

Hind Sight
By Mark Ruloff, EA, FSA, FCA
VP, Winklevoss Technologies

A plan sponsor asked me a very interesting question. He noted that if we looked back at where we were 10 years ago, we would find that we set out anticipating a certain level of expected return on the pension portfolio. Had we gone to sleep and woke up 10 years later (now), we might ask how our portfolio did. We would be told that our portfolio return was higher than we anticipated. We would be happy and think we were in great shape. However, we would be surprised to later learn that we were in terrible shape and we were experiencing the pension “perfect storm”.

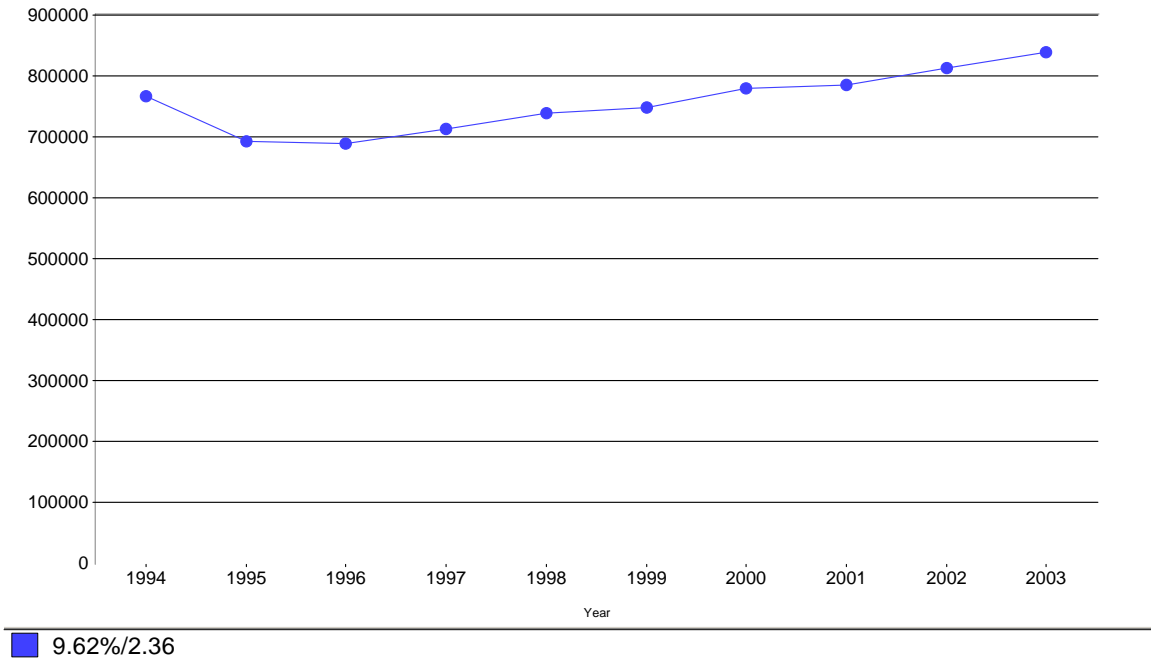
How did this happen? I took a sample case we commonly use to take a look at this. I ran some projections, but based on starting in 1994. I first ran the projections based on what one might have expected, and then reflected the actual historical experience to see what would have happened. I then examine one alternative, and looked at the experience under that as well.

Our Expectations

Let’s first examine what we thought approximately ten years ago at the beginning of 1994. Our actuarial valuation might have used an expected return of 8.5% and 3% inflation. The long term Treasury bond yields were around 6.3%, and I assumed a FAS 87 discount rate of 6.75% at the start of the forecast, but moved the rate with market conditions. I used a 9% expected return on assets for FAS 87. I started with assets so that the plan was 100% funded on an actuarial liability basis, using the Projected Unit Credit funding method (excluding future new entrants, excluding future service, including future salary increases, and discounting the liabilities at 8.5%).

Let’s look at a sample projection of the expected contributions for the next 10 years using the average compound return of 9.62% per year, experienced during that time (assuming a 60% large cap stock, 20% long bond, and 20% cash portfolio) and 2.36% inflation. We expected a rather stable level of contributions, as shown in Table 1.

