

NMERB Experience Study  
Briefing for the Investments and Pensions Oversight  
Committee  
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July 21, 2015

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# NEW MEXICO EDUCATIONAL RETIREMENT BOARD

## Actuarial Experience Study for the Six-Year Period Ending June 30, 2014

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R. Ryan Falls, Senior Consultant



**Gabriel Roeder Smith & Company**  
Consultants & Actuaries  
[www.gabrielroeder.com](http://www.gabrielroeder.com)

# Purpose of Experience Study

- ◆ This report tries to answer these questions for each assumption
  - ▶ What was the plan's actual experience?
  - ▶ How does that compare with current assumptions?
  - ▶ Is a change in an assumption warranted?

# Purpose of Experience Study

- ◆ Assumptions are not static; they should change to reflect
  - ▶ New information; improvements in data
  - ▶ Mortality improvement
  - ▶ Changing patterns of retirements, terminations, etc.
  - ▶ Changing knowledge/changes in benefits
- ◆ Recent experience provides strong guidance for some assumptions (for example, mortality) and weak guidance for others (for example, the investment return rate)
- ◆ Some assumptions are influenced by general economic conditions (salary increases, withdrawal rates)

# Historical Gains and Losses

- ◆ Six year period studied (2008-2014)
  - ▶ If period is too short, results may not be representative of full “business cycle”
  - ▶ If period is too long, trends, such as improvements in mortality or changes in retirement patterns, may not be apparent
- ◆ Keeping assumptions up-to-date will minimize gains and losses and keep the actuarially determined contribution rate more stable
- ◆ There is an expectation that, when assumptions are set appropriately, that the gains/losses on an assumption will average to zero
- ◆ We look at the gains and losses each year to see whether there is a “bias” in the assumptions

# Procedure

- ◆ Compared economic assumptions to:
  - ▶ General US price inflation and wage inflation statistics
  - ▶ ERB specific salary increases
  - ▶ Expected return using eight investment consultants' 2014 capital market assumption sets, including NEPC's
  - ▶ Economic assumptions should be consistent
- ◆ Analyzed demographic assumptions
  - ▶ Retirement, mortality, disability, other terminations
  - ▶ Compared to ERB's actual experience
  - ▶ Used Actual-to-Expected (A/E) Ratio as analysis tool
  - ▶ Looked at patterns by age and service
- ◆ If  $A/E = 100\%$  at all ages, assumption is "perfect"
  - ▶ Although we may want to build in some margin

# Economic Assumptions

## ◆ Investment Return

- ▶ Current ERB Assumption: 7.75%
- ▶ Description: Long-term expected return on plan assets based on asset allocation
- ▶ Purpose: Discount future benefit payments to valuation date
- ▶ Impact: Lower assumption will increase liabilities
- ▶ *Dependent on each system's investment policy*

## ◆ Salary Inflation

- ▶ Current ERB Assumption: 4.25%
- ▶ Description: Long-term assumption for across-the-board pay increases
- ▶ Purpose: Project individual member compensation through career
- ▶ Impact: Lower assumption will reduce projected retirement benefits AND future contributions

## ◆ Payroll Growth

- ▶ Current ERB Assumption: 3.50%
- ▶ Description: Long-term assumption for total payroll growth
- ▶ Purpose: Develop Funding Policy Contribution
- ▶ Impact: Lower assumption will increase the Funding Policy Contribution

# Economic Assumptions

## ◆ Inflation

- ▶ Current ERB Assumption: 3.00%
- ▶ Description: Long-term assumption for price inflation (CPI-U)
- ▶ Purpose: Base component of every economic assumption
- ▶ Impact: Lower assumption would trigger a similar shift in most other economic assumptions

## ◆ Population Growth

- ▶ Current ERB Assumption: 0.50%
- ▶ Description: Increase in the number of members participating in the plan
- ▶ Purpose: Does not impact actuarial valuation (only used in open group projections)
- ▶ Impact: Positive impact on projections because contributions on new member payroll help reduce existing unfunded liability

# Inflation

◆ The assumed inflation rate is not used directly in the actuarial valuation, but it impacts the development of:

- ▶ Investment return assumption
- ▶ Salary increase assumption
- ▶ Payroll growth rate
- ▶ COLA assumption

◆ The current inflation assumption is 3.00% per year

◆ Actual inflation (measured by the CPI-U) during

- ▶ Last 5 years: 2.02%
- ▶ Last 20 years: 2.41%
- ▶ Last 30 years: 2.81%
- ▶ Since 1913: 3.19%

# Inflation

- ◆ Based on NASRA survey, about 80% of large public pension funds have an assumption at or above 3.00%
  - ▶ Median assumption is 3.00%
  - ▶ Most common assumption is 3.00%
  - ▶ Survey based on data through fiscal year 2014; some plans have reduced their assumption since then
- ◆ 2014 Capital Market Assumption Sets for eight Investment Consultants
  - ▶ NEPC, ERB's consultant, assumed over 3.00% for the long term
  - ▶ Other investment firms have assumptions from 2.25% - 3.25%
  - ▶ Timeframe for investment consultants varies, most less than 30 years, which is shorter than timeframe for actuarial valuation
- ◆ We recommend no change in the current 3.00% assumption

