	75,090	54%	3	77,083	77,086	1,996	N/M	N/M	1.03x	1.01x

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, 2022 (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	TVPI Bench.
Vintage Year 2022													
Golden Capital Co-Investments, L.P.	Buyout	100,000	92,560	7,440	7%	0	7,168	7,168	-272	N/M	N/M	0.96x	0.95x
Gridiron Capital Fund V, L.P.	Buyout	30,000	30,000	0	0%	0	-449	-449	-449	N/M	N/M	N/A	N/A
Marlin Heritage III, L.P.	Buyout	30,000	29,389	611	2%	0	103	103	-508	N/M	N/M	0.17x	0.95x
Oaktree Power Opportunities Fund VI	Buyout	30,000	22,978	7,122	23%	0	6,852	6,852	-270	N/M	N/M	0.96x	0.95x
Sixth Street Opportunities Partners V (A), L.P.	Distressed Debt	30,000	23,485	7,194	22%	683	5,829	6,512	-682	N/M	N/M	0.91x	N/A
Accel-KKR Growth Capital Partners IV	Growth Equity	30,000	23,123	6,877	23%	0	6,268	6,268	-608	N/M	N/M	0.91x	0.88x
Spectrum Equity X-A, L.P.	Growth Equity	25,000	25,000	0	0%	0	0	0	0	N/M	N/M	N/A	N/A
Shamrock Capital Content Fund III, L.P.	Opportunistic Credit	30,000	29,842	158	1%	0	3	3	-155	N/M	N/M	0.02x	1.03x
CRV Select Fund II, LP	Venture Capital	22,500	17,213	5,288	24%	0	4,493	4,493	-795	N/M	N/M	0.85x	0.88x
CRV XIX, LP	Venture Capital	22,500	19,631	2,869	13%	0	2,426	2,426	-443	N/M	N/M	0.85x	0.88x
OrbiMed Private Investments IX, LP	Venture Capital	25,000	23,750	1,250	5%	0	917	917	-333	N/M	N/M	0.73x	0.88x
Threshold Ventures IV, L.P.	Venture Capital	25,000	23,600	1,400	6%	0	1,041	1,041	-359	N/M	N/M	0.74x	0.88x
Vintage Year 2022 Total		400,000	360,571	40,208	10%	683	34,651	35,334	-4,874	N/M	N/M	0.88x	0.90x
Vintage Year 2023													
TSG ⁹ L.P.	Buyout	30,000	30,000	0	0%	0	-235	-235	-235	N/M	N/M	N/A	N/A
Vintage Year 2023 Total		30,000	30,000	0	0%	0	-235	-235	-235	N/M	N/M	N/A	N/A
Portfolio Total :		2,414,381	788,863	1,852,308	67%	1,587,758	1,653,206	3,240,964	1,388,656	16.85%	14.27%	1.75x	

¹Benchmarks:

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

Private Credit Portfolio – as of December 31, 2022

The Private Credit portfolio's net IRR since inception is 8.30%, versus the benchmark return of 6.39%

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

The Private Credit funds reported a solid gain during the quarter, following muted performance in the first half of 2022

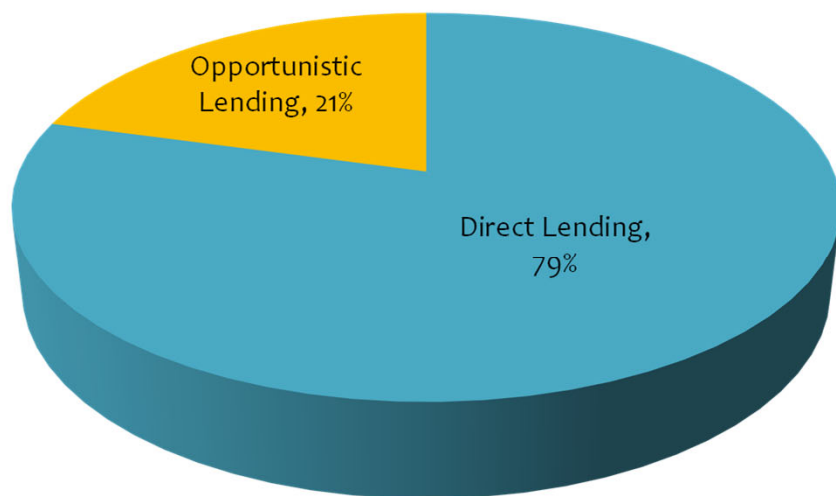
- The portfolio returned 2.2% in Q4 and 3.9% for the trailing 1-year period ending December 31, 2022
 - Most of the funds generated returns between 1% to 5% for the quarter
- Longer term performance remains steady despite modest sell-offs in Q1 2020 and during the first half of 2022
 - 8.4% net IRR for the 3-year period and 8.1% net IRR for the 5-year period