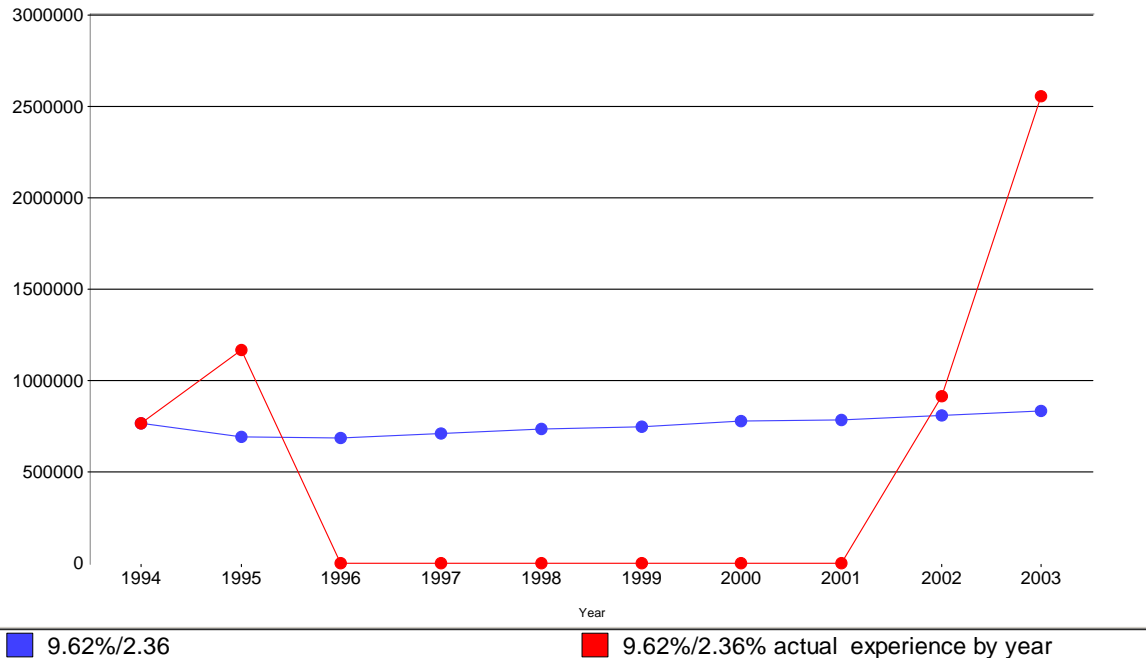
Table 1
Employer Cont (\$)



Actual Experience

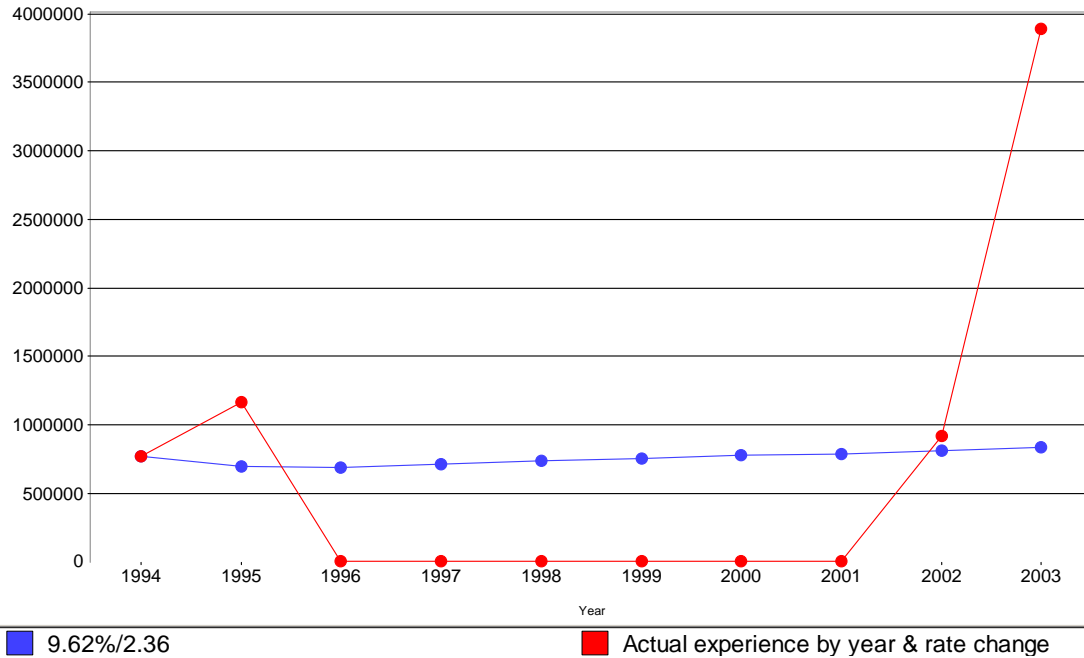
However, if we take the return experienced each year we see that we would have a period with no contributions due to good early returns, as shown in Table 2. However, later years, the contribution level would climb to 3 or 4 times the level in 1994. This might be especially felt after having several years of a contribution holiday.

