



Investment Performance FY 2019

South Dakota Retirement System

August 26, 2019

Capital Markets Benchmark Return and Market Index Components

		<u>1st qtr</u>	<u>2nd qtr</u>	<u>3rd qtr</u>	<u>4th qtr</u>	<u>FY 2019</u>
Capital Markets Benchmark		3.4%	-8.3%	10.2%	3.3%	7.91%
<u>Benchmark Index Components-weights</u>						
<u>Global Equity</u>	58%					
Global Equity Benchmark (MSCI ACW 2/3 + MSCI US 1/3)		5.3%	-13.1%	12.7%	3.8%	7.03%
<u>Real Estate</u>	10%					
MSCI REITS		1.1%	-6.7%	16.3%	1.3%	11.06%
<u>High Yield Debt</u>	7%					
FTSE High Yield		2.4%	-4.7%	7.4%	2.4%	7.19%
<u>Investment Grade Fixed Income</u>	23%					
FTSE US Broad Investment Grade		0.0%	1.6%	3.0%	3.1%	7.91%
<u>Cash</u>	2%					
FTSE 3 mo Treasury bills		0.5%	0.6%	0.6%	0.6%	2.30%

Time weighted rate-of-return

Actual to Benchmark Allocation Comparison – June 30, 2019

	<u>Actual Asset Allocation</u>	<u>Benchmark Asset Allocation</u>	<u>Difference</u>	<u>Permissible Range</u>
Global Equity	34%	58%	-24%	75% to 25%
Real Estate - Core/REITS	0%	10%	-10%	20% to 2%*
High Yield Corporate Debt	0%	7%	-7%	15% to 0%
Investment Grade Fixed Income	14%	23%	-9%	50% to 13%
Cash	24%	2%	22%	50% to 0%
Private Equity	8%	0%	8%	12% to 0%
Opportunistic Real Estate	8%	0%	8%	15% to 0%
High Yield Real Estate Debt	7%	0%	7%	10% to 0%
High Yield Corp Debt Aggressive	1%	0%	1%	15% to 0%
Aggressive Absolute Return	1%	0%	1%	5% to 0%
US Treasury TIPS	0%	0%	0%	5% to 0%
Commodity	0%	0%	0%	5% to 0%
Merger Arbitrage	0%	0%	0%	10% to 0%
Convertible Arbitrage	0%	0%	0%	5% to 0%
Equity Like Risk	56.6%	70%	-13.4%	85% to 50%

*includes Opportunistic RE

Total Fund Performance Attribution

SDRS to Capital Markets Benchmark FY 2019

SDRS Total Fund Return	4.88%
Capital Markets Benchmark Return	<u>7.91%</u>
Difference	<u>-3.03%</u>

Primary Asset Allocation

Equity-Like Risk	0.30%
Bond-Like Risk	-0.64%
Cash-Like Risk	<u>0.53%</u>
Total Primary Asset Allocation	0.18%

Secondary Asset Allocation

Global Equity	N/A
Investment Grade Debt	N/A
Cash	N/A
REITS / Core	-0.38%
High Yield Corporate Debt	0.02%
High Yield Distressed aggressive	0.04%
High Yield Real Estate Debt	-0.12%
High Yield RE Debt aggressive	0.01%
Real Estate Opportunistic	0.39%
Private Equity	N/A
Hedge Fund	N/A
Short S&P 500 Futures	<u>N/A</u>
Total Secondary Asset Allocation	-0.03%

Total Asset Allocation	0.15%
-------------------------------	--------------

Portfolio Added Value (Alpha)

Global Equity	-2.00%
Investment Grade Debt	0.07%
Cash	-0.03%
REITS / Core	N/A
High Yield Corporate Debt	N/A
High Yield Distressed aggressive	-0.36%
High Yield Real Estate Debt	0.03%
High Yield RE Debt aggressive	0.01%
Real Estate Opportunistic	-0.45%
Private Equity	-0.64%
Hedge Fund	-0.02%
Short S&P 500 Futures	<u>-0.46%</u>
Total Portfolio Added Value (Alpha)	-3.85%

