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# **Alternatives to the 30-Year Treasury Rate**

**A Public Statement by the Pension Practice Council  
of the  
American Academy of Actuaries**

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## ALTERNATIVES TO THE 30-YEAR TREASURY RATE

### EXECUTIVE SUMMARY

**Permanent fix is needed:** The recently enacted Job Creation and Worker Assistance Act (JCWAA) increased the range of permissible interest rates for determining contributions and PBGC (Pension Benefit Guaranty Corporation) premiums for under-funded plans<sup>1</sup>. Prior to its enactment, unusually low rates tied to 30-year Treasury bonds were causing dramatic and unnecessary increases in minimum funding contributions and PBGC premiums, even for plans that were well-funded using PBGC's own interest rates. This situation caused many employers to contemplate terminating their defined benefit (DB) plans, and discouraged other employers from starting new plans.<sup>2</sup> Since the temporary remedy in JCWAA only applies to plan years beginning in 2002 and 2003, a permanent fix is needed for this problem. Otherwise, contributions and PBGC premiums will increase even more in 2004. In addition, the Treasury no longer issues a 30-year Treasury bond, so it no longer makes sense to cite it in the law.

**Selecting an appropriate target:** The first step to resolving this issue — and perhaps the most challenging — is to select an appropriate target. Any interest rate alternative should be judged based on the results it produces relative to this target. An appropriate target should:

- Produce contributions that will adequately address participant and PBGC security concerns without forcing ongoing companies to put more assets into their pension plans than needed,
- Avoid discouraging the formation of defined benefit plans because of overwhelming or unpredictable funding requirements,
- Avoid funding requirements that unnecessarily divert funds that could otherwise go to increasing other benefits and wages, retaining employees, or keeping the company from financial distress, and
- Result in appropriate premiums to support the pension risk assumed by the PBGC without increasing the PBGC's surplus to unnecessary levels.

**Alternatives:** There are at least three major alternatives to the 30-year Treasury rate:

- A. Expected returns on plan assets (generally allowed for funding),
- B. High-quality corporate bond rates (used for accounting statements), or
- C. Cost of terminating pension plans (reflecting annuity pricing and lump sum amounts).

While Alternative A could be approximated by using something like a corporate bond index plus 2 percent for all plans (and thus eliminate consistency and manipulation concerns), we recognize policy-makers' concerns for PBGC solvency and for the security of participant's benefits.

Therefore, pension law could set the discount rates for underfunded plans somewhere in the range of alternatives B and C. One way to reflect both of them would be to set the top of the range at 105% of Alternative B and the bottom of the range at 95% of Alternative C<sup>3</sup>.

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<sup>1</sup> Unless otherwise noted, this paper refers to the interest rate used in current liability calculations and PBGC premium calculations of under-funded plans -- not well-funded plans. Furthermore, unless otherwise noted, this paper does not refer to the interest rate used in lump sum calculations under section 417(e) of the IRC.

<sup>2</sup> See our July 11, 2001 paper on this subject at [www.actuary.org/pdf/pension/treasurybonds\\_071101.pdf](http://www.actuary.org/pdf/pension/treasurybonds_071101.pdf)

<sup>3</sup> If Notice 90-11 is not fixed to allow Current Liability to reflect a plan's lump sum amount, then the bottom of the range should be lowered down to the IRC § 417(e) rate (possibly with smoothing) until it is fixed. Otherwise, more plans will become underfunded due to the law's requirement that plans pay unreasonably large lump sums.

The selection of which alternative is ultimately a decision for policy-makers, and the Academy does not take a position on where it should be.

**Which index?** A few policy-makers have suggested that pension law continue to use a Treasury rate (or some other government rate) to set the range. In this paper, the Academy's Pension Practice Council explains why Treasury rates will not work. Despite popular belief, they are subject to manipulation, they are not good predictors of rates under Alternatives B or C, and their continued use could harm the PBGC and participants' benefit security (when the spread between Treasury and corporate bonds returns to the spreads in the past). Thus, we encourage policy-makers to use a long-term corporate bond index to set the range.

This does not necessarily have to raise the discount rate. For example, if a lower rate is desired, such as a rate that would reproduce annuity prices, pension law could specify something like a corporate bond rate minus 70 basis points (per the Society of Actuaries paper by Victor Modugno<sup>4</sup>). If there is a concern that one index like Moody's Aa does not have enough bonds in it, then composite rates such as Moody's Composite rate, which is already cited in IRC §264(e)(2)(B)(i), or an average of several high quality bond indexes could be used.

Finally, if Alternative C is preferred, it may be difficult to settle on an index that would be able to approximate annuity prices indefinitely. A Commission of government and private sector actuaries (including an insurance company annuity pricing expert) could be better at setting an annuity-pricing index each month.

**Smoothing and hedging:** Finally, we suggest changing the 4-year smoothing of the discount rates in IRC § 412(b)(5)(B)(ii)(I) to 2-year smoothing (for example, the average of the monthly rate on the valuation date and the prior valuation date). Otherwise, if interest rates were to go back up quickly (as they did in the late 1970s and early 1980s), then plans would have to use a discount rate *lower* than Treasury rates to determine their contributions and PBGC premiums. (In other words, employers would have to increase their contributions and pay a PBGC variable premium even though the plans would have enough funds to buy annuities to cover all plan liabilities.) We feel that this suggestion will still produce funding requirements that are reasonably predictable in advance and have enough smoothing to satisfy sponsor concerns.

In addition, some actuaries suggest using a current yield curve (i.e., using different rates for different periods in the future, not just one smoothed long-term rate) so that volatility can be hedged by investing in certain asset classes. On the other hand, many other actuaries are concerned about the volatility that could ensue if a plan sponsor did not want to change its investment philosophy. Thus, they prefer using a smoothed rate. The IRC could accommodate both desires if plan sponsors could elect to use the then-current corporate bond yield curve. A deeper analysis of these points follows.

## I. BACKGROUND

The actuarial assumption regarding the interest rate (also known as the discount rate) is critical to determining pension plan funding contributions. In general, the lower the discount rate, the

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<sup>4</sup> 30-year Treasury rates and Defined Benefit Pension Plans, August 22, 2001 [www.soa.org/sections/dbpp.pdf](http://www.soa.org/sections/dbpp.pdf)

greater the contributions to the pension plan. Federal law allows pension actuaries to use an interest rate that reflects their expectations of future plan experience. In 1987, however, the Omnibus Budget Reconciliation Act of 1987 (OBRA '87) modified the funding rules for underfunded plans by requiring use of a discount rate no higher than 110 percent of the 30-year Treasury rate (averaged over the prior 4 years).

**The 30-year Treasury rate versus long-term corporate bond rates.** When the funding rules in OBRA '87 were developed, Treasury rates were much closer to corporate bond rates than they are now (Chart I), and the highest rate allowed was quite close to corporate bond rates (Chart II). Thus, there was little concern about following the OBRA '87 requirement.<sup>5</sup> From 1983 through 1998, Treasury rates were about 100 basis points lower than corporate bond rates. However, since January of 2000, they have been about 200 basis points lower, which means that using Treasury rates produces a result very different from using corporate bond rates.

**The 30-year Treasury rate versus annuity prices.** Congress may have intended the interest rate used in current liability calculations to reflect a plan sponsor's cost of plan termination - the actual cost of annuities and lump sums. In OBRA '87, Congress specified that the interest rate used be “consistent with the assumptions which reflect the purchase rates which would be used by insurance companies to satisfy the liabilities under the plan.”<sup>6</sup> It appears that, at the very least, Congress believed that interest rates inherent in annuity purchase prices and lump sums would be within the range specified by the new law (a 10 percent corridor on either side of a four-year average of 30-year Treasury rates).