Table 2
Employer Cont (\$)



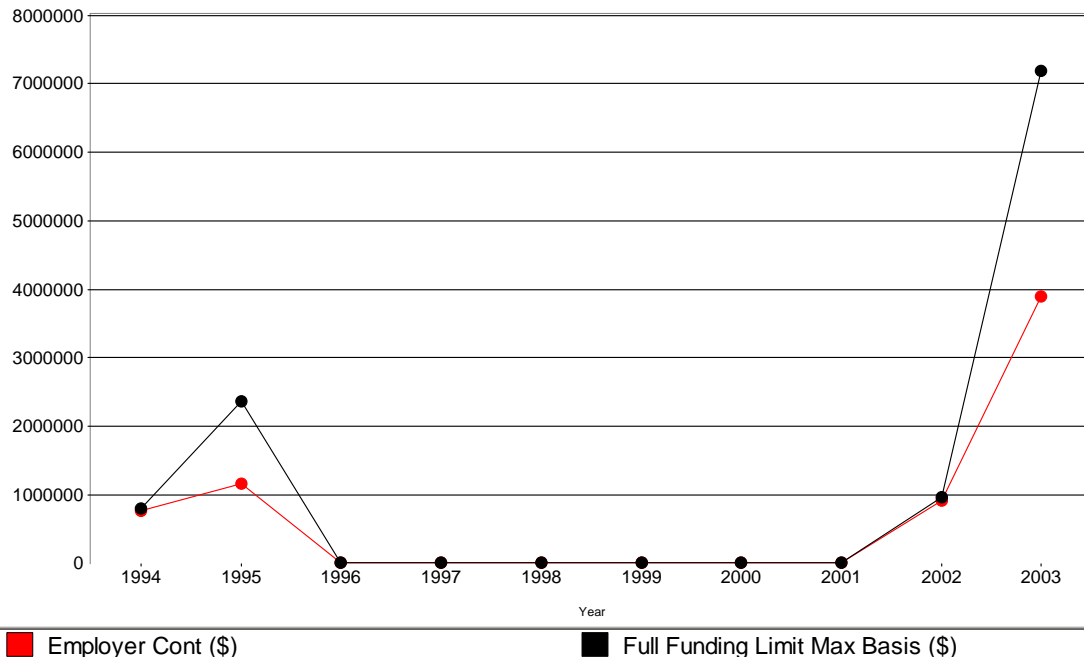
Also, taking into consideration the decrease in market rates and the effect on the current liabilities of the plan, the contribution level then reaches 5 times the original level, as shown in Table 3.

Table 3
Employer Cont (\$)



Although I am setting the policy contribution to the minimum required contribution, there would be very little difference if I used the maximum contribution as the contributions are being constrained by the Full Funding Limits (See Table 4).