Total Explained Difference	-3.70%
-----------------------------------	---------------

Other - interperiod trading/asset allo	<u>0.67%</u>
--	--------------

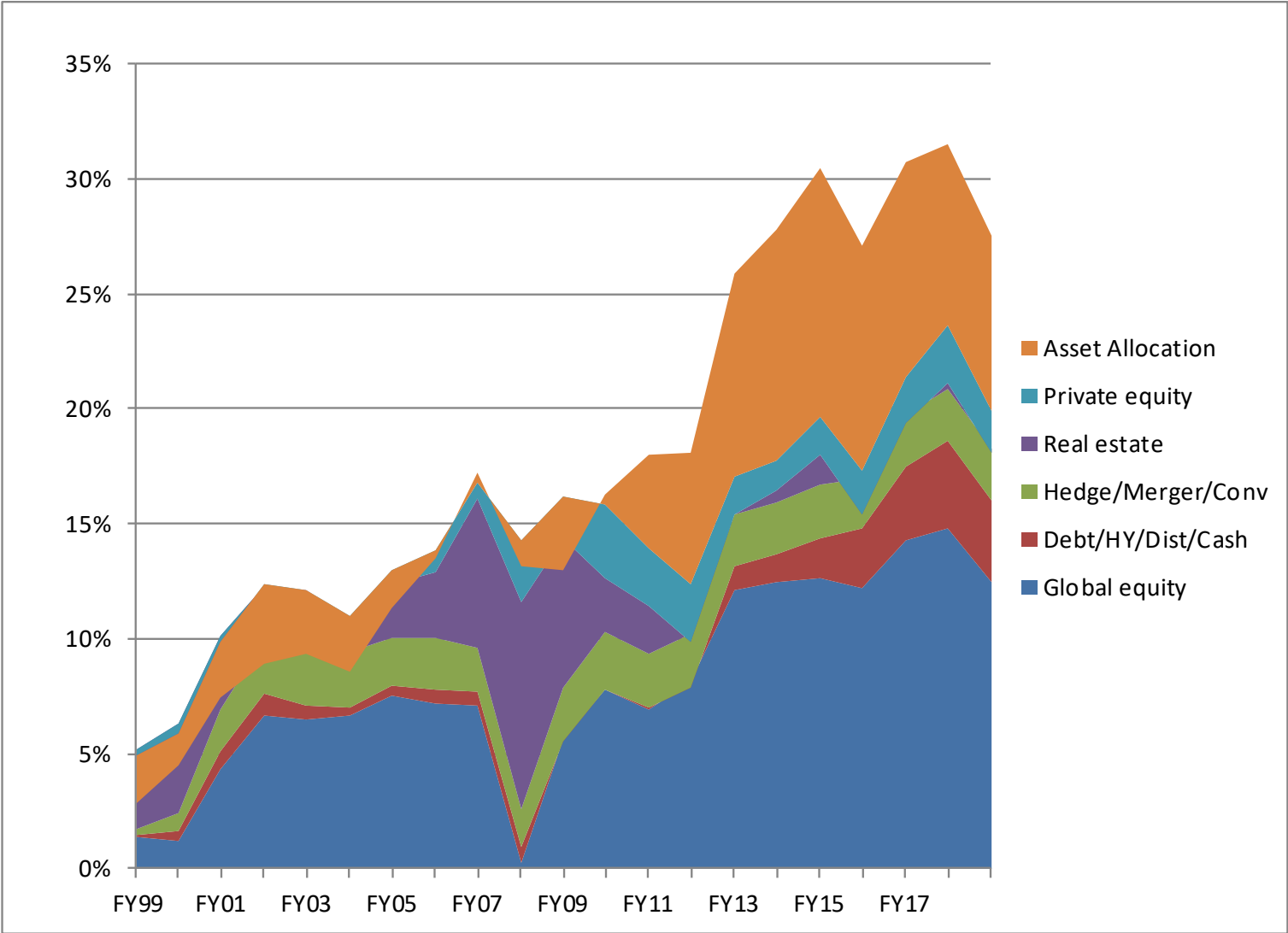
Total Difference	<u>-3.03%</u>
-------------------------	----------------------

