

**Performance
Update**
Calendar Year 2018

This report is divided into three sections:

Section 1. Value and Performance Supplement

Lists the market value and investment return for each internally and externally managed investment in the Retirement Systems portfolio.

Section 2. Additional Information

Lists several additional items requested by G.S. 147-69.12(b).

Section 3. Use of new Investment Authority Report

Details information on grants of investment authority from the state legislature as required by G.S. 147-69.8.

Section 1
Value and Performance Supplement

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NCRS Public Equity Portfolio

December 31, 2018

Fund	LLC/LLP	Inception	Market Value	Returns					
				1 Yr	3 Yr	5 Yr	10 Yr	15 Yr	20 Yr
Baillie Gifford EAFE Plus Alpha <i>MSCI EAFE</i>		2007	\$ 1,977,083	(14.4) (13.8)	8.1 2.9	3.0 0.5	10.5 6.3	- 4.7	- 3.5
BlackRock EAFE LC Growth <i>MSCI EAFE Growth Index</i>		2016	\$ 738,924	(12.5) (12.5)	- 3.3	- 2.0	- 7.5	- 5.5	- 3.1
BlackRock Emerging Markets Opportunities Fund <i>MSCI Emerging Markets</i>		2009	\$ 680,992	(13.0) (14.6)	11.2 9.3	3.0 1.6	- 8.0	- 7.9	- 8.5
BlackRock Mid Cap Passive <i>Russell Midcap Custom</i>		2013	\$ 353,212	- (12.3)	- 5.1	- 5.1	- -	- -	- -
BlackRock MSCI ACWI ex US IMI <i>MSCI ACWI ex US IMI Index</i>		2010	\$ 6,920,649	(14.5) (14.8)	4.7 4.4	1.1 0.8	- 7.0	- 5.5	- 4.6
Brown Advisory Small Cap Growth <i>Russell 2000 Growth</i>		2008	\$ 278,156	(4.0) (9.3)	8.2 7.2	6.6 5.1	15.1 13.5	- 8.0	- 6.1
Earnest Partners Small Cap Value <i>Russell 2000 Value</i>		2002	\$ 489,192	(14.5) (12.9)	9.1 7.4	6.2 3.6	12.5 10.4	8.2 6.9	- 8.2
ECM Bespoke Fund 2 <i>Equity Hedge Benchmark</i>	Yes	2016	\$ 30,229	(18.8) (3.9)	- 2.7	- 1.4	- -	- -	- -
ECM Feeder Fund 2 <i>Equity Hedge Benchmark</i>	Yes	2016	\$ 144,833	(24.6) (3.9)	- 2.7	- 1.4	- -	- -	- -
Franklin Templeton Int'l SC <i>MSCI AC World ex USA Small Cap Index</i>		2010	\$ 530,513	(18.4) (18.2)	3.1 3.8	1.9 2.0	- 10.0	- 7.3	- 7.1
Internal TOBAM Max Div US <i>Russell 1000</i>		2018	\$ 342,321	- (4.8)	- 9.1	- 8.2	- 13.3	- 7.9	- 5.9
Internal Russell 200 Passive <i>Russell Top 200 Custom</i>		2017	\$ 10,524,943	(3.1) (3.1)	- 9.9	- -	- -	- -	- -
Internal Russell Mid Cap Passive <i>Russell Midcap Index</i>		2017	\$ 2,519,650	(9.0) (9.1)	- 7.0	- 6.3	- 14.0	- 8.9	- 8.5
Mondrian Focused All Country World ex US IMI <i>MSCI Emerging Markets</i>		2017	\$ 2,206,343	(12.5) (14.6)	- 9.3	- 1.6	- 8.0	- 7.9	- 8.5
Numeric Small Cap Value <i>Russell 2000 Value</i>		2007	\$ 384,501	(14.7) (12.9)	3.4 7.4	1.9 3.6	12.6 10.4	- 6.9	- 8.2
ONSHE Marshall Wace <i>Equity Hedge Benchmark</i>	Yes	2016	\$ 212,168	(0.6) (3.9)	- 2.7	- 1.4	- -	- -	- -
ONSHE Menta <i>Equity Hedge Benchmark</i>	Yes	2016	\$ 193,501	0.5 (3.9)	- 2.7	- 1.4	- -	- -	- -
TimesSquare MidCap Growth <i>Russell Midcap Growth</i>		2007	\$ 604,658	(3.9) (4.8)	8.5 8.6	6.4 7.4	13.6 15.1	- 9.0	- 7.2
TOBAM AntiBmk World ex USA <i>MSCI ACWI Ex US</i>		2018	\$ 188,577	- (14.2)	- 4.5	- 0.7	- 6.6	- 5.2	- -
ValueAct Capital <i>Russell MidCap Value</i>	Yes	2015	\$ 735,632	(9.5) (12.3)	2.8 6.1	- 5.4	- 13.0	- 8.6	- 8.7
Walter Scott International <i>MSCI ACWI Ex US</i>		2002	\$ 1,650,607	(7.6) (14.2)	8.3 4.5	4.5 0.7	8.7 6.6	7.7 5.2	- -
Wellington Diversified International <i>MSCI ACWI Ex US</i>		1987	\$ 1,186,849	(15.7) (14.2)	6.1 4.5	2.0 0.7	8.7 6.6	6.0 5.2	5.3 -
Wellington Opportunistic Growth <i>Russell 3000 Growth Custom</i>		1999	\$ 1,422,692	1.2 (2.1)	10.9 10.9	10.0 10.0	14.9 15.2	9.2 8.6	- 6.2
BlackRock Global Transition Cash and Liquidating Accounts		N/A	\$ 2,774 10,409	- -	- -	- -	- -	- -	- -
Total Public Equity			\$ 34,329,452	(9.3)	6.6	4.4	10.1	6.1	5.1
Public Equity Benchmark				(10.1)	6.0	3.9	9.2	5.5	4.2

Methodology and Notes:

-Dollar Values in Thousands

-Returns are calculated using a Modified Dietz time weighted rate of return methodology. This method uses the beginning and ending valuation for the measurement period, and

-The Equity Hedge Benchmark is the MSCI ACWI IMI Net beta adjusted to the target beta of the Equity Hedge Portfolio.

-As of July 2011, the Public Equity Benchmark is the dynamically weighted combination of the MSCI ACWI IMI Net (Long-Only) and a beta adjusted MSCI ACWI IMI Net (Hedged

- Equity portfolio cash and any residual value from closed accounts are aggregated in the line item labeled "Cash and Liquidating Accounts."

