

What’s going on in the marketplace?

Easing trade tensions between the U.S. and China, combined with some signs of a stabilization in economic growth pushed markets higher to start the new year. However, fears surrounding the coronavirus, and the potential of pandemic caused markets to sell-off. In general, by the end of the month, international markets fell nearly -2.7%, while U.S. markets lost just -0.1%, bolstered by large caps that remained flat.

The KRS investment portfolio fell -0.34% versus the benchmark drop of -0.50%.

The portfolio benefited from solid relative performance from its investments in the Non-U.S. equity, real estate, and specialty credit asset classes. In addition, the portfolio’s underweight to the real return and private equity allocations were beneficial as these asset classes struggled during the month. The portfolio’s relative outperformance was tempered by weak selection in the core fixed income and U.S. equity segments, combined with an overweight to Non-U.S. equities which were the lowest performers during the period.

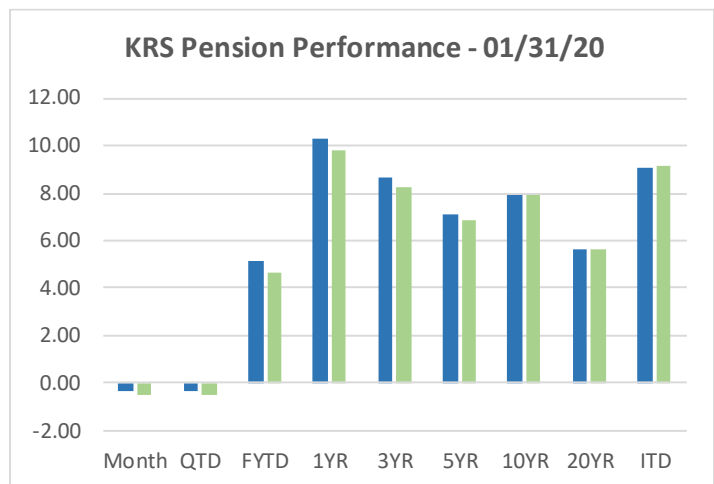
U.S. Equities

U.S. markets were slightly negative, falling just 11 bps (per the Russell 3000). All market cap segments lost ground; however, large caps held up well, losing just 4 bps (MC: -2.6%; SC: -3.2%). Growth significantly outpaced value nearly 440 bps (R3000G 2.0%, R3000V -2.4%).

During the month, the KRS U.S. Equity portfolio trailed the Russell 3000 Index by 35 bps. From a stock selection perspective, relative performance was mixed and did not seem to have a strong effect; however, there were more individual strategies that outperformed versus those that underperformed. Relative performance was hampered more from an allocation perspective as the portfolio is smaller in terms of market cap, and large caps significantly outperformed. Additionally, the significant performance difference between growth and value was an issue for the portfolio, which has a slight value tilt.

Non-U.S. Equities

Non-U.S. equity markets fell -2.8 for the month per the MSCI ACWI-Ex US Index. Developed markets (-1.9%) held up much better than their emerging market counterparts which dropped -4.7%. Growth outpaced value in developed countries, and significantly outpaced in the emerging markets.



The KRS Non-U.S. Equity portfolio lost -2.0% during the month; however, it did provide 78 bps of downside protection versus the benchmark. Stock selection was the primary driver of relative outperformance as three of the four active MSCI ACWI Ex-US mandates outpaced their respective benchmarks for the period. The active emerging market portfolios split in terms of relative performance along style lines, which was not a surprise. That said, both mandates provided downside protection versus their style-based benchmarks. Allocation decisions had little effect on the period’s relative performance.

Fixed Income

The fixed income markets were positive during the period. Core fixed income performed well as the U.S. Intermediate Credit Index returned 1.4% and the aggregate gained 1.9% on the month. The U.S. Universal Index was the best performer adding 179 bps on the month. The leveraged loan portion of the market gained 0.6%, and the U.S. corporate high-yield portion of the market was roughly flat.

The KRS Specialty Credit allocation gained 0.4%, outpacing the blended index by 14 bps. Individual strategy relative performance was mixed. The KRS Core Fixed income trailed the Bloomberg Barclays Aggregate by 0.72%. Relative underperformance can be attributed allocation.

