Analysis of Rhode Island's Discount Rate, Asset Smoothing Methodology and Amortization Period

Three calculations that play a critical role in determining pension costs and liabilities are the discount rate, asset smoothing and the amortization period. This paper examines these calculations as they relate to Rhode Island's retirement system for state employees and teachers.

Discount Rate

In determining the unfunded liability the actuary looks at all future pensions payable to plan participants, and calculates a present value for these future pensions by using a discount rate. In determining a plan's unfunded liability, the discount rate has the biggest impact of any single calculation.

The calculation of the discount rate for public pension plans has received considerable attention in the national and local press. It is the basis for most of the discussion regarding the accurate calculation of Unfunded Liabilities.[1]

The Government Accounting Standards Board (GASB) recommends using a discount rate based on the estimated long-term yield of plan assets.[2] Based on this standard, Rhode Island had adopted a discount rate of 8.25 percent but at a Retirement Board meeting on April 13, 2011, the discount rate was lowered to 7.5 percent effective July 1, 2012. Using a Discount Rate of 8.25 percent, the unfunded liability of ERSRI as of June 30, 2009 was $4.7 billion. Using a discount rate of 7.5 percent, the unfunded liability increases to $6.8 billion.

However, many economists would contend that the discount rate should reflect the same level of risk as the risk associated with the liabilities, i.e. the risk that future pension benefits will be paid.[3] The contention is that since it is highly likely that public pensions will be paid in the future, a discount rate should be used which reflects a high likelihood for achieving returns that will provide those benefits. Just what rate is the best "low risk" rate to use is the subject of much debate.[4]

It is generally agreed that the preferred rate should be based on fully taxable securities. Since pension plans are not subject to tax, consideration should not be given to the lower rates of return on tax-exempt securities. Also, because most pension plans are long term in nature and do not require immediate liquidity, there should not be a reduction in the Discount Rate for liquidity needs.[5]

FASB Rules for Calculating the Discount Rate

The rules set forth for private sector pension plans follow many of the basic principles suggested by current economists. The private sector rules are set forth by the Financial Accounting Standards Board (FASB). FASB directs private pension plans to use a discount rate consistent with the yields on high quality corporate bonds rated AA or better.

An employer may look to rates of return on high-quality fixed income investments in determining assumed discount rates. The objective of selecting assumed discount rates using that method is to measure the single amount that, if invested at the measurement date in a portfolio of high quality debt instruments, would provide the necessary future cash flows to pay the pension benefits when

due. Notionally, that single amount, the projected benefit obligation, would equal the current market value of a portfolio of high quality zero coupon bonds whose maturity dates and amounts would be the same as the timing and amount of the expected future benefit payments.[6]

The FASB rules work by applying different discount rates based on the year that future pension benefits will be paid. For benefits paid in the next year, pension payments would be discounted at the rate of a one-year AA corporate bond. For benefits paid in 20 years, those future benefits would be discounted at a 20-year AA corporate bond rate. The average discount rate will depend on the expected retirement ages and life expectancies of the plan membership.

Applying the private sector FASB rules to Rhode Island's public pension fund would result in a discount rate of approximately 6.2 percent. Utilizing a discount rate of 6.2 percent would increase the plan's unfunded liability from $4.7 billion to approximately $9 billion.[7]

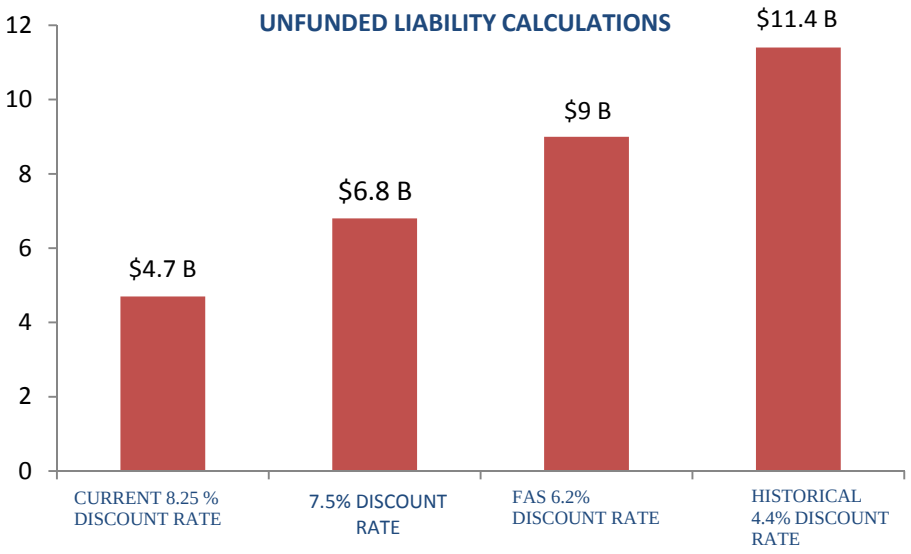
Discount Rate Based on Treasury Securities

