

Teachers' Retirement System

of the State of Kentucky



Gary L. Harbin, CPA
Executive Secretary

Budget Review Subcommittee

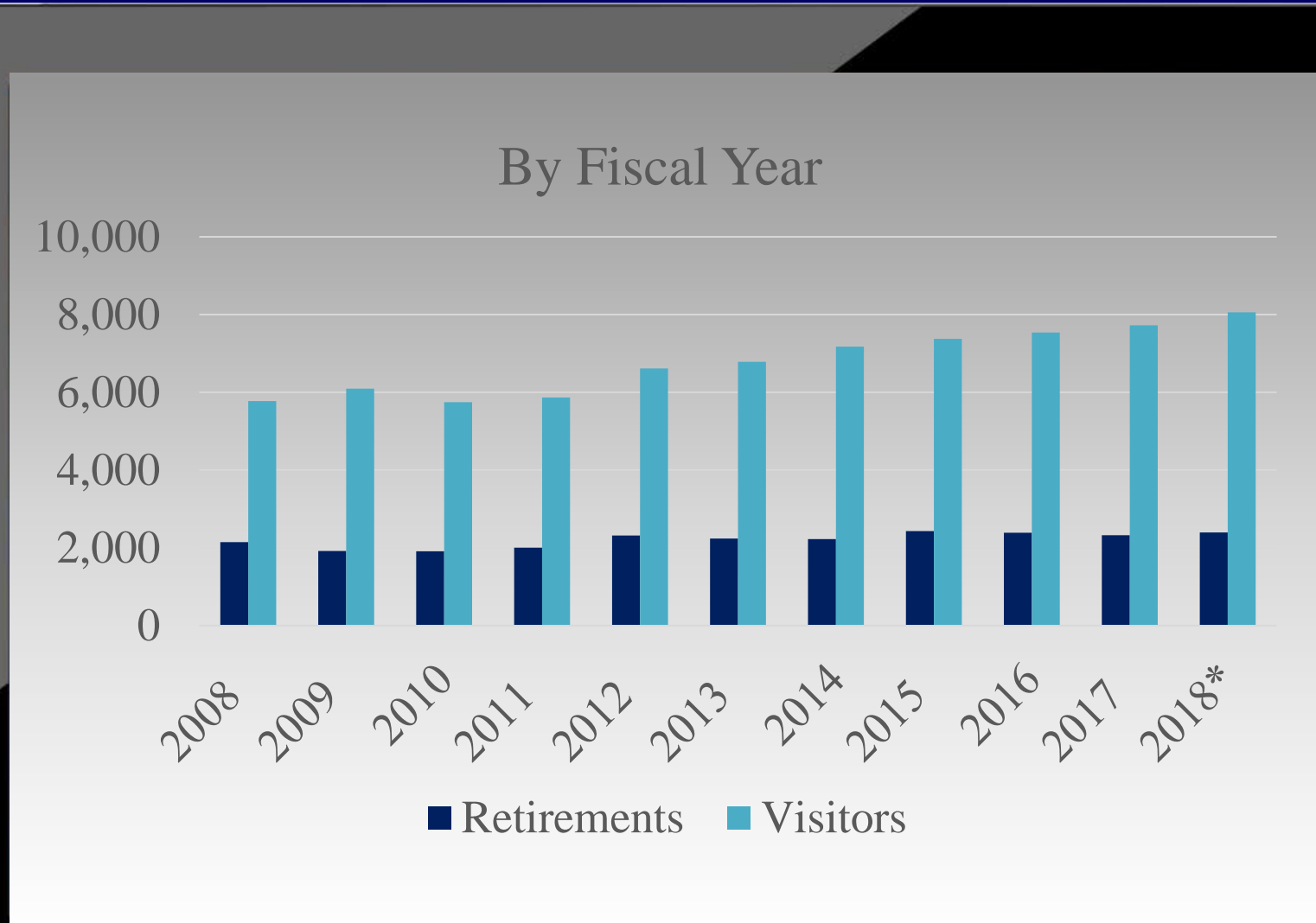
on General Government, Finance,
Personnel and Public Retirement