Table 4
Actual experience by year & rate change



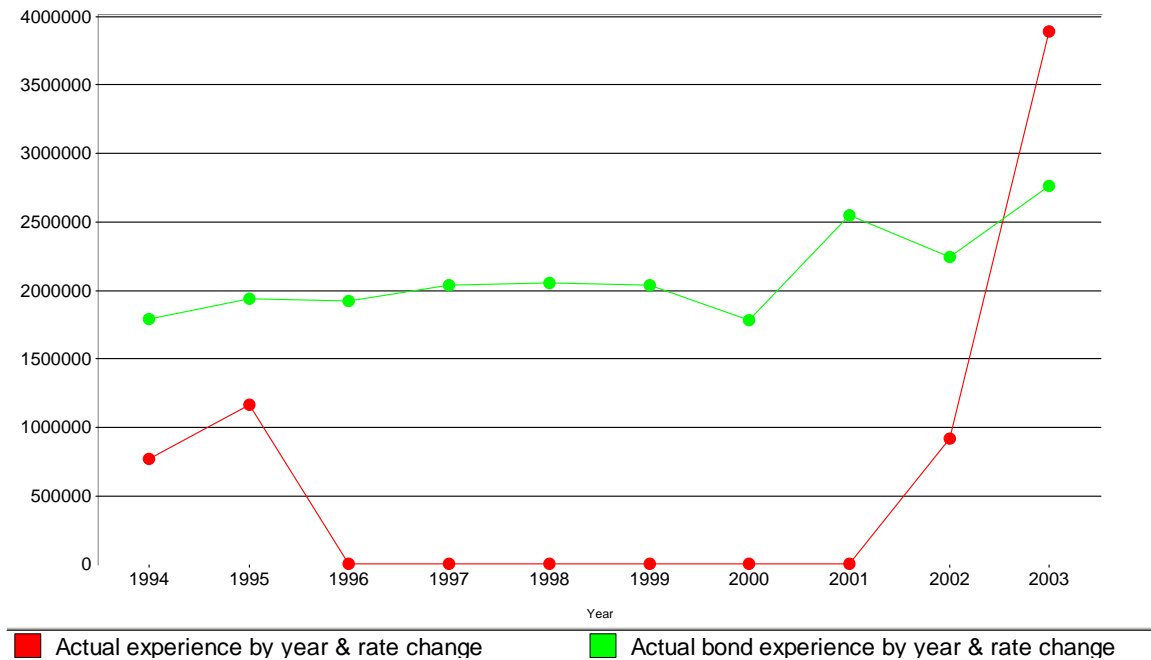
Immunization Alternative

Let's suppose that we had adopted a strategy to immunize the liability even though we would expect a lower return on the portfolio. We would first have to adjust our assumed return to decrease from the 8.5% expected on a 60/40 equity and bond portfolio, to an assumption more in line with our FAS 87 discount rate, reflecting high quality corporate bond rates. Let's then use 6.75% as the new assumed return. During this period, the actual returns for long term bonds during this period were 7.97% and the equity risk premium for large cap stocks compare to these bonds was 3.10%.

I marked both the assets and liabilities to market, so that any movement in the bond assets would be matched with the movement in the liabilities. I also reduced the FAS 87 expected return assumption, to reflect the new asset allocation.

Table 5

Employer Cont (\$)



We would discover that we have some difficulty getting the contributions to be completely stable, as shown in Table 5. Unfortunately, ERISA requires any change in the measurement of the liabilities to be considered an assumption change. Assumption changes have to be amortized over a period that is different than that required for any asset gains and losses. Although we are matching the assets to the past liability, the ongoing cost will reflect market conditions at the time the benefits are earned. I made no attempt to try to hedge the change in ongoing cost for interest rate movements.

Negatives

We note that the contributions would be higher under this alternative and I know that it is a lot easier to sell a defined benefit plan that is cheap. In looking at the cost change, we

need to note that about a third of the cost, or \$631,000, is due to the amortization of the assumption change, which is amortized over ten years. Therefore, most of the increase in cost will be gone after this 10 year period. I also realize, from working on sales on occasion, that selling a good, but more expensive, product is possible as long as you can show it to be a better value.