NCRS Private Equity Portfolio
December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distributions	DPI	Advisory Board
A.V. Management IV, LLC	2002	--	\$ 703	\$ 5,000	\$ -	0.47	1.05	\$ 4,554	0.91	YES
Academy Venture Fund, LLC	1999	2012	\$ 0	\$ 5,000	\$ -	(22.26)	0.18	\$ 916	0.18	YES
Accel-KKR Capital Partners IV, LP	2013	--	\$ 8,997	\$ 10,000	\$ 6,940	36.27	2.43	\$ 10,865	1.33	NO
Access Capital L.P. II D	2002	--	\$ 90	\$ 30,436	\$ 6,009	4.44	1.21	\$ 32,224	1.20	NO
AG Private Equity Partners IV (R), L.P.	2008	--	\$ 26,708	\$ 48,810	\$ 16,107	4.46	1.33	\$ 16,839	0.51	YES
AG Private Equity Partners IV, L.P.	2008	--	\$ 28,045	\$ 48,810	\$ 5,125	7.09	1.46	\$ 36,608	0.83	YES
Ampersand 2006 Limited Partnership	2006	--	\$ 29,641	\$ 30,000	\$ -	15.72	2.65	\$ 49,746	1.66	YES
Angeleno Investors II, L.P.	2006	--	\$ 11,236	\$ 30,000	\$ -	2.03	1.14	\$ 28,747	0.82	YES
Apollo Investment Fund VI, L.P.	2005	2013	\$ 0	\$ 128,418	\$ -	4.85	1.23	\$ 158,307	1.23	NO
Apollo Investment Fund VII, L.P.	2008	2011	\$ 0	\$ 34,550	\$ -	11.43	1.17	\$ 41,319	1.17	NO
Apollo Investment Fund VIII, L.P.	2013	--	\$ 204,355	\$ 220,000	\$ 40,690	13.39	1.31	\$ 65,636	0.32	NO
Arch IX Overage	2016	--	\$ 51,241	\$ 60,000	\$ 18,300	16.50	1.23	\$ -	-	YES
ARCH Venture Fund VII, L.P.	2007	--	\$ 55,645	\$ 50,000	\$ -	39.66	5.21	\$ 208,631	4.12	YES
ARCH Venture Fund VIII, L.P.	2014	--	\$ 176,680	\$ 80,000	\$ 4,000	34.01	2.33	\$ 584	0.01	YES
ARCH Venture Fund IX	2016	--	\$ 42,448	\$ 60,000	\$ 23,400	13.93	1.16	\$ 79	0.00	YES
Aurora Ventures IV, LLC	2002	--	\$ 1,137	\$ 15,000	\$ -	0.43	1.05	\$ 14,627	0.97	YES
Aurora Ventures V, LLC	2005	--	\$ 7,815	\$ 15,000	\$ -	6.58	1.61	\$ 16,345	1.09	YES
Avista Capital Partners I, L.P.	2006	--	\$ 1,486	\$ 50,000	\$ 726	4.75	1.32	\$ 68,105	1.29	YES
Avista Capital Partners II, L.P.	2008	--	\$ 25,236	\$ 100,000	\$ 13,748	15.54	2.11	\$ 157,252	1.82	YES
Avista Capital Partners III, L.P.	2011	--	\$ 83,703	\$ 150,000	\$ 8,371	3.26	1.14	\$ 80,848	0.56	YES
Blackstone Core Equity Partners - NC LP	2017	--	\$ 0	\$ 250,000	\$ 250,000	-	-	\$ -	-	N/A
Blackstone Core Equity Partners LP	2017	--	\$ 121,354	\$ 250,000	\$ 138,352	6.45	1.06	\$ 20,681	0.15	YES
Blackstone TN Partners LP	2017	--	\$ 35,988	\$ 40,000	\$ 3,974	(0.06)	1.00	\$ 1,604	0.04	N/A
Burrill Life Sciences Capital Fund III, L.P.	2005	--	\$ 10,077	\$ 50,000	\$ 58	(5.05)	0.70	\$ 24,743	0.50	YES
Burrill Life Sciences Capital Fund, L.P.	2002	2015	\$ 0	\$ 41,632	\$ -	3.93	1.22	\$ 50,772	1.22	YES
Carolinus Capital, L.P.	1990	2008	\$ 0	\$ 225	\$ -	7.09	1.54	\$ 347	1.54	NO
Carousel Capital Partners III, L.P.	2006	--	\$ 0	\$ 20,966	\$ 4,672	23.46	2.33	\$ 37,875	2.33	YES
Carousel Capital Partners IV, L.P.	2012	--	\$ 20,329	\$ 24,999	\$ 4,231	37.65	2.66	\$ 37,417	1.72	YES
Carousel Capital Partners V LP	2017	--	\$ 8,672	\$ 30,000	\$ 21,923	8.80	1.07	\$ 0	0.00	YES
Castle Harlan Partners IV, L.P.	2002	--	\$ 8,429	\$ 75,000	\$ 7,252	14.31	1.48	\$ 97,588	1.36	YES
Castle Harlan Partners V, L.P.	2008	--	\$ 47,561	\$ 100,000	\$ 13,899	11.65	1.28	\$ 73,163	0.78	YES
Catterton Growth Partners, L.P.	2008	--	\$ 13,388	\$ 30,000	\$ 272	9.98	1.80	\$ 41,055	1.36	YES
Catterton Growth Partners II, L.P.	2013	--	\$ 93,610	\$ 75,000	\$ 447	6.03	1.26	\$ -	-	YES
Catterton Partners VII, L.P.	2013	--	\$ 128,800	\$ 100,000	\$ 2,646	14.21	1.55	\$ 42,196	0.38	YES
Chapter IV Investors Special Situations Fund, L.P.	2006	2018	\$ 0	\$ 44,467	\$ -	1.82	1.17	\$ 59,322	1.17	YES
Charterhouse Capital Partners IX, L.P.	2009	--	\$ 32,359	\$ 114,315	\$ 8,672	11.07	1.39	\$ 135,097	1.12	YES
Charterhouse Capital Partners X, L.P.	2015	--	\$ 76,231	\$ 171,473	\$ 106,334	25.53	1.40	\$ 10,912	0.18	YES
Coller International Partners IV, L.P.	2002	2018	\$ 0	\$ 83,729	\$ -	13.20	1.37	\$ 120,170	1.37	YES
Crestview Partners II, L.P.	2008	--	\$ 46,144	\$ 100,000	\$ 15,203	13.39	1.93	\$ 117,359	1.38	YES
Crestview Capital Partners III, L.P.	2013	--	\$ 99,090	\$ 150,000	\$ 66,809	13.89	1.28	\$ 15,722	0.18	YES
CVC Europe Equity Partners IV, L.P.	2005	--	\$ 102	\$ 74,305	\$ 8,737	16.63	1.97	\$ 153,921	1.97	NO
CVC Capital Partners VI, L.P.	2014	--	\$ 86,175	\$ 85,736	\$ 1,905	11.73	1.22	\$ 28,814	0.32	NO
CVE Kauffman Fund I	2007	--	\$ 55,687	\$ 50,000	\$ 5,750	11.78	2.25	\$ 44,466	1.00	YES
DLJ Merchant Banking Partners II, L.P.	1996	2016	\$ 0	\$ 6,896	\$ -	5.98	1.30	\$ 9,903	1.30	NO
Elevation Partners, L.P.	2005	--	\$ 200	\$ 91,652	\$ 1,066	12.15	1.59	\$ 147,260	1.59	YES
Francisco Partners Agility	2017	--	\$ 6,594	\$ 50,000	\$ 40,375	105.70	1.57	\$ 8,552	0.89	YES
Francisco Partners II, L.P.	2006	--	\$ 10,154	\$ 60,000	\$ 4,140	10.16	1.55	\$ 84,314	1.39	YES
Francisco Partners IV, L.P.	2015	--	\$ 123,925	\$ 100,000	\$ 2,550	23.26	1.57	\$ 30,790	0.31	YES
Franklin Fairview I, L.P.	1997	2017	\$ 0	\$ 2,478	\$ -	0.98	1.16	\$ 2,888	1.16	NO
GCM Grosvenor - NC Innovation Fund	2010	--	\$ 124,321	\$ 230,000	\$ 32,650	21.26	1.89	\$ 283,914	1.32	N/A
GCM Grosvenor - NC Innovation Fund 2013-1	2013	--	\$ 23,712	\$ 15,037	\$ 2,226	23.52	2.18	\$ 5,804	0.43	N/A
GCM Grosvenor - NC Innovation Fund II	2015	--	\$ 103,426	\$ 258,401	\$ 134,912	9.54	1.08	\$ 38,922	0.30	N/A
GCM Grosvenor - NC Investment Fund 2006	2006	--	\$ 37,816	\$ 252,482	\$ 3,659	3.83	1.26	\$ 275,503	1.11	N/A
GCM Grosvenor - NC Investment Fund 2008 Series 1	2008	--	\$ 48,318	\$ 179,996	\$ 26,991	6.01	1.34	\$ 162,194	1.04	N/A
GCM Grosvenor - NC Investment Fund 2008 Series 2	2009	--	\$ 41,955	\$ 50,000	\$ 847	(1.97)	0.92	\$ 4,615	0.09	N/A
Halifax Capital Partners II, L.P.	2005	--	\$ 5	\$ 15,000	\$ 2,852	7.20	1.30	\$ 15,993	1.30	YES
Halifax Capital Partners III, L.P.	2012	--	\$ 17,980	\$ 30,000	\$ 6,264	27.81	1.67	\$ 27,493	1.01	YES
HarbourVest Partners III, L.P.	1989	2008	\$ 0	\$ 6,500	\$ -	13.91	2.16	\$ 14,012	2.16	NO
Harvest Partners IV, L.P.	2001	--	\$ 48	\$ 47,904	\$ 1,372	35.77	2.24	\$ 104,194	2.24	YES
Harvest Partners V, L.P.	2006	--	\$ 18,156	\$ 75,000	\$ 6,770	18.43	1.92	\$ 114,659	1.66	YES
Harvest Partners VI, L.P.	2011	--	\$ 46,520	\$ 100,000	\$ 6,852	22.56	2.00	\$ 149,097	1.53	YES
Harvest Partners VII, L.P.	2016	--	\$ 58,703	\$ 100,000	\$ 45,932	6.48	1.07	\$ 9,299	0.15	YES
Hatteras Venture Partners III, L.P.	2007	--	\$ 12,531	\$ 16,354	\$ 1,888	(0.95)	0.94	\$ 3,211	0.19	YES
Hg Capital 7	2013	--	\$ 84,333	\$ 82,784	\$ 6,163	10.32	1.32	\$ 41,302	0.43	YES
Highland Capital Partners VI, L.P.	2001	--	\$ 566	\$ 5,000	\$ -	12.22	1.66	\$ 7,738	1.55	NO
Highland Capital Partners VII, L.P.	2006	--	\$ 5,570	\$ 15,000	\$ -	4.52	1.33	\$ 14,347	0.96	NO
Highland Consumer Fund I, L.P.	2007	--	\$ 6,601	\$ 25,000	\$ -	(2.58)	0.83	\$ 14,208	0.57	YES
Horsley Bridge International IV, L.P.	2006	--	\$ 48,695	\$ 65,000	\$ 2,779	8.91	1.81	\$ 63,767	1.02	NO
Horsley Bridge International V, L.P.	2008	--	\$ 128,850	\$ 75,000	\$ 3,539	19.06	2.21	\$ 28,736	0.40	NO
Horsley Bridge IX, L.P.	2008	--	\$ 127,566	\$ 85,000	\$ 2,987	19.36	2.58	\$ 83,966	1.02	NO
Intersouth Partners II, L.P.	1988	2004	\$ 0	\$ 2,000	\$ -	(6.10)	0.73	\$ 1,465	0.73	NO
Intersouth Partners III, L.P.	1994	2014	\$ 0	\$ 1,000	\$ -	26.92	2.14	\$ 2,140	2.14	NO
Intersouth Partners VI, L.P.	2003	--	\$ 3,189	\$ 7,000	\$ -	2.81	1.23	\$ 5,436	0.78	NO
Kitty Hawk Capital III, L.P.	1994	2012	\$ 0	\$ 1,000	\$ -	(5.03)	0.59	\$ 592	0.59	NO
KRG Capital Fund II, L.P.	2001	2016	\$ 0	\$ 19,568	\$ -	21.64	1.51	\$ 29,648	1.51	YES
KRG Capital Fund III, L.P.	2005	2017	\$ 0	\$ 73,591	\$ -	1.69	1.09	\$ 80,524	1.09	YES
KRG Capital Fund IV, L.P.	2007	--	\$ 4,279	\$ 140,362	\$ 3,672	13.52	1.72	\$ 245,363	1.69	YES
L Catterton Growth Partners III, L.P.	2016	--	\$ 64,617	\$ 75,000	\$ 23,780	22.53	1.34	\$ 7,317	0.14	YES
NCL Investments, L.P. - PE Series	2014	--	\$ 127,255	\$ 250,000	\$ 60,291	14.40	1.25	\$ 138,367	0.65	Observer
NCL Investments II, L.P. - Outside Opportunities Series A	2018	--	\$ 72,308	\$ 300,000	\$ 227,400	(0.56)	1.00	\$ -	-	YES
NCL Investments III, L.P. - PE Overflow Series	2018	--	\$ 38,592	\$ 200,000	\$ 163,992	11.00	1.07	\$ 2,875	0.07	YES
NCL Investments II, L.P. - PE Series	2018	--	\$ 26,633	\$ 300,000	\$ 278,765	35.18	1.25	\$ -	-	YES
Levine Leichtman Capital Partners V	2013	--	\$ 138,952	\$ 150,000	\$ 23,070	10.76	1.37	\$ 47,075	0.35	YES

