How Much Investment Risk Can a Government-Sponsored Pension Plan Afford?

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Abstract

Should the investment policy be the same for a pension plan sponsored by an entity that primarily relies on income and capital gains taxes as for a plan sponsored by an entity that primarily relies on property taxes? What about sales taxes? Should the investment policies be the same for a plan with assets equal to 10-times covered payroll as for a plan with assets equal to five-times covered payroll? Should the investment policies be the same for a plan with a declining population as for a plan with a growing population? Interestingly, financial economics purists and many current practitioners both seem to support one-size fits all approaches to investing, although they advocate very different investment policies. We believe that the specific risk factors of a plan should drive its investment policy.

Some financial economics purists argue that, in theory, public sector pension funds should minimize investment risk by using Treasury securities to match projected benefit payments. However, in actual practice, funds accept investment risk that is expected to be rewarded over the long term. As a result, most large public sector pension funds have a target fixed income allocation of 25 percent to 30 percent and an actuary's expected rate of return between 7.5 percent and 8 percent. Also, some funds have issued pension obligation bonds in order to fund their liabilities, based on the assumption that they can earn excess returns above the interest cost of the bonds over the long term.

While we are not convinced that future taxpayers would really prefer public pension funds to invest entirely in Treasury securities, we also find it surprising that different plans with very different risk characteristics would invest in essentially the same way. Insufficient consideration seems to be given to the different risk characteristics of the pension plan, the implications of those risks, or to the sponsor's ability to shoulder those risks. While pension plans are long-term investors, some risks may not be affordable.

This paper explores some characteristics of pension plans that affect the type and amount of investment risk a government sponsored pension plan can afford, including:

- size of plan compared to the size of the sponsoring entity,
- maturity of the pension plan,
- current funded status, and
- tax basis of sponsoring government entities.

The analysis is based upon a stochastic model of capital markets applied to a variety of hypothetical situations to illustrate how investment risk affects different pension plans differently. We propose a framework for assessing how much investment risk a public pension plan can afford by defining the "pension event horizon," and we conclude with a discussion of how optimal investment allocations may vary based on the risk characteristics studied.