Changes during the quarter

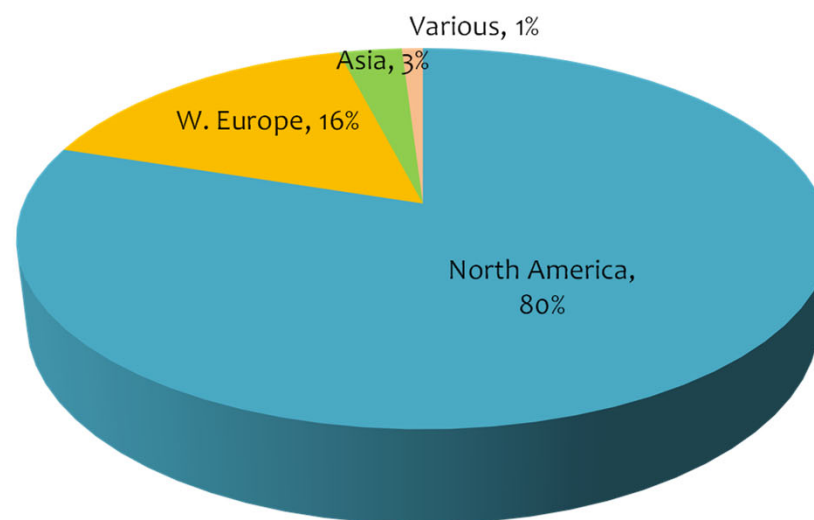
- SCERS committed \$80 million in total to two Direct Lending funds during Q4
 - Q4 commitments included \$40 million to an infrastructure debt fund and \$40 million to a specialty lending fund (re-up)
- \$27.1 million in new contributions, \$15.1 million in distributions
- Total portfolio gain increased by \$8.1 million while the total portfolio IRR increased by 0.03%

Private Credit Portfolio Exposures as of December 31, 2022

Private Credit Portfolio Strategy Exposure*



Private Credit Portfolio Geographic Exposure*



Portfolio Strategy Totals	(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	TVPI Bench.
Direct Lending	563,877	217,950	431,756	61%	206,687	304,335	511,022	79,266	8.30%		1.18x	
Opportunistic Lending	192,000	87,665	142,741	54%	84,911	79,189	164,100	21,359	8.33%		1.15x	
Portfolio Total :	755,877	305,615	574,496	60%	291,597	383,524	675,121	100,625	8.30%	6.39%	1.18x	

* Exposures are based on the market values of investments as of 12/31/22.

