



Article from

**In The Public Interest**

July 2018

Issue 17

# Why Risk-free is Not the Place to Be!

By Brent A. Banister

The American Legislative Exchange Council (ALEC) in its December 2017 publication, *Unaccountable and Unaffordable*, frequently cites a risk-free rate as being the measure they believe should be used to value pension liabilities. Their specific choice of the risk-free asset is a synthetic 15-year Treasury bond.

Certainly the idea of something being “risk-free” is appealing, but what is not carefully discussed is what risks this bond actually avoids. Treasuries are generally considered risk-free because it is confidently assumed that the United States Treasury will not fail to pay the bond principal and interest when due. While default risk is eliminated, there is no elimination of market risk: A Treasury bond could be worth less next year than it is today if interest rates increase. While the Treasury bond should never have a value of \$0, the owner of the bond may still lose money on the value of the bond. The bond is risk-free only to the extent the promised nominal payment will be made at maturity (and coupon dates, if applicable), but it may not be as valuable either as a marketable asset or in exchange for goods and services at some point in the future as it is now. Thus, ALEC’s desire for seemingly eliminating investment risk may not be accomplished through the use of Treasuries.

Theoretically, a portfolio of Treasuries could be constructed that would match the expected cash needs of a retirement fund—at least for the next 30 years (the term of the longest Treasury bonds). By holding these bonds to maturity, investment risk is indeed eliminated—the value of the bond at any point in time before it matures will be of no consequence. Mortality risk, of course, is not eliminated, but in a large pool of people it is at least mitigated. However, the cost of assembling such a portfolio is significantly higher than the cost of a portfolio that accepts some risk, but should, on average, meet the future needs. Because of the risk, it may be necessary to add additional funds along the way (the expected return is not met), or it may be possible to remove or reallocate funds (the expected return is exceeded). If an individual, an employer, or a retirement system is willing to take the risk of adjusting in the future, it can fund the desired

benefit for a lower cost. In other words, those funding the future needs benefit (on average) from taking the risk.

ALEC looks at the difference in the liabilities calculated with the risk-free rate and the expected-return rate and portrays this as somehow understating the liability. As a different perspective noted in the American Academy of Actuaries Issue Brief *Measuring Pension Obligations* (November 2013), this difference can be considered the price of certainty in the investments. Alternatively, this can be thought of as the amount expected to be saved by taking on some risk. Prudent investors (as the trustees of these retirement systems are required to be) would be expected to take on manageable risk and reap the corresponding rewards. Consequently, this difference can be considered as the savings that should then be available to the tax-payers (as the employer) and/or the contributing employees over time.

ALEC makes note of the way in which CalPERS uses one discount rate (7.5 percent) for setting costs for on-going employers, while using a lower rate (3.8 percent) for employers withdrawing from the system. They suggest that this is inconsistent on the part of CalPERS. Based on the considerations of the need for certainty, however, this practice makes sense—once an employer withdraws from the fund, they are no longer sharing in the risk, and so they need to “purchase” the elimination of risk. Essentially, they are being required to buy an insurance policy against the possibility of a low return. Of course, if the long-term future returns exceed the 7.5 percent expectation, this insurance was not needed and the premium serves to benefit the remaining employers.

In the pension realm, risk considerations are very important. It should be abundantly clear that providing a source of income for an individual’s lifetime is a task with significant potential for variation—if for no other reason than the wide range in life span experienced by individuals. In addition to this longevity risk, there is investment risk that comes as part of the accumulation and then drawdown of assets to fund the retirement. The downside risk—an elderly retiree with no income to live on—is very undesirable, while the apparent upside risk—significant assets left to an heir—represents funds that potentially could have been spent at some other stage in life, but were instead set aside.

It has become popular for critics of pension funds to complain about the risk they take. However, the risk is a price that is paid for better returns. Consider the following quote by Warren Buffett in his 2017 shareholder letter:

Investing is an activity in which consumption today is forgone in an attempt to allow greater consumption at a later date. “Risk” is the possibility that this objective won’t be attained. . . .

I want to quickly acknowledge that in any upcoming day, week or even year, stocks will be riskier—far riskier—than short-term U.S. bonds. As an investor’s investment horizon lengthens, however, a diversified portfolio of U.S. equities becomes progressively less risky than bonds, assuming that the stocks are purchased at a sensible multiple of earnings relative to then-prevailing interest rates.

It is a terrible mistake for investors with long-term horizons—among them, pension funds, college endowments and savings-minded individuals—to measure their investment “risk” by their portfolio’s ratio of bonds to stocks. Often, high-grade bonds in an investment portfolio increase its risk.

Risk is not an inherently negative concept. Risk is a reality in a world with unknowns. When risk can be reduced through pooling (as in insurance), there can be significant reduction in net risk to those involved. When risk can be taken on through

investments, a target level of funds can, on average, be acquired for a lower cost. If we decide to avoid risk at all costs, we end up with a situation where each worker must save (by stuffing money in a mattress to avoid investment loss) enough money to pay for expenses through age 110 or 120. Quick back-of-the-envelope calculations would indicate that this means a worker starting at age 25 must save over half his or her income through a 45-year career to age 70 to have sufficient funds to live through age 115 (assuming no inflation—a risk factor that would add even more cost). However, a group of people pooling their funds to reduce mortality risk and invest in a diverse portfolio can provide the same retirement security at a much lower cost and earlier retirement age. Risk should be welcomed, not feared.



Brent A. Banister, FSA, EA, FCA, MAAA, Ph.D., is the chief actuary for Cavanaugh Macdonald Consulting. He can be contacted at [brentb@cavmacconsulting.com](mailto:brentb@cavmacconsulting.com).



# 2018 Predictive Analytics Symposium

September 20–21 • Minneapolis, MN

Explore the world of big data and how it impacts the actuarial profession



Register at [SOA.org/2018PASymposium](http://SOA.org/2018PASymposium)