

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

During the first quarter of 2017 risk assets performed well with global equity markets rising nearly 7%. This was spurred by expectations in the U.S. for positive fiscal policies, and by improved global growth and inflation. During the month, the FOMC raised its policy rate pointing to a stronger labor market and positive inflation indicators.

### U.S. Equities

U.S. equity markets were relatively flat for the month ending the quarter with a gain shy of 6% (Russell 3000). Both large and small caps provided slightly positive returns for March, with mid caps retracing nearly 40 bps. Growth, momentum, and quality outpaced value which was out of favor. In general the the first quarter of 2017 was a reversal of the last quarter of 2016. Growth and larger cap names significantly outpaced value and small caps. Earnings growth was strong during the quarter and stock correlations dropped providing greater opportunity for active managers to exploit.

The KRS U.S. equity portfolio essentially matched the index (0.05% vs 0.07%) with relative allocation having little effect on performance for the month. During the quarter, the KRS portfolio trailed the Russell 3000 posting 4.98% versus 5.74%. The internal factor based portfolio lost ground to the SP500 as it struggled to keep up with a momentum heavy market (5.54% vs 6.07%), and the allocation to mid caps struggled as valuations are strained making it difficult to find palatable ideas.

### Non-U.S. Equities

Non-U.S. equities rose over 2.5% on the month and more than 8% on the quarter. Emerging markets modestly outperformed developed markets during the month, bringing the quarter's outperformance to nearly 400 bps points (11.4% vs 7.2%). Performance was greatly influenced by the feeling that the global economy is more solid than previously thought and was bolstered by improving fundamentals (earnings and valuations) and a weakening USD.

The KRS Non-U.S. equity portfolio performed well during the month and the quarter. For the month, the portfolio added 30 basis points over the index with three of the four active concentrated strategies adding value. For the quarter, the KRS portfolio basically matched the MSCI ACWI-Ex U.S. Index with two active mandates outpacing the index (7.98% vs 8.10%).

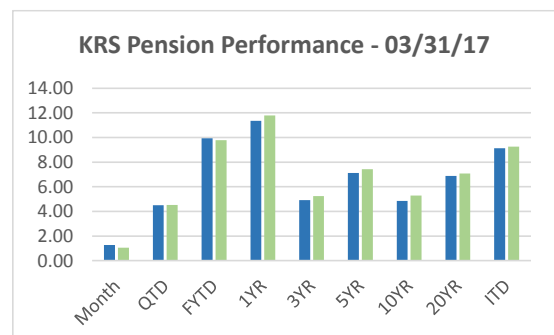
### Fixed Income

During the quarter, shorter-term global rates continued to be moved by central bank policy decisions, while longer-term rates were influenced more by broader economic activities. Global elections did increase volatility in the rates markets.

Within the KRS Fixed Income portfolio performance was mixed outperforming by 18 basis points during the month, but trailed during the quarter (1.59% vs 1.90%). The same story holds true at the manager level, with approximately half the strategies outperforming their associated indices and half underperforming. The posture towards high yield was positive during the quarter as this was the best performing segment of the fixed income market returning 2.7%.

### Alternative Assets

All sub-asset classes provided positive absolute returns over the quarter with three of the four adding value over their respective benchmarks. The Real Return portfolio gained nearly 5% versus an index return of 2.5%. The real estate allocation returned 3% adding roughly 110 bps over its index. Private Equity added 2.73%, and the Absolute Return portfolio rose 1.53%; however, trailed its benchmark by 26 bps.



## Cash

The cash portfolio performed well during the month and the first quarter (0.18% vs 0.12%). Month end cash allocations were higher than typically breaching target limits. This was due to timing as frictional cash raised through an equity reduction was being primed for investment in credit strategies.

