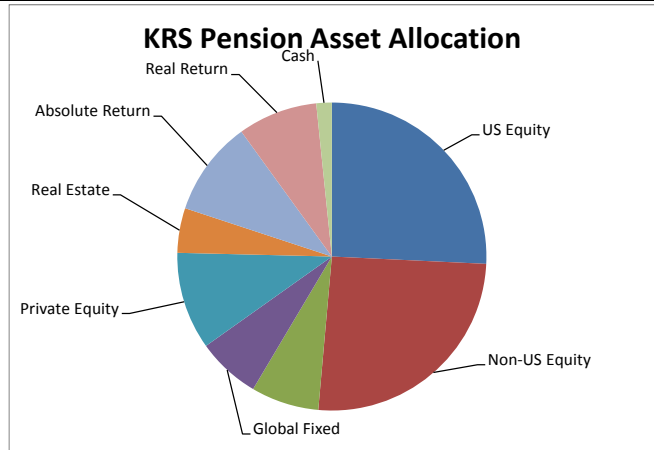


What's going on in the marketplace?

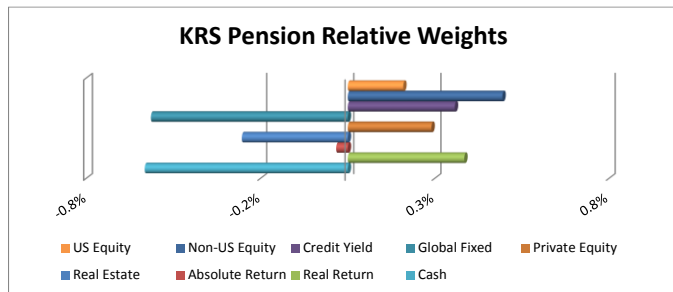
The markets were nervous in October with anticipation of the potential November election outcomes. Domestic equities struggled, with increasing losses moving down the cap spectrum. Small cap equities were down -4.75% per the Russell 2000 Index. Mid cap equities fell -2.68% (S&P Midcap Index) and large caps were down -1.82% (S&P 500 Index). The underperformance of small and mid-caps is evidence of a reversal of the high risk appetite shown by investors in September.

International stocks also struggled in October amongst U.S. uncertainty. Emerging market stocks held up the best, returning 0.25% (MSCI Emerging Market Index). Developed international stocks were much less favorable, returning -2.04% (MSCI EAFE Index). In total, the MSCI ACWI ex USA Index returned -1.43% in October.

Bond markets, which are typically thought to be uncorrelated with equities, followed the same trend as stocks in October. The Barclays U.S. Aggregate Index fell -0.76% for the month. High yield bonds fared better, with the Barclays U.S. Corporate High Yield index returning 0.39% for the month.



| | Oct | 1-Yr | 3-Yr | 5-Yr | 10-Yr |
|------------|-------|------|------|------|-------|
| Total Fund | -1.03 | 4.00 | 4.20 | 6.81 | 4.64 |
| Benchmark | -1.01 | 4.16 | 4.50 | 7.06 | 5.05 |



What added value this month?

PENSION – From a manager selection standpoint the pension portfolio was able to add relative value in all asset classes other than Non U.S. Equity and Absolute Return. The Fixed income portfolio had the greatest contribution from manager selection, outperforming its benchmark by 50 basis points. Within the Fixed Income portfolio, Marathon Asset management was the best performer, returning 3.39% higher than its benchmark. U.S. Equity had the second highest contribution, outperforming by 9 basis points for the month. The Real Estate and Real Return portfolios also added value relative to their respective benchmarks for the month.

From an allocation standpoint the pension portfolio only benefited from an overweight to Real Return due to the strong benchmark performance in this asset class. In total, the pension portfolio returned -1.03% in October, roughly flat with the benchmark return of -1.01%.

INSURANCE –The insurance portfolio roughly followed the same themes as the pension portfolio in October. The Fixed Income portfolio offered the greatest manager contribution to total portfolio return, returning 0.46% versus a benchmark return of -0.14%. Other positive contributors include U.S. Equity and Real Return.

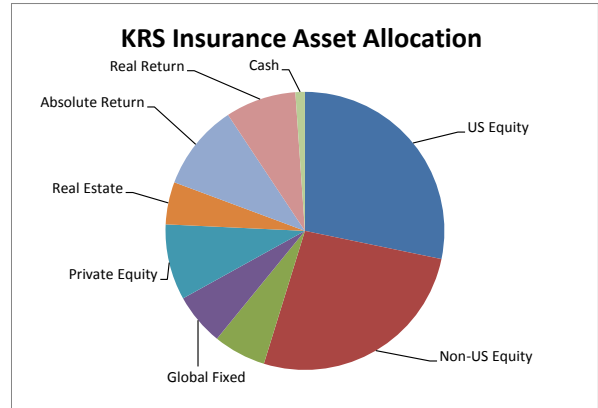
From an allocation standpoint, the insurance portfolio benefited from an overweight to Fixed Income and Real Return due their relatively strong benchmark performance. In total, the Insurance portfolio returned -1.10% in October compared to the benchmark return of -1.05%.

From an allocation standpoint, the insurance portfolio benefited from an overweight to Fixed Income and Real Return due their relatively strong benchmark performance. In total, the Insurance portfolio returned -1.10% in October compared to the benchmark return of -1.05%.

