



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 14

MEETING DATE: June 21, 2017

SUBJECT: Quarterly Investment Performance Report
Alternative Assets

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

RECOMMENDATION

Staff and Cliffwater recommended that your Board receive and file the Cliffwater Quarterly Performance Review presentation covering the fourth quarter 2016 for the Private Equity, Real Assets and Opportunities portfolios, and the period ending April 30, 2017 for the Absolute Return portfolio.

PURPOSE

This agenda item complies with SCERS' investment policy statement reporting requirements and provides a summary of SCERS' Alternative portfolio returns, current market conditions and outlook, and Cliffwater's Quarterly Alternative Assets Portfolio Performance Review Report.

SCERS ALTERNATIVE ASSETS PORTFOLIO RETURNS

This memorandum will provide a recap of SCERS' Alternative Asset period returns as presented within Cliffwater's Quarterly Performance Review and supplemented by Townsend's Quarterly Real Estate report. This memorandum will also highlight any recent alternative asset class investments made by SCERS. SCERS' alternative asset class period returns are as follows:

SCERS ALTERNATIVE ASSETS PERFORMANCE SUMMARY

Sub-Asset Class	1-Year*	Fiscal Year-to-Date*	Since Inception*	Since Inception Date*
SCERS Absolute Return	8.1%	7.7%	4.3%	Sep-04
90-Day T-Bills + 5% Benchmark	5.4%	4.5%	6.3%	
SCERS Private Equity			10.5%	Oct-06
Cambridge US Private Equity Index			11.7%	Oct-06
SCERS Real Assets			7.1%	Jul-95
CPI + 5% Benchmark			7.2%	Jul-95
SCERS Opportunities			8.4%	Jun-06
Actuarial Rate of Return Benchmark			7.5%	Jun-06
*Note: Period ending 12/31/16 for Private Equity, Real Assets, and Opportunities Period ending 4/30/17 for Absolute Return				

SCERS ABSOLUTE RETURN PORTFOLIO RETURNS

SCERS' Absolute Return portfolio is a combination of a direct absolute return portfolio and a diversified separate account fund-of-funds portfolio managed by Grosvenor. The SCERS Absolute Return portfolio is intended to be a diversifier for SCERS' overall investment portfolio, while generating returns closely matching SCERS' total return objective with less volatility and downside risk. To achieve this return objective, a diversified Absolute Return portfolio of both positively and negatively correlated strategies is targeted.

The Grosvenor SC Absolute Return Fund, LLC ('SCARF') separate account fund-of-funds invests in a portfolio of absolute return funds diversified by strategy and across geographies. The Grosvenor SCARF B separate account fund-of-funds is a multi-strategy absolute return portfolio, which serves to close the gap between SCERS' actual absolute return allocation and the target allocation. The SCARF B portfolio is also used to fund the direct investments and continues to decline over time. Long-term Staff anticipates SCERS will retain the SCARF exposure.

For the periods ending April 30, 2017, SCERS' absolute return sub-strategies delivered a wide range of performance, with the event driven strategy outperforming, while the market neutral and macro-discretionary strategies delivering negative returns. SCERS' event driven managers drew positive results from corporate mergers and acquisitions and credit/distressed activity, while discretionary global macro endured a reversal of the Trump inflation themes.

Absolute Return Performance Summary for the periods ending 4/30/17	1-Year	Fiscal Year-to-Date	Since Inception	Since Inception Date
SCERS Absolute Return	8.1%	7.7%	4.3%	Sep-04
Direct Portfolio	9.0%	8.2%	6.0%	Jan-12
Fund-of-Funds	7.5%	7.4%	4.1%	Sep-04
HFRI Fund-of-Funds Index	6.3%	6.2%	3.1%	Sep-04
90-Day T-Bills + 5% Benchmark	5.4%	4.5%	6.3%	Sep-04

One-year ended April 30, 2017:

- SCERS' Fund-of-Funds portfolio returned +7.5%:
 - Grosvenor SC Absolute Return Fund, LLC ('SCARF'): +8.8%.
 - Grosvenor SCARF B Fund: +4.5%.
- SCERS' Direct Absolute Return portfolio returned +9.0%:
 - Top performing managers:
 - JANA Partners Qualified, LP (event driven): +17.0%
 - Lakewood Capital Partners, LP (market neutral): +15.0%
 - Third Point Partners Qualified, LP (event driven): +14.7%.
 - Bottom performing managers:
 - Brevan Howard, LP (macro-discretionary): +1.5%.
 - Laurion Capital, Ltd. (market neutral): +1.8%.

Fiscal Year-to-Date ended April 30, 2017:

- SCERS' Fund-of-Funds portfolio returned +7.4%:
 - Grosvenor SC Absolute Return Fund, LLC ('SCARF'): +8.5%.
 - Grosvenor SCARF B Fund: +4.9%.
- SCERS' Direct Absolute Return portfolio returned +8.2%:
 - Top performing managers:
 - JANA Partners Qualified, LP (event driven): +15.6%
 - Lakewood Capital Partners, LP: +15.2%

- Bottom performing managers:
 - Brevan Howard, LP (macro-discretionary): +0.9%.
 - Laurion Capital, Ltd. (market neutral): +1.1%.

During the first quarter of 2017, SCERS did not make any new Absolute Return commitments.

SCERS PRIVATE EQUITY PORTFOLIO RETURNS

For the twelve months ending December 31, 2016, the overall US private equity sector generated a return of +12.9%, while the European Private Equity sector returned +12.4%.

Page 8 of Cliffwater’s Private Equity report illustrates the market values of SCERS’ Private Equity investments across strategy and regions. Pages 9 and 10 provide details for: (1) Commitments by vintage years; (2) Cumulative contributions/distributions to date; (3) Percent of commitment drawn; and (4) Net returns since inception.

Index	Quarter	1 Year	5 Year	10 Year
<i>Private Equity Performance¹:</i>				
Cambridge Associates LLC U.S. Private Equity ²	4.51%	12.89%	13.19%	10.02%
Cambridge Associates LLC U.S. Venture Capital ²	-0.07%	0.26%	14.03%	9.39%
Cambridge Associates LLC U.S. Buyout	3.94%	12.21%	15.18%	10.34%
Cambridge Associates LLC U.S. Distressed	3.49%	12.14%	11.56%	9.51%
Cambridge Associates LLC Europe Private Equity ²	1.16%	12.40%	11.27%	7.24%
Russell 3000 ³	4.21%	12.74%	14.67%	7.07%
NASDAQ	1.66%	8.87%	17.07%	9.51%
Barclays High Yield Bond Index	1.77%	17.14%	7.37%	7.46%
MSCI Europe Local Currency Index	5.44%	7.23%	10.59%	2.86%
S&P Private Equity Listed Index	4.14%	15.39%	15.35%	1.25%

SCERS continues to make progress in implementing the Private Equity portfolio, with an actual allocation of 7.5% compared to the new target allocation of 9%. SCERS’ direct private equity commitments have increased considerably, and along with future investments and drawdowns, should bring the allocation gap closer to target. As of December 31, 2016:

- SCERS’ Private Equity Fund-of-Funds called \$216.4 million against \$233.8 million committed.
- SCERS’ Private Equity Direct funds called \$453.5 million against \$889.2 million committed.
- SCERS’ Private Equity portfolio fair value is \$604.7 million versus the target allocation amount of \$752.5 million.

SCERS’ Private Equity returns continue to show improvement versus the Cambridge benchmark, but as you will recall, the Private Equity portfolio remains earlier in its investment period (j-curve effect) compared to the index, especially for the direct program, which was initiated in 2011.

Private Equity Performance Summary for the periods ending 12/31/16	1-Year	Fiscal Year-to-Date	Since Inception	Since Inception Date
SCERS Private Equity			10.5%	
Direct Portfolio			10.6%	Jun-11
Fund-of-Funds			10.3%	Oct-06
Cambridge US Private Equity Index			11.7%	Oct-06

The Direct Private Equity portfolio, which includes the vintage year funds 2011 through 2014, are generating solid early since inception net returns as follows:

- Vintage year fund net returns versus the respective benchmark:
 - 2011: +20.3% versus +11.4%.
 - 2012: +11.2% versus +11.7%.
 - 2013: +8.0% versus +9.2%.
 - 2014: +8.8% versus +9.4%.

- Notable outperforming funds since inception include:
 - Waterland Private Equity Fund V: +37.9%.
 - Khosla Ventures IV: +16.7%.
 - New Enterprise Associates 14: +17.2%.
 - Summit Partners Venture Capital III: +16.6%.
 - Marlin Heritage: +34.1%.

