

What’s going on in the marketplace?

Global equity markets were positive during the month. Markets were driven by better than expected economic data. In particular, global earnings held up well and tensions surrounding trade talks with China eased. This gave a significant boost to emerging markets, which jumped over 7%. Fixed income markets were mixed as global bonds trended positive, U.S. corporates advanced, and Treasuries dropped slightly.

The KRS investment portfolio returned 1.9% versus the benchmark of 2.2%.

The portfolio benefitted from its overweight position to both U.S. and Non-U.S. Equities, as these were the strongest two performing asset classes. However, relative underperformance in the Non-U.S. Equity and Specialty Credit spaces were too much to overcome during the month.

The fiscal year return to date now stands at 5.5% versus a benchmark return of 5.2%

The portfolio benefitted from relative outperformance in the Non-U.S. Equity and Real Estate portfolios combined with the overweight to the public equity sector. The portfolio’s outperformance was hampered due to weakness in the Specialty Credit and U.S. Equity allocations.

U.S. Equities

U.S. markets gained approximately 2.9% during the month per the Russell 3000. All market cap segments produced positive returns led by large caps, which earned just over 3.0%. Small and mid-caps just trailed their large cap counterparts, returning 2.9% and 2.8%, respectively. Growth outpaced value by 20 bps (R3000G 3.0%, R3000V 2.8%).

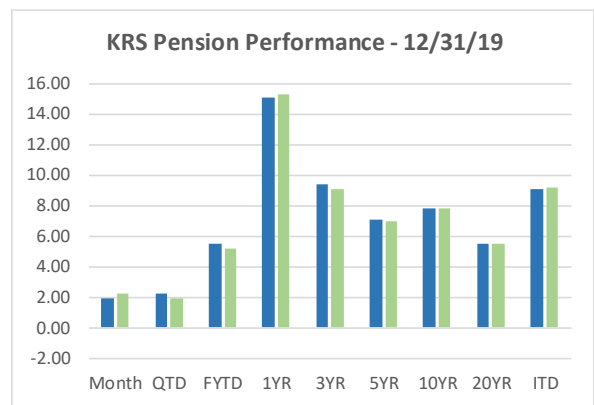
During the month, the KRS U.S. Equity portfolio essentially matched the 2.9% return of the Russell 3000 Index. Attribution reports shed little light regarding performance during the period. In terms of stock selection, relative performance amongst the individual mandates was mixed. Allocation decisions had little effect, as performance was tight during the period in terms of market cap or style.

During the first six months of the fiscal year, the KRS U.S. Equity portfolio returned 10.1%, trailing the Russell 3000 by 23 bps. Stock selection has been strong among individual mandates with the exception of the factor-based portfolio. Allocation decisions have hampered relative performance as a small cap bent and value tilts have been headwinds for the portfolio.

Non-U.S. Equities

Non-U.S. equity markets gained 4.4% for the month per the MSCI ACWI-Ex US Index. Developed markets performed well gaining roughly 3.2%; however, emerging markets rallied by nearly 7.5%. Growth edged out value in developed countries, but significantly outpaced in the emerging markets.

The KRS Non-U.S. Equity portfolio gained 3.9% during the month, trailing the benchmark by 52 bps. Stock selection was the primary driver of relative underperformance as all active mandates trailed their respective benchmarks for the period. Allocation decisions had little effect on the period’s relative performance.



For the fiscal year to date, the KRS Non-U.S. Equity portfolio has returned 8.1%, outpacing its benchmark by 73 bps. Strong results from three of the four active MSCI ACWI Ex-U.S. mandates have driven this relative outperformance.

Fixed Income

The more risk-on portions of the fixed income markets were positive, while the core portion was slightly negative. The high yield and leveraged loan portions of the market gained 2.0% and 1.6%, respectively. The intermediate credit market gained 39 bps, while the aggregate index lost -0.1%.

The KRS Specialty Credit allocation gained 0.4%, falling roughly 89 bps behind the blended index during the month. Individual strategy relative performance was negatively skewed. The KRS Core Fixed income portfolio gained 23 bps versus the Bloomberg Barclays Aggregate return of -0.1%. Relative performance was bolstered by both active mandates within the liquidity bucket and the cash portfolio.

The KRS Specialty Credit allocation gained 3.1% during the first six months of the fiscal year, as the corporate high yield market has added nearly 400 bps. The liquidity portion of the credit bucket has added 1.9% so far fiscal year to date.