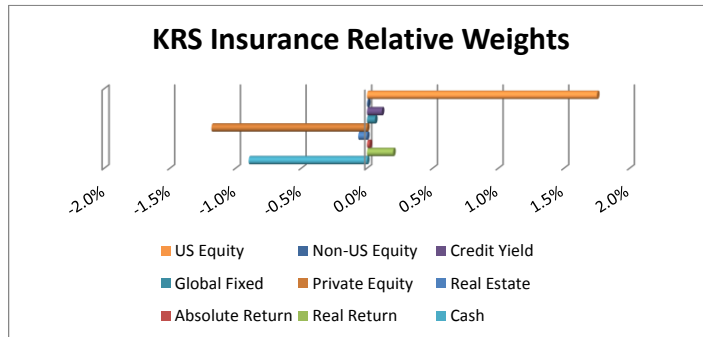
What detracted this month?

PENSION – From a manager selection standpoint, the Non U.S. Equity and Absolute Return portfolios were the only detractors of value. The Non U.S. Equity portfolio underperformed the benchmark by -0.38%. Within the Non U.S. Equity portfolio, Franklin Templeton was the largest detractor, falling short of its benchmark by 320 basis points. The Absolute Return portfolio also underperformed its benchmark by 13 basis points. All other portfolios within the pension fund added value due to manager selection.

From an allocation standpoint, an overweight to the U.S. Equity and Non U.S. Equity portfolios detracted value. This was due to the overall poor performance of the equity markets for October. The Pension portfolio also suffered from an underweight to Fixed Income and Real Estate due to the relatively strong performance of these asset classes.



| | Oct | 1-Yr | 3-Yr | 5-Yr | 10-Yr |
|------------|-------|------|------|------|-------|
| Total Fund | -1.10 | 4.34 | 4.03 | 6.52 | 3.83 |
| Benchmark | -1.05 | 4.34 | 4.69 | 7.15 | 4.38 |



INSURANCE – Like in the pension portfolio, the Non U.S. Equity portfolio struggled to add value, falling short by 32 basis points for the month. Absolute Return was another detractor of value from a manager selection standpoint, underperforming by 14 basis points.

From an allocation standpoint, an overweight to the U.S. Equity portfolio was a detractor of value due to the poor performance of domestic equities. The insurance portfolio also suffered from an underweight to Real Estate due to the relatively strong performance of these this class.

NOTES:

- 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.
- Individual plan allocation and performance (pg.6).
- 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) | 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
100.00% Russell 3000 Index + 4% (Qtr Lag)
01/01/16 to Present
100.00% Russell 3000 Index + 3% (Qtr Lag)

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 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) Pension Benchmark Composite 01/01/14 to 12/31/15
US Equity: Russell 3000 (20.5%)
Non US Equity: MSCI AXCI Ex-US (20.0%)
Emerging Market: MSCI Emerging Markets (2.9%)
Fixed Income: Barclays Universal Index (19.3%)
Real Estate: NCREIF ODCE (4.5%)
Absolute Return: HFRI Diversified FOF (10.0%)
Real Return: Allocation Specific (10.0%)
Private Equity<5Yrs: Actual Performance
Private Equity>5Yrs: Russell 3000 Index+4% (10.0%)
Cash: Cit Grp 3-mos Treasury Bill (2.8%)

Insurance Benchmark Composite 01/01/14 to 12/31/15
US Equity: Russell 3000 (20.0%)
Non US Equity: MSCI AXCI Ex-US (20.0%)
Emerging Market: MSCI Emerging Markets (4.0%)
Fixed Income: Barclays Universal Index (20.0%)
Real Estate: NCREIF ODCE (5.0%)
Absolute Return: HFRI Diversified FOF (10.0%)
Real Return: Allocation Specific (10.0%)
Private Equity<5Yrs: Actual Performance
Private Equity>5Yrs: Russell 3000 Index+4% (10.0%)
Cash: Cit Grp 3-mos Treasury Bill (1.0%)

Pension Benchmark Composite 01/01/16 to Present
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%)

Insurance Benchmark Composite 01/01/16 to Present
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%)