Regardless of congressional intent, the 30-year Treasury rate is no longer good for estimating annuity prices. A research paper by Victor Modugno, sponsored by the Society of Actuaries, suggested that insurance companies (which generally invest in corporate bonds and other investments that get similar or slightly higher returns), pass on to the annuity buyer a return equal to the corporate bond rate found in the Bloomberg option-adjusted index for A3 bonds minus 70 basis points (or thereabouts).<sup>7</sup> In other words, now that Treasury rates are 200 basis points lower than corporate rates, they would produce a present value much greater than an annuity price.<sup>8</sup>

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<sup>5</sup> Other reasons for the lack of concern with the law referencing 30-year Treasuries when OBRA '87 was enacted:

- a) Plans could use 110% of the average Treasury rate, which added an additional 100 basis points (because the 4-year Treasury average was around 10% when OBRA '87 was enacted - see the Chart II).
- b) A 4-year average of Treasury rates was used, which allowed for higher rates in times of falling rates.

<sup>6</sup> IRC section 412(b)(5)(B)(iii)(II). Note that it says liabilities, and not annuities. Thus, we are not sure why the IRS ignored the cost of lump sums in Notice 90-11. Lump sum amounts can be higher than annuity prices due to interest-rate requirements in IRC section 417(e).

<sup>7</sup> Bloomberg determines the yield for three groups of “A” quality securities, and “A3” is the lowest in quality of the three. The yield is close to the Moody's Aa bond rate because the Bloomberg's yield is option-adjusted (for example, adjusted to eliminate the call provision) which offsets the fact that A3-rated companies have a lower credit rating than the bonds in Moody's Aa index.

<sup>8</sup> A 7/24/01 letter to us from the PBGC chief actuaries suggest that their interest factor is about 50 basis points lower to compensate for their use of the old 83GAM mortality table, based on a male age 65 (it is about 0 basis points for a female age 65). Thus, the Bloomberg A3 rate minus 120 basis points could approximate male annuity prices currently. However, once IRS/Treasury updates the table, this 50 basis point correction will disappear, at which point 70 basis points is more appropriate.

In fact, the current liability interest rate based on Treasuries does not reflect either corporate bond rates or annuity purchase prices at any given time. In November 2001, for example, the highest permissible interest rate for use in certain current liability calculations was 6.03 percent, while other rates were much higher:

- (1) The PBGC interest factor for November 2001 was 6.5 percent (and would be around 7 percent if PBGC used a mortality table similar to those now used by insurance companies in setting annuity prices); and
- (2) High quality corporate bond rates were above 7 percent.

**Reasons for the increased spread between the Treasury rate and corporate bond rate (and the rate used in determining annuity prices).** Over the past few years, the spread has grown as a result of federal debt reduction and buy-backs during 1999-2001. The spread has also increased as a result of the flight to safe investments over the past year.

**Effect of the unusually low 30-year Treasury interest rate.** As the Pension Practice Council noted in a previous public statement, the use of the 30-year Treasury rate discourages the formation and maintenance of defined benefit plans because it forces companies to put more assets into their pension plan than would be needed (even to buy annuities). This is especially true now, because Treasury rates are around 200 basis points below corporate bond rates. What this means is that the average employer could be required to put 25 percent more into their pension plan than if they used corporate bond rates, and 15 percent more than if they used annuity rates, and if the plan is terminated, the employer will not be able to get these assets back, because most of it will go to income and excise taxes.

## II. ALTERNATIVES TO THE 30-YEAR TREASURY RATE

### A. A Rate Reflecting the Expected Return on Plan Assets

One alternative to the 30-year Treasury rate would be a rate that reflected the expected return on stocks. Expected stock returns can be reflected under the general funding rules of the Employee Retirement Income Security Act (ERISA) and the IRC. Pension funding law requires that enrolled actuaries (EAs) use interest rates that are “reasonable (taking into account reasonable expectations), and which in combination offer the actuary’s best estimate of anticipated experience under the plan.”<sup>9</sup>

Over the past 76 years, large-cap stocks experienced average returns of almost 11 percent and long-term corporate bonds experienced average returns of almost 6 percent.<sup>10</sup> Since plans often allocate about half of their assets in stocks, many actuaries have assumed a long-term interest rate of somewhere around 8 percent.<sup>11</sup> (This rate might also be expressed using something like the corporate bond rate + 2 percent.) In fact, in the 1980s, the IRS sued certain plan sponsors and EAs who used interest rates below 8 percent, and in 1988 the IRS prohibited the current liability rate from being less than 8 percent (IRS Notice 89-31).

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<sup>9</sup> ERISA section 302(c)(3) and IRC section 412(c)(3).

<sup>10</sup> Per the Ibbotson Associates 2002 Yearbook analysis of returns from 1926-2001.

<sup>11</sup> Note that many actuaries choose different methods and time periods for selecting actuarial assumptions. Depending on the techniques employed, interest assumptions could be larger or smaller than the 8% rate mentioned in this example.

Some people might argue that an interest rate reflecting stock returns is an appropriate alternative to the 30-year Treasury rate. On the other hand, opponents say that such a rate would be too high to ensure that pension plans were adequately funded, if the plan had to terminate, buy annuities, and pay lump sums. In addition, an underfunded plan's contribution and premium requirements could be reduced by increasing the plan's allocation to stocks, or by using higher expectations of stock returns. This could provide an inappropriate incentive for plan sponsors to allocate too much to stocks.

Concerns about manipulation and moral hazards could be remedied by requiring plans to use a fixed index such as a corporate bond rate + 2 percent. However, stocks are volatile, and their use can increase the probability that plan assets will fall below liabilities, even if those assets were sufficient in the past. This situation might not pose a problem for the workers of a company in good financial health, because such a company would simply put more money into its pension plan if a decline in stock returns dictates. However, the volatility of stock returns would be a concern for an employer in financial difficulty. A strong company today can have problems in the future, so it is better to get the necessary plan assets today to cover accrued liabilities, rather than later when the company may not be so strong. For example, a frozen plan with assets equal to liabilities (determined using an expected return equal to a corporate bond rate + 2 percent), would not have sufficient assets about one-half the time, which means that the PBGC would be more likely to have to trustee the plan if the company became insolvent. In the long run, the PBGC should be able to pay its expenses and avoid losing money from such plans, since the PBGC generally keeps plan assets invested in stocks and does not purchase annuities. However, the PBGC would probably have to trustee many more plans, which is not a desirable outcome.

## **B. A Rate Reflecting High-Quality Corporate Bond Rates**

Another alternative to 30-year Treasury rates is one that reflects investment rates on high-quality corporate bonds. These interest rates could be about 2 percentage points less than those suggested by Alternative A, and thus would produce a current liability that is about 25 percent larger than Alternative A for the average plan.<sup>12</sup> Relative to Alternative A, this would reduce the number of future PBGC-trusted plans and increase that agency's surplus (other things being equal).

In fact, if PBGC took over pension plans with assets equal to plan liabilities that were determined using Alternative B, PBGC might expect to receive a long-term net gain from trusteeing such plans. This is because the PBGC invests in stocks, so the extra 200 basis points in investment return would, on average, more than cover the expenses. If PBGC's expenses were similar to those of insurance companies, which average around 70 basis points, then the difference of 130 basis points implies that PBGC might receive 16 percent more money than they needed for that plan (on average). Of course, they would be taking the risk that stocks might return less than bonds - but that has not happened for any 20-year period since 1926, when Ibbotsen started collecting data. Of course, that may not be the case in the future.

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<sup>12</sup> We assume the average pension plan has a duration of about 12, which means that if the interest rate is 1 percentage point lower, the liabilities are 12% higher. Plans with mostly retirees could have a duration of about 8 (for an 8% increase in liabilities), while a plan with mostly young employees could have a duration of about 25 (for an increase of over 25%).

