

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

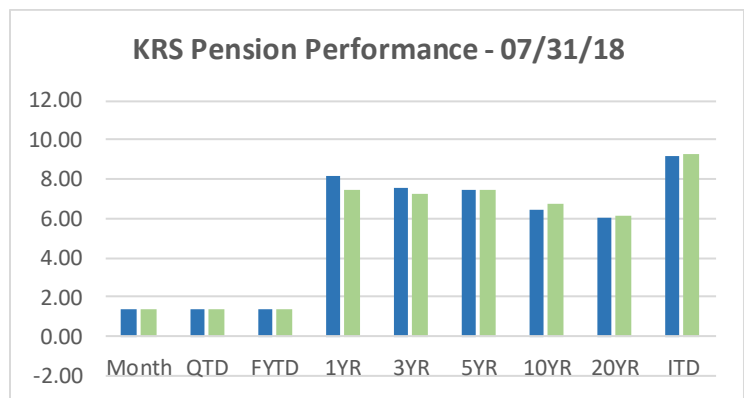
The month of July saw global markets continue to rise primarily attributable to positive earnings news, especially in the U.S. which experienced accelerating growth. Non-U.S. markets experienced muted performance as concerns about slowing growth in Europe and Japan in combination of that in China began to emerge. Developed countries performed better than their emerging counterparts as concerns of U.S. and China trade tensions intensified which weighed more on those markets. Domestic fixed income markets were relatively flat (core aggregate) even as treasury yields ticked up. Global bond markets trailed the domestic market and declined in USD terms due to currency strength.

### U.S. Equities

U.S. equity markets performed well gaining 3.3% (Russell 3000) during July. Large caps outperformed small caps (S&P500 3.7% vs R2000 1.7%) and value outpaced growth (R3000V 3.8% vs R3000G 2.8%). The KRS U.S. Equity portfolio essentially matched its benchmark adding 4 bps of relative outperformance. Stock selection, in terms of manager performance, was mixed in relative terms but was a slight detractor. However, despite allocation decisions being mixed overall attribution was additive. The tilt towards value was beneficial and significant enough to overwhelm the slight tilt down in market capitalization.

### Non-U.S. Equities

Non-U.S. equities earned 2.2% during the month as evidenced by the MSCI ACWI Ex-US IMI. The KRS Non-U.S. Equity portfolio slightly trailed the benchmark earning 2.1% during the period. The core anchor mandate of the portfolio outperformed the benchmark by nearly 25 bps as it is slightly larger in market cap than the index. However, three of the four active mandates trailed their benchmarks which overwhelmed the contribution from the core portfolio. The only active mandate that outperformed has a deep value style bias which provided a tailwind during the periods as value outperformed growth.



### Fixed Income

The KRS Fixed Income portfolio trailed its benchmark by 13 bps during the month. Those mandates falling in the specialty credit category provided 84 bps of return primarily driven by leveraged loan and high yield investments. The core fixed income category earned roughly 25 bps which was driven by the funds' intermediate credit investments as those within the aggregate remained relatively flat.

### Alternative Assets

For the month, all four sub-asset classes provided positive absolute returns, with three of those asset classes providing positive relative performance. During the period, the Real Estate portfolio returned 1.5%, Real Return earned 1.3%, Private Equity provided 18 bps, and the Absolute Return portfolio added 16 bps.

### Cash

The Cash portfolio essentially performed in line with the benchmark during the month, providing a 0.2% return. The slight overweight to cash in both the Pension and Insurance Funds acted as a slight drag on the total portfolios' performance.

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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 returns are net of fees beginning with July 2011, and gross of fees for prior data.
- 2) Individual plan allocation and performance (pg.4).
- 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) Private Equity Composite (Pension)  
Inception (07/01/02) to 06/30/11  
60.00% S&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)  
**01/01/16 to Present**  
**100.00% Russell 3000 Index + 3% (Qtr Lag)**

Private Equity Composite (Insurance)  
Inception (07/01/02) to 06/30/11  
80.00% S&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)  
**01/01/16 to Present**  
**100.00% Russell 3000 Index + 3% (Qtr Lag)**

- 5) The Private Equity & Real Return Benchmarks, from one month returns up until five year returns, is equal to the performance of the associated KRS allocations. 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 these investments.