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

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 10/31/16

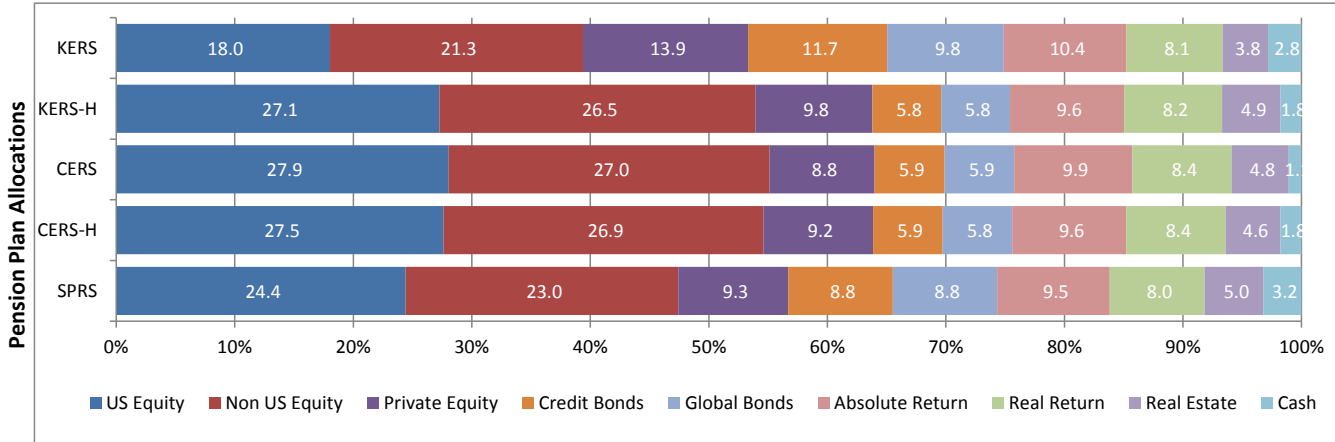
| Structure | Benchmark | Inception | Market Value | % of Total | Month | | QTD | | Fiscal YTD | | 1 Year | | 3 Years | | 5 Years | | 10 Years | | 20 Years | | TTD | |
|---------------------------|---|-----------------|--------------------------|---------------|--------------|--------------|--------------|--------------|-------------|-------------|--------------|-------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|
| | | | | | 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 | 10,928,831,595.20 | 100.00 | -1.03 | -1.01 | -1.03 | -1.01 | 2.94 | 2.92 | 4.00 | 4.16 | 4.20 | 4.50 | 6.81 | 7.06 | 4.64 | 5.05 | 6.83 | 6.99 | 9.03 | 9.16 |
| US PUBLIC | KY Domestic Equity Blend | 4/1/1984 | 2,813,387,372.81 | 25.74 | -2.07 | -2.16 | -2.07 | -2.16 | 2.06 | 2.14 | 4.30 | 4.24 | 7.14 | 8.13 | 12.59 | 13.35 | 6.50 | 6.79 | 8.03 | 8.06 | 11.02 | 11.02 |
| INTERNAL MID CAP GROWTH | Russell Midcap Index | 8/1/2014 | 257,560,963.67 | 2.36 | -2.98 | -2.68 | -2.68 | -2.68 | 1.23 | 1.36 | 6.10 | 6.26 | | | | | | | | | 5.88 | 6.06 |
| KRS INTERNAL EQUITY | S&P 500 - Total Return Index | 7/1/2016 | 326,606,509.07 | 2.99 | -1.95 | -1.82 | -1.95 | -1.82 | 0.51 | 1.96 | | | | | | | | | | | 0.51 | 1.96 |
| NTGI STRUCTURED | Russell 2000 Index | 10/1/1999 | 214,826,971.79 | 1.97 | -3.93 | -4.75 | -3.93 | -4.75 | 3.02 | 3.86 | 4.58 | 4.11 | 5.15 | 4.12 | 12.73 | 11.51 | 7.23 | | 5.96 | | 9.45 | 7.60 |
| RIVER ROAD - DAV | Russell 3000 Value Index | 7/1/2011 | 113,931,440.48 | 1.04 | -2.11 | -1.68 | -2.11 | -1.68 | 1.33 | 2.13 | 8.61 | 6.55 | 6.52 | 7.33 | 11.91 | 13.17 | | | | | 10.54 | 10.80 |
| RIVER ROAD - FAV | Russell 3000 Value Index | 7/1/2016 | 74,535,956.47 | 0.68 | -0.10 | -1.68 | -0.10 | -1.68 | 8.43 | 2.13 | | | | | | | | | | | 8.43 | 2.13 |
| S&P 500 INDEX | KY Ret. S&P Blend | 7/1/2001 | 1,479,335,709.53 | 13.54 | -1.77 | -1.82 | -1.77 | -1.82 | 1.99 | 1.96 | 4.37 | 4.51 | 8.76 | 8.84 | 13.47 | 13.57 | 6.97 | | 6.97 | | 6.20 | 6.17 |
| SYSTEMATIC | Russell Midcap Value Index | 7/1/2012 | 230,561,372.28 | 2.11 | -1.92 | -2.42 | -1.92 | -2.42 | 3.82 | 1.92 | 3.62 | 7.84 | 3.51 | 7.97 | | | | | | | 10.86 | 14.22 |
| TRANSITION ACCOUNT | | | 15,603.15 | 0.00 | | | | | | | | | | | | | | | | | | |
| WESTFIELD CAPITAL | Russell 3000 Growth Index | 7/1/2011 | 115,763,831.97 | 1.06 | -2.93 | -2.64 | -2.93 | -2.64 | 3.43 | 2.15 | -2.83 | 2.08 | 5.33 | 8.90 | 12.15 | 13.47 | | | | | 9.90 | 11.69 |
| Fee Accrual | | | 151,014.40 | | | | | | | | | | | | | | | | | | | |
| EQUITY NON US | KY Ret.Int'l Eq. Blended Index | 7/1/2000 | 2,800,774,015.44 | 25.63 | -1.98 | -1.60 | -1.98 | -1.60 | 4.91 | 5.43 | 0.99 | 0.77 | -0.69 | -1.03 | 4.38 | 4.12 | 1.80 | 1.67 | | | 2.10 | 2.56 |
| AMERICAN CENTURY | KY MSCI ACWI ex-US Index | 7/1/2014 | 344,207,138.00 | 3.15 | -2.35 | -1.43 | -2.35 | -1.43 | 5.02 | 5.47 | -1.75 | 0.72 | | | | | | | | | -3.50 | -4.18 |
| BLACKROCK ACWI EX | MSCI All Country World Ex United States Net Index | 7/1/2009 | 1,150,382,302.48 | 10.53 | -1.44 | -1.44 | -1.44 | -1.44 | 5.41 | 5.37 | 0.52 | 0.22 | -1.24 | -1.49 | 3.86 | 3.64 | | | | | 6.05 | 5.85 |