Much of the current literature suggests that the yields on Treasury securities best reflect the low risk yield that investors require for making sure they receive a specific sum of money in the future.[8] The current yield of a 30-year Treasury bond is approximately 4.6 percent. Another study has indicated that the Treasury rate is lower than necessary because Treasuries provide valuable liquidity to investors. Since liquidity is generally not required in pension plans, this study suggests adding 1 percent to Treasury rates to account for the liquidity factor.[9]

Discount Rate Based on 10-Year Historical Return

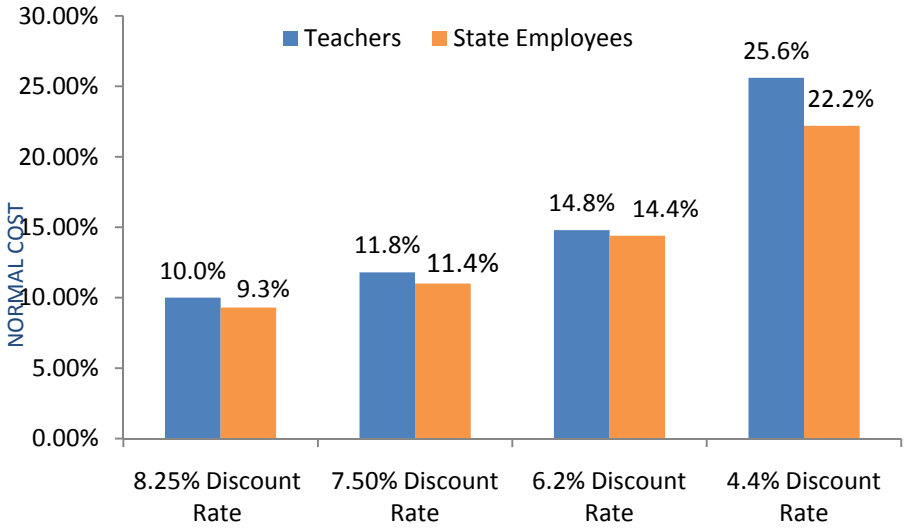
Rhode Island's actuary has not computed an unfunded liability based on the Treasury rate. However, a computation was performed based on the actual market rate of return achieved by the Rhode Island pension fund over the past 10 years ending February 28, 2011. This rate of return was 4.4 percent. Using the 4.4 percent historical rate of return as a discount rate increases the unfunded liability of the plan from the current calculation of $4.7 billion to an unfunded liability of $11.4 billion.[10]

The following chart shows the unfunded liability of the ERSRI pension fund based on the current discount rate of 8.25 percent, the discount rate of 7.5 percent effective July 1, 2012, the FASB rate of 6.2 percent, and the Fund's 10-year historical return rate of 4.4 percent through February 28, 2011:



Normal Cost

The discount rate also has a significant impact on the calculation of the normal cost, which is the annual cost of providing pension benefits for the current year and all future years. The following chart shows the normal cost as a percentage of salary for the members of the Rhode Island pension fund based on the current discount rate of 8.25 percent, the future discount rate of 7.5 percent, the FASB rate of 6.2 percent and the fund's 10-year historical return rate of 4.4 percent through February 28, 2011:



As can be seen from the foregoing discussion, the discount rate has a very significant impact on the calculation of the unfunded liability and the normal cost.

