

### What's going on in the marketplace?

July was marked with positive news in both earnings and economic terms. Global earnings growth was the major driver of market performance. The combination of earnings and a rebound in economic growth during the second quarter pushed the domestic markets to new highs. Outside of the U.S., performance varied; however, the global basket in general performed well due to earnings and continued accommodative monetary policy.

### U.S. Equities

U.S. equity markets gained 1.89% (Russell 3000) on the month. All three market caps provided positive returns, with large caps earning more than 2%, while both mid and small caps earned 0.88% and 0.74%, respectively. Growth continued to be heavily favored over value as evidenced by the Russell 3000 style benchmarks' performance; the Russell 3000 Growth earned 2.52%, while the Russell 3000 Value advanced 128 basis points on the month.

The KRS U.S. equity portfolio fell short of the Russell 300 Index (1.75% vs 1.89%) with the relative underweight also producing a drag on the portfolio. Within the U.S. equity portfolio specifically, the slight overweight coming down the cap spectrum hindered relative performance as both mid and small caps trailed their larger counter parts. From a stock selection perspective, the internal factor based portfolio lost ground to the S&P 500 as its value bent was not rewarded (1.47% vs 2.06%), and the active all cap growth portfolio trailed its respective index (2.35% vs 2.52%).

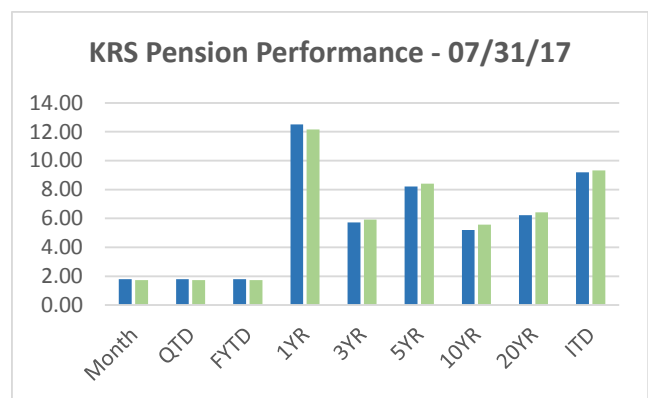
### Non-U.S. Equities

Non-U.S. equities rose approximately 3.7% on the month. Emerging markets led the way, returning nearly 6%, while developed markets gained roughly 2.6%. Like in the U.S., growth names outperformed value.

The KRS Non-U.S. equity portfolio performed well from both an absolute and relative perspective. For the month, the portfolio added 19 basis points over the index gaining 3.88% versus the index return of 3.69%. Relative allocation had little influence on the performance of the portfolio; however, the portfolio benefitted from stock selection. Two of the four active mandates outperformed the index with another essentially matching. One manager in particular was able to take advantage of global accelerating earnings and added 255bps over the benchmark.

### Fixed Income

Within the fixed income space, the high yield sector provided the best return opportunity, gaining 1.11% for the month. The KRS Fixed Income portfolio essentially performed inline with its index, returning 0.81%. Performance amongst the individual mandates was mixed. KRS' investments within the aggregate bond and high yield spaces performed roughly in line with the indices. The relative performance of the opportunistic fixed income and loan strategies within the asset class offset one another leading to benchmark-like returns for the period.



### Alternative Assets

All sub-asset classes provided positive absolute returns during the month with three of the four adding value over their respective benchmarks and the fourth matching its assigned index. The Real Return portfolio earned 1.29% versus 0.72%. The Absolute Return allocation returned 1.06%, and Private Equity added 0.58%. The Real Estate portfolio rose 13 bps during the month.

## Cash

The cash portfolio performed well during the month (0.10% vs 0.08%). The cash allocation finished the month within the allowable range at 3.56%.