As we get later in the market cycle, Staff and Cliffwater remain vigilant of the inherent market risks, including increasing business purchase multiples; significant amounts of investment capital pursuing the same top performing fund managers; ever larger manager fund sizes in response to investor demand; and the tighter correlations of cyclical sectors to the economic cycle. These factors are translating to a deliberately measured and selective approach to new commitments by Staff and Cliffwater.

During the fourth quarter of 2016, SCERS made a \$35 million commitment to Dyal Capital Partners III (buyout). During the first quarter of 2017, SCERS made new commitments of \$25 million to Marlin Equity Partners V (middle market buyout) and \$10 million to Marlin Heritage II (small/middle market buyout).

SCERS REAL ASSETS PORTFOLIO RETURNS

As you will recall, SCERS recently approved a Real Return asset category, which includes allocations to: (1) Core real estate (7% target); (2) Private real assets (7% new target); and (3) Commodities (2% target). In future Cliffwater quarterly reports, the Real Assets asset class will transition into the Real Return asset category. The Cliffwater fourth quarter 2016 report is reported using the previous asset class structure.

Within SCERS’ Real Assets portfolio, there are two investment structures, commingled funds (open-end and closed-end) and customized separate accounts. The separate accounts allow SCERS to establish investment guidelines, underwrite a manager’s investment recommendations, provide veto/preferred rights, and generally achieve favorable terms.

The performance of SCERS’ Real Assets portfolio is significantly influenced by SCERS’ core real estate portfolio. Page 11 of Cliffwater’s Real Assets report illustrates the market values of SCERS’ real assets investments across strategy with and without the State Street Global Advisors (‘SSgA’) Real Assets proxy, which is the overlay for Real Assets. Pages 12 and 13 provide details for: (1) Commitments by vintage years; (2) Cumulative contributions/distributions to date; (3) Percent of commitment drawn; and (4) Net returns since inception.

A more comprehensive review of SCERS’ real estate investments can be found in the materials for Item 15 of the meeting agenda.

Real Assets Performance Summary for the periods ending 12/31/16	1-Year	Fiscal Year-to-Date	Since Inception	Since Inception Date
SCERS Real Assets ex. Proxy			7.9%	
SCERS Real Assets incl. Proxy			7.1%	
Real Estate	7.5%	4.7%	8.4%	Jul-95
Private Real Assets			21.0%	Jan-13
Commodities			-6.4%	Jun-08
SSgA Real Assets Proxy			1.4%	Jan-06
SCERS Real Estate Benchmark	6.5%	4.1%	N/A	
CPI + 5% Benchmark			7.2%	Jul-95
Bloomberg Commodity Index			-7.9%	Jun-08

As illustrated in the chart, SCERS’ Commodities portfolio has outperformed the Bloomberg Commodity Index since inception with the individual fund performance as follows:

- Blackstone Resources Select Fund: -4.1%.
- Gresham Strategic Commodities Fund Ltd.: -9.3%.

SCERS REAL ASSETS PROXY

Within the Real Assets asset class, the SSgA Real Assets proxy is used in the overlay program to replicate real asset exposures. Because of the gap between SCERS’ private real assets actual and target allocation (2.2% actual versus 7% new target), the SSgA proxy equals \$327.9 million as of March 31, 2017. As of December 31, 2016, approximately 5.9% has been committed of which 2.2% has been invested.

The SSGA proxy is a mix of publicly traded securities, including global infrastructure stocks, global natural resource stocks, Treasury Inflation Protected Securities (‘TIPS’), global REITs, and midstream energy-focused master limited partnerships (‘MLPs’). As additional commitments are made over time, the gap will begin to decrease.

Within private real assets, Staff and Cliffwater continue to seek unique investment opportunities that display attractive risk-adjusted returns, lower correlations to the broader economy, provide greater current cash flow, and can hedge against an increase in inflation.

During the quarter, SCERS did not make any new Real Assets commitments.

SCERS OPPORTUNITIES RETURNS

Over the past few years, SCERS has made commitments to several value-add and opportunistic real estate funds, which draw capital from the Real Assets asset class. Many of the funds are still in their investment phase. Staff and Townsend believe the value-add and opportunistic real estate commitments made after 2013 are better positioned over this cycle, particularly as compared to those committed in 2006 and 2007.

Exhibit 1: Historical Private and Public Market Performance
Ending December 31, 2016

Index	Quarter	1 Year	5 Year	10 Year
<i>Private Real Asset Performance:</i>				
Cambridge Energy Index ¹	7.92%	11.13%	-0.12%	5.67%
NCREIF Timberland Index	1.18%	2.59%	7.05%	5.83%
NCREIF Farmland Index	2.89%	7.09%	13.80%	13.06%
Russell 3000 Energy Index	6.64%	22.84%	1.94%	3.03%
Alerian MLP Index	0.15%	9.09%	0.60%	7.18%
S&P GSCI - Total Return	9.26%	27.77%	-10.71%	-6.83%
Dow Jones Brookfield Global Infrastructure Index	-5.25%	12.52%	8.54%	6.71%
Barclays Capital U.S. TIPS Index	-2.64%	4.43%	0.85%	4.34%
CPI-U	0.75%	2.09%	1.34%	1.80%

Opportunities Performance Summary for the periods ending 12/31/16	1-Year	Fiscal Year-to-Date	Since Inception	Since Inception Date
SCERS Opportunities			8.4%	Feb-07
Actuarial Rate of Return Benchmark			7.5%	

Since 2013, SCERS has made several non-US real estate fund commitments. These non-US funds offered a favorable relative value compared to US real estate. As reported by Townsend in their quarterly real estate report, some notable non-US commitments outperforming since inception include:

- ECE European Prime Retail Fund II: +24.0%.
- NREP Nordic Strategies Fund I: +33.8%.
- Hammes Partners II: +15.0%.

As illustrated in the chart, since inception through December 31, 2016, SCERS' Opportunities portfolio has outperformed SCERS' actuarial rate of return benchmark.

- Contributing to the outperformance are several distressed debt funds (since liquidated) during 2007 to 2009, which as a group returned 18.7% net IRR.
- Detracting from returns have been several significantly underperforming value-add real estate funds made during the 2006 to 2007 period (currently liquidating) and as a group have generated a since inception 0.7% net IRR.
 - UBS Allegis Value Trust: +3.1%.
 - AEW Value Investors II: +5.7%.
 - Hines US Office Value Added Fund II: -4.7%.

During the first quarter of 2017, SCERS did not make any new Opportunities commitments. In April 2017, SCERS made a \$10 million commitment to Carlyle China Realty and a \$20 million co-investment in Carlyle China Rome Logistics.

MARKET RECAP

The market excitement that followed the election of Donald Trump as US President diminished during the first quarter of 2017. The jobs report was mixed; January saw 227,000 new jobs while March only added 98,000 new jobs. Despite the weak jobs market, unemployment fell to new lows reaching 4.4%. First quarter GDP was weak, with growth a meager 0.7% over the prior quarter and 1.9% year-over-year. Going into 2017, the economy was experiencing some positive momentum, enough to allow the Fed to begin raising rates. Nevertheless, the first quarter slowdown has expectations for the number of future Fed rate increases to decline from three to two.

Broad Markets: Equities

As the first quarter progressed, investors began to reevaluate their optimistic projections based on the Trump administration policy initiatives. The failure to repeal the Affordable Care Act, a key policy goal of President Trump, put into question the administration's ability to enact tax reform and infrastructure spending. US policy uncertainty is leading to a "wait-and-see" posture among investors across global markets.

	Total Return (%)				
	Month	QTD	CYTD	FYTD	1 Year
S&P 500 Index	0.12	6.07	6.07	14.36	17.17
Russell 2000 Index	0.13	2.47	2.47	21.60	26.22
Russell 3000 Index	0.07	5.74	5.74	15.04	18.07
MSCI AC World Index	1.22	6.91	6.91	13.91	15.04
MSCI AC Asia Pacific Index	1.71	9.41	9.41	15.91	16.72
MSCI AC Europe Index	3.93	7.22	7.22	12.90	9.82
MSCI Emerging Markets Index	2.52	11.45	11.45	16.44	17.22

In a reversal from the last quarter, investors switched into large-cap stocks from small-cap stocks as expectations of economic growth waned. Sectors that were outperformers last quarter quickly became laggards this quarter including energy, financials, and industrials. Sectors outperforming this quarter include consumer discretionary, consumer staples, and technology.