Alternative Assets

The diversifying strategy group was flat during the month, as there was a split in the relative outperformance of the individual sub asset classes. The Real Estate and Opportunistic portfolios returned 1.3% and 1.2%, respectively. The Absolute Return and Real Return portfolios lost -75 bps and -16 bps, respectively. The Private Equity portion of the portfolio dropped 174 bps during the month.

Cash

The Cash portfolio slightly outpaced the 3-month T-Bill, returning 14 bps versus 13 bps.

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)
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- 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.

<u>Pension Benchmark Composite 01/01/16 to 08/31/17</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<5Yrs: Actual Performance	<u>Insurance Benchmark Composite 01/01/16 to 08/31/17</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<5Yrs: Actual Performance
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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.

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

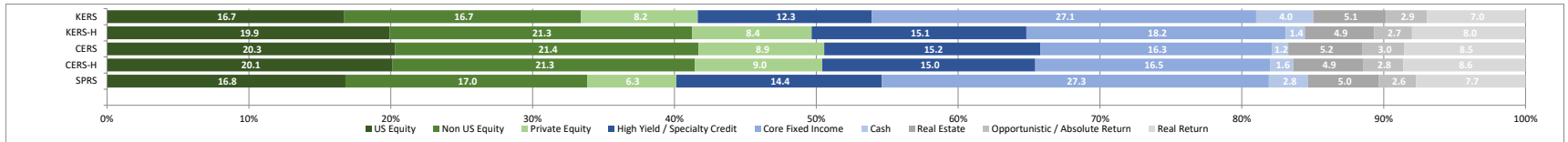
US Equity: Russell 3000 (17.9%)
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KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 01/31/20

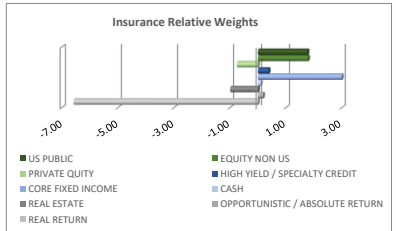
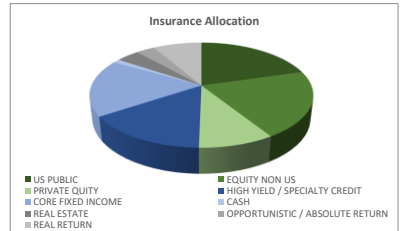
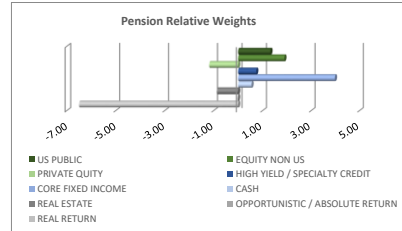
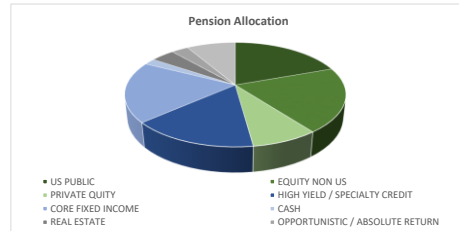
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD		
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS
TOTAL FUND	KY Ret. Blended Index	4/1/1984	13,326,552,898.66	100.00	-0.34	-0.50	-0.34	-0.50	5.16	4.67	10.26	9.82	8.64	8.28	7.08	6.85	7.90	7.93	5.60	5.64	9.04	9.14	
GROWTH		7/1/2018	8,472,229,271.06	63.57	-0.89		-0.89		6.28		12.22											7.73	
US PUBLIC	KY Domestic Equity Blend	4/1/1984	2,601,064,496.80	19.52	-0.46	-0.11	-0.46	-0.11	9.64	10.25	19.71	20.53	12.74	13.82	11.10	11.85	13.19	13.86	6.41	6.88	11.35	11.43	
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	7/1/2000	2,677,941,756.28	20.09	-1.97	-2.75	-1.97	-2.75	5.93	4.38	12.62	9.94	9.64	7.69	6.54	5.19	5.80	5.59			3.36	3.49	
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	1,095,525,188.14	8.22	-1.74		-1.74		4.66	4.66	5.02	5.02	13.17	13.17	11.24	11.24	12.89	15.66			11.09	11.47	
HIGH YIELD / SPECIALTY CREDIT	High Yield Custom Benchmark	7/1/2017	2,097,699,829.84	15.74	0.43	0.29	0.43	0.29	3.50	3.67	7.82	7.97									6.29	5.00	
FIXED INCOME / LIQUIDITY		7/1/2018	2,776,544,697.09	20.83	1.11		1.11		3.03		6.90											5.88	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	2,516,557,674.09	18.88	1.20	1.92	1.20	1.92	3.25	4.43	7.70	9.64	4.23	4.62	2.96	3.01					3.51	3.58	
CASH	Citigroup Treasury Bill-3 Month	1/1/1988	259,987,023.00	1.95	0.14	0.13	0.14	0.13	1.49	1.16	2.57	2.18	2.03	1.68	1.45	1.07	0.95	0.57	2.11	1.68	3.54	3.09	
DIVERSIFYING STRATEGIES		7/1/2018	2,078,516,825.85	15.60	0.02		0.02		3.68		7.18											5.59	
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index	7/1/1984	550,397,680.82	4.13	1.30	0.00	1.30	0.00	8.27	1.86	11.39	4.64	11.27	6.34	10.44	8.36	10.85	9.84	7.86	7.26	6.31	6.40	
OPPORTUNISTIC / ABSOLUTE RETURN	HFRI Diversified		395,610,007.43	2.97	-0.16	0.43	-0.16	0.43	0.74	2.34	1.35	5.91	2.29	3.65	1.75	2.47						3.49	3.00
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	1,132,509,137.60	8.50	-0.75	-0.75	-0.75	-0.75	1.74	1.74	5.89	5.89	3.99	3.99	3.27	3.27						3.81	2.84