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### NOTES:

- 1) Returns displayed are "net". For the purposes of this report, total fund return information is net of fees and expenses, with audited data beginning in July 2011. At the manager level (detailed return sheets pgs.4-5), returns are net of fees beginning with July 2011, and gross of fees for prior data.
- 2) Individual plan allocation and performance (pg.6).
- 3) Prior to January 1, 2014, the inception date for the Private Equity asset class was stated as 10/1/1990 for Pension Fund and 6/1/2001 for Insurance Fund. Prior to 07/01/02, the characteristics of the allocation, and the benchmark itself, were more closely aligned with Real Estate. As such, it is not appropriate to report this portion of the return stream within the Private Equity allocation, whose true inception date has been determined to be 07/01/02 based on funding the Systems' first private equity mandate. The portion of the original return streams that are no longer reported within the Private Equity allocation (Pension from 10/1/90 to 06/30/02; Insurance 06/01/01 to 06/30/02) are reported within the Fund Level performance figures.
- 4) 

<p>Private Equity Composite (Pension) Inception (07/01/02) to 06/30/11 60.00% S&amp;P 1500 Composite Index 40.00% Barclays US Corporate High Yield Index 07/01/11 to 12/31/15 100.00% Russell 3000 Index + 4% (Qtr Lag) <b>01/01/16 to Present</b> <b>100.00% Russell 3000 Index + 3% (Qtr Lag)</b></p>	<p>Private Equity Composite (Insurance) Inception (07/01/02) to 06/30/11 80.00% S&amp;P 1500 Composite Index 20.00% Barclays US Corporate High Yield Index 07/01/11 to 12/31/15 100.00% Russell 3000 Index + 4% (Qtr Lag) <b>01/01/16 to Present</b> <b>100.00% Russell 3000 Index + 3% (Qtr Lag)</b></p>
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- 5) The Private Equity Benchmark, from one month returns up until five year returns, is equal to the performance of the KRS Private Equity allocation. Given there is not appropriate benchmark to use for short term performance evaluation, this will allow greater focus on longer term returns, which is more appropriate given the long term nature of private equity investments.
- 6) 

<p><u>Pension Benchmark Composite 01/01/14 to 12/31/15</u> US Equity: Russell 3000 (20.5%) Non US Equity: MSCI AXCI Ex-US (20.0%) Emerging Market: MSCI Emerging Markets (2.9%) Fixed Income: Barclays Universal Index (19.3%) Real Estate: NCREIF ODCE (4.5%) Absolute Return: HFRI Diversified FOF (10.0%) Real Return: Allocation Specific (10.0%) Private Equity&lt;5Yrs: Actual Performance Private Equity&gt;5Yrs: Russell 3000 Index+4% (10.0%) Cash: Cit Grp 3-mos Treasury Bill (2.8%) <u>Pension Benchmark Composite 01/01/16 to Present</u> US Equity: Russell 3000 (25.6%) Non US Equity: MSCI AXCI Ex-US IMI (25.2%) Global Fixed Income: Barclays Universal Index (6.8%) Credit Fixed Income: Barclays US High Yield (7.2%) Real Estate: NCREIF ODCE (5.0%) Absolute Return: HFRI Diversified FOF (10.0%) Real Return: Allocation Specific (8.0%) Private Equity&lt;5Yrs: Actual Performance Private Equity&gt;5Yrs: Russell 3000 Index+3% (10.0%) Cash: Cit Grp 3-mos Treasury Bill (2.2%)</p>	<p><u>Insurance Benchmark Composite 01/01/14 to 12/31/15</u> US Equity: Russell 3000 (20.0%) Non US Equity: MSCI AXCI Ex-US (20.0%) Emerging Market: MSCI Emerging Markets (4.0%) Fixed Income: Barclays Universal Index (20.0%) Real Estate: NCREIF ODCE (5.0%) Absolute Return: HFRI Diversified FOF (10.0%) Real Return: Allocation Specific (10.0%) Private Equity&lt;5Yrs: Actual Performance Private Equity&gt;5Yrs: Russell 3000 Index+4% (10.0%) Cash: Cit Grp 3-mos Treasury Bill (1.0%) <u>Insurance Benchmark Composite 01/01/16 to Present</u> US Equity: Russell 3000 (26.5%) Non US Equity: MSCI AXCI Ex-US IMI (26.5%) Global Fixed Income: Barclays Universal Index (6.0%) Credit Fixed Income: Barclays US High Yield (6.0%) Real Estate: NCREIF ODCE (5.0%) Absolute Return: HFRI Diversified FOF (10.0%) Real Return: Allocation Specific (8.0%) Private Equity&lt;5Yrs: Actual Performance Private Equity&gt;5Yrs: Russell 3000 Index+3% (10.0%) Cash: Cit Grp 3-mos Treasury Bill (2.0%)</p>
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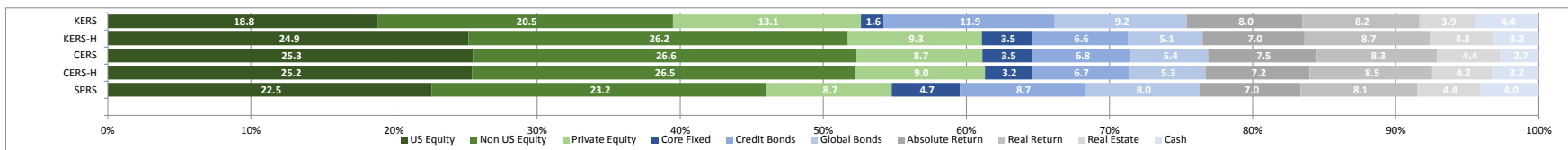
\*\*Fund composite benchmark is a roll-up of individual plans, which may differ from one another.

**KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 07/31/17**

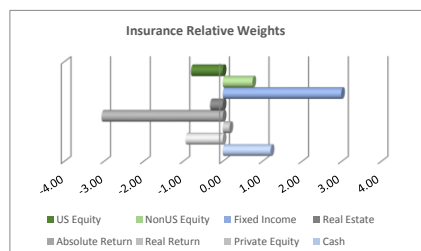
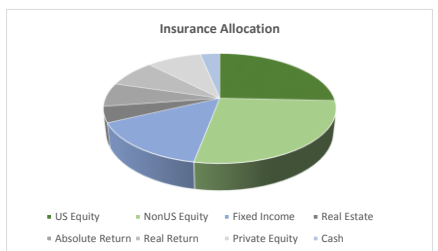
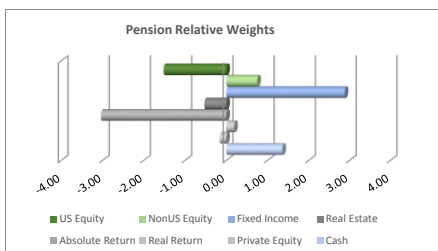
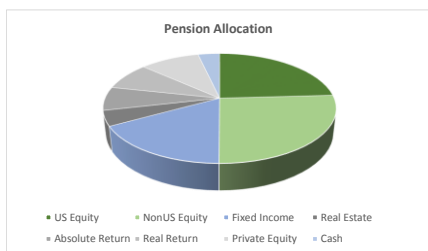
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
TOTAL FUND	KY Ret. Blended Index	4/1/1984	11,978,770,204.43	100.00	1.80	1.74	1.80	1.74	1.80	1.74	12.51	12.17	5.73	5.92	8.22	8.42	5.21	5.58	6.22	6.43	9.19	9.32
US PUBLIC	KY Domestic Equity Blend	4/1/1984	2,884,694,239.73	24.08	1.75	1.89	1.75	1.89	1.75	1.89	15.52	16.13	9.77	10.52	14.21	14.79	7.61	7.90	7.20	7.33	11.30	11.32
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	7/1/2000	3,108,694,808.28	25.95	3.88	3.69	3.88	3.69	3.88	3.69	19.24	19.40	3.69	2.85	8.85	8.19	2.18	1.90			3.05	3.49
PUBLIC EQUITY	Global Equity Blended Index	4/1/1984	5,993,389,048.01	50.03	2.84	2.78	2.84	2.78	2.84	2.78	17.48	17.85	6.32	6.00	11.05	10.83	4.83	4.55	6.10	5.96	10.61	10.46
FIXED INCOME	KY Ret. Fixed Blended Index	4/1/1984	2,022,465,855.64	16.88	0.81	0.80	0.81	0.80	0.81	0.80	6.17	5.66	4.66	5.63	4.29	4.07	5.53	5.57	5.82	5.82	7.69	7.52
REAL RETURN	PENSION REAL RETURN CUSTOM BM	7/1/2011	980,496,662.28	8.19	1.29	0.72	1.29	0.72	1.29	0.72	7.24	2.83	2.04	0.94	2.31	2.47					4.16	2.82
ABSOLUTE RETUR	HFRI Fund of Funds Diversified Index - 1 Month Ar	4/1/2010	834,288,632.64	6.96	1.06	0.97	1.06	0.97	1.06	0.97	4.79	4.75	1.51	1.75	5.11	3.96					4.07	2.87
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	7/1/1984	535,669,971.83	4.47	0.13	0.00	0.13	0.00	0.13	0.00	10.00	7.36	9.00	10.77	9.18	10.94	7.24	4.62	6.01	8.23	5.94	6.42
PRIVATE EQUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	1,178,559,038.18	9.84	0.58	0.58	0.58	0.58	0.58	0.58	13.39	13.39	9.46	9.46	12.24	12.24	7.67	11.17			10.93	10.99
CASH ACCOUNT	Citigroup Treasury Bill-3 Month	1/1/1988	426,962,390.22	3.56	0.10	0.08	0.10	0.08	0.10	0.08	1.05	0.51	0.57	0.23	0.52	0.16	1.02	0.48	2.51	2.06	3.65	3.20

**KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 07/31/17**

Plan	Benchmark	Inception	Market Value	% of Total	Month		3 Months		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
KERS	KY Ret. KERS Plan Index		2,051,625,899.80	100.00	1.61	1.51	3.60	3.46	1.61	1.51	11.35	11.01	5.24	5.55	7.95	8.19	5.08	5.47	6.16	6.37	9.15	9.29
KERS-H	KY Ret. KERS Haz Plan Index		2,134,417,814.31	100.00	1.83	1.80	3.85	3.89	1.83	1.80	12.69	12.45	5.78	5.64	8.27	8.32	5.23	5.54	6.24	6.41	9.20	9.31
CERS	KY Ret. CERS Plan Index		6,811,703,401.11	100.00	1.84	1.81	3.85	3.88	1.84	1.81	12.78	12.47	5.84	5.64	8.28	8.32	5.24	5.54	6.24	6.41	9.20	9.31
CERS-H	KY Ret. CERS Haz Plan Index		2,253,076,512.64	100.00	1.83	1.80	3.85	3.88	1.83	1.80	12.71	12.46	5.88	5.64	8.29	8.32	5.24	5.54	6.24	6.41	9.20	9.30
SPRS	KY Ret. SPRS Plan Index		248,946,582.16	100.00	1.71	1.66	3.60	3.58	1.71	1.66	11.92	11.56	4.99	5.38	7.79	8.16	5.00	5.46	6.12	6.37	9.13	9.28



Note: The above chart displays the average monthly allocation.