The Financial Accounting Standards Board (FASB) and the Securities and Exchange Commission (SEC) have recognized the legitimacy of an interest rate that reflects corporate bond rates. In Statement of Financial Accounting Standard number 87 (FAS 87), FASB decided to base accounting costs for defined benefit plans on “rates at which the pension benefits could be effectively settled” and stated that it was “appropriate to look to available information about rates implicit in current prices of annuity contracts that could be used to effect settlement of the obligation (including information about available annuity rates currently published by the PBGC).” In making those estimates, FASB also allowed employers to look to “rates of return on high-quality fixed-income investments currently available and expected to be available during the period to maturity of the pension benefits.”<sup>13</sup> The chief accountant of the SEC, in a 9/22/93 letter, suggested Moody’s Aa or higher would be considered high quality for FAS 87 purposes.

On the other hand, the PBGC may prefer a lower interest rate, such as one that reflects annuity prices, as discussed in the next section.

### **C. A Rate Reflecting Annuity Prices**

Another alternative to the 30-year Treasury rate would be the interest rate inherent in annuity prices. As noted above, annuity prices may have been congressional intent in OBRA '87 for people expected to take annuities. The interest rate reflecting annuity prices would be lower than Alternative B by another 70 basis points. Thus, it would produce current liabilities that were about 8 percent larger than Alternative B for the average plan (the increase could range from about 6% to 19% - see footnote 12). This would increase contributions over Alternative B (especially for a company with young employees), but it would also mean that the PBGC would trustee a few less plans. It’s not dramatically less because plans that are close to being fully funded often top up the plan assets in order to terminate under the standard rules.

In fact, because PBGC invests in equities and doesn’t buy annuities, we estimate that the PBGC will receive 25 percent more money than needed (on average) for a plan that had assets equal to liabilities determined under Alternative C. (However, as discussed above, they would be taking on the risk that the stocks would return less.)

Some have suggested requiring a lower discount rate, although the policy rationale is unclear. Such action, however, would have the following tradeoffs:

- (1) Force *ongoing* companies to put more assets into their pension plans than needed.
- (2) Discourage the formation and maintenance of defined benefit plans.
- (3) Divert funds from increasing other benefits and wages, retaining employees, or keeping the company healthy
- (4) Increase PBGC’s surplus.

One concern with using annuity prices is that a precise index is not available, since group annuity prices can vary among different insurers and by the size of the group buying annuities. PBGC’s rates are based on the average annuity price from a survey of 10 or so insurance companies, and might be the best index available.<sup>14</sup> However, an employer is more likely to look

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<sup>13</sup> See Statement of Financial Accounting Standard number 87, paragraph 44.

<sup>14</sup> However, PBGC prefers their rates not be used, which is why Congress switched to Treasury rates for lump sums in RPA94.

among the safest annuity providers for the less expensive bids. In addition, PBGC has a complex expense assumption. If annuity prices are used, we suggest something less complex be used.

**Summary.** There are tradeoffs involved in the use of one rate versus another. A rate reflecting stock returns can be quite high and subject to much variability and difference of opinion, while Treasury rates are very low now, are unrelated to corporate bond returns or annuity rates, and would force plans to contribute more than necessary. The Pension Practice Council believes that the corporate bond rate or the interest rate for determining annuity prices is more appropriate.<sup>15</sup> Where should the dividing line be? That is ultimately a decision for policy-makers, with respect to which the Academy does not take a position.

### III. INDICES ON WHICH AN ALTERNATIVE RATE COULD BE BASED

#### A. Corporate Bond Index (Moody's Composite, Moody's Aa, or Bloomberg's A3)

The Pension Practice Council believes that, regardless of how high or low Congress sets the current liability interest rate, the rate should be *determined* using a high quality, long-term corporate bond index. This is because insurance companies generally invest in, and base their pricing models on, such corporate bonds. By contrast, any non-corporate-bond measure, such as a Treasury rate, would cease to accurately reflect corporate bond rates or annuity prices once the economic climate changes, even if the rate were appropriate when originally enacted.

For example, suppose that when Congress enacted OBRA '87, it wanted the interest rate used in current liability calculations of under-funded plans to replicate annuity prices, and it decided that the 30-year Treasury rate was an appropriate index on which to base the interest rate. Back in 1987, the 30-year Treasury rate + 30 basis points would have replicated annuity prices well.<sup>16</sup> Over the past three years, however, due to the increased spreads with corporate bonds (and thus annuities), the law would have to have been changed to Treasury rate + 130 basis points to replicate annuity prices. Even if Congress had enacted a change to the 30-year Treasury rate + 130 basis points, 30-year Treasury bonds are no longer even being issued, so that rate would need to be replaced again. The same problems will exist for any government bond rate.

A corporate bond index would be appropriate regardless of whether policy-makers prefer the corporate bond alternative or the annuity-pricing alternative. If policy-makers prefer an annuity pricing strategy, the law could specify a rate equal to the corporate bond rate minus 70 basis points.

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<sup>15</sup> One caveat needs to be made. If participants can elect lump sums (generally determined using a 30-year Treasury rate or a possibly-lower plan rate), then plans should be allowed to use that lump sum interest rate in determining liabilities. That could be accomplished by having the bottom of the range always be at least as low as the current Treasury rate (or the plan rate, if lower). A better way to handle this, however, would be to revise Internal Revenue Service Notice 90-11 to allow the actuary to determine a plan's liabilities reflecting expected lump sum amounts for that percentage of participants who are expected to elect lump sums (or other decreasing annuities). Another way to do this would be to change the current liability calculation to a termination liability calculation in the law, while still possibly allowing a smoothing of the interest rate.

<sup>16</sup> Annuity replication rate = Bloomberg A3 – 70 basis points = (Treasury rate + 100 basis points) – 70 basis points = Treasury + 30 basis points.

As noted above, the Bloomberg A3 rate minus 70 basis points is a good estimate for an interest rate that would produce a typical group annuity price. In fact, the Moody's Composite rate and the Moody's Aa rate could also be used instead of the Bloomberg A3 rate, since they are all very close to each other, as is shown in Chart III. The advantage of the composite rate is that it includes many more bonds in its average (Aaa, Aa, A, and Baa).

**Moody's Aa:** Using Moody's Aa as an index has an advantage in that many companies already use it to determine FAS 87 discount rates. Currently, pension plans are required to use a number of different interest rates for various calculations.<sup>17</sup> It would simplify not only the calculations themselves, but also the understanding of pension plans in general if the number of interest rates used to determine pension liabilities were reduced.

There are some practical concerns with using Moody's Aa as an index, however. The Moody's Aa daily rate is available free of charge the following day (for one day only) on the Moody's web site.<sup>18</sup> Moody's does make daily and monthly rates available to users with a subscription, but the company charges over \$5,000 annually for this service. If Moody's Aa is chosen as an index, practical concerns could be eased if a government agency made these rates available to pension practitioners.

**Moody's Composite Index:** Moody's Composite index would have advantages over Moody's Aa rate. The composite has many more bonds in it (the average of its Aaa, Aa, A, and Baa bonds) so it is less subject to manipulation or to volatility due to changes in individual company results. It is also important to note that Moody's Composite has already been used in IRC section 264(e)(2)(B)(i) for some time and Congress has not changed it.<sup>19</sup> Furthermore, this rate is available for free. It is posted on the NAIC (National Association of Insurance Commissioners) web site<sup>20</sup> to help companies comply with the above IRC section. Alternatively, a composite of several bond indexes would work, although we would need the government to provide the rate on its web site daily.