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 01/31/20

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		2,366,657,656.25	100.00	-0.02	-0.25	2.48	2.47	4.99	4.53	9.33	9.62	7.99	7.86	6.48	6.65	7.65	7.77	5.48	5.56	8.57	9.09
KERS-H	KY Ret. KERS Haz Plan Index		719,847,602.05	100.00	-0.36	-0.53	2.63	2.60	5.17	4.77	10.26	9.96	8.66	8.46	7.13	6.91	7.92	7.92	5.61	5.64	9.05	9.13
CERS	KY Ret. CERS Plan Index		7,438,669,973.65	100.00	-0.41	-0.53	2.64	2.60	5.20	4.77	10.43	9.96	8.73	8.46	7.18	6.91	7.94	7.92	5.62	5.64	9.06	9.13
CERS-H	KY Ret. CERS Haz Plan Index		2,505,236,125.88	100.00	-0.47	-0.53	2.64	2.60	5.06	4.77	10.30	9.96	8.69	8.46	7.18	6.91	7.94	7.92	5.62	5.64	9.05	9.13
SPRS	KY Ret. SPRS Plan Index		296,141,527.67	100.00	-0.02	-0.25	2.57	2.47	5.09	4.53	9.89	9.62	8.13	8.00	6.45	6.62	7.58	7.76	5.44	5.56	8.95	9.09



Note: The above chart displays the average monthly allocation.