| BOSTON CO NON-US VALUE | KY MSCI Blended Index | 5/1/2005 | 1,535,316.46 | 0.01 | 2.82 | -1.43 | 2.82 | -1.43 | 3.10 | 5.47 | 1.96 | 0.72 | -2.03 | -1.04 | 3.32 | 4.22 | 0.65 | 1.21 | | | 3.25 | 4.01 |
| FRANKLIN TEMPLETON | KY MSCI ACWI ex-US Index | 7/1/2014 | 231,439,819.51 | 2.12 | -4.63 | -1.43 | -4.63 | -1.43 | 2.66 | 5.47 | 0.04 | 0.72 | | | | | | | | | -2.42 | -4.18 |
| LAZARD ASSET MANAGEMENT | KY MSCI ACWI ex-US Index | 7/1/2014 | 478,864,390.21 | 4.38 | -2.73 | -1.43 | -2.73 | -1.43 | 1.78 | 5.47 | -1.48 | 0.72 | | | | | | | | | -2.58 | -4.18 |
| LSV ASSET MANAGEMENT | KY MSCI ACWI ex-US Index | 7/1/2014 | 421,568,404.05 | 3.86 | -0.58 | -1.43 | -0.58 | -1.43 | 8.41 | 5.47 | -1.53 | 0.72 | | | | | | | | | -4.19 | -4.18 |
| NON-US TRANSITION ACCOUNT | | | 2,150,272.27 | 0.02 | | | | | | | | | | | | | | | | | | |
| NTGI INTL SM CAP | MSCI AC World ex USA Small Cap Net Index | 12/1/2008 | 167,723,023.62 | 1.53 | -2.62 | -2.63 | -2.62 | -2.63 | 5.09 | 5.07 | 4.31 | 4.22 | 1.80 | 1.57 | 6.57 | 6.28 | | | | | 12.53 | 12.97 |
| PYRAMIS NON-US GROWTH | KY MSCI Blended Index | 8/1/2001 | 2,903,348.84 | 0.03 | | | | | | | | | | | | | | | | | | |
| PUBLIC EQUITY | Global Equity Blended Index | 4/1/1984 | 5,614,161,388.25 | 51.37 | -2.03 | -1.88 | -2.03 | -1.88 | 3.46 | 3.76 | 2.46 | 2.22 | 2.78 | 2.75 | 8.01 | 7.93 | 3.93 | 3.72 | 6.88 | 6.65 | 10.29 | 10.13 |
| FIXED INCOME | KY Ret.Fixed Blended Index | 4/1/1984 | 1,500,915,168.71 | 13.73 | 0.36 | -0.14 | 0.36 | -0.14 | 2.86 | 3.10 | 7.17 | 9.76 | 4.50 | 5.22 | 4.68 | 4.27 | 5.35 | 5.38 | 5.91 | 5.92 | 7.74 | 7.56 |
| CERBERUS | S&P LSTA Leveraged Loan Index | 9/1/2014 | 92,027,777.33 | 0.84 | 0.41 | 0.83 | 0.41 | 0.83 | 1.96 | 3.93 | 8.45 | 6.53 | | | | | | | | | 7.90 | 3.03 |
| COLUMBIA | Barclays U.S. Corporate High Yield | 11/1/2011 | 253,765,802.32 | 2.32 | -0.17 | 0.39 | -0.17 | 0.39 | 4.51 | 5.96 | 6.97 | 10.14 | 4.98 | 4.55 | 7.48 | 7.17 | | | | | 7.48 | 7.17 |
| MANULIFE ASSET MGMT | Barclays U.S. Universal Index | 12/1/2011 | 422,594,864.38 | 3.87 | -0.34 | -0.66 | -0.34 | -0.66 | 0.68 | 0.29 | 4.81 | 4.64 | 3.26 | 0.55 | | | | | | | 4.73 | 1.26 |
| MARATHON | Barclays U.S. Corporate High Yield | 1/1/2016 | 207,960,028.47 | 1.90 | 3.78 | 0.39 | 3.78 | 0.39 | 9.10 | | | | | | | | | | | | 13.60 | |
| NISA | Barclays U.S. Aggregate Bond Index | 2/1/2009 | 301,770,202.75 | 2.76 | -0.79 | -0.76 | -0.79 | -0.76 | -0.30 | -0.31 | 4.91 | 4.37 | 3.79 | 3.48 | 3.11 | 2.90 | | | | | 4.67 | 4.46 |
| PIMCO | PIMCO Blended Index | 12/1/2009 | 318,694.32 | 0.00 | | | | | | | | | | | | | | | | | | |
| SHENKMAN CAP | Shenkman Blended Index | 10/1/2010 | 86,578,313.72 | 0.79 | 0.60 | 0.83 | 0.60 | 0.83 | 3.76 | 3.93 | 4.95 | 6.53 | 3.24 | 3.90 | 4.79 | 6.00 | | | | | 4.92 | 5.95 |
| WATERFALL | Opportunistic FI Blended Index | 2/1/2010 | 135,727,279.20 | 1.24 | 0.87 | 0.67 | 0.87 | 0.67 | 4.97 | 4.35 | 6.02 | 6.88 | 7.89 | 3.26 | 9.09 | 4.84 | | | | | 11.69 | 5.33 |
| REAL RETURN | PENSION REAL RETURN CUSTOM BM | 7/1/2011 | 910,261,286.13 | 8.33 | -0.59 | -0.79 | -0.59 | -0.79 | 2.58 | 1.15 | 8.03 | 6.05 | 1.88 | 1.30 | 2.57 | 2.60 | | | | | 3.59 | 2.71 |