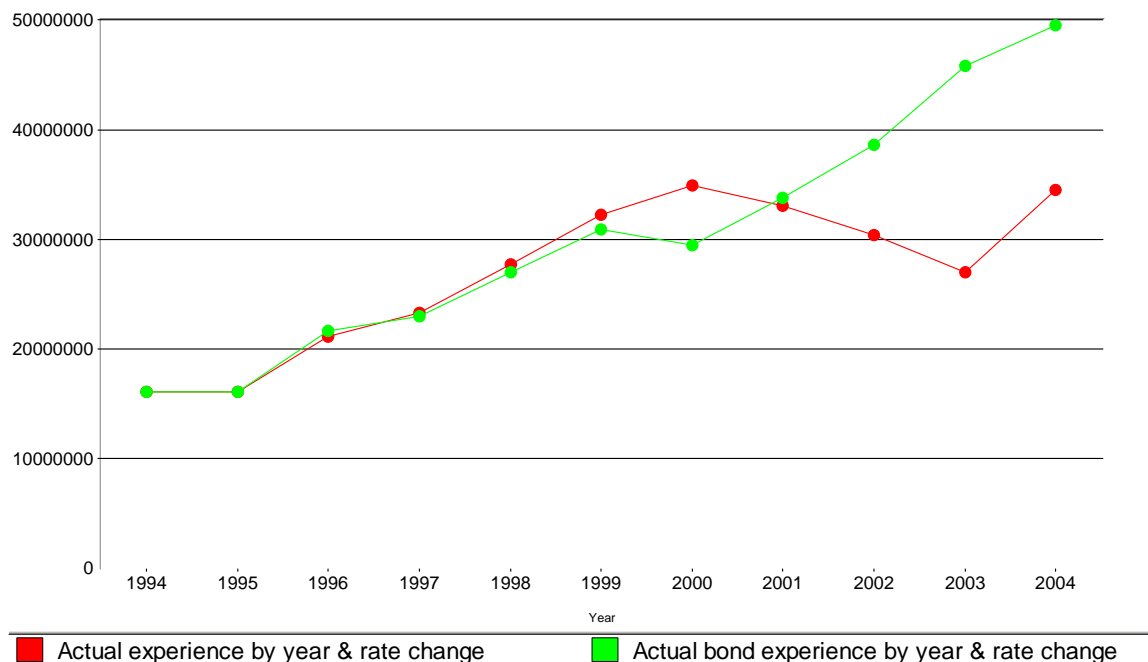
The plan sponsor, initially, saw that putting the employee at risk for the investment return was something they preferred not to do. Therefore, they originally adopted a define benefit plan. Due to the asset liability mismatch risk that they now experienced, the plan sponsor might now be reconsidering that and thinking of passing the risk on to the employee. I recognize that there would be great value in my showing them ways to reduce their risk while still maintaining the security of a define benefit plan for the participants. Therefore, I set out hopeful of being able to accomplish that task.

Positives

Higher Assets

Let’s consider all the benefits of this alternative investment option. First, although the compound return rates are less, the assets would be over 43% higher, as shown in Table 6.

Table 6
Market Assets (Funding)



More Stable Contributions

The contributions would also be more stable and predictable. I think of this as being able to free up reserves that normally would be needed to cover any possible jump in required contribution levels. These reserves could then be used to take on additional risk in the

core business. This activity could produce additional earnings from the core business that might more than pay for the higher pension cost.

