

NEW MEXICO EDUCATIONAL RETIREMENT BOARD

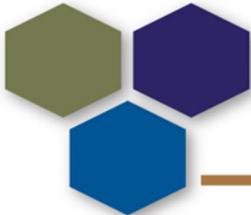
Actuarial Experience Study for the Six-Year Period Ending June 30, 2016

Presented to Board of Trustees on April 21, 2017

R. Ryan Falls, Senior Consultant

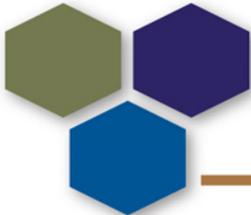


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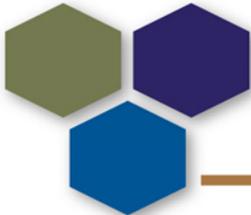
Agenda

- ◆ Assumption setting process
- ◆ Economic assumptions
 - ▶ Inflation
 - ▶ Investment return
 - ▶ Related assumptions



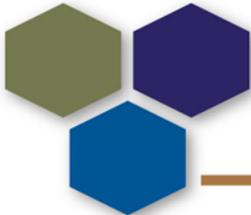
Assumption Setting Process

- ◆ General process for setting assumptions
 - ▶ Actuary recommends assumptions
 - ▶ Board considers actuary's recommendation and makes the final decision for the system
- ◆ Experience Study is a periodic review of the assumptions and methods used by the actuary
 - ▶ ERB has one prepared every two years
 - Last one performed after June 30, 2014 actuarial valuation
 - ▶ Two-year interval is a best practice for ERB
 - GFOA recommends at least once every five years



Assumption Setting Process

- ◆ Assumptions are not static and must stay current
 - ▶ Should be appropriate in each actuarial valuation
 - ▶ Can change even without a formal experience study
 - ▶ Actuarial Standards of Practice (ASOPs) now require the actuary attest to the reasonableness of the actuarial assumptions in every actuarial valuation report
- ◆ Incredibly low levels of current inflation and expectations of future inflation are prompting conversations about the inflation assumption across the country



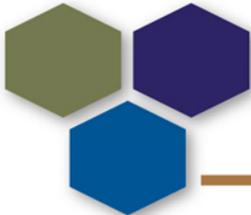
Procedure

- ◆ Compared economic assumptions to:
 - ▶ General US price inflation and wage inflation statistics
 - ▶ ERB specific salary increases
 - ▶ Expected return using seven investment consultants' 2016 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



Demographic Assumptions

- ◆ Reviewed all demographic assumptions
 - ▶ Mortality, retirement, termination, etc
- ◆ Each assumption tracked well with actual experience over the past six years
- ◆ Made notable changes to each of these assumptions in the past four years
- ◆ Changes may be necessary in the future if certain trends continue
- ◆ Not recommending any changes with this experience study



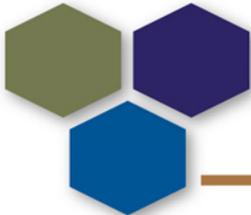
Economic Assumptions

◆ Investment Return

- ▶ Current Assumption: 7.75%
- ▶ Description: Long-term expected return on plan assets based on asset allocation
- ▶ Purpose: (1) Anticipate the level of investment earnings that will be available to help pay plan benefits in the future, and (2) discount future benefit payments to the valuation date
- ▶ Impact: Lower assumption will increase plan liabilities
- ▶ *Dependent on each system's investment policy*

◆ Core Inflation

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



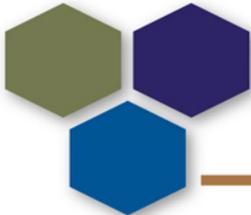
Economic Assumptions

◆ Wage Inflation

- ▶ Current Assumption: 3.75%
- ▶ Description: Long-term assumption for across-the-board pay increases
- ▶ Purpose: Project individual member compensation through career end
- ▶ Impact: Lower assumption will reduce projected retirement benefits AND future contributions