**Manipulation:** The Pension Practice Council believes concerns that Moody's Composite index could be manipulated are unfounded. Some policy-makers who have expressed these concerns have stated that they would prefer a government rate. However, Treasury rates have been manipulated in the past by both the private sector and the government (Salomon Brothers, Inc. manipulated prices in August of 1991 and the Treasury showed it could manipulate prices in November of 2001, when it said it would stop issuing 30-year Treasuries). By comparison, Moody's Composite rate would be much more difficult to manipulate. In fact, if corporate bond

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<sup>17</sup> Such interest rates include the plan valuation rate, the OBRA '87 rate for the deficit reduction contribution, the RPA '94 rate for the full funding limit cap, the FAS 87 rate, the minimum lump sum rate, the PBGC rates for distress terminations, the old PBGC rates for distress terminations, the PBGC required interest rate for determining the variable premium, the plan termination liability rate, the rate for accumulating employee contributions, waived contributions, missed contributions, etc. It might make sense to consolidate many of these rates unless there is a compelling reason to differentiate them. At the very least, they could be based on the same interest rate (i.e., a corporate bond rate), and some could have smoothing elements, and others not.

<sup>18</sup> [http://www.moodys.com/moodys/cust/default\\_alt.asp](http://www.moodys.com/moodys/cust/default_alt.asp)

<sup>19</sup> This IRC section sets an interest rate for deductible interest on insurance contract loans to key employees.

<sup>20</sup> [http://www.naic.org/Iresearch/Research\\_Division/Moody.htm](http://www.naic.org/Iresearch/Research_Division/Moody.htm)

rates ever were manipulated, annuity prices would presumably be affected in the same way, and the resulting rates would still be appropriate.

## **B. Government Index**

**Treasury Rates:** 30-year Treasury bonds have not been issued for more than a year. As noted above, the Pension Practice Council believes that the 30-year Treasury rate should be replaced as an index.

Much of Wall Street has switched to the 10-year Treasury rate as a single daily benchmark for bonds, but it would not be appropriate to use it for pension plan calculations. The 10-year Treasury rate is even lower than the 30-year Treasury rate<sup>21</sup> (Chart IV), and thus further away from the correct rate for determining minimum pension contributions, because pension liabilities have much longer durations.

Furthermore, insurers do not invest much in Treasuries. Their prices track corporate bond rates, so the discount rate specified in law should track corporate bond rates (if policymakers prefer alternatives B or C). Thus, while the law currently uses 120% of the Treasury rate now, the economy could return to “normal” some day. At that point, the rate would be inappropriately high and would greatly increase the risk to the PBGC (see Chart V). Using the 1980s as a barometer of a “normal” economy, the law would have to be changed again to require a lower rate, and it could take a long time for Congress to act on these issues.

### **Other government agency bonds, such as Fannie Mae, Freddie Mac or 30-year Swaps.**

These rates are close to Bloomberg’s A3 minus 70 basis points, so they could be used without adjustment if policy-makers preferred the annuity pricing strategy. Policy-makers could *add* 70 basis points if they preferred the corporate bond strategy. However, as shown in chart IV, their spread with corporate bonds increased a year ago -- so a range that was appropriate 2 years ago would not be appropriate in the future. For example, Chart IV shows that these rates were a good approximation to annuity rates in 1998, but during various periods over the past two years the law would have had to add 50 to 80 basis points to approximate annuity purchase rates.

There are other problems with these agency bonds and swaps. Congress often considers changing its relationship with Fannie Mae and Freddie Mac, which could dramatically increase their interest rates for borrowing. Thus, it might not be a stable rate to use. In addition, their rates may not be easily available. With regard to Swaps, they raise a concern that there is not a very deep market for them at longer durations, which is where most pension liabilities exist.

## **C. A Rate Based on a Survey of Annuity Prices**

The American Council of Life Insurers provides a survey of annuity prices (excluding administrative expenses) to the PBGC and IRS. If policymakers prefer Alternative C, a similar survey could be produced for group annuity prices and it could include administrative expenses, if desired. This survey could be provided to a government agency or joint agency task force to set the interest rate for current liability calculations. If such a task force were established, Congress might wish to consider including some private sector actuaries and investment

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<sup>21</sup> The spread between 30-year and 10-year Treasuries were larger in the early 1990’s.

professionals from the insurance and pension fields to ensure that the rate mechanism continues to be accurate in future economic environments. If both private sector and government sector people were included, then it would be clear that neither group was manipulating the rate.

A particular appeal of this approach is that no one index is going to match Alternative C's annuity price indefinitely – no matter what index is selected, an adjustment may be required if insurance companies change their pricing mechanisms in the future. Establishing a group of professionals to examine annuity prices on an ongoing basis helps to avoid repeating the current situation, in which it is widely recognized that the current basis is flawed but an act of Congress is required to correct it.

#### **D. Rate Based on the Enrolled Actuary's Determination of Annuity Prices**

Approximating annuity prices also could be accomplished by specifying in law that enrolled actuaries (EAs) base their calculation on today's annuity prices. This could be defined tightly enough in law to reduce manipulation. Both ERISA and the IRC require EAs to use individually reasonable best-estimate assumptions. In addition, actuaries who are members of any of the five major actuarial organizations are subject to the professional standards promulgated by the Actuarial Standards Board and the discipline rules of the Actuarial Board for Counseling and Discipline.<sup>22</sup>

### **IV. OTHER CONSIDERATIONS**

**Using a smoothed average of past rates versus using a current daily rate.** Under current law, actuaries are required to use a smoothed average (specifically, a four-year weighted average) of 30-year Treasury rates. If the 30-year Treasury rate is replaced by a new interest rate, policy-makers may also wish to consider whether a smoothed average of the new rate should be used, or whether actuaries should be required to use the daily rate published on the actual day calculations are made.

If a current daily rate is required, and the rates change dramatically, it could become difficult for pension plan sponsors to budget ahead by estimating the next year's contributions. Using a smoothed average of past rates helps alleviate this problem and also helps prevent plan liability numbers from changing dramatically from year to year. However, too much smoothing can create problems. For example, Chart VI shows that the lag caused by the current 4-year smoothing method could require the use of a discount rate lower than the Treasury rate if interest rates increase dramatically. That would force employers to contribute more funds to their plans and pay variable PBGC premiums, even though they could buy annuities for all plan participants. A solution would be for the law to require less smoothing and be more responsive to current market conditions and annuity prices. A simple 2-year average could work (for example, Chart VI shows the average of the rates on the current valuation date and the most recent valuation date).

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<sup>22</sup> There are approximately 200 enrolled actuaries out of 4000 who do not have to comply with these professional standards, because they are not members of any of the five actuarial organizations, and pension law does not require them to be members.

**Using a yield curve versus using one interest rate.** Policy-makers may also wish to consider whether to require use of a yield curve (which involves several interest rates) or just one long-term interest rate. Use of a yield curve may produce a result that is closer to a plan's termination liability and permit the hedging mentioned in the above paragraph (if lump sums also use that yield curve).

On the other hand, using a yield curve may also raise questions in other areas, especially if this approach is extended to calculations that affect individual benefits, such as determining an individual's lump sum payment or the accumulation of an employee's contributions. Such questions include:

- How would the yield curve be explained to a participant?
- Which interest rate on the yield curve would be used for different participants?
- Would different rates be used for older participants?
- Would the rate change if the plan's characteristics changed dramatically (e.g., after a spin-off or merger)?
- Would similar participants have different interest rates used for them, due to a difference in their plan benefit or in their employment history?

Thus, policy-makers could decide to use one rate for lump sums for the sake of simplicity, but require use of a yield curve for valuations. Still, using the many interest rates in a yield curve makes calculations more difficult and would require that plans produce and keep track of additional rates. If such a rate were mandated, the law might want to exempt smaller plans. In addition, policy-makers' decision regarding the use of a yield curve versus one rate could affect the feasibility of using a current daily rate versus an average of past rates.

If policy-makers decide to use one rate rather than a yield curve, then hedging may not be feasible when the yield curve moves in non-parallel ways, so using a current daily rate may not add value. Similarly, if policy-makers decide on a smoothed rate, use of the yield curve probably would not be appropriate, because the smoothing would make hedging difficult, if not impossible. One possible solution would be to let employers elect to use today's yield curve, with the ability to switch back to a smoothed long-term rate if the yield curve caused problems.