| AMERRA AGRI FUND II | | 12/1/2012 | 32,687,600.37 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 1.71 | | 5.94 | | 9.35 | | | | | | | | 6.72 | |
| AMERRA-AGRI HOLDING | | 8/1/2015 | 35,785,562.01 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.83 | | | | | | | | | | 0.66 | |
| BTG PACTUAL | | 12/1/2014 | 6,239,030.10 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 9.20 | | -16.66 | | | | | | | | | | -17.70 | |
| INTERNAL TIPS | Barclays U.S. Treasury: US TIPS Index | 5/1/2002 | 116,795,951.87 | 1.07 | -0.09 | -0.13 | -0.09 | -0.13 | 0.85 | 0.45 | 5.26 | 4.67 | 2.19 | 1.60 | 1.57 | 1.19 | 4.50 | 4.31 | | | 5.38 | 5.23 |
| MAGNETAR MTP | | 7/1/2013 | 75,687,135.13 | 0.69 | 1.23 | 1.23 | 1.23 | 1.23 | 6.23 | | 8.83 | | -1.17 | | | | | | | | -0.11 | |
| MAGNETAR MTP EOF II | | 8/1/2015 | 15,154,339.33 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 13.32 | | -5.31 | | | | | | | | | | -4.27 | |
| NUVEEN | Nuveen Real Asset Custom Index | 2/1/2015 | 214,106,932.57 | 1.96 | -1.81 | -1.94 | -1.81 | -1.94 | 1.56 | | 9.67 | | | | | | | | | | 3.85 | 3.49 |
| OBERLANDO CAPITAL | | 10/1/2014 | 1,372,390.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 1.94 | | 78.65 | | | | | | | | | | 9.58 | |
| PIMCO ALL ASSET | Barclays U.S. Treasury Inflation Notes: 1-10 Year | 12/1/2011 | 329,357,926.50 | 3.01 | 0.26 | -0.12 | 0.26 | -0.12 | 4.12 | 0.46 | 10.27 | 4.67 | 1.37 | 1.31 | | | | | | | 4.26 | 0.96 |
| TAURUS MINE FINANCE | | 4/1/2015 | 9,059,528.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 2.86 | | 22.09 | | | | | | | | | | 12.07 | |
| TORTOISE CAPITAL | Alerian MLP Index | 8/1/2009 | 72,837,941.25 | 0.67 | -4.15 | -4.45 | -4.15 | -4.45 | -1.82 | -3.42 | 0.34 | -1.80 | -1.23 | -7.07 | 7.54 | 2.00 | | | | | 13.64 | 9.37 |
| TPF II | | 10/1/2008 | 1,176,947.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 10.94 | | -21.85 | | -7.27 | | -5.29 | | | | | | -4.88 | |
| ABSOLUTE RETURN | HFRI Fund of Funds Diversified Index - 1 Month Arrears | 4/1/2010 | 1,088,563,713.45 | 9.96 | 0.21 | 0.34 | 0.21 | 0.34 | 2.59 | 1.61 | -0.26 | 0.00 | 2.76 | 2.24 | 5.01 | 3.16 | | | | | 3.94 | 2.51 |
| ANCHORAGE CAPITAL | | 8/1/2016 | 25,400,597.34 | 0.23 | 0.63 | 0.63 | 0.63 | 0.63 | | | | | | | | | | | | | 1.08 | |
| BAAM | | 9/1/2011 | 161,670,446.36 | 1.48 | 0.32 | 0.32 | 0.32 | 0.32 | 3.38 | | 2.31 | | 5.57 | | 6.75 | | | | | | 6.53 | |
| BLACKROCK GAO FUND | | 8/1/2016 | 28,481,340.57 | 0.26 | -1.83 | -1.83 | -1.83 | -1.83 | | | | | | | | | | | | | -1.98 | |
| COATUE QUAL PTRNS | | 7/1/2015 | 17,112,522.82 | 0.16 | 2.56 | 2.56 | 2.56 | 2.56 | 7.52 | | 14.08 | | | | | | | | | | 10.39 | |
| DAVIDSON-KEMPNER LP | | 2/1/2016 | 45,117,165.46 | 0.41 | 0.79 | 0.79 | 0.79 | 0.79 | 3.47 | | | | | | | | | | | | 6.31 | |
| DSAM FUND LP | | 5/1/2016 | 14,453,785.11 | 0.13 | -3.80 | -3.80 | -3.80 | -3.80 | -3.54 | | | | | | | | | | | | -3.64 | |
| FINISTERRE GLOBAL OP | | 8/1/2016 | 19,103,376.24 | 0.17 | 0.80 | 0.80 | 0.80 | 0.80 | | | | | | | | | | | | | 1.92 | |
| GLENVIEW INSTITUTION | | 11/1/2015 | 16,267,295.00 | 0.15 | -2.38 | -2.38 | | | | | | | | | | | | | | | | |

KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS -10/31/16

| 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 | Benchmark |
| TOTAL FUND | KY Ins. Blended Index | 4/1/1987 | 4,312,788,974.47 | 100.00 | -1.10 | -1.05 | -1.10 | -1.05 | 2.84 | 2.88 | 4.34 | 4.34 | 4.03 | 4.69 | 6.52 | 7.15 | 3.83 | 4.38 | 6.08 | 6.51 | 7.22 | 7.63 | | |
| US PUBLIC | KY Domestic Equity Blend | 7/1/1992 | 1,218,453,958.81 | 28.25 | -2.13 | -2.16 | -2.13 | -2.16 | 1.96 | 2.14 | 4.89 | 4.24 | 7.39 | 8.13 | 12.71 | 13.35 | 6.44 | 6.75 | 7.71 | 7.47 | 9.17 | 9.01 | | |
| INTERNAL MID CAP GROWTH | Russell Midcap Index | 8/1/2014 | 147,495,723.14 | 3.42 | -2.68 | -2.68 | -2.68 | -2.68 | 1.25 | 1.36 | 6.69 | 6.26 | | | | | | | | | 6.14 | 6.06 | | |
| KRS INTERNAL EQUITY | S&P 500 - Total Return Index | 7/1/2016 | 124,905,719.99 | 2.90 | -1.95 | -1.82 | -1.95 | -1.82 | 1.96 | | | | | | | | | | | | | | | |
| NTGI STRUCTURED | Russell 2000 Index | 7/1/2011 | 88,589,855.02 | 2.05 | -3.90 | -4.75 | -3.90 | -4.75 | 2.92 | 3.86 | 4.23 | 4.11 | 4.87 | 4.12 | 12.42 | 11.51 | | | | | | 9.79 | 8.58 | |
| RIVER ROAD - DAV | Russell 3000 Value Index | 7/1/2011 | 32,194,093.39 | 0.75 | -0.10 | -1.68 | -0.10 | -1.68 | 8.42 | 2.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | 8.42 | 2.13 | |
| RIVER ROAD - FAV | Russell 3000 Value Index | 7/1/2016 | 52,882,515.00 | 1.23 | -2.12 | -1.68 | -2.12 | -1.68 | 1.31 | 2.13 | 8.46 | 6.55 | | | | | | | | | | 10.52 | 10.80 | |
| S&P 500 INDEX | KY Ins. S&P Blend | 7/1/2001 | 624,923,053.20 | 14.49 | -1.84 | -1.82 | -1.84 | -1.82 | 1.90 | 1.96 | 4.35 | 4.51 | 8.77 | 8.84 | 13.49 | 13.57 | 6.98 | 6.97 | | | | 6.25 | 6.17 | |
| SYSTEMATIC | Russell Midcap Value Index | 7/1/2012 | 97,294,177.41 | 2.26 | -1.93 | -2.42 | -1.93 | -2.42 | 3.80 | 1.92 | 3.59 | 7.84 | 3.47 | | | | | | | | | 10.81 | 14.22 | |
| TRANSITION ACCOUNT | | 9/1/2004 | 6,599.85 | 0.00 | | | | | | | | | | | | | | | | | | | | |
| WESTFIELD CAPITAL | Russell 3000 Growth Index | 7/1/2011 | 50,132,031.41 | 1.16 | -2.94 | -2.64 | -2.94 | -2.64 | 3.46 | 2.15 | -2.83 | 2.08 | 5.53 | 8.90 | 12.28 | 13.47 | | | | | | 10.02 | 11.69 | |
| Fee Accrual | | | 30,221.00 | | | | | | | | | | | | | | | | | | | | | |
| EQUITY NON US | KRS Ins.Int'l Eq Blend | 4/1/2000 | 1,143,289,387.97 | 26.51 | -1.92 | -1.60 | -1.92 | -1.60 | 5.02 | 5.43 | 0.94 | 0.77 | -0.77 | -1.03 | 4.16 | 4.12 | 1.84 | 1.32 | | | | 2.11 | 1.65 | |
| AMERICAN CENTURY | KY MSCI Blended Index | 7/1/2014 | 137,860,123.66 | 3.20 | -2.40 | -1.43 | -2.40 | -1.43 | 4.98 | 5.47 | -1.76 | 0.72 | | | | | | | | | | -3.60 | -4.18 | |
| BLACKROCK ACWI EX-US | MSCI All Country World Ex United States Net Index | 6/1/2012 | 498,031,791.38 | 11.55 | -1.46 | -1.44 | -1.46 | -1.44 | 5.33 | 5.37 | 1.12 | 0.22 | 1.12 | 0.22 | | | | | | | | 6.45 | 6.36 | |
| BLACKROCK ACWI EX-US SM CA | MSCI AC World ex USA Small Cap Net Index | 7/1/2013 | 60,718,562.46 | 1.41 | -2.70 | -2.63 | -2.70 | -2.63 | 5.14 | 5.07 | 3.40 | 4.22 | 1.66 | 1.57 | | | | | | | | 6.76 | 5.99 | |
| BOSTON CO NON-US VALUE | KY MSCI ACWI EX USA GD | 6/1/2008 | 221,690.13 | 0.01 | 10.97 | -1.43 | 10.97 | -1.43 | 10.83 | 5.47 | 2.67 | 0.72 | -1.84 | -1.04 | 3.36 | 4.22 | | | | | | 0.05 | -0.29 | |
| FRANKLIN TEMPLETON | KY MSCI Blended Index | 7/1/2014 | 85,763,665.87 | 1.99 | -4.79 | -1.43 | -4.79 | -1.43 | 2.69 | 5.47 | -0.25 | 0.72 | | | | | | | | | | -2.61 | -4.18 | |
| LAZARD ASSET MANAGEMENT | KY MSCI Blended Index | 7/1/2014 | 171,186,100.10 | 3.97 | -2.76 | -1.43 | -2.76 | -1.43 | 1.75 | 5.47 | -1.64 | 0.72 | | | | | | | | | | -2.68 | -4.18 | |
| LSV ASSET MANAGEMENT | KY MSCI Blended Index | 7/1/2014 | 187,927,559.54 | 4.36 | -0.44 | -1.43 | -0.44 | -1.43 | 8.45 | 5.47 | -2.08 | 0.72 | | | | | | | | | | -4.57 | -4.18 | |
| NON-US TRANSITION ACCOUNT | | | 709,828.17 | 0.02 | | | | | | | | | | | | | | | | | | | | |
| PYRAMIS NON-US GROWTH | KY MSCI ACWI EX USA GD | 8/1/2001 | 870,066.66 | 0.02 | | | | | | | | | | | | | | | | | | | | |
| PUBLIC EQUITY | Global Equity Blended Index | 7/1/1992 | 2,861,743,346.78 | 54.76 | -2.03 | -1.88 | -2.03 | -1.88 | 3.49 | 3.78 | 2.82 | 2.26 | 3.03 | 2.83 | 8.09 | 7.89 | 3.82 | 3.57 | 6.59 | 6.29 | 8.24 | 8.03 | | |
| FIXED INCOME | KRS Ins. Fixed Blended Index | 7/1/1992 | 525,039,700.64 | 12.17 | 0.46 | -0.14 | 0.46 | -0.14 | 2.49 | 3.10 | 7.02 | 9.76 | 3.87 | 5.22 | 4.31 | 4.27 | 5.51 | 5.55 | 6.33 | 6.33 | 6.57 | 6.54 | | |
| CERBERUS | S&P LSTA Leveraged Loan Index | 10/1/2014 | 39,440,475.94 | 0.91 | 0.41 | 0.83 | 0.41 | 0.83 | 1.96 | 3.93 | 8.45 | 6.53 | | | | | | | | | | 7.90 | 3.03 | |