State Street Global Advisors commentary on the performance of real assets during the quarter found:

“The first quarter of 2017 was positive one for real assets, as the group continued to benefit from the reflationary environment that began in 2016 and has led to recent U.S. inflation releases in excess of the Fed's 2% annual target for the first time in 5 years, as measured by the personal-consumption price index. Both global natural resource and global infrastructure equities were boosted by the uptick in global growth and improving macroeconomic environment. While real estate was mixed due to fears that the next leg-up in interest rates might lead to a further rotation out of the asset. Commodities rolled over by the end of the quarter, with energy retreating on supply concerns and agriculture effected by better harvests and increased export pressures.”

ATTACHMENT

Cliffwater's Quarterly Performance Report for Alternative Assets

Prepared by:

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INVESTMENT ADVISORY SERVICES

Los Angeles • New York

Sacramento County Employees' Retirement System Quarterly Performance Review

June 21, 2017



Executive Summary

Absolute Return Portfolio Performance Summary – as of April 30, 2017

The Absolute Return portfolio returned 7.71% FYTD and 8.10% for the 1 year period ending April 30, 2017

- Seeing a continued resurgence of alpha generation over these periods
 - Outperforming the HFRI Fund of Funds Index by 147 bps (FYTD) and 183 bps (1 year)
 - Also outperforming the long-term benchmark of T-bills + 5%, which equaled 4.50% (FYTD) and 5.40% (1 year)

The direct portfolio outperformed the Grosvenor accounts over the last year

- +8.95% return for the direct portfolio
 - JANA (+17.0%), Lakewood (+15.0%), and Third Point (+14.7%) led performance over the last year
 - All of the SCERS' direct hedge funds produced positive returns over the last year
 - Laggards included Brevan Howard (+1.5%) and Laurion (+1.8%)
- +7.51% return for the Grosvenor separate accounts
 - SCARF A returned +8.9% while SCARF B returned +4.5%
 - The third Grosvenor portfolio is residual holdings from SCERS' previous fund of fund investment (results not meaningful)

Longer-term performance results remain positive, though lag the long-term T-bill + 5% benchmark

- 3 year annualized return of 2.31% for the Absolute Return portfolio
 - The HFRI Fund of Funds Index returned 2.21% over this period
 - 5.19% return for SCERS' long-term benchmark of T-bills + 5%

SCERS' staff and Cliffwater also track the portfolio's risk characteristics against the MSCI ACWI

- Expect AR portfolio to have half the volatility of the ACWI, with a correlation of 0.5 or less, over the long term
 - The AR portfolio is meeting its volatility objective; correlation is slightly higher than target
 - Portfolio standard deviation of 3.44% compared to the ACWI standard deviation of 11.01% since December 2011
 - Portfolio correlation with the ACWI has been 0.68, with a beta of only 0.21

Absolute Return Portfolio Performance – as of April 30, 2017

Fund	Market Value	Actual %	Returns								Std Dev	Sharpe Ratio	Incep Date
			Apr	QTD	YTD	FYTD	1 Year	3 Year	5 Year	Incep			
Market Neutral													
Laurion Capital, Ltd.	40,986,036	5.3%	0.29%	0.29%	-2.18%	1.10%	1.83%	5.53%	-	5.11%	5.54%	0.83	Mar-14
Credit/Distressed													
Claren Road Credit Partners, LP	2,172,426	0.3%	0.00%	0.00%	1.57%	11.97%	13.04%	-5.41%	-1.22%	-1.24%	10.09%	-0.12	Feb-12
Event Driven													
Elliott International Limited	50,451,939	6.6%	0.23%	0.23%	3.35%	11.04%	10.54%	7.22%	8.59%	8.12%	3.61%	2.07	Apr-12
JANA Partners Qualified, L.P.	40,820,237	5.3%	0.89%	0.89%	6.13%	15.63%	17.02%	1.99%	-	4.09%	8.25%	0.47	Jul-13
Third Point Partners Qualified L.P.	44,981,091	5.9%	1.50%	1.50%	7.45%	11.76%	14.71%	5.68%	11.16%	11.16%	7.38%	1.42	May-12
Equity Long/Short													
Lakewood Capital Partners, LP	43,642,571	5.7%	1.25%	1.25%	3.94%	15.19%	14.98%	7.19%	-	8.13%	7.34%	1.04	Jul-13
Macro-Discretionary													
Brevan Howard LP	34,739,436	4.5%	-0.73%	-0.73%	-3.10%	0.92%	1.54%	0.25%	-	-0.24%	5.84%	-0.10	Mar-14
Macro-Systematic													
Graham Global Investment Fund II Ltd. - Tactical Trend SF	33,286,956	4.3%	-0.71%	-0.71%	-	-	-	-	-	-4.89%	-	-	Feb-17
Winton Diversified Futures Fund L.P.	35,091,382	4.6%	-0.66%	-0.66%	0.26%	-	-	-	-	0.26%	-	-	Jan-17
Multi-Strategy													
AQR DELTA Fund II, LP	69,845,167	9.1%	-0.68%	-0.68%	0.62%	5.51%	5.85%	7.75%	-	5.59%	5.25%	0.97	May-13
OZ Domestic Partners II, L.P.	43,849,180	5.7%	0.67%	0.67%	5.06%	11.60%	12.45%	4.72%	6.82%	7.38%	4.59%	1.48	Jan-12
Direct Hedge Funds Portfolio	439,866,421	57.3%	0.20%	0.20%	1.90%	8.21%	8.95%	3.69%	5.76%	5.99%	3.32%	1.64	Jan-12
Grosvenor Institutional US Hedged Fund	432,685	0.1%	-0.20%	-0.20%	-0.40%	66.41%	66.73%	18.18%	12.02%	6.38%	22.23%	0.28	Sep-04
Grosvenor SC Absolute Return Fund LLC	257,548,002	33.6%	0.41%	0.41%	2.99%	8.45%	8.85%	1.29%	4.73%	5.24%	4.21%	1.13	Dec-11
Grosvenor SC Absolute Return Fund LLC Series B	69,654,248	9.1%	0.09%	0.09%	1.66%	4.87%	4.54%	0.82%	-	3.28%	3.45%	0.82	Feb-13
Fund of Funds Portfolio	327,634,935	42.7%	0.34%	0.34%	2.70%	7.41%	7.51%	1.21%	4.54%	4.08%	6.04%	0.42	Sep-04
SCERS Absolute Return Portfolio	767,501,356	100.0%	0.26%	0.26%	2.24%	7.71%	8.10%	2.31%	5.11%	4.28%	5.95%	0.46	Sep-04
Benchmarks													
3 Month T-Bills+5%			0.47%	0.47%	1.81%	4.50%	5.40%	5.19%	5.15%	6.32%	0.51%	-	Sep-04
HFRI Fund of Funds Composite Index			0.56%	0.56%	2.97%	6.24%	6.27%	2.21%	3.39%	3.10%	5.18%	0.30	Sep-04
Market Indices													
Barclays Aggregate Bond Index			0.77%	0.77%	1.60%	-0.97%	0.84%	2.66%	2.28%	4.19%	3.18%	0.78	Sep-04
Barclays High Yield Credit Bond Index			1.15%	1.15%	3.89%	11.59%	13.31%	4.75%	6.85%	7.84%	9.69%	0.65	Sep-04
S&P 500 TR			1.03%	1.03%	7.16%	15.54%	17.92%	10.47%	13.68%	8.50%	13.92%	0.54	Sep-04
MSCI AC World Index Free - Net			1.56%	1.56%	8.57%	15.69%	15.14%	5.29%	8.96%	7.03%	15.59%	0.41	Sep-04
MSCI EAFE - Net			2.54%	2.54%	9.97%	16.22%	11.29%	0.86%	6.78%	5.67%	17.23%	0.31	Sep-04
MSCI EMF (Emerging Markets Free) - Net			2.19%	2.19%	13.88%	18.99%	19.13%	1.79%	1.49%	9.06%	22.48%	0.43	Sep-04