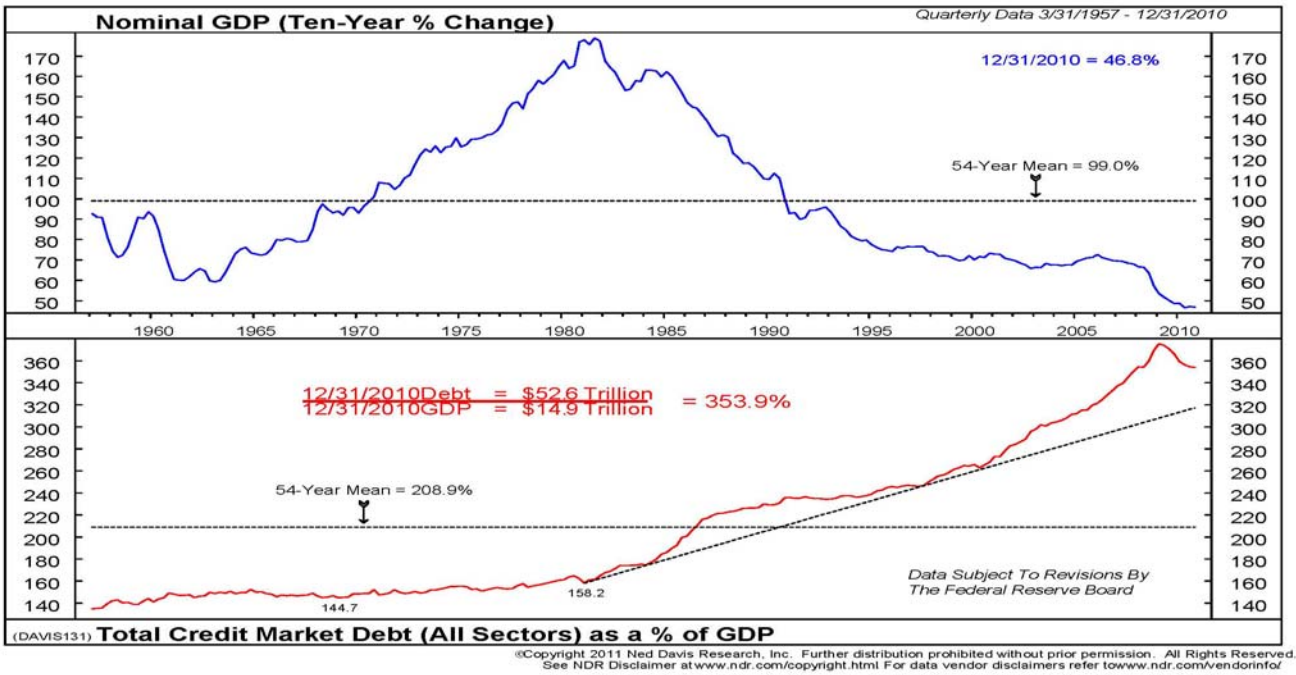
Although a plan's actuaries select a single discount rate in order to compute a specific unfunded liability and determine a sum specific contribution rate, we know that the economic markets will differ from any specific chosen rate.

Current Financial Markets and Projections

In their presentation to the Retirement Board at the Board's April 13, 2011 meeting, the state's investment consultant, Pension Consulting Alliance, presented the capital market forecasts of 6 (including PCA itself) major consultants to public pension funds throughout the country. The average projected returns created by PCA were based on (i) the capital market projections of these 6 firms and (ii) the specific investment allocations of Rhode Island's Pension Fund. Based on this study, the average compound fund earnings over the next 7 to 10 years is projected to average approximately 6.7% annually. The capital market projections of these 6 firms as applied to Rhode Island's pension fund are provided in the following chart:[11]

ESTIMATED EXPECTED RETURN BASED ON RHODE ISLAND ASSET ALLOCATION								
CONSULTING FIRM	PCA	RUSSELL	ENNIS KNUPP	CALLAN	CLIFFWATER	WILSHIRE	AVERAGE	AVERAGE NOT INCLUDING PCA
EXPECTED COMPOUND RETURN	6.7%	6.0%	6.4%	7.0%	6.7%	6.5%	6.7%	6.7%

In determining a recommended discount rate, it is important to take into consideration all factors facing our global economy. One very important factor, which creates a significant headwind against achieving high rates of return, is the significant growth in debt, both in the United States and globally. The following chart from Ned Davis Research, Inc. dramatically contrasts the slowing growth in our nation's GDP with the explosive growth of debt throughout all sectors of the U.S. economy:



While some commentators may argue for future rates of return that reflect the explosive U.S. market returns of the second half of the 20th century, most observers agree that these expectations are unreasonable:

"There is a near certain probability that the financial based global economy of the past half-century will not return, nor will we experience the steroid driven growth excesses that it facilitated."[12]
--Bill Gross, CEO of PIMCO

"…it will be interesting to see whether companies have reduced their assumptions about future pension returns. Considering how poor returns have been recently and the reprises that probably lie ahead, I think that anyone choosing not to lower assumptions - CEO's, auditors, and actuaries all - is risking litigation for misleading investors. And directors who don't question the optimism thus displayed simply won't be doing their job."[13]
--Warren Buffett

Most importantly we believe that, when dealing with the future pension benefits for our public employees, it is better to err on the side of caution. The state's leadership must act as fiduciaries. Putting future benefits in potential jeopardy by aggressively seeking high rates of return through investment in risky assets is not a prudent course.