Private Credit Portfolio Details – as of December 31, 2022

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	TVPI Bench.
Vintage Year 2011													
Summit Partners Credit Fund, LP	Direct Lending	20,000	2,125	20,697	89%	26,391	513	26,904	6,208	8.91%	N/A	1.30x	N/A
Vintage Year 2011 Total		20,000	2,125	20,697	89%	26,391	513	26,904	6,208	8.91%	12.43%	1.30x	1.85x
Vintage Year 2014													
Summit Partners Credit Fund II, L.P.	Direct Lending	35,000	2,922	49,175	92%	47,178	11,096	58,274	9,099	6.16%	3.50%	1.19x	N/A
Vintage Year 2014 Total		35,000	2,922	49,175	92%	47,178	11,096	58,274	9,099	6.16%	16.61%	1.19x	2.02x
Vintage Year 2015													
Athyrium Opportunities Fund II	Opportunistic Lending	32,000	2,235	43,300	93%	43,314	8,904	52,218	8,918	8.14%	9.58%	1.21x	1.48x
Vintage Year 2015 Total		32,000	2,235	43,300	93%	43,314	8,904	52,218	8,918	8.14%	16.49%	1.21x	1.96x
Vintage Year 2017													
Athyrium Opportunities Fund III	Opportunistic Lending	25,000	5,533	28,861	78%	18,492	10,944	29,436	575	0.90%	11.69%	1.02x	1.36x
Vintage Year 2017 Total		25,000	5,533	28,861	78%	18,492	10,944	29,436	575	0.90%	20.39%	1.02x	1.86x
Vintage Year 2018													
Benefit Street Partners Senior Secured Opportunities Fund L.P.	Direct Lending	50,000	16,861	50,953	66%	33,721	27,786	61,507	10,555	5.55%	3.31%	1.21x	N/A
Summit Partners Credit Fund III, L.P.	Direct Lending	50,000	29,900	59,287	40%	53,027	21,250	74,278	14,990	15.43%	3.31%	1.25x	N/A
TCP Direct Lending Fund VIII-S, LLC	Direct Lending	125,000	9,071	115,929	93%	29,495	110,146	139,642	23,713	7.66%	3.31%	1.20x	N/A
Vintage Year 2018 Total		225,000	55,832	226,169	75%	116,244	159,183	275,427	49,258	8.20%	20.22%	1.22x	1.60x
Vintage Year 2019													
BSP Levered US SOF II (Senior Secured Opportunities) Fund L.P.	Direct Lending	50,000	18,141	33,088	64%	4,608	33,478	38,086	4,998	11.11%	4.04%	1.15x	N/A
OrbiMed Royalty & Credit Opportunities II I, LP	Opportunistic Lending	35,000	20,163	30,093	42%	16,608	19,944	36,552	6,459	23.56%	14.15%	1.21x	1.26x
Vintage Year 2019 Total		85,000	38,304	63,181	55%	21,215	53,422	74,638	11,457	15.96%	19.36%	1.18x	1.40x
Vintage Year 2020													
MCP Private Capital Fund IV (Feeder) SC	Direct Lending	33,877	13,727	20,909	59%	249	23,342	23,590	2,682	10.61%	2.55%	1.13x	N/A

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, 2022 (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	TVPI Bench.
Silver Point Specialty Credit Fund II, L.P.	Opportunistic Lending	40,000	7,536	32,325	81%	6,137	31,491	37,628	5,303	11.63%	11.78%	1.16x	1.18x
Vintage Year 2020 Total		73,877	21,263	53,234	71%	6,385	54,833	61,218	7,985	11.27%	15.17%	1.15x	1.21x
Vintage Year 2021													
Ares Capital Europe V	Direct Lending	40,000	13,409	26,591	66%	1,160	28,121	29,281	2,690	N/M	N/M	1.10x	N/A
IFM USIDF (Offshore) B Feeder	Direct Lending	40,000	0	46,921	100%	10,858	39,551	50,409	3,489	N/M	N/M	1.07x	N/A
Summit Partners Credit Fund IV, L.P.	Direct Lending	40,000	31,793	8,207	21%	0	9,142	9,142	935	N/M	N/M	1.11x	N/A
Shamrock Capital Debt Opportunities Fund I, L.P.	Opportunistic Lending	20,000	18,198	2,161	9%	359	1,825	2,184	23	N/M	N/M	1.01x	1.10x
Vintage Year 2021 Total		140,000	63,401	83,880	55%	12,377	78,639	91,016	7,136	N/M	N/M	1.09x	1.01x
Vintage Year 2022													
OrbiMed Royalty & Credit Opportunities I V, LP	Opportunistic Lending	40,000	34,000	6,000	15%	0	6,081	6,081	81	N/M	N/M	1.01x	1.03x
Vintage Year 2022 Total		40,000	34,000	6,000	15%	0	6,081	6,081	81	N/M	N/M	1.01x	0.90x
Vintage Year 2023													
Brookfield Infrastructure Debt Fund III	Direct Lending	40,000	40,000	0	0%	0	-91	-91	-91	N/M	N/M	N/A	N/A
Silver Point Specialty Credit Fund III, L.P.	Direct Lending	40,000	40,000	0	0%	0	0	0	0	N/M	N/M	N/A	N/A
Vintage Year 2023 Total		80,000	80,000	0	0%	0	-91	-91	-91	N/M	N/M	N/A	N/A
Portfolio Total :		755,877	305,615	574,496	60%	291,597	383,524	675,121	100,625	8.30%	6.39%	1.18x	