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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 (detailed return sheets pgs.4-5), returns are net of fees beginning with July 2011, and gross of fees for prior data.
- 2) Individual plan allocation and performance (pg.6).
- 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)<br>Inception (07/01/02) to 06/30/11<br>60.00% S&P 1500 Composite Index<br>40.00% Barclays US Corporate High Yield Index<br>07/01/11 to 12/31/15<br>100.00% Russell 3000 Index + 4% (Qtr Lag)<br><b>01/01/16 to Present</b><br><b>100.00% Russell 3000 Index + 3% (Qtr Lag)</b> | Private Equity Composite (Insurance)<br>Inception (07/01/02) to 06/30/11<br>80.00% S&P 1500 Composite Index<br>20.00% Barclays US Corporate High Yield Index<br>07/01/11 to 12/31/15<br>100.00% Russell 3000 Index + 4% (Qtr Lag)<br><b>01/01/16 to Present</b><br><b>100.00% Russell 3000 Index + 3% (Qtr Lag)</b> |
|---|---|
- 5) The Private Equity Benchmark, from one month returns up until five year returns, is equal to the performance of the KRS Private Equity allocation. 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 private equity investments.
- 6)

|   |   |
|---|---|
| <u>Pension Benchmark Composite 01/01/14 to 12/31/15</u><br>US Equity: Russell 3000 (20.5%)<br>Non US Equity: MSCI AXCI Ex-US (20.0%)<br>Emerging Market: MSCI Emerging Markets (2.9%)<br>Fixed Income: Barclays Universal Index (19.3%)<br>Real Estate: NCREIF ODCE (4.5%)<br>Absolute Return: HFRI Diversified FOF (10.0%)<br>Real Return: Allocation Specific (10.0%)<br>Private Equity<5Yrs: Actual Performance<br>Private Equity>5Yrs: Russell 3000 Index+4% (10.0%)<br>Cash: Cit Grp 3-mos Treasury Bill (2.8%)<br><u>Pension Benchmark Composite 01/01/16 to Present</u><br>US Equity: Russell 3000 (25.6%)<br>Non US Equity: MSCI AXCI Ex-US IMI (25.2%)<br>Global Fixed Income: Barclays Universal Index (6.8%)<br>Credit Fixed Income: Barclays US High Yield (7.2%)<br>Real Estate: NCREIF ODCE (5.0%)<br>Absolute Return: HFRI Diversified FOF (10.0%)<br>Real Return: Allocation Specific (8.0%)<br>Private Equity<5Yrs: Actual Performance<br>Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)<br>Cash: Cit Grp 3-mos Treasury Bill (2.2%) | <u>Insurance Benchmark Composite 01/01/14 to 12/31/15</u><br>US Equity: Russell 3000 (20.0%)<br>Non US Equity: MSCI AXCI Ex-US (20.0%)<br>Emerging Market: MSCI Emerging Markets (4.0%)<br>Fixed Income: Barclays Universal Index (20.0%)<br>Real Estate: NCREIF ODCE (5.0%)<br>Absolute Return: HFRI Diversified FOF (10.0%)<br>Real Return: Allocation Specific (10.0%)<br>Private Equity<5Yrs: Actual Performance<br>Private Equity>5Yrs: Russell 3000 Index+4% (10.0%)<br>Cash: Cit Grp 3-mos Treasury Bill (1.0%)<br><u>Insurance Benchmark Composite 01/01/16 to Present</u><br>US Equity: Russell 3000 (26.5%)<br>Non US Equity: MSCI AXCI Ex-US IMI (26.5%)<br>Global Fixed Income: Barclays Universal Index (6.0%)<br>Credit Fixed Income: Barclays US High Yield (6.0%)<br>Real Estate: NCREIF ODCE (5.0%)<br>Absolute Return: HFRI Diversified FOF (10.0%)<br>Real Return: Allocation Specific (8.0%)<br>Private Equity<5Yrs: Actual Performance<br>Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)<br>Cash: Cit Grp 3-mos Treasury Bill (2.0%) |
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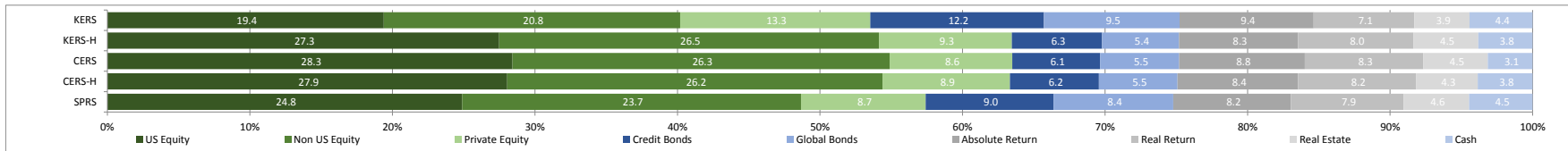
\*\*Fund composite benchmark is a roll-up of individual plans, which may differ from one another.

