## What's going on in the marketplace?

The quarter ending September 30<sup>th</sup> witnessed rising global equity markets driven almost entirely by the U.S. which gained over 7.0% (Russell 3000), while Non-U.S. markets gained a mere 0.4% per the MSCI ACWI Ex-US Index. Within the U.S., the earnings story remained intact, with companies continuing capital spending and hiring additional labor in response to the recent tax reform. Non-U.S. markets were subdued by concerns regarding the potential escalation of a trade war between the U.S. and China, and its influence across the emerging markets as a China slowdown appears more evident. Increased risk has led to multiple compression, which could also be attributable to a lack of performance outside of the U.S.

## **U.S. Equities**

U.S. equity markets experienced modest gains during the month; the Russell 3000 Index added 17 basis points (bps). The market was driven by large caps, which returned 0.6%. Mid-caps and small caps were weak during the period (S&P 400: -1.1%, R2000: -2.4%). Growth outpaced value by 33 basis points as evidenced by the Russell 3000 style indices (R3000G 0.3%, R3000V 0.0%).

The KRS U.S. Equity portfolio underperformed the Russell 3000 by 38 bps during the month (-0.2% vs 0.2%). The portfolio's relative performance was driven by both stock selection and allocation. From a stock selection perspective, the portfolio's all cap mandates trailed their respective indices. From an allocation perspective, the value tilt and smaller cap positioning was a headwind during the period.

# Non-U.S. Equities

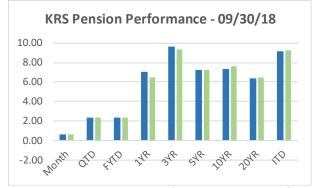
Non-U.S. equities slightly outpaced the U.S. markets during the period, adding 22 bps. Developed markets outperformed their emerging market counterparts. While growth outperformed value in developed international large cap names, value outpaced growth in both the developed international small cap and emerging markets spaces.

The KRS Non-U.S. Equity portfolio performed in line with its benchmark, returning 0.2% during the month. Stock selection was mixed as two of the four active large cap managers and the portfolio's small cap mandate outperformed their associated

indices. Allocation decisions had little impact on relative performance.

#### **Fixed Income**

Fixed income market segments were positive in terms of performance during the month. The corporate high yield market rose three-quarters of a point, the core space as defined by the U.S. Aggregate gained 64 bps, intermediate credit was up 0.6%, and leveraged loans were up 40 bps during the period.



The specialty credit portion of the KRS portfolio returned 58 bps on the month, while the core fixed income piece of the portfolio fell -0.3%. Within the specialty credit bucket, relative outperformance was provided by strong selection within some of the lending, leveraged loan, and global bond mandates. Within the core portion of the portfolio, the intermediate corporate credit and aggregate investments held up slightly better than the market.

# **Alternative Assets**

The diversifying strategy group was relatively flat during the month, gaining 5 bps. The Real Estate and Opportunistic portion of the portfolio gained 1.3% and 0.8%, respectively. The Absolute Return and Real Return portions of the portfolio declined

during the period, posting a return of -0.1% and -0.4%, respectively. The Private Equity portion of the portfolio provided a strong 5.3% return for the month.

#### Cash

The cash portfolio basically performed inline during the month (0.15% vs 0.17%). The cash allocation finished the period slightly above target due to transitioning assets while continuing to move toward the newly approved asset allocation.

#### 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.
- Individual plan allocation and performance (pg.4).
- 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.

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)

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<5vrs: 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

Private Equity>5Yrs: Russell 3000 Index+3% (9.4%)

Real Return>5yrs: CPI+3% (10.0%) Private Equity<5Yrs: Actual Performance

Cash: Cit Grp 3-mos Treasury Bill (2.2%)

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

US Equity: Russell 3000 (26.5%)

Real Estate: NCREIE ODCE (5.0%)

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%)

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<5vrs: 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

US Equity: Russell 3000 (17.9%)

Non US Equity: MSCI AXCI Ex-US IMI (21.9%)

Global Fixed Income: Barclays Universal Index (13.0%) Credit Fixed Income: Barclays US High Yield (11.0%)

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% (9.2%) Cash: Cit Grp 3-mos Treasury Bill (2.0%)