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, 2022

The Real Assets portfolio's net IRR since inception is 12.14%, versus the blended benchmark return of 8.02%

- The Real Assets portfolio includes private Infrastructure, Energy and Power, 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 and Power partnerships

- Since inception net IRRs of 11.3% for Infrastructure and 14.0% for Energy and Power
- Performance of the Energy and Power partnerships was materially impacted by significant markdowns in Q1 2020
 - However, most of the Energy and Power (particularly upstream energy) partnerships have rebounded sharply since Q3 2020
- Infrastructure partnerships saw smaller declines in Q1 2020 and have maintained good performance since inception

The Real Assets portfolio generated a 2.1% net return in Q4

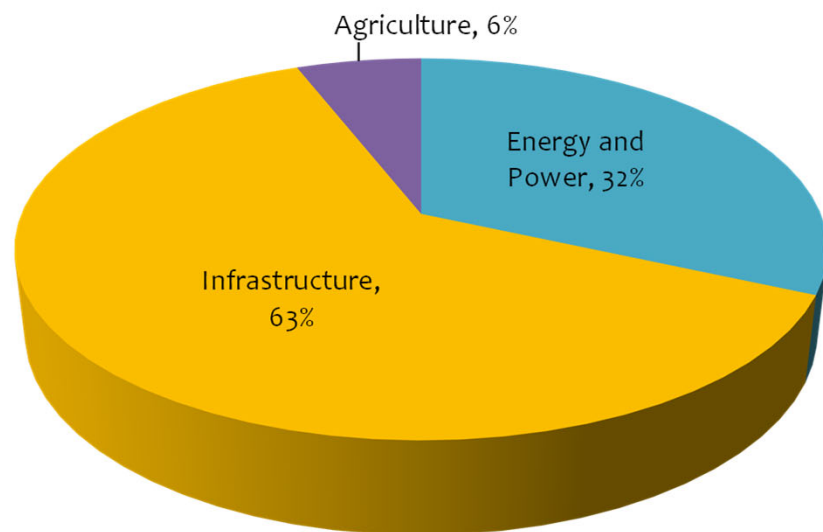
- The portfolio's Energy and Power funds generally led performance during the quarter
 - Many of the Energy and Power funds reported returns between 1% and 10% in Q4
 - Tailwater IV, EnCap Flatrock III, and EnCap IX each gained more than 10% in Q4
- The Infrastructure funds also reported good performance, mostly returning between 1% and 5% during the quarter
- Quantum VI (energy) and ACM II (agriculture) were the laggards and reported negative returns in Q4

Changes during the quarter

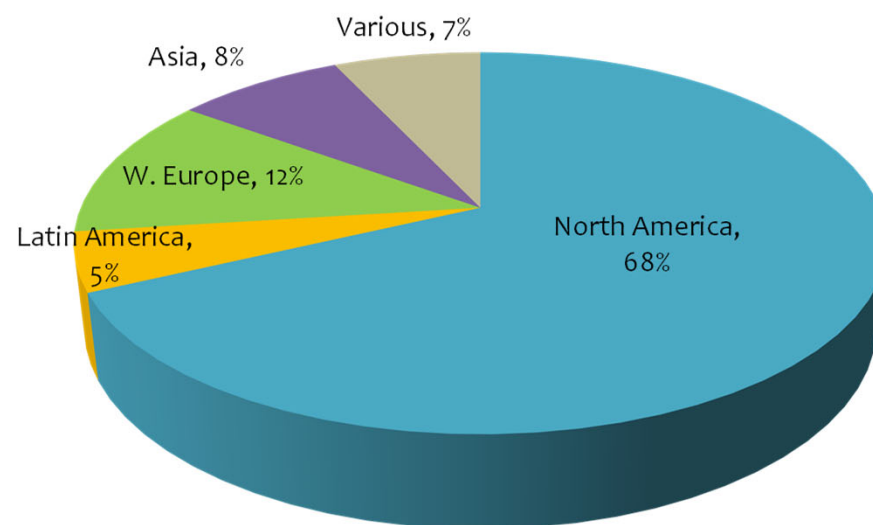
- SCERS made no new commitments to Real Assets funds in Q4
- \$43.1 million in new contributions, \$54.2 million in distributions
- Portfolio IRR decreased by 0.20% while the total portfolio gain increased by \$20.9 million