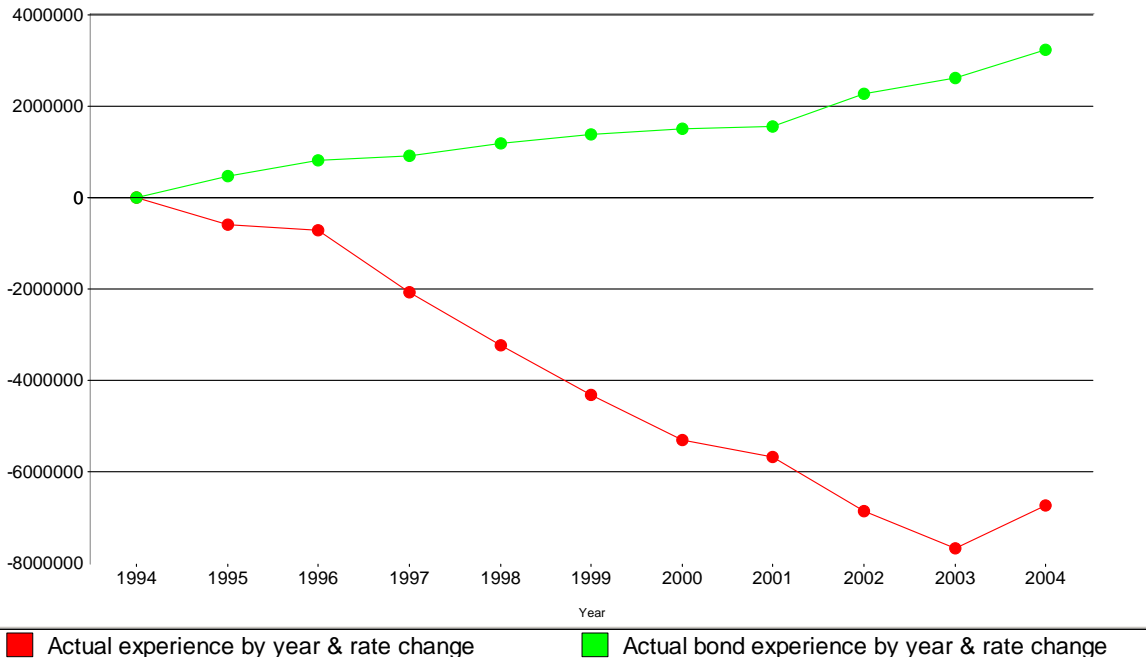
While most companies do not carry such reserves, it might be better to think of this as reducing the cost of capital (with transparency) or allow issuing equivalent debt and repurchasing stock. Assuming a 35% tax bracket, and adjusting back to the same risk level by issuing bonds, as 6.75% yields, and purchasing stock, that earned 9.62%, there would be additional earnings of over \$500,000 pre-tax to help offset the additional cost of the pension plan.

Improved Prepaid (Accrued) Pension Expense

Other benefits of this option include improvement in the prepaid (accrued) pension expense, as shown in Table 7.

Table 7

Prepaid (Accrued) Cost



Protection of Shareholders Equity and Participant Benefits

There would also be better ABO funded ratios and lower and less volatile reductions to shareholders equity, as shown in Table 8 & 9.

Table 8
ABO Mkt F.R.