**Changing the rate.** It is widely understood that minimum funding calculations will soon be required to reflect an updated mortality table, which would further increase the required funding for pension plans. It makes sense to make any change in interest rates effective on or before the date the mortality table is changed for funding.<sup>23</sup> If a change is made and is retroactively applied, then the new rules should be optional, so that employers do not have to incur the cost of a new actuarial valuation or have to change their budgeting of contributions. On the other hand, *permitting* a change retroactive to 2001 could help some employers immediately, which could reduce the current severity of cash flow problems affecting employment, compensation, and other benefit issues (and it would increase government tax revenues).

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<sup>23</sup> In fact, changing to a more recent mortality table has the same affect as lowering the discount rate by up to 0.5%. Thus, changing the mortality table also justifies increasing the discount rate.

## V. PENSION PLAN CALCULATIONS AFFECTED

Replacing the 30-year Treasury rate would affect the following items that use the RPA94 current liability<sup>24</sup>:

- (1) the minimum contribution for under-funded plans in section 412(l);
- (2) the 100 percent of current liability exemption from section 412(m) quarterly contributions;
- (3) the 100 percent of current liability exemption for PBGC's liens in section 412(n)(2);
- (4) the 100 percent of current liability exemption for section 401(a)(33) prohibition on benefit increases while in bankruptcy;
- (5) the 60 percent of current liability exemption for section 401(a)(29) rules regarding security deposit requirements;
- (6) the section 404(a)(1)(D) rule allowing deductions up to 100 percent of current liability (and also in section 404(a)(7)(A)(ii) for combination of defined contribution and defined benefit);
- (7) the 70 percent of current liability exemption from the requirement to disclose the funded current liability percentage in the ERISA section 103(d)(11) annual statement requirement;
- (8) the 90 percent of current liability override on the full funding limit in section 412(c)(7)(E); and
- (9) the CFR 1.401(a)(4)-5(b)(3)(iv)(A) restriction on lumps sums to top 25 highly compensated employees if assets are less than 110 percent of current liability.

Replacing the 30-year Treasury rate also could affect calculations involving the OBRA87 current liability, including:

- (1) the section 420 threshold of 125 percent of current liability permitting excess assets to cover post-retiree medical;
- (2) the new EGTRRA section 412(c)(9)(B) provision permitting flexibility in timing of valuations for plans funded over 125 percent of current liability; and
- (3) the OBRA '87 full-funding limit in section 412(c)(7)(A)(i), which sunsets in 2004.

We encourage you to change the interest rate for every calculation of Current Liability.

Replacing the reference to the 30-year Treasury rate in all of the calculations listed above would increase consistency and simplicity. The use of multiple interest rates and multiple liability numbers are confusing to actuaries, employers, participants, and other interested parties in the general public, such as investors.

Changing the current liability interest rate would not affect certain other calculations, which policy-makers may wish to consider separately, including:

- (1) Lump sums under IRC section 417(e), maximum lump sums under section 415, and automatic lump sums under \$5,000 under section 411(a)(11), which all use a 30-year Treasury rate;
- (2) The projection of employee contributions under IRC section 411(c), which uses 120 percent of the federal mid-term applicable rate; and

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<sup>24</sup> The Retirement Protection Act added the RPA current liability in 1994. Specifically, it lowered the 110 percent upper threshold used for determining the OBRA '87 current liability to 105 percent of the average Treasury rate, and it required the use of the 1983 Group Annuity Mortality table. JCWAA changed the 105% to 120% for 2002 and 2003.

- (3) The interest rates on waived minimum contributions (150 percent of the federal mid-term rate, per IRC section 412(d)(8)) and on missed minimum contributions (175 percent of the federal mid-term rate, per section 412(m)).

There are reasons for using a corporate bond rate or annuity price in every place where the 30-year Treasury rate is currently used. For example:

- (1) Simplicity – Only one rate is used, instead of the multitude now used.
- (2) Spousal benefits - The use of Treasury rates for determining lump sums makes the lump sum option more valuable than the Qualified Joint and Survivor Annuity. This conflicts with the original spirit of ERISA - to encourage survivor pensions for female spouses (who typically outlive their husbands).
- (3) Public Policy - Use of the Treasury rate to determine lump sums encourages workers to take lump sums, which may be viewed negatively from a public policy perspective, because more retirees will spend down their lump sum too quickly and end up falling on government assistance (Supplemental Security Income and Medicaid).
- (4) Plan Funding - If a lower rate must be used for determining lump sums than for plan funding, then plans will tend to be less well funded, particularly because they can not be included in the current liability calculation. This is not only a concern for participants, but also for the PBGC. It also means that plan sponsors must pay larger benefits and contribute more funds to the plan because of changes in an index, not because they chose to increase plan benefits.
- (5) Plan Improvements – Due to the expense of paying larger lump sums, plan sponsors are less likely to make plan improvements suggested by workers at the next bargaining period. Thus, it hurts participants that don't take lump sums.

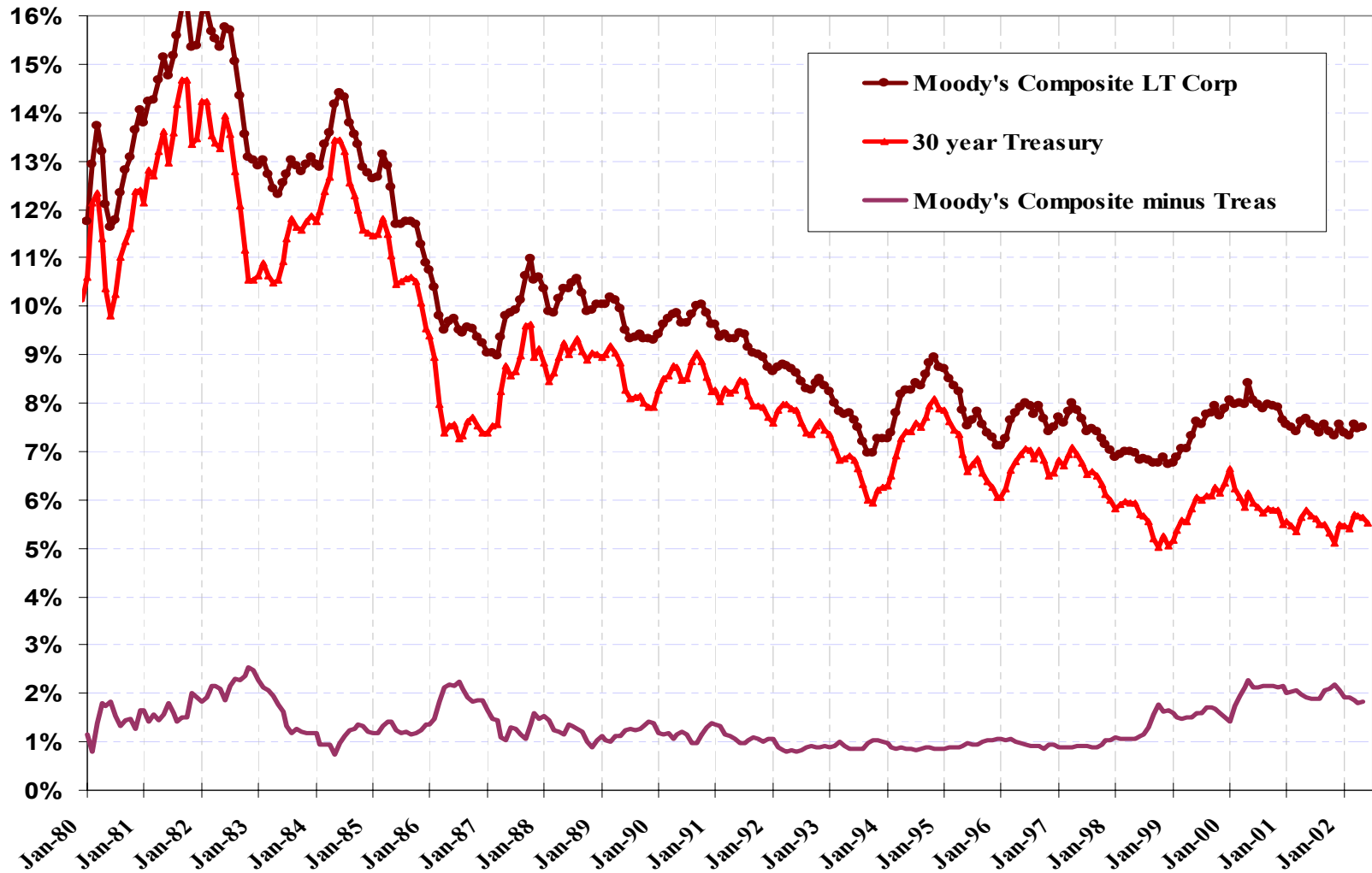
For simplicity, it makes sense that lump sum calculations use only one rate, not a yield curve. In addition, we suggest Congress simplify the incredibly complex calculations caused by §415 for maximum lump sums. One simple alternative would be to use just one interest rate somewhere in the 5 percent to 8 percent range. The Pension Practice Council is preparing a paper on these issues, which should be available later this year.