Aug. 30, 2018

**Presented by Beau Barnes,
Deputy Executive Secretary
& General Counsel**



Retirements and Visitors

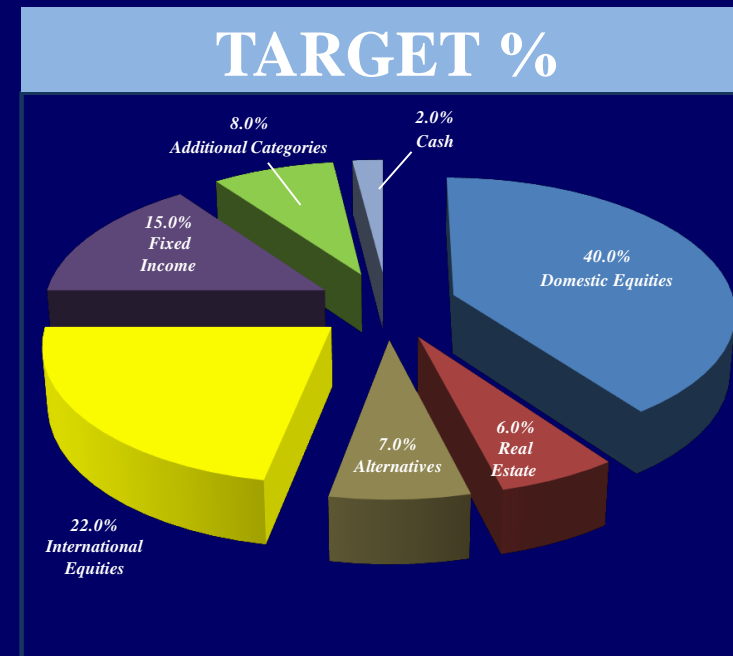
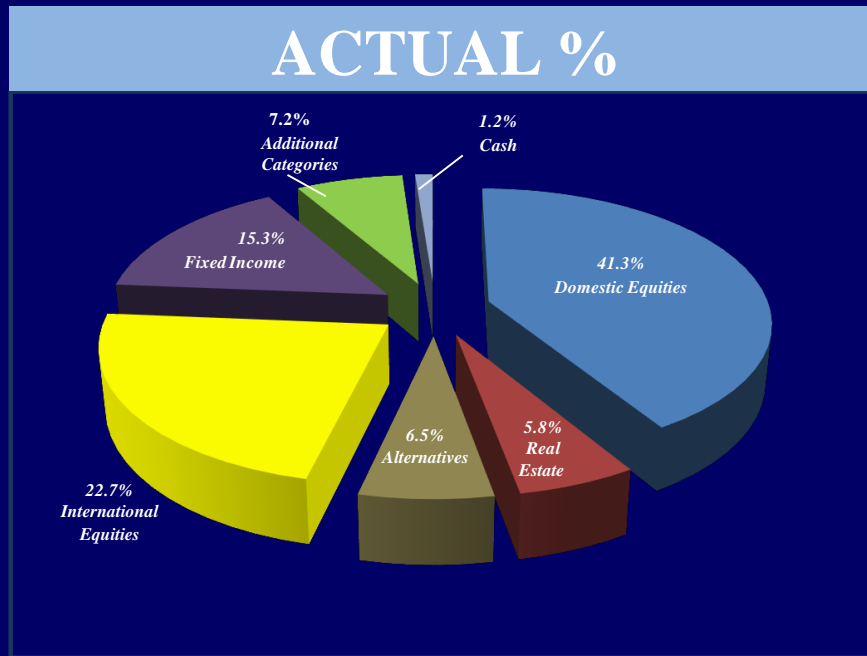