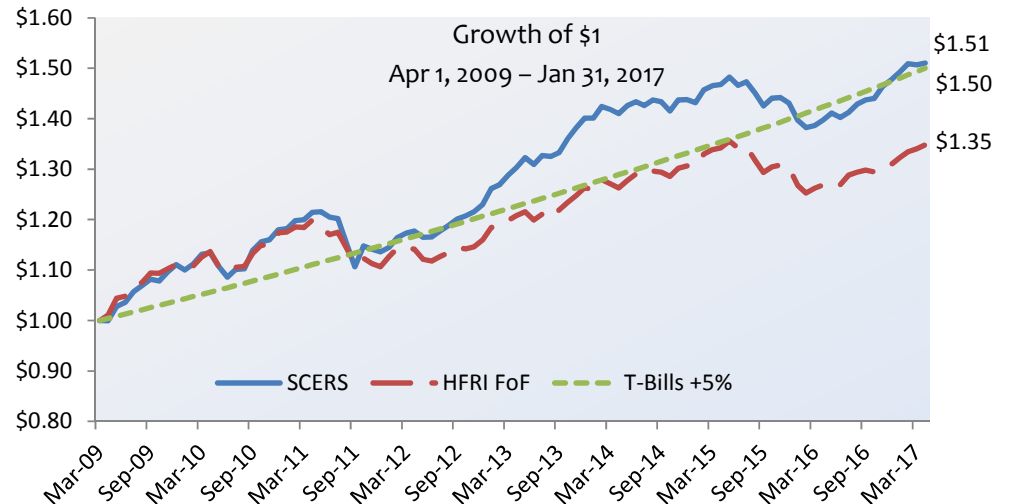
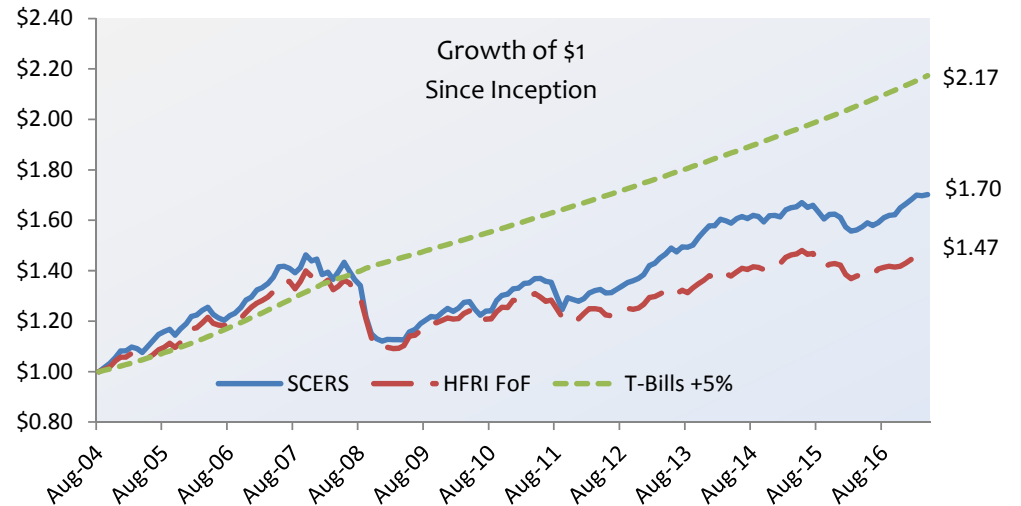
Absolute Return Portfolio Performance – as of April 30, 2017

The Absolute Return portfolio has outperformed the Fund of Funds Index, with slightly higher volatility, since the program’s inception in 2004

- Outperformance has increased since redesigning the portfolio at the end of 2011

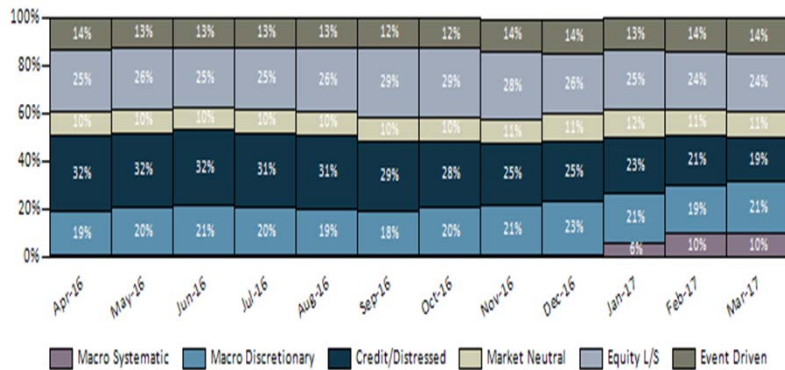
The Absolute Return portfolio has also outperformed its long-term T-bills + 5% benchmark since the ‘08 Financial Crisis

- The portfolio continued to outperform the Fund of Funds Index as well

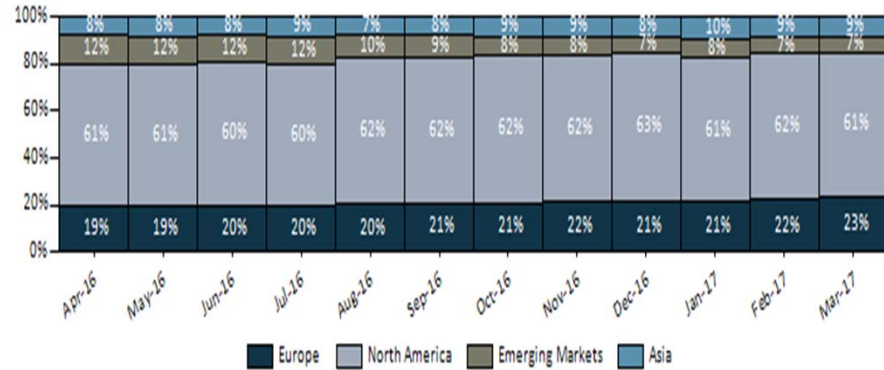


Absolute Return Portfolio Characteristics – as of March 31, 2017

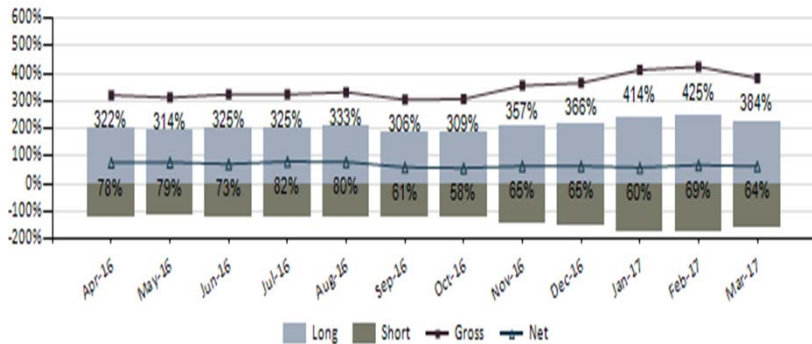
Portfolio “Look Through” Strategy Allocations



Portfolio Geographical Breakdown



Portfolio Leverage



The SCERS Absolute Return portfolio is adequately diversified among strategies and geographies

- Strategy composition will change somewhat as SCERS moves towards new targets for the Diversifying and Growth Oriented portfolios

Portfolio leverage remains appropriate and in-line with leverage for other large institutional investors

- 384% gross exposure, 64% net exposure
- Recent increase in gross exposure is driven primarily by the addition of the systematic macro funds

Private Equity Portfolio (including Private Credit) – as of December 31, 2016

The Private Equity portfolio's net IRR since inception is 10.45%, versus the Cambridge Associates benchmark IRR of 11.65%

- The long-term benchmark (Russell 1000 + 3%) has a 14.71% IRR over this period

The private equity portfolio reported solid gains over a quarter that saw a modest rise in global equity markets

- Strongest gains came among buyout and venture capital funds
 - Thoma Bravo XI, RRJ II, NEA 14 & 15, Marlin Heritage, and Khosla Ventures V reported the largest gains during the quarter
- Continued meaningful distributions, particularly among the direct fund investments
 - Summit's VC III & Credit Funds I & II, TOP III and Dyal II led distributions within direct; FoFs distributed \$12 million in Q4

Continued strong performance of the initial direct fund investments

- Double-digit net IRRs for the first vintage years of direct: 20.3% (2011) and 11.2% (2012)
 - Waterland V (37.9%), Marlin Heritage (34.2%), NEA 14 (17.2%), Khosla IV (16.7%) & Summit VC III (16.6%) are leading performance

The fund of funds reported modest gains overall during the quarter

- Aggregate net IRR decreased slightly while total value (TVPI) was unchanged during the quarter
 - The aggregate fund of funds' net IRR is 10.09% with a 1.42x TVPI
- HarbourVest VIII has generated the best relative performance, HarbourVest International also leads its benchmark
- Abbott Capital and Goldman Sachs continue to lag peer vintage year fund of funds
- The fund of funds comprise less than 30% of the current fair value of the Private Equity portfolio