Real Assets Portfolio Exposures as of December 31, 2022

Real Assets Portfolio Strategy Exposure*



Real Assets Portfolio Geographic Exposure*



Portfolio Strategy Totals	(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
Agriculture	65,000	12,012	60,966	82%	9,050	57,154	66,204	5,238	3.56%		1.09x
Energy and Power	412,500	63,710	407,452	85%	292,208	325,856	618,063	210,611	14.04%		1.52x
Infrastructure	867,935	262,527	639,202	70%	196,453	641,156	837,609	198,407	11.25%		1.31x
Real Asset Debt	100,000	84,789	36,169	15%	45,101	0	45,101	8,932	10.27%		1.25x
Portfolio Total :	1,445,435	423,039	1,143,789	71%	542,812	1,024,165	1,566,977	423,188	12.14%	8.02%	1.37x

* Exposures are based on the market values of investments as of 12/31/22.

Real Assets Portfolio Performance Details – as of December 31, 2022

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 and Power	33,000	1,284	37,997	96%	39,758	14,759	54,517	16,520	10.37%	2.90%	1.43x
Vintage Year 2013 Total		33,000	1,284	37,997	96%	39,758	14,759	54,517	16,520	10.37%		1.43x
Vintage Year 2014												
Carlyle Power Partners II, L.P.	Energy and Power	40,000	6,919	46,003	83%	21,057	45,136	66,193	20,190	10.70%	10.09%	1.44x
EnCap Flatrock Midstream III	Energy and Power	20,000	775	23,676	96%	16,157	17,056	33,213	9,537	11.36%	10.09%	1.40x
Global Energy & Power Infrastructure Fund II	Energy and Power	35,000	1,044	38,772	97%	38,046	12,214	50,260	11,488	13.93%	10.09%	1.30x
Quantum Energy Partners VI, LP	Energy and Power	35,000	7,748	33,415	78%	34,151	42,091	76,242	42,827	25.30%	10.09%	2.28x
Pantheon SCERS SIRF MM, LLC	Infrastructure	100,000	26,268	78,032	74%	74,500	48,249	122,749	44,717	11.17%	9.06%	1.57x
Wastewater Opportunity Fund	Infrastructure	25,000	522	26,423	98%	21,538	9,010	30,548	4,125	4.19%	9.06%	1.16x
Vintage Year 2014 Total		255,000	43,277	246,321	83%	205,448	173,756	379,205	132,884	12.95%		1.54x
Vintage Year 2015												
ArcLight Energy Partners Fund VI	Energy and Power	40,000	5,604	42,665	86%	29,513	22,355	51,867	9,202	4.85%	10.09%	1.22x
EnCap Energy Capital Fund X, L.P.	Energy and Power	40,000	1,945	40,866	95%	35,608	39,358	74,967	34,101	15.67%	10.09%	1.83x
* Atalaya Real Assets SMA	Real Asset Debt	100,000	84,789	36,169	15%	45,101	0	45,101	8,932	10.27%	N/A	1.25x
Vintage Year 2015 Total		180,000	92,338	119,700	49%	110,222	61,713	171,935	52,235	10.44%		1.44x
Vintage Year 2016												
ACM Fund II, LLC	Agriculture	25,000	1,440	27,707	94%	4,581	14,163	18,745	-8,962	-11.24%	6.47%	0.68x
Brookfield Infrastructure Fund III, L.P.	Infrastructure	40,000	8,847	36,714	78%	18,048	37,221	55,269	18,555	11.75%	N/A	1.51x
IFM Global Infrastructure Fund	Infrastructure	125,053	0	125,053	100%	44,386	157,439	201,825	76,772	12.28%	N/A	1.61x
Vintage Year 2016 Total		190,053	10,287	189,474	95%	67,016	208,823	275,839	86,366	10.00%		1.46x
Vintage Year 2017												
Quantum Energy Partners VII, LP	Energy and Power	40,000	6,725	37,952	83%	22,506	40,202	62,708	24,756	19.89%	14.74%	1.65x
Meridiam Infrastructure North America Fund III	Infrastructure	50,000	19,678	30,322	61%	1	36,128	36,128	5,806	18.11%	9.99%	1.19x
Vintage Year 2017 Total		90,000	26,402	68,274	71%	22,507	76,329	98,836	30,562	19.57%		1.45x