Alternative Assets

The diversifying strategy group gained 1.8% during the month, with all four of the major portfolio segments providing positive returns. The Real Return portfolio gained 2.4%. The Opportunistic and Absolute Return allocations provided 96 bps and 72 bps, respectively. The Real Estate portfolio rose nearly 1.1% during the period. The Private Equity portion of the portfolio added 130 bps on the month.

After six months, the Real Estate and Private Equity allocations added just under 7%, and the Opportunistic portfolio added 5.1%. The Real Return and Absolute Return portfolios gained 2.5% and 0.9%, respectively.

Cash

The Cash portfolio slightly outpaced the 3-month T-Bill, returning 49 bps versus 14 bps, thanks to a significant security litigation recovery deposited into the account. This brought the fiscal year return to 1.4%.

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)	Private Equity Composite (Insurance)
Inception (07/01/02) to 06/30/11	Inception (07/01/02) to 06/30/11
60.00% S&P 1500 Composite Index	80.00% S&P 1500 Composite Index
40.00% Barclays US Corporate High Yield Index	20.00% Barclays US Corporate High Yield Index
07/01/11 to 12/31/15	07/01/11 to 12/31/15
100.00% Russell 3000 Index + 4% (Qtr Lag)	100.00% Russell 3000 Index + 4% (Qtr Lag)
01/01/16 to Present	01/01/16 to Present
100.00% Russell 3000 Index + 3% (Qtr Lag)	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 - 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%)
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%)

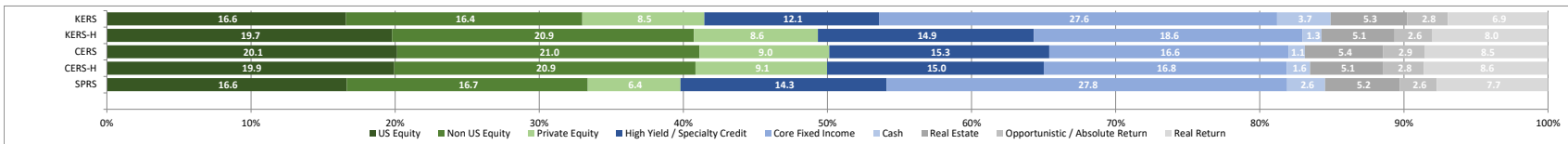
**Fund composite benchmark is a roll-up of individual plans, which may differ from one another.