NCRS Private Equity Portfolio
December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distributions	DPI	Advisory Board
Lexington Middle Market Investors, L.P.	2004	--	\$ 13,674	\$ 100,000	\$ 912	11.71	1.65	\$ 149,544	1.51	YES
Lexington Middle Market Investors II, L.P.	2008	--	\$ 34,842	\$ 100,000	\$ 2,263	13.97	1.63	\$ 124,725	1.28	YES
Lexington Middle Market Investors III, L.P.	2012	--	\$ 102,463	\$ 150,000	\$ 32,389	21.35	1.44	\$ 67,290	0.57	YES
Lindsay Goldberg II, L.P.	2006	--	\$ 1,430	\$ 100,000	\$ 5,441	7.14	1.42	\$ 137,843	1.40	YES
Lindsay Goldberg III, LP	2008	--	\$ 5,078	\$ 100,000	\$ 4,517	8.10	1.36	\$ 125,153	1.31	YES
LittleJohn Opportunities Fund II LP	2017	--	\$ 53,010	\$ 125,000	\$ 75,188	6.36	1.07	\$ 94	0.00	YES
Longreach Capital Partners I, L.P.	2006	--	\$ 34,552	\$ 75,000	\$ 2,382	(0.52)	0.97	\$ 47,854	0.56	YES
Markstone Capital Partners, L.P.	2005	2017	\$ 0	\$ 48,570	\$ -	(85.27)	0.30	\$ 16,131	0.30	YES
Marlin Equity IV	2013	--	\$ 36,263	\$ 49,000	\$ 18,320	5.94	1.15	\$ 19,494	0.40	NO
MatlinPatterson Global Opportunities Partners III	2007	--	\$ 28,127	\$ 100,000	\$ 2,292	4.38	1.30	\$ 98,992	1.01	NO
MHR Institutional Partners IV, L.P.	2015	--	\$ 60,224	\$ 150,000	\$ 87,805	(1.72)	0.97	\$ 5,963	0.09	YES
Milestone Partners IV, L.P.	2011	--	\$ 53,501	\$ 50,000	\$ 750	12.12	1.53	\$ 28,252	0.53	YES
Mount Kellett Capital Partners II, LP	2011	--	\$ 12,672	\$ 75,000	\$ 1,741	2.47	1.08	\$ 68,542	0.91	YES
NCEF Liquidating Trust	1990	2013	\$ 0	\$ 10,010	\$ -	20.21	6.14	\$ 61,501	6.14	N/A
NEA 14, L.P.	2012	--	\$ 56,723	\$ 45,000	\$ 2,700	17.57	2.04	\$ 29,786	0.70	NO
NEA 15 Opportunity Fund, L.P.	2015	--	\$ 51,443	\$ 65,000	\$ 9,263	9.76	1.17	\$ 13,809	0.25	YES
NEA 15, L.P.	2015	--	\$ 78,365	\$ 67,500	\$ 10,800	19.71	1.52	\$ 7,702	0.14	NO
North Carolina Economic Opportunities Fund	2001	2015	\$ 0	\$ 6,561	\$ -	16.27	1.69	\$ 11,079	1.69	N/A
Northbound NCRS Fund, L.P.	2015	--	\$ 176,103	\$ 200,000	\$ 50,455	16.91	1.26	\$ 11,924	0.08	N/A
Novak Biddle Venture Partners III, L.P.	2000	2017	\$ 0	\$ 17,000	\$ -	(13.59)	0.56	\$ 9,450	0.56	NO
Novak Biddle Venture Partners IV, L.P.	2004	--	\$ 998	\$ 10,000	\$ 307	(6.11)	0.64	\$ 5,240	0.54	NO
Novak Biddle Venture Partners V, L.P.	2007	--	\$ 1,231	\$ 10,000	\$ 357	16.20	2.67	\$ 24,526	2.54	NO
Oaktree European Principal Fund III, L.P.	2011	--	\$ 32,614	\$ 40,716	\$ 12,246	10.78	1.71	\$ 23,631	0.72	NO
Pappas Life Science Ventures II, L.P.	2000	2016	\$ 0	\$ 4,925	\$ -	3.47	1.20	\$ 5,989	1.20	YES
Pappas Life Science Ventures III, L.P.	2005	--	\$ 1,317	\$ 20,000	\$ 100	4.83	1.39	\$ 26,409	1.33	YES
Pappas Life Science Ventures IV, L.P.	2009	--	\$ 7,798	\$ 24,457	\$ 1,223	33.40	2.48	\$ 49,810	2.14	YES
Perseus Market Opportunity Fund, L.P.	2002	2015	\$ 0	\$ 50,000	\$ -	(15.81)	0.48	\$ 26,371	0.48	YES
Perseus Partners VII, L.P.	2006	2015	\$ 0	\$ 48,431	\$ -	(38.45)	0.17	\$ 7,999	0.17	YES
Quaker BioVentures II, L.P.	2007	--	\$ 23,586	\$ 100,000	\$ 5,273	2.53	1.12	\$ 81,794	0.87	YES
Robeco Clean Tech II	2008	--	\$ 48,395	\$ 75,000	\$ 3,972	(1.07)	0.93	\$ 17,374	0.24	YES
Robeco Clean Tech II Co-Inv	2008	--	\$ 11,134	\$ 75,000	\$ 16,470	(6.79)	0.64	\$ 26,101	0.45	N/A
Sprout Capital VI, L.P.	1989	2009	\$ 0	\$ 6,500	\$ -	18.54	2.16	\$ 14,030	2.16	NO
Sprout Growth II, L.P.	1993	2011	\$ 0	\$ 3,000	\$ -	15.44	1.98	\$ 5,931	1.98	NO
Starvest Partners II	2007	--	\$ 17,823	\$ 30,000	\$ 11	(3.45)	0.80	\$ 6,278	0.21	YES
StepStone Pioneer Capital Europe	2006	--	\$ 48,389	\$ 171,473	\$ 33,165	6.74	1.45	\$ 212,513	1.20	YES
StepStone Pioneer Capital I	2004	2018	\$ 0	\$ 136,794	\$ -	5.06	1.32	\$ 188,993	1.32	YES
StepStone Pioneer Capital II	2006	--	\$ 82,914	\$ 125,000	\$ 7,594	9.90	1.99	\$ 169,714	1.34	YES
StepStone SYN	2006	--	\$ 11,631	\$ 35,000	\$ 4,242	(1.37)	0.89	\$ 16,465	0.52	N/A
Synergy Life Science Partners, L.P.	2006	--	\$ 21,193	\$ 38,000	\$ 1,330	4.54	1.42	\$ 30,719	0.84	YES
TCV VI, L.P.	2005	--	\$ 6,847	\$ 30,000	\$ 141	13.31	1.66	\$ 42,636	1.43	NO
TCV VIII, L.P.	2014	--	\$ 186,761	\$ 150,000	\$ 22,783	14.87	1.56	\$ 11,602	0.09	YES
TCV IX, L.P.	2016	--	\$ 104,459	\$ 150,000	\$ 45,780	11.95	1.08	\$ 8,243	0.08	YES
Tenaya Capital Fund V	2007	--	\$ 52,901	\$ 75,000	\$ 4,777	18.09	2.32	\$ 110,209	1.57	YES
Tenaya Capital Fund VI	2012	--	\$ 78,985	\$ 75,000	\$ 6,614	3.17	1.15	\$ -	-	YES
Tenaya Capital Fund VII, L.P.	2015	--	\$ 52,526	\$ 90,000	\$ 28,944	7.14	1.10	\$ 15,438	0.25	YES
Terra Firma Capital Partners II, LP	2002	--	\$ 582	\$ 114,315	\$ 213	13.31	1.79	\$ 232,462	1.78	YES
Terra Firma Capital Partners III, L.P.	2006	--	\$ 35,706	\$ 171,473	\$ 682	(9.70)	0.45	\$ 56,261	0.27	YES
Thoma Bravo XII	2016	--	\$ 145,715	\$ 150,000	\$ 17,185	7.04	1.09	\$ 6,424	0.05	YES
TPG Biotechnology Partners II, L.P.	2006	--	\$ 5,122	\$ 18,000	\$ 8	1.36	1.09	\$ 14,601	0.81	NO
TPG Biotechnology Partners III, L.P.	2008	--	\$ 25,777	\$ 50,000	\$ 865	4.96	1.26	\$ 36,979	0.74	YES
TPG Partners IV, L.P.	2003	2013	\$ 0	\$ 92,798	\$ -	13.94	1.71	\$ 161,089	1.71	NO
TPG Partners V, L.P.	2006	2013	\$ 0	\$ 125,215	\$ -	(7.73)	0.72	\$ 90,366	0.72	NO
TPG Partners VI, L.P.	2008	2013	\$ 0	\$ 33,034	\$ -	(6.38)	0.88	\$ 29,522	0.88	NO
Trident VII LP	2017	--	\$ 85,701	\$ 125,000	\$ 39,563	0.76	1.00	\$ 3,431	0.04	Observer
Tudor Ventures III, L.P.	2006	--	\$ 1,554	\$ 30,000	\$ 94	3.38	1.21	\$ 29,996	1.15	YES
Venture First II, L.P.	1988	2004	\$ 0	\$ 3,000	\$ -	(15.61)	0.23	\$ 694	0.23	NO
Vista Equity Partners Fund IV, L.P.	2011	--	\$ 46,107	\$ 49,408	\$ 8,312	18.91	2.18	\$ 50,484	1.14	NO
Warburg Pincus Private Equity IX, L.P.	2005	2013	\$ 0	\$ 50,000	\$ -	4.20	1.20	\$ 60,538	1.20	NO
Warburg Pincus Private Equity X - 10	2007	2013	\$ 0	\$ 22,800	\$ -	(2.09)	0.95	\$ 21,860	0.95	YES
Warburg Pincus Private Equity X - 40	2007	2013	\$ 0	\$ 66,950	\$ -	(2.77)	0.93	\$ 62,169	0.93	YES
Warburg Pincus Private Equity X - 50	2007	2013	\$ 0	\$ 88,875	\$ -	(2.44)	0.94	\$ 84,177	0.94	YES
Warburg Pincus Private Equity XI, L.P.	2012	--	\$ 141,657	\$ 150,000	\$ -	14.14	1.55	\$ 93,320	0.62	Observer
Warburg Pincus Private Equity XII, L.P.	2015	--	\$ 135,526	\$ 175,000	\$ 51,275	10.56	1.15	\$ 6,287	0.05	Yes
WLR AGO Co-Inv, L.P.	2008	2014	\$ 0	\$ 7,162	\$ -	5.15	1.29	\$ 9,466	1.29	N/A
WLR AHM Co-Inv, L.P.	2007	2015	\$ 0	\$ 28,634	\$ -	11.81	1.65	\$ 47,447	1.65	YES
WLR Recovery Fund IV, L.P.	2007	--	\$ 14,566	\$ 200,000	\$ 19,131	7.70	1.37	\$ 233,657	1.29	YES
Stock Distribution	2002	--	\$ 4,308	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AIP Cash			\$ 5,056	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Private Equity			\$ 5,428,885	\$ 11,652,477	\$ 2,562,212	8.64	1.39	\$ 7,907,311	0.83	

Methodology and Notes:

- Dollar values in Thousands

- Returns are calculated using the Internal Rate of Return (IRR) methodology. The IRR is the discount rate where the sum of the discounted cash flows and the discounted valuation is equal to zero. Returns are reported net of fees.

- Total Value to Paid-In (TVPI), also known as the Investment Multiple, is the ratio of cumulative distributions plus the valuation to cumulative paid-in.

- Distributions to Paid-In (DPI), also known as the Realization Multiple, is the ratio of cumulative distributions to cumulative paid-in.

- The advisory board column is an indication of NCRS participation on the Fund's advisory board, N/A indicates that the Fund has no advisory board.