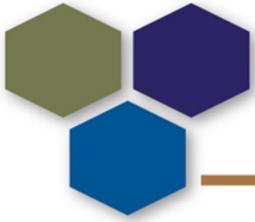
◆ Payroll Growth

- ▶ Current Assumption: 3.50%
- ▶ Description: Long-term assumption for total payroll growth
- ▶ Purpose: (1) Project future payroll and the resulting contribution stream into the plan, and (2) assist with development of Actuarially Determined Employer Contribution (ADEC)
- ▶ Impact: Lower assumption will increase the contributions, as a percentage of payroll, necessary to properly fund the plan



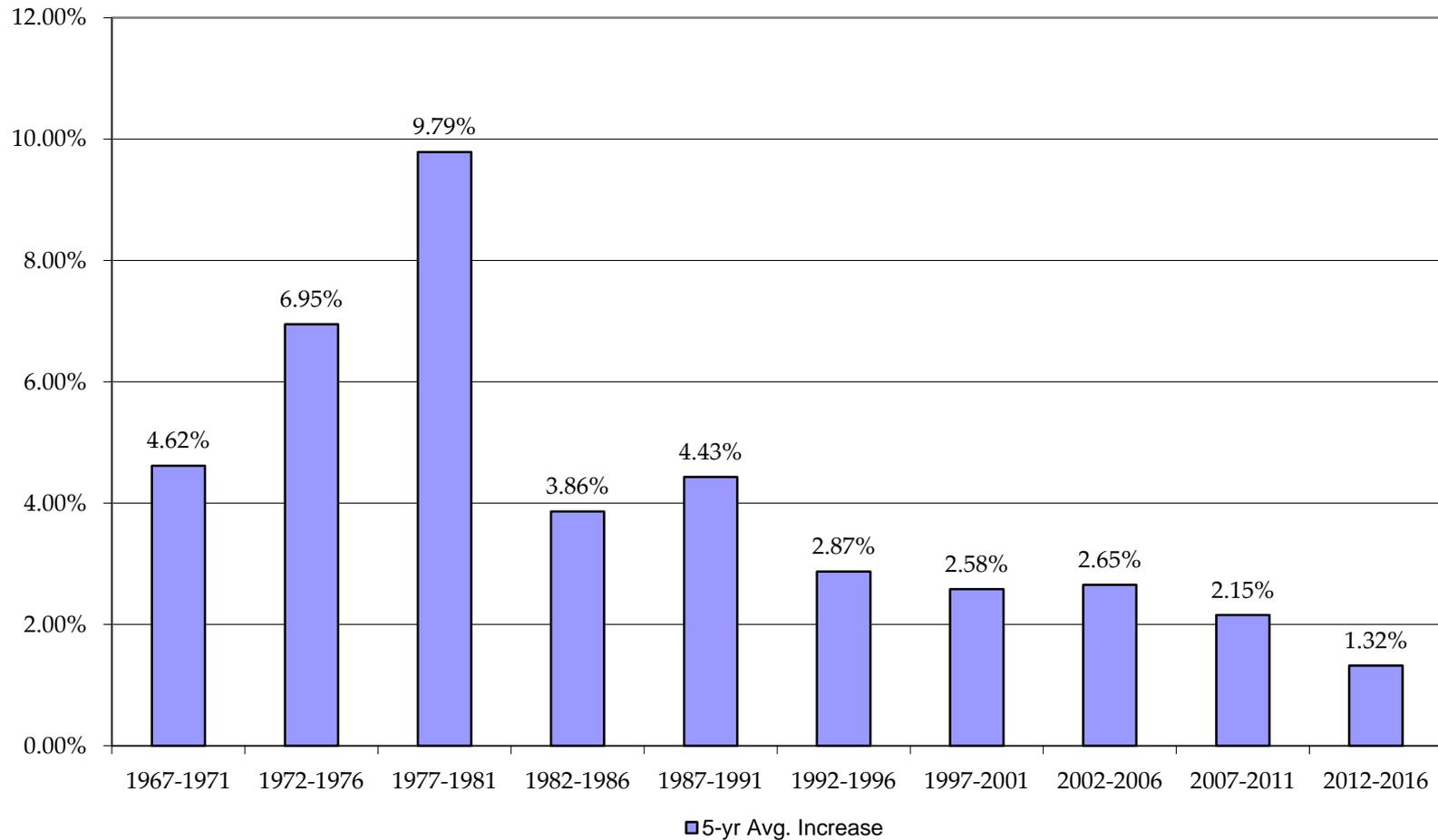
Inflation

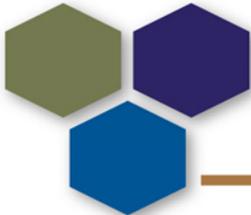
- ◆ The assumed inflation rate is not used directly in the actuarial valuation, but it impacts the development of:
 - ▶ Future COLA assumption
 - ▶ Investment return assumption
 - ▶ Wage inflation assumption
 - ▶ Payroll growth rate
- ◆ The current inflation assumption is 3.00% per year
- ◆ Actual inflation (measured by the CPI-U) during
 - ▶ Last 5 years: 1.32%
 - ▶ Last 20 years: 2.18%
 - ▶ Last 30 years: 2.66%
 - ▶ Since 1913: 3.16%



Inflation

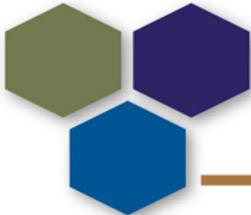
Average Annual Inflation
CPI-U, Five Fiscal Year Averages





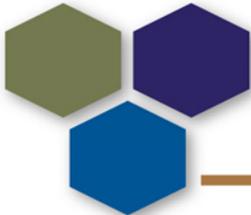
Inflation

- ◆ 2016 Capital Market Assumption Sets for Investment Consultants
 - ▶ Surveyed seven investment consulting firms and long-term inflation expectations ranged from 1.56% to 2.50%
 - ▶ All consultants have approximately 10-year outlooks
- ◆ Social Security Administration's 2016 Trustees Report
 - ▶ Office of the Chief Actuary projecting a long-term average annual inflation rate of 2.6% under the intermediate cost assumption
 - ▶ Low cost assumption was 2.0% and high cost was 3.2%
- ◆ Recommend lowering assumption to 2.50%
 - ▶ Key change because inflation is key “building block” for all remaining economic assumptions



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 COLA assumption is 2.00% per year
 - ▶ Based on current price inflation assumption of 3.00%
 - ▶ Prior to reductions of COLA when funded ratio less than 100%
- ◆ Stochastically modeled future inflation scenarios based on recommended inflation assumption of 2.50%
- ◆ Recommend COLA assumption of 1.90%
 - ▶ Average COLA paid based on stochastic modeling

