

The Importance of Linking the Discount Rate Method with the Asset Smoothing Method



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In my September 7, 2009, article in *ING Investment Weekly* I discussed the impact of the interest rate methodology used to calculate the present value of future pension benefits as part of the determination of minimum contribution requirements. Under the Pension Protection Act of 2006 (PPA), pension plan sponsors must choose between a one-month average of A-Aaa rated corporate bond yields and a 24-month average of these same yields. I concluded the one-month averaging method is preferable for plan sponsors who have decided to invest in long-duration fixed income assets, as the value of the liability would be better correlated with the market value of the fixed income portfolio.

Having said that, several plan sponsors are seriously considering using the 24-month averaging method in an effort to reduce the potential volatility in the value of their liabilities as interest rates fluctuate over time. In such a scenario, smoothing investment returns over a 24-month period would also appear to make sense. However, current pension rules dictate that the resulting smoothed asset value must be within 90-110% of the market value of the assets; prior to the PPA, this range had been a more accommodating 80-120%. Is the new corridor wide enough to avoid large variations in asset and liability values and the attendant volatility in minimum contribution requirements?

To find out, I performed an analysis based on the following:

- **Time period:** monthly bond yields and investment returns from January 1999 through September 2009
- **Initial funded status:** As of January 1, 1999, the market value of assets is equal to the value of the liability based on the 24-month averaging method
- **Average duration of the liability:** close to 11 during this period
- **Pension plan status:** frozen (i.e., no additional benefit accruals and no new hires eligible to join the plan)
- **Fixed income benchmarks considered:** Barclays Capital U.S. Long Government and Barclays Capital U.S. Long Credit

Using a portfolio benchmarked 15% to Barclays Capital U.S. Long Government and 85% to Barclays Capital U.S. Long Credit, I smoothed the investment returns over 24 months. As you can see in the table and first graph on the next page, these smoothed returns — which give no consideration to the 90-110% corridor — were a pretty good match for liability growth rates smoothed over the same period. The “least-risk portfolio” versus the liability was defined as the optimized portfolio with the lowest difference between the highest- and lowest-funded ratios during the time period under consideration.

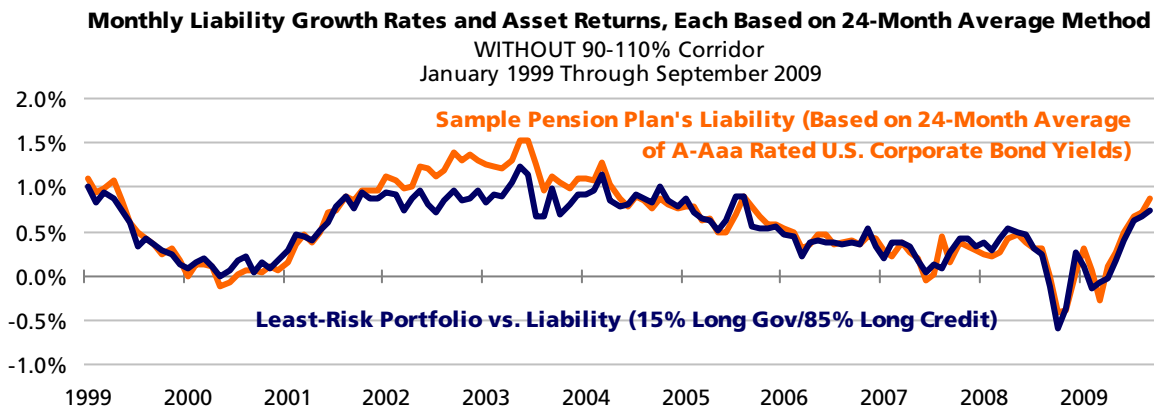
Accounting for the $\pm 10\%$ band around the market value mandated by the PPA paints a much different picture. As you can see in the second graph, the least-risk portfolio versus the liability remained the same. However, the range of funded ratio outcomes is not as tight, especially on the downside — which is exactly when one would want the change in assets and liability values to be as closely correlated as possible.

Pension plan sponsors have been lobbying Congress for additional interest rate methodology options, preferring a system that will produce the lowest liability for the 2008, 2009 and 2010 plan years. They would also like to extend the time period over which they may amortize their existing deficit in order to reduce near-term minimum contribution requirements.

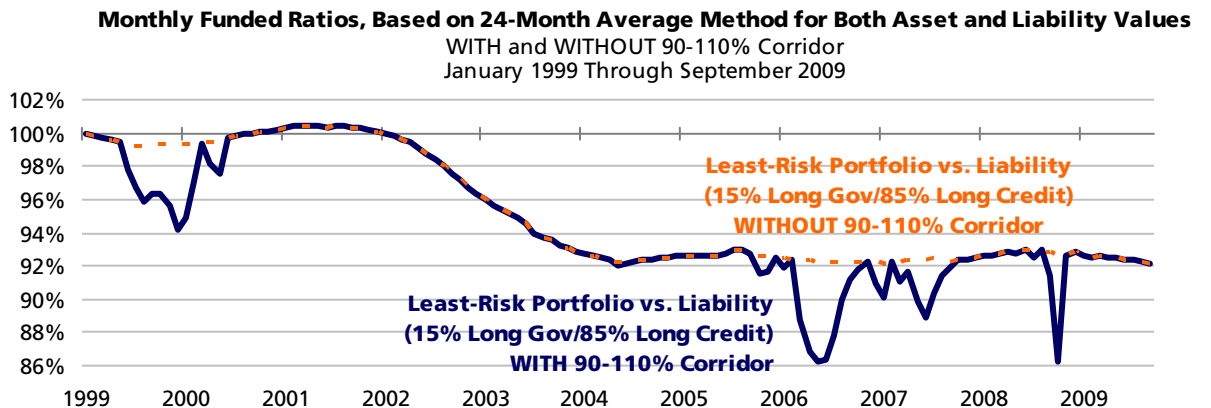
As my analysis shows, plan sponsors also should encourage Congress to revert back to the pre-PPA market value corridor of 80-120%. The new, more-narrow range connects the smoothed value of plan assets too closely with their market value. As a result, neither the smoothed value nor the market value of plan assets will be well correlated to a liability based on a unfettered 24-month average of A-Aaa corporate bond yields, especially in a volatile capital markets environment. ■

	Sample Pension Plan's Liability (Based on 24-Month Average of A-Aaa Rated U.S. Corporate Bond Yields)	WITH 24-Month Average Returns but WITHOUT 90-110% Corridor		
		Barclays Capital U.S. Long Government	Barclays Capital U.S. Long Credit	Least-Risk Portfolio vs. Liability (15% Long Gov/ 85% Long Credit)
Entire Period (1/1999 - 9/2009)				
Return (Annualized)	7.36%	7.85%	6.32%	6.55%
Volatility (Annualized)	1.51%	0.97%	1.30%	1.19%
Annualized Return/ Annualized Volatility	4.88	8.12	4.85	5.48
Average Duration	11.16	10.91	10.53	10.59
Correlation with Liability (Monthly Returns)	1.00	0.63	0.93	0.94
Funded Ratio				
Lowest	N/A	93.0%	90.1%	92.2%
Highest	N/A	105.2%	99.9%	100.4%
Highest Minus Lowest	N/A	12.2%	9.8%	8.3%
End of Period	N/A	105.0%	90.1%	92.2%

Source: Barclays Capital, Bank of America Merrill Lynch, IRS



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