Recommended Discount Rate

Of the various methodologies discussed in the literature, we believe that the FASB rules and the GASB rules produce an accurate range for calculating the unfunded liability. We also give substantial credence to the professional experts who advise Rhode Island's pension fund and whose projections fall at a midpoint between the GASB and FASB Discount Rates. Accordingly, using these calculations Rhode Island's Unfunded Liability falls in the range of $6.8 billion to $9.0 billion.

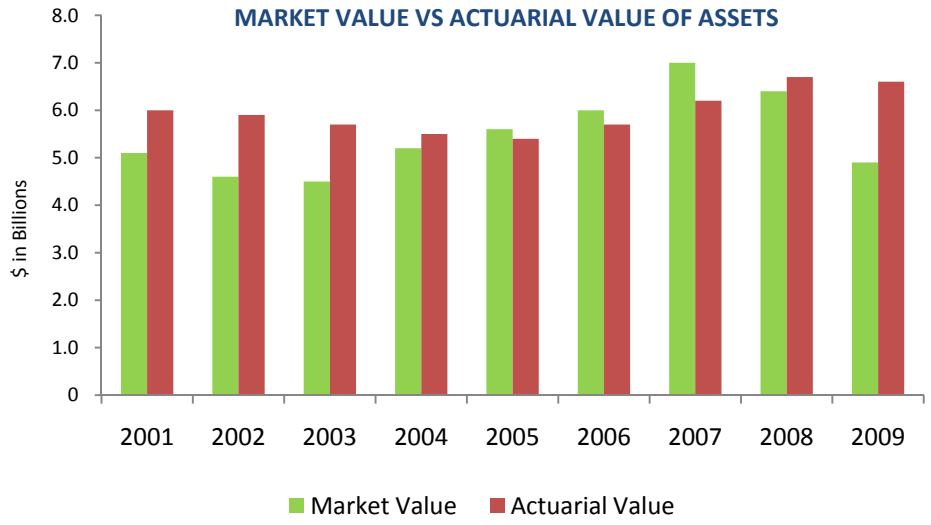
We believe that the Retirement Board's recent reduction of the Discount Rate from 8.25 percent to 7.5 percent is a step in the right direction and we commend the Board for its expressed desire to closely monitor this rate on a regular basis.

Asset Smoothing

Most public pension funds do not immediately recognize large market gains or losses when valuing their assets. Instead, they recognize gains and losses over a period of years. In Rhode Island, assets are valued using a 5-year Asset Smoothing method that starts with the market value of assets but phases in the asset gains and losses above or below the discount rate over a five-year period.[14] Five years is the most common period of time used by public plans for asset smoothing purposes.[15]

Because the valuation of assets is one of the inputs into the calculation of how much a government must contribute into a pension fund, asset smoothing protects states and local governments from sudden demands for large cash infusions in the event of sudden losses in the financial markets. While asset smoothing allows for more consistent and predictable budgeting of future pension costs, it can also distort the true market calculation of a plan's unfunded liability.

The following chart shows the fluctuation between Rhode Island's actuarial value of assets using asset smoothing and the true market value of the assets for the years June 30, 2001 through June 30, 2009.



As can be seen from the chart, asset smoothing provides a more consistent value of assets, which in turn provides for a smoother and more predictable contribution rate by the employer. However, asset smoothing can distort the true unfunded liability. For example, as of June 30, 2009, the actuarial value of assets was $6.7 billion under the five-year asset smoothing method, but the actual market value of the assets was only $4.9 billion. This simple variance based on asset smoothing caused the unfunded liability to be understated by $1.8 billion compared to a true market valuation.