# Investment Return

- ◆ The investment return rate is used to discount future expected cash flows (benefits and refunds), in order to determine the actuarial present values (liabilities)
- ◆ The current assumption is 7.75%
  - ▶ This is intended to be the return, net of all administrative (assumed to be about 14 bps) and investment expenses
- ◆ This is a critical assumption, since even small changes in the assumption could have a big impact on the funded status of the plan

# Investment Return

- ◆ The geometric average of the market returns, net of expenses, over the last 10 years (FY 2005 through FY 2014) has been 7.2%
  - ▶ Over last 20 years, the average return was 7.9%
- ◆ Actual past experience over a period this short is not generally a good indicator of future returns
- ◆ January 2015 NASRA Public Fund Survey of 126 large public retirement systems
  - ▶ Average investment return assumption is 7.72%
  - ▶ Almost 50% of respondents were higher than 7.75%
  - ▶ Survey reflects the nominal assumption in use, or announced for use, as of January 2015

# Investment Return

- ◆ Impacted by trust asset allocation
- ◆ Based analysis on ERB's Investment Policy Statement dated August 15, 2014
- ◆ We modeled ERB's target asset allocation against eight investment consulting firms' capital market assumptions, including NEPC's
  - ▶ Average expected nominal return of eight investment firms is about 8.1% based on 2014 capital market assumption sets
  - ▶ The net real returns for 6 of the 8 firms are at or above the 4.75% assumption (range from 4.0% to 6.0%)
- ◆ We recommend retaining the 4.75% net real return assumption and the 7.75% nominal return assumption

# Annual COLA

- ◆ Unreduced COLA is a function of CPI increases
  - ▶ If change in CPI is greater than 2%, COLA=50% of change in CPI, maximum COLA=4%, minimum COLA=2%
  - ▶ If change in CPI is 2% or less, then COLA=100% of change in CPI
- ◆ The current price inflation assumption is 3.00%
- ◆ The current COLA assumption is 2.00% per year
- ◆ Reductions of COLA when funded ratio less than 100% produces gains each year
  - ▶ \$20.8 million gain in FY2013
  - ▶ \$47.2 million gain in FY2014
- ◆ Recommend no change to this assumption

# Salary Scale

- ◆ Increases for continuing members for last six years averaged 3.10% (from all sources)
- ◆ Analysis shows wage inflation has been less than expected
  - ▶ 1.88% over six years, 0.45% net of inflation
- ◆ Additional increases for members with less than 10 years of service generally in line with assumption
- ◆ Recommend reduce wage inflation from 4.25% to 3.75%
  - ▶ Total assumed increases will range from 12.50% to 3.75%

# Payroll Growth

- ◆ Assumed increase in aggregate payroll
  - ▶ Does not include anticipated population growth
- ◆ Estimates increases in employer contributions towards unfunded liability
  - ▶ The higher the payroll growth assumption, the lower the contribution rate needed to amortize the UAAL
- ◆ Current assumption is 3.50%

	Six Years	Ten Years	Twenty Years
Actual payroll growth	0.31%	1.71%	3.57%
Net of changes in membership	0.99%	1.99%	2.92%
Normalized for assumed inflation	2.56%	2.68%	3.51%

- ◆ Recommend maintaining current assumption to 3.50%

# Mortality Improvement Assumption

- ◆ Current Assumption based on a “static” mortality projection
  - ▶ Assume mortality improvement for a fixed number of years at the valuation date
  - ▶ Resulting mortality rates is used for every future year in the valuation
  - ▶ This is one common approach
- ◆ Emerging best practice approach is “generational” mortality projection
  - ▶ Mortality is assumed to improve every future year in the valuation
  - ▶ Eliminates the need to periodically reestablish margin for future mortality improvements
- ◆ Ongoing SOA Pension Mortality Study
  - ▶ Recently published a study based on private plan data
  - ▶ Developed a new procedure for incorporating generational mortality into actuarial valuations (uses birth year in addition to age)
  - ▶ SOA is working on another mortality study using public sector data

# Post-Retirement Mortality

- ◆ Experience during study period
  - ▶ Slight improvement in longevity (as expected)
  - ▶ Male A/E = 106%
  - ▶ Female A/E = 104%
- ◆ Recommendation
  - ▶ Current tables are static with a fixed level of mortality improvement built in; continually needs to be updated
  - ▶ Change to tables with generational improvements (automatically updates each year for improvements)
  - ▶ Male A/E = 96%
  - ▶ Female A/E = 99%

# Other Assumptions and Methods

- ◆ We recommend no changes to any other assumptions
  - ▶ Percent married
  - ▶ Age difference between members and beneficiaries
  - ▶ Retirement age for deferred vested (currently at first age for unreduced benefits)
  - ▶ Asset smoothing method
    - 5 year smoothing
  - ▶ Actuarial cost method (individual entry age)