Changes during the quarter

- SCERS committed \$35 million to Dyal III (minority investments in private equity firms) during Q4 2016
 - SCERS also committed \$35 million across two small/mid-sized turnaround funds (Marlin V and Heritage II) in Q1 2017
- \$47.6 million in new contributions, \$29.5 million in distributions
- Total portfolio gain increased by \$14.5 million while the total portfolio IRR was essentially unchanged (down 2 bps)

Private Equity Portfolio Characteristics as of December 31, 2016

The SCERS Private Equity portfolio is diversified by strategy and geography

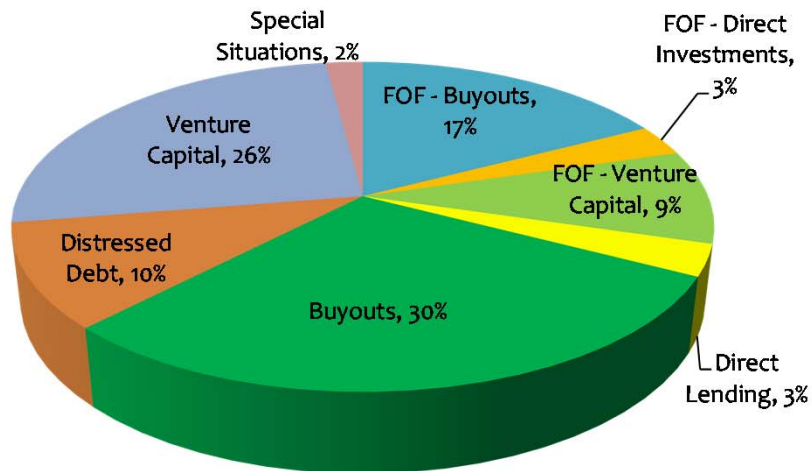
- Investments remain focused in North America, with meaningful exposure to Europe

Fund of funds exposure continues to decrease

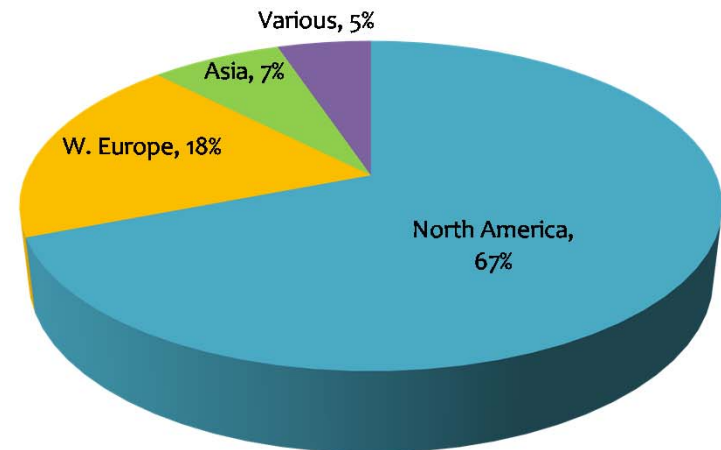
- Investments from direct private equity funds represent 71% of the total portfolio's value as of December 31, 2016

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 12/31/16. Exposures include Private Equity and Private Credit investments.

Private Equity Portfolio Performance Details – as of December 31, 2016

Partnership (\$ in thousands)	Strategy	(A) Commitment Amount	Unfunded Amount	(B) Cumulative Contributions	% Drawn	(C) Cumulative Distributions	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	IRR Benchmark ¹	TVPI
Vintage Year 2006												
HarbourVest Partners VIII - Buyout Fund L.P.	Fund of Funds	37,500	2,250	35,250	94%	35,722	19,916	55,639	20,389	10.19%	7.07%	1.58x
HarbourVest Partners VIII - Mezzanine and Distressed Debt Fund L.P.	Fund of Funds	5,000	200	4,800	96%	4,703	1,889	6,592	1,792	8.00%	7.07%	1.37x
HarbourVest Partners VIII - Venture Fund L.P.	Fund of Funds	7,500	150	7,350	98%	6,609	5,765	12,374	5,024	10.41%	7.07%	1.68x
Vintage Year 2006 Total		50,000	2,600	47,400	95%	47,035	27,570	74,605	27,205	10.04%	7.46%	1.57x
Vintage Year 2008												
Abbott Capital Private Equity Fund VI, L.P.	Fund of Funds	75,000	7,500	67,500	90%	28,501	61,923	90,424	22,924	9.89%	14.88%	1.34x
Goldman Sachs Private Equity Partners X, L.P.	Fund of Funds	75,000	12,797	68,340	83%	50,304	50,819	101,123	32,783	10.71%	14.88%	1.48x
HarbourVest International Private Equity Partners VI-Partnership Fund L.P.	Fund of Funds	33,876	6,182	33,187	98%	11,220	30,608	41,828	8,640	8.66%	7.29%	1.26x
Vintage Year 2008 Total		183,876	26,480	169,027	89%	90,025	143,349	233,374	64,347	10.12%	8.71%	1.38x
Vintage Year 2011												
Waterland Private Equity Fund V, L.P.	Buyout	16,833	4,254	14,655	87%	17,235	13,225	30,460	15,805	37.92%	2.95%	2.08x
Summit Partners Credit Fund, LP	Opportunistic Credit	20,000	0	20,697	100%	18,350	7,806	26,156	5,460	9.59%	9.60%	1.26x
Khosla Ventures IV	Venture Capital	10,000	330	9,670	97%	956	14,406	15,362	5,692	16.72%	14.77%	1.59x
Vintage Year 2011 Total		46,833	4,584	45,021	95%	36,541	35,437	71,978	26,957	20.29%	11.37%	1.60x
Vintage Year 2012												
Garrison Opportunity Fund III, LLC	Distressed Debt	20,000	0	20,000	100%	6,220	13,821	20,041	41	0.07%	9.55%	1.00x
New Enterprise Associates 14	Venture Capital	25,000	1,500	23,500	94%	2,637	33,339	35,977	12,477	17.23%	12.22%	1.53x
Summit Partners Venture Capital III, LP	Venture Capital	16,350	1,189	18,183	93%	3,149	23,677	26,827	8,644	16.59%	12.22%	1.48x
Vintage Year 2012 Total		61,350	2,689	61,683	96%	12,007	70,838	82,845	21,162	11.19%	11.72%	1.34x
Vintage Year 2013												
Accel-KKR Capital Partners IV, L.P.	Buyout	15,000	3,965	11,035	74%	1,843	10,779	12,622	1,588	10.09%	10.76%	1.14x
H.I.G. Capital Partners V, L.P.	Buyout	14,000	10,793	3,207	23%	0	3,758	3,758	551	9.58%	10.76%	1.17x
Marlin Equity IV, L.P.	Buyout	20,000	9,431	10,569	53%	60	12,084	12,144	1,575	8.00%	10.76%	1.15x
RRJ Capital Master Fund II, L.P.	Buyout	35,000	4,917	34,834	86%	14,191	27,776	41,966	7,132	10.78%	5.42%	1.20x
H.I.G. Bayside Loan Opportunity Fund III (Europe), L.P.	Distressed Debt	30,000	11,054	18,946	63%	5,066	17,857	22,923	3,978	9.22%	8.72%	1.21x
Wayzata Opportunities Fund III, L.P.	Distressed Debt	30,000	19,857	14,718	34%	4,602	10,174	14,776	58	0.24%	8.00%	1.00x
Trinity Ventures XI	Venture Capital	25,000	8,688	16,313	65%	0	18,538	18,538	2,226	5.73%	10.81%	1.14x
Vintage Year 2013 Total		169,000	68,704	109,622	59%	25,763	100,966	126,729	17,107	8.00%	9.17%	1.16x
Vintage Year 2014												
Dyal Capital II, L.P.	Buyout	35,000	25,025	10,574	29%	2,536	6,461	8,998	-1,576	-10.86%	11.23%	0.85x
H.I.G. Europe Capital Partners II, L.P.	Buyout	14,728	14,550	232	2%	0	-480	-480	-712	-100.00%	-4.47%	-2.07x
Marlin Heritage, L.P.	Buyout	10,000	2,437	7,563	76%	1,411	9,399	10,811	3,248	34.15%	11.23%	1.43x
Thoma Bravo Fund XI, L.P.	Buyout	30,000	578	29,422	98%	0	35,222	35,222	5,800	12.60%	11.23%	1.20x
TPG Opportunities Partners III	Distressed Debt	40,000	23,540	22,994	41%	7,008	17,940	24,948	1,955	8.19%	8.03%	1.09x
Summit Partners Credit Fund II, L.P.	Opportunistic Credit	35,000	15,059	24,494	57%	4,608	22,560	27,168	2,674	9.49%	7.88%	1.11x
Khosla Ventures V, L.P.	Venture Capital	20,000	10,860	9,140	46%	0	10,267	10,267	1,127	8.32%	6.67%	1.12x
Spectrum Equity Investors VII, L.P.	Venture Capital	25,000	11,000	14,000	56%	654	14,306	14,960	960	5.66%	6.67%	1.07x
Vintage Year 2014 Total		209,728	103,049	118,418	51%	16,217	115,676	131,893	13,475	8.80%	9.41%	1.11x