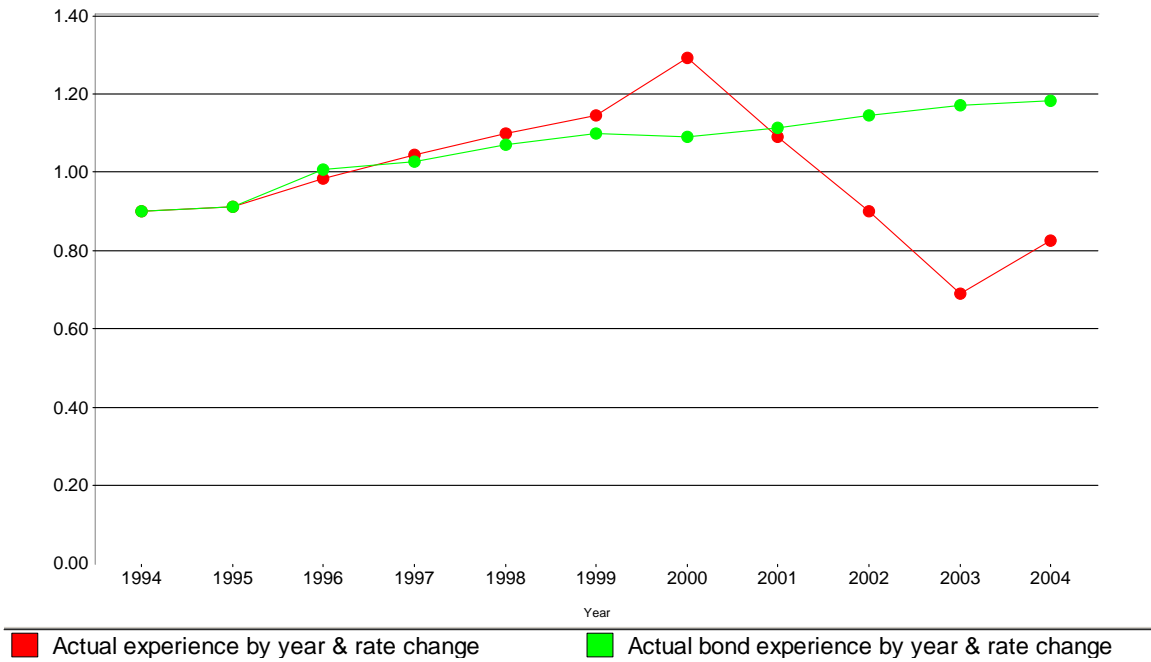
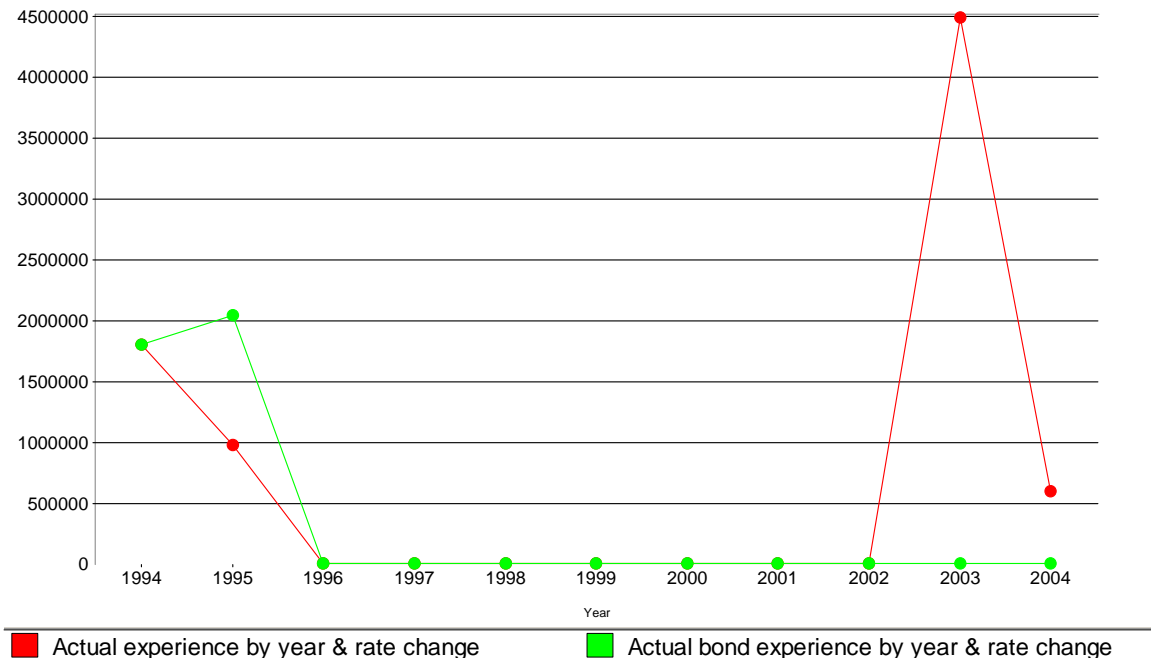


Table 9
Reduction to Equity



All this would move the plan to a funded level, where if it was decided that it needed to be terminated, there would be enough assets to cover the liabilities rather than it being

under-funded by 18% on an ABO (approximate plan termination) basis. Thereby, offering protection of shareholder assets and participant benefits.

There might be other savings as well. For example, management fees should be lower with a bond portfolio.

Conclusion

In conclusion, the plans we set into place based on stable actuarial assumptions may fall apart when actual volatile experience occurs. We need to better stress test our ideas against all types of possible occurrences. We need to look into alternatives that better manage the risk. In this way we will better prepare ourselves and become true risk managers rather than individuals who wish to leave risk “unrecognized” and hoping for rebounds.