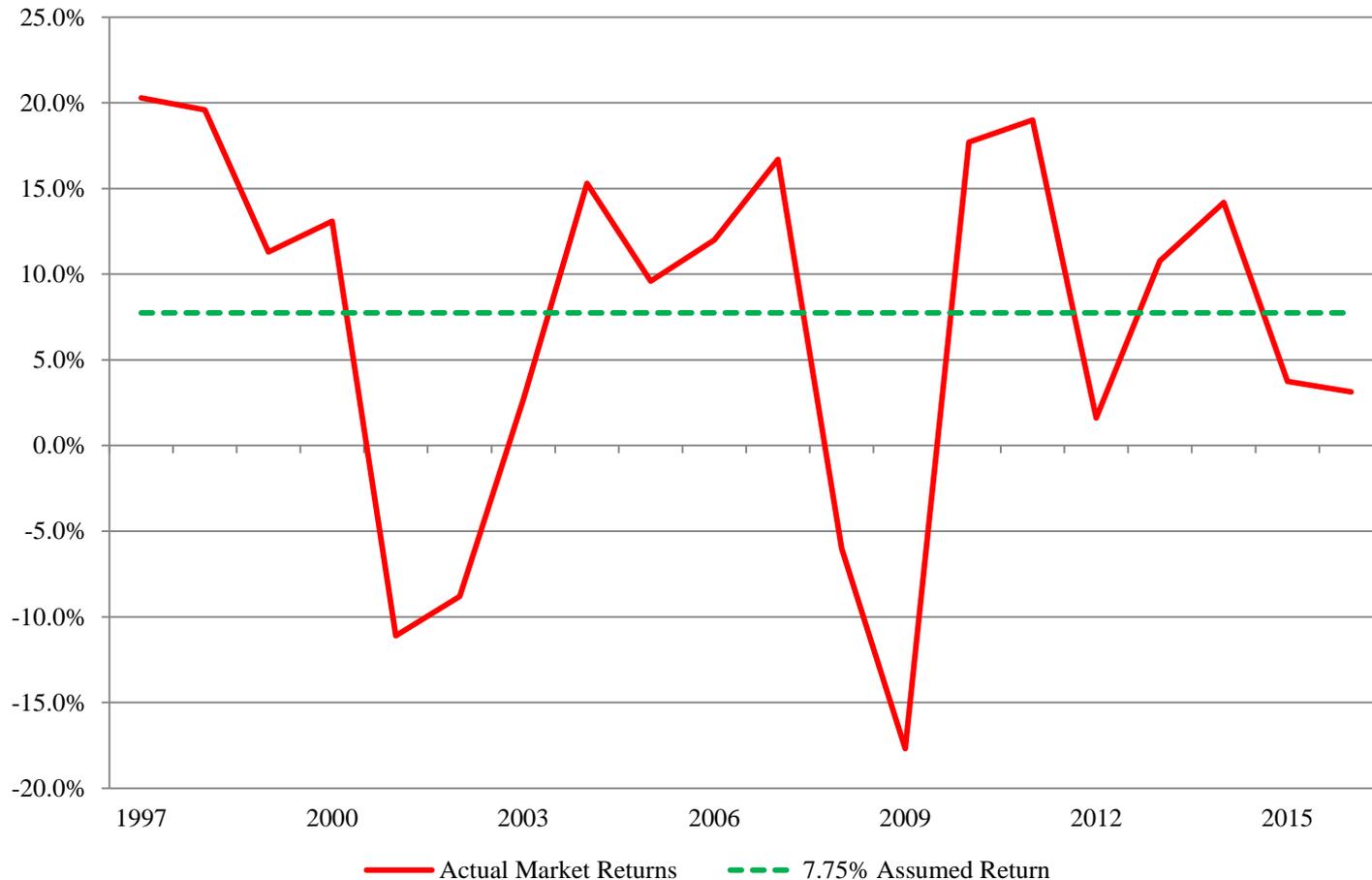


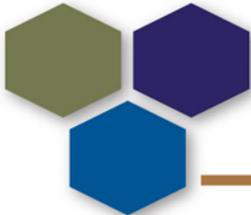
Investment Return

- ◆ The investment return rate is used to:
 - ▶ Anticipate the level of investment earnings that will be available to help pay plan benefits in the future
 - 60-70% of the benefit payments for many systems are paid with accumulated investment returns
 - ▶ Discount future expected cash flows (benefits and refunds) in order to determine the actuarial present values (liabilities)
 - Time value of money
- ◆ The current assumption is 7.75%
 - ▶ This is intended to be the return, net of all administrative and investment expenses
 - ▶ Critical assumption since even small changes in the assumption could have a big impact on the funded status of the plan
 - ▶ Building Blocks: 3.00% inflation + 4.75% real return

History of Market Returns (Net)

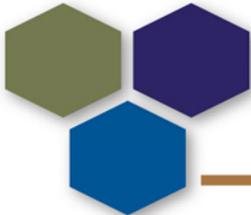
20-Year Historical Returns on a Market Value Basis





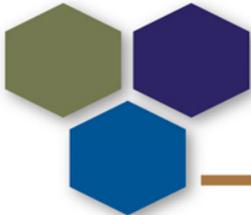
Investment Return

- ◆ The geometric average of the market returns, net of investment and administrative expenses:
 - ▶ Last 10 years has been 5.7%
 - ▶ Last 20 years has been 6.8%
 - ▶ Includes returns through FY2016
- ◆ Actual past experience is not always a good indicator of future returns
- ◆ Impacted by trust asset allocation
- ◆ February 2017 NASRA Survey
 - ▶ Median return assumption is 7.50%
 - ▶ Average investment return assumption is 7.52%
 - ▶ Assumption in use, or announced for use, as of survey date



