

*Certificate of Excellence Award*

**“Controlling the Cost of  
Minimum Benefit Guarantees in Public Pension Conversions”**  
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Over twenty countries spanning five continents have converted their defined-benefit (DB) pay-as-you-go public pension plans to funded defined-contribution (DC) plans where participants choose their asset allocation. These new public DC plans contain a minimum benefit guarantee (DC-MB) that is implicitly financed on a pay-as-you-go basis. Unfortunately, the value of these guarantees themselves can be quite high, thereby reducing—often sharply—the *true* level of prefunding (i.e., inclusive of the guarantee). Retirement security, therefore, is at risk, since the government might not be able to fully finance these expensive guarantees after a large market downturn.

This paper examines different risk management techniques for controlling the cost of these guarantees. Most countries with DC-MB plans place some restrictions on the portfolio choices that participants may make; however, these restrictions typically contain a strong “home bias” (restricting stock market investments to domestic enterprises, for example). The paper illustrates that for most countries, this actually *increases* the amount of market risk in DC-MB plans relative to, e.g., the S&P 500. Another common risk management technique used with DC-MB plans is to “over-fund” the benefit: the contribution rate is set high enough so that the expected benefit is much larger than the guaranteed minimum benefit. This paper shows that while over-funding is very effective in controlling guarantee costs in traditional DB pension plans, it is very *ineffective* for DC-MB plans.

Two alternate approaches are shown to be more effective: (1) a guarantee on a standardized or “benchmark” portfolio and (2) a state-dependent tax on returns (i.e., a tax that is higher when realized returns are higher, and lower when realized returns are bad). These approaches could be used either separately or together. Calculations demonstrate that all of the unfunded liabilities associated with modern pay-as-you-go public pension programs can be eliminated under both approaches, even at a modest contribution rate.