Total Fund Performance Attribution

SDRS to Capital Markets Benchmark History

	<u>FY 2019</u>	<u>FY 2018</u>	<u>FY 2017</u>	<u>FY 2016</u>	<u>FY 2015</u>	<u>5 yr Ann</u>	<u>10 yr Ann</u>	<u>21 yr Ann</u>
SDRS Total Return (Net)	4.9%	7.9%	13.8%	0.3%	4.2%	6.1%	11.1%	7.4%
Capital Markets Return	<u>7.9%</u>	<u>7.3%</u>	<u>11.0%</u>	<u>2.9%</u>	<u>2.1%</u>	<u>6.2%</u>	<u>9.9%</u>	<u>6.3%</u>
	-3.0%	0.6%	2.9%	-2.6%	2.1%	-0.1%	1.2%	1.1%
Primary Asset Allocation								
Equity Like Risk	0.3%	-1.6%	-1.6%	-0.1%	0.0%	-0.6%	0.4%	0.2%
Bond Like Risk	-0.6%	0.0%	0.0%	-0.5%	-0.1%	-0.2%	-0.2%	-0.2%
Cash Like Risk	<u>0.5%</u>	<u>0.3%</u>	<u>0.1%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.2%</u>	<u>0.1%</u>	<u>0.0%</u>
Total Primary Asset Alloc	0.2%	-1.2%	-1.5%	-0.5%	-0.1%	-0.6%	0.2%	0.0%
Secondary Asset Allocation								
REITS/Core	-0.4%	0.6%	1.6%	-2.3%	-0.2%	-0.2%	-0.4%	-0.4%
High Yield Corporate Debt	0.0%	0.2%	-0.2%	0.1%	0.2%	0.0%	-0.1%	-0.1%
High Yield Distressed (Agg)	0.0%	-0.2%	0.3%	0.4%	0.0%	0.1%	0.1%	0.1%
High Yield Corp Debt-CVI GVI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
High Yield RE Debt	-0.1%	-0.1%	0.2%	-0.1%	-0.1%	0.0%	0.0%	0.0%
High Yield RE Debt (Agg)	0.0%	-0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%
Real Estate Opportunistic	0.4%	-0.5%	-1.7%	2.9%	0.7%	0.3%	0.7%	0.3%
TIPS					0.0%	0.0%	0.0%	0.0%
Commodities					<u>0.4%</u>	<u>0.1%</u>	<u>0.1%</u>	<u>0.0%</u>
Total Secondary Asset Allo	0.0%	-0.1%	0.2%	1.0%	0.9%	0.4%	0.5%	0.1%
Total Asset Allocation	0.2%	-1.3%	-1.3%	0.5%	0.8%	-0.3%	0.8%	0.0%
Portfolio Added Value								
Public Equity	-2.0%	0.5%	1.8%	-0.4%	0.1%	0.0%	0.6%	0.6%
Investment Grade Debt	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Yield Distressed (Agg)	-0.4%	0.3%	0.5%	0.6%	-0.1%	0.2%	0.0%	0.0%
High Yield Corp Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Yield Real Estate Debt	0.0%	0.3%	0.0%	0.1%	0.2%	0.1%	0.2%	0.1%
High Yield RE Debt (Agg)	0.0%	0.1%	0.2%	0.1%	0.3%	0.2%	0.1%	0.1%
Real Estate Opportunistic	-0.5%	0.5%	1.4%	-2.9%	0.8%	-0.1%	-0.6%	0.0%
Private Equity	-0.6%	0.5%	0.0%	0.3%	0.3%	0.1%	0.0%	0.1%
Hedge Fund	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
Short S & P 500 Futures	<u>-0.5%</u>	<u>-0.4%</u>	<u>0.1%</u>	<u>-0.8%</u>	<u>-0.6%</u>	<u>-0.4%</u>	<u>-0.2%</u>	<u>-0.1%</u>
Total Portfolio Alpha difference	-3.9%	1.8%	3.9%	-3.1%	1.2%	0.0%	0.2%	0.8%
Other	0.7%	0.1%	0.2%	0.0%	0.1%	0.2%	0.2%	0.3%
Total Difference	-3.0%	0.6%	2.9%	-2.6%	2.1%	-0.1%	1.2%	1.1%