NCRS Non-Core Real Estate Portfolio
December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distributions	DPI	Advisory Board
AG Asia Realty Fund II, L.P.	2010	--	\$ 2,317	\$ 25,000	\$ 5,592	20.43	1.81	\$ 32,914	1.69	YES
AG Asia Realty Fund III LP	2016	--	\$ 89,493	\$ 100,000	\$ 12,393	15.41	1.21	\$ 27,208	0.28	YES
AG Core Plus Realty Fund I, L.P.	2003	2018	\$ 0	\$ 71,250	\$ -	17.53	1.52	\$ 108,278	1.52	YES
AG Core Plus Realty Fund II, L.P.	2006	--	\$ 3,113	\$ 100,000	\$ 5,500	8.19	1.33	\$ 123,007	1.30	YES
AG Net Lease Realty Fund II, L.P.	2010	--	\$ 90,423	\$ 100,000	\$ 3,000	8.88	1.61	\$ 64,819	0.67	YES
AG Net Lease Realty Fund III, L.P.	2013	--	\$ 80,204	\$ 100,000	\$ 21,000	6.51	1.17	\$ 12,274	0.16	YES
American Value Partners Fund I, L.P.	2006	--	\$ 5,246	\$ 50,000	\$ 12,531	0.69	1.04	\$ 33,698	0.90	YES
Benson Elliot Real Estate Partners II, L.P.	2006	--	\$ 8,005	\$ 57,158	\$ 9,303	(7.49)	0.56	\$ 23,972	0.42	YES
Benson Elliot Real Estate Partners III, L.P.	2008	--	\$ 22,639	\$ 57,158	\$ 9,282	9.56	1.31	\$ 49,746	0.90	YES
Blackstone Real Estate Partners Europe IV, L.P.	2013	--	\$ 140,219	\$ 250,000	\$ 48,536	17.54	1.56	\$ 199,678	0.92	YES
Blackstone Real Estate Partners Europe V, L.P.	2016	--	\$ 124,333	\$ 200,000	\$ 93,116	17.73	1.12	\$ 1,828	0.02	YES
Blackstone Real Estate Partners V, L.P.	2006	--	\$ 9,980	\$ 91,413	\$ 4,061	10.37	2.04	\$ 184,556	1.93	NO
Blackstone Real Estate Partners VI, L.P.	2007	--	\$ 19,293	\$ 200,000	\$ 9,816	13.06	2.05	\$ 408,168	1.96	YES
Blackstone Real Estate Partners VII, L.P.	2011	--	\$ 213,265	\$ 300,000	\$ 44,053	17.85	1.87	\$ 301,684	1.09	YES
Blackstone Real Estate Partners VIII, L.P.	2015	--	\$ 152,441	\$ 200,000	\$ 78,254	17.18	1.24	\$ 55,181	0.33	YES
Blackstone Real Estate Partners IX LP	2018	--	\$ 0	\$ 300,000	\$ 300,000	-	-	\$ -	-	YES
Brookfield Real Estate Finance Fund III, L.P.	2011	--	\$ 0	\$ 100,000	\$ 26,109	7.14	1.15	\$ 85,652	1.15	YES
CB Richard Ellis Strategic Partners US IV, L.P.	2005	2017	\$ 0	\$ 150,000	\$ -	(33.41)	0.04	\$ 6,409	0.04	YES
CB Richard Ellis Strategic Partners US V, L.P.	2007	--	\$ 23,832	\$ 100,000	\$ 5,344	5.53	1.40	\$ 108,424	1.15	YES
Cherokee Investment Partners III, L.P.	2002	--	\$ 293	\$ 50,000	\$ 1,848	(33.94)	0.27	\$ 12,800	0.27	YES
Cherokee Investment Partners IV, L.P.	2005	--	\$ 9,166	\$ 50,358	\$ 5,345	(13.34)	0.43	\$ 10,352	0.23	YES
CrossHarbor Institutional Partners, L.P.	2006	--	\$ 12,769	\$ 43,858	\$ -	5.55	1.48	\$ 52,581	1.19	YES
CrossHarbor Institutional Partners II, L.P.	2010	--	\$ 46,330	\$ 106,000	\$ 6,235	12.44	1.48	\$ 101,261	1.02	YES
Crow Holdings Realty Partners IV, L.P.	2006	--	\$ 785	\$ 80,000	\$ 6,451	1.68	1.10	\$ 84,576	1.09	YES
Crow Holdings Realty Partners IV-A, L.P.	2006	--	\$ 95	\$ 20,000	\$ 1,613	1.57	1.10	\$ 21,059	1.09	YES
Crow Holdings Realty Partners V, L.P.	2008	--	\$ 2	\$ 100,000	\$ 7,721	15.01	1.50	\$ 152,591	1.50	YES
Crow Holdings Realty Partners VI, L.P.	2012	--	\$ 31,413	\$ 85,000	\$ 7,688	11.74	1.39	\$ 82,810	1.00	YES
Crow Holdings Realty Partners VII, L.P.	2015	--	\$ 64,915	\$ 100,000	\$ 10,209	13.50	1.24	\$ 51,495	0.55	YES
Crow Holdings Retail Fund II, L.P.	2016	--	\$ 37,192	\$ 100,000	\$ 61,344	(0.70)	0.99	\$ 1,857	0.05	YES
DB Real Estate Global Opps I-A/I-B, L.P.	2003	--	\$ 234	\$ 152,061	\$ -	18.37	1.32	\$ 200,752	1.32	YES
DLJ Real Estate Capital Partners I, L.P. (Closed)	1995	2010	\$ 0	\$ 23,667	\$ -	10.67	1.47	\$ 38,279	1.47	YES
DLJ Real Estate Capital Partners II, L.P.	2000	2015	\$ 0	\$ 47,347	\$ -	14.22	1.47	\$ 77,480	1.47	YES
DLJ Real Estate Capital Partners III, L.P.	2005	--	\$ 48,013	\$ 150,000	\$ 8,063	(1.58)	0.88	\$ 89,763	0.58	YES
DLJ Real Estate Capital Partners IV, L.P.	2007	--	\$ 90,413	\$ 100,000	\$ 4,540	4.38	1.30	\$ 46,037	0.44	YES
DRA Growth & Income Fund III, LLC	2000	2014	\$ 0	\$ 25,000	\$ -	22.98	2.78	\$ 70,008	2.78	YES
DRA Growth & Income Fund IV, LLC	2002	2015	\$ 0	\$ 50,000	\$ -	12.13	1.63	\$ 86,986	1.63	YES
DRA Growth & Income Fund V, LLC	2005	--	\$ 0	\$ 100,000	\$ -	5.24	1.46	\$ 155,532	1.46	YES
DRA Growth & Income Fund V Co-Investment, LLC	2005	--	\$ 0	\$ 24,927	\$ -	10.25	1.98	\$ 52,023	1.99	YES
DRA Growth & Income Fund VI, LLC	2007	--	\$ 3,873	\$ 34,480	\$ -	9.64	1.59	\$ 53,225	1.49	YES
DRA Growth & Income Fund VII, LLC	2011	--	\$ 77,104	\$ 149,310	\$ -	20.65	1.98	\$ 248,431	1.51	YES
DRA Growth & Income Fund VIII, LLC	2013	--	\$ 123,432	\$ 146,248	\$ 5,889	13.30	1.30	\$ 83,308	0.52	YES
Frogmore Real Estate Partners I, L.P.	2005	--	\$ 1,290	\$ 30,694	\$ 34	(4.97)	0.65	\$ 27,941	0.62	NO
Frogmore Real Estate Partners II, L.P.	2008	--	\$ 3,212	\$ 31,840	\$ 2,140	13.50	1.42	\$ 49,699	1.34	YES
Frogmore Real Estate Partners III, L.P.	2014	--	\$ 24,919	\$ 61,388	\$ 19,191	(5.61)	0.86	\$ 16,177	0.34	YES
Harrison St. RE Partners III, L.P.	2010	--	\$ 8,216	\$ 60,000	\$ 9,805	20.51	1.83	\$ 84,882	1.67	YES
Harrison St. RE Partners IV, L.P.	2013	--	\$ 59,844	\$ 100,000	\$ 24,536	12.65	1.55	\$ 57,246	0.76	YES
Harrison St. RE Partners V Co-Investment, L.P.	2014	--	\$ 56,564	\$ 50,000	\$ 2,653	9.18	1.27	\$ 8,843	0.17	YES
Harrison St. RE Partners V, L.P.	2014	--	\$ 83,078	\$ 100,000	\$ 17,526	9.74	1.23	\$ 29,880	0.33	YES
Harrison St. RE Partners VI, L.P.	2016	--	\$ 72,434	\$ 100,000	\$ 27,000	(0.95)	0.99	\$ -	-	YES
Harrison Street Real Estate Partners VI Co-Investment LP	2016	--	\$ 45,139	\$ 50,000	\$ 6,533	3.57	1.04	\$ -	-	YES
Harrison Street Real Estate Partners VI Co-Investment 3 LP	2018	--	\$ 35,784	\$ 50,000	\$ 13,991	(0.91)	0.99	\$ -	-	YES
Hawkeye (Scout) Fund I-A, L.P.	2006	--	\$ 349	\$ 49,918	\$ -	15.03	1.53	\$ 78,962	1.52	YES
Hawkeye (Scout) Fund II, L.P.	2012	--	\$ 93,164	\$ 100,000	\$ 7,900	2.25	1.03	\$ 4,401	0.05	YES
JER Real Estate Partners Fund III, L.P.	2003	2016	\$ 0	\$ 68,036	\$ -	4.20	1.17	\$ 86,724	1.17	YES
JER Real Estate Partners IV, L.P.	2006	2015	\$ 0	\$ 30,219	\$ -	(4.97)	0.46	\$ 14,009	0.46	YES
Keystone Industrial Fund I, L.P.	2005	2017	\$ 0	\$ 95,041	\$ -	4.01	1.27	\$ 135,670	1.27	YES
Keystone Industrial Fund II, L.P.	2008	2017	\$ 0	\$ 137,935	\$ -	26.94	2.24	\$ 309,029	2.24	YES
Keystone Industrial Fund III, L.P.	2013	2017	\$ 0	\$ 46,871	\$ -	39.97	1.59	\$ 74,536	1.59	YES
LaSalle Real Estate Debt Strategies II, L.P.	2014	--	\$ 21,961	\$ 79,600	\$ 22,560	3.15	1.07	\$ 54,715	0.76	YES
LEM Real Estate Mezzanine Fund II, L.P.	2006	--	\$ 568	\$ 50,000	\$ 30,335	3.16	1.29	\$ 26,867	1.26	YES
Lone Star Real Estate Partners II	2010	--	\$ 12,024	\$ 300,000	\$ 34,171	26.01	1.55	\$ 402,489	1.50	YES
Meadow Real Estate Fund II, L.P.	2012	--	\$ 24,910	\$ 60,000	\$ 3,051	19.22	1.69	\$ 74,934	1.26	YES
Meadow Real Estate Fund III, L.P.	2014	--	\$ 117,581	\$ 100,000	\$ 13,940	9.97	1.32	\$ 13,966	0.14	YES
Meadow Real Estate Fund IV, L.P.	2016	--	\$ 47,824	\$ 75,000	\$ 29,081	4.54	1.04	\$ -	-	YES
Mesa West Real Estate Income Fund III, L.P.	2013	--	\$ 14,928	\$ 100,000	\$ 90,086	8.66	1.27	\$ 81,762	1.07	YES
North Haven Real Estate Fund V International	2005	--	\$ 4,824	\$ 110,000	\$ 492	5.15	1.15	\$ 128,263	1.11	YES
Morgan Stanley Real Estate Fund VI, L.P.	2007	--	\$ 13,059	\$ 440,000	\$ -	(13.42)	0.32	\$ 132,104	0.29	YES
NorthCreek Fund, L.P.	2011	--	\$ 10,807	\$ 205,000	\$ -	21.42	3.05	\$ 613,611	2.99	YES
NorthRock Fund II, L.P.	2012	2017	\$ 0	\$ 363,980	\$ -	22.23	1.53	\$ 630,012	1.53	YES
NorthRock Fund III, L.P.	2015	--	\$ 299,748	\$ 400,000	\$ 127,065	5.08	1.10	\$ -	-	YES
Paladin Latin American Partners III, L.P.	2008	--	\$ 6,390	\$ 50,000	\$ -	(24.28)	0.29	\$ 7,888	0.16	YES
Patria Brazil Real Estate Fund II	2010	--	\$ 13,290	\$ 50,000	\$ 16,260	(3.23)	0.89	\$ 17,110	0.50	YES
Penwood CSIP I, L.P.	2005	--	\$ 32	\$ 50,000	\$ -	(3.56)	0.76	\$ 37,893	0.76	YES
Penwood PSIP II, L.P.	2007	2017	\$ 0	\$ 85,455	\$ -	24.29	2.10	\$ 179,968	2.10	YES
RLJ Lodging Fund I, L.P. (Closed)	2004	2008	\$ 0	\$ 50,000	\$ -	52.87	1.99	\$ 99,306	1.99	YES
Rockpoint NYC CIP Investors, L.P.	2013	2017	\$ 0	\$ 78,320	\$ -	40.02	1.43	\$ 112,211	1.43	YES
Rockpoint Real Estate Fund I, L.P.	2004	2017	\$ 0	\$ 90,524	\$ -	12.03	1.25	\$ 119,396	1.25	YES
Rockpoint Real Estate Fund II, L.P.	2005	--	\$ 5,571	\$ 135,787	\$ -	(2.42)	0.86	\$ 120,947	0.82	YES
Rockpoint Real Estate Fund III, L.P.	2007	--	\$ 7,257	\$ 100,000	\$ 8,482	13.71	1.38	\$ 125,591	1.31	YES
Rockpoint Real Estate Fund IV, L.P.	2011	--	\$ 37,304	\$ 84,916	\$ 7,389	15.87	1.38	\$ 78,835	0.94	YES
Rockpoint Real Estate Fund V Side Car, L.P.	2014	--	\$ 0	\$ 100,000	\$ 100,000	-	-	\$ -	-	YES
Rockpoint Real Estate Fund V, L.P.	2014	--	\$ 66,357	\$ 100,000	\$ 49,330	15.01	1.16	\$ 14,868	0.21	YES
Rockwood Capital Real Estate Partners Fund VI, L.P	2005	--	\$ 388	\$ 83,855	\$ -	1.60	1.11	\$ 91,849	1.11	YES
Rockwood Capital Real Estate Partners Fund VII, L.P.	2006	--	\$ 21,246	\$ 125,000	\$ -	(3.53)	0.73	\$ 69,402	0.56	YES

