What's going on in the marketplace?

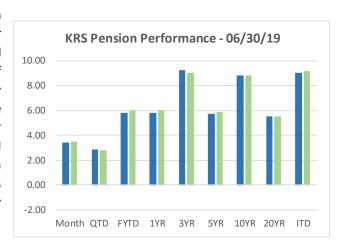
After global equity markets fell off a cliff in May, investors experienced a "V"-shaped rebound in June. Hopes of a trade deal between the U.S. and China emerged once again. U.S. markets gained roughly 7% (Russell 3000), while Non-U.S. markets rose nearly 6% (MSCI ACWI Ex-US). U.S. markets outperformed, spurred on by economic and earning data that was relatively better than the broader global economy. Accommodative policies from central banks and a narrowing of credit spreads helped push the fixed income markets higher.

The fiscal year itself can best be described as volatile. The first quarter of the fiscal year experienced rising global markets that were largely driven by the U.S. In general, U.S. economic data showed solid earnings, but outside of the U.S. concerns of a slowdown in growth loomed, particularly in China. The last quarter of 2018, was significantly volatile to the downside as concerns of an all-out trade war with China began to surface. That, combined with a slowdown in global growth and a lack of a workable Brexit plan weighed heavily on the markets. This caused market sell-offs as investors fled to higher quality and safer asset classes. With the beginning of the new year, a light switch was flipped and global market began to rise aggressively. This was spurred on by perceived stabilizing global growth, more accommodative central bank rhetoric and policies, and optimism surrounding a trade deal between the U.S. and China. The rise in markets continued through April. In May, markets tumbled as talks between the U.S. and China broke down and the idea of tariffs on Mexico was floated as a means of curbing border crossings. As mentioned above, the fiscal year finished on a high as talks between the U.S. and China resumed. The result of all this turmoil was U.S. equity markets gaining nearly 9%, Non-U.S. equity markets were just slightly positive, the broad-based fixed income market gained nearly 8%, and the U.S. real estate market gained roughly 6.5%.

U.S. Equities

After falling over 6% in May, U.S. equity markets came roaring back returning just over 7% during the month per the Russell 3000. All market cap segments provided significant returns with mid-caps leading the way, gaining 7.6%. There was no significant style bias as value just slightly outpaced growth (R3000V 7.1%, R3000G 6.9%).

During the month, the KRS U.S. equity portfolio performed in line with the Russell 300 Index, trailing by just 3 basis points. For the quarter, the allocation outpaced its index by 15 bps and earned 4.2% primarily due to the strong stock selection of several strategies. During the fiscal year, the U.S. equity portfolio gained approximately 7.7% versus the 9.0% of the index. Roughly half of the shortfall was due to the poor performance of a mid-cap value manager who was terminated midway through the fiscal year and to portfolio alignment in terms of market cap. During the fiscal year the portfolio was overweight mid and small caps, which significantly underperformed large caps (LC: 10.4%, MC: 1.4%, SC: -3.3%).



Non-U.S. Equities

Non-U.S. equities also performed well during the month, returning 5.8% per the MSCI ACWI Ex-US IMI Index. Both developed and emerging markets provided significant returns during the month of approximately 6.0%. For the fiscal year, developed markets slightly outperformed their emerging counterparts by roughly 20 basis points, returning 1.3% for the period.

The KRS Non-U.S. equity portfolio outperformed its index by 34 basis points during the month, returning 6.1%. Relative outperformance was driven by stock selection as 3 of the 4 active mandates outpaced the index, in particular those with a growth slant performed well. For the fiscal year, the portfolio added 84 basis points over the index, returning 1.1% versus 0.3%. This can be attributed to solid relative performance of the core, active value, and small cap strategies.

Fixed Income

The fixed income market provided good returns on the month, led by the corporate high yield market, which was up nearly 2.3%. The core fixed income and intermediate credit markets also performed well, providing 1.3% and 1.5%, respectively. The leveraged loan segment of the market was weaker, returning just 24 basis points during the period.