If you have any questions or would like additional information about the issues addressed in this paper, please contact Ron Gebhardtsbauer, Senior Pension Fellow, or Heather Jerbi, Pension Policy Analyst, at the American Academy of Actuaries at 202-223-8196.

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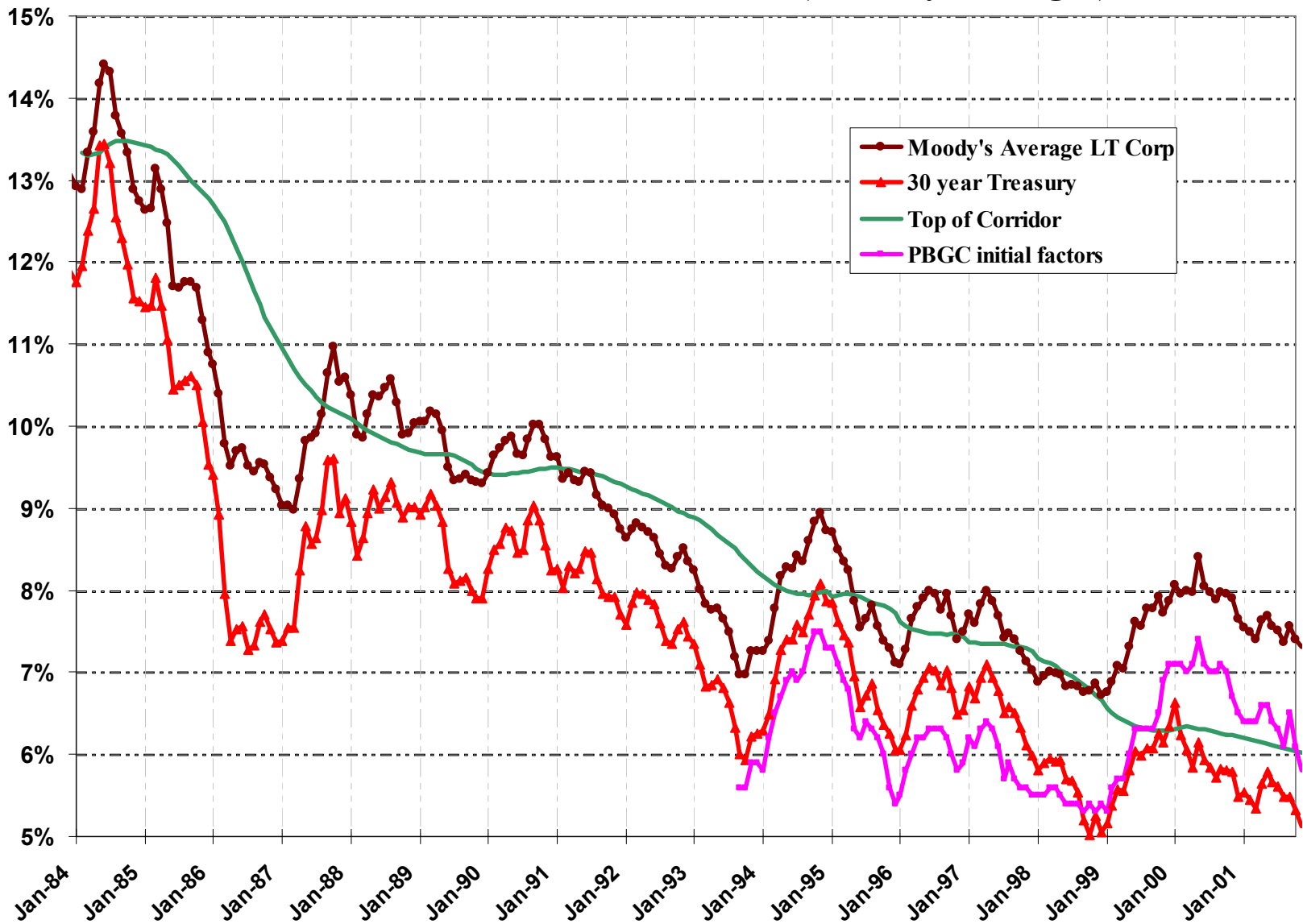
The American Academy of Actuaries is the public policy organization for actuaries practicing in all specialties within the United States. A major purpose of the Academy is to act as the public information organization for the profession. The Academy is non-partisan and assists the public policy process through the presentation of clear and objective actuarial analysis. The Academy regularly prepares testimony for Congress, provides information to federal elected officials, comments on proposed federal regulations, and works closely with state officials on issues related to insurance. The Academy also develops and upholds actuarial standards of conduct, qualification and practice, and the Code of Professional Conduct for all actuaries practicing in the United States.

