Pension risk management with funding and buyout options

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Abstract

A parade of bad news, from unprecedented market swings to sustained declines in interest rates, has caused double-digit losses for many defined benefit (DB) plan sponsors in several years of the last decade. Pension funding deficits increase volatilities of corporate earnings, balance sheets, and cash flows and reduce share value [1]. As a result, has been a surge of interest in recent years from DB plan sponsors in de-risking their plans with strategies such as "longevity hedges" and "pension buyouts"[2]. While buyouts are attractive in terms of value creation, they are capital intensive and are accompanied by high costs, particularly for firms with underfunded plans. The existing literature mainly focuses on the costs and benefits of pension buyouts, yet little attention has been paid to how to capture the benefits of this de-risking option within a plan's financial means, especially when buyout deficits are significant. To fill this gap, we propose two options, namely *pension funding option* and *pension buyout option*, that provide financing for both underfunded and well funded plans to cover the buyout risk premium and the pension funding deficit, if a certain threshold is reached. To increase market liquidity, we create a transparent pension funding index, calculated from observed capital market indices and publicly available mortality tables, to determine option payoffs. A simulation based pricing framework is then introduced to determine the prices of the proposed pension options.

Keywords defined benefit pension plan, risk management, pricing, funding options, buyout options.

References

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