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 3/31/17

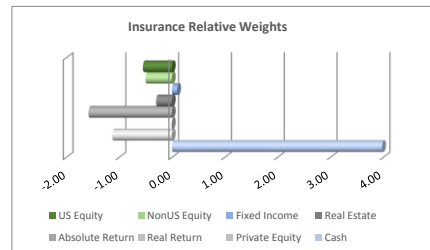
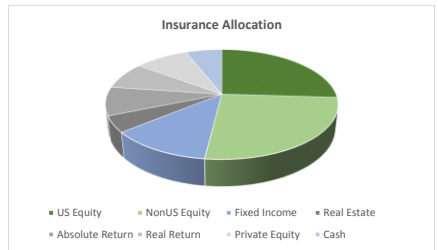
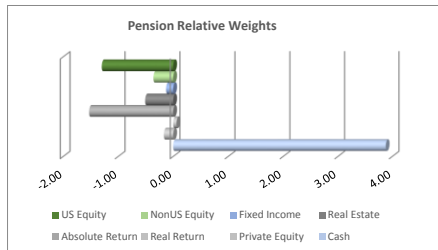
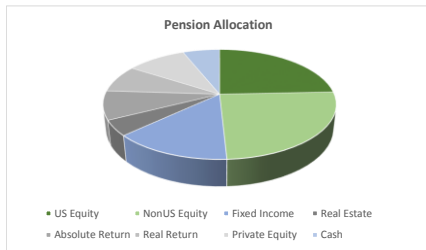
| Structure       | Benchmark   | Inception | Market Value      | % of Total | Month |           | QTD  |           | Fiscal YTD |           | 1 Year |           | 3 Years |           | 5 Years |           | 10 Years |           | 20 Years |           | ITD   |           |
|-----------------|---|-----------|-------------------|------------|-------|-----------|------|-----------|------------|-----------|--------|-----------|---------|-----------|---------|-----------|----------|-----------|----------|-----------|-------|-----------|
|                 |   |           |                   |            | 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  | 11,465,508,510.80 | 100.00     | 1.28  | 1.06      | 4.50 | 4.52      | 9.93       | 9.78      | 11.36  | 11.79     | 4.92    | 5.25      | 7.12    | 7.42      | 4.85     | 5.28      | 6.89     | 7.07      | 9.12  | 9.26      |
| US PUBLIC       | KY Domestic Equity Blend                          | 4/1/1984  | 2,786,227,128.62  | 24.30      | 0.05  | 0.07      | 4.98 | 5.74      | 14.95      | 15.04     | 17.70  | 18.07     | 8.89    | 9.76      | 12.50   | 13.18     | 7.32     | 7.60      | 8.27     | 8.32      | 11.27 | 11.28     |
| EQUITY NON US   | KY Ret.Int'l Eq. Blended Index                    | 7/1/2000  | 2,848,160,366.63  | 24.84      | 2.85  | 2.56      | 7.98 | 8.10      | 13.13      | 14.06     | 11.62  | 13.55     | 1.21    | 1.03      | 5.14    | 4.84      | 1.66     | 1.44      |          |           | 2.50  | 2.98      |
| PUBLIC EQUITY   | Global Equity Blended Index                       | 4/1/1984  | 5,634,387,495.25  | 49.14      | 1.41  | 1.30      | 6.45 | 6.92      | 14.07      | 14.64     | 14.68  | 15.92     | 4.74    | 4.86      | 8.34    | 8.28      | 4.36     | 4.14      | 7.00     | 6.81      | 10.48 | 10.33     |
| FIXED INCOME    | KY Ret.Fixed Blended Index                        | 4/1/1984  | 1,590,714,096.89  | 13.87      | 0.05  | -0.13     | 1.59 | 1.90      | 4.80       | 4.73      | 7.42   | 8.95      | 4.52    | 5.36      | 4.55    | 4.24      | 5.34     | 5.36      | 5.99     | 6.00      | 7.70  | 7.51      |
| REAL RETURN     | PENSION REAL RETURN CUSTOM BM                     | 7/1/2011  | 923,998,917.07    | 8.06       | 1.42  | 0.33      | 4.91 | 2.51      | 6.84       | 3.39      | 12.96  | 8.60      | 2.84    | 2.08      | 2.80    | 2.73      |          |           |          |           | 4.06  | 2.90      |
| ABSOLUTE RETURN | HFRF Fund of Funds Diversified Index - 1 Month Ar | 4/1/2010  | 971,351,198.88    | 8.47       | 0.23  | 0.12      | 1.53 | 1.79      | 4.94       | 4.75      | 5.41   | 5.87      | 1.50    | 1.59      | 4.65    | 3.31      |          |           |          |           | 4.04  | 2.81      |
| REAL ESTATE     | NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^       | 7/1/1984  | 514,891,869.23    | 4.49       | 2.85  | 1.88      | 2.99 | 1.88      | 7.47       | 5.72      | 9.57   | 7.79      | 8.97    | 11.04     | 9.35    | 11.16     | 7.00     | 4.84      | 5.94     | 8.29      | 5.93  | 6.44      |
| PRIVATE EQUITY  | Russell 3000 + 3%(Qtr Lag)                        | 7/1/2002  | 1,126,811,555.37  | 9.83       | 2.82  | 2.82      | 2.73 | 2.73      | 6.81       | 6.81      | 7.77   | 7.77      | 8.63    | 8.63      | 12.26   | 12.26     | 6.39     | 10.34     |          |           | 10.74 | 10.66     |
| CASH ACCOUNT    | Citigroup Treasury Bill-3 Month                   | 1/1/1988  | 696,622,798.73    | 6.08       | 0.06  | 0.04      | 0.18 | 0.12      | 0.76       | 0.27      | 1.02   | 0.34      | 0.48    | 0.15      | 0.47    | 0.11      | 1.17     | 0.61      | 2.59     | 2.13      | 3.68  | 3.22      |