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, 2016 (continued)

Partnership (\$ in thousands)	Strategy	(A)		(B)		(C)		(D) Fair	(C+D) Total	(C+D-B)	IRR		TVPI
		Commitment Amount	Unfunded Amount	Cumulative Contributions	% Drawn	Cumulative Distributions	Value	Value	Gain/Loss	Net IRR	Benchmark ¹		
Vintage Year 2015													
RRJ Capital Master Fund III, L.P.	Buyout	40,000	32,460	7,540	19%	0	7,317	7,317	-223	N/M	N/M	0.97x	
WPEF VI Feeder, L.P.	Buyout	25,249	19,416	5,964	24%	0	5,719	5,719	-245	N/M	N/M	0.96x	
WPEF VI Overflow Fund C.V.	Buyout	6,312	6,304	9	0%	0	1	1	-8	N/M	N/M	0.10x	
Athyrium Opportunities Fund II	Distressed Debt	32,000	10,791	29,179	66%	7,862	23,435	31,297	2,119	N/M	N/M	1.07x	
Accel-KKR Growth Capital Partners II, L.P.	Mezzanine	15,000	11,097	3,903	26%	0	3,425	3,425	-479	-13.92%	10.91%	0.88x	
New Enterprise Associates 15, L.P.	Venture Capital	35,000	18,900	16,104	46%	0	18,139	18,139	2,035	N/M	N/M	1.13x	
Summit Partners Venture Capital IV, L.P.	Venture Capital	35,000	26,263	8,737	25%	0	9,199	9,199	462	N/M	N/M	1.05x	
Vintage Year 2015 Total		188,561	125,230	71,436	34%	7,862	67,235	75,097	3,661	6.85%	0.51%	1.05x	
Vintage Year 2016													
Accel-KKR Capital Partners V, LP	Buyout	25,000	25,000	0	0%	0	-386	-386	-386	N/M	N/M	N/A	
Dyal III Pension Investors LP	Buyout	35,000	35,000	0	0%	0	N/A	0	0	N/M	N/M	N/A	
Linden Capital Partners III L.P.	Buyout	35,000	21,943	13,057	37%	0	13,401	13,401	344	N/M	N/M	1.03x	
Marlin Heritage Europe, L.P.	Buyout	13,676	13,676	0	0%	0	N/A	0	0	N/M	N/M	N/A	
Thoma Bravo Fund XII, L.P.	Buyout	30,000	20,435	12,344	32%	2,781	9,078	11,860	-485	N/M	N/M	0.96x	
TSG7 A L.P.	Buyout	16,000	13,460	2,540	16%	0	2,316	2,316	-224	N/M	N/M	0.91x	
TSG7 B L.P.	Buyout	4,000	3,687	313	8%	0	215	215	-98	N/M	N/M	0.69x	
Atalaya Special Opportunities Fund VI, L.P.	Distressed Debt	25,000	9,375	15,878	63%	198	16,442	16,641	763	N/M	N/M	1.05x	
Trinity Ventures XII, L.P.	Venture Capital	30,000	26,850	3,150	11%	0	2,570	2,570	-580	N/M	N/M	0.82x	
Vintage Year 2016 Total		213,676	169,427	47,282	21%	2,980	43,637	46,617	-665	N/M	N/M	0.99x	
Portfolio Total:		1,123,024	502,762	669,889	56%	238,429	604,709	843,138	173,249	10.45%	11.65%	1.26x	
Portfolio Strategy Totals													
Buyout		282,676	185,430	100,624	34%	8,633	102,329	110,961	10,337	8.71%		1.10x	
Distressed Debt		147,000	63,563	102,768	57%	25,891	81,813	107,704	4,936	3.40%		1.05x	
Fund of Funds		200,000	22,897	183,240	89%	125,840	140,312	266,151	82,912	10.25%		1.45x	
Mezzanine		15,000	11,097	3,903	26%	0	3,425	3,425	-479	-13.92%		0.88x	
Opportunistic Credit		55,000	15,059	45,190	73%	22,958	30,366	53,324	8,134	9.56%		1.18x	
Venture Capital		221,350	105,579	118,797	52%	7,397	144,443	151,839	33,042	13.40%		1.28x	
Non-US		201,998	99,137	115,366	55%	47,711	102,023	149,734	34,368	13.69%		1.30x	
Portfolio Total:		1,123,024	502,762	669,889	56%	238,429	604,709	843,138	173,249	10.45%	11.65%	1.26x	

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

Real Assets Portfolio – as of December 31, 2016

The Real Assets portfolio’s net IRR since inception is 7.11% including the overlay performance, and 7.89% without the overlay

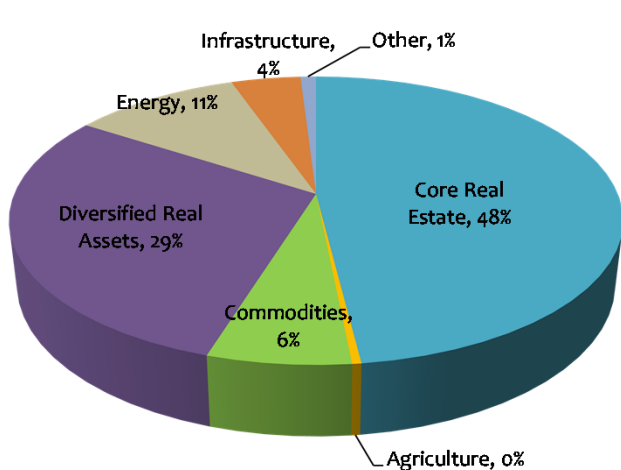
- The benchmark returned 7.20% during this period (benchmark equals CPI+5%)

Commodity prices rose in Q4, particularly led by energy; crude oil prices (WTI) increased 15% during the quarter

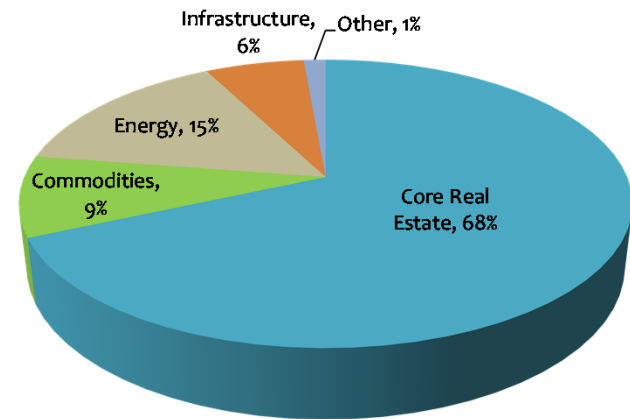
- Commodities rose nearly 3%, MLPs gained 2%, and natural resource equities increased almost 7% in Q4
- SSgA Real Assets returned 0.29% during the quarter, slightly below the benchmark’s 0.41% return
 - Performance was hindered by REITs, listed infrastructure, and TIPS exposure
- Blackstone Commodities returned +3.5% and Gresham returned +4.5%; the benchmark returned +2.7%
- Energy funds (EnCap IX & X, Quantum VI) and First Reserve Energy Infrastructure II reported strong gains
- SCERS core real estate posted positive performance, returning roughly 3% during the quarter

Changes during the quarter

- SCERS committed an additional \$20 million to Townsend RE Fund (core real estate) during Q4 2016
- \$77.2 million in new contributions, \$118.9 million in distributions (largely real estate and SSgA overlay rebalancings)
- Portfolio IRR increased 0.09%, total portfolio gain increased by \$30.1 million