Cumulative added value by source FY 1999 to FY 2019



Comparison to Peer Universes

Annualized Returns

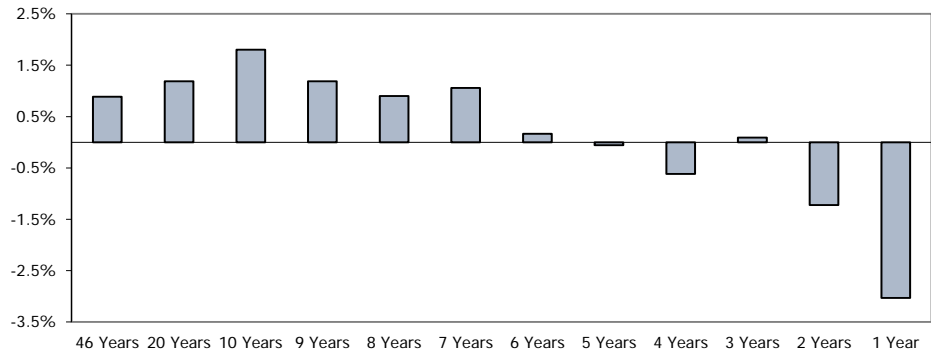
	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
SDRS (net)	4.88%	8.81%	6.13%	11.06%
SDRS (gross)	5.32%	9.21%	6.47%	11.50%
=====				
State Fund (net) - PRELIMINARY	6.5%	9.3%	6.6%	9.7%
Northern Trust (gross)	5.8%	9.1%	9.1%	n/a
Wilshire TUCS (gross)	6.8%	8.4%	5.8%	9.1%

Total Fund Return Comparison

Annualized

	<u>SDRS Total Fund</u>	<u>SDRS Capital Markets Benchmark</u>	<u>Over/Under Performance</u>
46 Years	10.24%	9.35%	0.89%
20 Years	7.35%	6.16%	1.19%
10 Years	11.29%	9.48%	1.80%
9 Years	10.49%	9.30%	1.19%
8 Years	8.71%	7.80%	0.90%
7 Years	9.71%	8.66%	1.06%
6 Years	8.16%	7.99%	0.16%
5 Years	6.13%	6.18%	-0.06%
4 Years	6.62%	7.23%	-0.62%
3 Years	8.81%	8.72%	0.09%
2 Years	6.40%	7.62%	-1.22%
1 Year	4.88%	7.91%	-3.03%

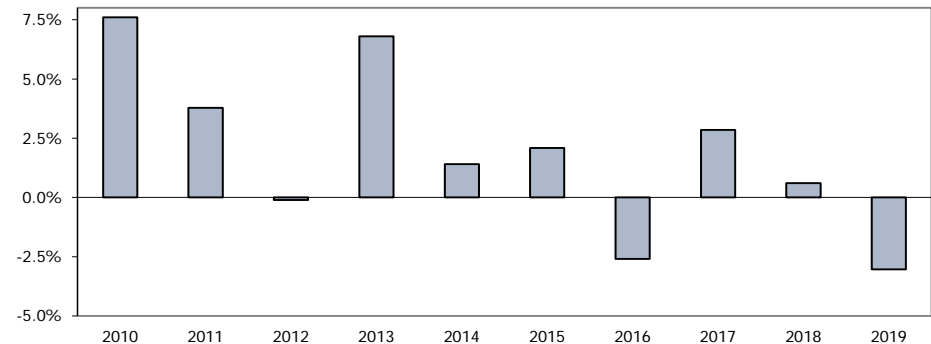
SDRS Total Fund Over/Under Performance Chart