| COLUMBIA | Barclays U.S. Corporate High Yield | 11/1/2011 | 51,096,277.26 | 1.18 | -0.19 | 0.39 | -0.19 | 0.39 | 4.42 | 5.96 | 7.50 | 10.14 | 5.19 | 4.55 | 7.53 | 7.17 | | | | | | 7.53 | 7.17 | |
| MANULIFE ASSET MGMT | Barclays U.S. Universal Index | 12/1/2011 | 159,441,118.69 | 3.70 | -0.35 | -0.66 | -0.35 | -0.66 | 0.64 | 0.29 | 4.65 | 4.64 | 2.92 | 0.55 | | | | | | | | 4.70 | 1.26 | |
| MARATHON | Barclays U.S. Corporate High Yield | 1/1/2016 | 85,147,768.77 | 1.97 | 3.76 | | 3.76 | | | | | | | | | | | | | | | 13.98 | 15.56 | |
| NISA | Barclays U.S. Aggregate Bond Index | 7/1/2011 | 101,899,099.04 | 2.36 | -0.78 | -0.76 | -0.78 | -0.76 | -0.29 | -0.31 | 4.84 | 4.37 | 3.73 | 3.48 | 3.07 | | | | | | | 3.64 | 3.46 | |
| PIMCO | PIMCO Blended Index | 4/1/2011 | 69,685.31 | 0.00 | | | | | 3.76 | | | | | | | | | | | | | | | |
| SHENKMAN CAP | Shenkman Blended Index | 7/1/2011 | 40,335,579.42 | 0.94 | 0.56 | 0.83 | 0.56 | 0.83 | 3.57 | 3.93 | 4.85 | 6.53 | 2.17 | 3.90 | 4.22 | | | | | | | 4.01 | 5.44 | |
| WATERFALL | Opportunistic FI Blended Index | 7/1/2011 | 47,543,372.75 | 1.10 | 0.88 | 0.67 | 0.88 | 0.67 | 1.55 | 4.35 | 5.02 | 6.88 | 6.64 | 3.26 | 9.61 | | | | | | | 9.06 | 4.44 | |
| REAL RETURN | INSURANCE REAL RET CUSTOM BM | 7/1/2011 | 353,624,371.90 | 8.20 | -0.57 | -0.78 | -0.57 | -0.78 | 2.31 | 1.11 | 7.68 | 6.14 | 1.84 | 1.49 | 2.33 | 2.72 | | | | | | 3.35 | 2.81 | |
| AMERRA AGRI FUND II | | 12/1/2012 | 13,182,951.86 | 0.31 | 0.00 | 0.00 | 0.00 | 0.00 | 1.71 | | | | | | | | | | | | | 6.72 | 6.72 | |
| AMERRA-AGRI HOLDING | | 8/1/2015 | 19,269,149.33 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | | | | | | | | | | | | | 0.66 | 0.66 | |
| BTG PACTUAL | | 12/1/2014 | 2,803,042.50 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 9.20 | | | | | | | | | | | | | -17.70 | 0.00 | |
| INTERNAL TIPS | Barclays U.S. Treasury: US TIPS Index | 10/1/2003 | 67,866,733.22 | 1.57 | -0.03 | -0.13 | -0.03 | -0.13 | 0.65 | 0.45 | 4.92 | 4.67 | 2.10 | 1.60 | 1.67 | 1.19 | 4.56 | 4.31 | | | | 4.75 | 4.40 | |
| MAGNETAR MTP | | 7/1/2013 | 23,373,974.64 | 0.54 | 1.23 | 1.23 | 1.23 | 1.23 | 6.23 | | | | | | | | | | | | | | 8.83 | 0.11 |
| MAGNETAR MTP EOF II | | 8/1/2015 | 5,051,446.48 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 13.32 | | | | | | | | | | | | | | -4.27 | |
| NUVEEN | Nuveen Real Asset Custom Index | 2/1/2015 | 87,525,615.61 | 2.03 | -1.82 | -1.94 | -1.82 | -1.94 | 1.47 | | | | | | | | | | | | | | 9.69 | 3.49 |
| OVERLAND CAPITAL | | 10/1/2014 | 545,583.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 1.94 | | | | | | | | | | | | | | 78.65 | 9.58 |
| PIMCO ALL-ASSET | Barclays U.S. Treasury Inflation Notes: 1-10 Year | 12/1/2011 | 107,825,993.37 | 2.50 | 0.26 | -0.12 | 0.26 | -0.12 | 4.12 | 0.46 | 10.27 | 4.67 | 1.35 | 1.31 | | | | | | | | | 4.25 | 0.96 |
| TAURUS MINE FINANCE | | 4/1/2015 | 3,997,443.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 2.86 | | | | | | | | | | | | | | 22.09 | 12.07 |
| TORTOISE CAP | Alerian MLP Index | 8/1/2009 | 21,980,663.89 | 0.51 | -4.15 | -4.45 | -4.15 | -4.45 | -1.83 | -3.42 | 0.21 | -1.80 | -1.42 | -7.07 | 7.81 | 2.00 | | | | | | | 13.84 | 9.37 |
| TPF II | | 10/1/2008 | 130,775.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.94 | | | | | | | | | | | | | | -4.88 | |
| REAL ESTATE | NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^ | 5/1/2009 | 212,773,083.86 | 4.93 | -0.02 | 0.00 | -0.02 | 0.00 | 2.30 | 1.91 | 8.68 | 10.80 | 9.60 | 11.97 | 8.87 | 11.66 | | | | | | 8.71 | 5.64 | |
| DIVCOWEST IV | | 3/1/2014 | 9,002,536.20 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 11.33 | | | | | | | | | | | | | | 41.13 | 22.51 |
| GREENFIELD ACQ VI | | 12/1/2012 | 8,316,416.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | -4.19 | | | | 2.54 | | 11.81 | | | | | | | | 11.73 | 11.73 |
| GREENFIELD ACQ VII | | 7/1/2014 | 9,944,196.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 3.91 | | | | | | | | | | | | | | 13.48 | 10.61 |
| H/2 CORE RE DEBT FD | | 10/1/2013 | 6,801,373.91 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 2.37 | | | | | | | | | | | | | | 6.12 | 4.07 |
| H/2 CREDIT PARTNER | | 7/1/2011 | 28,993,933.62 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 2.13 | | | | | | | | | | | | | | 0.45 | 5.39 |
| HARRISON STREET | | 5/1/2012 | 29,562,007.00 | 0.69 | 0.00 | 0.00 | 0.00 | 0.00 | 2.65 | | | | | | | | | | | | | | 11.06 | 15.28 |
| LUBERT-ADLER VII | | 7/1/2014 | | | | | | | | | | | | | | | | | | | | | | |