Teachers' Retirement System of the State of Kentucky

Pension Fund Investment Update

For the period ended June 30, 2018

| <i>(\$ in millions)</i> | \$'s | Actual % | Target % | Strategic Ranges |
|-------------------------|-------------------|---------------|---------------|------------------|
| Domestic Equities | \$8,164.9 | 41.3% | 40.0% | 34.0 - 48.0% |
| Real Estate | 1,150.7 | 5.8% | 6.0% | 4.0 - 8.0% |
| Alternatives | 1,282.8 | 6.5% | 7.0% | 4.0 - 10.0% |
| International Equities | 4,502.8 | 22.7% | 22.0% | 18.0 - 25.0% |
| Fixed Income | 3,036.0 | 15.3% | 15.0% | 12.0 - 19.0% |
| Additional Categories | 1,428.8 | 7.2% | 8.0% | 5.0 - 11.0% |
| Cash | \$236.7 | 1.2% | 2.0% | 1.0 - 3.0% |
| Total | \$19,802.7 | 100.0% | 100.0% | |

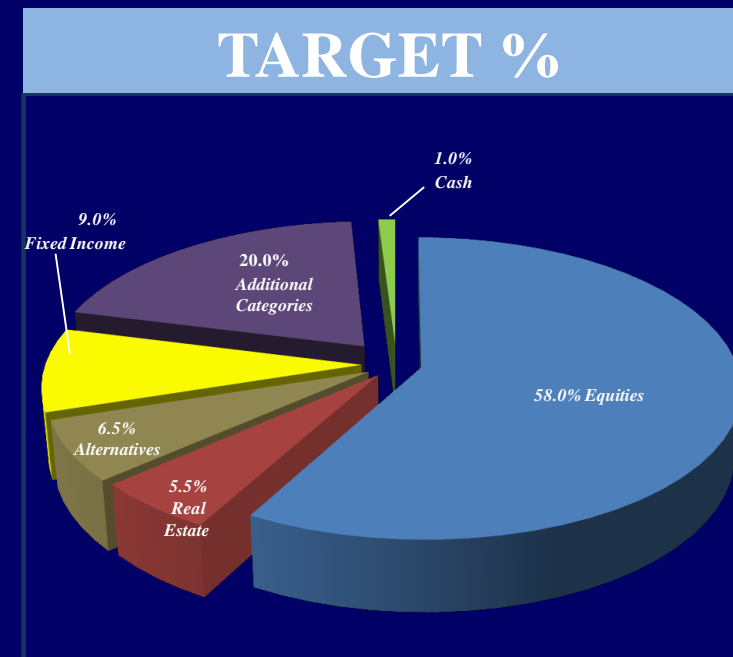
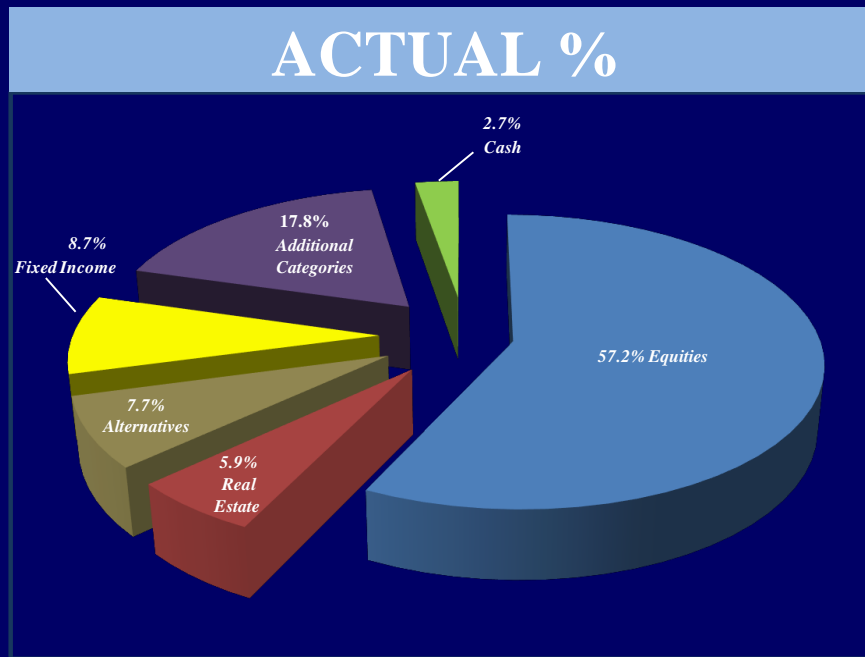