Annual Returns

	<u>SDRS Total Fund</u>	<u>SDRS Capital Markets Benchmark</u>	<u>Over/Under Performance</u>
2010	18.73%	11.12%	7.61%
2011	25.84%	22.06%	3.78%
2012	1.91%	2.02%	-0.10%
2013	19.53%	12.73%	6.80%
2014	18.90%	17.49%	1.41%
2015	4.18%	2.09%	2.09%
2016	0.30%	2.88%	-2.59%
2017	13.81%	10.96%	2.85%
2018	7.94%	7.33%	0.61%
2019	4.88%	7.91%	-3.03%

SDRS Total Fund Over/Under Performance Chart



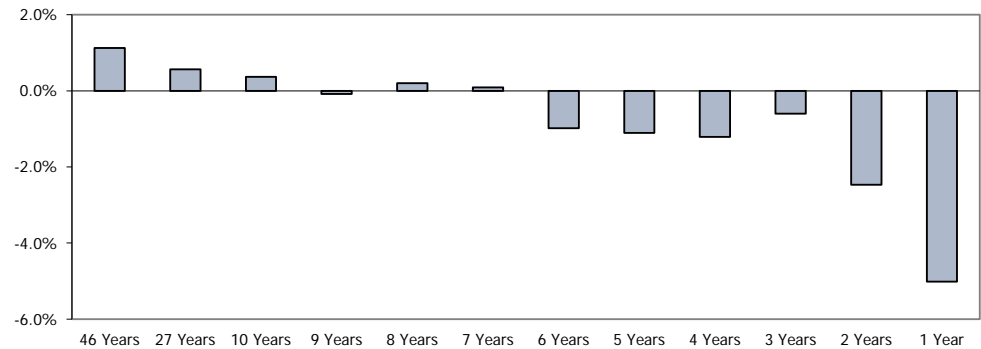
* Total Fund Return History
 1973 - 2013 is gross-of-fee
 2014 - 2019 is net-of-fee

Internal Global Equity Return Comparison

Annualized

	<u>SDRS Internal Gbl Eq</u>	<u>Internal Gbl Eq Benchmark</u>	<u>Over/Under Performance</u>
46 Years	11.40%	10.28%	1.13%
27 Years	9.60%	9.03%	0.57%
10 Years	12.79%	12.42%	0.37%
9 Years	12.34%	12.43%	-0.08%
8 Years	10.52%	10.31%	0.20%
7 Years	12.17%	12.08%	0.09%
6 Years	9.94%	10.92%	-0.98%
5 Years	7.31%	8.41%	-1.11%
4 Years	8.44%	9.65%	-1.21%
3 Years	12.51%	13.10%	-0.60%
2 Years	7.82%	10.29%	-2.47%
1 Year	3.10%	8.11%	-5.01%

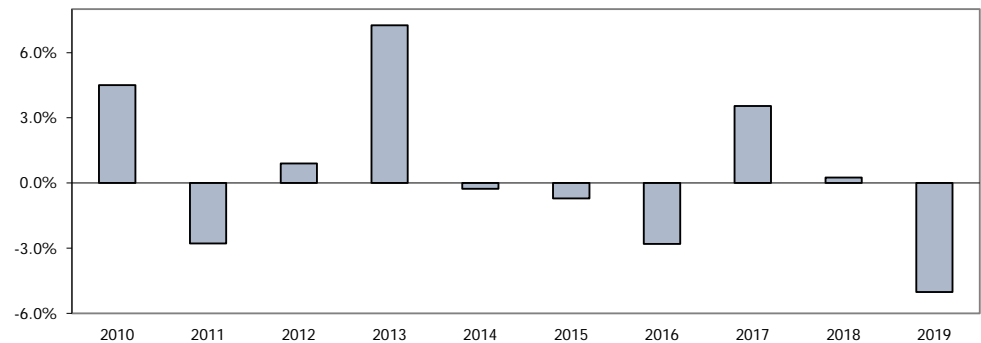
SDRS Internal Global Equity Over/Under Performance Chart