KRS - PENSION

| | Market Value | Month | FYTD | 1 YR | 3 YR | 5 YR | 10 YR | ITD |
|-----------------------------|----------------------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| KERS | \$ 1,921,190,089.69 | -0.73 | 2.94 | 3.26 | 4.40 | 6.84 | 4.66 | 9.03 |
| KY Ret. KERS Plan Index | | -0.77 | 2.85 | 4.50 | 4.60 | 7.13 | 5.08 | 9.17 |
| KERS- H | \$ 542,577,327.38 | -1.08 | 2.72 | 4.14 | 4.19 | 6.81 | 4.64 | 9.03 |
| KY Ret. KERS Haz Plan Index | | -1.05 | 2.94 | 3.84 | 4.14 | 6.90 | 4.97 | 9.14 |
| CERS | \$ 6,204,071,833.75 | -1.10 | 2.96 | 4.17 | 4.13 | 6.79 | 4.63 | 9.02 |
| KY Ret. CERS Plan Index | | -1.07 | 2.95 | 3.85 | 4.12 | 6.89 | 4.96 | 9.14 |
| CERS- H | \$ 2,039,275,765.39 | -1.10 | 2.94 | 4.24 | 4.19 | 6.82 | 4.65 | 9.03 |
| KY Ret. CERS Haz Plan Index | | -1.06 | 2.94 | 3.84 | 4.12 | 6.89 | 4.97 | 9.14 |
| SPRS | \$ 221,716,586.34 | -0.90 | 2.63 | 3.00 | 3.68 | 6.52 | 4.50 | 8.98 |
| KY Ret. SPRS Plan Index | | -0.94 | 2.85 | 4.09 | 4.20 | 6.93 | 4.99 | 9.14 |



KRS - INSURANCE

| | Market Value | Month | FYTD | 1 YR | 3 YR | 5 YR | 10 YR | ITD |
|-----------------------------|----------------------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| KERS INS | \$ 677,005,839.56 | -1.17 | 2.88 | 4.13 | 3.70 | 6.25 | 3.70 | 7.18 |
| KY Ins. KERS Plan Index | | -1.18 | 2.92 | 4.01 | 4.16 | 6.87 | 4.24 | 7.58 |
| KERS - H INS | \$ 444,986,033.46 | -1.11 | 2.81 | 4.21 | 3.99 | 6.52 | 3.83 | 7.22 |
| KY Ins. KERS Haz Plan Index | | -1.11 | 2.91 | 4.08 | 4.26 | 6.93 | 4.27 | 7.59 |
| CERS INS | \$ 1,950,793,872.77 | -1.09 | 2.83 | 4.36 | 4.09 | 6.57 | 3.86 | 7.23 |
| KY Ins. CERS Plan Index | | -1.07 | 2.90 | 4.12 | 4.33 | 6.97 | 4.29 | 7.60 |
| CERS - H INS | \$ 1,076,758,123.04 | -1.08 | 2.83 | 4.47 | 4.14 | 6.59 | 3.87 | 7.24 |
| KY Ins. CERS Haz Plan Index | | -1.06 | 2.90 | 4.13 | 4.33 | 6.98 | 4.29 | 7.60 |
| SPRS INS | \$ 163,245,105.13 | -1.07 | 2.85 | 4.42 | 4.11 | 6.57 | 3.86 | 7.23 |
| KY Ins. SPRS Plan Index | | -1.06 | 2.89 | 4.13 | 4.35 | 6.99 | 4.30 | 7.60 |