Teachers' Retirement System of the State of Kentucky

Insurance Trust Fund Update

For the period ended June 30, 2018

| <i>(\$ in millions)</i> | \$'s | Actual % | Target % | Strategic Ranges |
|-------------------------|--------------------------|----------------------|----------------------|-------------------------|
| Equities | \$607,135.0 | 57.2% | 58.0% | 51.0 - 64.0% |
| Real Estate | 62,962.6 | 5.9% | 5.5% | 3.0 - 10.0% |
| Alternatives | 81,232.6 | 7.7% | 6.5% | 3.0 - 11.0% |
| Fixed Income | 92,417.0 | 8.7% | 9.0% | 6.0 - 12.0% |
| Additional Categories | 188,639.1 | 17.8% | 20.0% | 16.0 - 25.0% |
| Cash | \$28,906.9 | 2.7% | 1.0% | 0.0 - 4.0% |
| Equities | \$607,135.0 | 57.2% | 58.0% | 51.0 - 64.0% |
| Total | <u>\$19.802.7</u> | <u>100.0%</u> | <u>100.0%</u> | |



INVESTMENT PERFORMANCE

TRS PENSION RETURNS

AS OF JUNE 30, 2018

| | Quarter | 1-year | 3-year | 5-year | 10-year | 20-year |
|-------------------|----------------|---------------|---------------|---------------|----------------|----------------|
| Gross | 1.39% | 10.81% | 8.16% | 9.44% | 8.02% | 6.27% |
| <i>Benchmarks</i> | 1.33% | 9.30% | 8.15% | 8.98% | 7.48% | N/A |
| <i>Rankings</i> | Top 26% | Top 2% | Top 8% | Top 8% | Top 2% | N/A |
| Net | 1.25% | 10.51% | 7.86% | 9.22 % | 7.80% | 6.14% |

