Financial Analysts Journal ›
Volume 58, 2002 - Issue 6

CORPORATE FINANCE

Replicating Default Risk in a Defined-Benefit Plan

Richard A. Ippolito

Pages 31-40 | Published online: 02 Jan 2019

Cite this article https://doi.org/10.2469/faj.v58.n6.2484

Abstract

A stock-bonus plan with a provision to permit diversification can come close to replicating the classic default risks in defined-benefit pension plans. The diversification formula is a function of a worker's service in the company and the particular features of the defined-benefit (DB) plan that are being reproduced. The diversifiable stock-bonus (DSB) plan still gives workers a stake in the financial performance of the company, but the diversification formula eliminates the extreme downside of a traditional stock-bonus plan, namely, the possibility that workers could lose up to all of their retirement accounts after long years of service. Because the DSB plan imposes about the same default risks on workers as a DB plan, workers' compensation levels with a DSB plan need not be any higher than in a traditional pension plan.

Traditional U.S. defined-benefit (DB) pension plans expose workers to default risk. If a company encounters serious financial difficulty, the company may exercise its option to terminate the pension. This risk imposes a well-known hill-like pattern of pension capital losses on workers. Since the enactment in the United States of reversion taxes, which were imposed in steps over the 1986–90 period, using a DB plan to award pension benefits that are contingent on the company's performance has become expensive. As a result, funding in private DB plans has fallen dramatically in the United States and U.S. companies have shifted their focus toward defined-contribution (DC) plans and cash-balance plans.

Can some DC plan arrangement be used to recreate the classic default risks in DB plans? I show that a stock-bonus plan with a provision to permit diversification out of company stock can come close to replicating this exposure. Because it imposes about the same default risks on workers as a DB plan, workers' compensation levels should not need to be adjusted in any other way to accommodate the new pension.

The diversifiable stock-bonus plans (DSBs) that I describe are entirely flexible, in the sense that the diversification formula can be altered to replicate the default risk in any DB plan. In a manner similar to a DB plan, a DSB plan can also incorporate an incentive for workers to join the company and retire at relatively early ages. Moreover, a DSB plan has some distinct advantages over a DB plan. First, default losses in DB plans depend importantly on the nominal interest rate, a variable that is outside the company's control. DSB plan losses depend solely on the company's financial performance. Second, workers may discount the value of DB plans because the company can unilaterally terminate the plan, which exposes them to contract risk (the possibility that the company managers will terminate the pension even if the company is financially healthy). DSB plans have no contract risk. Workers incur losses strictly in proportion to those incurred by all equity investors in the company. Third, the DSB plan does not entail an all-or-nothing termination event. If the company experiences financial difficulties, under the DSB contract, workers incur losses only in proportion to changes in the price of the company's stock, which is zero only in the event of bankruptcy.

The DSB plan lets workers share in the upside performance of the company over much of their careers without tying them to a contract that exposes all their pension retirement savings to the performance of a single stock late in their careers. Once they

attain some diversification vesting date, workers can begin to lock in some of the gains they have enjoyed by owning company stock.

In addition, the diversification allowed in the DSB plan could be permissible, not mandatory. Thus, workers would not have to diversify up to the maximum allowed by the plan; they could retain the exposure that optimizes the value of the DSB plan within the context of their overall portfolios.

Alternatively, companies could mandate diversification. The company might decide that large losses incurred by some future older workers could impose a kind of externality on the company in the form of adverse publicity. Another reason is that if the company's financial performance deteriorates (but short of bankruptcy) and if older workers remain undiversified, their pensions will fall in value, making them less likely to retire at the very time the company needs to shed workers.

In summary, in an environment in which workers may be rethinking their exposure to their company's financial performance, the value that they attach to the pension plan could importantly depend on the diversification features of the plan. In this sense, the DSB plan provides an ideal hybrid between a classic stock-bonus plan and traditional DB format.

I am indebted to Mitchell Petersen and Jack VanDerhei for helpful discussions.