Annual Returns

	<u>SDRS Internal Gbl Eq</u>	<u>Internal Gbl Eq Benchmark</u>	<u>Over/Under Performance</u>
2010	16.85%	12.35%	4.51%
2011	28.06%	30.84%	-2.78%
2012	-0.40%	-1.31%	0.90%
2013	26.57%	19.31%	7.26%
2014	24.10%	24.36%	-0.27%
2015	2.89%	3.60%	-0.71%
2016	-2.89%	-0.08%	-2.81%
2017	22.50%	18.96%	3.54%
2018	12.75%	12.50%	0.25%
2019	3.10%	8.11%	-5.01%

SDRS Internal Global Equity Over/Under Performance Chart



* Equity - Composite History

1973 - 1991 is domestic equity only

1992 - 2004 is a combined domestic and international composite

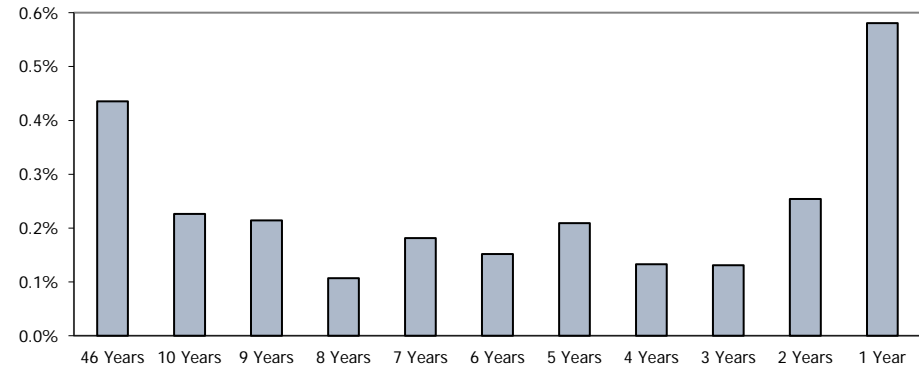
2005 - 2019 is global equity (small/mid, gem and high quality not included)

Investment Grade Fixed Income Return Comparison

Annualized

	<u>SDRS Fixed Income</u>	<u>Fixed Income Benchmark</u>	<u>Over/Under Performance</u>
46 Years	7.85%	7.42%	0.44%
10 Years	4.25%	4.02%	0.23%
9 Years	3.49%	3.27%	0.21%
8 Years	3.33%	3.22%	0.11%
7 Years	2.81%	2.63%	0.18%
6 Years	3.33%	3.18%	0.15%
5 Years	3.16%	2.95%	0.21%
4 Years	3.36%	3.22%	0.13%
3 Years	2.45%	2.32%	0.13%
2 Years	3.90%	3.65%	0.25%
1 Year	8.49%	7.91%	0.58%

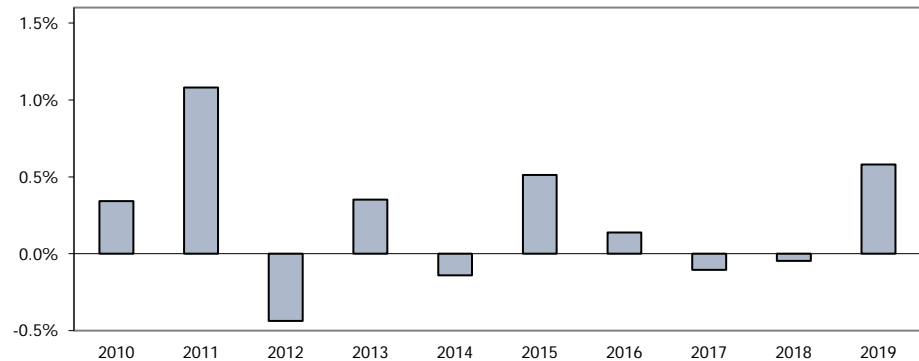
SDRS Fixed Income Over/Under Performance Chart