NCRS Non-Core Real Estate Portfolio
December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distributions	DPI	Advisory Board
Rockwood Capital Real Estate Partners Fund VIII, L.P.	2008	--	\$ 263	\$ 45,754	\$ -	18.92	1.63	\$ 75,281	1.63	YES
Rockwood Capital Real Estate Partners Fund IX, L.P.	2012	--	\$ 18,560	\$ 50,000	\$ 6,802	13.85	1.43	\$ 43,431	1.00	YES
Rockwood Capital Real Estate Partners Fund IX CIV, L.P.	2015	2016	\$ 0	\$ -	\$ -	-	-	\$ -	-	YES
Rockwood Capital Real Estate Partners Fund X Side Car, L.P.	2015	--	\$ 45,931	\$ 50,000	\$ 5,160	2.01	1.02	\$ -	-	YES
Rockwood Capital Real Estate Partners X, L.P.	2015	--	\$ 60,235	\$ 100,000	\$ 41,475	5.44	1.07	\$ 2,019	0.03	YES
Rockwood Development Partners	2016	--	\$ 147,179	\$ 250,000	\$ 104,925	1.62	1.01	\$ 0	0.00	YES
RREF Global Opportunities Fund II, LLC	2005	--	\$ 1,456	\$ 200,000	\$ 0	(8.69)	0.55	\$ 109,654	0.54	YES
Sentinel Realty Partners V (Closed)	1998	2009	\$ 0	\$ 50,000	\$ -	7.52	1.73	\$ 86,401	1.73	N/A
SRI Seven REIT	2004	--	\$ 135	\$ 75,000	\$ 2,419	7.62	1.56	\$ 113,300	1.56	YES
SRI Eight REIT	2006	--	\$ 63,921	\$ 100,000	\$ 4,650	(1.30)	0.89	\$ 21,385	0.22	YES
SRI Nine REIT	2007	--	\$ 5,646	\$ 65,909	\$ 4,120	9.58	1.44	\$ 83,712	1.35	YES
SRI Ten REIT	2011	--	\$ 37,345	\$ 100,000	\$ 23,085	15.73	1.59	\$ 85,332	1.11	YES
Starwood Opportunity Fund VII, L.P.	2005	--	\$ 10,315	\$ 150,000	\$ -	(3.00)	0.76	\$ 104,598	0.69	YES
Starwood SDL/SOF Co-Investment	2005	--	\$ 2,395	\$ 50,779	\$ -	7.95	1.88	\$ 93,047	1.83	YES
Value Enhancement Fund II	1996	2016	\$ 0	\$ 25,000	\$ -	5.05	1.38	\$ 36,711	1.38	N/A
Value Enhancement Fund III, LLC (Closed)	1998	2008	\$ 0	\$ 25,000	\$ -	14.03	1.66	\$ 43,225	1.66	N/A
Value Enhancement Fund IV, L.P.	1999	2014	\$ 0	\$ 100,000	\$ -	(0.19)	0.94	\$ 98,188	0.94	N/A
Warburg Pincus Real Estate I, L.P.	2006	--	\$ 10,585	\$ 95,833	\$ -	7.46	1.62	\$ 144,511	1.51	YES
WCP Real Estate Fund III(A), L.P.	2011	--	\$ 81,705	\$ 100,000	\$ 7,040	9.24	1.51	\$ 59,169	0.63	YES
Westbrook Real Estate Fund I, L.P.	1995	2014	\$ 0	\$ 10,000	\$ -	26.06	2.16	\$ 23,462	2.16	YES
Westbrook Real Estate Fund II, L.P.	1997	2013	\$ 0	\$ 50,000	\$ -	12.92	1.48	\$ 79,872	1.48	YES
Westbrook Real Estate Fund III, L.P.	1998	2014	\$ 0	\$ 96,373	\$ -	8.18	1.34	\$ 137,468	1.34	YES
Westbrook Real Estate Fund IV, L.P.	2000	2015	\$ 0	\$ 89,645	\$ -	20.62	1.66	\$ 157,652	1.66	YES
Total			\$ 3,226,565	\$ 10,798,905	\$ 1,678,063	6.65	1.31	\$ 9,411,108	0.97	

Methodology and Notes:

- Dollar values in Thousands

- Returns are calculated using the Internal Rate of Return (IRR) methodology. The IRR is the discount rate where the sum of the discounted cash flows and the discounted valuation is equal to zero. Returns are reported net of fees.

- Total Value to Paid-In (TVPI), also known as the Investment Multiple, is the ratio of cumulative distributions plus the valuation to cumulative paid-in.

- Distributions to Paid-In (DPI), also known as the Realization Multiple, is the ratio of cumulative distributions to cumulative paid-in.

- The advisory board column is an indication of NCRS participation on the Fund's advisory board, N/A indicates that the Fund has no advisory board.