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 12/31/19

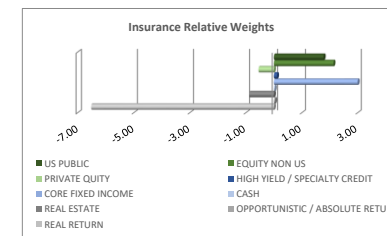
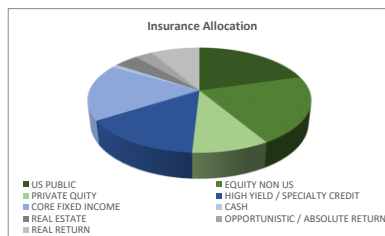
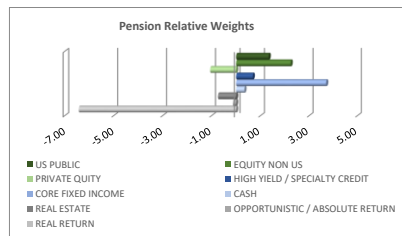
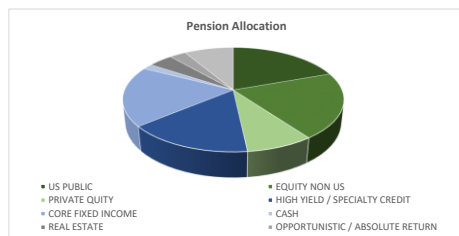
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITD	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
TOTAL FUND	KY Ret. Blended Index	4/1/1984	13,385,578,092.26	100.00	1.93	2.20	4.19	4.19	5.52	5.19	15.12	15.32	9.36	9.08	7.11	6.96	7.76	7.81	5.47	5.51	9.08	9.17
GROWTH	KY Ret. Blended Index	7/1/2018	8,563,752,189.21	63.98	2.51	2.51	5.93	4.19	7.23	5.19	19.42	15.32	9.08	7.11	6.96	7.76	7.81	5.47	5.51	9.08	9.17	
US PUBLIC	KY Domestic Equity Blend	4/1/1984	2,613,929,012.56	19.53	2.90	2.89	8.76	9.10	10.14	10.37	31.18	31.02	13.55	14.57	10.60	11.24	12.84	13.46	6.21	6.64	11.39	11.46
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	7/1/2000	2,735,016,509.57	20.43	3.89	4.41	9.33	9.20	8.06	7.33	24.05	21.63	11.60	9.98	5.75	5.58	5.40	5.40	6.21	6.64	11.39	11.46
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	1,116,015,334.64	8.34	1.30	1.30	1.35	1.35	6.51	6.51	7.93	7.93	13.83	13.83	11.63	11.63	13.09	15.29			11.26	11.43
HIGH YIELD / SPECIALTY CREDIT	High Yield Custom Benchmark	7/1/2017	2,098,791,332.44	15.68	0.91	1.80	1.04	2.17	3.06	3.36	9.26	11.46									5.33	5.05
FIXED INCOME / LIQUIDITY	Bloomberg Barclays US High Yield	7/1/2018	2,722,098,701.80	20.34	0.25	0.65	0.65	0.65	1.90	2.06	6.76	6.76									5.44	5.44
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	2,489,660,840.01	18.60	0.23	-0.07	0.65	0.18	2.02	2.45	7.62	8.72	3.88	4.03	3.07	3.05					3.36	3.32
CASH	Citigroup Treasury Bill-3 Month	1/1/1988	232,437,861.79	1.74	0.49	0.14	0.78	0.46	1.35	1.03	2.66	2.25	2.01	1.65	1.43	1.05	0.94	0.56	2.15	1.69	3.54	3.10
DIVERSIFYING STRATEGIES	Pension Real Return Custom Benchmark	7/1/2011	2,100,359,682.97	15.69	1.78	2.04	2.04	2.04	3.66	3.66	10.03	10.03									5.89	5.89
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index	7/1/1984	569,563,597.43	4.26	1.09	1.08	2.69	1.08	6.88	1.86	10.63	4.64	10.84	6.34	10.17	8.36	10.70	9.84	7.87	7.26	6.29	6.42
OPPORTUNISTIC / ABSOLUTE RETURN	HFRI Diversified	7/1/2011	383,687,744.34	2.87	0.72	1.35	1.33	2.55	0.90	1.72	1.39	7.88	2.60	3.70	1.84	2.40					3.54	2.96
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	1,147,108,341.20	8.57	2.43	2.43	1.83	1.83	2.51	2.51	11.70	11.70	5.04	5.04	3.78	3.78					3.94	2.96

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 12/31/19

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		2,364,463,359.23	100.00	1.63	1.97	3.55	3.72	5.01	4.79	13.23	14.43	8.51	8.48	6.48	6.68	7.47	7.62	5.33	5.42	9.00	9.12
KERS-H	KY Ret. KERS Haz Plan Index		722,414,923.17	100.00	1.97	2.23	4.25	4.29	5.55	5.32	15.18	15.59	9.29	7.18	6.99	7.78	7.80	5.48	5.51	9.08	9.17	
CERS	KY Ret. CERS Plan Index		7,480,622,061.26	100.00	2.00	2.23	4.35	4.29	5.63	5.32	15.50	15.59	9.50	9.29	7.22	6.98	7.81	7.80	5.49	5.51	9.09	9.17
CERS-H	KY Ret. CERS Haz Plan Index		2,521,569,352.92	100.00	1.98	2.23	4.31	4.29	5.56	5.32	14.43	15.59	9.48	9.29	7.24	6.98	7.81	7.79	5.49	5.51	9.09	9.17
SPRS	KY Ret. SPRS Plan Index		296,508,405.51	100.00	1.70	1.97	3.70	3.72	5.11	4.79	13.95	14.43	8.69	8.68	6.42	6.64	7.41	7.61	5.30	5.42	8.98	9.12



Note: The above chart displays the average monthly allocation.