### Chart I - Various Discount Rates (Monthly Averages)



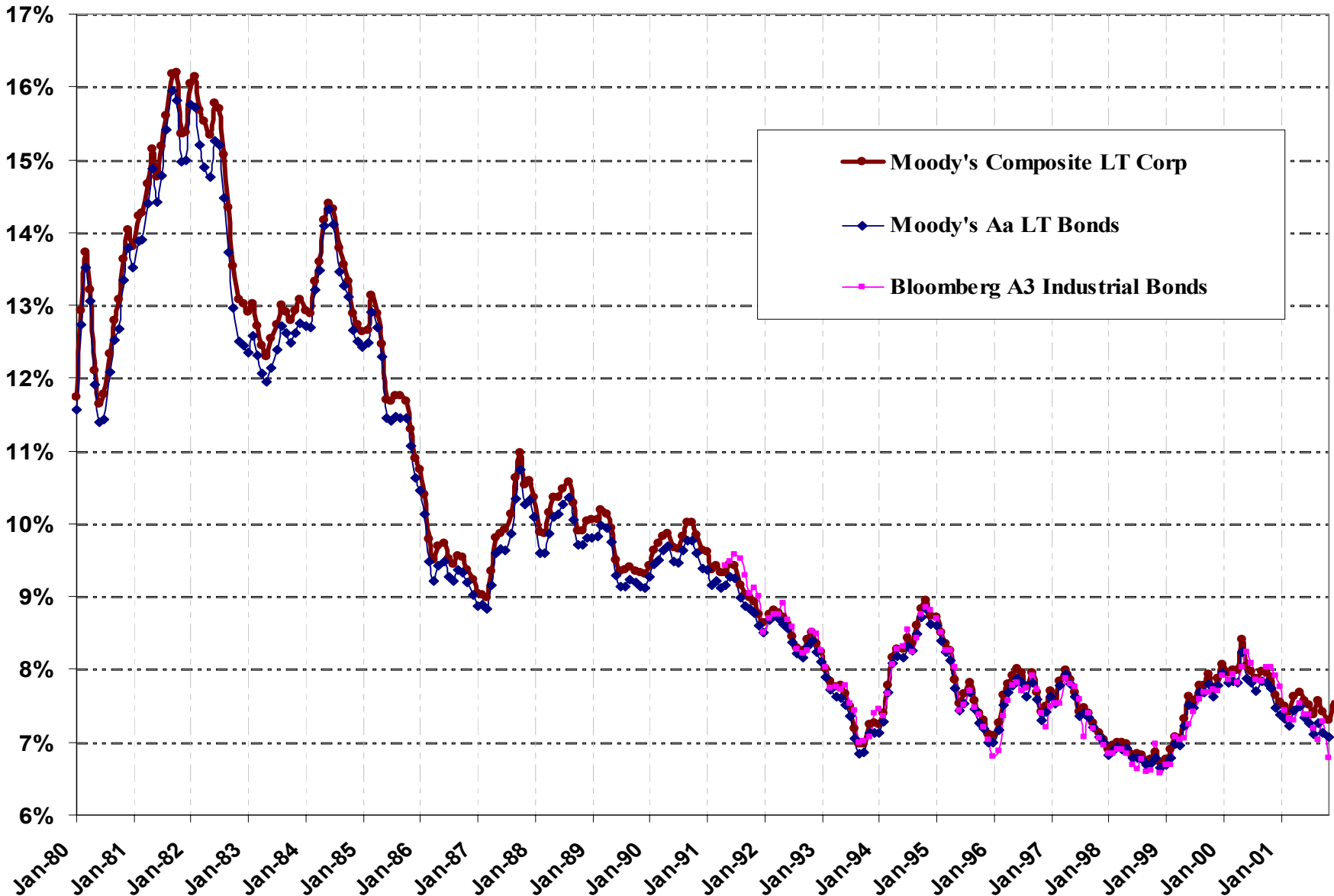
30-year Treasuries are now 2% below Moody's LT Corp Composite  
From 1987 to 1998 it used to be around 1%.

## Chart II - Various Discount Rates (Monthly Averages)



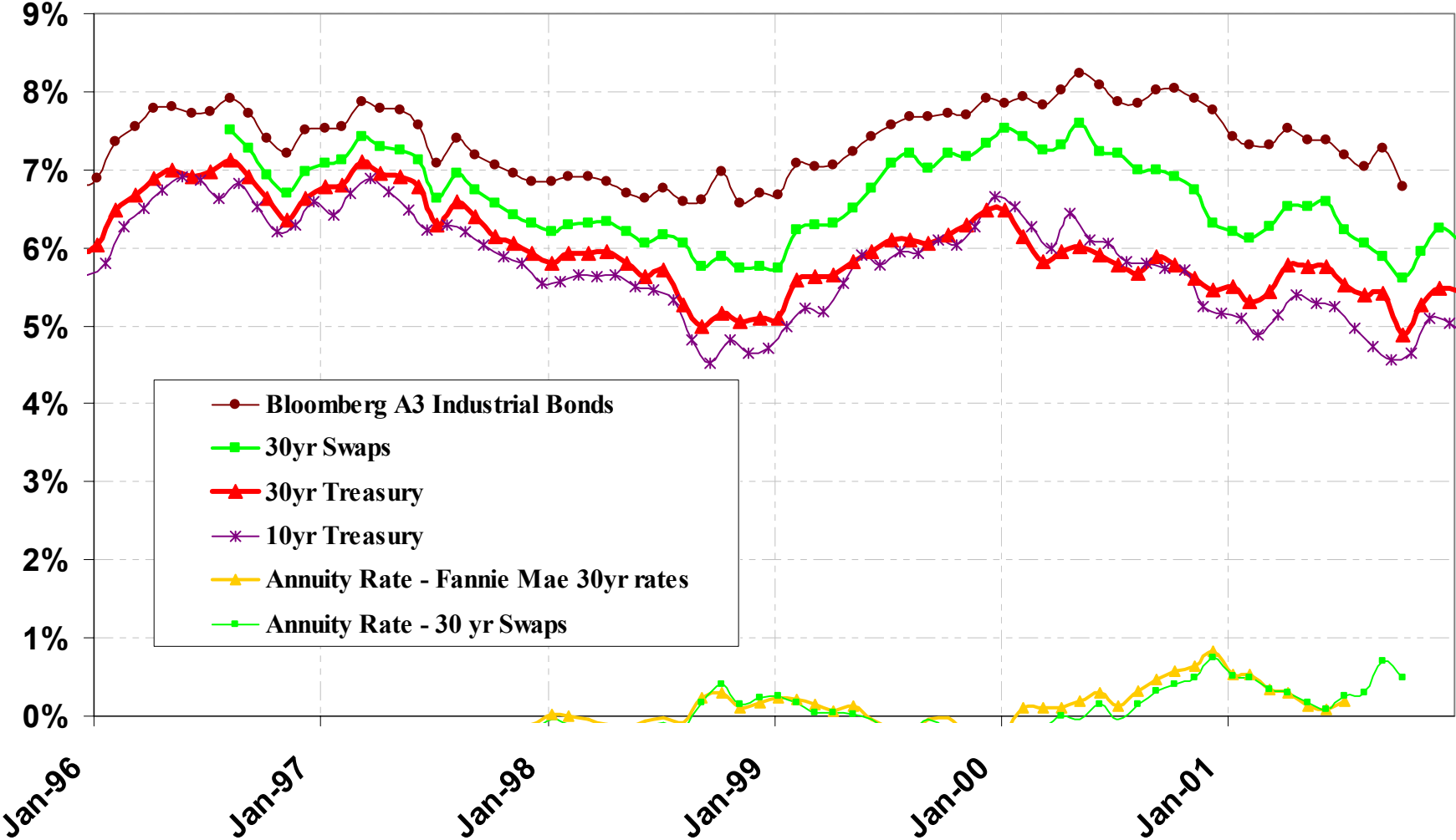
Note how not only corporate bond rates, but even PBGC rates for the first time are both above the top interest rate allowed for determining Current Liability in late 1999, 2000, and 2001.