NCRS Opportunistic Fixed Income Portfolio

December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distributions	DPI	Advisory Board
AG Capital Recovery Partners V, L.P.	2005	--	50,798.00	\$ 23,375	\$ -	2.87	1.13	\$ 26,378	1.13	YES
AG Capital Recovery Partners VI, L.P.	2008	--	1.00	\$ 200,000	\$ -	6.99	1.38	\$ 284,630	1.38	YES
AG Commercial Real Estate Debt Fund, L.P.	2008	2017	0.00	\$ 73,214	\$ -	3.62	1.18	\$ 88,309	1.18	N/A
AG GECC Public-Private Investment Fund (PPIP)	2010	2014	0.00	\$ 180,000	\$ -	20.13	1.54	\$ 278,165	1.54	N/A
AG Global Debt Strategy Partners, L.P.	2008	--	574,631,619.00	\$ 279,915	\$ -	10.21	2.07	\$ 5,399	0.02	YES
AG Pisgah, L.P.	2016	--	556,675,171.00	\$ 400,000	\$ -	13.72	1.39	\$ -	-	YES
AG TALF Partners, L.P.	2009	2011	0.00	\$ 73,214	\$ -	22.42	1.32	\$ 96,608	1.32	N/A
Anchorage Capital Partners	2011	--	535,680,273.00	\$ 350,000	\$ -	5.77	1.53	\$ -	-	NO
Benefit Street Partners Capital Opportunity Fund, L.P.	2013	--	150,637,828.00	\$ 150,000	\$ 7,701	9.24	1.36	\$ 48,800	0.33	YES
Benefit Street Partners Capital Opportunity Fund II LP	2016	--	134,896,294.00	\$ 150,000	\$ 17,241	6.55	1.08	\$ 10,824	0.08	YES
Benefit Street Partners Debt Funds IV LP	2016	--	144,582,111.00	\$ 250,000	\$ 108,593	6.60	1.07	\$ 10,038	0.07	YES
Brigade LCS Fund	2011	--	376,564,192.24	\$ 330,000	\$ -	3.74	1.30	\$ 54,000	0.16	NO
Brightwood Capital Fund III, L.P.	2014	--	66,598,440.00	\$ 100,000	\$ 20,000	5.38	1.17	\$ 28,894	0.35	YES
Centerbridge Special Credit Partners III	2016	--	77,259,759.00	\$ 350,000	\$ 279,760	6.59	1.09	\$ 8,511	0.11	YES
Citadel Residential Mortgage Opportunities Fund, LLC	2011	2011	0.00	\$ 119,072	\$ -	(2.37)	0.99	\$ 122,558	0.99	N/A
Claren Road Credit Fund, Ltd.	2011	--	1.00	\$ 260,000	\$ -	(0.29)	0.99	\$ 258,008	0.99	YES
Claren Road Credit Opportunities Partners, L.P.	2013	--	1.00	\$ 231,840	\$ -	(13.13)	0.71	\$ 166,011	0.71	YES
CVI Credit Value Fund	2010	--	9,700,000.00	\$ 150,000	\$ 7,500	13.05	1.70	\$ 246,322	1.63	YES
CVI Credit Value Fund II	2013	--	62,200,000.00	\$ 200,000	\$ 10,000	9.21	1.46	\$ 215,523	1.13	YES
CVI Credit Value Fund III	2015	--	105,000,234.79	\$ 100,000	\$ 5,000	9.19	1.21	\$ 9,944	0.10	YES
Fortress Credit Opportunities Fund III (A)	2012	--	28,039,057.83	\$ 75,000	\$ 10,363	10.88	1.43	\$ 65,599	1.00	YES
GSO Capital Opportunities Fund	2007	--	2,780,314.00	\$ 133,652	\$ 8,265	17.00	1.66	\$ 256,575	1.64	YES
GSO Capital Opportunities Fund II, L.P.	2011	--	38,491,966.00	\$ 99,313	\$ 28,291	12.49	1.34	\$ 71,305	0.87	YES
GSO Capital Solutions Fund II, L.P.	2013	--	26,919,181.00	\$ 84,667	\$ 35,246	11.81	1.21	\$ 39,966	0.72	YES
HC NCBR	2017	--	240,833,052.60	\$ 226,636	\$ -	5.88	1.06	\$ -	-	No
Highbridge Irish Specialty Loan Fund III plc	2013	--	47,002,142.79	\$ 150,000	\$ 9,849	6.78	1.21	\$ 153,886	0.93	YES
Highbridge Principle Strategies Kitty Hawk Credit Fund LP	2016	--	118,085,453.04	\$ 200,000	\$ 80,373	5.95	1.05	\$ 102,227	0.49	YES
Highbridge Specialty Loan Fund 2016 LP	2016	--	62,841,785.43	\$ 200,000	\$ 140,077	20.95	1.12	\$ 47,375	0.48	YES
HPS Cardinal Fund LP Series A	2016	--	293,265,173.48	\$ 425,000	\$ 100,075	2.74	1.04	\$ 53,142	0.16	YES
HPS Cardinal Fund LP Series B	2017	--	57,924,341.97	\$ 0	\$ -	20.43	1.25	\$ 8,544	0.16	YES
Magnetar Constellation Fund IV LLC	2013	--	47,912,269.37	\$ 100,000	\$ -	7.38	1.31	\$ 83,044	0.83	YES
Marathon Currituck Fund, LP	2014	--	507,006,352.08	\$ 453,000	\$ 23,952	4.06	1.18	\$ 4,050	0.01	NO
Marathon Currituck Series D	2016	--	32,942,433.94	\$ 100,000	\$ 67,300	0.44	1.00	\$ 37,300	0.53	NO
MCP Private Capital Fund II	2014	--	46,577,751.47	\$ 68,589	\$ 17,878	8.73	1.19	\$ 20,782	0.37	YES
Monarch Debt Recovery Fund	2011	--	518,800,000.00	\$ 380,000	\$ -	4.54	1.37	\$ 1,840	0.00	NO
Oaktree Value Opportunities Fund, L.P.	2011	--	106,932,727.00	\$ 190,000	\$ -	3.32	1.20	\$ 122,613	0.64	NO
PAAMCO - Newport Burgundy	2010	--	428,369,654.00	\$ 950,000	\$ -	2.84	1.16	\$ 676,636	0.71	YES
Providence Debt Fund III, L.P.	2013	--	171,921,777.00	\$ 200,000	\$ 7,838	8.26	1.28	\$ 81,463	0.41	YES
Saba Capital Partners	2011	2015	0.00	\$ 150,000	\$ -	(7.05)	0.79	\$ 119,737	0.79	N/A
Silverback Arbitrage Fund	2012	--	51,669,821.00	\$ 155,000	\$ -	(0.64)	0.97	\$ 98,366	0.63	NO
Verde Fund X	2011	--	33,042,204.01	\$ 100,000	\$ -	12.24	1.84	\$ 151,353	1.51	YES
WLR IV PPIP Co-Invest	2010	--	10,614,511.00	\$ 150,000	\$ 4,305	14.86	1.39	\$ 193,218	1.32	YES
Total Opportunistic Fixed Income			\$ 5,666,449	\$ 8,561,489	\$ 989,607	6.08	1.26	\$ 4,347,946	0.55	

Methodology and Notes:

- Dollar values in Thousands

- Returns are calculated using the Internal Rate of Return (IRR) methodology. The IRR is the discount rate where the sum of the discounted cash flows and the discounted valuation is equal to zero. Returns are reported net of fees.

- Total Value to Paid-In (TVPI), also known as the Investment Multiple, is the ratio of cumulative distributions plus the valuation to cumulative paid-in.

- Distributions to Paid-In (DPI), also known as the Realization Multiple, is the ratio of cumulative distributions to cumulative paid-in.

- The advisory board column is an indication of NCRS participation on the Fund's advisory board, N/A indicates that the Fund has no advisory board.

NCRS Rates and Liquidity Portfolio

December 31, 2018

Fund	Inception	Market Value	Returns						
			1 Yr	3 Yr	5 Yr	10 Yr	15 Yr	20 Yr	
Core IG Fixed Income	1997	\$ 24,964,855	(0.8)	2.5	3.3	4.7	5.0	5.5	
<i>Core Fixed Income Benchmark</i>			(1.1)	2.5	3.6	4.5	4.8	5.3	
Non-Core IG Fixed Income	1997	-	-	-	-	-	-	-	
IG Fixed Income Cash	2014	\$ 3,049,494	1.6	1.2	-	-	-	-	
<i>IG Fixed Income Cash Benchmark</i>			1.8	1.0	0.6	-	-	-	
Pension Cash	2013	\$ 3,942,970	1.9	1.3	1.0	-	-	-	
<i>Pension Cash Benchmark</i>			1.8	1.0	0.6	-	-	-	
Total		\$ 31,957,319	(0.3)	2.3	3.1	4.6	4.9	5.4	
Rates & Liquidity Benchmark			(0.7)	2.3	3.4	4.4	4.7	5.2	

Methodology and Notes:

- Dollar values in Thousands

- Returns are calculated using a Modified Dietz time weighted rate of return methodology. This method uses the beginning and ending valuation for the measurement period, and weights each cash flow by the amount of time it is invested. Returns are reported net of fees.

- The Core Fixed Income Benchmark consists of 30% Gov't 5+yr / 35% Corp. (Inv. Grade - BBB Max 25%) 5+yr / 35% Mtg. Master.

- The IG Fixed Income Cash Benchmark is the iMoneyNet First Tier Institutional Money Market Funds Net Index.

- The Rates & Liquidity Benchmark is a blend of the IG Fixed Income Benchmark and the Pension Cash Benchmark at policy weights. The IG Fixed Income Benchmark is a blend of the Core Fixed Income Benchmark and the IG Fixed Income Cash Benchmark using the following weights: 10% IG Fixed Income Cash Benchmark and 90% Core Fixed Income Benchmark.