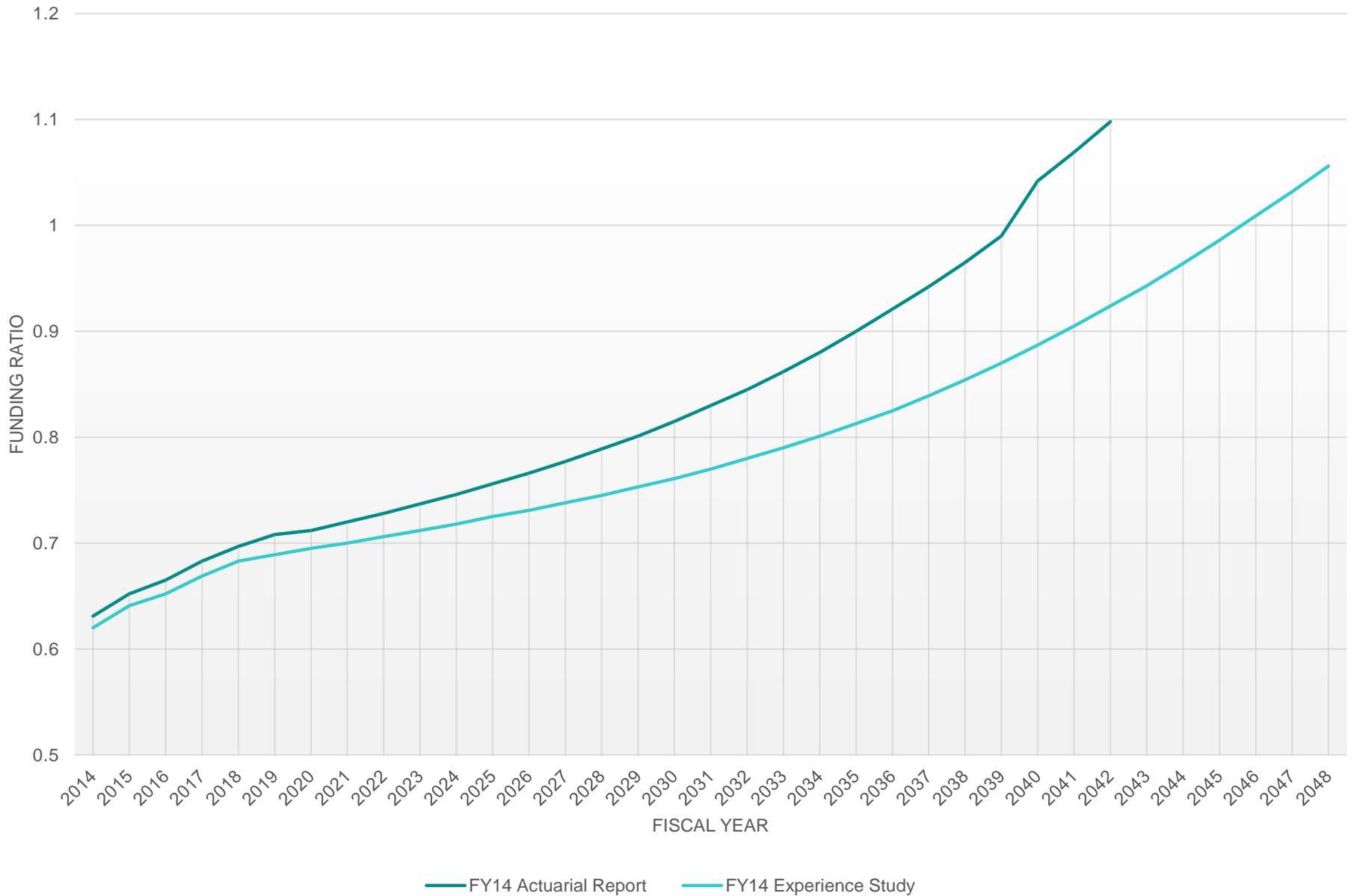
# Actuarial Impact of Proposed Changes

- ◆ Limited impact on funded ratio
  - ▶ Change 2014 funded ratio from 63.1% to 62.0%
  - ▶ Change projected period to 100% funded ratio from 26 years to 32 years
    - Based on open group projection
- ◆ The 2014 Funding Policy Contribution increases from 16.32% of payroll to 16.94% of payroll
  - ▶ 80 basis points decrease due to lower wage inflation
  - ▶ 169 basis points increase due to updated mortality assumption
  - ▶ The other demographic assumption changes have smaller impacts (small gain from retirement, very small loss from disability)

# Conclusion

- ◆ Recommend following assumption changes:
  - ▶ Lower wage inflation from 4.25% to 3.75%
  - ▶ Update mortality to better reflect future longevity improvements
  - ▶ Minor changes to demographic assumptions
  - ▶ For projections, remove population growth assumption
- ◆ Recommend the Board adopt proposed assumptions for valuations as of June 30, 2015 and thereafter, until next experience study

# ERB Actuarial Funding Projections



FY14 Actuarial Report    FY14 Experience Study