Annual Returns

	<u>SDRS Fixed Income</u>	<u>Fixed Income Benchmark</u>	<u>Over/Under Performance</u>
2010	11.32%	10.98%	0.34%
2011	4.74%	3.66%	1.08%
2012	7.07%	7.51%	-0.44%
2013	-0.30%	-0.65%	0.35%
2014	4.20%	4.34%	-0.14%
2015	2.38%	1.87%	0.51%
2016	6.12%	5.98%	0.14%
2017	-0.39%	-0.28%	-0.11%
2018	-0.49%	-0.45%	-0.05%
2019	8.49%	7.91%	0.58%

SDRS Fixed Income Over/Under Performance Chart



* Fixed Income - History

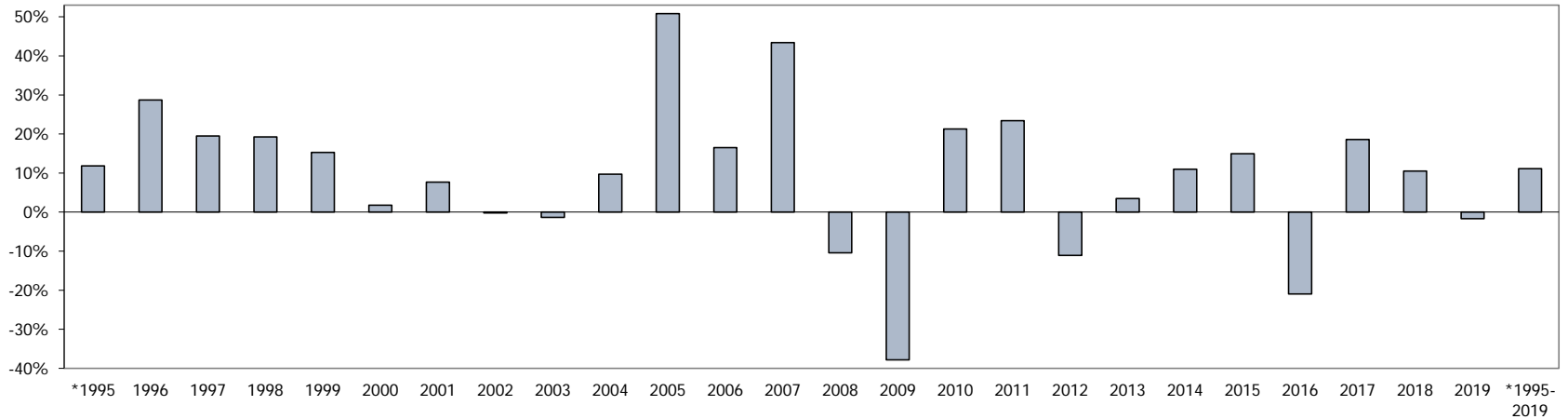
1973 - 2006 is investment grade & high yield managed together