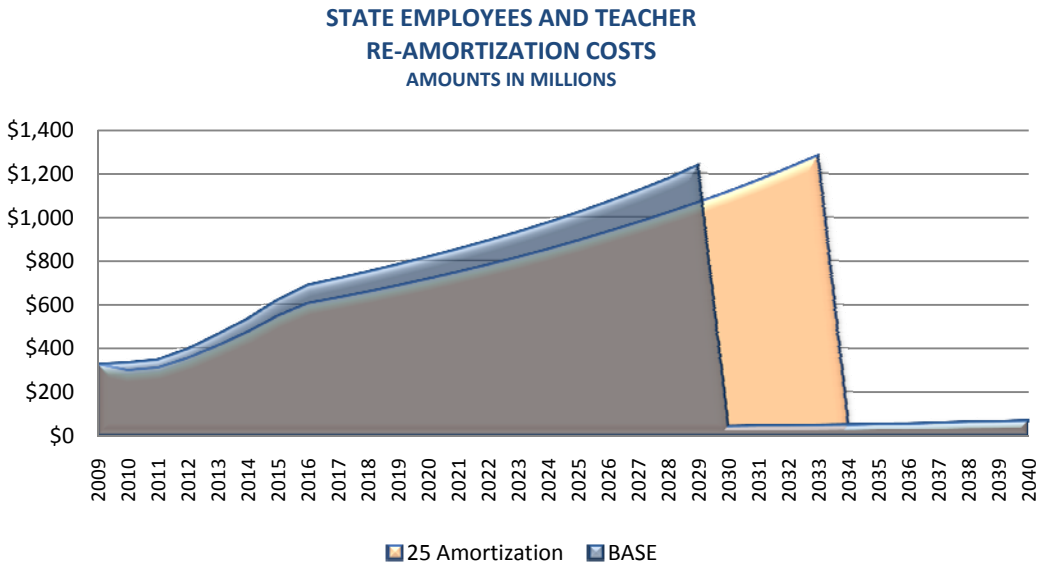
While asset smoothing serves an acceptable function, two principles should be followed in using this methodology. First, a plan should consistently follow its asset smoothing method. Taking interim steps such as "marking to market" at opportune times in order to reduce contributions to a plan should be prohibited.

Second, an accurate reporting of a plan's unfunded liability requires reporting assets on a market value basis, and fully recognizing all market gains and losses at the reporting date. This market value of assets reflects the true unfunded liability as to the reporting date. If Rhode Island had reported its pension assets at market value as of June 30, 2009, the unfunded liability would have increased by approximately $1.8 billion.

Amortization Period

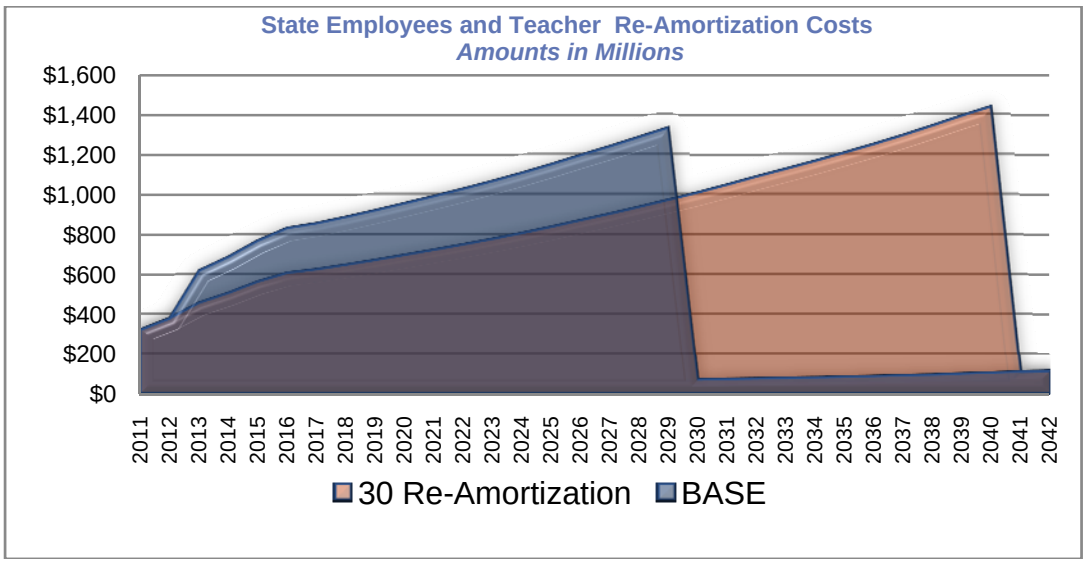
The amortization period is the period of years over which the unfunded liability is paid off. If a long amortization period is used, costs are reduced because they are spread over a longer period of time. Conversely, if a short amortization period is used; annual costs are increased because of the shorter time period in which to make all contributions.