Portfolio Strategy Exposures*
With overlay (left graph)
Without overlay (right graph)



* Exposures are based on the market values of investments as of 12/31/16

Real Assets Portfolio Performance Details – as of December 31, 2016

Partnership (\$ in thousands)	Strategy	(A) Commitment Amount	Unfunded Amount	(B) Cumulative Contributions	% Drawn	(C) Cumulative Distributions	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	Benchmark ¹	Total Value to Paid in Capital
Vintage Year 1998												
BlackRock Realty Portfolio I	Core RE	826,942	0	826,942	100.00%	1,034,992	146,855	1,181,846	354,904	11.99%	8.92%	1.43x
Vintage Year 1998 Total		826,942	0	826,942	100.00%	1,034,992	146,855	1,181,846	354,904	11.99%		1.43x
Vintage Year 2002												
BlackRock Realty Portfolio II	Core RE	150,488	7	150,482	100.00%	214,719	1,521	216,240	65,758	8.28%	8.26%	1.44x
Vintage Year 2002 Total		150,488	7	150,482	100.00%	214,719	1,521	216,240	65,758	8.28%		1.44x
Vintage Year 2004												
Barings Real Estate	Core RE	255,242	0	255,242	100.00%	268,452	65,891	334,343	79,101	5.30%	8.24%	1.31x
*Cornerstone Patriot Fund	Core RE	50,000	0	50,000	100.00%	94,447	0	94,447	44,447	6.51%	8.14%	1.89x
Vintage Year 2004 Total		305,242	0	305,242	100.00%	362,899	65,891	428,790	123,548	5.69%		1.40x
Vintage Year 2005												
*BlackRock Granite Property Fund	Core RE	70,434	0	70,434	100.00%	62,599	0	62,599	-7,835	-2.05%	5.04%	0.89x
Vintage Year 2005 Total		70,434	0	70,434	100.00%	62,599	0	62,599	-7,835	-2.05%		0.89x
Vintage Year 2008												
Blackstone Resources Select Fund	Commodities	60,000	0	60,000	100.00%	0	42,383	42,383	-17,617	-4.05%	-7.90%	0.71x
Gresham Strategic Commodities Fund Ltd.	Commodities	60,000	0	60,000	100.00%	0	26,015	26,015	-33,985	-9.26%	-7.90%	0.43x
State Street Real Assets Strategy	Diversified RA	1,232,499	0	1,232,499	100.00%	938,484	314,708	1,253,192	20,694	1.42%	2.08%	1.02x
Vintage Year 2008 Total		1,352,499	0	1,352,499	100.00%	938,484	383,107	1,321,591	-30,908	-1.30%		0.98x
Vintage Year 2013												
Jamestown Premier Property Fund	Core RE	15,000	0	17,683	100.00%	4,188	19,226	23,414	5,731	11.50%	12.15%	1.32x
MetLife Core Property Fund	Core RE	35,000	0	40,038	100.00%	5,038	51,623	56,661	16,623	13.82%	12.15%	1.42x
MS Prime Property Fund	Core RE	35,000	0	40,370	100.00%	5,370	51,332	56,703	16,332	12.76%	12.36%	1.40x
EnCap Energy Capital Fund IX, L.P.	Energy	33,000	7,059	30,718	78.61%	13,525	28,808	42,333	11,615	22.16%	3.54%	1.38x
Vintage Year 2013 Total		118,000	7,059	128,810	94.02%	28,122	150,989	179,111	50,301	14.31%		1.39x
Vintage Year 2014												
Carlyle Power Partners II, L.P.	Energy	40,000	25,702	15,001	35.74%	566	13,228	13,793	-1,207	N/M	N/M	0.92x
EnCap Flatrock Midstream Fund III, L.P.	Energy	20,000	13,297	7,273	33.51%	1,313	6,990	8,302	1,029	22.40%	10.78%	1.14x
First Reserve Energy Infrastructure Fund II, L.P.	Energy	35,000	23,538	11,894	32.75%	431	14,064	14,495	2,601	30.36%	10.78%	1.22x
Quantum Energy Partners VI, LP	Energy	35,000	22,623	13,101	35.36%	1,771	17,094	18,865	5,764	62.61%	10.78%	1.44x
Pantheon SCERS SIRF MM, LLC	Infrastructure	100,000	74,800	25,200	25.20%	0	37,375	37,375	12,175	24.05%	N/A	1.48x
Wastewater Opportunity Fund	Infrastructure	25,000	21,300	3,708	14.80%	0	2,742	2,742	-966	N/M	N/M	0.74x
Vintage Year 2014 Total		255,000	181,260	76,176	28.92%	4,080	91,492	95,572	19,397	22.32%		1.25x

¹ Benchmarks:

Commodities Investments: Dow Jones UBS Commodity Index + 1%

Core RE Investments: NFI-ODCE

Diversified RA Investments: Manager's stated custom blended index

¹ Benchmarks:

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

Real Assets Portfolio: CPI + 5%

Real Assets Portfolio Performance Details – as of December 31, 2016 (continued)

Partnership (\$ in thousands)	Strategy	(A)		(B)		(C)		(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	Benchmark ¹	Total Value to Paid in Capital
		Commitment Amount	Unfunded Amount	Cumulative Contributions	% Drawn	Cumulative Distributions							
Vintage Year 2015													
Principal U.S. Property Fund	Core RE	35,000	0	35,000	100.00%	0	39,213	39,213	4,213	N/M	N/M		1.12x
Prologis Targeted Europe Logistics Fund	Core RE	29,020	0	31,324	107.94%	1,833	29,600	31,433	109	0.30%	12.21%		1.00x
Prologis Targeted US Logistics Fund	Core RE	35,000	0	35,000	100.00%	1,030	39,282	40,312	5,312	16.04%	12.21%		1.15x
Townsend Real Estate Fund, L.P.	Core RE	90,000	22,473	68,883	75.03%	1,357	71,061	72,417	3,534	N/M	N/M		1.05x
ArcLight Energy Partners VI, L.P.	Energy	40,000	23,064	17,333	42.34%	573	17,462	18,036	702	N/M	N/M		1.04x
EnCap Energy Capital Fund X, L.P.	Energy	40,000	27,844	12,629	30.39%	473	15,140	15,614	2,984	N/M	N/M		1.24x
Atalaya Real Assets SMA	Other	100,000	89,751	13,700	10.25%	4,323	10,477	14,801	1,100	N/M	N/M		1.08x
Vintage Year 2015 Total		369,020	163,132	213,870	56.42%	9,589	222,235	231,825	17,954	9.86%			1.08x
Vintage Year 2016													
ACM Fund II, LLC	Agriculture	25,000	20,425	6,468	18.30%	1,902	4,346	6,248	-221	N/M	N/M		0.97x
Brookfield Infrastructure Fund III, L.P.	Infrastructure	40,000	33,502	6,487	16.25%	98	6,862	6,959	472	N/M	N/M		1.07x
IFM Global Infrastructure Fund	Infrastructure	100,000	75,000	0	0.00%	0	N/A	0	0	N/M	N/M		N/A
Vintage Year 2016 Total		165,000	128,927	12,956	7.91%	2,000	11,207	13,207	251	N/M			1.02x
Portfolio Total:		3,612,625	480,385	3,137,410	86.67%	2,657,484	1,073,297	3,730,781	593,371	7.11%	7.20%		1.19x
Portfolio Strategy Totals													
Agriculture		25,000	20,425	6,468	18.30%	1,902	4,346	6,248	-221	N/M			0.97x
Commodities		120,000	0	120,000	100.00%	0	68,399	68,399	-51,601	-6.40%			0.57x
Core RE		1,598,106	22,480	1,590,074	98.59%	1,692,191	486,003	2,178,194	588,120	9.12%			1.37x
Diversified RA		1,232,499	0	1,232,499	100.00%	938,484	314,708	1,253,192	20,694	1.42%			1.02x
Energy		243,000	143,127	107,949	41.10%	18,652	112,786	131,438	23,489	20.74%			1.22x
Infrastructure		125,000	96,100	28,908	23.12%	0	40,117	40,117	11,209	21.56%			1.39x
Other		100,000	89,751	13,700	10.25%	4,323	10,477	14,801	1,100	N/M			1.08x
Non-US		169,020	108,502	37,812	26.26%	1,931	36,462	38,393	581	1.48%			1.02x
Portfolio Total:		3,612,625	480,385	3,137,410	86.67%	2,657,484	1,073,297	3,730,781	593,371	7.11%	7.20%		1.19x
Active / Liquidated Partnership Totals													
Active Partnerships		3,492,191	480,385	3,016,976	86.21%	2,500,438	1,073,297	3,573,735	556,759	7.65%			1.18x
Liquidated Partnerships		120,434	0	120,434	100.00%	157,046	0	157,046	36,612	3.42%			1.30x
Portfolio Total:		3,612,625	480,385	3,137,410	86.67%	2,657,484	1,073,297	3,730,781	593,371	7.11%	7.20%		1.19x