2007 - 2010 is 80% investment grade portfolio + 20% high yield portfolio

2011 - 2019 is investment grade portfolio only

Real Estate Net Internal Rate of Return Comparison

Real Estate Net Internal Rate of Return Over/Under Performance Chart



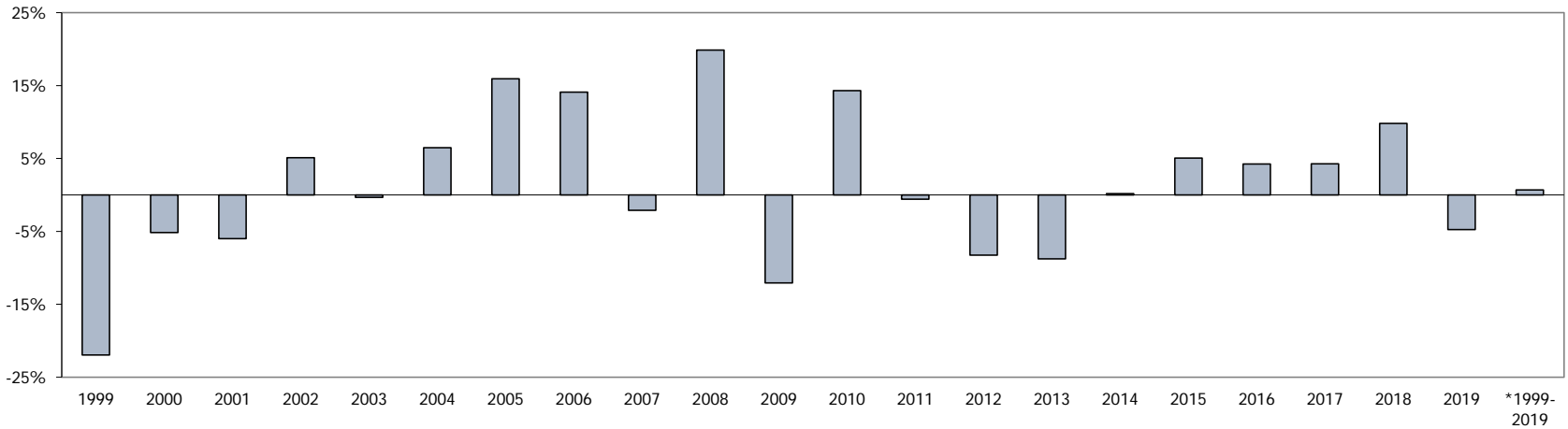
Fiscal Year	Real Estate	Benchmark	Over/Under Performance
*1995	16.39%	4.55%	11.84%
1996	38.28%	9.55%	28.73%
1997	30.89%	11.39%	19.50%
1998	37.21%	17.94%	19.27%
1999	28.47%	13.20%	15.27%
2000	13.37%	11.61%	1.76%
2001	20.07%	12.40%	7.67%
2002	6.37%	6.57%	-0.20%
2003	5.74%	7.09%	-1.35%
2004	19.41%	9.72%	9.69%
2005	66.40%	15.55%	50.85%
2006	36.70%	20.19%	16.51%
2007	60.01%	16.60%	43.41%

Fiscal Year	Real Estate	Benchmark	Over/Under Performance
2008	3.15%	13.58%	-10.43%
2009	-52.49%	-14.67%	-37.82%
2010	11.70%	-9.59%	21.30%
2011	40.88%	17.47%	23.41%
2012	3.72%	14.82%	-11.10%
2013	15.37%	11.90%	3.47%
2014	24.35%	13.38%	10.97%
2015	18.90%	3.93%	14.97%
2016	3.16%	24.10%	-20.94%
2017	16.78%	-1.82%	18.60%
2018	14.10%	3.57%	10.53%
2019	9.39%	11.06%	-1.68%
*1995-2019	20.71%	9.61%	11.10%

* Blackstone I - funded December 1994

Private Equity Net Internal Rate of Return Comparison

Private Equity Net Internal Rate of Return Over/Under Performance Chart



Fiscal Year	Private Equity	Benchmark	Over/Under Performance	Fiscal Year	Private Equity	Benchmark	Over/Under Performance
1999	5.91%	27.87%	-21.96%	2010	32.68%	18.37%	14.31%
2000	9.54%	14.71%	-5.17%	2011	32.26%	32.85%	-0.59%
2001	-16.43%	-10.43%	-6.00%	2012	-0.97%	7.29%	-8.26%
2002	-9.70%	-14.80%	5.11%	2013	13.86%	22.63%	-8.77%
2003	4.21%	4.55%	-0.34%	2014	24.79%	24.61%	0.18%
2004	30.00%	23.54%	6.46%	2015	7.82%	2.78%	5.04%
2005	25.95%	10.02%	15.93%	2016	2.57%	-1.68%	4.25%
2006	26.51%	12.40%	14.11%	2017	22.57%	18.31%	4.26%
2007	22.56%	24.67%	-2.11%	2018	21.59%	11.78%	9.81%
2008	9.94%	-9.92%	19.86%	2019	2.28%	7.03%	-4.75%
2009	-35.44%	-23.36%	-12.08%	*1999-2019	9.29%	8.62%	0.67%

*Private Equity return is since inception. Cypress I - funded November 1995, Private Equity was not added to the Capital Markets Benchmark until FY 1999.