

Teachers' Retirement System



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Actuarial Assumptions

Experience Study

Rate of Return

Payroll growth

Inflation

Actuarial Assumptions

Experience Study



Experience Study

- Completed September 2016
- Experience Investigation for Five Years Ending June 30, 2015



Viewing Assumptions

- Assumptions are long-term estimates
- Most powerful assumption is investment return assumption
- Year to year fluctuations expected



2016 Study Changes

- Assumption Changes from Experience Study
 - Price Inflation lowered from 3.5% to 3%
 - Wage Inflation lowered from 4% to 3.5%
 - Assumed rates of Withdrawal, Disability, Retirement and Mortality all adjusted to better match experience of System
- Changes decreased liabilities around \$297 Million

Actuarial Assumptions

Rate of Return



Investment Return Assumption Factors

Analysis may include:

- Long-term historical information
- Recent experience
- Forward looking modeling using current capital market assumptions developed by investment consultant
- Peer system comparison

INVESTMENT PERFORMANCE

TRS PENSION RETURNS

AS OF MARCH 31, 2018

	Quarter	FYTD	1-year	3-year	5-year	10-year	20-year
Gross	0.39%	9.28%	13.19%	7.87%	9.36%	7.75%	6.32%
<i>Benchmarks</i>	-0.54%	7.86%	11.32%	7.71%	8.77%	N/A	N/A
<i>Rankings</i>	Top 24%	N/A	Top 5%	Top 13%	Top 6%	Top 4%	N/A
Net	0.32%	9.15%	12.87%	7.61%	9.15 %	7.54%	6.19%

30-year compounded gross return

8.43%

FY 2017 Investment Return

15.37 percent gross

15.02 percent net

Among the best returns in the country



*Double-digit percentage
gains in 3 of the last 5 years
& 5 of the last 8 years*

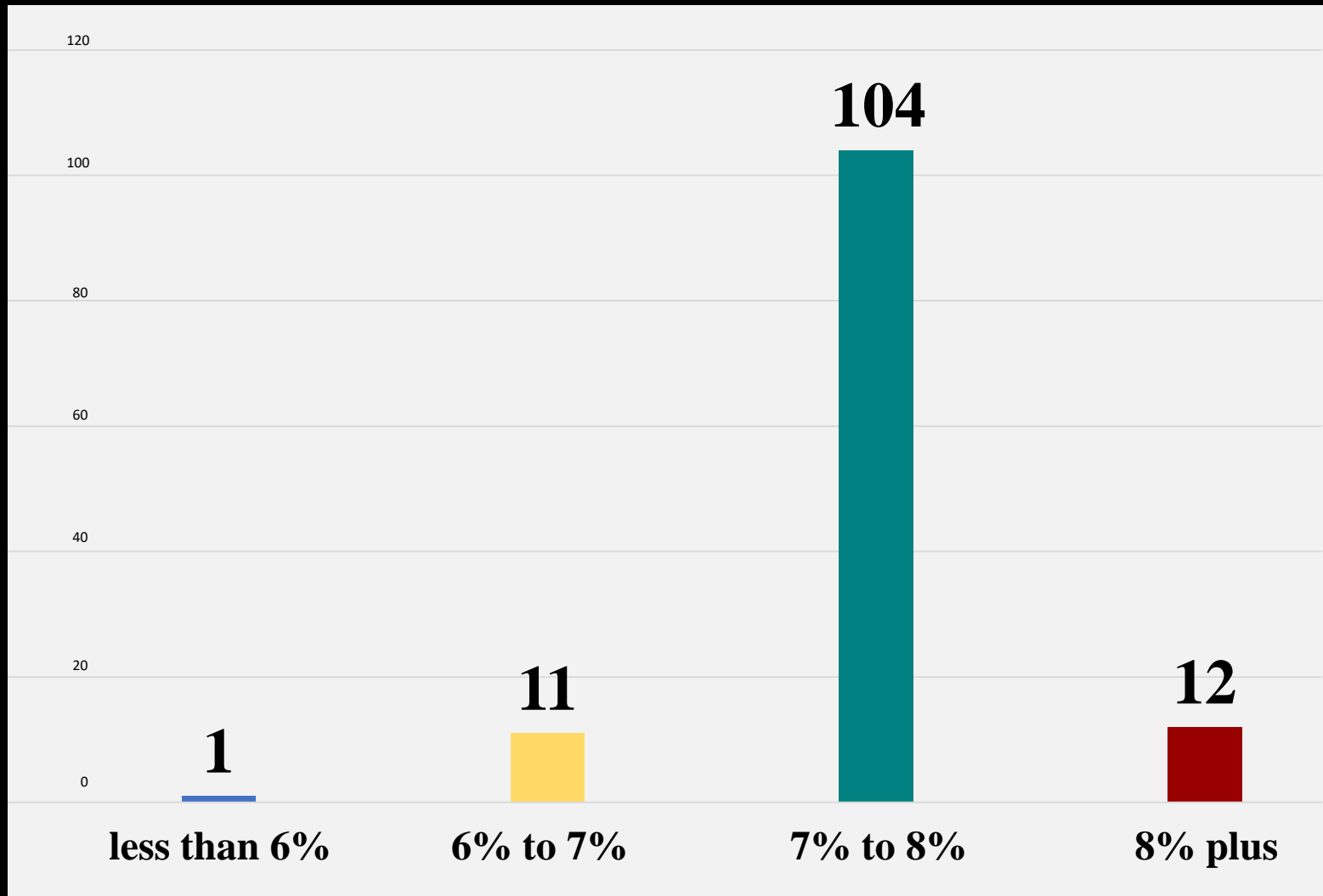
Historical Market Returns

1926-2017

	30-year Annualized Returns		
	S&P 500 Index	Long-term Corporate Bonds	60% S&P/ 40% Corporate Bonds
Average	11.2%	5.9%	9.1%
Median	10.9%	5.9%	8.9%
Minimum	8.5%	1.8%	6.6%
Maximum	13.7%	10.8%	12.1%

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

 **NASRA** **NASRA Report of Discount Rates**



TRS

Actuarial Assumptions

Payroll growth

Payroll Averages

10-year	1.84%
20-year	3.15%
30-year	4.04%

- Payroll growth is based on a projection of 30 years
- TRS assumption is lower than 30-year average
- 10-year average includes the Great Recession
- Charter school teachers to be in TRS
- Level-dollar method of addressing unfunded liability would make payroll assumption less relevant

Actuarial Assumptions

Inflation

Historical Inflation

1926-2017

For All 30-year Periods	Rate
Average	3.8%
Median	3.6%
Minimum	1.4%
Maximum	5.4%
Source: U.S. Consumer Price Index	



Teachers' Retirement System of the State of Kentucky

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800-618-1687

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Protecting & Preserving Teachers' Retirement Benefits