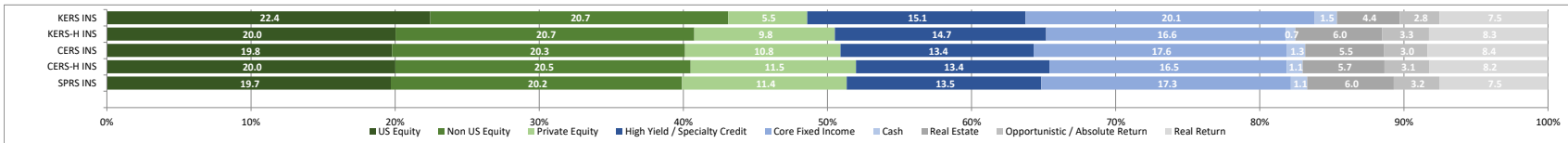


KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS - 12/31/19

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	4/1/1987	5,755,320,098.72	100.00	1.93	2.20	4.31	4.32	5.51	5.16	15.22	15.43	9.50	9.30	7.28	7.22	7.56	8.07	4.98	5.21	7.47	7.81
GROWTH	Growth Custom Benchmark	7/1/2018	3,796,705,033.02	65.97	2.48	2.99	5.92	6.42	6.99	7.47	19.27	20.37									8.55	9.73
US PUBLIC	KY Domestic Equity Blend	7/1/1992	1,181,340,767.88	20.53	2.90	2.89	8.76	9.10	10.11	10.37	31.09	31.02	13.54	14.57	10.81	11.24	12.80	13.36	6.52	6.40	9.87	9.80
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	4/1/2000	1,201,824,405.31	20.88	3.88	4.41	9.37	9.20	8.06	7.33	23.88	21.63	11.43	9.98	6.79	5.75	5.30	5.27			3.45	2.86
PRIVATE QUITY	Russell 3000 + 3%(Qtr Lag)	7/1/2002	543,956,015.00	9.45	1.17	1.17	1.21	1.21	4.87	4.87	7.51	7.51	14.42	14.42	13.55	13.55	14.33	15.33			10.29	10.90
HIGH YIELD / SPECIALTY CREDIT	Bloomberg Barclays US High Yield	7/1/2017	869,583,844.83	15.11	0.87	1.80	0.93	2.17	2.91	3.36	8.66	11.46									6.00	5.05
FIXED INCOME / LIQUIDITY	Bloomberg Barclays US Aggregate	7/1/2018	1,058,366,601.40	18.39	0.24	0.66	0.66	0.66	1.94	2.06	6.59	6.59									5.36	5.36
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	998,806,314.17	17.35	0.24	-0.07	0.68	0.18	2.02	2.45	7.59	8.72	3.91	4.03	3.09	3.05					3.05	3.32
CASH	Citigroup Treasury Bill-3 Month	7/1/1992	59,559,787.23	1.03	0.14	0.14	0.43	0.46	1.00	1.03	2.24	2.25	1.76	1.65	1.18	1.05	0.73	0.56	1.89	1.69	2.62	2.49
DIVERSIFYING STRATEGIES	Pension Real Return Custom Benchmark	7/1/2011	900,677,804.30	15.65	1.65	2.21	2.21	2.21	3.84	3.84	9.95	9.95									6.03	6.03
REAL ESTATE	NCREIF NFI-ODCE Net 1 Qtr in Arrears Index	5/1/2009	237,234,843.13	4.12	1.14	1.08	2.69	1.08	7.05	1.86	10.94	4.64	10.97	6.34	10.33	8.36					9.45	5.92
OPPORTUNISTIC / ABSOLUTE RETURN	HFRI Diversified	7/1/2011	175,467,985.66	3.04	0.71	1.35	1.35	2.55	0.93	1.72	1.43	4.88	2.62	3.70	1.87	2.40					3.49	2.96
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	487,974,975.51	8.48	2.18	2.18	2.11	2.11	2.73	2.73	11.32	11.32	4.89	4.89	3.51	3.51					3.72	3.04

KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - PLAN NET RETURNS - 12/31/19

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		1,006,975,844.26	100.00	1.89	2.18	4.42	4.32	5.34	5.19	15.23	15.47	8.77	9.31	6.74	7.04	7.23	7.96	4.82	5.16	7.37	7.77
KERS-H INS	KY Ins. KERS Haz Plan Index		547,802,966.34	100.00	1.91	2.18	4.30	4.32	5.44	5.19	15.20	15.47	9.40	9.37	7.18	7.10	7.53	7.99	4.97	5.17	7.46	7.78
CERS INS	KY Ins. CERS Plan Index		2,609,523,717.50	100.00	1.94	2.18	4.27	4.32	5.51	5.19	15.12	15.47	9.58	9.37	7.34	7.12	7.60	8.00	5.00	5.18	7.48	7.79
CERS-H INS	KY Ins. CERS Haz Plan Index		1,381,570,664.83	100.00	1.94	2.18	4.29	4.32	5.52	5.19	15.18	15.47	9.66	9.37	7.42	7.13	7.64	8.00	5.02	5.18	7.49	7.79
SPRS INS	KY Ins. SPRS Plan Index		209,446,903.92	100.00	1.89	2.18	4.22	4.32	5.50	5.19	15.09	15.47	9.64	9.36	7.38	7.14	7.62	8.01	5.01	5.18	7.49	7.79



Note: The above chart displays the average monthly allocation.