### Chart III - Similar Discount Rates



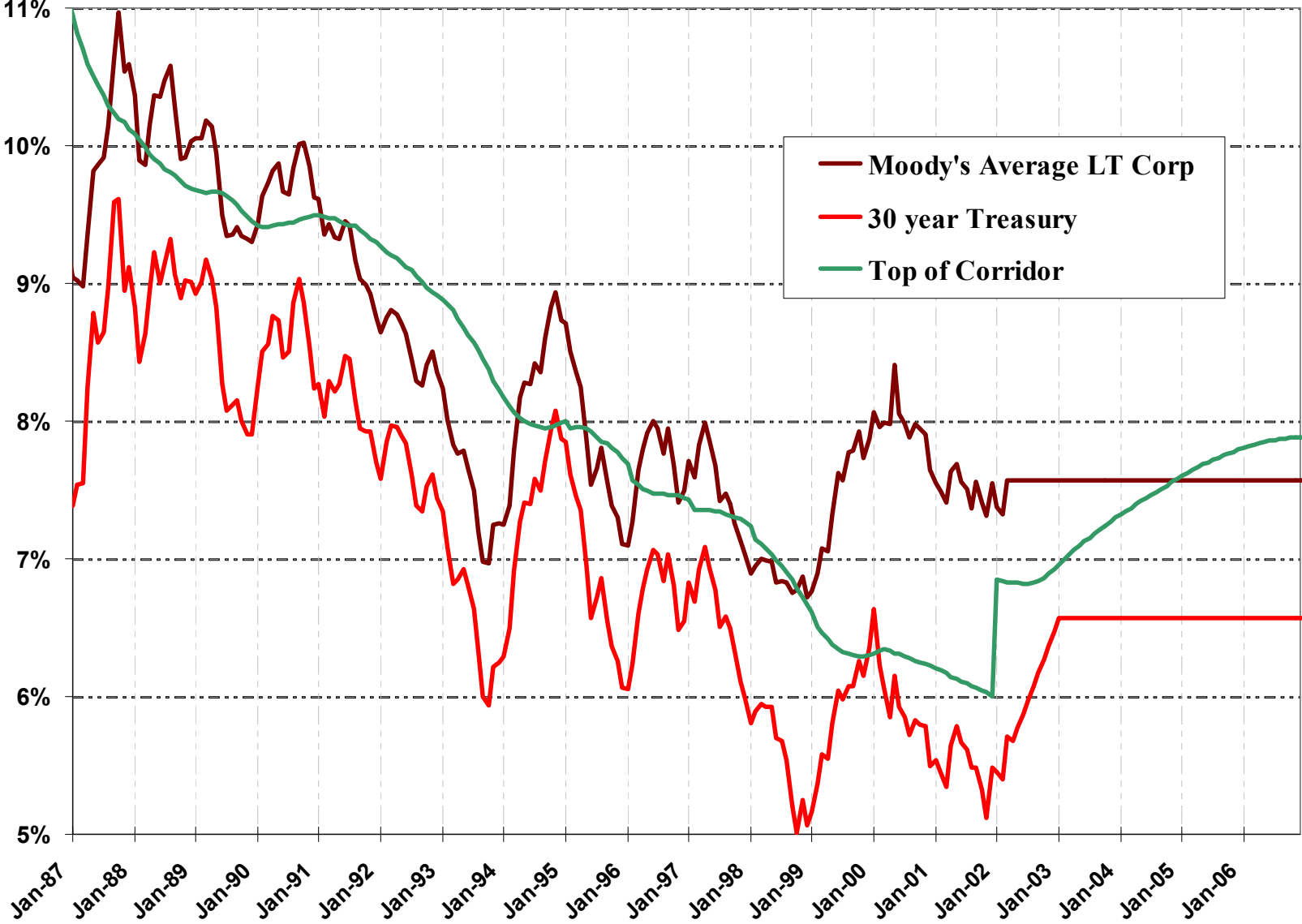
Moody's Composite LT Corporate Bond rate is already cited in IRC 264(e) and is very close to Moody's Aa and Bloomberg's A3. Bloomberg A3 Industrials are option-adjusted (e.g., they pull out call provisions) which is why they are close to Moody's Aa's. An SOA study suggested that annuity prices could be estimated using Bloomberg A3 less 70bp.

# Chart IV - Various Government Rates



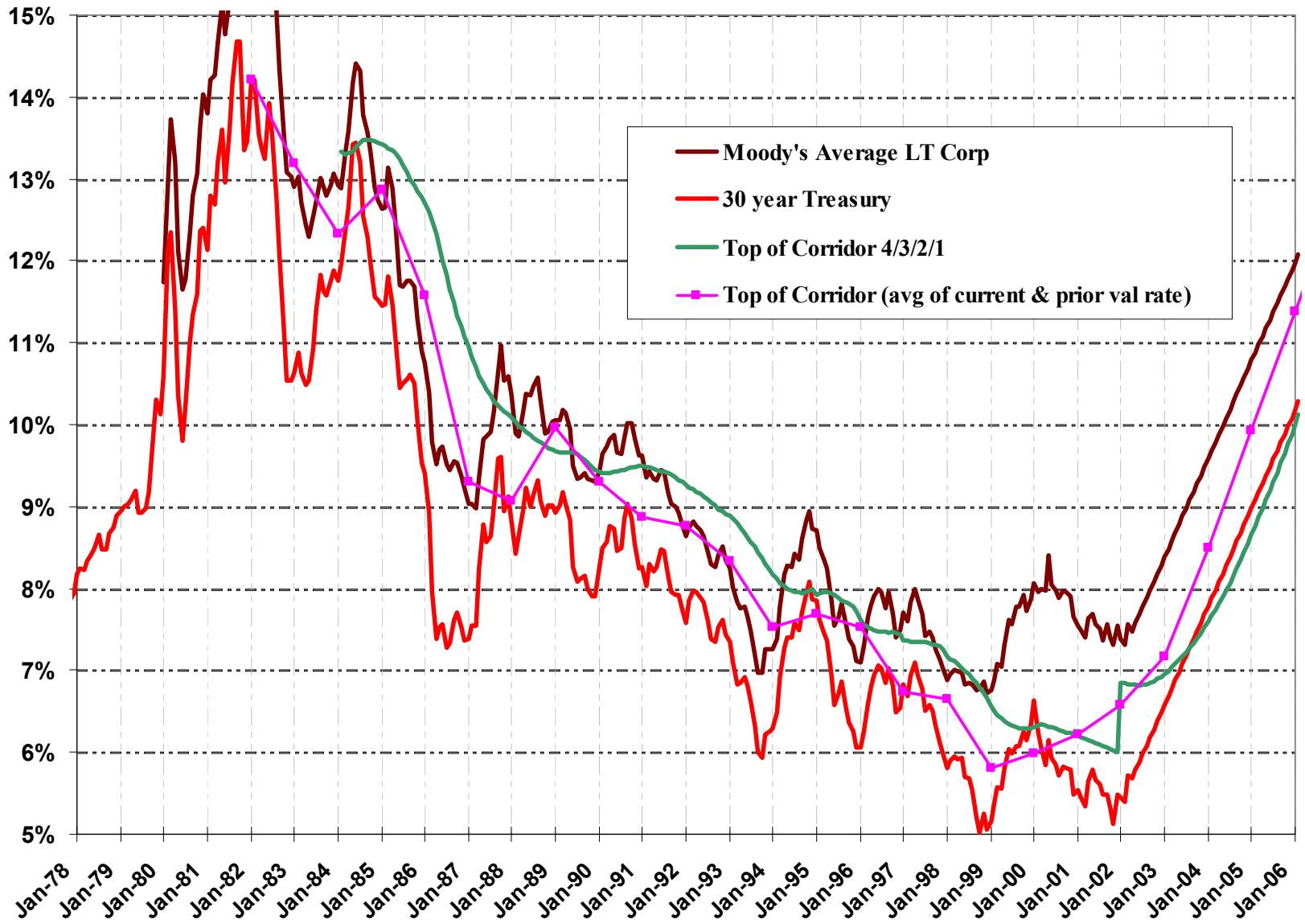
Victor Modugno's study for SOA suggested that annuity prices could be estimated using Bloomberg A3 less 70bp. Treasuries were close prior to 1998, but have fallen way below recently due to paying off debt, buy backs, and flight to safety. 30-year Fannie Mae and Swap rates were closer (but had large spreads in fall 2000 and winter 2001). PBGC rates would be close too, but they don't want us to use their rate.

**Chart V - If Spreads Return to "Normal"**



If the spread between Treasury and Corporate bonds returns to 100bp, then the top of corridor will exceed the Corporate bond rate. Thus, using a government rate may not be good for PBGC, when US debt increases. Determining the corridor using corporate bond rates is preferred for this reason.

## Chart VI - Problems With Smoothing If Rates Increase Dramatically



If Treasuries & Corporates both go up by 0.1% each month for say 4 years (it's happened before in late 70's early 80's), the top of the corridor will be below Treasury rates. Thus, even though pension plans will be able to buy annuities for everyone's accrued liability, the smoothing of the Current Liability rate will force sponsors to make Additional Required Contributions. Less smoothing would help (e.g., just use average of rates at current and prior valuation dates)