*Liquidated funds

¹ Benchmarks:

Commodities Investments: Dow Jones UBS Commodity Index + 1%

Core RE Investments: NFI-ODCE

Diversified RA Investments: Manager's stated custom blended index

¹ Benchmarks:

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

Real Assets Portfolio: CPI + 5%

Opportunities Portfolio – as of December 31, 2016

The Opportunities portfolio's net IRR since inception is 8.44%

- The long-term benchmark is SCERS' 7.50% total portfolio actuarial return objective
- Also tracking the portfolio's 3 year IRR versus an intermediate-term benchmark
 - 8.52% portfolio IRR v 4.81% IRR for the SCERS' total portfolio policy weighted benchmark over the last 3 years

Distressed debt has outperformed, while value-add real estate has struggled; opportunistic real estate is performing well

- 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
- Older vintage value-add real estate funds continue to show some improvement although performance remains poor
- Recent vintage value-add real estate funds are off to a strong start

Changes during the quarter

- SCERS made no new commitments during Q4 2016
- \$18.5 million in new contributions, \$23.9 million in distributions
- Portfolio IRR declined 0.11%, total portfolio gain increased by \$2.1 million

Almost all of SCERS' more recent Opportunities commitments have been to Real Estate funds (Value Add and Opportunistic)

Market Value Strategy Exposure
(Fair Market Value as of 12/31/16)



Opportunities Portfolio Performance Details – as of December 31, 2016

Partnership (\$ in thousands)	Strategy	(A) Commitment Amount	Unfunded Amount	(B) Cumulative Contributions	% Drawn	(C) Cumulative Distributions	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/Loss	Net IRR	Benchmark ¹	Total Value to Paid in Capital
Vintage Year 2006												
UBS Allegis Value Trust	Value-Add RE	25,550	0	25,550	100.00%	14,959	17,295	32,254	6,704	3.08%	9.23%	1.26x
Vintage Year 2006 Total		25,550	0	25,550	100.00%	14,959	17,295	32,254	6,704	3.08%		1.26x
Vintage Year 2007												
*PIMCO Distressed Mortgage Fund, LP	Distressed Debt	18,000	0	18,000	100.00%	25,384	0	25,384	7,384	8.96%	7.49%	1.41x
AEW Value Investors II, L.P.	Value-Add RE	25,000	0	21,813	100.00%	26,498	1,328	27,826	6,013	5.71%	8.74%	1.28x
Hines US Office Value Added Fund II, L.P.	Value-Add RE	25,000	3,273	24,260	86.91%	16,065	1,598	17,663	-6,597	-4.68%	8.94%	0.73x
Vintage Year 2007 Total		68,000	3,273	64,073	94.95%	67,947	2,926	70,873	6,800	2.14%		1.11x
Vintage Year 2008												
*PIMCO Distressed Mortgage Fund II, L.P.	Distressed Debt	12,000	0	12,000	100.00%	35,277	0	35,277	23,277	34.39%	12.05%	2.94x
Vintage Year 2008 Total		12,000	0	12,000	100.00%	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	100.00%	25,304	0	25,304	5,304	11.21%	16.78%	1.27x
*Stone Tower Structured Credit Recovery Fund LP	Distressed Debt	25,000	0	25,248	100.00%	43,383	0	43,383	18,135	25.30%	16.78%	1.72x
Vintage Year 2009 Total		45,000	0	45,248	100.00%	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	95.53%	13,659	15,841	29,500	4,625	9.06%	8.00%	1.19x
DRC European Real Estate Debt Fund II, L.P.	Opportunistic RE	38,751	11,072	37,583	88.34%	10,679	25,888	36,566	-1,017	-1.40%	12.99%	0.97x
KKR Real Estate Partners Americas	Opportunistic RE	35,000	19,210	26,052	45.12%	16,730	16,076	32,806	6,753	16.78%	12.99%	1.26x
Vintage Year 2013 Total		98,751	31,399	88,511	74.84%	41,068	57,804	98,872	10,362	6.30%		1.12x
Vintage Year 2014												
CIM Fund VIII, LP	Opportunistic RE	35,000	13,535	24,044	61.33%	437	25,263	25,700	1,655	5.52%	12.87%	1.07x
Och-Ziff Real Estate Fund III	Opportunistic RE	35,000	23,867	12,839	31.81%	882	12,604	13,486	647	4.96%	12.99%	1.05x
NREP Nordic Strategies Fund, FIS-FCP	Value-Add RE	20,725	1,036	21,639	103.20%	7,499	20,696	28,195	6,556	23.39%	12.99%	1.30x
Vintage Year 2014 Total		90,725	38,438	58,522	59.51%	8,818	58,562	67,381	8,859	12.49%		1.15x

¹ Benchmarks:

Opportunistic RE Investments: NCREIF + 2%

Value-Add RE Investments: NCREIF + 2%

Distressed Debt: U.S. Cambridge Associates LLC

Total Opportunities Portfolio (long-term benchmark): 7.50% actuarial return objective

² Internal rate of return based upon the policy weighted benchmark for SCERS' total portfolio using the Opportunities portfolio cash flows.

Opportunities Portfolio Performance Details – as of December 31, 2016 (continued)

Partnership (\$ in thousands)	Strategy	(A)		(B)		(C)		(D)	(C+D)	(C+D-B)		Total Value to Paid in Capital
		Commitment Amount	Unfunded Amount	Cumulative Contributions	% Drawn	Cumulative Distributions	Fair Value	Total Value	Gain/Loss	Net IRR	Benchmark ¹	
Vintage Year 2015												
ECE European Prime Shopping Centre Fund II, SCS SIF	Value-Add RE	32,613	25,144	7,918	24.28%	1,230	7,851	9,081	1,163	N/M	N/M	1.15x
Hammes Partners II, LP	Value-Add RE	25,000	9,375	15,625	62.50%	1,457	15,028	16,485	860	N/M	N/M	1.06x
NREP Nordic Strategies Fund II SCSp	Value-Add RE	33,665	24,130	10,771	29.34%	0	9,679	9,679	-1,093	N/M	N/M	0.90x
Vintage Year 2015 Total		91,278	58,649	34,315	36.61%	2,687	32,558	35,245	930	N/M		1.03x
Portfolio Total:		431,305	131,759	328,218	71.34%	239,443	169,145	408,589	80,371	8.44%	7.50%	1.24x
Portfolio Strategy Totals												
Distressed Debt		100,000	1,117	100,123	98.88%	143,007	15,841	158,848	58,726	18.72%		1.59x
Opportunistic RE		105,000	56,611	62,935	46.08%	18,049	53,942	71,991	9,055	11.02%		1.14x
Value-Add RE		100,550	12,648	87,248	87.01%	58,979	35,249	94,228	6,980	1.46%		1.08x
Non-US		125,755	61,382	77,911	58.38%	19,408	64,113	83,521	5,610	4.92%		1.07x
Portfolio Total:		431,305	131,759	328,218	71.34%	239,443	169,145	408,589	80,371	8.44%	7.50%	1.24x
Active / Liquidated Partnership Totals												
Active Partnerships		356,305	131,759	252,970	65.25%	110,096	169,145	279,241	26,271	3.46%		1.10x
Liquidated Partnerships		75,000	0	75,248	100.00%	129,348	0	129,348	54,100	19.50%		1.72x
Portfolio Total:		431,305	131,759	328,218	71.34%	239,443	169,145	408,589	80,371	8.44%	7.50%	1.24x

*Liquidated funds

3-Year IRR

SCERS Opportunities portfolio	8.52%
SCERS policy benchmark ²	4.81%

¹ Benchmarks:

Opportunistic RE Investments: NCREIF + 2%

Value-Add RE Investments: NCREIF + 2%

Distressed Debt: U.S. Cambridge Associates LLC

Total Opportunities Portfolio (long-term benchmark): 7.50% actuarial return objective

² Internal rate of return based upon the policy weighted benchmark for SCERS' total portfolio using the Opportunities portfolio cash flows.

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