Since unfunded liabilities only represent costs for past services already rendered, a long amortization period creates intergenerational equity issues because it passes the costs for past services to future generations. In 2009, the Rhode Island General Assembly considered extending the amortization period from 21 years to 25 years. Ultimately the General Assembly decided against re-amortization. During such consideration, however, the plan actuary projected the costs associated with a re-amortization. The following chart shows the cost impact of extending the Amortization Period from 21 years to 25 years as determined by the actuary based on the June 30, 2008 actuarial valuation:



As seen in the above chart, by re-amortizing the employer contributions are decreased for years one through 21, but they are substantially increased for years 22 through 25. The increased contributions for years 22 through 25 represent an additional $2.7 billion in contributions for those years.

More recently, in connection with the 2010 Actuarial Valuation adopted by the Retirement Board on May 11, 2011, the plan's actuary provided an example of increasing the amortization period to 30 years with respect to the plan's $6.8 billion unfunded liability. The impact of the 30-year re-amortization is that more than $10 billion will be owed in years 2030 to 2040 for services rendered by employees prior to June 30, 2010.



While re-amortizing the unfunded liability will always help a government address short-term budget problems, it also raises the very real issue of fundamental fairness. It is generally agreed that each generation should pay the full cost for the public services it receives. In looking at a plan's unfunded liability and determining how and when to pay it off, it is important to remember that it represents a

liability for past services only. There is no piece of future pension liabilities included in the calculation of an unfunded liability.

Referencing the chart above, the additional $10 billion pushed off to years 2030 through 2040 represents the cost for pension benefits attributable to services provided by public workers in years prior to June 30, 2010. Is it fair to our children and grandchildren to ask them to pay for the public services rendered for long past generations? This question must be asked when considering lengthening the amortization period.

It is important to note that there are many opinions regarding acceptable amortization periods. Some states have closed amortization periods extending out to 40 or more years. A closed amortization period is a specific number of years that is counted down by one each year until it declines to zero with the passage of time.[16] Some states have open amortization periods that do not change over time. For example, if an open amortization period is set at 30 years, the 30-year period is used each year. In theory, by using an open amortization period, the unfunded liability will never disappear, but will become smaller each year.[17]

In choosing an amortization period, one goal should be paramount. An amortization period should be chosen which allows a plan to make consistent and significant progress toward becoming a well-funded plan. Structuring such an amortization period requires a realistic projection of the contributions that a plan sponsor can afford to pay over the amortization period, as well as the benefit structures that will accommodate the plan sponsor's ability to make contributions. Re-amortizing a plan's unfunded liability without addressing the future costs of the plan and the ability of the plan sponsor to meet those costs will only result in a plan that will be unable to meet future commitments to its membership.

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[1] Novy-Marx, Robeet and Joshua D. Rauh, 2009. "The Liabilities and Risks of State-Sponsored Pension Plans" Journal of Economic Perspectives-Volume 23, Number 4-Fall 2009-Pages 191-210; Munnell, Alicia H. and Jean-Pierre Aubry, Josh Jurwitz and Luara Quisby, 2011. "Can State and Local Pensions Muddle Through?", Center for Retirement Research at Boston College.-Number 15, March 2011; The Trillion Dollar Gap, Underfunded state retirement systems and the need to reform, P&W Center of the States, February 2010).

[2] Government Accounting Standards Board Statements 25 and 27.

[3] Munnell, Aubrey, Quimby, Note 1.

[4] Id.

[5] Brown and Wilcox (2009)

[6] Financial Accounting Standards Board, Statement of Financial Accounting Standards No. 87 Employers' Accounting for Pensions, 2008.

[7] See letter dated March 3, 2011 from Gabriel Roeder Smith & Company to Office of the General Treasurer

[8] Navy-Marx and Rauch, Note 1

[9] Munnell, Aubrey, Quimby, Note 1

[10] Gabriel Roeder & Smith Discount Rate Sensitivity Analysis, as of June 30, 2009 dated March 2011.

[11] Presentation Pension Consulting Alliance to Rhode Island Retirement Board, April 13, 2011.

[12] "The Future of Investing: Evolution or Revolution?" Investment Outlook, April 2009.

[13] Buffett, Warren and Loomis, Carol. "Warren Buffett on the Stock Market", Fortune Magazine, 10 Dec. 2001.

[14] ERSRI 2009 Actuarial Report p. 32

[15] Unmasking Hidden Costs: Best Practices for Public Pension Transparency, Manhattan Institute for Policy, Research, April 2011.

[16] ERSRI 2009 Actuarial Valuation Report, p. 54

[17] ERSRI 2009 Actuarial Valuation Report, p. 55