Pension Benchmark Composite 01/01/16 to 08/31/17

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<5Yrs: Actual Performance  
Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
Cash: Cit Grp 3-mos Treasury Bill (2.2%)

Pension Benchmark Composite 09/01/17 to 05/31/18 -

Transition Period w/Sliding Targets

US Equity: Russell 3000 (23.6%)  
Non US Equity: MSCI AXCI Ex-US IMI (23.2%)  
Global Fixed Income: Barclays Universal Index (9.0%)  
Credit Fixed Income: Barclays US High Yield (9.0%)  
Real Estate: NCREIF ODCE (5.0%)  
Absolute Return: HFRI Diversified FOF (10.0%)  
Real Return<5Yrs: Actual Performance  
Real Return>5Yrs: CPI+3% (8%)  
Private Equity<5Yrs: Actual Performance  
Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
Cash: Cit Grp 3-mos Treasury Bill (2.2%)

Pension Benchmark Composite 06/01/18 to Present

US Equity: Russell 3000 (17.0%)  
Non US Equity: MSCI AXCI Ex-US IMI (21.0%)  
Global Fixed Income: Barclays Universal Index (13.0%)  
Credit Fixed Income: Barclays US High Yield (12.4%)  
Real Estate: NCREIF ODCE (5.0%)  
Absolute Return: HFRI Diversified FOF (10.0%)  
Real Return<5Yrs: Actual Performance  
Real Return>5Yrs: CPI+3% (10.0%)  
Private Equity<5Yrs: Actual Performance  
Private Equity>5Yrs: Russell 3000 Index+3% (9.4%)  
Cash: Cit Grp 3-mos Treasury Bill (2.2%)

\*\*Fund composite benchmark is a roll-up of individual plans, which may differ from one another.

Insurance Benchmark Composite 01/01/16 to 08/31/17

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<5Yrs: Actual Performance  
Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
Cash: Cit Grp 3-mos Treasury Bill (2.0%)

Insurance Benchmark Composite 09/01/17 to 05/31/18 -

Transition Period w/Sliding Targets

US Equity: Russell 3000 (24.5%)  
Non US Equity: MSCI AXCI Ex-US IMI (24.5%)  
Global Fixed Income: Barclays Universal Index (8.0%)  
Credit Fixed Income: Barclays US High Yield (8.0%)  
Real Estate: NCREIF ODCE (5.0%)  
Absolute Return: HFRI Diversified FOF (10.0%)  
Real Return<5Yrs: Actual Performance  
Real Return>5Yrs: CPI+3% (8%)  
Private Equity<5Yrs: Actual Performance  
Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
Cash: Cit Grp 3-mos Treasury Bill (2.0%)

Insurance Benchmark Composite 06/01/18 to Present

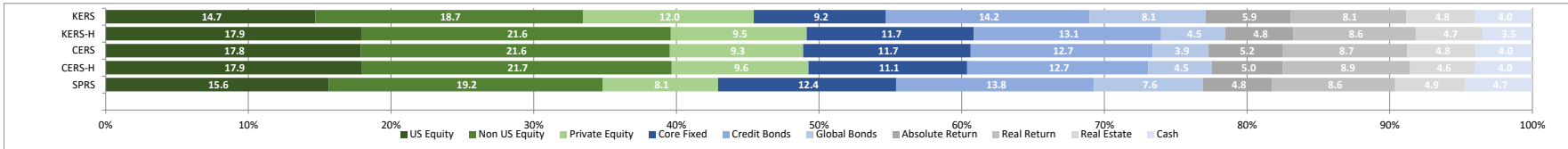
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Non US Equity: MSCI AXCI Ex-US IMI (21.9%)  
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Private Equity>5Yrs: Russell 3000 Index+3% (9.2%)  
Cash: Cit Grp 3-mos Treasury Bill (2.0%)

**KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 07/31/18**

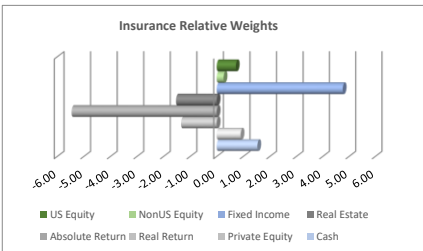
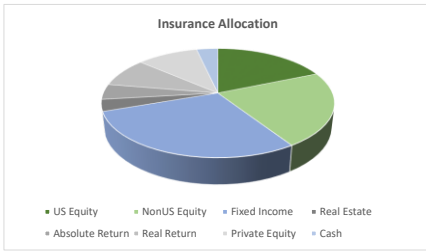
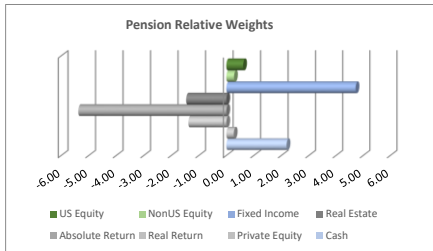
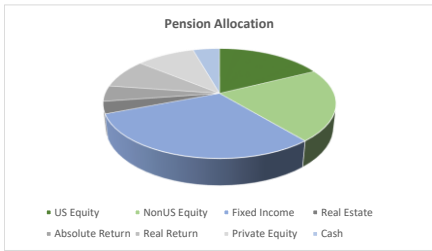
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
TOTAL FUND	KY Ret. Blended Index	4/1/1984	12,420,859,004.34	100.00	1.38	1.37	1.38	1.37	1.38	1.37	8.13	7.50	7.52	7.30	7.46	7.43	6.42	6.72	6.04	6.12	9.16	9.27
US PUBLIC	KY Domestic Equity Blend	4/1/1984	2,187,839,110.23	17.61	3.36	3.32	3.36	3.32	3.36	3.32	16.33	16.39	11.91	12.18	12.14	12.83	10.32	10.72	7.25	7.32	11.44	11.47
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	7/1/2000	2,642,813,319.23	21.28	2.09	2.15	2.09	2.15	2.09	2.15	8.94	6.23	7.62	6.44	6.76	6.04	4.27	3.83			3.37	3.64
PUBLIC EQUITY	Global Equity Blended Index	4/1/1984	4,830,652,429.46	38.89	2.66	2.74	2.66	2.74	2.66	2.74	12.23	11.30	9.56	9.18	9.14	9.02	7.16	6.89	5.96	5.71	10.66	10.48
FIXED INCOME	KY Ret.Fixed Blended Index	4/1/1984	3,741,455,867.26	30.12	0.52	0.65	0.52	0.65	0.52	0.65	1.12	1.02	4.24	5.11	4.21	4.47	5.05	4.88	5.46	5.49	7.50	7.32
REAL RETURN	PENSION REAL RETURN CUSTOM BM	7/1/2011	1,074,208,108.59	8.62	1.33	1.33	1.33	1.33	1.33	1.33	2.00	2.00	4.23	4.23	3.16	3.16					3.85	2.68
ABSOLUTE RETURN	HFRI Fund of Funds Diversified Index - 1 Month Arr	4/1/2010	574,547,299.41	4.62	0.16	0.37	0.16	0.37	0.16	0.37	4.58	4.66	1.81	2.02	3.76	3.47					4.13	3.08
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	7/1/1984	439,598,527.60	3.54	1.50	0.00	1.50	0.00	1.50	0.00	12.74	7.11	10.64	9.00	9.59	10.42	8.50	4.16	6.76	7.85	6.14	6.44
PRIVATE EQUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	1,201,466,974.85	9.67	0.18	0.18	0.18	0.18	0.18	0.18	14.06	14.06	10.86	10.86	12.90	12.90	8.81	13.59			11.12	11.30
CASH ACCOUNT	Citigroup Treasury Bill-3 Month	1/1/1988	545,086,483.04	4.39	0.19	0.16	0.19	0.16	0.19	0.16	1.99	1.41	1.17	0.69	0.79	0.43	0.76	0.32	2.33	1.87	3.59	3.14

**KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 07/31/18**

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	100.00	2,009,995,449.77	100.00	1.27	1.29	1.56	1.49	1.27	1.29	7.13	6.91	6.55	6.89	7.02	7.05	6.19	6.55	5.92	6.03	9.09	9.22
KERS- H	KY Ret. KERS Haz Plan Index	100.00	655,587,440.63	100.00	1.40	1.39	1.81	1.56	1.40	1.39	8.22	7.77	7.67	7.42	7.52	7.37	6.45	6.70	6.05	6.11	9.17	9.26
CERS	KY Ret. CERS Plan Index	100.00	7,122,641,346.01	100.00	1.40	1.39	1.83	1.56	1.40	1.39	8.28	7.77	7.71	7.41	7.54	7.37	6.46	6.70	6.06	6.11	9.17	9.26
CERS- H	KY Ret. CERS Haz Plan Index	100.00	2,372,768,236.26	100.00	1.40	1.39	1.86	1.56	1.40	1.39	8.30	7.77	7.74	7.41	7.55	7.37	6.47	6.70	6.06	6.11	9.18	9.26
SPRS	KY Ret. SPRS Plan Index	100.00	259,866,535.70	100.00	1.30	1.29	1.63	1.66	1.30	1.29	7.22	7.29	6.57	7.01	6.83	7.11	6.12	6.57	5.89	6.04	9.07	9.22



Note: The above chart displays the average monthly allocation.