The KRS core fixed income allocation performed well, adding 1.2%, driven by investments in the intermediate credit and split performance in the core bonds allocations. The KRS specialty credit allocation delivered a 1.3% return, spurred by selective relative outperformance by some of the corporate high yield and leverage loan strategies. For the fiscal year, both the specialty credit and core portions of the fixed income allocation provided strong meaningful performance of 6.8% and 7.1%, respectively. The portfolio benefited from strong absolute and relative performance from the corporate high yield allocation and a leveraged loan mandate. The portfolio also benefited from strong absolute performance of nearly 7.9% in the aggregate space.

Alternative Assets

The diversifying strategy group gained 1.6% during the month. The Real Return portfolio led the way, returning 2.5%, followed by the Real Estate and Opportunistic allocations, which rose 1.0% and 0.7%, respectively. The only real weakness in terms of performance during the month was from the Absolute Return allocation, which lost 101 bps. The Private Equity portion of the portfolio provided a return of 3.2%. On the fiscal year, the diversifying strategy group gained 5.1%. The Real Return portfolio that accounts for over half the assets in the group returned 5.0%. The Real Estate and Opportunistic portfolios provided strong absolute returns, earning 8.8% and 10.6%, respectively. The Absolute Return portfolio was the only weak performer in absolute terms, falling 54 basis points on the fiscal year. The Private Equity allocation was the strongest performer during the fiscal year, returning 11.5%.

Cash

The cash portfolio performed inline during the month (0.2% vs 0.2%). The cash allocation finished the period above target (3.7%) in part due to the continued transitioning of assets to the newly approved asset allocation. The overweight to cash in both the pension and insurance funds acted as a slight drag on the total portfolios' performance. However, the cash in and of itself performed well for the fiscal year, returning 2.4% versus the 3-month T-Bill return of 2.3%.

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

Private Equity Composite (Insurance) 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)

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%)

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 -

<u>Transition Period w/Sliding Targets</u>
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

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%)

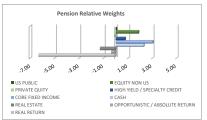
^{**}Fund composite benchmark is a roll-up of individual plans, which may differ from one another.