NCRS Inflation Sensitive Portfolio

December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distribution	DPI	Advisory Board
ArcLight Energy Partners Fund V, L.P.	2011	--	\$ 39,193	\$ 100,000	\$ 14,907	9.50	1.41	\$ 80,512	0.95	YES
ArcLight Shore Co-Investments Holdings II, LLC	2013	2015	\$ 0	\$ 8,487	\$ -	8.39	1.11	\$ 9,869	1.11	N/A
BlackRock TIPS Index	2015	--	\$ 56,166	\$ 500,000	\$ -	0.98	1.01	\$ 450,000	0.90	N/A
Blackstone Energy Partners, LP	2012	--	\$ 95,767	\$ 100,000	\$ 9,457	14.80	1.67	\$ 67,475	0.69	YES
Blackstone Energy Partners II, L.P.	2014	--	\$ 79,070	\$ 100,000	\$ 35,616	17.13	1.15	\$ 5,235	0.07	YES
Blackstone Granite Fund - Class A - Resources Select	2011	--	\$ 0	\$ 500,000	\$ -	(7.87)	0.59	\$ 293,120	0.59	N/A
Blackstone Granite Fund - Class B - Commodity Pod	2014	--	\$ 0	\$ 200,000	\$ -	(1.30)	0.96	\$ 191,217	0.96	N/A
Blackstone Granite Fund - Class C - Opportunistic Commodity	2014	2017	\$ 0	\$ 38,179	\$ -	(62.14)	0.50	\$ 18,914	0.50	N/A
Blackstone Granite Fund - Class D - Bayview	2014	--	\$ 159,196	\$ 400,000	\$ 97,252	13.21	1.41	\$ 272,283	0.89	NO
Blackstone SP NCRASMA	2014	--	\$ 226,051	\$ 450,000	\$ 210,115	18.46	1.36	\$ 182,024	0.61	Observer
Blackstone SP NCRASMA (Overage)	2015	--	\$ 37,203	\$ 100,000	\$ 36,357	13.24	1.30	\$ 49,795	0.74	N/A
Brookfield Infrastructure Fund II-B, L.P.	2013	--	\$ 210,304	\$ 200,000	\$ 20,776	8.85	1.32	\$ 42,916	0.22	YES
Campbell Timber Fund III, LLC	2006	--	\$ 715,107	\$ 796,878	\$ -	(0.57)	0.95	\$ 45,850	0.06	YES
Capital Dynamics US Solar Energy, LP	2012	2016	\$ 0	\$ 22,421	\$ -	10.28	1.23	\$ 28,112	1.23	YES
Credit Suisse Enhanced	2011	2017	\$ 0	\$ 500,000	\$ -	(13.73)	0.53	\$ 263,514	0.53	N/A
Denham Commodity Partners Fund VI LP	2012	--	\$ 61,040	\$ 75,000	\$ 5,092	7.14	1.17	\$ 35,239	0.43	NO
DCPF VI Oil and Gas Co-Inv Fund	2013	--	\$ 44,591	\$ 50,000	\$ 9,535	19.64	1.63	\$ 25,450	0.59	YES
DL Blue Diamond Fund	2016	--	\$ 750,101	\$ 725,000	\$ -	2.52	1.03	\$ -	-	N/A
EIF United States Power Fund IV, L.P.	2011	--	\$ 67,427	\$ 75,000	\$ 6,181	5.88	1.26	\$ 18,724	0.27	YES
EIG Energy Fund XVI, L.P.	2013	--	\$ 179,375	\$ 250,000	\$ 76,606	9.19	1.21	\$ 98,307	0.43	YES
EnCap Energy Capital Fund VIII Co-Investors, L.P.	2011	--	\$ 13,077	\$ 29,815	\$ 0	(11.07)	0.63	\$ 5,982	0.20	N/A
EnCap Energy Capital Fund VIII, LP	2011	--	\$ 20,079	\$ 50,000	\$ 2,401	(1.89)	0.94	\$ 26,442	0.53	NO
EnCap Energy Capital Fund X, L.P.	2015	--	\$ 94,794	\$ 123,000	\$ 30,340	8.82	1.14	\$ 19,394	0.19	Observer
Energy Capital Partners II (Summit Co-Invest), LP	2011	--	\$ 9,987	\$ 26,897	\$ -	(3.76)	0.85	\$ 12,881	0.48	N/A
Energy Capital Partners II, LP	2010	--	\$ 8,990	\$ 50,000	\$ 14,875	11.67	1.59	\$ 49,802	1.34	YES
Energy Capital Partners III, LP	2014	--	\$ 95,888	\$ 101,668	\$ 19,954	12.11	1.26	\$ 13,300	0.15	YES
Gresham TAP Flex	2010	--	\$ 196,031	\$ 800,000	\$ -	(8.72)	0.56	\$ 250,000	0.31	N/A
GSO Bakken Holdings I LP	2013	--	\$ 10,725	\$ 15,000	\$ 2,615	1.96	1.06	\$ 3,167	0.24	N/A
GSO Energy Partners - B LP	2013	--	\$ 173,698	\$ 250,000	\$ 93,579	5.13	1.09	\$ 30,852	0.16	N/A
GSO Foreland Resources Co-Invest LP	2012	2014	\$ 0	\$ 11,670	\$ -	28.23	1.32	\$ 15,646	1.32	N/A
IFM Global Infrastructure Fund, L.P.	2013	--	\$ 336,522	\$ 300,000	\$ -	11.23	1.39	\$ 126,497	0.38	YES
Intervale Capital II, LP	2012	--	\$ 42,570	\$ 51,429	\$ 8,966	0.41	1.02	\$ 1,433	0.03	YES
Intervale Capital III, LP	2014	--	\$ 48,706	\$ 60,000	\$ 11,751	0.47	1.01	\$ 1,634	0.03	YES
Jade Real Assets Fund, L.P.	2014	--	\$ 82,282	\$ 150,000	\$ 87,483	15.42	1.38	\$ 104,415	0.77	N/A
NCL Investments, L.P. - RA Series	2014	--	\$ 124,130	\$ 250,000	\$ 128,869	16.19	1.20	\$ 41,909	0.30	N/A
NCL Investments, L.P. - RE Series	2014	--	\$ 57,640	\$ 102,681	\$ 9,103	12.11	1.18	\$ 66,954	0.64	NO
NCL Investments II, L.P. - RA Series	2018	--	\$ 1,919	\$ 250,000	\$ 247,070	(36.74)	0.65	\$ -	-	YES
NCL Investments II, L.P. - RE Overflow Series	2018	--	\$ 21,626	\$ 75,000	\$ 50,084	23.13	1.17	\$ 8,018	0.32	YES
NCL Investments II, L.P. - RE Series	2018	--	\$ 21,619	\$ 125,000	\$ 98,663	26.57	1.11	\$ 13,060	0.42	YES
Landmark Real Assets Fund II Opportunistic LP	2018	--	\$ 0	\$ -	\$ -	-	-	\$ -	-	YES
Lindsay Goldberg III - Formation Energy L.P.	2013	--	\$ 65	\$ 10,000	\$ 4,554	(16.28)	0.45	\$ 2,400	0.44	N/A
MTP Energy Fund LP	2013	--	\$ 196,708	\$ 250,000	\$ -	0.35	1.02	\$ 57,672	0.23	N/A
MTP Energy Opportunities Fund LP	2013	--	\$ 27,398	\$ 75,000	\$ 23,148	3.15	1.12	\$ 30,858	0.60	YES
MTP Energy Opportunities Fund II LLC	2015	--	\$ 131,508	\$ 250,000	\$ 114,446	7.46	1.14	\$ 95,490	0.48	YES
NC Garnet Fund	2016	--	\$ 396,493	\$ 375,000	\$ -	2.94	1.06	\$ -	-	N/A
North Star Investment Co-Invest	2013	--	\$ 196,430	\$ 200,000	\$ 31,542	9.76	1.40	\$ 67,248	0.36	N/A
North Star Investment Holdings LLC	2012	--	\$ 197,633	\$ 200,000	\$ 5,268	6.84	1.28	\$ 80,031	0.37	N/A
Perella Weinberg Partners ABV Opportunity Fund III LP	2011	--	\$ 76,966	\$ 150,000	\$ 3,619	5.21	1.22	\$ 110,533	0.72	YES
Quintana Energy I Co-Investment	2007	--	\$ 33	\$ 75,000	\$ 52,885	12.91	1.63	\$ 36,048	1.63	YES
Quintana Energy I, L.P.	2006	--	\$ 25,832	\$ 100,000	\$ 803	(2.82)	0.85	\$ 57,095	0.58	YES
Quintana Energy II Co-Invest	2008	2014	\$ 0	\$ -	\$ -	-	-	\$ -	-	N/A
Quintana Energy Partners II, L.P.	2008	--	\$ 18,049	\$ 86,208	\$ 1,749	0.48	1.01	\$ 67,300	0.80	YES
Orion Mine Finance Fund I	2012	--	\$ 61,481	\$ 75,000	\$ 3,851	5.90	1.24	\$ 32,427	0.43	YES
Orion Mine Finance Fund I-A	2014	--	\$ 137,051	\$ 125,737	\$ 12,541	21.14	1.75	\$ 61,278	0.54	YES
RMK Emerging Growth Timberland Fund	1993	2013	\$ 0	\$ 15,000	\$ -	9.38	2.92	\$ 44,072	2.92	N/A
Sheridan Production Partners I, L.P.	2007	--	\$ 69,498	\$ 116,550	\$ -	5.63	1.31	\$ 82,750	0.71	YES
Sheridan Production Partners II, L.P.	2010	--	\$ 77,409	\$ 165,000	\$ -	(11.69)	0.52	\$ 11,550	0.07	YES
Timber Investment Resources (Nahele, LLC) Separate	2006	--	\$ 279,000	\$ 200,000	\$ -	3.33	1.47	\$ 14,963	0.07	YES
Varde Fund XI, L.P.	2014	--	\$ 338,811	\$ 350,000	\$ -	7.95	1.34	\$ 128,854	0.37	YES
Vermillion Celadon	2011	2013	\$ 0	\$ 300,000	\$ -	(13.42)	0.76	\$ 228,352	0.76	N/A
Total Inflation			\$ 6,311,238	\$ 11,131,620	\$ 1,582,053	1.16	1.05	\$ 4,178,863	0.42	

Methodology and Notes:

- Dollar values in Thousands

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- Total Value to Paid-In (TVPI), also known as the Investment Multiple, is the ratio of cumulative distributions plus the valuation to cumulative paid-in.

- Distributions to Paid-In (DPI), also known as the Realization Multiple, is the ratio of cumulative distributions to cumulative paid-in.

- The advisory board column is an indication of NCRS participation on the Fund's advisory board, N/A indicates that the Fund has no advisory board.

NCRS Core Real Estate Portfolio
December 31, 2018

Fund	Vintage	Liquidated	Market Value	Commitment	Unfunded	IRR	TVPI	Distributions	DPI	Advisory Board
BlackRock Developed	2016	--	\$ 348,348	\$ 312,446	\$ -	3.91	1.11	\$ -	-	N/A
Blackstone NC Property Partners, L.P.	2014	--	\$ 158,679	\$ 200,000	\$ 18,123	3.55	1.11	\$ 47,155	0.25	YES
Blackstone Property Partners, L.P.	2014	--	\$ 423,037	\$ 302,674	\$ -	10.00	1.37	\$ 30,008	0.09	YES
BREP Edens Investment Partners L.P.	2013	--	\$ 547,351	\$ 487,500	\$ 41,999	7.69	1.36	\$ 80,985	0.18	YES
BR Emerging REIT	2016	--	\$ 70,399	\$ 50,000	\$ -	12.75	1.41	\$ -	-	N/A
BR World REIT	2016	--	\$ 259,084	\$ 227,153	\$ -	4.59	1.14	\$ -	-	N/A
CIGNA Realty Investors Open-End Fund	1987	2015	\$ 0	\$ 243,939	\$ -	2.57	1.16	\$ 282,717	1.16	N/A
CIM Urban REIT, LLC	2006	--	\$ 57,141	\$ 100,000	\$ -	6.14	1.65	\$ 107,471	1.07	YES
JP Morgan Strategic Property Fund	1989	--	\$ 397,860	\$ 305,133	\$ -	9.08	2.82	\$ 501,462	1.57	N/A
LBA NC Core Industrial, L.P.	2016	--	\$ 315,549	\$ 300,000	\$ 4,950	8.58	1.15	\$ 23,115	0.08	YES
LBA NC Core Industrial II LP	2018	--	\$ 122,631	\$ 250,000	\$ 126,535	(1.64)	0.99	\$ -	-	YES
M&G Real Estate Debt Fund III	2013	--	\$ 15,254	\$ 32,668	\$ 4,590	0.56	1.01	\$ 23,430	0.61	YES
Meadow Core Plus Real Estate Fund	2014	--	\$ 117,592	\$ 127,360	\$ 45,241	1.43	1.05	\$ 55,636	0.34	YES
Meadow Core Plus Real Estate Fund 2015-1 Series	2015	--	\$ 79,863	\$ 82,784	\$ 3,675	(6.39)	0.93	\$ 32,458	0.27	YES
MS Global RE Securities	2007	--	\$ 6	\$ 400,000	\$ -	0.79	1.07	\$ 428,702	1.07	N/A
MW North Carolina Debt Fund, LLC	2016	--	\$ 157,506	\$ 200,000	\$ 55,111	5.83	1.09	\$ 1,248	0.01	YES
NorthRock Core Fund, L.P.	2008	--	\$ 723,509	\$ 600,000	\$ 36,826	10.04	1.83	\$ 312,713	0.55	YES
NorthRock Fund II, L.P. - Core	2016	--	\$ 623,760	\$ 372,900	\$ 7,761	8.99	1.15	\$ 86,593	0.14	YES
NorthRock Fund IV, L.P.	2015	--	\$ 375,309	\$ 400,000	\$ 51,144	7.25	1.14	\$ 49,036	0.13	YES
Prudential Property Investment Separate Account	2004	2017	\$ 0	\$ 204,935	\$ -	9.76	1.74	\$ 363,169	1.74	N/A
RLJ Lodging Fund II, L.P.	2006	2014	\$ 0	\$ 50,000	\$ -	3.61	1.25	\$ 62,323	1.25	YES
RLJ Real Estate Fund III, L.P.	2007	2014	\$ 0	\$ 40,601	\$ -	9.62	1.41	\$ 57,227	1.41	YES
Rockpoint Growth and Income Side Car Fund I, L.P.	2014	--	\$ 188,725	\$ 200,000	\$ 27,651	10.40	1.35	\$ 47,320	0.27	YES
Rockpoint Growth and Income Real Estate Fund I, L.P.	2014	--	\$ 195,133	\$ 200,000	\$ 24,463	10.17	1.29	\$ 39,740	0.22	YES
Rockpoint Growth and Income Real Estate Fund II, L.P.	2016	--	\$ 76,475	\$ 100,000	\$ 34,954	20.65	1.15	\$ 3,953	0.06	YES
Rockpoint Growth and Income Side Car Fund II, L.P.	2016	--	\$ 110,152	\$ 100,000	\$ 5,955	14.34	1.16	\$ 1,136	0.01	YES
Rockwood Income and Credit Partners LP	2016	--	\$ 62,589	\$ 100,000	\$ 39,616	11.03	1.10	\$ 32,990	0.38	YES
RREEF Global Opportunities Fund II, LLC Senior Nts	2010	2013	\$ 0	\$ 12,122	\$ -	23.62	1.55	\$ 18,644	1.55	YES
Security Capital Focus Select	2007	2016	\$ 0	\$ 30,000	\$ -	3.92	1.39	\$ 41,833	1.39	N/A
Sentinel Real Estate Fund (Closed)	1985	2010	\$ 0	\$ 65,000	\$ -	7.08	3.26	\$ 222,130	3.26	N/A
STAG Investments II, LLC	2005	--	\$ 0	\$ 74,986	\$ -	(8.33)	0.78	\$ 58,236	0.78	YES
Terra Firma Deutsche Annington, L.P. (Core)	2014	--	\$ 10	\$ 81,131	\$ -	4.23	1.06	\$ 103,010	1.06	N/A
UBS Trumbull Property Fund	1984	2017	\$ 0	\$ 290,000	\$ -	8.66	2.11	\$ 614,977	2.11	YES
UBS Trumbull Property Income Fund	1984	2016	\$ 0	\$ 120,995	\$ -	8.32	3.09	\$ 374,331	3.09	YES
Total Core Real Estate			\$ 5,425,961	\$ 6,664,327	\$ 528,597	7.15	1.43	\$ 4,103,747	0.61	