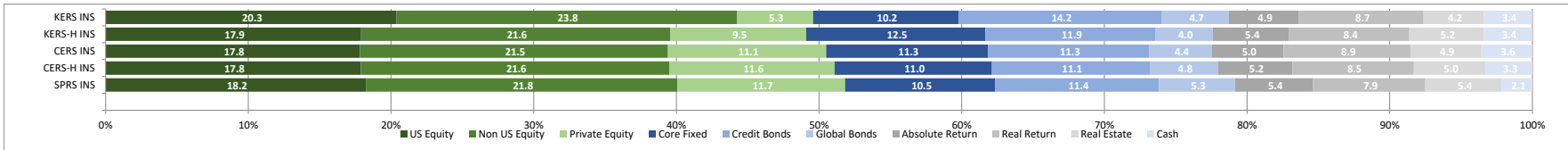


**KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS - 07/31/18**

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	5,202,563,738.70	100.00	1.40	1.38	1.40	1.38	1.40	1.38	8.64	8.06	7.90	7.69	7.53	7.76	5.83	6.37	5.45	5.71	7.49	7.85
US PUBLIC	KY Domestic Equity Blend	7/1/1992	968,593,029.50	18.62	3.36	3.32	3.36	3.32	3.36	3.32	16.26	16.39	12.17	12.18	12.35	12.83	10.36	10.64	7.12	6.88	9.85	9.72
EQUITY NON US	KRS Ins.Int'l Eq Blend	4/1/2000	1,152,763,930.00	22.16	2.10	2.15	2.10	2.15	2.10	2.15	8.75	6.23	7.52	6.44	6.68	6.04	3.87	3.47			3.35	2.79
PUBLIC EQUITY	Global Equity Blended Index	7/1/1992	2,121,266,959.50	40.77	2.67	2.73	2.67	2.73	2.67	2.73	12.11	11.26	9.72	9.19	9.30	9.06	6.99	6.73	5.86	5.49	8.85	8.62
FIXED INCOME	KRS Ins. Fixed Blended Index	7/1/1992	1,496,491,075.88	28.76	0.51	0.65	0.51	0.65	0.51	0.65	1.20	1.02	4.12	5.11	3.76	4.47	4.52	4.61	5.87	5.85	6.32	6.30
REAL RETURN	INSURANCE REAL RET CUSTOM BM	7/1/2011	450,332,170.62	8.66	1.11	1.11	1.11	1.11	1.11	1.11	1.80	1.80	3.92	3.92	3.05	3.05					3.54	2.72
ABSOLUTE RETURN	HFRI Fund of Funds Diversified Index - 1 Month Arr	4/1/2010	236,439,565.88	4.54	0.15	0.37	0.15	0.37	0.15	0.37	4.59	4.66	1.82	2.02	3.76	3.47					4.06	3.08
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	5/1/2009	180,635,127.99	3.47	1.49	0.00	1.49	0.00	1.49	0.00	12.67	7.11	10.99	9.00	9.55	10.42					9.31	5.92
PRIVATE EQUITY	Russell 3000 + 3% (Qtr Lag)	7/1/2002	525,336,127.99	10.10	0.17	0.17	0.17	0.17	0.17	0.17	18.13	18.13	13.89	13.89	15.63	15.63	11.12	12.99			10.21	10.73
CASH ACCOUNT	Citigroup Treasury Bill-3 Month	7/1/1992	183,509,108.67	3.53	0.18	0.16	0.18	0.16	0.18	0.16	1.66	1.41	0.89	0.69	0.61	0.43	0.49	0.32	2.04	1.87	2.64	2.50

**KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - PLAN NET RETURNS - 07/31/18**

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	100.00	846,771,772.33	100.00	1.50	1.46	1.78	1.65	1.50	1.46	7.63	7.99	7.44	7.60	7.09	7.52	5.60	6.26	5.33	5.66	7.42	7.81
KERS - H INS	KY Ins. KERS Haz Plan Index	100.00	518,134,583.80	100.00	1.38	1.36	1.93	1.73	1.38	1.36	8.44	8.11	7.79	7.64	7.49	7.57	5.82	6.28	5.44	5.67	7.49	7.82
CERS INS	KY Ins. CERS Plan Index	100.00	2,367,107,543.27	100.00	1.38	1.36	2.01	1.73	1.38	1.36	8.78	8.14	7.95	7.66	7.59	7.59	5.87	6.29	5.47	5.67	7.51	7.83
CERS - H INS	KY Ins. CERS Haz Plan Index	100.00	1,279,247,546.44	100.00	1.37	1.36	2.03	1.73	1.37	1.36	8.87	8.15	8.04	7.66	7.64	7.60	5.89	6.30	5.48	5.67	7.51	7.83
SPRS INS	KY Ins. SPRS Plan Index	100.00	191,302,290.98	100.00	1.38	1.36	2.02	1.73	1.38	1.36	8.92	8.15	8.02	7.67	7.63	7.61	5.88	6.30	5.47	5.68	7.51	7.83



Note: The above chart displays the average monthly allocation.