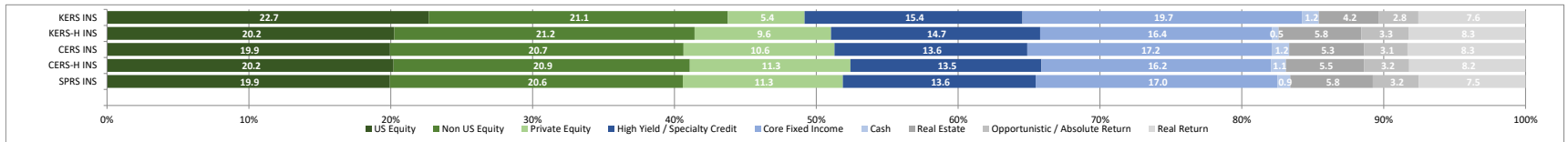


KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS - 01/31/20

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	KRS
TOTAL FUND	KY Ret. Blended Index	4/1/1987	5,729,328,935.76	100.00	-0.48	-0.65	-0.48	-0.65	5.00	4.48	10.23	9.78	8.72	8.44	7.24	7.08	7.82	8.33	5.13	5.35	7.43	7.76	
GROWTH	Growth Custom Benchmark	7/1/2018	3,763,480,474.94	65.69	-1.07	-0.60	-1.07	-0.60	5.85	6.83	11.98	14.26									7.35	8.78	
US PUBLIC	KY Domestic Equity Blend	7/1/1992	3,175,744,465.03	20.52	-0.44	-0.11	-0.44	-0.11	9.62	10.25	19.68	20.53	12.73	13.82	11.33	11.85	13.17	13.76	6.75	6.64	9.82	9.76	
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	4/1/2000	1,177,077,285.17	20.54	-1.95	-2.75	-1.95	-2.75	5.96	4.38	12.56	9.94	9.49	7.69	6.43	5.19	5.53	5.50			3.34	2.70	
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	529,699,978.28	9.25	-2.98	-2.98	-2.98	-2.98	1.75	1.75	3.59	3.59	13.25	13.25	12.90	12.90	14.05	15.82			10.04	10.95	
HIGH YIELD / SPECIALTY CREDIT	Bloomberg Barclays US High Yield	7/1/2017	880,958,746.46	15.38	0.47	0.29	0.47	0.29	3.39	3.67	7.59	7.97									5.99	5.00	
FIXED INCOME / LIQUIDITY		7/1/2018	1,072,149,411.21	18.71	1.13		1.13		3.09		6.79											5.82	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	1,009,311,703.09	17.62	1.19	1.92	1.19	1.92	3.24	4.43	7.69	9.64	4.26	4.62	2.96	3.01					3.19	3.58	
CASH	Citigroup Treasury Bill-3 Month	7/1/1992	62,837,708.12	1.10	0.14	0.13	0.14	0.13	1.14	1.16	2.16	2.18	1.79	1.68	1.21	1.07	0.75	0.57	1.87	1.68	2.62	2.49	
DIVERSIFYING STRATEGIES		7/1/2018	894,199,946.28	15.61	0.12		0.12		3.96		7.49											5.79	
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index	5/1/2009	229,582,489.50	4.01	1.25	0.00	1.25	0.00	8.38	1.86	11.67	4.64	11.38	6.34	10.50	8.36					9.50	5.88	
OPPORTUNISTIC / ABSOLUTE RETURN	HFRI Diversified		182,082,002.02	3.18	-0.18	0.43	-0.18	0.43	0.75	2.34	1.37	5.91	2.32	3.65	1.78	2.47						3.44	3.00
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	482,535,454.76	8.42	-0.57	-0.57	-0.57	-0.57	2.15	2.15	6.23	6.23	4.11	4.11	3.20	3.20						3.61	2.94

KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - PLAN NET RETURNS - 01/31/20

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		1,009,165,627.51	100.00	-0.19	-0.63	2.87	2.46	5.13	4.53	10.31	9.86	8.08	8.42	6.77	6.96	7.52	8.22	4.98	5.29	7.34	7.73
KERS - H INS	KY Ins. KERS Haz Plan Index		544,152,231.12	100.00	-0.46	-0.63	2.50	2.46	4.95	4.53	10.17	9.86	8.62	8.50	7.15	7.02	7.80	8.26	5.12	5.31	7.43	7.74
CERS INS	KY Ins. CERS Plan Index		2,596,371,574.45	100.00	-0.54	-0.63	2.43	2.46	4.95	4.53	10.14	9.86	8.79	8.51	7.30	7.04	7.86	8.27	5.15	5.32	7.45	7.75
CERS - H INS	KY Ins. CERS Haz Plan Index		1,371,381,413.25	100.00	-0.60	-0.63	2.38	2.46	4.90	4.53	10.13	9.86	8.85	8.51	7.35	7.04	7.89	8.27	5.16	5.32	7.46	7.75
SPRS INS	KY Ins. SPRS Plan Index		208,258,091.18	100.00	-0.50	-0.63	2.42	2.46	4.97	4.53	10.14	9.86	8.86	8.51	7.34	7.05	7.88	8.28	5.16	5.32	7.45	7.75



Note: The above chart displays the average monthly allocation.