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

				KENTUC	KY RETIREI	MENT SYS	STEMS -	PENSION FU	IND - NET I	RETURNS -	09/30/18											
Structure	Benchmark	Inception	Market Value	% of Total		Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		ears	20 Years		ITD	į į
	"				KRS E	Benchmark	KRS	Benchmark	KRS I	Benchmark	KRS B	enchmark	KRS	Benchmark	KRS E	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS I	Benchmark
TOTAL FUND	KY Ret. Blended Index	4/1/1984	12,490,236,621.01	100.00	0.57	0.64	2.30	2.37	2.30	2.37	7.03	6.46	9.61	9.39	7.22	7.21	7.28	7.63	6.37	6.42	9.14	9.25
GROWTH			7,949,481,508.34	63.65	0.94		3.23		3.23												3.23	
US PUBLIC	KY Domestic Equity Blend	4/1/1984	2,238,347,312.10	17.92	-0.19	0.17	6.13	7.12	6.13	7.12	16.47	17.58	16.45		12.48	13.46	11.37	11.95	7.92	8.06	11.47	11.52
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	7/1/2000	2,592,694,321.57	20.76	0.21	0.22	0.66	0.39	0.66	0.39	4.51	1.79	11.44	10.38	5.36	4.54	6.14	5.79			3.26	3.51
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	1,240,097,473.04	9.93	5.27	5.27	5.43	5.43	5.43	5.43	15.32	15.32	11.55	11.55	13.50	13.50	9.48	14.94			11.35	11.45
HIGH YIELD / SPECIALTY C	CREDIT Bloomberg Barclays US High Yield		1,878,342,401.63	15.04	0.58		2.04		2.04		4.99										6.40	
FIXED INCOME / LIQUIDITY			2,509,983,809.56	20.10	-0.18		0.57		0.57												0.57	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate		2,014,569,193.82	16.13	-0.26	-0.64	0.59	0.02	0.59	0.02	0.06	-1.22	1.98	1.31	2.48	2.16					2.55	3.52
CASH	Citigroup Treasury Bill-3 Month	1/1/1988	495,414,615.74	3.97	0.15	0.17	0.49	0.50	0.49	0.50	2.10	1.57	1.26	0.80	0.83	0.49	0.75	0.32	2.29	1.84	3.58	3.13
DIVERSIFYING STRATEGIES			2,031,080,452.43	16.26	0.05		0.93		0.93												0.93	
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	7/1/1984	433,888,868.83	3.47	1.30	1.81	2.80	1.81	2.80	1.81	11.15	7.47	10.04	8.38	9.47	10.03	8.63	4.34	7.05	7.69	6.14	6.46
OPPORTUNISTIC / ABSOLI	UTE RI HFRI Diversified		534,340,629.31	4.28	-0.09	0.07	0.12	0.64	0.12	0.64	3.58	3.49	2.29	2.55	3.58	3.49					4.04	3.06
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	1,062,850,954.29	8.51	-0.41	-0.41	0.64	0.64	0.64	0.64	1.08	1.08	5.89	5.89	2.85	2.85					3.67	2.52
				KENTUCKY I	RETIREME	NT SYSTE	MS - PEI	ISION FUND	- PLAN N	ET RETURN	NS - 09/30/	18										
Plan	Benchmark	Inception	Market Value	% of Total	Mont	th	3 //	lonths	Fiscal '	YTD	1 Yea	r	3 Ye	ears	5 Yea	rs	10 Ye	ears	20 Ye	ars	ITD	
KERS	KY Ret. KERS Plan Index		2,042,658,737.31	100.00	0.69	0.66	2.3	1 2.29	2.31	2.29	6.31	5.92	8.46		6.82	6.86	7.06	7.45	6.26	6.33	9.08	9.20
KERS- H	KY Ret. KERS Haz Plan Index		663,677,299.92	100.00	0.55	0.67	2.3	0 2.41	2.30	2.41	7.08	6.63	9.74	9.53	7.28	7.13	7.31	7.61	6.39	6.41	9.15	9.25
CERS	KY Ret. CERS Plan Index		7,129,813,530.11	100.00	0.54	0.67	2.2	8 2.41	2.28	2.41	7.12	6.63	9.86	9.58	7.29	7.13	7.32	7.61	6.39	6.41	9.15	9.24
CERS- H	KY Ret. CERS Haz Plan Index		2,384,305,997.05	100.00	0.55	0.67	2.2		2.29	2.41	7.15	6.63	9.85		7.31	7.13	7.33	7.61	6.39	6.41	9.16	9.24
SPRS	KY Ret. SPRS Plan Index		269,781,057.00	100.00	0.45	0.96	2.1	1 2.57	2.11	2.57	6.18	6.57	8.70	9.22	6.57	6.93	6.96	7.51	6.21	6.36	9.05	9.21
KERS	15.3	18.4		11.4	11.4			26.5					6.1 4.5			4.8	4.8 8					
KERS-H	18.5	21.2				9.2			22.2					7.4 4.4			4.5	4.0 8				
CERS	18.7		21.4				9.2		21.5					7.5 4.0			4.7	4.3 8.7				
CERS-H	18.7		21.4				9.4				21.9				7.0	4.	.1	4.5	4.1			
SPRS	15.9	10	1		7.6				,	6.0				7.7		6.7		4.7	2.0			

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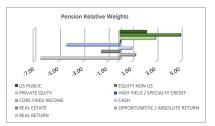
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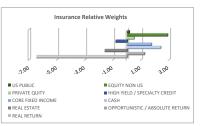
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Note: The above chart displays the average monthly allocation.