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 3/31/17

| Plan   | 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 |
| KERS   | KY Ret. KERS Plan Index     |           | 1,955,832,933.27 | 100.00     | 1.16  | 1.00      | 3.87 | 3.95      | 8.75       | 8.66      | 10.17  | 10.86     | 4.59    | 4.94      | 6.92    | 7.28      | 4.75     | 5.21      | 6.85     | 7.04      | 9.09 | 9.24      |
| KERS-H | KY Ret. KERS Haz Plan Index |           | 580,349,382.22   | 100.00     | 1.33  | 1.08      | 4.58 | 4.66      | 9.86       | 10.01     | 11.24  | 11.95     | 4.96    | 4.94      | 7.15    | 7.30      | 4.87     | 5.22      | 6.90     | 7.04      | 9.13 | 9.24      |
| CERS   | KY Ret. CERS Plan Index     |           | 6,540,747,430.68 | 100.00     | 1.30  | 1.06      | 4.65 | 4.68      | 10.23      | 10.08     | 11.67  | 12.04     | 4.99    | 4.94      | 7.15    | 7.30      | 4.87     | 5.22      | 6.90     | 7.04      | 9.13 | 9.24      |
| CERS-H | KY Ret. CERS Haz Plan Index |           | 2,161,117,807.47 | 100.00     | 1.30  | 1.07      | 4.62 | 4.67      | 10.15      | 10.05     | 11.57  | 12.00     | 5.04    | 4.93      | 7.17    | 7.30      | 4.87     | 5.22      | 6.91     | 7.04      | 9.13 | 9.24      |
| SPRS   | KY Ret. SPRS Plan Index     |           | 234,821,765.58   | 100.00     | 1.20  | 0.96      | 4.23 | 4.30      | 9.22       | 9.31      | 10.71  | 11.41     | 4.31    | 4.80      | 6.76    | 7.21      | 4.67     | 5.18      | 6.80     | 7.02      | 9.07 | 9.22      |