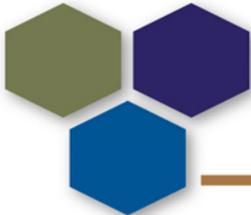
Investment Return

- ◆ Based analysis on ERB's current target asset allocation
- ◆ Modeled target allocation against capital market assumptions for seven investment consulting firms
 - ▶ Arithmetic average expected nominal return of seven investment firms is 7.73% based on 2016 capital market assumption sets
 - Expected geometric average 7.01%
 - ▶ We generally consider anything between the expected arithmetic and geometric returns (7.01% to 7.73%) to be reasonable
 - ▶ Measured net of administrative and investment expenses
- ◆ We recommend a nominal return assumption of 7.25%
 - ▶ Maintains current real return of 4.75%
 - ▶ Building Blocks: 2.50% inflation + 4.75% real return



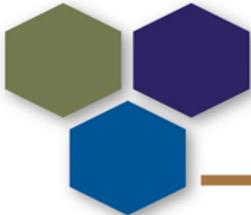
Salary Increases

- ◆ Used for projecting individual member's pay and benefits
 - ▶ Unisex
 - ▶ Service-related
- ◆ This assumption is meant to reflect all factors:
 - ▶ Across-the-board increases for all teachers
 - ▶ Increases to legally mandated minimum salaries
 - ▶ Step or service-related increases
 - ▶ Increases for acquisition of advanced degrees or specialized training
 - ▶ Promotions
 - ▶ Merit increases, if applicable
 - ▶ Extra duties, if included in plan's compensation definition



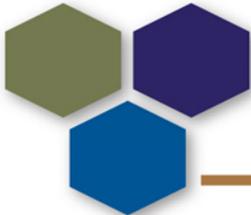
Salary Increases

- ◆ The assumptions are meant to reflect average expected increases for all members, including:
 - ▶ Classroom teachers (K-12)
 - ▶ Administrators
 - ▶ Higher Ed members not in ARP
 - ▶ Support staff (both professional and non-professional)



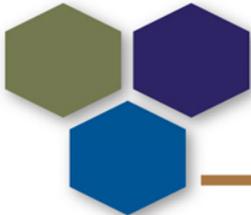
Salary Increases

- ◆ Used for projecting individual member's pay and benefits
- ◆ Current assumption consists of three components
 - ▶ Price inflation (3.00%)
 - ▶ Additional across-the-board increases (0.75%)
 - Combined with price inflation equals 3.75% wage inflation
 - ▶ Service-related increases for first 10 years
 - Meant to reflect additional increases above wage inflation received by shorter-service members
- ◆ Inflation is primary “building block” for all elements of pay increases
- ◆ We recommend incorporating recommended inflation assumption



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
- ◆ Generally less than assumed wage inflation
 - ▶ When older, longer-service members terminate, retire or die, they are generally replaced with new teachers with lower salary
 - ▶ Large number of retirements expected in the next 10-15 years due to baby boomers
- ◆ Current assumption is 3.50%
- ◆ Recommend lowering the assumption to 3.00%

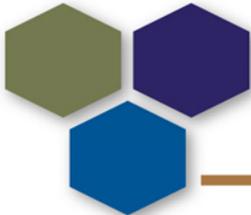


Actuarial Impact

- Results to changes in the assumed rate of inflation:

Item	Current Assumptions and Methods	Impact of Recommended Assumptions
Normal Cost % (member and employer)	13.00%	13.62%
Unfunded actuarial accrued liability (UAAL)	\$ 6,630 million	\$ 7,438 million
Funded Ratio	64.2%	61.5%
Funding Policy Contribution (employer only)	17.30%	19.85%
Funding Period – Actuarial Valuation	44.9 years	139.4 years
Funding Period – Open Group Projection	46 years	84 years

Comparison of results based on the valuation as of June 30, 2016.



Conclusion

- ◆ Recommend following assumption changes:
 - ▶ Decrease inflation assumption from 3.00% to 2.50%
 - ▶ Decrease nominal investment return assumption from 7.75% to 7.25%
 - Maintain real rate of return assumption of 4.75%
 - ▶ Decrease wage inflation from 3.75% to 3.25%
 - ▶ Decrease payroll growth assumption from 3.50% to 3.00%
 - ▶ Decrease the annual assumed COLA from 2.00% to 1.90%
- ◆ Recommend the Board adopt proposed assumptions for valuations as of June 30, 2017 and thereafter, until next experience study