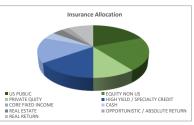
KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 06/30/19 3 Years 5 Years 10 Years 20 Years 11D2 KRS Benchmark TOTAL FUND KY Ret. Blended Index 4/1/1984 12.745.732.930.20 100.00 3.40 3.46 2.83 2.81 5.83 5.99 5.83 5.99 9.24 9.02 5.76 5.85 8.82 8.83 5.49 5.55 9.04 9.15 4.69 GROWTH 8.073.288.811.04 63.34 3.31 5.87 5.87 5.87 US PUBLIC KY Domestic Equity Blend 4/1/1984 2,325,593,793.39 18.25 7.02 4.25 4.10 7.72 8.98 7.72 8.98 13.33 14.02 9.38 10.19 13.99 14.70 6.38 11.26 11.32 KY Ret.Int'l Eq. Blended Index Russell 3000 + 3%(Qtr Lag) 7/1/2000 7/1/2002 2,557,201,639.27 1,181,283,402.70 20.06 6.14 5.80 1.10 11.50 0.26 11.50 0.26 11.50 10.45 12.92 9.36 12.92 2.36 6.94 16.83 3.15 11.19 3.36 11.33 FOUITY NON US 3.29 2.74 1.10 3.44 7.04 PRIVATE QUITY 10.73 13.91 3.39 3.39 11.50 HIGH YIELD / SPECIALTY CREDIT Bloomberg Barclays US High Yield 2,009,209,975.68 15.76 2.24 FIXED INCOME / LIQUIDITY 2.758.296.682.77 21 64 1.00 2 28 6 26 6 26 6 26 Bloomberg Barclays US Aggregate 2,286,911,689.57 2.62 CORE FIXED INCOME 17.94 1.16 1.26 7.87 7.87 2.34 2.31 2.97 4.01 7.09 7.09 2.95 3.30 Citigroup Treasury Bill-3 Month 1/1/1988 471,384,993.20 0.20 0.65 0.61 2.30 2.30 1.75 1.36 1.17 0.84 0.88 0.46 2.20 3.11 DIVERSIFYING STRATEGIES 1.914.475.517.75 15.02 1.60 1.66 5.13 5.13 5.13 REAL ESTATE NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^ 7/1/1984 472,326,058.99 3.71 1.02 1.20 1.65 6.55 6.55 7.73 6.18 6.46 8.81 8.81 9.96 7.01 9.38 9.18 9.24 7.14 7.46 OPPORTUNISTIC / ABSOLUTE RI HFRI Diversified 336,235,532.36 2.63 -1.01 1.53 -0.48 1.72 -0.54 1.84 -0.54 1.84 3.42 4.12 1.81 2.49 3.63 2.94 REAL RETURN Pension Real Return Custom Benchmark 7/1/2011 1,105,913,926.40 8.68 2.47 2.47 2.05 2.05 5.02 5.02 5.02 5.02 4.81 4.81 2.25 2.25 3.87 2.83 KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 06/30/19 2,178,482,589.03 684,855,131.97 6.19 5.99 8.40 9.22 8.40 9.22 5.31 5.78 5.55 5.72 8.59 8.84 5.37 5.49 5.48 5.54 KERS KY Ret. KERS Plan Index 100.00 2.97 3.16 2.57 6.19 5 73 8.69 8.98 9.11 KERS- H KY Ret. KERS Haz Plan Index 100.00 3.42 3.55 2.80 2.84 5.68 5.99 5.68 8.81 9.05 9.15 CERS KY Ret. CERS Plan Index 7,188,717,502.66 100.00 3.50 3.55 2.87 5.78 5.78 5.99 9.40 9.24 5.83 5.71 8.86 8.81 5.50 5.54 9.05 9.15 2.84 5.99 2,414,117,232.82 279,560,477.51 3.50 5.99 9.38 8.58 9.23 5.86 5.14 5.71 8.87 8.51 8.81 8.68 CERS- H KY Ret. CERS Haz Plan Inde: 100.00 3.55 2.87 2.84 5.80 5.99 5.80 5.51 5.54 9.06 9.15 KY Ret. SPRS Plan Index 100.00 3.16 2.65 5.71 5.71 5.33 5.48 8.96 9.11 SPRS 2.76 6.07 KERS 15.2 12.8 5.0 2.8 KERS-H 18.2 19.7 15.4 4.9 4.7 2.4 CERS 18.3 20.4 2.5 5.0 2.7



Note: The above chart displays the average monthly allocation.