Methodology and Notes:

- Dollar values in Thousands

- Returns are calculated using the Internal Rate of Return (IRR) methodology. The IRR is the discount rate where the sum of the discounted cash flows and the discounted valuation is equal to zero. Returns are reported net of fees.

- Total Value to Paid-In (TVPI), also known as the Investment Multiple, is the ratio of cumulative distributions plus the valuation to cumulative paid-in.

- Distributions to Paid-In (DPI), also known as the Realization Multiple, is the ratio of cumulative distributions to cumulative paid-in.

- The advisory board column is an indication of NCRS participation on the Fund's advisory board, N/A indicates that the Fund has no advisory board.

NCRS Multi-Strategy Portfolio

December 31, 2018

Fund	Inception	Market Value	Returns					
			1 Yr	3 Yr	5 Yr	10 Yr	15 Yr	20 Yr
AG Cataloochee, L.P.	2016	\$ 217,860	5.1	-	-	-	-	-
Broyhill Fund	2002	\$ 160	(23.8)	(25.8)	(26.0)	(25.7)	(17.4)	-
GCM/NC Invest Fund 2011 Series	2011	\$ 13	(51.8)	(30.9)	(34.6)	-	-	-
Gladius Aconcagua	2011	\$ 1,451,795	(6.4)	5.0	3.9	-	-	-
Gladius Arx Fund	2017	\$ 150,179	2.6	-	-	-	-	-
Gladius Venator Fund	2017	\$ 59,923	(25.7)	-	-	-	-	-
SCS Instl Global Series I	2008	\$ 96	(78.2)	(45.4)	(27.8)	(13.0)	-	-
Total		\$ 1,880,026	(4.8)	4.7	3.5	8.3	5.3	-
Multi-Strategy Benchmark			(6.5)	3.5	2.4	7.5	6.7	-

Methodology and Notes:

- Dollar values in Thousands

- Returns are calculated using a Modified Dietz time weighted rate of return methodology. This method uses the beginning and ending valuation for the measurement period, and weights each cash flow by the amount of time it is invested. Returns are reported net of fees.

- The Multi-Strategy Benchmark is comprised of a dynamically weighted combination of the HFRX ED: Multi-Strategy Index, net of fees, and the market value weighted benchmarks for any other total fund strategies within the Portfolio.

Section 2

Additional Information

Portfolio	Name	Commitment Amount	Statutory Classification	Inception Year	Investment Manager	Management & Incentive Fees
Public Equity Portfolio	See Section 1 of this report	Fixed commitment amounts only for the following funds: ECM Feeder Fund 2 LP: \$125 million; ValueAct Capital: \$750 million. For all other funds, none.	N.C.G.S. §§ 147-69.2(b)(8) for long-only public equity investments; N.C.G.S. §§ 147-69.2(b)(8)(b.) for public equity limited liability investment vehicles ONSHE BlackRock, ECM Bespoke Fund 2, ECM Feeder Fund 2, ONSHE Marshall Wace, ONSHE MEN, and ValueAct Capital	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report
Performance and Fee Report	See Section 1 of this report	See Section 1 of this report	N.C.G.S. §§ 147-69.2(b)(9)	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report
Non-Core Real Estate Portfolio	See Section 1 of this report	See Section 1 of this report	N.C.G.S. §§ 147-69.2(b)(7)	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report
Opportunistic Fixed Income Portfolio	See Section 1 of this report	See Section 1 of this report	N.C.G.S. §§ 147-69.2(b)(6c)	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report
Rates and Liquidity Portfolio	See Section 1 of this report	None	N.C.G.S. §§ 147-69.1(c) and 147-69.2(b)(1)-(6b)	1941	Managed internally by staff of the State Treasurer	No management fees or incentive fees
Inflation Sensitive Portfolio	See Section 1 of this report	See Section 1 of this report	N.C.G.S. §§ 147-69.2(b)(9a)	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report
Core Real Estate Portfolio	See Section 1 of this report	See Section 1 of this report	N.C.G.S. §§ 147-69.2(b)(7)	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report
Multi-Strategy Portfolio	See Section 1 of this report	See Section 1 of this report	N.C.G.S. §§ 147-69.2(b)(9)(ii)	See Section 1 of this report	Externally managed by firms listed in Section 1 of this report	See section 2 of this report

We are not aware of any placement agent fees relating to any Retirement Systems investment that were directly or indirectly borne by the State Treasurer or Retirement Systems.

Section 3

Use of New Investment Authority Report required by G.S. 147-69.8

This report is pursuant to G.S. 147-69.8 on the use of new investment authority by the State Treasurer. The report covers new investment authority granted by the General Assembly since 2009 and includes performance and other investment information through December 31, 2018. We have interpreted "new investment authority" or "broadens the investment authority" in the statute to cover two types of situations: (1) changes in the percentage limits stated by G.S. 147-69.2(b) for particular classes of investments; and (2) changes that allowed the State Treasurer to invest in an investment asset type that was not previously allowed.

Opportunistic Fixed Income Portfolio

The Opportunistic Fixed Income (or Credit Strategies) asset class (G.S. 147-69.2(b)(6c)) was created by the General Assembly in June 2009. It included some investments that were previously authorized under other provisions of G.S. 147-69.2. See "NCRS Opportunistic Fixed Income Portfolio" in Section 1 "Value and Performance Supplement" for the investment returns, earnings, changes to value, and gains and losses in disposition of such investments.

The value of Opportunistic Fixed Income assets originally was limited to 5% of the total assets of the Retirement Systems, but the limit was raised to 7.5% in August 2013. The allocation to Opportunistic Fixed Income assets remained below the original 5% limit in fiscal year 2013 despite the increase in the limit to 7.5%; however, the allocation rose above 5% in April 2014. Information on the individual funds with a vintage year later than 2014 can be found in Section 1 of this report.

Inflation Sensitive Portfolio

The Inflation Sensitive asset class (G.S. 147-69.2(b)(9a)) was created by the General Assembly in June 2009. It included some investments that were previously authorized under other provisions of G.S. 147-69.2. See "NCRS Inflation Protection Portfolio" in Section 1 "Value and Performance Supplement" for the investment returns, earnings, changes to value, and gains and losses in disposition of such investments.

The value of Inflation Sensitive assets originally was limited to 5% of the total assets of the Retirement Systems, but the limit was raised to 7.5% in August 2013. The allocation of Inflation Sensitive assets remained below the original 5% limit in fiscal year 2014 despite the increase in the limit to 7.5%; however, the allocation rose above 5% in May 2015. Information on the individual funds with a vintage year later than 2015 can be found in Section 1 of this report.

Section 3

Use of New Investment Authority Report required by G.S. 147-69.8

Alternatives Portfolio

The State Treasurer makes investments in the Alternatives Portfolio, which includes the Private Equity and Multi-Strategy Portfolios, through G.S. 147-69.2(b)(9). G.S. 147-69.2(b)(9)(ii), added by Session Law 2011-211 in June 2011, allows investments in limited liability entities if their primary purpose is “to engage in any other strategies not expressly authorized by any other subdivision of this subsection.” The State Treasurer today administratively classifies the Multi-Strategy Portfolio under G.S. 147-69.2(b)(9)(ii). See “Multi-Strategy Portfolio” in Section 1 “Value and Performance Supplement” for the investment returns, earnings, changes to value, and gains and losses in disposition of such investments.

The limit on the value of Alternatives assets as a percentage of the total assets of the Retirements Systems was raised from 5% to 7.5% in June 2011 (Session Law 2011-211) and to 8.75% in August 2013 (Session Law 2013-398). The allocation to the Alternatives Portfolio rose above 5% in September 2011, and has been above or below 5% at various times since 2011. However, the allocation has not exceeded 7.5%. Information on the individual funds with a vintage year later than 2012 can be found in Section 1 of this report for both the Private Equity Portfolio and the Multi-Strategy portfolios.

Public Equity Portfolio

The State Treasurer makes investments in the Public Equity (or Global Equity) Portfolio through G.S. 147-69.2(b)(8).

Beginning in June 2011, investments were permitted in “limited partnerships, limited liability companies, and other limited liability investment vehicles that are not publicly traded and invest primarily in [public equities]” (G.S. 147-69.2(b)(8)(b.)). These investments include the Hedged Equity subcomponent of the Public Equity Portfolio identified in the State Treasurer’s Investment Policy Statement. See “NCRS Public Equity Portfolio” in Section 1 “Value and Performance Supplement” for the investment returns, earnings, changes to value, and gains and losses in disposition of such investments with the LLC/LLP label.