¹Benchmarks:

Real Assets Portfolio: 60% Cambridge Infrastructure, 30% Cambridge Energy, 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 December 31, 2022 (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
Paine Schwartz Food Chain Fund V, LP	Agriculture	40,000	10,573	33,259	74%	4,469	42,991	47,459	14,200	30.16%	6.40%	1.43x
EnCap Flatrock Midstream IV, L.P.	Energy and Power	22,500	4,951	18,139	78%	5,859	15,367	21,227	3,087	8.36%	10.36%	1.17x
Tailwater Energy Fund III, LP	Energy and Power	32,000	1,445	32,610	95%	11,391	26,857	38,248	5,638	4.90%	10.36%	1.17x
ISQ Global Infrastructure Fund II	Infrastructure	50,000	8,511	52,466	83%	18,438	53,178	71,616	19,150	14.43%	11.04%	1.36x
Vintage Year 2018 Total		144,500	25,479	136,474	82%	40,157	138,393	178,550	42,076	12.33%		1.31x
Vintage Year 2019												
Tailwater Energy Fund IV, LP	Energy and Power	35,000	18,192	22,482	48%	13,848	20,427	34,276	11,794	23.63%	21.52%	1.52x
Brookfield Infrastructure Fund IV	Infrastructure	40,000	8,997	33,291	78%	7,056	35,520	42,577	9,286	13.10%	5.21%	1.28x
EQT Infrastructure IV (No.2) USD SCSp	Infrastructure	35,000	7,399	32,442	79%	6,201	34,212	40,413	7,971	10.68%	5.21%	1.25x
Vintage Year 2019 Total		110,000	34,588	88,214	69%	27,106	90,160	117,265	29,051	14.81%		1.33x
Vintage Year 2020												
NGP Royalty Partners, L.P.	Energy and Power	40,000	7,078	32,874	82%	24,313	30,033	54,346	21,472	67.61%	22.37%	1.65x
Vintage Year 2020 Total		40,000	7,078	32,874	82%	24,313	30,033	54,346	21,472	67.61%		1.65x
Vintage Year 2021												
DigitalBridge Partners II, LP	Infrastructure	35,000	4,104	34,581	88%	3,789	32,996	36,785	2,204	N/M	N/M	1.06x
Harrison Street Social Infrastructure Fund, L.P.	Infrastructure	75,000	0	75,000	100%	1,827	83,024	84,850	9,850	N/M	N/M	1.13x
ISQ Global Infrastructure Fund III (UST), L.P.	Infrastructure	50,000	44,574	5,420	11%	0	5,702	5,702	282	N/M	N/M	1.05x
Meridiam Sustainable Infrastructure Europe IV	Infrastructure	42,882	36,498	6,589	15%	0	5,148	5,148	-1,441	N/M	N/M	0.78x
Vintage Year 2021 Total		202,882	85,176	121,590	58%	5,616	126,869	132,485	10,896	N/M		1.09x
Vintage Year 2022												
Brookfield Super-Core Infrastructure Partners	Infrastructure	100,000	0	100,000	100%	669	101,532	102,201	2,201	N/M	N/M	1.02x
NGP Royalty Partners II	Infrastructure	50,000	48,155	1,845	4%	0	1,724	1,724	-121	N/M	N/M	0.93x
Ridgewood Water & Strategic Infrastructure Fund II	Infrastructure	50,000	48,975	1,025	2%	0	73	73	-952	N/M	N/M	0.07x
Vintage Year 2022 Total		200,000	97,130	102,870	51%	669	103,329	103,998	1,128	N/M		1.01x
Portfolio Total :		1,445,435	423,039	1,143,789	71%	542,812	1,024,165	1,566,977	423,188	12.14%	8.02%	1.37x

¹Benchmarks:

Real Assets Portfolio: 60% Cambridge Infrastructure, 30% Cambridge Energy, 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.

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