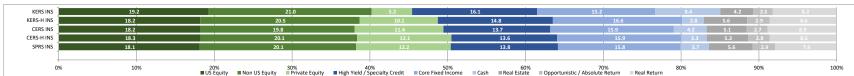






				KENTUCK	Y RETIRE!	MENT SYS	TEMS - INS	URANCE F	UND - NE	T RETURN	S - 06/30/1	.9										
Structure2	Benchmark	Inception	Market Value	% of Total2	Mo	nth®	Q	TD	Fisca	I YTD2	1 Yea	ır2	3 Y	ears2	5 Y€	ars2	10 Y	ears2	20 Ye	ars2	ITD:	1
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS E	enchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS B	enchmark
TOTAL FUND	KY Ret. Blended Index	4/1/1987	5,443,501,143.81	100.00	3.45	3.51	2.82	2.82	5.67	5.88	5.67	5.88	9.43	9.26	5.92	6.14	8.97	9.52	4.96	5.23	7.41	7.76
GROWTH		7/1/2018	3,549,564,166.97	65.21	4.69		3.29		5.70		5.70										5.70	
US PUBLIC	KY Domestic Equity Blend	7/1/1992	1,035,692,759.55	19.03	6.98	7.02	4.25	4.10	7.74		7.74	8.98	13.34	14.02	9.62	10.19	13.98	14.60	6.40	6.26	9.67	9.59
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	4/1/2000	1,117,366,315.24	20.53	6.15		3.24	2.74	0.94		0.94	0.26	10.37		3.32	2.36	6.71				3.13	2.56
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	567,840,802.12	10.43	3.06	3.06	3.28	3.28	10.88	10.88	10.88	10.88	13.95	13.95	13.39	13.39	15.61	16.91			10.29	10.79
HIGH YIELD / SPECIALTY CR	EDIT Bloomberg Barclays US High Yield		828,664,290.06	15.22	1.19		2.22		6.69		6.69										6.02	
FIXED INCOME / LIQUIDITY		7/1/2018	1,082,363,123.99	19.88	0.94		2.18		6.09		6.09										6.09	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	843,964,872.80	15.50	1.15		2.63	3.08	7.07		7.07	7.87	2.33	2.31	2.60	2.95					2.96	3.22
CASH	Citigroup Treasury Bill-3 Month	7/1/1992	238,398,251.19	4.38	0.20	0.20	0.62	0.61	2.32	2.30	2.32	2.30	1.50	1.36	1.00	0.84	0.64	0.46	1.94	1.76	2.63	2.50
DIVERSIFYING STRATEGIES		7/1/2018	811,794,398.40	14.91	1.54		1.70		5.15		5.15										5.15	
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	5/1/2009	197,044,207.15	3.62	1.03	1.20	1.66	1.20	8.97	6.55	8.97	6.55	10.18	7.01	9.61	9.18					9.20	6.03
OPPORTUNISTIC / ABSOLU	TE RI HFRI Diversified		149,504,609.29	2.75	-0.99	1.53	-0.48	1.72	-0.48	1.84	-0.48	1.84	3.42	4.12	1.84	2.49					3.58	2.94
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	465,245,581.96	8.55	2.35	2.35	2.09	2.09	4.91	4.91	4.91	4.91	4.44	4.44	2.14	2.14					3.61	2.88
			K	ENTUCKY R	ETIREME	NT SYSTEM	AS - INSUF	ANCE FUN	ID - PLAN	NET RETU	RNS - 06/3	0/19										
Plan	Benchmark	Inception	Market Value	% of Total2	Mo	nth®	3 M	onths	Fisca	I YTD⊠	1 Yea	r@	3 Y	ears2	5 Ye	ars🏻	10 Y	ears2	20 Ye	ars2	ITD:	į

		KENT	UCKY RE	TIREMENT	SYSTEM	S - INSURAI	NCE FUNI) - PLAN NI	ET RETUR	NS - 06/30	/19										
Plan	Benchmark	Inception Market Value	of Total	Month∑		3 Months		Fiscal YTD®		1 Year2		3 Years2		5 Years 2		10 Years		20 Years		ITD⊠	
KERS INS	KY Ins. KERS Plan Index	925,974,528.17	100.00	3.36	3.52	2.69	2.84	4.95	5.92	4.95	5.92	8.84	9.37	5.41	5.84	8.65	9.40	4.81	5.17	7.31	7.73
KERS - H INS	KY Ins. KERS Haz Plan Index	526,482,902.80	100.00	3.45	3.52	2.82	2.84	5.61	5.92	5.61	5.92	9.37	9.37	5.85	5.91	8.95	9.43	4.96	5.19	7.41	7.74
CERS INS	KY Ins. CERS Plan Index	2,471,970,818.18	100.00	3.45	3.52	2.82	2.84	5.73	5.90	5.73	5.90	9.49	9.33	5.99	5.93	9.01	9.45	4.99	5.20	7.43	7.74
CERS - H INS	KY Ins. CERS Haz Plan Index	1,320,169,479.20	100.00	3.49	3.52	2.85	2.84	5.81	5.90	5.81	5.90	9.56	9.33	6.06	5.93	9.05	9.45	5.00	5.20	7.44	7.74
SPRS INS	KY Ins. SPRS Plan Index	198,903,421.06	100.00	3.46	3.52	2.83	2.84	5.74	5.90	5.74	5.90	9.54	9.33	6.02	5.94	9.03	9.45	4.99	5.20	7.43	7.74
7																					
KERS INS	19.2	21.0			5.2			16.1				15.2			8.4	i j	4.2	2.5			
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Note: The above chart displays the average monthly allocation.