Note: The above chart displays the average monthly allocation.

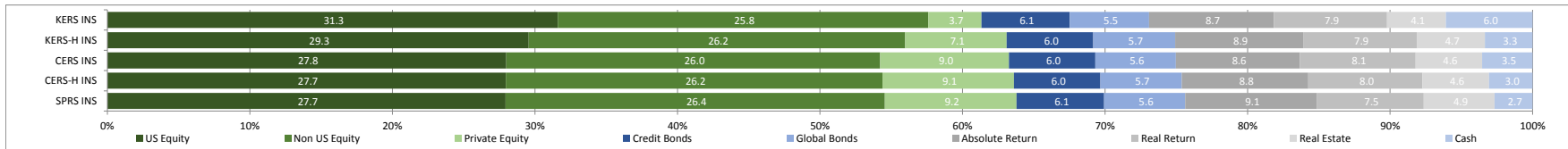


KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS - 3/31/17

| 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  | 4,599,189,045.77 | 100.00     | 1.26  | 1.11      | 4.57 | 4.65      | 10.11      | 9.92      | 11.68  | 12.03     | 5.07    | 5.58      | 6.89    | 7.51      | 3.99     | 4.53      | 6.28     | 6.64      | 7.36 | 7.75      |
| US PUBLIC       | KY Domestic Equity Blend                          | 7/1/1992  | 1,193,706,690.59 | 25.95      | 0.03  | 0.07      | 4.98 | 5.74      | 14.96      | 15.04     | 17.84  | 18.07     | 9.26    | 9.76      | 12.68   | 13.18     | 7.28     | 7.55      | 8.06     | 7.80      | 9.54 | 9.38      |
| EQUITY NON US   | KRS Ins.Int'l Eq Blend                            | 4/1/2000  | 1,195,752,447.67 | 26.00      | 2.80  | 2.56      | 7.92 | 8.10      | 13.32      | 14.06     | 11.54  | 13.55     | 1.11    | 1.03      | 4.99    | 4.84      | 1.64     | 1.09      |          |           | 2.51 | 2.08      |
| PUBLIC EQUITY   | Global Equity Blended Index                       | 7/1/1992  | 2,389,459,138.26 | 51.95      | 1.35  | 1.31      | 6.39 | 6.93      | 14.19      | 14.64     | 14.86  | 15.90     | 5.04    | 4.91      | 8.47    | 8.24      | 4.27     | 4.00      | 6.82     | 6.51      | 8.53 | 8.32      |
| FIXED INCOME    | KRS Ins. Fixed Blended Index                      | 7/1/1992  | 556,720,879.34   | 12.10      | 0.09  | -0.13     | 1.57 | 1.90      | 4.30       | 4.73      | 7.19   | 8.95      | 3.98    | 5.36      | 4.11    | 4.24      | 5.54     | 5.57      | 6.45     | 6.42      | 6.53 | 6.50      |
| REAL RETURN     | INSURANCE REAL RET CUSTOM BM                      | 7/1/2011  | 367,349,506.60   | 7.99       | 1.32  | 0.40      | 4.43 | 2.47      | 5.90       | 3.03      | 11.56  | 7.95      | 2.65    | 2.16      | 2.49    | 2.79      |          |           |          |           | 3.73 | 2.94      |
| ABSOLUTE RETURN | HFRF Fund of Funds Diversified Index - 1 Month Ar | 4/1/2010  | 387,237,383.46   | 8.42       | 0.22  | 0.12      | 1.50 | 1.79      | 4.88       | 4.75      | 5.35   | 5.87      | 1.53    | 1.59      | 4.68    | 3.31      |          |           |          |           | 3.96 | 2.81      |
| REAL ESTATE     | NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^       | 5/1/2009  | 216,155,852.44   | 4.70       | 3.01  | 1.88      | 3.14 | 1.88      | 8.05       | 5.72      | 10.14  | 7.79      | 9.32    | 11.04     | 9.01    | 11.16     |          |           |          |           | 8.99 | 5.82      |
| PRIVATE EQUITY  | Russell 3000 + 3%(Qtr Lag)                        | 7/1/2002  | 407,735,795.87   | 8.87       | 2.88  | 2.88      | 2.84 | 2.84      | 6.53       | 6.53      | 9.35   | 9.35      | 12.06   | 12.06     | 14.11   | 14.11     | 8.84     | 9.65      |          |           | 9.49 | 10.04     |
| CASH ACCOUNT    | Citigroup Treasury Bill-3 Month                   | 7/1/1992  | 274,889,325.53   | 5.98       | 0.06  | 0.04      | 0.17 | 0.12      | 0.39       | 0.27      | 0.51   | 0.34      | 0.32    | 0.15      | 0.34    | 0.11      | 0.87     | 0.61      | 2.29     | 2.13      | 2.70 | 2.57      |

KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - PLAN NET RETURNS - 3/31/17

| Plan       | 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 |
| KERS INS   | KY Ins. KERS Plan Index     |           | 729,597,812.91   | 100.00     | 1.01  | 0.93      | 4.50 | 4.83      | 10.29      | 10.45     | 11.80  | 12.56     | 4.83    | 5.16      | 6.65    | 7.32      | 3.88     | 4.44      | 6.22     | 6.60      | 7.32 | 7.72      |
| KERS-H INS | KY Ins. KERS Haz Plan Index |           | 471,579,380.59   | 100.00     | 1.22  | 1.03      | 4.59 | 4.73      | 10.17      | 10.18     | 11.75  | 12.29     | 5.02    | 5.18      | 6.91    | 7.33      | 4.00     | 4.45      | 6.28     | 6.60      | 7.37 | 7.72      |
| CERS INS   | KY Ins. CERS Plan Index     |           | 2,083,323,682.80 | 100.00     | 1.32  | 1.09      | 4.58 | 4.68      | 10.06      | 10.02     | 11.64  | 12.13     | 5.11    | 5.20      | 6.94    | 7.35      | 4.02     | 4.45      | 6.29     | 6.60      | 7.37 | 7.73      |
| CERS-H INS | KY Ins. CERS Haz Plan Index |           | 1,143,501,430.20 | 100.00     | 1.33  | 1.09      | 4.59 | 4.67      | 10.05      | 10.00     | 11.63  | 12.12     | 5.16    | 5.21      | 6.96    | 7.35      | 4.03     | 4.45      | 6.30     | 6.60      | 7.38 | 7.73      |
| SPRS INS   | KY Ins. SPRS Plan Index     |           | 172,720,639.80   | 100.00     | 1.33  | 1.09      | 4.58 | 4.67      | 10.04      | 10.00     | 11.59  | 12.11     | 5.09    | 5.22      | 6.94    | 7.36      | 4.02     | 4.46      | 6.29     | 6.60      | 7.37 | 7.73      |



Note: The above chart displays the average monthly allocation.