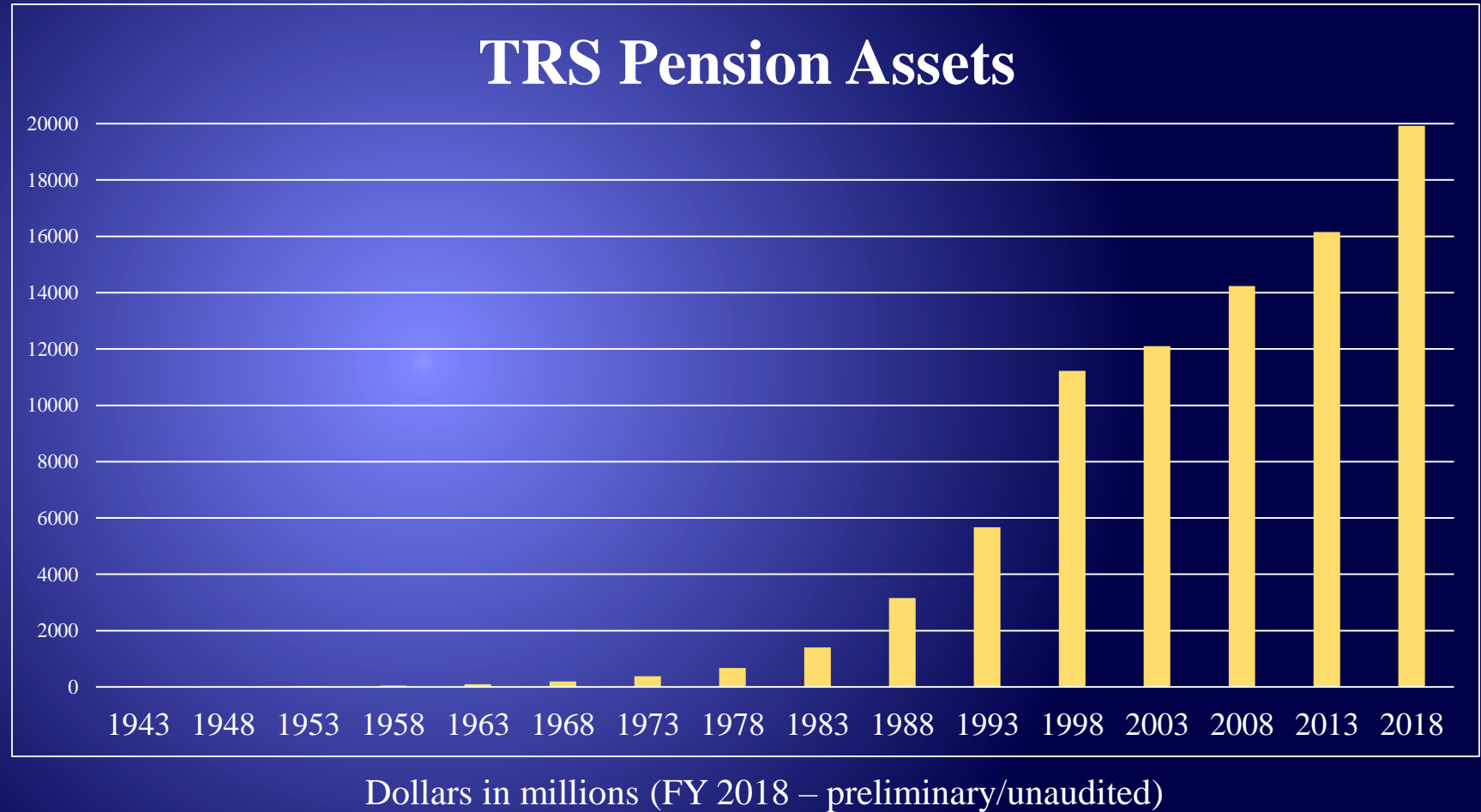
30-year compounded gross return

8.39%

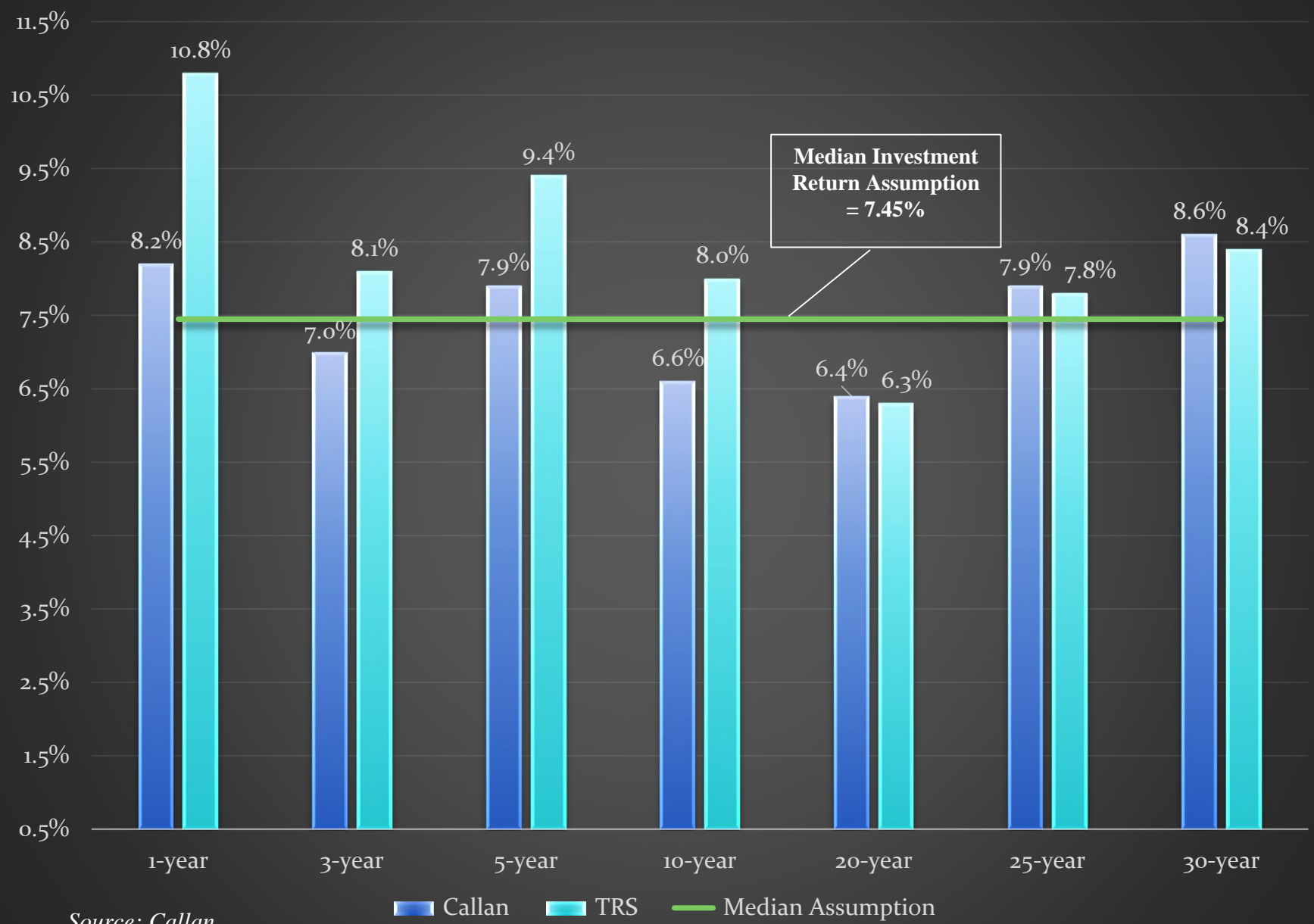
Record Assets

**Assets of
about \$21
billion**

In pension, health
insurance & life
insurance trusts



Callan Associates reports median annualized public pension investment returns for periods ended June 30, 2018



TRS Approach

- TRS never has used placement agents.
- TRS has not used hedge funds.
- All fees disclosed in annual report and quarterly on website.
- TRS has fiduciary duty in procurement.

Private Equity

- Regulated by the Securities and Exchange Commission
- All private equity fees paid by TRS are disclosed in annual report and quarterly on website.
- Alternatives are less than 7 percent of TRS portfolio
 - Private Equity is less than 5 percent
 - Has provided some of the best returns of any asset class

Private Equity

Recent TRS private equity net returns

| | |
|------|-------|
| 2012 | 9.7% |
| 2013 | 8.7% |
| 2014 | 18.6% |
| 2015 | 11.7% |
| 2016 | 5.0% |
| 2017 | 11.7% |
| 2018 | 19.0% |

Modeling Using Market Assumptions

Horizon Survey 2017 Assumptions

| Asset Class | Asset Allocation Target | Projected Return |
|--|-------------------------|------------------|
| U.S. Large Cap Equity ¹ | 37.4% | 7.8% |
| U.S. Small Cap Equity ¹ | 2.6% | 8.4% |
| Developed Int'l Equity ² | 16.5% | 7.6% |
| Emerging Markets Equity ² | 5.5% | 8.7% |
| Fixed Income – Inv. Grade | 15.0% | 4.4% |
| Real Estate | 7.0% | 6.7% |
| Private Equity | 7.0% | 10.1% |
| Additional Category: High Yield | 2.0% | 6.2% |
| Other Additional Categories ³ | 5.0% | 5.7% |
| Cash | 2.0% | 3.2% |
| Total TRSK⁴ | 100.0% | 7.7% |

¹ Domestic mid cap equity is modeled as 80% domestic large cap equity and 20% domestic small cap equity

² International equity is modeled as 75% developed markets and 25% emerging markets

³ Other Additional Categories is modeled as 50% high yield and 50% bank loans

⁴ Inflation rate assumption is 2.4%

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Proprietary & Confidential

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Current TRS Return Assumption: 7.5%

Historical Market Returns

1926-2017

What this is: The annualized return for every 30-year period beginning with 1926 to 1955 and continuing through 1988 to 2017 (63 30-year periods).