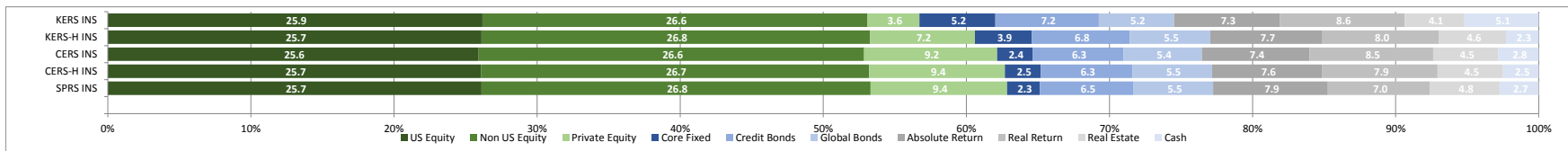


**KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS - 07/31/17**

Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
TOTAL FUND	KY Ins. Blended Index	4/1/1987	4,841,753,054.64	100.00	1.79	1.76	1.79	1.76	1.79	1.76	12.66	12.39	5.93	6.25	8.06	8.61	4.19	4.72	5.61	5.94	7.46	7.84
US PUBLIC	KY Domestic Equity Blend	7/1/1992	1,244,252,699.60	25.70	1.73	1.89	1.73	1.89	1.73	1.89	15.62	16.13	10.22	10.52	14.35	14.79	7.48	7.78	7.05	6.80	9.60	9.46
EQUITY NON US	KRS Ins.Int'l Eq Blend	4/1/2000	1,319,315,454.84	27.25	3.86	3.69	3.86	3.69	3.86	3.69	19.36	19.40	3.60	2.85	8.69	8.19	2.11	1.55			3.05	2.60
PUBLIC EQUITY	Global Equity Blended Index	7/1/1992	2,563,568,154.44	52.95	2.82	2.79	2.82	2.79	2.82	2.79	17.60	17.86	6.64	6.08	11.11	10.77	4.68	4.37	5.98	5.65	8.72	8.52
FIXED INCOME	KRS Ins. Fixed Blended Index	7/1/1992	726,013,290.20	14.99	0.65	0.80	0.65	0.80	0.65	0.80	5.78	5.66	4.09	5.63	3.79	4.07	5.61	5.69	6.20	6.21	6.53	6.52
REAL RETURN	INSURANCE REAL RET CUSTOM BM	7/1/2011	395,724,716.15	8.17	1.18	0.70	1.18	0.70	1.18	0.70	6.26	2.59	1.86	1.08	1.93	2.56					3.83	2.89
ABSOLUTE RETUR	HFRI Fund of Funds Diversified Index - 1 Month Ar	4/1/2010	336,200,652.44	6.94	1.06	0.97	1.06	0.97	1.06	0.97	4.62	4.75	1.53	1.75	5.09	3.96					3.99	2.87
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	5/1/2009	226,650,833.94	4.68	0.12	0.00	0.12	0.00	0.12	0.00	10.56	7.36	9.33	10.77	8.80	10.94					8.91	5.78
PRIVATE EQUITY	Russell 3000 + 3% (Qtr Lag)	7/1/2002	438,585,597.45	9.06	0.35	0.35	0.35	0.35	0.35	0.35	13.11	13.11	12.79	12.79	14.26	14.26	9.23	10.35			9.71	10.38
CASH ACCOUNT	Citigroup Treasury Bill-3 Month	7/1/1992	155,249,033.83	3.21	0.09	0.08	0.09	0.08	0.09	0.08	0.69	0.51	0.40	0.23	0.38	0.16	0.72	0.48	2.22	2.06	2.68	2.55

**KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - PLAN NET RETURNS - 07/31/17**

Plan	Benchmark	Inception	Market Value	% of Total	Month		3 Months		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
KERS INS	KY Ins. KERS Plan Index		783,632,516.01	100.00	1.81	1.86	3.59	3.78	1.81	1.86	12.56	12.57	5.66	5.85	7.80	8.40	4.06	4.62	5.55	5.89	7.41	7.81
KERS-H INS	KY Ins. KERS Haz Plan Index		491,552,291.40	100.00	1.79	1.81	3.72	3.80	1.79	1.81	12.69	12.48	5.88	5.88	8.07	8.42	4.20	4.63	5.62	5.89	7.46	7.81
CERS INS	KY Ins. CERS Plan Index		2,189,999,298.06	100.00	1.78	1.78	3.77	3.81	1.78	1.78	12.65	12.42	5.97	5.91	8.11	8.44	4.21	4.64	5.63	5.90	7.46	7.82
CERS-H INS	KY Ins. CERS Haz Plan Index		1,196,284,960.93	100.00	1.78	1.77	3.78	3.81	1.78	1.77	12.68	12.42	6.03	5.91	8.14	8.45	4.23	4.64	5.63	5.90	7.47	7.82
SPRS INS	KY Ins. SPRS Plan Index		180,283,991.21	100.00	1.78	1.77	3.77	3.81	1.78	1.77	12.69	12.42	5.97	5.93	8.11	8.45	4.22	4.65	5.63	5.90	7.47	7.82



Note: The above chart displays the average monthly allocation.