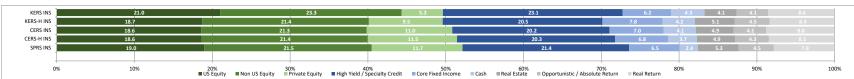






				KENTUCKY	V RETIREN	JENT SYS	TEMS - IN	LIRANCE F	UND - NE	T RETURNS	- 09/30/1	18										
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITC	
	"				KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS I	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS I	Benchmark
TOTAL FUND	KY Ret. Blended Index	4/1/1987	5,242,618,512.72	100.00	0.48	0.53	2.23	2.27	2.23	2.27	7.37	6.82	10.05	9.72	7.28	7.49	6.9	7.60	5.79	6.08	7.48	7.84
GROWTH		7/1/2018	3,418,753,561.89	65.21	0.79		3.09		3.09												3.09	
US PUBLIC	KY Domestic Equity Blend	7/1/1992	990,909,936.97	18.90	-0.20	0.17	6.13	7.12	6.13	7.12	16.41	17.58	16.74	17.07	12.66	13.46	11.4	11.92	7.85	7.67	9.90	9.80
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	4/1/2000	1,134,582,876.90	21.64	0.19	0.22	0.65	0.39	0.65	0.39	4.30	1.79	11.35	10.38	5.26	4.54	5.69	5.42			3.24	2.67
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	549,714,527.57	10.49	4.23	4.23	4.37	4.37	4.37	4.37	17.96	17.96	13.67	13.67	15.80	15.80	12.0	14.33			10.38	10.88
HIGH YIELD / SPECIALTY CRE	DIT Bloomberg Barclays US High Yield		743,546,220.45	14.18	0.57		1.97		1.97		4.62										5.90	
FIXED INCOME / LIQUIDITY		7/1/2018	976,759,004.00	18.63	-0.18		0.59		0.59												0.59	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	798,692,824.19	15.23	-0.27	-0.64	0.59	0.02	0.59	0.02	0.02	-1.22	1.99	1.31	2.07	2.16					2.17	2.48
CASH	Citigroup Treasury Bill-3 Month	7/1/1992	178,066,179.81	3.40	0.16	0.17	0.50	0.50	0.50	0.5	1.82	1.57	0.98	0.80	0.67	0.49	0.4	0.32	2.02	1.84	2.64	2.50
DIVERSIFYING STRATEGIES		7/1/2018	847,316,264.94	16.16	0.06		0.85		0.85												0.85	
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	5/1/2009	178,100,520.39	3.40	1.32	1.81	2.82	1.81	2.82	1.81	11.07	7.47	10.26	8.38	10.19	10.03					9.29	6.01
OPPORTUNISTIC / ABSOLUTE	RI HFRI Diversified		222,166,597.92	4.24	-0.08	0.07	0.15	0.64	0.15	0.64	3.61	3.49	2.30	2.55	3.59	3.49					3.98	3.06
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	447,049,146.63	8.53	-0.39	-0.39	0.46	0.46	0.46	0.46	0.92	0.92	5.46	5.46	2.62	2.62					3.37	2.57
			K	NTUCKY R	ETIREMEN	NT SYSTEM	งร - เทรบเ	ANCE FUN	D - PLAN	NET RETUR	RNS - 09/3	0/18										
Plan	Benchmark	Inception	Market Value	% of Total	Mor	nth	3 M	onths	Fiscal	YTD	1 Yea	ar	3 Ye	ears	5 Ye	ars	10	/ears	20 Ye	ars	ITD	,
KERS INS	KY Ins. KERS Plan Index		859,384,253.93	100.00	0.26	0.40	2.14	2.25	2.14	2.25	6.38	6.68	9.65	9.86	6.82	7.22	6.7	7.48	5.66	6.02	7.40	7.80

			KENTUCKYI	KETIKEMEN	I SYSTEM	IS - INSUKA	NCE FUN	D - PLAN N	FIKEIUF	(NS - 09/30)	/18													
Plan	Benchmark	Inception Market Va	ue % of Total	Month		3 Months		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD				
KERS INS	KY Ins. KERS Plan Index	859,384,	53.93 100.00	0.26	0.40	2.14	2.25	2.14	2.25	6.38	6.68	9.65	9.86	6.82	7.22	6.72	7.48	5.66	6.02	7.40	7.80			
KERS - H INS	KY Ins. KERS Haz Plan Index	520,125,	66.25 100.00	0.45	0.57	2.18	2.28	2.18	2.28	7.18	6.86	9.97	9.84	7.23	7.29	6.95	7.52	5.78	6.04	7.48	7.81			
CERS INS	KY Ins. CERS Plan Index	2,382,119,	90.76 100.00	0.52	0.57	2.23	2.28	2.23	2.28	7.50	6.86	10.09	9.79	7.35	7.32	7.01	7.53	5.81	6.04	7.49	7.81			
CERS - H INS	KY Ins. CERS Haz Plan Index	1,288,052,	07.26 100.00	0.55	0.57	2.25	2.28	2.25	2.28	7.61	6.86	10.16	9.79	7.40	7.32	7.03	7.53	5.82	6.04	7.50	7.82			
SPRS INS	KY Ins. SPRS Plan Index	192,937,	96.92 100.00	0.55	0.57	2.28	2.28	2.28	2.28	7.65	6.86	10.14	9.78	7.39	7.33	7.03	7.54	5.82	6.05	7.50	7.82			
	20.0																							



Note: The above chart displays the average monthly allocation.