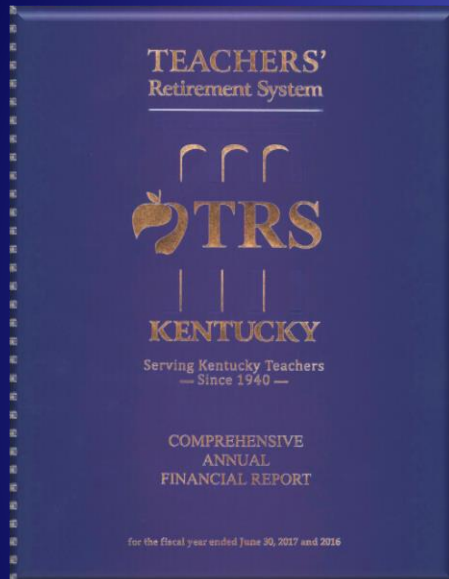
| | S&P 500 Index | 60% S&P/ 40% Corporate Bonds |
|---------|------------------------------|---|
| Average | 11.2% | 9.1% |
| Median | 10.9% | 8.9% |
| Minimum | 8.5% | 6.6% |
| Maximum | 13.7% | 12.1% |

Sources: Dimensional Fund Advisors (using Standard & Poor's Index Services Group & Morningstar Ibbotson SBBI Yearbook)

Current TRS Return Assumption: 7.5%

Transparent Low Fees & Investment Costs

Fees & investment costs documented annually in the TRS annual report



FY 2017
Total \$58 M
31/100 of 1%
of Assets

Schedule of Contracted and Administrative Investment Expenses
Retirement Annuity Trust
June 30, 2015

INVESTMENT COUNSELOR FEES

| BOUITY MANAGERS | ALTERNATIVE INVESTMENTS continued ... |
|----------------------|---------------------------------------|
| | L.P. (216,530) |
| | L.P. 157,271 |
| | rs Fund XIV, L.P. 299,245 |
| | rs Fund XV, L.P. 300,000 |
| | rs Fund VII, L.P. 225,680 |
| | rs Fund VIII, L.P. 522,719 |
| | Michigan 859,775 |
| | Wisconsin 64,734 |
| | 577,811 |
| | Fund X, L.P. 817,555 |
| | Fund XI, L.P. 8,090 |
| | rs Fund III, L.P. 343,776 |
| | III, L.P. 265,402 |
| | IV, L.P. 31,635 |
| | III, L.P. 150,512 |
| | 857,265 |
| | gy and 127,654 |
| | L.P. |
| | Lower Fund V, L.P. 221,925 |
| | managers \$ 11,478,820 |
| OPERATIONAL EXPENSES | |
| | Religion 335,800 |
| | \$ 335,800 |
| | |
| | 358,850 |
| | 55,262 |
| | 34,134 |
| | \$ 448,246 |
| | |
| | 84,131 |
| | \$ 84,131 |
| | |
| | nd Operational \$ 2,639,773 |
| | tion \$ 2,639,773 |
| | |
| | <u>\$ 44,892,486</u> |

Carlyle Global Financial Services Fund II, L.P. 624,148
Chrysalis Fund III, L.P. 587,162
Fort Washington Fund V, L.P. 87,243
Fort Washington Fund VI, L.P. 222,300
Fort Washington Fund VIII, L.P. 89,700
Gavea V 300,000
Hancock Bluegrass LLC Oregon 254,111
Hellman and Friedman Fund VII, L.P. 733,843
IPM Global 147,480
JP Morgan Maritime Fund, L.P. 561,617
KKR Fund 2006, L.P. 33,555

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TRS Expenses vs. Other Systems

| As of June 30, 2017 | Percentage of Liabilities |
|---------------------------------|---------------------------|
| TRS Kentucky | 0.0324% |
| Kansas Public Employees | 0.0428% |
| Louisiana Teachers | 0.0483% |
| New Mexico Public Employees | 0.0569% |
| Ohio Teachers Retirement System | 0.0688% |
| Kentucky Retirement Systems | 0.0758% |
| Georgia Employees | 0.0866% |
| Indiana Public Employees | 0.1281% |



Teachers' Retirement System

of the State of Kentucky

*Our Members
Come First!*

800-618-1687

502-848-8500

<https://trs.ky.gov>

Protecting & Preserving Teachers' Retirement Benefits